

GENERAL REQUIREMENTS
BUILDING CODE ANALYSIS

6C.3.1 - 03



Code

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HVAC

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Electrical

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Plumbing

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Fire Protection

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Commissioning

NE Metro Regional Vocational Technical School

Wakefield, Massachusetts

Code Report

April 28, 2023

Sullivan Code Group
R.W. Sullivan Engineering

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Introduction

The Northeast Metro Regional Vocational Technical School project includes the construction of a new vocational high school in Wakefield, MA. The following is a list of applicable codes:

Code Type	Applicable Code (Model Code Basis)
Building	780 CMR: Massachusetts State Building Code, 9 th Edition (2015 International Building Code)
Fire Prevention	527 CMR: Massachusetts Fire Prevention Regulations (2021 NFPA 1) M.G.L. Chapter 148 Section 26G – Sprinkler Protection
Accessibility	521 CMR: Massachusetts Architectural Access Board Regulations
Electrical	527 CMR 12.00: Massachusetts Electrical Code (2023 National Electrical Code)
Elevators	524 CMR: Massachusetts Elevator Code (2013 ASME A17.1)
Mechanical	2015 International Mechanical Code (IMC)
Plumbing	248 CMR: Massachusetts Plumbing Code
Energy Conservation	2018 International Energy Conservation Code

1. Occupancy Classification:

Non-Separated Mixed Uses:

- Use Group A-3 (Gymnasium)
- Use Group B (Offices)
- Use Group E (Educational)

The assembly spaces including the Cafeteria and Multi-purpose Room are considered part of the Use Group E occupancy. However, the Gymnasium has not been considered part of the Use Group E occupancy, since it could be used by the general public for outside events not directly associated with the school (780 CMR 303.1.3).

Also, the building will contain hazardous materials. The quantity of hazardous materials must be maintained below the exempt limits per control area in order to avoid a Use Group H classification (780 CMR 307.1 & 414). Since the building will be one control area, the total quantity of hazardous materials throughout the building cannot exceed 100% of the maximum allowable quantities (MAQ) contained in 780 CMR Table 307.1(1). In addition, each floor individually also cannot exceed the percentage of the MAQ shown in the following table (780 CMR Table 414.2.2).

Floor	Percentage of the Maximum Allowable Quantity
Lower Level	75%
1 st Floor	100%
2 nd Floor	75%
3 rd Floor	50%
4 th Floor	50%

2. Min. Construction Type:

Type IB Construction (noncombustible, 2-hr rated)

3. Height and Area Limitations:

The following table summarizes the height and area limitations for the most restrictive use (Use Group E) based on Type IB construction:

Code Reference	Use Group E	
	Height	Area
<u>780 CMR Tables 504.3, 504.4 & 506.2:</u> Tabular Value	6 St. (180 ft)	UL
<u>780 CMR Section 506.2</u> Frontage Increase	-	-
Allowed Height and Area	6 St. (180 ft)	UL
Actual Height and Area	5 St.	~127,000 ft²

4. Fire Resistance Ratings:

The following fire resistance ratings are required in accordance with 780 CMR Table 601 and various sections of the code.

Building Element	Fire Resistance Rating (Hrs)
Primary Structural Frame ^A	2 ^{B,C}
Exterior Bearing Walls	2
Interior Bearing Walls	2 ^{B,C}
Exterior Non-Bearing Walls	Based on FSD
Interior Non-Bearing Walls	0
Floor Construction	2 ^C
Roof Construction	1 ^D

A. Includes beams, trusses, floor members, etc. having a direct connection to the columns (780 CMR 202).

B. Fire resistance ratings of structural frame and bearing walls are permitted to be reduced by one hour but not less than 1 hour rated where supporting a roof only.

C. Not less than the rating supported (780 CMR 707.5, 709.4. and 712.4).

D. 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.

Building Element		Fire Resistance Rating (Hrs)	Opening Protectives (Hrs)
Exit Access Corridors (780 CMR 1020.1)		0	0
Stair Shafts (780 CMR 1023.2) ^A		2	1½
Other Shafts (780 CMR 713.4)		2	1½
Elevator Machine Room (780 CMR 3005.4)		2	1½
Emergency Electrical Room (527 CMR 12.00 700-10(D)(2))		2 ^B	1½
Emergency Generator Room – Level 1 Installation (NFPA 110 Section 7.2.1.1)		2	1½
Electrical Closets	With Sprinklers	0	
	Without Sprinklers	2	
Fuel Oil Storage > 660 gallons		2	1½
Furnace room where any piece of equipment is over 400,000 Btu per hour input		Smoke resistant ^C	
Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower		Smoke resistant ^C	
Paint shops		1 hour and provide automatic fire-extinguishing system	
Laboratories and vocational shops		Smoke resistant ^C	
Laundry rooms over 100 square feet		Smoke resistant ^C	
Waste and linen collection rooms over 100 square feet		Smoke resistant ^C	
Fire pump room (780 CMR 913.2.1)		1 hour ^D	

A. If exterior walls expose the stair at an angle of less than 180 degrees either the stair wall or adjacent wall must be 1 hour rated with 3/4 hour opening protectives for a distance of 10 feet from the stair wall (780 CMR Section 1023.7).

B. No rating is required for the room when fully sprinklered, however a 2-hr rating is still required for the emergency feeder-circuit wiring and rooms containing an emergency generator (NFPA 110 Section 7.2.1.1).

C. Where smoke resistant construction and automatic fire-extinguishing system are permitted, accessory occupancies shall be separated from the remainder of the building by construction capable of resisting the passage of smoke and doors shall be self- or automatic-closing upon detection of smoke.

D. Location and access to the fire pump room shall be pre-planned with the fire department. The room must be directly accessed from the exterior or through a 1 hour fire resistance rated passageway that connects to the exterior (NFPA 20 Section 5.12.1.1.3).

Fire walls, fire barriers, fire partitions, smoke barriers, and smoke partitions, or any other wall required to have protected openings or penetrations must be identified with signs or stenciling within accessible concealed spaces (i.e. floor-ceiling, attic spaces) at 30 ft. intervals (780 CMR 703.7).

5. Platform:

The portable platform in the Multipurpose Room must comply with 780 CMR 410. A temporary platform installed for a period of not more than 30 days can be constructed of any approved material (780 CMR 410.4).

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 (780 CMR 702.0). Since the fire separation distance is more than 20 ft. for the entire perimeter of the building, the exterior walls are not required to be rated and the allowable area of openings is not limited (780 CMR Table 602 and Table 705.8).

7. Vertical Floor Openings

Vertical openings are required to comply with 780 CMR 712. The building contains many floor openings that are enclosed in 2 hour fire resistance rated shafts including the exit stairs, elevators, and mechanical chases. The exit stair enclosures will contain glazing that must be fire resistance rated glazing that passes ASTM E119 unless an alternative design is approved that allows the use of sprinkler protected glazing (780 CMR Table 716.5 & 1023.4).

There will also be numerous unprotected floor openings that connect the 1st and 2nd Floor of the building, including the main Lobby, Cafeteria, and Auditorium that are allowed per 712.1.9.

An alternative design is also requested to allow for sprinkler protected glass, 2 hour rated fire barrier walls, or a combination thereof on the 3rd and 4th Floors to separate the upper levels from the floor openings that communicate to the lower floors, including the Gymnasium and Media Center. Since the floor openings will be completely separated from the upper 2 stories, the unprotected floor openings would be equivalent to an allowed two story floor opening that connects the 1st and 2nd Floors in accordance with 780 CMR 712.1.9.

8. Finishes:**Interior Finish**

The interior finish of walls and ceilings in exits and corridors must comply with the code for new construction as shown in the following table.

Walls & Ceilings (IBC Table 803.11)

Building Component	Use Group A-3	Use Group B & E
Exit Enclosures and Passageways	Class B	Class B
Corridors	Class B	Class C
Rooms & Enclosed Spaces	Class C	Class C

Note that where exit stairs and exit access corridors serve all use groups, the most restrictive interior finish is required.

New Floor Finishes

Since the building will be equipped with an automatic sprinkler system, traditional floor coverings such as wood, vinyl, and other resilient floor coverings as well as carpeting passing the DOC FF-1 pill test are allowed throughout the building, including all exits, exit passageways and exit access corridors (780 CMR Section 804.4.2).

Exterior Finish

Exterior wall finishes must fully comply with the requirements of 780 CMR 14. Combustible materials are permitted to be used as an exterior wall finish for this building in accordance with 780 CMR 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 (780 CMR Section 1406.2.2). Additionally, combustible exterior wall finish is limited to 10% of the exterior wall surface area where the fire separation distance is 5 ft or less.

The use of foam plastic materials as part of the exterior wall assembly must comply with 780 CMR 26. The wall assembly must be tested in accordance with NFPA 285 (780 CMR 2603.5.5). Note that this test standard is a full scale assembly test. We recommend confirming with the manufacturer that the foam plastic insulation is part of an approved NFPA 285 assembly or complies with one of the alternative standards listed in 780 CMR Section 2604.1.

9. Means of Egress:

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 below (780 CMR Table 1004.1.2, Table 1006.3.1, and 1005.3). See Appendix A of this report for detailed egress calculations.

Means of Egress

Floor	Occupant Load	Number of Exits		Exit Capacity (persons)
		Required	Provided	
Lower Level	666	3	7	2,113
1 st	3,044	4	19	8,133
2 nd	2,371	4	6	2,357
3 rd	1,289	4	4	1,773
4 th	1,091	4	4	1,773

Where means of egress from floors above and below converge at an intermediate level, the capacity of the means of egress from the point of convergence shall not be less than the sum of the two floors (780 CMR 1005.6).

General Egress Requirements:

- The required maximum exit travel distances for a fully sprinklered building are listed below (780 CMR Table 1017.2, Table 1006.2.1, and 1020.4).

Occupancy	Exit Travel Distance	Common Path of Travel	Dead-End
E	250 ft.	75 ft.	50 ft.
A-3	250 ft.	75 ft.	20 ft.
B	300 ft.	100 ft.	50 ft.

- Maximum dead-end corridor length cannot exceed the value above or 2.5 times the least width of space (780 CMR 1020.4).
- All rooms or spaces other than dwelling units with an occupant load greater than 49 people or a travel distance greater than the value in the table above must be provided with two egress doors swinging in the direction of egress and illuminated exit signs at each exit (780 CMR Table 1006.2.1 & Sections 1010.1.2.1 & 1013.1).
- 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. Also one of the two required exit access doorways is permitted to be a fixed ladder or alternating tread device (780 CMR Section 1006.2.2.1).
- Exit access through an enclosed elevator lobby is permitted provided access to not less than one of the required exits shall be provided without travel through the enclosed elevator lobbies required by Section 3006 (780 CMR 1016.2).
- Doors serving more than 49 people in group E and A occupancies must swing in the direction of egress and be provided with panic hardware (780 CMR 1010.1.10).

- Main electrical rooms must be provided with 2 means of egress via doors that swing in the direction of egress with panic hardware when containing large equipment (rated 1200 amperes or more and over 6' wide) (NFPA 70 Section 110.26(C)(2 & 3)).
- All means of egress lighting and exit signs throughout the building must be provided with an emergency power supply to assure continued illumination for not less than 1.5 hours in case of primary power loss (780 CMR 1008.2 & 1008.3.4).
- Remote means of egress must be separated by $\frac{1}{3}$ of the diagonal dimension of the room or space they serve (780 CMR 1007.1.1). The distance between exits must be measured in a straight line between exit doors / paths.
- Roofs and penthouses containing elevator equipment that must be accessed for maintenance are required to be accessed by a stairway (780 CMR 1011.12.1). Permanent means of access to any roof containing mechanical equipment must be provided in accordance with the Mechanical Code.
- All exits must 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 exit enclosures discharge to a free and unobstructed path of travel to an exterior exit that is readily visible from the discharge of the exit enclosure; the entire area of the level of exit discharge is separated from areas below by construction consistent with the rating of the exit enclosure; and the egress path and all areas open to the egress path on the level of exit discharge must be fully sprinklered (780 CMR 1028.1).
- An approved barrier must be provided at the level of exit discharge where a stair enclosure continues below its level of exit discharge (780 CMR 1023.8).
- A two-way communication system is required at each elevator landing on accessible floors that are one or more stories above or below the level of exit discharge (780 CMR 1009.8).
- At least one passenger elevator must be sized to accommodate the loading and transportation of an ambulance gurney or stretcher sized 24" wide by 84" long with 5" radius corners (524 CMR 17.40(1)).

10. Required Fire Protection Systems:

- NFPA 13 sprinkler system (780 CMR Table 903.2 & M.G.L. c148 s26G)
- Fire alarm system with emergency voice/alarm communication capabilities (780 CMR 907.2.3)
- Standpipe system (780 CMR 905.3.1 & 905.3.5)

- Emergency responder radio coverage (780 CMR 916)
- Carbon monoxide detection in accordance with 780 CMR 915 and 527 CMR 1 chapter 13.
- Fire extinguishers (780 CMR 906.1)

11. Energy Code Provisions

The project is subject to the provisions of the 2018 International Energy Conservation Code or ANSI/ASHRAE/IESNA 90.1 with Massachusetts Amendments (Massachusetts Energy Code). The City of Boston has also adopted the Stretch Energy Code (780 CMR Appendix AA). The 9th Edition states that the Stretch Code applies to non-residential buildings over 100,000 sqft. (780 CMR AA103.2). Since the aggregate area of the building is over 100,000 sqft, the stretch code does apply. The Stretch Code requires the building demonstrate energy use per square foot at least 10% below the energy requirements of ANSI/ASHRAE/IESNA 90.1 APPENDIX G Performance Rating Method on either a site or source energy basis.

12. Accessibility for Persons with Disabilities

Massachusetts Architectural Access Board Regulations

All areas open to the general public are required to comply with the requirements of the Massachusetts Architectural Access Board (521 CMR). This section includes the following major provisions:

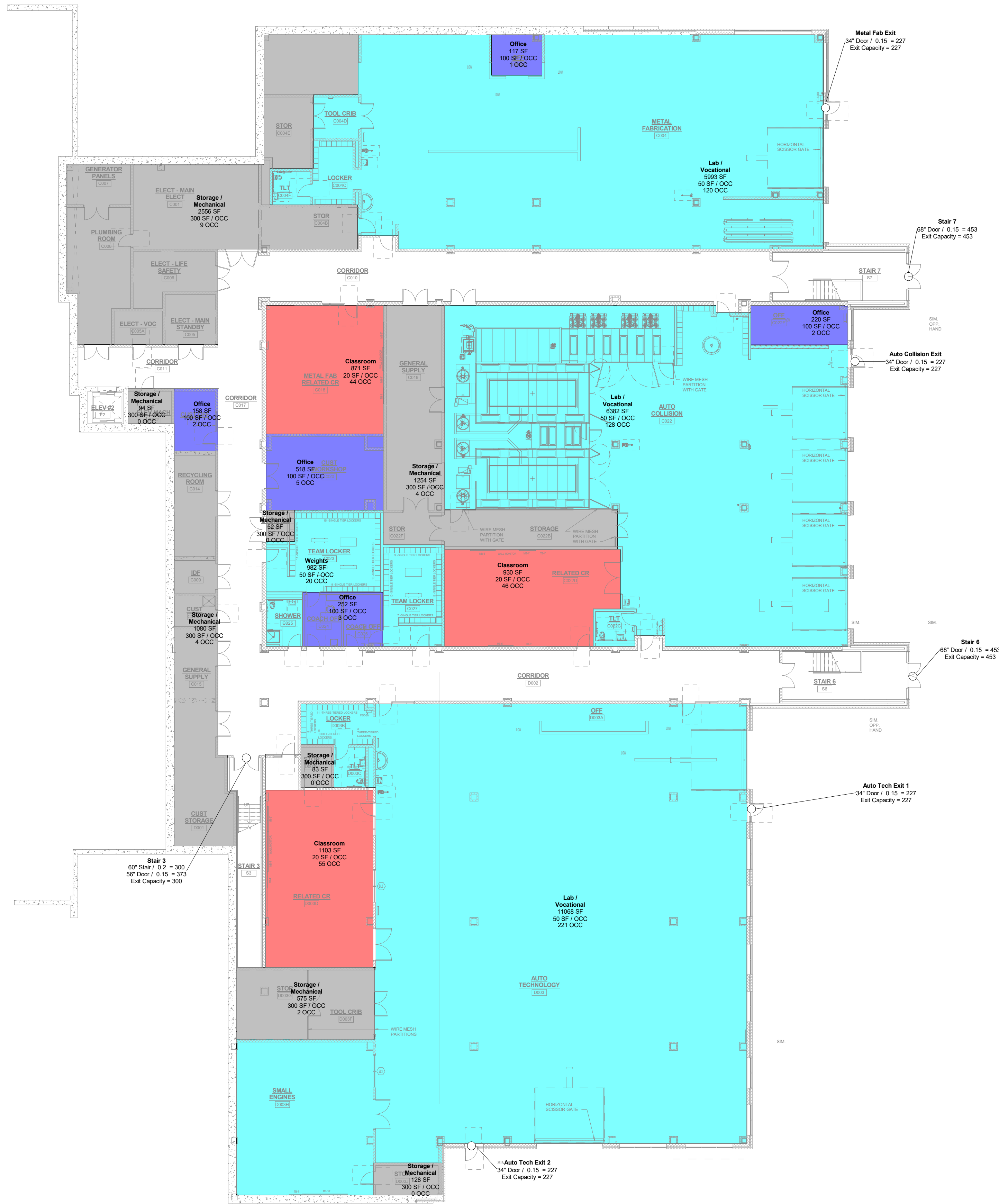
- All public entrances must be accessible (521 CMR 25.1).
- All public and common use areas must be accessible and provided with an accessible route thereto (521 CMR Section 12.2.2 and 20.1).
- Accessible toilet rooms must be provided (521 CMR 30.1).
- Where tables, study carrels, computer workstations or fixed seating is provided at least 5% with a minimum of one of each item must be accessible (521 CMR Section 12.2.2).
- The auditorium and gymnasium must be provided with integral accessible seating in multiple locations as well as other features such as assistive listening in accordance with 521 CMR Chapter 14.
- An accessible route must be provided to the platform located in the Multipurpose Room (521 CMR 14.6).

American's with Disabilities Act

The ADA Guidelines are not enforced by the Commonwealth of Massachusetts, they can only be enforced through a civil lawsuit or complaint filed with the U.S. Department of Justice. All public and common use areas must be accessible.

Although the provisions of the MAAB do not apply to employee only areas, the ADAAG requires that employee only work spaces must be designed to allow employees to approach, enter, and exit the work area. However, the work areas are not required be provided with accessible features (i.e. shelves, etc.).

APPENDIX A: Egress Plans



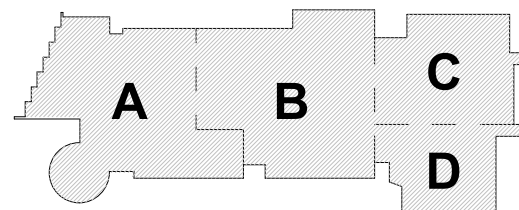
Occupant Load Lower Level			
Use	Floor Area	Floor Area Per Occupant (SF / OCC)	Occupant Load
Classroom	2904 SF	20	145.2
Lab / Vocational	23443 SF	50	468.9
Office	1266 SF	100	12.7
Storage / Mechanical	5821 SF	300	19.4
Weights	982 SF	50	19.6
	34416 SF		665.8

Exit Capacity Lower Level (780 CMR 1005.3)						
Exit	Stair Width	Stair Exit Allowance (in / person)	Stair Capacity (persons)	Door Width	Door Exit Allowance (in / person)	Door Capacity (persons)
Auto Collision Exit				34"	0.15	227
Auto Tech Exit 1				34"	0.15	227
Auto Tech Exit 2				34"	0.15	227
Metal Fab Exit				34"	0.15	227
Stair 3	60"	0.2	300	56"	0.15	373
Stair 6				68"	0.15	453
Stair 7				68"	0.15	453

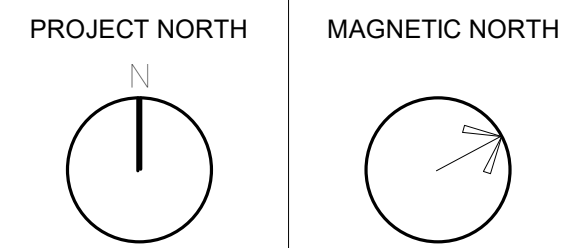
Occupant Load Densities (780 CMR TABLE 1004.1.2)	
Fixed Seating	Assembly with Fixed Seating
7 Net S.F. / Occ.	Assembly without Fixed Seating - Concentrated (Chairs Only)
15 Net S.F. / Occ.	Assembly without Fixed Seating - Unconcentrated (Tables and Chairs)
20 Net S.F. / Occ.	Classrooms
50 Gross S.F. / Occ.	Exercise and Fitness Areas, Locker Rooms
60 Net S.F. / Occ.	Educational, Shops and Laboratories
100 Gross S.F. / Occ.	Office Areas
200 Gross S.F. / Occ.	Kitchens
300 Gross S.F. / Occ.	Storage / Mechanical

PROGRESS SET

4/28/2023



KEY PLAN



EGRESS
ANALYSIS
LOWER LEVEL

Scale: As indicated

Job No.: 20022

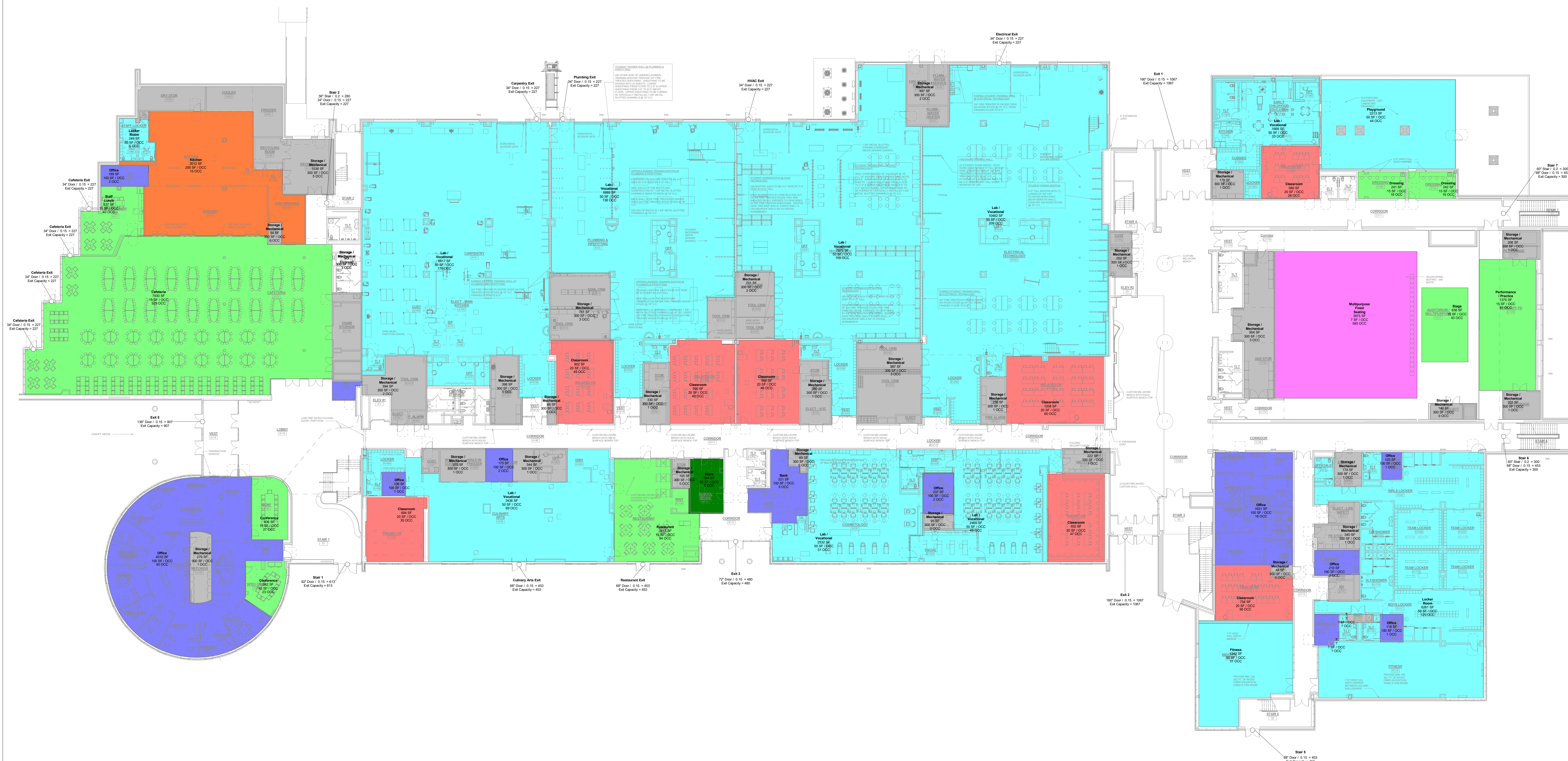
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Date: 4/28/2023

Volume

EG1-1

**NORTHEAST
METROPOLITAN
REGIONAL
VOCATIONAL
HIGH SCHOOL**
100 HEMLOCK RD,
WAKEFIELD, MA 01880



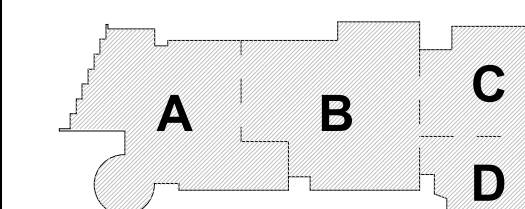
Occupant Load First Floor			
Use	Floor Area	Floor Area Per Occupant (SF / OCC)	Occupant Load
Bank	521 SF	100	5.2
Cafeteria	7630 SF	15	528.7
Classroom	7017 SF	20	350.8
Conference	748 SF	15	49.9
Dressing	483 SF	15	32.2
Fitness	1542 SF	50	30.8
Kitchen	3012 SF	200	15.1
Lab / Vocational	44243 SF	50	884.9
Locker Room	606 SF	50	13.2
Multipurpose Fixed Seating	8875 SF	7	585.0
Office	7002 SF	100	70.0
Performance / Practice	1370 SF	15	91.3
Playground	2213 SF	50	44.3
Restaurant	1417 SF	15	94.5
Staff Lunch	637 SF	15	42.5
Stage	1086 SF	15	72.4
Storage / Mechanical	11084 SF	300	40.4
Store	344 SF	60	5.7
	100594 SF		3044.0

Exit Capacity First Floor (780 CMR 1005.3)							
Exit	Stair Width	Stair Exit Allowance (in / person)	Stair Capacity (persons)	Door Width	Door Exit Allowance (in / person)	Door Capacity (persons)	Exit Capacity (persons)
Cafeteria Exit		34"	34*	0.15	227	227	227
Cafeteria Exit		34"	34*	0.15	227	227	227
Cafeteria Exit		34"	34*	0.15	227	227	227
Cafeteria Exit		34"	34*	0.15	227	227	227
Carpentry Exit		34"	34*	0.15	227	227	227
Culinary Arts Exit		68"	0.15	453	453	453	453
Electrical Exit		34"	34*	0.15	227	227	227
Exit 1		160"	0.15	1067	1067	1067	1067
Exit 2		160"	0.15	1067	1067	1067	1067
Exit 3		72"	0.15	480	480	480	480
Exit 5		136"	0.15	907	907	907	907
HVAC Exit		34"	0.15	227	227	227	227
Plumbing Exit		34"	0.15	227	227	227	227
Restaurant Exit		68"	0.15	453	453	453	453
Stair 1		92"	0.15	613	613	613	613
Stair 2	56"	0.2	280	34"	0.15	227	227
Stair 5	60"	0.2	300	68"	0.15	453	453
Stair 6	60"	0.2	300	68"	0.15	453	300
Stair 7	60"	0.2	300	68"	0.15	453	300
							8133

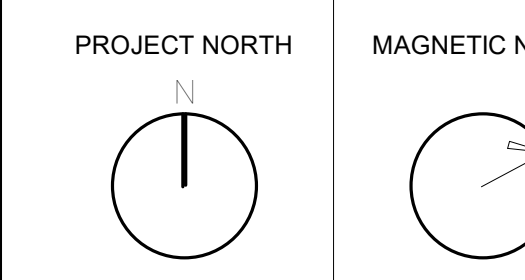
Occupant Load Densities (750 CMR Table 1004.1.2)	
Fixed Seats	Assembly with Fixed Seats
7 Net S.F. / Occ.	Assembly without Fixed Seats - Concentrated (Chairs Only)
15 Net S.F. / Occ.	Assembly without Fixed Seats - Unconcentrated (Tables and Chairs)
20 Net S.F. / Occ.	Classrooms
50 Gross S.F. / Occ. 50 Net S.F. / Occ.	Exercise and Fitness Areas; Locker Rooms Educational - Shops and Laboratories
100 Gross S.F. / Occ.	Office Areas
200 Gross S.F. / Occ.	Kitchens
300 Gross S.F. / Occ.	Storage / Mechanical

PROGRESS SET

4/28/2023



KEY PLAN



EGRESS ANALYSIS FIRST FLOOR

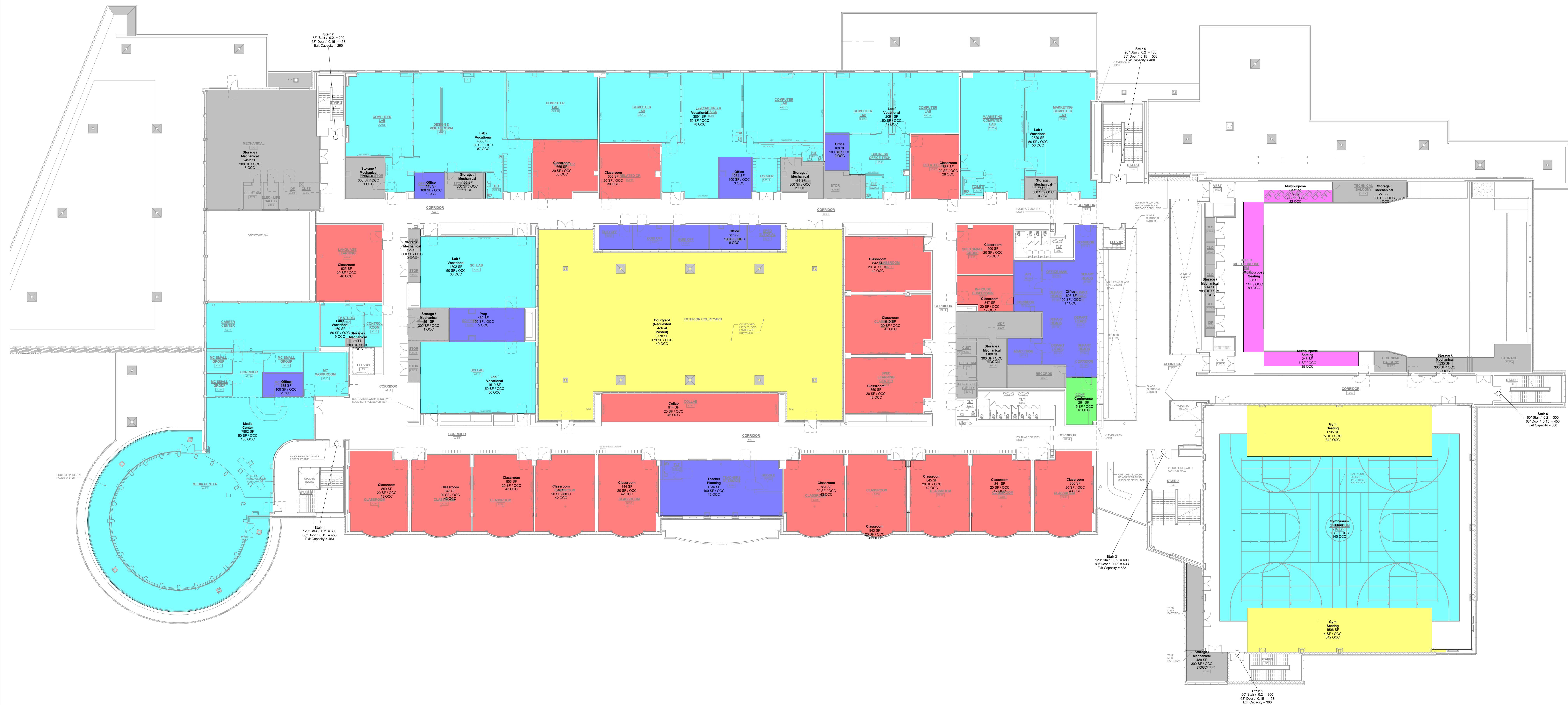
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Job No.: 20202

Drawn By:

Date:

EG1-2



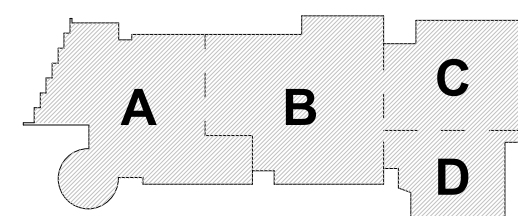
Occupant Load Second Floor			
Use	Floor Area	Floor Area Per Occupant (SF / OCC)	Occupant Load
Classroom	14691 SF	20	734.5
Collab	914 SF	20	45.7
Conference	264 SF	15	17.6
Courtyard (Requested Actual Posted)	8770 SF	179	49.0
Gym Seating	3240 SF		684.0
Gymnasium Floor	7020 SF	50	140.4
Labs / Vocational	16640 SF	50	332.8
Media Center	7882 SF	50	157.6
Multipurpose Seating	957 SF	7	136.7
Office	3277 SF	100	32.8
Prep	469 SF	100	4.7
Storage / Mechanical	6775 SF	300	22.6
Teacher Planning	1236 SF	100	12.4
	72135 SF		2370.8

Exit Capacity Second Floor (780 CMR 1005.3)							
Exit	Stair Width	Stair Exit Allowance (in / person)	Stair Capacity (persons)	Door Width	Door Exit Allowance (in / person)	Door Capacity (persons)	Exit Capacity (persons)
Stair 1	120"	0.2	600	68"	0.15	453	453
Stair 2	58"	0.2	290	68"	0.15	453	290
Stair 3	120"	0.2	600	80"	0.15	533	533
Stair 4	96"	0.2	480	80"	0.15	533	480
Stair 5	60"	0.2	300	68"	0.15	453	300
Stair 6	60"	0.2	300	68"	0.15	453	300

Occupant Load Densities (780 CMR TABLE 1004.1.5)	
Fixed Seats	Assembly with Fixed Seats
7 Net S.F. / Occ.	Assembly without Fixed Seats - Concentrated (Tables and Chairs)
15 Net S.F. / Occ.	Classrooms
20 Net S.F. / Occ.	Exercise and Fitness Areas, Locker Rooms
50 Gross S.F. / Occ.	Educational - Shops and Laboratories
100 Gross S.F. / Occ.	Other Areas
200 Gross S.F. / Occ.	Kitchen
300 Gross S.F. / Occ.	Storage / Mechanical

PROGRESS SET

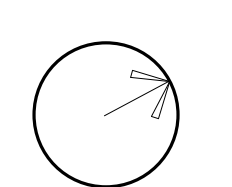
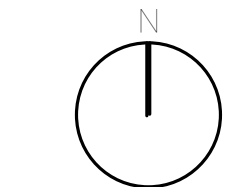
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KEY PLAN

PROJECT NORTH

MAGNETIC NORTH



**EGRESS
ANALYSIS
SECOND FLOOR**

Scale: As indicated

Job No.: 20022

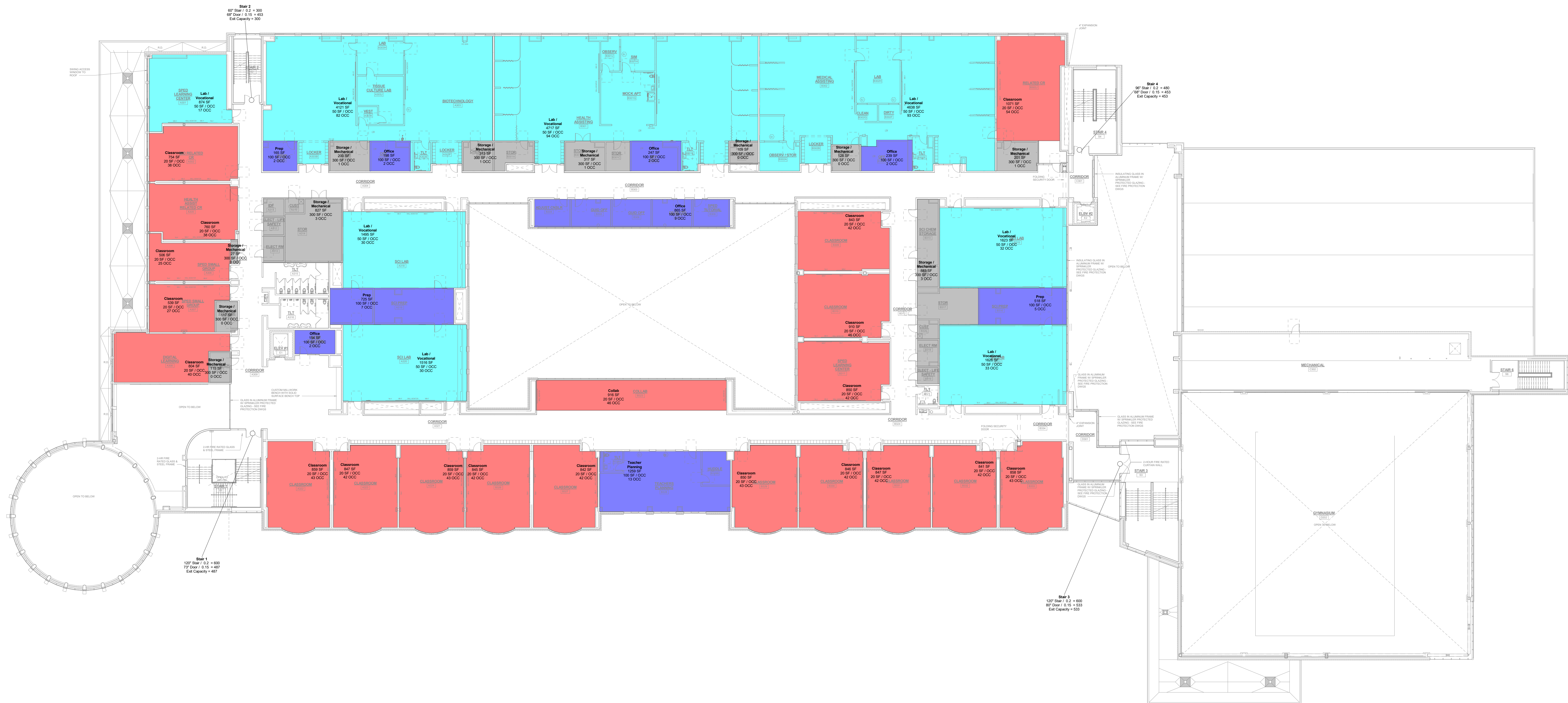
Drawn By: DEC

Date: 4/28/2023

Volume

EG1-3

**NORTHEAST
METROPOLITAN
REGIONAL
VOCATIONAL
HIGH SCHOOL**
100 HEMLOCK RD,
WAKEFIELD, MA 01880



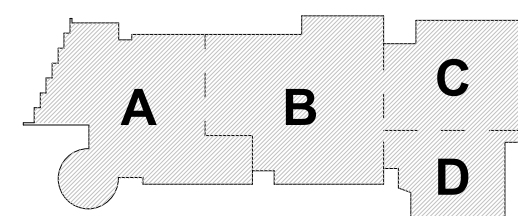
Occupant Load Third Floor			
Use	Floor Area	Floor Area Per Occupant (SF / OCC)	Occupant Load
Classroom	15530 SF	20	776.5
Collab	916 SF	20	45.8
Lab / Vocational	20611 SF	50	412.2
Office	1704 SF	100	17.0
Prep	1409 SF	100	14.1
Storage / Mechanical	3238 SF	300	10.8
Teacher Planning	1259 SF	100	12.6
	44667 SF		1289.0

Exit Capacity Third Floor (780 CMR 1005.3)							
Exit	Stair Width	Stair Exit Allowance (in / person)	Stair Capacity (persons)	Door Width	Door Exit Allowance (in / person)	Door Capacity (persons)	Exit Capacity (persons)
Stair 1	120"	0.2	600	73"	0.15	487	487
Stair 2	60"	0.2	300	68"	0.15	453	300
Stair 3	120"	0.2	600	80"	0.15	533	533
Stair 4	96"	0.2	480	68"	0.15	453	453
							1773

Occupant Load Densities (780 CMR TABLE 1004.1.2)	
Fixed Seating	Assembly with Fixed Seats
7 Net S.F. / Occ.	Assembly without Fixed Seating - Concentrated (Tables and Chairs)
15 Net S.F. / Occ.	Assembly without Fixed Seating - Unconcentrated (Tables and Chairs)
20 Net S.F. / Occ.	Classrooms
30 Gross S.F. / Occ.	Corridor and Fitness Areas, Locker Rooms
50 Net S.F. / Occ.	Educational, Shops and Laboratories
100 Gross S.F. / Occ.	Office Areas
200 Gross S.F. / Occ.	Kitchen
300 Gross S.F. / Occ.	Storage / Mechanical

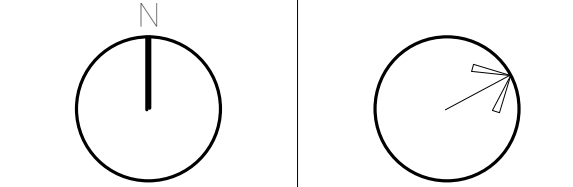
PROGRESS SET

4/28/2023



KEY PLAN

PROJECT NORTH MAGNETIC NORTH



**EGRESS
ANALYSIS THIRD
FLOOR**

Scale: As indicated

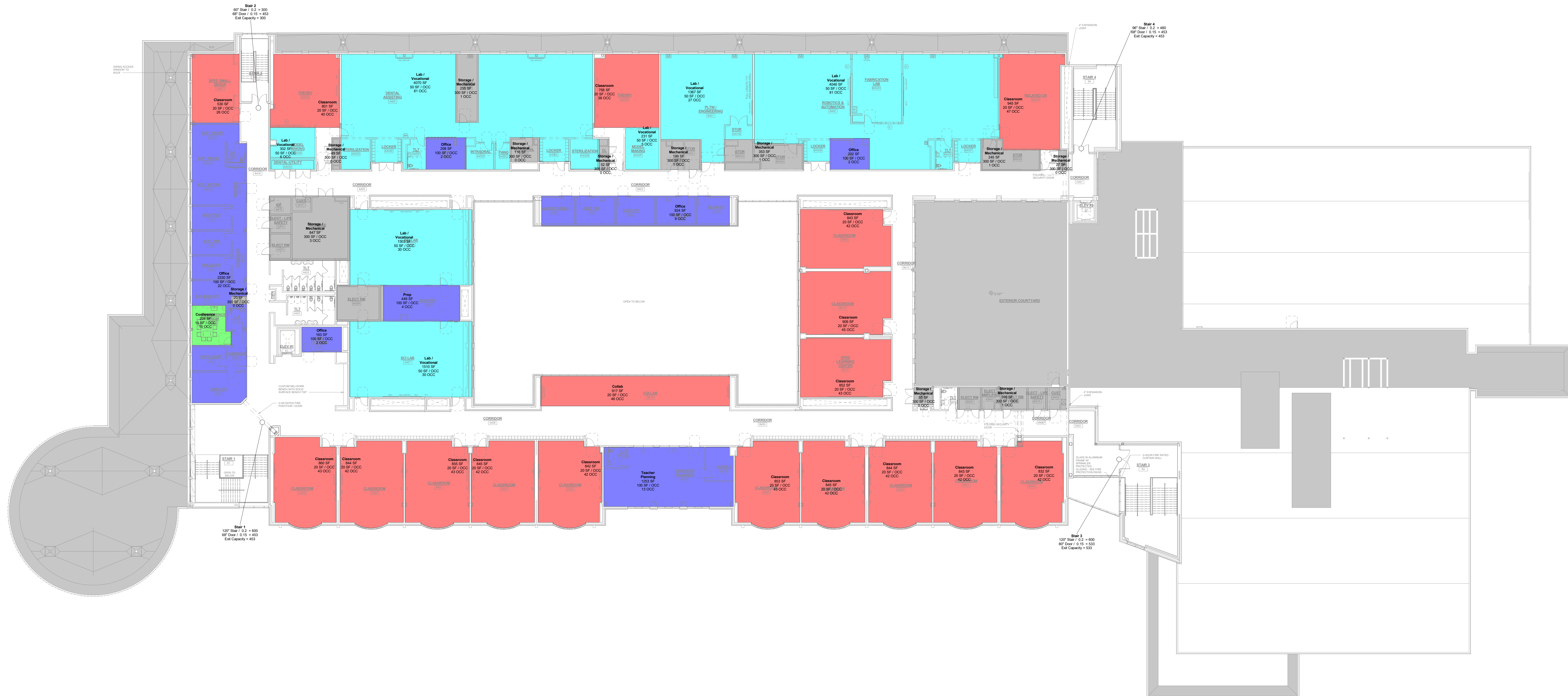
Job No.: 20202

Drawn By: DEC

Date: 4/28/2023

Volume

EG1-4



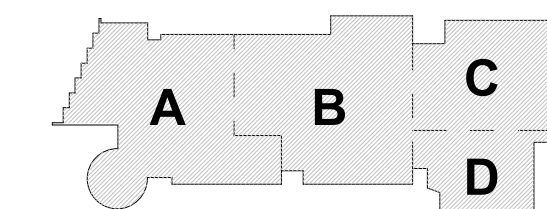
Occupant Load Fourth Floor			
Use	Floor Area	Floor Area Per Occupant (SF / OCC)	Occupant Load
Classroom	14109 SF	20	705.5
Collab	917 SF	20	45.8
Conference	228 SF	15	15.2
Lab / Vocational	13029 SF	50	260.6
Office	3728 SF	100	37.3
Prep	449 SF	100	4.5
Storage / Mechanical	2862 SF	300	9.6
Teacher Planning	1253 SF	100	12.5
	36595 SF		1091.0

Exit Capacity Fourth Floor (780 CMR 1005.3)						
Exit	Stair Width	Stair Exit Allowance (in / person)	Stair Capacity (persons)	Door Width	Door Exit Allowance (in / person)	Door Capacity (persons)
Stair 1	120"	0.2	600	73"	0.15	487
Stair 2	60"	0.2	300	68"	0.15	453
Stair 3	120"	0.2	600	80"	0.15	533
Stair 4	96"	0.2	480	68"	0.15	453

1773

PROGRESS SET

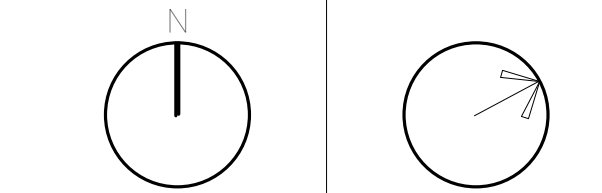
4/28/2023



KEY PLAN

PROJECT NORTH

MAGNETIC NORTH



**EGRESS
ANALYSIS
FOURTH FLOOR**

Scale: As indicated

Job No.: 20202

Drawn By: DEC

Date: 4/28/2023

Volume

EG1-5

Occupant Load Descriptors (780 CMR TABLE 1004.1.3)	
Fixed Seats	Assembly with Fixed Seats
7 Net S.F. / Occ.	Assembly without Fixed Seats - Concentrated (Tables and Chairs)
15 Net S.F. / Occ.	Assembly without Fixed Seats - Unconcentrated (Tables and Chairs)
20 Net S.F. / Occ.	Classrooms
30 Gross S.F. / Occ.	Exercise and Fitness Areas, Locker Rooms
50 Net S.F. / Occ.	Educational - Shops and Laboratories
100 Gross S.F. / Occ.	Offices
200 Gross S.F. / Occ.	Kitchens
300 Gross S.F. / Occ.	Storage / Mechanical