

## Addendum No. 01

**Project Number:** ITT 3187

**Project Name:** Trafalgar B244 Classroom Renovation

**Closing Date/Time:** December 6, 2024, at 2:00:00 p.m. local time

**Issued By:** Sheridan College  
**Hafsa Malik, Strategic Sourcing Specialist,  
Procurement Services**  
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The following, issued by Sheridan College on November 27, 2024 shall be incorporated in the specifications and shall form part of the document noted above.

### A. ADDITION DRAWINGS AND CLARIFICATION

A1 - The following scope of work and drawings have been **revised**:

**Mechanical Drawing Addendum package (7 pages – attached in the end of this document):**

1. Drawing M-1.4
  - Revision to sequence of operations for heating airflow setpoint in both occupied and unoccupied modes.
2. Drawing M-1.5
  - Revision to specification of all VAVs to be the same. Various values in the VAV Terminal Unit. Schedule has been changed.
3. Drawing M-2.1
  - Ductwork and VVT box serving adjacent office space is now shown.
4. Drawing M-2.2
  - Revision to branch ductwork serving each VAV box.
  - Revision to ductwork sizing after VAV-1 and VAV-2.
  - Addition of balancing dampers upstream of each VAV box and existing VVT office space.
  - Revision of balancing for each diffuser.
5. Drawing M-2.4
  - Revision of hydronic piping to suit new location of VAV boxes

The following drawings have been revised accordingly:

- M-1.4 Mechanical Specifications 3
- M-1.5 Mechanical schedules
- M-2.1 Second Floor Plan – HVAC Demolition
- M-2.2 Second Floor Plan – HVAC New
- M-2.4 Second Floor Plan – Hydronics New

**A2** - The following scope of work in ITT has been revised:

## **Part 1 – Invitation and submission instructions**

### **1.1 Invitation to Bidders**

The renovation of TRAF B244 classrooms will include (but not limited to) the following:

1. Repair and retrofit all interior partitions with new insulation and drywall
2. New electrical outlets to accommodate classroom furniture, podium and IT equipment
3. Install new data to support audio/visual equipment
4. Install four new Variable Air Volume (VAV) units
5. Upgrade mechanical components and controls
6. Install new ceiling grid, light fixtures, lighting system and controls
7. Install flooring and wall base, window blinds, whiteboards, new doors and hardware
8. Prepare and paint all walls, columns, doors and window frames
9. Install new access card readers and automatic door openers

## **B. RESPONSES TO QUESTIONS ASKED BY VENDORS DURING SITE VISIT**

**Q1:** What is below the space?

**A1:** Our bookstore is below the space on the first floor. It has a suspended ceiling system

**Q2:** what is the BAS system?

**A2:** Controlled by Ainsworth

**Q3:** Will the general contractor be carrying Siemens?

**A3:** yes

**Q4:** who are the pre-qualified data contractors?

**A4:**

#### **1. Cable Assembly Systems Limited.**

4 Sharp Road, P.O. Box 607  
Brantford, ON N3T 5P9  
Tel: 519-759-4401 Fax: 519-759-4931  
[bmanese@cableassembly.ca](mailto:bmanese@cableassembly.ca)

#### **2. CaTech Systems Limited**

201 Whitehall Drive, Unit 4  
Markham, ON L3R 9Y3  
Tel: 905-944-0000 Fax: 905-944-4844  
[pzomparelli@catech-systems.com](mailto:pzomparelli@catech-systems.com)

**3. The State Group Inc.**  
3206 Orlando Drive.  
Mississauga, ON L4V 1R5  
Tel: 905-293-07419 Fax: 905-293-7548  
[G.LoVetere@stategroup.com](mailto:G.LoVetere@stategroup.com)

**Pre-qualified A/V contractor**

1. Georges Grenier  
**Global Unified Solution Services**  
[georges.grenier@globaluss.com](mailto:georges.grenier@globaluss.com)  
6535 Millcreek Dr, Unit 58  
Mississauga, ON L5N 2M2

and

2. Sharmila Kulasingam  
**Global Unified Solution Services**  
[sharmila.kulasingam@globaluss.com](mailto:sharmila.kulasingam@globaluss.com)  
6535 Millcreek Dr, Unit 58  
Mississauga, ON L5N 2M2  
t: 905-363-3600 ext 239 m: 647-456-4341

Total Number of Pages = 3  
End of Addendum No. 01

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**All Addenda will become a part of the ITT 3187**



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<b>To:</b>	<b>Sheridan College.</b> Oakville Campus 1430 Trafalgar Road Oakville, ON L6H 2L1	<b>Project Name:</b>	<b>Sheridan Trafalgar Campus – B244 Classroom Renovation</b> 1430 Trafalgar Road Oakville, ON
<b>Attn:</b>	Nicole Whiteside	<b>Project No.</b>	24-168
<b>Date:</b>	November 26, 2024	<b>ADD. No.</b>	ADDM01
<b>Prepared By:</b>	Giovanni Gatto, B.Eng.		

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The following items are proposed changes to the tender document and all associated costs are to be included as part of the submitted tender amount.

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## **1. Reference**

1. Drawing M-1.4, Mechanical Specifications III and Sequence of Operations, Rev.05, November 26, 2024. Drawing is issued with this addendum.
2. Drawing M-1.5, Mechanical Schedules, Rev.05, November 26, 2024. Drawing is issued with this addendum.
3. Drawing M-2.1, Second Floor Plan – HVAC Demolition, Rev.05, November 26, 2024. Drawing is issued with this addendum.
4. Drawing M-2.2, Second Floor Plan – HVAC New, Rev.05, November 26, 2024. Drawing is issued with this addendum.
5. Drawing M-2.4, Second Floor Plan – Hydronics New, Rev.05, November 26, 2024. Drawing is issued with this addendum.

## **2. Description**

1. Drawing M-1.4
  1. Revision to sequence of operations for heating airflow setpoint in both occupied and unoccupied modes.
2. Drawing M-1.5
  1. Revision to specification of all VAVs to be the same. Various values in the VAV Terminal Unit Schedule has been changed.
3. Drawing M-2.1
  1. Ductwork and VVT box serving adjacent office space is now shown.
4. Drawing M-2.2
  1. Revision to branch ductwork serving each VAV box.
  2. Revision to ductwork sizing after VAV-1 and VAV-2.
  3. Addition of balancing dampers upstream of each VAV box and existing VVT office space.
  4. Revision of balancing for each diffuser.



5. Drawing M-2.4

1. Revision of hydronic piping to suit new location of VAV boxes.

**3. Reason for Revision**

1. Clarification.
2. Client Request.

End of ADDM01

## HYDRONIC SYSTEMS SPECIFICATIONS

### 2. INSTALLATION OF PIPEWORK

#### 2.1. EXECUTION

- 2.1.1. MAKE ALL CONNECTIONS TO EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- 2.1.2. PROVIDE VALVES AND UNIONS AT CONNECTION FOR MAINTENANCE/REPLACEMENT PURPOSES.
- 2.1.3. PROVIDE DRAINS AT SYSTEM LOW POINTS, EQUIPMENT AND ISOLATING SECTIONS. INSTALL NPS 3/4" GATE OR GLOBE VALVE WITH HOSE END MALE THREAD, CAP AND CHAIN.
- 2.1.4. PROVIDE AUTOMATIC AIR VENTS AT SYSTEM HIGH POINTS COMPLETE WITH ISOLATING VALVE.

- 2.2. **CLEARANCES:** PROVIDE THE REQUIRED CLEARANCES AROUND EQUIPMENT, PIPING, SYSTEMS, ETC. TO RENDER THE NECESSARY SPACE REQUIREMENTS FOR SERVICE, INSPECTION, OPERATION, REPLACEMENT AND MAINTENANCE. REFER TO ALL MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR REQUIRED AND RECOMMENDED CLEARANCES.

- 2.3. **DIELECTRIC FITTINGS:** WHERE DISSIMILAR METALS ARE JOINED, PROVIDE DIELECTRIC ISOLATING FITTINGS (COMPLETE WITH THERMOPLASTIC LINER), UNIONS OR BRONZE VALVES.

#### 2.4. PIPEWORK INSTALLATION

- 2.4.1. SCREWED FITTING CONNECTIONS SHALL BE COMPLETE WITH PIPE DOPE OR TEFLON TAPE.
- 2.4.2. PROTECT ALL SYSTEM OPENINGS DURING CONSTRUCTION TO PREVENT THE ENTRY OF FOREIGN MATERIAL.
- 2.4.3. INSTALL ALL PIPING, EQUIPMENT, ETC. TO BE PARALLEL OR PERPENDICULAR WITH BUILDING LINES.
- 2.4.4. PROPERLY REAM AND REMOVE SCALE AND FOREIGN MATERIAL PRIOR TO ASSEMBLY.

#### 2.4.5. VALVES

- 2.4.5.1. INSTALL ALL VALVES IN ACCESSIBLE LOCATIONS FOR MAINTENANCE WITHOUT REMOVING ADJACENT PIPING.
- 2.4.5.2. USE BALL OR BUTTERFLY VALVES AT BRANCH TAKE-OFFS FOR ISOLATING PURPOSES EXCEPT WHERE OTHERWISE SPECIFIED.
- 2.4.5.3. INSTALL BUTTERFLY VALVES ON CHILLED WATER AND RELATED CONDENSER WATER SYSTEMS ONLY.
- 2.4.5.4. INSTALL BALL VALVES FOR GLYCOL SERVICE.
- 2.4.5.5. USE CHAIN OPERATORS ON VALVES NPS 2-1/2" AND LARGER WHERE INSTALLED MORE THAN 2400 MM ABOVE FLOOR IN MECHANICAL ROOMS.

#### 2.4.6. CHECK VALVES

- 2.4.6.1. INSTALL SILENT CHECK VALVES ON DISCHARGE OF PUMPS AND IN VERTICAL PIPES WITH DOWNWARD FLOW AND ELSEWHERE INDICATED.
- 2.4.6.2. INSTALL SWING CHECK VALVES IN HORIZONTAL LINES ON DISCHARGE OF PUMPS AND ELSEWHERE AS INDICATED.

- 2.4.7. WHERE PIPING PASSES THROUGH MASONRY, FIRE-RATED ASSEMBLIES, FOUNDATION WALLS, POURED WALLS, ETC., PROVIDE PIPE SLEEVES CONSTRUCTED OF SCHEDULE 40 BLACK STEEL PIPE. ALLOW FOR 0.25" OF CLEARANCE BETWEEN INSIDE OF SLEEVE AND OUTSIDE OF PIPE/INSULATION. SEAL WITH A FIRE RETARDANT AND WATERPROOF NON HARDENING MASTIC. WHERE SLEEVE IS INSTALLED IN A FIRE RATED ASSEMBLY, PROVIDE FIRESTOPPING CONFORMING TO ULC.

- 2.4.8. PROVIDE ESCUTCHEON PLATES ON PIPING PASSING THROUGH FINISHED WALLS, FLOOR AND CEILINGS.

- 2.4.9. PROPERLY FLUSH AND CLEAN SYSTEM AND REMOVE ALL FOREIGN MATTER PRIOR TO SYSTEM STARTUP. PREPARATORY TO ACCEPTANCE, CLEAN AND REFURBISH EQUIPMENT AND LEAVE IN OPERATING CONDITION, INCLUDING REPLACEMENT OF FILTERS IN PIPING SYSTEMS.

- 2.4.10. PRESSURE TEST SYSTEM AND MONITOR FOR PRESSURE LOSS FOR A MINIMUM OF 4 HOURS, UNLESS OTHERWISE SPECIFIED.

#### 2.5. HANGERS AND SUPPORTS

- 2.5.1. UTILIZE PIPE HANGERS AND SUPPORTS CONSTRUCTED OF GALVANIZED STEEL.

- 2.5.2. INSTALL HANGERS SO THAT RODS ARE VERTICAL. ENSURE LOAD EQUALIZATION WITH ROD ADJUSTMENT.

- 2.5.3. FOR RISER CLAMPS, PROVIDE GALVANIZED BLACK CARBON STEEL, ULC LISTED OR FM APPROVED WHERE REQUIRED. BOLTS AND NUTS SHALL CONFORM TO ASTM-A307 AND ASTM-A563, RESPECTIVELY.

- 2.5.4. FOR BASE-MOUNTED EQUIPMENT, PROVIDE CONCRETE HOUSE-KEEPING PADS 4" TALL AND 6" OF SPACE AROUND EQUIPMENT AND CHAMFERED EDGES.

#### 2.5.5. HANGER SPACING

- 2.5.5.1. PROVIDE HANGERS AT SPACING INDICATED BELOW AND AT EVERY JOINT AND CHANGE OF DIRECTION.

## HYDRONIC SYSTEMS

- 2.5.5.2. PROVIDE HANGERS FOR VARIOUS PIPE SIZES AT THE FOLLOWING SPACING: 1-1/4" - 1.8 m, 1-1/2" - 2.4 m AND 2" - 2.7 m.

#### 2.6. PIPING INSULATION

- 2.6.1. PROVIDE PIPING INSULATION FOR THE HYDRONIC SYSTEMS AS FOLLOWS:

- 2.6.1.1. HEATING WATER (HWS/HWR): TYPE 'A', UP TO 1" - 1" THICK, 1-1/4" AND LARGER - 1-1/2" THICK.
- 2.6.1.2. CHILLED WATER (CHWS/CHWR): TYPE 'A', UP TO 1" - 1" THICK, 1-1/4" AND LARGER - 1-1/2" THICK. RECOVER WITH PVC JACKETING AS SPECIFIED BELOW.
- 2.6.1.3. CONDENSER WATER (INDOOR CWS/CWR): NOT REQUIRED
- 2.6.1.3. CONDENSER WATER (OUTDOOR, CWS/CWR): TYPE 'A', ALL SIZES - 1" THICK. RECOVER WITH PVC JACKETING AS SPECIFIED BELOW.

- 2.6.2. TYPE 'A': JOHNS MANVILLE MICRO-LOK FIBRE GLASS PIPE INSULATION COMPLETE WITH JACKET AND VAPOUR RETARDER. CONNECT SECTIONS OF INSULATION WITH SELF-ADHESIVE BUTT STRIPS SUPPLIED BY THE INSULATION MANUFACTURER.

- 2.6.3. WHERE NOTED, RECOVER INSULATION WITH HEAVY-GAUGE UV-RESISTANT PVC FITTINGS, COVER AND JACKETING EQUAL TO JOHNS MANVILLE ZESTON 300 SERIES.

- 2.6.4. PROVIDE PRE-FORMED INSULATION FOR FITTINGS AND VALVES.

#### 3. SYSTEM CHEMICAL TREATMENT

- 3.1. PROVIDE SYSTEM CHEMICAL TREATMENT AFTER THE SYSTEM HAS BEEN CLEANED AND STARTED UP IN ACCORDANCE WITH THE MECHANICAL SPECIFICATIONS. THIS CONTRACTOR SHALL PAY FOR AND CONTRACT THE SERVICES OF THE BASE BUILDING CHEMICAL TREATMENT CONTRACTOR TO CARRY OUT THE CHEMICAL TREATMENT PROCESS.

## VAV SEQUENCE OF OPERATIONS

### 1. GENERAL

- 1.1. THE VAV SYSTEM PROVIDES COOLING, HEATING AND VENTILATION TO THE SPACE.
- 1.2. THE PERIMETER HEATING ELEMENT PROVIDES HEAT TO THE SPACE.

### 2. MODES OF OPERATION

- 2.1. THE OCCUPIED AND UNOCCUPIED MODES ARE DETERMINED BY A TIME OF DAY SCHEDULE.

### 3. OCCUPIED MODE

- 3.1. OVERVIEW: THE VAV BOX WILL PROVIDE VARIABLE AIRFLOW TO THE SPACE TO MAINTAIN THE SPACE TEMPERATURE AT SETPOINT. THE SPACE TEMPERATURE SETPOINT WILL BE SET TO 23 DEG C. A BIAS OF +/- 1 DEG C WILL BE APPLIED TO THE SPACE TEMPERATURE SETPOINT TO ALLOW FOR HEATING AND COOLING CONTROL. COLD AIR FROM THE AIR HANDLING UNIT PROVIDES COOLING TO THE SPACE. PERIMETER HEATING AND THE REHEAT COIL (WHERE APPLICABLE) WILL PROVIDE SOURCES OF HEAT FOR THE SPACE.

- 3.2. AIRFLOW SETPOINT: THE CONTROLLER WILL READ IN VELOCITY PRESSURE AND CONVERT IT TO AIRFLOW BASED ON THE BOX SIZE. THE AIRFLOW SETPOINT IS AUTOMATICALLY CALCULATED BETWEEN THE MINIMUM AND MAXIMUM VALUES TO MAINTAIN THE SPACE TEMPERATURE AT SETPOINT. WHEN THE AIR HANDLING UNIT IS OPERATING, SETPOINT WILL INCREASE TO PROVIDE MORE COOLING AND DECREASE TO PROVIDE LESS COOLING. NOTE IN CASES WHERE THE RHC REQUIRES MORE AIRFLOW THAN THE BOX MIN, THE AIRFLOW SETPOINT WILL INCREASE TO THE MAXIMUM HEATING AIRFLOW SETPOINT OF THE VAV BOX WHEN THE RHC IS FULLY OPEN AND ADDITIONAL HEAT IS REQUIRED.

- 3.3. DAMPER MODULATION: THE DAMPER WILL MODULATE TO MAINTAIN THE AIRFLOW AT SETPOINT.

- 3.4. REHEAT COIL VALVE: THE REHEAT COIL VALVE WILL MODULATE TO MAINTAIN THE SPACE TEMPERATURE AT SETPOINT ONCE THE VAV BOX IS AT THE MINIMUM HEATING AIRFLOW SETPOINT. IF THE BOX IS EQUIPPED WITH PERIMETER HEATING, THE REHEAT COIL VALVE MODULATION WILL BE HELD OFF UNTIL THE PERIMETER HEATING VALVE IS OPEN.

- 3.5. PERIMETER HEATING VALVE: THE PERIMETER HEATING VALVE WILL MODULATE TO MAINTAIN THE SPACE TEMPERATURE AT SETPOINT ONCE THE VAV BOX IS AT THE MINIMUM HEATING AIRFLOW SETPOINT.

### 4. UNOCCUPIED MODE

- 4.1. OVERVIEW: WHEN THE AIR HANDLING UNIT IS RUNNING THE VAV BOX WILL PROVIDE VARIABLE AIRFLOW TO THE SPACE TO MAINTAIN THE SPACE TEMPERATURE AT THE UNOCCUPIED SETPOINTS. THE SPACE TEMPERATURE HEATING SETPOINT WILL BE SET TO 18 DEG C AND THE SPACE TEMPERATURE COOLING SETPOINT WILL BE SET TO 28 DEG C. COLD AIR FROM THE AIR HANDLING UNIT PROVIDES COOLING TO THE SPACE. PERIMETER HEATING (WHERE APPLICABLE) WILL PROVIDE HEATING TO THE SPACE. IF THE AIR HANDLING UNIT IS RUNNING THE REHEAT COIL (WHERE APPLICABLE) WILL PROVIDE HEAT FOR THE SPACE.

- 4.2. AIRFLOW SETPOINT: THE CONTROLLER WILL READ IN VELOCITY PRESSURE AND CONVERT IT TO AIRFLOW BASED ON THE BOX SIZE. THE AIRFLOW SETPOINT IS AUTOMATICALLY CALCULATED BETWEEN THE UNOCCUPIED MINIMUM AND MAXIMUM VALUES TO MAINTAIN THE SPACE TEMPERATURE AT SETPOINT. WHEN THE AIR HANDLING UNIT IS OPERATING, AIRFLOW SETPOINT WILL INCREASE TO PROVIDE MORE COOLING AND DECREASE TO PROVIDE LESS COOLING. NOTE IN CASES WHERE THE RHC REQUIRES MORE AIRFLOW THAN THE BOX MIN, THE AIRFLOW SETPOINT WILL INCREASE TO THE MAXIMUM HEATING AIRFLOW SETPOINT OF THE VAV BOX WHEN THE RHC IS FULLY OPEN AND ADDITIONAL HEAT IS REQUIRED.

- 4.3. DAMPER MODULATION: THE DAMPER WILL MODULATE TO MAINTAIN THE AIRFLOW AT SETPOINT. IF THE AIR HANDLING UNIT IS OFF THE DAMPER WILL BE FULLY OPEN.

- 4.4. REHEAT COIL VALVE: IF THE AHU IS ON THE REHEAT COIL VALVE WILL MODULATE TO MAINTAIN THE SPACE TEMPERATURE AT SETPOINT ONCE THE VAV BOX IS AT THE MINIMUM HEATING AIRFLOW SETPOINT. IF THE BOX IS EQUIPPED WITH PERIMETER HEATING THE REHEAT COIL VALVE MODULATION WILL BE HELD OFF UNTIL THE PERIMETER HEATING VALVE IS OPEN.

- 4.5. PERIMETER HEATING VALVE: THE PERIMETER HEATING VALVE WILL MODULATE TO MAINTAIN THE SPACE TEMPERATURE AT SETPOINT ONCE THE VAV BOX IS AT THE MINIMUM HEATING AIRFLOW SETPOINT (UNLESS THE AHU IS OFF IN WHICH CASE THE PH VALVE WILL SIMPLY MODULATE TO MAINTAIN TEMPERATURE).

### 5. INTEGRATION WITH OTHER SYSTEMS

- 5.1. A STARVED BOX (AIRFLOW) FLAG IS SET WHEN THE DAMPER IS FULLY OPEN AND AIRFLOW IS BELOW SETPOINT.

### 6. CRITICAL EVENTS

- 6.1. THE SPACE TEMPERATURE DROPS BELOW 10 DEG C.

### 7. NON-CRITICAL EVENTS

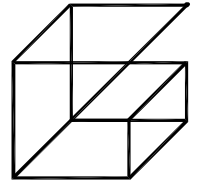
- 7.1. THE SPACE TEMPERATURE IS MORE THAN 2 DEG C ABOVE OR BELOW SETPOINT (30 MINUTE DELAY).
- 7.2. MANUAL OVERRIDES ARE PLACED ON THE SYSTEM.

### 8. TRENDS

- 8.1. ALL INPUTS AND OUTPUTS WILL BE TRENDED AT 30 MINUTE INTERVALS FOR 3 DAYS.

- 8.2. ADDITIONALLY THE FOLLOWING WILL ALSO BE TRENDED:

- 8.2.1. AIRFLOW SETPOINT.
- 8.2.2. SPACE TEMPERATURE SETPOINT.



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#### DISCLAIMER

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This drawing shall be read in conjunction with the architectural, structural, electrical and all other consultant's drawings prior to proceeding with the work. Do not scale the drawings.

The contractor is to verify and accept responsibility for all dimensions and conditions on site and must notify GIALNONARDO ENGINEERING INC. of any variations from the drawings.

Consultant Seal

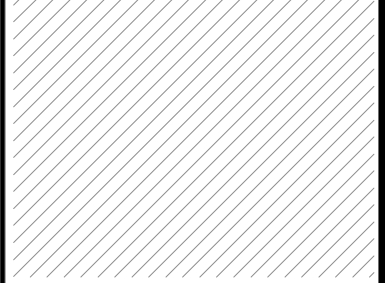


5	REVISED AS PER ADO101	2024-11-26
4	ISSUED FOR TENDER	2024-11-20
3	RE-ISSUED FOR 100% REVIEW	2024-11-19
2	ISSUED FOR 100% REVIEW	2024-11-05
1	ISSUED FOR REVIEW	2024-10-23

No. Issues/Revisions Date

Project Name: Trafalgar Campus - B244 Classroom Renovation

Seal:



Sheet Name:

MECHANICAL SPECIFICATIONS III AND SEQUENCE OF OPERATIONS

Drawn By: G.G. Checked By: J.H.

Issued Date: 11-09-2024

Project Number: 24-188 Scale: AS NOTED

Drawing No. M-1.4

## RADIANT PANEL SCHEDULE

REF.	TYPE	MANU.	MODEL	CONFIG.	PANEL WIDTH (IN.)	ACTIVE LENGTH (IN.)	ROWS	HEATING OUTPUT DENSITY (BTU/FT)	HEATING WATER			TOTAL CAPACITY (MBH)	WPD (FT.H2O)	REMARKS
									FLOW RATE (GPM)	EWT (°F)	LWT (°F)			
A	RH-1	ENGINEERED AIR	HEF-2	CEILING MOUNTED	24	90.0	4	389	0.292	180	160	2.92	0.11	CEILING MOUNTED RADIANT PANEL HEATER, 24 INCHES WIDE, CONSTRUCTED FROM ALUMINUM EXTRUSIONS, EXACT PANEL LENGTH FIELD CUT ON SITE TO SUIT INSTALLATION CONDITIONS. THERMOSTAT AND CONTROLS SHALL BE PROVIDED BY CONTROLS CONTRACTOR TO MATCH BASE BUILDING.
B	RH-2 RH-3 RH-4 RH-5	ENGINEERED AIR	HEF-2	CEILING MOUNTED	24	227.0	4	389	0.735	180	160	7.35	1.28	CEILING MOUNTED RADIANT PANEL HEATER, 24 INCHES WIDE, CONSTRUCTED FROM ALUMINUM EXTRUSIONS, EXACT PANEL LENGTH FIELD CUT ON SITE TO SUIT INSTALLATION CONDITIONS. THERMOSTAT AND CONTROLS SHALL BE PROVIDED BY CONTROLS CONTRACTOR TO MATCH BASE BUILDING.
C	RH-5	ENGINEERED AIR	HEF-2	CEILING MOUNTED	24	220.0	4	389	0.712	180	160	7.12	1.24	CEILING MOUNTED RADIANT PANEL HEATER, 24 INCHES WIDE, CONSTRUCTED FROM ALUMINUM EXTRUSIONS, EXACT PANEL LENGTH FIELD CUT ON SITE TO SUIT INSTALLATION CONDITIONS. THERMOSTAT AND CONTROLS SHALL BE PROVIDED BY CONTROLS CONTRACTOR TO MATCH BASE BUILDING.
D	RH-6	ENGINEERED AIR	HEF-2	CEILING MOUNTED	24	216.0	4	389	0.700	180	160	7.00	2.8	CEILING MOUNTED RADIANT PANEL HEATER, 24 INCHES WIDE, CONSTRUCTED FROM ALUMINUM EXTRUSIONS, EXACT PANEL LENGTH FIELD CUT ON SITE TO SUIT INSTALLATION CONDITIONS. THERMOSTAT AND CONTROLS SHALL BE PROVIDED BY CONTROLS CONTRACTOR TO MATCH BASE BUILDING.

**NOTES:**

- CONNECT CONTROL VALVE TO BAS AND MATCH DEVICES AND CONTROL STRATEGIES TO BASE BUILDING. WHERE NO CONTROL STRATEGY EXISTS, REFER TO SEQUENCE OF OPERATIONS.
- FLOOR PLANS ONLY DEPICT ACTIVE LENGTHS, PROVIDE BLANK OFF SECTIONS ACROSS COLUMNS FOR CONTINUOUS PANEL INSTALLATION. CONTRACTOR TO FIELD CUT ON SITE TO ACCOMMODATE COLUMNS AND OTHER OBSTRUCTIONS.

## DIFFUSER SCHEDULE

TAG	MAKE/MODEL	FINISH	REMARKS
A	EH PRICE MODEL SPD 24/24 SQUARE S/A DIFFUSER	-	SQUARE PLAQUE DIFFUSER, STEEL CONSTRUCTION FOR T-BAR LAY-IN. SIZE NECK AND BALANCE AS INDICATED ON DRAWING.
B	EH PRICE MODEL 80 EGG CRATE GRILLE	-	CORE ONLY, 1/2"x1/2"x1/2" ALUMINUM GRID CORE, FOR T-BAR LAY-IN. SIZE AS INDICATED ON DRAWINGS.

**NOTES:**

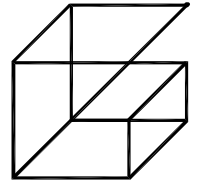
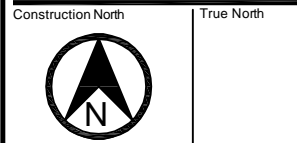
- SIZE ALL GRILLES, DIFFUSERS, ETC. AS PER MECHANICAL DRAWINGS.
- CONFIRM ALL FINISHES WITH ARCHITECT/INTERIOR DESIGNER.

## VAV TERMINAL UNIT SCHEDULE

TAG	MANU.	MODEL NO.	INLET SIZE DIA. (IN.)	MAX (CFM)	MIN (CFM)	HEATING COIL PERFORMANCE				CONTROLS TYPE	REMARKS
						MAXIMUM AIRFLOW (CFM)	WATER (GPM)	CAP. (MBH)	EWT/LWT (°F)		
VAV-1 VAV-2 VAV-3 VAV-4	EH PRICE	SDV	10"Ø	950	285	600	2.0	19.0	180/160	DIGITAL	PRESSURE INDEPENDENT VAV TERMINAL UNIT C/W 3'-0" SOUND ATTENUATOR AND STANDARD CAPACITY 1 ROW MULTI CIRCUIT HYDRONIC REHEAT COIL. CONTROLS PROVIDED BY CONTROLS CONTRACTOR TO MATCH BASE BUILDING. PROVIDE BELIMO ZONE TIGHT 2-WAY CONTROL VALVE WITH ELECTRONIC ACTUATOR.

**NOTES:**

- COORDINATE ALL REQUIRED POWER AND LOCATIONS WITH DIV.26.
- INCLUDE FOR ALL WORK ASSOCIATED WITH CONNECTION TO BAS SYSTEM.
- CONTROLS WORK SHALL BE CARRIED OUT BY THE BASE BUILDING CONTROLS CONTRACTOR AT THE EXPENSE OF DIV.23.
- ALL TERMINAL UNITS SHALL BE PROVIDED WITH FACTORY-SUPPLIED 3'-0" SOUND ATTENUATOR, UNLESS NOTED OTHERWISE.
- ALL VAV'S COMPLETE WITH REHEAT COIL AS SPECIFIED.



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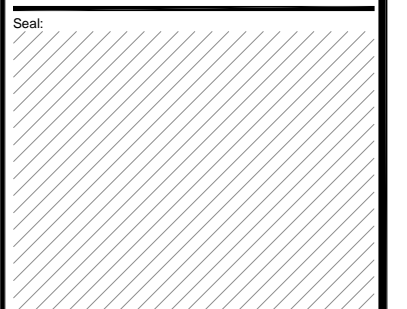
Consultant Seal



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1	ISSUED FOR REVIEW	2024-10-23

No. Issues/Revisions Date

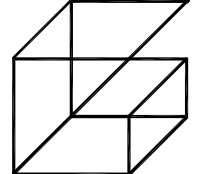
Project Name: Trafalgar Campus - B244 Classroom Renovation



Sheet Name: MECHANICAL SCHEDULES

Drawn By: G.G. Checked By: J.H.  
Issued Date: 11-09-2024  
Project Number: 24-168 Scale: AS NOTED  
Drawing No:

**M-1.5**



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Consultant Seal



5	REVISED AS PER ADDM01	2024-11-28
4	ISSUED FOR TENDER	2024-11-20
3	RE-ISSUED FOR 100% REVIEW	2024-11-19
2	ISSUED FOR 100% REVIEW	2024-11-05
1	ISSUED FOR REVIEW	2024-10-23

No. Issues/Revisions Date

Project Name: **Trafalgar Campus - B244 Classroom Renovation**

Seal: \_\_\_\_\_

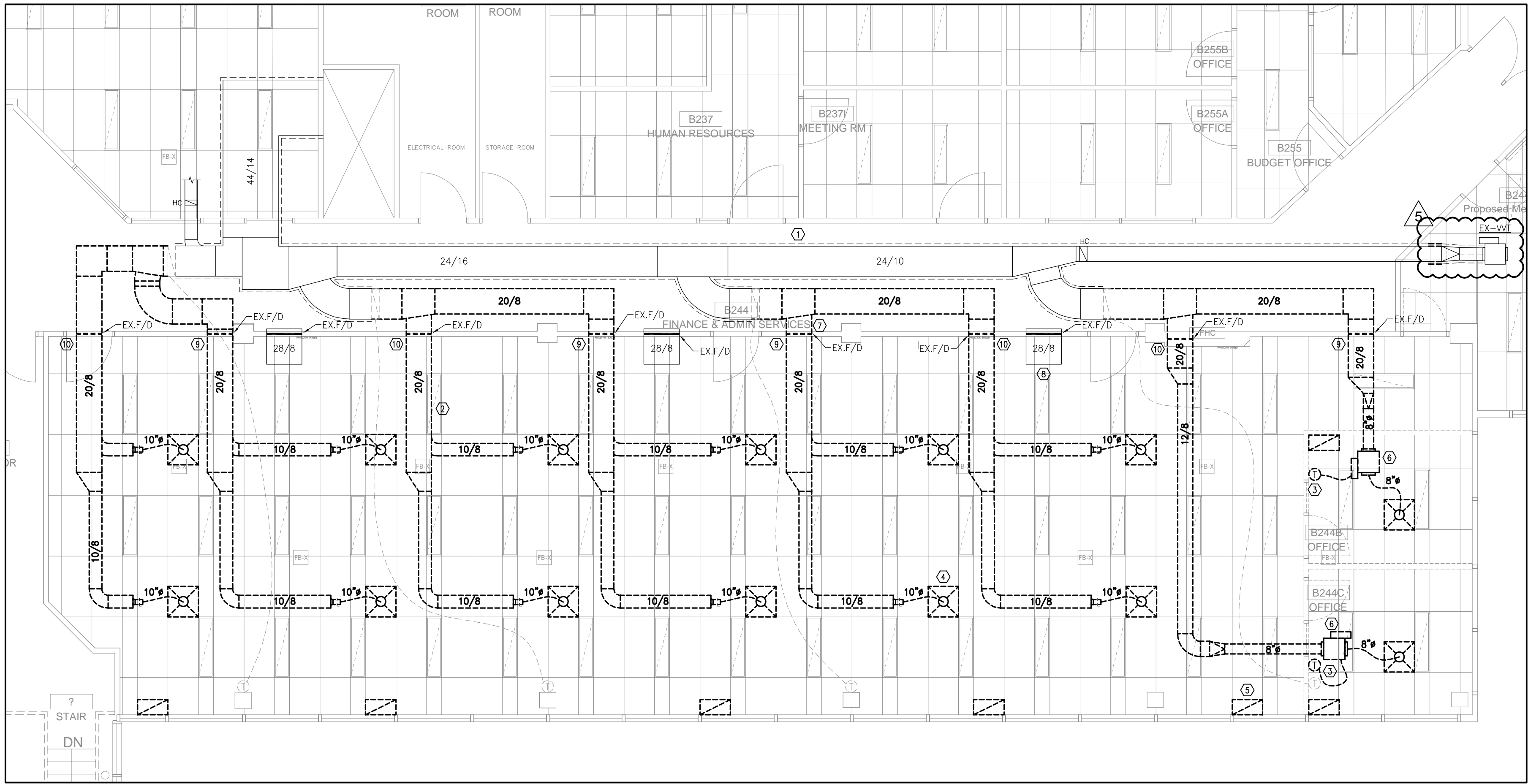
Sheet Name: **SECOND FLOOR PLAN - HVAC DEMOLITION**

Drawn By: G.G. Checked By: J.H.

Issued Date: 11-09-2024

Project Number: 24-188 Scale: AS NOTED

Drawing No: **M-2.1**



**1 SECOND FLOOR PLAN - HVAC DEMOLITION**  
M-2.1

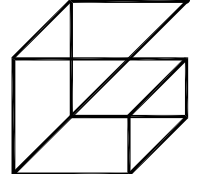
**HVAC NOTES**

- ① EXISTING S/A DUCTWORK TO REMAIN (TYPICAL).
- ② EXISTING S/A DUCTWORK TO BE REMOVED AND DISPOSED OF (TYPICAL).
- ③ EXISTING SIEMENS THERMOSTAT AND ASSOCIATED PNEUMATIC TUBING TO BE REMOVED, DECOMMISSIONED AND DISPOSED OF.
- ④ EXISTING S/A DIFFUSER AND ASSOCIATED FLEXIBLE DUCTWORK TO BE REMOVED AND DISPOSED OF (TYPICAL).
- ⑤ EXISTING R/A GRILLE TO BE REMOVED AND DISPOSED OF (TYPICAL).
- ⑥ EXISTING V/T BOX AND ASSOCIATED PNEUMATIC TUBING TO BE REMOVED, DECOMMISSIONED AND DISPOSED OF.
- ⑦ EXISTING FIRE DAMPER AT S/A DUCTWORK PENETRATION THROUGH FIRE WALL TO BE REMOVED AND DISPOSED OF (TYPICAL).
- ⑧ EXISTING T/A DUCTWORK TO REMAIN.
- ⑨ EXISTING OPENING IN RATED PARTITION ABOVE CEILING TO BE PATCHED TO BASE BUILDING STANDARDS.
- ⑩ EXISTING OPENING IN RATED PARTITION ABOVE CEILING TO REMAIN FOR NEW DUCT PENETRATION. ENLARGE PENETRATION AS REQUIRED TO SUIT NEW S/A DUCT SIZE. REFER TO NEW HVAC PLANS.

**GENERAL HVAC NOTES**

1. WHERE COMPONENTS ARE TO BE REUSED, THE CONTRACTOR SHALL CLEAN AND TEST THE COMPONENT TO ENSURE PROPER OPERATION. THE CONSULTANT SHALL BE NOTIFIED IN THE EVENT THERE IS A DEFICIENCY WITH THE COMPONENT.
2. PERFORM DEMOLITION WORK SO AS TO CAUSE MINIMAL DISTURBANCE TO OWNER AND/OR ADJACENT AREAS. MINIMIZE DUST AND NOISE AND PROVIDE TEMPORARY AIR FILTERS ON AIR HANDLING SYSTEMS AFFECT BY THE AREA OF WORK. ALL COSTS ASSOCIATED WITH DAMAGES AS A RESULT OF THE MECHANICAL DEMOLITION SHALL BE COVERED BY DIV.23. MAINTAIN SAFETY STANDARDS AND PROVIDE ADEQUATE SIGNAGE FOR BOTH WORKERS AND OCCUPANTS.
3. THE MECHANICAL DRAWINGS DISPLAY A GENERAL DESIGN AND INSTALLATION. THEREFORE, IF REQUIRED, THE CONTRACTOR SHALL OBTAIN CLARIFICATION FROM THE CONSULTANT PRIOR TO INSTALLATION.
4. THESE DRAWINGS HAVE BEEN PREPARED FOR DIV.23 AND DO NOT ACCURATELY DISPLAY ALL ELECTRICAL, STRUCTURAL AND ARCHITECTURAL ELEMENTS. REFER TO OTHER DIVISION'S DRAWINGS FOR CLARIFICATION.
5. THIS CONTRACTOR SHALL VISIT THE SITE AND COMPLETELY INVESTIGATE AND UNDERSTAND THE EXISTING CONDITIONS AND THEIR RELATION TO THE DESIGN DRAWINGS/DOCUMENTS. NO CONSIDERATION WILL BE GIVEN TO THE CONTRACTOR FOR ANY HINDRANCES TO THE MECHANICAL INSTALLATION FROM SITE CONDITIONS WHICH EXISTED PRIOR TO TENDER SUBMISSION. AS SUCH AND WHERE REQUIRED, THE CONTRACTOR SHALL PROVIDE INTERFERENCE DRAWINGS AND SHALL SUBMIT THEM TO THE CONSULTANT FOR REVIEW.





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Consultant Seal



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1	ISSUED FOR REVIEW	2024-10-23

No. Issues/Revisions Date

Project Name: **Trafalgar Campus - B244 Classroom Renovation**

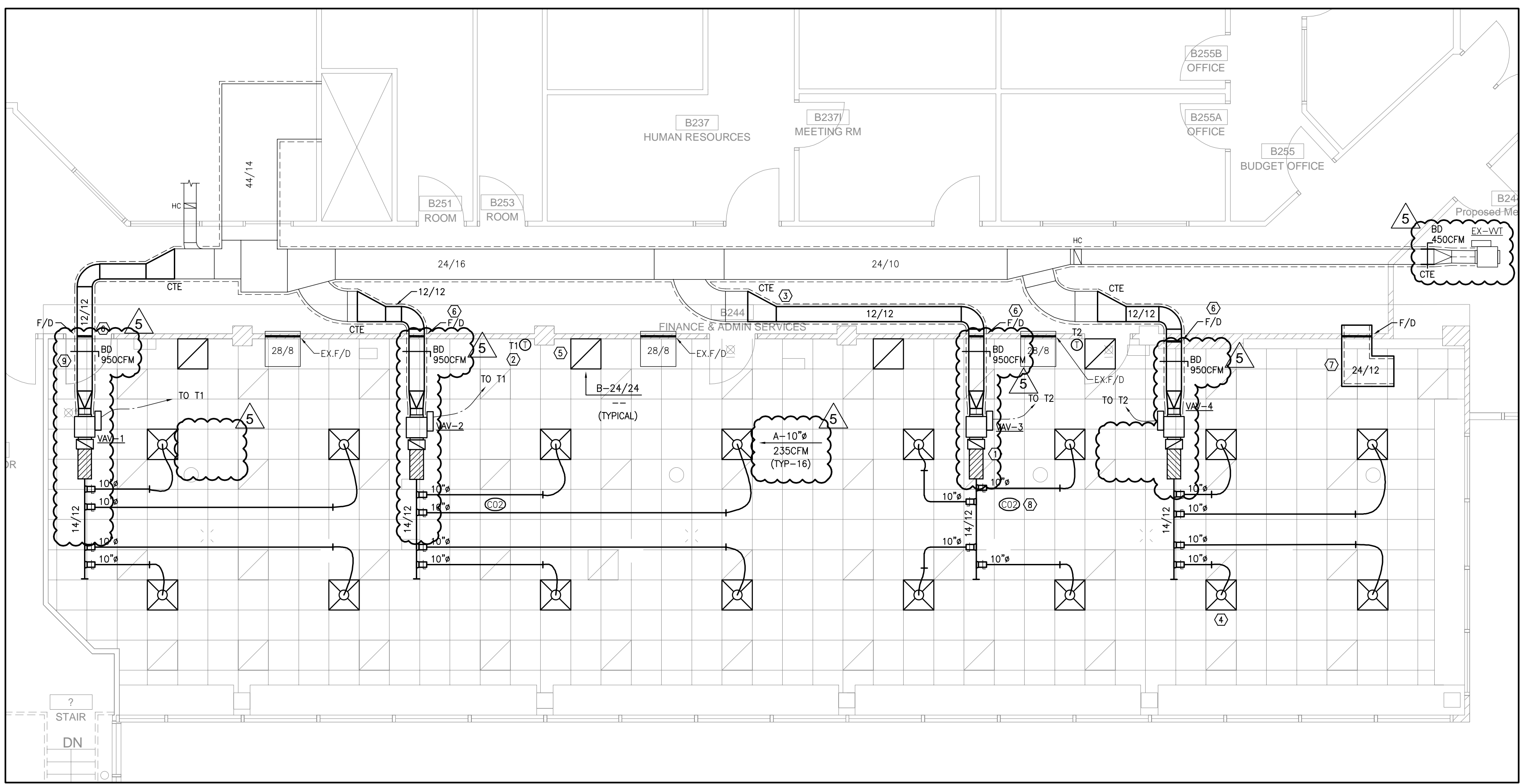
Seal: \_\_\_\_\_

Sheet Name: **SECOND FLOOR PLAN - HVAC NEW**

Drawn By: G.G. Checked By: J.H.  
Issued Date: 11-09-2024

Project Number: 24-188 Scale: AS NOTED

Drawing No.: **M-2.2**



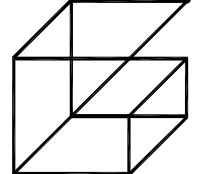
**1 SECOND FLOOR PLAN - HVAC NEW**  
M-2.2

**HVAC NOTES**

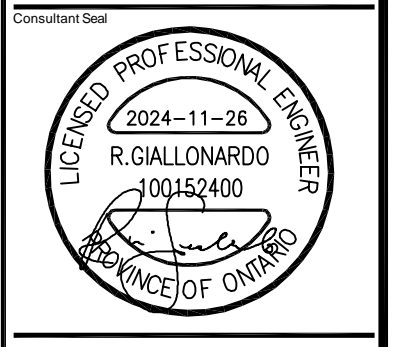
- ① PROVIDE NEW VAV C/W REHEAT COIL AS SPECIFIED AND INTERLOCK WITH BAS. BALANCE AS INDICATED IN MECHANICAL SCHEDULES (TYPICAL).
- ② PROVIDE NEW SHERIDAN STANDARD DELTA THERMOSTAT WHERE SHOWN SERVING VAV TERMINAL UNITS. EXACT LOCATION TO BE COORDINATED ON SITE WITH CLIENT (TYPICAL).
- ③ PROVIDE NEW THERMALLY INSULATED S/A DUCTWORK. CONNECT TO EXISTING WHERE SHOWN AND PROVIDE TRANSITION AS REQUIRED TO SUIT EXISTING DUCTWORK (TYPICAL).
- ④ PROVIDE NEW SQUARE S/A PLAQUE DIFFUSER AS SPECIFIED (TYPICAL).
- ⑤ PROVIDE NEW R/A GRILLE AS SPECIFIED (TYPICAL).
- ⑥ NEW S/A DUCTWORK TO PENETRATE WALL IN SAME LOCATION OF EXISTING PENETRATION. PROVIDE NEW FIRE DAMPER AT RATED WALL. MODIFY SIZE OF EXISTING PENETRATION AS REQUIRED TO SUIT NEW DUCT SIZE.
- ⑦ PROVIDE NEW ACOUSTICALLY LINED T/A DUCTWORK C/W FIRE DAMPER AT CORRIDOR PENETRATION. ENSURE FIRE DAMPER IS FULLY ACCESSIBLE FROM CORRIDOR SIDE.
- ⑧ PROVIDE NEW CEILING MOUNTED CO2 SENSOR TO MATCH BASE BUILDING. CONTROLS AND GRAPHICS TO MATCH BASE BUILDING CONTROLS SEQUENCE (TYPICAL).
- ⑨ PROVIDE NEW BALANCING DAMPER THREE (3) DUCT DIAMETERS UPSTREAM OF VAV BOX AS SHOWN (TYPICAL).

**GENERAL HVAC NOTES**

1. WHERE COMPONENTS ARE TO BE REUSED, THE CONTRACTOR SHALL CLEAN AND TEST THE COMPONENT TO ENSURE PROPER OPERATION. THE CONSULTANT SHALL BE NOTIFIED IN THE EVENT THERE IS A DEFICIENCY WITH THE COMPONENT.
2. PERFORM DEMOLITION WORK SO AS TO CAUSE MINIMAL DISTURBANCE TO OWNER AND/OR ADJACENT AREAS. MINIMIZE DUST AND NOISE AND PROVIDE TEMPORARY AIR FILTERS ON AIR HANDLING SYSTEMS AFFECT BY THE AREA OF WORK. ALL COSTS ASSOCIATED WITH DAMAGES AS A RESULT OF THE MECHANICAL DEMOLITION SHALL BE COVERED BY DIV.23. MAINTAIN SAFETY STANDARDS AND PROVIDE ADEQUATE SIGNAGE FOR BOTH WORKERS AND OCCUPANTS.
3. THE MECHANICAL DRAWINGS DISPLAY A GENERAL DESIGN AND INSTALLATION. THEREFORE, IF REQUIRED, THE CONTRACTOR SHALL OBTAIN CLARIFICATION FROM THE CONSULTANT PRIOR TO INSTALLATION.
4. THESE DRAWINGS HAVE BEEN PREPARED FOR DIV.23 AND DO NOT ACCURATELY DISPLAY ALL ELECTRICAL, STRUCTURAL AND ARCHITECTURAL ELEMENTS. REFER TO OTHER DIVISION'S DRAWINGS FOR CLARIFICATION.
5. THIS CONTRACTOR SHALL VISIT THE SITE AND COMPLETELY INVESTIGATE AND UNDERSTAND THE EXISTING CONDITIONS AND THEIR RELATION TO THE DESIGN DRAWINGS/DOCUMENTS. NO CONSIDERATION WILL BE GIVEN TO THE CONTRACTOR FOR ANY HINDRANCES TO THE MECHANICAL INSTALLATION FROM SITE CONDITIONS WHICH EXISTED PRIOR TO TENDER SUBMISSION. AS SUCH AND WHERE REQUIRED, THE CONTRACTOR SHALL PROVIDE INTERFERENCE DRAWINGS AND SHALL SUBMIT THEM TO THE CONSULTANT FOR REVIEW.
6. HEATING/COOLING FUNCTIONALITY SHALL BE COMMISSIONED DURING SUMMER/WINTER SEASON PRIOR TO CONSTRUCTION COMPLETION.
7. ALL CONTROLS WORK TO BE CARRIED OUT BY BASE BUILDING CONTROLS CONTRACTOR AT THE EXPENSE OF DIV. 23.

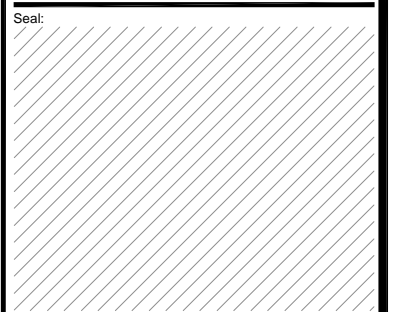


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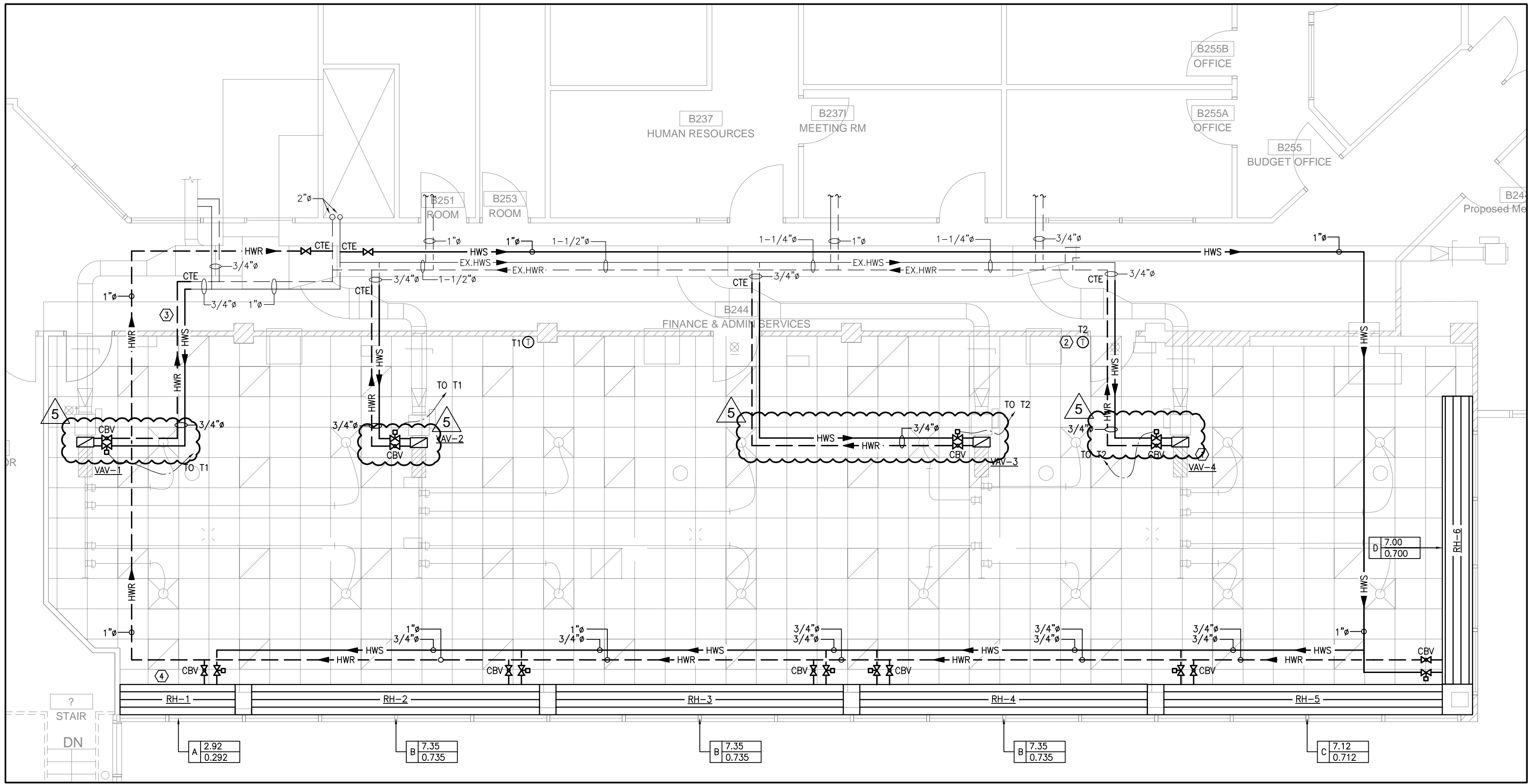
Project Name: **Trafalgar Campus - B244 Classroom Renovation**



Sheet Name:  
**SECOND FLOOR PLAN - HYDRONICS NEW**

Drawn By: G.G. Checked By: J.H.  
Issued Date: 11-09-2024  
Project Number: 24-188 Scale: AS NOTED  
Drawing No:

**M-2.4**



**1 SECOND FLOOR PLAN - HYDRONICS NEW**  
M-2.4

- HVAC NOTES**
- 1 PROVIDE NEW VAV C/W REHEAT COIL AS SPECIFIED AND INTERLOCK WITH BAS. BALANCE AS INDICATED IN MECHANICAL SCHEDULES (TYPICAL).
  - 2 PROVIDE NEW SHERIDAN STANDARD DELTA THERMOSTAT WHERE SHOWN SERVING VAV TERMINAL UNITS. EXACT LOCATION TO BE COORDINATED ON SITE WITH CLIENT (TYPICAL).
  - 3 PROVIDE NEW HYDRONIC PIPING IN CEILING SPACE (TYPICAL).
  - 4 PROVIDE NEW CEILING MOUNTED RADIANT PANEL AS SPECIFIED C/W ALL HANGERS AND SUPPORTS AS REQUIRED. REFER TO DETAILS (TYPICAL).

- GENERAL HVAC NOTES**
1. WHERE COMPONENTS ARE TO BE REUSED, THE CONTRACTOR SHALL CLEAN AND TEST THE COMPONENT TO ENSURE PROPER OPERATION. THE CONSULTANT SHALL BE NOTIFIED IN THE EVENT THERE IS A DEFICIENCY WITH THE COMPONENT.
  2. PERFORM DEMOLITION WORK SO AS TO CAUSE MINIMAL DISTURBANCE TO OWNER AND/OR ADJACENT AREAS. MINIMIZE DUST AND NOISE AND PROVIDE TEMPORARY AIR FILTERS ON AIR HANDLING SYSTEMS AFFECT BY THE AREA OF WORK. ALL COSTS ASSOCIATED WITH DAMAGES AS A RESULT OF THE MECHANICAL DEMOLITION SHALL BE COVERED BY DIV.23. MAINTAIN SAFETY STANDARDS AND PROVIDE ADEQUATE SIGNAGE FOR BOTH WORKERS AND OCCUPANTS.
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  6. HEATING/COOLING FUNCTIONALITY SHALL BE COMMISSIONED DURING SUMMER/WINTER SEASON PRIOR TO CONSTRUCTION COMPLETION.
  7. ALL CONTROLS WORK TO BE CARRIED OUT BY BASE BUILDING CONTROLS CONTRACTOR AT THE EXPENSE OF DIV. 23.