Addendum No: 5

McMaster University
Department of Facility Services
Design and Construction
1280 Main Street West
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L8S 4M3
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Project: **RFQ-1202-2025**
Project Name: University Hall HVAC Upgrade
Project Number: 20020136
Date: September 4, 2025

This addendum forms a part of the RFQ documents and will be incorporated into the Contract Documents, as applicable. This addendum changes and shall govern over the referenced sections of the original RFQ documents or any previously issued addenda. Acknowledge receipt of this addendum on the quotation form. Failure to acknowledge receipt of addenda on the quotation form shall result in disqualification.

SECTION 1 – REQUEST FOR INFORMATION

Question 1:

Does each damper requires its own circuit?

Answer 1:

No, FSDs will share common circuit. Refer to MCW Addendum 03 for additional details.

Question 2:

Does each damper require its own circuit?

Answer 2:

No, FSDs will share common circuit. Refer to MCW Addendum 03 for additional details.

Question 3:

As per addendum 3, Please confirm the pipe freezing works at Basement Level, Level 1, Level 2, Level 3, and Attic Space are required to be performed during after-hours as pipe freezing work is obtrusive to surrounding occupants.

Answer 3:

If the pipe freezing work is obtrusive to surrounding occupants, it should be performed after hours.

Question 4:

As per addendum 3, Please confirm all the HVAC and Plumbing works at Basement Level, Level 1, Level 2, Level 3, and Attic Space are required to be performed during after-hours as the Classrooms and Offices are expected to be occupied between 7:00a.m. and 3:00p.m.

Answer 4:

Per the Space Availability Schedule included in Addendum No1 there are significant weeks of access being provided at the basement and attic levels in particular. Availability is also highlighted when classes are not in session. Please refer to the schedule for your coordination of the work.

Question 5:

As per MCW Addendum 03, there is a previously provided schedule indicating localized restrictions for specific areas of work and also indicating the open blocks of time when full access to the building will be available in the tender document. Unfortunately we didn't find that schedule provided with the IFT package. Please provide the schedule.

Answer 5:

Refer to Addendum No.1 for the supplementary schedules.

Question 6:

Please confirm the crane lifting can be performed during the regular working hours.

Answer 6:

Care will need to be taken in coordination of all work to address noise and safety concerns when operating large equipment in and around an occupied building site. There are significant blocks of weeks in the proposed schedule when classes are not in session. The successful bidder will need to schedule the work to suit the site restrictions as presented.

Question 7:

Fire alarm spec says Mircom a bunch of times, but Mircom is saying they aren't in McMaster. Please clarify?

Answer 7:

Existing fire alarm system is Simplex-4100EX.

Question 8:

Please confirm if we need a 3rd party fire alarm verification in addition to standard manufacturers verification inspection.

Answer 8:

Yes, third-party verification is required. Refer to Electrical Specifications Section 26 70 01 – 3.07 for more details.

Question 9:

Confirm if Power system protection coordination/Arc flash/short circuit studies are required.

Answer 9:

No, this is not required.

Question 10:

Confirm integrated life safety test is required?

Answer 10:

Yes, the contractor shall participate in the integrated systems testing per the requirements of CAN/ULC-S1001-11, Integrated Systems Testing of Fire Protection and Life Safety Systems. Commissioning scope will be further clarified in MCW Addendum 03.

Question 11:

Are there any Seismic requirements for electrical installation?

Answer 11:

Yes, seismic restraint is required for this project.

Question 12:

Confirm Power shutdown and tie-in of electrical distribution can be completed from 3pm to 10pm shift?

Answer 12:

Utility shutdown procedures as noted in the RFQ and needs to be afterhours or within down time schedule provided.

Question 13:

Provide drawing scale for MCW electrical drawings.

Answer 13:

Scale has been reflected on drawings in MCW Addendum 03. Please note that all drawings are for diagrammatic purposes only and should not be scaled. Final sizes and locations of all equipment with respect to building features and one another are the responsibility of the installing contractor.

Question 14:

Note#1 E2.01: Confirm if new stem is required only for R/R lights.

Answer 14:

Not required. Existing suspension kits shall be reused for all R/R light fixtures.

Question 15:

Note#1 E2.01: Confirm if new stem is required for existing to remain lights.

Answer 15:

Not required.

Question 16:

Provide 120V power source for EF-1 and EF-2. Drawing doesn't show where is it fed from?

Answer 16:

Not a part of this scope.

Question 17:

Provide fire alarm riser diagram showing number of new zones and tie-in points.

Answer 17:

Extend existing fire alarm circuit to accommodate the new devices to suit. All newly installed devices shall be aligned with the existing fire alarm zoning for each floor at the site.

Question 18:

Confirm if all FSD in one floor can be on the same fire alarm zone.

Answer 18:

Extend existing fire alarm circuit to accommodate the new devices to suit. All newly installed devices shall be aligned with the existing fire alarm zoning for each floor at the site.

Question 19:

Are we picking up fire alarm circuits locally available in the respective floor?

Answer 19:

Extend existing fire alarm circuit to accommodate the new devices to suit. All newly installed devices shall be aligned with the existing fire alarm zoning for each floor at the site.

Question 20:

Do we need to pull new fire alarm circuits from FACP?

Answer 20:

No.

Question 21:

Confirm if all fire alarm wiring needs to be Class-A.

Answer 21:

Based on the existing drawings, the existing initiation zone wiring is connected as "Addressable Class-B" circuit.

Question 22:

E2-01: Confirm if new stem replacement is still required in basement. Note#1 is not deleted even though corridor lights are now existing to remain.

Answer 22:

Not required.

Question 23:

Confirm light stem replacement is not required for existing to remain lights.

Answer 23:

Not required.

Question 24:

Provide specifications for the new light stem required.

Answer 24:

Not required.

Question 25:

E2-02 shows two new exist lights in corridor near “room 180”. Are they new? Please elaborate scope.

Answer 25:

Exit lights were shown for reference, which will be removed from the drawings in the upcoming MCW Addendum 03.

Question 26:

Confirm if loose disconnects for mechanical equipment needs to be supplied and installed by electrical.

Answer 26:

ERV-1 is provided with factory-installed disconnect. Provide other disconnects/toggle switches for all other Mechanical equipment to suit.

Question 27:

Confirm location of riser shaft for the building where feeders from lower floors can reach devices on floors above.

Answer 27:

Proposed route for feeder(s) from the lower floors to reach the upper floor / attic are a part of MCW Addendum 03.

SECTION 2 – RFQ AMENDMENTS

MCW Addendum No. 03

-2025-09-04 – ADD-03 - Narrative
-Specification Section 26 05 03 – Electrical Systems Commissioning
-2025-09-04-MCMASTER UNIVERSITY HALL – MDWG – ISSUED FOR ADD-03
-2025-09-04-MCMASTER UNIVERSITY HALL – EDWG – ISSUED FOR ADD-03

End of Addendum 5

Addendum

Queen's Quay Terminal
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Toronto, Ontario M5J 1A7
Phone 416-598-2920 Fax 416-598-5394
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Date: September 4, 2025

Project Name:	McMaster University – University Hall Ventilation Upgrade		
Client:	McMaster University		Project #: 22227B
To:	+VG Architects		ADD #: 03
Attention:	Ed Shuck	eschuck@plusvg.com	Page #: 1 of 2
From:	Tareq Nassar	tnassar@mcw.com	+ Attachment
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	Kevin Church – +VG	KChurch@plusvg.com	

In accordance with the drawings and specifications, provide in the tender all costs required to complete the work including items as listed below.

Title: Mech/Elec Addendum 03
Reason for Change: Revisions to capture additional addendum questions

Specifications:

Section #	Revisions
26 05 03	• Added section for Electrical Systems Commissioning to outline commissioning requirements.

Mechanical Drawings:

Drawing #	Revisions
M2.1	• Added note to include for temporary removal and reinstallation of surface mounted devices to accommodate modifications to shafts.
M2.2	• Added note to include for temporary removal and reinstallation of surface mounted devices to accommodate modifications to shafts.
M2.3	• Added note to include for temporary removal and reinstallation of surface mounted devices to accommodate modifications to shafts.

Electrical Drawings:

Drawing #	Revisions
E0-01	• Added general notes for the existing Fire Alarm System on site.
E2-01	• Removed note - 1 related to mounting kits for light fixtures. • Updated notes - 5 & 6 to clarify wiring intent for new Fire Alarm devices.
E2-02	• Removed note - 1 related to mounting kits for light fixtures. • Added note – 5 to rework the existing surface mounted raceway for Room-107. • Added notes - 8 & 9 to clarify wiring intent for new Fire Alarm devices.

Electrical Drawings:

Drawing #	Revisions
E2-03	• Removed note - 1 related to mounting kits for light fixtures. • Added note – 5 to rework the existing surface mounted raceway for Room-207. • Added notes - 8 & 9 to clarify wiring intent for new Fire Alarm devices.
E2-04	• Removed note - 1 related to mounting kits for light fixtures. • Added note – 5 to rework the existing surface mounted raceway for Room-309. • Added notes - 8 & 9 to clarify wiring intent for new Fire Alarm devices.
E2-05	• Added notes - 3 & 4 to clarify wiring intent for new Fire Alarm devices. • Added note – 5 to propose a route for the new attic splitter feeder fed from basement.

End of ADD # 03

CONTENTS

PART 1 - GENERAL

1.01 REFERENCES

.1 Comply with Section 26 05 00, Electrical General Requirements and all documents referred to therein.

1.02 SCOPE OF WORK

.1 The Electrical Consultant is not acting as Commissioning Agent or Commissioning Authority and is not responsibility for developing Commissioning Plans, manage and administer the commissioning process.

.2 A Cash Allowance has been identified for the retention of a Commissioning Agent to assist the contractor in developing a Commissioning Plan, manage and administer the commissioning process.

.3 The Contractor shall provide all services, materials and labour required to fully Commission the Electrical Systems as specified herein.

.4 The Contractor shall provide all services, materials and labour required to successfully complete Functional Performance Testing of the Electrical Systems as part of Commissioning the overall building systems as a holistic operation. Functional Performance Testing shall be as defined in CSA Z320.

.5 The Contractor shall participate in the integrated systems testing per the requirements of CAN/ULC-S1001-11, Integrated Systems Testing of Fire Protection and Life Safety Systems.

.6 Equipment Suppliers and Vendors are expected to support the Contractor complete Electrical Commissioning Specified in this Section. Support may come in the form of attendance on site to verify correct installation, performance, trouble shooting, training and final documentation at turn-over. The Contractor shall ensure Equipment Suppliers and Vendors provide the support necessary for successful Electrical Commissioning.

1.03 COORDINATION

.1 Appoint a single person as Commissioning Coordinator who shall be responsible for advancing the commissioning activities of the Electrical Division.

1.04 QUALITY ASSURANCE

.1 The following Standards shall be used to guide the commissioning process:

.1 CSA Z320-11 (R2016) Building Commissioning
.2 CAN/ULC-S1001-11 Integrated Systems Testing of Fire Protection and Life Safety Systems
.3 CAN/ULC-S537-13 Standard For Verification of Fire Alarm Systems
.4 CSA C282-15 Emergency Electrical Power Supply For Buildings

.2 Hold and attend regular meetings during the commissioning process. Prepare detailed progress reports to coincide with regular commissioning meetings.

.3 In addition to all tests listed under this section, the Electrical Division shall complete its own tests and any additional tests required by the Owner or the Commissioning Agent of Authority having jurisdiction over the work to ensure the equipment operates as intended.

PART 2 - PRODUCTS

2.01 NIL

PART 3 - EXECUTION

3.01 DESIGN AND PERFORMANCE REQUIREMENTS

.1 Provide a schedule with regular updates for the completion of Electrical Division equipment and systems.

.2 Six (6) weeks prior to the target Substantial Performance date, submit a detailed and comprehensive installation completion/ start-up/ testing schedule. Update the schedule and resubmit for review, on a bi-weekly basis, during the course of Commissioning. Provide regular revisions and updates to the schedule to suit the updated construction schedule. This schedule shall include, but is not limited to the following items:

.1 Low voltage distribution panels
.2 Low voltage branch circuit panels
.3 Low voltage cables
.4 Grounding & bonding
.5 Interior lighting & control
.6 Fire alarm system
.7 Fire alarm system interface & control
.8 Mechanical service electrical connections
.9 Start-up of various equipment and systems
.10 Operational testing of system components
.11 Performance testing of equipment and systems
.12 Acceptance testing of equipment installations and systems by Authorities Having Jurisdiction (“AHJs”) and the Owner’s insurance company
.13 Troubleshooting
.14 Calibration of controls and point checkout
.15 Control software setup and checkout
.16 Submittal of completed equipment and system checkout sheets
.17 Demonstration of systems and equipment
.18 Maintenance manual preparation and submittal
.19 Operator training program
.20 Record documentation submittal

3.02 RECORD DOCUMENTATION

.1 Prepare record documentation for each equipment installation covering:

.1 Equipment identification and supplier
.2 Shop Drawing submittal, review, production release, and delivery dates
.3 Dates for completion of all work required to prepare for equipment installation
.4 Dates for equipment installation, supplier prestart checkout and system availability for start-up
.5 Dates for equipment start-up, performance testing, proposal for temporary use, acceptance testing, demonstration, turnover and warranty start/finish
.6 List all specialist personnel and equipment required for the test and ensure that these are available by the test date.

.7 Provide documentation of the commissioning process for inclusion into the maintenance manuals. These are to include checkout sheets, equipment data sheets, start-up certificates from suppliers involved in start-up, documentation concerning demonstration to the Owner. Include all records and result sheets from commissioning tests.

.8 Maintain a log of key operating parameters, problems encountered, solutions employed and verification of effectiveness of solutions. Include log in maintenance manuals.

3.03 START-UP

.1 Coordinate and supervise the start-up of the various pieces of equipment and systems. Utilize the start-up services of the manufacturer's representative. Ensure that the equipment is operating in a satisfactory manner. Check the following items:

.1 Initial site energization
.2 Voltage measurements
.3 Phase rotation
.4 Thermographic survey/report
.5 Load balance
.6 Temperature measurements and liquid sampling for transformers where applicable
.7 Visual inspections post energization

.2 Prior to the equipment start-up, arrange to have the Manufacturer of all major equipment inspect the installation to ensure their equipment has been installed in accordance with their recommendations.

.3 Functional testing is intended to begin upon successful completion of start-up. Functional testing may proceed prior to the completion of systems or sub-systems at the discretion of the Owner and the Owner’s Commissioning Consultant. Beginning system functional testing prior to full completion does not relieve the Electrical Division from fully completing the system, including all start-up checklists.

3.04 TROUBLESHOOTING

.1 Resolve inter-Division coordination problems.

.2 Where problems become apparent during the commissioning process, identify and resolve these problems. The basic functions of troubleshooting include:

.1 Identify and define the problems
.2 Determine and evaluate the causes
.3 Determine the time available to resolve the problem
.4 Involve the designing authority in the review of the problem and proposed resolution
.5 Coordinate remedial action with the appropriate parties
.6 Evaluate the effectiveness of the remedial action
.7 Record the problem, cause, remedial action and result

3.05 OPERATIONAL TESTING

.1 Test the operation of the individual components and systems. Go through each step of the sequence of operation and verify that each component operates correctly. Direct and ensure that all trades involved make the required changes and adjustments to effect the proper operation of all components and systems. Meet commissioning test requirements.

.2 Document the operation and testing.

.3 Ensure operational tests are completed for all seasons and modes of operation.

.4 For any systems and assemblies where some testing has been deferred, coordinate seasonal commissioning for those systems that have been functionally tested and handed over in seasons where retesting and commissioning will be required during the opposite season.

3.06 DEMONSTRATION AND TRAINING

.1 Demonstrate to the operating staff the proper operation of all Electrical equipment and systems. Demonstrations shall occur only after the operation and testing has been successfully completed. Ensure that all affected Electrical Division Trade Contractor(s) and equipment suppliers participate in the demonstrations as required.

.2 Thoroughly instruct the operating staff in the safe and efficient operation and maintenance of all systems and equipment.

.3 Provide designated operating personnel with comprehensive orientation and training in the understanding of the systems and the operation and maintenance of each piece of Electrical equipment including, but not limited to, pumps, boilers, chillers, heat rejection equipment, air conditioning units, air handling units, fans, terminal units, controls and water treatment systems, fuel systems and other Electrical systems.

.4 Training shall normally start with classroom sessions followed by hands-on training on each piece of equipment, which shall illustrate the various modes of operation, including start-up, shutdown, fire/smoke alarm, power failure, and other similar modes of operation.

.5 During any demonstration, should the system fail to perform in accordance with the requirements of the O&M manual or sequence of operations, the system will be repaired or adjusted as necessary and the demonstration repeated.

.6 The appropriate trade or manufacturer's representative shall provide the instructions on each major piece of equipment. This person may be the start-up technician for the piece of equipment, the installing contractor or manufacturer’s representative.

.7 Practical building operating expertise as well as in-depth knowledge of all modes of operation of the specific piece of equipment is required. More than one party may be required to execute the training.

.8 The training sessions shall follow the outline in the Table of Contents of the operation and maintenance manual and illustrate whenever possible the use of the O&M manuals for reference.

.9 Training shall include:

- .1 Use of the printed installation, operation and maintenance instruction material included in the O&M manuals.
- .2 A review of the written O&M instructions emphasizing safe and proper operating requirements, preventative maintenance, special tools needed and spare parts inventory suggestions. The training shall include start-up, operation in all modes possible, shut-down, seasonal changeover and any emergency procedures.
- .3 Discussion of relevant health and safety issues and concerns.
- .4 Discussion of warranties and guarantees.
- .5 Common troubleshooting problems and solutions.
- .6 Explanatory information included in the O&M manuals and the location of all plans and manuals in the facility.
- .7 Discussion of any peculiarities of equipment installation or operation.
- .8 Classroom sessions shall include the use of overhead projections, slides, video/audio-taped material as might be appropriate.

.9 Hands-on training shall include start-up, operation in all modes possible, including manual, shut-down and any emergency procedures and preventative maintenance for all pieces of equipment.

.10 The Electrical contractor shall fully explain and demonstrate the operation, function and overrides of any local packaged controls, not controlled by the central control system.

.11 During any demonstration or hands-on training, should the system fail to perform in accordance with the requirements of the O&M manual or sequence of operations, the system will be repaired or adjusted as necessary and the demonstration repeated.

3.07 OPERATING AND MAINTENANCE MANUALS

.1 Ensure that O&M Manuals are complete in accordance with the requirements of Section 26 05 00.

3.08 “AS-CONSTRUCTED” DRAWINGS

.1 Ensure that Electrical Trade(s) “As-constructed” drawings have been produced and that they accurately reflect the completed Electrical systems.

3.09 COMPLETION

.1 Confirm completion of all Electrical Work, including, but not limited to:

.1 Removal of all debris from inside Electrical systems and equipment.
.2 Compliance with manufacturer's written instructions.
.3 Removal of all temporary protection and covers.
.4 Record all settings of devices, equipment and systems.

3.10 COMMISSIONING TESTS

.1 Factory tests/verification documents

.2 Field electrical tests

.3 Field test values

.4 Operation of control circuits

.5 Operation of trip circuits

.6 Safety interlocks and operations

.7 Demonstrate access to all junction boxes per code for servicing.

.8 Verify the operation of all Electrical equipment.

.9 Verify that interfacing to the work of other Divisions results in complete and operational systems.

3.11 POST OCCUPANCY EVALUATION

.1 The post-occupancy evaluation period shall run for one full year following occupancy of the facility. The Commissioning Coordinator shall meet regularly with the operating staff throughout this period to review the operation of all Electrical systems and equipment. The Commissioning Coordinator shall provide written advice regarding questions and concerns raised by the operating staff.

.2 Resolutions of operational problems shall, where appropriate, be used to modify the Operation and Maintenance Instructions for the equipment and systems involved.

.3 Identify areas that may come under warranty and conduct a review of condition and operation. Seek remedy under warranty for any outstanding issues and problems before end of warranty period.

3.12 CABLES, LOW-VOLTAGE, 600-VOLT MAXIMUM

.1 Visual and Mechanical Inspection

.1 Inspect compression-applied connectors for correct cable match and indentation.

.2 Electrical Tests

.1 Perform an insulation-resistance test on each conductor with respect to ground and adjacent conductors. The applied potential shall be 500 volts dc for 300-volt rated cable and 1000 volts dc for 600-volt rated cable. The test duration shall be one minute.
.2 Verify uniform resistance of parallel conductors.

.3 Test Values

.1 Test Values – Electrical
.1 Insulation-resistance values should be comparable to similar circuits but not less than two megohms.
.2 Deviations in resistance between parallel conductors shall be investigated.

3.13 DEMONSTRATION AND TRAINING

.1 Demonstrate to the operating staff the proper operation of all Electrical equipment and systems. Demonstrations shall occur only after the operation and testing has been successfully completed. Ensure that all affected Electrical Division Trade Contractor(s) and equipment suppliers participate in the demonstrations as required.

.2 Thoroughly instruct the operating staff in the safe and efficient operation and maintenance of all systems and equipment.

.3 Provide designated operating personnel with comprehensive orientation and training in the understanding of the systems and the operation and maintenance of each piece of Electrical equipment.

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.5 During any demonstration, should the system fail to perform in accordance with the requirements of the O&M manual or sequence of operations, the system will be repaired or adjusted as necessary and the demonstration repeated.

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.3 Discussion of relevant health and safety issues and concerns.

.4 Discussion of warranties and guarantees.

.5 Common troubleshooting problems and solutions.

.6 Explanatory information included in the O&M manuals and the location of all plans and manuals in the facility.

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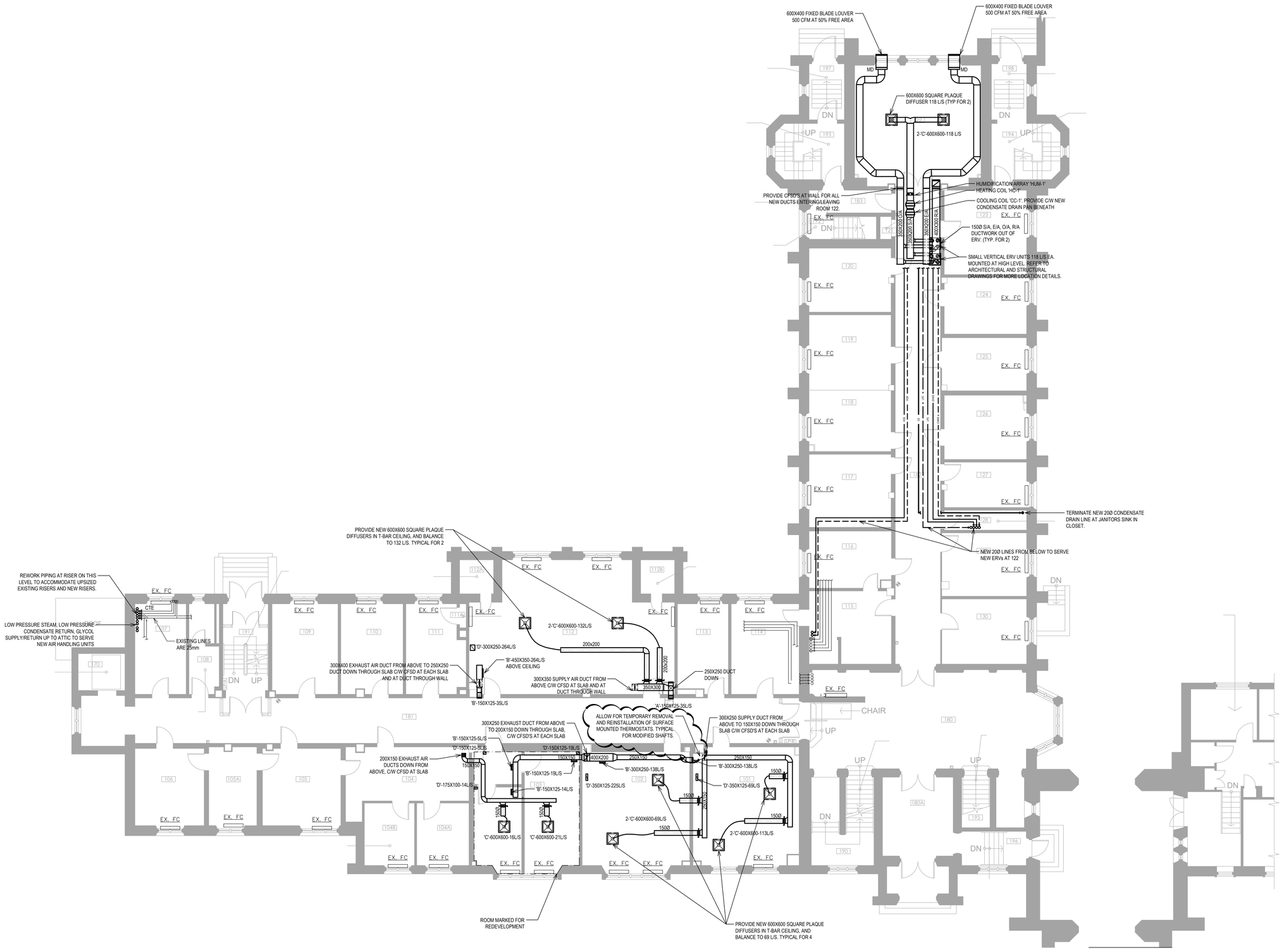
END OF SECTION 26 05 03



REVISIONS

NO.	DATE	PARTICULAR
1	23.01.25	ISSUED FOR COORDINATION REVIEW
2	23.03.08	ISSUED FOR 50% DD REVIEW
3	23.04.24	ISSUED FOR 90% DD REVIEW
4	24.04.10	ISSUED FOR PRE-TENDER REVIEW
5	25.07.04	ISSUED FOR PERMIT
6	25.08.05	ISSUED FOR TENDER
7	25.08.22	ISSUED FOR ADDENDUM 01
8	25.09.04	ISSUED FOR ADDENDUM 03

NOTES:

KEY PLAN:

CLIENT:
McMASTER UNIVERSITY
HAMILTON, ONTARIO

Project No. 22227B

PROJECT:
22227B

UNIVERSITY HALL VENTILATION UPGRADE

McMaster University Campus
1280 MAIN ST. W.
HAMILTON, ON L8S 4K1

ORIGINAL PAGE SIZE ARCH D - 24" x 36"

KEY TO DETAIL LOCATION:
A - DETAIL NO.
B - DETAIL NO. ORIGIN

MCW Consultants Ltd.

LEVLE 1 - MECHANICAL NEW WORK

M2.1

DRAWN BY : TN

CHECKED BY : TN

Plot Date: Sep 04, 2025 - 12:07pm By: TNassar

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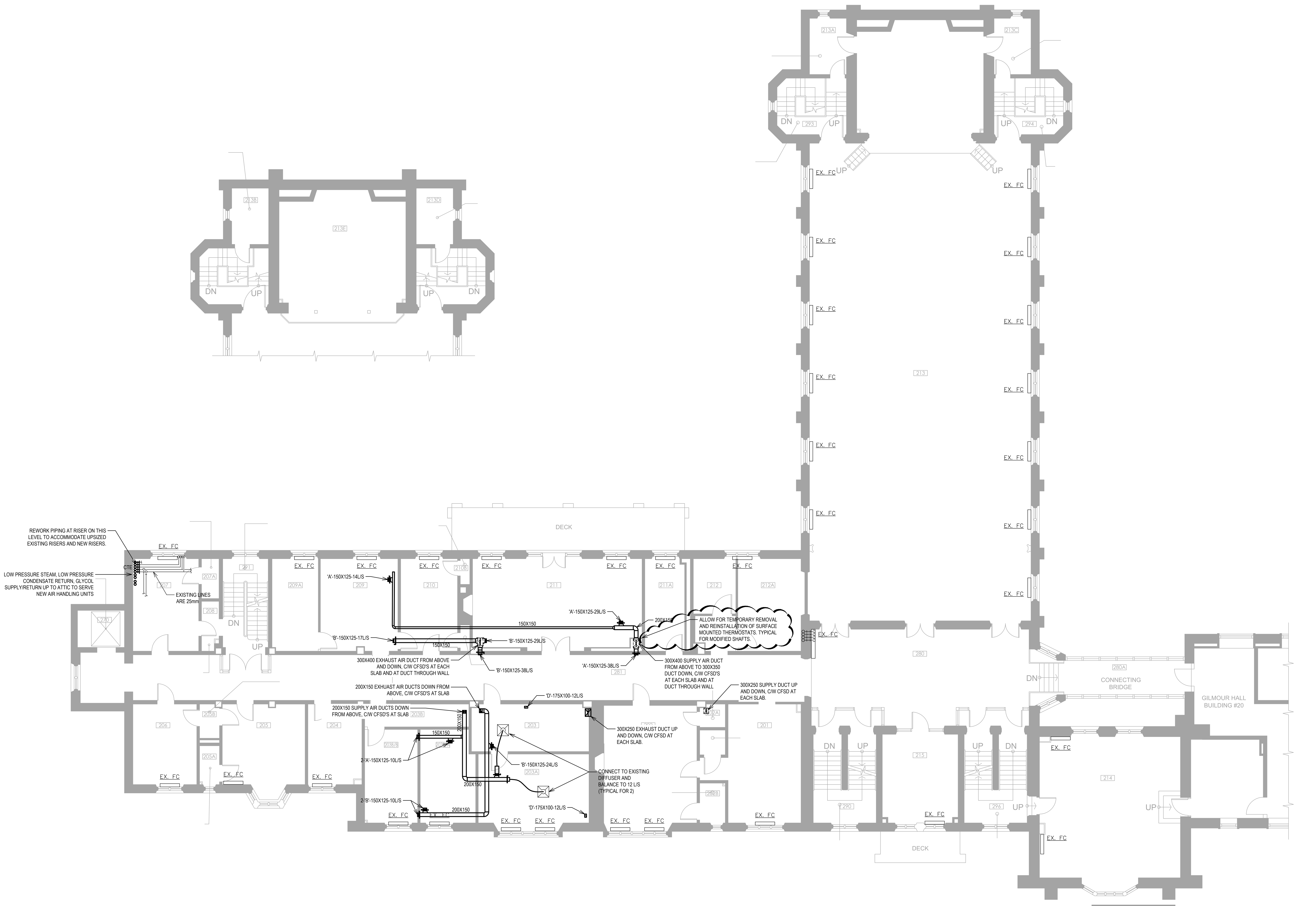

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HAMILTON, ONTARIO

Project No. 22227B

PROJECT:
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UNIVERSITY HALL VENTILATION UPGRADE

McMaster University Campus
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ORIGINAL PAGE SIZE ARCH D - 24" x 36"
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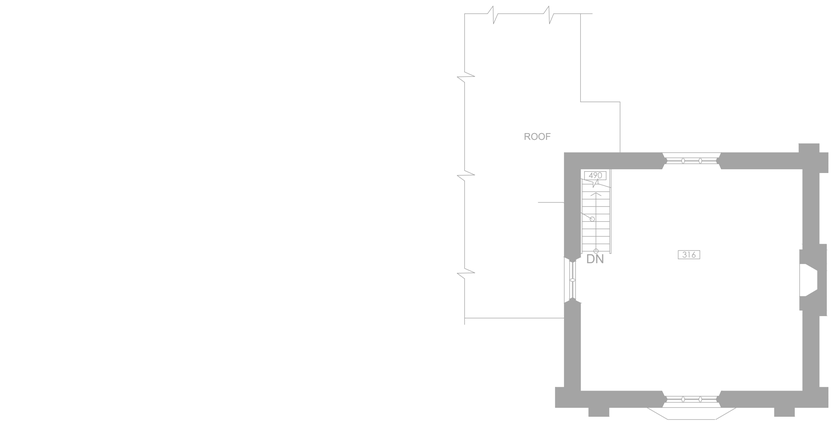
Plot Date: Sep 04, 2025 - 12:09pm By: TNassar Filename: H:\22000\22227B - McMaster University - University Hall Ventilation Renovations\01 DRAWINGS\01.02 MECH\M22 - LEVEL 2 - MECHANICAL NEW WORK.dwg

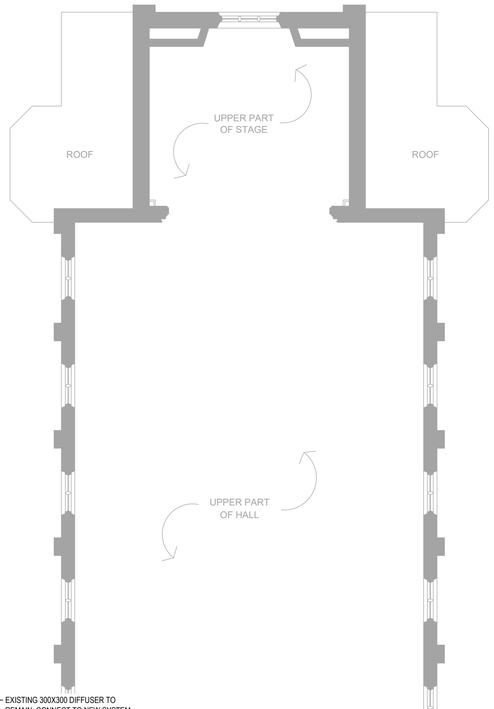
MCW Consultants Ltd.

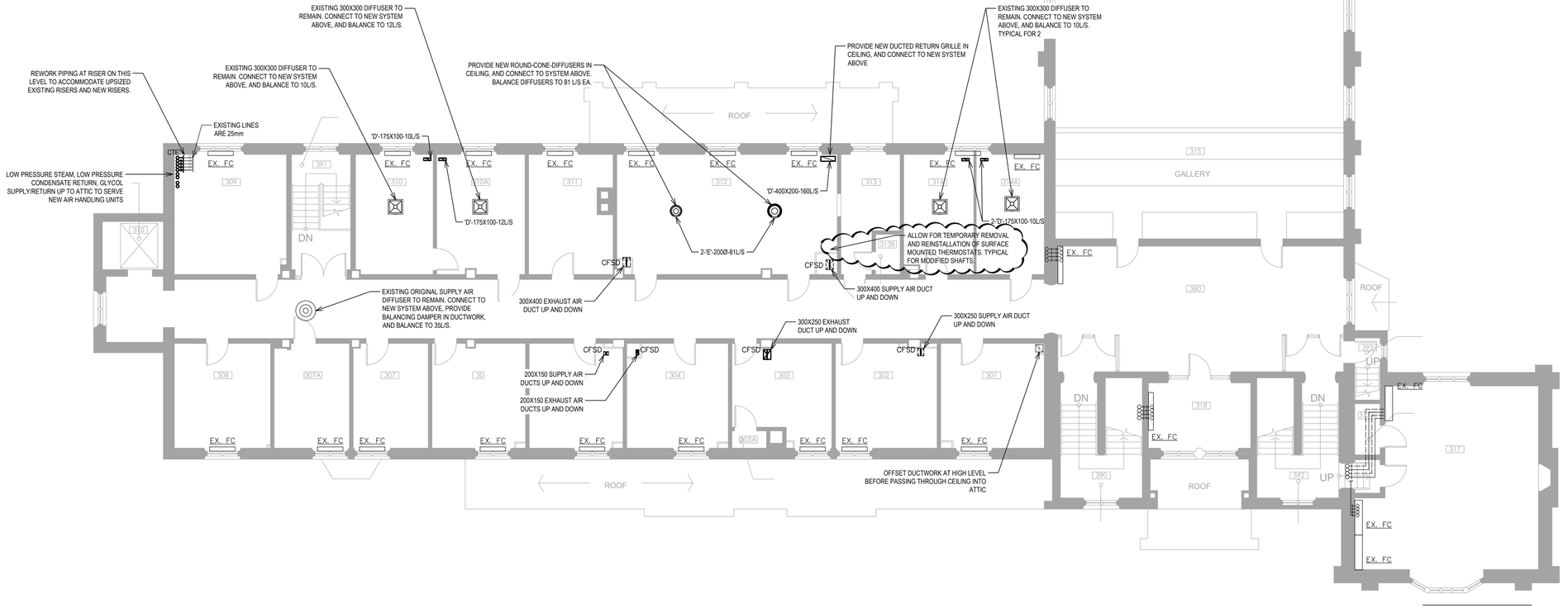
LEVLE 2 - MECHANICAL NEW WORK

M2.2

DRAWN BY : TN
CHECKED BY : TN







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NOTES:

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CLIENT:
McMASTER UNIVERSITY
HAMILTON, ONTARIO

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UNIVERSITY HALL VENTILATION UPGRADE

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MCW Consultants Ltd.

N
CN

LEVEL 3 - MECHANICAL NEW WORK

M2.3

DRAWN BY : TN
CHECKED BY : TN

Plot Date: Sep 04, 2025 - 12:09pm By: TNassar
Filename: H:\22000\22227B - McMaster University - University Hall Ventilation Renovations\01 DRAWINGS\01.02 MECH\M23 - LEVEL 3 - MECHANICAL NEW WORK.dwg

LIGHTING

- LINEAR LUMINAIRE - RECESSED
- HATCHING DENOTES EMERGENCY / NIGHT LIGHTING (TYP.)
- LINEAR LUMINAIRE - SURFACE MOUNTED
- LINEAR LUMINAIRE - SUSPENDED
- STRIP LUMINAIRE - CEILING MOUNTED
- STRIP LUMINAIRE - WALL MOUNTED
- CEILING MOUNTED LUMINAIRE: NORMAL / NIGHT LIGHTING
- WALL MOUNTED LUMINAIRE: NORMAL / NIGHT LIGHTING
- POLE MOUNTED LUMINAIRE
- DOUBLE SURFACE MOUNTED EMERGENCY LIGHTING - REMOTE HEADS
- CEILING MOUNTED EMERGENCY LIGHTING REMOTE HEAD
- BBH — EMERGENCY LIGHTING BATTERY UNIT C/W DUPLEX RECEPTACLE AND DOUBLE REMOTE HEADS.

EXIT LIGHTING: SHADED AREAS DENOTE DIRECTION OF FACE OF EXIT SIGN. DIRECTIONAL ARROWS AS INDICATED.

- WALL MOUNTED DOUBLE FACED EXIT LIGHT
- WALL MOUNTED SINGLE FACED EXIT LIGHT
- CEILING MOUNTED DOUBLE FACED EXIT LIGHT
- CEILING MOUNTED SINGLE FACED EXIT LIGHT

SECURITY AND ACCESS SYSTEMS

- CP — SECURITY SYSTEM CONTROL PANEL
- KP — KEY PAD
- CR — CARD READER
- IR — INFRARED READER
- EB — REQUEST TO EXIT BUTTON
- EM — EGRESS MOTION DETECTOR
- DC — DOOR CONTACT
- PC — PATIO DOOR CONTACT
- WC — WINDOW CONTACT
- OD — OVERHEAD DOOR CONTACT
- PL — POWER LOCK
- ES — ELECTRIC STRIKE
- AA — AUDIBLE ALARM
- MD — MOTION DETECTOR
- GD — GLASS BREAK DETECTOR
- AO — AUTOMATIC DOOR OPENER
- PTZ C — CLOSED CIRCUIT CAMERA: 'B' - DENOTES BOX ENCLOSURE 'E' - DENOTES ELEVATOR CORNER MOUNT 'P' - DENOTES PEDESTAL MOUNT 'PTZ' - DENOTES PAN TILT ZOOM 'W' - WEDGE ENCLOSURE
- M — SECURITY SYSTEM MONITOR
- ML — MAGLOCK DEVICE
- $ — MAGLOCK RESET SWITCH
- KS — KEY SWITCH
- CB — CODE BLUE SPEAKER PHONE
- CB — CODE BLUE INTEGRATED UNIT C/W ACCESSORIES, POLE OR PEDESTAL MOUNTED
- S — ALARM SOUNDER
- PA — PANIC ALARM BUTTON

NURSE CALL SYSTEM

- BM — BED MONITOR
- CS — CANCEL STATION
- CB — CODE BLUE STATION
- DL — DOME LIGHT
- DLZ — DOME LIGHT, ZONE
- DC — DOMELESS CONTROLLER
- DCA — DOMELESS CONTROLLER WITH AUDIO
- DDC — DOMELESS DUTY CONTROLLER
- DS — DUTY STATION
- ES — EMERGENCY STATION
- KP — KEY PASS STATION
- MC — MASTER CONSOLE
- PS1 — PATIENT STATION, SINGLE
- PS2 — PATIENT STATION, DOUBLE
- PC — PULL CORD STATION
- RS — REGISTRATION STATION
- SA — STAFF ASSIST STATION
- ST — STAFF TERMINAL
- CP — CONTROL PANEL, RECESS
- CP — CONTROL PANEL, SURFACE
- AP — ANNUNCIATOR PANEL, RECESS
- AP — ANNUNCIATOR PANEL, SURFACE

LIGHTING CONTROL

- $ — ONE, TWO, THREE AND FOUR GANG SINGLE POLE TOGGLE SWITCHES
- 3 $ — 3-WAY SWITCH
- 4 $ — 4-WAY SWITCH
- K — KEY OPERATED LIGHT SWITCH
- P $ — TOGGLE SWITCH C/W RED PILOT LIGHT
- D $ — DOOR LIGHT SWITCH
- $ — SWITCH MOUNTED OCCUPANCY SENSOR
- F $ — FAN CONTROL SWITCH
- FV $ — VARIABLE SPEED FAN CONTROL SWITCH
- T $ — MANUAL TIMER SWITCH
- D — DIMMER SWITCH
- TC — PROGRAMMABLE TIME CLOCK
- OS — CEILING MOUNTED OCCUPANCY SENSOR
- PE — PHOTO ELECTRIC CONTROL
- LV — LOW VOLTAGE RELAY
- LV — LOW VOLTAGE RELAY PANEL
- LVO — LOW VOLTAGE CONTROL STATION
- LVM — LOW VOLTAGE CONTROL SYSTEM MASTER STATION

GENERAL POWER

- 15A, SINGLE RECEPTACLE
- USB 15A, DUPLEX RECEPTACLE / WITH USB
- 15A, QUAD RECEPTACLE
- (5-20R) T-SLOT DUPLEX RECEPTACLE
- 15A, SINGLE RECEPTACLE - ABOVE COUNTER
- USB 15A, DUPLEX RECEPTACLE / WITH USB - ABOVE COUNTER
- 15A, QUAD RECEPTACLE - ABOVE COUNTER
- 15A, SINGLE INSULATED/ISOLATED GROUND RECEPTACLE
- 15A, SINGLE INSULATED/ISOLATED GROUND RECEPTACLE - ABOVE COUNTER
- 15A, DUPLEX INSULATED/ISOLATED GROUND RECEPTACLE
- 15A, DUPLEX INSULATED/ISOLATED GROUND RECEPTACLE - ABOVE COUNTER
- (5-20R) T-SLOT DUPLEX INSULATED/ISOLATED GROUND RECEPTACLE
- (5-20R) T-SLOT DUPLEX INSULATED/ISOLATED GROUND RECEPTACLE - ABOVE COUNTER
- 30A — 120/208V/1Ø/30 AMP DRYER OUTLET
- 40A — 120/208V/1Ø/40 AMP RANGE OUTLET
- TYPE: 20A — SINGLE SPECIAL RECEPTACLE - AMPACITY AND TYPE AS INDICATED
- 15A, SPLIT WIRED DUPLEX RECEPTACLE - STANDARD
- 15A, SPLIT WIRED DUPLEX RECEPTACLE - STANDARD - ABOVE COUNTER
- 15A, HALF SWITCHED DUPLEX RECEPTACLE (CONTROLLED BY SWITCH)
- 15A, HALF SWITCHED DUPLEX RECEPTACLE (CONTROLLED BY SWITCH) - ABOVE COUNTER
- 15A, DUPLEX RECEPTACLE C/W GROUND FAULT CIRCUIT INTERRUPTER
- 15A, DUPLEX RECEPTACLE C/W GROUND FAULT CIRCUIT INTERRUPTER - ABOVE COUNTER
- (5-20R) T-SLOT DUPLEX RECEPTACLE C/W GROUND FAULT CIRCUIT INTERRUPTER
- 15A, SINGLE RECEPTACLE - FLUSH FLOOR MOUNTED
- 15A, U-GROUND DUPLEX RECEPTACLE - FLUSH FLOOR MOUNTED
- (5-20R) T-SLOT DUPLEX RECEPTACLE - FLUSH FLOOR MOUNTED
- 15A, SINGLE INSULATED/ISOLATED GROUND RECEPTACLE - FLUSH FLOOR MOUNTED
- 15A, DUPLEX INSULATED/ISOLATED GROUND RECEPTACLE - FLUSH FLOOR MOUNTED
- (5-20R) T-SLOT DUPLEX INSULATED/ISOLATED GROUND RECEPTACLE - FLUSH FLOOR MOUNTED
- 15A, SPLIT WIRED DUPLEX RECEPTACLE - FLUSH FLOOR MOUNTED
- 15A, DUPLEX RECEPTACLE C/W GROUND FAULT CIRCUIT INTERRUPTER - FLUSH FLOOR MOUNTED
- (5-20R) T-SLOT DUPLEX RECEPTACLE C/W GROUND FAULT CIRCUIT INTERRUPTER - FLUSH FLOOR MOUNTED
- 15A, SINGLE RECEPTACLE - FLUSH CEILING MOUNTED
- 15A, DUPLEX RECEPTACLE - FLUSH CEILING MOUNTED
- (5-20R) T-SLOT U-GROUND DUPLEX RECEPTACLE - FLUSH CEILING MOUNTED
- 15A, SINGLE INSULATED/ISOLATED GROUND RECEPTACLE - FLUSH CEILING MOUNTED
- 15A, DUPLEX INSULATED/ISOLATED GROUND RECEPTACLE - FLUSH CEILING MOUNTED
- (5-20R) T-SLOT DUPLEX INSULATED/ISOLATED GROUND RECEPTACLE - FLUSH CEILING MOUNTED
- 15A, SPLIT WIRED DUPLEX RECEPTACLE - FLUSH CEILING MOUNTED
- 15A, DUPLEX RECEPTACLE C/W GROUND FAULT CIRCUIT INTERRUPTER - FLUSH CEILING MOUNTED
- (5-20R) T-SLOT DUPLEX RECEPTACLE C/W GROUND FAULT CIRCUIT INTERRUPTER - FLUSH CEILING MOUNTED

FIRE ALARM SYSTEM

- PULL STATION
- FLUSH MOUNTED BELL
- HS — FLUSH MOUNTED HORN - 'HS' DENOTES HORN STROBE COMBINATION
- DOUBLE HORN - CEILING OR WALL MOUNTED
- SUITE ISOLATOR MODULE
- STROBE - CEILING MOUNTED
- STROBE - WALL MOUNTED
- S — FLUSH MOUNTED SPEAKER - CEILING MOUNTED
- S — FLUSH MOUNTED SPEAKER - WALL MOUNTED
- S — SURFACE MOUNTED SPEAKER - CEILING MOUNTED
- S — SURFACE MOUNTED SPEAKER - WALL MOUNTED
- FIREMEN HANDSET
- FIRE ALARM SYSTEM SPEAKER SILENCE SWITCH
- AUTOMATIC COMBINATION FIXED TEMPERATURE/RATE OF RISE HEAT DETECTOR - CEILING MOUNTED
- AUTOMATIC COMBINATION FIXED TEMPERATURE/RATE OF RISE HEAT DETECTOR - WALL MOUNTED
- AUTOMATIC FIXED TEMPERATURE HEAT DETECTOR - CEILING MOUNTED
- AUTOMATIC FIXED TEMPERATURE HEAT DETECTOR - WALL MOUNTED
- SMOKE DETECTOR - CEILING MOUNTED
- SMOKE DETECTOR - CEILING MOUNTED WITH STROBE
- SMOKE DETECTOR - WALL MOUNTED
- SMOKE DETECTOR - WALL MOUNTED WITH STROBE
- DM — DUCT TYPE SMOKE DETECTOR WITH REMOTE ANNUNCIATION
- SINGLE STATION SMOKE ALARM C/W RED INDICATION LIGHT - CEILING MOUNTED
- SINGLE STATION SMOKE ALARM C/W RED INDICATION LIGHT - WALL MOUNTED
- SINGLE STATION SMOKE ALARM / CO DETECTOR C/W RED INDICATION LIGHT - CEILING MOUNTED
- SINGLE STATION SMOKE ALARM / CO DETECTOR C/W RED INDICATION LIGHT - WALL MOUNTED
- CARBON MONOXIDE DETECTOR - CEILING MOUNTED
- CARBON MONOXIDE DETECTOR - WALL MOUNTED
- SPRINKLER SYSTEM FLOW OR PRESSURE SWITCH BY MECHANICAL AND WIRED BY ELECTRICAL.
- SPRINKLER SYSTEM OR STANDPIPE SUPERVISED VALVE BY MECHANICAL AND WIRED BY ELECTRICAL.
- SOLENOID VALVE BY MECHANICAL AND WIRED BY ELECTRICAL.
- DH — DOOR HOLDER
- MOTORIZED DAMPER BY MECHANICAL AND WIRED BY ELECTRICAL
- FP — RECESS MOUNTED FIRE ALARM CONTROL PANEL
- FP — SURFACE MOUNTED - FIRE ALARM CONTROL PANEL
- FAA — RECESS MOUNTED - FIRE ALARM ANNUNCIATOR PANEL
- FAA — SURFACE MOUNTED - FIRE ALARM ANNUNCIATOR PANEL
- FME — RECESS MOUNTED - CENTRAL MONITORING AND EVACUATION FACILITIES
- FME — SURFACE MOUNTED - CENTRAL MONITORING AND EVACUATION FACILITIES
- END OF LINE RESISTOR
- REMOTE TROUBLE SIGNAL

ELECTRIC HEATING

- BBH1 — ELECTRIC BASEBOARD HEATER, TYPE 'BBH1' AS INDICATED
- DBH1 — ARCHITECTURAL DRAFT BARRIER HEATER, TYPE 'DBH1' AS INDICATED
- KSH1 — ELECTRIC KICKSPACE HEATER, TYPE 'KSH1' AS INDICATED
- DIH1 — ELECTRIC DROP-IN HEATER, TYPE 'DIH1' AS INDICATED
- CUH1 — CABINET UNIT HEATER, TYPE 'CUH1' AS INDICATED
- FFH1 — RECESS MOUNTED - ELECTRIC FORCE FLOW HEATER, TYPE 'FFH1' AS INDICATED
- FFH1 — SURFACE MOUNTED - ELECTRIC FORCE FLOW HEATER, TYPE 'FFH1' AS INDICATED
- UH1 — ELECTRIC UNIT HEATER, TYPE 'UH1' AS INDICATED
- 01 — AREA OF SNOW MELTING CABLE - TYPE '01' AS INDICATED
- 001 — HEAT TRACING CABLE AROUND HORIZONTAL PIPE - TYPE AS INDICATED
- 001 — HEAT TRACING CABLE AROUND VERTICAL PIPE - TYPE AS INDICATED

EQUIPMENT CONNECTIONS AND CONTROLS

- DIRECT CONNECTION - 120 OR 208V AS INDICATED
- DIRECT CONNECTION - 347 OR 600V AS INDICATED
- DIRECT CONNECTION C/W UNFUSED DISCONNECT SWITCH - 120 OR 208V AS INDICATED
- DIRECT CONNECTION - 347 OR 600V C/W UNFUSED DISCONNECT SWITCH AS INDICATED
- DIRECT CONNECTION - 120 OR 208V C/W FUSED DISCONNECT SWITCH AS INDICATED
- DIRECT CONNECTION - 347 OR 600V C/W FUSED DISCONNECT SWITCH AS INDICATED
- C F W — MODULAR FURNITURE WHIP CONNECTION - 'C' - DENOTES CEILING - 'F' - DENOTES FLOOR - 'W' - DENOTES WALL
- MOTOR CONNECTION AS INDICATED
- MOTOR CONNECTION C/W UNFUSED DISCONNECT SWITCH
- MOTOR CONNECTION C/W FUSED DISCONNECT SWITCH
- MOTOR CONNECTION C/W LOOSE STARTER
- MOTOR STARTER AS INDICATED
- UNFUSED DISCONNECT SWITCH
- FUSED DISCONNECT SWITCH
- H — HAIR DRYER
- HD — HAND DRYER
- C — CONTACTOR - SIZE AND NUMBER OF POLES AS INDICATED
- R — RELAY
- T — LINE VOLTAGE THERMOSTAT PROVIDED AND WIRED BY ELECTRICAL
- T — LINE VOLTAGE THERMOSTAT PROVIDED BY MECHANICAL AND WIRED BY ELECTRICAL
- CARBON MONOXIDE DETECTOR SUPPLIED AND INSTALLED BY MECHANICAL. ROUGH-IN BY ELECTRICAL
- MASTER CLOCK CONTROL PANEL - WALL MOUNTED
- MASTER CLOCK CONTROL PANEL - CEILING MOUNTED
- CLOCK HANGER OUTLET C/W CLOCK - WALL MOUNTED
- CLOCK HANGER OUTLET C/W CLOCK - CEILING MOUNTED
- CLOCK HANGER OUTLET ONLY - WALL MOUNTED
- CLOCK HANGER OUTLET ONLY - CEILING MOUNTED
- POWER ACTIVATED DOOR EXIT BUTTON SUPPLIED BY DOOR HARDWARE SUPPLIER, WIRED BY ELECTRICAL
- RECESS MOUNTED - CARBON MONOXIDE CONTROL PANEL
- SURFACE MOUNTED - CARBON MONOXIDE CONTROL PANEL
- RECESS MOUNTED ELECTRICAL PANEL
- SURFACE MOUNTED ELECTRICAL PANEL

POWER DISTRIBUTION

- POWER TRANSFORMER
- POWER TRANSFORMER C/W ELECTROSTATIC SHIELD
- CURRENT CONTROL TRANSFORMER
- INCOMING POWER INTERRUPTER SWITCH
- DISCONNECT SWITCH
- MOLDED CASE CIRCUIT BREAKER
- DRAW OUT AIR CIRCUIT BREAKER
- FIXED AIR CIRCUIT BREAKER
- FUSE
- INCOMING POWER INTERRUPTER SWITCH
- M — KWHR METER
- DM — DIGITAL METERING SYSTEM
- BUS DUCT
- IBP — AUTOMATIC TRANSFER SWITCH - 'IBP' DENOTES ISOLATION BYPASS SWITCH
- S — EMERGENCY GENERATOR
- INV — EMERGENCY LIGHTING INVERTER
- UPS — UNINTERRUPTABLE POWER SUPPLY

MISCELLANEOUS

- J — JUNCTION BOX
- J — JUNCTION BOX ON WALL
- E — INDICATES EXISTING DEVICE TO REMAIN
- MV — INDICATES EXISTING DEVICE TO BE MOVED
- R — INDICATES EXISTING DEVICE IN RELOCATED POSITION
- D — INDICATES EXISTING DEVICE TO BE DEMOLISHED
- INDICATES CONDUIT

COMMUNICATIONS

- COMBINATION MULTI-FUNCTION COMMUNICATION OUTLET - WALL MOUNTED
- COMBINATION MULTI-FUNCTION COMMUNICATION OUTLET - WALL MOUNTED ABOVE COUNTER
- TV — TELEVISION OUTLET - WALL MOUNTED
- TV — TELEVISION OUTLET - WALL MOUNTED ABOVE COUNTER
- TV — TELEVISION OUTLET - FLUSH CEILING MOUNTED
- TELEPHONE OUTLET - WALL MOUNTED
- TELEPHONE OUTLET - WALL MOUNTED ABOVE COUNTER
- TELEPHONE OUTLET - FLUSH CEILING MOUNTED
- P — PAY TELEPHONE OUTLET
- TELEPHONE OUTLET - FLUSH FLOOR MOUNTED
- TERMINAL POINT OF TELEPHONE ZONE CIRCUIT ON CEILING SLAB C/W 2" (53mm) CONDUIT BACK TO TELEPHONE BACKBOARD
- COMMUNICATION LINE TERMINAL BOX
- DATA OUTLET - WALL MOUNTED
- DATA OUTLET - WALL ABOVE COUNTER
- DATA OUTLET - FLUSH CEILING MOUNTED
- DATA OUTLET - FLUSH FLOOR MOUNTED
- COMBINATION VOICE/DATA OUTLET - WALL MOUNTED
- COMBINATION VOICE/DATA OUTLET - WALL ABOVE COUNTER
- COMBINATION VOICE/DATA OUTLET - FLUSH CEILING MOUNTED
- COMBINATION VOICE/DATA OUTLET - FLUSH FLOOR MOUNTED
- TYPE: CC — COMMUNICATIONS CABINET, TYPE AS INDICATED
- COMMUNICATIONS DROP IDENTIFICATION
- SIGNAL PUSHBUTTON
- SIGNAL BELL C/W TRANSFORMER
- INTERCOM MASTER STATION
- INTERCOM STATION
- SP — FLUSH MOUNTED AUXILIARY SOUND SYSTEM SPEAKER - WALL MOUNTED
- SP — FLUSH MOUNTED AUXILIARY SOUND SYSTEM SPEAKER - CEILING MOUNTED
- SP — SURFACE MOUNTED AUXILIARY SOUND SYSTEM SPEAKER - WALL MOUNTED
- SP — SURFACE MOUNTED AUXILIARY SOUND SYSTEM SPEAKER - CEILING MOUNTED
- M — MICROPHONE JACK
- # — PUBLIC ADDRESS SPEAKER, TYPE AS INDICATED
- V — VOLUME CONTROL SWITCH
- P — PROJECTION SOUND JACK
- B — SOUND BRIDGING JACK
- AMP — AMPLIFIER
- PA — CONSOLE OR RACK C/W TERMINAL BOX

BRANCH CIRCUITING LEGEND

2EP1–3 — '3' – DENOTES CIRCUIT NUMBER
'P1' – DENOTES LOCATION OF PANEL (P1 LEVEL)
'E' – DENOTES EMERGENCY PANEL
'2' – DENOTES 120/208V OR
'6' – DENOTES 347/600V

ELEMENT TAGS LEGEND

CIRCUIT TYPE REF. — CIRCUIT OR BATTERY PACK; REFERENCE TAG (EXISTING, RELOCATE, DEMO, NEW, ETC.); TYPE TAG

GENERAL NOTES:

1. MINIMUM CONDUIT SIZE SHALL BE 21 mm UNLESS NOTED OTHERWISE.
2. MOUNTING HEIGHT OF ALL EQUIPMENT/DEVICES SHOWN IN SYMBOL LEGEND ABOVE SHALL BE MEASURED WITH RESPECT TO THE CENTER OF THE RELATED EQUIPMENT/DEVICE.
3. PROVIDE LOCKABLE ENCLOSURES WITH COMMON KEY ON ALL STARTERS AND DISCONNECT SWITCHES LOCATED IN PUBLIC AREAS. KEYS SHALL BE HANDED OVER TO OWNER AT END OF PROJECT.
4. THE EXISTING INITIATION ZONE WIRING IS CONNECTED AS "ADDRESSABLE CLASS–B" CIRCUIT. EXTEND EXISTING FIRE ALARM CIRCUIT TO ACCOMMODATE THE NEW DEVICES TO SUIT.
5. ALL NEWLY INSTALLED FIRE ALARM DEVICES SHALL BE IN LINE WITH THE EXISTING FIRE ALARM ZONING FOR EACH FLOOR.
6. MAKE & MODEL OF EXISTING FIRE ALARM SYSTEM: SIMPLEX–4001EX

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ABBREVIATIONS

A	-	AMPERES
AC	-	MOUNTED ABOVE CEILING
AFCI	-	ARC FAULT CIRCUIT INTERRUPTER
AFF	-	ABOVE FINISHED FLOOR
AFG	-	ABOVE FINISHED GRADE
BFC	-	BELOW FINISHED CEILING
BFG	-	BELOW FINISHED GRADE
BB	-	BASEBOARD HEATER
BRK	-	BREAKER
BU	-	BATTERY UNIT
C	-	CONDUCTOR
CDP	-	CENTRAL DISTRIBUTION PANEL
CF	-	CEILING FAN
CFM	-	COFFEE MACHINE
CH	-	CHILDPROOF
CLG	-	CEILING MOUNTED
CM	-	COMBINATION MAGNETIC
CM FVNR	-	COMBINATION MAGNETIC, FULL VOLTAGE NON-REVERSABLE
CM RVNR	-	COMBINATION MAGNETIC, REDUCED VOLTAGE NON-REVERSABLE
CNDT	-	CONDUIT
CP	-	COPY MACHINE
CS	-	MOUNTED IN CRAWLSPACE
CSTE	-	CUSTOMER SERVICE TERMINATION ENCLOSURE
CT	-	COMPUTER TERMINAL
CTP	-	COMPUTER TERMINAL PRINTER
D	-	DELETE
DB	-	DIRECT BURIED
DHWH	-	DOMESTIC HOT WATER HEATER
DHWT	-	DOMESTIC HOT WATER TANK DIV. 15 PROVIDED BY DIVISION 15
DN	-	DOWN
DP	-	DISTRIBUTION PANEL
DT	-	DUST TIGHT
E	-	EXISTING
EC	-	EMPTY CONDUIT
EF	-	EXHAUST FAN
EH	-	ELECTRIC HEATER
F	-	FLUSH FLOOR MOUNTED
FA	-	FIRE ALARM
FC	-	FAN COIL (WHEN USED WITH MOTOR SYMBOL)
FC	-	FOOT CANDLE
FF	-	FORCE FLOW
FM	-	FLOOR MOUNTED
FR	-	FRIDGE
FS	-	DEVICE MOUNTED IN RAISED FLOOR SPACE
FU	-	FUSE
FX	-	FAX MACHINE
FZ	-	FREEZER
GFI	-	GROUND FAULT CIRCUIT INTERRUPTER
GRB	-	GARBURATOR
GW	-	GROUND WIRE
H	-	HORIZONTAL
HP	-	HORSEPOWER
IG	-	ISOLATED GROUND
INT	-	INTERLOCK
kVA	-	KILO VOLT-AMPERES
kW	-	KILOWATTS
LOB	-	LOCK-ON TYPE BREAKER
LP	-	LIGHTING PANEL
LTG	-	LIGHTING
LV	-	LOW VOLTAGE
LVR	-	LOW VOLTAGE RELAY
MC	-	METERING CENTRE
MCC	-	MOTOR CONTROL CENTRE
MCD	-	MULTI CONDUCTOR
MD	-	MAIN DISTRIBUTION
MFC	-	MULTI-FUNCTION COPIER
MIC	-	MICROWAVE
MP	-	MOISTURE PROOF
MTD	-	MOUNTED
MTG	-	MOUNTING
MV	-	EXISTING TO BE MOVED
MW	-	MOUNTED IN MILLWORK
NC	-	NORMALLY CLOSED
NIC	-	NOT IN CONTRACT
NL	-	NIGHT LIGHT
NO	-	NORMALLY OPEN
NTS	-	NOT TO SCALE
P	-	PUMP (WHEN USED WITH MOTOR SYMBOL)
PA	-	PUBLIC ADDRESS
PDU	-	POWER DISTRIBUTION UNIT
PH	-	PHASE PANEL
PNL	-	PP POWER PANEL
PR	-	PRINTER
QP	-	QUAD PLEX
R	-	REMOVE
R/R	-	REMOVE AND REINSTALL
RP	-	RECEPTACLE PANEL
SC	-	SEPARATE CIRCUIT
SS	-	SELECTOR SWITCH
SWBRD	-	SWITCHBOARD
TEL	-	TELEPHONE
TYP	-	TYPICAL
UC	-	UNDER COUNTER
V	-	VOLT
VM	-	VENDING MACHINE
W	-	WALL MOUNTED
WC	-	WATER COOLER
WG	-	WIRE GUARD
WL	-	WET LOCATION
WP	-	WEATHERPROOF
WT	-	WATER TIGHT
WTP	-	WATERPROOF
XP	-	EXPLOSION PROOF

DRAWING LIST

DWG	DWG TITLE	SCALE
E0-01	ELECTRICAL LEGEND, DRAWING LIST AND GENERAL NOTES	N.T.S.
E0-01	MASKWORK - ELECTRICAL SCOPE OF WORK	1/8" = 1'-0"
E0-02	LEVEL 1 - ELECTRICAL SCOPE OF WORK	1/8" = 1'-0"
E0-03	LEVEL 2 - ELECTRICAL SCOPE OF WORK	1/8" = 1'-0"
E0-04	LEVEL 3 - ELECTRICAL SCOPE OF WORK	1/8" = 1'-0"
E0-05	ATTIC - ELECTRICAL NEW WORK	1/8" = 1'-0"
E3-01	ELECTRICAL SINGLE LINE AND DETAILS	AS SHOWN
E3-02	ELECTRICAL DETAILS	N.T.S.
E3-03	ELECTRICAL DETAILS	N.T.S.

FORMAL ISSUES

DWG	ISSUED FOR 90% DD 24-03-2025	ISSUED FOR TENDER 06-05-2024			
E0-01	✓	✓			
E0-01	✓	✓			
E0-02	✓	✓			
E0-03	✓	✓			
E0-04	✓	✓			
E0-05	✓	✓			
E3-01	✓	✓			
E3-02	✓	✓			
E3-03	✓	✓			

REVISIONS

NO.	DATE	PARTICULAR
1	23.01.25	ISSUED FOR COORDINATION REVIEW
2	23.03.08	ISSUED FOR 50% DD REVIEW
3	23.04.24	ISSUED FOR 90% DD REVIEW
4	24.04.10	ISSUED FOR PRE-TENDER REVIEW
5	25.07.04	ISSUED FOR PERMIT
6	25.08.05	ISSUED FOR TENDER
7	25.09.04	ISSUED FOR ADDENDUM 03

NOTES:

KEY PLAN:

CLIENT:
McMASTER UNIVERSITY
HAMILTON, ONTARIO

Project No. 22227B

PROJECT:
22227B

UNIVERSITY HALL VENTILATION UPGRADE

McMaster University Campus
1280 MAIN ST. W,
HAMILTON, ON L8S 4K1

ORIGINAL PAGE SIZE ARCH D - 24" x 36"

KEY TO DETAIL LOCATION:
A — A - DETAIL NO.
B — B - DETAIL NO. ORIGIN

MCW Consultants Ltd.

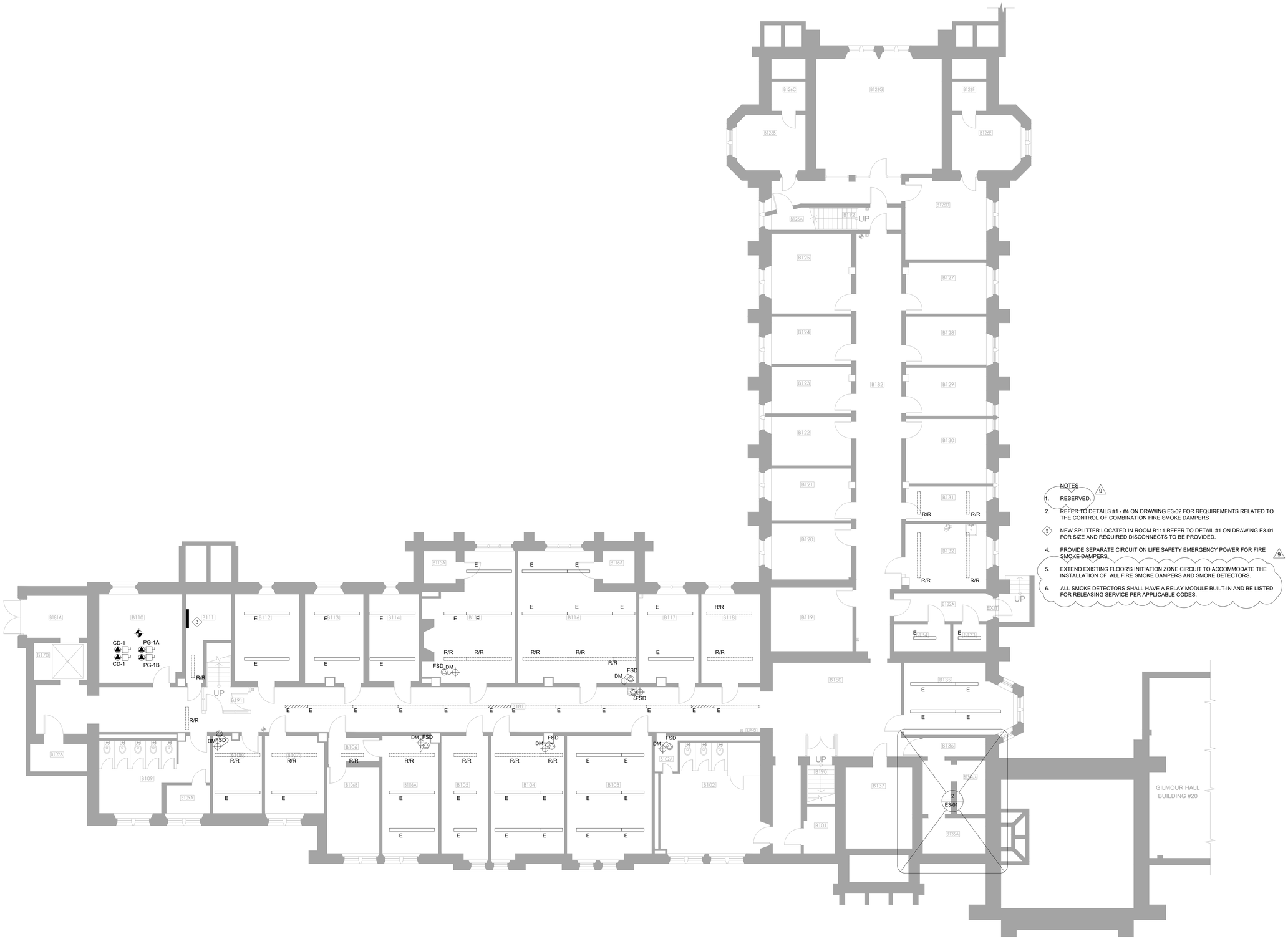
N
CN

LEGEND, DRAWING LIST, AND GENERAL NOTES

E0-01

DRAWN BY : CD CHECKED BY : CD

Plot Date: Sep 04, 2025 - 2:47pm By: jahmed
Filename: H:\22000\22227B - McMaster University - University Hall Ventilation Renovations\01 DRAWINGS\01 ELECTRICAL\E0-01 - ELECTRICAL LEGEND, DRAWING LIST AND GENERAL NOTES.dwg



NOTES

1. RESERVED. 9
2. REFER TO DETAILS #1 - #4 ON DRAWING E3-02 FOR REQUIREMENTS RELATED TO THE CONTROL OF COMBINATION FIRE SMOKE DAMPERS
3. NEW SPLITTER LOCATED IN ROOM B111 REFER TO DETAIL #1 ON DRAWING E3-01 FOR SIZE AND REQUIRED DISCONNECTS TO BE PROVIDED.
4. PROVIDE SEPARATE CIRCUIT ON LIFE SAFETY EMERGENCY POWER FOR FIRE SMOKE DAMPERS. 9
5. EXTEND EXISTING FLOOR'S INITIATION ZONE CIRCUIT TO ACCOMMODATE THE INSTALLATION OF ALL FIRE SMOKE DAMPERS AND SMOKE DETECTORS.
6. ALL SMOKE DETECTORS SHALL HAVE A RELAY MODULE BUILT-IN AND BE LISTED FOR RELEASING SERVICE PER APPLICABLE CODES.

REVISIONS

NO.	DATE	PARTICULAR
1	23.01.25	ISSUED FOR COORDINATION REVIEW
2	23.03.08	ISSUED FOR 50% DD REVIEW
3	23.04.24	ISSUED FOR 90% DD REVIEW
4	24.04.10	ISSUED FOR PRE-TENDER REVIEW
5	25.07.04	ISSUED FOR PERMIT
6	25.08.05	ISSUED FOR TENDER
7	25.08.22	ISSUED FOR ADDENDUM 01
8	25.08.28	ISSUED FOR ADDENDUM 02
9	25.09.04	ISSUED FOR ADDENDUM 03

NOTES:

KEY PLAN:

CLIENT:
McMASTER UNIVERSITY
HAMILTON, ONTARIO

Project No. 22227B

PROJECT:
22227B

UNIVERSITY HALL VENTILATION UPGRADE

McMaster University Campus
1280 MAIN ST. W.
HAMILTON, ON L8S 4K1

ORIGINAL PAGE SIZE ARCH D - 24" x 36"

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

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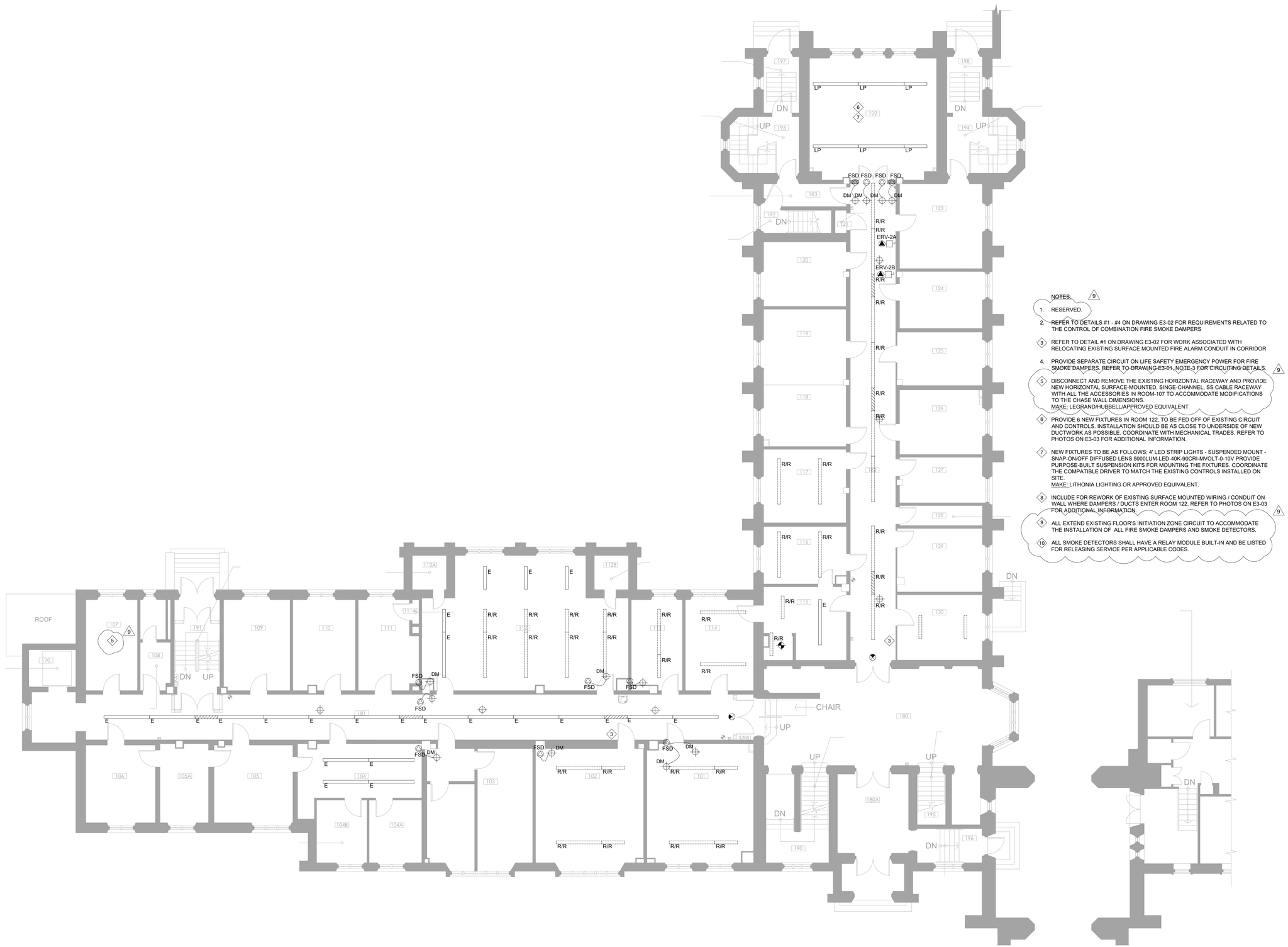
BASEMENT - ELECTRICAL SCOPE OF WORK

E2-01

DRAWN BY : CD CHECKED BY : CD

Plot Date: Sep 04, 2025 - 2:27pm By: Jahmed Filename: H:\22000\22227B - McMaster University - University Hall Ventilation Renovations\01 DRAWINGS\01 ELEC\E2-01 - BASEMENT - ELECTRICAL NEW WORK.dwg



NOTES:

1. RESERVED.
2. REFER TO DETAILS #1 - #4 ON DRAWING E3-02 FOR REQUIREMENTS RELATED TO THE CONTROL OF COMBINATION FIRE SMOKE DAMPERS
3. REFER TO DETAIL #1 ON DRAWING E3-02 FOR WORK ASSOCIATED WITH RELOCATING EXISTING SURFACE MOUNTED FIRE ALARM CONDUIT IN CORRIDOR
4. PROVIDE SEPARATE CIRCUIT ON LIFE SAFETY EMERGENCY POWER FOR FIRE SMOKE DAMPERS. REFER TO DRAWING E3-01, NOTE 3 FOR CIRCUITING DETAILS.
5. DISCONNECT AND REMOVE THE EXISTING HORIZONTAL RACEWAY AND PROVIDE NEW HORIZONTAL SURFACE-MOUNTED, SINGE-CHANNEL, SS CABLE RACEWAY WITH ALL THE ACCESSORIES IN ROOM-107 TO ACCOMMODATE MODIFICATIONS TO THE CHASE WALL DIMENSIONS.
   MAKE: LEGRAND/HUBBELL/APPROVED EQUIVALENT
6. PROVIDE 6 NEW FIXTURES IN ROOM 122, TO BE FED OFF OF EXISTING CIRCUIT AND CONTROLS. INSTALLATION SHOULD BE AS CLOSE TO UNDERSIDE OF NEW DUCTWORK AS POSSIBLE. COORDINATE WITH MECHANICAL TRADES. REFER TO PHOTOS ON E3-03 FOR ADDITIONAL INFORMATION.
7. NEW FIXTURES TO BE AS FOLLOWS: 4' LED STRIP LIGHTS - SUSPENDED MOUNT - SNAP-ON/OFF DIFFUSED LENS 5000LUM-LED-40K-90CRI-MVOLT-0-10V PROVIDE PURPOSE-BUILT SUSPENSION KITS FOR MOUNTING THE FIXTURES. COORDINATE THE COMPATIBLE DRIVER TO MATCH THE EXISTING CONTROLS INSTALLED ON SITE.
   MAKE: LITHONIA LIGHTING OR APPROVED EQUIVALENT.
8. INCLUDE FOR REWORK OF EXISTING SURFACE MOUNTED WIRING / CONDUIT ON WALL WHERE DAMPERS / DUCTS ENTER ROOM 122. REFER TO PHOTOS ON E3-03 FOR ADDITIONAL INFORMATION.
9. ALL EXTEND EXISTING FLOOR'S INITIATION ZONE CIRCUIT TO ACCOMMODATE THE INSTALLATION OF ALL FIRE SMOKE DAMPERS AND SMOKE DETECTORS.
10. ALL SMOKE DETECTORS SHALL HAVE A RELAY MODULE BUILT-IN AND BE LISTED FOR RELEASING SERVICE PER APPLICABLE CODES.

REVISIONS

NO.	DATE	PARTICULAR
1	23.01.25	ISSUED FOR COORDINATION REVIEW
2	23.03.08	ISSUED FOR 50% DD REVIEW
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4	24.04.10	ISSUED FOR PRE-TENDER REVIEW
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6	25.08.05	ISSUED FOR TENDER
7	25.08.22	ISSUED FOR ADDENDUM 01
8	25.08.28	ISSUED FOR ADDENDUM 02
9	25.09.04	ISSUED FOR ADDENDUM 03

NOTES:

KEY PLAN:

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LEVEL 1 - ELECTRICAL SCOPE OF WORK

E2-02

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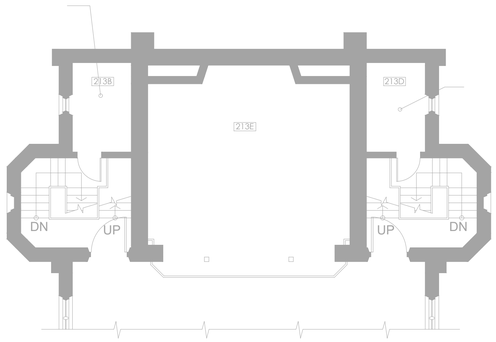

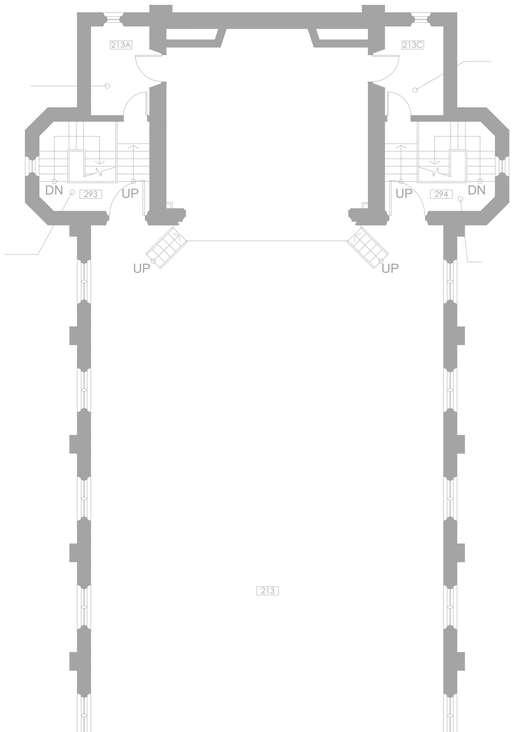

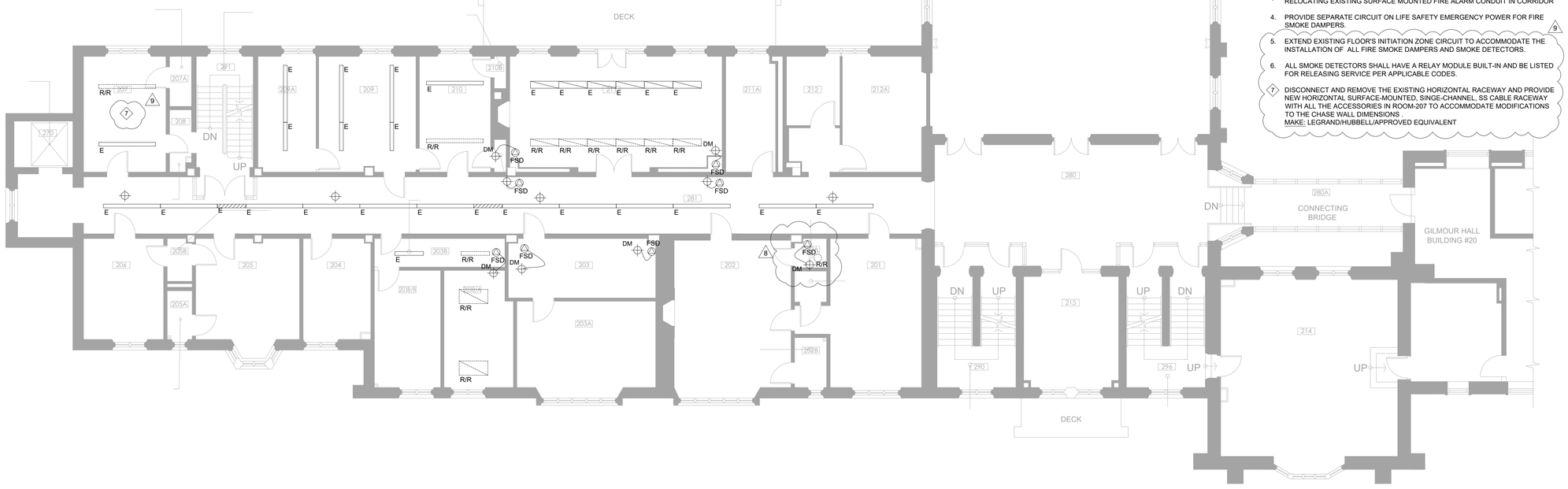

NOTES

1. RESERVED.
2. REFER TO DETAILS #1 - #4 ON DRAWING E3-02 FOR REQUIREMENTS RELATED TO THE CONTROL OF COMBINATION FIRE SMOKE DAMPERS
3. REFER TO DETAIL #2 ON DRAWING E3-02 FOR WORK ASSOCIATED WITH RELOCATING EXISTING SURFACE MOUNTED FIRE ALARM CONDUIT IN CORRIDOR
4. PROVIDE SEPARATE CIRCUIT ON LIFE SAFETY EMERGENCY POWER FOR FIRE SMOKE DAMPERS.
5. EXTEND EXISTING FLOOR'S INITIATION ZONE CIRCUIT TO ACCOMMODATE THE INSTALLATION OF ALL FIRE SMOKE DAMPERS AND SMOKE DETECTORS.
6. ALL SMOKE DETECTORS SHALL HAVE A RELAY MODULE BUILT-IN AND BE LISTED FOR RELEASING SERVICE PER APPLICABLE CODES.
7. DISCONNECT AND REMOVE THE EXISTING HORIZONTAL RACEWAY AND PROVIDE NEW HORIZONTAL SURFACE-MOUNTED, SINGE-CHANNEL, SS CABLE RACEWAY WITH ALL THE ACCESSORIES IN ROOM-207 TO ACCOMMODATE MODIFICATIONS TO THE CHASE WALL DIMENSIONS.
   MAKE: LEGRAND/HUBBELL/APPROVED EQUIVALENT

REVISIONS

NO.	DATE	PARTICULAR
1	23.01.25	ISSUED FOR COORDINATION REVIEW
2	23.03.08	ISSUED FOR 50% DD REVIEW
3	23.04.24	ISSUED FOR 90% DD REVIEW
4	24.04.10	ISSUED FOR PRE-TENDER REVIEW
5	25.07.04	ISSUED FOR PERMIT
6	25.08.05	ISSUED FOR TENDER
7	25.08.22	ISSUED FOR ADDENDUM 01
8	25.08.28	ISSUED FOR ADDENDUM 02
9	25.09.04	ISSUED FOR ADDENDUM 03

NOTES:

KEY PLAN:

CLIENT:
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HAMILTON, ONTARIO

Project No. 22227B

PROJECT:
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UNIVERSITY HALL VENTILATION UPGRADE

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SCALE: 1" = 1'-0"

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LEVEL 2 - ELECTRICAL SCOPE OF WORK

E2-03

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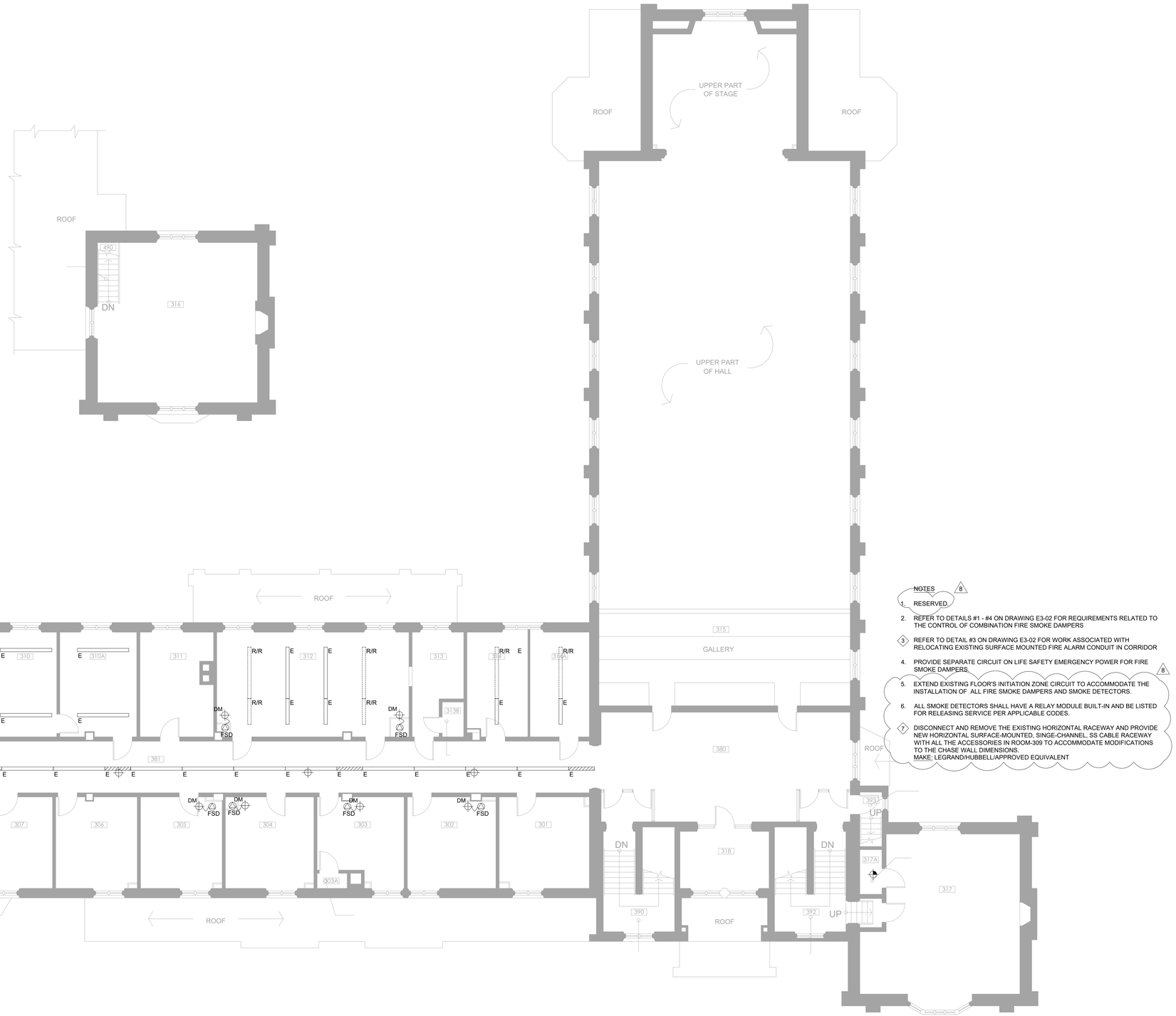
Plot Date: Sep 04, 2025 - 2:42pm By: jahmed Filename: H:\22000\22227B - McMaster University - University Hall Ventilation Renovations\01 DRAWINGS\01 ELEC\E2-03 - LEVEL 2 - ELECTRICAL NEW WORK.dwg



NOTES

1. RESERVED.
2. REFER TO DETAILS #1 - #4 ON DRAWING E3-02 FOR REQUIREMENTS RELATED TO THE CONTROL OF COMBINATION FIRE SMOKE DAMPERS
3. REFER TO DETAIL #3 ON DRAWING E3-02 FOR WORK ASSOCIATED WITH RELOCATING EXISTING SURFACE MOUNTED FIRE ALARM CONDUIT IN CORRIDOR
4. PROVIDE SEPARATE CIRCUIT ON LIFE SAFETY EMERGENCY POWER FOR FIRE SMOKE DAMPERS.
5. EXTEND EXISTING FLOOR'S INITIATION ZONE CIRCUIT TO ACCOMMODATE THE INSTALLATION OF ALL FIRE SMOKE DAMPERS AND SMOKE DETECTORS.
6. ALL SMOKE DETECTORS SHALL HAVE A RELAY MODULE BUILT-IN AND BE LISTED FOR RELEASING SERVICE PER APPLICABLE CODES.
7. DISCONNECT AND REMOVE THE EXISTING HORIZONTAL RACEWAY AND PROVIDE NEW HORIZONTAL SURFACE-MOUNTED, SINGE-CHANNEL, SS CABLE RACEWAY WITH ALL THE ACCESSORIES IN ROOM-309 TO ACCOMMODATE MODIFICATIONS TO THE CHASE WALL DIMENSIONS.
   MAKE: LEGRAND/HUBBELL/APPROVED EQUIVALENT

REVISIONS

NO.	DATE	PARTICULAR
1	23.01.25	ISSUED FOR COORDINATION REVIEW
2	23.03.08	ISSUED FOR 50% DD REVIEW
3	23.04.24	ISSUED FOR 90% DD REVIEW
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5	25.07.04	ISSUED FOR PERMIT
6	25.08.05	ISSUED FOR TENDER
7	25.08.22	ISSUED FOR ADDENDUM 01
8	25.09.04	ISSUED FOR ADDENDUM 03

NOTES:

KEY PLAN:

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Project No. 22227B

PROJECT:
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UNIVERSITY HALL VENTILATION UPGRADE

McMaster University Campus
1280 MAIN ST. W.
HAMILTON, ON L8S 4K1

ORIGINAL PAGE SIZE ARCH D - 24" x 36"

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A - DETAIL NO.
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SCALE: 1/8" = 1'-0"

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LEVEL 3 - ELECTRICAL SCOPE OF WORK

E2-04

DRAWN BY : CD CHECKED BY : CD

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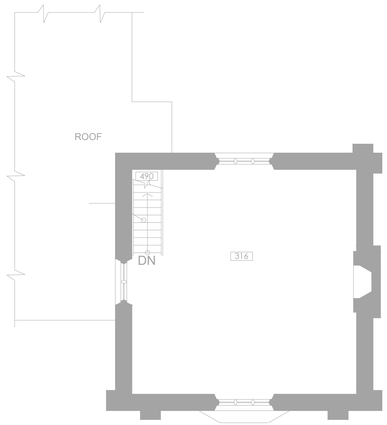

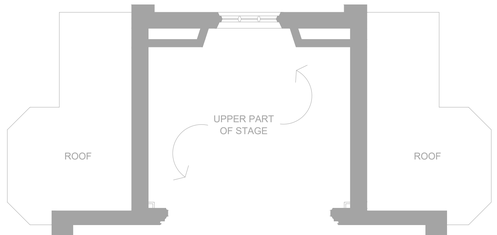

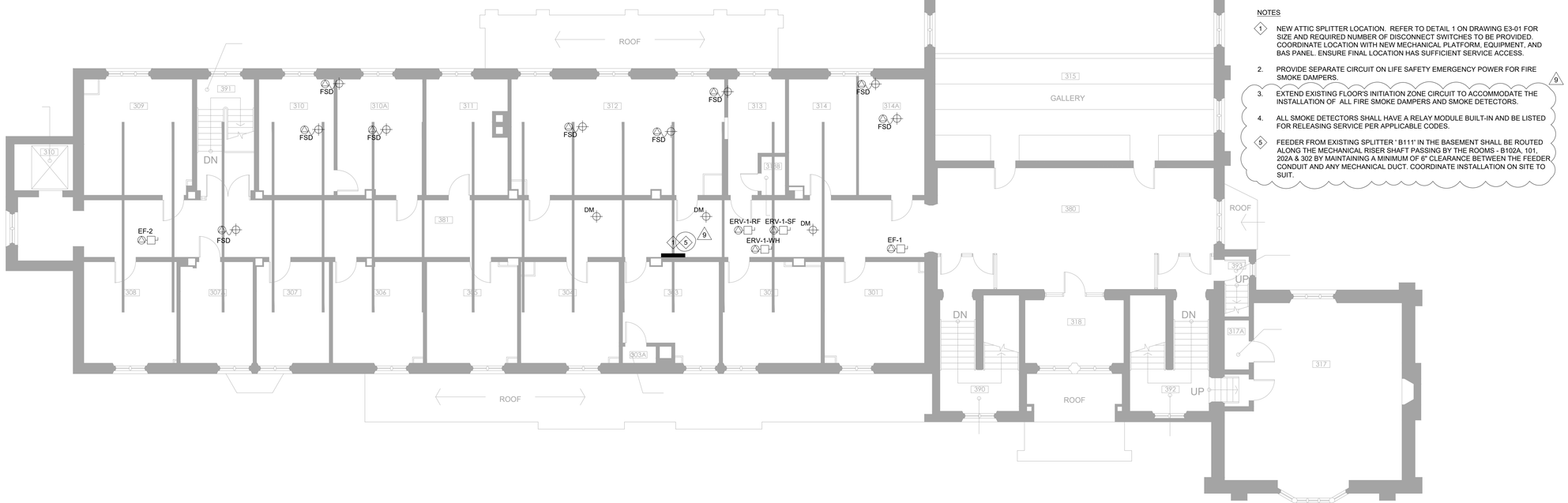

NOTES

1. NEW ATTIC SPLITTER LOCATION. REFER TO DETAIL 1 ON DRAWING E3-01 FOR SIZE AND REQUIRED NUMBER OF DISCONNECT SWITCHES TO BE PROVIDED. COORDINATE LOCATION WITH NEW MECHANICAL PLATFORM, EQUIPMENT, AND BAS PANEL. ENSURE FINAL LOCATION HAS SUFFICIENT SERVICE ACCESS.
2. PROVIDE SEPARATE CIRCUIT ON LIFE SAFETY EMERGENCY POWER FOR FIRE SMOKE DAMPERS.
3. EXTEND EXISTING FLOOR'S INITIATION ZONE CIRCUIT TO ACCOMMODATE THE INSTALLATION OF ALL FIRE SMOKE DAMPERS AND SMOKE DETECTORS.
4. ALL SMOKE DETECTORS SHALL HAVE A RELAY MODULE BUILT-IN AND BE LISTED FOR RELEASING SERVICE PER APPLICABLE CODES.
5. FEEDER FROM EXISTING SPLITTER ' B111' IN THE BASEMENT SHALL BE ROUTED ALONG THE MECHANICAL RISER SHAFT PASSING BY THE ROOMS - B102A, 101, 202A & 302 BY MAINTAINING A MINIMUM OF 6" CLEARANCE BETWEEN THE FEEDER CONDUIT AND ANY MECHANICAL DUCT. COORDINATE INSTALLATION ON SITE TO SUIT.

REVISIONS

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6	25.08.05	ISSUED FOR TENDER
7	25.08.22	ISSUED FOR ADDENDUM 01
8	25.08.28	ISSUED FOR ADDENDUM 02
9	25.09.04	ISSUED FOR ADDENDUM 03

NOTES:

KEY PLAN:

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

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AITIC - ELECTRICAL NEW WORK

E2-05

DRAWN BY : CD CHECKED BY : CD

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