



Public Works  
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Canada

Ontario Region

Travaux publics  
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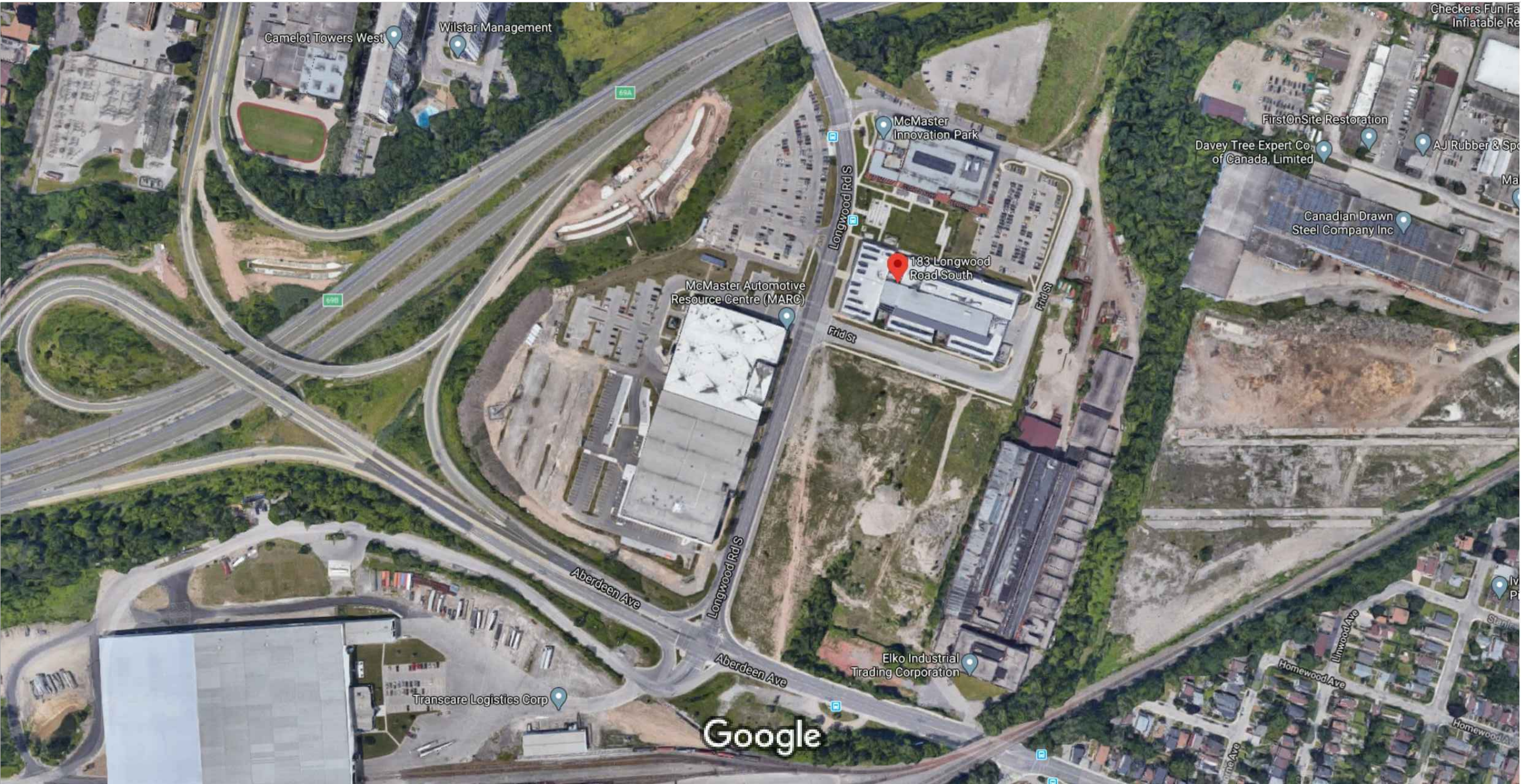
Région de l'Ontario

HAMILTON, ONTARIO.

NRCAN

MAP LABORATORY RENOVATION

PWGSC Proj. No.: R.106310.002



Canada

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A	Detail No.
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	drawing no. - where detailed dessin no. - où détaillé

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NRCAN  
183 LONGWOOD ROAD SOUTH  
MAP LABORATORY RENOVATION

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COVER PAGE

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REGULATORY DOCUMENTS:

CONFORM TO THE NATIONAL BUILDING CODE 2015 AND NFPA 45, CANADIAN ELECTRICAL CODE (CEC), AND SUPPLEMENTS THERETO AS APPLICABLE. CONFORM TO THE OCCUPATIONAL HEALTH AND SAFETY ACT, ONTARIO AND REGULATIONS FOR CONSTRUCTION PROJECTS AND TO THE FIRE CODE AND ALL OTHER APPLICABLE CODES AND BUILDING BY-LAWS. HEREINAFTER REFERRED TO AS CODES. THE LATEST EDITIONS SHALL APPLY. CONFORM TO THE REQUIREMENTS OF THE AUTHORITIES HAVING JURISDICTION, INCLUDING PUBLIC UTILITIES. NOTHING CONTAINED IN THE DRAWINGS SHALL BE SO CONSTRUED AS TO BE IN CONFLICT WITH ANY LAW, BY-LAW OR REGULATION OF THE MUNICIPAL, PROVINCIAL OR OTHER AUTHORITIES HAVING JURISDICTION. WORK SHALL BE PERFORMED IN CONFORMITY WITH ALL SUCH LAWS, BY-LAWS AND REGULATIONS.

CONSTRUCTION SAFETY MEASURES:

OBSERVE AND ENFORCE CONSTRUCTION SAFETY MEASURES REQUIRED BY ALL APPLICABLE CODES AND MUNICIPAL STATUTES AND REGULATIONS. IN THE EVENT OF CONFLICT, AN AUTHORITY WITH THE MOST STRINGENT PROVISION APPLIES.

FIRE SAFETY FEATURES:

THE CONTRACTOR SHALL ENSURE THAT ALL FIRE SAFETY FEATURES ARE SUPPLIED AND INSTALLED TO MEET FIRE SAFETY STANDARDS ESTABLISHED BY THE AUTHORITIES HAVING JURISDICTION.

- ALL FIRE RESISTANCE RATED ASSEMBLIES ARE TO MEET THE SPECIFIED ULC DESIGNS.
- ALL FIRE SEPARATIONS AND WALLS WITH A FIRE RESISTANCE RATING ARE TO EXTEND UP TO THE UNDERSIDE OF STRUCTURAL FLOOR OR STRUCTURAL DECK.
- FIRESTOP ALL PENETRATIONS, GAPS AND OPENINGS THROUGH ALL FIRE RESISTANCE RATED ASSEMBLIES. FIRESTOPPED/FIRECAULKED ASSEMBLIES TO MEET SPECIFIED ULC TESTED DESIGN.
- AT SMOKE SEPARATIONS APPLY SMOKE SEALANT AROUND ALL MECHANICAL, ELECTRICAL, AND PLUMBING RUNS, ELECTRICAL BOXES AND ANY RECESSED EQUIPMENT OR FIXTURES – MAINTAIN CONTINUOUS SMOKE SEAL.

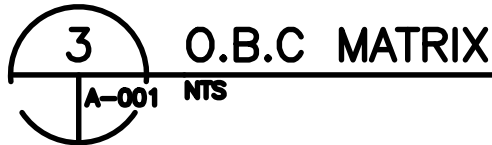
NOTES:

- THE DRAWINGS ARE NOT TO BE SCALED FOR DIMENSIONS.
- ANYONE FINDING DISCREPANCIES, AMBIGUITIES OR OMISSIONS IN THE DRAWINGS, OR HAVING DOUBT AS TO THE MEANING OR INTENT THEREOF SHALL IMMEDIATELY NOTIFY THE DEPARTMENTAL REPRESENTATIVE, WHO SHALL ISSUE INSTRUCTIONS AND/OR CLARIFICATIONS.
- THESE DRAWINGS TO BE READ IN CONJUNCTION WITH MECHANICAL AND ELECTRICAL DRAWINGS AND SPECIFICATIONS. REFER TO SEPARATE DRAWINGS FOR MECHANICAL AND ELECTRICAL DISCIPLINES.
- MAKE GOOD/MADE GOOD:
  - MAKE GOOD ALL DAMAGE RESULTING FROM WORK CARRIED OUT. RESTORE AND BLEND TO MATCH SURROUNDING EXISTING CONDITIONS.
  - WHERE EXISTING WORK IS TO BE MADE GOOD, THE NEW WORK SHALL MATCH THE OLD WORK IN MATERIAL, CONSTRUCTION AND FINISH, UNLESS OTHERWISE NOTED OR SPECIFIED.
  - THE CONTRACTOR MAY BE REQUESTED AT ANY TIME TO SUSPEND NOISY OR OTHERWISE OBJECTIONABLE OPERATIONS DURING CERTAIN FUNCTIONS. SHOULD SUCH OPERATIONS CAUSE UNDUE INTERFERENCE WITH THE SAID FUNCTIONS, THE CONTRACTOR WILL BE EXPECTED TO EXTEND THE FULLEST CO-OPERATION AND COURTESY IN THIS REGARD.

ACT ACOUSTIC TILE  
AFF ABOVE FINISHED FLOOR  
ALUM ANODIZED ALUMINUM  
C/W COMPLETE WITH  
CONC CONCRETE  
CET CERAMIC TILE  
CL CLEAR  
CPT CARPET  
CR CARD READER  
DTL DETAIL  
DWG DRAWING  
EXIST EXISTING  
FFL FINISHED FLOOR LEVEL  
GYP GYPSUM BOARD  
GL GLASS  
GWG GEORGIAN WIRE GLASS  
HC HOLLOW CORE  
HM HOLLOW METAL  
INSUL INSULATED  
MOS MOSAIC TILE  
M METAL  
NIC NOT IN CONTRACT  
O.C. ON CENTER  
PT PAINT  
PART TOILET PARTITIONS  
PERM PERMANODIC  
PLAM PLASTIC LAMINATE  
PM PRESSED METAL  
SC SOLID CORE WITH WOOD VENEER  
STEEL STEEL  
ST STAIN  
TEMP TEMPERED GLASS (MIN. 7mm)  
TYP TYPICAL  
U/S UNDERSIDE  
ULC UNDERWRITERS LABORATORIES CANADA  
WD WOOD  
WP WHIP LOCATION FOR POWER AND DATA  
VB VINYL BASE  
VCT VINYL COMPOSITE TILE  
CMU CONCRETE MASONRY UNIT  
SF SPECIAL FLOORING  
SB SPECIAL BASE  
EXP EXPOSED



ONTARIO BUILDING CODE DATA MATRIX PART 11– RENOVATION OF EXISTING BUILDING		OBC REFERENCE
11.1	EXISTING BUILDING CLASSIFICATION:  DESCRIBE EXISTING USE: <u>GROUP F, DIVISION 2</u> CONSTRUCTION INDEX: <u>2</u> HAZARD INDEX: <u>3</u>  <input checked="" type="checkbox"/> NOT APPLICABLE (NO CHANGES OF MAJOR OCCUPANCY)	11.2.1 T 11.2.1.1A T 11.2.1.1C
11.2	ALTERATION TO EXISTING BUILDING IS:  BASIC RENOVATION <input checked="" type="checkbox"/> EXTENSIVE RENOVATION <input type="checkbox"/>	11.3.3.1 11.3.3.2
11.3	REDUCTION IN PERFORMANCE LEVEL:  STRUCTURAL: <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES BY INCREASE IN OCCUPANT LOAD: <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES BY CHANGE OF MAJOR OCCUPANCY: <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES PLUMBING: <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES SEWAGE–SYSTEM: <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES	11.4.2 11.4.2.1 11.4.2.2 11.4.2.3 11.4.2.4 11.4.2.5
11.4	COMPENSATING CONSTRUCTION:  STRUCTURAL: <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES (EXPLAIN) <div></div> INCREASE IN OCCUPANT LOAD: <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES (EXPLAIN) <div></div> CHANGE OF MAJOR OCCUPANCY: <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES (EXPLAIN) <div></div> PLUMBING: <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES (EXPLAIN) <div></div> SEWAGE SYSTEM: <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES (EXPLAIN) <div></div>	11.4.3 11.4.3.2  11.4.3.3  11.4.3.4  11.4.3.5  11.4.3.6
11.5	COMPLIANCE ALTERNATIVES PROPOSED:  <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES (GIVE NUMBER(S)) <u>?</u> <u>?</u> <u>?</u>	11.5.1
11.6	ALTERNATIVE MEASURES PROPOSED:  <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES (EXPLAIN) <div></div>	11.5.2



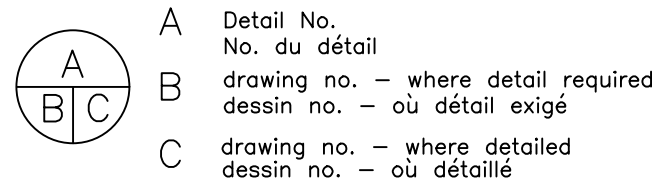
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titre du dessin  
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ABBREVIATIONS  
AND OBC MATRIX

drawn by  
dessine par CC

designed by  
conc par SC

approved by  
approuve par RE

bid  
offre – project manager  
administrateur de projets

project date  
date du projet 2020–07–07

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dessine no. A–001



GENERAL LABORATORY NOTES:

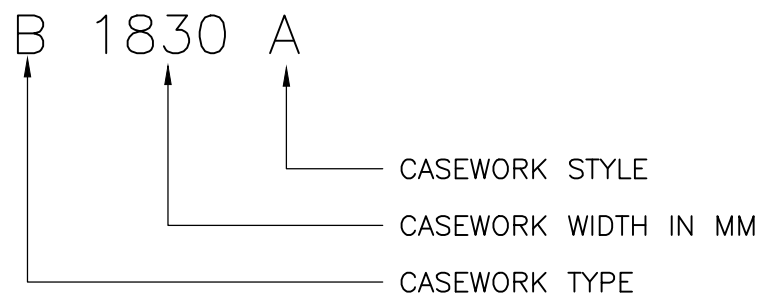
1. REFER TO FLOOR PLAN FOR CASEWORK AND EQUIPMENT TAGS
2. ALL DIMENSION ARE MM UNLESS NOTED OTHERWISE
3. LAB FURNISHING SECTIONS SHALL EXAMINE THE LABORATORY CASEWORK DRAWINGS AND SPECIFICATION AND ALL OTHER DRAWINGS AND SPECIFICATION TO PROPERLY DETERMINE CONTRACTUAL RESPONSIBILITIES.
4. FOR ACTUAL ROOM DIMENSIONS, REFER TO THE ARCHITECTURAL PLANS.
5. LAB FURNISHING SECTIONS SHALL FIELD CHECK ALL DIMENSIONS BEFORE FABRICATION
6. LAB TABLES TYPICAL SHALL OVERHAND 25.4MM AT EACH END. WHEN OVERALL DIMENSIONS OF THE TABLE TOP IS GIVEN, 25.3MM OVERHANG IS INCLUDED.
7. ON WALL-TO-WALL CASEWORK ASSEMBLIES, THE "OPEN" SPACE DIMENSION SHALL BE DETERMINED IN THE FIELD. IF THERE IS MORE THAN ONE "OPEN" SPACE INDICATED, SPACE AVAILABLE FOR OPEN SPACE SHALL BE EVENLY DISTRIBUTED – U.N.O.
8. DIMENSIONS FOR COUNTERTOP HEIGHTS ARE NOMINAL WITHIN 25.4MMOF THE REQUIRED HEIGHT.
9. ALL COUNTERTOPS SHALL BE 752MM DEEP INCLUDING THE BACKSPLASH, UNLESS OTHERWISE NOTED.
10. TOP MATERIAL TO BE 25.4MM EPOXY RESIN CONSTRUCTION, UNLESS OTHERWISE NOTED. ALL COUNTERTOP HEIGHTS ARE NOMINALLY 915MM U.N.O.
11. FILLER PANELS SHALL BE USED BETWEEN BACK OF CABINETS OR HOODS AND WALL AT EXPOSED ENDS AND WHEN BASE CABINETS AND/OR HOODS ARE SET BACK-TO-BACK.
12. ALL EXPOSED-TO-VIEW COUNTERTOP EDGES, BACK OF SPLASHES, ALL EDGES OF TABLES SHALL BE CAULKED, FILLED, SEALED AND FINISHED, UNLESS OTHERWISE NOTED.
13. ALL LAB CASEWORK EXPOSED-TO-VIEW BACKS AND SIDES AND FILLER PANELS ARE TO BE FINISHES.
14. DEPARTMENTAL REPRESENTATIVE WILL SELECT COLOURS FOR ALL COMPONENT OF CASEWORK INDICATED IN DRAWINGS. COLOUR SELECTION WILL BE FROM THE MANUFACTURER'S STANDARD COLOURS.
15. ALL PENETRATIONS THROUGH COUNTERTOP SHALL BE CAULKED BY THE LAB FURNISHING SECTIONS WITH APPROVED ACID-RESISTANT SEALANT.
16. LOCATION OF EQUIPMENT AND COMPONENTS, SUCH AS CEILING SUSPENDED SHELVING, EXHAUST ARM, FUME HOODS, BIO-SAFETY CABINETS, BRACES, OR ANY OTHER ITEMS THAT MAY INTERFERE WITH LIGHTING, STRUCTURAL, OR MECHANICAL SYSTEMS SHALL BE CAREFULLY COORDINATED BY THE LAB FURNISHING SECTIONS, AND ANY DISCREPANCIES BROUGHT TO THE DEPARTMENTAL REPRESENTATIVE ATTENTION IMMEDIATELY.
17. ANY TYPE OF UNISTRUT OR SLOTTED STANDARD FRAME SUPPORTS (USED FOR RACKS, SHELVING, ETC.) SHALL BE SPACED AND POSITIONED TO CLEAR FITTINGS AND SINKS. COORDINATE WALL BLOCKING WITH ALL DISCIPLINES.
18. ON WALLS WHERE UNISTRUT OR SLOTTED STANDARDS FRAME RUN FULL HEIGHT AND INTERFERE WITH ELECTRICAL SERVICES, RACEWAYS SHALL BE WALL MOUNTED AND UNISTRUT/STANDARDS CUT AS REQUIRED UNLESS OTHERWISE NOTES. COORDINATE WALL BLOCKING WITH ALL DISCIPLINES.
19. FOR LOCATION OF CARRIERS, OVERHEAD CARRIER, EXHAUST ARMS, AND ANY OTHER FURNISHING, SEE ARCHITECTURAL REFLECTED CEILING PLANS.
20. FOR LAB SERVICE FITTING, TYPES, LOCATION AND ORDER, SEE LABORATORY PLANS AND SPECIFICATION, THESE FITTINGS SHALL BE FURNISHED AND DELIVERED BY THE LAB FURNISHING SECTIONS AND INSTALLED BY THE PLUMBING OR MECHANICAL SECTIONS. LAB SINKS SHALL BE FURNISHED AND INSTALLED BY THE LAB FURNISHING SECTIONS.
21. ALL PLUMBING/MECHANICAL PIPING SYSTEM SUPPORTS SHALL BE FURNISHED AND INSTALLED BY THE PLUMBING /MECHANICAL PIPING SECTIONS. THE SPACING HANGERS, BRACINGS AND FASTENERS SHALL BE PER SPECIFICATIONS RECOMMENDATIONS.
22. ELECTRICAL SECTIONS SHALL FURNISH AND INSTALL ALL ELECTRICAL PLUG STRIPS. FOR INSTALLATION SEE ELECTRICAL AND LAB CASEWORK DRAWINGS AND SPECIFICATION.
23. UNLESS OTHERWISE NOTED, ALL UNISTRUT BRACKETS AND FITTINGS INDICATED ON THE LABORATORY CASEWORK DOCUMENTS SHALL BE SUPPLIED, INSTALLED AND PAINTED AS REQUIRED BY THE LAB FURNISHING SECTIONS.
24. FOR FUME HOOD AND OVERHEAD SERVICE CARRIER PRE-PIPING AND PRE-WIRING, SEE THE LABORATORY DRAWINGS AND SPECIFICATION AND DETAILS. SYSTEMS TESTING SHALL PER SPECIFIED BY DIVISIONS 22,23 AND 27.
25. ALL LABORATORY FLOOR FINISHED SHALL BE INSTALLED PRIOR TO INSTALLATION OF LABORATORY CASEWORK AND SUPPORT SYSTEMS.

ABBREVIATIONS

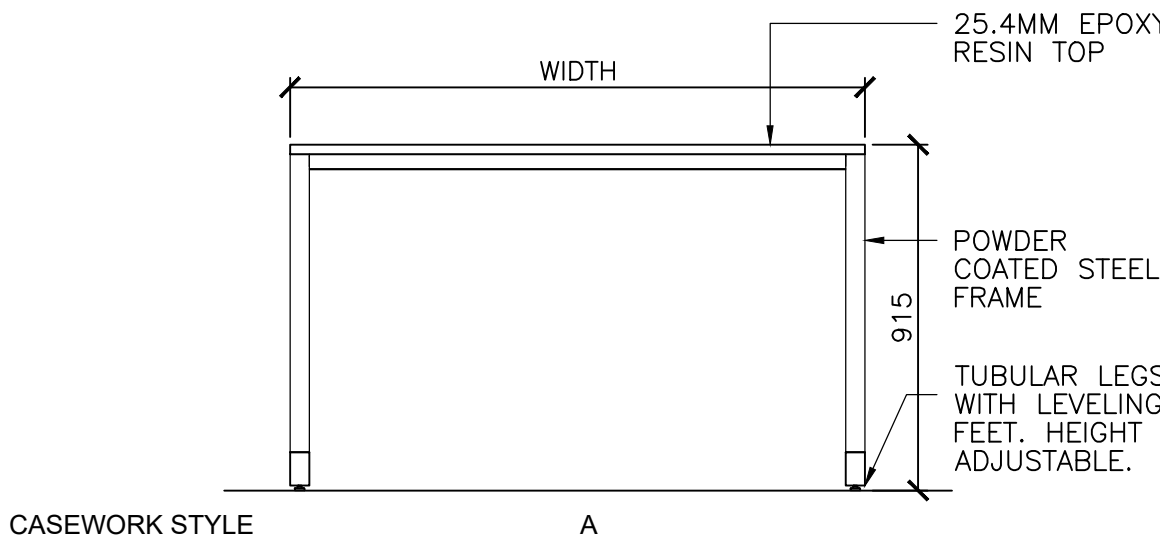
ADJ.	ADJUSTABLE	LA	LAB ACCESSORIES
AFF	ABOVE FINISHED FLOOR	LEV	LOCAL EXHAUST VENT
AR	ARGON	LF	LAB FURNISHING
AS	ANTI-STATIC	LVS	LABORATORY VACUUM
B	BASE CABINET	M	MOBILE CABINET
BSC	BIO-SAFETY CABINET	MIC	MOBILE INSTRUMENT CART
C	CORROSIVE CABINET	N2	NITROGEN
CA	COMPRESSED AIR	NIC	NOT IN CONTRACT
CAB	CABINET	OC	OVERHEAD CEILING SUSPENDED SHELV
CH	CHILLER	OHSC	OVERHEAD SERVICE CARRIER
CHW	CHILLED WATER SUPPLY & RETURN	PCHWS	PROCESS CHILLER WATER SUPPLY
COM	COMPUTER	PCHWR	PROCESS CHILLED WATER RETURN
CS	CUPSINK	PCW	PROCESS COLD WATER
CYL	CYLINDER	PTH	PAPER TOWEL HOLDER
DIS	DISCONNECT	PW	POLISHED WATER – LOCAL
DIW	DE-IONIZED WATER	S	SINK CABINET/SAFETY CABINET
DP	DISTRIBUTION PANEL	SG	SAFETY SHOWER
EA	EXHAUST ARM/ SNORKEL	SIM	SIMILAR
ENC	ENCLOSURE	SK	SINK
EQ	EQUAL	SS	STAINLESS STEEL
EW	EYEWASH	T	TALL CABINET
F	FLAMMABLE CABINET	TA	LAB TABLE
FD	FLOOR DRAIN	U.O.N.	UNLESS OTHERWISE NOTED
FH	FUME HOOD	UPS	UNINTERRUPTED POWER SUPPLY
FP	FILLER PANEL	V	VENTED CABINET
FZ	FREEZER	V.I.F.	VERIFY IN FIELD
GB	GLOVEBOX	W	UPPER WALL CABINET
HOI	HOIST	W/	WITH
KO	KNEE SPACE OPENING	W/O	WITHOUT
		WS	UPPER WALL SHELVING

CASEWORK AND EQUIPMENT LEGEND AND SCHEDULE

CASEWORK TAG



CASEWORK TYPE:  
STEEL LAB TABLE - TA

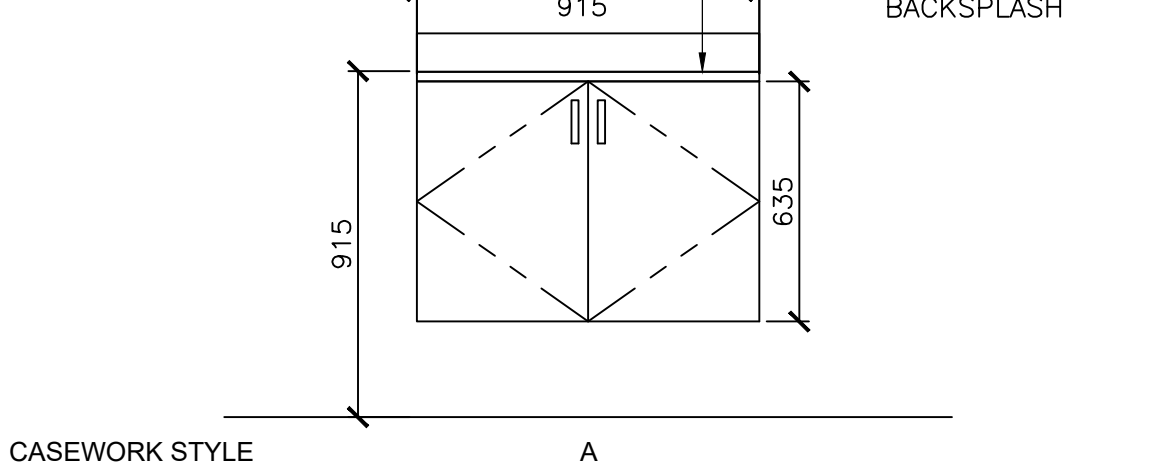


CASEWORK STYLE

A

FRONT ELEVATION

CASEWORK TYPE:  
STEEL SINK CABINET-S

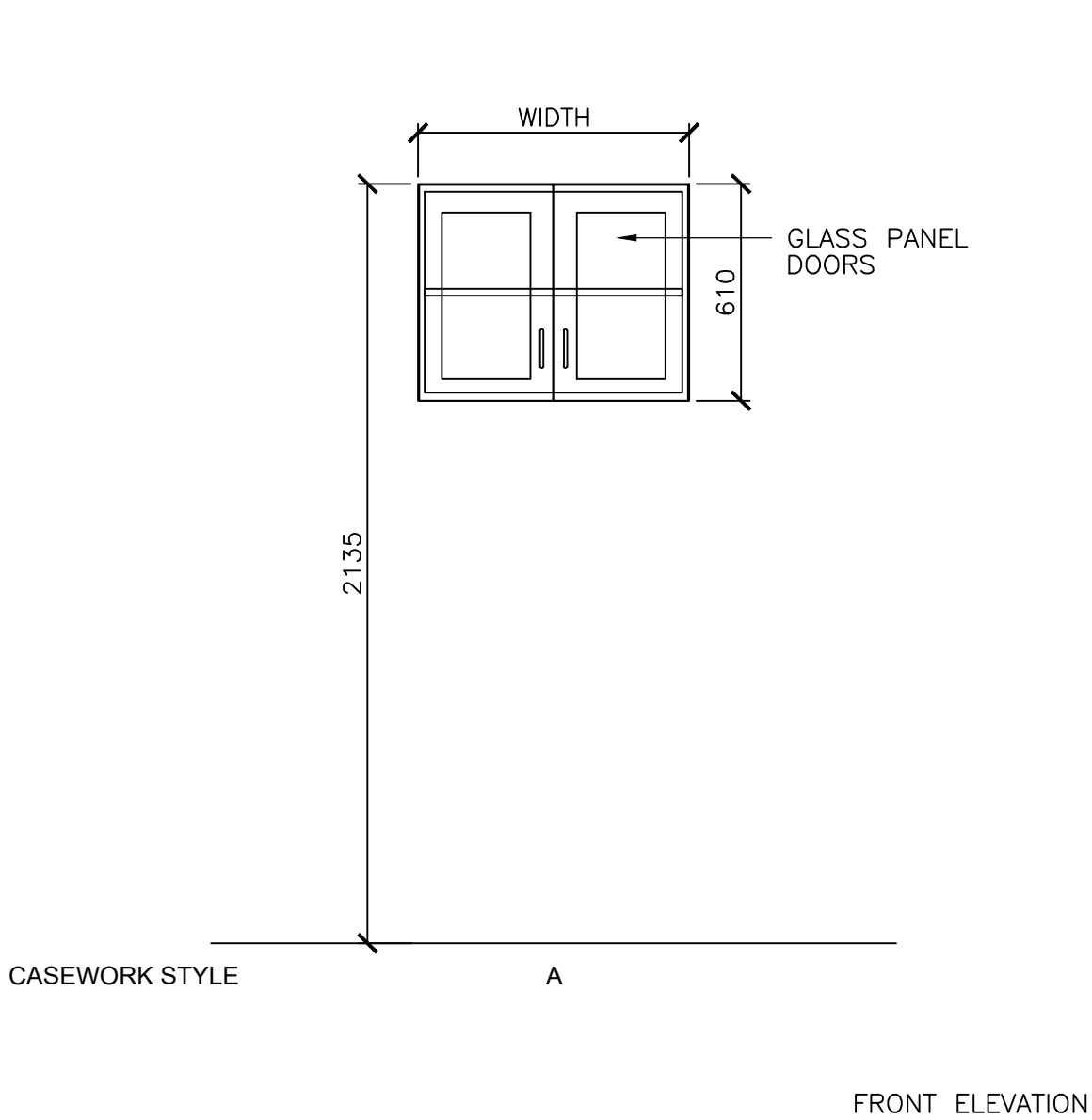


CASEWORK STYLE

A

FRONT ELEVATION

CASEWORK TAG  
STEEL UPPER WALL CABINET-W



CASEWORK STYLE

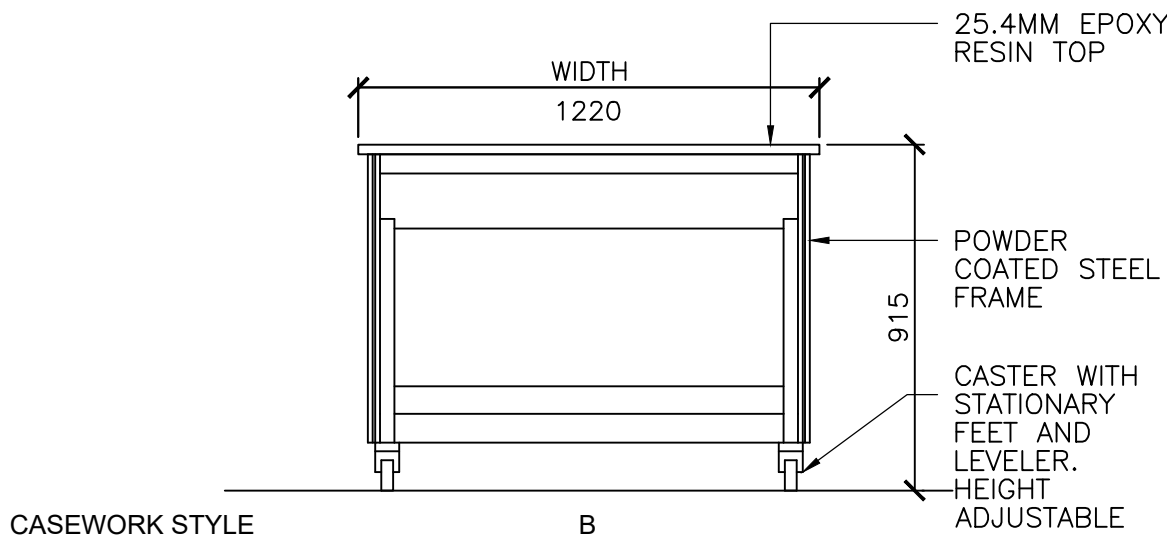
A

FRONT ELEVATION

EQUIPMENT SCHEDULE

- EQ-1A 1830MM FUME HOOD BY LABORATORY FURNISHING SECTIONS. PROVIDE GENERAL PURPOSE – VARIABLE VOLUME (VAV) VOLUME TYPE FUME HOOD BY MOTT MANUFACTURING TO MATCH FUME HOODS INSTALLED IN EXISTING LABORATORIES IN THE FACILITY
- EQ-2A 3050MM DOUBLE GLOVEBOX, SINGLE SIDED WITH 4 GLOVE PORTS. CONTRACTOR FURNISHED, CONTRACTOR INSTALLED.
- EQ-3A 75MM DIA BENCHTOP EXTRACTION ARM WITH ADJUSTABLE ARMS BY MECHANICAL CONTRACTOR. SEE MECHANICAL DRAWINGS AND SPECIFICATIONS.

CASEWORK TYPE:  
MOBILE STEEL LAB TABLE - TA

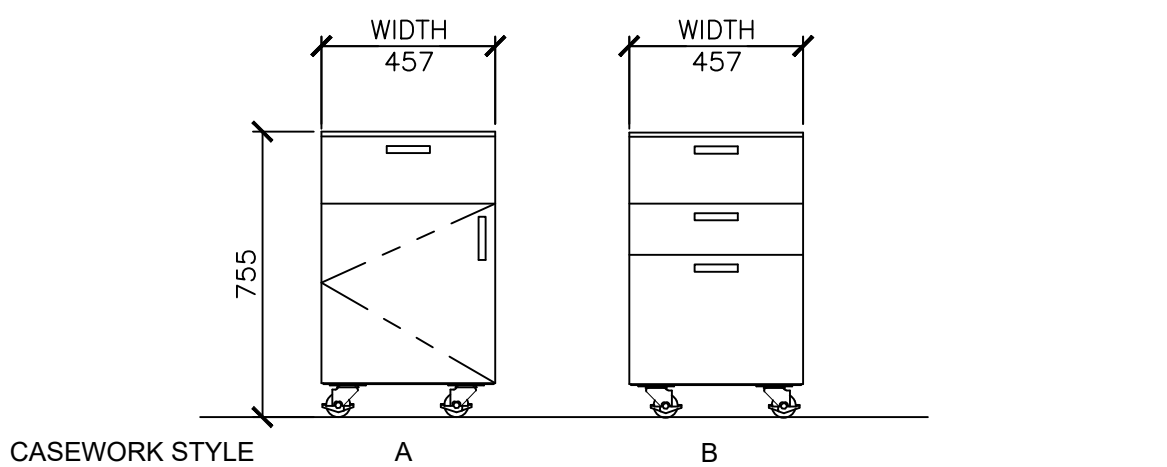


CASEWORK STYLE

B

FRONT ELEVATION

CASEWORK TYPE:  
STEEL MOBILE CABINET-M

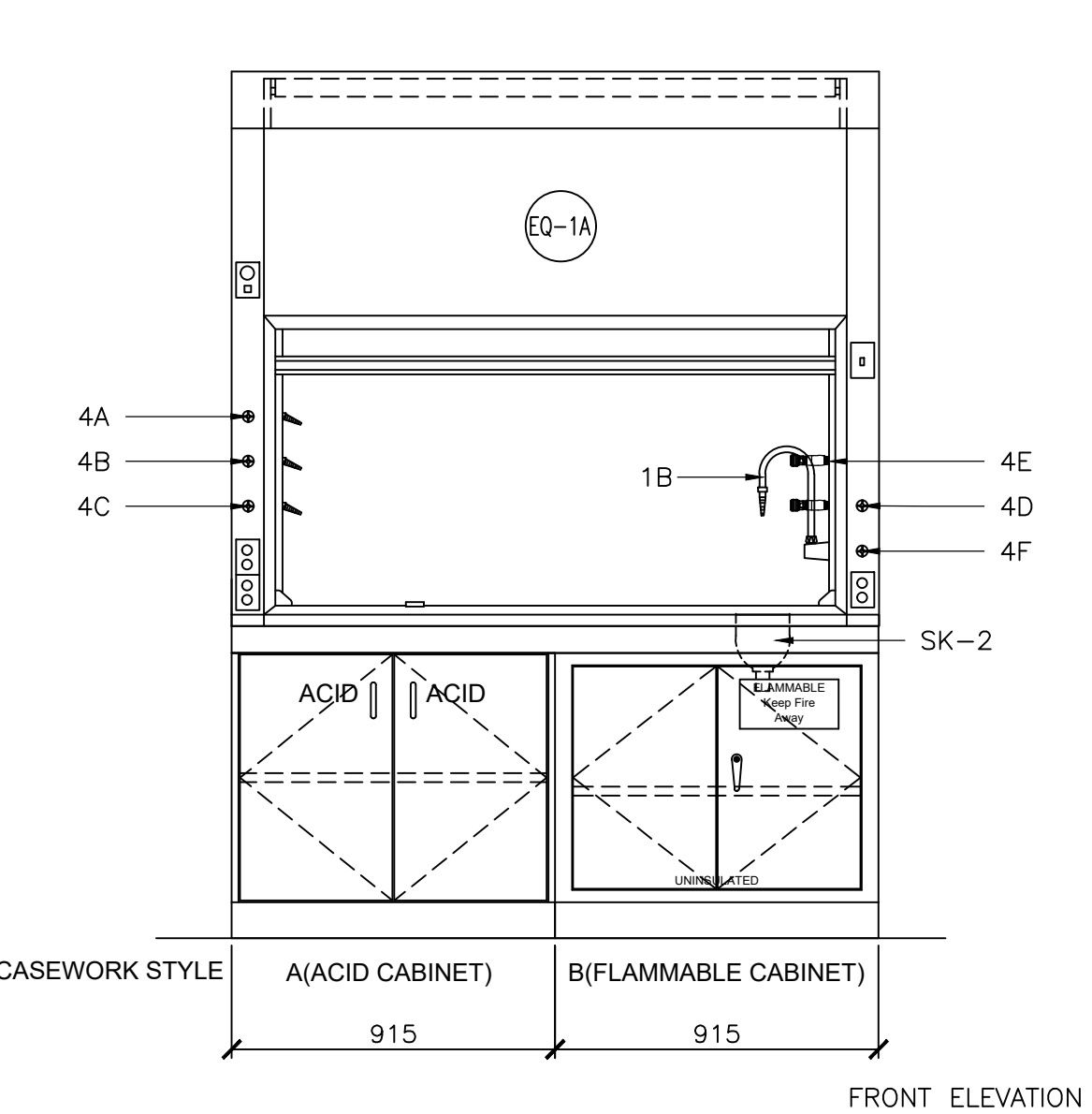


CASEWORK STYLE

B

FRONT ELEVATION

CASEWORK TAG  
STEEL FUME HOOD BASE CABINET-FB



CASEWORK STYLE

A(ACID CABINET)

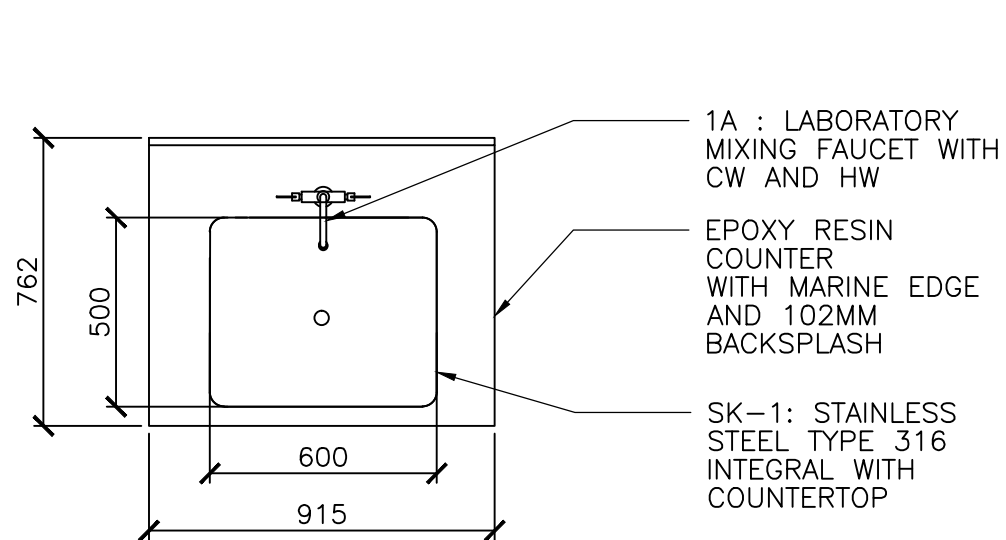
B(FLAMMABLE CABINET)

FRONT ELEVATION

SINK SCHEDULE

- SK-1 STAINLESS STEEL TYPE 316 SINK INTEGRAL WITH EPOXY RESIN COUNTERTOP BY LAB FURNISHING SECTIONS. SINGLE BOWL 600W X 500D X 360H
- SK-2 152MM X 76MM (6"X3") OVAL EPOXY RESIN CUP SINK WITH A SELF RIM LIP.

SINK COUNTER PLAN



LABORATORY SERVICE FITTING SCHEDULE

- 1A COUNTER MOUNTED LABORATORY MIXING FAUCET BY MECHANICAL. SEE MECHANICAL DRAWINGS AND SPECIFICATIONS FOR FIXTURE INFORMATION.
- 1B FUME HOOD PANEL MOUNTED SWING ARM GOOSENECK FAUCET AS RECOMMENDED BY FUME HOOD MANUFACTURER.
- 2A NEEDLE VALVE FOR COMPRESSED AIR (CA) AT HEIGHT +1220MM ABOVE FFL MOUNTED ON CA SERVICE DROP BY LAB FURNISHING SECTIONS.
- 3A OVERHEAD SERVICE CARRIER MOUNTED VALVE WITH CONNECTOR PLUG FOR COMPRESSED AIR (CA) BY LAB FURNISHING SECTIONS.
- 3B OVERHEAD SERVICE CARRIER MOUNTED VALVE WITH CONNECTOR PLUG FOR NITROGEN (N2) BY LAB FURNISHING SECTIONS.
- 3C OVERHEAD SERVICE CARRIER MOUNTED VALVE WITH CONNECTOR PLUG FOR ARGON (AR) BY LAB FURNISHING SECTIONS.
- 3D OVERHEAD SERVICE CARRIER MOUNTED VALVE WITH CONNECTOR PLUG FOR PROCESS CHILLED WATER SUPPLY (PCWS) BY LAB FURNISHING SECTIONS.
- 3E OVERHEAD SERVICE CARRIER MOUNTED VALVE WITH CONNECTOR PLUG FOR PROCESS CHILLED WATER RETURN (PCWR) BY LAB FURNISHING SECTIONS.
- 4A FUME HOOD MOUNTED REMOTE CONTROL NEEDLE VALVE FOR COMPRESSED AIR (CA) AS RECOMMENDED BY FUME HOOD MANUFACTURER.
- 4B FUME HOOD MOUNTED REMOTE CONTROL NEEDLE VALVE FOR NITROGEN (N2) BY AS RECOMMENDED BY FUME HOOD MANUFACTURER.
- 4C FUME HOOD MOUNTED NEEDLE VALVE FOR ARGON (AR) AS RECOMMENDED BY FUME HOOD MANUFACTURER.
- 4D FUME HOOD MOUNTED REMOTE CONTROL VALVE WITH CONNECTOR PLUG FOR PROCESS CHILLED WATER SUPPLY (PCWS) AS RECOMMENDED BY FUME HOOD MANUFACTURER.
- 4E FUME HOOD MOUNTED CONNECTOR PLUG FOR PROCESS CHILLED WATER RETURN (PCWR)AS RECOMMENDED BY FUME HOOD MANUFACTURER.
- 4F FUME HOOD MOUNTED REMOTE CONTROL VALVE FOR DOMESTIC COLD WATER (DCW) AS RECOMMENDED BY FUME HOOD MANUFACTURER.
- 5A VALVE WITH CONNECTOR PLUG FOR COMPRESSED AIR (CA) AT HEIGHT +1220MM ABOVE FFL MOUNTED ON CA SERVICE DROP BY LAB FURNISHING SECTIONS.
- 5B VALVE WITH CONNECTOR PLUG FOR NITROGEN (N2) AT HEIGHT +1220MM ABOVE FFL MOUNTED ON CA SERVICE DROP BY LAB FURNISHING SECTIONS.
- 5C VALVE WITH CONNECTOR PLUG FOR ARGON (AR) AT HEIGHT +1220MM ABOVE FFL MOUNTED ON CA SERVICE DROP BY LAB FURNISHING SECTIONS.

NOTES:

1. IDENTIFY FITTINGS AS TO TYPE OF SERVICE WITH COLOURED-CODED PLASTIC REMOVABLE INDEX BUTTONS WITH ENGRAVED LETTERING FILLED WITH ENAMEL TO MATCH SERVICE COLOUR CODES OF EXISTING INSTALLATIONS IN THE BUILDING.
2. PROVIDE CORROSION RESISTANT FINISH ON FIXTURES INSIDE HOOD WITH MATCHING COLOUR CODED HANDLE ON FUME HOOD STYLE FOR SAFETY PURPOSE.
3. FIXTURES LOCATED IN THE FUME HOOD AND ON OVERHEAD SERVICE CARRIER SHALL BE PRE-PLUMBED IN THE FACTORY AND CAPPED OFF READY FOR CONNECTIONS AT SITE BY MECHANICAL.
4. ALL FITTINGS TO MATCH IN FINISH AND STYLE UNLESS NOTED OTHERWISE.

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	drawing no. – where detailed dessin no. – où détaillé

project title  
titre du projet  
**HAMILTON** ONTARIO  
NRCAN  
183 LONGWOOD ROAD SOUTH  
**MAP LABORATORY RENOVATION**

drawing title  
titre du dessin  
**LABORATORY EQUIPMENT AND CASEWORK NOTES, LEGEND AND SCHEDULE**

drawn by  
dessiné par  
CC

designed by  
conc par  
SC

approved by  
approuvé par  
RE

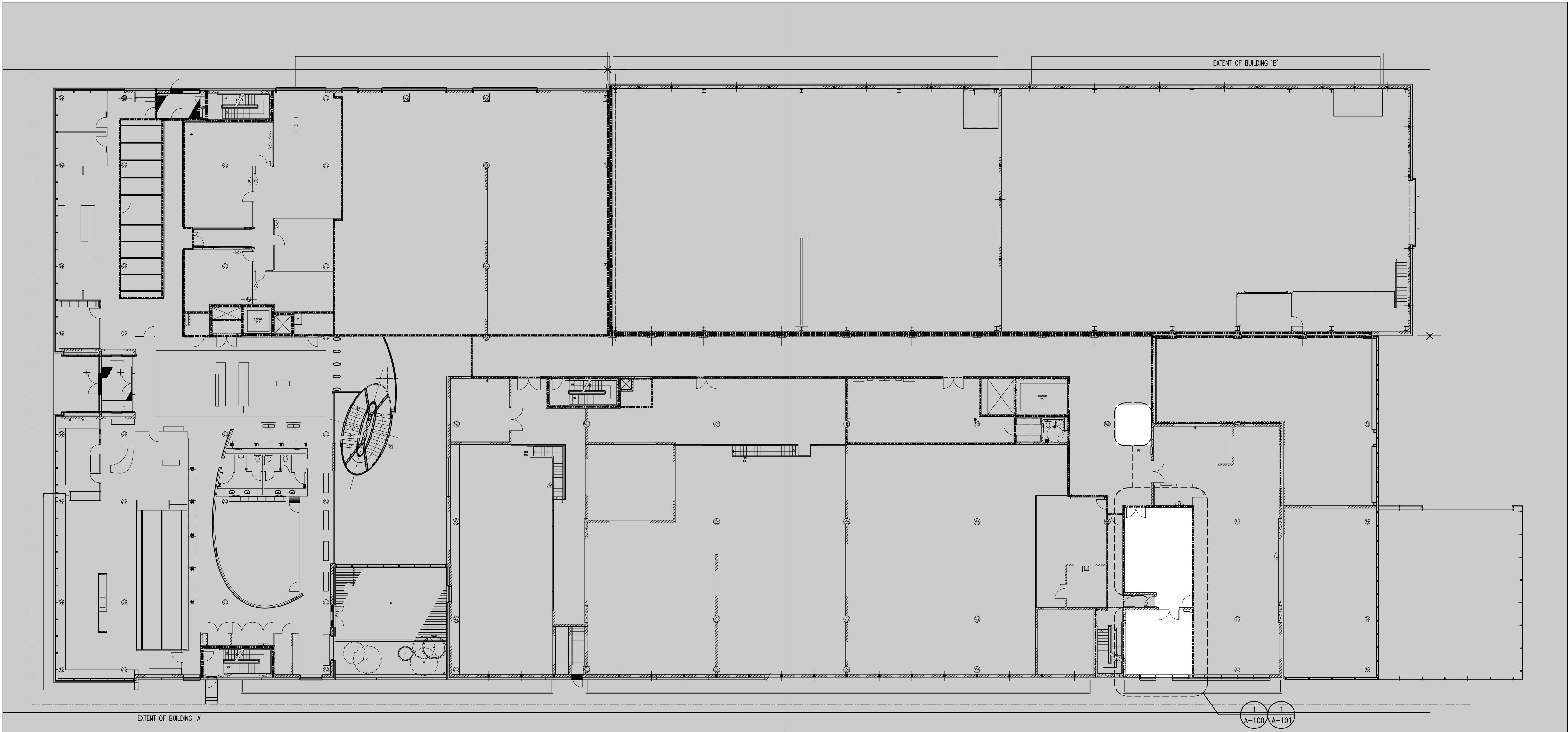
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project manager  
administrateur de projets

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date du projet  
2020-07-07

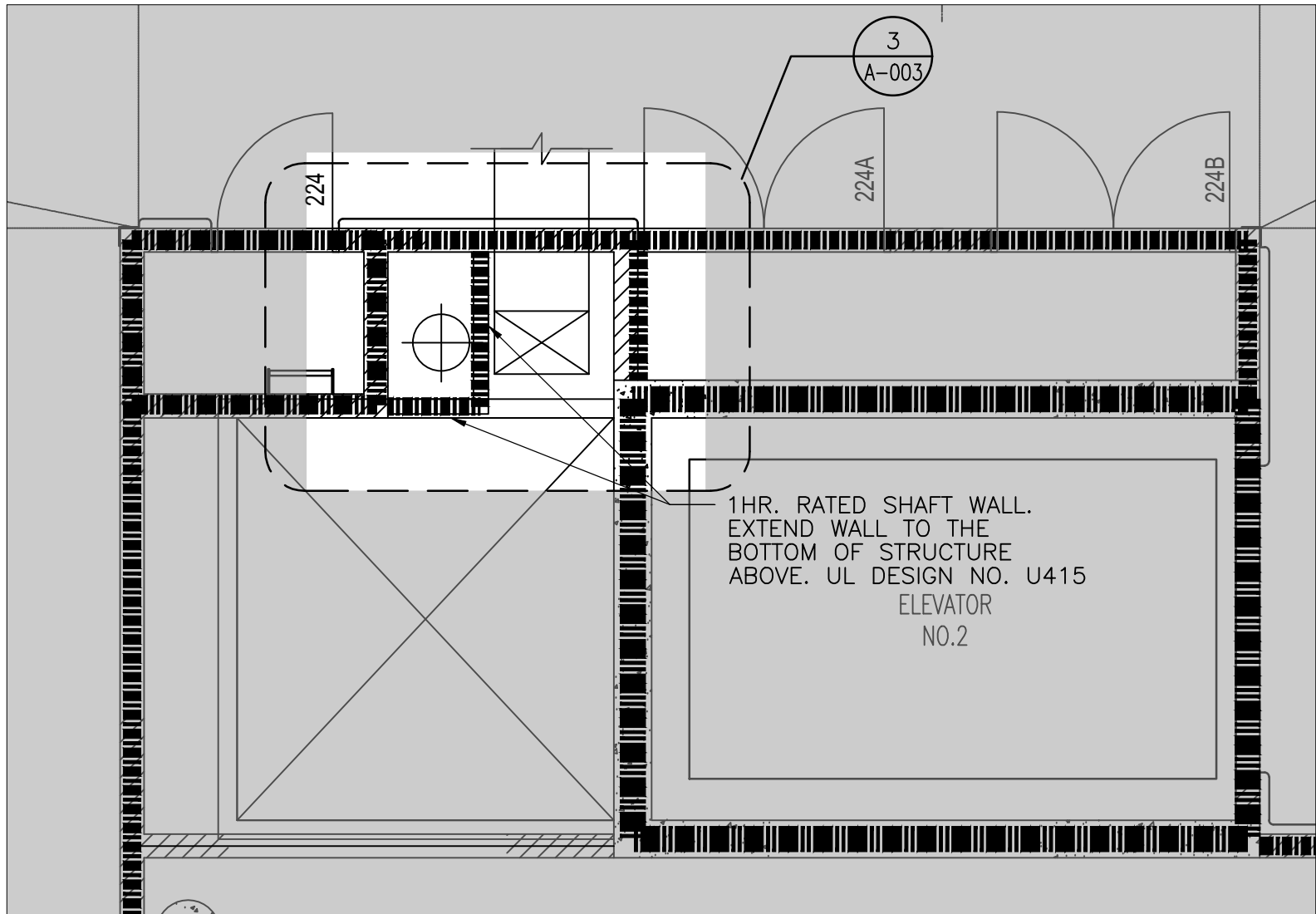
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no. du projet  
R.106310.002

drawing no.  
dessiné no.  
A-002

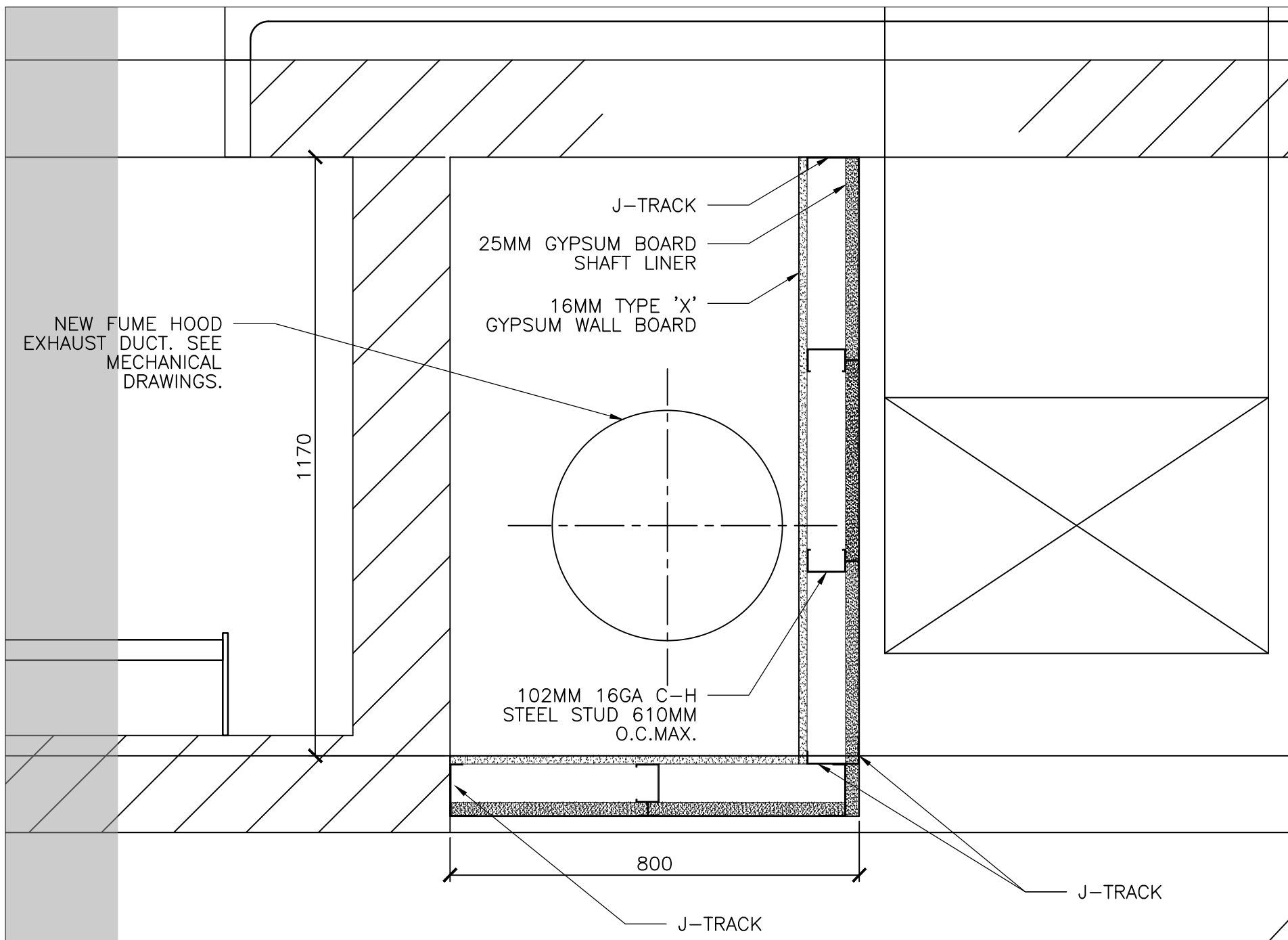




1 MAP LAB REFERENCE AND FIRE RATING PLAN (FIRST FLOOR)  
A-003 NTS



2 FUME HOOD DUCT EXHAUST SHAFT PLAN – SECOND FLOOR  
A-003 NTS



3 FUME HOOD EXHAUST DUCT SHAFT PLAN DETAIL  
A-003 A-003 1:10

FIRE RATING LEGEND	
N/R	—————
1 HR	—————
1.5 HR	—————
2 HR	—————
FLOORS & STRUCTURE SUPPORTING THE FLOORS HAVE A 2HR RATING	

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REFERENCE AND  
FIRE RATING PLAN

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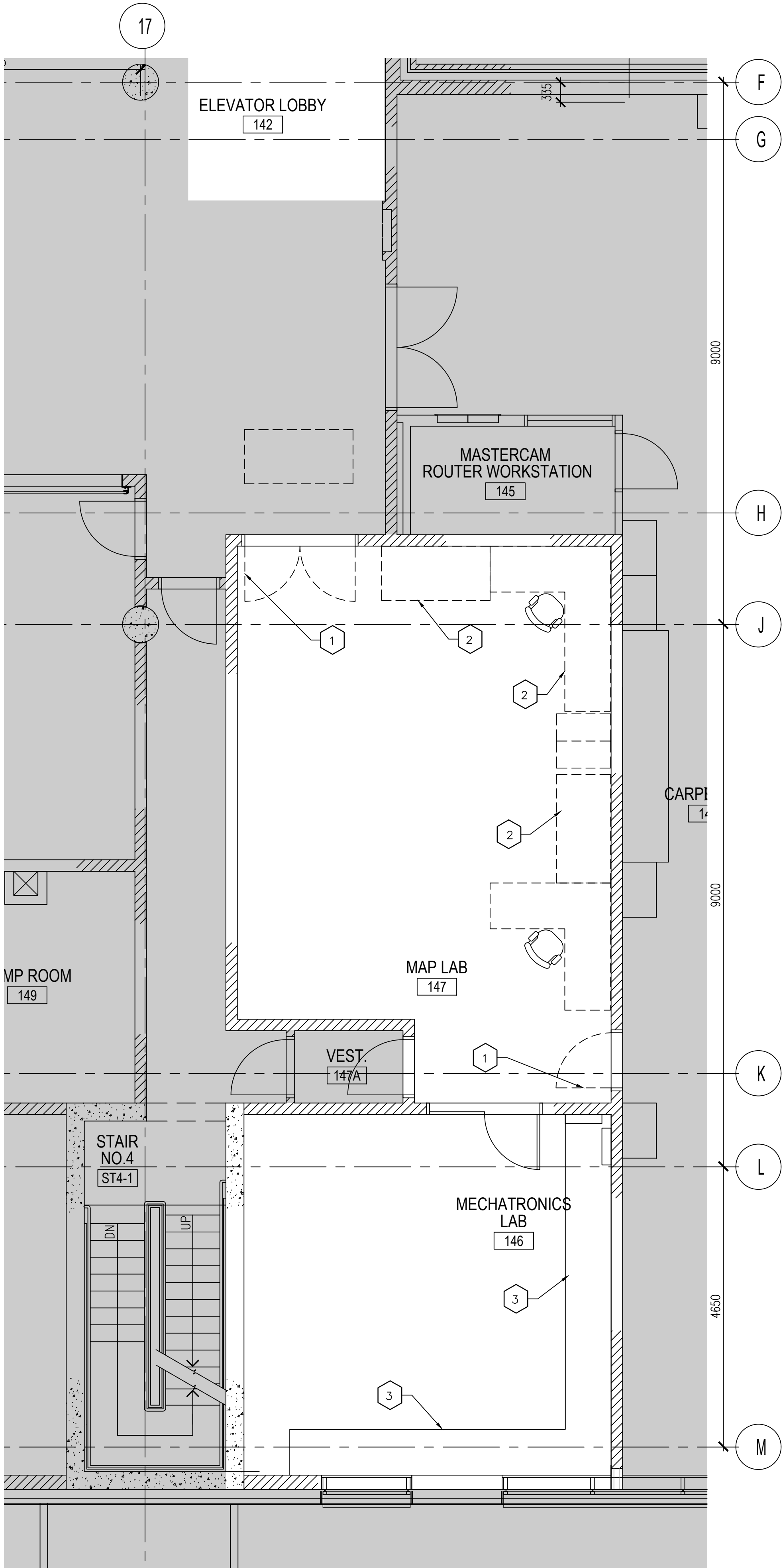
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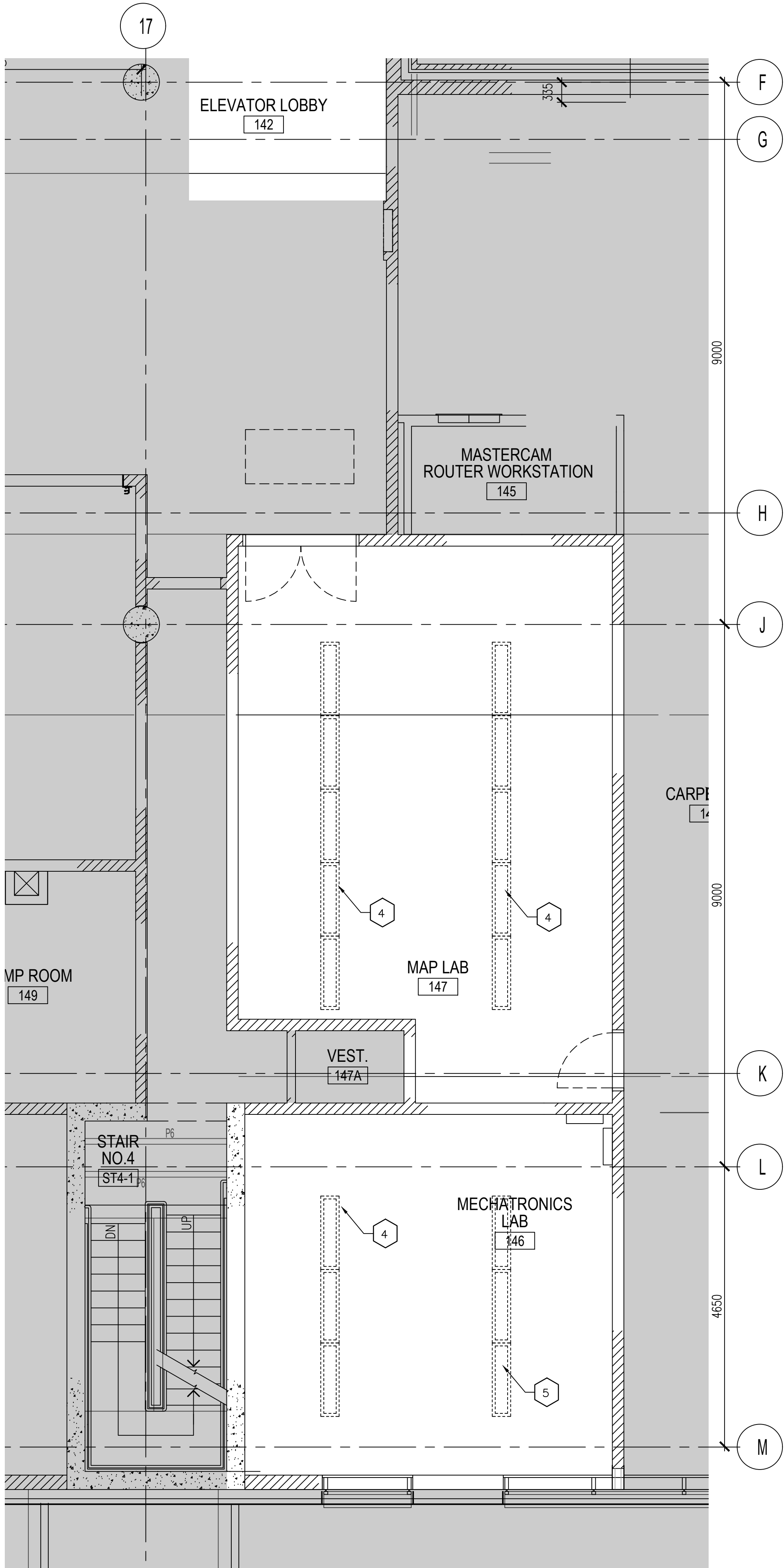
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drawing no.  
dessiné no. A-003





1 PARTIAL DEMOLITION PLAN  
A-100 1:50



2 PARTIAL REFLECTED CEILING DEMOLITION PLAN  
A-101 1:50

GENERAL NOTES:

1. ALL FURNITURE, EQUIPMENT AND ACCESSORIES REMOVED ARE TO BE SALVAGED AND HANDED OVER TO THE DEPARTMENTAL REPRESENTATIVE.
2. REPLACE, REPAIR AND TOUCH UP ALL PORTIONS DAMAGED BY DEMOLITION WORKS.
3. PATCH WALLS, FLOOR AND CEILING AFTER REMOVAL OF ANY STRUCTURAL, MECHANICAL AND ELECTRICAL COMPONENTS BY FILLING, REPAIRING, REFINISHING OR CLOSING UP. RESTORE PATCHED AREAS WITH ADJOINING CONSTRUCTION. REFER TO MECHANICAL AND ELECTRICAL DRAWING FOR ADDITIONAL DEMOLITION NOTES.

SHEET KEYNOTES:

- 1 DEMOLISH EXISTING DOOR AND FRAME
- 2 REMOVE EXISTING CASEWORK AND FURNITURE
- 3 EXISTING BENCH TO REMAIN
- 4 REMOVE EXISTING LIGHT FIXTURE. SEE ELECTRICAL

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drawing title  
titre du dessin  
PARTIAL DEMOLITION PLAN  
AND REFLECTED CEILING PLAN

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dessiné par CC

designed by  
conçu par SC

approved by  
approuvé par RE

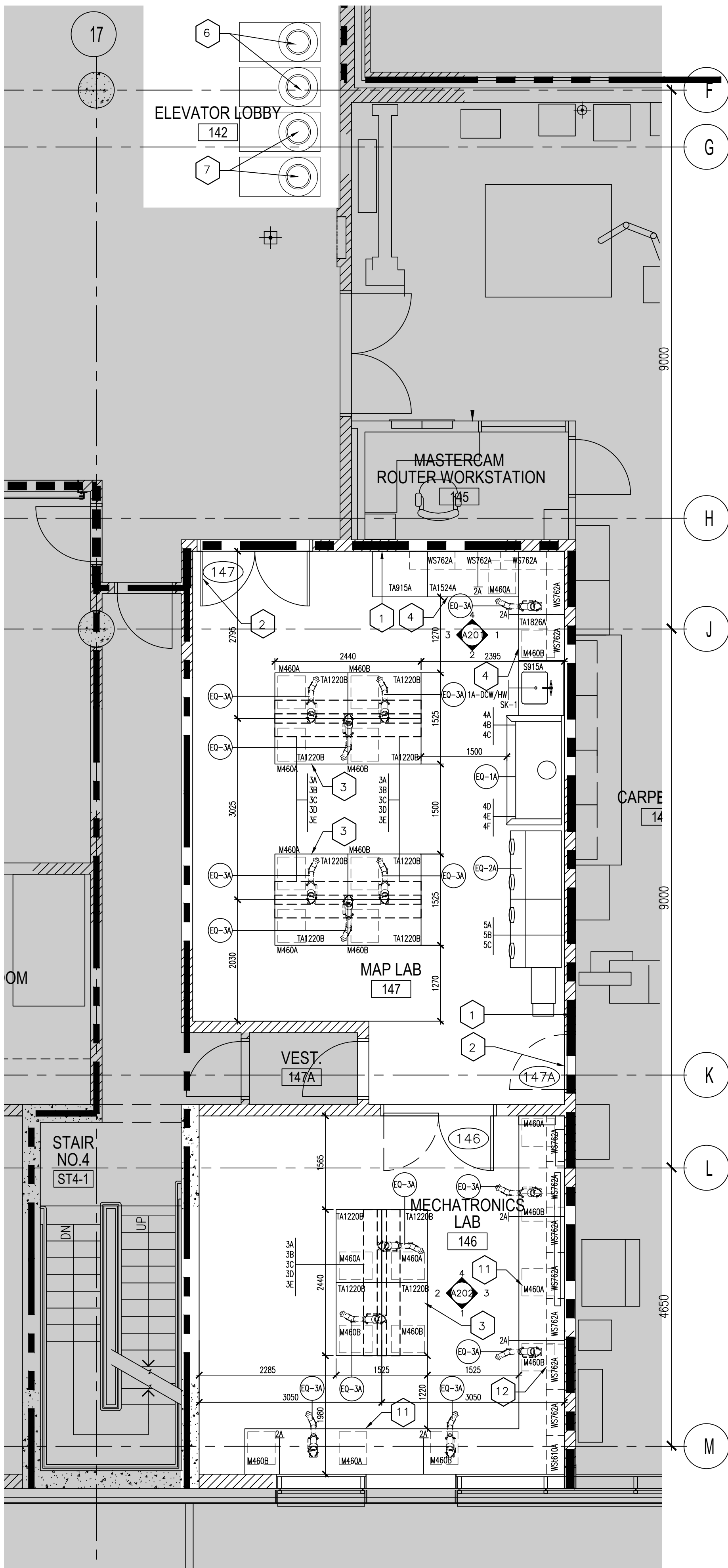
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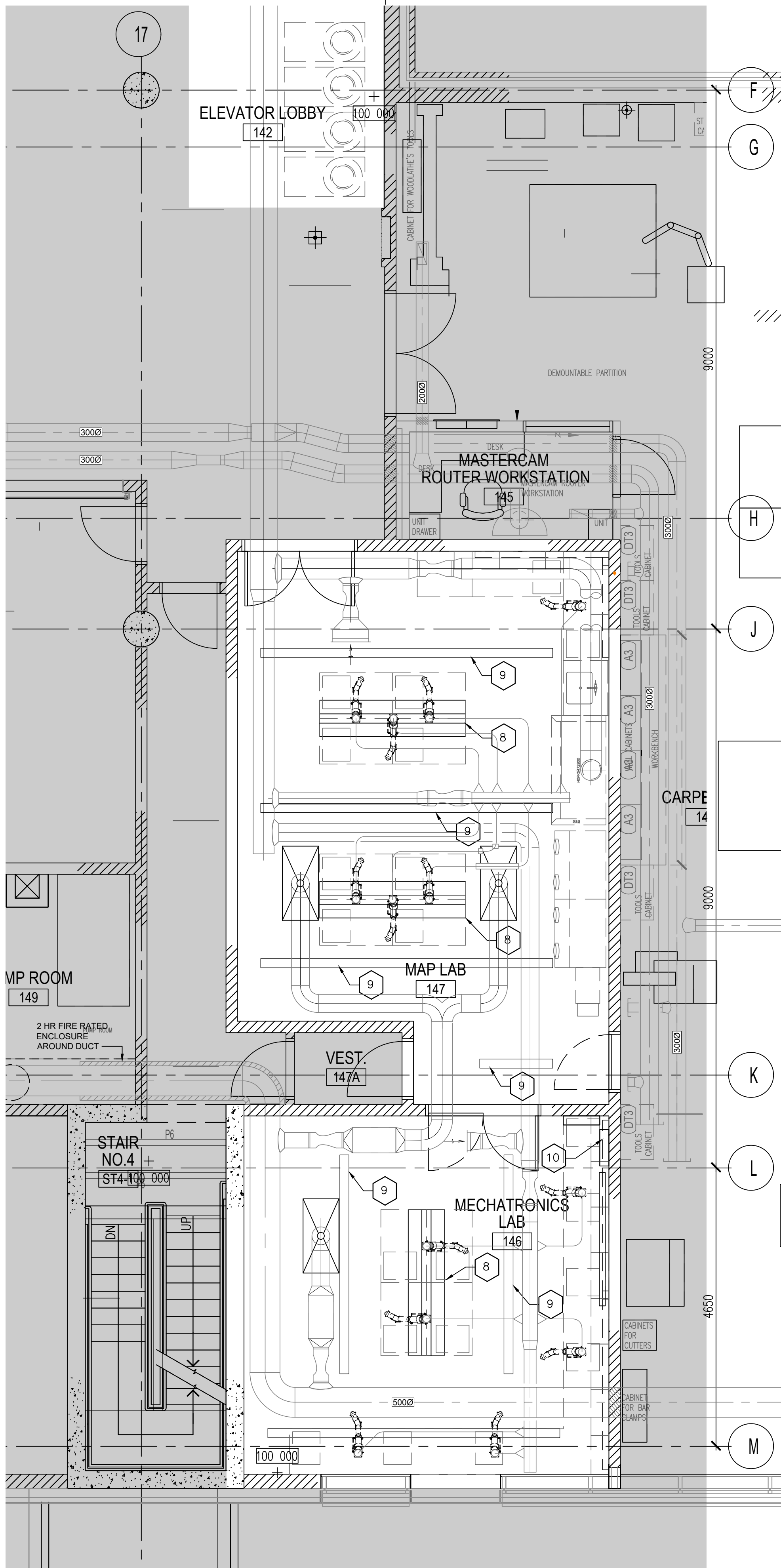
project no.  
no. du projet R.106310.002

drawing no.  
dessiné no. A-100





1 PARTIAL FLOOR PLAN  
A-101 1:50



2 PARTIAL REFLECTED CEILING PLAN  
A-101 1:50

GENERAL NOTES:

- SEE SHEET A-002 CASEWORK SYMBOLS, ABBREVIATIONS, GENERAL LAB CASEWORK NOTES, EQUIPMENT SCHEDULE, AND SINK SCHEDULE.
- ALL LAB TABLE TOPS ARE EPOXY RESIN MOUNTED AT 915MM AFF UNLESS NOTED OTHERWISE.
- SEE ELECTRICAL DRAWINGS FOR LOCATION AND MOUNTING HEIGHTS OF ELECTRICAL RACEWAYS
- SEE MECHANICAL DRAWINGS FOR COORDINATION OF LOCAL EXHAUST PORT LOCATIONS
- OVERHEAD SERVICE CARRIER SHALL BE BY LAB FURNISHING SECTIONS, COORDINATE SUPPORT TO STRUCTURE WITH ALL TRADES. COORDINATE LOCATION OF SUPPORTS WITH REFLECTED CEILING PLANS.
- ALL DIMENSIONS ARE TO THE FACE OF PAINTED SURFACE UNLESS NOTED OTHERWISE

SHEET KEYNOTES:

- 1-HR WALL. SEAL ALL PENETRATIONS WITH APPROVED FIRESTOP SYSTEM
- NEW 45MIN. DOOR AND FRAME
- MOBILE ISLAND BENCH WITH OVERHEAD SERVICE CARRIER AND MOBILE BASE CABINETS. SEE SHEET A-002 FOR CASEWORK TYPE DETAIL.
- PERIMETER MOVABLE BENCH WITH UPPER WALL CABINETS AND MOBILE BASE CABINETS. SEE SHEET A-002 FOR CASEWORK TYPE DETAIL.
- FILL THE GAP WITH BENCH. BENCH TO MATCH EXISTING ADJACENT METAL FRAMING AND EPOXY RESIN TOP.
- N2 CYLINDERS NOT IN CONTRACT. MECHANICAL TO PROVIDE PIPING TO ROOM 146 AND ROOM 147.
- AR CYLINDERS NOT IN CONTRACT. MECHANICAL TO PROVIDE PIPING TO ROOM 146 AND ROOM 147.
- CEILING SERVICE CARRIER (CSC). SEE INTERIOR ELEVATIONS FOR CSC DETAILS POWER AND UTILITY OUTLETS.
- CEILING SUSPENDED LIGHT FIXTURE. SEE ELECTRICAL DRAWINGS.
- NEW LIGHT FIXTURE ATTACHED TO BOTTOM OF UPPER WALL CABINETS. SEE ELECTRICAL DRAWINGS.
- EXISTING BENCH TO REMAIN. PROVIDE MOBILE BASE CABINETS. SEE SHEET A-002 FOR CASEWORK TYPE DETAIL.
- PROVIDE UPPER WALL CABINETS. SEE SHEET A-002 FOR CASEWORK TYPE DETAIL.

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C	drawing no. - where detailed

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183 LONGWOOD ROAD SOUTH  
MAP LABORATORY RENOVATION

drawing title  
titre du dessin  
PARTIAL FLOOR  
AND REFLECTED CEILING PLAN

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conc par SC

approved by  
approuvé par RE

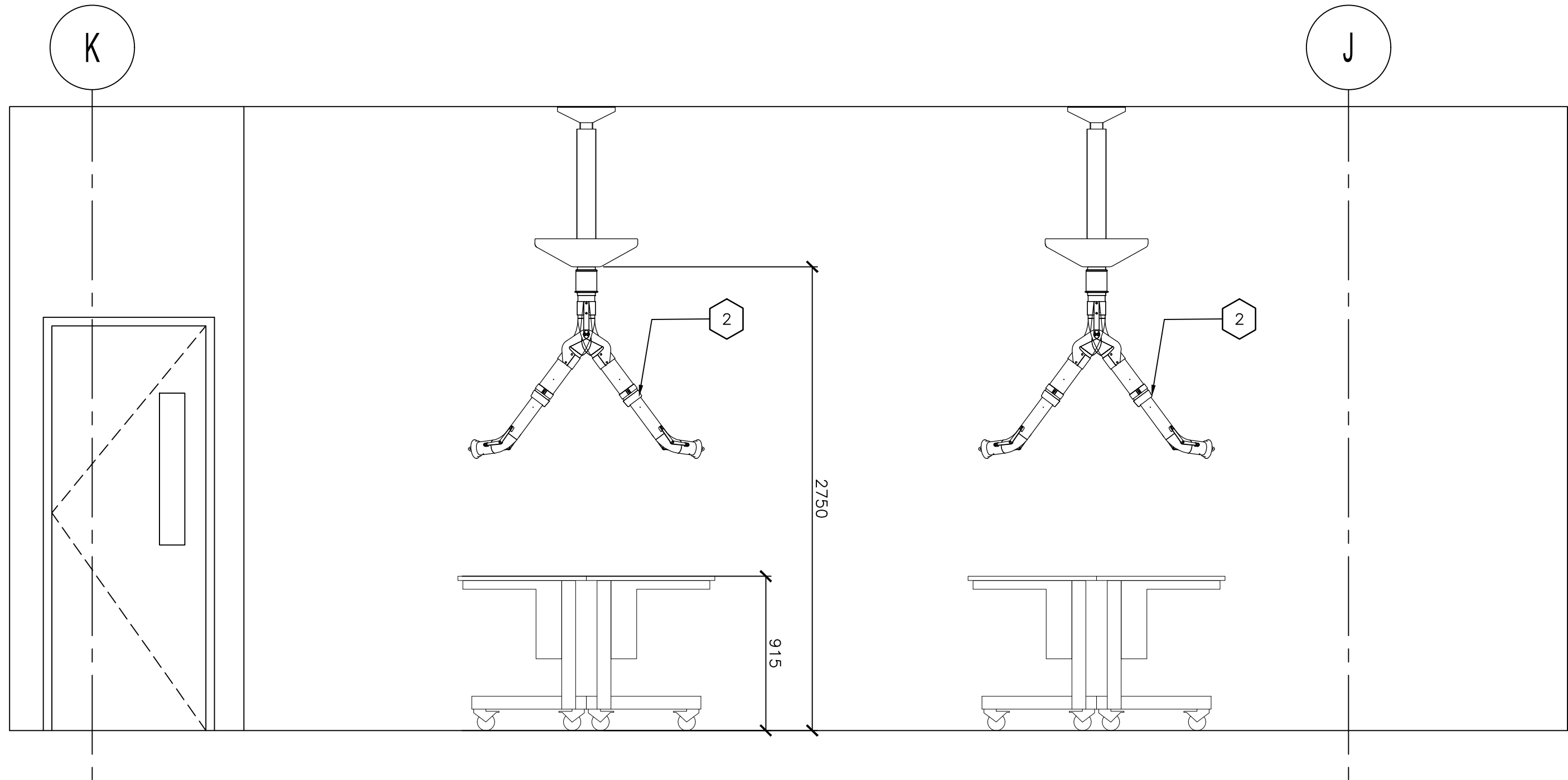
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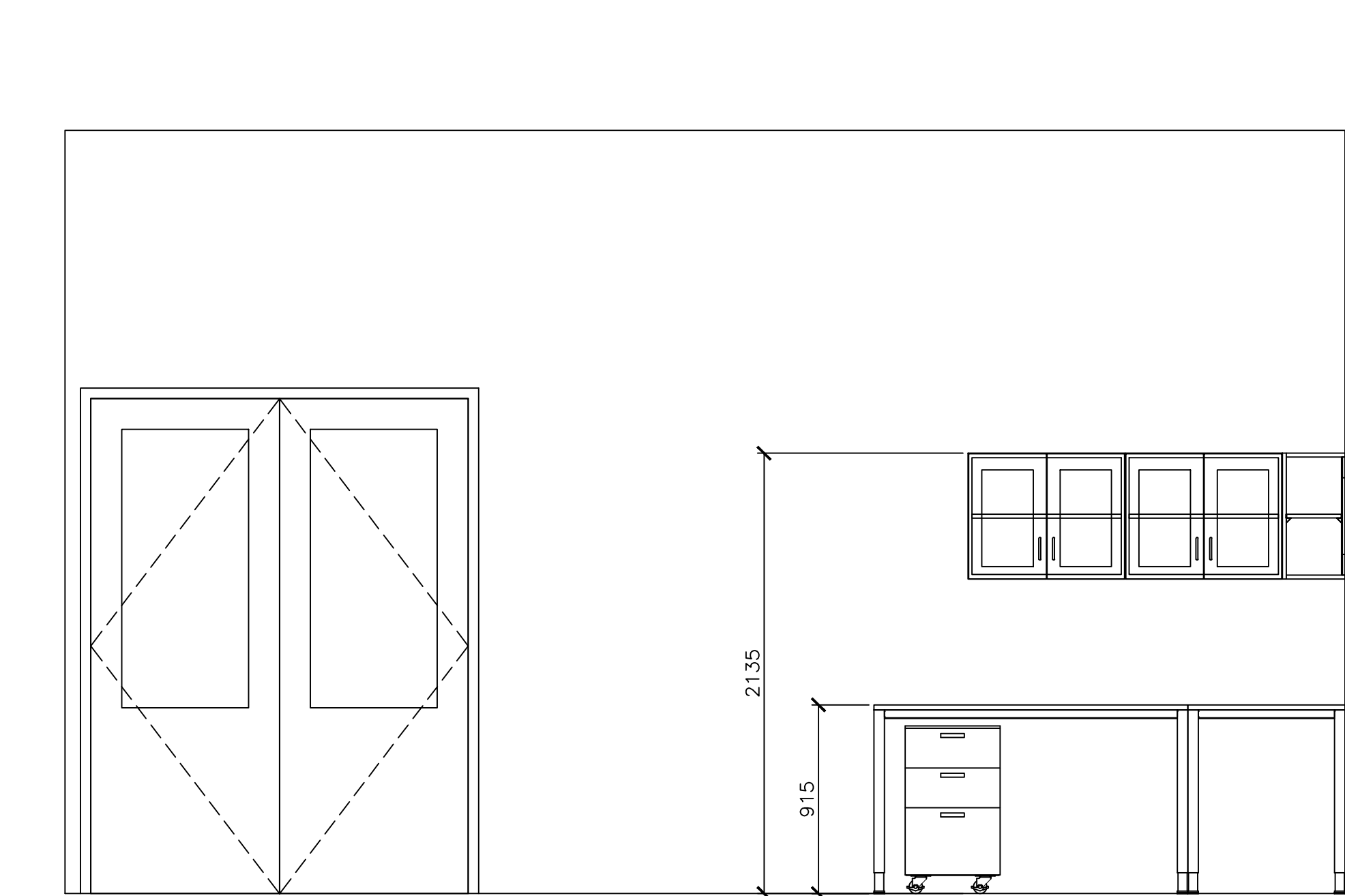
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drawing no.  
dessiné no. A-101

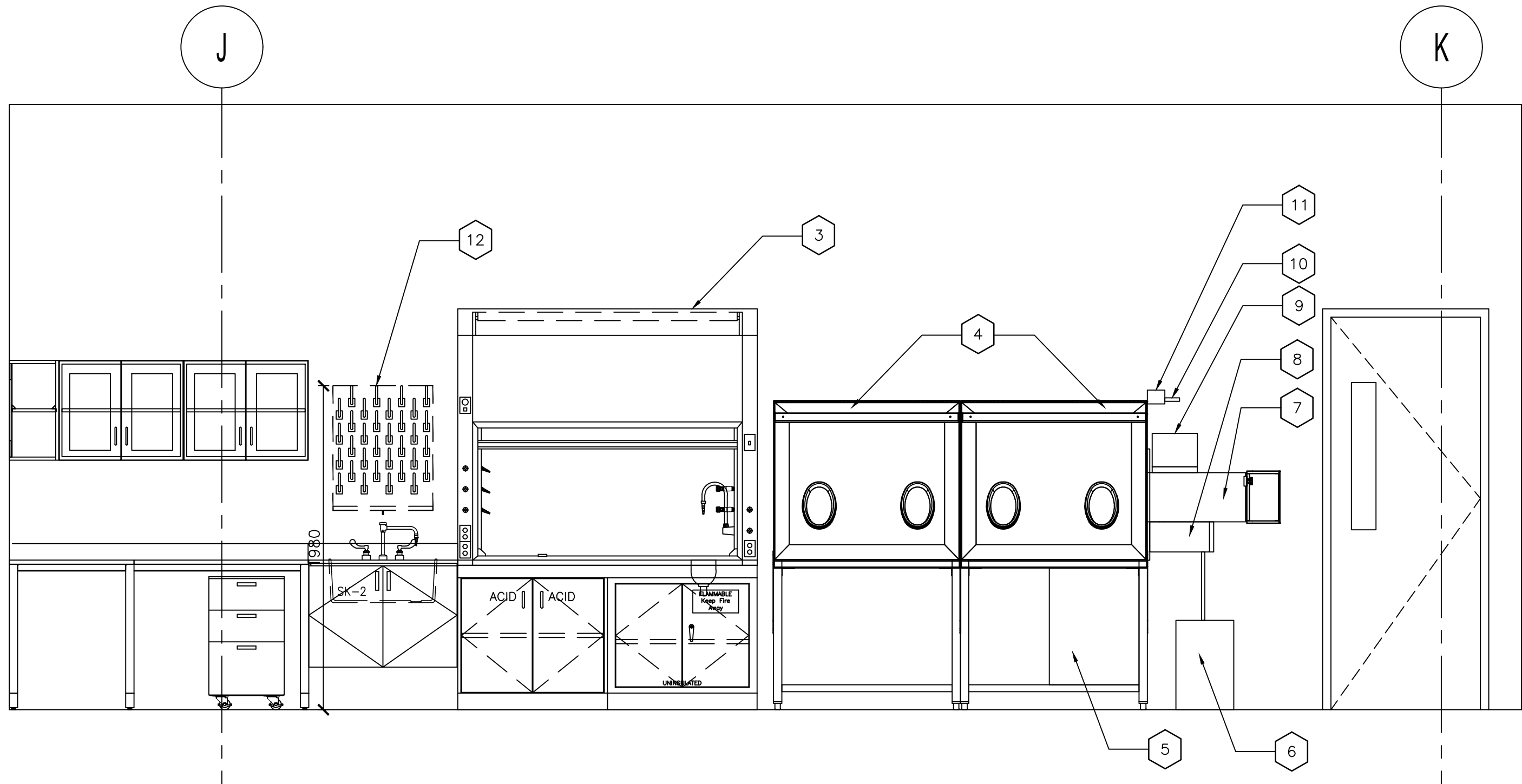




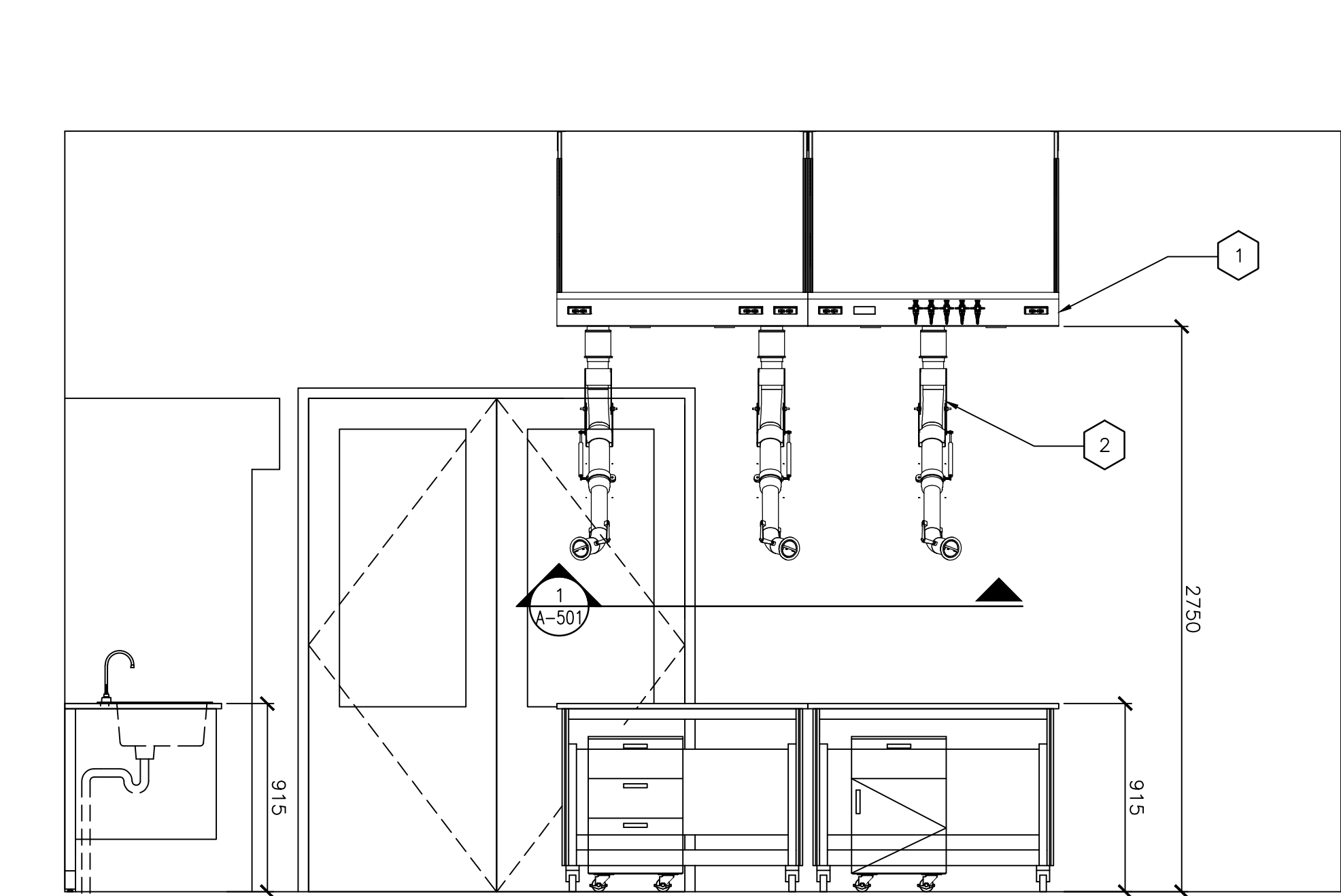
3 INTERIOR ELEVATION – RM 147 WEST  
A-101/A-201 1:25



4 INTERIOR ELEVATION – RM 147 NORTH  
A-101/A-201 1:25



1 INTERIOR ELEVATION – RM 147 EAST  
A-101/A-201 1:25



2 INTERIOR ELEVATION – RM 147 SOUTH  
A-101/A-201 1:25

SHEET KEYNOTES:

- |   |  |    |   |
|---|--|----|---|
| 1 | CEILING SUSPENDED SERVICE CARRIER  | 8  | 152MM DIA X 305MM LENGTH MINI ANTECHAMBER |
| 2 | 75MM DIA SORKEL  | 9  | CONTROL PANEL                             |
| 3 | 1830MM FUME HOOD   | 10 | MOISTURE ANALYZER                         |
| 4 | 2X VACUUM CHAMBER, 1143MM X 762MM X 915MM, SST, SINGLE SIDED, 4 GLOVEPORTS | 11 | OXYGEN ANALYZER                           |
| 5 | PURIFICATION AND CONTROL MODULE  | 12 | 610MM WIDE X 732MM LENGTH SS PEG BOARD    |
| 6 | DRY VAC PUMP   |    |   |
| 7 | 381MM DIA X 610MM LENGTH ANTECHAMBER                                       |    |   |



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HAMILTON ONTARIO  
NRCAN  
183 LONGWOOD ROAD SOUTH  
MAP LABORATORY RENOVATION

drawing title  
titre du dessin  
INTERIOR ELEVATIONS

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dessiné par CC

designed by  
conçu par SC

approved by  
approuvé par RE

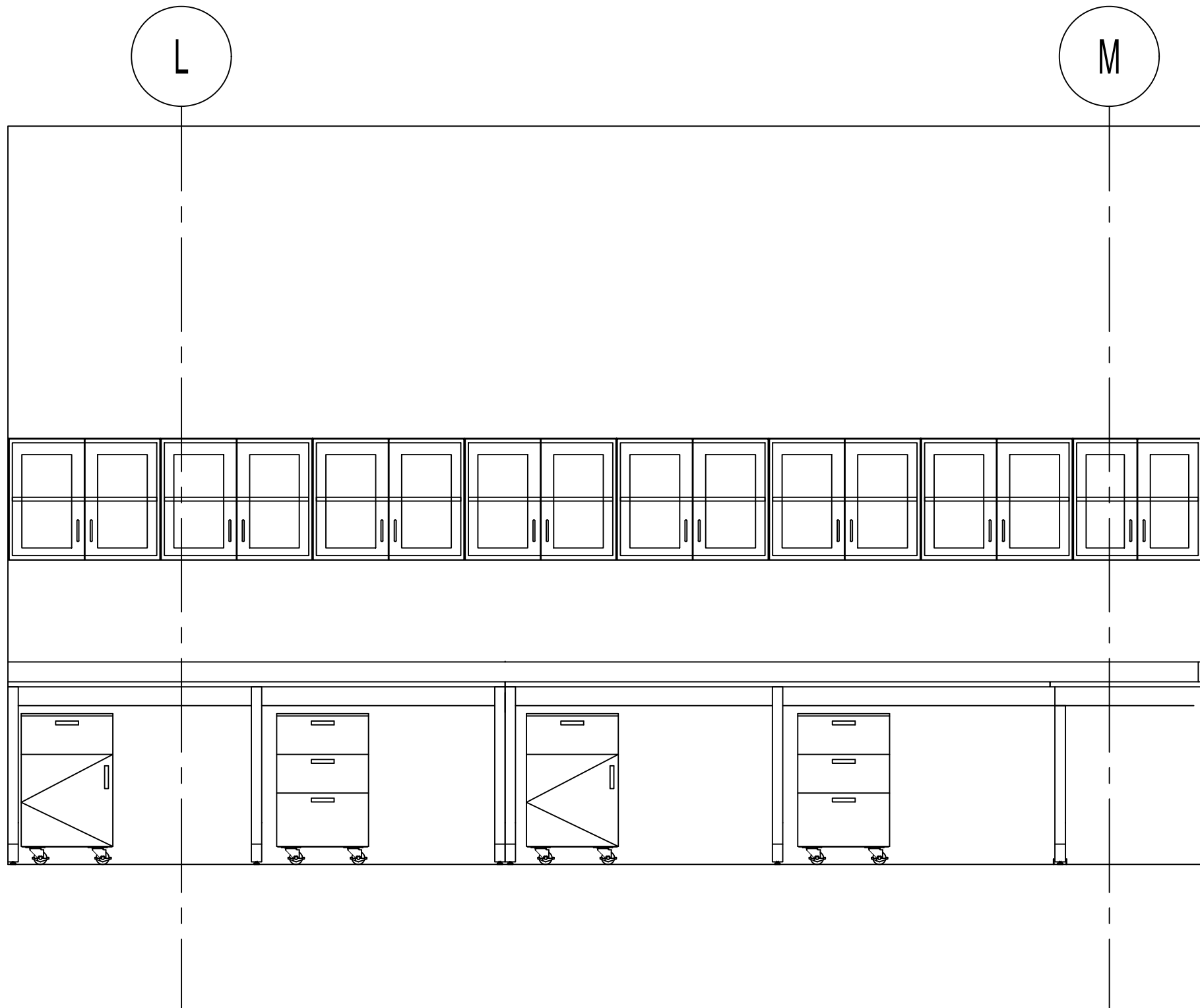
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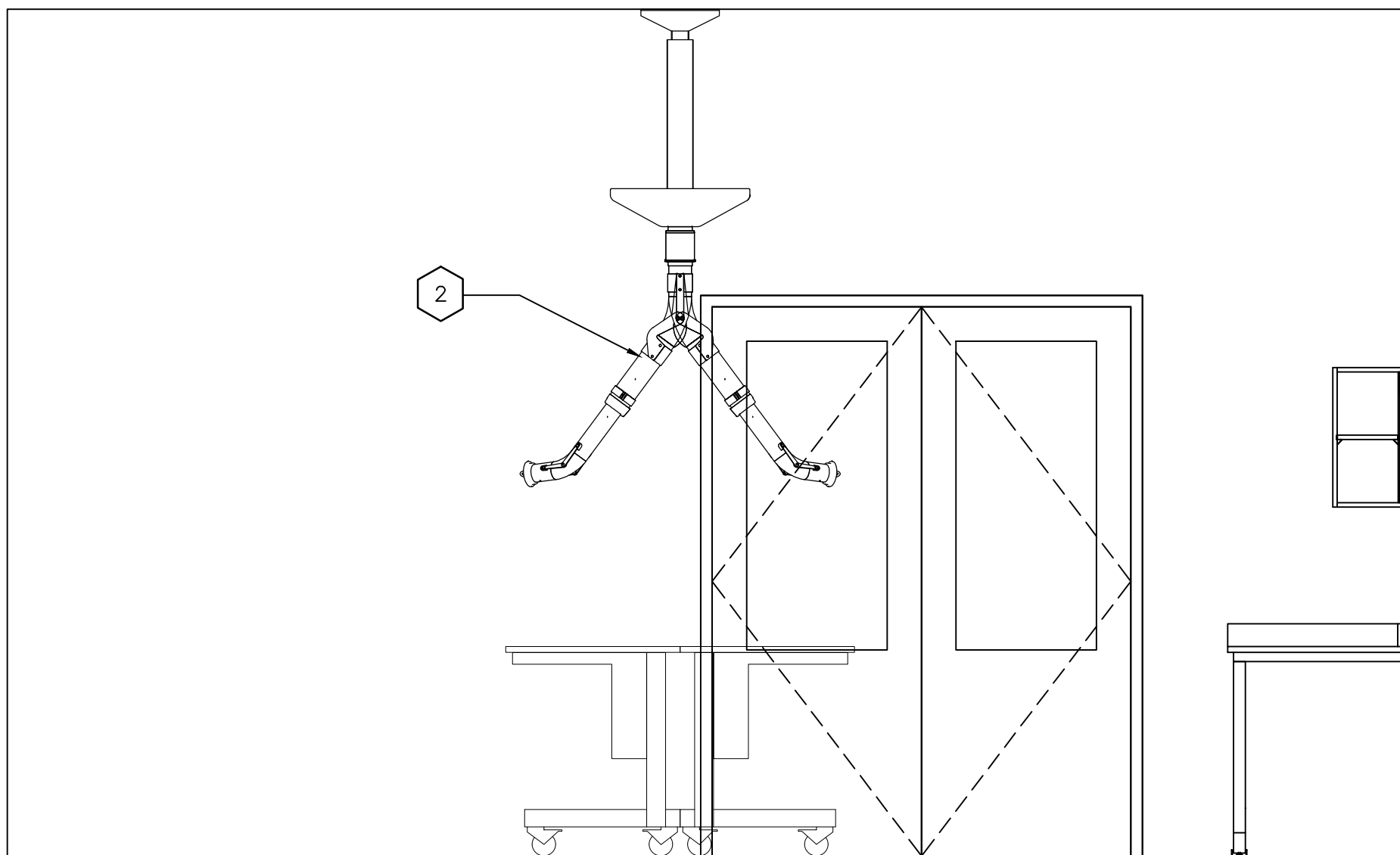
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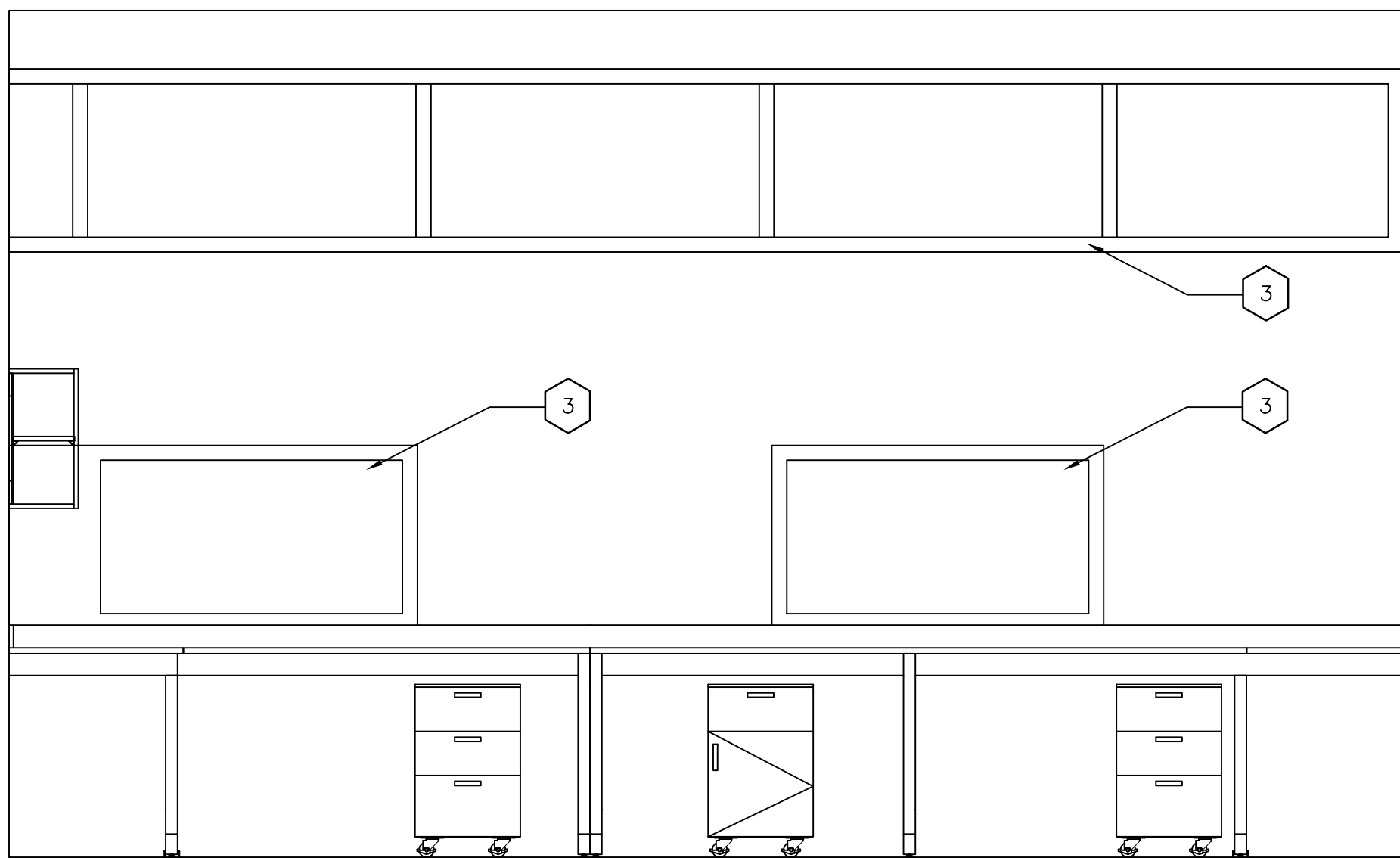




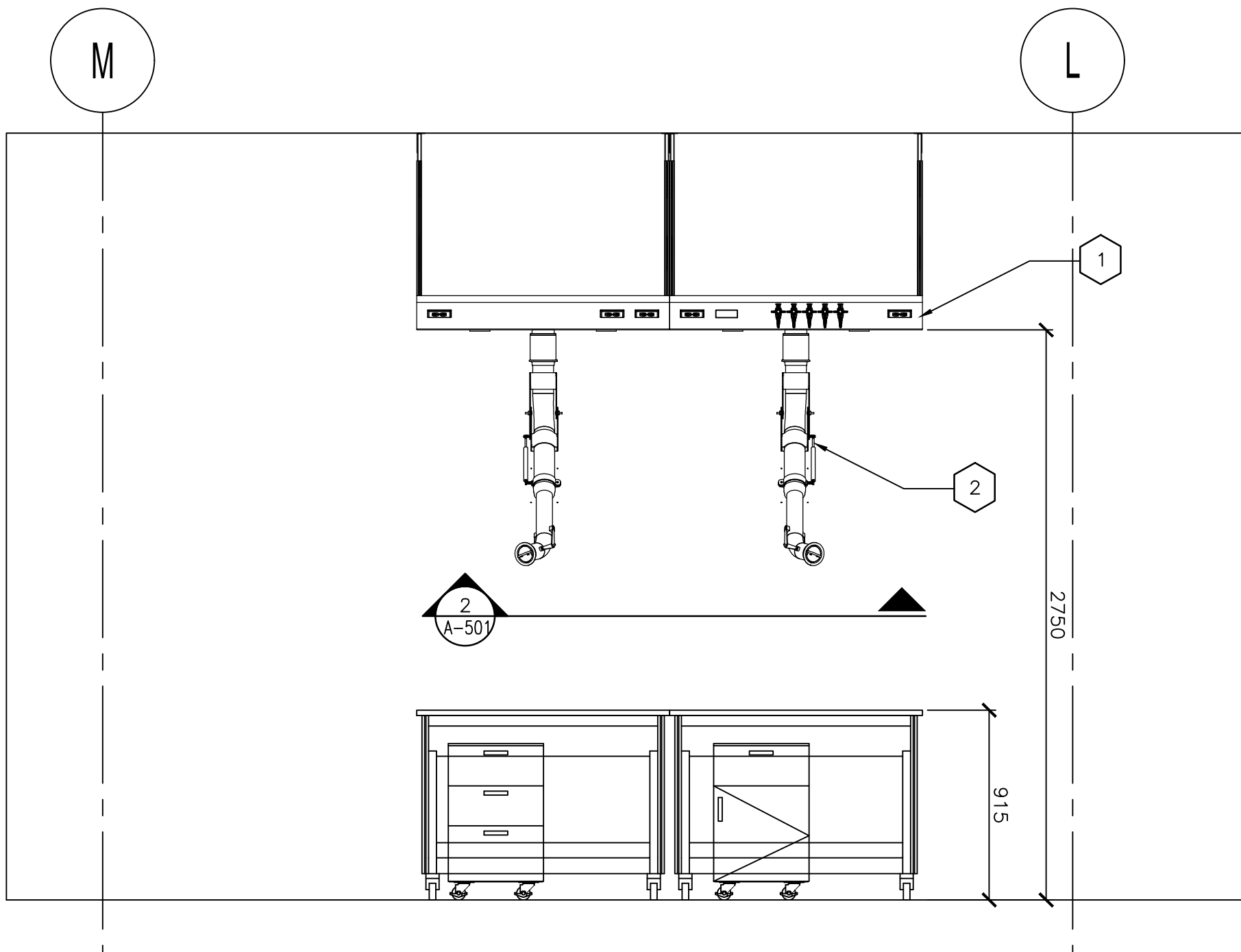
3 INTERIOR ELEVATION – RM 146 EAST  
A-101/A-202 1:25



4 INTERIOR ELEVATION – RM 146 NORTH  
A-101/A-202 1:25



1 INTERIOR ELEVATION – RM 146 SOUTH  
A-101/A-202 1:25



2 INTERIOR ELEVATION – RM 146 WEST  
A-101/A-202 1:25

- SHEET KEYNOTES:
- 1 CEILING SUSPENDED SERVICE CARRIER
  - 2 75MM DIA SORKEL
  - 3 EXISTING WINDOWS

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INTERIOR ELEVATIONS

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dessine par CC

designed by  
conc par SC

approved by  
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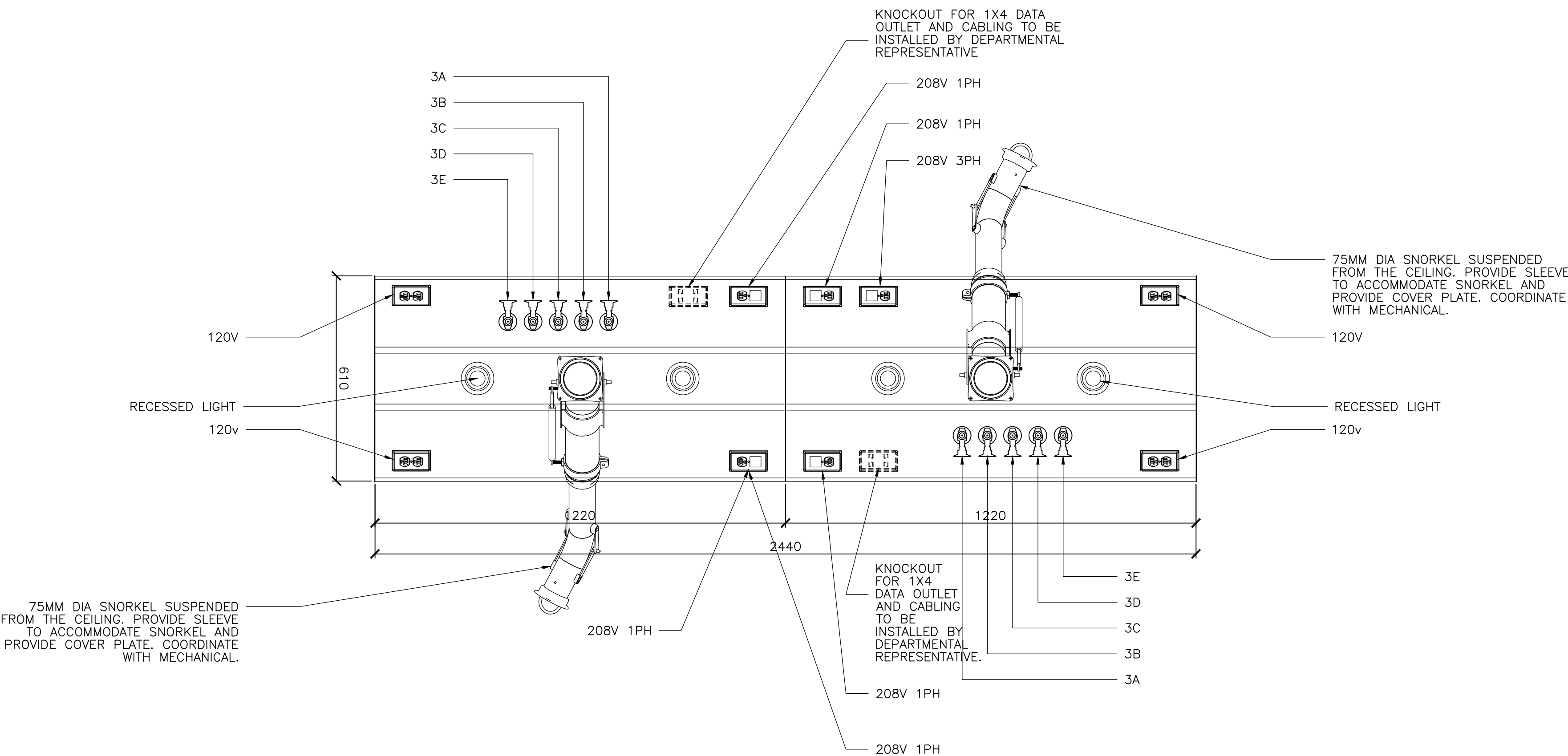
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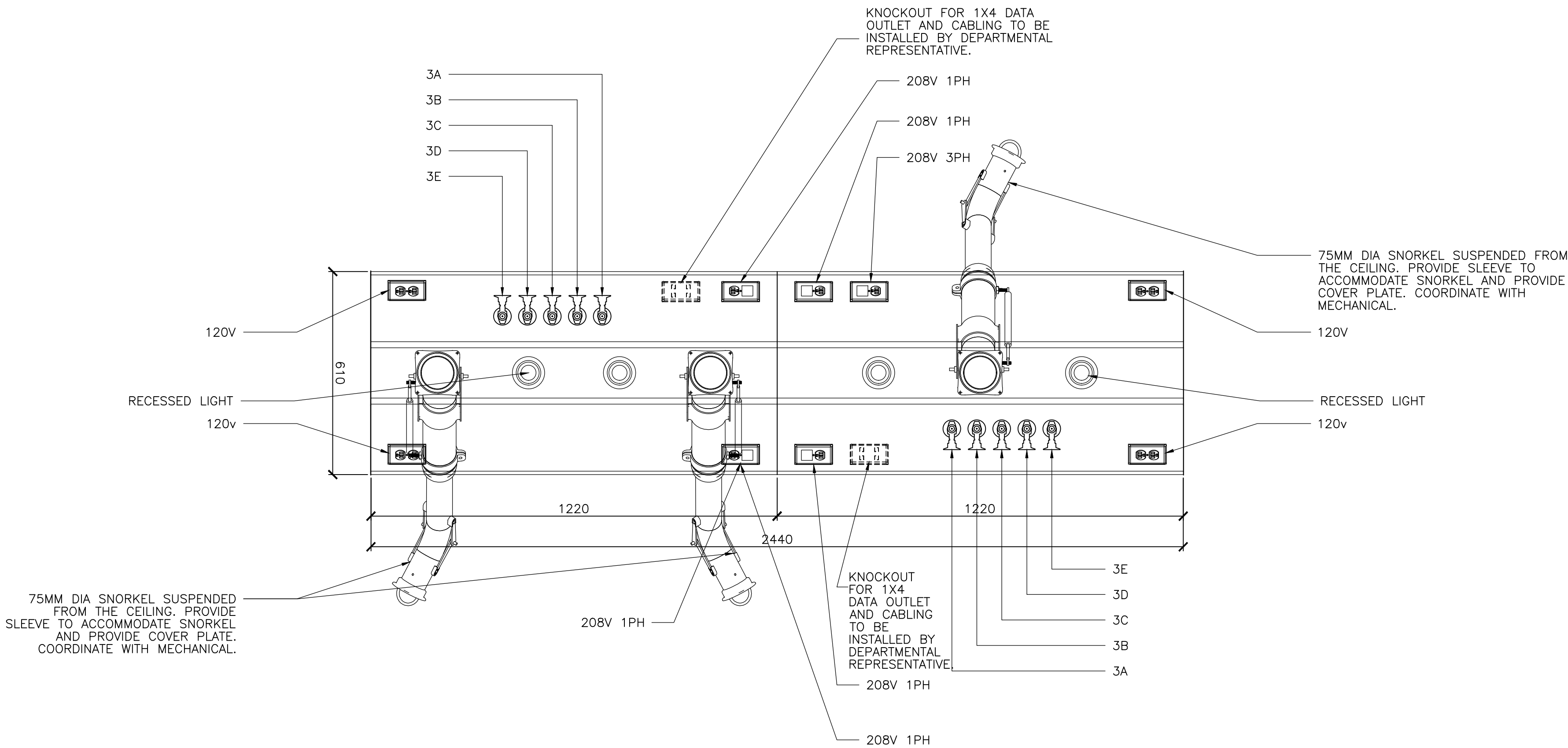
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drawing no.  
dessine no. A-202





2 MECH LAB CSC REFLECTED PLAN DETAIL  
A-202/A-501 1:25



1 MAP LAB CSC REFLECTED PLAN DETAIL  
A-201/A-401 1:10



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titre du dessin  
DETAILS  
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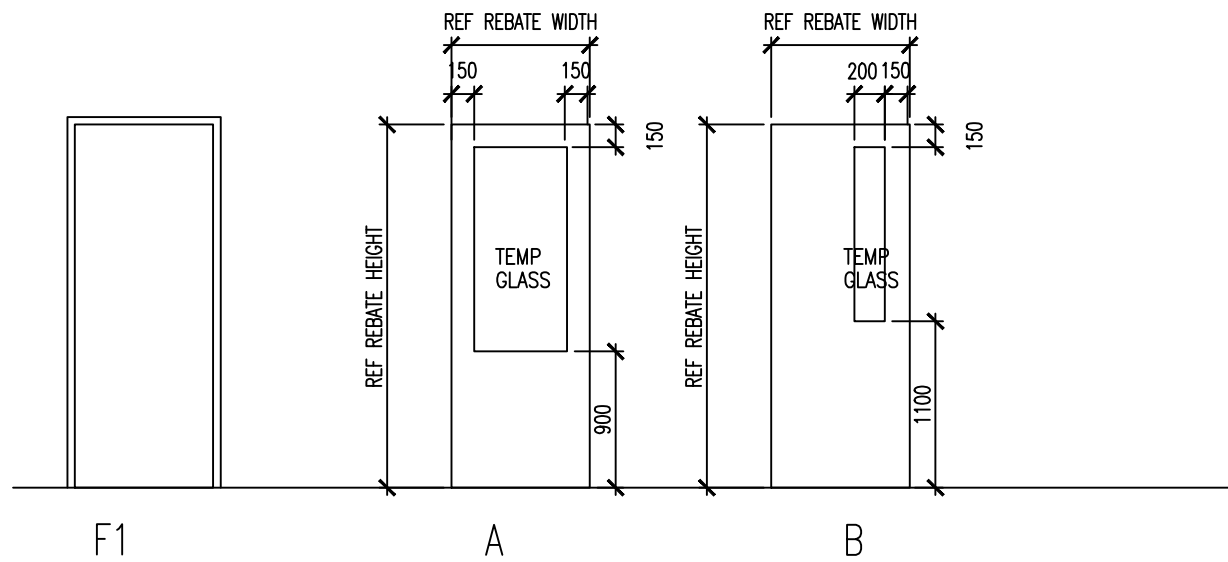
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dessine no. A-501



DOOR AND FRAME ELEVATION



DOOR SCHEDULE														
DOOR #	LOCATION	D O O R						F R A M E			RATING	HARDWARE GROUP	GAUGE	NOTES
		MAT	TYPE	FNSH	WIDTH	HEIGHT	THICK	MAT	TYPE	FNSH				
INTERIOR DOORS														
146	MECHATRONICS LAB	EXST.	EXST.	EXST.	EXST.	EXST.	EXST.	EXST.	EXST.	PT		EXST.	EXST.	
147	MAP LAB	HM	A	PT	2x915MM	2365MM	45mm	HM	F1	PT	45 MINS	01	12	CARD READER, AUTOMATIC DOOR CLOSURE
147A	MAP LAB	HM	B	PT	915MM	2365MM	45mm	HM	F1	PT	45 MINS	02	12	DUST SEALED DOOR, DOOR ACCESSIBLE FROM BOTH SIDES, ACOUSTIC SEALS

NOTES :  
1. REFER TO SECURITY DRAWINGS FOR CARD READER INFORMATION

DOOR HARDWARE SCHEDULE	
DOOR 147 HARDWARE GROUP 01	DOOR 147A HARDWARE GROUP 02
8 EACH HINGES 1 EACH MORTISE CLASSROOM LOCK 1 EACH HIGH SECURITY CYLINDER 1 EACH KEYING 1 EACH CARD READER 2 EACH AUTOMATIC DOOR OPERATOR 2 EACH KICKPLATE 2 EACH FLOOR STOP	8 EACH HINGES 1 EACH RIM EXIT DEVICE 1 EACH HIGH SECURITY CYLINDER 1 EACH KEYING 2 EACH DOOR CLOSER 2 EACH KICKPLATE — DOOR GASKET 1 EACH AUTO DOOR BOTTOM

ROOM FINISH SCHEDULE																
<u>GENERAL NOTES:</u> – PATCH AND MADE GOOD ALL THE IMPERFECTIONS ON THE WALLS AND CEILINGS WITHIN THE AREA OF RENOVATIONS PRIOR TO PAINTING. – CONTRACTOR TO SUBMIT ALL FINISHES' SAMPLES AND PAINT DRAWDOWNS FOR DEPARTMENTAL REPRESENTATIVES APPROVAL PRIOR TO THE COMMENCEMENT OF WORK																
ROOM NUMBER	ROOM NAME	FLOOR		BASE		WALLS								CEILING		
		MAT	FIN	MAT		NORTH		SOUTH		EAST		WEST		MAT	FIN	HEIGHT
146	MECHATRONICS LAB	EXST. CONC.	SF	SB		CMU	PT	CMU	PT	CMU	PT	CMU	PT	EXP	PT	EXISTING
147	MAP LAB	EXST. CONC.	SF	SB		CMU	PT	CMU	PT	CMU	PT	CMU	PT	EXP	PT	EXISTING
REMARKS																
NOTES: 1. INFORMATION PERTAINING TO SUBSTRATE AND FINISHES ELSEWHERE IN THE CONTRACT DOCUMENTS SHALL BE INCLUDED IN THE WORK. 2. FINISH MATERIAL FLAME SPREAD RATINGS SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL BUILDING CODE. 3. UNLESS SPECIFICALLY STATED TO BE "EXISTING", FINISHES SHALL BE NEW. 4. WHERE NEW FINISH IS APPLIED TO EXISTING SUBSTRATE, THE FINISHING SECTION RESPONSIBLE FOR THE NEW FINISH SHALL PROVIDE ALL PREPARATION INCLUDING, BUT NOT LIMITED TO ALL GRINDING, PATCHING, CHIPPING TO MAKE SURFACE SUITABLY LEVEL AND TRUE TO ACCEPT THE NEW FINISH. THE FINISHING SECTION SHALL ALSO STRIP ANY EXISTING FINISH BY MEANS OF POWER-WASHING, ETCHING, SANDBLASTING OR OTHER APPROVED MEANS TO RENDER THE SURFACE CAPABLE OF COMPLETE & PERMANENT FINISH. 5. COLOURS, PATTERNS, ACCENTS FOR WALL AND FLOOR FINISHES SHALL BE PROVIDED AT A LATER DATE BY THE DEPARTMENTAL REPRESENTATIVE.																
GENERAL FLOOR WALL CEILING	MAKE GOOD TO MATCH EXISTING FLOOR, WALL & CEILING FINISHES AFFECTED BY NEW WORK.															
	SAW CUTTING/CORING OF EX. FLOOR FOR INSTALLATION OF NEW DATA/VOICE/POWER AS REQUIRED. COORDINATE EXACT LOCATION BEFORE DOING ANY WORK. MAKE GOOD FLOOR AFFECTED W/ NEW WORK READY TO RECEIVE NEW FLOOR FINISHES AS SPECIFIED.															
	FULLY SEAL PARTITIONS AT PERIMETER AND ALL WALL PENETRATIONS TO ACHIEVE MAXIMUM AIR TIGHTNESS. PAINT WALL WHEN AFFECTED BY NEW WORK TO MATCH EXISTING AREAS. EXISTING WALLS IN THE WORK AREA TO BE REPAINTED. PROVIDE BLOCKING IN ALL NEW WALLS AS REQUIRED FOR PROPER INSTALLATION OF NEW CASEWORK, ACCESSORIES, ETC. PROVIDE NEW WALL BASE FOR AREAS AFFECTED BY NEW WORK TO MATCH EXISTING WALL BASE.															
	EXISTING EXPOSED CEILING TO REMAIN															

NOTES	
<u>SPECIAL PROVISIONS</u> NO SUBSTITUTIONS ARE ALLOWED UNLESS THE FOLLOWING ARRANGEMENTS ARE MADE: 1. WRITTEN PERMISSION OBTAINED FROM THE DEPARTMENTAL REPRESENTATIVE. 2. THE CONTRACTOR ENSURES THAT THE SUBSTITUTIONS CAN BE PHYSICALLY AND DIMENSIONALLY INCORPORATED INTO THE WORK WITH NO LOSS OF INTENDED FUNCTION OF CONSTRUCTION TIME AND AT NO ADDITIONAL COST TO THE DEPARTMENTAL REPRESENTATIVE.	
<u>PAINTING</u> 1. WALLS: PAINT COLOR TO BE CONFIRMED. NEW AND EXISTING SURFACES; PROVIDE ONE PRIME COAT AND TWO FINISH COATS. 2. CEILING: PAINT COLOR TO BE CONFIRMED.	
<u>CEILING</u> 1. EXISTING EXPOSED CEILING TO BE PAINTED	
<u>DOOR HARDWARE</u> 1. ALL DOOR HARDWARE (E.G. HINGES, LOCK HARDWARE,) MUST BE SECURED TO DOOR FRAME WITH STAINLESS STEEL SCREWS AT LEAST 75MM LONG.	

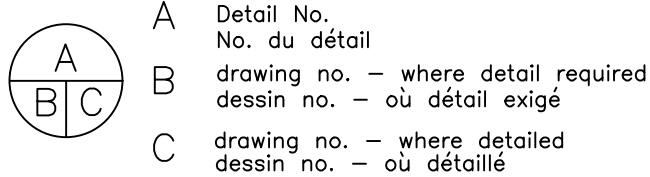
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NRCAN  
183 LONGWOOD ROAD SOUTH  
MAP LABORATORY RENOVATION

drawing title  
titre du dessin  
DOOR AND FINISH SCHEDULE  
—

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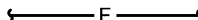











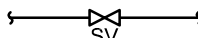


project date  
date du projet 2020–08–04

project no.  
no. du projet R.106310.002

drawing no.  
dessine no. A–901



HVAC SYMBOLS (CONTINUATION)	
SYMBOL	DESCRIPTION
	2-WAY CONTROL VALVE
	3-WAY CONTROL VALVE
	TWO-WAY BUTTERFLY CONTROL VALVE
	PUMP DISCHARGE CONTROL VALVE
	ISOLATING/GATE VALVE
	CHECK VALVE
	STRAINER
	GLOBE VALVE
	CIRCUIT BALANCING VALVE (CIRCUIT SETTER)
	PRESSURE REDUCING VALVE
	PUMP
	THERMOMETER
	PRESSURE RELIEF VALVE
	PRESSURE INDEPENDENT AUTO-FLOW BALANCING VALVE
	PRESSURE GAUGE
	AUTOMATIC AIR VENT
	EXPANSION BELLOWS c/w GUIDES
	EXPANSION LOOP c/w GUIDES
	PIPE ANCHOR
	PIPE GUIDE
	PIPE END CAP (THREADED)
	PRESSURE SENSOR
	BUTTERFLY VALVE
	PLUG COCK
	NEEDLE VALVE
	LOCKSHIELD GLOBE VALVE
	STEAM TRAP
	HUMIDIFIER DISTRIBUTOR
	FLEXIBLE PIPE CONNECTION
	DRIP PAN ELBOW
	FIRE DAMPER
	SMOKE DAMPER
	COMBINATION FIRE AND SMOKE DAMPER
	BALANCING DAMPER (VOLUME)
	BACKDRAFT DAMPER
	TRANSFER AIR DUCT - REFER TO SCHEDULE FOR SIZES
	HWS
	HWR
	HWHS
	HWHR
	SHWS
	SHWR
	CHWS
	CHWR
	LPCWS
	LPCWR
	HTPCWS
	HTPCWR
	TFW
	CD
	LPS
	LPC
	PIPE DOWN PIPE UP
	BRANCH OFF TOP OF MAIN
	BRANCH OFF BOTTOM OF MAIN
	DUCT OR PIPE REDUCER

FIRE PROTECTION SYMBOLS	
SYMBOL	DESCRIPTION
	NEW SPRINKLER PIPING
	EXISTING SPRINKLER PIPING
	FIRE MAIN
	NEW FIRE STANDPIPE LINE
	EXISTING FIRE STANDPIPE LINE
	EXISTING SPRINKLER HEAD TO REMAIN
	EXISTING SPRINKLER HEAD TO BE REMOVED
	NEW SPRINKLER HEAD
	FIRE EXTINGUISHER CW WALL BRACKET BAGER (21008348) - 10 # 4A-60 BC
	EXISTING WALL MOUNTED FIRE EXTINGUISHER TO REMAIN
	RECESSED FIRE EXTINGUISHER CABINET (c/w FIRE EXTINGUISHER)
	FIRE HOSE CABINET
	FIRE DEPARTMENT CONNECTION
	FLOW SWITCH
	PRESSURE SWITCH
	SUPERVISED VALVE
	WET SPRINKLER ALARM CHECK VALVE
	CHECK VALVE

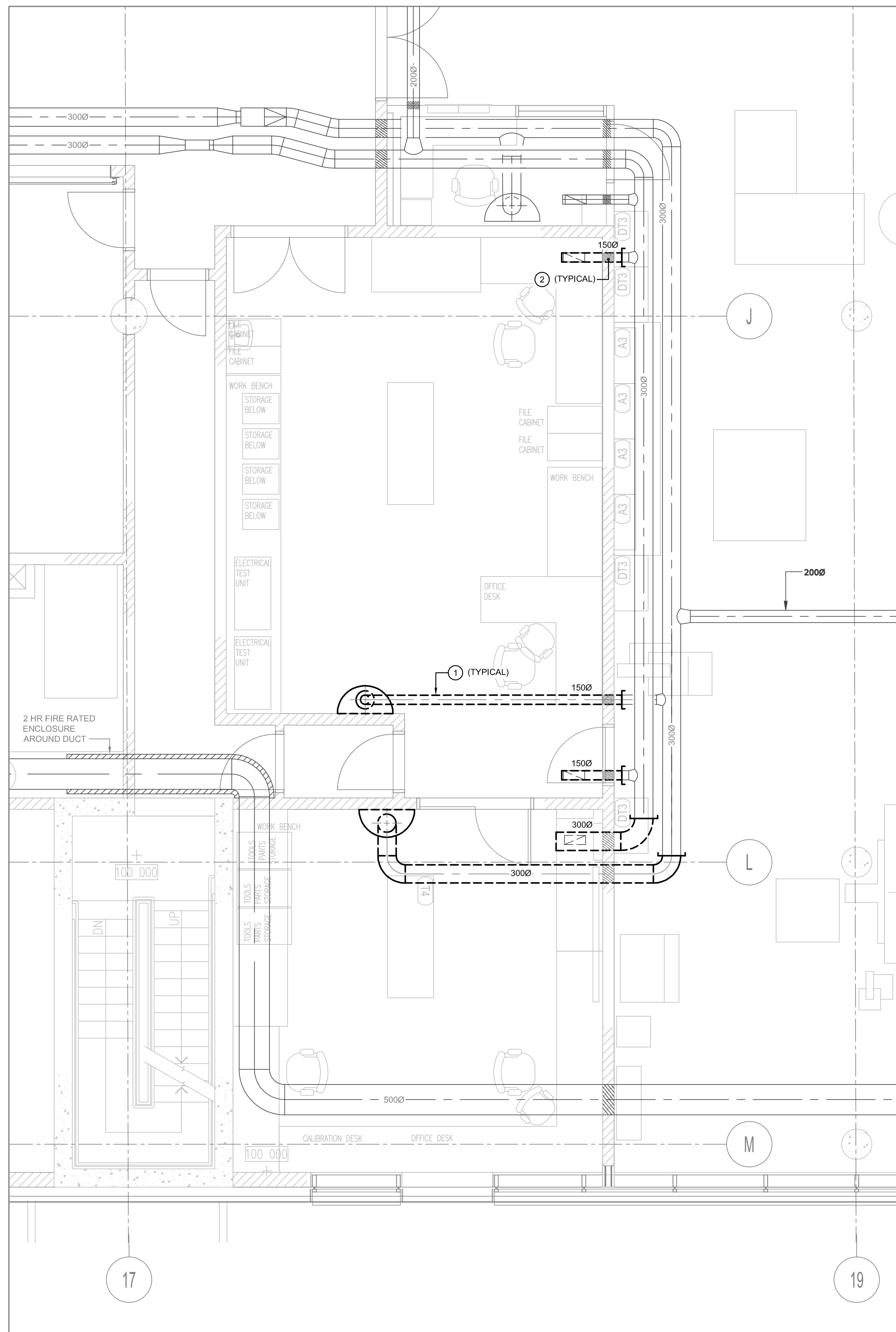
## GENERAL NOTES:

- (A)** CAREFULLY REVIEW EXISTING CONDITIONS IN ALL AREAS WHERE NEW EQUIPMENT AND SERVICES ARE PLANNED TO BE INSTALLED. NOTE ALL EXISTING MECHANICAL EQUIPMENT AND SERVICES IN THESE AREAS. PRIOR TO SUBMITTING THE BID, COORDINATE WITH CONTRACTOR ALL REQUIRED WORK REGARDING TEMPORARY AND/OR PERMANENT RELOCATION OF EXISTING MECHANICAL EQUIPMENT AND/OR SERVICES (I.E. EXISTING MECHANICAL AND ELECTRICAL SERVICES AND DEVICES, SPRINKLER PIPING, DUCTWORK, SPRINKLER HEADS) TO ALLOW FOR NEW WORK. INCLUDE ALL COSTS ASSOCIATED WITH THIS WORK IN YOUR CONTRACT AMOUNT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW THE EXISTING SITE CONDITIONS AND INCLUDE ALL COSTS ASSOCIATED WITH RELOCATION WORK IN THE CONTRACT AMOUNT. INCLUDE FOR ALL REQUIRED WORK AND COSTS TO TEMPORARILY OR PERMANENTLY RELOCATE/RE-ROUTE (AS REQUIRED) EXISTING SERVICES ON WALL/CILING. RE-INSTALLATION SHALL BE IN ACCORDANCE WITH THE EXISTING STANDARDS. COORDINATE WORK WITH OTHER TRADES. PRIOR TO START OF ANY RELOCATION WORK, IDENTIFY TO DEPARTMENTAL REPRESENTATIVE AND OBTAIN APPROVAL. NO EXTRA COSTS SHALL BE APPROVED BY THE DEPARTMENTAL REPRESENTATIVE DURING CONSTRUCTION STAGE FOR WORK ASSOCIATED WITH RELOCATION OF EXISTING SERVICES TO SUIT NEW WORK, UNLESS IT IS DETERMINED THAT SUCH WORK WAS REASONABLY UNFORESEASABLE BY THE CONTRACTOR AT THE TIME OF SITE VISITS AND COORDINATION WITH OTHER TRADES' WORK DURING BIDDING PROCESS.
- (B)** ALL EXISTING DEVICES THAT PASS THROUGH THE AREAS OF WORK ARE TO BE MAINTAINED WITHOUT INTERRUPTION. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF ALL WORK.
- (C)** WHERE FLOOR, WALL OR CEILING OPENINGS ARE REQUIRED TO RUN SERVICES, INCLUDE FOR ALL COST OF OPENING(S), CUTTING & PATCHING, SEAL-UP ALL OPENINGS WITH FIRESTOPPING MATERIALS. REFER TO SPECIFICATION FOR FURTHER REQUIREMENTS.
- (D)** AS A RESULT OF NEW WORK IN EXISTING AREA, REMOVE ALL DECOMMISSIONED SERVICES, DEVICES, AND EQUIPMENT. CUT BACK SERVICES TO MATCH EXISTING CONDITIONS AND FINISHES. SEAL-UP ALL OPENINGS WITH SMOKE AND FIRE-STOPPING MATERIALS. REFER TO SPECIFICATIONS FOR FURTHER REQUIREMENTS.
- (E)** ALL ROUTING OF SERVICES ARE APPROXIMATE, AND CONTRACTOR IS RESPONSIBLE FOR COORDINATION WITH OTHER DISCIPLINES AND PERFORMING SITE SURVEY FOR EXACT ROUTING OF SERVICES PRIOR TO SUBMITTING BID.
- (F)** WHERE EXISTING MECHANICAL SERVICES ARE REMOVED, CONTRACTOR SHALL BE RESPONSIBLE FOR CLOSING OFF OF EXISTING OPENINGS TO MATCH EXISTING CONDITIONS AND FINISHES. SEAL-UP ALL OPENINGS WITH SMOKE AND FIRE-STOPPING MATERIALS. REFER TO SPECIFICATIONS FOR FURTHER REQUIREMENTS.
- (G)** COORDINATE MECHANICAL WORK WITH WORK OF ALL OTHER DIVISIONS.
- (H)** INSTALLATION SHALL COMPLY WITH THE NATIONAL BUILDING CODE AND ANY OTHER REGULATORY REQUIREMENTS.
- (I)** REFER TO SPECIFICATIONS REGARDING REQUIREMENTS FOR DISPOSAL PROCEDURES TO BE FOLLOWED FOR EXISTING EQUIPMENT.
- (J)** CONTRACTOR TO PROVIDE ALL TRAPEZE, HANGERS, AND MODIFICATIONS TO EXISTING UNISTRUT GRID TO SUPPORT ALL MECHANICAL EQUIPMENT, PIPING, ETC.
- (K)** CONTRACTOR TO PROVIDE HOARDING TO PROTECT ALL THE CRITICAL EQUIPMENT DURING CONSTRUCTION. ENSURE THAT ALL CRITICAL EQUIPMENT IS PROTECTED FROM DUST, DEBRIS ETC. DURING THE CONSTRUCTION PERIOD.

MECHANICAL DRAWING LIST	
DWG. NO.	DESCRIPTION
M-001	SYMBOL LIST AND DRAWING LIST - MECHANICAL
M-101	PARTIAL 1-ST FLOOR PLANS - HVAC & HVAC PIPING - DEMOLITION WORK
M-201	PARTIAL 1-ST FLOOR PLANS - HVAC & HVAC PIPING - NEW WORK
M-202	PARTIAL FLOOR PLANS - HVAC - NEW WORK
M-203	PARTIAL 1-ST FLOOR PLAN - PLUMBING - NEW WORK
M-204	PARTIAL - 1-ST FLOOR PLAN - FIRE PROTECTION - NEW WORK
M-205	PARTIAL - 1-ST FLOOR PLAN - LAB GASES
M-301	MECHANICAL CONTROL DIAGRAMS
M-401	MECHANICAL SCHEDULES
M-501	MECHANICAL DETAILS

GSC-A1      DATE PLOTTED:      PLOT SCALE:      CAD FILE:

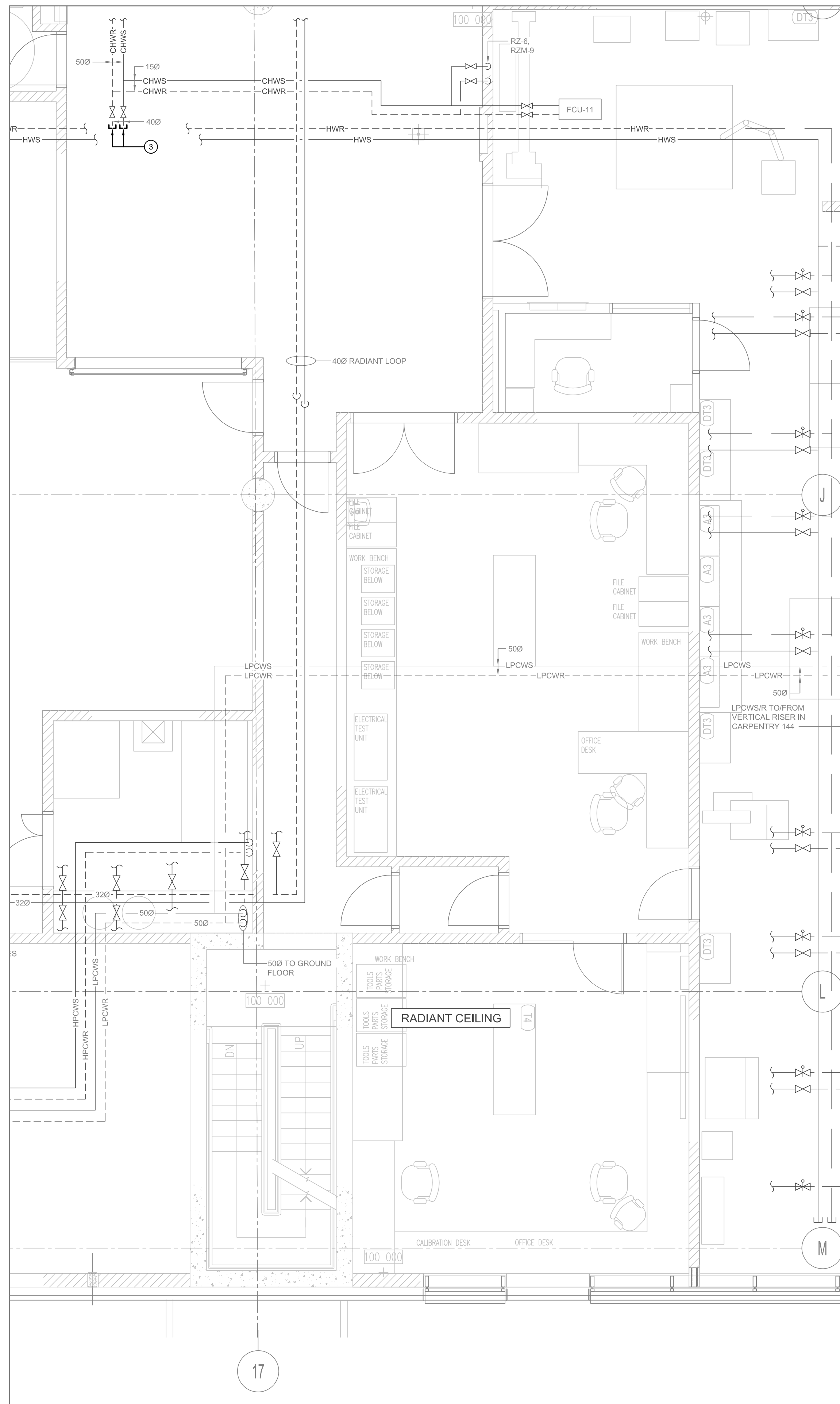




1 PARTIAL 1-ST FLOOR PLAN - HVAC - DEMOLITION WORK  
M-101 SCALE 1:50

**DRAWING NOTES**

- 1 REMOVE EXISTING DUCTWORK PORTION AS SHOWN ON THE DRAWING C/W GRILLES, DIFFUSERS AND ASSOCIATED ACCESSORIES. CUT BACK BRANCH DUCT TO MAIN AND CAP.
- 2 INCLUDE FOR CLOSING OFF OF EXISTING OPENINGS TO MATCH EXISTING CONDITIONS AND FINISHES WHERE EXISTING MECHANICAL SERVICES ARE REMOVED. SEAL ALL OPENINGS WITH SMOKE AND FIRE-STOPPING MATERIALS AS REQUIRED.
- 3 REMOVE CAPS FROM EXISTING CHWS/CHWR PIPES AND BE PREPARED FOR NEW CHWS/CHWR PIPE INSTALLATION.



2 PARTIAL 1-ST FLOOR PLAN - HVAC PIPING - DEMOLITION WORK  
M-202 SCALE 1:50



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01	50% CD	2020/07/07
revision	issued	date

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dessin no. - où détaillé

project title  
titre du projet  
**HAMILTON** ONTARIO  
NRCAN  
  
183 LONGWOOD ROAD SOUTH  
MAP LABORATORY RENOVATION

drawing title  
titre du dessin  
**PARTIAL 1-ST FLOOR PLANS -  
HVAC & HVAC PIPING -  
DEMOLITION WORK**

drawn by  
dessiné par A.F.

designed by  
conc par A.F.

approved by  
approuvé par V.L.

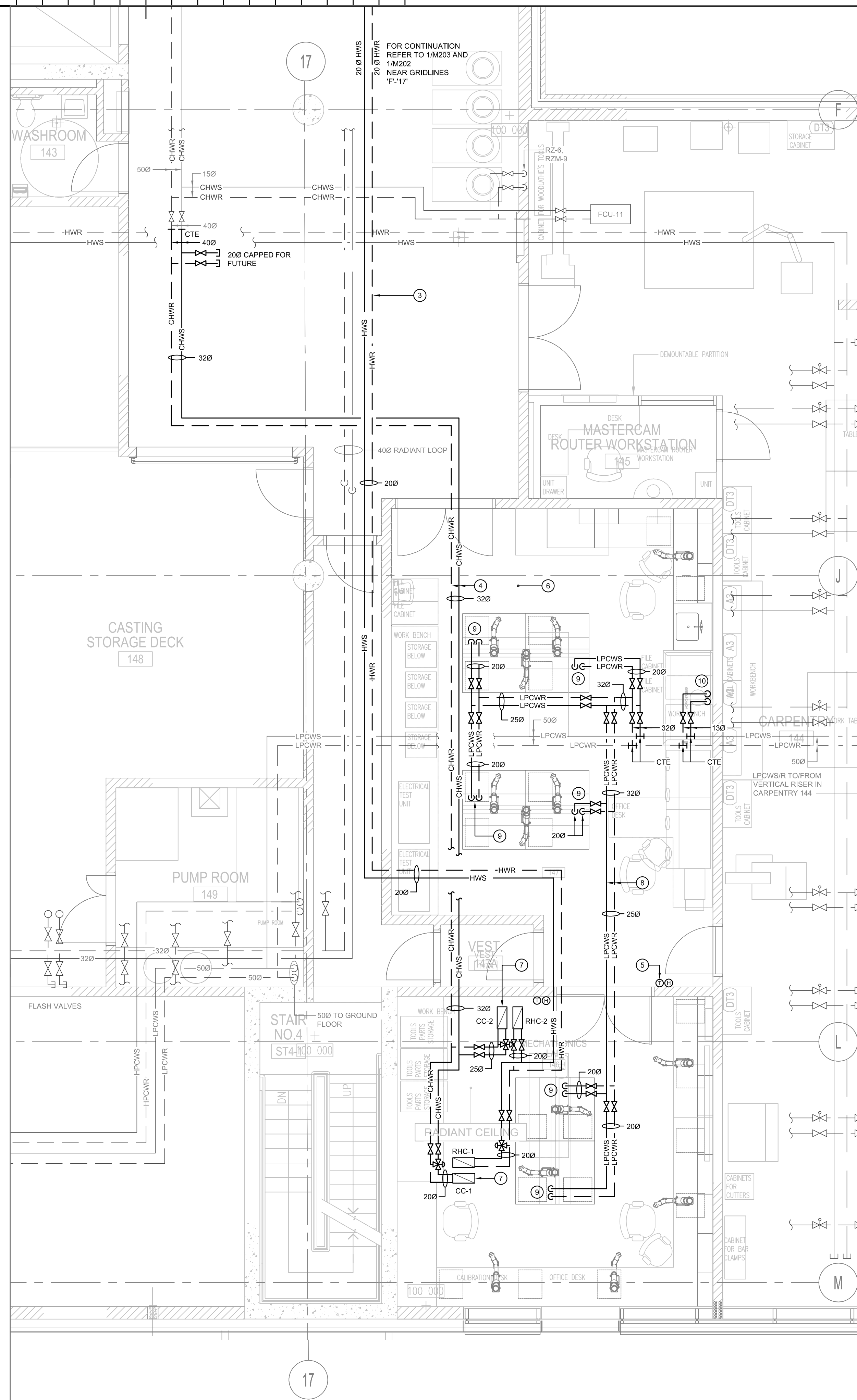
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dessiné no. M-101



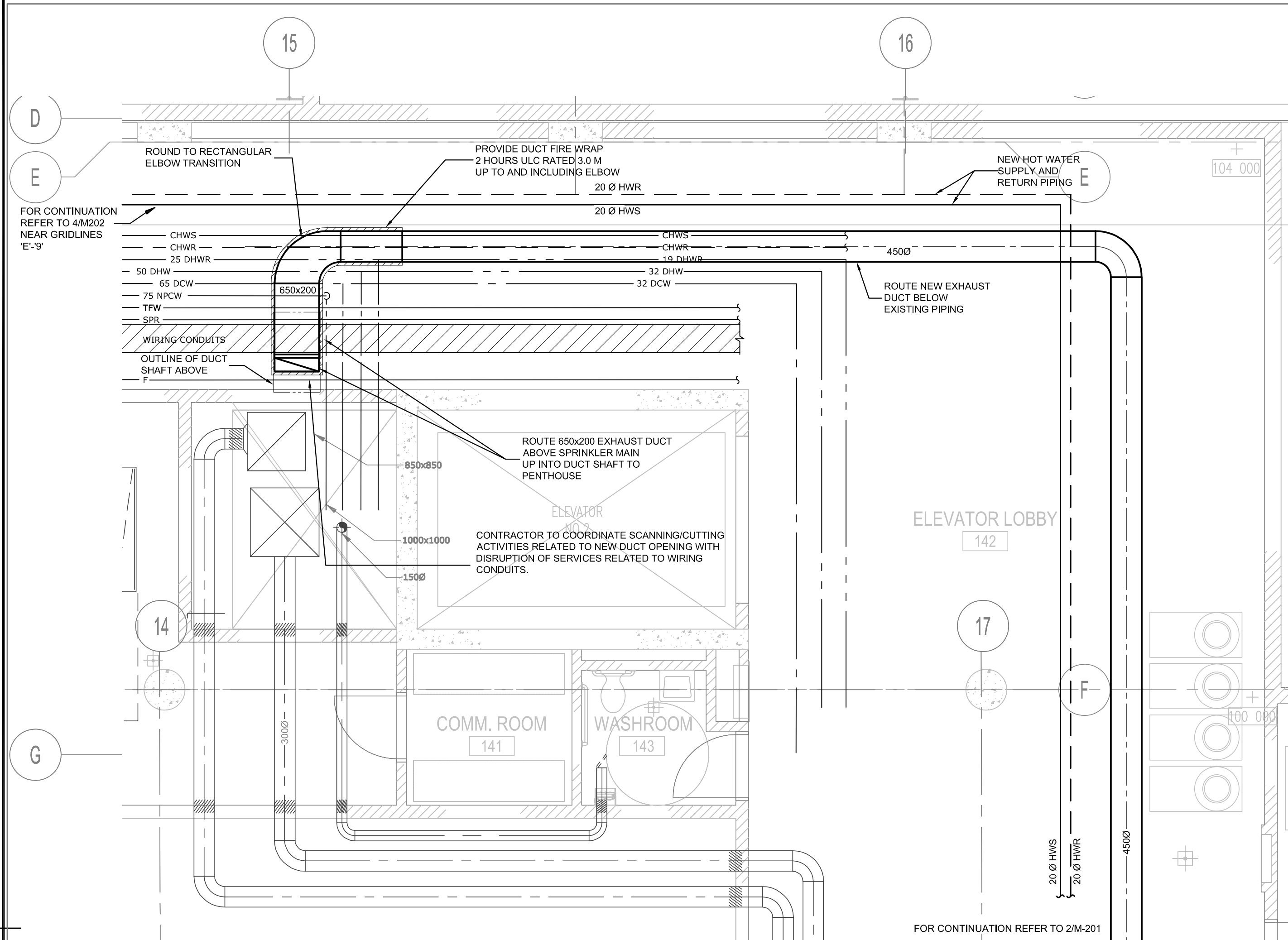


2 PARTIAL 1-ST FLOOR PLAN - HVAC PIPING - NEW WORK  
M-201 SCALE 1:50

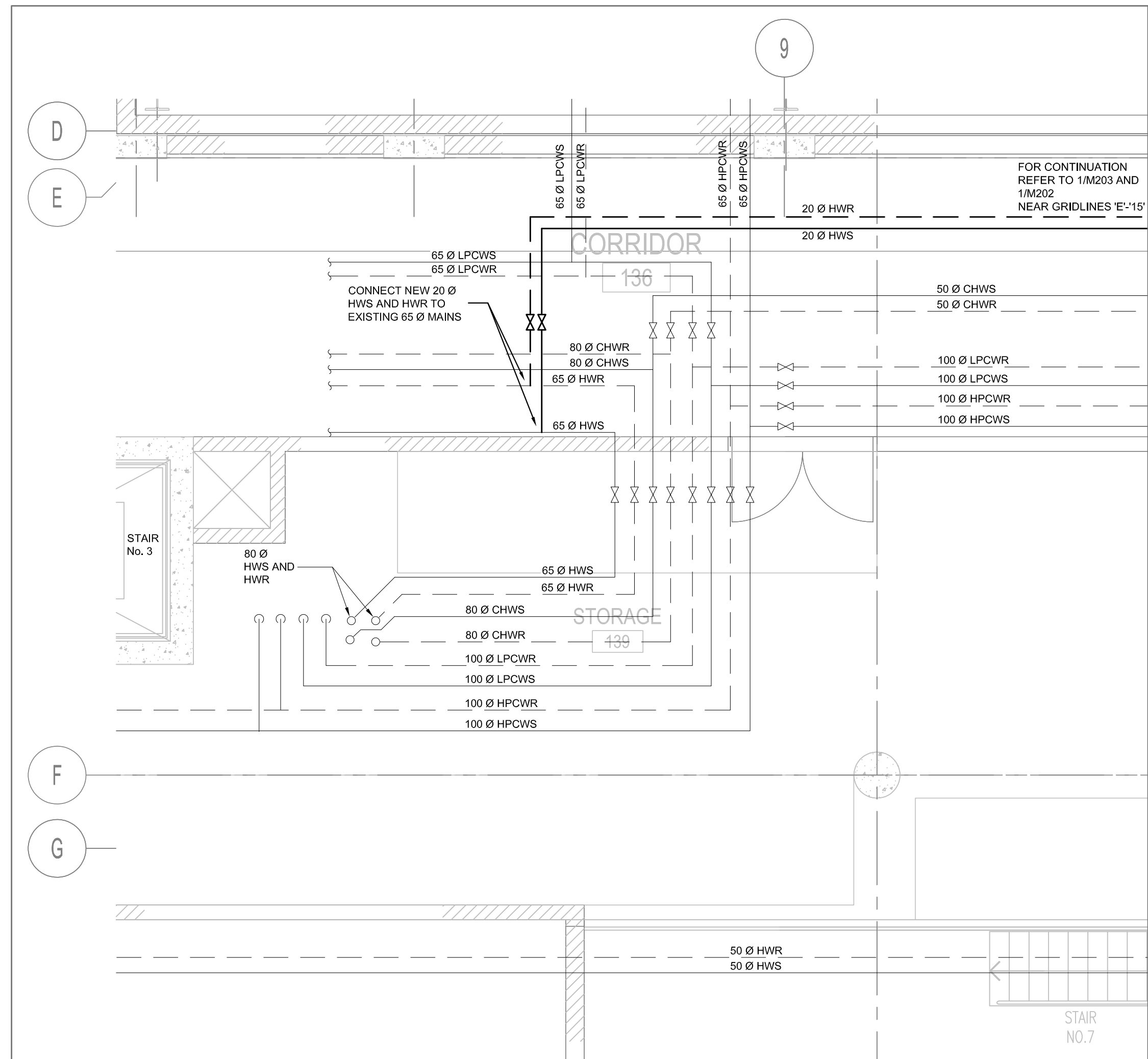
- IS RESPONSIBLE FOR REPAIR/REPLACEMENT OF SYSTEM IF DAMAGED.

drawing no.  
dessine no. **M-201**

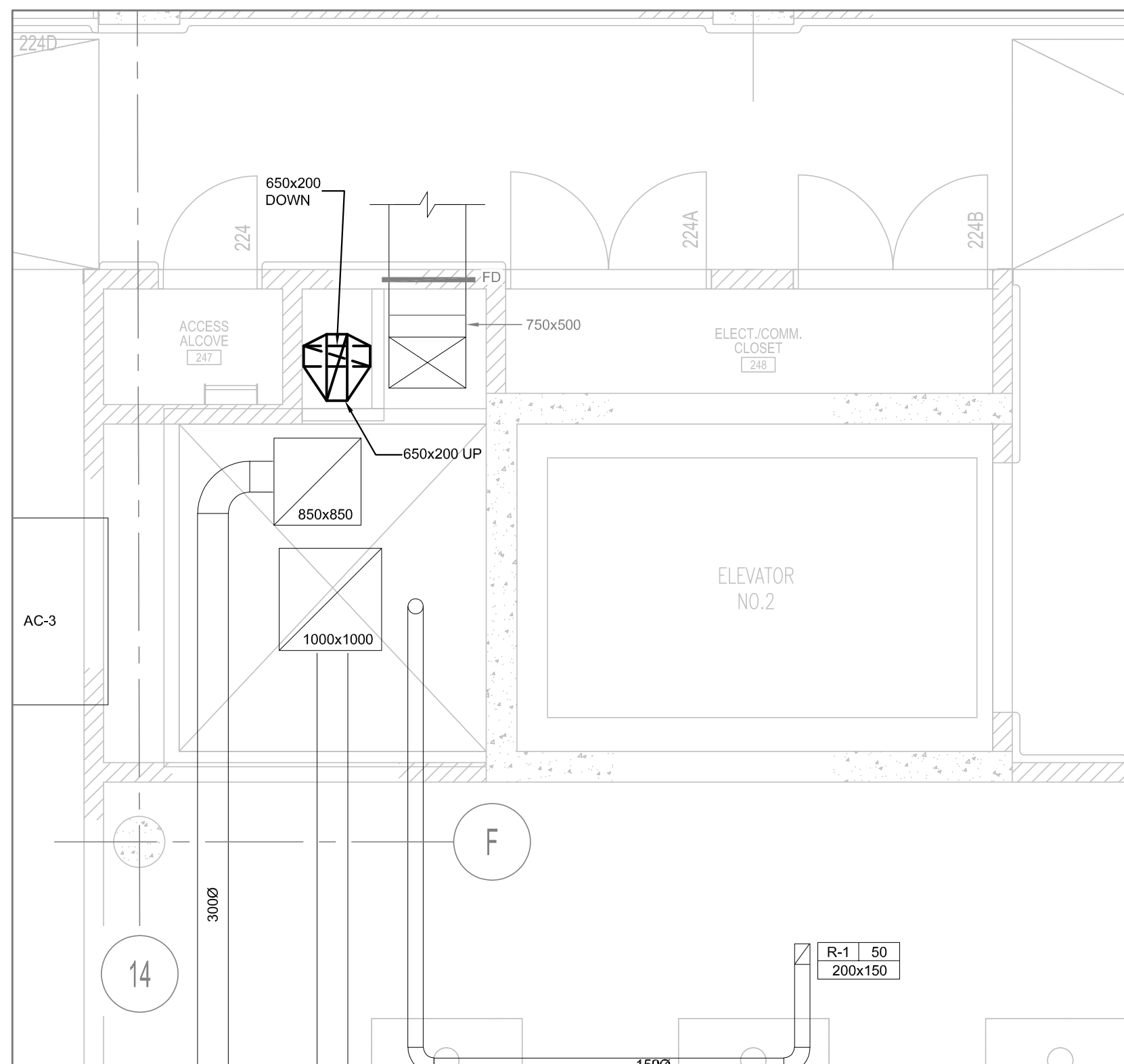




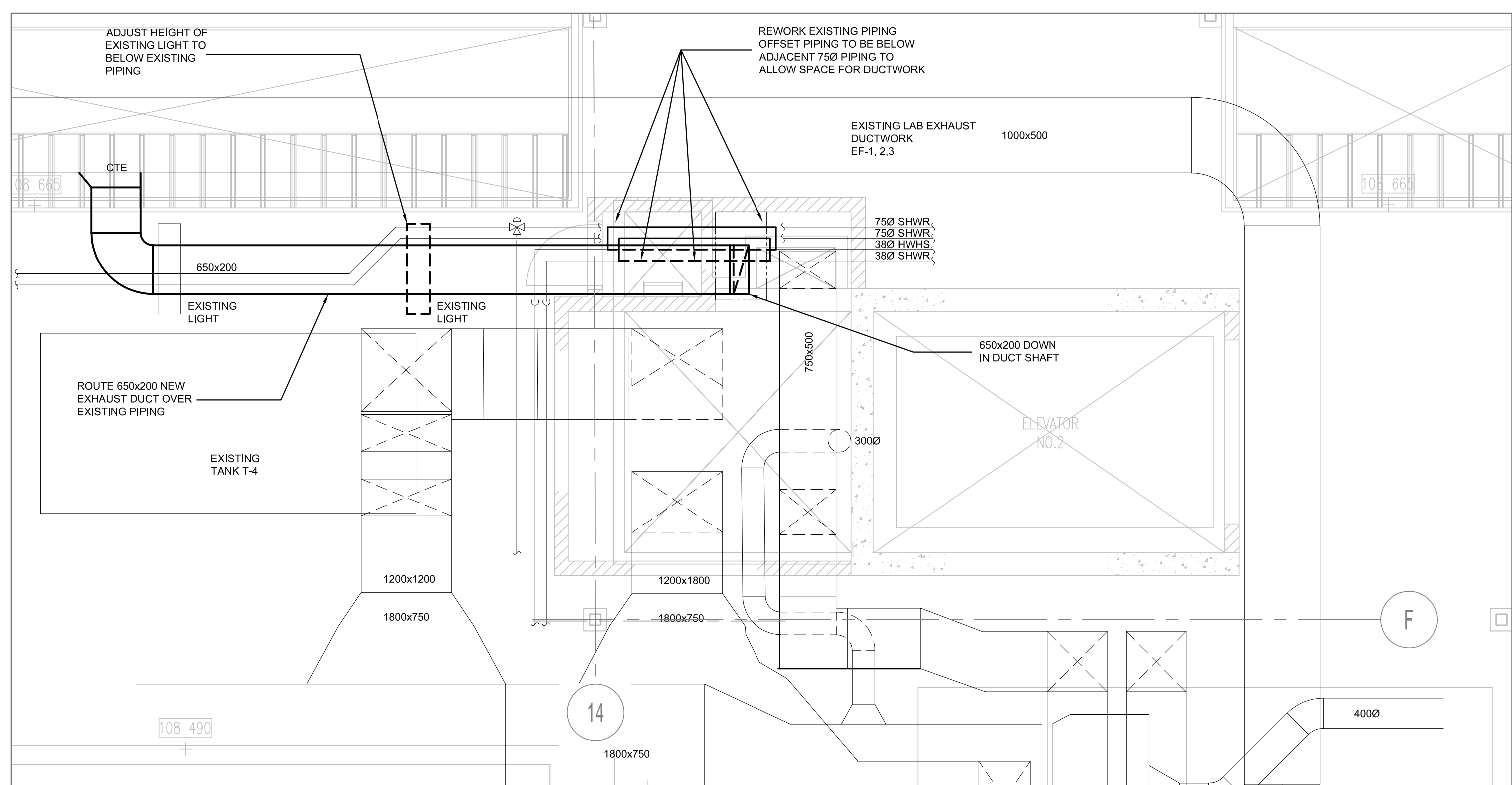
1 PARTIAL 1-ST FLOOR PLAN - HVAC - NEW WORK  
M-202 SCALE 1:50



4 PARTIAL 1-ST FLOOR PLAN - HVAC PIPING - NEW WORK  
M-202 SCALE 1:50



2 PARTIAL 2-ND FLOOR PLAN - HVAC - NEW WORK  
M-202 SCALE 1:50



3 PARTIAL PENTHOUSE FLOOR PLAN - HVAC - NEW WORK  
M-202 SCALE 1:50

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NRCAN  
183 LONGWOOD ROAD SOUTH  
MAP LABORATORY RENOVATION

drawing title  
titre du dessin  
PARTIAL FLOOR PLANS -  
HVAC - NEW WORK

drawn by  
dessiné par A.F.

designed by  
conc par A.F.

approved by  
approuvé par V.L.

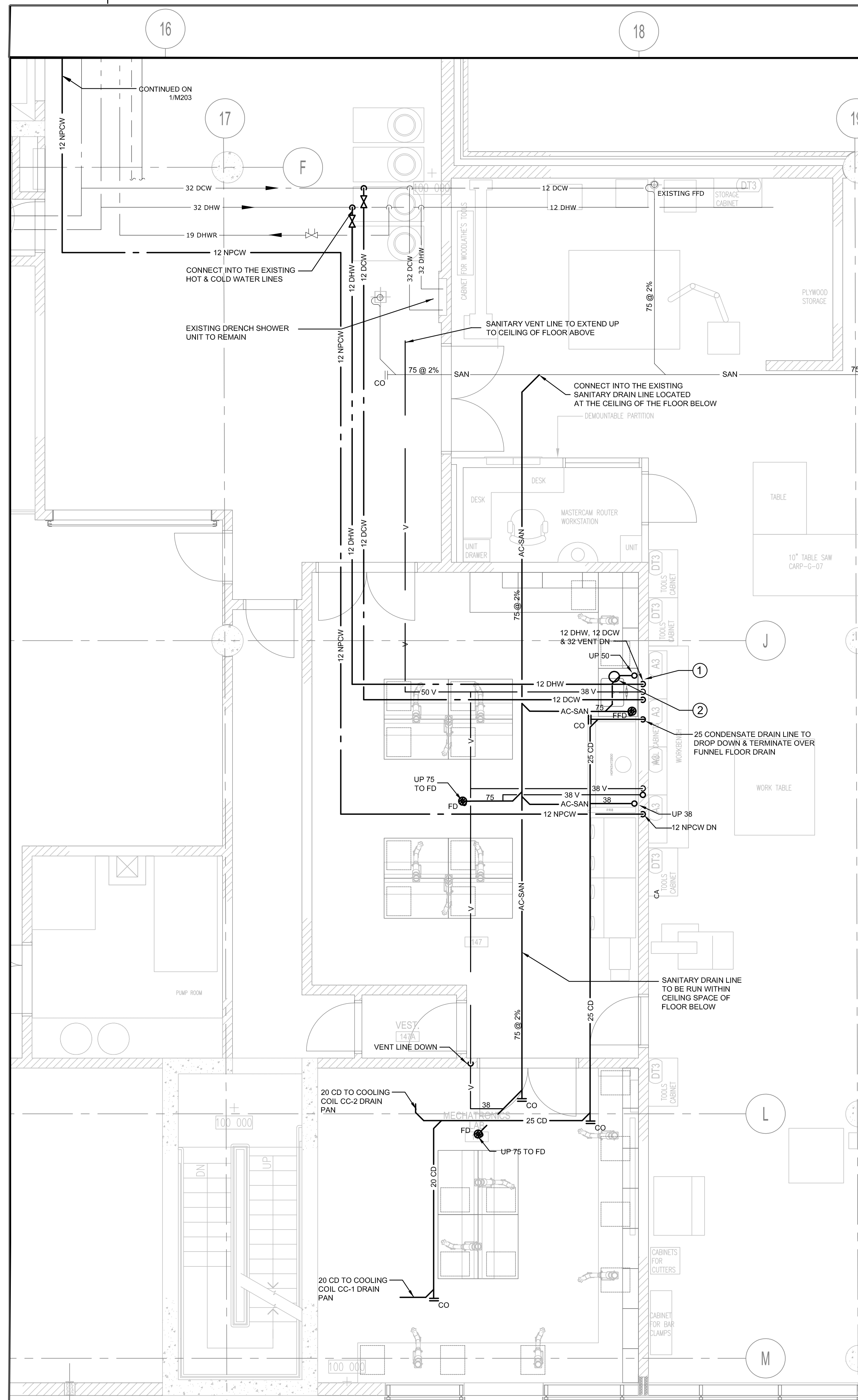
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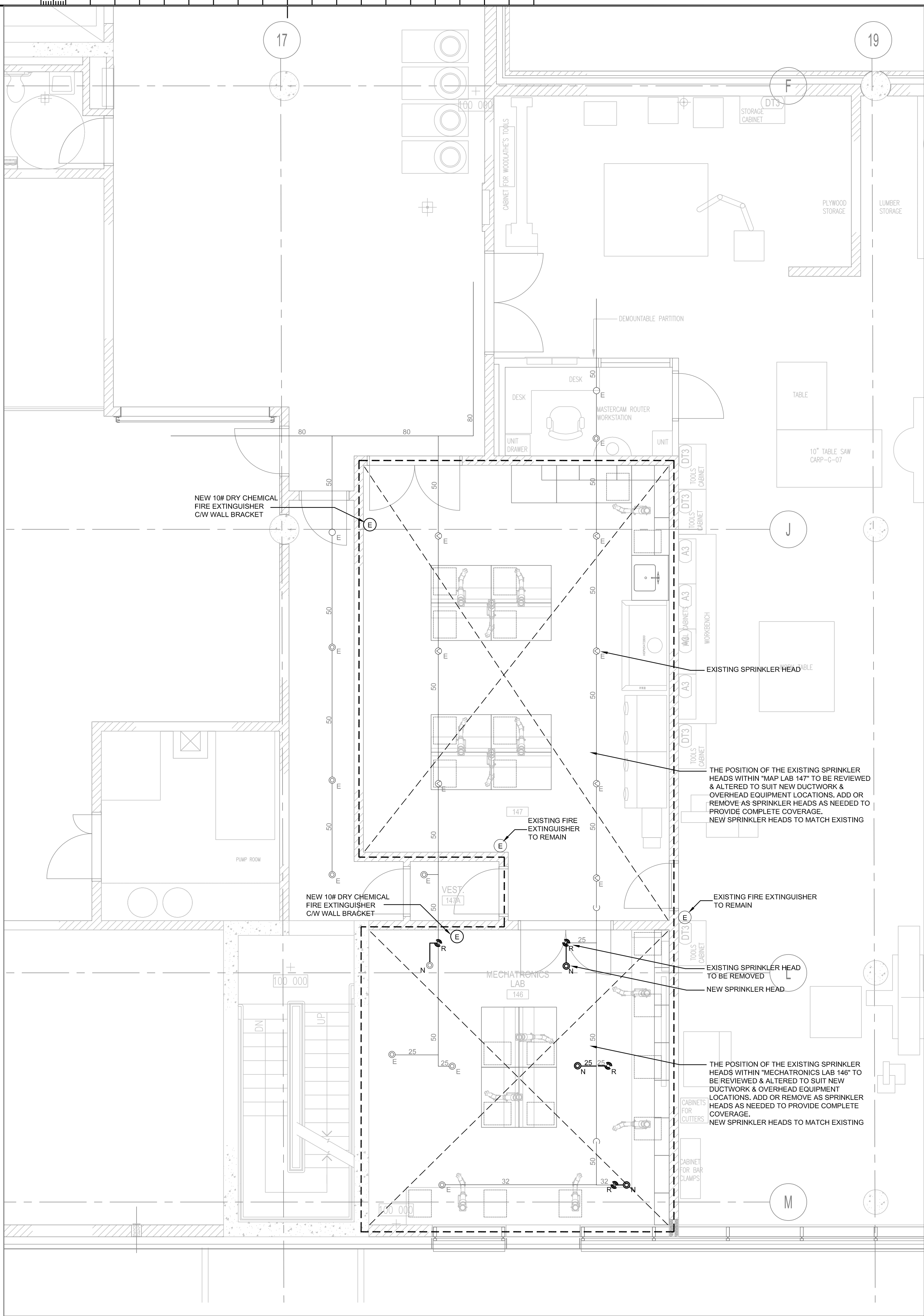
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dessiné no. M-202





2 PARTIAL 1-ST FLOOR PLAN - PLUMBING - DEMOLITION & NEW WORK  
M-203 SCALE 1:50





1 PARTIAL 1-ST FLOOR PLAN - FIRE PROTECTION - NEW WORK  
M-204 SCALE 1:50

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MAP LABORATORY RENOVATION

drawing title  
titre du dessin  
PARTIAL 1-ST FLOOR PLAN -  
FIRE PROTECTION - NEW  
WORK

drawn by  
dessine par A.F.

designed by  
conc par A.F.

approved by  
approuve par V.L.

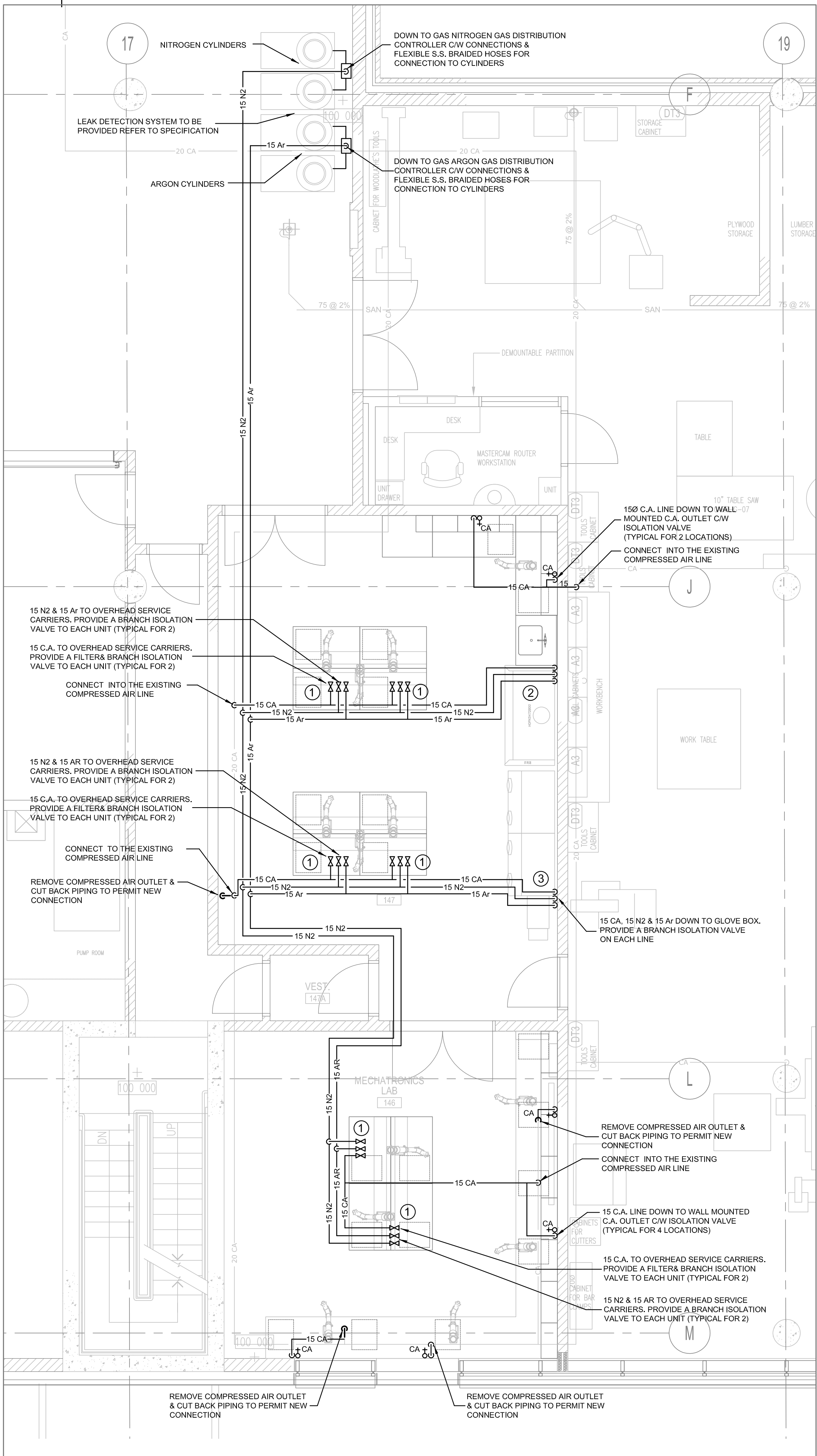
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project date  
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project no.  
no. du projet R.106310.002

drawing no.  
dessine no. M-204





- DRAWING NOTES**
- 1 COORDINATE FINAL CONNECTION SIZES AND CONFIGURATIONS OF PIPING CONNECTIONS TO OVERHEAD SERVICE CARRIERS WITH FF&E INFORMATION ON ARCHITECTURAL DRAWINGS, LABORATORY SERVICE FITTING SCHEDULE REFERENCES "3A", "3B" AND "3C" AND CARRIER MANUFACTURERS HOOK-UP DRAWINGS.
  - 2 COORDINATE FINAL CONNECTION SIZES AND CONFIGURATIONS OF PIPING CONNECTIONS TO FUME HOOD WITH FF&E INFORMATION ON ARCHITECTURAL DRAWINGS, LABORATORY SERVICE FITTING SCHEDULE REFERENCES "4A", "4B" AND "4C" AND FUME HOOD MANUFACTURERS HOOK-UP DRAWINGS.
  - 3 COORDINATE FINAL CONNECTION SIZES AND CONFIGURATIONS OF PIPING CONNECTIONS TO GLOVE BOX WITH FF&E INFORMATION ON ARCHITECTURAL DRAWINGS, LABORATORY SERVICE FITTING SCHEDULE REFERENCES "5A", "5B" AND "5C" AND GLOVE BOX MANUFACTURERS HOOK-UP DRAWINGS.

1 PARTIAL 1-ST FLOOR PLAN - LAB GASES - DEMOLITION & NEW WORK  
M-205 SCALE 1:50

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183 LONGWOOD ROAD SOUTH  
MAP LABORATORY RENOVATION

drawing title  
titre du dessin  
**PARTIAL 1-ST FLOOR PLAN -  
LAB GASES - NEW WORK**

drawn by A.F.  
dessiné par

designed by A.F.  
conçue par

approved by V.L.  
approuvé par

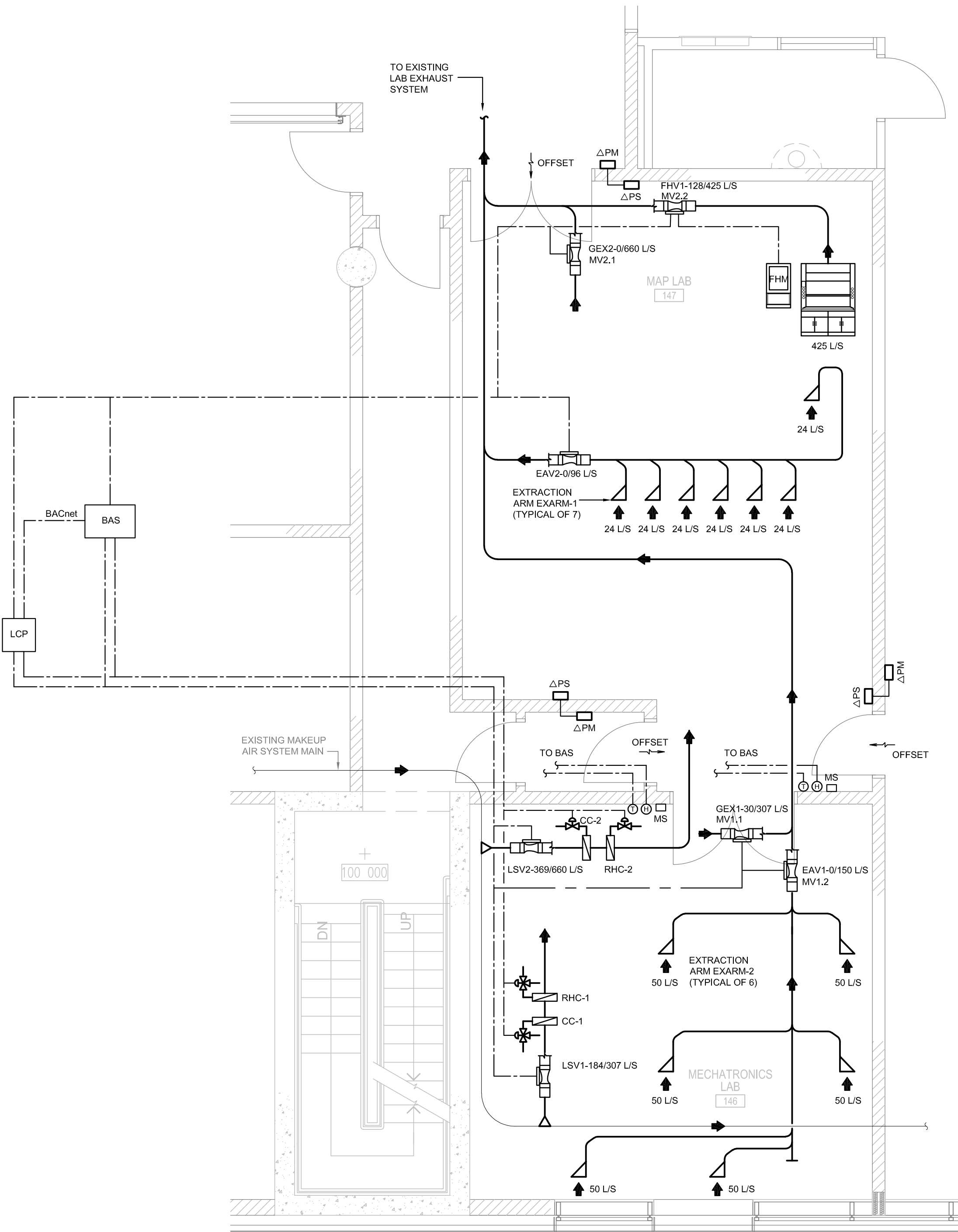
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dessiné no.  
**M-205**





**SEQUENCE OF OPERATION**

**FUME HOOD CONTROLS:**  
FUME HOOD MONITORS (FHM) FACE VELOCITY CONTROLLER SHALL MODULATE THE FUME HOOD EXHAUST VALVE FROM A SASH POSITION SENSOR TO MAINTAIN A CONSTANT FACE VELOCITY AT 0.5 M/S (100 FPM). REGARDLESS OF SASH POSITION, A SET MINIMUM EXHAUST AIRFLOW THROUGH THE HOOD'S BYPASS LOUVER AT 30% OF THE MAXIMUM FLOW.

EMERGENCY MODE SHALL BE ACTIVATED BY THE USER USING A EMERGENCY PUSH BUTTON.

PUSHING THE EMERGENCY PUSH BUTTON (MS) WILL INITIATE THE PURGE EXHAUST MODE AND OPEN ALL EXHAUST AIR VALVES.

EMERGENCY MODES OF OPERATION WILL COMMAND THE EXHAUST VALVE TO ITS MAXIMUM SETTING AND ENERGIZE AN AUDIBLE ANNUNCIATION. ACTIVATING THE MUTE PUSH BUTTON WILL SILENCE THE AUDIBLE ALARM.

**ROOM VENTILATION AND PRESSURIZATION CONTROLLER:**

EXHAUST AIR VALVES SHALL BE MASTER AIR VALVES. SUPPLY AIR VALVES SHALL TRACK EXHAUST AIR VALVE OPERATING SETPOINTS. THE LOCAL LAB CONTROLLER SHALL SUM THE TOTAL EXHAUST FLOW FROM EVERY EXHAUST DEVICE AND CONTROL THE SUPPLY AIR SETPOINT AT A CONSTANT SHORTFALL OF 47 L/S (100 CFM) TO THE TOTAL EXHAUST VOLUME TO MAINTAIN A DIRECTED AIR FLOW INTO THE LAB FOR A NEGATIVELY PRESSURIZED ROOM.

THIS PRESSURIZATION LEVEL SHALL BE MAINTAINED CONSTANT UNDER ALL OPERATING CONDITIONS. LOCAL CONTROLLER TO GENERATE ALARM IF NEGATIVE SPACE PRESSURIZATION CONDITION IS NOT MAINTAINED RELATIVE TO ADJACENT VESTIBULE AND CORRIDOR.

THE ROOM CONTROLLER SHALL MAINTAIN THE FOLLOWING MAXIMUM AND MINIMUM VENTILATION LEVELS.

MAXIMUM 10 AIR CHANGES PER HOUR (ADJ.) IN ACCORDANCE WITH DEMAND FOR MAKE-UP AIR FROM EXHAUST DEVICES OR SUPPLY AIR FOR COOLING/HEATING. MAXIMUM VENTILATION RATES ARE AS FOLLOWS:

- ROOM 146 10 ACH = 307 L/S
- ROOM 147 10 ACH = 660 L/S

MINIMUM 6 AIR CHANGES PER HOUR (ADJ.), WHEN THERE IS NO ADDITIONAL DEMAND FOR MAKE-UP AIR FROM EXHAUST DEVICES OR SUPPLY AIR FOR COOLING/HEATING. THE VENTILATION RATE SHALL NOT DROP BELOW THE FOLLOWING RATES UNDER ANY OPERATING CONDITIONS:

- ROOM 146 6 ACH = 184 L/S
- ROOM 147 6 ACH = 369 L/S

VENTILATION LEVELS IN EXCESS OF THE MINIMUM SHALL BE PROVIDED WHEN SO COMMANDED BY THE LOCAL CONTROLLER TO SATISFY THE MAKE UP AIR REQUIREMENTS FOR THE SUM OF ALL OF THE EXHAUST SOURCES IN THE ROOM, INCLUDING FUME HOODS, SNORKELS AND/OR CHEMICAL STORAGE CABINETS. IN THIS CASE, THE AMOUNT OF SUPPLY AIR SHALL NOT EXCEED THE TOTAL EXHAUST AIR FLOW, LESS THE ROOM PRESSURIZATION FLOW OF 47 L/S (100 CFM).

VENTILATION LEVELS IN EXCESS OF THE MINIMUM SHALL BE PROVIDED WHEN SO COMMANDED BY THE LOCAL CONTROLLER IN ORDER TO MEET THE SPACE COOLING/HEATING DEMAND. IN THIS CASE, THE AMOUNT OF SUPPLY AIR SHALL NOT EXCEED THE TOTAL EXHAUST AIR FLOW, LESS THE ROOM PRESSURIZATION FLOW OF 47 L/S (100 CFM).

EMERGENCY MODE SHALL BE ACTIVATED BY THE USER USING A EMERGENCY PUSH BUTTON. PUSHING THE EMERGENCY PUSH BUTTON (MS) WILL INITIATE THE PURGE EXHAUST MODE AND OPEN ALL EXHAUST AIR VALVES.

EMERGENCY MODES OF OPERATION WILL COMMAND THE EXHAUST VALVE TO ITS MAXIMUM SETTING AND ENERGIZE AN AUDIBLE ANNUNCIATION. ACTIVATING THE MUTE PUSH BUTTON WILL SILENCE THE AUDIBLE ALARM.

UNDER ALL THE ABOVE CONDITIONS, THE ROOM PRESSURIZATION LEVEL SHALL REMAIN CONSTANT NEGATIVE BY MAINTAINING THE EXHAUST HIGHER THAN SUPPLY AIR RATES.

LOCAL CONTROLLER TO GENERATE ALARM IF NEGATIVE SPACE PRESSURIZATION CONDITION IS NOT MAINTAINED RELATIVE TO ADJACENT VESTIBULE AND CORRIDOR.

**ROOM TEMPERATURE AND HUMIDITY CONTROL**

IN COOLING MODE: HUMIDITY CONTROL (DEHUMIDIFICATION) WILL BE PROVIDED BY MODULATING COOLING COIL CONTROL VALVE ON CALL OF ROOM HUMIDISTAT AND DECREASING SUPPLY AIR TEMPERATURE AFTER COOLING COIL TO 10°C. AT THE SAME TIME REHEAT COIL CONTROL VALVE WILL MODULATE TO MAINTAIN SPACE TEMPERATURE AT 22 °C. DEDICATED ROOM THERMOSTAT WILL MODULATE THE SUPPLIED AIR VOLUME RATE BY EACH VENTURI VALVE.

IN HEATING MODE: DEDICATED ROOM THERMOSTAT WILL MODULATE THE SUPPLIED AIR VOLUME RATE BY EACH VENTURI VALVE.

UNDER ALL THE ABOVE CONDITIONS, THE ROOM PRESSURIZATION LEVEL SHALL REMAIN CONSTANT NEGATIVE BY MAINTAINING THE EXHAUST HIGHER THAN SUPPLY AIR RATES IN ACCORDANCE WITH A CONSTANT SHORTFALL OF 47 L/S (100 CFM) TO THE TOTAL MEASURED EXHAUST VOLUME.

EXISTING HIGH PLUME EXHAUST FANS SPEED CONTROL DUCT STATIC PRESSURE SENSORS WITHIN THE EXISTING SYSTEM SHALL BE UTILIZED FOR FAN SPEED CONTROL. FAN'S SPEED SHALL BE VARIED USING VFD TO MAINTAIN A CONSTANT SYSTEM NEGATIVE STATIC PRESSURE. BALANCER TO ADJUST EXHAUST PLENUM PRESSURE SENSOR SETPOINT VALUE SUCH THAT ALL EXHAUST TERMINAL UNITS RECEIVE AN ADEQUATE UPSTREAM NEGATIVE STATIC PRESSURE AS PER MFG INSTRUCTIONS.

SUPPLY FAN DUCT RISER STATIC PRESSURE CONTROL SHALL BE VIA THE DUCT STATIC PRESSURE SENSORS WITHIN THE EXISTING SYSTEM. BALANCER TO ADJUST THE PRESSURE SENSOR VALUE IN ORDER ALL TERMINAL UNITS RECEIVE AN ADEQUATE POSITIVE UPSTREAM STATIC PRESSURE AS PER MFG INSTRUCTIONS.

**HVAC SYSTEM CONTROLS INTEGRATION**

FHV	FUME HOOD VALVE
MV	MASTER VALVE
EAV	EXTRACTION ARM VALVE
FHM	FUME HOOD MONITOR
GEX	GENERAL EXHAUST VALVE
RHC	REHEAT COIL
CC	COOLING COIL
LSV	LABORATORY SUPPLY VALVE
BAS	BUILDING AUTOMATION SYSTEM
LCP	LAB CONTROL PANEL
MS	MANUAL SWITCH - EMERGENCY EXHAUST
ΔPS	DIFFERENTIAL PRESSURE SENSOR
ΔPM	DIFFERENTIAL PRESSURE MONITOR
⊖	THERMOSTAT
⊕	HUMIDISTAT



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183 LONGWOOD ROAD SOUTH  
MAP LABORATORY RENOVATION

drawing title  
titre du dessin  
  
**MECHANICAL CONTROL  
DIAGRAMS**

drawn by  
dessiné par A.F.

designed by  
conçue par A.F.

approved by  
approuvé par V.L.

bid  
offre project manager  
administrateur  
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drawing no.  
dessiné no.  
**M-301**



COOLING COILS																									
TAG	MATERIALS			DIMENSIONS							AIRFLOW (MAX.)	FACE VELOCITY	CAPACITY		E.A.T.		L.A.T.		AIR PRESSURE DROP	FLUID			REMARKS		
				HEIGHT	WIDTH	FACE AREA	TUBE Ø	FINS	FIN SPACING	NO. ROWS			SENSIBLE	TOTAL	DB	WB	DB	WB		Pa	TYPE	FLOW		E.W.T.	L.W.T.
	MM	MM	SQ-M																						
	CC-1	GAL STEEL	COPPER	ALUMINUM	457	870	0.2	16	381x610	8			10	307	1.3	1.5	2.9	14.2	13.3	10.2	10.1	97.1		WATER	0.10
CC-2	GAL STEEL	COPPER	ALUMINUM	533	879	0.3	16	457x610	8	10	660	2.4	3.4	6.9	14.2	13.3	9.9	9.8	239.1	WATER	0.30	6.1	12.0	13.45	NOTE 1
NOTES: 1. TAG CC-1: CC MEANS - COOLING COIL, 1 MEANS COOLING COIL NUMBER ON THE DRAWING.																									

REHEAT COILS																									
TAG	MATERIALS			DIMENSIONS							AIRFLOW (MAX.)	FACE VELOCITY	CAPACITY		E.A.T.		L.A.T.		AIR PRESSURE DROP	FLUID			WATER PRESSURE DROP	REMARKS	
	CASING	TUBES	FINS	HEIGHT	WIDTH	FACE AREA	TUBE Ø	FINS	FIN SPACING	NO. ROWS			SENSIBLE	TOTAL	DB	WB	DB	WB		TYPE	FLOW	E.W.T.			L.W.T.
				MM	MM	SQ-M	MM	MM x MM	#/25 MM				L/s	M/s	KW	KW	°C	°C	°C	°C	Pa	L/s	°C		°C
RHC-1	GAL STEEL	COPPER	ALUMINUM	381	748	0.2	16	381x610	9	2	307	1.3	5.6	5.6	10.0	-	25.0	-	15.0	WATER	0.10	50.0	29.3	6.0	NOTE 1
RHC-2	GAL STEEL	COPPER	ALUMINUM	457	748	0.3	16	457x610	12	2	660	2.4	12.0	12.0	10.0	-	24.8		49.8	WATER	0.10	50.0	29.6	28.1	NOTE 1
NOTES: 1. TAG <b>RHC-1</b> : RHC MEANS - REHEAT COIL, 1 MEANS REHEAT COIL NUMBER ON THE DRAWING.																									

GRILLE AND DIFFUSER SCHEDULE								
UNIT TAG	INLET SIZE (MM)	SIZE (MMxMM)	TYPE	VOLUME CONTROL	MATERIAL	FINISH	APPLICATION	REMARKS
A	300ø	600x1200	FLUSH FACE RADIAL FLOW DIFFUSER - PERFORATED FACE	YES	ALUMINUM	B12	LAB SUPPLY	NOTES 1, 2, 3, 4
B	-	AS SHOWN	PERFORATED FACE RETURN GRILLE	YES	ALUMINUM	B12	LAB EXHAUST	NOTES 1, 2, 3, 4
GENERAL NOTES: 1. ALL ALUMINUM CONSTRUCTION DIFFUSERS, GRILLES AND REGISTERS SHALL BE ELECTRICALLY INSULATED FROM STEEL DUCTWORK BY USING ELECTRICALLY NON-CONDUCTIVE MATERIALS AS PER LATEST CODES AND REGULATIONS. 2. ALL DIFFUSERS AND GRILLES SHALL SUIT THE CEILING CONSTRUCTION, COORDINATE WITH ARCHITECTURAL CEILING PLAN. 3. ALL DAMPERS SHALL BE OF THE SAME MATERIAL AS THE DIFFUSER OR GRILLE UNLESS OTHERWISE NOTED. 4. GRILLE AND DIFFUSER COLOUR TO BE APPROVED BY DEPARTMENTAL REPRESENTATIVE. WHERE DIFFUSER PLENUMS ARE EXPOSED, MECHANICAL SECTIONS TO PAINT PLENUM TO SUIT DEPARTMENTAL REPRESENTATIVE.								

EXTRACTION ARMS										
UNIT TAG	MATERIALS				DIMENSIONS			PERFORMANCE		REMARKS
	ARM TUBES	FLEX HOSES (AT JOINTS)	JOINT BRACKETS	HOOD	ARM DIA. (MM)	ARM LENGTH (MM)	HOOD DIA. (MM)	AIRFLOW (L/S)	PRESSURE DROP (Pa)	
EXARM-1	STEEL - POWDER COAT	THERMOPLASTIC RUBBER - 135 °C	STEEL - POWDER COAT	ALUMINUM	75Ø	1500	185	24	-	NOTES 1, 2, 3
EXARM-2	STEEL - POWDER COAT	THERMOPLASTIC RUBBER - 135 °C	STEEL - POWDER COAT	ALUMINUM	75Ø	1500	185	50	63	NOTES 1, 2, 3
NOTES:										
1. PROVIDE MOUNTING HARDWARE FOR OVERHEAD INSTALLATION ON OVERHEAD SERVICE CARRIERS. PROVIDE MOUNTING HARDWARE FOR BENCH INSTALLATION FOR ARMS INSTALLED ON LAB CASEWORK.										
2. PROVIDE EXTRACTION HOODS COMPLETE WITH STAINLESS STEEL MESH PROTECTION.										
3. ARM TUBES SHALL BE COMPLETE WITH GRAB ARM FOR POSITIONING OF THE ARM.										

VENTURI VALVE SCHEDULE - PHOENIX CONTROLS										
TAG	SERVICE	AIRFLOW		CONFIGURATION		RATED PERFORMANCE				REMARKS
		MINIMUM	MAXIMUM	QTY OF VALVES	SIZE	INLET Ø	MINIMUM	MAXIMUM	MAX. A.P.D	
		L/S	L/S			MM	L/S	L/S	Pa	
LSV1	LAB SUPPLY VALVE - RM 146	184	307	1	08	200	20	330	750	NOTES 1, 2, 3
LSV2	LAB SUPPLY VALVE - RM 147	369	660	1	12	300	45	705	750	NOTES 1, 2, 3
GEX1	GENERAL EXHAUST VALVE - RM 146	30	307	1	08	200	20	330	750	NOTES 1, 2, 3
GEX2	GENERAL EXHAUST VALVE - RM 147	-	660	1	12	300	45	705	750	NOTES 1, 2, 3
FHV1	FUME HOOD VALVE - RM 147	128	425	1	12	300	45	705	750	NOTES 1, 2, 3
EAV1	EXHAUST ARM VALVE - ROOM 146	-	150	1	08	300	20	330	750	NOTES 1, 2, 3
EAV1	EXHAUST ARM VALVE - ROOM 146	-	96	1	08	300	20	330	750	NOTES 1, 2, 3
NOTES: 1. FLOOR PLAN TAGS: "SERVICE-VALVE QTY/SIZE-MAX AIRFLOW (L/S)". FOR EXAMPLE: "LSV1-108-307" MEANS LAB SUPPLY VALVE STATION #1, COMPRISED OF ONE (1), 200 MM VALVE WITH A MAXIMUM SUPPLY AIR SETTING OF 307 L/S. 2. MOUNTING POSITION IS HORIZONTAL IN CEILING SPACE. 3. VENTURI VALVES SHALL BE SUPPLIED BY PHOENIX CONTROLS TO MATCH EXISTING BASE BUILDING VALVE STATIONS. VALVE STATIONS SHALL BE SUPPLIED COMPLETE WITH FACTORY MOUNTED CONTROLS AND CALIBRATION.										



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04	ISSUED FOR FINAL TENDER	2020/09/18
03	ISSUED FOR TENDER	2020/08/21
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revision	issued	date

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A

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project title  
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HAMILTON ONTARIO  
NRCAN  
183 LONGWOOD ROAD SOUTH  
MAP LABORATORY RENOVATION

drawing title  
titre du dessin  
MECHANICAL SCHEDULES

drawn by  
dessine par A.F.

designed by  
conc par A.F.

approved by  
approuve par V.L.

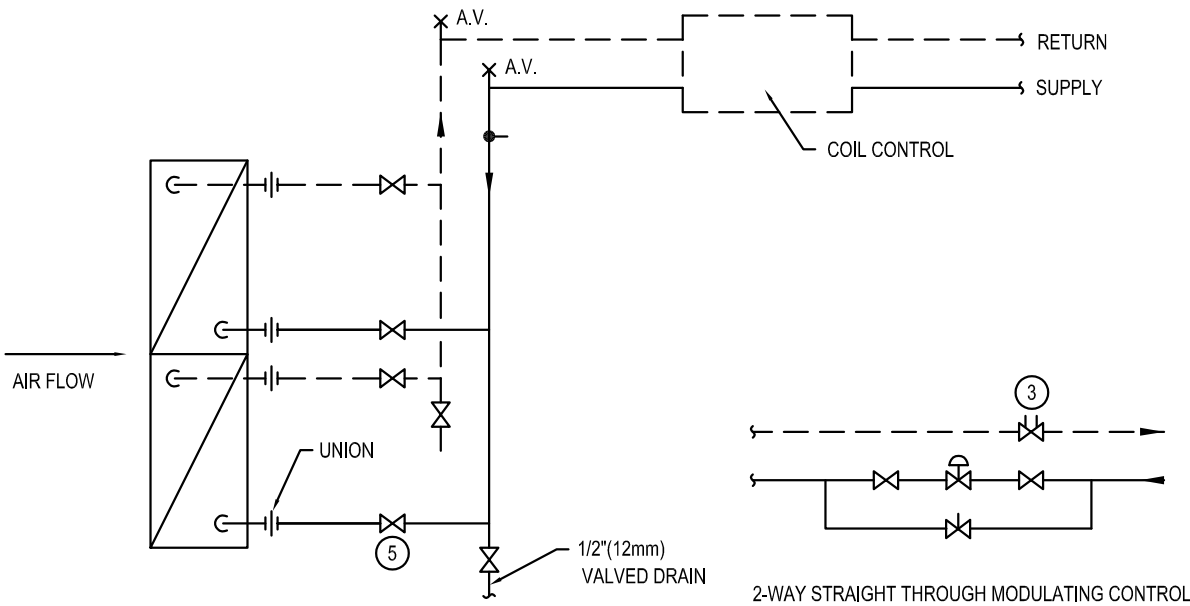
bid  
offre project manager  
administrateur de projets

project date  
date du projet JUNE 2020

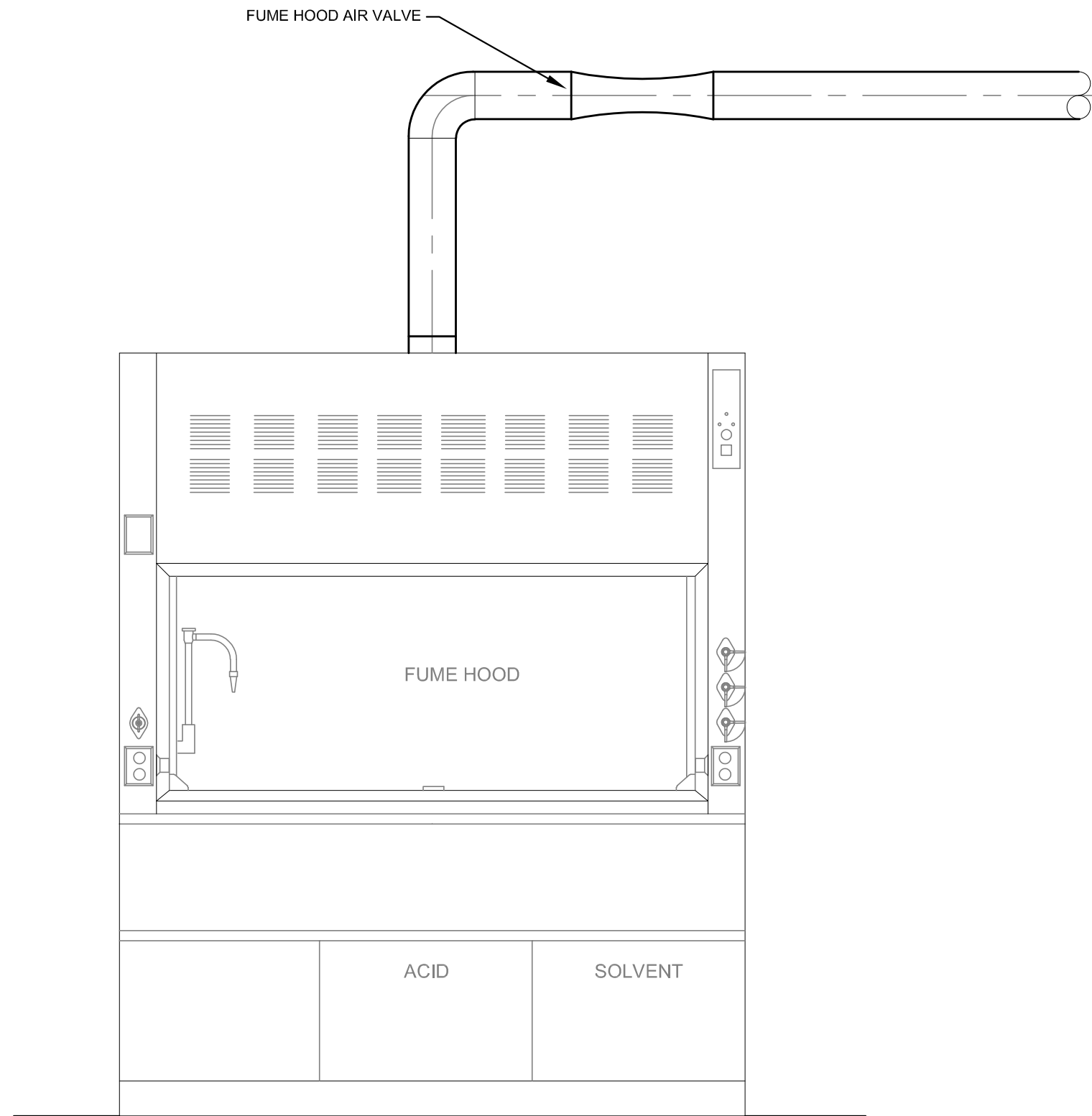
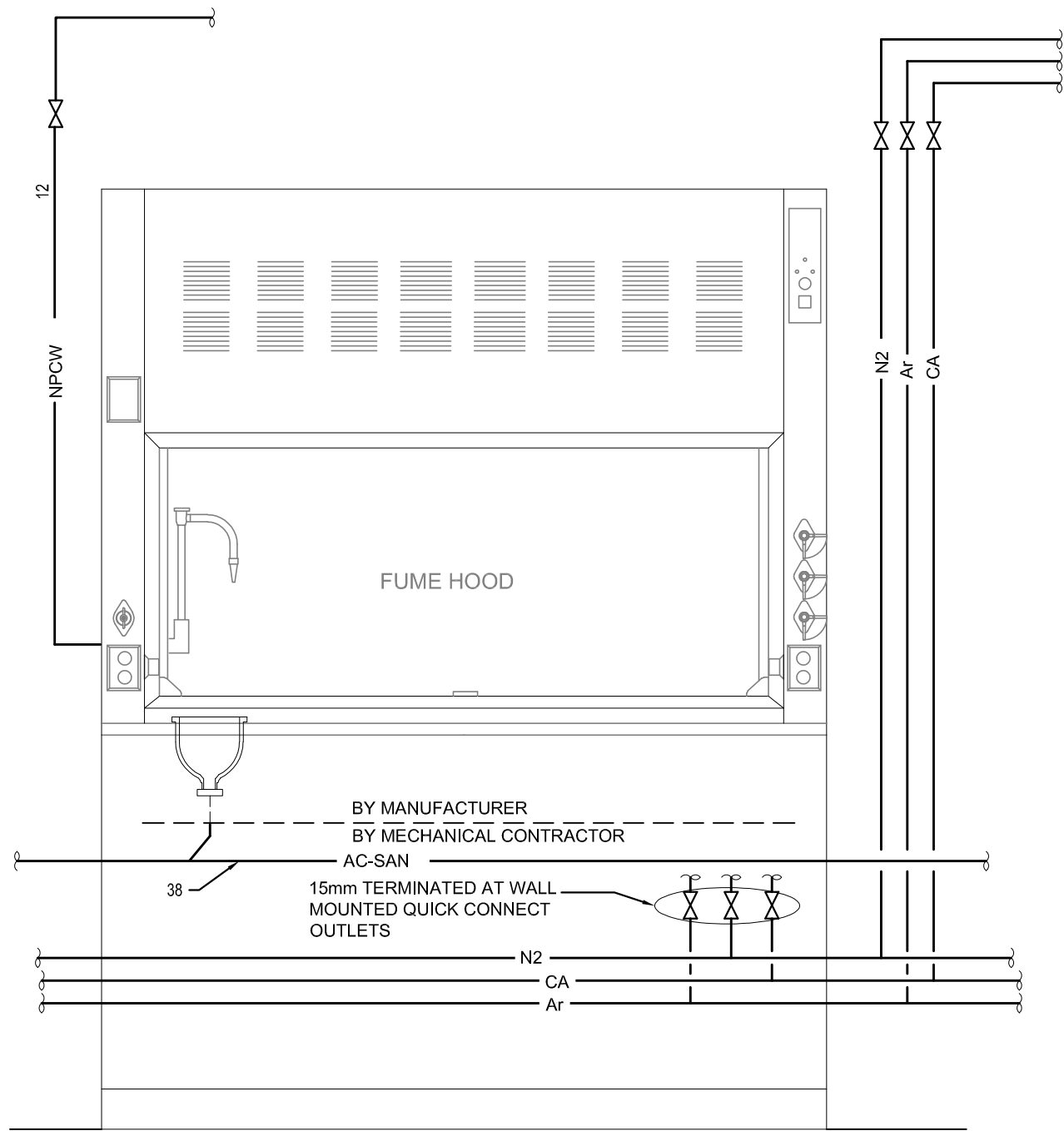
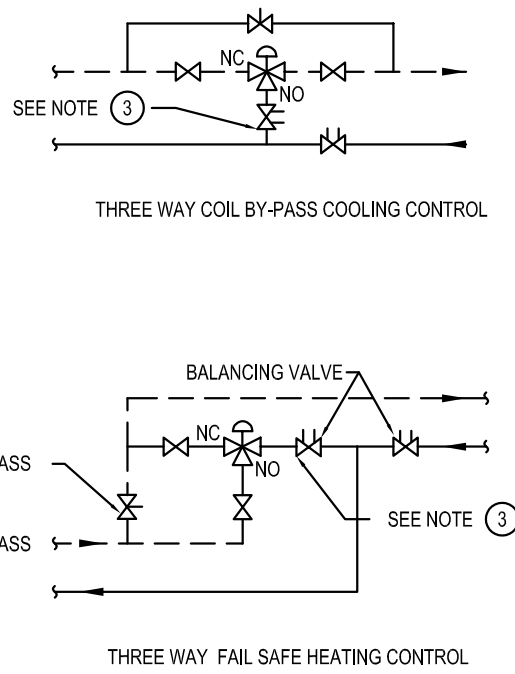
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no. du projet R.106310.002

drawing no.  
dessine no. M-401





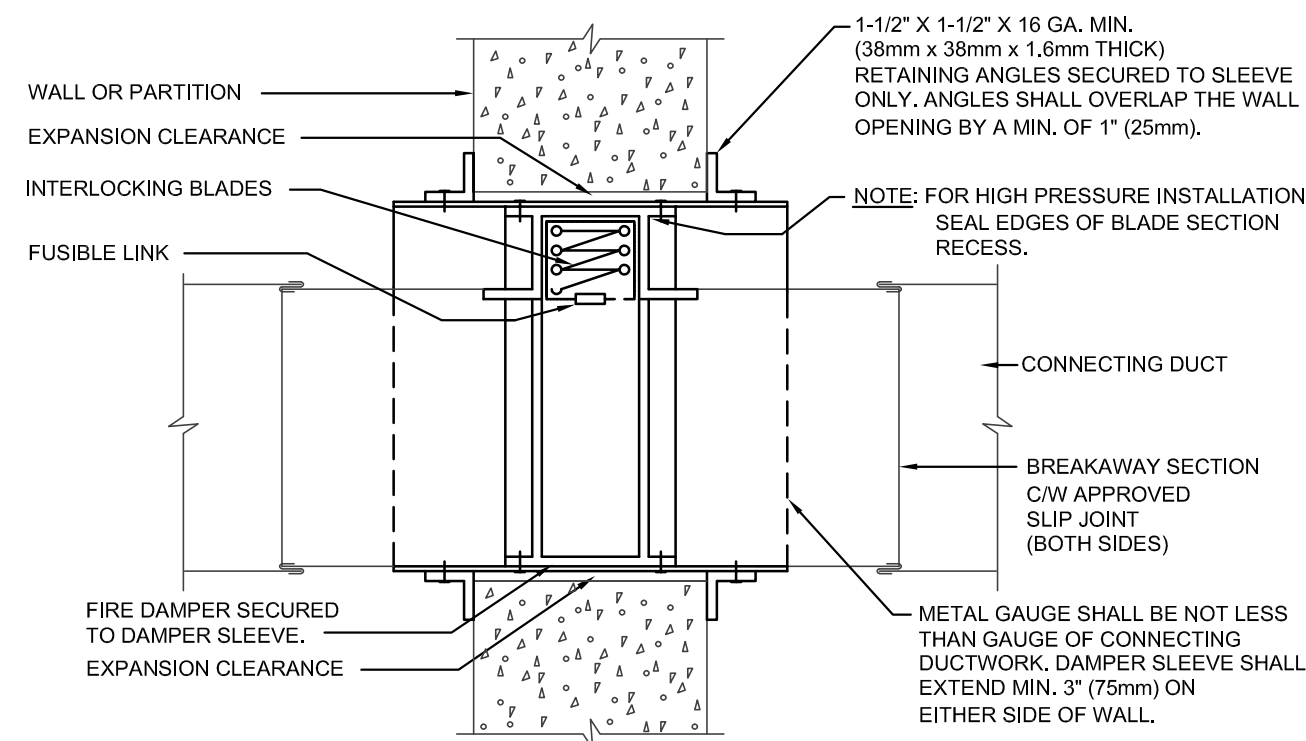
- NOTES:
1. INSTALL PIPING AND UNIONS TO ALLOW COIL REMOVAL.
  2. REFER TO CONTROL DIAGRAMS FOR COIL CONTROL.
  3. BALANCING VALVE SHALL BE SET FOR COIL DESIGN FLOW.
  4. PROVIDE FLEXIBLE CONNECTIONS BETWEEN PIPE AND COIL UNIONS TO SUIT LOCATION.
  5. BALL VALVE C/W DRAIN, PRESSURE TEMPERATURE PORT AND UNION. REFER TO VICTAULIC SERIES 799/79V-KOIL-KIT COIL PACK FOR DETAILS.



1 TYPICAL DUCT BOOSTER/COOLING COIL PIPING CONNECTIONS  
M-501 N.T.S.

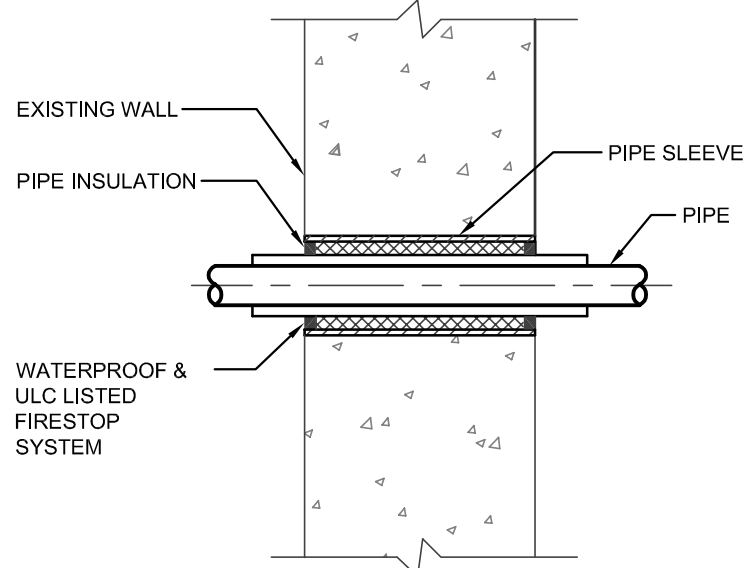
2 FUME HOOD PLUMBING SERVICE CONNECTION SCHEMATIC  
M-501 N.T.S.

3 FUME HOOD EXHAUST DUCT CONNECTION SCHEMATIC  
M-501 N.T.S.



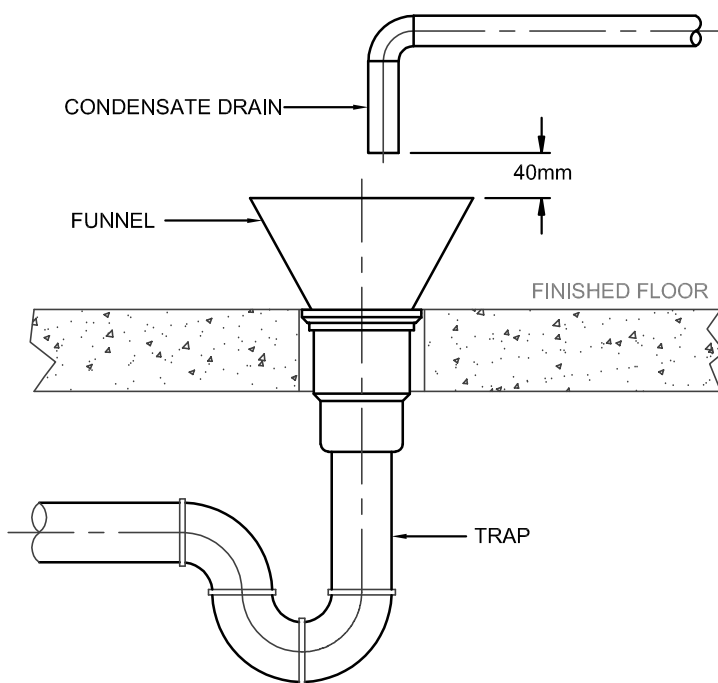
- NOTE:
1. SEAL BREAKAWAY SECTIONS AFTER INSTALLATION. FOR HIGH PRESSURE INSTALLATIONS, PROVIDE DUCT TAPE ON JOINTS AFTER SEALING.

4 TYPICAL DETAIL OF VERTICAL MOUNTED FIRE DAMPER  
M-501 N.T.S.

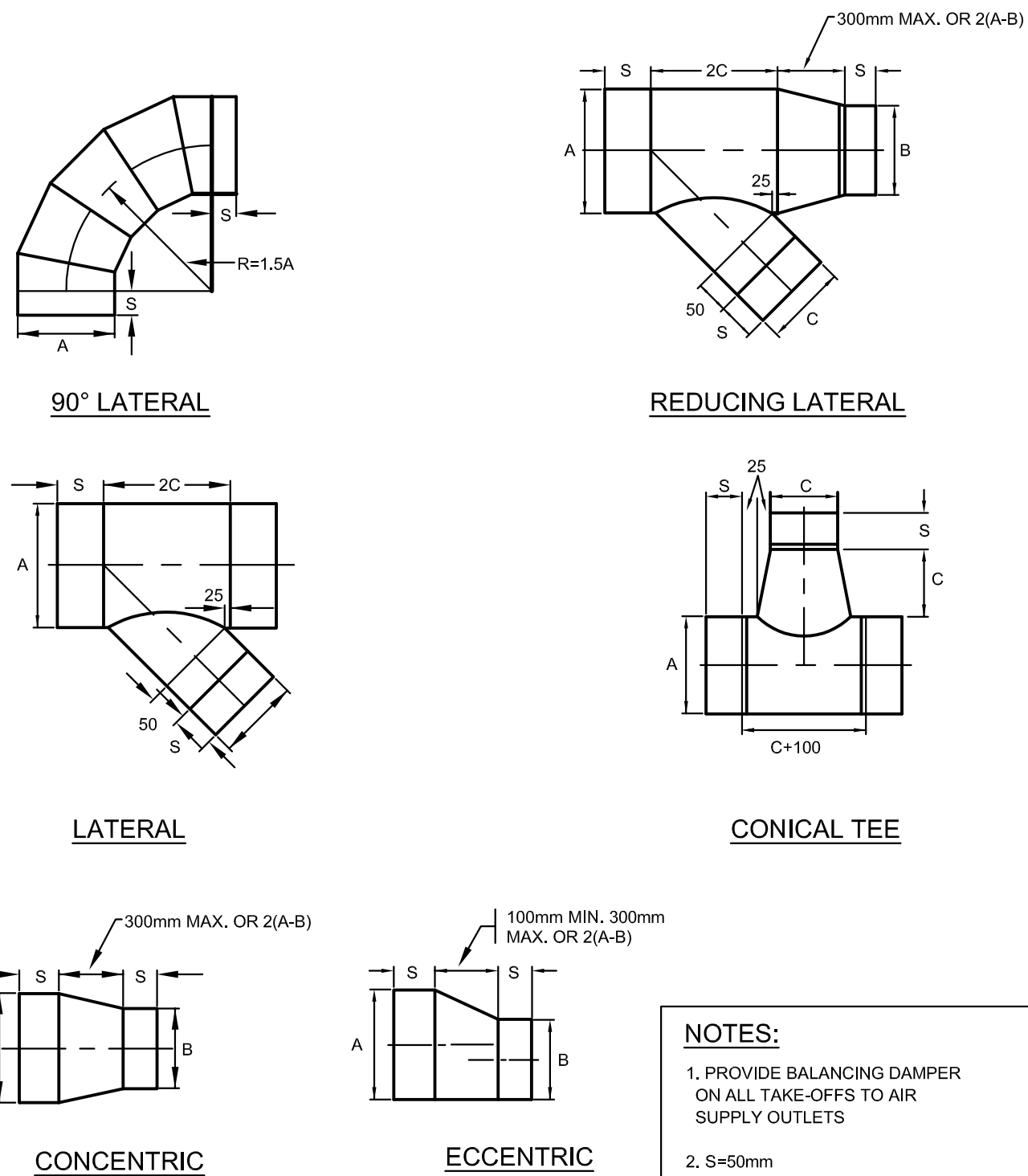


- NOTE:
1. PIPE DIMENSIONS VARY AS SHOWN ON DRAWINGS. PROVIDE TO SUIT INSTALLATION CONDITIONS.

5 PIPING PASSING THROUGH FIRE-RATED WALL  
M-501 N.T.S.



6 FUNNEL AND FLOOR DRAIN DETAIL  
M-501 N.T.S.



- NOTES:
1. PROVIDE BALANCING DAMPER ON ALL TAKE-OFFS TO AIR SUPPLY OUTLETS
  2. S=50mm

7 ROUND DUCT FITTINGS  
M-501 N.T.S.



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MECHANICAL DETAILS

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dessiné par  
A.F.

designed by  
conc par  
A.F.

approved by  
approuvé par  
V.L.

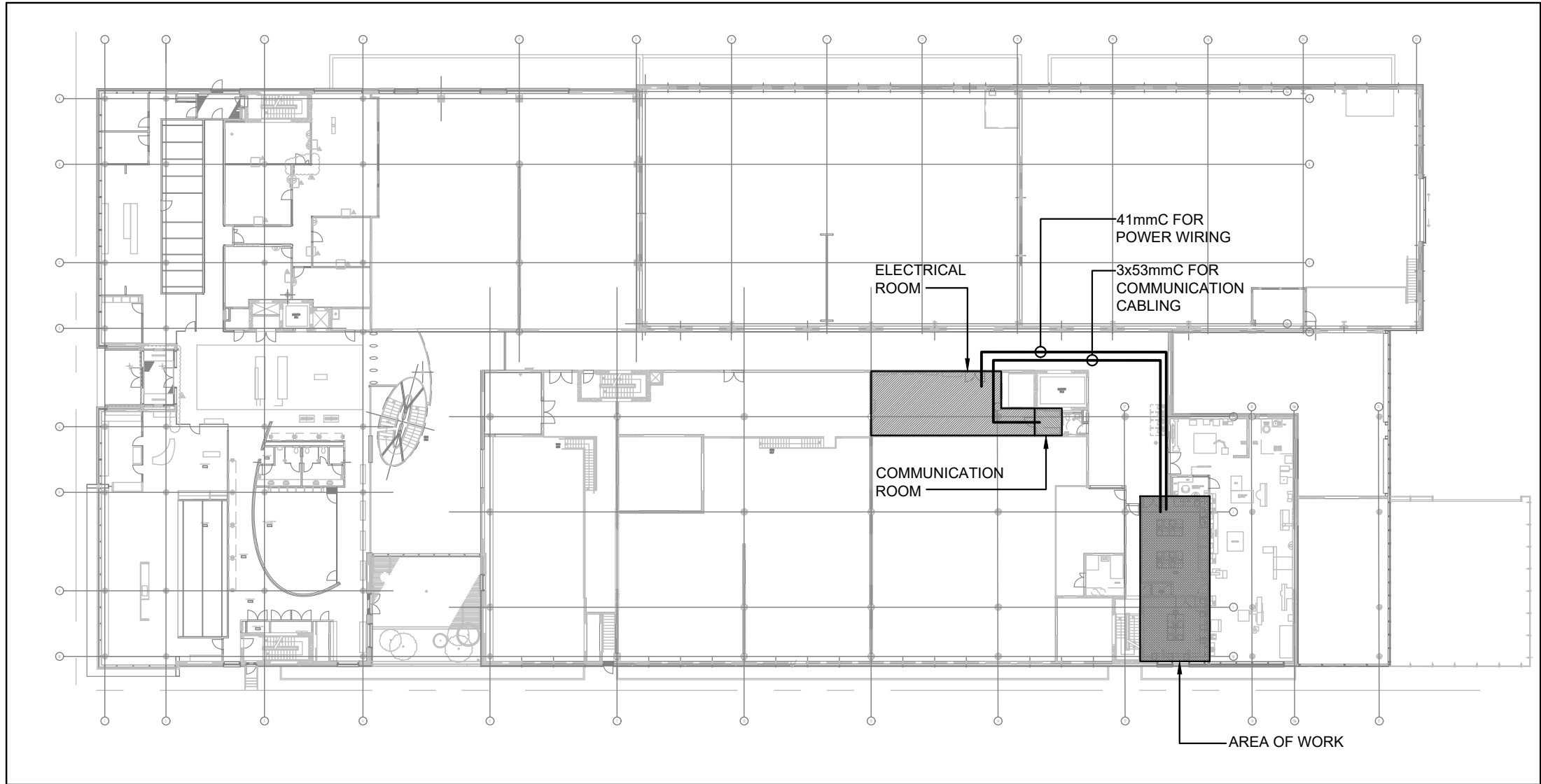
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project date  
date du projet  
JUNE 2020

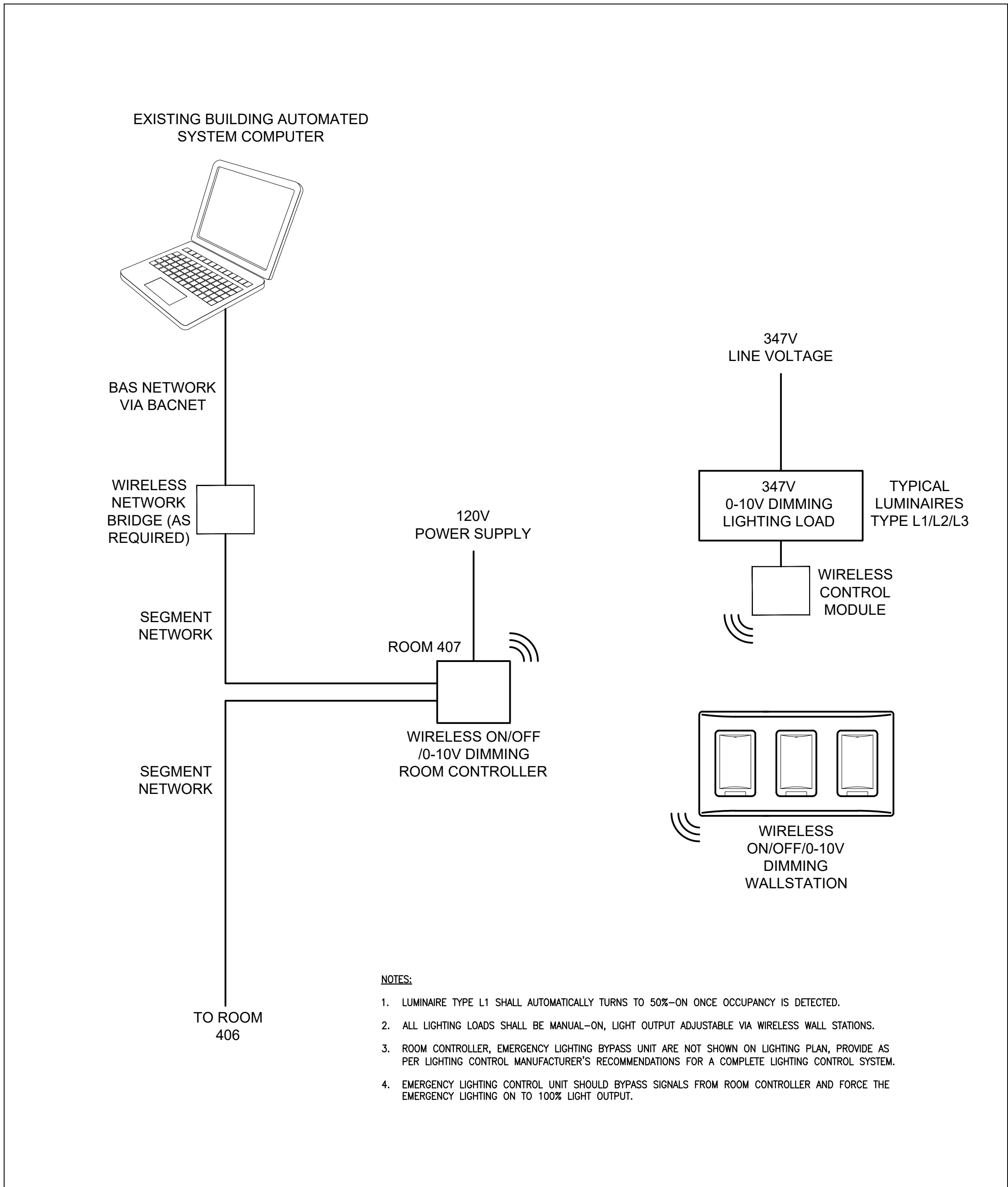
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no. du projet  
R.106310.002

drawing no.  
dessiné no.  
M-501





1 FIRST FLOOR KEY PLAN  
SCALE: N.T.S.



2 LIGHTING CONTROLS SCHEMATIC WIRING DIAGRAM  
SCALE: N.T.S.

### DEMOLITION SYMBOLS

SYMBOL	DESCRIPTION
	EXISTING ITEM TO REMAIN AS INSTALLED.
	EXISTING ITEM TO BE DELETED. REMOVE ALL EXISTING WIRING, CONDUIT, ETC. BACK TO ITS SOURCE. MAINTAIN CIRCUIT CONTINUITY DOWNSTREAM.
	EXISTING ITEM TO BE RELOCATED. EXTEND EXISTING WIRING IN CONDUIT TO NEW LOCATION AND CONNECT COMPLETE.
	EXISTING ITEM IN RELOCATED POSITION.
	EXISTING ITEM TO BE REPLACED BY A NEW FIXTURE OR DEVICE AND RECONNECTED TO EXISTING OR NEW CIRCUIT WHERE SHOWN.
	EXISTING ITEM TO BE DISCONNECTED, REMOVED, CLEANED, RE-INSTALLED IN SAME LOCATION AND RECONNECTED TO EXISTING CIRCUIT.
	EXISTING ITEM IN ITS RE-INSTALLED POSITION.

### FIRE ALARM SYMBOLS

SYMBOL	DESCRIPTION
	RECESSED OR SURFACE MOUNTED FIRE ALARM CONTROL PANEL.
	RECESSED OR SURFACE MOUNTED FIRE ALARM ANNUNCIATOR PANEL.
	FIRE ALARM PULL STATION.
	HEAT DETECTOR.
	SMOKE DETECTOR.
	FIRE ALARM HORN.
	COMBINATION FIRE ALARM HORN AND STROBE LIGHT.
	EMERGENCY VOICE COMMUNICATION (EVC) SYSTEM SPEAKER.

### LIGHTING SYMBOLS

SYMBOL	DESCRIPTION
	STRIP LUMINAIRE, LETTER "F" INDICATES LUMINAIRE TYPE AS PER LUMINAIRE SCHEDULE.
	ONE, TWO, THREE AND FOUR GANG LINE VOLTAGE TOGGLE SWITCH MOUNTED 4'-0" (1.2m) ABOVE FINISHED FLOOR LEVEL. UNLESS OTHERWISE NOTED. "DIM" WHERE SHOWN, DENOTES DIMMER SWITCH "P" WHERE SHOWN, DENOTES SWITCH AND PILOT LIGHT "3" WHERE SHOWN, DENOTES 3-WAY SWITCH
	EXIT LIGHT-WALL MOUNTED, COMPLETE WITH DIRECTIONAL ARROWS WHERE SHOWN OR REQUIRED. "WP" DENOTES WEATHERPROOF TYPE.
	EXIT LIGHT- CEILING MOUNTED, COMPLETE WITH DIRECTIONAL ARROWS WHERE SHOWN OR REQUIRED. "WP" DENOTES WEATHERPROOF TYPE.
	EMERGENCY BATTERY PACK C/W RECEPTACLE & REMOTE HEADS. REFER TO SPECIFICATIONS FOR DETAILS. "E2" DENOTES BATTERY UNIT DESIGNATION.
	REMOTE SINGLE HEAD OR DUAL HEAD EMERGENCY LIGHTS CONNECTED TO EMERGENCY BATTERY PACK. REFER TO SPECIFICATIONS FOR DETAILS. "E2" DENOTES REMOTE BATTERY HEADS FED FROM BATTERY UNIT "E2".
	OCCUPANCY SENSOR - CEILING MOUNTED
	OCCUPANCY SENSOR - WALL MOUNTED
	ROOM LIGHTING CONTROLLER

### GENERAL NOTES:

- PERFORM DETAILED SITE SURVEY PRIOR TO SUBMITTING THE BID. INCLUDE FOR ALL COSTS ASSOCIATED WITH RELOCATION WORK AND EXISTING SITE CONDITIONS. COORDINATE WORK WITH OTHER DISCIPLINES. IT SHALL BE THE ELECTRICAL DIVISION'S RESPONSIBILITY TO PERFORM DETAILED SITE SURVEY AND TAKE EXACT MEASUREMENTS ON SITE TO ENSURE COORDINATION WITH WORK OF OTHER DISCIPLINES, EXISTING CONDITIONS, AND THE LOCATIONS OF EXISTING MECHANICAL AND ELECTRICAL SERVICES.
- ELECTRICAL EQUIPMENT DIMENSIONS SHOWN ON DRAWINGS ARE APPROXIMATE. EXACT DIMENSIONS TO BE CONFIRMED WITH SHOP DRAWINGS.
- COORDINATE POWER SHUTDOWN SCHEDULE WITH BUILDING MANAGEMENT/OWNER. PROVIDE ADVANCE NOTICE IN ACCORDANCE WITH MIP STANDARDS.
- WHERE EXISTING ELECTRICAL SERVICES ARE REMOVED, ELECTRICAL DIVISION SHALL BE RESPONSIBLE FOR CLOSING OFF OF EXISTING OPENINGS. SEAL-UP ALL OPENINGS WITH SMOKE AND FIRE-STOPPING MATERIALS.
- CONTRACTOR SHALL IDENTIFY AND LABEL CLEARLY ALL CIRCUITS, WIRING, SERVICES, JUNCTION BOXES, PULLBOXES, DEVICES AND EQUIPMENT INSTALLED AND CONNECTED UNDER SCOPE OF WORK OF THIS PROJECT. IDENTIFICATION SHALL BE IN ACCORDANCE WITH MIP STANDARDS
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REFINISHING OF DAMAGED INTERIOR BUILDING AREAS. AND FINISHES AFFECTED BY THE WORK AS OUTLINED UNDER SCOPE OF WORK OF THIS PROJECT.
- PROVIDE WALL, FLOOR AND CEILING OPENINGS AS REQUIRED TO SUIT PROJECT SCOPE OF WORK. INCLUDE ALL COSTS FOR CUTTING, PATCHING, AND MAKING GOOD. MATCH EXISTING CONDITIONS WHERE WORK INVOLVES MODIFICATIONS AND WORK IN EXISTING AREAS. REFINISH SURFACES AND TOUCH-UP PAINT AND FINISHES ON EXISTING WALLS AND CEILINGS AROUND OPENINGS AND NEW SERVICES. SMOKE SEAL AND FIRE STOP ALL OPENINGS CREATED UNDER SCOPE OF WORK OF THIS PROJECT.
- JUNCTION BOXES AND PULL BOXES ARE GENERALLY NOT INDICATED ON DRAWINGS. PROVIDE JUNCTION BOXES AND PULLBOXES AS REQUIRED TO SUIT CONDUIT RUNS.
- FEEDER SPLICING SHALL NOT BE PERMITTED UNLESS OTHERWISE NOTED, OR APPROVED BY THE DEPARTMENTAL REPRESENTATIVE.
- THE ELECTRICAL DIVISION SHALL PREPARE AND SUBMIT TO THE DEPARTMENTAL REPRESENTATIVE FOR REVIEW A DETAILED LIST OF ALL EQUIPMENT, DEVICES AND MATERIALS UNDER THE DEMOLITION SCOPE OF WORK. ITEMS THAT ARE INTENDED TO RETAIN SHALL BE DESIGNATED AS SUCH BY THE DEPARTMENTAL REPRESENTATIVE. CONTRACTOR SHALL CLEAN, PACKAGE, AND TRANSPORT SUCH EQUIPMENT TO DESIGNATED LOCATION ON SITE. DISPOSE ANY UNWANTED ITEMS.

### POWER SYMBOLS

SYMBOL	DESCRIPTION
	DUPLEX U-GROUND 15A, 125 VOLT, 2 POLE, 3 WIRE GROUNDING RECEPTACLE MOUNTED 12" (300 mm) ABOVE FINISHED LEVEL, UNLESS OTHERWISE NOTED. DENOTES ISOLATED GROUND. DENOTES GROUND FAULT INTERRUPTER. DENOTES TWISTLOCK.
	SIMILAR TO ABOVE, BUT MOUNTED APPROXIMATELY 3'-6" (1050 mm) ABOVE FINISHED FLOOR LEVEL OR ABOVE COUNTER, UNLESS OTHERWISE NOTED.
	15/20A, 125V, DUPLEX U-GROUND RECEPTACLE (5-20R), MOUNTED 12" (300mm) ABOVE FINISHED FLOOR LEVEL, UNLESS OTHERWISE NOTED.
	SIMILAR TO ABOVE, BUT MOUNTED APPROXIMATELY 3'-6" (1050 mm) ABOVE FINISHED FLOOR LEVEL OR ABOVE COUNTER.
	QUADPLEX U-GROUND 15A, 125 VOLT, 2 POLE, 3 WIRE GROUNDING RECEPTACLE MOUNTED 12" (300 mm) ABOVE FINISHED LEVEL IN COMMON FACEPLATE, UNLESS OTHERWISE NOTED.
	SIMILAR TO ABOVE, BUT MOUNTED APPROXIMATELY 3'-6" (1050 mm) ABOVE FINISHED FLOOR LEVEL OR ABOVE COUNTER.
	20A, 125 VOLT, 3 WIRE HEAVY DUTY RECEPTACLE, MOUNTED 12" (300mm) ABOVE FINISHED FLOOR LEVEL, UNLESS OTHERWISE NOTED.
	SIMILAR TO ABOVE, BUT MOUNTED APPROXIMATELY 3'-6" (1050 mm) ABOVE FINISHED FLOOR LEVEL OR ABOVE COUNTER.
	15A, 250 VOLT, 2 POLE, 3 WIRE GROUNDING SINGLE RECEPTACLE - TWIST LOCK.
	20A, 250 VOLT, 2 POLE, 3 WIRE GROUNDING SINGLE RECEPTACLE - TWIST LOCK (L6-20R).
	30A, 600 VOLT, 3 POLE, 4 WIRE GROUNDING SINGLE RECEPTACLE - PIN & SLEEVE.
	WALL MOUNTED MULTI-GANG OUTLET BOX C/W RECEPTACLES.
	FLUSH OR SURFACE MOUNTED OUTLET BOX c/w DIRECT CONNECTION TO EQUIPMENT.
	WALL MOUNTED PUSH BUTTON. "EPO" WHERE SHOWN, DENOTES EMERGENCY POWER OFF.
	120V CONNECTION TO EQUIPMENT
	208V, 1PH CONNECTION TO EQUIPMENT
	208V, 3PH CONNECTION TO EQUIPMENT
	600V, 3PH CONNECTION TO EQUIPMENT
	SINGLE SURFACE MOUNTED PANELBOARD. "PP" DENOTES POWER PANEL. "LP" DENOTES LIGHTING AND POWER PANEL.
	SINGLE RECESSED MOUNTED PANELBOARD. "PP" DENOTES POWER PANEL. "LP" DENOTES LIGHTING AND POWER PANEL.
	JUNCTION BOX
	MOTOR
	DISCONNECT SWITCH. "WP" WHERE SHOWN, DENOTES WEATHERPROOF. DENOTES UNFUSED.
	MOTOR c/w DISCONNECT SWITCH
	SURFACE RACEWAY
	SINGLE GANG BACKBOX FOR DATA OUTLET. C/W 1°C TO CEILING MOUNTED PULL BOX.
	TOWER MOUNT UNINTERRUPTIBLE POWER SUPPLY.

### DRAWING LIST

DWG No.	DESCRIPTION
E-000	KEY PLAN, SYMBOL LIST, DRAWING LIST AND GENERAL NOTES - ELECTRICAL
E-100	PARTIAL FLOOR PLANS - POWER & SYSTEMS AND LIGHTING - DEMOLITION
E-200	PARTIAL FLOOR PLANS - POWER & SYSTEMS AND LIGHTING - NEW WORK
E-300	ELECTRICAL SCHEDULES AND PARTIAL SINGLE LINE DIAGRAM

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183 LONGWOOD ROAD SOUTH  
MAP LABORATORY RENOVATION

drawing title  
titre du dessin  
KEY PLAN, SYMBOL LIST,  
DRAWING LIST AND GENERAL  
NOTES - ELECTRICAL

drawn by  
dessine par

N.V.

designed by  
conc par

M.M.

approved by  
approuve par

M.M.

bid  
offre  
project manager  
administrateur  
de projets

project date  
date du projet

JUNE 2020

project no.  
no. du projet

209-00109-02

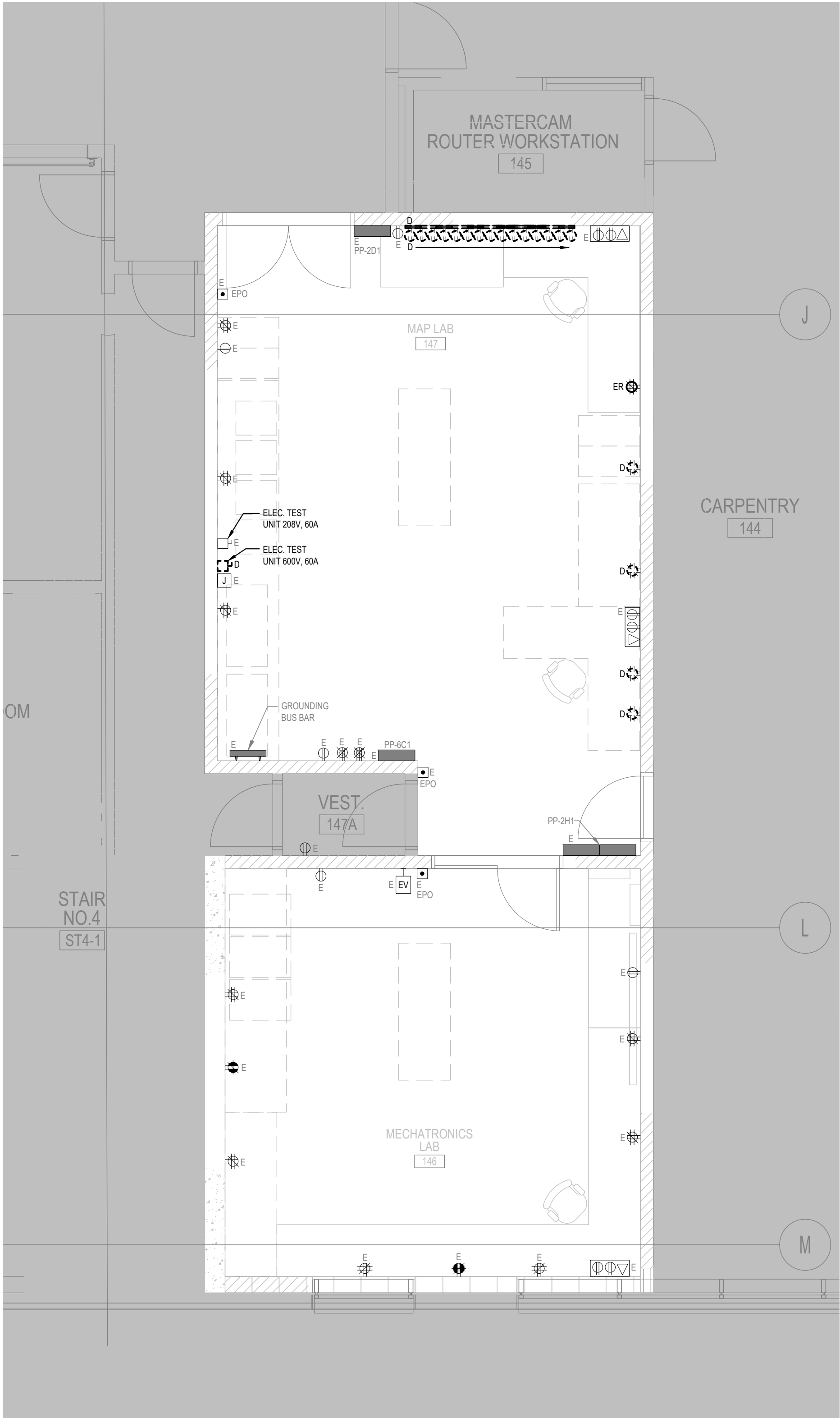
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dessine no.

E-000



DEMOLITION NOTES:

- 1 REMOVE EXISTING DEVICES AS IDENTIFIED ON THE DEMOLITION PLANS. CUT BACK TO SOURCE AND MAKE SAFE. PROVIDE NEW PULL STRINGS IN CONDUITS. PROVIDE NEW COVER PLATES IN ACCORDANCE WITH MIP STANDARDS.
- 2 EXISTING CIRCUITS SERVING LIGHTS AND EXIT SIGN ARE TO BE RE-USED.

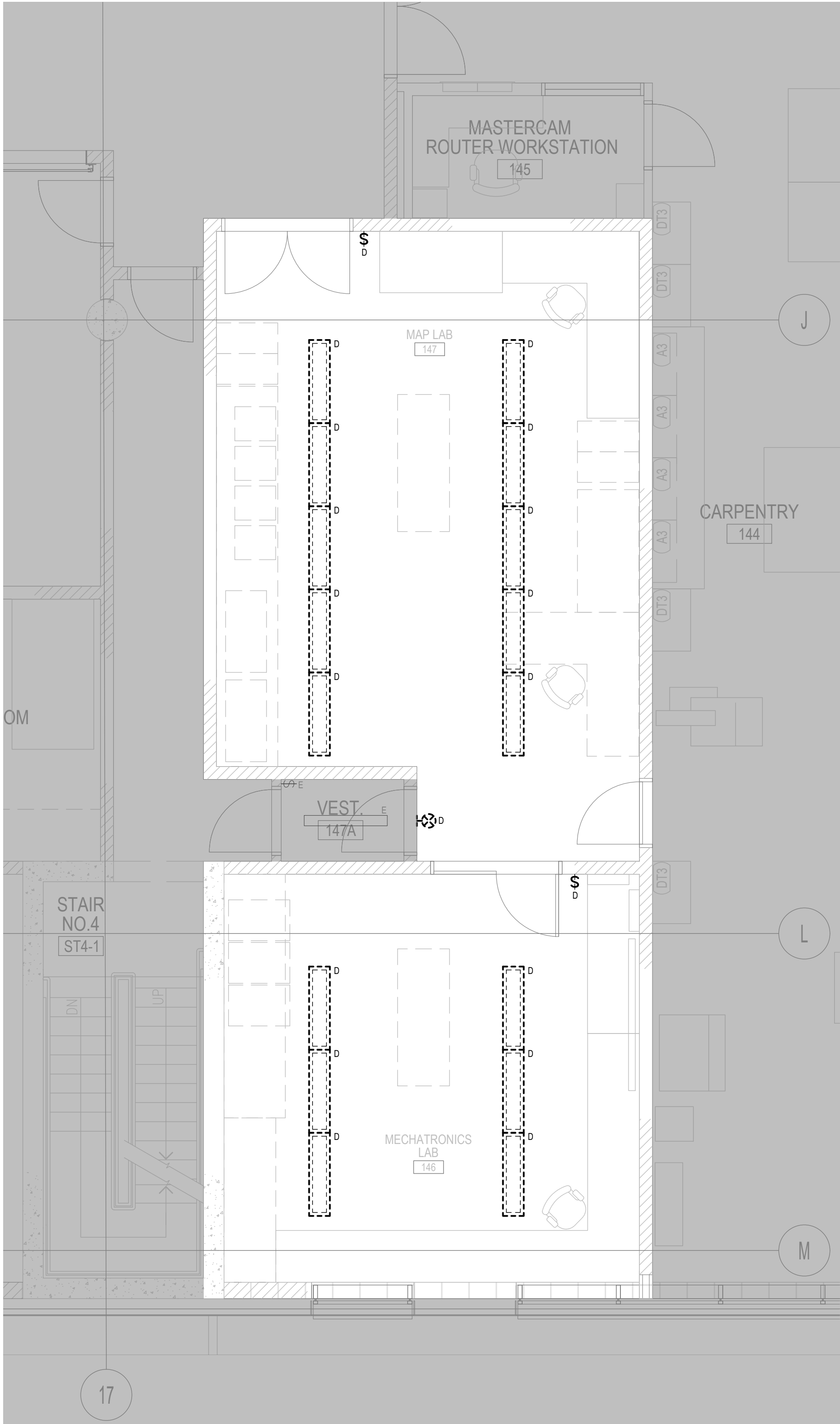


1

PARTIAL FLOOR PLAN - POWER AND SYSTEMS - DEMO WORK

E-100

SCALE: 1:50




2

PARTIAL FLOOR PLAN - LIGHTING - DEMO WORK

E-100

SCALE: 1:50

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POWER & SYSTEMS AND  
LIGHTING - DEMOLITION

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dessiné par  
N.V.

designed by  
conçu par  
M.M.

approved by  
approuvé par  
M.M.

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date du projet  
JUNE 2020

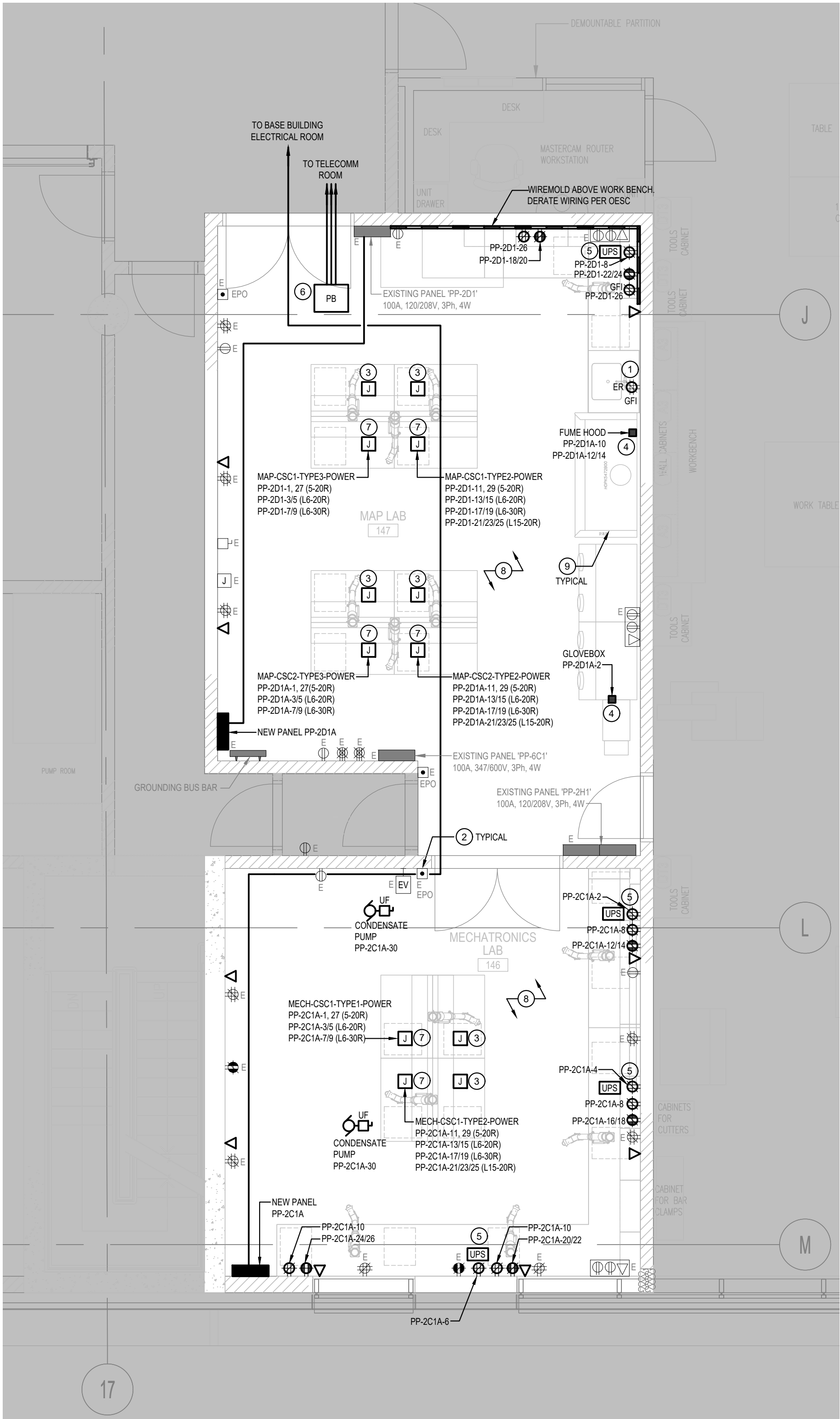
project no.  
no. du projet  
209-00109-02

drawing no.  
dessiné no.  
E-100



NOTES:

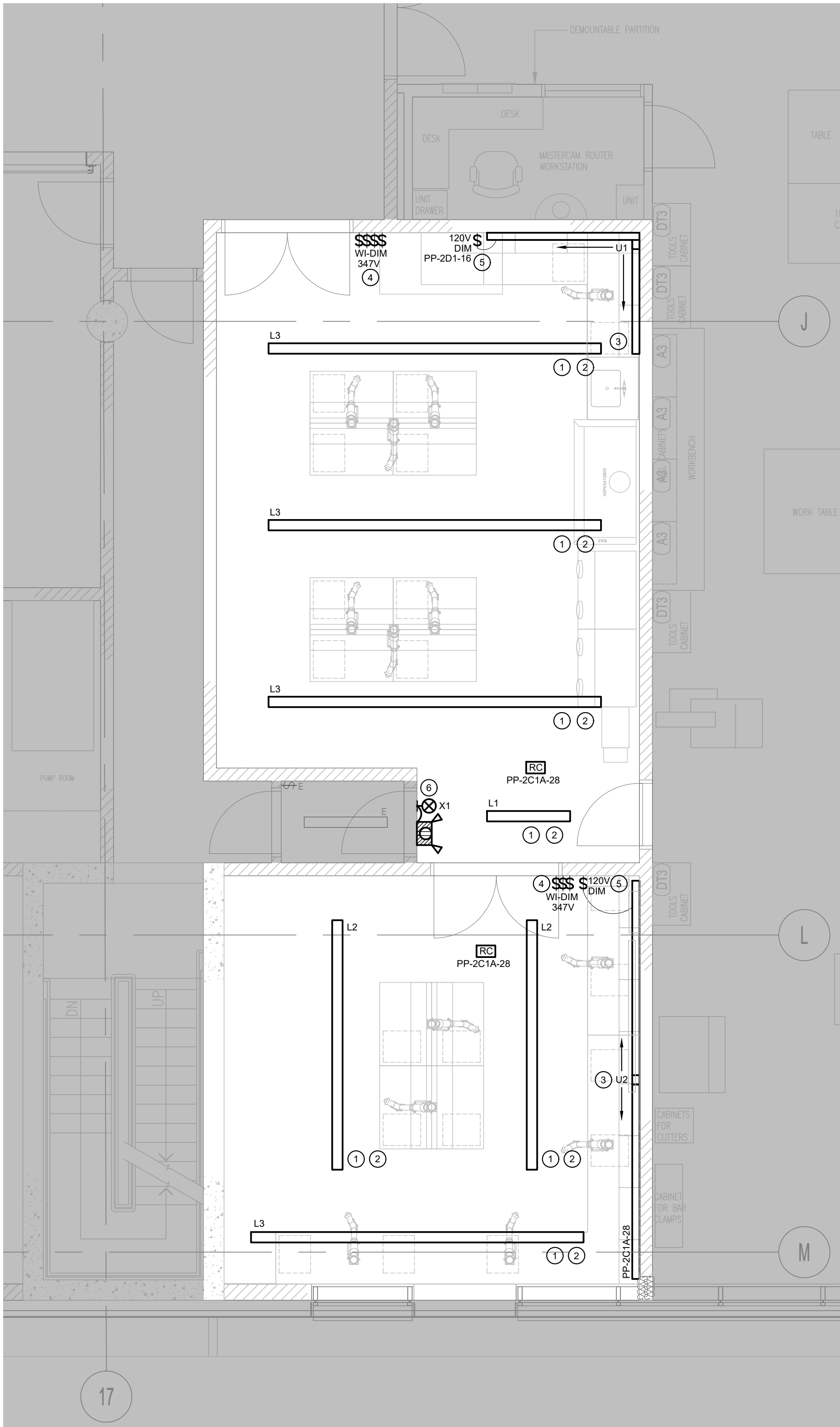
- 1 REPLACE EXISTING QUADPLEX RECEPTACLE WITH NEW GFI TYPE.
- 2 EXISTING EPO (EMERGENCY POWER OFF) PUSH BUTTON TO REMAIN. INCLUDE FOR TESTING. TYPICAL.
- 3 TELECOMM JUNCTION BOX FOR OVERHEAD SERVICE CARRIERS. ALLOW FOR 35mm CONDUIT TO CEILING MOUNTED PULL BOX. COORDINATE WITH CABLING CONTRACTOR.
- 4 COORDINATE WITH EQUIPMENT VENDORS ON SITE FOR ELECTRICAL CONNECTIONS TO LAB EQUIPMENT PRIOR TO INSTALLATION. FOLLOW MANUFACTURER'S INSTALLATION MANUAL.
- 5 PROVIDE AND INSTALL FOUR (4) NEW TOWER TYPE UPS C/W DEDICATED 15/20A, T-SLOT, 120V RECEPTACLE. UPS RECEPTACLE SHALL BE FED FROM A DEDICATED 20A CIRCUIT. FINAL INSTALLATION LOCATIONS SHALL BE COORDINATED WITH DEPARTMENTAL REPRESENTATIVE PRIOR TO INSTALLATION. TYPICAL FOR FOUR.
- 6 PROVIDE AND INSTALL NEW CEILING MOUNTED PULL BOX OF SUITABLE SIZE FOR NEW TELECOMMUNICATION CABLES SERVING THE RENOVATED AREA. RUN 3x53mm CONDUIT FROM THE PULL BOX TO THE TELECOMMUNICATION ROOM SHOWN ON DRAWING E000. INSTALL ADDITIONAL PULL BOXES AS REQUIRED.
- 7 POWER JUNCTION BOXES FOR CONNECTING TO PRE-WIRED OVERHEAD SERVICE CARRIER. COORDINATE WITH EQUIPMENT SUPPLIER FOR EXACT INSTALLATION LOCATIONS PRIOR TO ROUGH-IN. FOLLOW MANUFACTURER'S INSTALLATION MANUAL.
- 8 ALLOW FOR TWO(2) DEDICATED 20A 120V CIRCUITS & ASSOCIATED WIRING IN CONDUIT FOR THE POWER SUPPLIES OF LAB CONTROLLER & BAS CONTROLLER. ALLOW FOR TWO(2) 23mm CONDUITS FROM CONTROLLERS TO CEILING MOUNTED PULL BOX FOR DATA. COORDINATE WITH DIV. 23 AND DIV. 25.
- 9 BOND CABINET STORING FLAMMABLE TO BUILDING GROUNDING USING #6AWG INSULATED BONDING CONDUCTOR . TYPICAL.



1 PARTIAL FLOOR PLAN - POWER AND SYSTEMS - NEW WORK  
E-200 SCALE: 1:50

NOTES:

- 1 MOUNTED AT 2450mm AFFL, MEASURED FROM THE UNDERSIDE OF FIXTURE HOUSING. REUSE EXISTING 347V LIGHTING CIRCUIT SERVING THE AREA. EXTEND WIRING IN CONDUIT AS REQUIRED. EACH PENDANT LUMINAIRE SHALL BE CAPABLE OF SENSING WIRELESS CONTROL SIGNALS FROM THE RELATIVE WIRELESS DIMMING WALL SWITCHES. PROVIDE WIRELESS CONTROL MODULE FOR EACH LUMINAIRE AS NECESSARY. TYPICAL TO ALL PENDANT MOUNTING LUMINAIRES.
- 2 LIGHTING CONTROL DEVICES ARE NOT SHOWN ON LIGHTING PLAN. PROVIDE ALL NECESSARY DEVICES, CONNECTING WIRING CONDUITS, POWER SUPPLIES, AND ACCESSORIES FOR COMPLETE WIRELESS LIGHTING CONTROL SYSTEM. REFER TO DWG #E-000 FOR SCHEMATIC LIGHTING CONTROL WIRING DIAGRAM.
- 3 SURFACE MOUNTED ON THE UNDERSIDE OF THE CABINETRY. INTEGRAL OCCUPANCY SENSOR SHALL BE INSTALLED AT LOCATION CAPABLE OF SENSING FULL LAB BENCH AREA.
- 4 WIRELESS DIMMING WALL STATIONS TO INDIVIDUALLY CONTROL EACH ROW OF PENDANT LUMINAIRE. FACEPLATE SHALL BE IN STAINLESS STEEL FINISH.
- 5 ALL LIGHTING CONTROL WALL DEVICES SHALL HAVE STAINLESS STEEL FINISHED FACEPLATE FOR DURABILITY AND EASE OF CLEANING.
- 6 NEW EXIT SIGN SHALL REUSE EXISTING EXIT SIGN CIRCUIT.



2 PARTIAL FLOOR PLAN - LIGHTING - NEW WORK  
E-200 SCALE: 1:50



04	ISSUED FOR FINAL TENDER	2020/09/18
03	ISSUED FOR TENDER	2020/08/21
02	99% CD	2020/08/04
01	50% CD	2020/07/07
revision	issued	date

Do not scale drawings.  
Verify all dimensions and conditions on site and immediately  
notify the Departmental Representative of all discrepancies.

A	Detail No.
B	No. du détail
C	drawing no. - where detail required dessin no. - où détail exigé
	drawing no. - where detailed dessin no. - où détaillé

project title  
titre du projet  
HAMILTON ONTARIO  
NRCAN  
183 LONGWOOD ROAD SOUTH  
MAP LABORATORY RENOVATION

drawing title  
titre du dessin  
PARTIAL FLOOR PLANS -  
POWER & SYSTEMS AND  
LIGHTING - NEW WORK

drawn by  
dessiné par N.V.

designed by  
conc par M.M.

approved by  
approuvé par M.M.

bid  
offre project manager  
administrateur de projets

project date  
date du projet JUNE 2020

project no.  
no. du projet 209-00109-02

drawing no.  
dessiné no. E-200



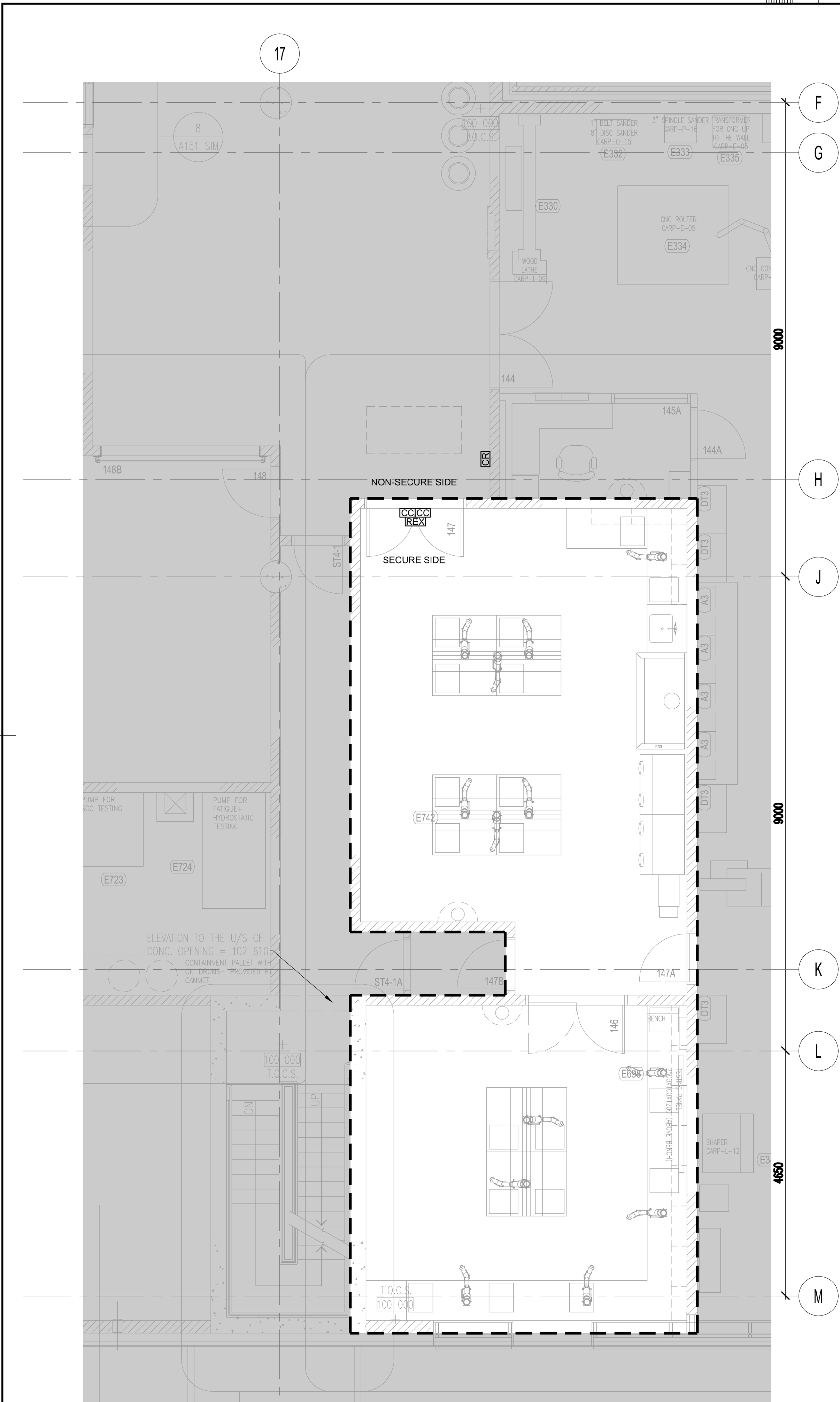
LOAD DESCRIPTION				BREAKERS								BREAKERS					LOAD DESCRIPTION				
AREA SERVED	REC	LOAD TYPE	FEEDER/ CONDUIT	L/B	GFI	OTHER	15A 2P	15A 1P	CCT No.	PH	CCT No.	15A 1P	15A 2P	OTHER	GFI	L/B	FEEDER/ CONDUIT	LOAD TYPE	REC	AREA SERVED	
MAP-CSC1-TYPE3-5-20R			2#12+G 16mmC			20A-1P			1	A	2			60A-3P			REFER TO SLD			PANEL PP-2D1A	
MAP-CSC1-TYPE3-L6-20R			2#12+G 16mmC			20A-2P			3	B	4										
									5	C	6										
MAP-CSC1-TYPE3-L6-30R			2#10+G 21mmC			30A-2P			7	A	8			20A-1P			2#10+G			UPS	
									9	B	10			20A-1P			2#12+G 16mmC			BAS	
MAP-CSC1-TYPE2-5-20R			2#12+G 16mmC			20A-1P			11	C	12			20A-1P			2#12+G 16mmC			LAB CONTROL PANEL	
MAP-CSC1-TYPE2-L6-20R			2#12+G 16mmC			20A-2P			13	A	14										
									15	B	16	X					2#12+G 16mmC			LIGHTING	
MAP-CSC1-TYPE2-L6-30R			2#10+G 21mmC			30A-2P			17	C	18			20A-2P			2#10+G			L6-20R REC.	
									19	A	20										
MAP-CSC1-TYPE2-L15-20R			3#12+G 21mmC			20A-3P			21	B	22			20A-2P			2#10+G			L6-20R REC.	
									23	C	24										
									25	A	26			20A-1P			2#10+G			REC.	
MAP-CSC1-TYPE3-5-20R			2#12+G 16mmC			20A-1P			27	B	28									EXISTING CIRCUIT	
MAP-CSC1-TYPE2-5-20R			2#12+G 16mmC			20A-1P			29	C	30									EXISTING CIRCUIT	
TOTAL 30 CIRCUITS																					
LIGHTING PANEL:		VOLTAGE: 120/208V, 3Ø, 4W				CONNECTED LOADS						DOUBLE LUG (Y/N): NO				DEMAND LOAD: --- kW					
POWER PANEL: PP-2D1		PANEL MAINS (AMPS): -				LIGHTING		RECEPTACLE		MOTOR		HEATING		PANEL LOCATION:							
						--- kW		---		--- kW		--- kW									
HEATING PANEL:		MAIN BREAKER: -								PANEL AMPS: --- AMPS		PANEL KW: --- kW		WSP JOB & JOB No.:							

LUMINAIRE SCHEDULE																				
TYPE	PRODUCT DESCRIPTION	NOMINAL DIMENSIONS	VOLTS	WATTS & LAMPS	DELIVER LUMEN	MOUNTING														
						R	S	W	SUS											
L1	PENDANT MOUNTED, SPECIFICATION GRADE LINEAR LENSED LED LUMINAIRE. EXTRUDED ALUMINIUM RECTANGULAR HOUSING AND END CAPS PRE-TREATED TO RESIST RUST AND CORROSION. DURABLE ALUMINIUM COLOUR FINISH. UV RESISTANT SPOTLESS FROSTED/WHITE ACRYLIC LENS. DOWNLIGHT WITH WIDE BEAM OPTICS. 1220mm LONG RIGID PENDANT MOUNTING STEMS WITH POWER FEED FOR INSTALLATION IN EXPOSED CEILINGS. COMPLETE WITH INTEGRAL OCCUPANCY SENSOR. INTEGRAL 0-10V 100%-1% DIMMING DRIVER C/W CONTROL MODULE TO INTEGRATE WITH LIGHTING MANAGEMENT SYSTEM USING SECURE WIRELESS PROTOCOLS. DIMMABLE THROUGH WIRELESS WALL STATION. COMPLY WITH BASE BUILDING SEISMIC REQUIREMENTS. CUL LISTED. INTEGRAL OCCUPANCY SENSOR SHALL BE ABLE TO AUTOMATICALLY TURN LUMINAIRE TO ITS PRIOR LIGHT OUTPUT STATE ONCE OCCUPANCY IS DETECTED, AND TURN LUMINAIRE OFF WHEN AREA IS VACANT FOR 15 MINUTES.	105mm W 1220mm L 110mm H	347V	8.2W / FT LED 4000K CRI 90+	1006 LM PER FOOT					✓										
L2	PENDANT MOUNTED, SPECIFICATION GRADE LINEAR LENSED LED LUMINAIRE. EXTRUDED ALUMINIUM RECTANGULAR HOUSING AND END CAPS PRE-TREATED TO RESIST RUST AND CORROSION. DURABLE ALUMINIUM COLOUR FINISH. UV RESISTANT SPOTLESS FROSTED/WHITE ACRYLIC LENS. DOWNLIGHT WITH WIDE BEAM OPTICS. 1220mm LONG RIGID PENDANT MOUNTING STEMS WITH POWER FEED FOR INSTALLATION IN EXPOSED CEILINGS. COMPLETE WITH INTEGRAL OCCUPANCY SENSOR. INTEGRAL 0-10V 100%-1% DIMMING DRIVER C/W CONTROL MODULE TO INTEGRATE WITH LIGHTING MANAGEMENT SYSTEM USING SECURE WIRELESS PROTOCOLS. DIMMABLE THROUGH WIRELESS WALL STATION. COMPLY WITH BASE BUILDING SEISMIC REQUIREMENTS. CUL LISTED.	105mm W 3660mm L 110mm H	347V	8.2W / FT LED 4000K CRI 90+	1006 LM PER FOOT					✓										
L3	SIMILAR TO TYPE L1, EXCEPT IN 4880mm (16FT) LENGTH.	105mm W 4880mm L 110mm H	347V	8.2W / FT LED 4000K CRI 90+	1006 LM PER FOOT					✓										
U1	SURFACE MOUNTED, NARROW & LOW PROFILE, LINEAR LENSED LED LUMINAIRE. EXTRUDED ALUMINIUM HOUSING AND END CAPS IN DURABLE ALUMINIUM COLOUR FINISH. UV RESISTANT SPOTLESS FROSTED/WHITE ACRYLIC LENS. DOWNLIGHT OPTICS. INTEGRAL 0-10V 100-10% DIMMING DRIVER. INTEGRAL MOTION SENSOR. PROVIDE ALL REQUIRED ACCESSORIES FOR POWER CONNECTION, FIXTURE-TO-FIXTURE CONNECTIONS AND SURFACE MOUNTING INSTALLATION. CUL LISTED.  LUMINAIRE SHALL COVER FULL LENGTH OF THE MOUNTING SURFACE. COVERAGE OF MOTION SENSOR SHALL BE CAPABLE OF SENSING FULL LENGTH OF THE APPLICABLE AREA. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT CABINTRY DIMENSION.	25mm W 25mm H RUN LENGTH	120V	10W / FT LED 4000K CRI 90+	800 LM PER FOOT		✓													
U2	SIMILAR TO TYPE U1, EXCEPT WITH RIGHT ANGLE CONNECTION FEATURE.  LUMINAIRE SHALL COVER FULL LENGTH OF THE MOUNTING SURFACE. COVERAGE OF MOTION SENSOR SHALL BE CAPABLE OF SENSING FULL LENGTH OF THE APPLICABLE AREA. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT CABINTRY DIMENSION.	25mm W 25mm H RUN LENGTH	120V	10W / FT LED 4000K CRI 90+	800 LM PER FOOT		✓													
X1	WALL MOUNTED, SINGLE-FACED, GREEN RUNNING MAN PICTOGRAM, SELF-POWERED ILLUMINATED EXIT SIGN AND EMERGENCY LIGHTING COMBINATION. SPECIFICATION GRADE STEEL FRAME HOUSING AND FACE PLATE WITH DURABLE WHITE BAKED POWDER COAT FINISH. EXIT SIGN SHALL BE ILLUMINATED DURING NORMAL AND EMERGENCY OPERATIONS. AUTOMATICALLY RECHARGING BATTERY SHALL PROVIDE EMERGENCY LIGHTING FOR DURATION OF 1 HOUR. COMPLETE WITH TEST SWITCH AND DIAGNOSTIC LIGHT(S). TWO ADJUSTABLE HIGH IMPACT THERMOPLASTIC LAMP HEADS. CSA 22.2 NO.141 CERTIFIED. REFER TO ELECTRICAL SPECIFICATIONS FOR FURTHER DETAILS.	711mm W 343mm H 57mm DEPTH	120/347V AC  12V DC	80W BATTERY  2 X 5W LED-MR16 WHITE	-			✓												
TOTAL 30 CIRCUITS				VOLTAGE: 120/208V, 3Ø, 4W				CONNECTED LOADS				DOUBLE LUG (Y/N): NO				DEMAND LOAD: --- KW				
POWER PANEL: PP-2C1A				PANEL MAINS (AMPS): 100A				LIGHTING RECEPTACLE MOTOR HEATING				--- KW --- KW --- KW --- KW				PANEL LOCATION:				
HEATING PANEL:				MAIN BREAKER: YES				PANEL AMPS: --- AMPS				PANEL KW: --- KW				WSP JOB & JOB No.:				

LOAD DESCRIPTION				BREAKERS									BREAKERS				LOAD DESCRIPTION						
AREA SERVED	REC	LOAD TYPE	FEEDER/ CONDUIT	L/B	GFI	OTHER	15A 2P	15A 1P	CCT No.	PH	CCT No.	15A 1P	15A 2P	OTHER	GFI	L/B	FEEDER/ CONDUIT	LOAD TYPE	REC	AREA SERVED			
MAP-CSC2-TYPE3-5-20R			2#12+G 16mmC			20A-1P			1	A	2			20A-1P			2#12+G 16mmC			GLOVEBOX			
MAP-CSC2-TYPE3-L6-20R			2#12+G 16mmC			20A-2P			3	B	4												
									5	C	6												
MAP-CSC2-TYPE3-L6-30R			2#10+G 21mmC			30A-2P			7	A	8												
									9	B	10			20A-1P			2#12+G 16mmC						FUMEHOOD
MAP-CSC2-TYPE2-5-20R			2#12+G 16mmC			20A-1P			11	C	12			20A-2P			2#12+G 16mmC			FUMEHOOD L6-20R			
MAP-CSC2-TYPE2-L6-20R			2#12+G 16mmC			20A-2P			13	A	14												
									15	B	16												
MAP-CSC2-TYPE2-L6-30R			2#10+G 21mmC			30A-2P			17	C	18												
									19	A	20												
									21	B	22												
MAP-CSC2-TYPE2-L15-20R			3#12+G 21mmC			20A-3P			23	C	24												
									25	A	26												
MAP-CSC2-TYPE3-5-20R			2#12+G 16mmC			20A-1P			27	B	28												
MAP-CSC2-TYPE2-5-20R			2#12+G 16mmC			20A-1P			29	C	30												
TOTAL 30 CIRCUITS																							
LIGHTING PANEL:		VOLTAGE: 120/208V, 3Ø, 4W				CONNECTED LOADS				DOUBLE LUG (Y/N): NO				DEMAND LOAD: --- kW									
POWER PANEL: PP-2D1A		PANEL MAINS (AMPS): 100A				LIGHTING		RECEPTACLE		MOTOR		HEATING		PANEL LOCATION:									
						--- kW		--- kW		--- kW		--- kW											
HEATING PANEL:		MAIN BREAKER: NO								PANEL AMPS: --- AMPS		PANEL KW: --- kW		WSP JOB & JOB No.:									

LOAD DESCRIPTION				BREAKERS								BREAKERS					LOAD DESCRIPTION				
AREA SERVED	REC	LOAD TYPE	FEEDER/ CONDUIT	L/B	GFI	OTHER	15A 2P	15A 1P	CCT No.	PH	CCT No.	15A 1P	15A 2P	OTHER	GFI	L/B	FEEDER/ CONDUIT	LOAD TYPE	REC	AREA SERVED	
MECH-CSC1-TYPE1-5-20R			2#12+G 16mmC			20A-1P			1	A	2			20A-1P			2#12+G 16mmC			UPS	
MECH-CSC1-TYPE1-L6-20R			2#12+G 16mmC			20A-2P			3	B	4			20A-1P			2#12+G 16mmC			UPS	
									5	C	6			20A-1P			2#12+G 16mmC			UPS	
MECH-CSC1-TYPE1-L6-30R			2#10+G 21mmC			30A-2P			7	A	8			20A-1P			2#12+G 16mmC			REC.	
									9	B	10			20A-1P			2#12+G 16mmC			REC.	
MECH-CSC1-TYPE2-5-20R			2#12+G 16mmC			20A-1P			11	C	12			20A-2P			2#12+G 16mmC			L6-20R REC.	
MECH-CSC1-TYPE2-L6-20R			2#12+G 16mmC			20A-2P			13	A	14							2#12+G 16mmC			
MECH-CSC1-TYPE2-L6-30R			2#10+G 21mmC			30A-2P			15	B	16			20A-2P			2#12+G 16mmC			L6-20R REC.	
									17	C	18						2#12+G 16mmC			L6-20R REC.	
MECH-CSC1-TYPE2-L15-20R			3#12+G 21mmC			20A-3P			19	A	20			20A-2P			2#12+G 16mmC			L6-20R REC.	
									21	B	22						2#12+G 16mmC			L6-20R REC.	
									23	C	24						2#12+G 16mmC			L6-20R REC.	
									25	A	26										
MECH-CSC1-TYPE1-5-20R			2#12+G 16mmC			20A-1P			27	B	28	X					2#12+G 16mmC			LIGHTING & CONTROLLER	
MECH-CSC1-TYPE2-5-20R			2#12+G 16mmC			20A-1P			29	C	30	X					2#12+G 16mmC			CONDENSATE PUMPS	
									31	A	32										
									33	B	34										
									35	C	36										
									37	A	38										
									39	B	40										
									41	C	42										
TOTAL 30 CIRCUITS																					
LIGHTING PANEL:		VOLTAGE: 120/208V, 3Ø, 4W				CONNECTED LOADS				DOUBLE LUG (Y/N): NO				DEMAND LOAD: --- kW							
						LIGHTING		RECEPTACLE		MOTOR		HEATING									
POWER PANEL: PP-2C1A		PANEL MAINS (AMPS): 100A				--- kW		--- kW		--- kW		--- kW		PANEL LOCATION:							
HEATING PANEL:		MAIN BREAKER: YES								PANEL AMPS: --- AMPS		PANEL KW: --- KW		WSP JOB & JOB No.:							



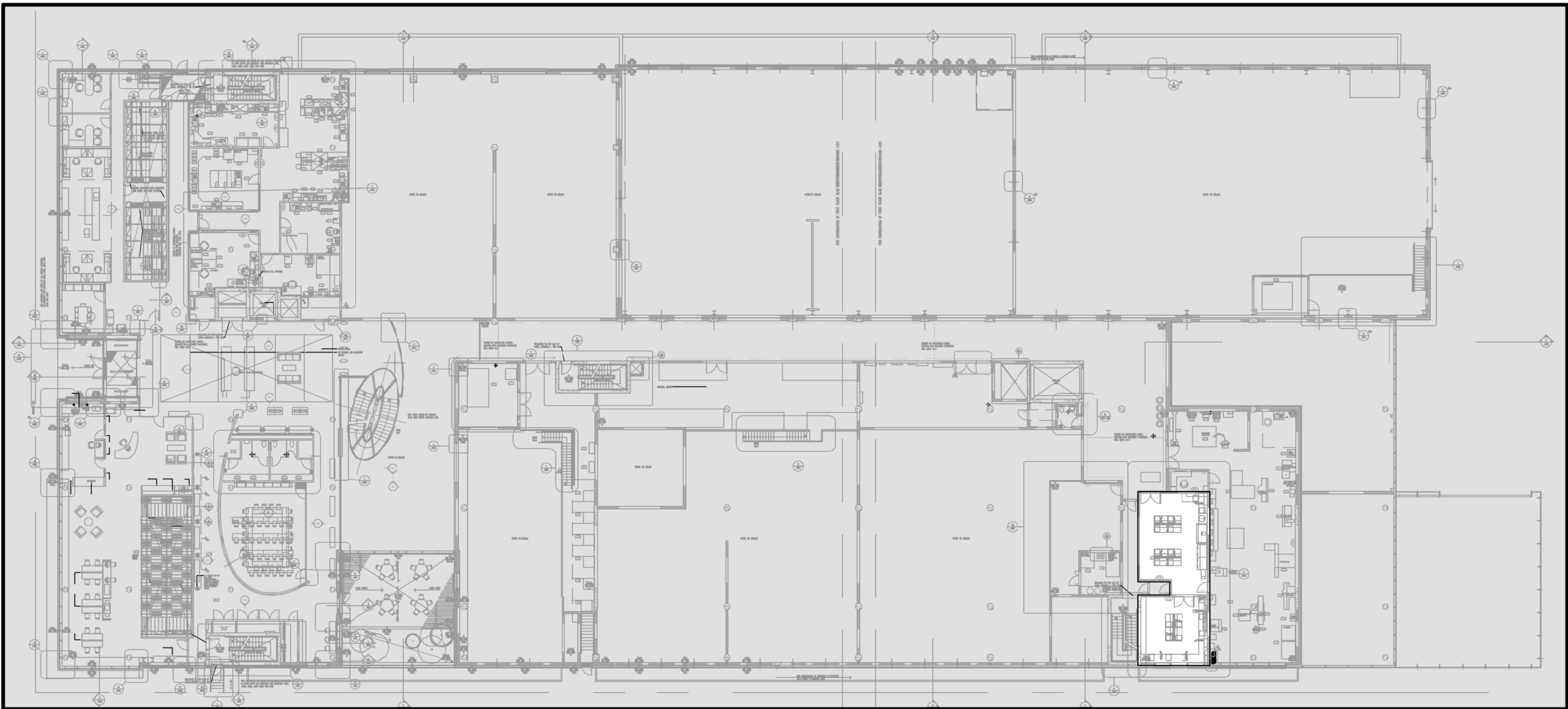


2 PARTIAL SECURITY PLAN  
Y-001 SCALE: 1:50

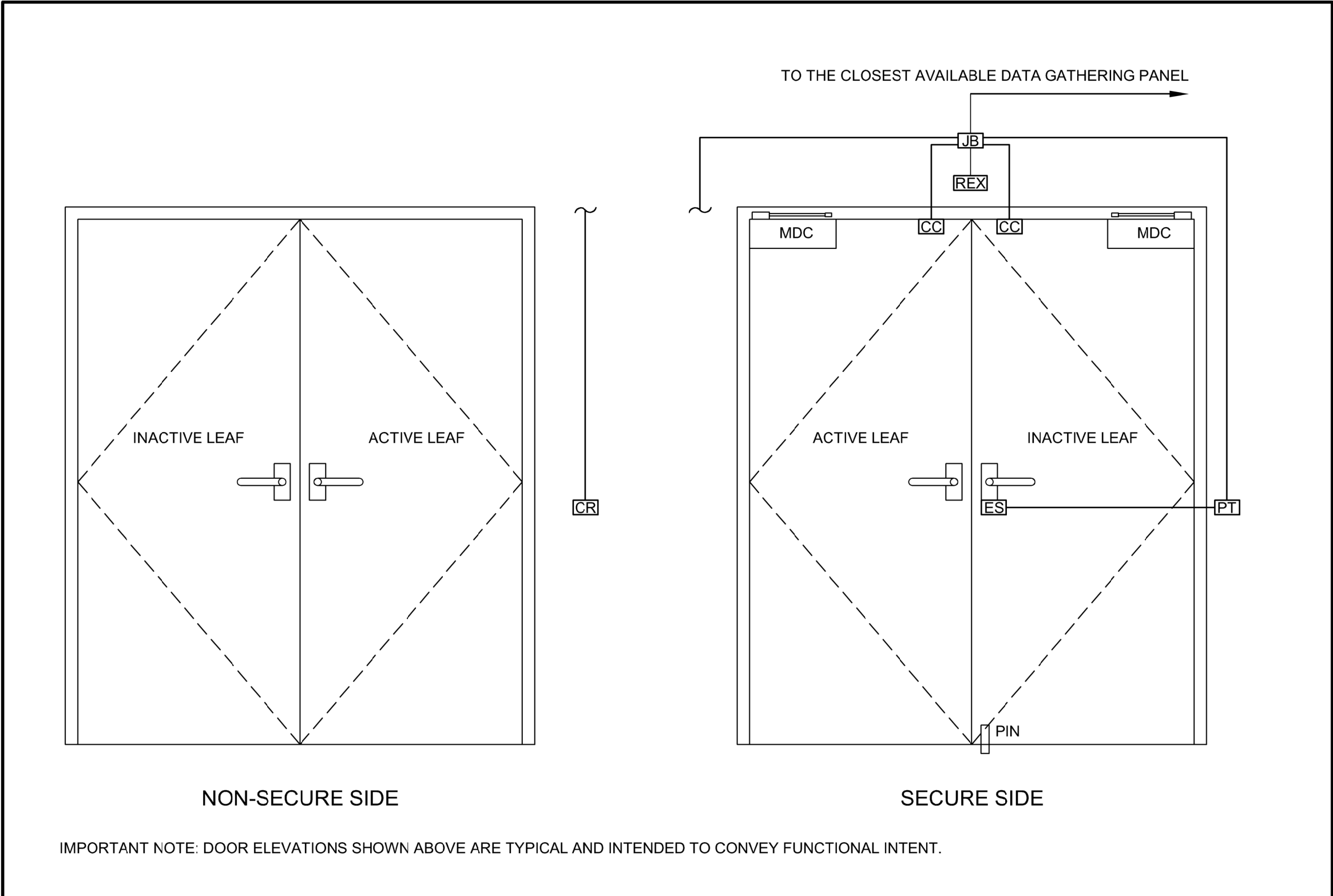
SECURITY SYMBOL LEGEND

SYMBOL	DESCRIPTION
CR	CARD READER
ES	ELECTRIC STRIKE
EL	ELECTRIC LOCK
CC	CONCEALED DOOR CONTACT
REX	REQUEST TO EXIT MOTION SENSOR
RXP	REQUEST TO EXIT PUSH BUTTON
PT	POWER TRANSFER HINGE

IMPORTANT NOTE:  
EXACT DGP TERMINATION LOCATION TO BE DETERMINED  
ON SITE WITH FACILITY SECURITY MANAGEMENT.



1 KEY PLAN  
Y-001 SCALE: N.T.S.



3 DOOR ELEVATION DETAILS  
Y-001 SCALE: N.T.S.

Public Works and  
Government Services Canada  
Travaux publics et  
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04	ISSUED FOR FINAL TENDER	2020/09/18
03	ISSUED FOR TENDER	2020/08/21
02	59%CD	2020/08/04
01	50%CD	2020/07/07
revision	issued	date

Do not scale drawings.  
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project title  
titre du projet  
HAMILTON ONTARIO  
NRCAN  
183 LONGWOOD SOUTH

MAP LABORATORY RENOVATION

drawing title  
titre du dessin  
PARTIAL SECURITY PLAN  
AND DETAILS

drawn by  
dessiné par ML

designed by  
conçu par ML

approved by  
approuvé par SP

bid  
offre project manager  
administrateur de projets

project date  
date du projet JUNE 2020

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