

SOUTH DAKOTA BOARD OF REGENTS

Budget and Finance

REVISED

AGENDA ITEM: 7 – E

DATE: May 10, 2022

SUBJECT

SDSMT Mineral Industries Building – Revised Facility Design Plan (FDP)

CONTROLLING STATUTE, RULE, OR POLICY

[SDCL § 5-14-1](#) – Classification of Capital Improvements

[SDCL § 5-14-2](#) – Supervision by Bureau of Administration of Capital Improvement Projects – Payment of Appropriated Funds

[SDCL § 5-14-3](#) – Preparation of Plans and Specifications for Capital Improvements – State Building Committees – Approval by Board or Commission in Charge of Institution

[BOR Policy 6:4](#) – Capital Improvements

[BOR Policy 6:6](#) – Maintenance and Repair

BACKGROUND / DISCUSSION

The South Dakota School of Mines & Technology (SDSMT) requests approval of the revised Facility Design Plan for the construction of a new Mineral Industries building. The Preliminary Facility Statement (PFS) and Facility Program Plan (FPP) were approved at the June 2014 BOR meeting and March 2021 BOR meeting, respectively. The original Facility Design Plan was approved at the December 2021 Board meeting. The initial request was to renovate the current facility. The cost to renovate the building was estimated at \$28M and the cost to construct a new building was estimated at \$34M. To better serve the disciplines for the next 60 years, the direction changed to a new building, with the current building being torn down.

The Facility Design Plan is being resubmitted because the construction site location has changed. The current construction environment is volatile, and prices continue to increase. At the direction of the Construction Manager at Risk (CMAR) and Architect, a new location has been determined. This location was noted in the SDSMT master plan but was not originally chosen as a building site in the next 10 years. The change in site was estimated to save at least \$2M. The internal layout for the building has stayed the same. The main office areas and approximately 8,000 square feet of labs will be bid out as shelled

(Continued)

DRAFT MOTION 20220510_7-E:

I move to approve SDSMT's Revised Facility Design Plan for the Mineral Industries Building at a cost not to exceed \$34,000,000 funded by a combination of General, Private, and University Funds.

space. The plan will be to use the \$2.8M of contingency to finish the spaces. Further reduction in square footage will not meet the needs of all the departments housed in the current building.

IMPACT AND RECOMMENDATIONS

The new building will be 63,800 square feet. It will provide classroom space used by the entire university as well as laboratory and administrative space for the Departments of Geology and Geological Engineering, Mining Engineering and Management, and Materials and Metallurgical Engineering. The building also supplies space for multi-user research laboratories such as the Engineering and Mining Experiment Station (EMES). South Dakota Mines is one of only five universities in the nation that retains a core expertise in all the areas that support the development of critical resources and minerals. The need for modernized space is even more pressing now that the Caterpillar MineStar Research Consortium has been announced, as this is the first step in creating a world class industries resource research center at the university. Additionally, the building will help increase the research enterprise and recruitment of talented students and faculty. The new building will support the mission of the university by providing efficient and modern facilities that meet the needs of the campus now and into the future.

To ensure the project is within budget, there will be an alternate or base bid to shell space (office areas on 2nd and 3rd floor and ~8,000 square feet of lab space). The project is holding ~\$2.8M in contingency and the plan would be to finish space as contingency allows.

Construction Funding Sources:

\$19,000,000 General Funds
 \$12,000,000 Private Funds
 \$3,000,000 University Funds
Total: \$34,000,000

Revised Cost Estimate:

Construction Cost Estimate	\$28,586,949
Commissioning	\$99,100
OSE Fees	\$100,000
Architect/Engineer Fees and Expenses	\$2,220,000
Pre-Construction Fee	\$70,000
Testing	\$30,000
Construction Contingency	\$1,405,500
Inflation Contingency	\$1,375,660
FF&E/Moving (including IT/BIT)	\$1,900,000
TOTAL ESTIMATED PROJECT COSTS	\$35,787,209
Alternate to Shell Space	(\$1,787,209)
TOTAL PROJECT BUDGET	\$34,000,000

SDSMT Mineral Industries Building - Revised Facility Design Plan (FDP)

May 10, 2022

Page 3 of 3

ATTACHMENTS

Attachment I – SDSMT – Revised Facility Design Plan, New Mineral Industries Building

Attachment II – SDSMT – Revised Facility Design Plan, New Mineral Industries Building
Floor Plans, Site Plan, Perspectives

South Dakota School of Mines & Technology

Facility Design Plan

New Mineral Industries Building

Introduction:

The South Dakota School of Mines & Technology requests approval of the revised Facility Design Plan for the construction of a new Mineral Industries building. The Preliminary Facility Statement, Program Plan, and original Facility Design Plan were approved at the June 2014, March 2021, and December 2021 BOR meetings, respectively.

The Facility Design Plan is being resubmitted because the construction site location has changed. The current construction environment is volatile, and prices continue to increase. At the direction of our Construction Manager at Risk (CMAR) and Architect, a new location has been determined. This location was noted in our master plan but was not originally chosen as a building site in the next 10 years. The change in site was estimated to save at least \$2M. The internal layout for the building has stayed the same. The main office areas and approximately 8,000 square feet of labs will be bid out as shelled space. The plan would be to use the \$2.8M of contingency to finish out the spaces. Further reduction in square footage will not meet the needs of all the departments housed in the current building.

The new building will be 63,800 sq ft. It will provide classroom space used by the entire university as well as laboratory and administrative space for the Departments of Geology and Geological Engineering, Mining Engineering and Management, and Materials and Metallurgical Engineering. The building also supplies space for multi-user research laboratories such as the Engineering and Mining Experiment Station (EMES). South Dakota Mines is one of only five universities in the nation that retain a core expertise in all the areas that support the development of critical resources and minerals. The need for modernized space is even more pressing now that the Caterpillar Minestar Research Consortium has been announced as this is the first step in creating a world class industries resource research center at the university. Additionally, the building will help increase the research enterprise and recruitment of talented students and faculty. The new building will support the mission of the university by providing efficient and modern facilities that meet the needs of the campus now and into the future.

a. Architectural, mechanical, and electrical schematic design:

Architectural:

The new Mineral Industries building will be 63,800 sq ft located between Classroom building and Electrical Engineering/Physics building and across the street from the O'Hara administrative building. The building will consist of masonry, metal panes and aluminum curtain

wall glazing systems supported by a structural steel column, beam and joist system. The roofing will be a combination of rubber membrane and metal roofing. The project will be striving to achieve LEED (Leadership in Energy and Environmental Design) Certified rating or equivalent Green Globes and therefore will be utilizing building materials that have low VOC (volatile organic compounds) materials and high performance mechanical and electrical systems.

In considering the design as a whole, the building is organized with three driving factors in mind: 1) efficient space utilization 2) efficient MEP distribution and 3) incorporation of highly collaborative areas. With those criteria in mind, each of the building floorplates are organized with a double loaded east-west corridor that connects each program area to the atrium as well as outdoor areas on the East and West. Office areas are located on the 2nd and 3rd floors. Teaching and research areas make up all three floors. Vibration sensitive and heavy floor loading requirement equipment are located on the first floor where isolated slab areas will be utilized to accomplish the needed vibration criteria. Reference Attachment A for building plans.

Mechanical:

The mechanical systems for this building will be connected to the campus chiller and steam/condensate loops unless a more cost-effective strategy is needed in the current construction climate. The mechanical systems will be designed to be efficient.

Other utilities to be noted include the extension of the domestic water. The sanitary sewer will be connected near the building site with relocation of some existing sanitary sewer in the building footprint. Gas tie in available for the building generator, if required.

All mechanical equipment will be tied into the University building automation system for monitoring of equipment and addressing heating/cooling issues within the building remotely if needed.

A NFPA 13 compliant wet-pipe sprinkler system will provide full coverage for the building. Quick-response sprinklers will be used throughout the facility. Offices and classrooms will be classified as light hazard. Laboratories, storage rooms, custodial closets, and mechanical rooms will be classified as Ordinary Hazard, Group 1 or Group 2, depending on the specific requirements.

Electrical:

The new site provides for several options for the electrical service to the facility and will most likely come from the west unless a more cost-effective route is determined. The new transformer will be connected to an existing utility pad mounted switch. Service entrance cabling will be copper and will be routed outside the building from the service transformer to a single-ended, main service switchboard located in the main electrical room on the first floor. All necessary

metering and switching requirements will be provided as required. All site electrical equipment including the pad mounted transformer and stand by generator will be located away from main building entries.

Lighting throughout the building will be LED (Light Emitting Diode) type fixtures and lighting levels will comply with applicable standards and energy code requirements. Lighting will be a combination of 2x2, 2x4, and Linear LED light fixtures. Lighting in offices, meeting rooms, labs, study rooms, and classrooms will be fully dimmable, and the building will have occupancy sensor controls to reduce energy consumption while providing flexibility to the occupants.

Voice and data systems will include jacks, cabling, conduit, racks, patch panels, testing, camera's, TV's, projectors, and card access.

A digital, addressable type, fire alarm control system with voice evacuation capabilities will be provided to satisfy all Life Safety and Code requirements. The system will be designed in accordance with all current codes and standards and will also satisfy all current accessibility guidelines. In addition, all necessary connections will be made for 24-hour fire alarm system monitoring.

b. Changes from Facility Program Plan/Design Plan:

The building site is changing to reduce overall project costs to meet budget. Building has already been reduced in size from 90,000 sq ft to 63,800 sq ft. Reducing overall square footage any further would not provide a building that can replace the current Mineral Industries building. To ensure that the building is within budget, the office areas and approximately 8,000 square feet of the lab spaces will be bid as shelled space.

c. Impact to existing building or campus-wide heating/cooling/electrical systems:

The building will be connected to the existing campus chiller, steam/condensate, and electrical loops providing the most cost-effective operating methods for this building unless a more cost effective alternative is found. Studies have been completed to ensure capacity within each loop.

d. Total project estimates:

Funding Sources –

\$19M General Funds
\$12M Private Funds
\$3M University Funds

The funding available is \$34M. The following is the breakdown of the project estimate:

Construction Cost Estimate	\$28,586,949
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South Dakota Mines Mineral Industries Building Facility Design Plan
May 2022

Commissioning	\$99,100
OSE Fees	\$100,000
Architect/Engineer Fees and Expenses	\$2,220,000
Pre-Construction Fee	\$70,000
Testing	\$30,000
Construction Contingency	\$1,405,500
Inflation Contingency	\$1,375,660
FF&E/Moving (including IT/BIT)	\$1,900,000
TOTAL ESTIMATED PROJECT COSTS	\$35,787,209
<hr/>	
ALTERNATE TO SHELL SPACE	(\$1,787,209)
TOTAL PROJECT BUDGET	\$34,000,000

To ensure the project is within budget there will an alternate or base bid to shell space (office areas on 2nd and 3rd floor and ~8,000 square feet of lab space). The project is holding ~\$2.8M in contingency and the plan would be to finish space as contingency allows.

e. Changes from cost estimate for operation or M&R expenses:

No changes.









**Site and Foundation Bid
Package**

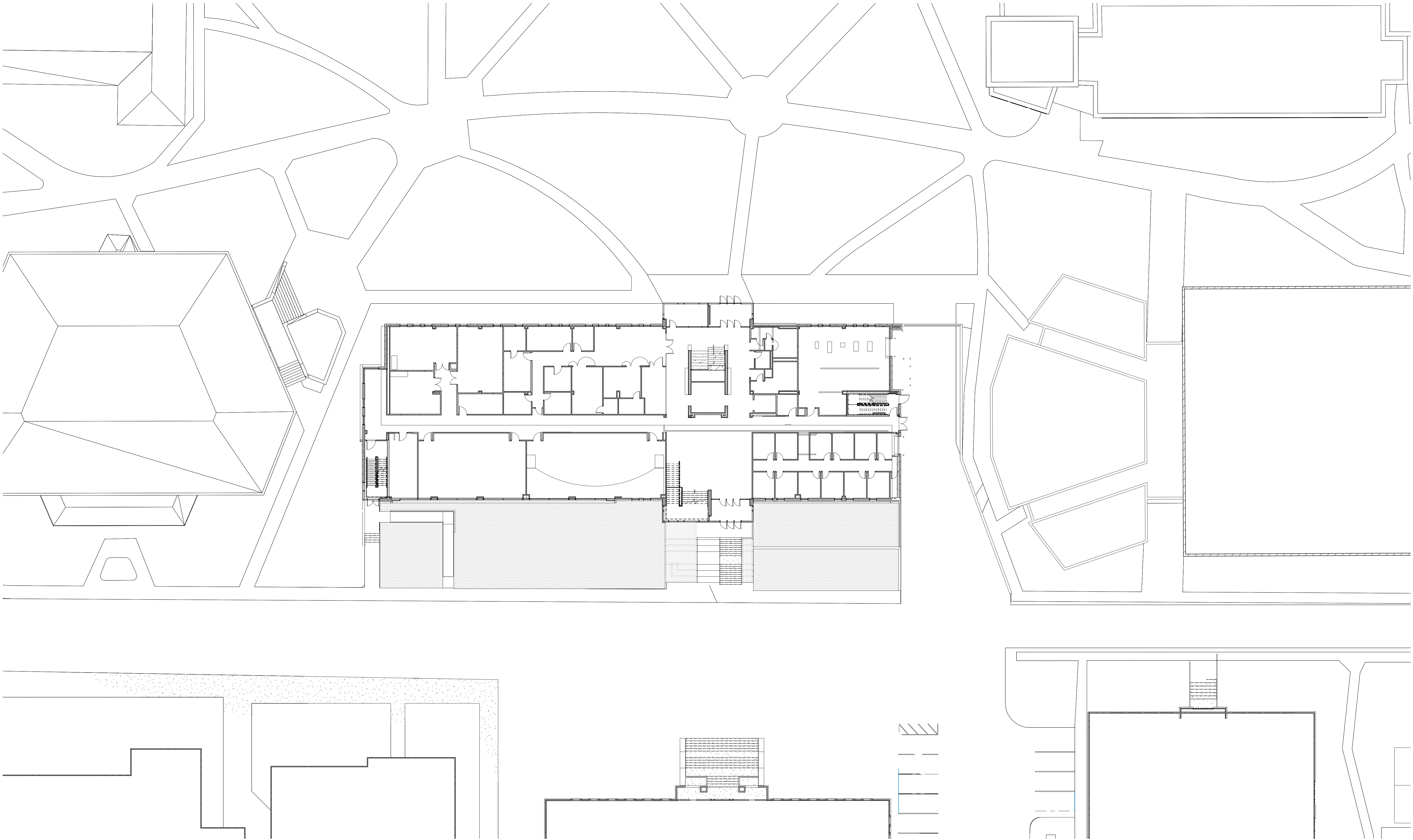
**South Dakota Mines -
Mineral Industries
Center of Excellence**

Technology CT
South Dakota Mines
Rapid City, SD

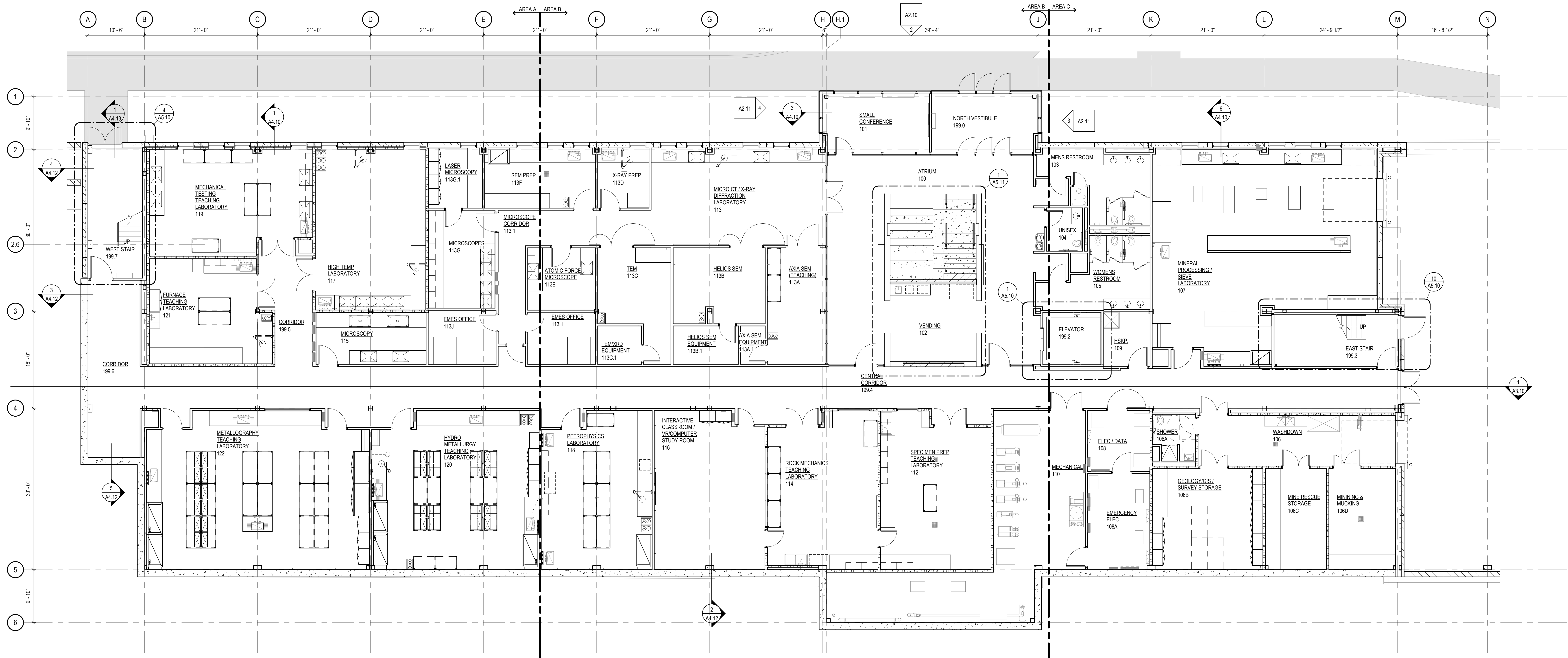
CE No.: 888-003-21
OSE No.: R0721-06X
January 14, 2022

Site

VE1.00



1 SITE PLAN
SCALE: 1" = 20'-0"



1 FIRST FLOOR PLAN
SCALE: 1/8" = 1'-0"

GENERAL PLAN NOTES

- ALL INTERIOR WALL / GENERAL PLAN DIMENSIONS ARE TO FACE OF MASONRY, FACE OF CONCRETE, AND TO FACE OF GYP. BOARD, TYP.
- ALL EXTERIOR WALL / GENERAL PLAN DIMENSIONS ARE TO FACE OF STUD AND FACE OF CONCRETE.
- CONSTRUCTION OF WALLS ARE DESIGNATED STARTING ON TAG SIDE OF WALL.
- REFER TO STRUCTURAL DRAWINGS FOR GROUTING AND REINFORCEMENT OF CMU WALLS.
- ALL INTERIOR WALL FRAMING NOTED IN WALL TYPE SCHEDULE EXTENDS TO STRUCTURAL DECKING, BRACE AS REQUIRED. PROVIDE DEEP LEG SLIP TRACK AT TOP OF ALL INTERIOR WALLS / STUDS EXTENDING TO STRUCTURE TO ALLOW FOR DEFLECTION OF STRUCTURE.
- INTERIOR DOOR FRAMES SHALL BE INSTALLED WITH THE HINGE SIDE OF DOOR FRAME 4" FROM ADJACENT WALL, UNLESS OTHERWISE DIMENSIONED.
- PROVIDE BULLNOSE UNITS @ ALL DOOR AND WINDOW OPENINGS, END WALLS, AND OUTSIDE CORNERS IN CMU WALLS.
- ALL STEEL STUDS ARE MIN. 25 GA. UNLESS NOTED OTHERWISE. 20 GA STEEL STUDS REQUIRED AT ALL CEMENTITIOUS BACKER BOARD AND ABUSE RESISTANT GYPSUM BOARD AS SPECIFIED.
- 5/8" CEMENTITIOUS BACKER BOARD SHALL BE SUBSTITUTED FOR GYP. BOARD IN ALL LOCATIONS WHERE CERAMIC AND/OR PORCELAIN WALL TILE FINISHES ARE TO BE INSTALLED.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PRICING AND INSTALLATION OF APPROPRIATE FRAMING NEEDED FOR WALLS HEIGHT. REFER TO "INTERIOR STEEL STUD FRAMING GAGE TABLE (1)" ON SHEET A0.00 FOR FRAMING GAGES AND STUD SIZING REQUIREMENTS.
- REFER TO CODE COMPLIANCE PLANS FOR LOCATION OF FIRE RATED WALLS AND SMOKE SEPARATION WALL LOCATIONS AND REQUIREMENTS.
- ALL OPENINGS IN RATED ASSEMBLIES SHALL BE SEALED WITH FIRE / SMOKE RATED MATERIALS AND ASSEMBLIES. INSTALL RATED JOINT SEALANTS AT BOTH FACES OF PARTITIONS, AT PERIMETERS, AND THROUGH FIRE RATED ASSEMBLIES. REFERENCE CODE COMPLIANCE PLANS FOR LOCATION OF RATED ASSEMBLIES.
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- ALL SPANDREL GLAZING SHALL HAVE METAL STUD AND GPDW FURRING WALLS AT INTERIOR SIDE OF GLAZING WHERE EXPOSED TO VIEW.
- ALL WALL BOARD IN MECHANICAL ROOMS SHALL BE MOLD & MOISTURE RESISTANT.

Design Development

South Dakota Mines - Mineral Industries Center of Excellence

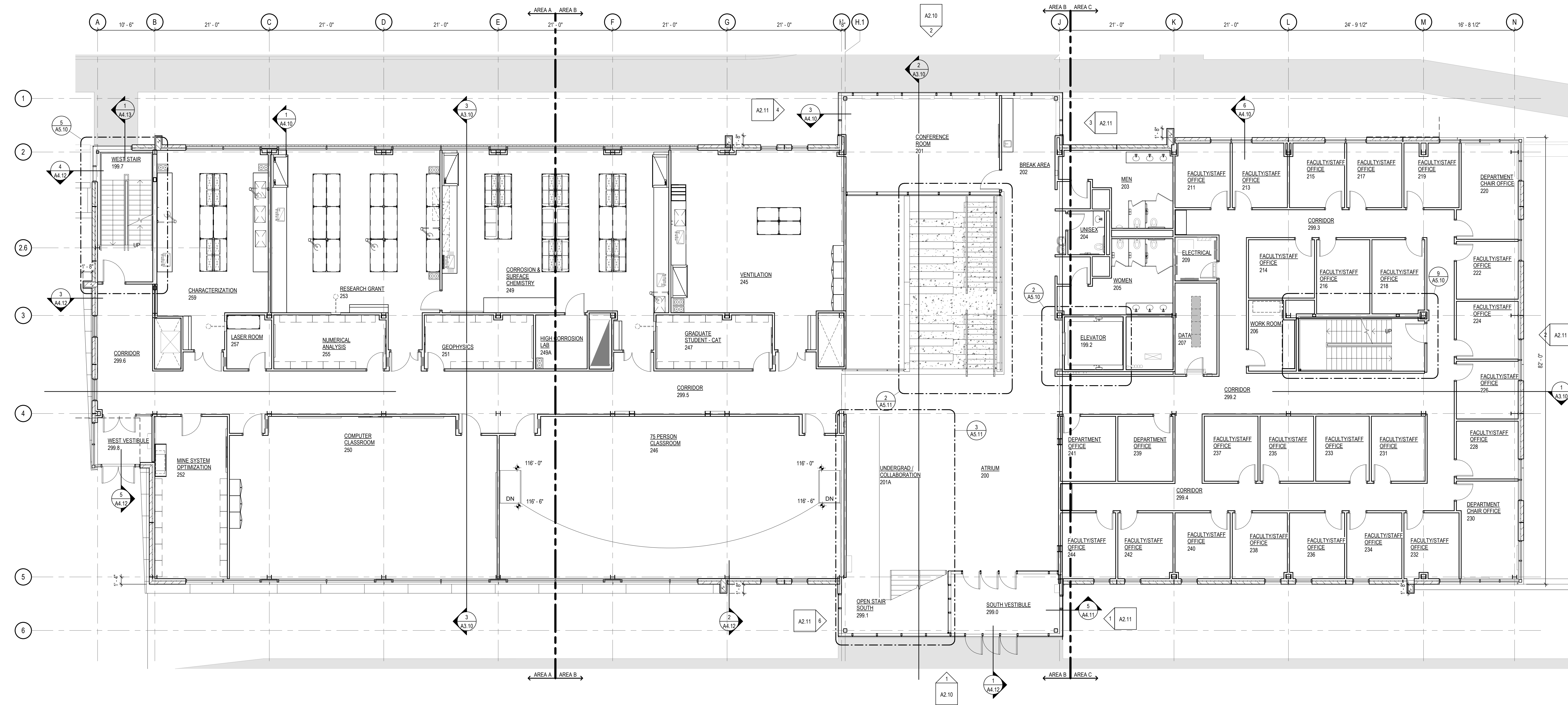
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South Dakota Mines
Rapid City, SD

CE No.: 888-003-21
OSE No.: R0721-06X
October 22, 2021

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First Floor Plan

A1.11



1 SECOND FLOOR PLAN
SCALE: 1/8" = 1'-0"

GENERAL PLAN NOTES

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Design Development

South Dakota Mines - Mineral Industries Center of Excellence

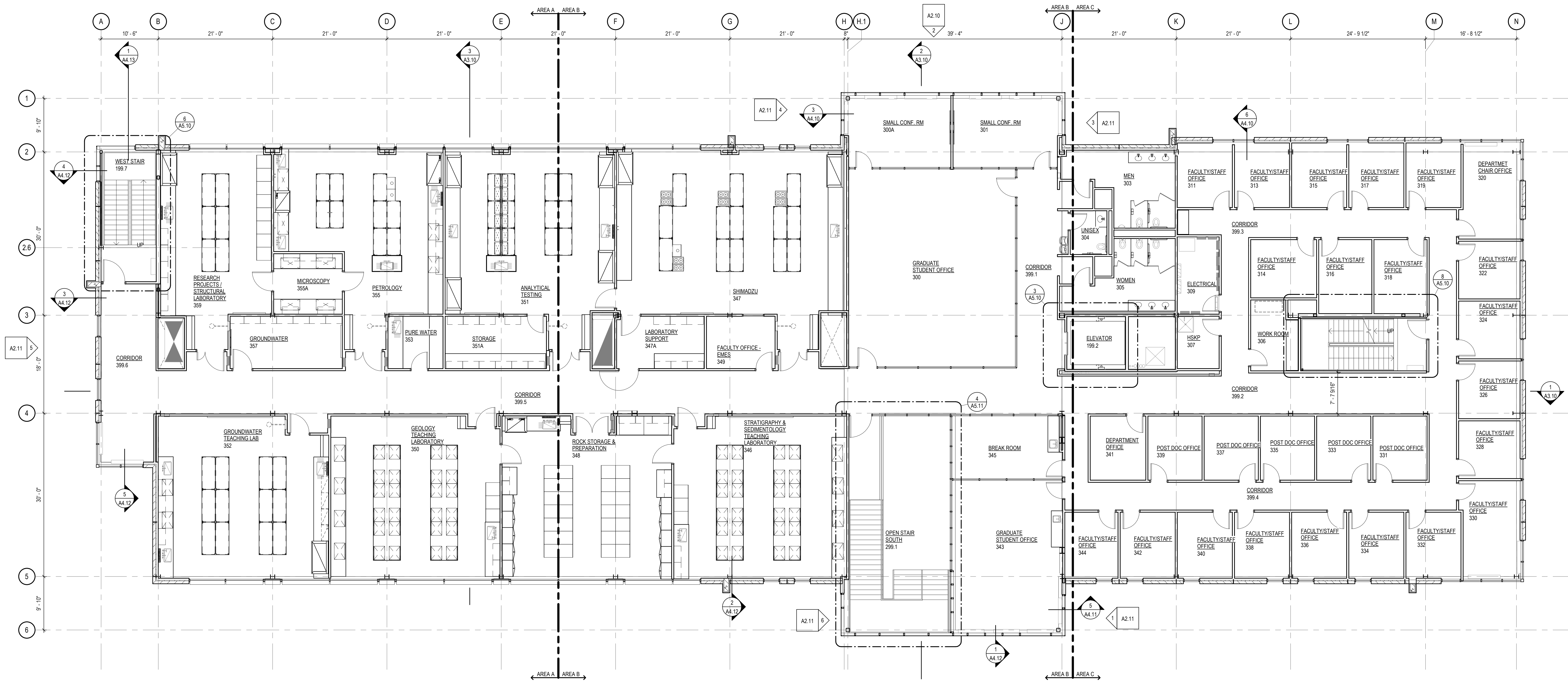
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CE No.: 888-003-21
OSE No.: R0721-06X
October 22, 2021

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Second Floor Plan

A1.12



1 THIRD FLOOR PLAN
SCALE: 1/8" = 1'-0"

GENERAL PLAN NOTES

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Design Development

South Dakota Mines - Mineral Industries Center of Excellence

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Rapid City, SD

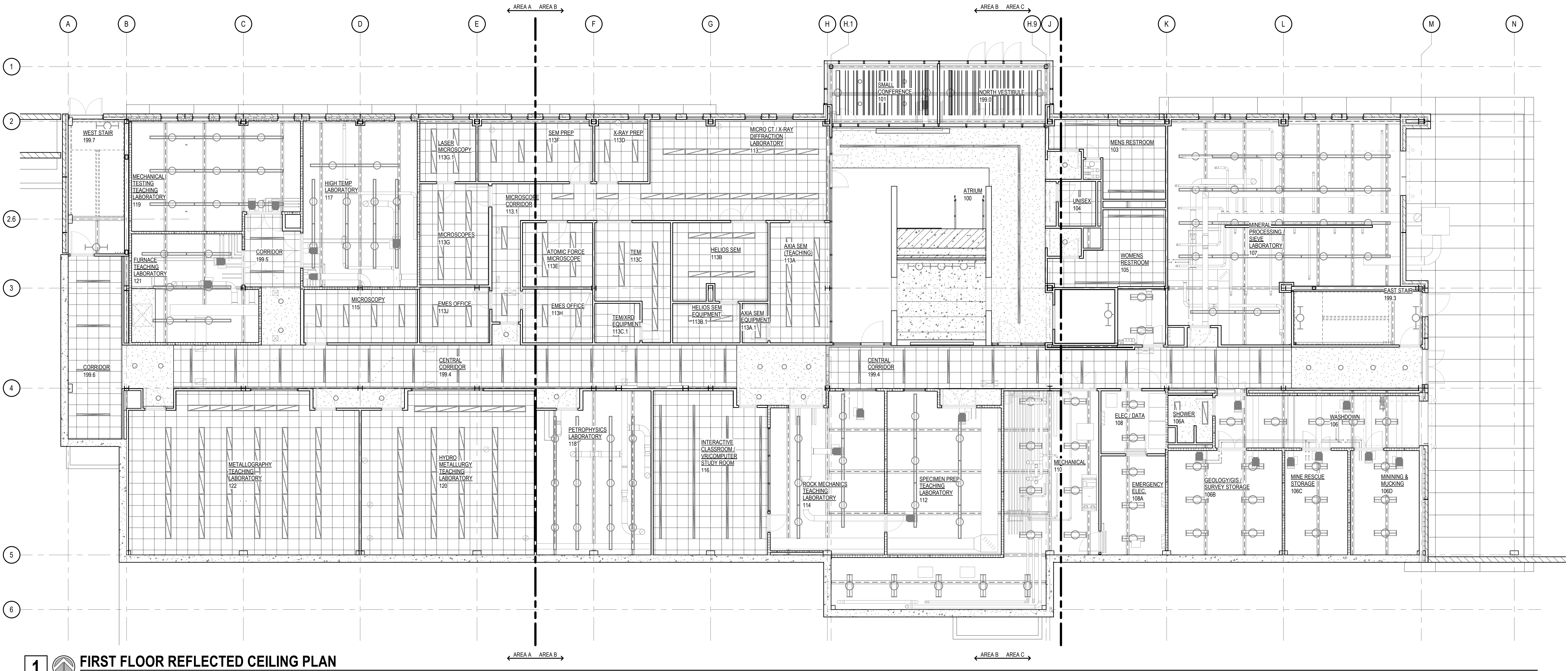
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OSE No.: R0721-06X
October 22, 2021

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Third Floor Plan

A1.13



REFLECTED CLG GENERAL NOTES:

- GPW BULKHEADS SHALL BE FRAMED WITH 25 GAUGE 3/8" STEEL STUDS @ 16" O.C. AND 5/8" TYPE 'X' GPW TO 6" ABOVE FINISH CEILING. BRACE AS REQUIRED.
- LIGHTING FIXTURES AND MECHANICAL DIFFUSERS / GRILLES ARE SHOWN FOR REFERENCE ONLY. SEE ELECTRICAL AND MECHANICAL DRAWINGS FOR EXACT LOCATIONS.
- ELEVATION TAGS ARE IN REFERENCE TO ARCHITECTURAL ELEVATIONS.
- WHERE CEILINGS ARE EXPOSED TO STRUCTURE ABOVE, PAINT ALL UNFINISHED MATERIALS OVERHEAD INCLUDING, BUT NOT LIMITED TO ROOF DECKING, DUCTS, PIPES, CONDUITS & JUNCTION BOXES. SEE FINISH SHEETS FOR PAINT.
- PROVIDE ACCESS PANELS AS REQUIRED IN HARD LID CEILINGS. COORDINATE WITH MECHANICAL AND ELECTRICAL ACCESS REQUIREMENTS.

REFLECTED CLG LEGEND

	5/8" SUSPENDED GPW CEILING SYSTEM
	ACOUSTICAL PANEL CEILING SYSTEM. SEE ROOM FINISH SCHEDULE & RCP FOR TYPE.
	2x2 ACCESS PANEL. REF: SPEC.
	RECESSED & PENDANT MOUNTED LIGHT FIXTURES. REF: ELECTRICAL
	RECESSED DOWNLIGHT. REF: ELECTRICAL
	EXIT SIGNAGE. REF: ELECTRICAL
	RETURN AIR / EXHAUST AIR GRILLE. REF: MECHANICAL
	SUPPLY AIR DIFFUSER. REF: MECHANICAL

RCP ABBREVIATIONS

APC - ACOUSTICAL PANEL CEILING
MPS - METAL PANEL SOFFIT
GPW - GYPSUM DRY WALL
AFB - ACOUSTICAL FELT BAFFLE

Design Development

South Dakota Mines - Mineral Industries Center of Excellence

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South Dakota Mines
Rapid City, SD

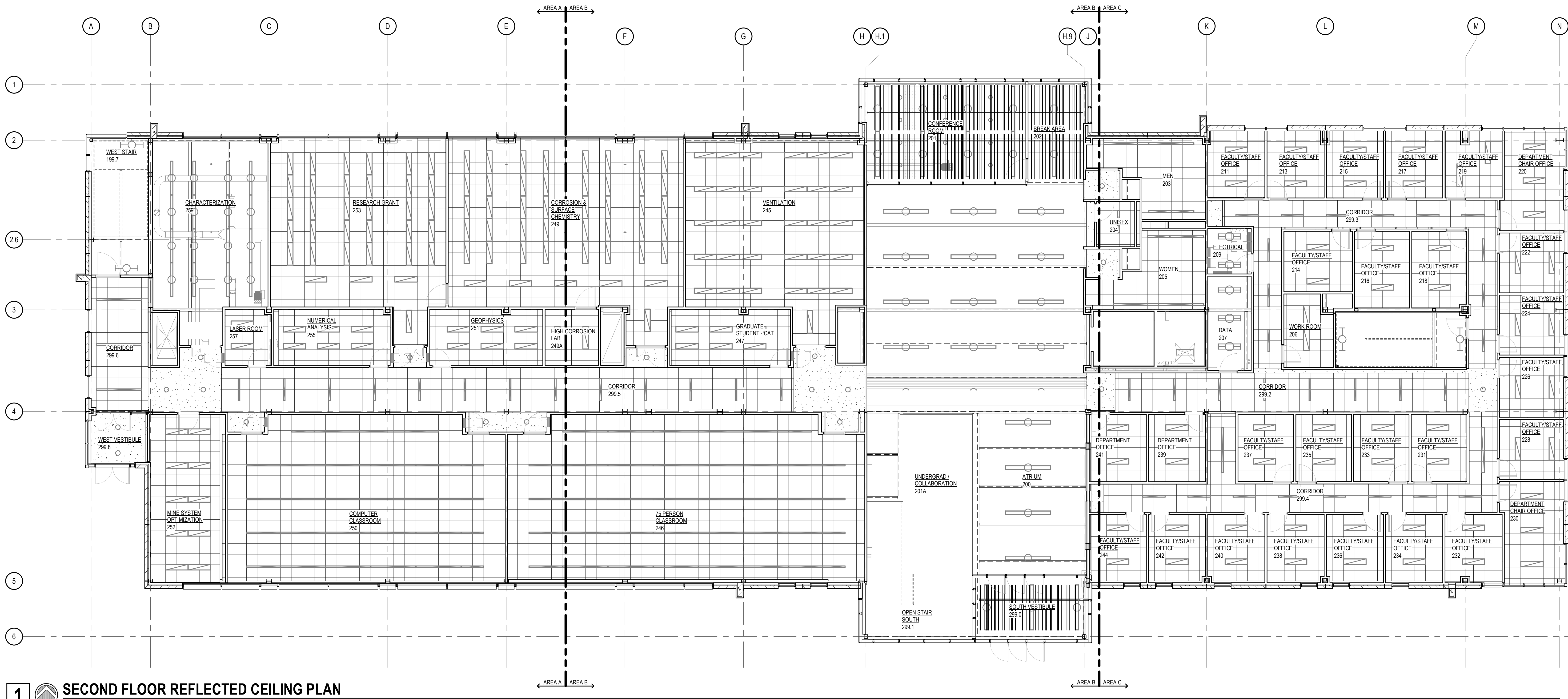
CE No.: 888-003-21
OSE No.: R0721-06X
October 22, 2021

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First Floor Reflected
Ceiling Plan

A1.21



1 SECOND FLOOR REFLECTED CEILING PLAN
SCALE: 1/8" = 1'-0"

REFLECTED CLG GENERAL NOTES:

- GPW BULKHEADS SHALL BE FRAMED WITH 25 GAUGE 3 5/8" STEEL STUDS @ 16" O.C. AND 5/8" TYPE 'X' GPW TO 6" ABOVE FINISH CEILING. BRACE AS REQUIRED.
- LIGHTING FIXTURES AND MECHANICAL DIFFUSERS / GRILLES ARE SHOWN FOR REFERENCE ONLY. SEE ELECTRICAL AND MECHANICAL DRAWINGS FOR EXACT LOCATIONS.
- ELEVATION TAGS ARE IN REFERENCE TO ARCHITECTURAL ELEVATIONS.
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- PROVIDE ACCESS PANELS AS REQUIRED IN HARD LID CEILINGS. COORDINATE WITH MECHANICAL AND ELECTRICAL ACCESS REQUIREMENTS.

REFLECTED CLG LEGEND

	5/8" SUSPENDED GPW CEILING SYSTEM
	ACOUSTICAL PANEL CEILING SYSTEM. SEE ROOM FINISH SCHEDULE & RCP FOR TYPE.
	2x2 ACCESS PANEL. REF: SPEC.
	RECESSED & PENDANT MOUNTED LIGHT FIXTURES. REF: ELECTRICAL
	RECESSED DOWNLIGHT. REF: ELECTRICAL
	EXIT SIGNAGE. REF: ELECTRICAL
	RETURN AIR / EXHAUST AIR GRILLE. REF: MECHANICAL
	SUPPLY AIR DIFFUSER. REF: MECHANICAL

RCP ABBREVIATIONS

APC - ACOUSTICAL PANEL CEILING
MPS - METAL PANEL SOFFIT
GPW - GYPSUM DRY WALL
AFB - ACOUSTICAL FELT BAFFLE

Design Development

South Dakota Mines - Mineral Industries Center of Excellence

Technology CT
South Dakota Mines
Rapid City, SD

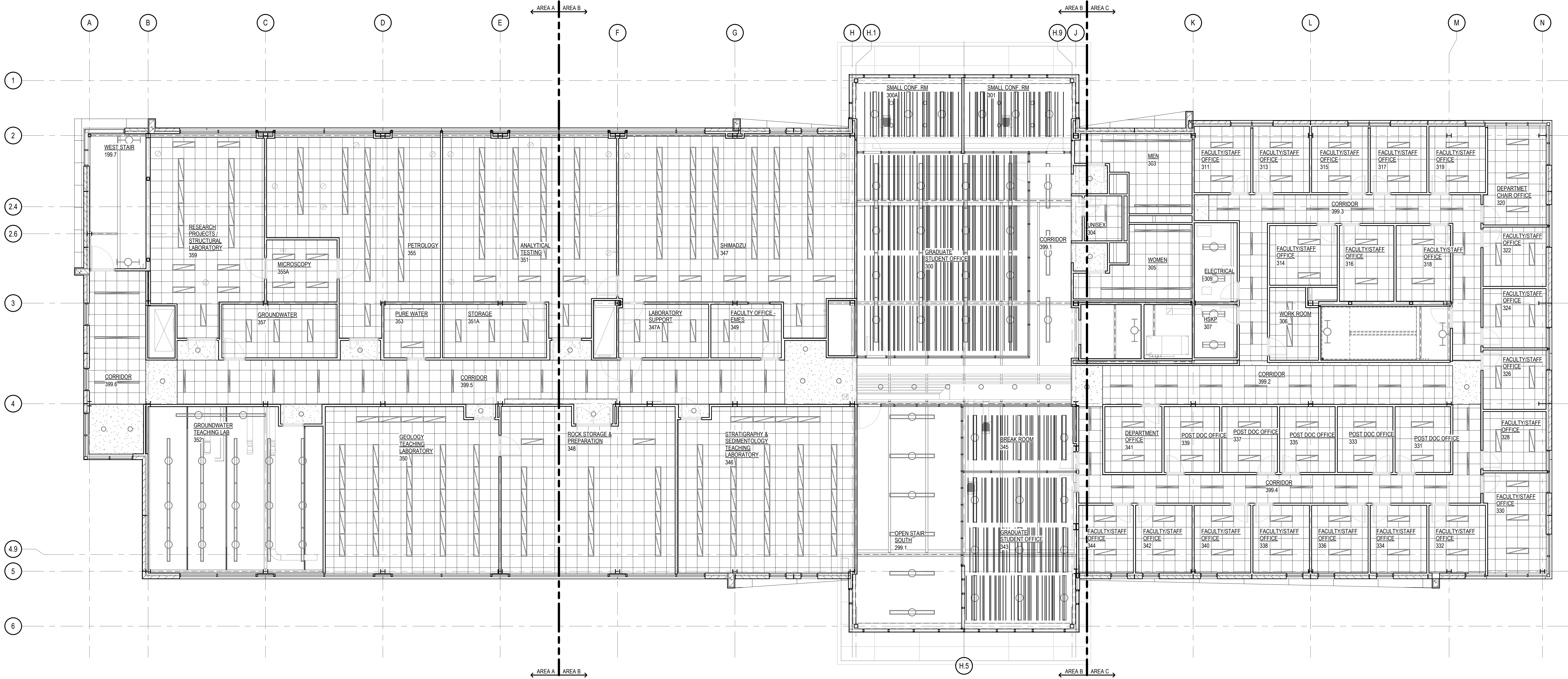
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October 22, 2021

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Second Floor Reflected
Ceiling Plan

A1.22



1 THIRD FLOOR REFLECTED CEILING PLAN
SCALE: 1/8" = 1'-0"

REFLECTED CLG GENERAL NOTES:

- GPW BULKHEADS SHALL BE FRAMED WITH 25 GAUGE 3/8" STEEL STUDS @ 16" O.C. AND 5/8" TYPE 'X' GPW TO 6" ABOVE FINISH CEILING. BRACE AS REQUIRED.
- LIGHTING FIXTURES AND MECHANICAL DIFFUSERS / GRILLES ARE SHOWN FOR REFERENCE ONLY. SEE ELECTRICAL AND MECHANICAL DRAWINGS FOR EXACT LOCATIONS.
- ELEVATION TAGS ARE IN REFERENCE TO ARCHITECTURAL ELEVATIONS.
- WHERE CEILINGS ARE EXPOSED TO STRUCTURE ABOVE, PAINT ALL UNFINISHED MATERIALS OVERHEAD INCLUDING, BUT NOT LIMITED TO ROOF DECKING, DUCTS, PIPES, CONDUITS & JUNCTION BOXES; SEE FINISH SHEETS FOR PAINT.
- PROVIDE ACCESS PANELS AS REQUIRED IN HARD LID CEILINGS. COORDINATE WITH MECHANICAL AND ELECTRICAL ACCESS REQUIREMENTS.

REFLECTED CLG LEGEND

	5/8" SUSPENDED GPW CEILING SYSTEM
	ACOUSTICAL PANEL CEILING SYSTEM. SEE ROOM FINISH SCHEDULE & RCP FOR TYPE.
	2x2 ACCESS PANEL. REF. SPEC.
	RECESSED & PENDANT MOUNTED LIGHT FIXTURES. REF. ELECTRICAL
	RECESSED DOWNLIGHT. REF. ELECTRICAL
	EXIT SIGNAGE. REF. ELECTRICAL
	RETURN AIR / EXHAUST AIR GRILLE. REF. MECHANICAL
	SUPPLY AIR DIFFUSER. REF. MECHANICAL

RCP ABBREVIATIONS

APC - ACOUSTICAL PANEL CEILING
MPS - METAL PANEL SOFFIT
GPW - GYPSUM DRY WALL
AFB - ACOUSTICAL FELT BAFFLE

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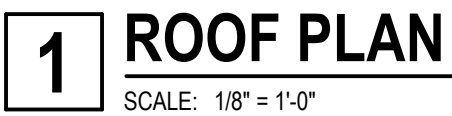
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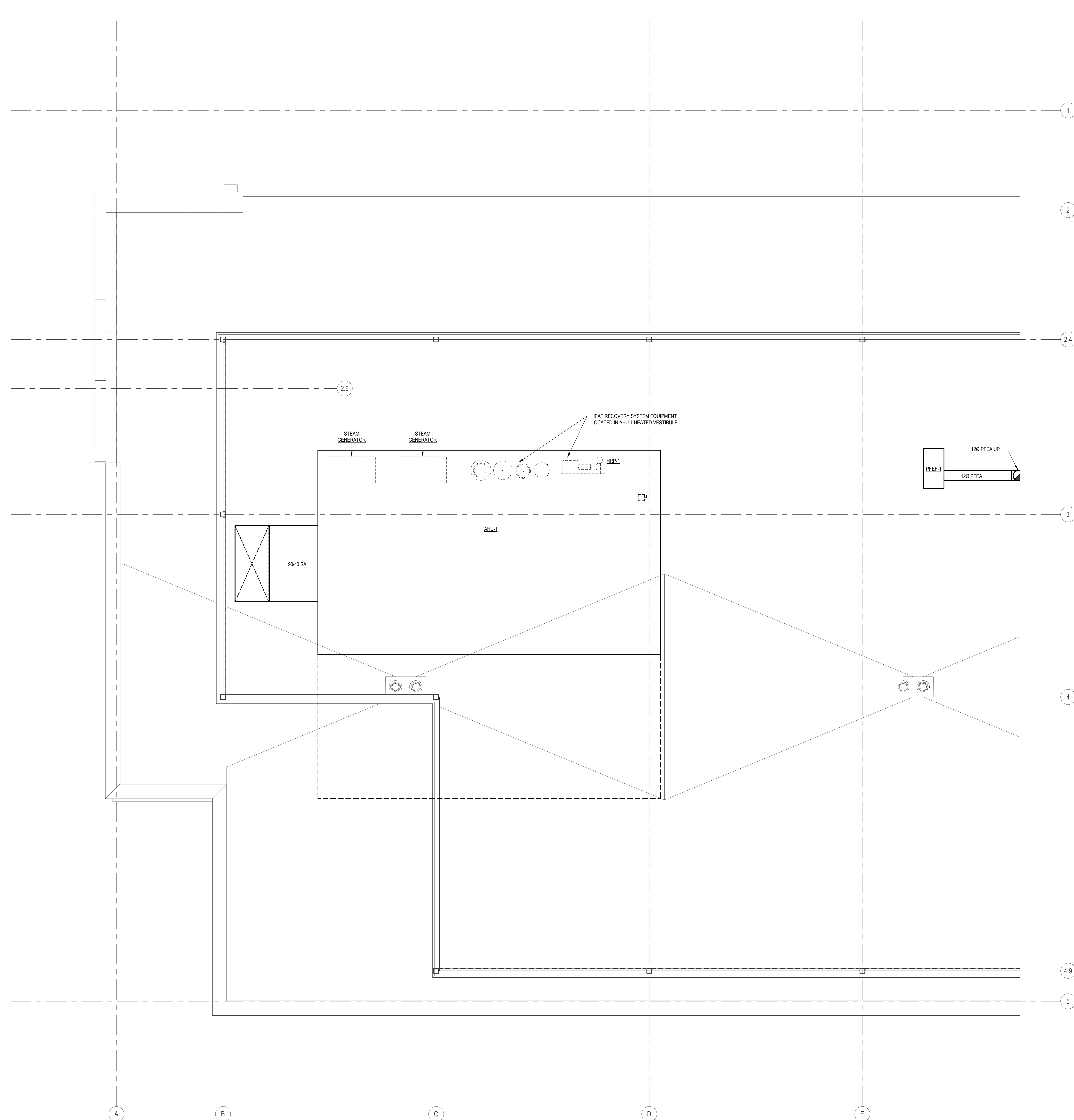
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Third Floor Reflected
Ceiling Plan

A1.23



ROOF DRAIN AREA CALCULATIONS			
	FLAT AREA	VERTICAL AREA/2	TOTAL SQUARE FOOTAGE
DRAIN 1	3.913 SF	185 SF	4,098 SF
DRAIN 2	3.900 SF	102 SF	4,002 SF
DRAIN 3	4.590 SF	420 SF	5,010 SF
DRAIN 4	4.628 SF	458 SF	5,086 SF
DRAIN 5	4.393 SF	191 SF	4,584 SF



FOURTH FLOOR HVAC PLAN - AREA A
SCALE: 1/4" = 1'-0"

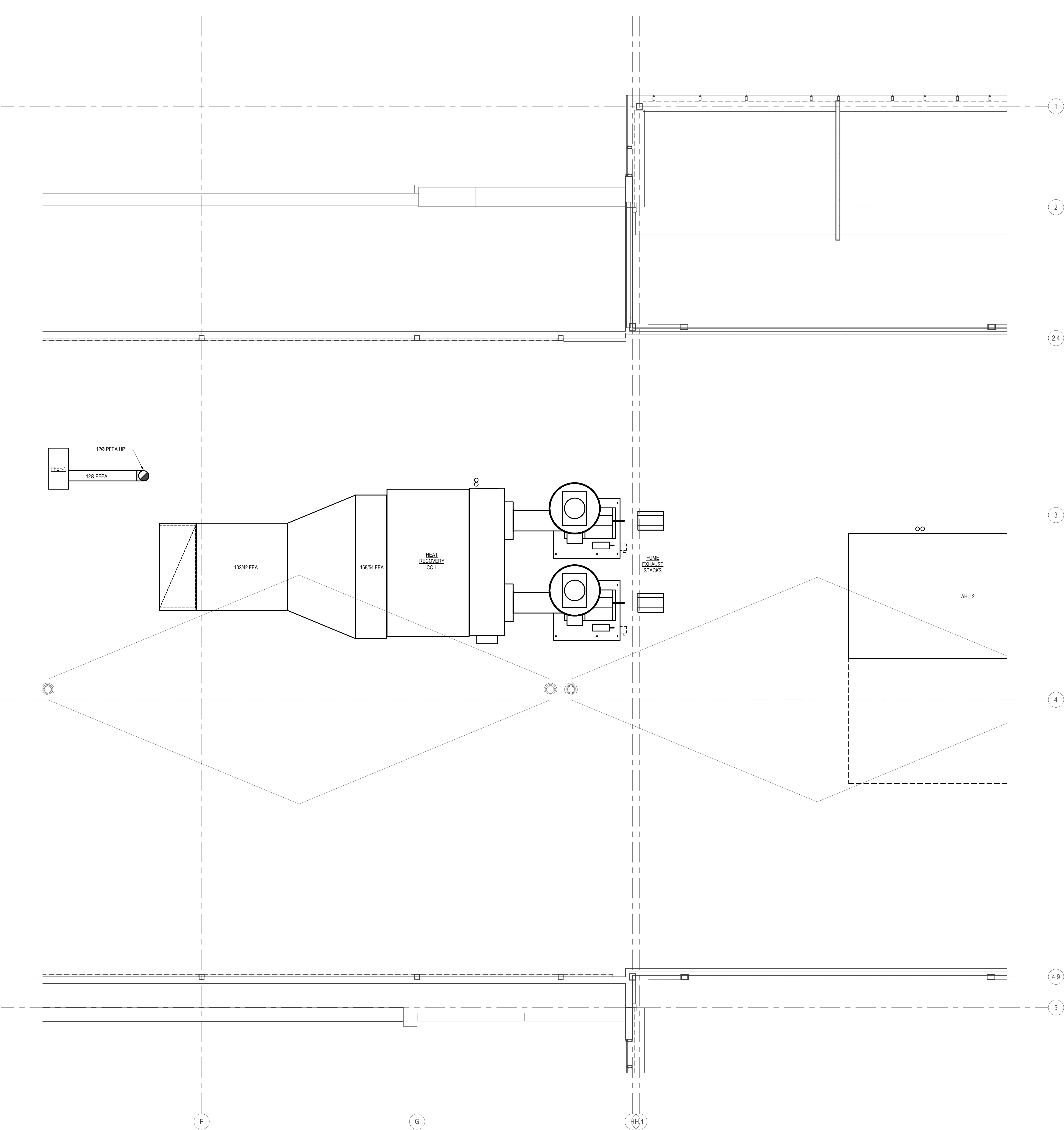
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FOURTH FLOOR HVAC PLAN - AREA B

SCALE: 1/4" = 1'-0"



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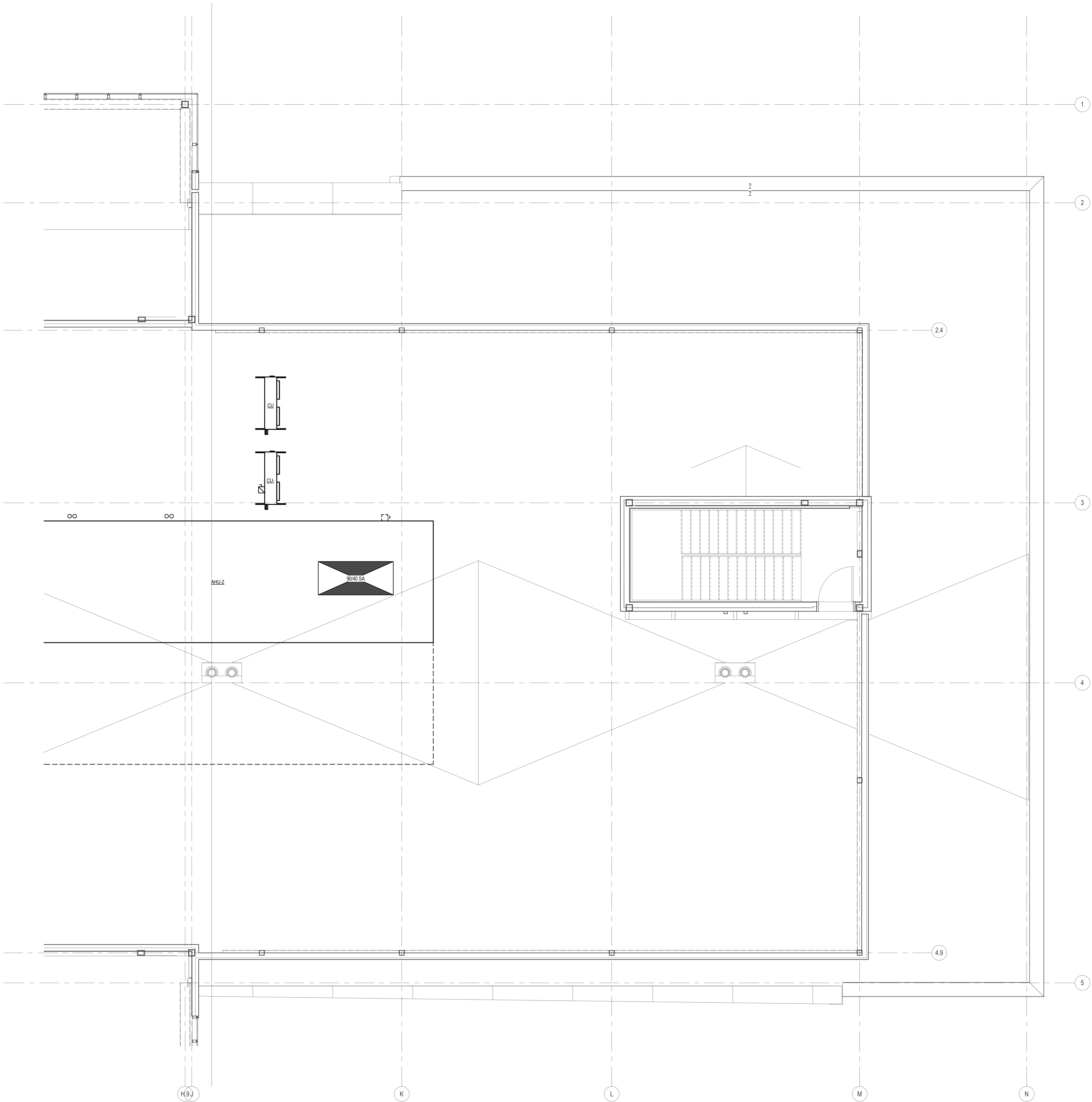
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Mechanical Roof Plan -
Area B

M1.12



FOURTH FLOOR HVAC PLAN - AREA C
SCALE: 1/4" = 1'-0"

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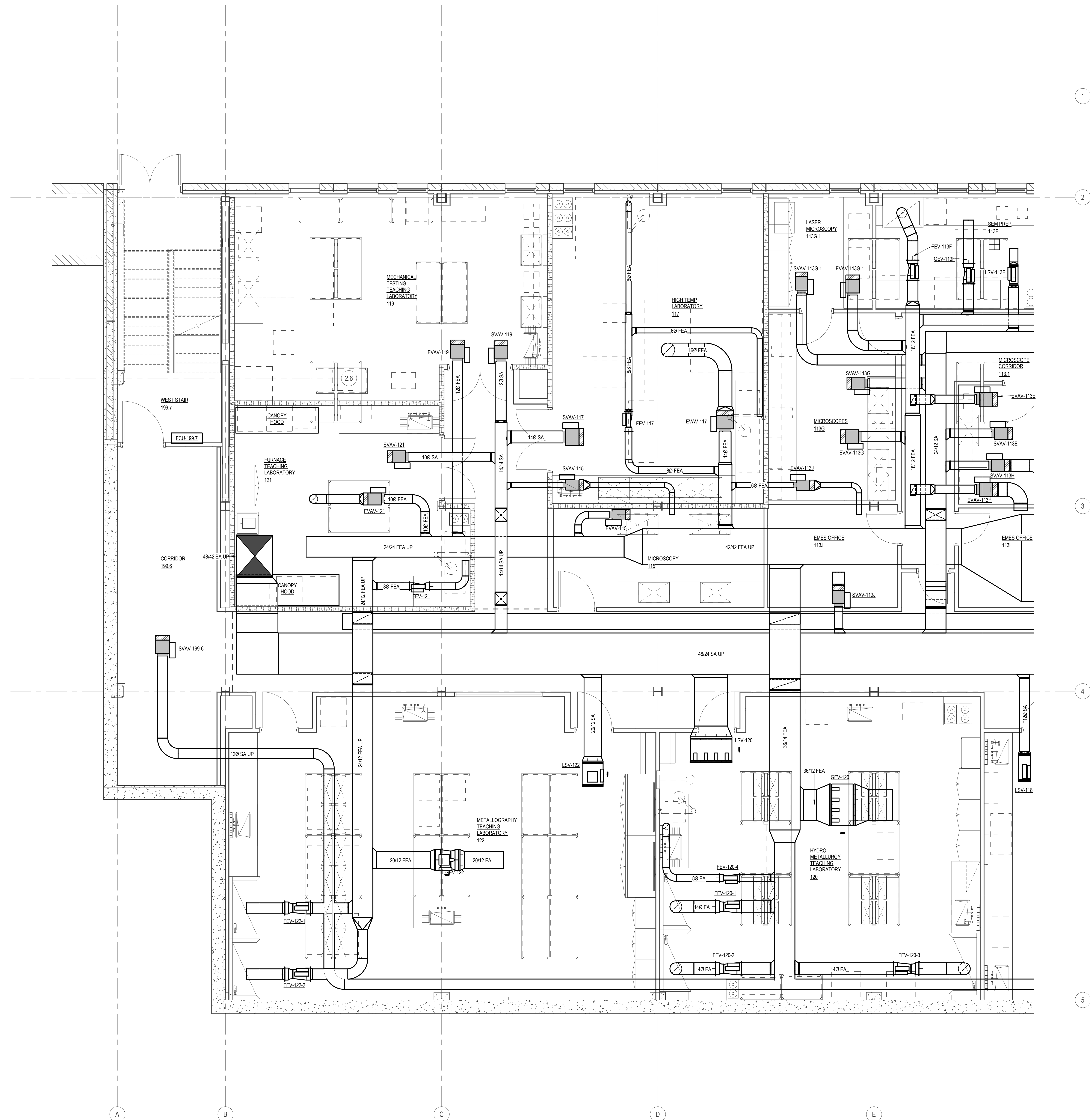
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Mechanical Roof Plan -
Area C

M1.13



FIRST FLOOR HVAC PLAN - AREA A
SCALE: 1/4" = 1'-0"

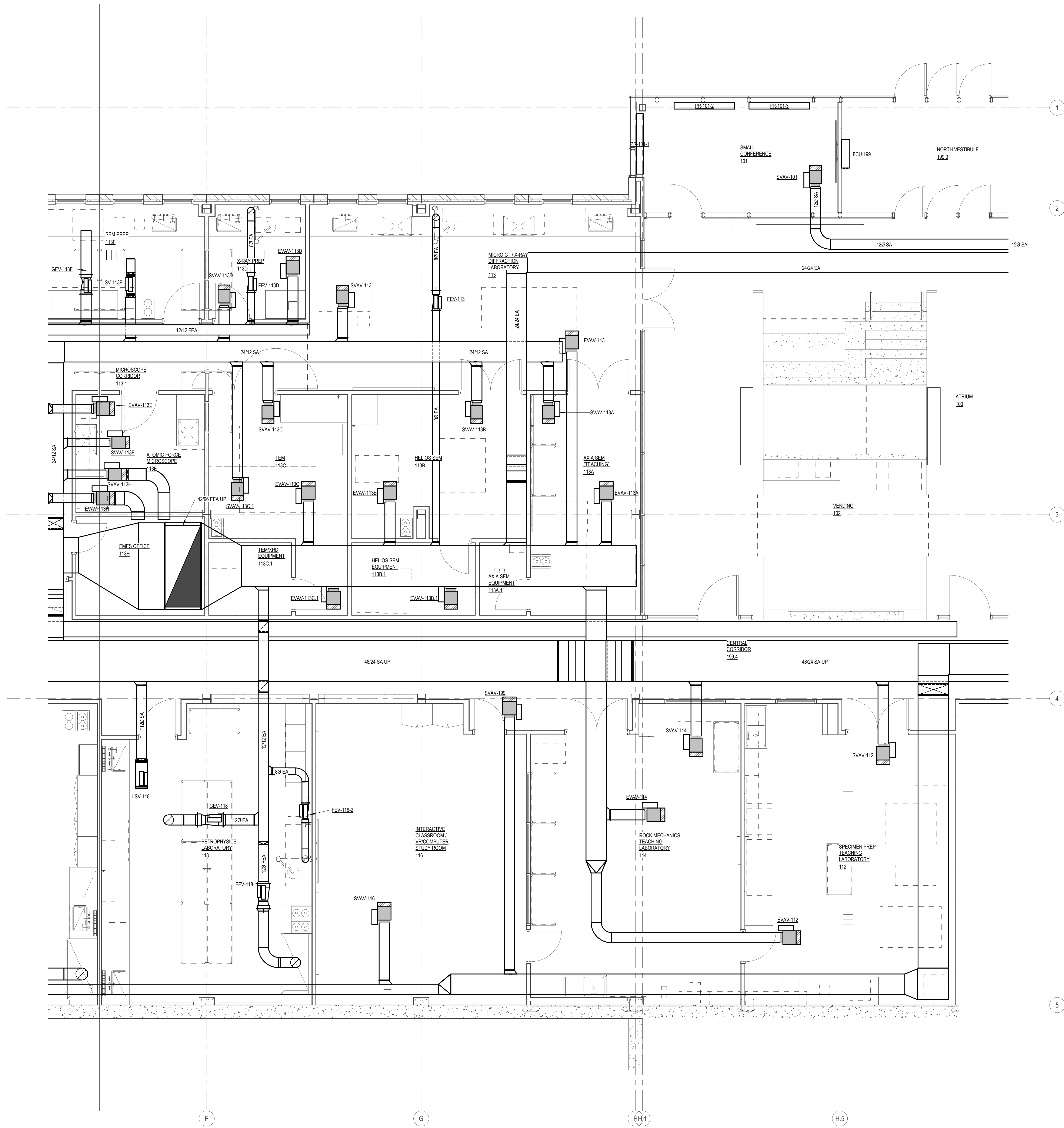
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FIRST FLOOR HVAC PLAN - AREA B
SCALE: 1/4" = 1'-0"

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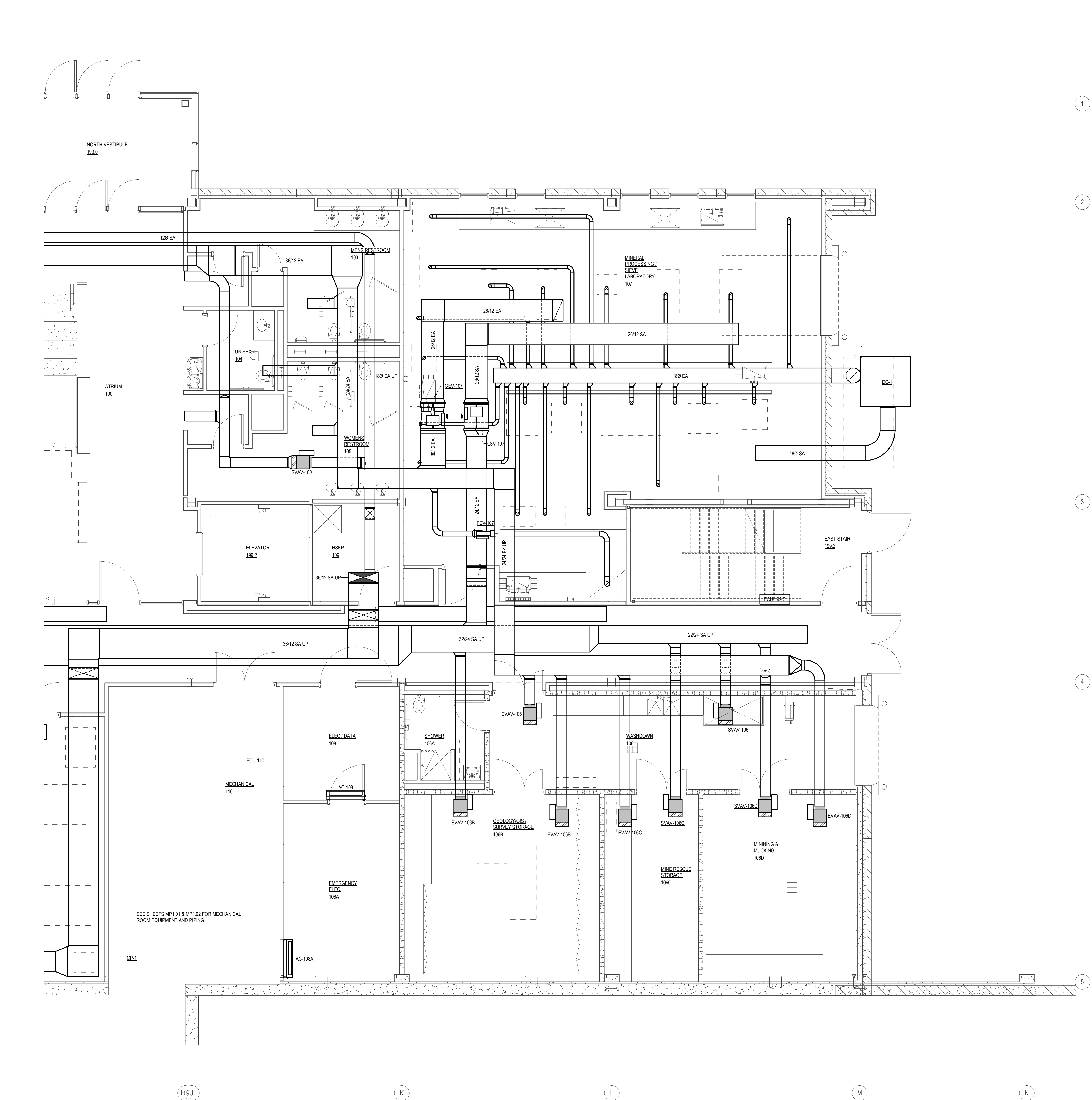
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First Floor HVAC Plan -
Area B

M2.12



FIRST FLOOR HVAC PLAN - AREA C
SCALE: 1/4" = 1'-0"

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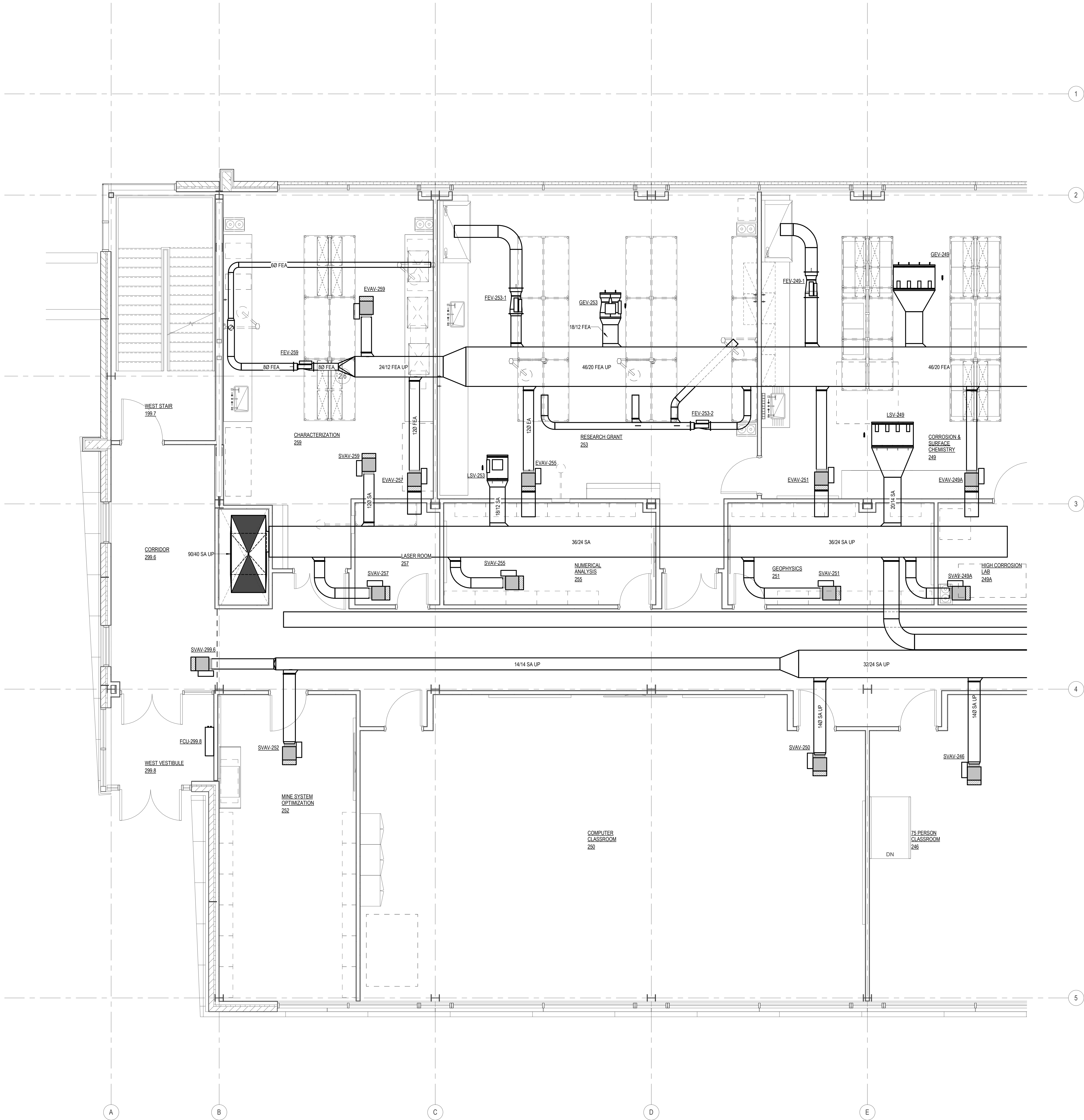
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First Floor HVAC Plan -
Area C

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SECOND FLOOR HVAC PLAN - AREA A
SCALE: 1/4" = 1'-0"

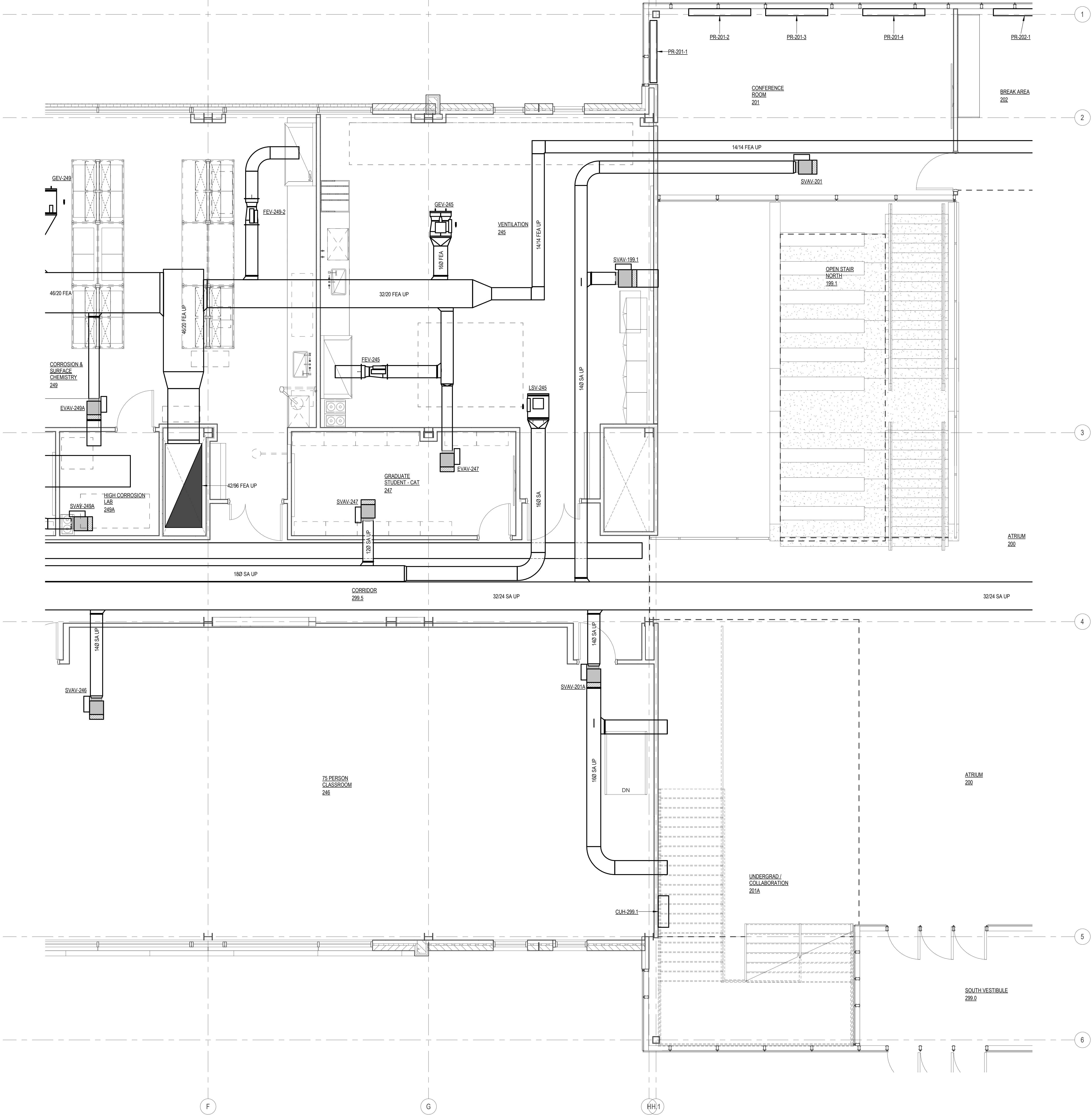
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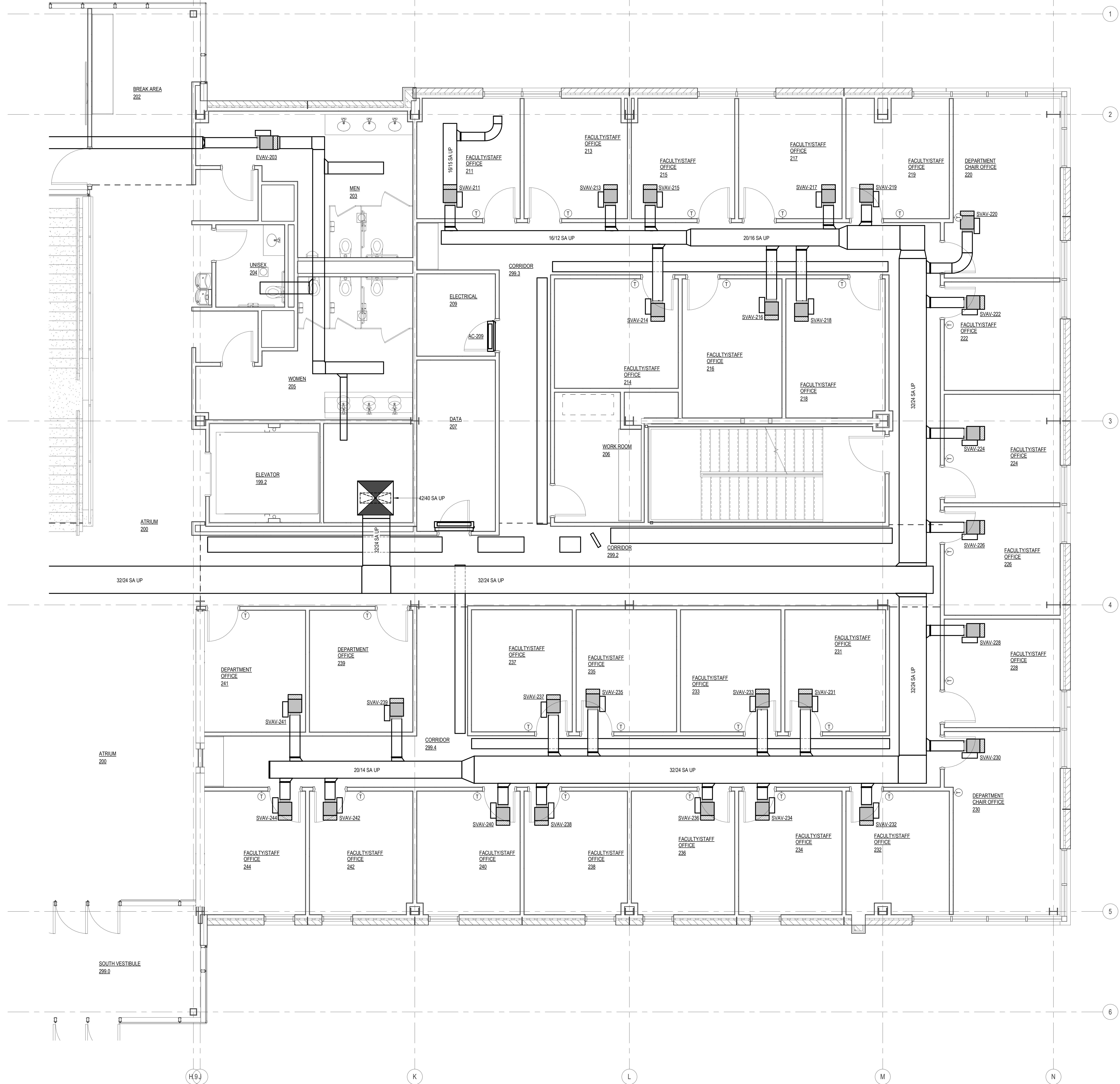
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SECOND FLOOR HVAC PLAN - AREA C
SCALE: 1/4" = 1'-0"

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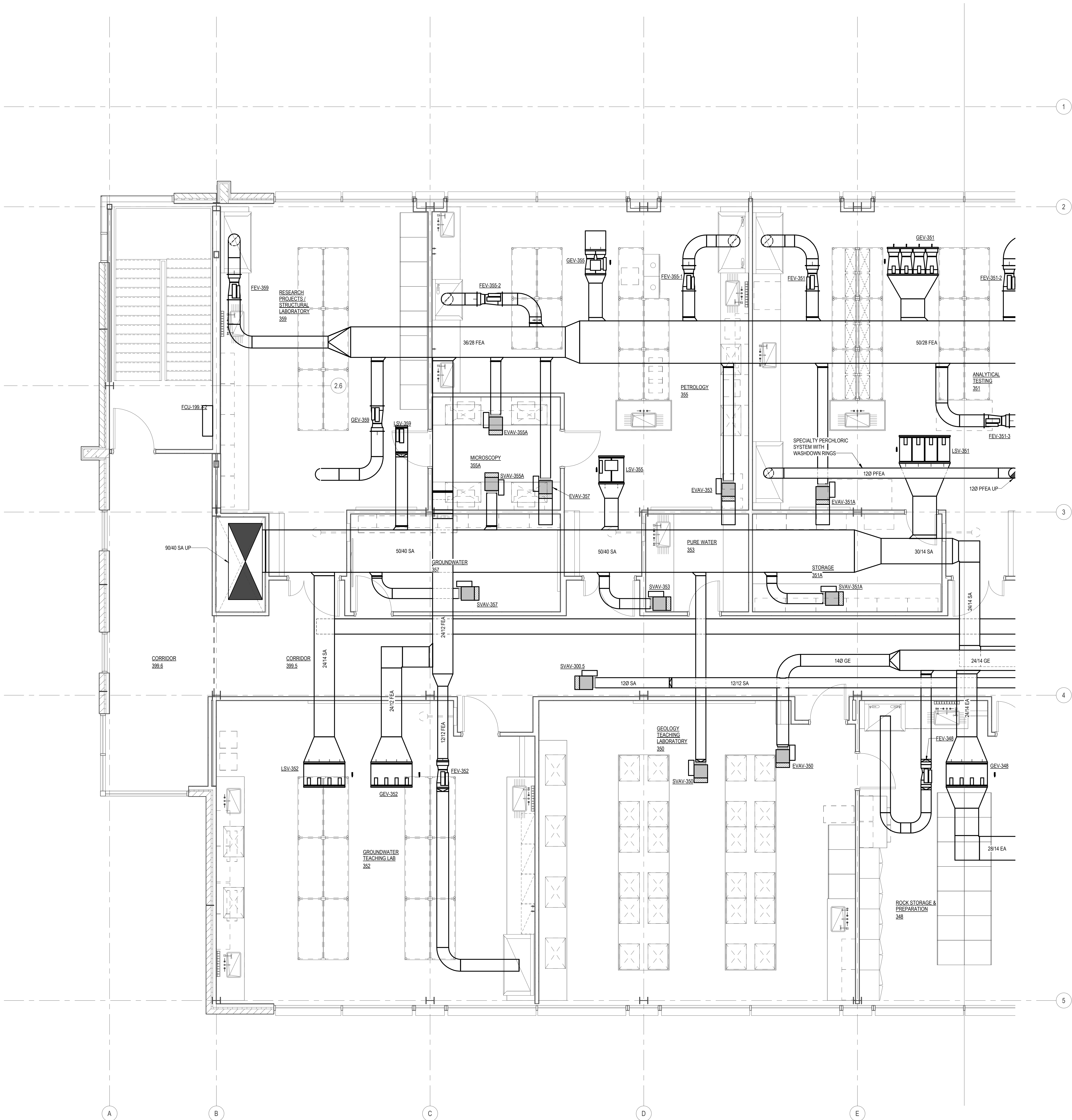
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Second Floor HVAC Plan -
Area C

M2.23



THIRD FLOOR HVAC PLAN - AREA A
SCALE: 1/4" = 1'-0"

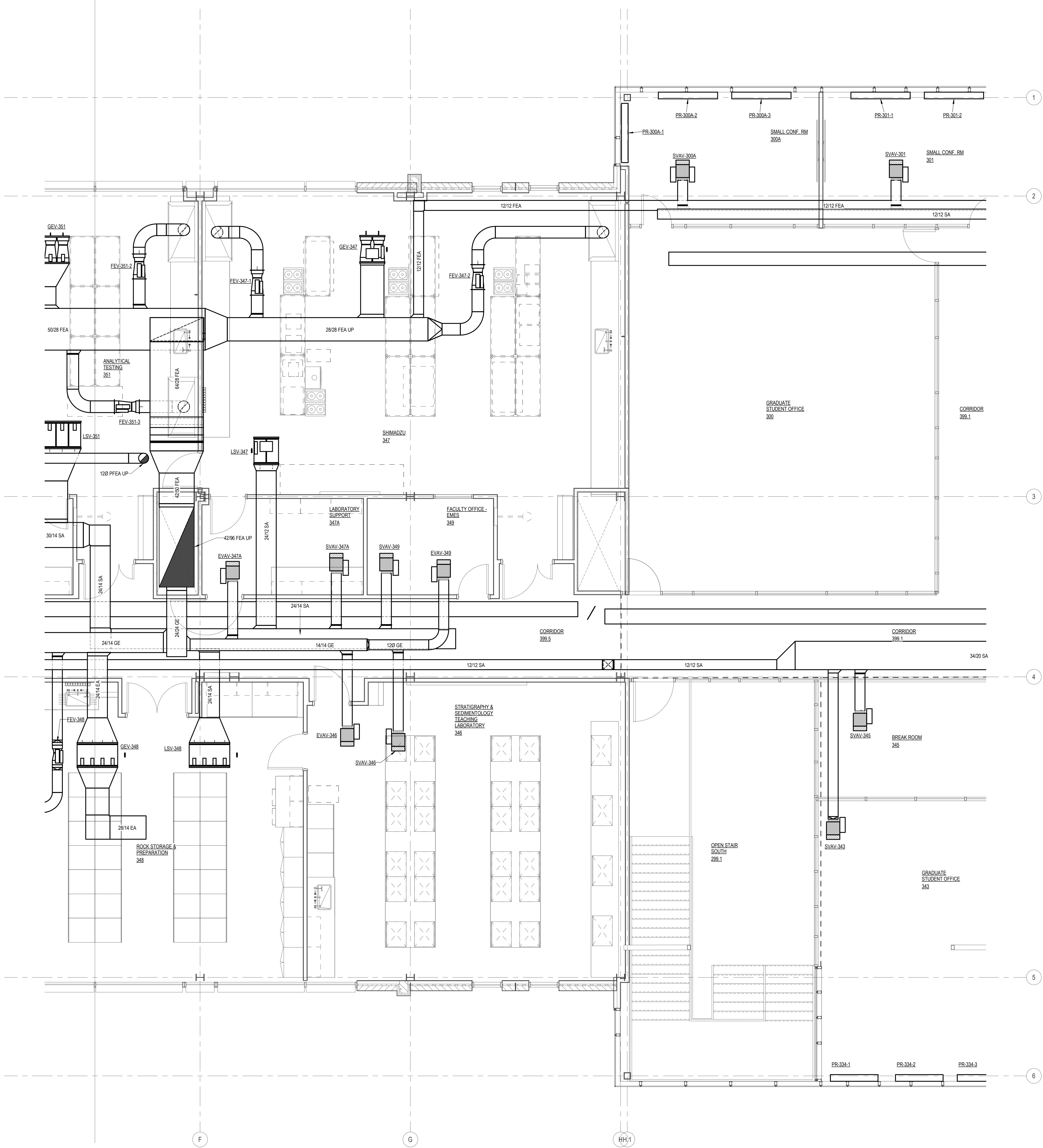
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SCALE: 1/4" = 1'-0"

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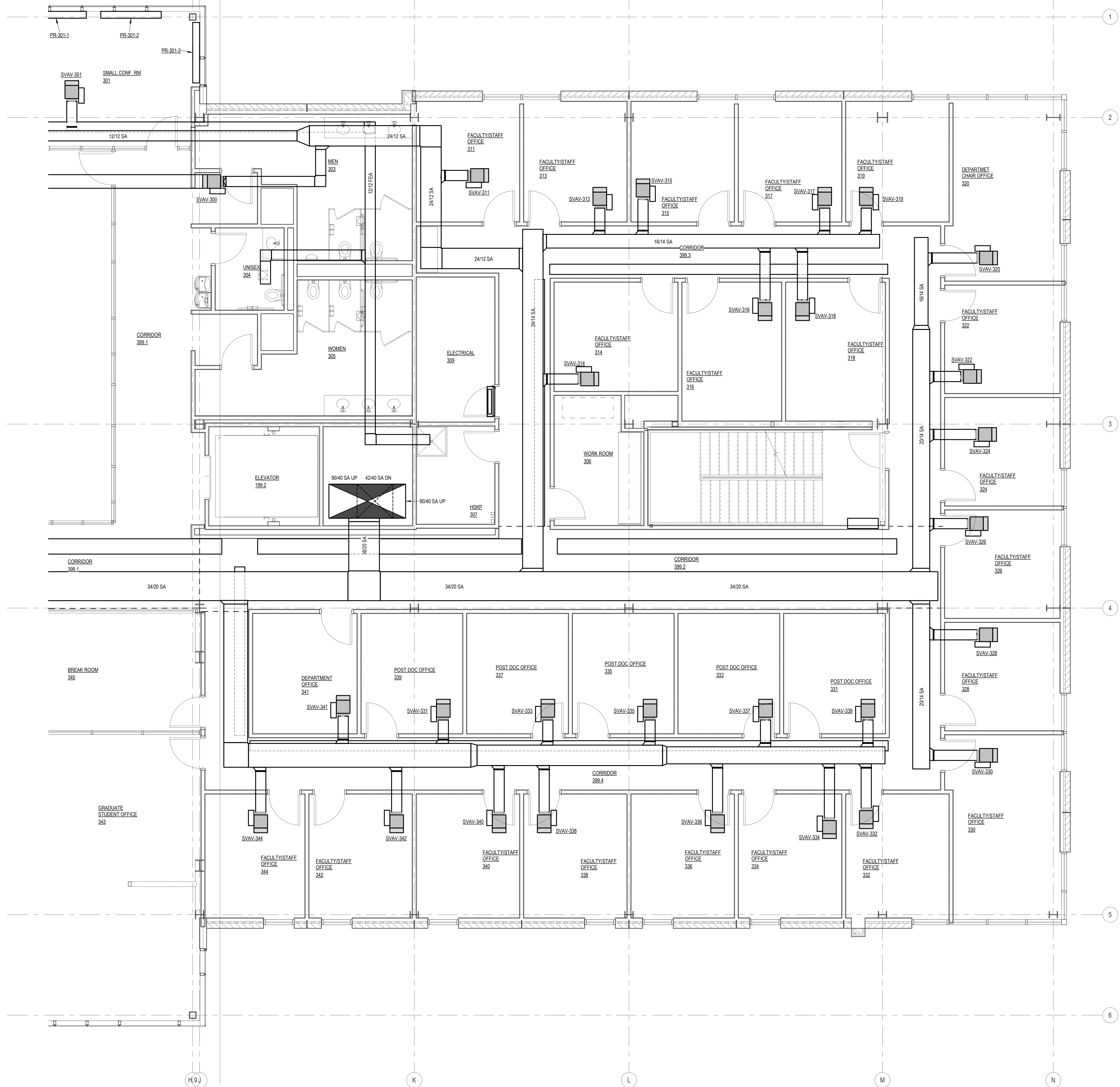
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Third Floor HVAC Plan -
Area B

M2.32



THIRD FLOOR HVAC PLAN - AREA C
 SCALE: 1/4" = 1'-0"

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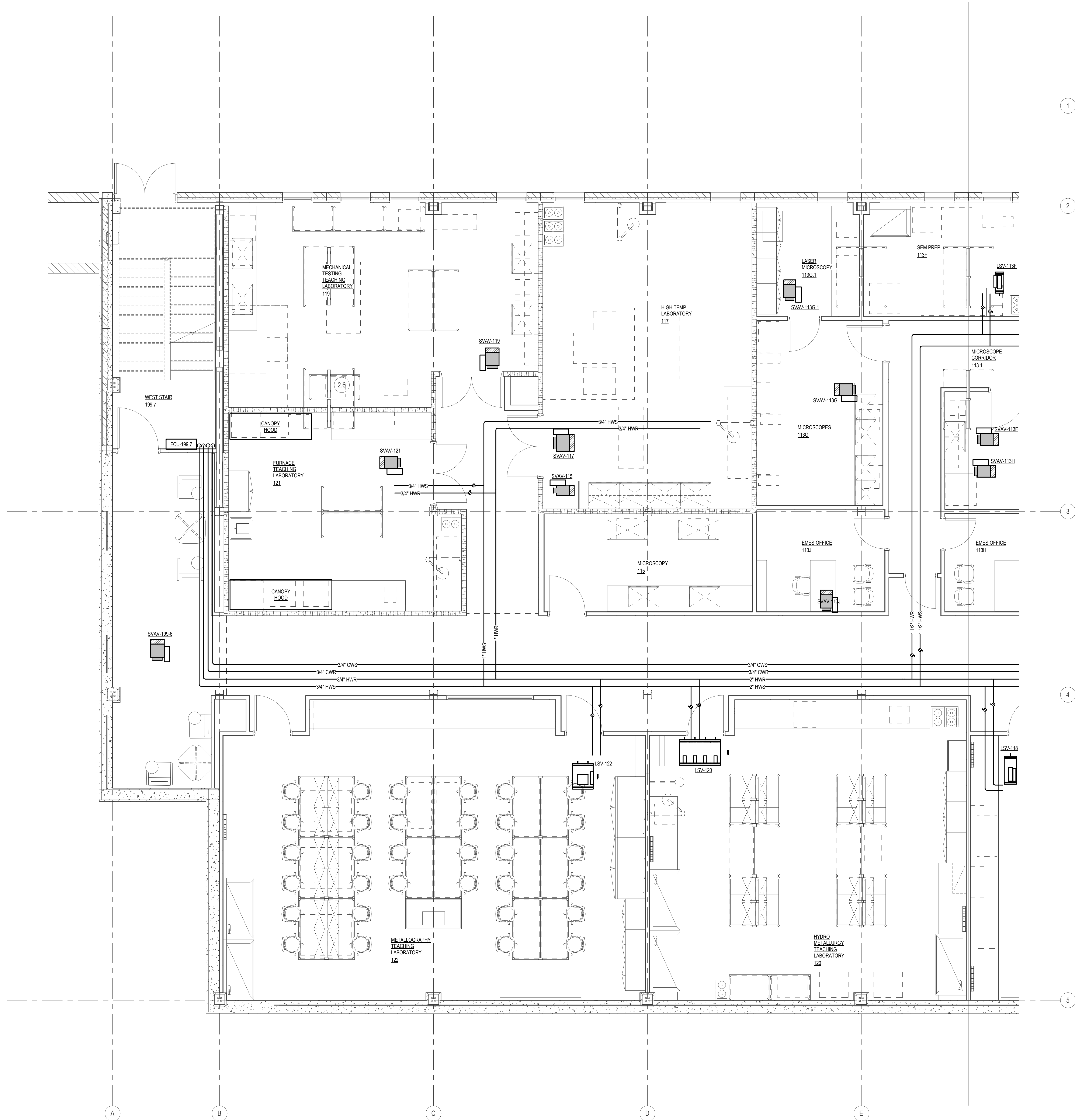
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Third Floor HVAC Plan -
 Area C

M2.33



FIRST FLOOR HVAC PIPING PLAN - AREA A
SCALE: 1/4" = 1'-0"

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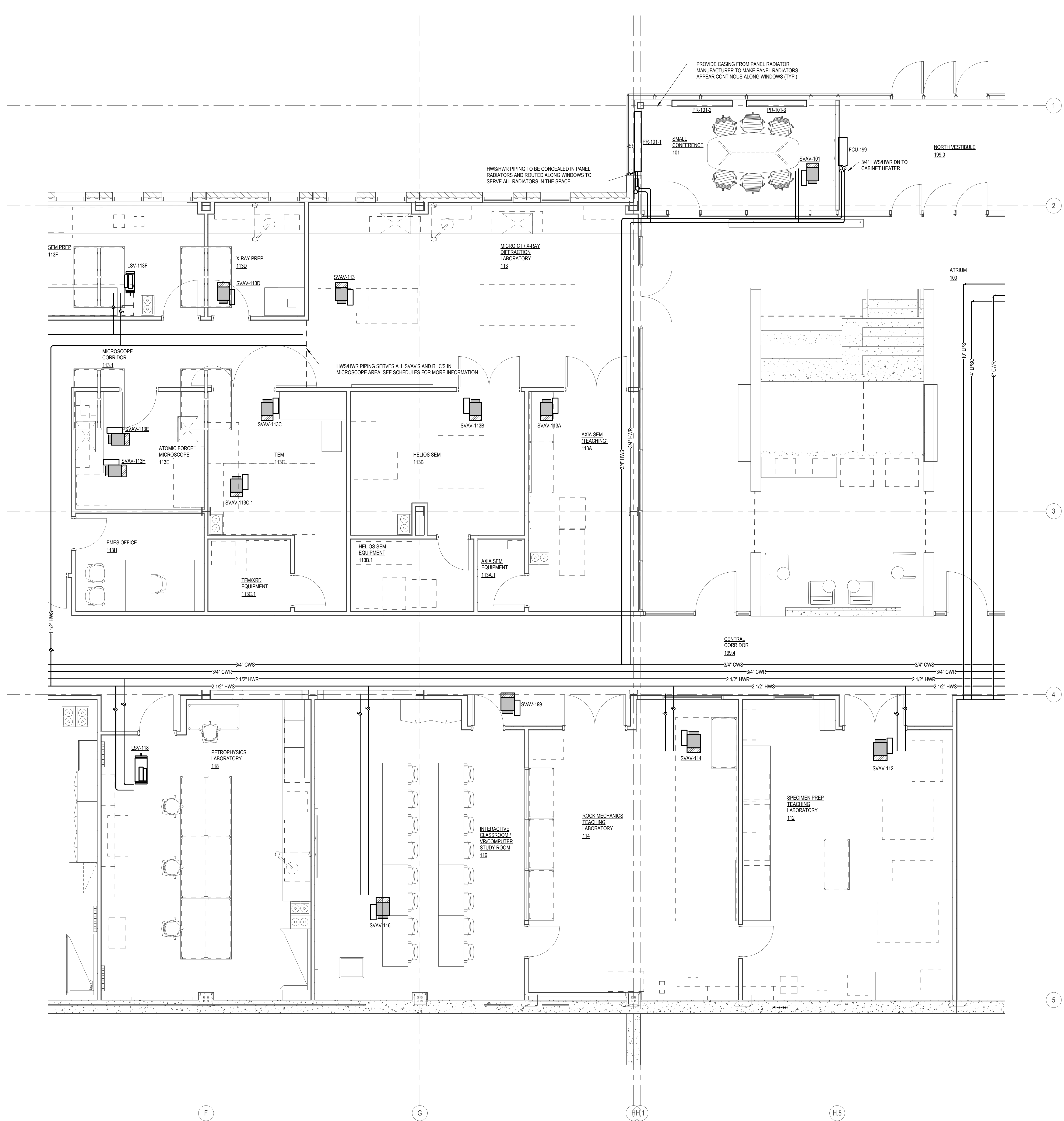
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First Floor HVAC Piping
Plan - Area A

M3.11



FIRST FLOOR HVAC PIPING PLAN - AREA B
SCALE: 1/4" = 1'-0"

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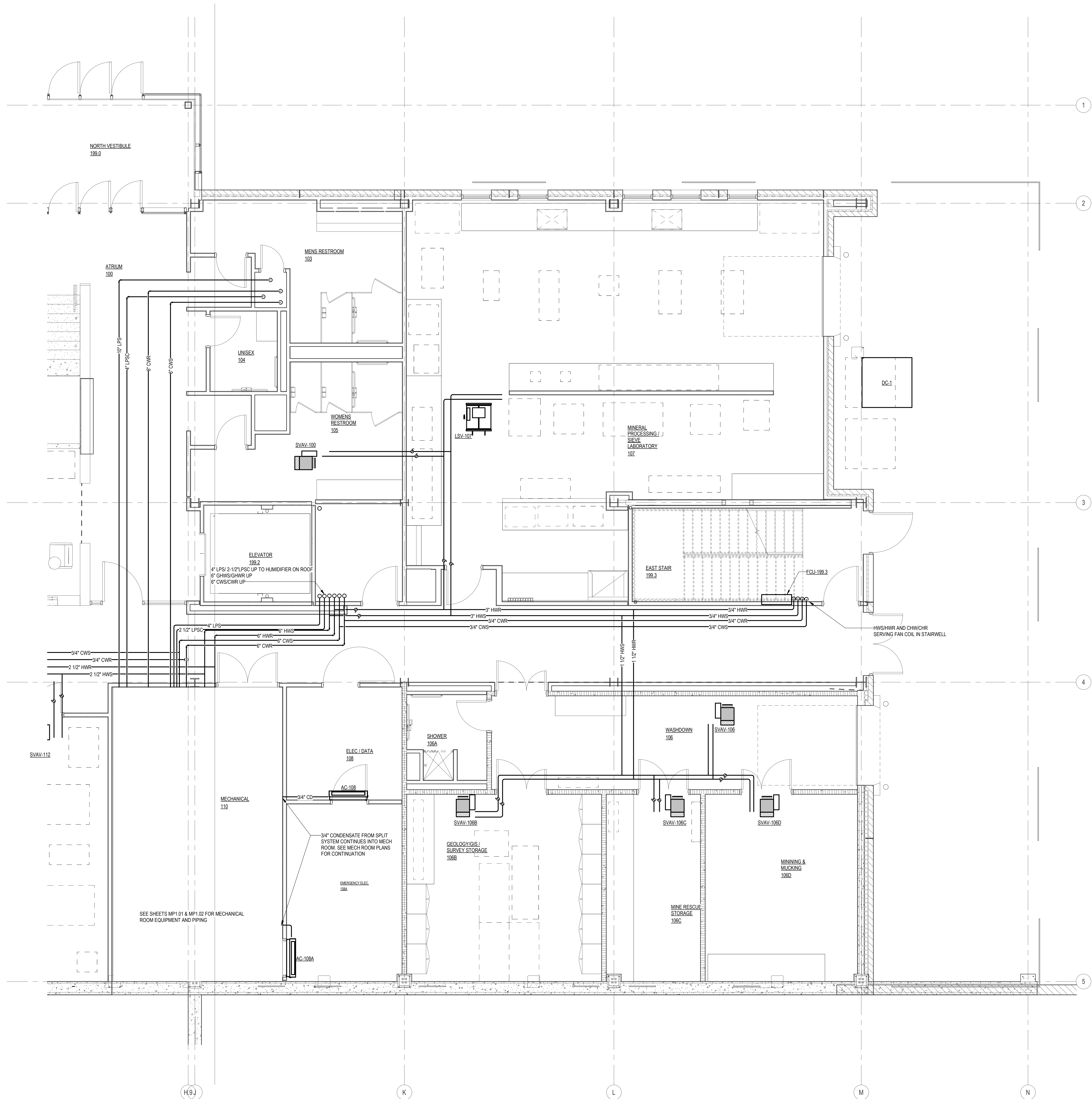
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First Floor HVAC Piping
Plan - Area B

M3.12



FIRST FLOOR HVAC PIPING PLAN - AREA C

SCALE: 1/4" = 1'-0"

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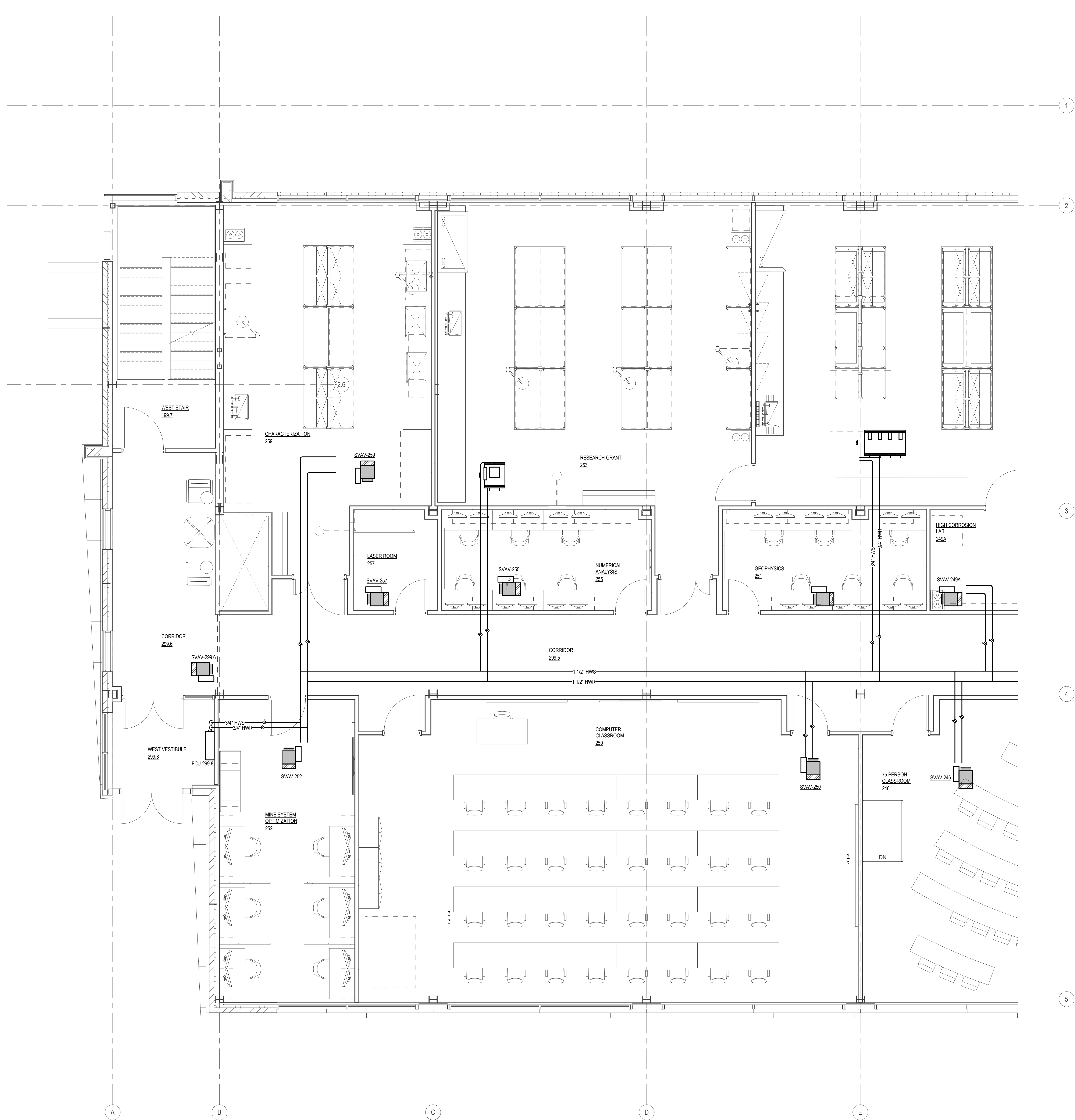
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First Floor HVAC Piping
Plan - Area C

M3.13



SECOND FLOOR HVAC PIPING PLAN - AREA A
SCALE: 1/4" = 1'-0"

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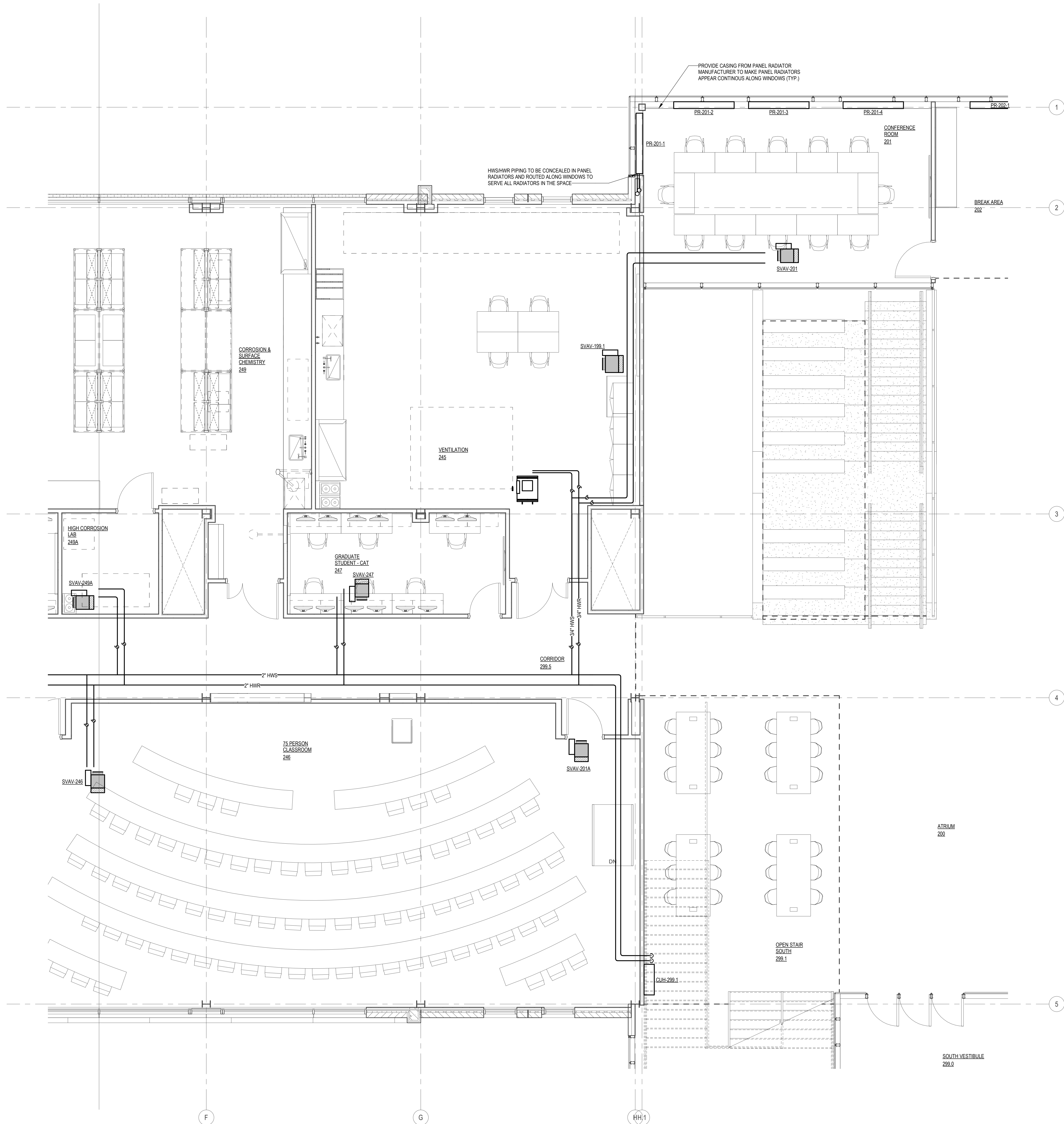
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Second Floor HVAC
Piping Plan - Area A

M3.21



SECOND FLOOR HVAC PIPING PLAN - AREA B
SCALE: 1/4" = 1'-0"

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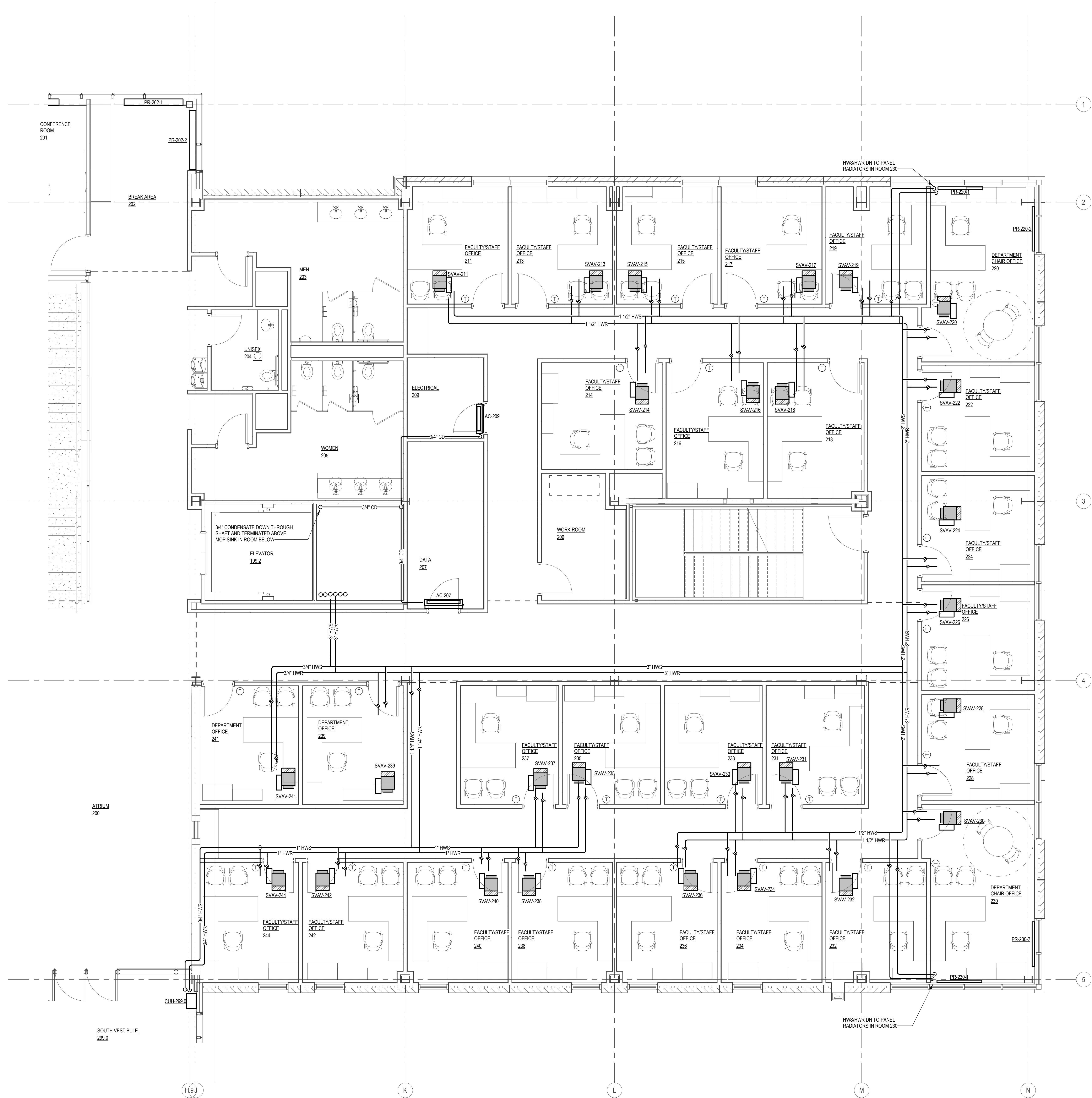
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Second Floor HVAC
Piping Plan - Area B

M3.22



SECOND FLOOR HVAC PIPING PLAN - AREA C
SCALE: 1/4" = 1'-0"

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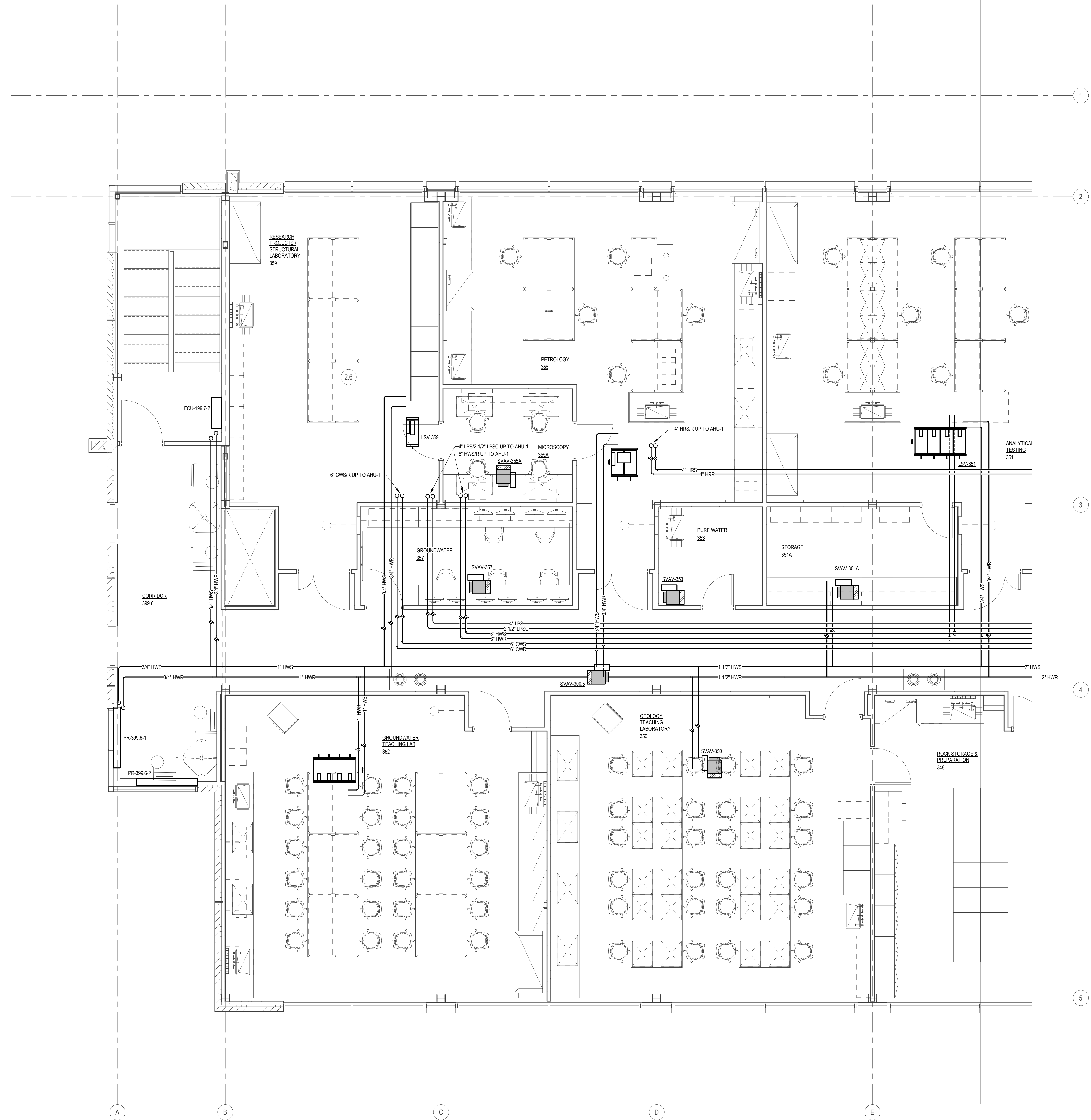
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Second Floor HVAC
Piping Plan - Area C

M3.23



THIRD FLOOR HVAC PIPING PLAN - AREA A
SCALE: 1/4" = 1'-0"

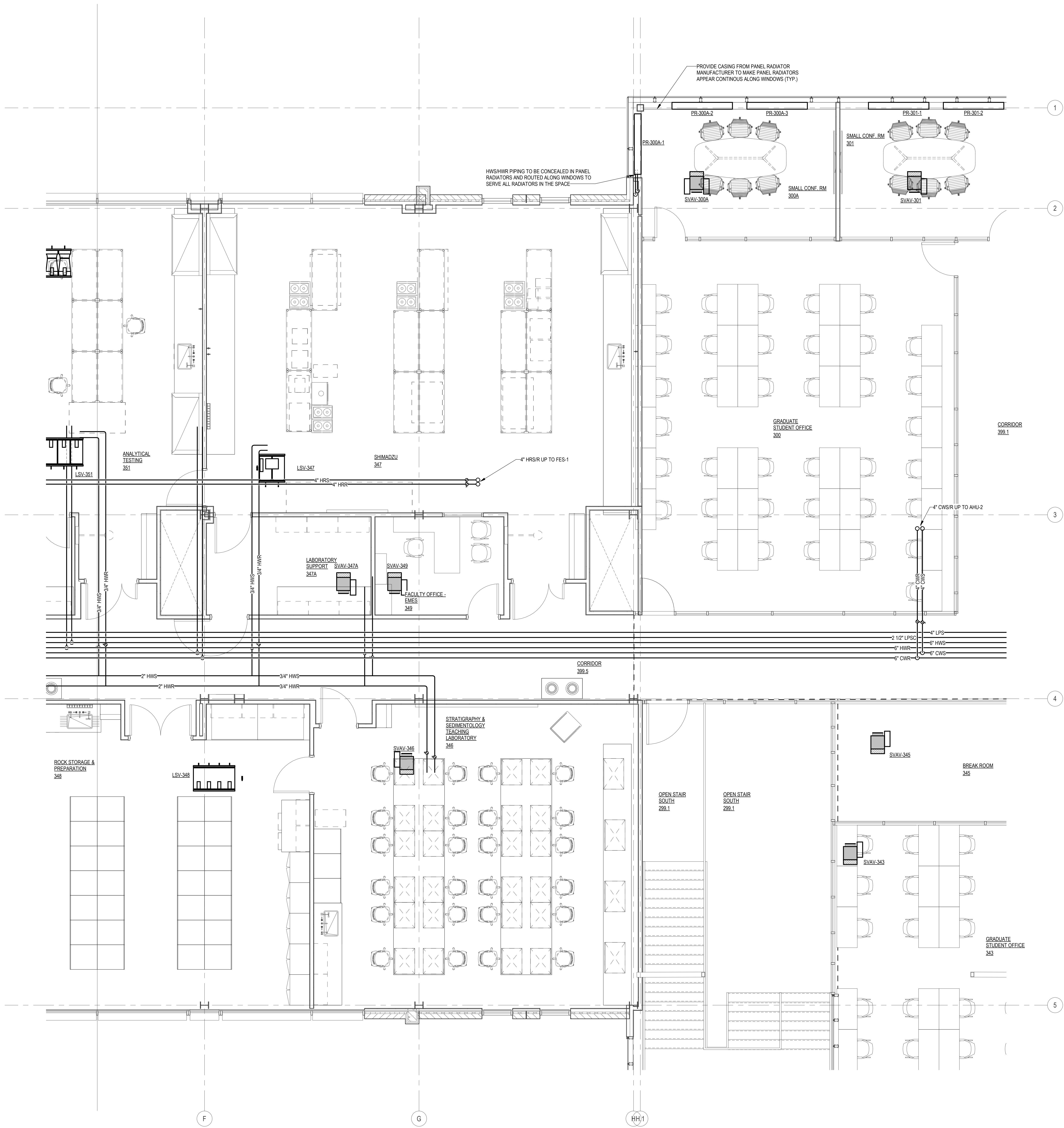
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THIRD FLOOR HVAC PIPING PLAN - AREA B
SCALE: 1/4" = 1'-0"

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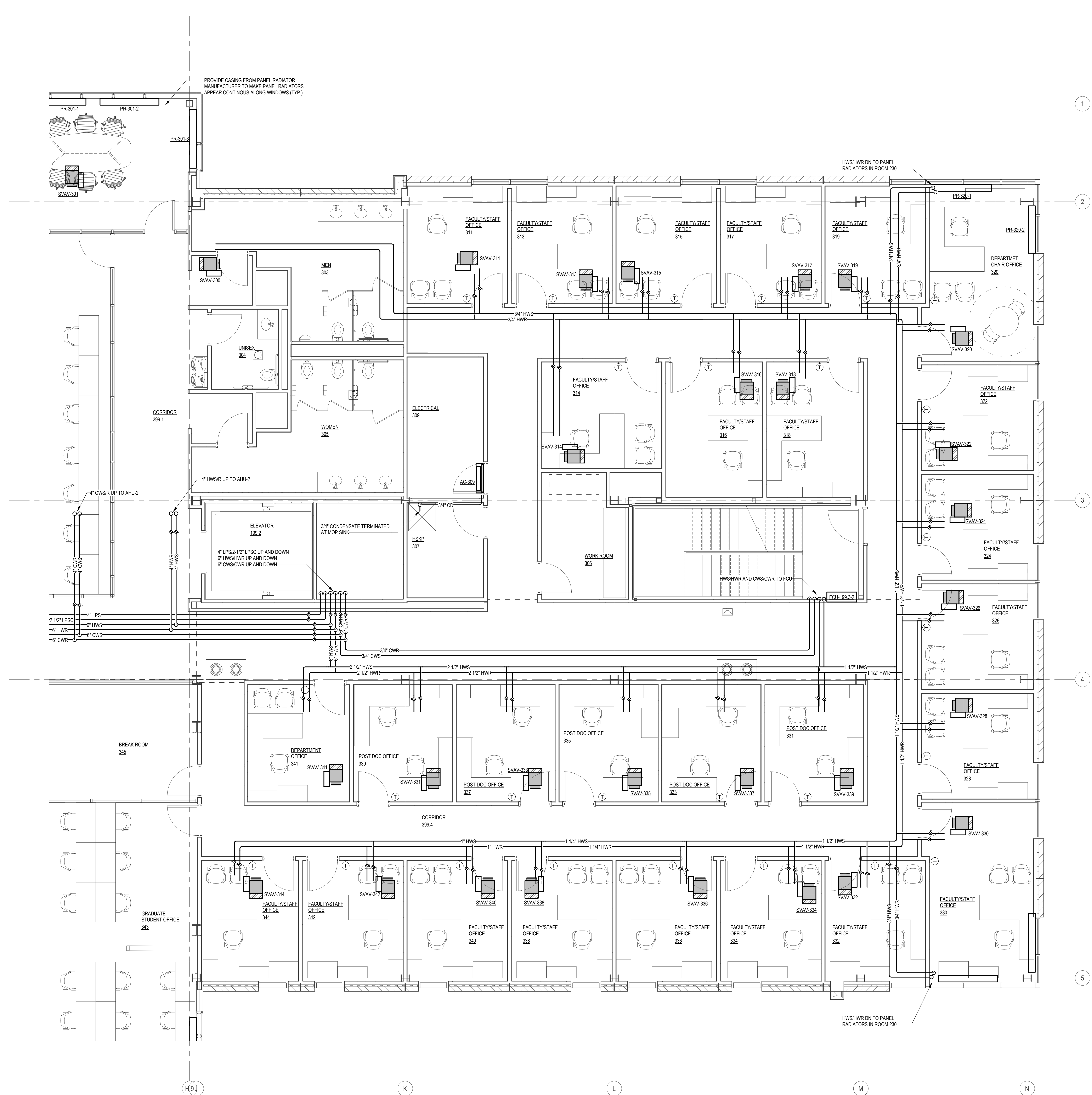
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Third Floor HVAC Piping
Plan - Area B

M3.32



THIRD FLOOR HVAC PIPING PLAN - AREA C
SCALE: 1/4" = 1'-0"

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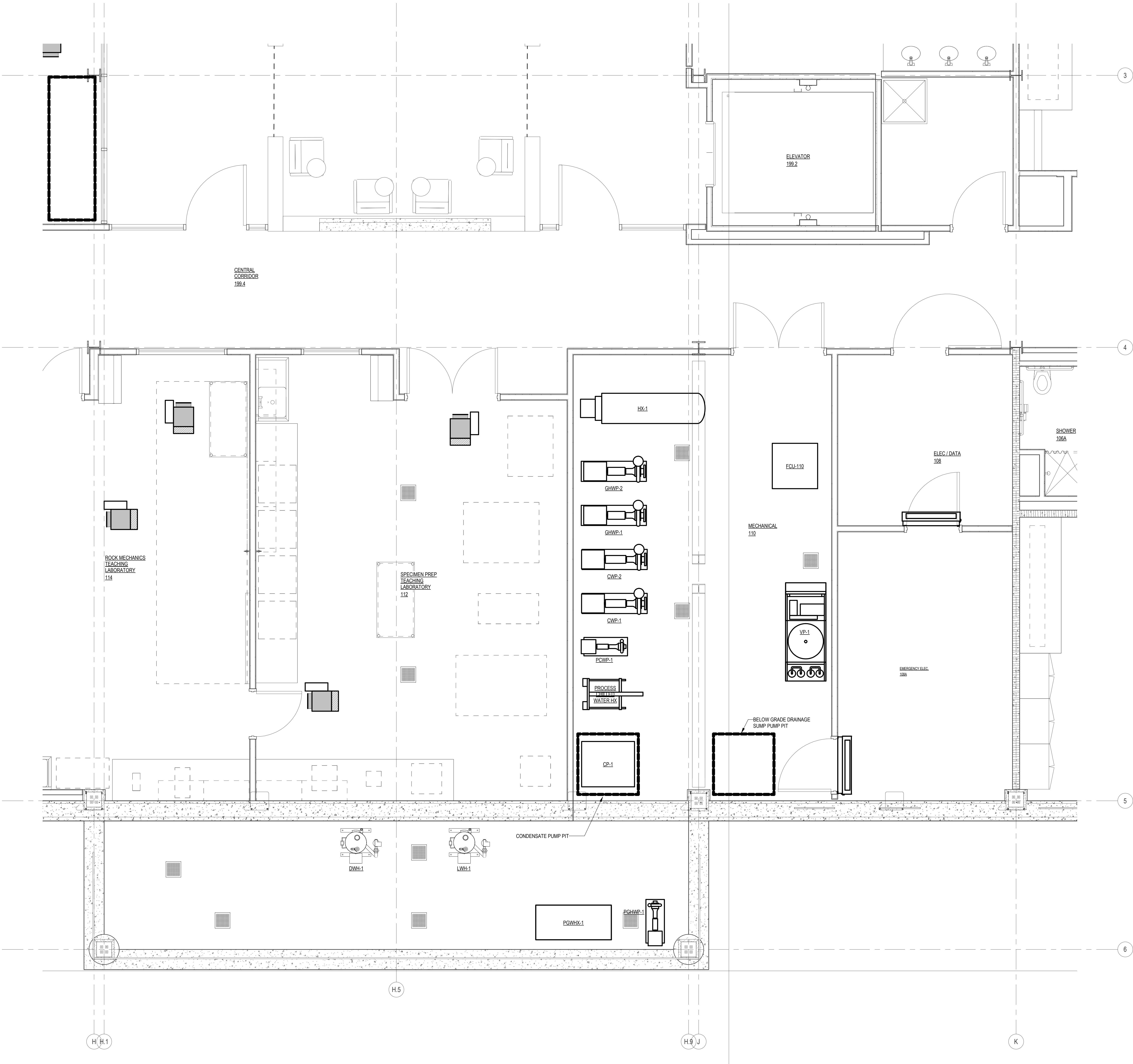
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Third Floor HVAC Piping
Plan - Area C

M3.33



FIRST FLOOR MECHANICAL ROOM EQUIPMENT PLAN
SCALE: 3/8" = 1'-0"

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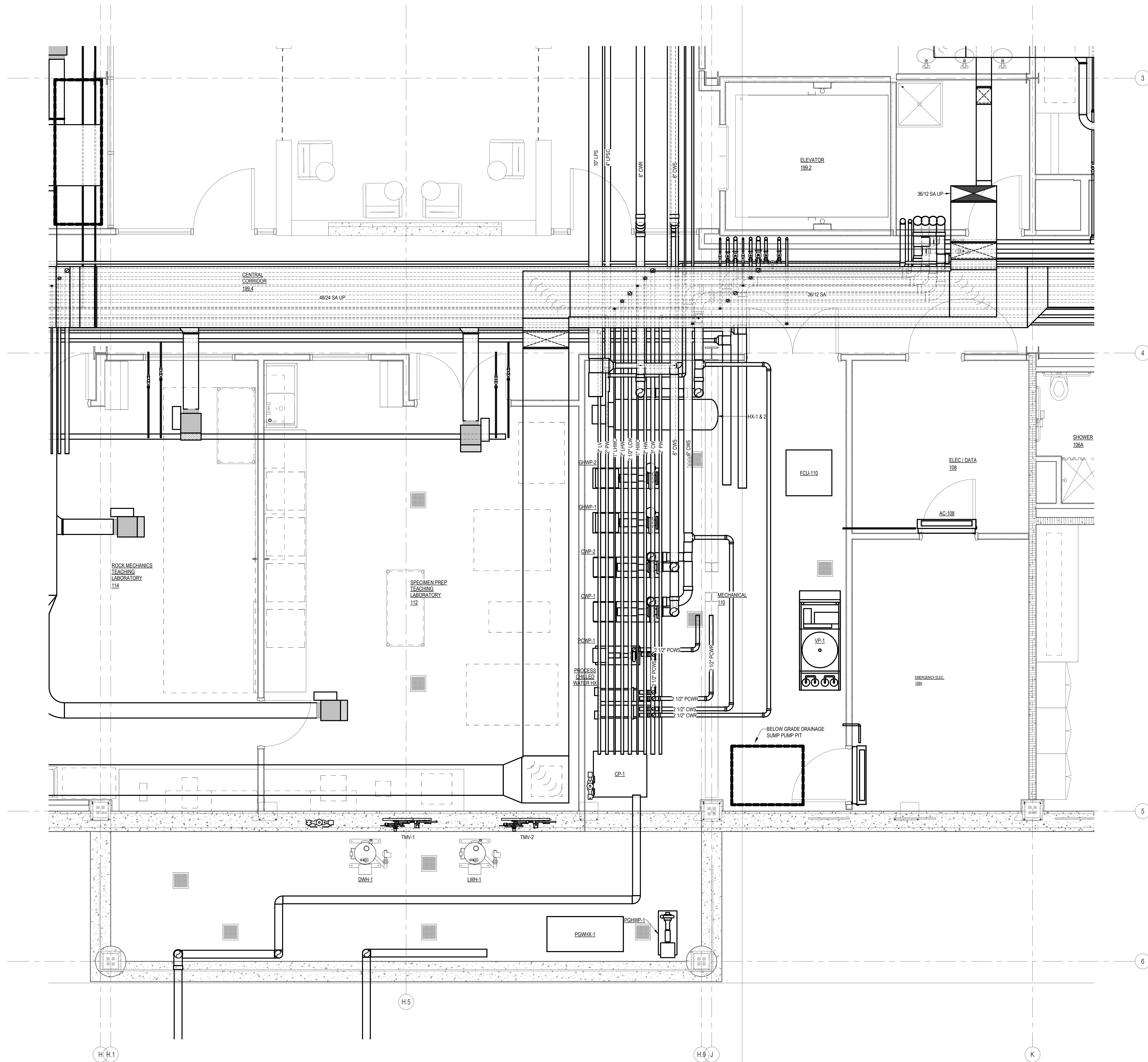
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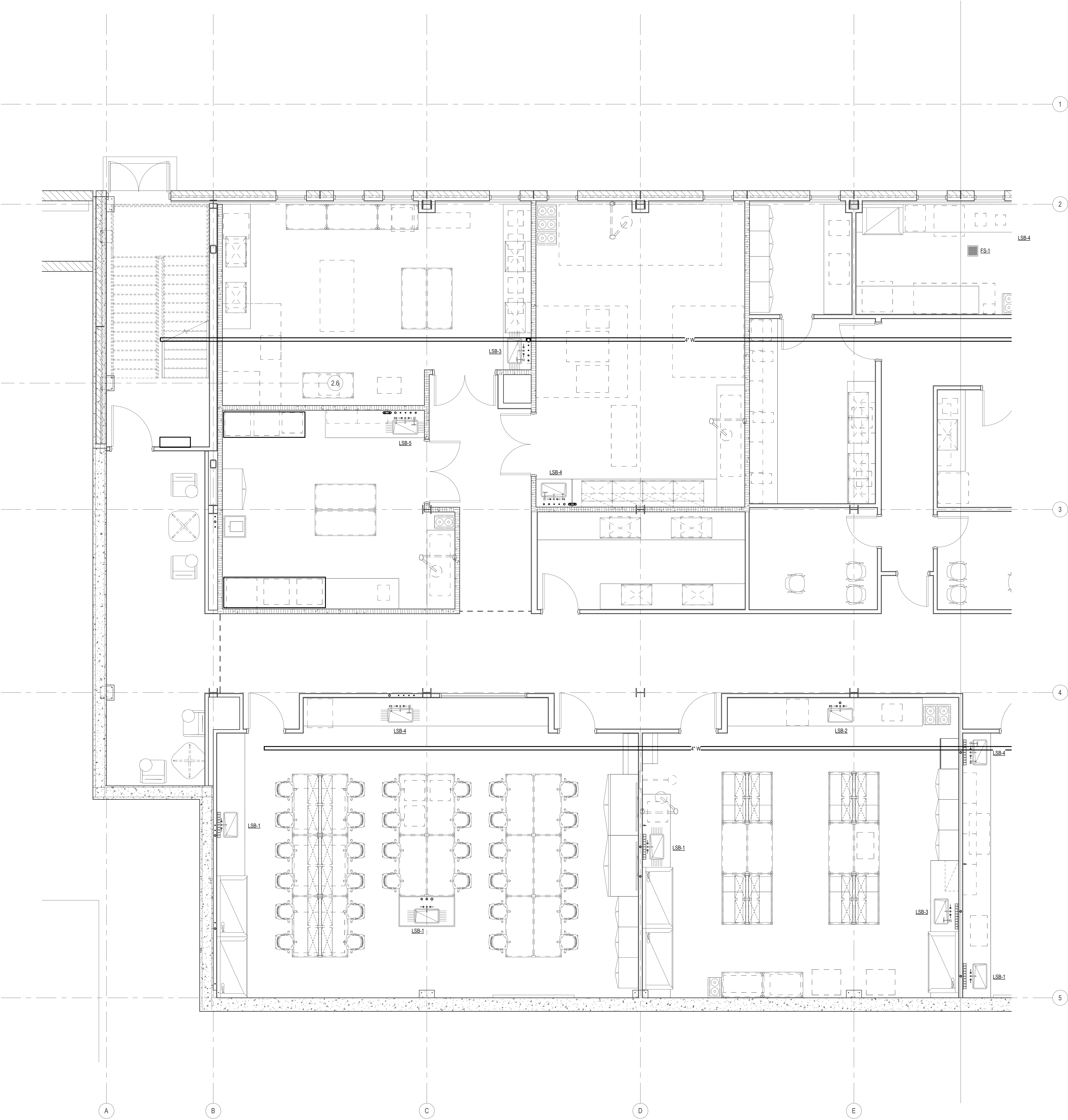
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First Floor Enlarged
Mechanical Room -
Equipment Plan

MP1.10



 FIRST FLOOR MECHANICAL ROOM PLAN
SCALE: 3/8" = 1'-0"



BELOW FLOOR PLUMBING PLAN - AREA A
SCALE: 1/4" = 1'-0"

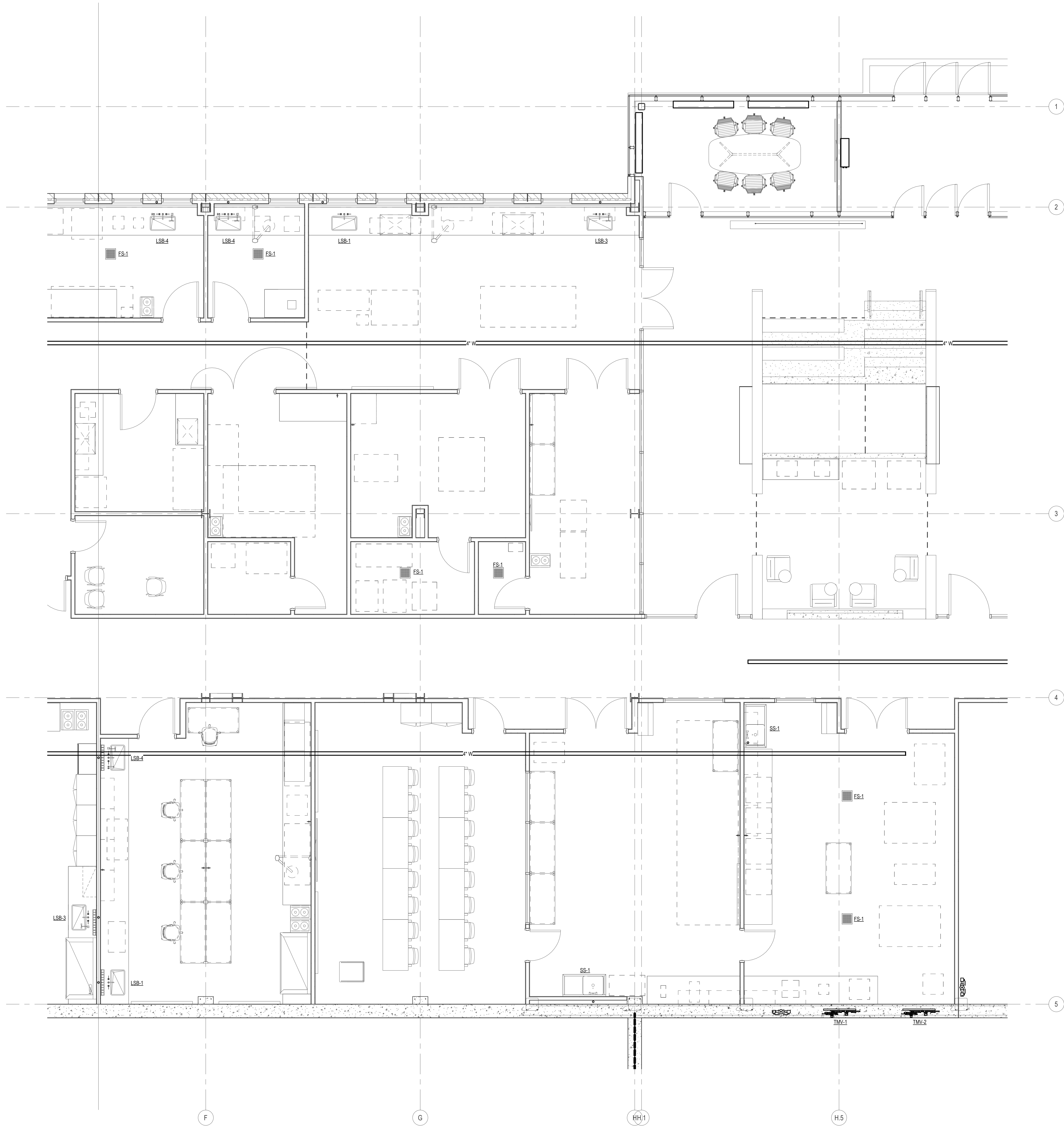
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BELOW FLOOR PLUMBING PLAN - AREA B
SCALE: 1/4" = 1'-0"

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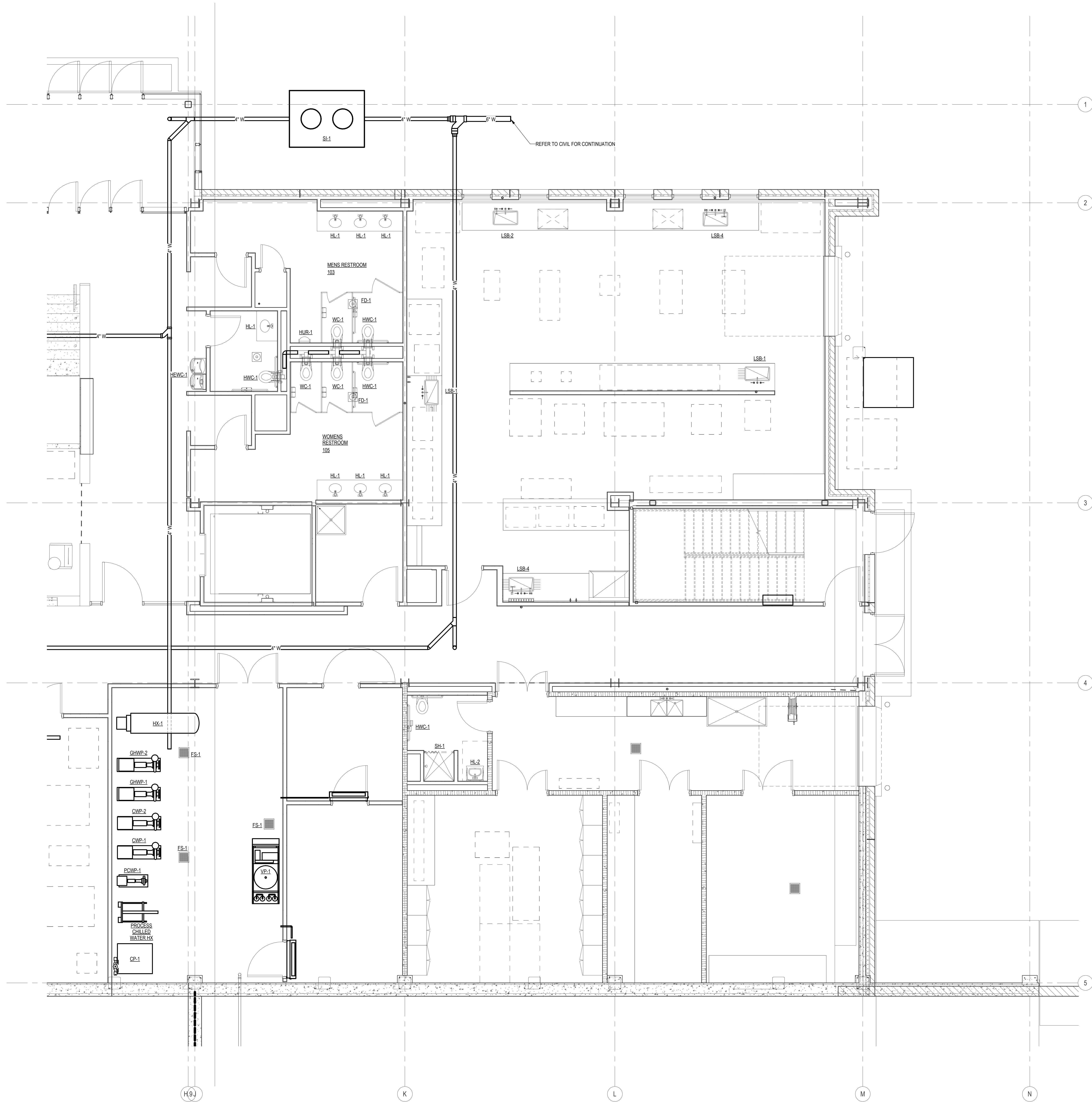
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Below Floor Plumbing
Piping Plan - Area B

P1.12



BELOW FLOOR PLUMBING PLAN - AREA C
 SCALE: 1/4" = 1'-0"

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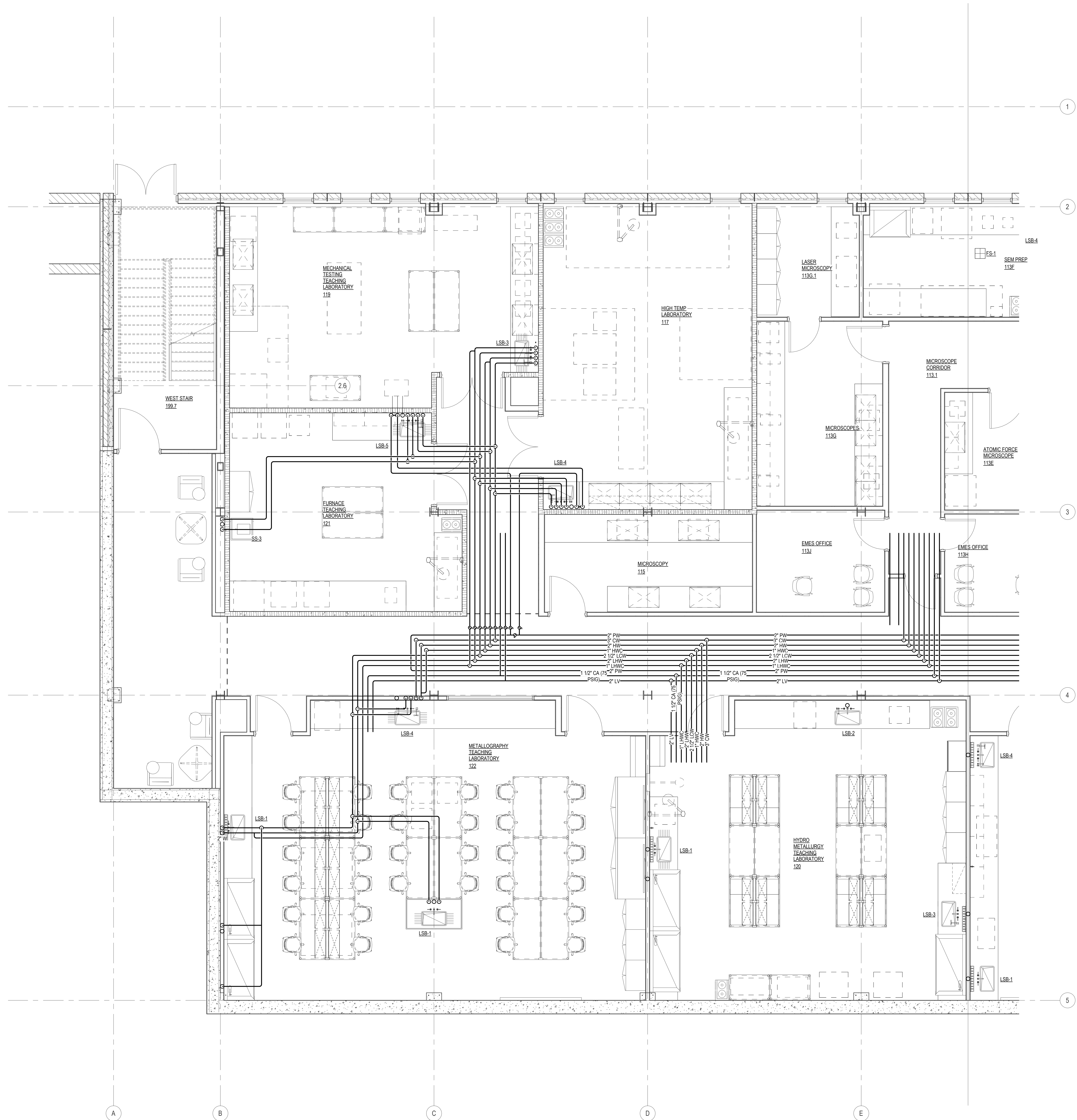
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Below Floor Plumbing
 Piping Plan - Area C

P1.13



FIRST FLOOR PLUMBING PLAN - AREA A
SCALE: 1/4" = 1'-0"

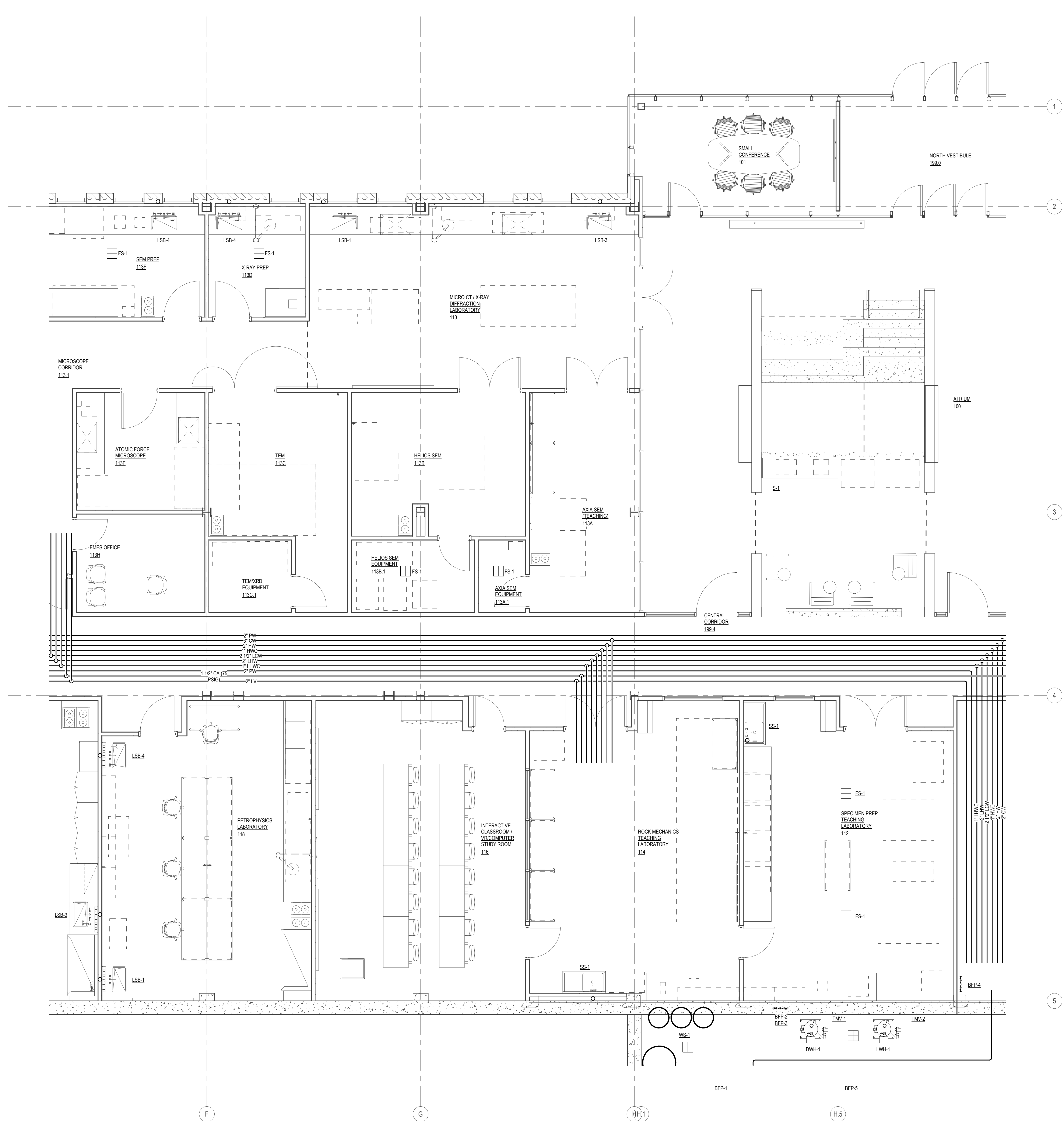
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FIRST FLOOR PLUMBING PLAN - AREA B
SCALE: 1/4" = 1'-0"

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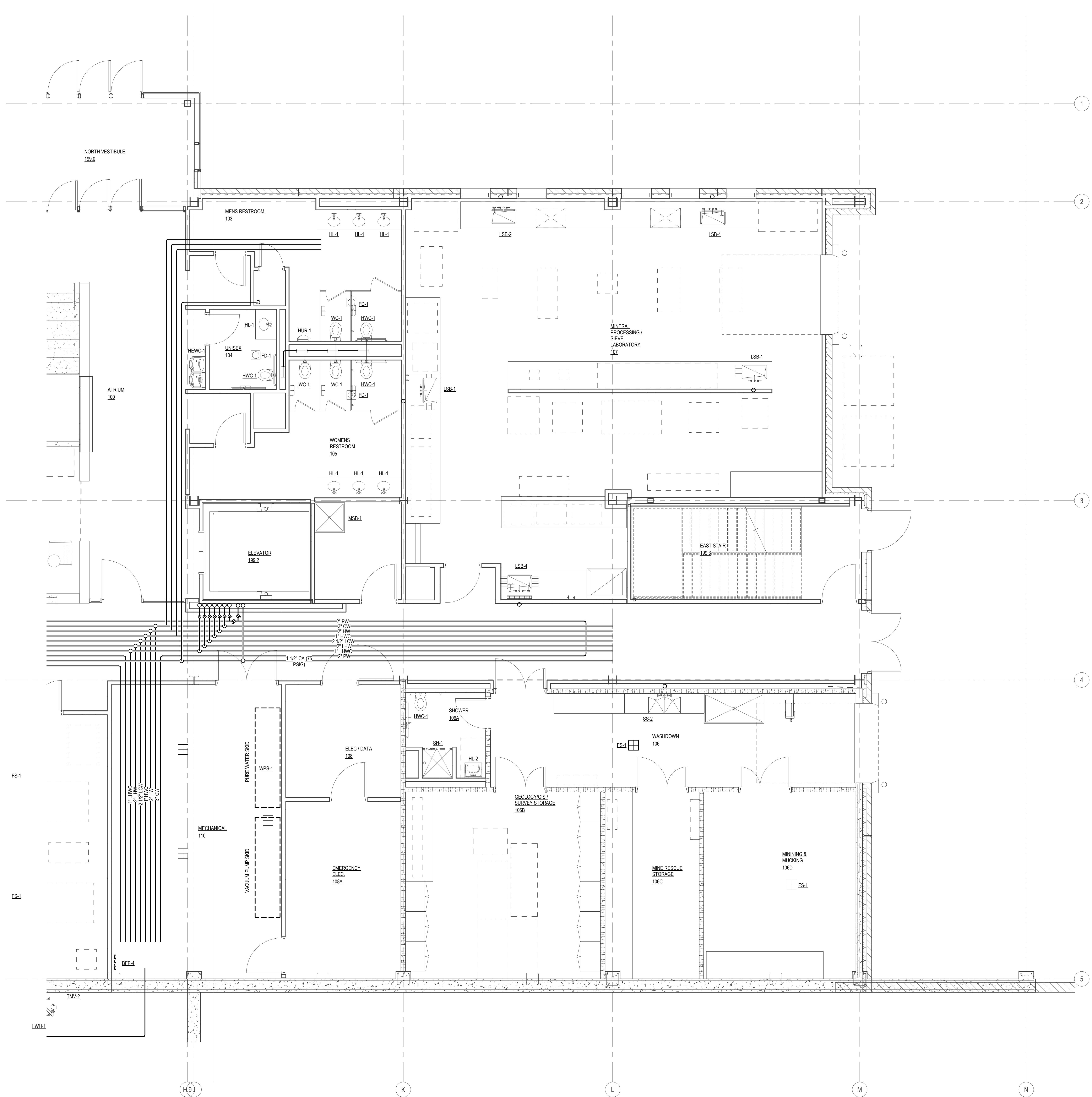
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First Floor Plumbing Plan -
Area B

P2.12



FIRST FLOOR PLUMBING PLAN - AREA C
SCALE: 1/4" = 1'-0"

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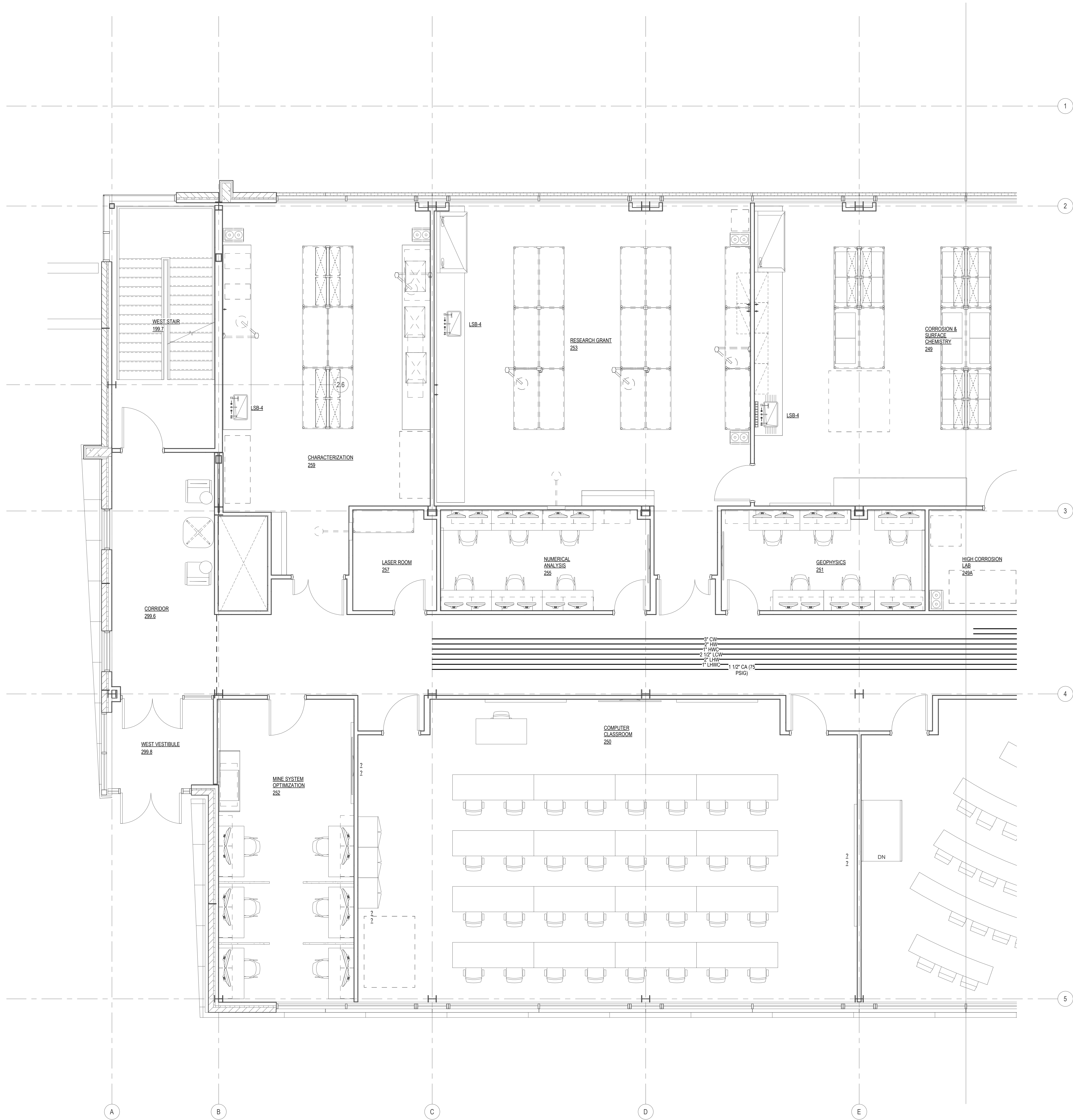
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Area C



SECOND FLOOR PLUMBING PLAN - AREA A
SCALE: 1/4" = 1'-0"

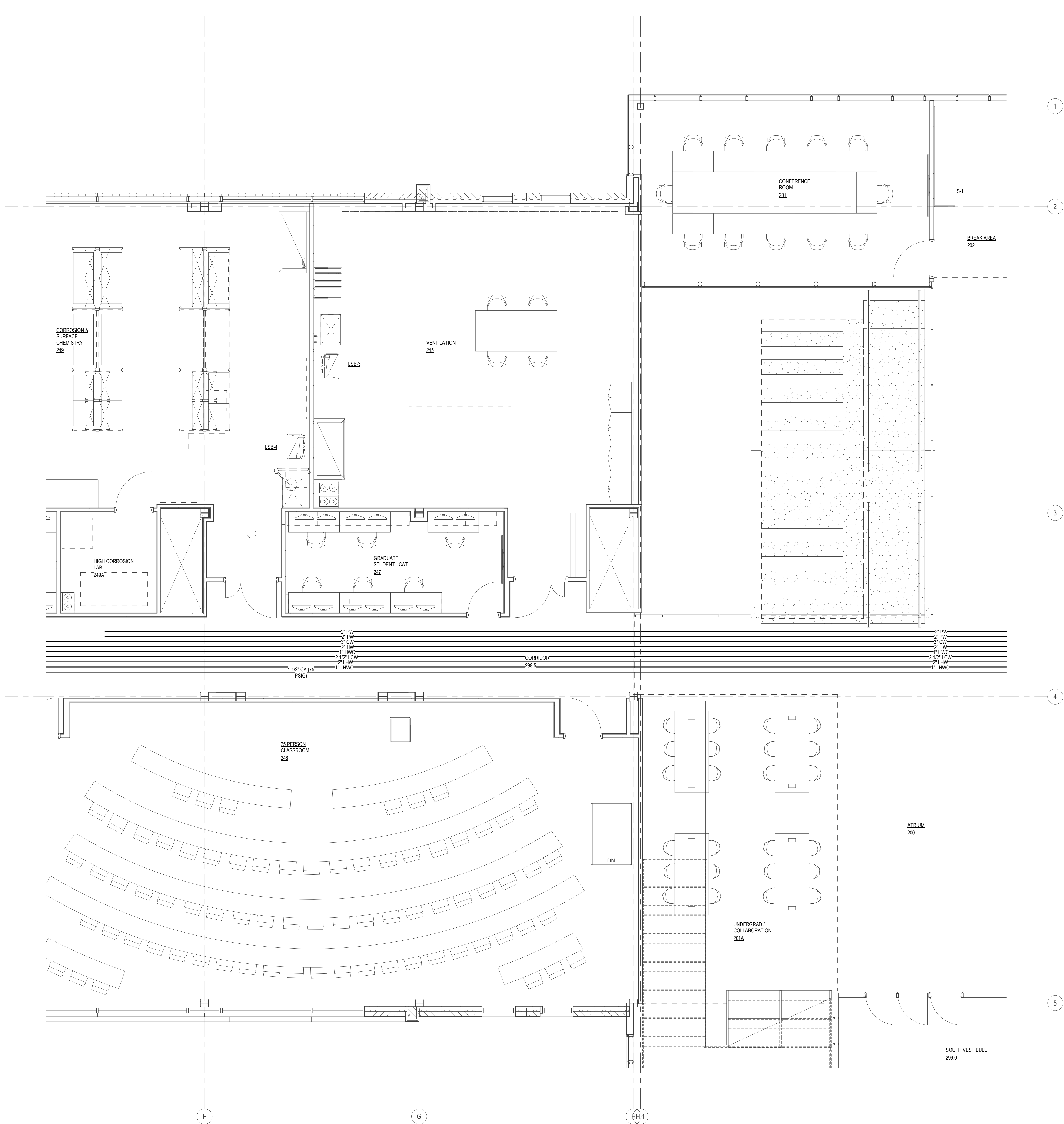
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SECOND FLOOR PLUMBING PLAN - AREA B
SCALE: 1/4" = 1'-0"

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Second Floor Plumbing
Plan - Area B

P2.22



SECOND FLOOR PLUMBING PLAN - AREA C
SCALE: 1/4" = 1'-0"

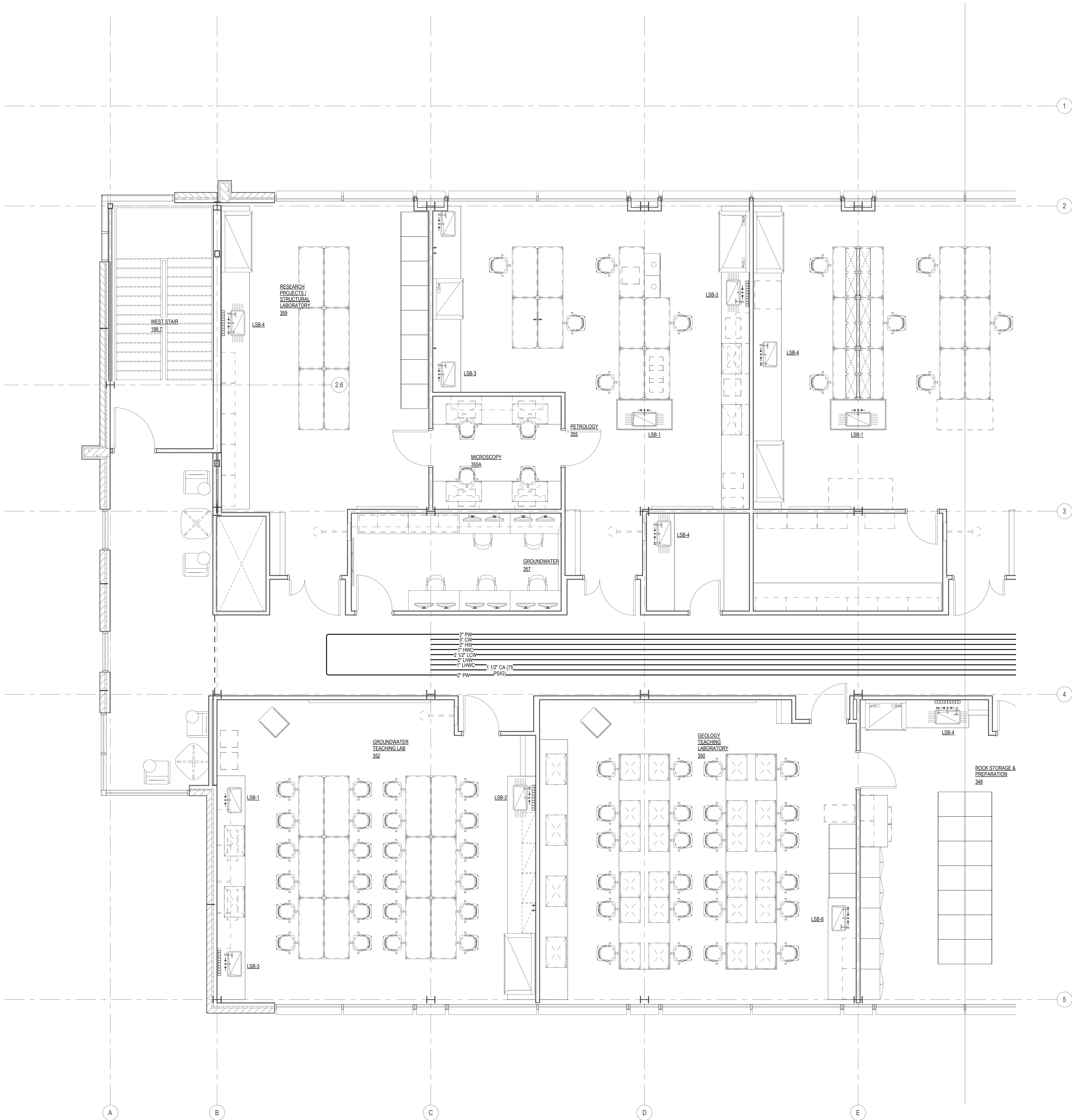
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 **THIRD FLOOR PLUMBING PLAN - AREA A**
SCALE: 1/4" = 1'-0"

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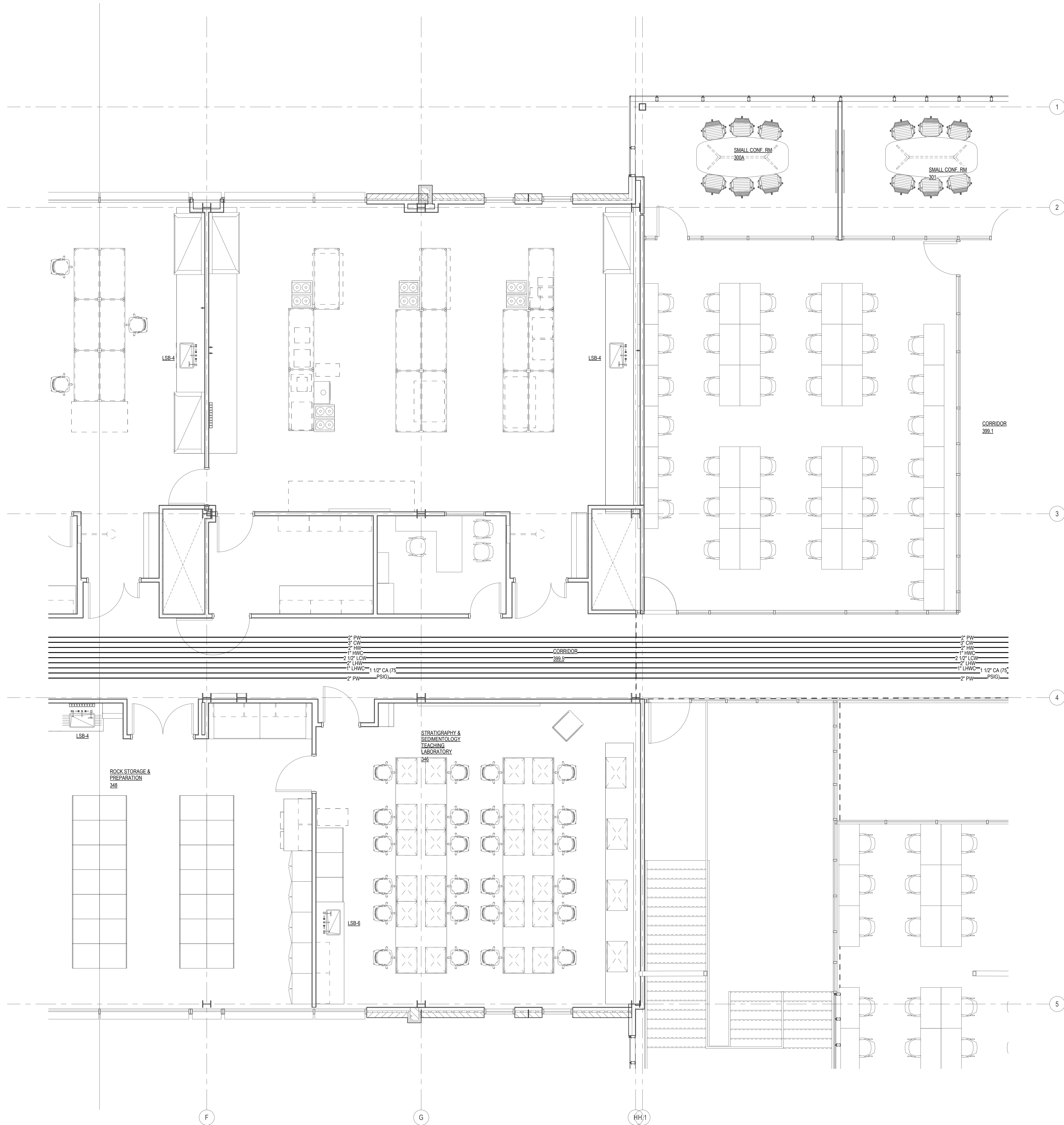
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Third Floor Plumbing Plan
- Area A

P2.31



THIRD FLOOR PLUMBING PLAN - AREA B
SCALE: 1/4" = 1'-0"

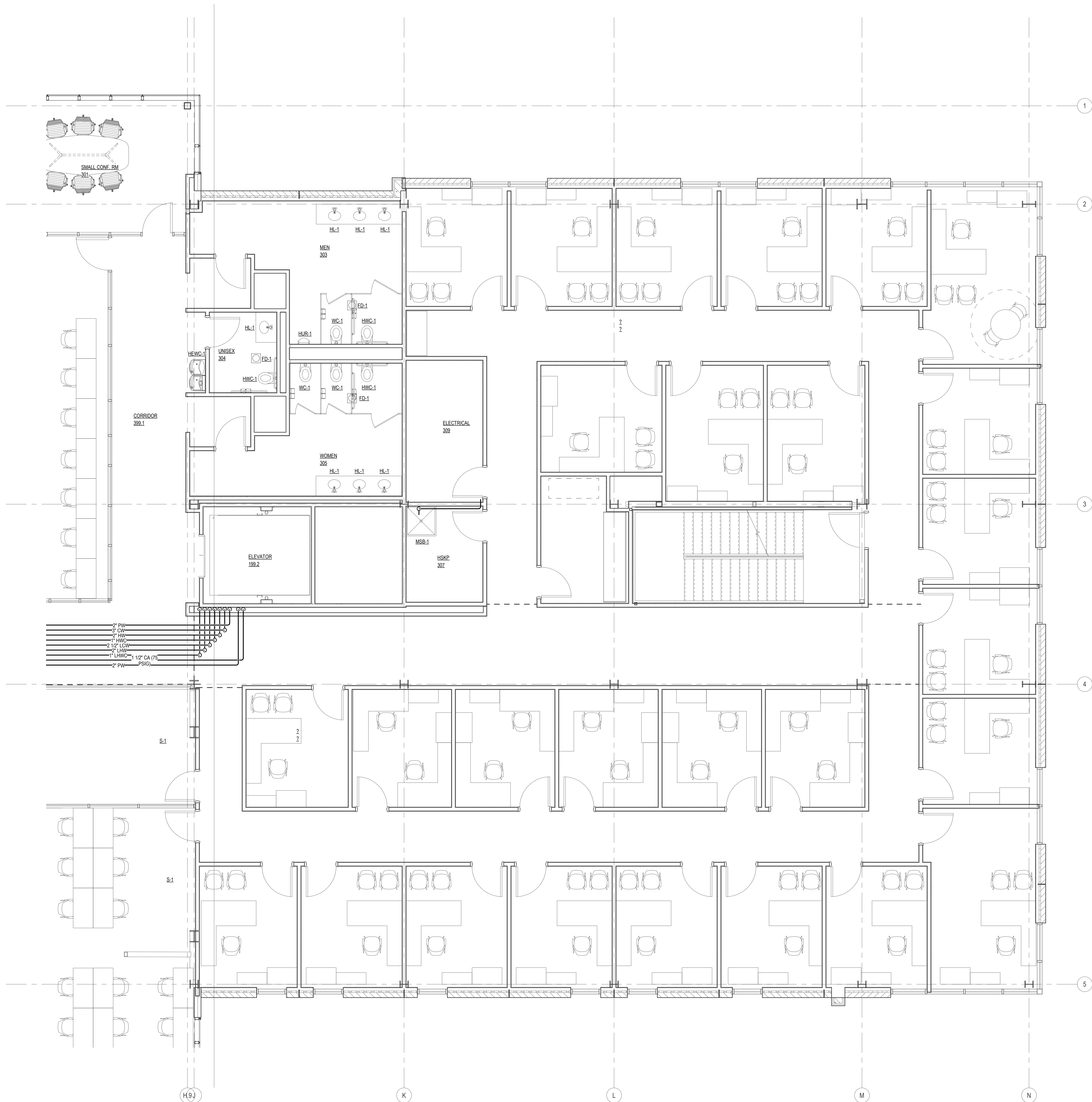
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Technology CT
South Dakota Mines
Rapid City, SD

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South Dakota Mines
Rapid City, SD

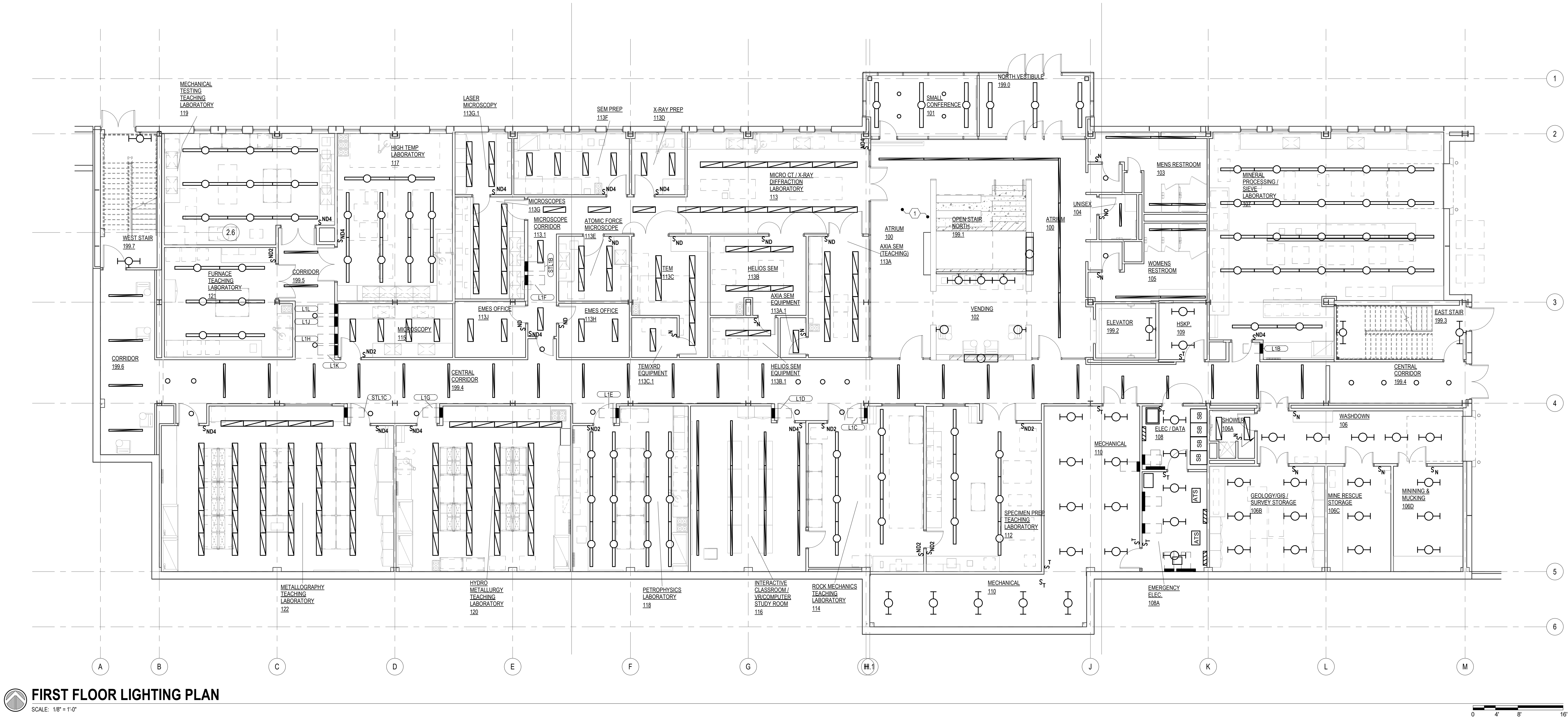
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Third Floor Plumbing Plan
- Area C

P2.33



FIRST FLOOR LIGHTING PLAN
SCALE: 1/8" = 1'-0"

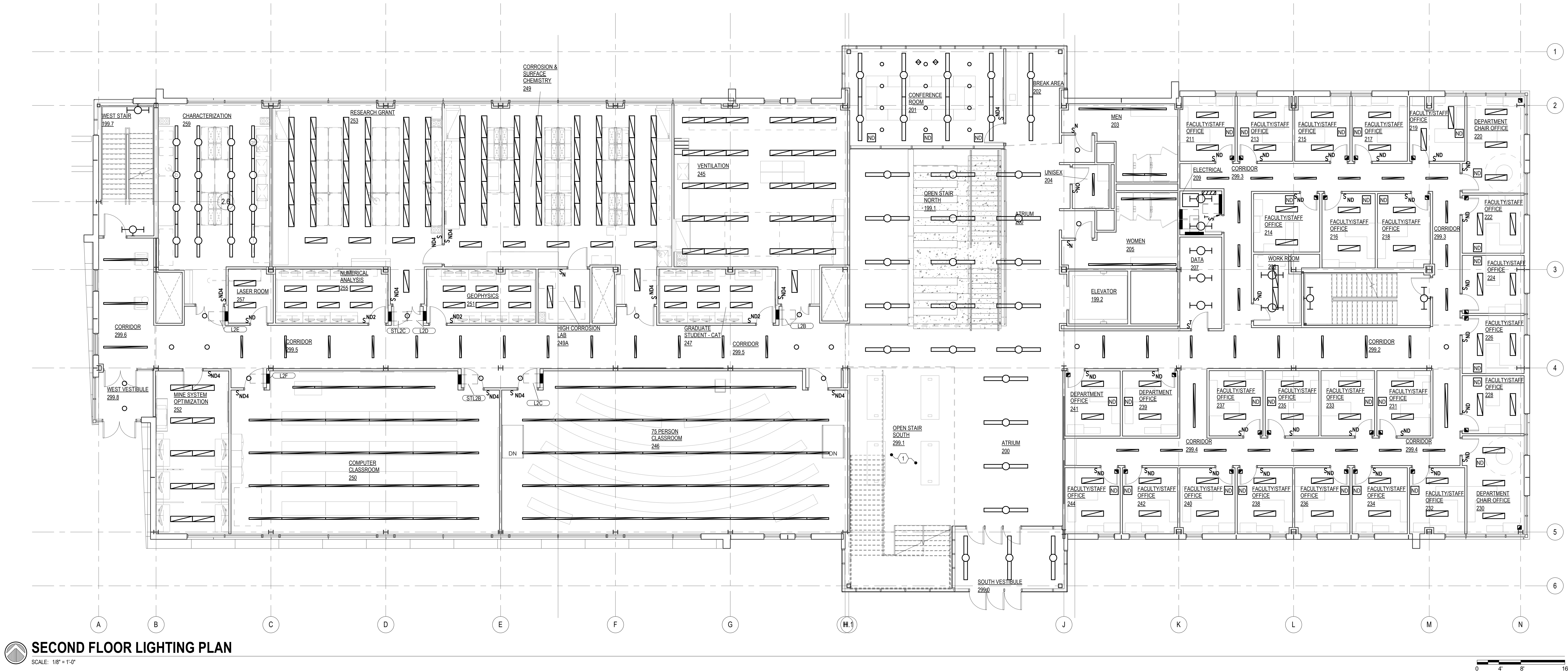
FIRST FLOOR LIGHTING PLAN NOTES	
KEY NOTE	DESCRIPTION
1	OVERHEAD LIGHTING IN ATRIUM & OPEN STAIR ARE SHOWN ON THE SECOND FLOOR LIGHTING PLAN.

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SECOND FLOOR LIGHTING PLAN
SCALE: 1/8" = 1'-0"

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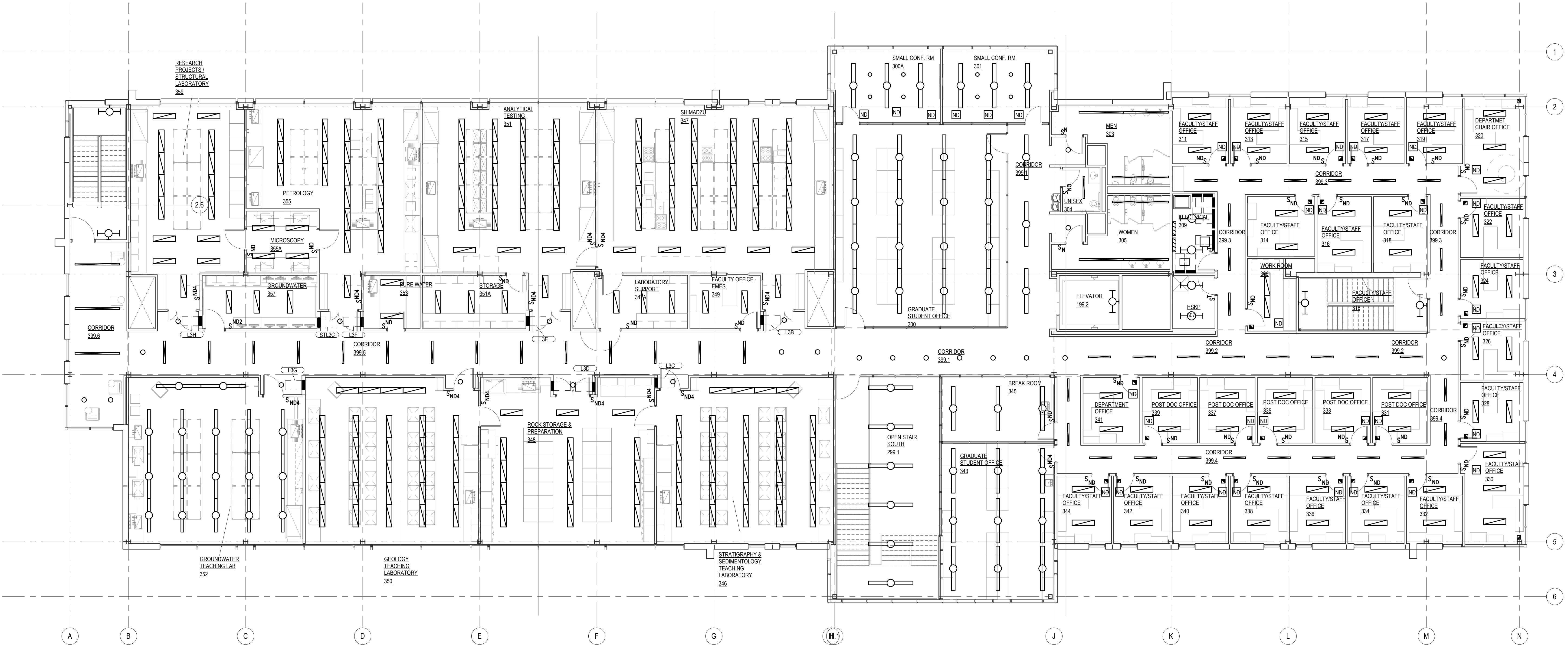
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Second Floor Lighting
Plan

E1.02



THIRD FLOOR LIGHTING PLAN

SCALE: 1/8" = 1'-0"



THIRD FLOOR LIGHTING PLAN NOTES	
KEY NOTE	DESCRIPTION

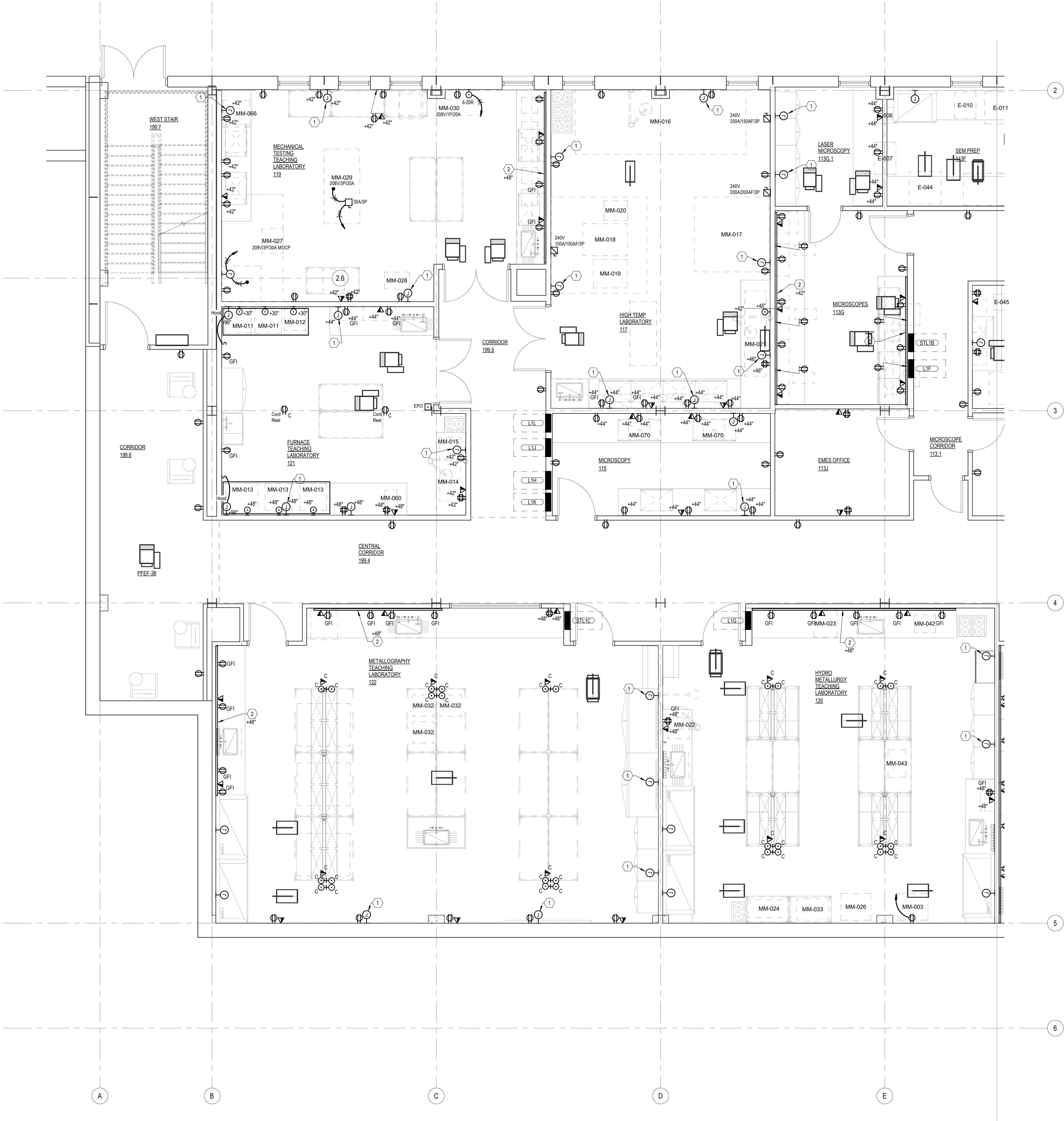
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FIRST FLOOR POWER & AUXILIARY SYSTEMS - AREA A - PLAN NOTES	
KEY NOTE	DESCRIPTION
1	2 GANG BOX WITH SINGLE GANG EXTENSION RING AND BLANK COVER FOR FUTURE USE. FLUSH MOUNT IN WALL AT +18" AFF UNLESS OTHERWISE INDICATED. ROUTE (1)-1" CONDUIT FROM BOX, CONCEALED UP WALL AND STUB ABOVE ACCESSIBLE CEILING IN CORRIDOR. BUSH CONDUIT ENDS.
2	SURFACE MOUNTED RACEWAY. SEE THE SURFACE MOUNTED RACEWAY DETAIL FOR ADDITIONAL INFORMATION. RACEWAY TO BE MOUNTED AT HEIGHT INDICATED ON PLANS.



FIRST FLOOR POWER & AUXILIARY SYSTEMS PLAN - AREA A

SCALE: 1/4" = 1'-0"

0 2' 4' 8'

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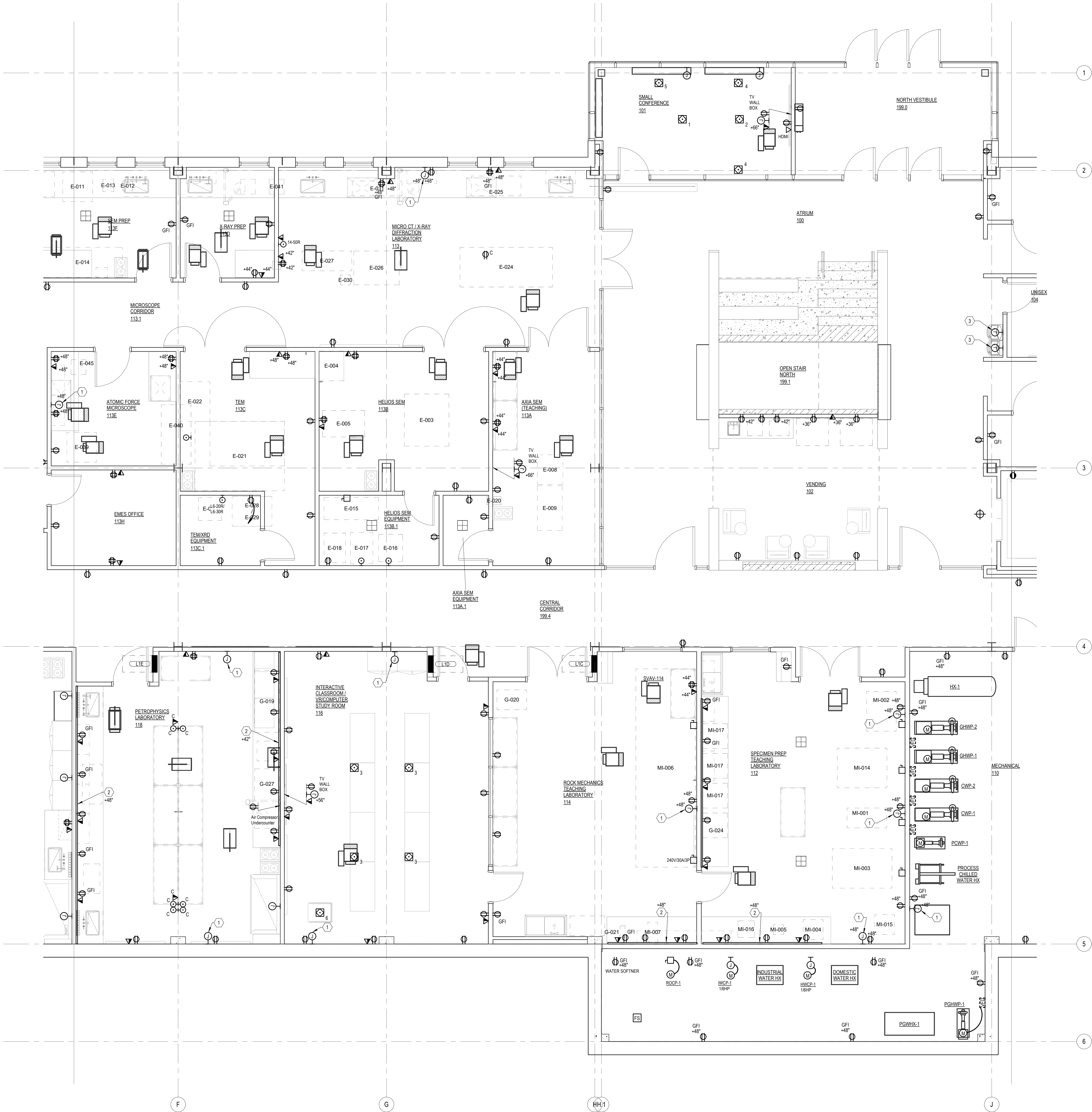
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First Floor Power &
Auxiliary Systems Plan -
Area A

E2.01a

FIRST FLOOR POWER & AUXILIARY SYSTEMS - AREA B - PLAN NOTES	
KEY NOTE	DESCRIPTION
1	2 GANG BOX WITH SINGLE GANG EXTENSION RING AND BLANK COVER FOR FUTURE USE. FLUSH MOUNT IN WALL AT +18" AFF UNLESS OTHERWISE INDICATED. ROUTE (1)-1" CONDUIT FROM BOX, CONCEALED UP WALL AND STUB ABOVE ACCESSIBLE CEILING IN CORRIDOR. BUSH CONDUIT ENDS.
2	SURFACE MOUNTED RACEWAY. SEE THE SURFACE MOUNTED RACEWAY DETAIL FOR ADDITIONAL INFORMATION. RACEWAY TO BE MOUNTED AT HEIGHT INDICATED ON PLANS.
3	PROVIDE 120V ELECTRICAL CONNECTION TO ELECTRIC WATER COOLER. COORDINATE CONNECTION REQUIREMENTS WITH ELECTRIC WATER COOLER SUPPLIER/INSTALLER.



FIRST FLOOR POWER & AUXILIARY SYSTEMS PLAN - AREA B

SCALE: 1/4" = 1'-0"

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First Floor Power &
Auxiliary Systems Plan -
Area B

E2.01b

FIRST FLOOR POWER & AUXILIARY SYSTEMS - AREA C - PLAN NOTES	
KEY NOTE	DESCRIPTION
1	LOCATE HEAT DETECTOR WITHIN 2'-0" OF EACH SPRINKLER HEAD FOR CODE REQUIRED ELEVATOR RECALL.
2	LOCATE SMOKE DETECTOR IN THIS AREA. PROVIDE ALL NECESSARY RELAYS AND CONNECTIONS TO ELEVATOR CONTROLLER FOR CODE REQUIRED ELEVATOR RECALL. COORDINATE CONNECTION WITH THE ELEVATOR SUPPLIER/INSTALLER.
3	COORDINATE LOCATION OF RECEPTACLE WITH THE MECHANICAL CONTRACTOR FOR CONNECTION TO ELEVATOR PIT PUMP PUMP.
4	ALL DEVICES IN THE ELEVATOR SHAFT SHALL BE NEMA 4 RATED AND ALL CONDUIT SHALL BE GALVANIZED RIGID STEEL.
5	2 GANG BOX WITH SINGLE GANG EXTENSION RING AND BLANK COVER FOR FUTURE USE. FLUSH MOUNT IN WALL AT +18" AFF UNLESS OTHERWISE INDICATED. ROUTE (1)-1" CONDUIT FROM BOX, CONCEALED UP WALL AND STUB ABOVE ACCESSIBLE CEILING IN CORRIDOR. BUSH CONDUIT ENDS.
6	CONNECTION AND CONTROLLER FOR THE OVERHEAD DOOR. COORDINATE CONNECTION WITH THE OVERHEAD DOOR SUPPLIER/INSTALLER.

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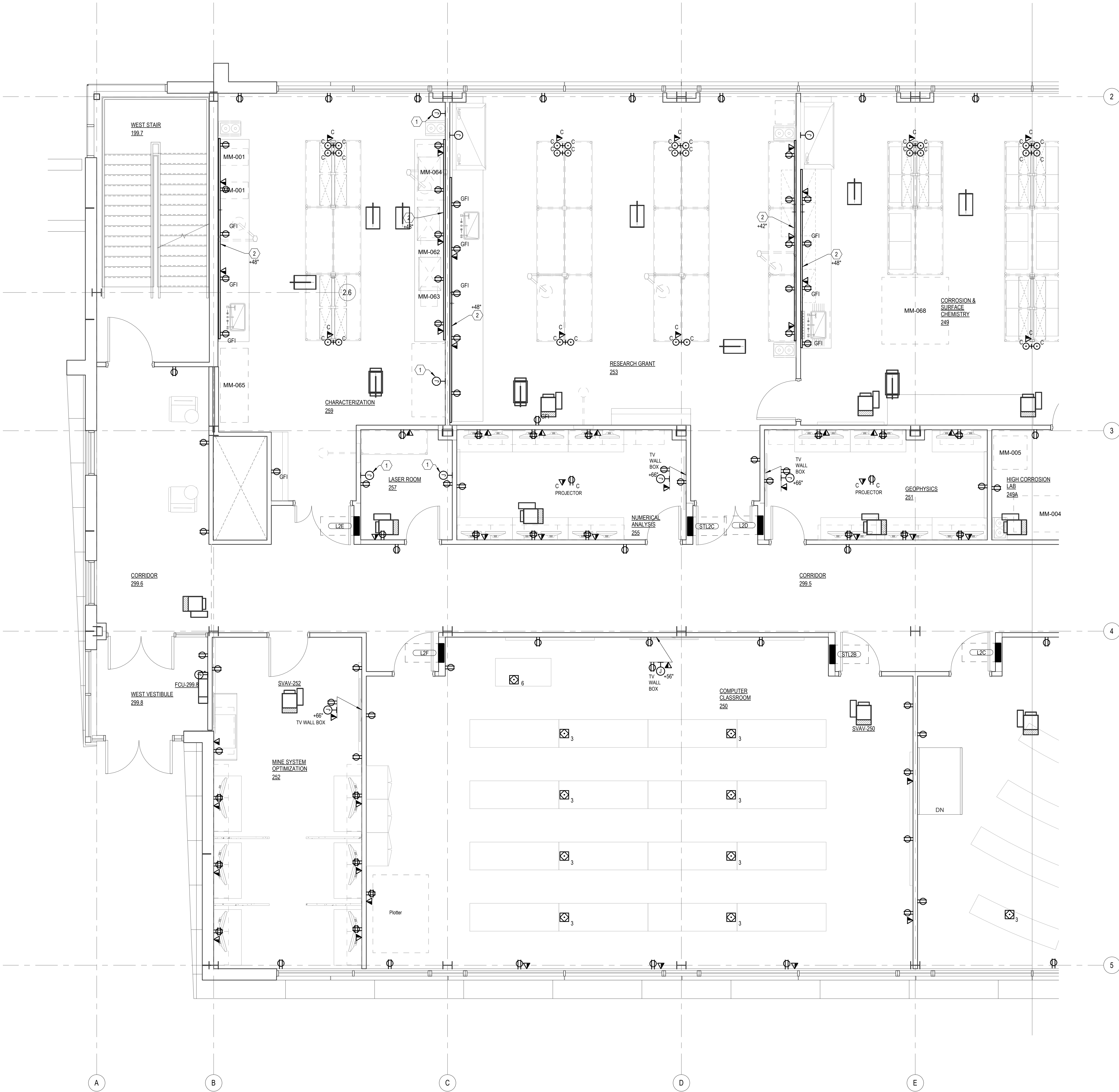
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First Floor Power & Auxiliary Systems Plan - Area C

E2.01c

SECOND FLOOR POWER & AUXILIARY SYSTEMS - AREA A - PLAN NOTES	
KEY NOTE	DESCRIPTION
1	2 GANG BOX WITH SINGLE GANG EXTENSION RING AND BLANK COVER FOR FUTURE USE. FLUSH MOUNT IN WALL AT +18" AFF UNLESS OTHERWISE INDICATED. ROUTE (1)-1" CONDUIT FROM BOX, CONCEALED UP WALL AND STUB ABOVE ACCESSIBLE CEILING IN CORRIDOR. BUSH CONDUIT ENDS.
2	SURFACE MOUNTED RACEWAY. SEE THE SURFACE MOUNTED RACEWAY DETAIL FOR ADDITIONAL INFORMATION. RACEWAY TO BE MOUNTED AT HEIGHT INDICATED ON PLANS.



SECOND FLOOR POWER & AUXILIARY SYSTEMS PLAN - AREA A
SCALE: 1/4" = 1'-0"

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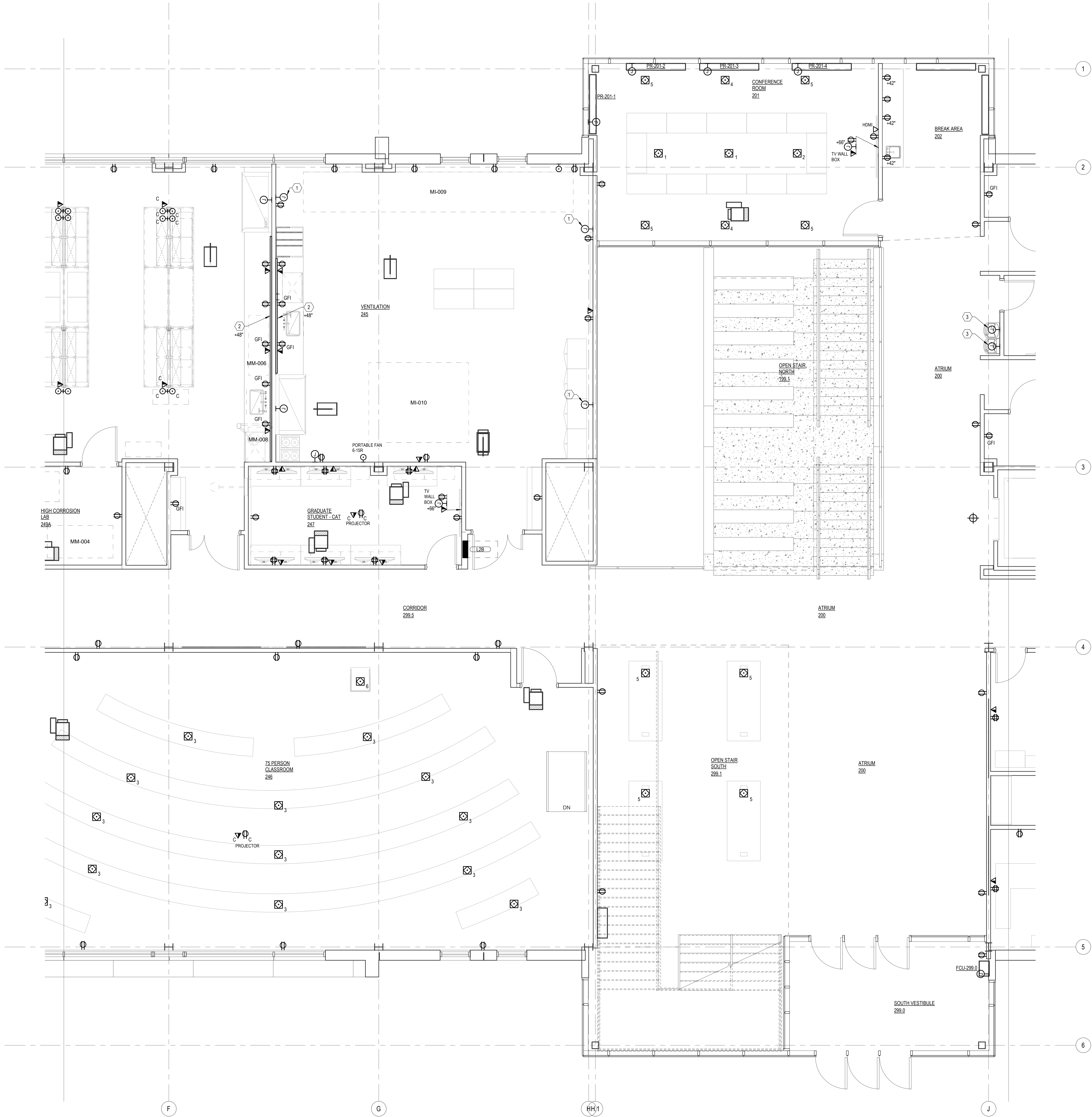
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Second Floor Power &
Auxiliary Systems Plan -
Area A

E2.02a

SECOND FLOOR POWER & AUXILIARY SYSTEMS - AREA B - PLAN NOTES	
KEY NOTE	DESCRIPTION
1	2 GANG BOX WITH SINGLE GANG EXTENSION RING AND BLANK COVER FOR FUTURE USE. FLUSH MOUNT IN WALL AT +18" AFF UNLESS OTHERWISE INDICATED. ROUTE (1)-1" CONDUIT FROM BOX, CONCEALED UP WALL AND STUB ABOVE ACCESSIBLE CEILING IN CORRIDOR. BUSH CONDUIT ENDS.
2	SURFACE MOUNTED RACEWAY- SEE THE SURFACE MOUNTED RACEWAY DETAIL FOR ADDITIONAL INFORMATION. RACEWAY TO BE MOUNTED AT HEIGHT INDICATED ON PLANS.
3	PROVIDE 120V ELECTRICAL CONNECTION TO ELECTRIC WATER COOLER. COORDINATE CONNECTION REQUIREMENTS WITH ELECTRIC WATER COOLER SUPPLIER/INSTALLER.



SECOND FLOOR POWER & AUXILIARY SYSTEMS PLAN - AREA B

SCALE: 1/4" = 1'-0"

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Second Floor Power & Auxiliary Systems Plan - Area B

E2.02b

SECOND FLOOR POWER & AUXILIARY SYSTEMS - AREA C - PLAN NOTES	
KEY NOTE	DESCRIPTION

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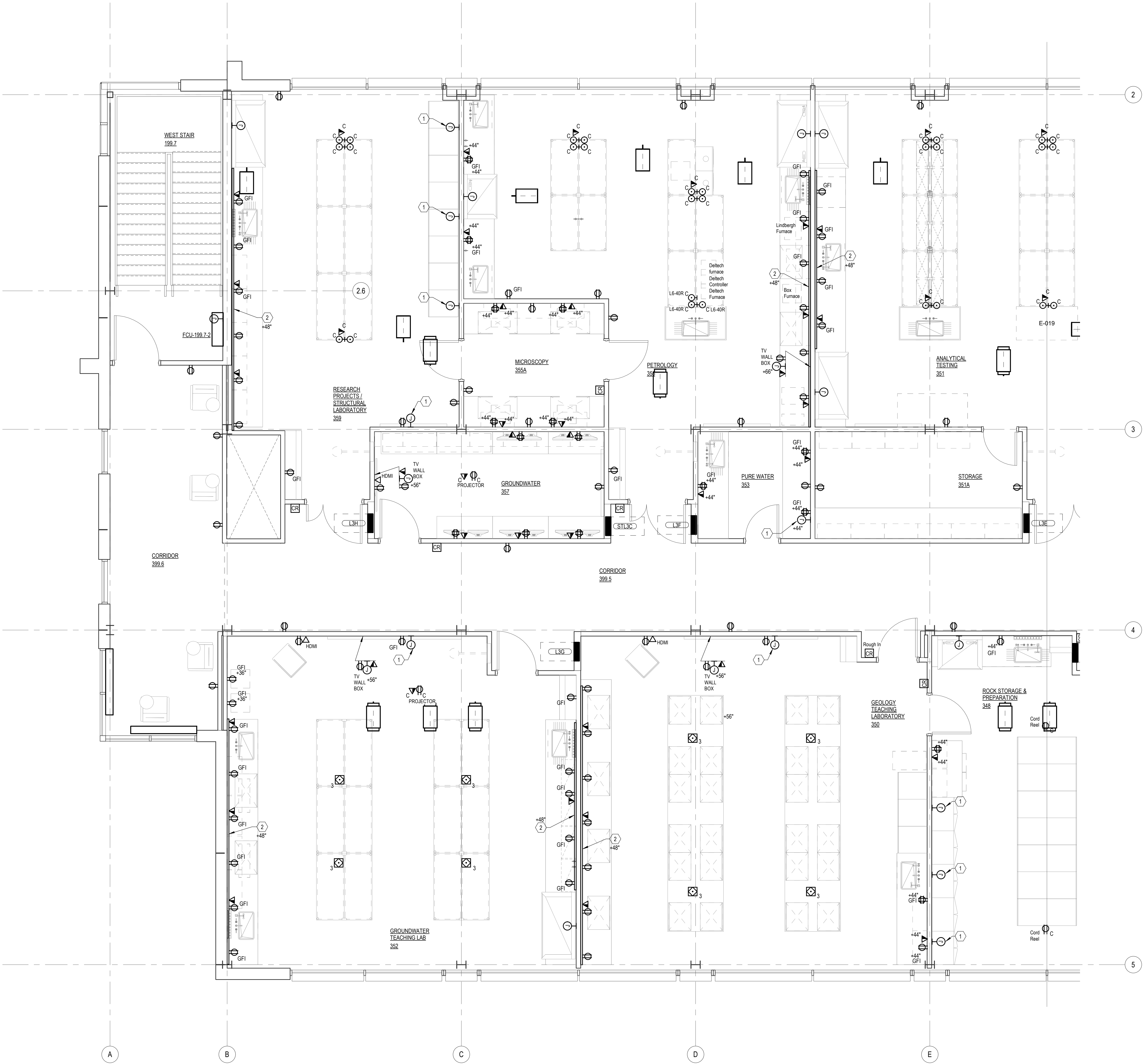
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Second Floor Power &
Auxiliary Systems Plan -
Area C

E2.02c

THIRD FLOOR POWER & AUXILIARY SYSTEMS - AREA A - PLAN NOTES	
KEY NOTE	DESCRIPTION
1	2 GANG BOX WITH SINGLE GANG EXTENSION RING AND BLANK COVER FOR FUTURE USE. FLUSH MOUNT IN WALL AT +18" AFF UNLESS OTHERWISE INDICATED. ROUTE 1/1" CONDUIT FROM BOX, CONCEALED UP WALL AND STUB ABOVE ACCESSIBLE CEILING IN CORRIDOR. BUSH CONDUIT ENDS.
2	SURFACE MOUNTED RACEWAY. SEE THE SURFACE MOUNTED RACEWAY DETAIL FOR ADDITIONAL INFORMATION. RACEWAY TO BE MOUNTED AT HEIGHT INDICATED ON PLANS.



THIRD FLOOR POWER & AUXILIARY SYSTEMS PLAN - AREA A
SCALE: 1/4" = 1'-0"

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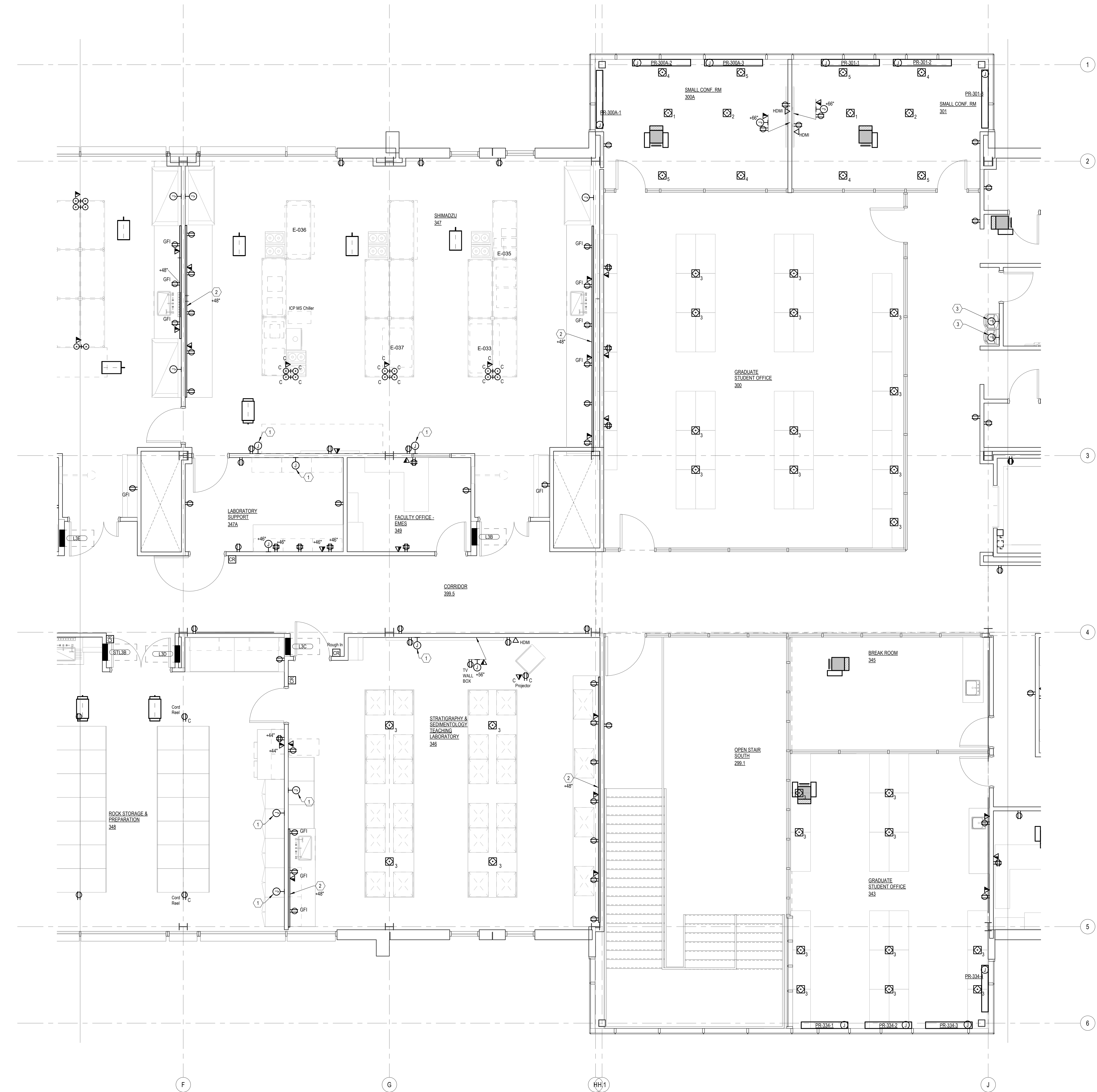
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Third Floor Power &
Auxiliary Systems Plan -
Area A

E2.03a

THIRD FLOOR POWER & AUXILIARY SYSTEMS - AREA B - PLAN NOTES	
KEY NOTE	DESCRIPTION
1	2 GANG BOX WITH SINGLE GANG EXTENSION RING AND BLANK COVER FOR FUTURE USE. FLUSH MOUNT IN WALL AT 48" AFF UNLESS OTHERWISE INDICATED. ROUTE (1)-1" CONDUIT FROM BOX, CONCEALED UP WALL AND STUB ABOVE ACCESSIBLE CEILING IN CORRIDOR. BUSH CONDUIT ENDS.
2	SURFACE MOUNTED RACEWAY. SEE THE SURFACE MOUNTED RACEWAY DETAIL FOR ADDITIONAL INFORMATION. RACEWAY TO BE MOUNTED AT HEIGHT INDICATED ON PLANS.
3	PROVIDE 120V ELECTRICAL CONNECTION TO ELECTRIC WATER COOLER. COORDINATE CONNECTION REQUIREMENTS WITH ELECTRIC WATER COOLER SUPPLIER/INSTALLER.



THIRD FLOOR POWER & AUXILIARY SYSTEMS PLAN - AREA B

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Third Floor Power & Auxiliary Systems Plan - Area B

E2.03b

THIRD FLOOR POWER & AUXILIARY SYSTEMS - AREA C - PLAN NOTES	
KEY NOTE	DESCRIPTION
1	LOCATE HEAT DETECTOR WITHIN 2'-0" OF EACH SPRINKLER HEAD FOR CODE REQUIRED ELEVATOR RECALL.
2	LOCATE SMOKE DETECTOR IN THIS AREA. PROVIDE ALL NECESSARY RELAYS AND CONNECTIONS TO ELEVATOR CONTROLLER FOR CODE REQUIRED ELEVATOR RECALL. COORDINATE CONNECTION WITH THE ELEVATOR SUPPLIER/INSTALLER.
3	PROVIDE 30A NON-FUSED DISCONNECT LOCATED IN ELEVATOR HOISTWAY FOR ELEVATOR CAB LIGHTING. DISCONNECT SHALL BE LOCABLE IN THE CLOSED POSITION WITH A LOCKING MECHANISM THAT CANNOT BE REMOVED. DISCONNECT TO BE PROVIDED WITH A POSITIVELY DRIVEN AUXILIARY CONTACT. CONTACT SHALL OPEN WHEN DISCONNECT IS OPENED.
4	ELECTRICAL CONNECTION TO ELEVATOR CONTROLLER. COORDINATE EXACT CONNECTION LOCATION WITH THE ELEVATOR SUPPLIER/INSTALLER. SEE THE ONE-LINE DIAGRAMS FOR FEEDER SIZING.

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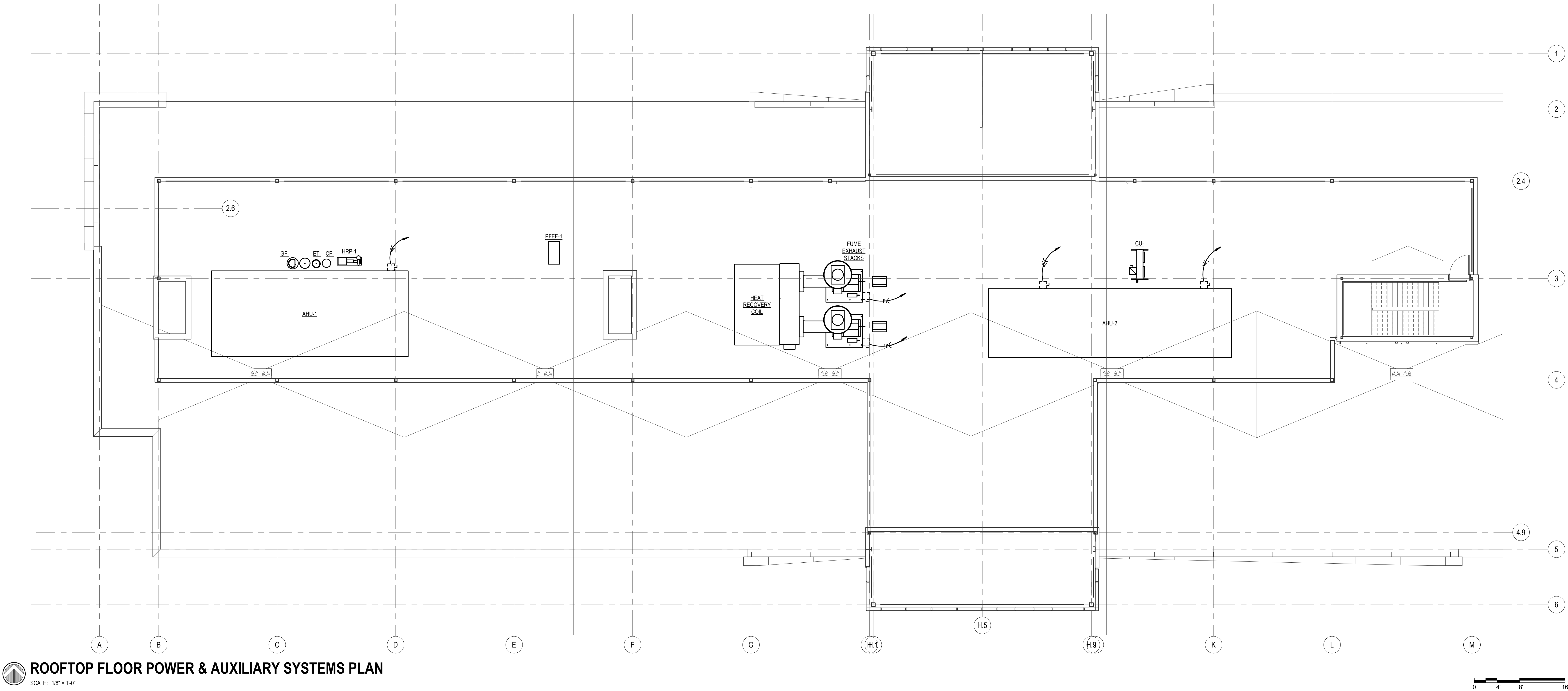
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Third Floor Power & Auxiliary Systems Plan - Area C

E2.03c



ROOFTOP FLOOR POWER & AUXILIARY SYSTEMS PLAN
SCALE: 1/8" = 1'-0"

ROOFTOP POWER & AUXILIARY SYSTEMS PLAN NOTES	
KEY NOTE	DESCRIPTION

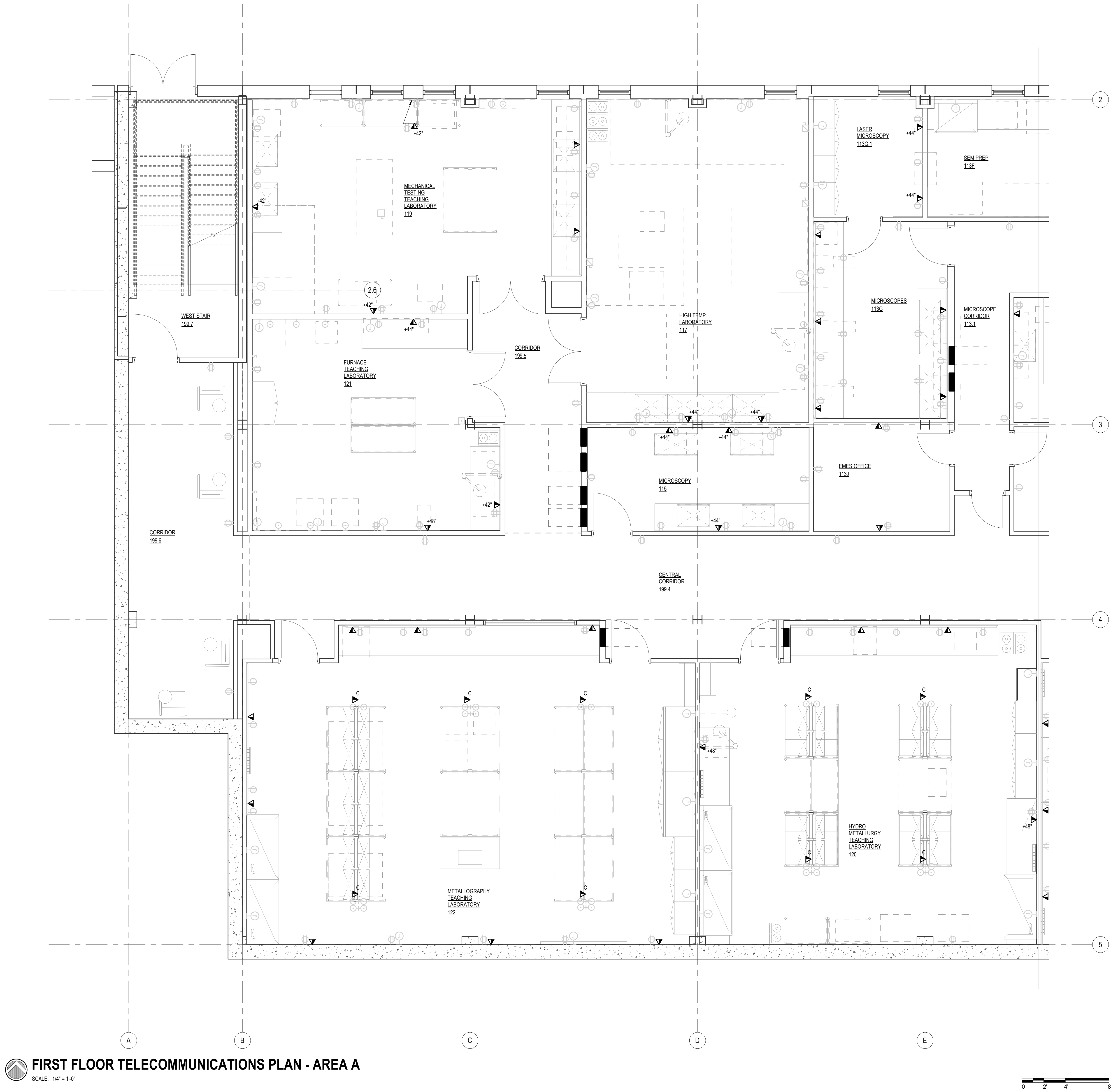
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FIRST FLOOR TELECOMMUNICATIONS PLAN NOTES - AREA A	
KEY NOTE	DESCRIPTION



 FIRST FLOOR TELECOMMUNICATIONS PLAN - AREA A

SCALE: 1/4" = 1'-0"

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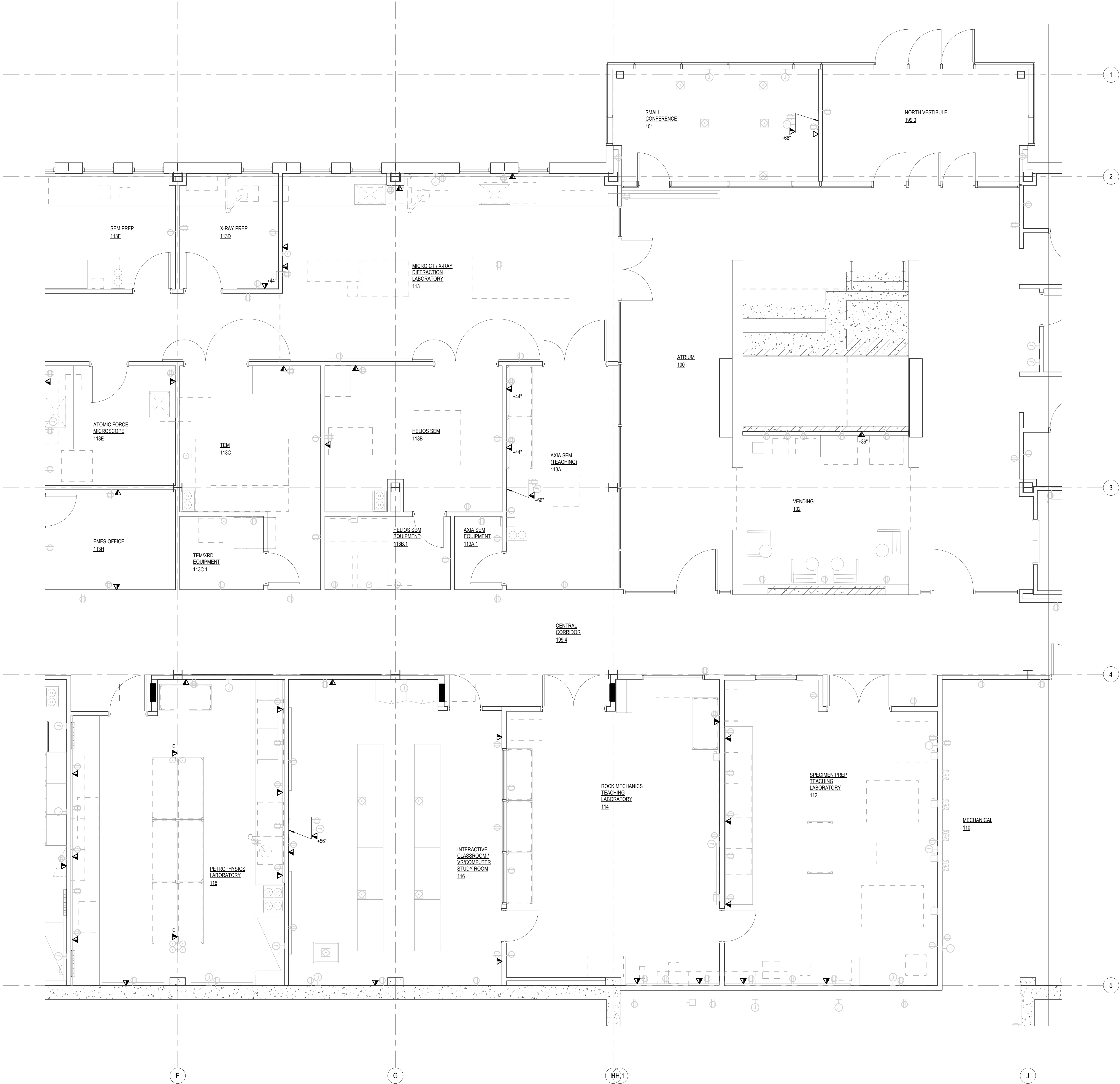
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First Floor
Telecommunications Plan
- Area A

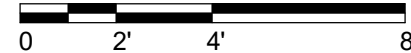
T1.01a

FIRST FLOOR TELECOMMUNICATIONS PLAN NOTES - AREA B	
KEY NOTE	DESCRIPTION



FIRST FLOOR TELECOMMUNICATIONS PLAN - AREA B

SCALE: 1/4" = 1'-0"



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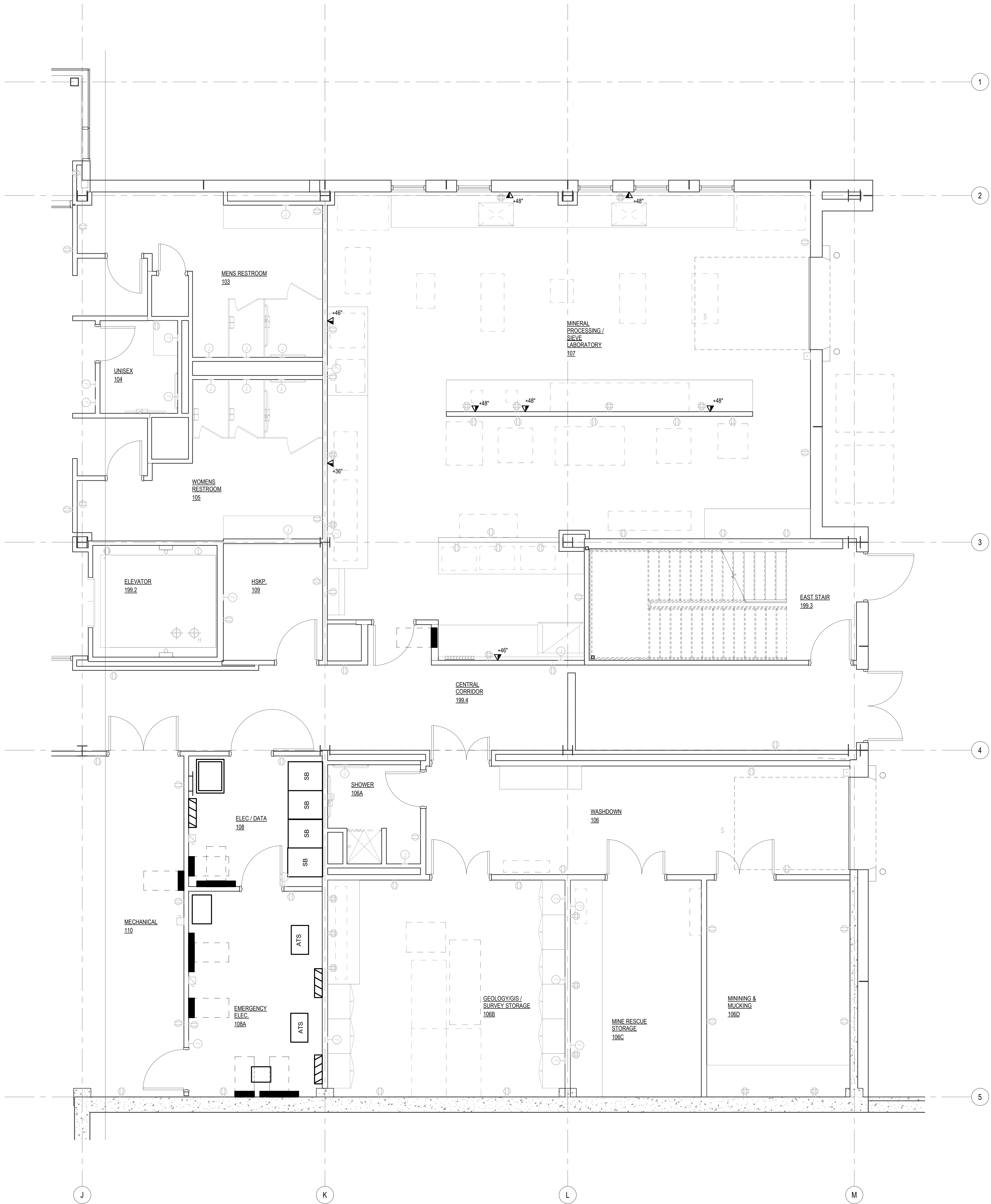
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First Floor
Telecommunications Plan
- Area B

T1.01b

FIRST FLOOR TELECOMMUNICATIONS PLAN NOTES - AREA C	
KEY NOTE	DESCRIPTION



FIRST FLOOR TELECOMMUNICATIONS PLAN - AREA C
SCALE: 1/4" = 1'-0"

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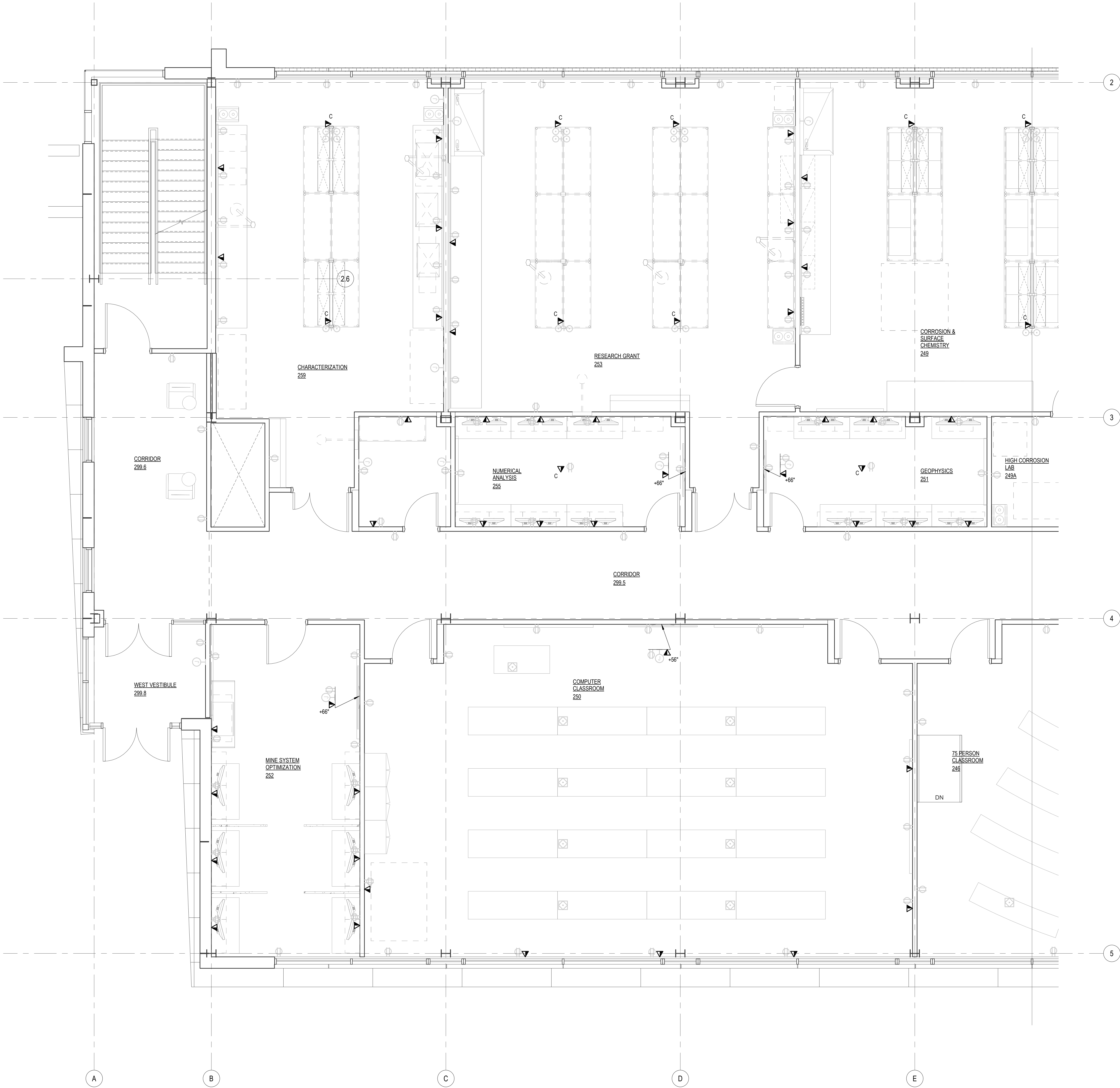
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First Floor
Telecommunications Plan
- Area C

T1.01c

SECOND FLOOR TELECOMMUNICATIONS PLAN NOTES - AREA A	
KEY NOTE	DESCRIPTION



 **SECOND FLOOR TELECOMMUNICATIONS PLAN - AREA A**
SCALE: 1/4" = 1'-0"

0 2' 4' 8'

Design Development

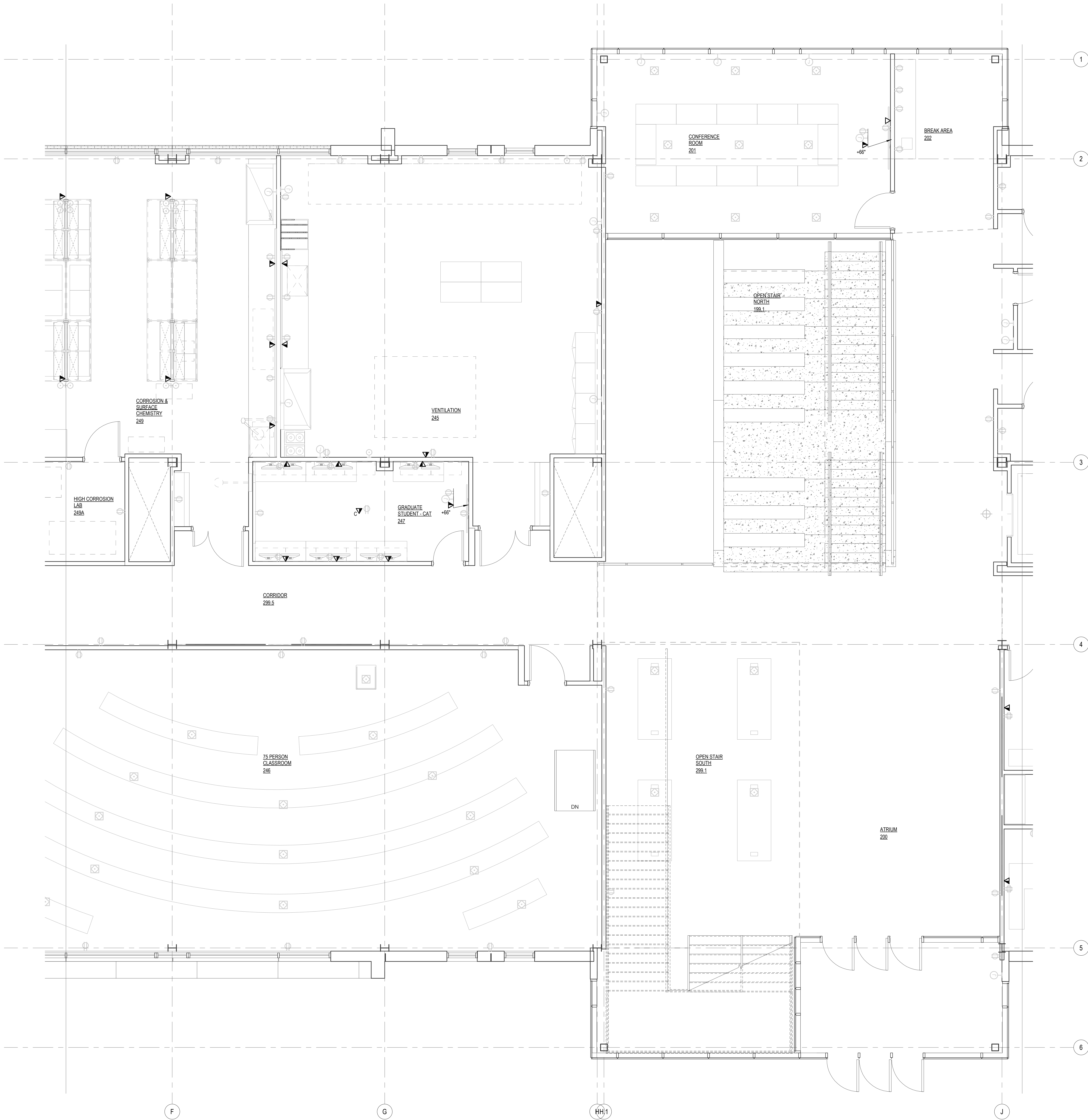
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Second Floor
Telecommunications Plan
- Area A

T1.02a



SECOND FLOOR TELECOMMUNICATIONS PLAN NOTES - AREA B	
KEY NOTE	DESCRIPTION

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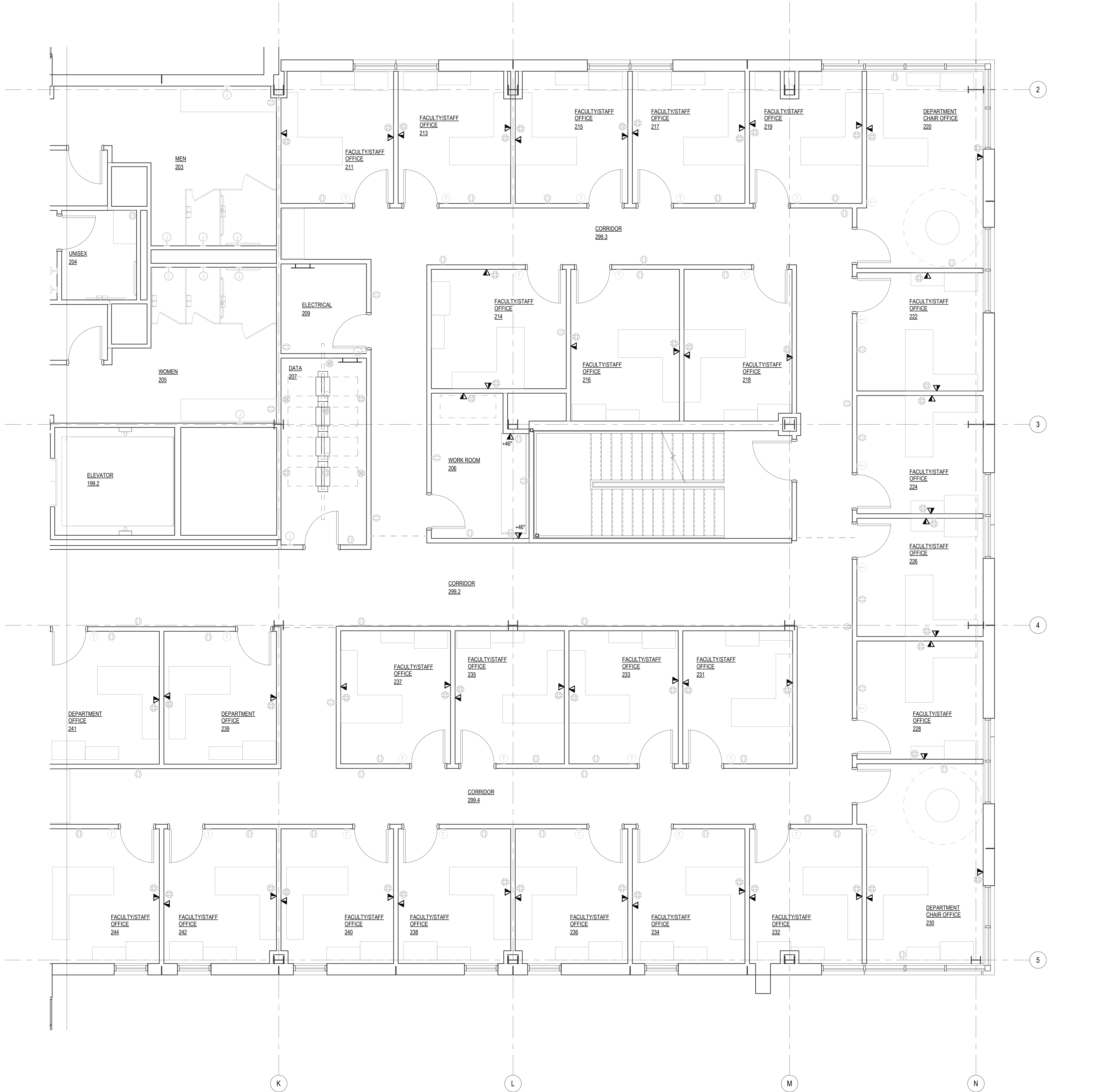
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Second Floor
Telecommunications Plan
- Area B

T1.02b

SECOND FLOOR TELECOMMUNICATIONS PLAN NOTES - AREA C	
KEY NOTE	DESCRIPTION



 SECOND FLOOR TELECOMMUNICATIONS PLAN - AREA C

0 2' 4' 8'

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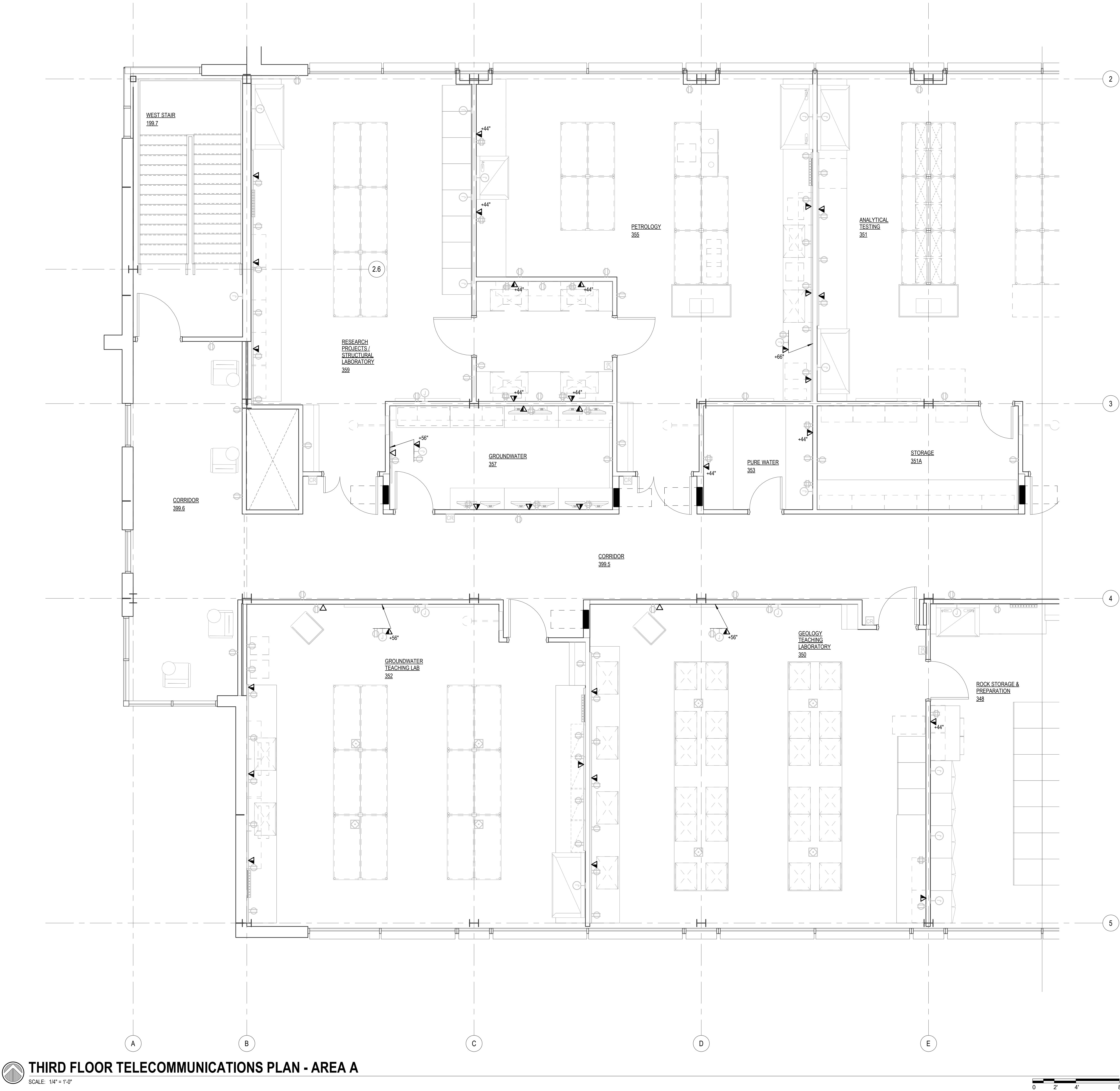
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Second Floor
Telecommunications Plan
- Area C

T1.02c

THIRD FLOOR TELECOMMUNICATIONS PLAN NOTES - AREA A	
KEY NOTE	DESCRIPTION



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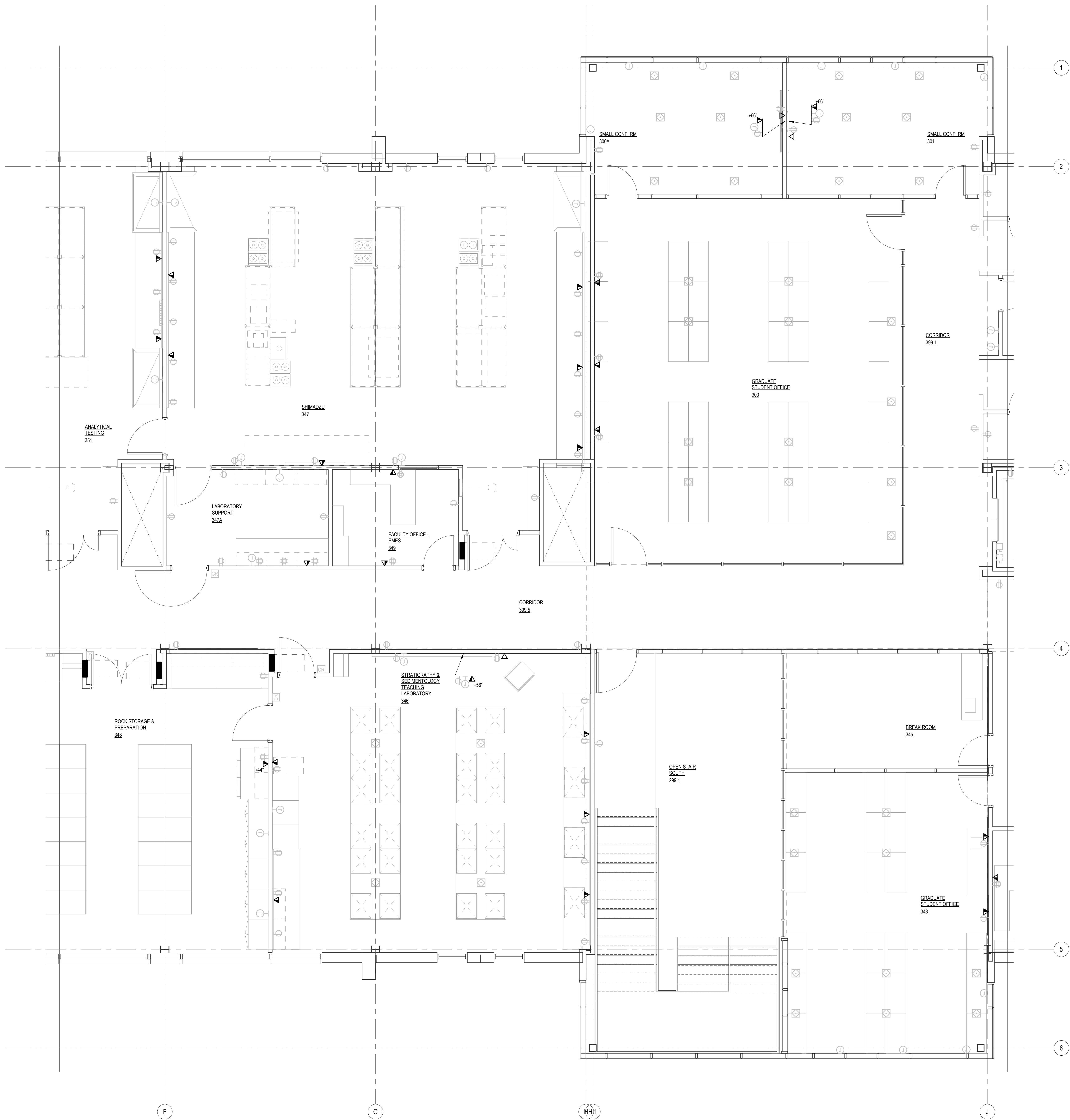
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Third Floor
Telecommunications Plan
- Area A

T1.03a



THIRD FLOOR TELECOMMUNICATIONS PLAN NOTES - AREA B	
KEY NOTE	DESCRIPTION

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Third Floor
Telecommunications Plan
- Area B

T1.03b

THIRD FLOOR TELECOMMUNICATIONS PLAN NOTES - AREA C	
KEY NOTE	DESCRIPTION

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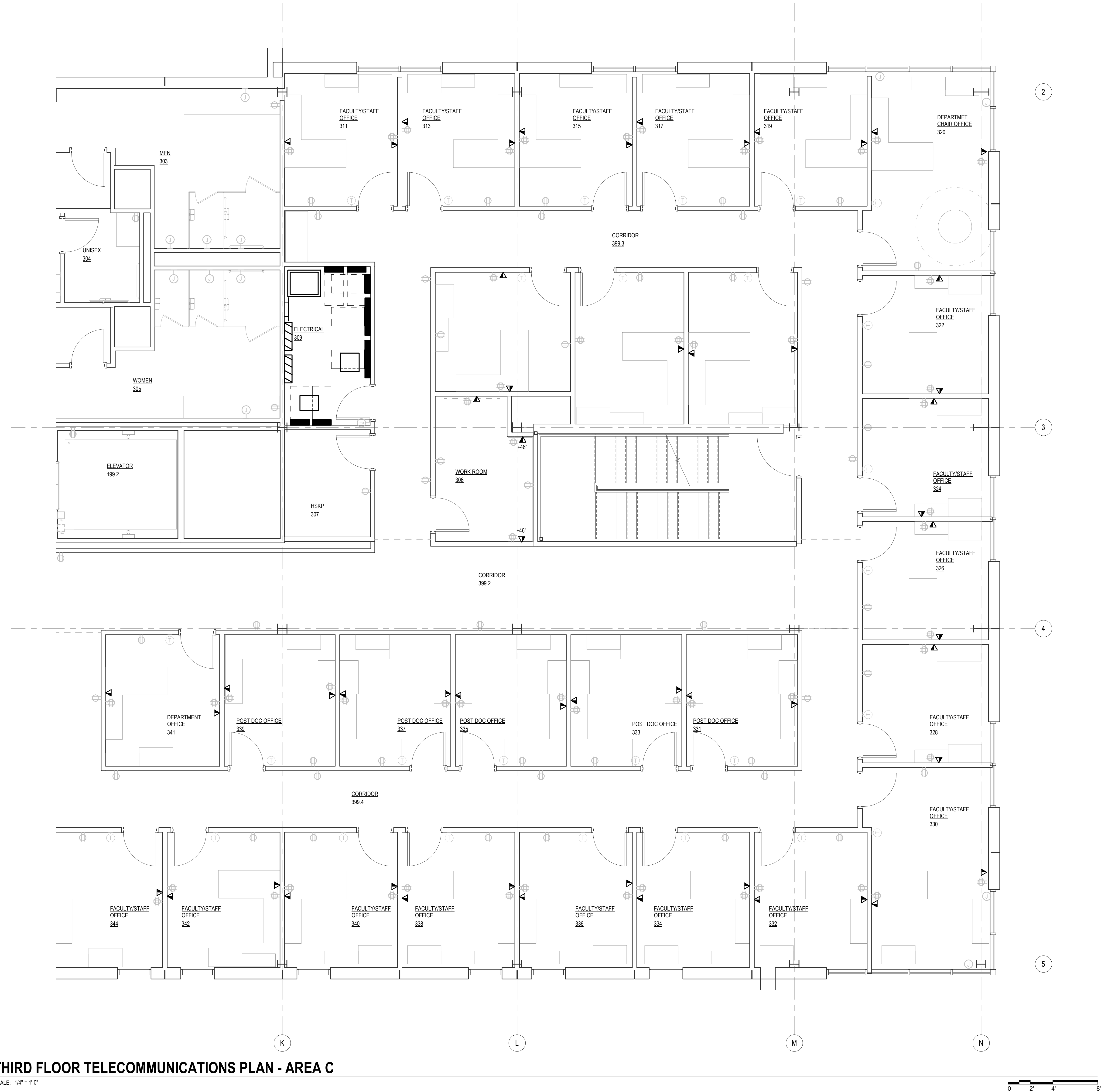
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Third Floor
Telecommunications Plan
- Area C

T1.03c



THIRD FLOOR TELECOMMUNICATIONS PLAN - AREA C
SCALE: 1/4" = 1'-0"

