



Agriculture and Agri-Food Canada    Agriculture et Agroalimentaire Canada

## Agriculture and Agri-Food Canada

Neatby Building  
 960 Carling Ave., Ottawa, Ontario, K1Y 4X2

### Lab 2044 & 2046 Renovation

# ISSUE FOR 100% CONSTRUCTION DOCUMENTS



ISSUE DESCRIPTION	DATE
A. 50% CD	5/17/2017
B. 90% CD	6/7/2017
C. 100% CD	7/10/2017

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ARCHITECTURAL	
SYMBOL	DESCRIPTION
	WALL TYPE
	EQUIPMENT / FURNITURE AND FIXTURES TAG
	WINDOW TAG
	INTERIOR ELEVATION INDICATOR
	DOOR TAG
	DETAIL / PLAN ENLARGEMENT REFERENCE
	DETAIL / SECTION REFERENCE
	EXISTING TO BE DEMOLISHED
	EXISTING TO REMAIN
	NEW CONSTRUCTION
	NORTH INDICATOR

HYDRONIC AND PLUMBING PIPING	
SYMBOL	DESCRIPTION
	COMPRESSED AIR
	CHILLED WATER SUPPLY
	CHILLED WATER RETURN
	HEATING WATER SUPPLY
	HEATING WATER RETURN
	CONDENSATE DRAIN
	LOW PRESSURE STEAM
	LOW PRESSURE CONDENSATE
	LABORATORY COLD WATER
	LABORATORY HOT WATER
	LAB HOT WATER CIRCULATION
	LABORATORY WASTE
	LABORATORY VENT
	NATURAL GAS
	VACUUM PIPING
	REVERSE OSMOSIS (RO) WATER
	DEIONIZED (DI) WATER
	VALVE, SEE SPECIFICATIONS FOR VALVE TYPE
	CHECK VALVE
	TWO WAY CONTROL VALVE
	THREE WAY CONTROL VALVE
	BALANCING VALVE
	SOLENOID CONTROL VALVE
	PRESSURE REDUCING VALVE
	STRAINER WITH VALVE AND HOSE CONNECTION
	STRAINER
	STEAM TRAP
	FLEXIBLE CONNECTION
	TEST PLUG
	PRESSURE GAUGE
	PRESSURE RELIEF VENT
	PIPE BREAK
	PIPE SLOPE
	DIRECTION OF FLOW
	PIPE UP
	PIPE DOWN
	PIPE T DOWN
	PIPE T UP
	PIPE CAP
	UNION
	REDUCER
	PIPE ANCHOR
	PIPE GUIDE
	THERMOMETER OR SIGHT GLASS
	FLOW METER

MECHANICAL DUCTWORK	
SYMBOL	DESCRIPTION
	INSIDE DUCT SIZE (FIRST FIGURE IS SIDE SHOWN)
	MOTORIZED DAMPER
	BACKDRAFT OR BAROMETRIC DAMPER
	SUPPLY AIR - DUCT DOWN
	RETURN AIR - DUCT DOWN
	EXHAUST AIR - DUCT DOWN
	SUPPLY AIR - DUCT UP
	RETURN AIR - DUCT UP
	EXHAUST AIR - DUCT UP
	FLEXIBLE DUCT CONNECTION
	DIRECTION OF FLOW
	MITERED ELBOW WITH TURNING VANES
	LONG RADIUS ELBOW
	RECTANGULAR MAIN DUCT WITH RECTANGULAR BRANCH, BOOT FITTING
	MANUAL VOLUME DAMPER
	ROUND MAIN DUCT WITH ROUND BRANCH, CONICAL FITTING
	RECTANGULAR MAIN DUCT WITH ROUND BRANCH, CONICAL FITTING
	MANUAL VOLUME DAMPER
	ROUND MAIN DUCT WITH ROUND BRANCH, STRAIGHT FITTING
	REHEAT COIL

FIRE ALARM	
SYMBOL	DESCRIPTION
	HEAT DETECTOR (COMBINATION FIXED RATE AND RATE OF RISE - 57°F) - CR 135

MECHANICAL GENERAL SYMBOLS	
SYMBOL	DESCRIPTION
	EQUIPMENT DESIGNATION
	KEYNOTE
	CONNECT NEW TO EXISTING AT THIS POINT
	DEMOLISH TO THIS POINT

DIFFUSERS, REGISTERS, AND GRILLES	
SYMBOL	DESCRIPTION
	CEILING SUPPLY AIR DIFFUSER ARROW INDICATES DIRECTION OF THROW CEILING EXHAUST AIR GRILLE
DIFFUSER DESIGNATION	
	TYPE, REFER TO DIFFUSER, REGISTER AND GRILLE OR HEPA FILTER SCHEDULE
	AIR QUANTITY (L/s) [CFM]
DESIGNATE OUTSIDE AIR SUPPLY DUCT ON FLOOR PLANS (ALL DUCTWORK SIZES ARE IN MILLIMETERS [INCHES] UNLESS NOTED OTHERWISE)	
	DUCT SIZE OUTSIDE AIR

ELECTRICAL AND TELECOMMUNICATION	
SYMBOL	DESCRIPTION
	1x4 LED LIGHT FIXTURE, RECESSED CEILING MOUNTED
	2x2 LED LIGHT FIXTURE, RECESSED CEILING MOUNTED
	LINE VOLTAGE TOGGLE SWITCH
	LINE VOLTAGE THREE-WAY TOGGLE SWITCH
	LINE VOLTAGE FOUR-WAY TOGGLE SWITCH
	DUAL CHANNEL RACEWAY
	NEMA 5-20R RECEPTACLE
	NEMA 5-20R RECEPTACLE WITH USB PORT
	JUNCTION BOX
	RECESSED ELECTRICAL PANEL
	SINGLE PHONE OUTLET
	DUAL DATA OUTLET
	SINGLE ALARM MONITORING BOX
	PENETRATION POINT TO THE RACEWAY INSIDE NEW WALL CAVITY (VERTICAL DROP FROM THE CEILING)

**GENERAL NOTES**

- A. DRAWINGS ARE TO BE READ AS A PACKAGE AND ARE NOT INTENDED TO BE SEPARATED AND VIEWED INDIVIDUALLY BY DISCIPLINE.
- B. ALL SHUTDOWNS OR DISRUPTIONS OF ANY SYSTEM OR SPACE ARE TO BE COORDINATED WITH THE OWNER IN ORDER TO MINIMIZE DISRUPTIONS TO OPERATING LABORATORIES.

**GENERAL NOTES - ARCHITECTURAL**

- A. DEMOLITION AND RENOVATION  
CONTRACTOR TO MAKE GOOD ALL WALLS, FLOOR AND CEILING AFTER DEMOLITION IS COMPLETE. ALL SURFACES AND SERVICES SHALL BE MADE SUITABLE FOR SUBSEQUENT WORK AS DETAILED WITHIN THIS DRAWING PACKAGE AND FOR CODE COMPLIANCE.  
CONTRACTOR TO FIELD VERIFY DIMENSIONS AND LOCATION OF ALL EXISTING MECHANICAL, PLUMBING, ELECTRICAL AND MISCELLANEOUS FIXTURES TO BE DEMOLISHED OR RELOCATED BEFORE RENOVATION OR CONSTRUCTION WORK BEGINS.  
CONTRACTOR TO REVIEW FACILITY'S HAZARDOUS MATERIALS STUDY TO IDENTIFY ANY HAZARDOUS MATERIALS AND ABIDE BY ALL FINDINGS AND RECOMMENDATIONS CONTAINED THEREIN. REMOVAL OF ALL HAZARDOUS MATERIALS AS PART OF THIS CONTRACT SHALL BE IN ACCORDANCE WITH LOCAL, PROVINCIAL, AND FEDERAL REGULATIONS.  
CONTRACTOR TO PROTECT EXISTING WALLS AND WINDOW IN ADJACENT TO LABORATORIES LABS 2044 & 2046. SEAL DOOR AND WINDOWS AGAINST DUST AND OTHER PARTICLES BEFORE RENOVATION WORK BEGINS.  
DIMENSIONS ARE TO FACE OF FINISHED MATERIALS, UNLESS OTHERWISE NOTED.

**GENERAL NOTES - MECHANICAL**

- A. DEMOLITION AND RENOVATION  
CONTRACTOR TO FIELD VERIFY DIMENSIONS AND LOCATION OF ALL EXISTING MECHANICAL, PLUMBING, ELECTRICAL

**GENERAL NOTES - ELECTRICAL**

- A. CUTTING AND PATCHING  
ARRANGE FOR THE GENERAL CONTRACTOR TO DO ALL CUTTING/CORE DRILLING AND PATCHING REQUIRED FOR THE ELECTRICAL INSTALLATIONS. BEFORE CARRYING OUT ANY CUTTING, OBTAIN WRITTEN APPROVAL FROM THE OWNER.
- B. FIREPROOF PATCHING  
WHERE CONDUITS OR SINGLE CONDUCTOR CABLES PASS THROUGH FIRE RATED FLOOR SLABS, FIRE RATED CEILINGS OR FIRE RATED WALLS, SEAL OPENING AROUND WITH SAME TO MAINTAIN FIRE SEPARATION USING APPROVED ULC RATED FIRE PATCHING MATERIAL.
- C. CLEAN UP AND REPAIR  
CARRY OUT THE REQUIRED CLEANUP AT THE END OF EACH DAY IN WORK AREAS. REMOVE ALL TOOLS, EQUIPMENT, LADDERS AND EMPTY CARDBOARD BOXES ETC. AND LEAVE THE PREMISES CLEAN.  
THE ELECTRICAL CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR MAKING GOOD ANY DAMAGE TO WALLS, FLOORS, CEILINGS, WOODWORK, FINISHES, ETC. CAUSED DIRECTLY OR INDIRECTLY AS A RESULT OF HIS WORK.
- D. SEISMIC REQUIREMENTS  
COMPLY WITH ALL PERTINENT CODE REQUIREMENTS. LIGHT FIXTURES IN T-BAR CEILINGS ARE TO BE SUPPORTED BY VERTICAL CHAINS.
- E. OWNER SUPPLIED EQUIPMENT  
MAKE FINAL CONNECTIONS TO OWNER SUPPLIED EQUIPMENT. CONFIRM ELECTRICAL REQUIREMENTS SUCH AS PLUG ARRANGEMENT AND OR HARD WIRE CONNECTIONS PRIOR TO PULLING OF WIRES, CONDUIT ROUGH-IN AND ORDERING MATERIALS SUCH AS BREAKERS IN PANELS, DISCONNECT SWITCHES, ETC.



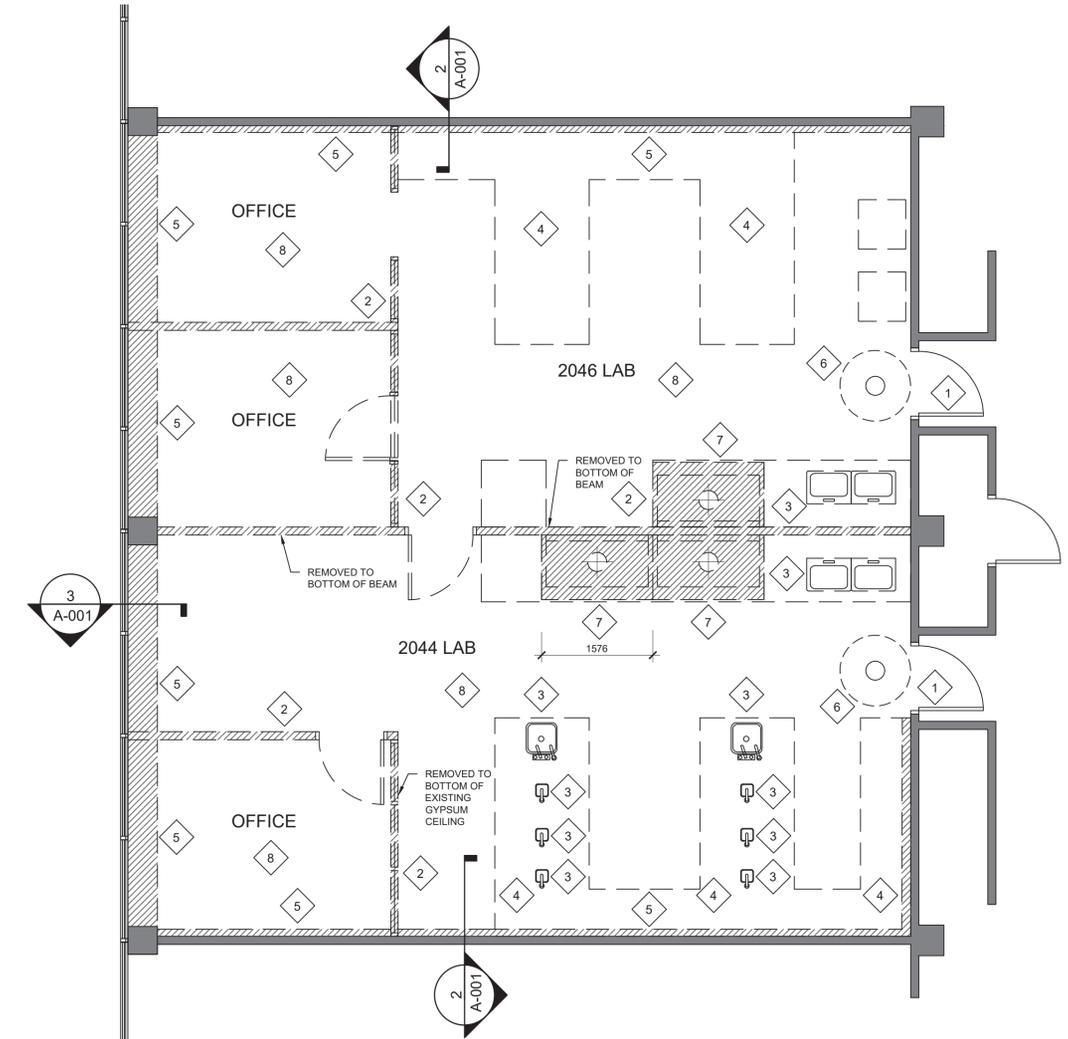
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- C. DIMENSIONS ARE TO FACE OF FINISHED MATERIALS, UNLESS OTHERWISE NOTED.
- D. CONTRACTOR TO REVIEW FACILITY'S HAZARDOUS MATERIALS STUDY TO IDENTIFY ANY HAZARDOUS MATERIALS AND ABIDE BY ALL FINDINGS AND RECOMMENDATIONS CONTAINED THEREIN. REMOVAL OF ALL HAZARDOUS MATERIALS AS PART OF THIS CONTRACT SHALL BE IN ACCORDANCE WITH LOCAL, PROVINCIAL, AND FEDERAL REGULATIONS.
- E. FUMEHOOD ENCLOSURE TO BE REMOVED. FOLLOW REGULATIONS AND PROCEDURES FOR ASBESTOS ABATEMENT IN ACCORDANCE TO ONTARIO OCCUPATIONAL HEALTH AND SAFETY ACT
- F. CONTRACTOR TO PROVIDE ADEQUATE NOISE AND DUST CONTROL BETWEEN CORRIDOR AND CONSTRUCTION SPACE
- G. CONTRACTOR TO DEMOLISH EXISTING ACOUSTIC TILE CEILING LAYER WITH SUSPENSION SYSTEM. COORDINATE WITH ELECTRICAL AND MECHANICAL FOR REMOVAL OF ALL FIXTURES. SECONDARY GYPSUM CEILING TO REMAIN - PROTECT AS REQUIRED

**KEY NOTES**

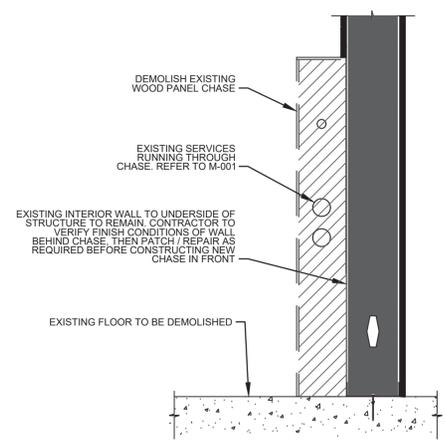
- 1 EXISTING CORRIDOR DOORS. CONTRACTOR TO REMOVE PRIOR TO DEMOLITION AND PROTECT DURING NEW CONSTRUCTION.
- 2 DEMOLISH EXISTING WALL / SERVICE CHASE. REFER TO M-001 FOR SERVICES TO REMAIN AND/OR DEMOLISHED.
- 3 EXISTING PLUMBING FIXTURES TO BE REMOVED. REFER TO M-001
- 4 ALL EXISTING CASEWORK TO BE DEMOLISHED
- 5 EXISTING SERVICE CHASE TO BE DEMOLISHED
- 6 EMERGENCY SHOWER. REFER TO M-001
- 7 EXISTING FUME HOOD AND STORAGE CABINET ASSEMBLY TO BE REMOVED. COORDINATE WITH MECHANICAL AND ELECTRICAL
- 8 CONTRACTOR TO DEMOLISH EXISTING SHEET VINYL TILE FLOOR FINISH. PATCH AND REPAIR FLOOR SURFACE PRIOR TO NEW CONSTRUCTION.



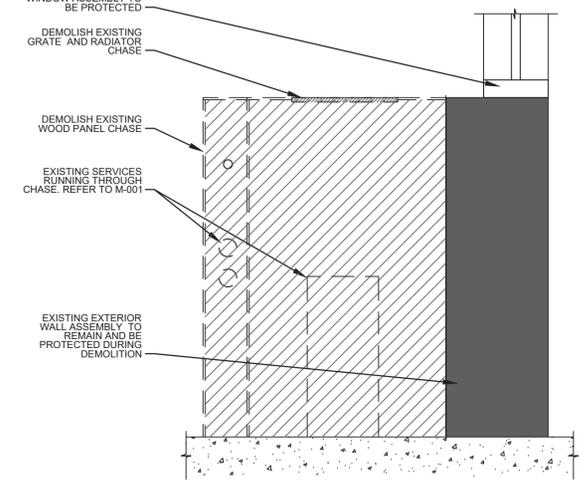
1 A-001 **DEMOLITION PLAN - ARCHITECTURAL**  
SCALE 1:50

**LEGEND**

- EXISTING TO BE DEMOLISHED
- EXISTING TO REMAIN

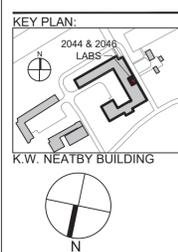


2 A-001 **INTERIOR WALL CHASE DEMO**  
SCALE 1:10



3 A-001 **EXTERIOR WALL CHASE DEMO**  
SCALE 1:10

ONTARIO ASSOCIATION OF ARCHITECTS  
10 JULY, 2017  
JAMES SANDROCK ELLIS  
LICENCE 7345



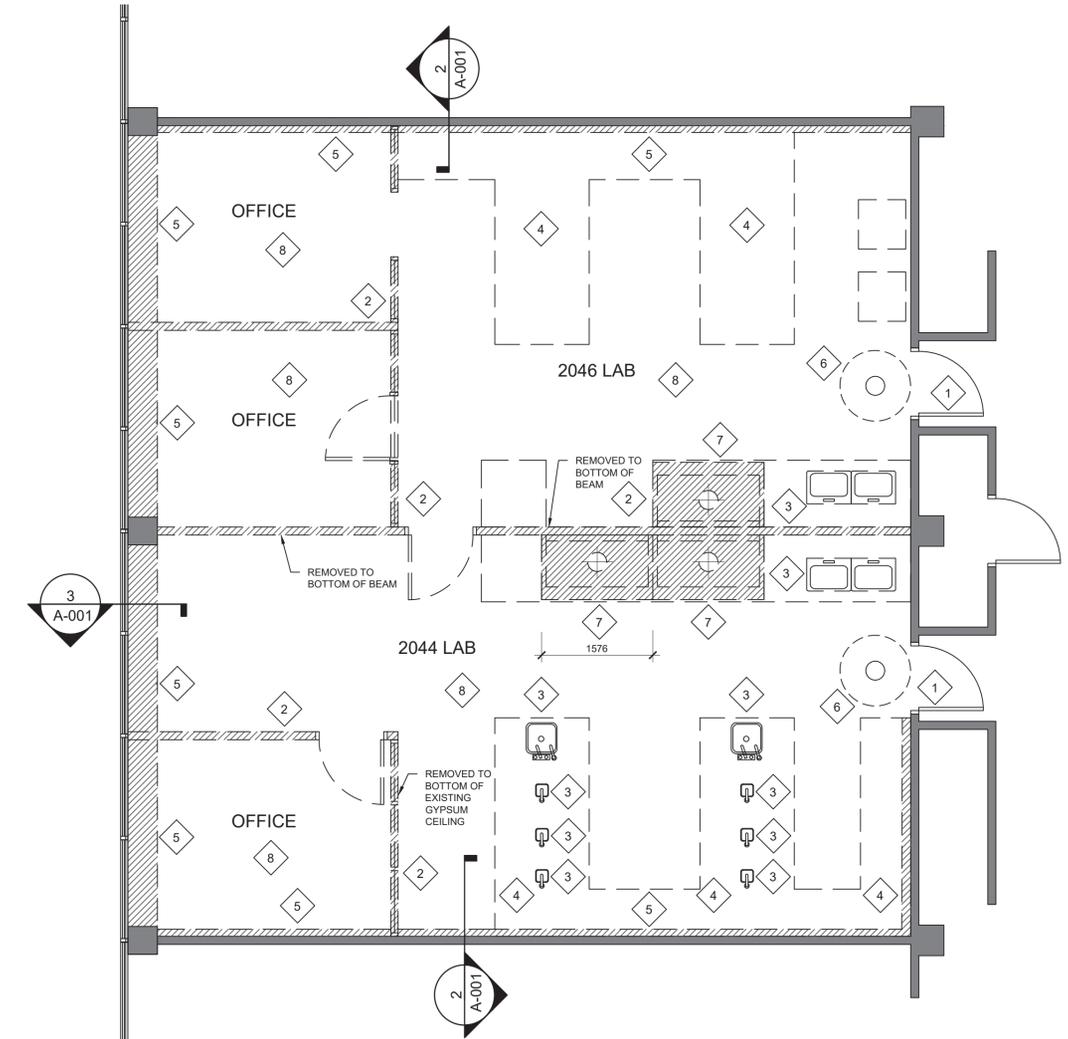
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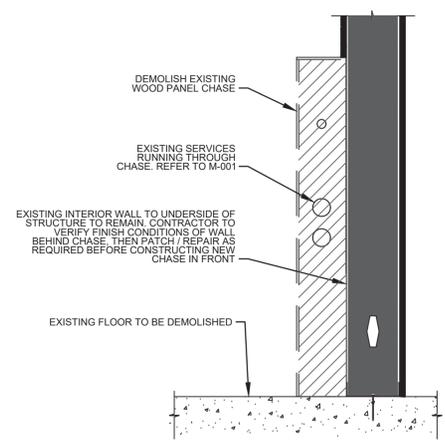
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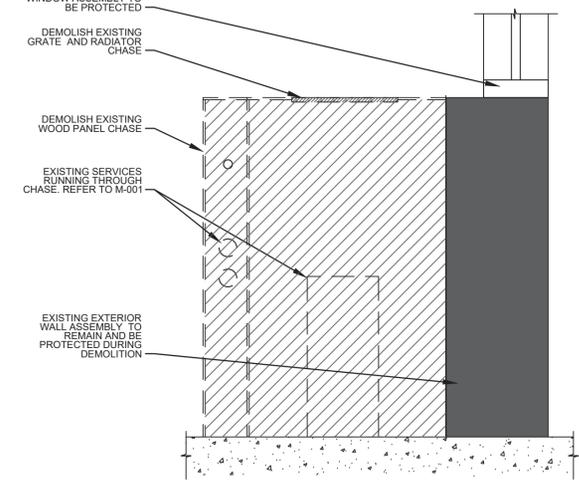
1 A-001 **DEMOLITION PLAN - ARCHITECTURAL**  
SCALE 1:50

**LEGEND**

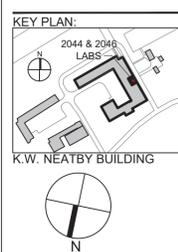
- EXISTING TO BE DEMOLISHED
- EXISTING TO REMAIN



2 A-001 **INTERIOR WALL CHASE DEMO**  
SCALE 1:10



3 A-001 **EXTERIOR WALL CHASE DEMO**  
SCALE 1:10



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- C. CONTRACTOR TO REVIEW FACILITY'S HAZARDOUS MATERIALS STUDY TO IDENTIFY ANY HAZARDOUS MATERIALS AND ABIDE BY ALL FINDINGS AND RECOMMENDATIONS CONTAINED THEREIN. REMOVAL OF ALL HAZARDOUS MATERIALS AS PART OF THIS CONTRACT SHALL BE IN ACCORDANCE WITH LOCAL, PROVINCIAL, AND FEDERAL REGULATIONS.
- D. REFER TO A-105 FOR PARTITION TYPES.
- E. REFER TO A-105 FOR WINDOW, DOOR AND FRAME SCHEDULE.

**SPECIFIC NOTES**

- 1. FUMEHOOD - BASIS OF DESIGN PRODUCT BY BEDCO, OR EQUIVALENT. 60 INCH WIDE CONSTANT AIR VOLUME VERTICAL SASH HOOD, FRP FINISH (C-10-60A-100). INCLUDE BOTH CORROSIVE CHEMICAL BASE CABINET (FI-A25-30) AND FLAMMABLE SOLVENT BASE CABINET (FI-A23-30-UL) COMPLETE WITH APPROPRIATE VENTILATION KITS (VVK-01 & VVK-02). INCLUDE BLACK EPOXY RESIN COUNTERTOP (VT-EP-6030) WITH MATCHING OVAL CUP SINK (VCS-04). INCLUDE CEILING ENCLOSURE FOR 2450MM CEILING, AND BOTH LEFT AND RIGHT SIDE END FILLER PANELS. SERVICES REQUIRED FOR FUMEHOOD AS SHOWN ON DRAWING P-101. PRE-PIPE PLUMBING TO 6" OVER TOP OF HOOD, COMPLETE WITH INTERNAL FAUCETS AND SPIGOTS REFER TO PLUMBING. INCLUDE SASH VELOCITY AIRFLOW MONITOR AND ALARMING (BOD, TEL AFA 1000 AIRFLOW MONITOR, OR EQUIVALENT).

**KEY NOTES**

**CONTRACTOR FURNISHED / INSTALLED CFCI**

- 1 NEW RADIATOR. SEE DETAIL 4/A-103
- 2 PEG BOARD. BASIS OF DESIGN MOTT PPB93630
- 3 ROLLING CABINET. REFER TO A-103.2
- 4 HAND SINK
- 5 STAINLESS STEEL LAB SINK. REFER TO A-105
- 6 WHITEBOARD 2159mm x 1220mm BASIS OF DESIGN QUARTER #G8548HT
- 7 FUMEHOOD. SEE SPECIFIC NOTE 1
- 8 COAT HOOK. BASIS OF DESIGN RIDALCO 6CH/36-4SS
- 9 NOT USED
- 10 MODULAR CASEWORK AND SHELVING. SEE 3/A-103.1
- 11 MODULAR CASEWORK AND SHELVING. SEE 3/A-103.1
- 12 50mm x 50mm x 2045mm STAINLESS STEEL CORNER GUARDS
- 13 NEW SERVICE CHASE. SEE DETAILS ON A-103.1
- 14 EMERGENCY EYE WASH. BASIS OF DESIGN GUARDIAN G1849
- 15 MODULAR CASEWORK. SEE A-103.2

**OWNER FURNISHED CONTRACTOR INSTALLED OFCI**

- 16 LAMINAR FLOW HOOD
- 17 EMERGENCY SHOWER. REFER TO MECHANICAL
- 18 NOT USED

**OWNER FURNISHED / OWNER INSTALLED OFOI**

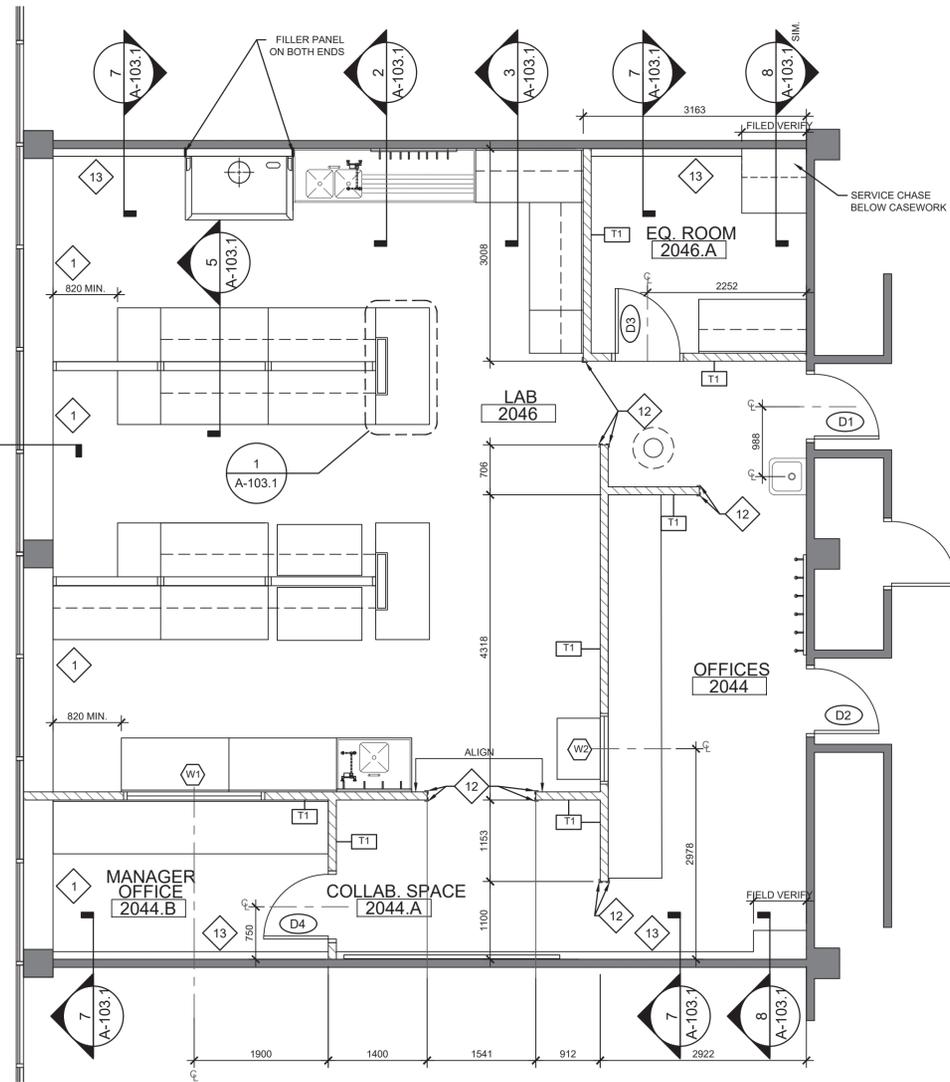
- 19 EQUIPMENT - FRIDGE / FREEZER
- 20 EQUIPMENT - BENCH TOP SHAKER
- 21 EQUIPMENT - SHAKER (STACKED)
- 22 BALANCE TABLE
- 23 MICROSCOPE TABLE



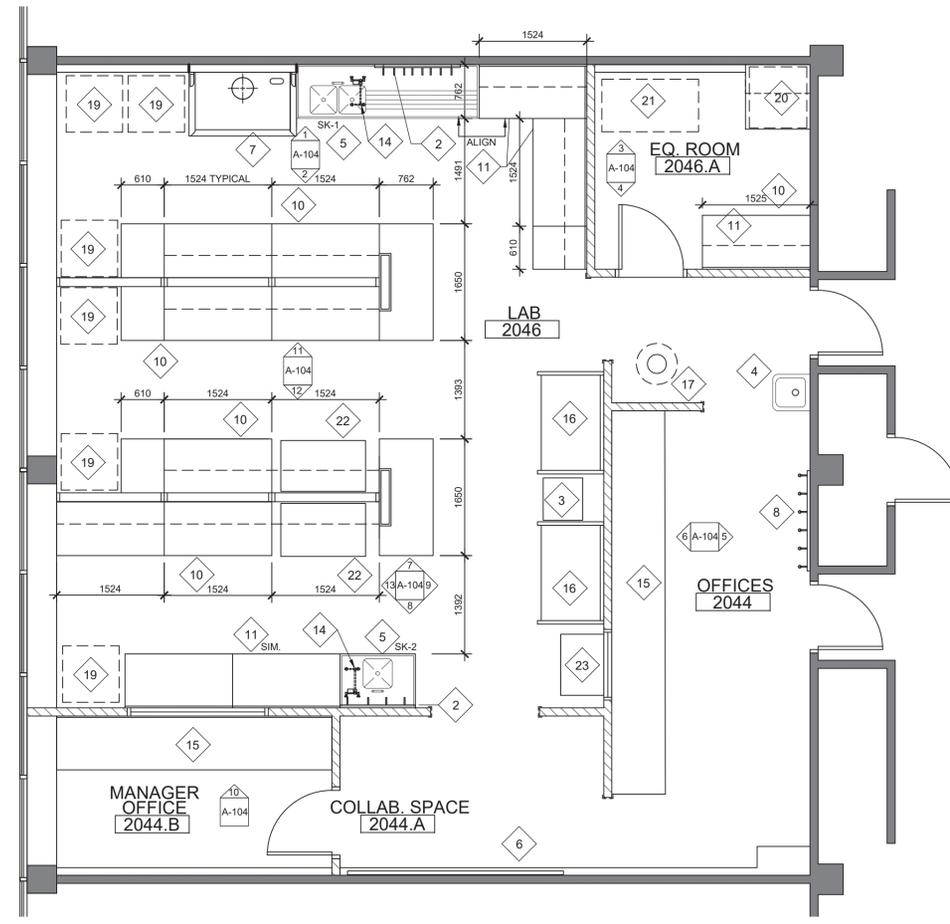
**KEY PLAN:**



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**1 ARCHITECTURAL FLOOR PLAN**  
A-101 SCALE 1:50



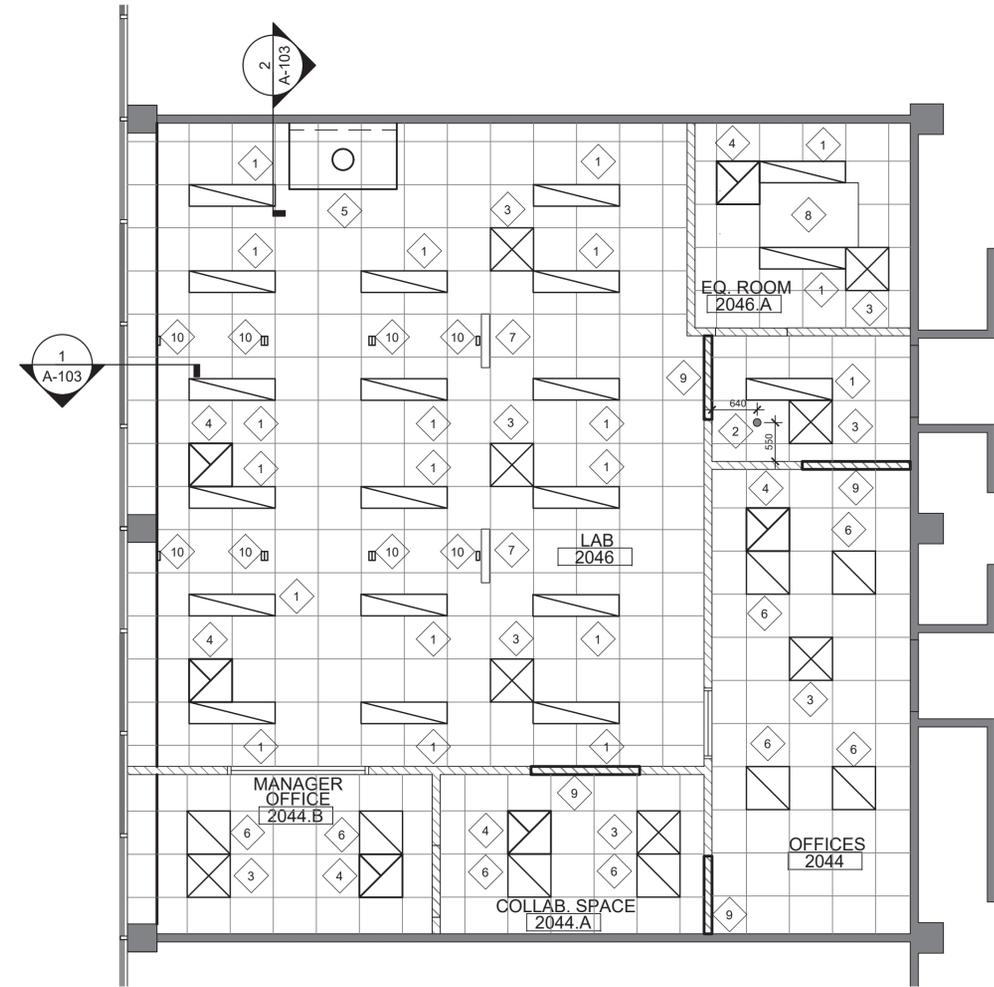
**2 ARCHITECTURAL CASEWORK/EQUIPMENT PLAN**  
A-101 SCALE 1:50

**GENERAL NOTES**

- A. CONTRACTOR TO FIELD VERIFY DIMENSIONS AND LOCATION OF ALL EXISTING MECHANICAL, PLUMBING, ELECTRICAL AND MISCELLANEOUS FIXTURES TO BE DEMOLISHED OR RELOCATED BEFORE RENOVATION WORK BEGINS.
- B. DIMENSIONS ARE TO FACE OF FINISHED MATERIALS, UNLESS OTHERWISE NOTED.
- C. NEW SUSPENDED CEILING HEIGHT IS 2450 MM. [8'-0"] UNLESS OTHERWISE NOTED.
- D. REFER TO A-105 FOR FINISH SCHEDULE.

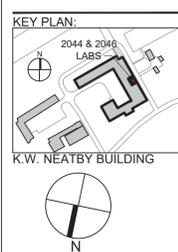
**KEY NOTES**

- 1 305x1220 [1'x4'] - SLIM LED LUMINAIRE RECESSED FIXTURE. REFER TO ELECTRICAL
- 2 EMERGENCY SHOWER HEAD PIPE OPENING. REFER TO MECHANICAL
- 3 HVAC SUPPLY DIFFUSER
- 4 HVAC EXHAUST GRILLE
- 5 FUME HOOD EXHAUST. COORDINATE LOCATION WITH MEP
- 6 610x610 [2'x2'] - LED LUMINAIRE RECESSED FIXTURE. REFER TO ELECTRICAL
- 7 UTILITY CHASE UP FROM CASEWORK. REFER TO DETAIL 1/A-103.1. COORDINATE LOCATION WITH CASEWORK PLAN
- 8 FAN COIL UNIT. COORDINATE LOCATION WITH MECHANICAL AND ELECTRICAL
- 9 GYPSUM BOARD BULK HEAD @ 2145 A.F.F.
- 10 CASWORK VERTICAL SUPPORT



1 REFLECTED CEILING PLAN  
 A-102 SCALE 1:50

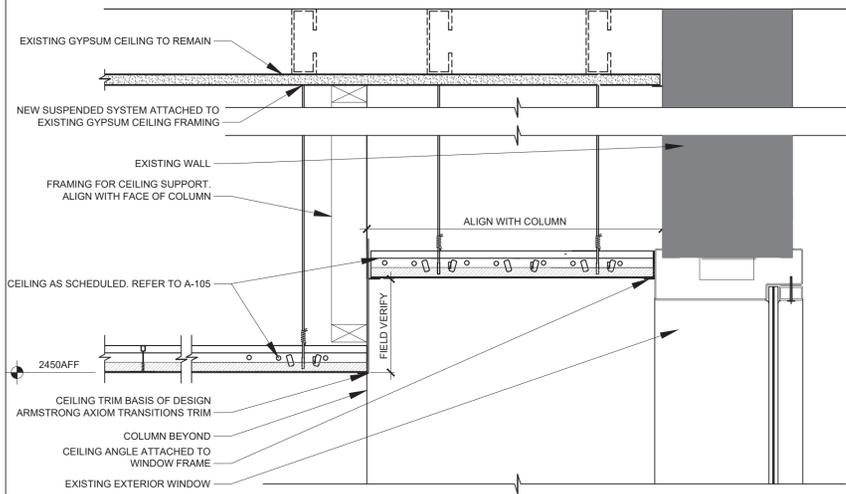
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 LICENCE 7345



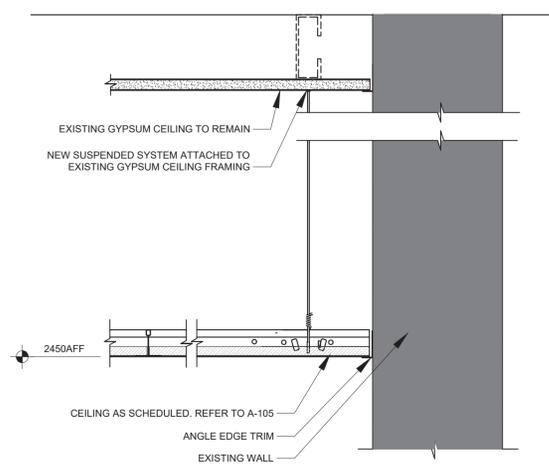
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SHEET TITLE:  
 REFLECTED CEILING PLAN

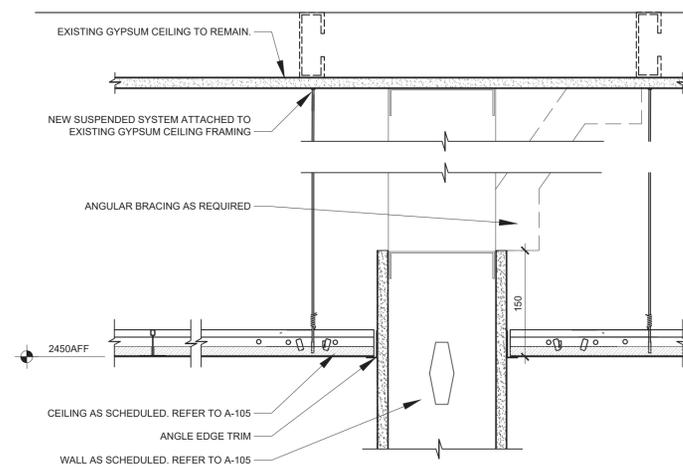
SCALE:	NA
DATE:	7-10-2017
DRAWN:	SC
CHECKED:	SE
PROJECT:	74019494
SHEET NO.:	



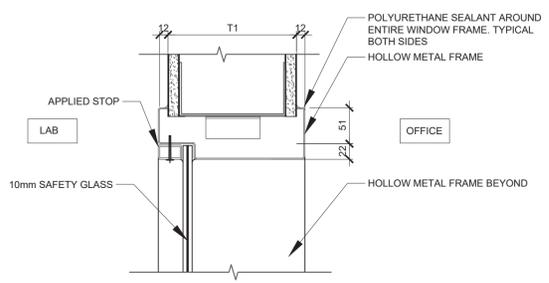
1 NEW CEILING TO EXISTING WINDOW DETAIL  
A-103 SCALE 1:5



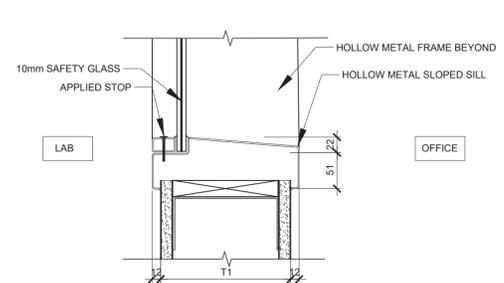
2 NEW CEILING TO EXISTING WALL DETAIL  
A-103 SCALE 1:5



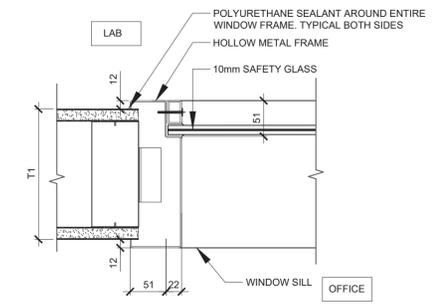
3 CEILING DETAIL @ WALL TYPE 1 (T1)  
A-103 SCALE 1:5



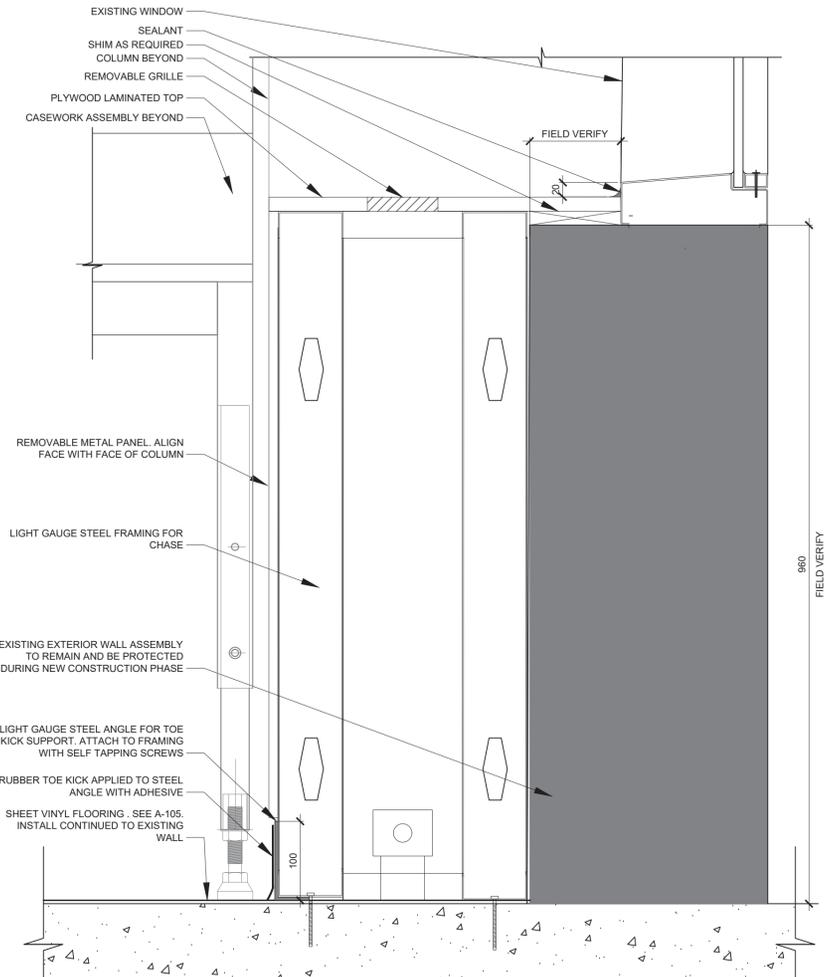
5 WINDOW HEAD DETAIL  
A-103 SCALE 1:5



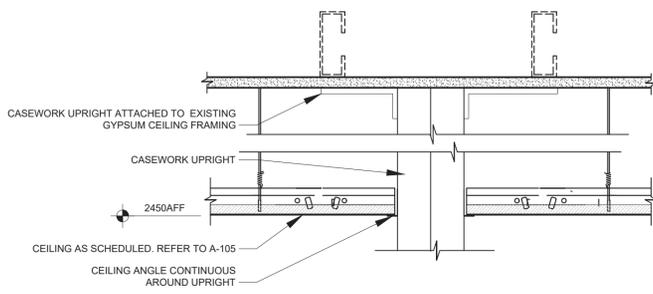
6 WINDOW SILL DETAIL  
A-103 SCALE 1:5



7 WINDOW JAMB DETAIL  
A-103 SCALE 1:5

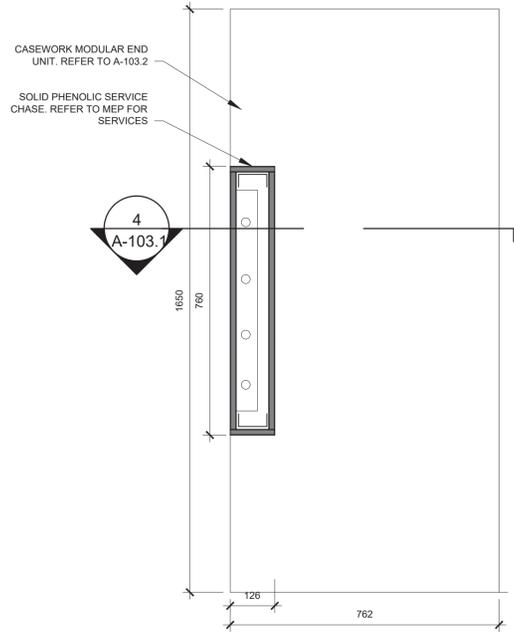


4 NEW RADIATOR DETAIL  
A-103 SCALE 1:5

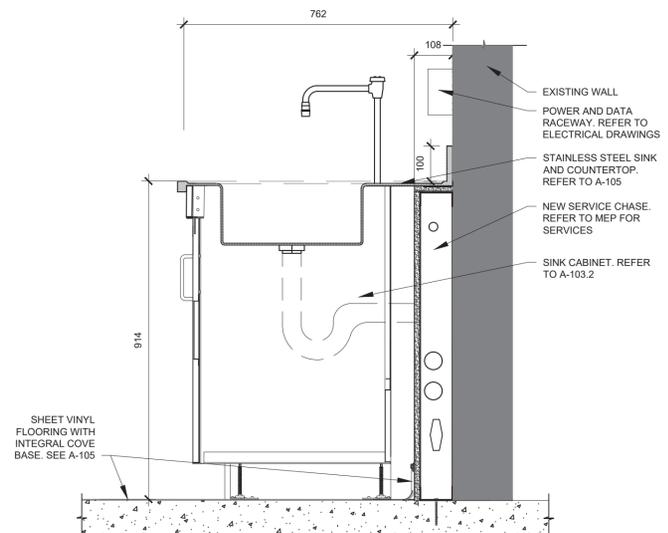


11 CASEWORK UPRIGHT DETAIL  
A-103 SCALE 1:5

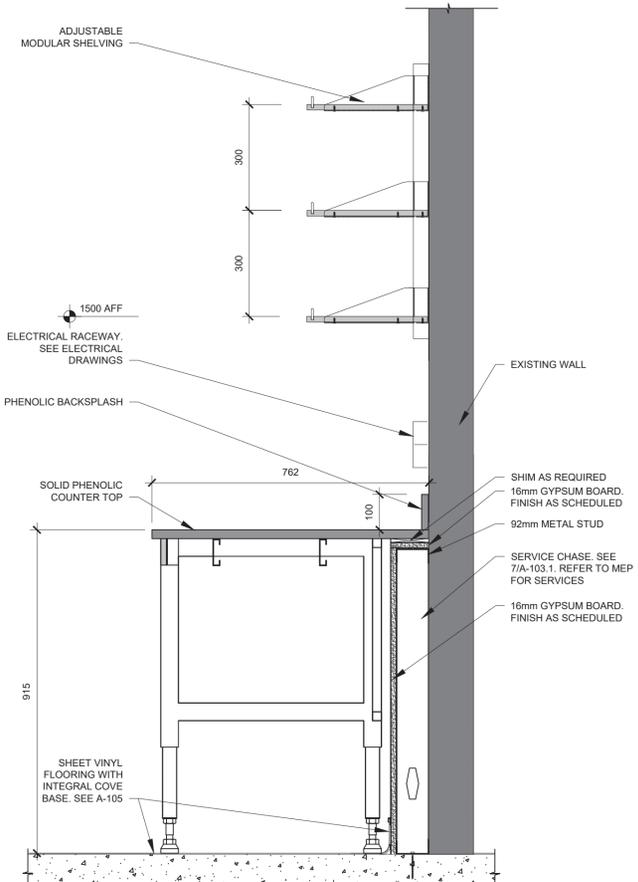
REVISION DESCRIPTION	DATE
A. 95% CD	5/17/2017
B. 99% CD	6/7/2017
C. 100% CD	7/10/2017



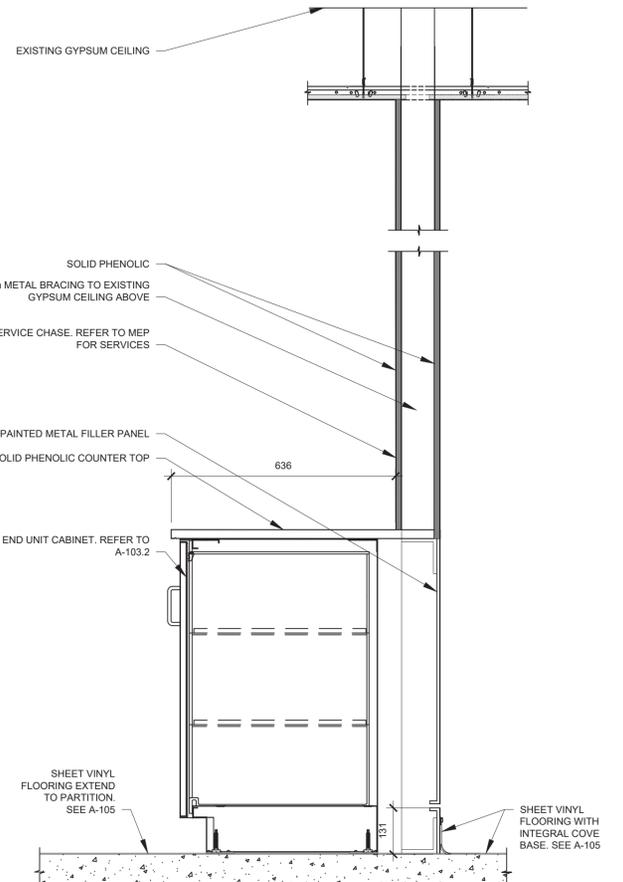
1 END UNIT PLAN DETAIL  
A-103.1 SCALE 1:10



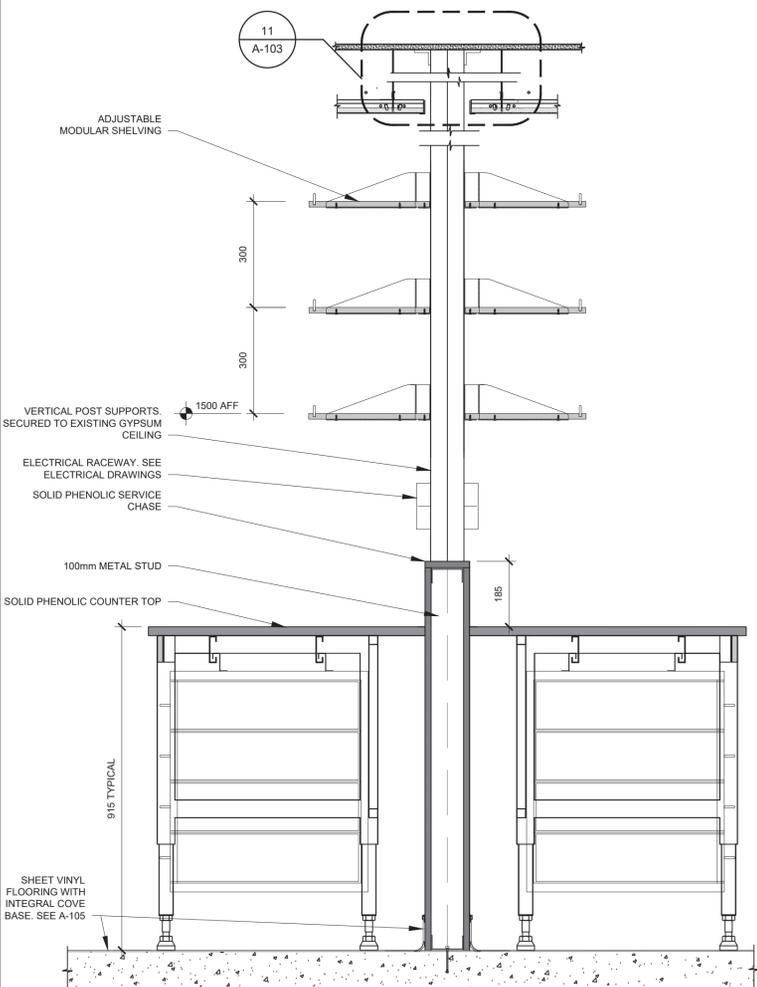
2 NEW WALL CHASE @ SINK  
A-103.1 SCALE 1:10



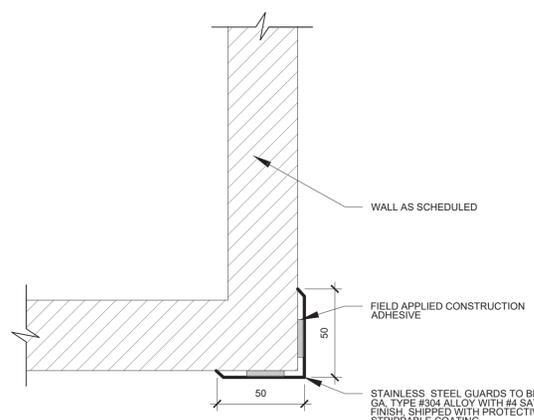
3 CASEWORK SECTION DETAIL  
A-103.1 SCALE 1:10



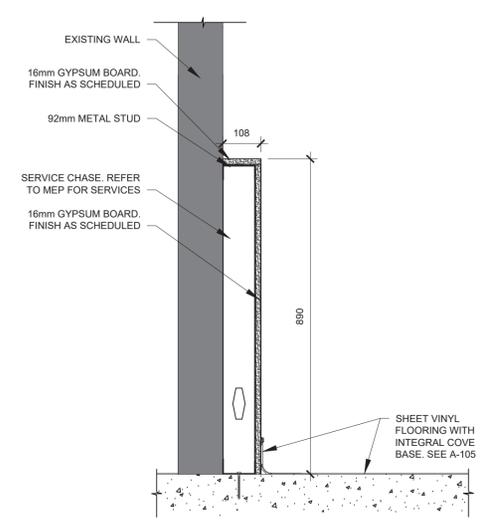
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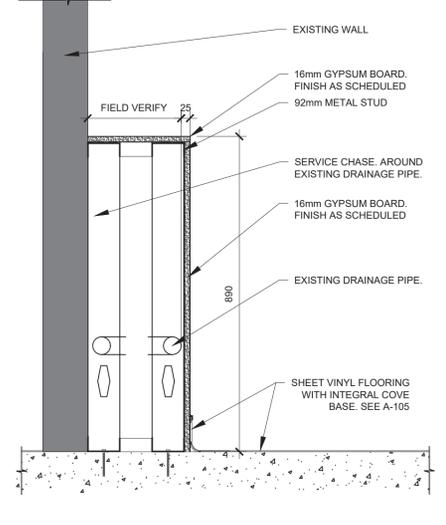
5 CASEWORK SECTION DETAIL  
A-103.1 SCALE 1:10



6 CORNER GUARD DETAIL  
A-103.1 SCALE 1:10

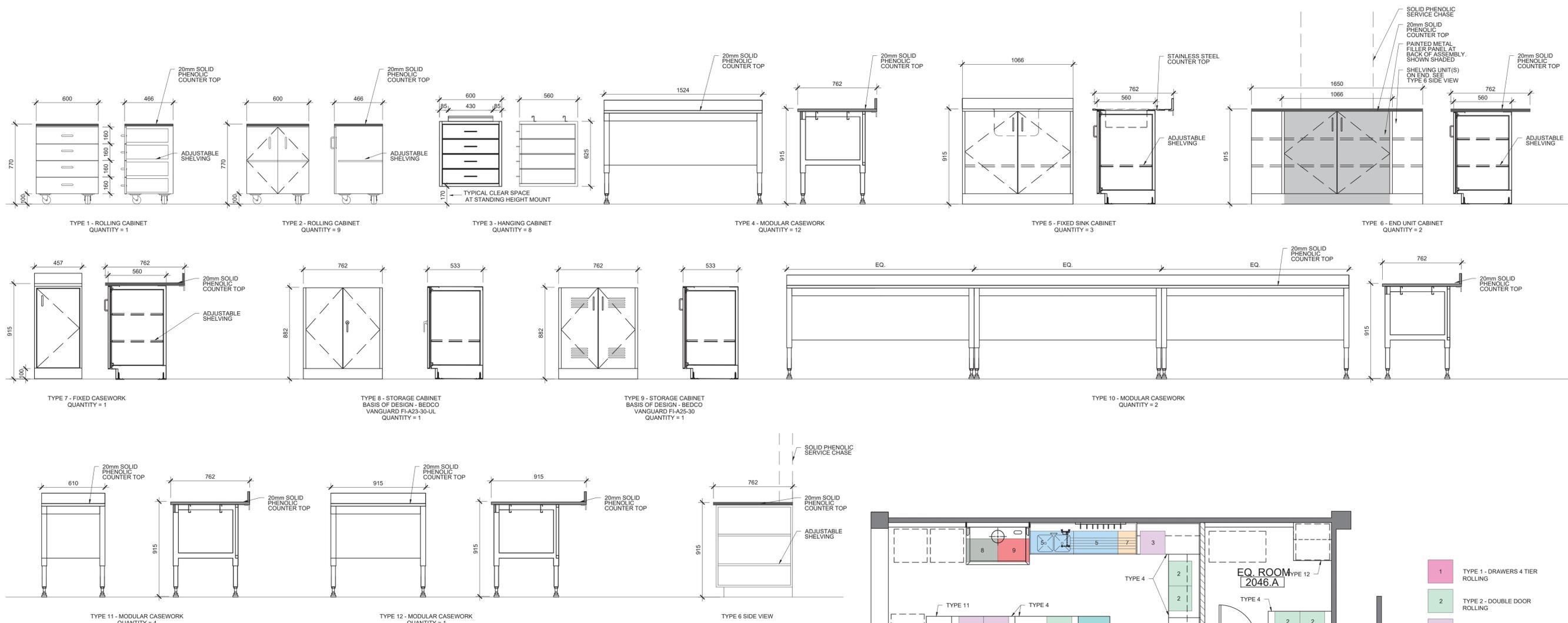


7 SERVICE CHASE SECTION DETAIL  
A-103.1 SCALE 1:10



8 SERVICE CHASE @ DRAINAGE PIPE DETAIL  
A-103.1 SCALE 1:10

ISSUE DESCRIPTION	DATE
B. 99% CD	6/7/2017
C. 100% CD	7/10/2017



1 CASEWORK TYPES  
A-103.2 SCALE 1:10



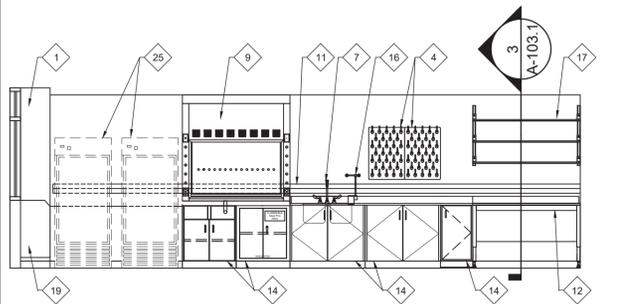
2 CASEWORK PLAN  
A-103.2 SCALE 1:10

ONTARIO ASSOCIATION OF ARCHITECTS  
10 JULY, 2017  
JAMES SANDROCK ELLIS  
LICENCE 7395  
(Professional Seal)

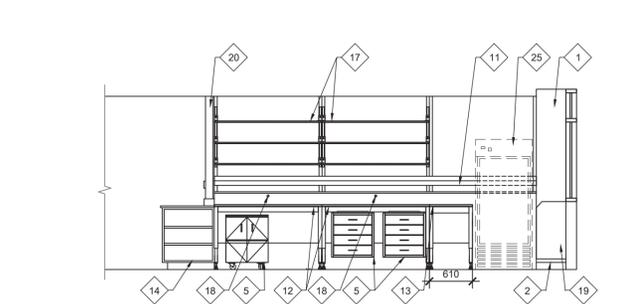
ISSUE DESCRIPTION	DATE
B 90% CD	6/7/2017
C 100% CD	7/10/2017

Agriculture and Agri-Food Canada / Agriculture et Agroalimentaire Canada  
K.W. NEATBY BUILDING - BUILDING 20  
RENOVATION OF LABS 2044 & 2046  
Ottawa, ON K1V 6Z2

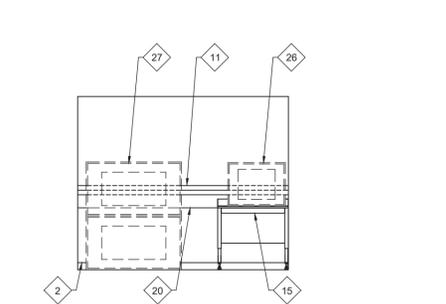
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CASEWORK DETAILS  
SCALE: N/A  
DATE: 7-10-2017  
DRAWN: SC  
CHECKED: SE  
PROJECT: 74019494  
SHEET NO:



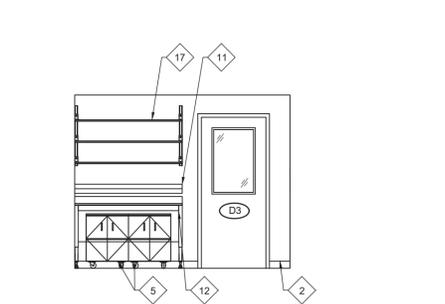
1 LAB 2046 - SOUTH WALL  
A-104 SCALE 1:50



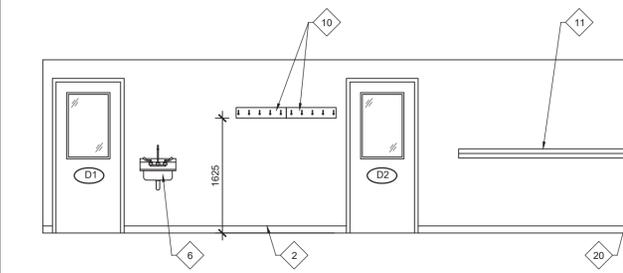
2 LAB 2046 - PENINSULA 1  
A-104 SCALE 1:50



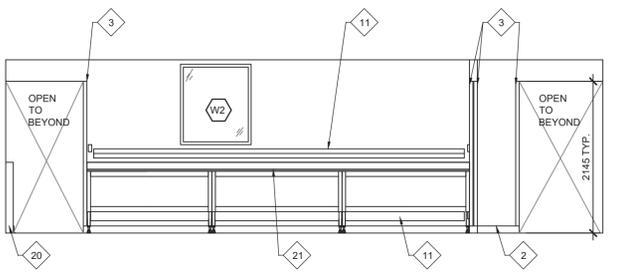
3 EQ. ROOM - SOUTH WALL  
A-104 SCALE 1:50



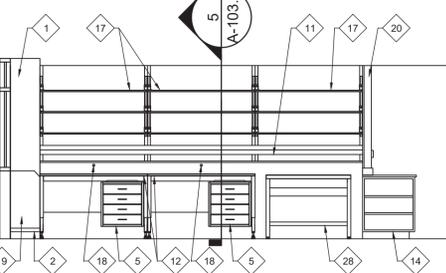
4 EQ. ROOM - NORTH WALL  
A-104 SCALE 1:50



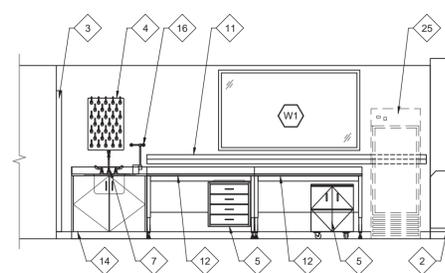
5 OFFICES 2044 - WEST WALL  
A-104 SCALE 1:50



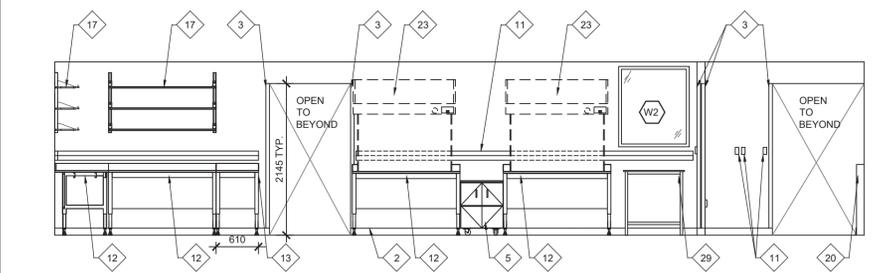
6 OFFICES 2044 - EAST WALL  
A-104 SCALE 1:50



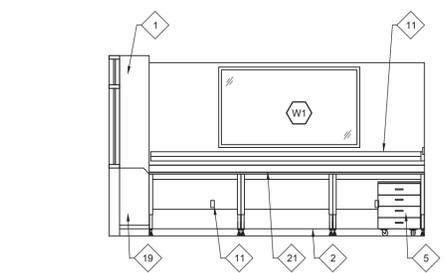
7 LAB 2046 - PENINSULA 2  
A-104 SCALE 1:50



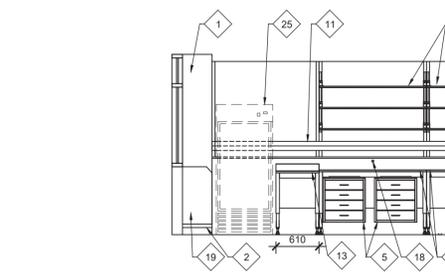
8 LAB 2046 - NORTH WALL  
A-104 SCALE 1:50



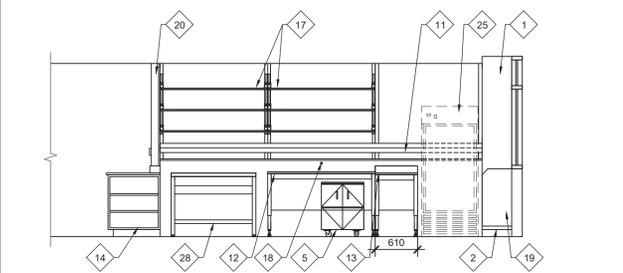
9 LAB 2046 - WEST WALL  
A-104 SCALE 1:50



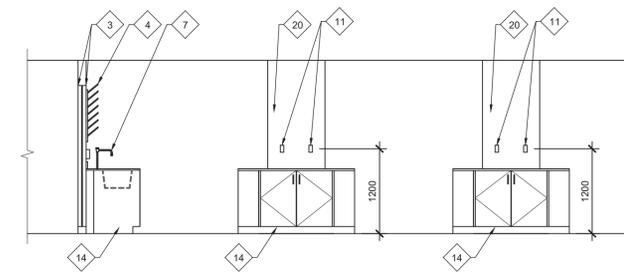
10 OFFICE 2044.B - SOUTH WALL  
A-104 SCALE 1:50



11 LAB 2046 - PENINSULA 3  
A-104 SCALE 1:50



12 LAB 2046 - PENINSULA 4  
A-104 SCALE 1:50



13 LAB 2046 - PENINSULA 4  
A-104 SCALE 1:50

**KEYNOTES**

- 1 COLUMN
- 2 CONTRACTOR FURNISHED / INSTALLED CF/CI
- 3 100mm BASE COVE
- 4 STAINLESS STEEL CORNER GUARDS. SEE DETAIL 6/A-103.1
- 5 PEG BOARD. BASIS OF DESIGN MOTT PPB3630
- 6 ROLLING / HANGING CABINET. REFER TO A-103.2
- 7 HAND SINK. REFER TO PLUMBING
- 8 STAINLESS STEEL LAB SINK REFER TO A-105
- 9 WHITEBOARD 2440mm x 1520mm
- 10 FUMEHOOD. BASIS OF DESIGN BEDCO. SEE A-101
- 11 COAT / LAB COAT HOOKS
- 12 ELECTRICAL DEVICE. REFER TO ELECTRICAL DRAWINGS
- 13 CASEWORK - 1524mm x 762mm MODULAR TABLE
- 14 CASEWORK - CUSTOM MODULAR TABLE. DEPTH 762mm
- 15 CASEWORK - CABINET. REFER TO A-103.2
- 16 CASEWORK - 915mm x 915mm MODULAR SHAKER TABLE. REFER TO A-103.2
- 17 EMERGENCY EYE WASH. BASIS OF DESIGN GUARDIAN G1849
- 18 CASEWORK - 1524mm MODULAR SHELVING
- 19 FUTURE COP OUTLET LOCATION. PROVIDE WHOLE AND CAP
- 20 RADIATOR. REFER TO DETAIL 4/A-103
- 21 SERVICE CHASE. REFER TO A-103.1
- 22 CASEWORK - CUSTOM MODULAR TABLE. REFER TO A-103.2
- 23 NOT USED
- 24 OWNER FURNISHED CONTRACTOR INSTALLED OF/CI
- 25 LAMINAR FLOW HOOD
- 26 NOT USED
- 27 ONWER FURNISHED / INSTALLED OF/CI
- 28 EQUIPMENT - FRIDGE / FREEZER
- 29 EQUIPMENT - BENCH TOP SHAKER
- 30 EQUIPMENT - SHAKER (STACKED)
- 31 BALANCE TABLE
- 32 MICROSCOPE TABLE

ISSUE DESCRIPTION	DATE
A 95% CD	5/17/2017
B 99% CD	6/7/2017
C 100% CD	7/10/2017



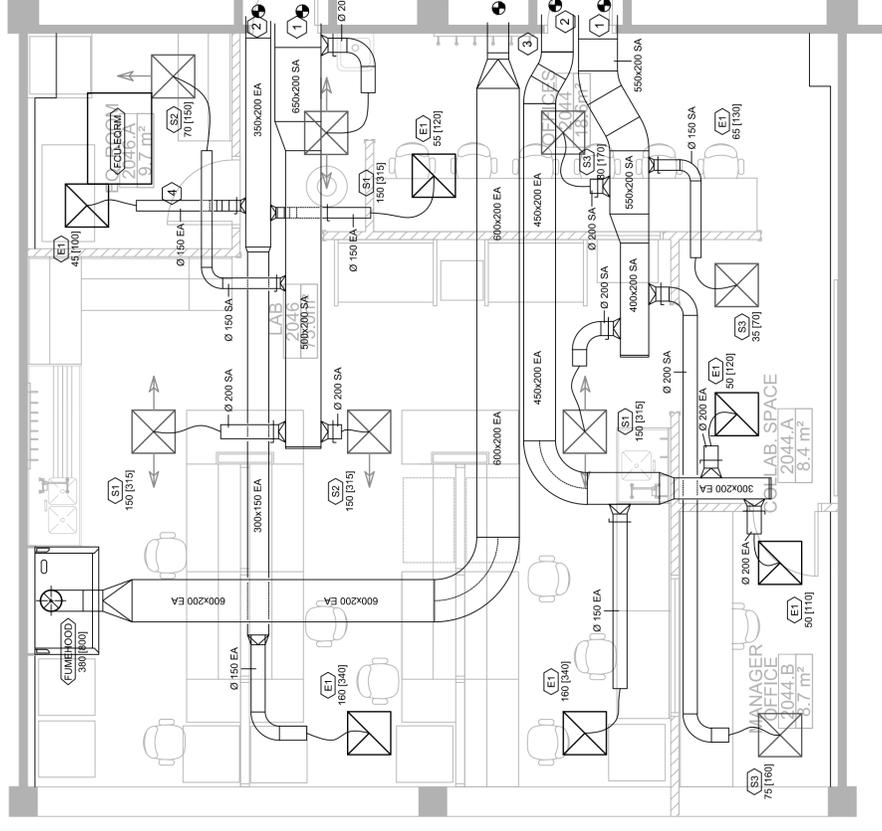


**GENERAL NOTES**

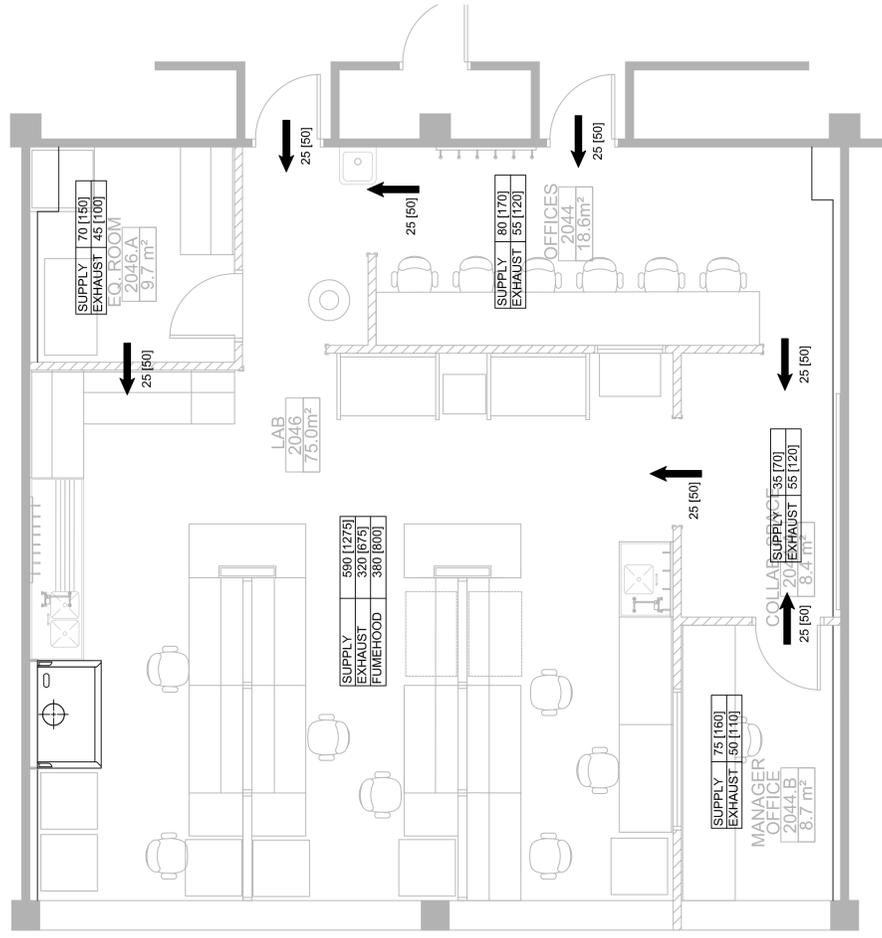
- CONTRACTOR TO FIELD VERIFY DIMENSIONS AND LOCATIONS OF ALL EXISTING ELECTRICAL AND MISCELLANEOUS FIXTURES TO BE DEMOLISHED OR RELOCATED BEFORE RENOVATION WORK BEGINS.
- DIMENSIONS ARE TO FACE OF FINISHED MATERIALS, UNLESS OTHERWISE NOTED.
- CEILING HEIGHT IS 2450 MM. (8'0") UNLESS OTHERWISE NOTED.
- DUCTWORK DETAILS:
  - MAX FLEX DUCT LENGTH 1.8M. PROVIDE SPIRAL GALVANIZED DUCT EXTENSIONS AS REQUIRED. USE SEALING COMPOUND AT ALL CONNECTION POINTS.
  - TRANSITION FROM GALVANIZED SHEET METAL USING MECHANICAL FASTENERS AND SEALING COMPOUND.
  - CENTERLINE RADIUS OF BENDS IN FLEXIBLE DUCTWORK TO BE GREATER THAN ONE DUCT DIAMETER.
  - DIMENSIONS OF DUCT RUN OUTS TO GRILLES AND DIFFUSERS TO MATCH GRILLE/DIFFUSER NECK.
  - TRANSITIONS: MAX ANGLE BETWEEN DUCT SIDE AND FLOW IS 20°.
  - MINIMUM SEPARATION BETWEEN OVERLAPPING DUCTWORK.
- SEAL ANY PENETRATIONS THROUGH SOLID CEILING TO PREVENT AIR FROM WITH DOW CORNING 745 RTV SILICONE OR EQUIVALENT.
- ALL AIRFLOWS IN THE SPACE ARE CONSTANT FLOW UNLESS OTHERWISE NOTED. AIRFLOWS ARE TO ACHIEVE VOLUMETRIC OFFSETS AS SHOWN.
- PROVIDE GRILLES AND DIFFUSERS WITH REAR PLENUM FOR DUCT CONNECTION.
- ALL DUCTWORK AND DIFFUSERS/GRILLES TO BE SUPPORTED WITH CABLE/STRAPPING FROM GYPSUM BOARD CEILING. ALL DUCTWORK SHALL BE FINISHED INTO STUD OF CEILING STRUCTURE. NO TEAS SHALL BE SOLELY SUPPORTED BY BAR-LAY IN TILE CEILING.

**KEY NOTES**

- SUPPLY DUCT TO SPACE TO CONNECT TO EXISTING TRANSITION DUCT IN CORRIDOR. TRANSITION DUCT TO MATCH CONNECTION SIZE OF REHEAT COIL.
- EXHAUST DUCT TO SPACE TO CONNECT TO EXISTING MAN IN CORRIDOR. TRANSITION DUCT IN CORRIDOR TO MATCH CONNECTION SIZE OF AIRFLOW CONTROL DAMPER.
- FUME HOOD EXHAUST TO CONNECT TO EXISTING RISER IN SHAFT. TRANSITION TO ROUND DUCT SIZED TO MATCH EXISTING IN SPACE.
- FAN COIL UNIT COOLING SYSTEM - SEE SCHEDULE.



**1 HVAC PLAN**  
SCALE 1:50



**2 DIRECTIONAL AIRFLOW DIAGRAM**  
SCALE 1:50

**AAFC Lab 2044 & 2046 Renovation Airflow Calculations**

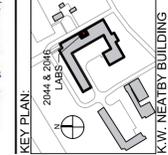
ROOMS	Area m <sup>2</sup>	Area ft <sup>2</sup>	Ceiling Height m	Ceiling Height ft	Volume m <sup>3</sup>	Volume ft <sup>3</sup>	Max ACH Supply	Max ACH General Exhaust	Max ACH Exhaust	Min OA Flow Req cfm	Min OA Flow Req lps	Base Heat Load In Space W	Specialty Heat Load W	Cooling Flow Req *** cfm	Cooling Flow Req *** lps	Max Equip Exhaust cfm	Max Equip Exhaust lps	Max Supply Air Delivered cfm	Max Exhaust Air Delivered cfm
OFFICES - 2044	200	18.6	8.00	2.59	1702	48	6	50	25	85	40	725	0	120	55	0	0	170	120
COLLABORATION SPACE - 2044.A	85	7.9	8.00	2.59	724	20	6	-50	25	35	15	310	0	50	25	0	0	70	120
MANAGER OFFICE - 2044.B	95	8.9	8.00	2.59	811	23	6	-50	25	40	20	965	0	160	75	0	0	160	110
LAB - 2046	809	75.2	8.00	2.59	6882	195	10	-200	95	1145	345	8095	0	1275	600	800	380	1475	1475
EQUIPMENT ROOM - 2046.A	104	9.7	8.00	2.59	888	25	10	50	25	45	20	975	4000	160	75	0	0	150	100

GENERAL NOTES:

- \* PER ASHRAE 62.1 FOR LABORATORY SPACES. EXISTING SUPPLY SYSTEM IS 100% OA
- \*\* PER NIH DRFM FOR LABORATORY EQUIPMENT, LIGHT, PERSON, AND EXTERIOR FENESTRATION HEAT LOADING. OFFICE SPACES PER ASHRAE. EXISTING FENESTRATION ASSUMED TO HAVE U-FACTOR OF 2.839 W/M<sup>2</sup>C AND SHADING COEFFICIENT OF 0.55
- \*\*\* BASED ON 12.7°C SUPPLY AIR TEMPERATURE AND 23°C COOLING SETPOINT, CONFIRM WITH EXISTING SYSTEM. SUPPLEMENTAL COOLING WILL BE SUPPLIED FOR EQUIPMENT ROOM

**DUCTWORK TABLE**

DUCT	PRESSURE RATING (Pa)		MATERIAL	SMACNA SEAL CLASS		CONSTRUCTION	NOTES
	Supply	Exhaust		Supply	Exhaust		
SUPPLY - CORRIDOR TERMINAL UNIT / REHEAT COIL CONNECTION TO ROOM	500		GALVANIZED STEEL	C		ROUND, SPIRAL WOUND WITH LOCKSEAM RECTANGULAR. LONGITUDINAL SEAMS PER SMACNA WITH PITTSBURGH LOCK. SEALANT APPLIED ON ALL TRANSVERSE JOINTS AND LONGITUDINAL SEAMS. INSULATE WITH 25MM FOIL COVERED FIBREGLASS INSULATION	
EXHAUST - CORRIDOR TERMINAL UNIT CONNECTION TO ROOM		-500	GALVANIZED STEEL	C		ROUND, SPIRAL WOUND WITH LOCKSEAM RECTANGULAR. LONGITUDINAL SEAMS PER SMACNA WITH PITTSBURGH LOCK. SEALANT APPLIED ON ALL TRANSVERSE JOINTS AND LONGITUDINAL SEAMS.	
SUPPLY & EXHAUST - BRANCH TAKEOFF TO ROOM, FLEXIBLE, LAST 1.8M TO GRD		-4/-500	ALUMINUM	C		SPIRAL WOUND WITH TRIPLE LOCK SEAM. SUPPLY DUCTWORK FACTORY WRAPPED WITH 25MM FOIL COVERED FIBREGLASS INSULATION	
FUME HOOD EXHAUST		-2500	316L STAINLESS STEEL	A		ALL WELDED	

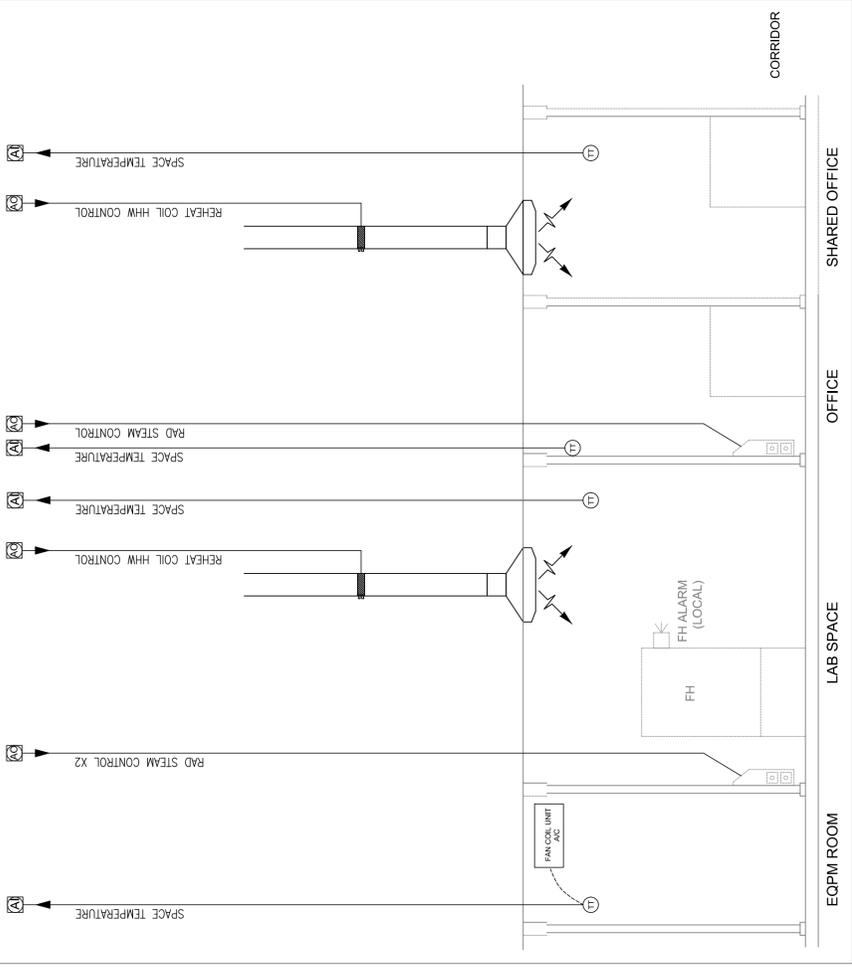


**K.W. NEATBY BUILDING**

DATE	DESCRIPTION
2024/10/20	REVISED
2024/10/17	REVISED
2024/10/17	REVISED
2024/10/17	REVISED

SHEET TITLE:  
HVAC PLAN

SCALE: AS INDICATED  
DATE: 07-10-2017  
DRAWN: DO  
CHECKED: DO / RG  
PROJECT: 14019484  
SHEET NO: M-101



## 2 CONTROLS SCHEMATIC

M-201

DEVICE NO.	DESCRIPTION	AI	DI	AD	DO	NOTES
ST	SPACE TEMPERATURE					
RHC-HHW	SUPPLY AIR/EDM REHEAT COIL CONTROL	1			1	
ST	SPACE TEMPERATURE					
RAD-ST	RADIATOR STEAM FLOW CONTROL	1			1	
ST	SPACE TEMPERATURE					
RHC-HHW	SUPPLY AIR/EDM REHEAT COIL CONTROL	1			1	
RAD-ST	RADIATOR STEAM FLOW CONTROL	1			2	
ST	SPACE TEMPERATURE					

NOTES:

- CONTROLS GENERAL NOTES:
- ALL ACTUATION IS PNEUMATIC TO MATCH EXISTING SYSTEM. INTEGRATE ALL POINTS WITH EXISTING SYSTEM AND UPDATE ROOM LEVEL FRONT END DISPLAY AND GRAPHICS TO SUIT NEW LAYOUT AND COMPONENTS
  - CONTROL CONTRACTOR TO PROVIDE POWER FOR ALL CONTROL DEVICES FROM CEILING JUNCTION BOXES PROVIDED BY ELECTRICAL CONTRACTOR.
  - CONTROL CONTRACTOR TO VERIFY SUITABILITY OF ALL SENSOR LOCATIONS. ALL DEVICES TO BE COMPATIBLE WITH EXISTING SIEMENS BAS STRUCTURE.
  - AIR FLOWS IN THE LABORATORY SHALL BE HARD BALANCED PER FLOWS SHOWN ON M-101 IN ORDER TO MAINTAIN REQUIRED VOLUMETRIC OFFSET.
  - FUMEHOOD IS CONSTANT VOLUME WITH BYPASS. EXTRACTED BY CONSTANT VOLUME EXHAUST FAN LOCATED IN PENTHOUSE. BALANCE TO ACHIEVE APPROPRIATE FACE VELOCITY FOR CERTIFICATION PER MD15128 STANDARD. FUMEHOOD TO INCLUDE LOCAL CONTROLLER AND DISPLAY. SHOWING ACTIVE FACE VELOCITY AND ALARMING. BOD MODEL TEL AFA 1000 AIRFLOW MONITOR AND ALARM. OR EQUIVALENT.
  - REHEAT COILS TO REMAIN AS EXISTING, AND UTILIZE EXISTING HHW CONTROL VALVE. IF EITHER DEVICES ARE NOT SUITABLE FOR REUSE, THEN NEW DEVICES SHOULD BE PROVIDED. WIRING AND PROGRAMMING OF NEW DEVICES IF NEEDED SHALL BE INCLUDED AS PART OF THIS CONTRACT.
  - TEMPERATURE/HUMIDITY SENSORS AND ASSOCIATED DEVICE CONTROL PAIRINGS ARE INDICATED ON THIS PAGE ON M-201.
  - ALL SENSORS TO BE PERMANENTLY TAGGED USING METHODOLOGY AND IDENTIFICATION NUMBERS APPROVED BY THE OWNER.
  - CONTRACTOR TO PROVIDE FOR 3 ADDITIONAL POINTS ALONG WITH CREDIT VALUE FOR EACH POINT NOT UTILIZED.
  - ALL INPUT POINTS (AI, DI) SHALL BE ALARMABLE AND THE PROGRAMMING OF THESE ALARMS IS INCLUDED IN CONTRACT. OWNER SHALL PROVIDE LIST OF POINTS WHERE ALARMS WILL ACTUALLY BE IMPLEMENTED.
  - TRENDS SHALL BE SETUP AS PART OF THIS CONTRACT AS REQUIRED AND APPROVED BY THE OWNER.
- CONTROLS SEQUENCE OF OPERATION
- A. STEADY STATE OPERATING MODE
- STEADY STATE OPERATION IS ESTABLISHED BY HARD BALANCE OF THE SUPPLY AND GENERAL EXHAUST FLOWS TO EACH SPACE PER FLOWS SHOWN ON M-101 IN ORDER. MAINTAIN REQUIRED VOLUMETRIC OFFSETS.
  - FUME HOOD EXHAUST OPERATES A CONSTANT FLOW TO MAINTAIN REQUIRED SASH VELOCITY WITH A BASELINE EXHAUST RATE OF 600 CFM (TBC ON APPROVED FUME HOOD SHOP DRAWINGS) AND WILL BYPASS TO THE FACE OF THE HOOD IF THE SASH IS CLOSED.
  - A RISE IN ZONE TEMPERATURE AS MEASURED BY THE SPACE THERMOSTAT ABOVE SETPOINT WILL CAUSE FIRST THE REHEAT COIL VALVE TO MODULATE SHUT FOLLOWED BY THE FIN TUBE RADIATOR HEATING CONTROL VALVE. A DECREASE IN ZONE TEMPERATURE AS MEASURED IN THE ROOM THERMOSTAT BELOW SETPOINT WILL CAUSE THE FIN TUBE CONTROL VALVE TO FIRST MODULATE OPEN, FOLLOWED BY THE REHEAT COIL VALVE.
  - FAN COIL UNIT WILL BE CONTROLLED BY THE ROOM T-STAT. SHOULD THE TEMPERATURE OF THE ROOM EXCEED SETPOINT BY 2°C OR MORE, THE FAN COIL UNIT SHALL COMMAND THE FAN ON. THE FCU FAN WILL SWITCH OFF WHEN THE TEMPERATURE IN THE ROOM IS 1°C UNDER SETPOINT. CHW FLOW THROUGH COIL IS CONSTANT.
  - TEMPERATURE SHALL BE CONTROLLED TO 41-2°C

- GENERAL NOTES:
- PIPING IS LOCATED IN THE CEILING SPACE OF THE FLOOR PLAN SHOWN, EXCEPT FOR STEAM RADIATORS
  - PROVIDE DRIP LEGS COMPLETE WITH STEAM TRAPS IN ALL REQUIRED LOCATIONS AS DESCRIBED WITHIN PIPING DETAIL DRAWINGS.
  - SEE SCHEMATIC DRAWINGS AND DETAILS FOR VALVE REQUIREMENTS
  - CONTRACTOR TO PROVIDE AIR BLEED VALVES AS REQUIRED TO ENSURE NO AIR IN PRESENT IN HYDRONIC LINES DURING REGULAR OPERATION

### KEY NOTES:

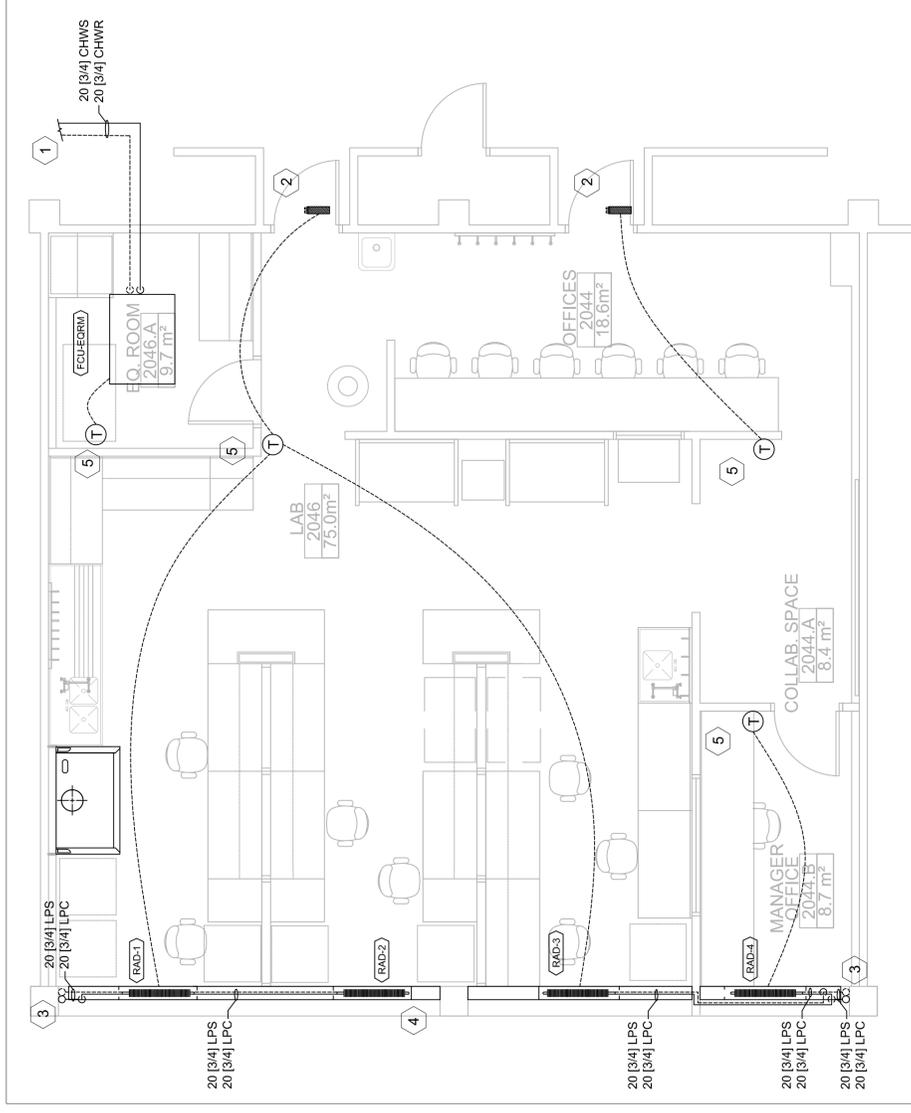
- CHILLED WATER SUPPLY AND RETURN FOR FAN COIL TO BE SUPPLIED FROM EXISTING RISER LOCATED AT END OF CORRIDOR, APPROXIMATELY 15 METERS AWAY. PROVIDE ISOLATION VALVES AT TAKEOFFS FROM MAIN. COORDINATE PIPING WITH OTHER SERVICES CONTAINED IN CORRIDOR CEILING SPACE.
- EXISTING REHEAT COIL TO REMAIN, ALONG WITH ASSOCIATED PIPING, VALVES AND SENSORS.
- CONNECT LOW PRESSURE STEAM SUPPLY AND LOW PRESSURE CONDENSATE RETURN TO EXISTING RISERS LOCATED ADJACENT TO COLUMNS. USE EXISTING TEE OFF RISER IF FEASIBLE. PROVIDE ISOLATION VALVES TO BRANCH LINES. STEAM CONTROL VALVES TO MATCH EXISTING IN FACILITY. SEE SCHEDULE BELOW.
- PROVIDE MATCHING RADIATOR ENCLOSURE ALONG WHOLE EXTENT OF EXTERIOR WALL. PROVIDE ACCESS PANELS AND DOORS TO ALL LOCATIONS WHERE NEEDED.
- COORDINATE EXACT THERMOSTAT LOCATION WITH OTHER DEVICES AND ARCHITECTURAL ELEVATIONS. THERMOSTAT TO MATCH EXISTING DEVICES IN THE FACILITY. SIEMENS DIRECT ACTING PNEUMATIC THERMOSTAT (#192-222) COMPLETE WITH SIEMENS THERMOSTAT COVER (#192-252).

NOTE: STEAM EQUIPMENT SCHEDULED IN IMPERIAL UNITS TO MATCH EXISTING IN FACILITY

## 1 HYDRONIC PIPING LAYOUT

SCALE 1:50

M-201



## STEAM FIN TUBE RADIATOR

UNIT NUMBER	TYPE	MAXIMUM OUTPUT	RADIATOR DIMENSIONS				STEAM DATA			REMARKS
			TOTAL LENGTH	HEIGHT	DEPTH	FLOW RATE	FLOW RATE (LB/HR)	OPERATING PRESSURE (PSIG)	SAFETY FACTOR	
RAD-1	BARE ELEMENT FLOOR MOUNT	1400	3	4 1/4	3 5/8	4.5	8	1.0	STERLING C1434	PROVIDE SUPPORT MOUNTS ON FLOOR
RAD-2	BARE ELEMENT FLOOR MOUNT	1400	3	4 1/4	3 5/8	4.5	8	1.0	STERLING C1434	PROVIDE SUPPORT MOUNTS ON FLOOR
RAD-3	BARE ELEMENT FLOOR MOUNT	1400	3	4 1/4	3 5/8	4.5	8	1.0	STERLING C1434	PROVIDE SUPPORT MOUNTS ON FLOOR
RAD-4	BARE ELEMENT FLOOR MOUNT	1400	3	4 1/4	3 5/8	4.5	8	1.0	STERLING C1434	PROVIDE SUPPORT MOUNTS ON FLOOR

## STEAM TRAP

PLAN MARK	SERVICE	TYPE	MATERIAL	STEAM		REMARKS	BASIS OF DESIGN
				FLOW RATE (LB/HR)	OPERATING PRESSURE (PSIG)		
ST-RAD-1.2	LAB RADIATOR	THERMOSTATIC	BRASS / SS	9	8	2	1/8"
ST-RAD-3	LAB RADIATOR	THERMOSTATIC	BRASS / SS	4.5	8	2	1/8"
ST-RAD-4	OFFICE RADIATOR	THERMOSTATIC	BRASS / SS	4.5	8	2	1/8"

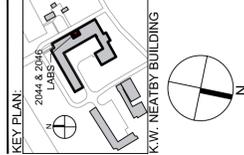
NOTES:

## RADIATOR CONTROL VALVE

PLAN MARK	BODY TYPE	ACT. TYPE	VALVE SIZE	DESIGN VALVE CV	STEAM FLOW (LB/H)	INLET PRESSURE (PSIG)	DESIGN PRESSURE DROP (PSIG)	BODY RATING (PSI)	DESIGN BASIS
CV-RAD-3	GLOBE	NO	1/2"	4	4.5	3 TO 8	1	250	SIEMENS POWERMITE 699 (#257-02042)
CV-RAD-4	GLOBE	NO	1/2"	4	4.5	3 TO 8	1	250	SIEMENS POWERMITE 699 (#257-02042)

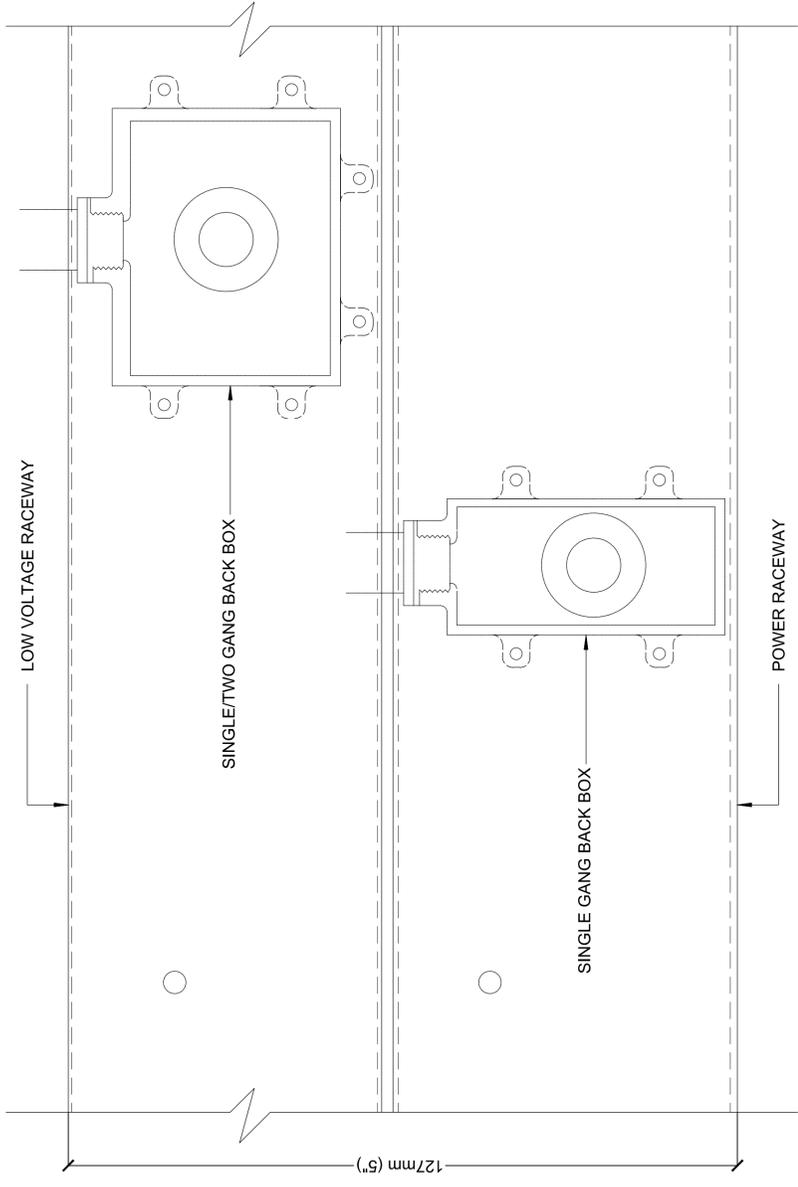
NOTES:

NO. NORMALLY OPEN

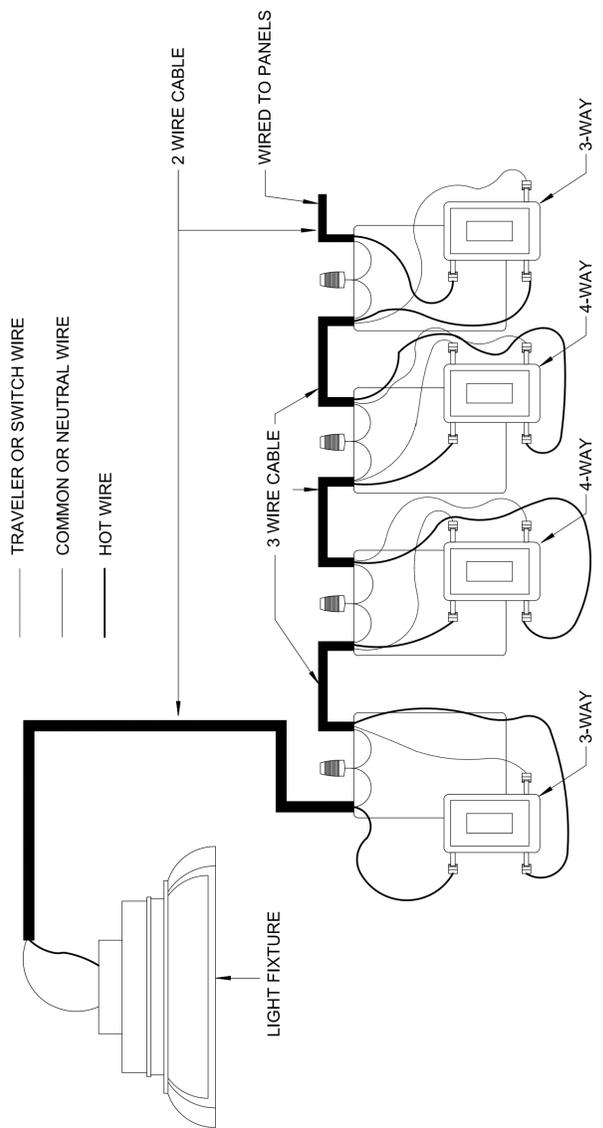


DATE	DESCRIPTION
07/10/2017	ISSUED FOR PERMIT
07/07/17	ISSUED FOR PERMIT
07/07/17	ISSUED FOR PERMIT
07/07/17	ISSUED FOR PERMIT






**1 AAFC LAB RENOVATION - LINE VOLTAGE THREE WAY SWITCH CONNECTION**  
 SCALE 1:50



**NOTES:**

- GROUND WIRE (NOT SHOWN) WILL FLOW FROM POWER SOURCE THROUGH TO LIGHTS.

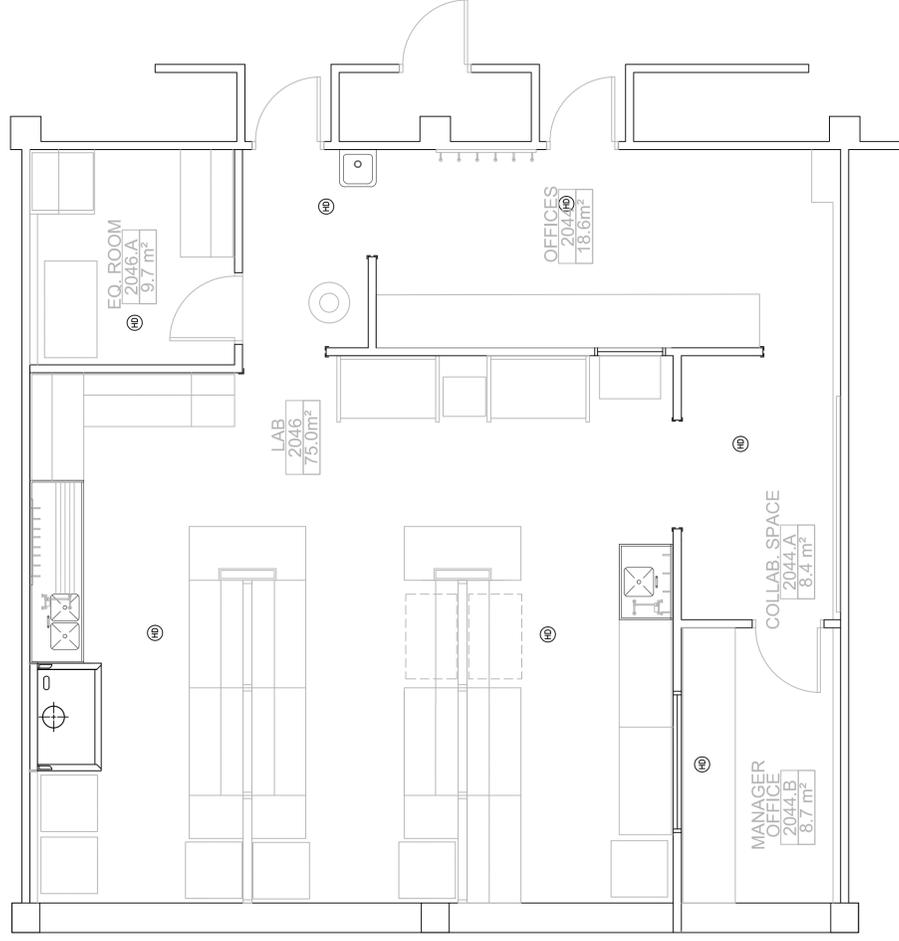

**2 AAFC LAB RENOVATION - RACEWAY PENETRATION**  
 SCALE 1:50

**NOTES:**

- WIRE PENETRATION TO THE RACEWAY MUST BE EITHER FROM THE SIDE OF BACK RACEWAY CHANNEL BASED ON SITE CONDITION.
- ALUMINUM DUAL CHANNEL RACEWAY (AL-5200) OR APPROVED EQUAL IS THE BASE OF DESIGN.
- REFER TO LAYOUT DRAWING FOR HEIGHT OF RACEWAY.



NO.	REVISIONS	DATE
1	ISSUE	07/10/2017
2	REV. CD	07/20/17
3	REV. CD	7/19/2017



1 AAFC LAB RENOVATION - FIRE ALARM PLAN

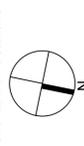
SCALE 1:50

EF-101

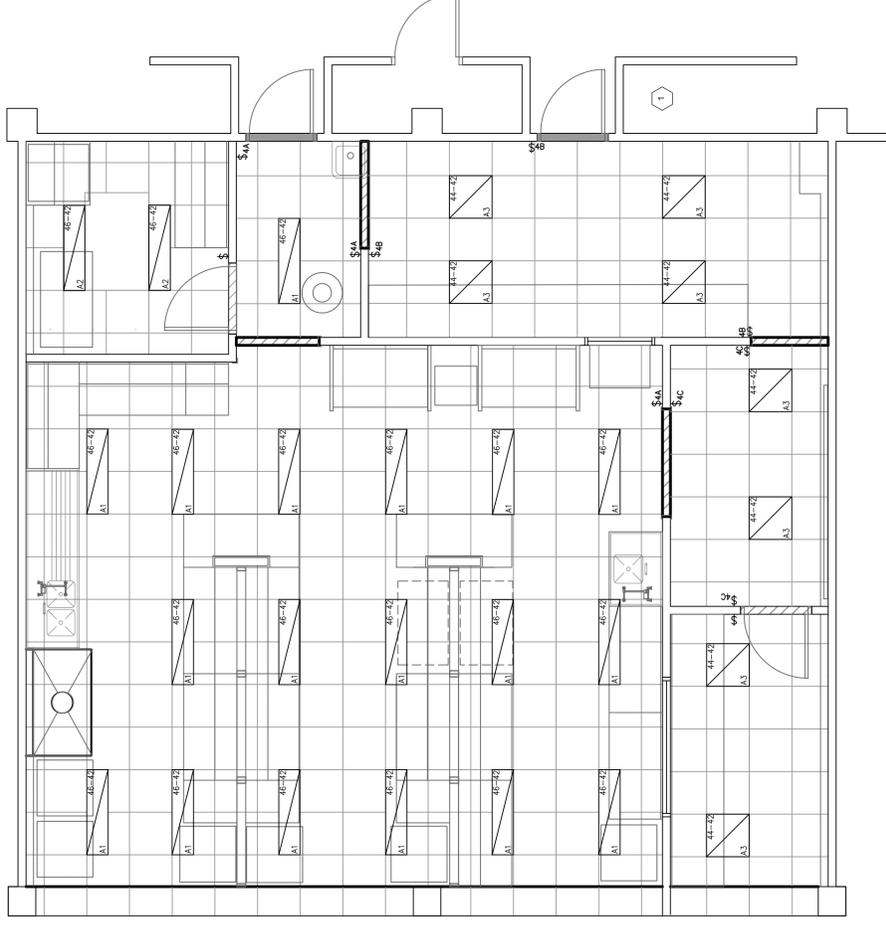
GENERAL NOTES:

1. ELECTRICAL CONTRACTOR IS RESPONSIBLE TO PROVIDE ADDITIONAL HEAT DETECTORS (CR135) IN THE SPACE AND CONNECT THEM TO THE EXISTING FIRE ALARM LOOP IN THE SAME MANNER AS EXISTING DETECTOR COMPONENTS ARE CONNECTED.
2. CONTRACTOR MUST ENSURE FIRE ALARM DETECTOR IS ACTIVE DURING DEMOLITION AND CONSTRUCTION. ANY DOWN TIME IN FIRE ALARM SYSTEM MUST BE PROTECTED BY HUMAN GUARD.
3. ALL INSTALLATIONS MUST COMPLY WITH CAN/ULC S524-14 STANDARD.
4. CONTRACTOR IS RESPONSIBLE TO PROVIDE UPDATED VERIFICATION REPORT.

FIRE ALARM	
SYMBOL	DESCRIPTION
⑩	HEAT DETECTOR (COMBINATION FIXED RATE AND RATE OF RISE - 57°F) - CR 135



NO.	REVISIONS	DATE
1.	ISSUE FOR PERMIT	07/20/17
2.	ISSUE FOR PERMIT	07/20/17
3.	ISSUE FOR PERMIT	07/20/17



1 AAFC LAB RENOVATION - LIGHTING PLAN  
SCALE 1:50

LIGHT FIXTURE SCHEDULE

TYPE	DESCRIPTION	WATTAGE	LUMEN OUTPUT	TEMPERATURE	CRI	PART NUMBER
A1	1X4 RECESSED LED LIGHT	38W	4300	4000K	82 CRI	HE WILLIAMS PT-14-L43/84D-RA-DIM-120
A2	1X4 RECESSED LED LIGHT	33W	3200	4000K	82 CRI	HE WILLIAMS PT-14-L32/84D-RA-DIM-120
A3	2X2 RECESSED LED LIGHT	31W	2900	4000K	82 CRI	HE WILLIAMS PT-22-L29/84D-RA-DIM-120

LIGHTING

SYMBOL	DESCRIPTION
	1X4 RECESSED LED LIGHT
	2X2 RECESSED LED LIGHT
	LINE VOLTAGE TOGGLE SWITCH
	LINE VOLTAGE THREE-WAY TOGGLE SWITCH
	LINE VOLTAGE FOUR-WAY TOGGLE SWITCH

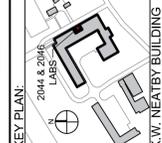
KEY NOTES:

1 REINSTATE SHAFT LIGHTING CONNECTED TO PANEL 2046 BREAKER NUMBER 36.

GENERAL NOTES:

- ANY FIXTURE SUBSTITUTION MUST BE PROVIDED WITH LIGHT LEVEL CALCULATION FILE FOR APPROVAL
- REFER TO DETAIL DRAWING FOR LIGHT SWITCH WIRING DIAGRAM
- LIGHT SWITCHES ARE TO BE HEAVY DUTY GRADE TOGGLE SWITCH 20A 120V SINGLE POLE 3-WAY (WHERE SHOWN) IN WHITE, STANDARD OF ACCEPTANCE. LIGHT SWITCHES TO BE INSTALLED AT 1200 AFF.
- ENSURE LIGHT FIXTURES ARE SUPPORTED FROM THE FRAMING OF THE SECONDARY GYPSUM CEILING ABOVE THE T-BAR LAY IN TILE CEILING. NO ITEMS SHALL BE SOLELY SUPPORTED FROM THE T-BAR CEILING.



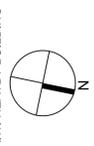


REVISIONS	DATE
1. REV. CD	07/10/2017
2. REV. CD	07/10/2017
3. REV. CD	07/10/2017

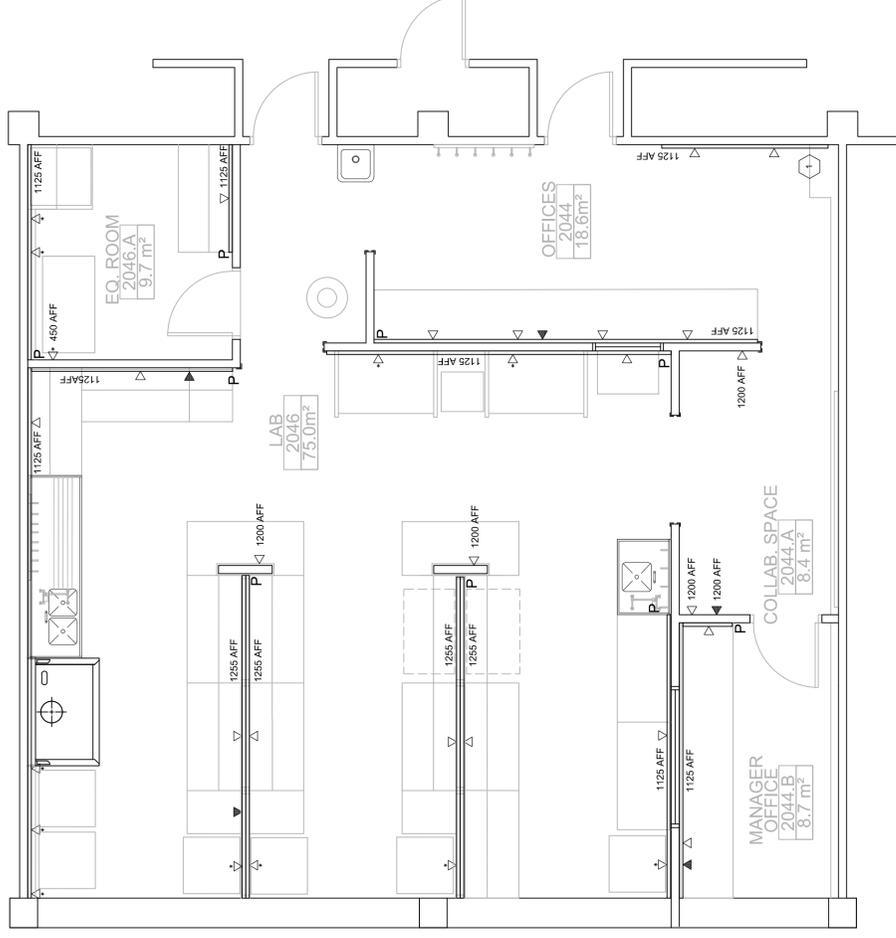
DC AMPS P	NOTES	DESCRIPTION	DEMAND CODE	VA	CKT	PHASE LOADS	VA	CKT	DEMAND CODE	DESCRIPTION	NOTES	DC AMPS P
		KVA	MAX PH AMPS	* PHASE TOTALS			VA	AMPS	BUS TOTALS			KVA
ALL CONNECTED		5.85	25.1	* A-N	2010.0	25.1	2010.0	25.1	CONNECTED			5.85
TOTAL DEMAND		5.85	25.1	* B-N	2840.0	23.7	2840.0	23.7	DEMAND			5.85
TOTAL DESIGN		5.94	25.8	* C-N	0.0	0.0	0.0	0.0	DESIGN			5.94
20 1	SHARED OFFICE	GENERAL REC1	GENERAL	360 1	360	360	0	2	0	SPARE	SPARE	20 1
20 1	SHARED OFFICE	GENERAL REC2	GENERAL	360 3	360	360	0	4	0	SPARE	SPARE	20 1
20 1	SHARED OFFICE	GENERAL REC3	GENERAL	360 5	360	360	0	6	0	SPARE	SPARE	20 1
20 1	SHARED OFFICE	GENERAL REC4	GENERAL	360 7	360	360	0	8	0	SPARE	SPARE	20 1
20 1	SHARED OFFICE	GENERAL REC5	GENERAL	540 11	360	540	0	12	0	SPARE	SPARE	20 1
20 1	COLLAB OFFICE	GENERAL REC6	GENERAL	360 13	360	360	0	14	0	SPARE	SPARE	20 1
20 1	SINGLE OFFICE	GENERAL REC7	GENERAL	360 17	360	360	0	16	0	SPARE	SPARE	20 1
20 1	SINGLE OFFICE	GENERAL REC8	GENERAL	360 19	360	360	0	18	0	SPARE	SPARE	20 1
20 1	SHARED OFFICE	GENERAL REC9	GENERAL	360 17	360	360	0	20	0	SPARE	SPARE	20 1
20 1	SHARED OFFICE	GENERAL REC10	GENERAL	360 21	360	360	0	22	0	SPARE	SPARE	20 1
20 1	SHARED OFFICE	GENERAL REC11	GENERAL	360 23	360	360	0	24	0	SPARE	SPARE	20 1
20 1	SINGLE OFFICE	GENERAL REC12	GENERAL	500 27	500	500	0	26	0	SPARE	SPARE	20 1
20 1	CEILING INTERS	BAS CONTRL1	HVAC LD	0 31	0	0	0	32	0	SPARE	SPARE	20 1
20 1	CEILING INTERS	BAS CONTRL2	SPARE	0 31	0	0	0	34	0	SPARE	SPARE	20 1
20 2		SPARE	SPARE	0 37	0	0	0	36	0	SPARE	SPARE	20 2
20 2		SPARE	SPARE	0 39	0	0	0	38	0	SPARE	SPARE	20 1
20 2		SPARE	SPARE	0 41	350	0	350	42	0	SPARE	SPARE	20 1
20 2		SPARE	SPARE	0 41	350	0	350	42	0	SPARE	SPARE	20 1

**1 PANEL 2044**

DC AMPS P	NOTES	DESCRIPTION	DEMAND CODE	VA	CKT	PHASE LOADS	VA	CKT	DEMAND CODE	DESCRIPTION	NOTES	DC AMPS P
		KVA	MAX PH AMPS	* PHASE TOTALS			VA	AMPS	BUS TOTALS			KVA
ALL CONNECTED		19.32	92.5	* A-N	11100.0	92.5	11100.0	92.5	CONNECTED			19.32
TOTAL DEMAND		15.43	75.3	* B-N	6820.0	68.5	6820.0	68.5	DEMAND			15.43
TOTAL DESIGN		15.78	75.2	* C-N	0.0	0.0	0.0	0.0	DESIGN			15.78
20 1	EQ ROOM	SHAKER 1	LABRAT	1440 1	1741	1588	360	2	GENERAL	GENERAL REC 15	EQ ROOM	20 1
20 1	EQ ROOM	SHAKER 2	LABRAT	1440 3	1741	1588	360	4	GENERAL	GENERAL REC 16	EQ ROOM	20 1
20 1	ME ROOM	FREEZER 1	LABRAT	1440 5	1741	1267	360	6	GENERAL	GENERAL REC 17	ME ROOM	20 1
20 1	MAIN ROOM-NRBT	FREEZER 2	LABRAT	960 7	1267	1267	360	8	GENERAL	GENERAL REC 18	MAIN ROOM NRBT	20 1
20 1	MAIN ROOM-NRBT	FREEZER 3	LABRAT	960 9	1267	1267	360	10	GENERAL	GENERAL REC 19	MAIN ROOM NRBT	20 1
20 1	MAIN ROOM-NRBT	FREEZER 4	LABRAT	960 11	1267	1267	360	12	GENERAL	GENERAL REC 20	MAIN ROOM NRBT	20 1
20 1	MAIN ROOM-NRBT	FREEZER 5	LABRAT	960 13	1267	1267	360	14	GENERAL	GENERAL REC 21	MAIN ROOM NRBT	20 1
20 1	MAIN ROOM-NRBT	FREEZER 6	LABRAT	960 15	1267	1267	360	16	GENERAL	GENERAL REC 22	MAIN ROOM NRBT	20 1
20 1	MAIN ROOM-NRBT	FREEZER 7	LABRAT	960 17	1109	1267	360	18	GENERAL	GENERAL REC 23	MAIN ROOM NRBT	20 1
20 1	MAIN ROOM-NRBT	FREEZER 8	LABRAT	960 19	1109	1267	360	20	GENERAL	GENERAL REC 24	MAIN ROOM NRBT	20 1
20 1	MAIN ROOM-NRBT	FREEZER 9	LABRAT	960 21	1109	1267	360	22	GENERAL	GENERAL REC 25	MAIN ROOM NRBT	20 1
20 1	MAIN ROOM-NRBT	FREEZER 10	LABRAT	960 23	1109	1267	360	24	GENERAL	GENERAL REC 26	MAIN ROOM NRBT	20 1
20 1	MAIN ROOM-NRBT	FREEZER 11	LABRAT	960 25	960	633	0	26	GENERAL	GENERAL REC 27	MAIN ROOM NRBT	20 2
20 1	MAIN ROOM-NRBT	FREEZER 12	LABRAT	960 27	960	633	0	28	GENERAL	GENERAL REC 28	MAIN ROOM NRBT	20 2
20 1	MAIN ROOM-NRBT	FREEZER 13	LABRAT	960 29	540	360	0	30	GENERAL	GENERAL REC 29	MAIN ROOM NRBT	20 1
20 1	MAIN ROOM-NRBT	FREEZER 14	LABRAT	360 29	180	180	0	32	GENERAL	GENERAL REC 30	MAIN ROOM NRBT	20 1
20 1	MAIN ROOM-NRBT	FREEZER 15	LABRAT	0 33	180	480	0	34	GENERAL	GENERAL REC 31	MAIN ROOM NRBT	20 1
20 1	MAIN ROOM-NRBT	FREEZER 16	LABRAT	0 35	0	480	0	36	GENERAL	GENERAL REC 32	MAIN ROOM NRBT	20 1
20 1	MAIN ROOM-NRBT	FREEZER 17	LABRAT	0 37	0	0	0	38	GENERAL	GENERAL REC 33	MAIN ROOM NRBT	20 1
20 1	MAIN ROOM-NRBT	FREEZER 18	LABRAT	0 39	0	0	0	40	GENERAL	GENERAL REC 34	MAIN ROOM NRBT	20 1
20 1	MAIN ROOM-NRBT	FREEZER 19	LABRAT	0 39	0	0	0	42	GENERAL	GENERAL REC 35	MAIN ROOM NRBT	20 1
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20 1	MAIN ROOM-NRBT	FREEZER 39	LABRAT	0 41	900	0	900	42	GENERAL	GENERAL REC 55	MAIN ROOM NRBT	20 1
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20 1	MAIN ROOM-NRBT	FREEZER 41	LABRAT	0 41	900	0	900	42	GENERAL	GENERAL REC 57	MAIN ROOM NRBT	20 1
20 1	MAIN ROOM-NRBT	FREEZER 42	LABRAT	0 41	900	0	900	42	GENERAL	GENERAL REC 58	MAIN ROOM NRBT	20 1
20 1	MAIN ROOM-NRBT	FREEZER 43	LABRAT	0 41	900	0	900	42	GENERAL	GENERAL REC 59	MAIN ROOM NRBT	20 1
20 1	MAIN ROOM-NRBT	FREEZER 44	LABRAT	0 41	900	0	900	42	GENERAL	GENERAL REC 60	MAIN ROOM NRBT	20 1
20 1	MAIN ROOM-NRBT	FREEZER 45	LABRAT	0 41	900	0	900	42	GENERAL	GENERAL REC 61	MAIN ROOM NRBT	20 1
20 1	MAIN ROOM-NRBT	FREEZER 46	LABRAT	0 41	900	0	900	42	GENERAL	GENERAL REC 62	MAIN ROOM NRBT	20 1
20 1	MAIN ROOM-NRBT	FREEZER 47	LABRAT	0 41	900	0	900	42	GENERAL	GENERAL REC 63	MAIN ROOM NRBT	20 1
20 1	MAIN ROOM-NRBT	FREEZER 48	LABRAT	0 41	900	0	900	42	GENERAL	GENERAL REC 64	MAIN ROOM NRBT	20 1
20 1	MAIN ROOM-NRBT	FREEZER 49	LABRAT	0 41	900	0	900	42	GENERAL	GENERAL REC 65	MAIN ROOM NRBT	20 1
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20 1	MAIN ROOM-NRBT	FREEZER 51	LABRAT	0 41	900	0	900	42	GENERAL	GENERAL REC 67	MAIN ROOM NRBT	20 1
20 1	MAIN ROOM-NRBT	FREEZER 52	LABRAT	0 41	900	0	900	42	GENERAL	GENERAL REC 68	MAIN ROOM NRBT	20 1
20 1	MAIN ROOM-NRBT	FREEZER 53	LABRAT	0 41	900	0	900	42	GENERAL	GENERAL REC 69	MAIN ROOM NRBT	20 1
20 1	MAIN ROOM-NRBT	FREEZER 54	LABRAT	0 41	900	0	900	42	GENERAL	GENERAL REC 70	MAIN ROOM NRBT	20 1
20 1	MAIN ROOM-NRBT	FREEZER 55	LABRAT	0 41	900	0	900	42	GENERAL	GENERAL REC 71	MAIN ROOM NRBT	20 1
20 1	MAIN ROOM-NRBT	FREEZER 56	LABRAT	0 41	900	0	900	42	GENERAL	GENERAL REC 72	MAIN ROOM NRBT	20 1
20 1	MAIN ROOM-NRBT	FREEZER 57	LABRAT	0 41	900	0	900	42	GENERAL	GENERAL REC 73	MAIN ROOM NRBT	20 1
20 1	MAIN ROOM-NRBT	FREEZER 58	LABRAT	0 41	900	0	900	42	GENERAL	GENERAL REC 74	MAIN ROOM NRBT	20 1
20 1	MAIN ROOM-NRBT	FREEZER 59	LABRAT	0 41	900	0	900	42	GENERAL	GENERAL REC 75	MAIN ROOM NRBT	20 1
20 1	MAIN ROOM-NRBT	FREEZER 60	LABRAT	0 41	900	0	900	42	GENERAL	GENERAL REC 76	MAIN ROOM NRBT	20 1
20 1	MAIN ROOM-NRBT	FREEZER 61	LABRAT	0 41	900	0	900	42	GENERAL	GENERAL REC 77	MAIN ROOM NRBT	20 1
20 1	MAIN ROOM-NRBT	FREEZER 62	LABRAT	0 41	900	0	900	42	GENERAL	GENERAL REC 78	MAIN ROOM NRBT	



NO.	REVISIONS	DATE
1.	ISS. CD.	07/2017
2.	ISS. CD.	09/2017
3.	ISS. CD.	02/2018



1 AAFC LAB RENOVATION - LOW VOLTAGE

SCALE 1:50

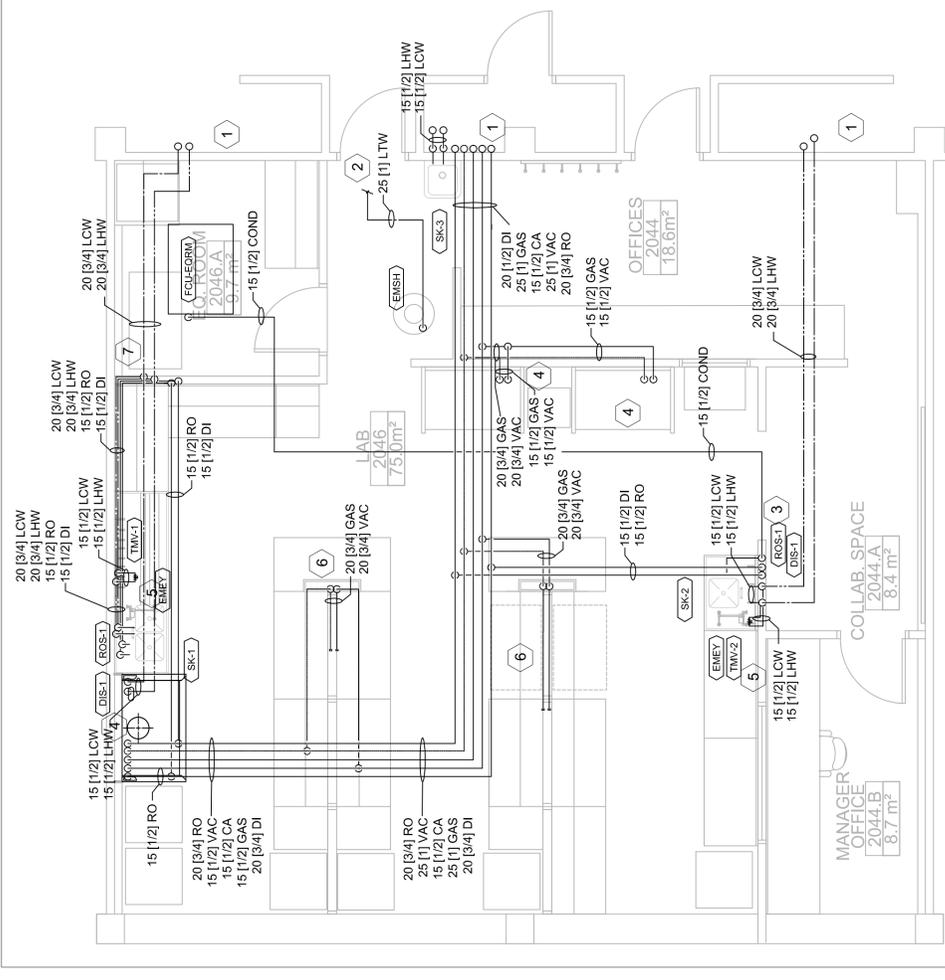
GENERAL NOTES:

- ELECTRICAL CONTRACTOR IS RESPONSIBLE TO PROVIDE ROUGH-IN CONDUITS WITH PULL STRING BETWEEN THE DATA PORTS AND THE COMMON CORRIDOR. CABLE TRAY OR CONDUITS MUST BE EXTENDED TO THE COMMON CORRIDOR BASED ON THE CEILING SPACE ACCESSIBILITY.
- SHARED SERVICES MUST PROVIDE, PULL, TERMINATE AND TEST DATA AND PHONE CABLES AND ASSOCIATED JACKS.
- SHARED SERVICE IS RESPONSIBLE TO PROVIDE LABEL FOR DATA AND PHONE TO MATCH THE EXISTING BUILDING STANDARD.
- SHARED SERVICES OR CLIENT IS RESPONSIBLE TO PROVIDE, PULL, TERMINATE AND TEST ALARM MONITORING WIRES.
- PROVIDE STAINLESS STEEL COVER PLATE WITH CENTER HOLE FOR ALARM MONITORING BOXES.
- RACEWAY HEIGHTS ARE FROM THE FINISHED FLOOR TO THE CENTER OF THE RACEWAY.
- INDIVIDUAL PORT HEIGHTS ARE FROM THE FINISHED FLOOR TO THE CENTER OF THE BACK BOX.
- CONTRACTOR MUST PROVIDE STAINLESS STEEL DUPLEX FACEPLATE FOR INDIVIDUAL DATA PORTS AND RACEWAY RECOMMENDED FACEPLATE FOR DATA PORTS LOCATED IN THE RACEWAY.

KEY NOTES:

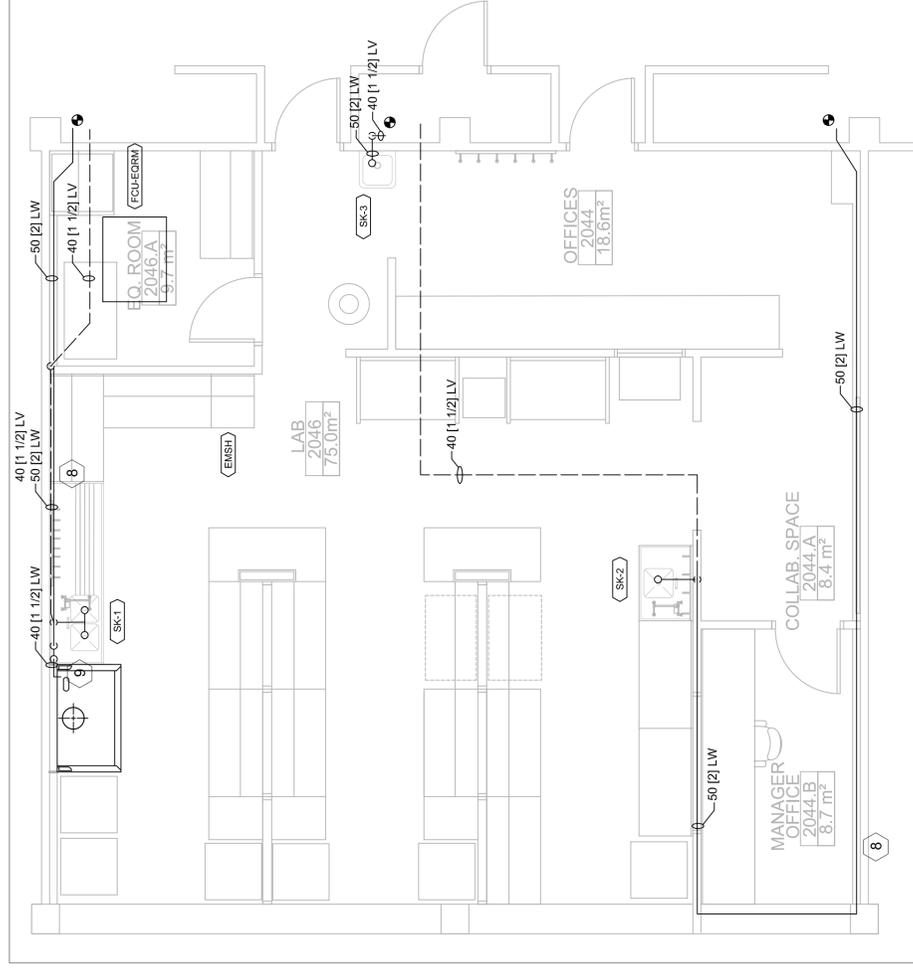
- PROVIDE PENETRATION FROM THE SHAFT BEHIND. FIRE SEALING MATERIAL MUST BE APPLIED FOR PENETRATION THROUGH THE FIRE RATED SHAFT.

LOW VOLTAGE	
SYMBOL	DESCRIPTION
	RACEWAY
	SINGLE PHONE OUTLET
	DUAL DATA OUTLET
	SINGLE ALARM MONITORING BOX
	PENETRATION POINT TO THE RACEWAY INSIDE NEW WALL CAVITY (VERTICAL DROP FROM THE CEILING)



**GENERAL NOTES:**  
 - PIPING IS LOCATED IN THE CEILING SPACE OF THE FLOOR PLAN SHOWN, EXCEPT WHERE INDICATED.  
 - SEE SCHEMATIC DRAWINGS AND DETAILS FOR VALVE REQUIREMENTS.  
 - CONTRACTOR TO PROVIDE AIR BLEED VALVES AS REQUIRED TO ENSURE NO AIR IS PRESENT IN HYDRONIC LINES DURING REGULAR OPERATION.  
 - ROUTE ALL PIPING AS NECESSARY TO AVOID DUCTWORK, LIGHTING, ETC.  
 - CONTRACTOR TO VERIFY ALL CONNECTIONS TO OLD AND NEW AND INCORPORATE ACCURATE DIMENSIONING ON SHOP DRAWING SUBMITTAL.  
 - INCLUDE CIRCUIT SETTER BALANCING VALVES AND ISOLATION VALVES ON ALL LHWR BRANCHES.

- KEY NOTES:**
- CONNECT TO EXISTING SERVICE RISERS LOCATED IN SERVICE SHAFTS. CONFIRM EXACT LOCATIONS OF EACH SERVICE. IF FEASIBLE, USE EXISTING TEE OFF RISER, AND PIPE UP TO REACH CEILING SPACE WITHIN CHASE. PROVIDE ISOLATION VALVES AT EACH TAKEOFF. ENSURE ANY NEW PENETRATIONS ARE PROPERLY FIRE SEALED.
  - RELOCATE EXISTING EMERGENCY SHOWER AND CONNECT TO EXISTING LTV PIPING.
  - PIPE FAN COIL UNIT CONDENSATE FROM UNIT THROUGH CEILING SPACE AND DOWN WALL CAVITY, PENETRATE WALL AND CONNECT TO SINK DRAIN, UPSTREAM OF TRAP.
  - SERVICE DROPS FROM CEILING DOWN TO FUME HOOD OR LAMINAR FLOW HOOD EQUIPMENT. CONFIRM EXACT DROP LOCATIONS WITH CONTRACTOR. PROVIDED FUME HOOD AND OWNER FURNISHED LAMINAR FLOW HOODS.
  - PIPE TAKEOFF FROM SUPPLY LINE TO SINK TO THERMOSTATIC MIXING VALVE SERVING DECK MOUNTED EMERGENCY EYEWASH. LOCATE THERMOSTATIC MIXING VALVE BELOW SINK IN ACCESSIBLE LOCATION.
  - PIPING FOR FUTURE SERVICES TO CASEWORK ISLANDS PIPED FROM CEILING DOWN THROUGH UPRIGHT CHASE. CONTINUE THROUGH CASEWORK AND CAP OFF WITHIN CASEWORK CW ISOLATION VALVES.
  - LW, LHW, AND RO PIPED FROM CEILING SPACE, DOWN THROUGH NEW WALL TO HIP WALL CHASE. PIPE THROUGH HIP WALL CHASE TO SINK.
  - LAB WASTE DRAINAGE ROUTED LOW THROUGH HIP WALL CHASE, AND CONNECT TO EXISTING DRAINAGE STACK IN WALL CHASE. AT SK-1, ROUTE VENT LINE THROUGH HIP WALL CHASE AND RISE TO CEILING SPACE AT EQUIPMENT ROOM WALL JUNCTION.
  - LAB WASTE DRAINAGE CONNECTION TO FUMEHOOD CUP SINK DRAIN. TRAP DRAIN CONNECTION WITHIN WALL CHASE.



**2 PLUMBING WASTE AND VENT LAYOUT**  
 SCALE 1:50  
 P-101

**1 PLUMBING SUPPLY PIPING LAYOUT**  
 SCALE 1:50  
 P-101

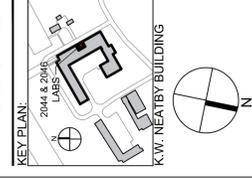
**MIXING VALVE SCHEDULE**

PLAN MARK	SERVICE	CONNECTION SIZE (MM)	FLOW (LPM)	PRESSURE DROP (KPA)	BASIS OF DESIGN	REMARKS
TMV-1	DECK MOUNTED EYEWASH	15	16.6	35	HAWMS 9201EW	
TMV-2	DECK MOUNTED EYEWASH	15	16.6	35	HAWMS 9201EW	
REMARKS:						

**PLUMBING FIXTURE SCHEDULE**

FIXTURE MARK	FITURE DESCRIPTION	SYSTEM			TEMP		PSI	BASIS OF DESIGN
		DRAIN	VENT	HOT WATER	COLD WATER			
SK-1	LABORATORY DOUBLE SINK, STAINLESS STEEL INTEGRAL TO CASEWORK, WITH DRAINBOARD. DECK MOUNTED GOOSENECK FAUCET WITH VACUUM BREAKER AND WRIST BLADES	LW	50	40	20	-	-	SINK - CUSTOM STAINLESS STEEL SINK INTEGRAL TO SS COUNTERTOP. CW/DRAINBOARD. SEE A-105 FAUCET - CHICAGO FAUCETS 895-317GN2BVBEYCP
SK-2	INTEGRAL TO CASEWORK WITH DECK MOUNTED GOOSENECK FAUCET WITH VACUUM BREAKER AND WRIST BLADES	LW	50	40	15	-	-	SINK - CUSTOM STAINLESS STEEL SINK INTEGRAL TO SS COUNTERTOP. SEE A-105 FOR DETAILS FAUCET - CHICAGO FAUCETS 895-317GN2BVBEYCP
SK-3	LAVATORY, 316 STAINLESS STEEL, WALL HUNG WITH DECK MOUNTED GOOSENECK FAUCET WITH AUTO SENSOR AND WATER TURBINE	LW	50	40	15	-	-	SINK - AMI NOVANNI 8101/316ADJ-10 FAUCET - CHICAGO FAUCETS 116.973.AB.1
EMSH	EMERGENCY SHOWER, CEILING HUNG WITH CHAIN PULL FOR SHOWER ACTIVATION, ALL STAINLESS STEEL	SAN	-	-	-	25	-	EXISTING TO BE RESUED AND RELOCATED
EMEY	EYEWASH WITH PADDLE ACTIVATION	SAN	-	-	-	15	-	HAWMS 7612
ROS-1	RO WATER POINT OF USE FAUCET, DECK MOUNTED GOOSENECK, MATERIAL TO MATCH PIPING	RO	-	-	-	15	-	CHICAGO FAUCETS 828-ASAM
DIS-1	DI WATER POINT OF USE FAUCET, DECK MOUNTED, GOOSENECK, MATERIAL TO MATCH PIPING.	DI	-	-	-	15	-	CHICAGO FAUCETS 870-PVDF

NOTES:  
 LW = LABORATORY WASTE SYSTEM



NO.	REVISIONS	DATE
1	ISSUED FOR CONSTRUCTION	07/10/2017
2		
3		
4		
5		
6		
7		
8		