

Request for Proposal

INSTITUTION:	Durham College of Applied Arts and Technology
RFP NAME:	Whitby Campus Cottage Improvements
RFP #:	RFPDC11162021
ADDENDUM NAME:	Questions and Responses
ADDENDUM #:	3

1) There is no doors hardware scheduled on the drawings. Should we use the existing doors hardware on the new doors?

RESPONSE: Refer to drawings included with this addendum.

2) Please elaborate and provide a description with the Addendum 2 sketch. How does this effect our scope?

RESPONSE: Refer to drawings included with this addendum.

3) On drawing A201, note #3, it states that the Door frames are to remain and just to replace the existing doors with new – no problem – however what about the existing door hardware? Are we to include to price for salvaging and installing the existing door hardware onto the new doors? Please clarify scope.

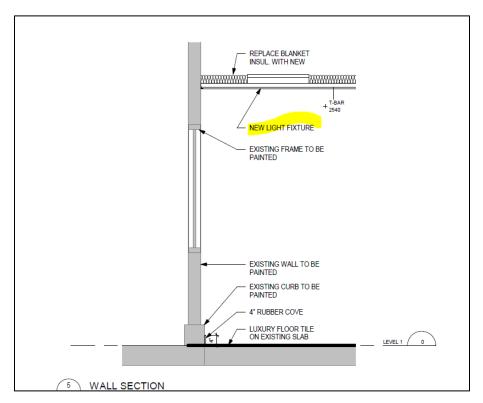
RESPONSE: Refer to Question #1.

4) On Detail #5, Dwg A701, of the "Additional Drawings and Specifications" issued in Addendum #1 – it states that there is "New light Fixtures" however on the Addendum #1, Questions & Responses item #2 states that there is no electrical work in this phase – please clarify the scope or revise drawings.

RESPONSE: Refer to drawings included with this addendum.

5) Note #2 on the Demolition drawings state that the existing ceiling system is to be removed, however on drawing A202 (Finishes Floor Plan & RCP) Detail #2 of the RCP shows Mechanical diffusers on the ceiling with no specifications regarding the Diffusers – please clarify scope.

RESPONSE: Refer to drawings included with this addendum.



6) Do you have any electrical drawing or specs for the new light fixtures?

RESPONSE: Refer to drawings included with this addendum.

7) Do you have Door Hardware Schedule?

RESPONSE: Refer to Question #1.

8) Does Durham College require specific trades that should be unionized?

RESPONSE: No.

9) The removal of existing lighting fixture is part of demolition scope, however, will these fixtures be electrically disconnected by the owner? Since there is no electrical drawings, we assume that the existing lighting fixtures will be ready to be removed by regular demolition trade (not electricians).

RESPONSE: Refer to drawings included with this addendum.

10)Is there any door hardware schedule for new doors? If so, please provide the spec.

RESPONSE: Refer to Question #1.

11)Do you want bonding for this job? I don't see it referenced in the docs.

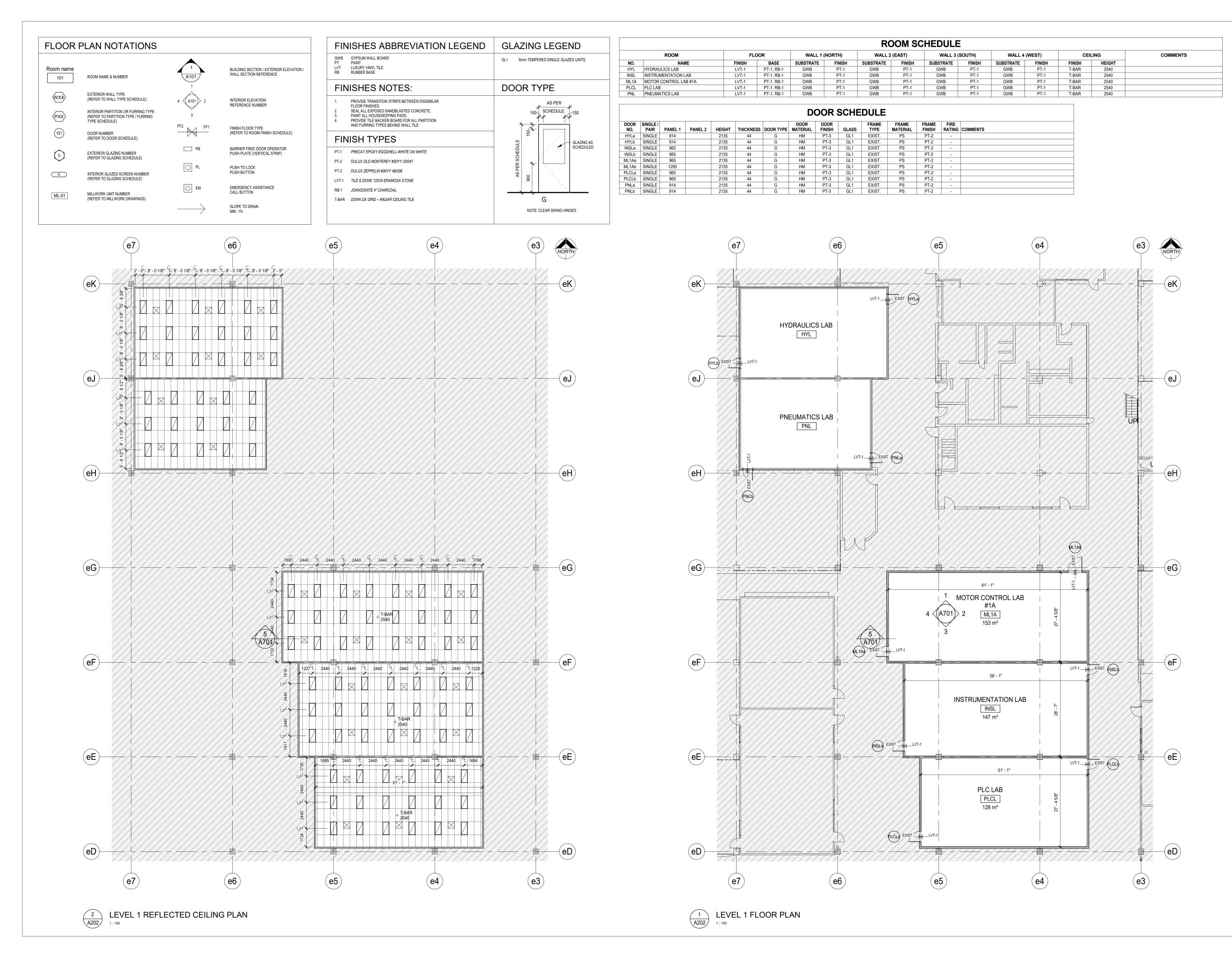
RESPONSE: No.

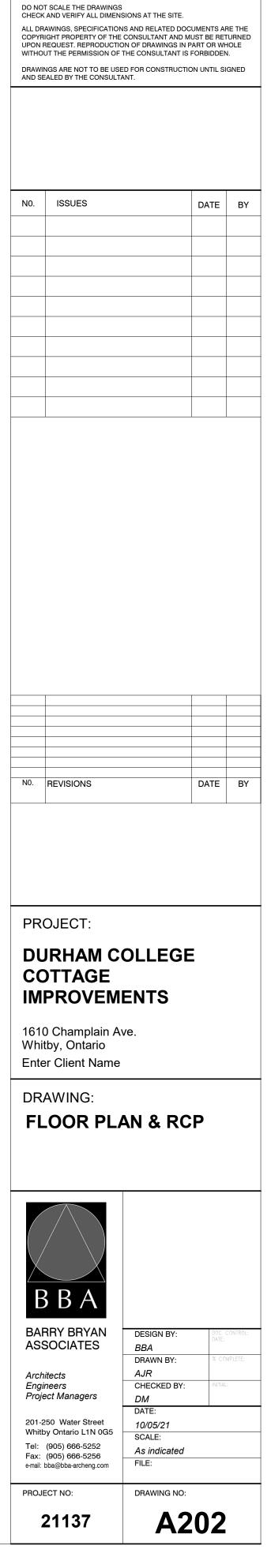
12)For the Ceiling Tiles - On drawing A202 it calls for new ceiling tiles in the Lab Areas – please specify the type of Radar Ceiling Tiles that are needed, as Radars suppliers have many types and styles – and without knowing type or style, our sub-contractors cannot price accordingly. Please advise.

RESPONSE: Refer to drawings included with this addendum.

13)On the "Finishes Notes" on drawing A202, it notes to "Paint all Concrete Pads" – I understand that we will have a site visit to see where the pads are, and how many need to be painted – however the general locations of the concrete pads still need to be on the drawings, and from what I can see, I don't see any listed that I'm aware of – please advise.

RESPONSE: This is to be determined.





	POWER
SYMBOL	DESCRIPTION
\oplus	125V, 15A DUPLEX U-GROUND RECEPTACLE UNLESS OTHERWISE NOTED.
Ф20А	DUPLEX RECEPTACLE AS ABOVE, CSA 5–20A TYPE.
	SAME AS ABOVE EXCEPT CONNECT TO CONTROLLED CIRCUIT. RECEPTACLE SHALL BE GREY COLOUR.
	DOUBLE DUPLEX RECEPTACLE IN A COMMON COVER PLATE.
Φ	125V, 15A SINGLE RECEPTACLE. VOLTAGE/AMPERAGE AND TYPE AS INDICATED.
\square	SPECIAL RECEPTACLE. VOLTAGE/AMPERAGE AND TYPE AS INDICATED.
ØØØ	RECEPTACLES AS ABOVE BUT MOUNTED ABOVE COUNTER OR 42"AFF.
œ EPO	EMERGENCY POWER-OFF PUSHBUTTON TO BE INTERLOCKED WITH ALL PANELBOARDS WITH THE SAME ROOM.
	LIGHTING
SYMBOL	DESCRIPTION
F1 I	STRIP LIGHT IN COVE OR VALENCE. LENGTH SHOWN TO SCALE ON THE DRAWINGS. LETTER DENOTES TYPE.
F2 F3 L	LUMINAIRE, CEILING OR WALL MOUNTED RESPECTIVELY. LETTER DENOTES TYPE.
F2 ///// NL	LUMINAIRE AS ABOVE BUT CONNECTED TO NIGHT LIGHT CIRCUIT.
F2 []EM	LUMINAIRE AS ABOVE BUT CONNECTED TO EMERGENCY OR NORMAL & EMERGENCY LIGHT CIRCUITS WITH BY-PASS UNIT - SEE SPEC FOR MORE DETAILS
A1 O A2Q	CEILING OR WALL MOUNTED LUMINAIRE RESPECTIVELY. LETTER DENOTES TYPE.
A1 \bigcirc NL A2 \bigcirc NL	LUMINAIRE AS ABOVE BUT CONNECTED TO NIGHT LIGHT CIRCUIT.
A1 \bigcirc EM A2 \bigcirc EM	LUMINAIRE AS ABOVE BUT CONNECTED TO EMERGENCY OR NORMAL & EMERGENCY LIGHT CIRCUITS WITH BY-PASS UNIT - SEE SPEC FOR MORE DETAILS
\$\$\$	15A/20A 120V SINGLE POLE TOGGLE SWITCH(ES) WITH ONE, TWO OR THREE-GANG COVERPLATE RESPECTIVELY. SWITCHES RATING TO SUIT LIGHTING LOADS & BREAKER SIZE.
OC 1	OCCUPANCY SENSOR. NUMBER DENOTES TYPE. REFER TO SCHEDULE.
	FIRE ALARM
SYMBOL	DESCRIPTION
	FIRE ALARM BELL
COMMUN	ICATION / AV SYSTEM
SYMBOL	DESCRIPTION
	TELEPHONE OUTLET (SEE RISER DIAGRAM WHERE APPLICABLE)
\bigtriangledown	DATA OUTLET (SEE RISER DIAGRAM WHERE APPLICABLE)
$\mathbf{\nabla}$	COMBINATION TELEPHONE/DATA OUTLET.SEE RISER DIAGRAM FOR DETAIL
$\checkmark \hspace{0.1 in} \checkmark \hspace{0.1 in} \checkmark$	OUTLET AS ABOVE BUT MOUNTED ABOVE COUNTER OR 42"AFF.
	FLOOR MOUNTED TELEPHONE, DATA OR COMBINATION AS SPECIFIED.
	CEILING OR WALL MOUNTED WIRELESS ACCESS POINT

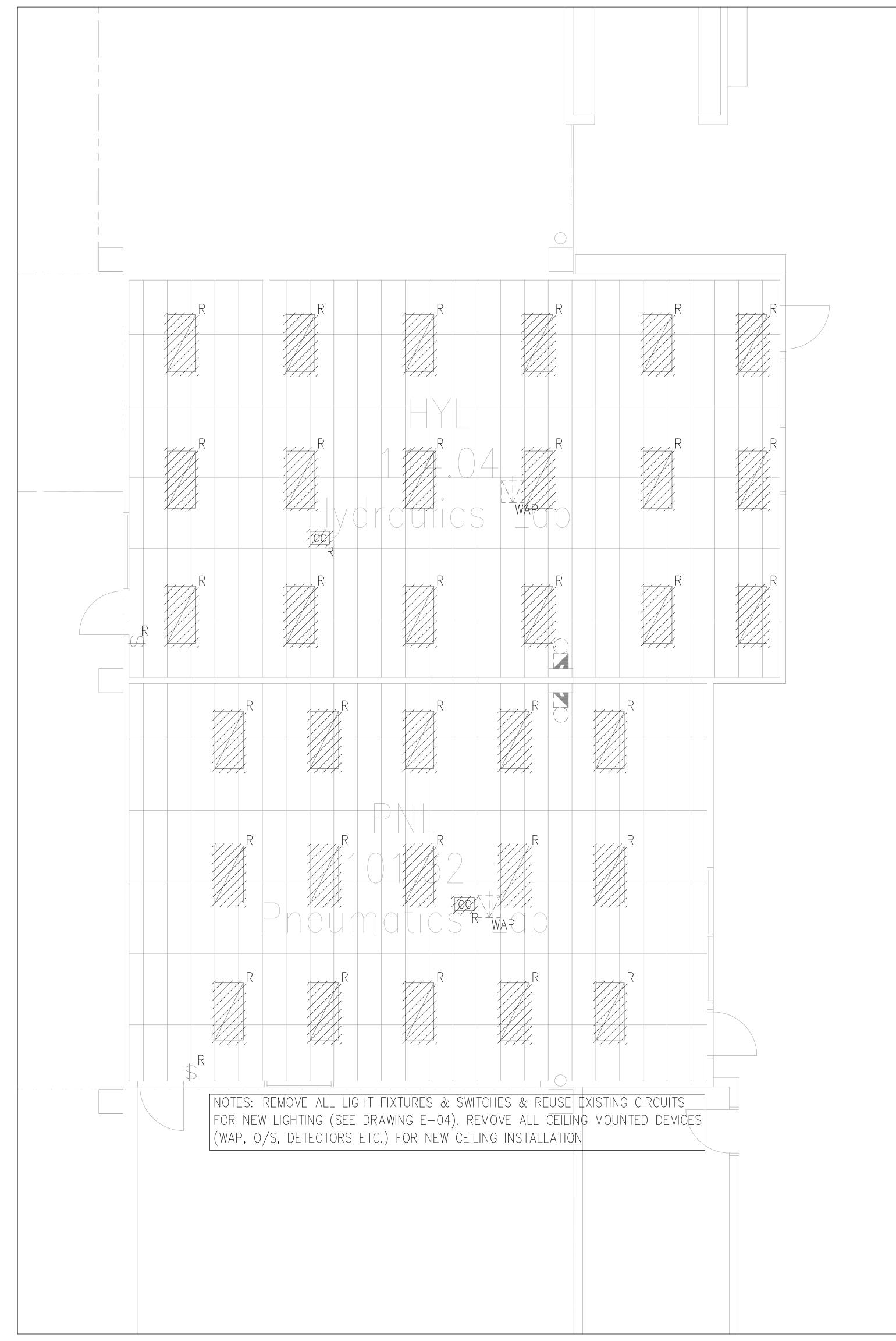
LUMINAIRE SCHEDULE

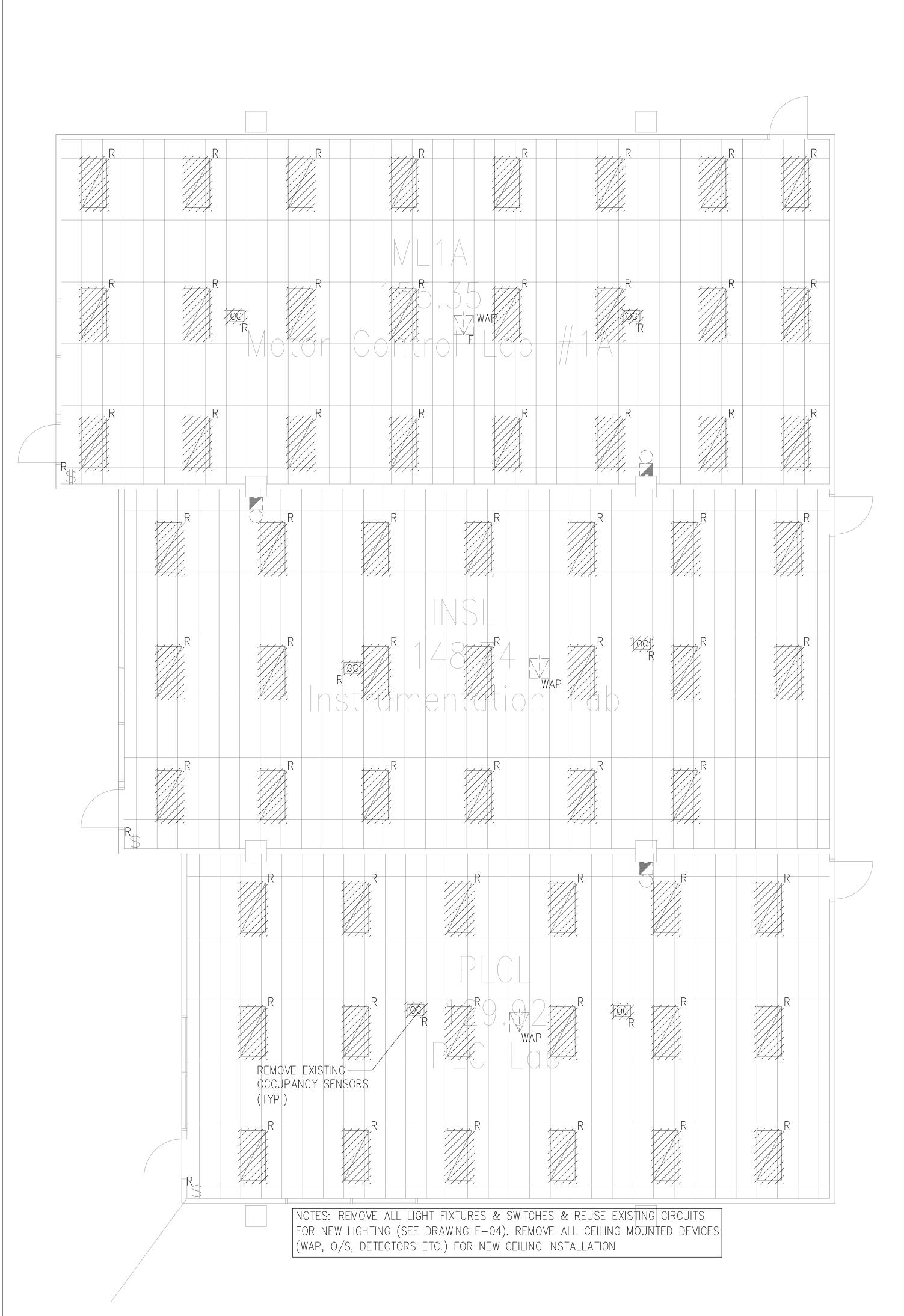
TYPE L1 LED 2'X4' RECESSED T-BAR FIXTURE WITH DIFFUSER R LAMP: 4800 LUMENS, 4000K. LED 80 CRI VOLTAGE: 120V DRIVER & REQUIRED ACCESSORIES. DIMMING

MANUFACTURER: DAY BRIGHT CAT.# 2EVG

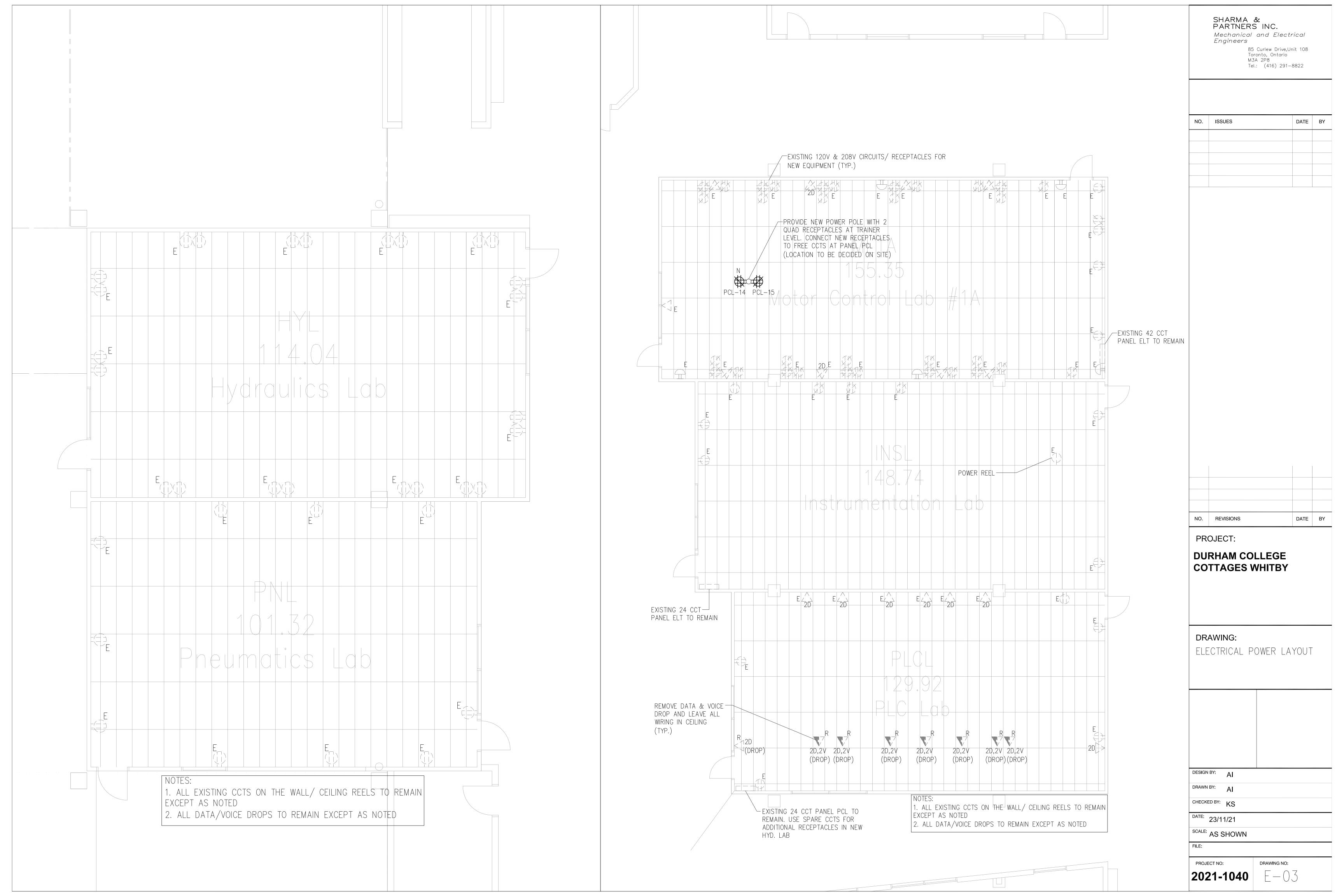
** SUSPEND ALL LIGHT FIXTURES TO COTTAGE ROOF WITH CHAINS **

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GENERAL ELECTRICAL CONDITIONS - SECTION 16050

1. Comply with general conditions of the contract and Division 15, Mechanical Specifications. Division 15 shall be the Prime Contractor.

2. This section applies to all sections of Division 16.

3. Provide each item mentioned or indicated of quality and subject to qualifications noted; perform according to conditions stated each operation prescribed; and provide therefore all labour, material, equipment, incidentals and services required to complete the installation.

4. Other Work by this Division

1. Painting of exposed conduits, unfinished electrical equipment: under Division 15.

2. Cutting and patching will be by Division 16. Patching shall be of same material as surrounding area and shall be painted or finished to match existing.

5. The following documents shall be submitted to the Consultant on the completion of the project as described above:

- electrical inspection certificate (ESA Report) - as_built drawings in AutoCad & PDF format and, after they are reviewed by consultant, provide also hard copy. – guarantee

- other certificates specified.

6. All material shall be stored neatly and out of the way. Clean up daily all refuse caused by work.

7. Examine the site, existing equipment and the local conditions affecting the work under this contract. No allowance will be made subsequently for any obvious considerations overlooked. Locate existing power source for the new VAV Boxes (120V, fractional HP) and run conduits and wiring from local panel to the Boxes complete with a 15A breaker or as needed from existing circuits.

8. After the work is complete but before final payment, give the Owner a written guarantee to, replace or repair any defects in workmanship and materials not due, in the opinion of the consultant to misuse or neglect. Guarantee shall cover a period of 12 months from the date of acceptance of the work. This guarantee shall in no way supplant any other guarantee or guarantees of longer period, but shall be binding on all other work not otherwise covered.

9. All work shall comply strictly to the requirements of the latest editions of the OESC, Canadian Electrical CSA Code as adopted and amended by provincial regulations and the Building Code. 10. Before starting any work, submit the required number of copies of the electrical drawings to the power authority and electrical inspection department regional office, for their approval and comments.

11. Pay all fees for examination of drawings and obtain all permits required and pay all permit and inspection fees.

12. The Owner shall have temporary use of installation prior to final acceptance.

13. All electrical equipment mounted and connected by this contractor, whether supplied by him or not, shall be identified by means of plastic nameplates.

14. Wiring

1. All wiring shall be concealed except in unfinished areas and in areas noted where wiring may be installed in surface conduits.

2. Rigid steel conduits shall be used in:

all exposed wiring or wiring subject to mechanical damage,

• all areas required by code. 3. EMT conduits may be used where permitted by code:

• in furred walls.

Armoured flexible cable type AC90 (BX cable) may be used as drop cable from junction box to light fixtures in closed celing areas, receptacles and motors if run in hollow partitions or in dry accessible ceiling spaces. Maximum length 15ft.

5. Flexible conduit shall be used for final short connections between outlet and electrical equipment such as recessed fixtures, motors, transformers, motorized equipment and fixed appliances. Flexible conduit in mechanical rooms and on the exterior wall shall be PVC jacketed, liquid tight.

6. Home runs of wiring to panels shall be in conduits.

15. All low voltage and multi conductor cables shall be installed in conduit.

16. All conductors shall be copper 600 volt grade with insulation type RW90. Minimum conductor size shall be #12 AWG and colour coded. Wire connections shall be made with pressure type solderless connectors with vinyl insulating caps and locking rings.

1. Maximum length for 15 amp, 120/208 volt branch circuit home runs shall be as follows:

_oad	#12 AWG	#10 AWG
Receptacle	65 ft (20m)	over 65 ft (20m)
_ighting	90 ft (27m)	over 90 ft (27m)

17. Unless otherwise noted on the architectural and electrical drawings, mounting heights of equipment above finished floor from centre line of the mounting box shall be as follows:

1. top of panel board - 78" (1980mm)

2. light switch - 43" (1100mm)

3. motor starter/thermostat — same as light switch

4. receptacle, telephone, data, etc. - 18" (460mm)

5. receptacles in mechanical rooms and other unfinished areas - 47" (1200mm)

18. If number of conductors in any one conduit exceeds 6 line conductors, conductor size shall be increased to allow for derating as required by Code.

19. Mechanical trade will supply all starters, control transformers and controls for equipment supplied by them and will mount all these except for wall mounted starters and wall mounted line voltage controls, which shall be mounted by electrical trade. Electrical trade shall do all power wiring, which is wiring that carries the load current of the motor, heater, hot water tank or other equipment supplied by mechanical trade. Mechanical trade will do all other related wiring.

20. All conduits and outlet boxes shall be supported from the building surfaces and shall not be supported from other conduits, ducts or pipes.

21. Provide Fire Stops. Fire stops shall seal off all fire rated walls and ceilings. Fire stops shall be CSA and UL listed and shall be designed for application required to meet the various fire rated separations. Fire stop shall be Hilti, Tremstop manufactured by Tremco, 3M or equal.

SERVICES AND DISTRIBUTION - SECTION 16400

1. Provide all material, equipment and labour required for a complete and adequate distribution system as described herein.

2. Provide power for the VAV Boxes from the local unswitched side of the lighting circuit in the ceiling.

SECTION 16450 - LIGHTING

2. Submit shop drawings for each lighting fixture type. All light fixtures shall be LED, 3500K, 85CRI, 120V, with Drivers and dimmable controls

3. Replace and install without extra cost to the owner:

- LED lights within one year

5. All lighting fixtures, including those mounted in suspended ceiling, to be supported from building structure.

6. Coordinate the installation of lighting fixture with all trades to provide spacing intended.

7. Fixtures shall be properly cleaned and left clean and dust_free. Any fixture showing marks or scratches due to handling or tool marks shall be replaced.

WORKING IN EXISTING BUILDING AND CONTINUITY OF SERVICES - SECTION 16500

1. Mechanical and electrical alterations and additions are being made in the existing areas as noted on mechanical drawings and specifications.

2. Visit the site and examine the existing conditions and all tendering documents, drawings and specifications. Make all necessary allowances in tender price for removal, relocation, rerouting, reconnection of existing electrical equipment and wiring as may be necessary for the execution and completion of this project. No allowance will be made later for any expense incurred by this trade through failure to make this examination.

3. Remove and/or relocate and reinstall all wiring and equipment as necessary to accommodate Mechanical alterations and additions indicated on the drawings. Wiring located in areas being altered or demolished, but feeding outlets or equipment required to remain in service shall be rerouted as required to maintain the continuity of these services.

4. Existing electrical equipment removed and indicated for reuse shall be cleaned before installation. All unused conduit entrance openings shall be sealed, all defective components shall be replaced before reinstallation.

5. All wiring shall be run concealed where possible except that conduits in unfinished areas and on existing walls and ceiling may be installed on surface.

6. Rework existing power service and distribution to suit mechanical equipment revisions. Provide new power panel, splitter and fusible units, etc., as required.

7. Supply, install and maintain all required temporary wiring to occupied areas at all times. Provide adequate protection to existing wiring and equipment serving the existing and new work and particularly where wiring and electrical equipment have become exposed to mechanical injury or moisture in the course of alterations or new work.

8. Power shutdown, if required, must be coordinated with client's representative.

9. Fire Alarm shutdown, if required, must be coordinated with the client's representative. At the end of each working day, ensure fire alarm is fully functional and the building is protected. Otherwise, provide fire watch during times when fire alarm system or part of the systems or zones are disconnected.

10. Certain items are identified on the drawings as existing equipment to be "removed". Disconnect said equipment and make safe. Obsolete conduits and cables shall be disconnected from their source of supply, cut back to a suitable point.

11. All unused fused switches and circuit breakers shall become spare. Provide new, up-dated directories for panels.

equipment rating.

13. All existing equipment and material not required in the final installation shall be carefully removed at the appropriate time and shall be disposed of except starters for mechanical equipment being handed back to the Client.

FIRE ALARM SYSTEM - SECTION 16720

3. New smoke detector, speakers, horn/strobe, pull station and all f.a devices and accessories shall be compatible with the existing system.

4. Provide new fire alarm devices as shown. Replace / remove existing devices as indicated on the drawings. All new devices to be addressable type (for hybrid or fully addressable systems), otherwise, conventional to suit existing system. Re-wire as required. Provide new loops completed with line resistors etc. as required for complete and functional system. Reconnect all existing zones and devices as required. completed list of existing fire Alarm system components is provided in fire Alarm Inspection Report (attached to tender package)

devices and zones.

6. Complete installation shall comply with the requirements of can/ulc-s524 "standard for the installation of fire alarm systems" and shall be verified to can/ulc-s537 "standard for the verification of fire alarm systems". where the requirements of this section exceed the minimum requirements of the ULC standard, these specifications shall govern. 7. Wiring:

.1 separation of wiring shall adhere to suggested wiring and installation guide of can/ulc-s524. .2 wiring shall be sized in accordance with class 2 requirements, but shall be protected from mechanical injury or other injurious conditions such as moisture, excessive heat or corrosive action in accordance with class i requirements. conductors shall be solid copper. the minimum size of any conductor shall be:

50 ohms.

8. Verification and certification of equipment:

.2 that the wiring connections to all equipment components show that the installer undertook to have observed ulc and csa requirements.

3. Coordinate with Mechanical Contractor for the location of the VAV boxes and power requirements (fractional).

1. Supply and install all lighting fixtures, lamps, and all required accessories as indicated on the drawings by letter type and as hereinafter specified.

4. Drivers for LED lights to be dimmable (0-10) where dimming control is shown

12. Certain items are identified on the drawings as existing equipment "relocated". Disconnect said equipment from its present source and after relocation, reconnect and reinstall all electrical components. Provide new disconnects to suit

1. The fire alarm system is existing Edward panel.

2. This contractor to hire and pay for fire alarm contractor as required for complete and functional system

5. Provide all required modifications to the existing system (additional relays, modules etc.) to accommodate new

for alarm receiving circuit #18 awg twisted shielded pairs. in no case shall the wire resistance in these circuits exceed

.3 for audible signal circuits #14 awg for 1 or 2 conductors in a cable, #18 awg for 3 or 4 conductors in a cable. in no case shall the voltage drop to any signal exceed 10%.

.4 Rating of cable shall be 90 degrees c and 300 volt minimum.

wiring shall be installed in conduit and in any case shall conform to the system manufacturer's recommendations. all conduits shall be grounded per class 1 wiring.

that the type of equipment installed is that designated in the specifications.

.3 that equipment of the manufacturer's manufacture has been installed in accordance with the manufacturer's recommendations, and that all signaling devices of whatever manufacture have been operated or tested to verify their operation.

.4 that the supervisory wiring of those items of equipment connected to a supervised circuit is operating and that the governmental regulations, if any, concerning such supervisory wiring, have been met to the satisfaction of inspecting officials.

.5 the manufacturer shall supply reasonable amounts of technical assistance with respect to any changes necessary to conform to the above. during the period of inspection by the manufacturer, make available to the manufacturer electricians as designated by the manufacturer.

open flame and smoke are not to be used for testing. .6 9. Completion of the inspection and when all of the above conditions have been complied with, the manufacturer shall issue to the consultant:

.1 A copy of the inspecting technician's report showing location of each device and certifying the test results of each device.

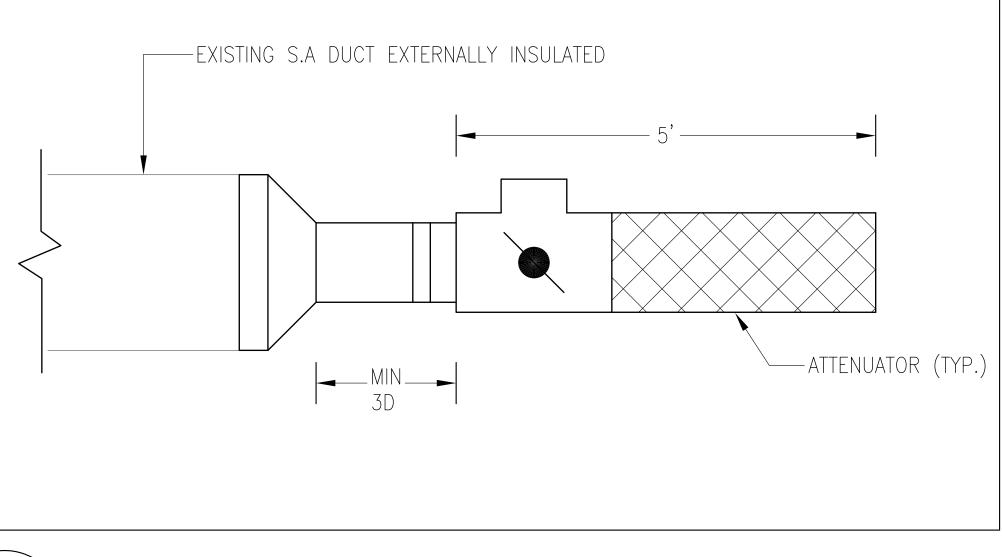
.2 A certificate of verification confirming that the inspection has been complete and showing the conditions upon which such inspection and certification have been rendered. .3 Proof of liability insurance for the inspection. All costs involved in this inspection shall be included in the tender price.

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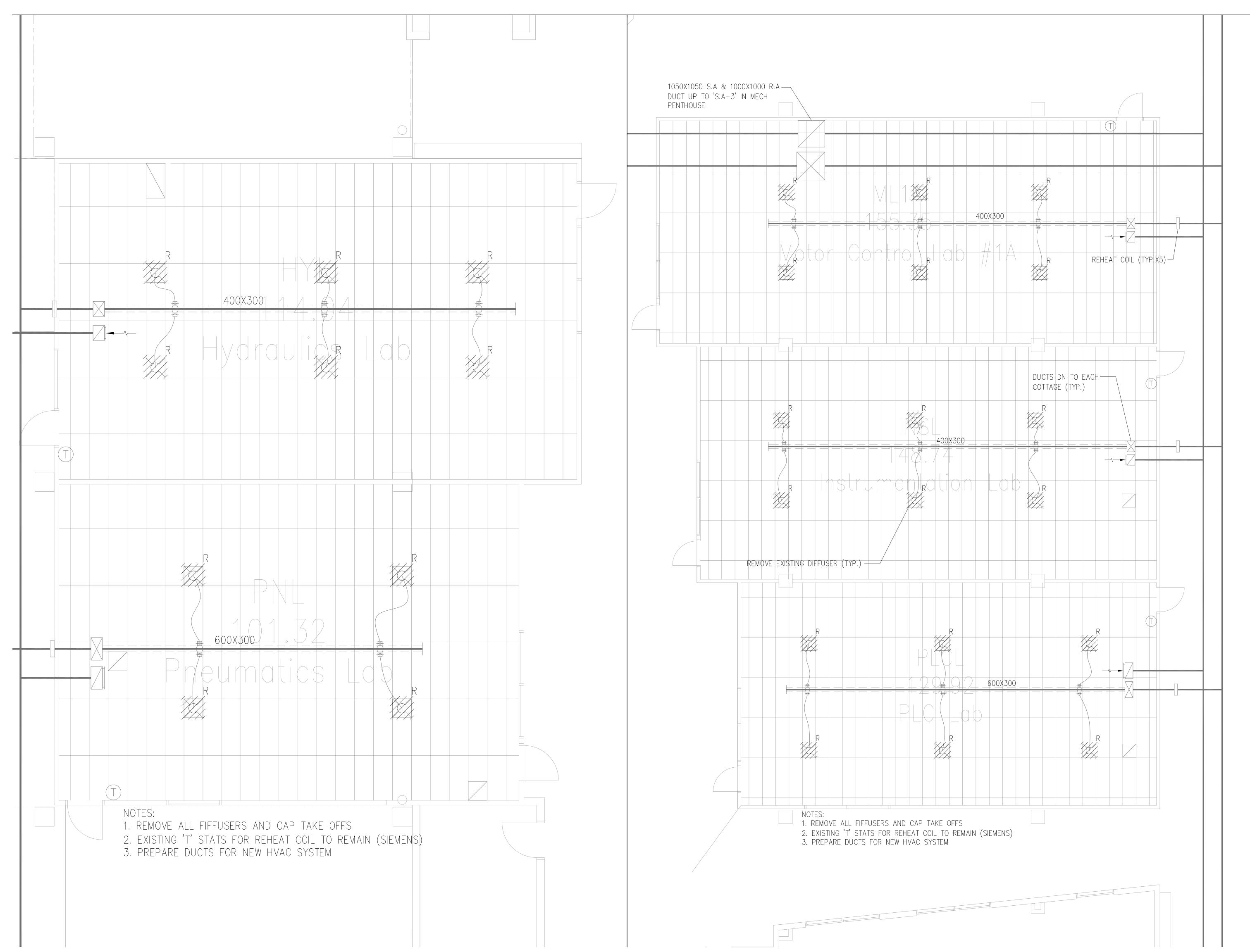
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	VENTILATION				VAV B	oxes (f	ROUND)
1	DUCTWORK (DOUBLE LINE)				PLY AIR CFM)	DUCT DIAM.	
	EXISTING DUCTWORK (DOUBLE LINE)	REF.	UNIT			(IN)	REMARKS
<u> </u>		Letter	SIZE	MIN	MAX		
	DUCTWORK (SINGLE LINE)	VAV-1	14	500	1950	14	C/W ATTENUATOR DOWNSTREAM OF BOX
	EXISTING DUCTWORK (SINGLE LINE)	VAV-2	12	350	1500	12	C/W ATTENUATOR DOWNSTREAM OF BOX
	ACOUSTICALLY LINED DUCTWORK (DOUBLE LINE)	VAV-3	14	500	2200	14	C/W ATTENUATOR DOWNSTREAM OF BOX
	ACOUSTICALLY LINED DUCTWORK (SINGLE LINE)	VAV-4	14	500	1950	14	C/W ATTENUATOR DOWNSTREAM OF BOX
	THERMALLY INSULATED DUCTWORK (DOUBLE LINE)	VAV-5	14	450	1800	14	C/W ATTENUATOR DOWNSTREAM OF BOX
	THERMALLY INSULATED DUCTWORK (SINGLE LINE)	NOTE: FC)r actua	L AIR FLOW	 REFER TO FL	 .oor plan (ei	H PRICE SDV ELECTRONIC VAV BOXES WITH 3'
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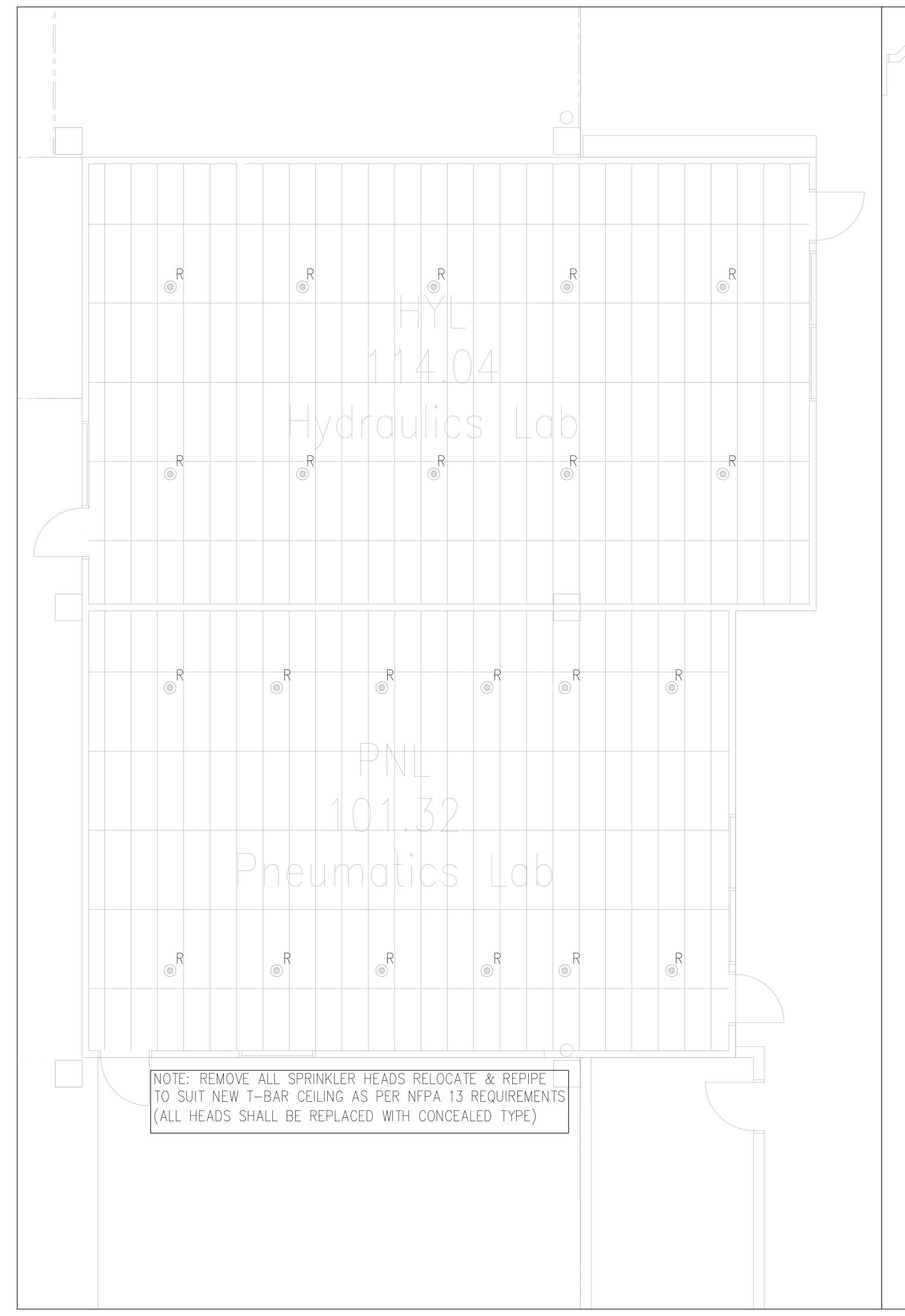


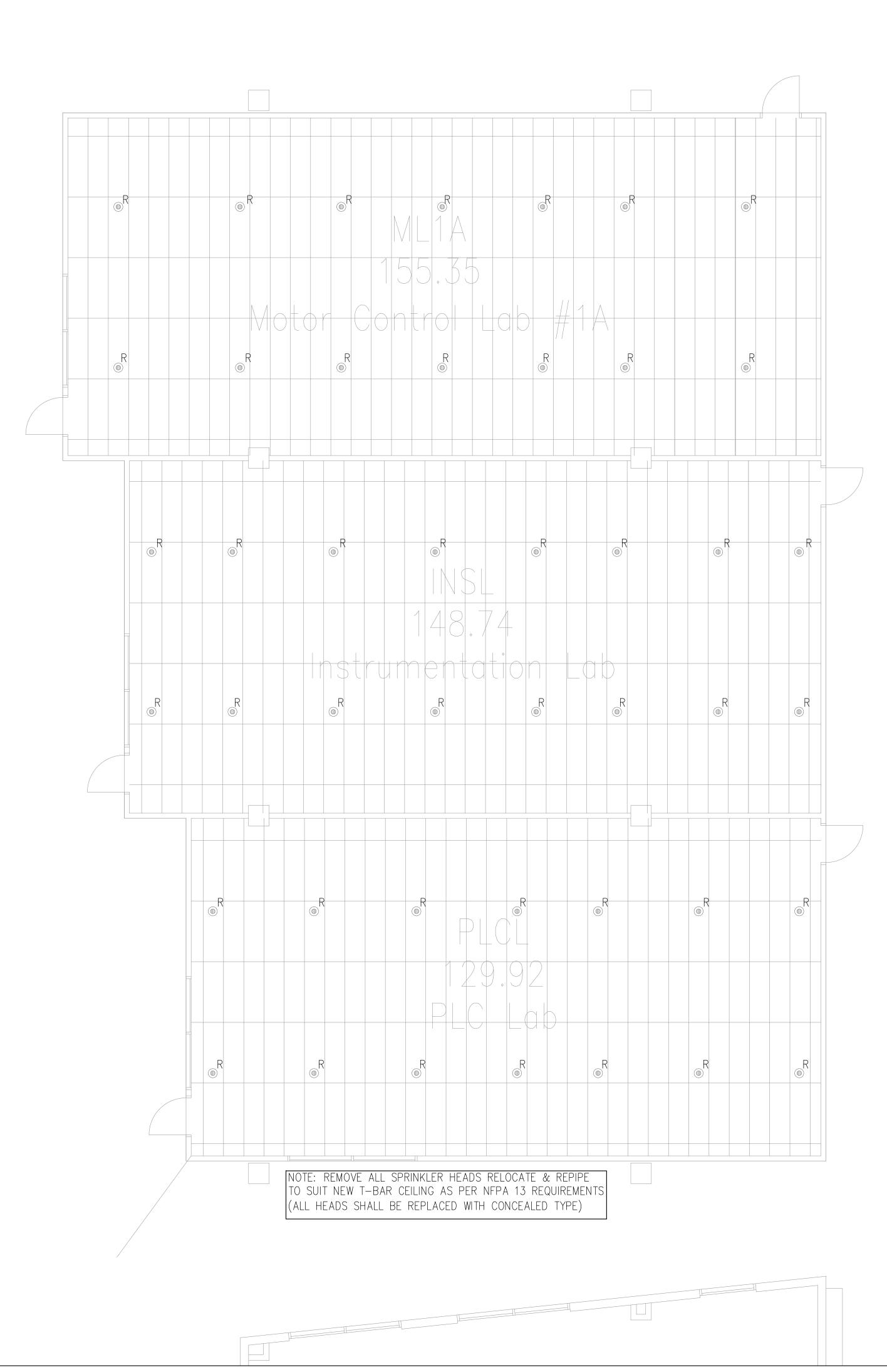


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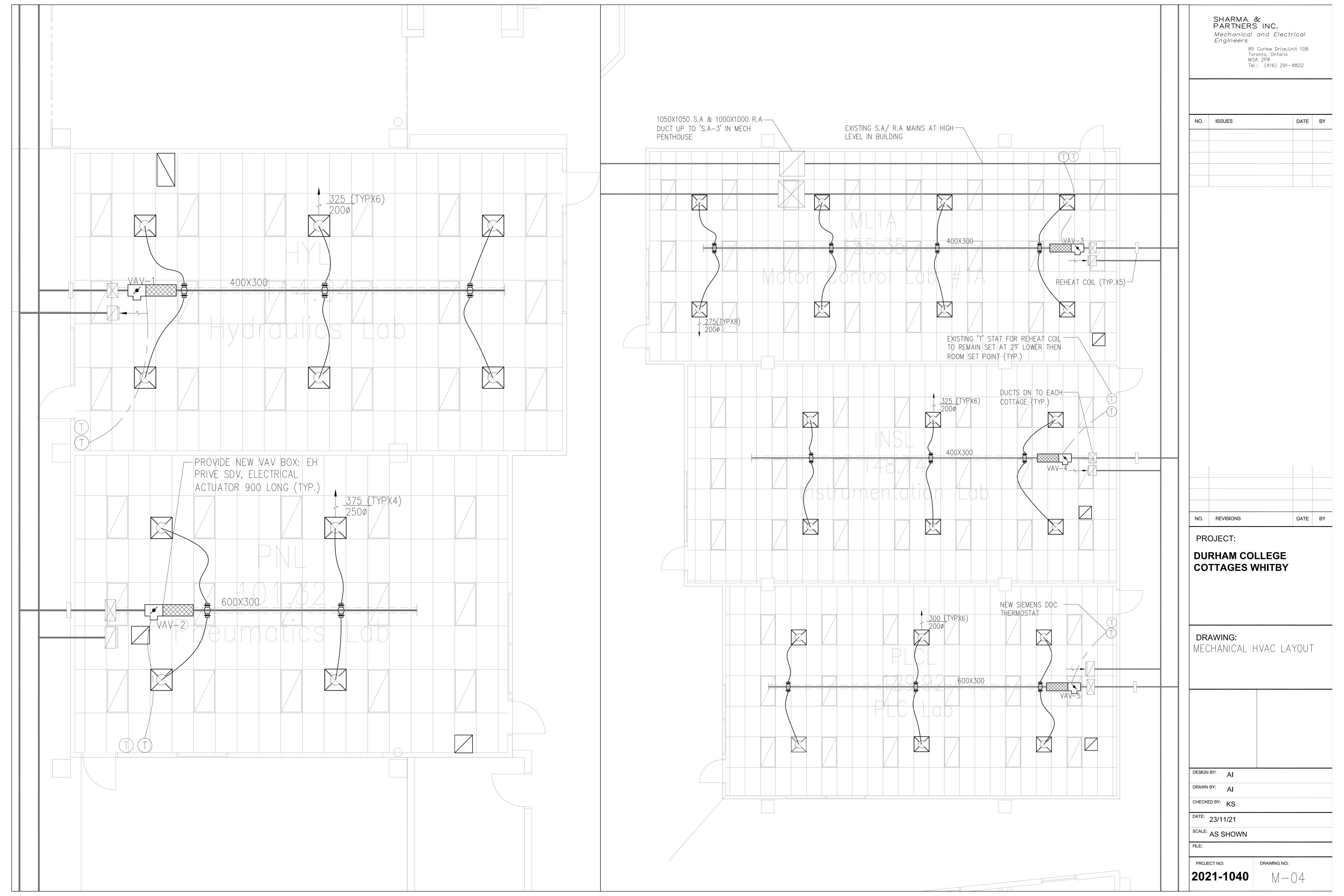


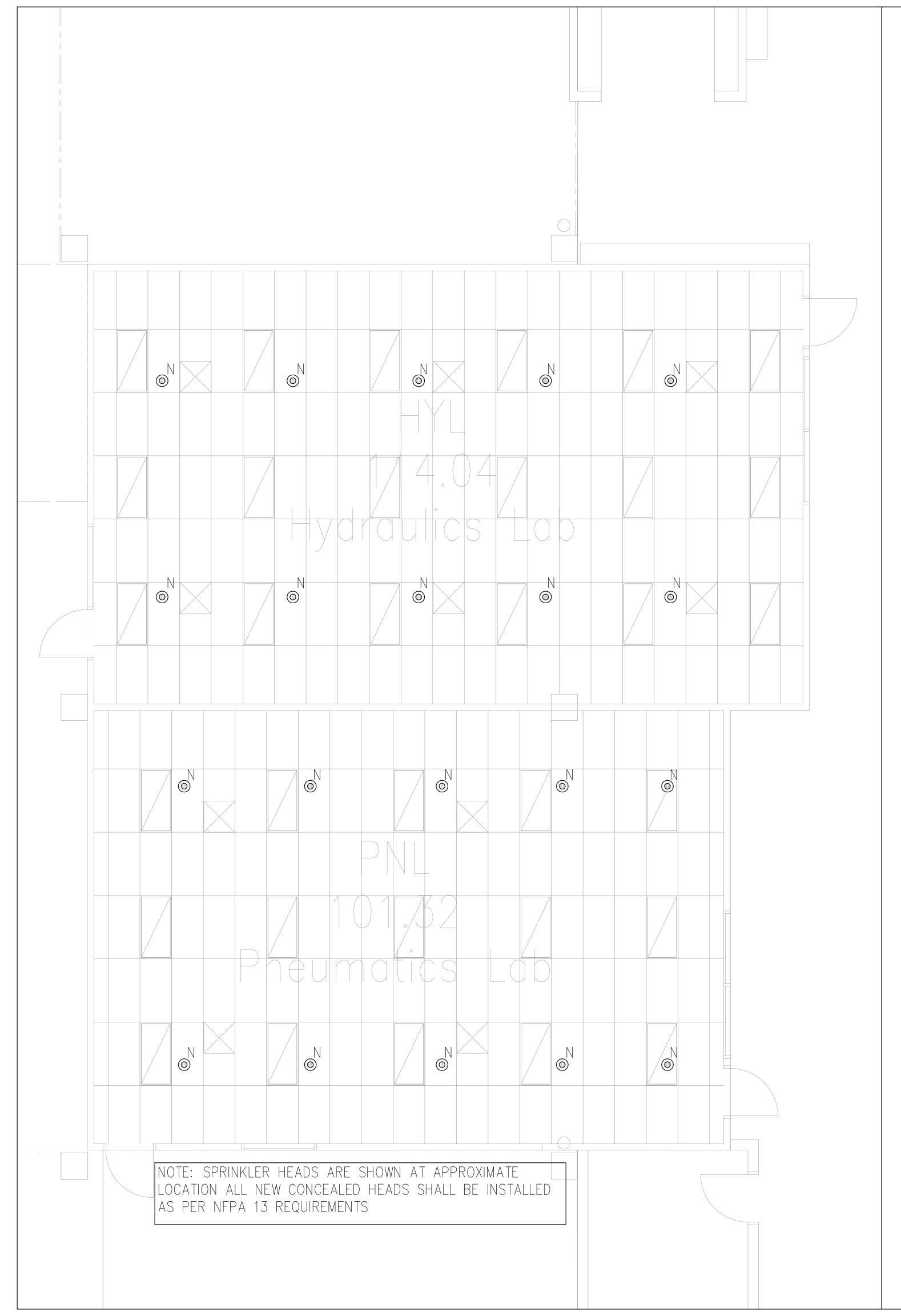
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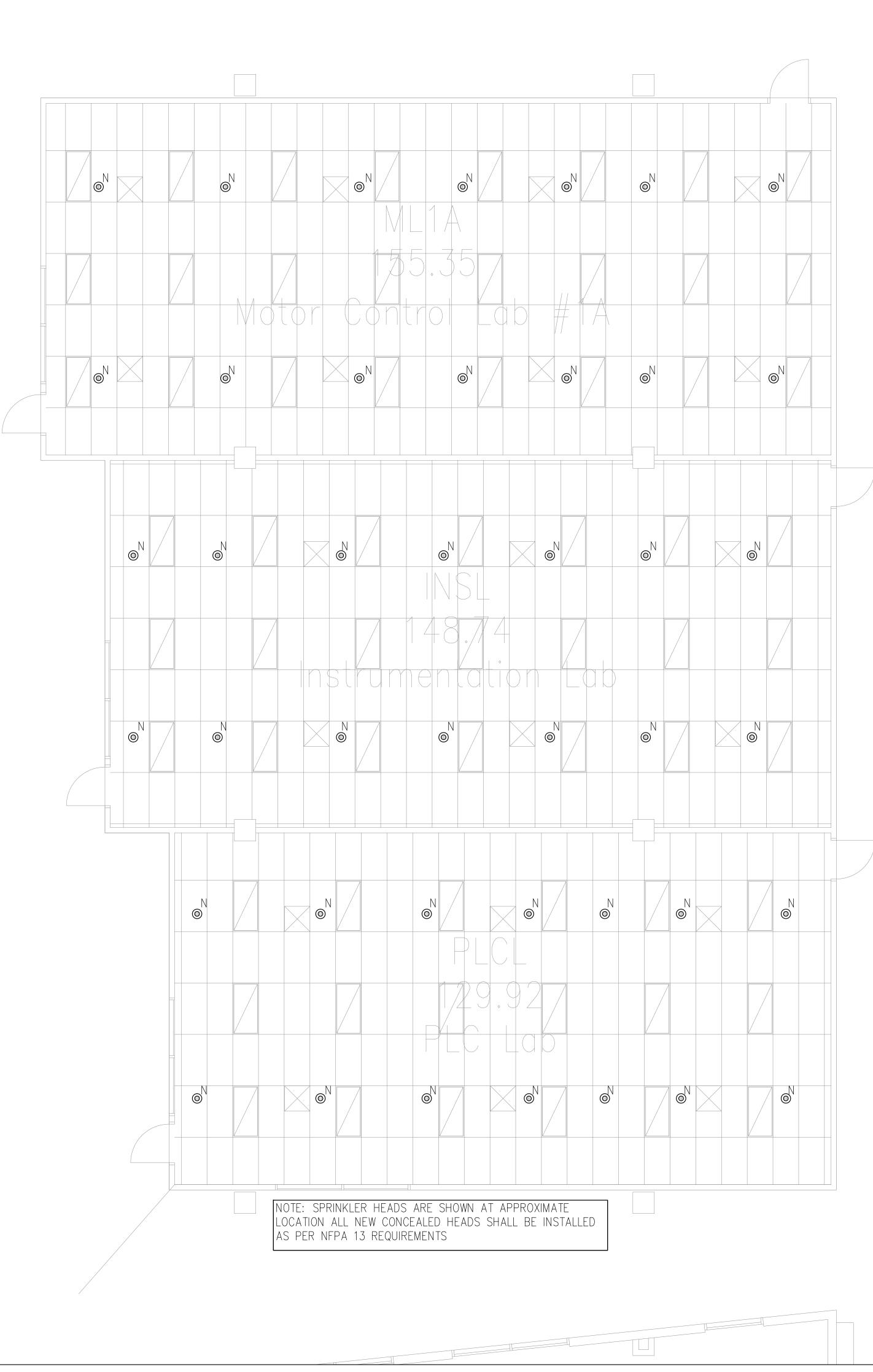




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GENERAL MECHANICAL CONDITIONS - SECTION 15050

1. Conform to Instructions to Bidders, General Conditions and General Requirements.

2. This Section 15050 shall be Prime Contractor and this section shall apply to all Division 15 Sections. Hire all sub trades including Electrical and Controls and others for the work described in the drawings and specifications.

3. Before submitting tenders, examine site, existing services and all drawings. Extras will not be allowed for failure to do so.

4. Provide all labour, materials and equipment necessary to execute the work shown and described. Installation of materials shall meet all applicable Provincial, Federal and Municipal Requirements.

5. Obtain permits and pay all fees for work and required inspections.

6. Maintain Liability Insurance to protect Owner and the Contractor from any and all claims under the Worker's Compensation Act.

7. The drawings shall be considered diagrammatic only. All measurements shall be taken from building site and architect's drawings.

8. All materials shall conform to CSA, HEPC and CEC requirements and shall bear CSA label.

9. All existing services must be maintained at all times during construction. This Contractor to provide all necessary temporary lines, etc. so as to carry out the above.

10. Temporary light, power and water by Prime Contractor from local sources.

11. All cutting and patching for mechanical work will be the responsibility of this sub-Contractor. Hire specialized trades to do this work.

12. Provide temporary buildings and material storage as required and be responsible for any loss or damage thereto.

13. Ductwork and Pipping Penetration thru wall / ceiling Where exposed ductwork or piping penetrates wall or ceiling provide frame or trim around perimeter of the duct or pipe for neat appearance. This is in addition to smoke seal requirements

14. Submit samples of materials when required.

15. Submit electronic copies of shop drawings for review covering major manufactured items, i.e. diffusers, grilles, VAV Boxes, Controls etc.

16. Where substitutions are made for equipment specified by name or model number, be fully responsible for capacities as well as physical fit of substituted materials.

17. Supply and locate all supports, sleeves, curbs, etc. required for this work.

18. Unless otherwise noted, all motors 1/2 HP and under shall be 115/1/60, motors over 1/2 HP shall be of 3 phase voltage available on project.

19. Supply proper starters with overload protection and disconnect switches for powered mechanical equipment and hand over to Electrical Contractor for installation. This does not include isolation switches, unless stated specifically.

20. All power wiring by electrical contractor, control and interlock wiring by mechanical contractor. Control wiring in return air ceiling spaces shall be FT-6 or installed in conduit.

21. Supply and install all necessary access doors for mechanical equipment including entering and leaving sides of all coils, fire dampers etc.. Where necessary, doors shall be rated to suit fire assembly rating.

22. Pipe hangers shall be Clevis split type with mild steel rods. For copper pipe use plastic inserts. Use oversized hangers and saddles for domestic cold water piping. Do not support equipment, ducts or piping from roof deck without permission from consultants. Supply and install necessary steel to transfer load to structural members.

23. All dissimilar metal (steel-copper, etc.) shall be separated using gaskets and insulating washers or Watts "Di-Electric" fittings.

24. Install chrome-plated escutcheons where branch pipes pass through finished surface.

25. Keep accurate record of "as-built" drawings and submit these before final certificate of completion. Buried services must be dimensioned. Provide electronic files in AutoCad and PDF format of the AS_BUILT drawings to Consultant for review and verification. After verified, provide also hard copy.

26. All surfaces must be left clean and smooth, ready for painting by Prime Contractor. All new ductwork, revisions, alterations, affected areas due to new work including ducts, piping, conduits etc shall be painted to match existing equipment finishes.

27. Identify all piping. Use stencils or colour codes and directional arrows.

28. Identify all fans, starters, remote control and all other equipment as to service by a black lamacoid engraved nameplate with white core, firmly affixed with screws to each unit.

29. Pro
a. Primers to
b. Sealants
c. Firestop of
fire separations.
e. Rigid duct
stopping materia
on each side of

30. On completion of the work, remove from the premises all tools, debris, surplus and waste materials resulting from operations under this section. Clean all equipment and leave all items in perfect order ready for operation.

31. After acceptance, instruct Owner in equipment operation and provide him with operating and maintenance manuals standards and extended warranty documents, inspection certificates and copies of shop drawings of installed equipment.

32. The contractor shall, before final payment is made, guarantee all materials and workmanship supplied by him in the performance of this contract for a period of one year from date of final acceptance and shall, when called upon, make good without further cost to the Owner such defects as may appear within this period.

33. Should any discrepancy appear between these specifications and the drawings to cause doubt as to the true meaning and intent of the drawings and specifications, a ruling shall be obtained from the Architect Consultant before submitting the tender. If this is not done it will be assumed that the more expensive alternative has been included in the contract.

34. Any error or inconsistency in the drawings or specifications noted after award of contract must be reported to the Architect Consultant before commencing work.

35. The omission or incorrect mention of work, materials, etc. that are indispensable to the completed work, is not to be interpreted as relieving of the necessity of providing such work, materials, etc. at no expense to the Owner.

36. Allow for connections to existing systems during after hours or weekends, including but not limited to HVAC ducts, Piping, plumbing and drainage, water piping, heating systems, electrical and control connections. Coordinate with the Client for any shut down in advance in writing. For connections to heating / cooling water pipes allow for freezing of pipes - drainage of the existing systems will not be permitted.

37. "re-rout insulation.

38. Where new connection is made to existing piping or ductwork include for new thermal insulation and jacketing on the existing duct / pipe

SPRINKLERS - SECTION 15330

1. Alter the existing sprinkler system to suit revised layout.

2. This is performance specification only. Prepare sprinkler shop drawings for submission to Engineer, Underwriters and Building Department for approval prior to installation. Engineers drawings indicate general areas to be sprinklered only.

3. Piping Materials

a. Black steel Schedule 40 conforming to ASTM A120 or ASTM A53. Schedule 30 pipe may be used in sizes (200mm) 8" and larger. Light wall pipe with roll groove for mechanical couplings may be used for all piping where permitted by Codes and authorities. The "Pressfit" piping system may be used in sizes up to and including (50mm) 2".

b. Fittings shall be cast iron, malleable iron or steel welding type. Screwed unions and couplings shall be used on piping (50mm) 2" and smaller. Screwed couplings, flanges, or welding shall be used to joint piping (65mm) 2-1/2" and larger, except where mechanical couplings are allowed as specified herein.

c. Mechanical couplings and fittings such as "Firelock" and "Pressfit" manufactured by Victaulic which are ULC listed for fire protection service and meeting with the approval of the insurance underwriting agency and governing Codes may be used to join above ground piping.

4. System shall be complete with all necessary piping, hangers, heads, etc., all in strict accordance with standards as stipulated in the National Fire Prevention Association NFPA 13 as revised to date and/or as approved by the local Fire Department and Building Department.

5. In genero Standards.

6. All heads unless noted otherwise shall be equal to Grinnell "Duro Speed". Low heads shall be equipped with guards.

7. Where suspended ceilings occur, piping shall be concealed above ceilings, heads shall be chrome plated concealed type. In areas where there are no suspended ceilings, heads shall be upright type with plain bronze finish. Submit samples to Architect for approval before installation.

8. Where ceilings are raised or lowered, adjust heads to suit new ceiling heights.

9. Where ceilings are removed and replaced, remove and replace heads as required to permit execution of necessary work.

Provide fire stopping and smoke seals.

Primers to manufacturer's recommendations for specific material, substrate, and end use. Sealants for vertical joints to be non-sagging.

Firestop and smoke seal around mechanical and electrical assemblies penetrating non-rated e separations.

e. Rigid ducts with dimensions greater than 1300 mm to be fire stopped by bead of fire stopping material between retaining angle and fire separation, and between retaining angle and duct, on each side of fire separation.

37. "re-routing" denotes removal of existing and installation of new services including new thermal

5. In general, system shall be installed in accordance with "Ordinary Hazard Occupancy"

WARM AIR HEATING, VENTILATING &

1. Supply and install all heating,

2. Supply and install ductwork a in strict accordance with latest SMA unless specifically noted otherwise.

3. Install manual balancing damp necessary for system balancing.

4. Flexible ducts shall be alumin maximum 10 ft. length. Provide aco be internally insulated.

5. Install 6" (150mm) approved fans.

6. Where shown, ductwork shall sizes are clear inside dimensions, ir

7. VAV Terminal Units: Supply a electric actuator, 3 feet long attenu airflow to suit room occupancy load temperature sensor for room temper details.

8. Supply all grilles and diffusers enamel. Supply Grilles Double def _ Fixed 45 b Exhaust Grilles _ Lay—in Return - 1/2' Grilles Surface Mount – Sam Return – Squa Diffusers and drawing for mounting type and – No vision Door Grilles

9. Include for startup of Air Har

10. Pre measure existing air flow the consultant. Upon completion of set all VAV boxes and room DDC te systems and supply written air balan pulleys for field adjustment and rep operation to Owner's representative.

11. In renovation work, verify exis

CONTROLS - SECTION 15950

1. All control wiring shall be car to hire and pay for electrical trade

2. The control system shall be s Demonstrate to the mechanical Con-

3. All controls work shall be permechanical contractor to hire Sieme quotation.

4. Provide all controls and wiring systems. Provide where required a existing control air mains to room necessary for a complete and funct

5. Controls contractor shall prov connect to VAV unit actuators, DDC

6. New thermostats shall match

7. Mounting height of thermosta 36"(900mm) to 43"(1100mm) if in interior designer. Do not install in / devices or on exterior wall.

8. Provide all necessary EMT con control system. Hard wire all electr Provide power to control panel from

9. Minimum settings for VAV box

10. Provide Controls systems train per specifications. Provide four hou

AIR CONDITIONING - SECTION 15850		SHARMA PARTNERS			
, ventilation and air handling equipment as shown on drawings.		Engineers	and Electrical		
as indicated on drawing. Ductwork shall be fabricated and installed ACNA standards and shall be manufactured of galvanized steel	85 Curlew Drive,Unit 108 Toronto, Ontario M3A 2P8 Tel.: (416) 291-8822				
pers at all branch takeoffs and in other locations where					
num helically wound spiral duct, equal to Flexmaster T/L, oustic flex equal to Flexmaster model T/L—A, where ducts are to	NO.	ISSUES	DAT	E BY	,
flexible connector on duct connections to resiliently mounted					
be lined internally with 1" (25mm) faced flexible duct liner. Shown hcrease duct size accordingly.					
and install digital control type SDV VAV Boxes terminal units with uator for each of the class rooms to modulate and control ds. Controls contractor (Siemens) shall provide DDC room erature controls. Coordinate for site for location and connection					
s where shown on drawings. Finish shall be off-white baked					
flection vertical face bars, opposed blade damper, screw fastening. Dars, long way, opposed blade damper, screw fastening.					
" aluminum egg crate. Frame, no damper, no border.					
ne as above except with border. are or round of neck size shown on drawing. See ceiling schedule module size. (grid and damper in non-accessible ceilings only). steel, screw fastening c/w auxiliary frame. Prime finish.					
ndling units and all other air handling equipment.					
to each room prior to any demolition work and report results to all of the HVAC system installation, adjust all fan speeds and emperature sensors to deliver shown air quantities. Balance all air ancing reports in electronic format. Include necessary spare belts placement of filters. Set air systems controls and demonstrate					
sting air quantities before proceeding with modifications.					
rried by Div.15; Power wiring shall be by Div.16. This contractor	NO.	REVISIONS	DAT	E BY	,
to provide all required power wiring for controls systems.	PROJECT:				
supplied and installed complete in all respect and fully functional. nsultant on completion of work.		RHAM CO TTAGES V			
rformed by Siemens Control, building controls contractor. This ens Controls and pay for all controls work, included in the tender					
g including appurtenances necessary for complete and operating pneumatic system with all necessary control air piping from thermostats, control valves, dampers, and other devices as tional system.	DRAWING: MECHANICAL SPECIFICATIONS				
vide building BAS System compatible DDC control system and C Temperature sensor and all necessary wiring.					
base building (with lockable ventilated tamper-proof cover)					
ats shall be 5'-0"(1500mm) from finished floor or within barrier free path of travel. Coordinate location with architect / vicinity of electrical lighting dimmer or heat generated appliances					
nduit, fittings and wire to provide a complete and operating trical control devices into the associated system magnetic starter. n the nearest normal power electrical distribution panel.	DESIGN DRAWN CHECKE	BY: AI			
exes shall be 40% of design unless indicated otherwise.		23/11/21			
ining for Owner when system has been completed and verified as urs minimum for new HVAC control systems.	SCALE: FILE:	AS SHOWN			
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PROJECT NO:

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DRAWING NO: