### HVAC LEGEND

#### SYMBOLS

- **AV**: Automatic Valve
- **CH**: Check Valve
- **DO**: Drive Operator
- **DV**: Differential Pressure Valve
- **FV**: Flow Valve
- **GV**: Gate Valve
- **HV**: Hanger Valve
- **LV**: Lock Shield Valve
- **MV**: Motorized Valve
- **PV**: Pressure Valve
- **TV**: Temperature Valve
- **V**: Valve
- **ZV**: Zone Valve

#### DESCRIPTIONS

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### HVAC DRAWING LIST

- **100**: General Ductwork
- **200**: Piping
- **300**: Hydronic
- **400**: Controls
- **500**: Steam
- **600**: Miscellaneous

### ABBREVIATIONS

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### NOT ALL SYMBOLS OR ABBREVIATIONS ARE NECESSARILY USED ON THIS PROJECT.
<table>
<thead>
<tr>
<th>NOTES:</th>
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<thead>
<tr>
<th>(N) or (E) TAP NO.</th>
<th>MANUFACTURER MODEL LOCATION</th>
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| (N) MUA 3-1 ENERGY LABS CAH 3RD FLOOR 15400 1.5 3.5 11.9 15 4 60/3 583 449 92 67 65 60 48 66 80 14.5 6 10 582.12 35 70 180 140 37 5 2 8 20 35 73 480/3 2" 8 4" 13 228 x 88 x 88 7750 1-9 |
|--------------------|-------------------------------|

| (N) AHU - 4-1 ENERGY LABS CAH 50'S PENTHOUSE 40100 12250 2.5 4 DIRECT 4 x 9.8 4 x 15 460/3 Y 40100 1.50 DIRECT 4 x 4.3 4 x 5 460/3 Y 1469 1229 80 64 55 53 48 66 163 21.4 6 10 1730 45 45 85 85 1 80 140 87 3.2 2 8 2" 8 4" 13 316 X 120 X 120 18500 1-15 |
|--------------------|-------------------------------|

| (N) AHU - 3-1 ENERGY LABS CAH NORTH WING PENTHOUSE 6000 240 0 2 2.5 DIRECT 1.8 3 460/3 Y 6000 0.75 DIRECT 0.8 1.5 460/3 Y 116 9 6 80 64 55 53 48 66 10.5 20.8 6 10 135 45 45 85 85 180 140 6.8 6.7 2 8 2" 8 4" 13 229 X 42 X 42 5000 1-15 |
|--------------------|-------------------------------|

| (N) AHU - 4-2 ENERGY LABS CAH 50'S PENTHOUSE 20000 8000 2 3 DIRECT 2 x 9.8 2 x 15 460/3 Y 20000 1.25 DIRECT 2 x 9.8 2 x 15 460/3 Y 800 700 80 64 55 53 48 66 80 21.6 6 10 1000 45 45 85 85 180 140 42 6 2 8 2" 8 4" 13 316 X 60 X 60 10000 1-15 |
|--------------------|-------------------------------|

| (E) MUA 1m-1 ENERGY LABS CAH MEZZANINE 15000 2.5 4.8 7.1 21 460/3 423 409 80 64 55 55 48 66 47 18 6 10 638 45 84 180 140 32 3 1 12 0 0 - 4 80/3 2" 8 4" 13 217x108x136 20000 - |
|--------------------|-------------------------------|

### AIR HANDLING UNIT SCHEDULE

<table>
<thead>
<tr>
<th>CAPACITY</th>
<th>NOMINAL (TONS)</th>
<th>EMERGENCY MIN OSA (CFM)</th>
<th>ESP (IN.WG.)</th>
<th>TSP (IN.WG.)</th>
<th>DRIVE BHP</th>
<th>HP</th>
<th>V/PH</th>
<th>TSP</th>
<th>TOTAL TYPE</th>
<th>BHP</th>
<th>HP</th>
<th>V/PH</th>
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### PACKAGED ROOFTOP AC UNIT SCHEDULE

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<th>NOMINAL (BTU/H)</th>
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<th>WPD (GPM)</th>
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<th>WEIGHT (LBS)</th>
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### DEDICATED OUTSIDE AIR SYSTEM SCHEDULE

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### MAKE-UP AIR UNIT SCHEDULE

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### COOLING SCHEDULE

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### SCHEDULES - MADE-UP AIR UNIT

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### Radiant Element Schedule

<table>
<thead>
<tr>
<th>TAG NO</th>
<th>MANUFACTURER</th>
<th>MODEL</th>
<th>LOCATION</th>
<th>AREA SERVED</th>
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</thead>
<tbody>
<tr>
<td>PCB 1</td>
<td>PRICE PCBL - PASSIVE</td>
<td>0 1850 1</td>
<td>2 - 2.5</td>
<td>8'x1'x12</td>
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<tr>
<td>PCB 2</td>
<td>PRICE PCBL - PASSIVE</td>
<td>0 1615 1</td>
<td>2 - 2.3</td>
<td>7'x1'x12</td>
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<tr>
<td>PCB 3</td>
<td>PRICE PCBL - PASSIVE</td>
<td>0 4620 1</td>
<td>2 - 4.3</td>
<td>10'x2'x12</td>
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### Electric Heater Schedule

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<tr>
<th>ELECTRIC HEATER SCHEDULE</th>
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<td><strong>Capacity</strong></td>
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<td>Total</td>
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### Chilled Water Fan Coil Unit Schedule

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<th>CHILLED WATER FAN COIL UNIT SCHEDULE</th>
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<td><strong>LAT</strong></td>
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### Variable Refrigerant Flow (VRF) Split Heat Pump Schedule

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<th>VRF SPLIT HEAT PUMP</th>
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<td><strong>NOTES</strong>:</td>
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<tr>
<td>1. PROVIDE LIGHT SHIELD FOR UNDUCTED SLOT RETURN GRILLES.</td>
</tr>
<tr>
<td>7. PROVIDE RECTANGULAR/SQUARE TO ROUND TRANSITION AS REQUIRED AND SIZED FOR MAXIMUM 0.01&quot; WG TOTAL PRESSURE DROP.</td>
</tr>
<tr>
<td>5. COORDINATE WITH ARCHITECTURAL REFLECTED CEILING PLANS FOR BORDER TYPES.</td>
</tr>
<tr>
<td>2. MAXIMUM TOTAL PRESSURE DROP SHALL NOT EXCEED 0.15&quot; WG WITH DUCT TRANSITION.</td>
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### Pump Schedule

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<th>PUMP SCHEDULE</th>
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<tr>
<td><strong>NOTES</strong>:</td>
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<tr>
<td>1. PROVIDE FORWARD/REVERSE ROTATION AND REVERSIBLE 3-PHASE MOTOR.</td>
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<tr>
<td>7. PROVIDE ALL DUMPING VALVES AND DRAIN EXHAUST VALVES AS PER CONTRACTOR.</td>
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<tr>
<td>5. PROVIDE ELECTRIC STARTER AND CONTROL PANEL.</td>
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### Diffuser and Grille Schedule

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<th>DIFFUSER AND GRILLE SCHEDULE</th>
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<tr>
<td><strong>NOTES</strong>:</td>
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**FAN SCHEDULE**

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<th>TAG NO.</th>
<th>MANUFACTURER</th>
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<th>AREA SERVED</th>
<th>TYPE</th>
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<tbody>
<tr>
<td>FCU G-2</td>
<td>MITSUBISHI</td>
<td>PKA</td>
<td>GROUND FLOOR - SW TELECOM ROOM</td>
<td>WALL MOUNT</td>
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**DX CONDENSER UNIT SCHEDULE**

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**DX SPLIT SYSTEM FAN COIL UNIT SCHEDULE**

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<td>MITSUBISHI</td>
<td>PKA</td>
<td>GROUND FLOOR - SW TELECOM ROOM</td>
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**VAV BOX WITH HOT WATER REHEAT SCHEDULE**

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<td>700 1</td>
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GENERAL NOTES

A) PROVIDE NEW DDC CONTROL SYSTEM FOR ENTIRE BUILDING. SCOPE SHALL INCLUDE DEMOLITION AND REPLACEMENT OF ALL (E) PNEUMATIC CONTROLS WITH MODERN DDC COMPONENTS. ALL EXISTING EQUIPMENT TO BE REUSED IN (N) DESIGN SHALL BE CONTROLLED & MONITORED BY (N) DDC SYSTEM. SEE SPECIFICATIONS FOR ADDITIONAL DETAILS.

B) LOCATE SENSORS 4' A.F.F. AND PROVIDE NEAT ORGANIZED MOUNTING WITH OTHER WALL SENSORS/SWITCHES.

C) COORDINATE WITH DIV 26 FOR OCCUPANCY SENSOR TIE IN TO BMS SYSTEM. DIV 26 OCCUPANCY REQUIREMENTS SHALL SERVE THE ZONE BOUNDARIES AS IDENTIFIED IN THIS SERIES. DIV 26 SHALL PROVIDE OCCUPANCY SENSORS WITH AUXILIARY CONTACT FOR TWISTED PAIR OR ADDRESS FOR BMS SOFTWARE INPUT. COORDINATE WITH DIV 26 ON BMS LANGUAGE CONVERSION AS REQUIRED TO PROVIDE COMMUNICATION OF SENSOR READINGS.

D) WHERE ROOMS HAVE MULTIPLE SENSOR FUNCTION (TEMP, CO2, HUMIDITY, ETC) THE CONTRACTOR SHALL PROVIDE A SINGLE ALL IN ONE SENSOR. REFERENCE M300 SERIES ZONING PLANS FOR ADDITIONAL SENSOR FUNCTION REQUIREMENTS.

E) REPLACE (E) DOWNSTREAM MOTORIZED DAMPERS IN DUCTWORK. LOCATIONS ARE PARTIALLY SHOWN ON DM100 SERIES.

SHEET NOTES

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GENERAL NOTES:

1. PROVIDE (1) 500 CFM EXHAUST FAN LOCATED IN THIS SPACE WITH A 12" DUCT ROUTED TO AN EXTERIOR LOUVER.
2. CONTRACTOR TO VERIFY EXISTING SIDEWALL DIFFUSER SIZE AND TYPE. PROVIDE NEW DIFFUSER TO MATCH EXISTING.
3. PROVIDE LOUVER WITH 1 SQUARE FOOT OF FREE AREA. PROVIDE INSULATED PLENUM OFF ACTIVE SECTION OF LOUVER.
4. A) ALL (N) AIR HANDLING UNITS TO HAVE CONCRETE CURBS W/ NEOPRENE PADS BETWEEN UNIT BASE AND CURB.
5. B) ALL RETURN GRILLES TO BE 22x22 NECK SIZE U.O.N.
6. C) BRANCH DUCTWORK SIZE TO MATCH DIFFUSER NECK SIZE U.O.N.
7. D) BRANCH DUCTWORK SIZE TO MATCH VAV TERMINAL UNIT NECK SIZE U.O.N.
8. E) PROVIDE BALANCE DAMPERS ON ALL (N) SUPPLY, RETURN AND EXHAUST DIFFUSERS FOR TAB REGARDLESS OF WHETHER OR NOT THEY ARE SHOWN ON THE FLOOR PLAN.
9. F) PROVIDE CONDENSATE PUMP AND 3/4" CONDENSATE DRAIN LINES OFF ALL FCU'S TO CLOSEST ACCEPTABLE DRAIN LOCATION.
10. G) NECK DOWN DUCTWORK TO MATCH TERMINAL UNIT NECK SIZE WITH 2' OF STRAIGHT DUCT BEFORE CONNECTION TO ACHIEVE LAMINAR FLOW.
11. H) REINSULATE ALL EXISTING SUPPLY DUCTWORK IN AREAS WITH CEILING DEMOLITION. REFERENCE ARCHITECTURAL RCP DEMOLITION DRAWINGS FOR SCOPE OF WORK.
12. I) ALL OVERFLOW DRAIN PANS SHALL BE 316 STAINLESS STEEL.

SHEET NOTES:

- Sheet Drawings: Provide (number) copies of each drawing.
- Scale: 1/8" = 1'-0".
- Issue Date: 2014.03.14.
- Project No.: G-51.
- Contact:
- Job. No.: 02.13.00545.
- Revision: JOSH CHECKIS.
- Package: 4.
- CIRCULATION: H045.
- REFERENCE PACKAGE 1.
GENERAL NOTES
1. Provide 50% mechanical floor area with heat and cool.
2. Replace existing grilles in kind with Titus CT with OBD's. Field verify dimensions before purchasing.
3. Pressure sensor tied with AHU G-1 VAV sequence.
4. All (N) air handling units to have concrete curbs with neoprene pads between unit base and curb.
5. All return grilles to be 22x22 neck size U.O.N.
6. Branch ductwork size to match diffuser neck size U.O.N.
7. Branch ductwork size to match VAV terminal unit neck size U.O.N.
8. Provide balance dampers on all (N) supply, return, and exhaust diffusers for TAB regardless of whether or not they are shown on the floor plan.
9. Provide condensate pump and 3/4" condensate drain lines off all FCU's to closest acceptable drain location.
10. Neck down ductwork to match terminal unit neck size with 2' of straight duct before connection to achieve laminar flow.
11. Reinsulate all existing supply ductwork in areas with ceiling demolition. Reference architectural RCP demolition drawings for scope of work.
12. All overflow drain pans shall be 316 stainless steel.

SHEET NOTES
1. This drawing is intended to show the location of each piece of ventilation equipment.
2. All (N) air handling units shall be located as shown on the floor plan.
3. All return grilles shall be located as shown on the floor plan.
4. Branch ductwork shall be located as shown on the floor plan.
5. Condensate pump and condensate drain lines shall be located as shown on the floor plan.
6. Neck down ductwork shall be located as shown on the floor plan.
7. All equipment shall be located as shown on the floor plan.
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GENERAL NOTES

1. REINSULATE AND RESEAL EXISTING DUCTWORK. COORDINATE WITH GC WHEN SOFFIT IS REPLACED.
2. A) ALL (N) AIR HANDLING UNITS TO HAVE CONCRETE CURBS W/ NEOPRENE PADS BETWEEN UNIT BASE AND CURB.
3. B) ALL RETURN GRILLES TO BE 22x22 NECK SIZE U.O.N.
4. C) BRANCH DUCTWORK SIZE TO MATCH DIFFUSER NECK SIZE U.O.N.
5. D) BRANCH DUCTWORK SIZE TO MATCH VAV TERMINAL UNIT NECK SIZE U.O.N.
6. E) PROVIDE BALANCE DAMPERS ON ALL (N) SUPPLY, RETURN AND EXHAUST DIFFUSERS FOR TAB REGARDLESS OF WHETHER OR NOT THEY ARE SHOWN ON THE FLOOR PLAN.
7. F) PROVIDE CONDENSATE PUMP AND 3/4" CONDENSATE DRAIN LINES OFF ALL FCU'S TO CLOSEST ACCEPTABLE DRAIN LOCATION.
8. G) NECK DOWN DUCTWORK TO MATCH TERMINAL UNIT NECK SIZE WITH 2' OF STRAIGHT DUCT BEFORE CONNECTION TO ACHIEVE LAMINAR FLOW.
9. H) REINSULATE ALL EXISTING SUPPLY DUCTWORK IN AREAS WITH CEILING DEMOLITION. REFERENCE ARCHITECTURAL RCP DEMOLITION DRAWINGS FOR SCOPE OF WORK.
10. I) ALL OVERFLOW DRAIN PANS SHALL BE 316 STAINLESS STEEL.

SHEET NOTES

1. COORDINATE WITH GC ON 2004.01.03 AND 2004.01.06.
LEVEL 2 FLOOR PLAN: SECTOR A - VENTILATION

GENERAL NOTES:

1. All return grilles to be 22x22 neck size U.O.N.
2. All (N) air handling units to have concrete return grille high in space. See M404 for continuation.
3. Provide condensate pump and 3/4" condensate drain lines off all FCU's to shown on the floor plan regardless of whether or not they are return and exhaust diffusers for TAB unit neck size U.O.N.
4. Reinsulate all existing supply ductwork in neck down ductwork to match terminal unit.
5. Provide balancing dampers on all (N) supply, branch ductwork size to match VAV terminal and diffuser.
6. Branch ductwork size to match diffuser and curb with neoprene pads between unit base and curb.  Achievement of laminar flow.
7. All overflow drain pans shall be 316 stainless steel.
9. Engineers for a sustainable future.
10. Project No.: 02.13.00545
11. Issue Date: 2014.03.14
12. Checked by: JOSH CHECKIS

SHEET NOTES:

1. All areas of ceiling demolition. Reference key plan.
2. All areas of mechanical equipment. See M404 for continuation.
3. Construction documents.
GENERAL NOTES

1. PROVIDE LOUVER WITH 0.6 FREE AREA. PROVIDE INSULATED PLENUM OFF BACK TO MATCH LOUVER.

2. PROVIDE (N) MOTORIZED DAMPERS & ACTUATORS AND INTEGRATE WITH AHU 4-1 CONTROL SEQUENCE.

3. PROVIDE (N) RETURN GRILLES. PAR 9x9 - 275CFM W/ OBDS

4. ALL (N) AIR HANDLING UNITS TO HAVE CONCRETE CURBS W/ NEOPRENE PADS BETWEEN UNIT BASE AND CURB.

5. RETURN GRILLES TO BE 22x22 NECK SIZE U.O.N.

6. BRANCH DUCTWORK SIZE TO MATCH DIFFUSER NECK SIZE U.O.N.

7. BRANCH DUCTWORK SIZE TO MATCH VAV TERMINAL UNIT NECK SIZE U.O.N.

8. PROVIDE BALANCE DAMPERS ON ALL (N) SUPPLY, RETURN AND EXHAUST DIFFUSERS FOR TAB REGARDLESS OF WHETHER OR NOT THEY ARE SHOWN ON THE FLOOR PLAN

9. PROVIDE CONDENSATE PUMP AND 3/4" CONDENSATE DRAIN LINES OFF ALL FCU'S TO CLOSEST ACCEPTABLE DRAIN LOCATION.

10. NECK DOWN DUCTWORK TO MATCH TERMINAL UNIT NECK SIZE WITH 2' OF STRAIGHT DUCT BEFORE CONNECTION TO ACHIEVE LAMINAR FLOW.

11. REINSULATE ALL EXISTING SUPPLY DUCTWORK IN AREAS WITH CEILING DEMOLITION. REFERENCE ARCHITECTURAL RCP DEMOLITION DRAWINGS FOR SCOPE OF WORK.

12. ALL OVERFLOW DRAIN PANS SHALL BE 316 STAINLESS STEEL
GENERAL NOTES

A) ALL (N) AIR HANDLING UNITS TO HAVE CONCRETE CURBS W/ NEOPRENE PADS BETWEEN UNIT BASE AND CURB.

B) ALL RETURN GRILLES TO BE 22x22 NECK SIZE U.O.N.

C) BRANCH DUCTWORK SIZE TO MATCH DIFFUSER NECK SIZE U.O.N.

D) BRANCH DUCTWORK SIZE TO MATCH VAV TERMINAL UNIT NECK SIZE U.O.N.

E) PROVIDE BALANCE DAMPERS ON ALL (N) SUPPLY, RETURN AND EXHAUST DIFFUSERS FOR TAB REGARDLESS OF WHETHER OR NOT THEY ARE SHOWN ON THE FLOOR PLAN.

F) PROVIDE CONDENSATE PUMP AND 3/4" CONDENSATE DRAIN LINES OFF ALL FCU'S TO CLOSEST ACCEPTABLE DRAIN LOCATION.

G) NECK DOWN DUCTWORK TO MATCH TERMINAL UNIT NECK SIZE WITH 2' OF STRAIGHT DUCT BEFORE CONNECTION TO ACHIEVE LAMINAR FLOW.

H) REINSULATE ALL EXISTING SUPPLY DUCTWORK IN AREAS WITH CEILING DEMOLITION. REFERENCE ARCHITECTURAL RCP DEMOLITION DRAWINGS FOR SCOPE OF WORK.

I) ALL OVERFLOW DRAIN PANS SHALL BE 316 STAINLESS STEEL.

SHEET NOTES

LEVEL 2 FLOOR PLAN - SECTOR D - VENTILATION
MEZZANINE LEVEL 2 FLOOR PLAN - SECTOR B - VENTILATION

GENERAL NOTES:

1. PROVIDE NEW GRILLES AS SHOWN. ROUTE DUCTWORK AS REQUIRED TO THESE (N) GRILLES. SIZE DUCTWORK AT 0.08"W.C./100' OF DUCT.

2. CONTRACTOR TO REPLACE (E) STAND ALONE EXHAUST FAN. REPLACE IN KIND AND PROVIDE LOCAL STAND ALONE CONTROL SWITCH.

3. (A) ALL (N) AIR HANDLING UNITS TO HAVE CONCRETE CURBS W/ NEOPRENE PADS BETWEEN UNIT BASE AND CURB.

4. ALL RETURN GRILLES TO BE 22x22 NECK SIZE U.O.N.

5. BRANCH DUCTWORK SIZE TO MATCH DIFFUSER NECK SIZE U.O.N.

6. BRANCH DUCTWORK SIZE TO MATCH VAV TERMINAL UNIT NECK SIZE U.O.N.

7. PROVIDE BALANCE DAMPERS ON ALL (N) SUPPLY, RETURN AND EXHAUST DIFFUSERS FOR TAB REGARDLESS OF WHETHER OR NOT THEY ARE SHOWN ON THE FLOOR PLAN.

8. PROVIDE CONDENSATE PUMP AND 3/4" CONDENSATE DRAIN LINES OFF ALL FCU'S TO CLOSEST ACCEPTABLE DRAIN LOCATION.

9. NECK DOWN DUCTWORK TO MATCH TERMINAL UNIT NECK SIZE WITH 2' OF STRAIGHT DUCT BEFORE CONNECTION TO ACHIEVE LAMINAR FLOW.

10. REINSULATE ALL EXISTING SUPPLY DUCTWORK IN AREAS WITH CEILING DEMOLITION. REFERENCE ARCHITECTURAL RCP DEMOLITION DRAWINGS FOR SCOPE OF WORK.

11. ALL OVERFLOW DRAIN PANS SHALL BE 316 STAINLESS STEEL.

SHEET NOTES:

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General Notes:

A) All (N) air handling units to have concrete curbs with neoprene pads between unit base and curbs.

B) All return grilles to be 22x22 neck size U.O.N.

C) Branch ductwork size to match diffuser neck size U.O.N.

D) Branch ductwork size to match VAV terminal unit neck size U.O.N.

E) Provide balance dampers on all (N) supply, return and exhaust diffusers for TAB regardless of whether or not they are shown on the floor plan.

F) Provide condensate pump and 3/4" condensate drain lines off all FCU's to closest acceptable drain location.

G) Neck down ductwork to match terminal unit neck size with 2' of straight duct before connection to achieve laminar flow.

H) Reinstate all existing supply ductwork in areas with ceiling demolition. Reference architectural RCP demolition drawings for scope of work.

I) All overflow drain pans shall be 316 stainless steel.

Sheet Notes:

- MEZZANINE LEVEL 2 FLOOR PLAN - SECTOR D - VENTILATION
GENERAL NOTES

A) ALL (N) AIR HANDLING UNITS TO HAVE CONCRETE CURBS W/ NEOPRENE PADS BETWEEN UNIT BASE AND CURB.

B) ALL RETURN GRILLES TO BE 22x22 NECK SIZE U.O.N.

C) BRANCH DUCTWORK SIZE TO MATCH DIFFUSER NECK SIZE U.O.N.

D) BRANCH DUCTWORK SIZE TO MATCH VAV TERMINAL UNIT NECK SIZE U.O.N.

E) PROVIDE BALANCE DAMPERS ON ALL (N) SUPPLY, RETURN AND EXHAUST DIFFUSERS FOR TAB REGARDLESS OF WHETHER OR NOT THEY ARE SHOWN ON THE FLOOR PLAN.

F) PROVIDE CONDENSATE PUMP AND 3/4" CONDENSATE DRAIN LINES OFF ALL FCU'S TO CLOSEST ACCEPTABLE DRAIN LOCATION.

G) NECK DOWN DUCTWORK TO MATCH TERMINAL UNIT NECK SIZE WITH 2' OF STRAIGHT DUCT BEFORE CONNECTION TO ACHIEVE LAMINAR FLOW.

H) REINSULATE ALL EXISTING SUPPLY DUCTWORK IN AREAS WITH CEILING DEMOLITION. REFERENCE ARCHITECTURAL RCP DEMOLITION DRAWINGS FOR SCOPE OF WORK.

I) ALL OVERFLOW DRAIN PANS SHALL BE 316 STAINLESS STEEL.
LEVEL 1 FLOOR PLAN - OVERALL - THERMAL ZONING

GENERAL NOTES

A. PROVIDE SENSORS WHERE ROOM OCCUPANCY IS MANAGED BY EXISTING HVAC CONTROLS, MONITORED BY (N) DDC SYSTEM. SEE SHEET NOTES FOR ADDITIONAL DETAILS.

B. PROVIDE SENSORS AS PER OCCUPANCY REQUIREMENTS. DIV 26 SHALL PROVIDE SENSOR TIE IN TO BMS SYSTEM TO DETERMINE ROOM OCCUPANCY. DIV 26 SHALL PROVIDE PLANS FOR ADDITIONAL SENSOR FUNCTION (TEMP, CO2, HUMIDITY, ETC) THE ON THESE PLANS.

C. COORDINATE WITH DIV 26 FOR OCCUPANCY SENSORS WITH AUXILIARY HVAC COMPONENTS. ALL EXISTING EQUIPMENT TO BE REUSED IN (N) DESIGN SHALL BE CONTROLLED & CONTACT FOR TIE IN.

D. PROVIDE NEW DDC CONTROL SYSTEM FOR ENTIRE BUILDING. SCOPE SHALL INCLUDE ORGANIZED MOUNTING POSITION NEXT TO LIGHT ASSOCIATED CONTROLS FOR THE (E) RADIANT HEATING SYSTEM IN THIS ZONE.

E. PROVIDE SENSORS WHERE ROOMS HAVE MULTIPLE SENSOR FUNCTION (TEMP, CO2, HUMIDITY, ETC) THE ON THESE PLANS.

F. PROVIDE SENSORS WHERE ROOM OCCUPANCY IS MANAGED BY EXISTING HVAC CONTROLS, MONITORED BY (N) DDC SYSTEM. SEE SHEET NOTES FOR ADDITIONAL DETAILS.

G. PROVIDE SENSORS AS PER OCCUPANCY REQUIREMENTS. DIV 26 SHALL PROVIDE SENSOR TIE IN TO BMS SYSTEM TO DETERMINE ROOM OCCUPANCY. DIV 26 SHALL PROVIDE PLANS FOR ADDITIONAL SENSOR FUNCTION (TEMP, CO2, HUMIDITY, ETC) THE ON THESE PLANS.

H. PROVIDE NEW DDC CONTROL SYSTEM FOR ENTIRE BUILDING. SCOPE SHALL INCLUDE ORGANIZED MOUNTING POSITION NEXT TO LIGHT ASSOCIATED CONTROLS FOR THE (E) RADIANT HEATING SYSTEM IN THIS ZONE.

I. PROVIDE SENSORS WHERE ROOMS HAVE MULTIPLE SENSOR FUNCTION (TEMP, CO2, HUMIDITY, ETC) THE ON THESE PLANS.

J. PROVIDE SENSORS AS PER OCCUPANCY REQUIREMENTS. DIV 26 SHALL PROVIDE SENSOR TIE IN TO BMS SYSTEM TO DETERMINE ROOM OCCUPANCY. DIV 26 SHALL PROVIDE PLANS FOR ADDITIONAL SENSOR FUNCTION (TEMP, CO2, HUMIDITY, ETC) THE ON THESE PLANS.

K. PROVIDE NEW DDC CONTROL SYSTEM FOR ENTIRE BUILDING. SCOPE SHALL INCLUDE ORGANIZED MOUNTING POSITION NEXT TO LIGHT ASSOCIATED CONTROLS FOR THE (E) RADIANT HEATING SYSTEM IN THIS ZONE.

L. PROVIDE SENSORS WHERE ROOM OCCUPANCY IS MANAGED BY EXISTING HVAC CONTROLS, MONITORED BY (N) DDC SYSTEM. SEE SHEET NOTES FOR ADDITIONAL DETAILS.

M. PROVIDE SENSORS AS PER OCCUPANCY REQUIREMENTS. DIV 26 SHALL PROVIDE SENSOR TIE IN TO BMS SYSTEM TO DETERMINE ROOM OCCUPANCY. DIV 26 SHALL PROVIDE PLANS FOR ADDITIONAL SENSOR FUNCTION (TEMP, CO2, HUMIDITY, ETC) THE ON THESE PLANS.

N. PROVIDE NEW DDC CONTROL SYSTEM FOR ENTIRE BUILDING. SCOPE SHALL INCLUDE ORGANIZED MOUNTING POSITION NEXT TO LIGHT ASSOCIATED CONTROLS FOR THE (E) RADIANT HEATING SYSTEM IN THIS ZONE.

O. PROVIDE SENSORS WHERE ROOMS HAVE MULTIPLE SENSOR FUNCTION (TEMP, CO2, HUMIDITY, ETC) THE ON THESE PLANS.

P. PROVIDE SENSORS AS PER OCCUPANCY REQUIREMENTS. DIV 26 SHALL PROVIDE SENSOR TIE IN TO BMS SYSTEM TO DETERMINE ROOM OCCUPANCY. DIV 26 SHALL PROVIDE PLANS FOR ADDITIONAL SENSOR FUNCTION (TEMP, CO2, HUMIDITY, ETC) THE ON THESE PLANS.

Q. PROVIDE NEW DDC CONTROL SYSTEM FOR ENTIRE BUILDING. SCOPE SHALL INCLUDE ORGANIZED MOUNTING POSITION NEXT TO LIGHT ASSOCIATED CONTROLS FOR THE (E) RADIANT HEATING SYSTEM IN THIS ZONE.

R. PROVIDE SENSORS WHERE ROOM OCCUPANCY IS MANAGED BY EXISTING HVAC CONTROLS, MONITORED BY (N) DDC SYSTEM. SEE SHEET NOTES FOR ADDITIONAL DETAILS.

S. PROVIDE SENSORS AS PER OCCUPANCY REQUIREMENTS. DIV 26 SHALL PROVIDE SENSOR TIE IN TO BMS SYSTEM TO DETERMINE ROOM OCCUPANCY. DIV 26 SHALL PROVIDE PLANS FOR ADDITIONAL SENSOR FUNCTION (TEMP, CO2, HUMIDITY, ETC) THE ON THESE PLANS.

T. PROVIDE NEW DDC CONTROL SYSTEM FOR ENTIRE BUILDING. SCOPE SHALL INCLUDE ORGANIZED MOUNTING POSITION NEXT TO LIGHT ASSOCIATED CONTROLS FOR THE (E) RADIANT HEATING SYSTEM IN THIS ZONE.

U. PROVIDE SENSORS WHERE ROOM OCCUPANCY IS MANAGED BY EXISTING HVAC CONTROLS, MONITORED BY (N) DDC SYSTEM. SEE SHEET NOTES FOR ADDITIONAL DETAILS.

V. PROVIDE SENSORS AS PER OCCUPANCY REQUIREMENTS. DIV 26 SHALL PROVIDE SENSOR TIE IN TO BMS SYSTEM TO DETERMINE ROOM OCCUPANCY. DIV 26 SHALL PROVIDE PLANS FOR ADDITIONAL SENSOR FUNCTION (TEMP, CO2, HUMIDITY, ETC) THE ON THESE PLANS.

W. PROVIDE NEW DDC CONTROL SYSTEM FOR ENTIRE BUILDING. SCOPE SHALL INCLUDE ORGANIZED MOUNTING POSITION NEXT TO LIGHT ASSOCIATED CONTROLS FOR THE (E) RADIANT HEATING SYSTEM IN THIS ZONE.

X. PROVIDE SENSORS WHERE ROOM OCCUPANCY IS MANAGED BY EXISTING HVAC CONTROLS, MONITORED BY (N) DDC SYSTEM. SEE SHEET NOTES FOR ADDITIONAL DETAILS.

Y. PROVIDE SENSORS AS PER OCCUPANCY REQUIREMENTS. DIV 26 SHALL PROVIDE SENSOR TIE IN TO BMS SYSTEM TO DETERMINE ROOM OCCUPANCY. DIV 26 SHALL PROVIDE PLANS FOR ADDITIONAL SENSOR FUNCTION (TEMP, CO2, HUMIDITY, ETC) THE ON THESE PLANS.

Z. PROVIDE NEW DDC CONTROL SYSTEM FOR ENTIRE BUILDING. SCOPE SHALL INCLUDE ORGANIZED MOUNTING POSITION NEXT TO LIGHT ASSOCIATED CONTROLS FOR THE (E) RADIANT HEATING SYSTEM IN THIS ZONE.
GENERAL NOTES

A) LOCATE SENSORS 4' AFF AND IN NEAT ORGANIZED MOUNTING POSITION NEXT TO LIGHT SWITCHES. LOCATIONS SHOWN SCHEMATICALLY ON THESE PLANS.

B) WHERE ROOMS HAVE MULTIPLE SENSOR FUNCTION (TEMP, CO2, HUMIDITY, ETC) THE CONTRACTOR SHALL PROVIDE A SINGLE ALL IN ONE SENSOR. REFERENCE M200 SERIES ZONING PLANS FOR ADDITIONAL SENSOR FUNCTION REQUIREMENTS.

C) COORDINATE WITH DIV 26 FOR OCCUPANCY SENSOR TIE IN TO BMS SYSTEM TO DETERMINE ROOM OCCUPANCY. DIV 26 SHALL PROVIDE OCCUPANCY SENSORS WITH AUXILIARY HVAC CONTACT FOR TIE IN.

D) PROVIDE NEW DDC CONTROL SYSTEM FOR ENTIRE BUILDING. SCOPE SHALL INCLUDE DEMOLITION AND REPLACEMENT OF ALL (E) PNEUMATIC CONTROLS WITH MODERN DDC COMPONENTS. ALL EXISTING EQUIPMENT TO BE REUSED IN (N) DESIGN SHALL BE CONTROLLED & MONITORED BY (N) DDC SYSTEM. SEE SPECIFICATIONS FOR ADDITIONAL DETAILS.

SHEET NOTES

KEY PLAN (NTS)
GENERAL NOTES

1 INTEGRATE MONITORING AND CONTROL OF (E) RTU INTO (N) BMS. SEE SPECIFICATIONS.

2 MONITOR ZONE TEMPERATURE ONLY AT BMS.

A) LOCATE SENSORS 4' AFF AND IN NEAT ORGANIZED MOUNTING POSITION NEXT TO LIGHT SWITCHES. LOCATIONS SHOWN SCHEMATICALLY ON THESE PLANS.

B) WHERE ROOMS HAVE MULTIPLE SENSOR FUNCTION (TEMP, CO2, HUMIDITY, ETC) THE CONTRACTOR SHALL PROVIDE A SINGLE ALL IN ONE SENSOR. REFERENCE M200 SERIES ZONING PLANS FOR ADDITIONAL SENSOR FUNCTION REQUIREMENTS.

C) COORDINATE WITH DIV 26 FOR OCCUPANCY SENSOR TIE IN TO BMS SYSTEM TO DETERMINE ROOM OCCUPANCY. DIV 26 SHALL PROVIDE OCCUPANCY SENSORS WITH AUXILIARY HVAC CONTACT FOR TIE IN.

D) PROVIDE NEW DDC CONTROL SYSTEM FOR ENTIRE BUILDING. SCOPE SHALL INCLUDE DEMOLITION AND REPLACEMENT OF ALL (E) PNEUMATIC CONTROLS WITH MODERN DDC COMPONENTS. ALL EXISTING EQUIPMENT TO BE REUSED IN (N) DESIGN SHALL BE CONTROLLED & MONITORED BY (N) DDC SYSTEM. SEE SPECIFICATIONS FOR ADDITIONAL DETAILS.

MEZZANINE - LEVEL 2 FLOOR PLAN - OVERALL - THERMAL ZONING

KEY PLAN (NTS)
GENERAL NOTES

1. CHILLED BEAM PIPING SHOWN SCHEMATICLY - LOCATION OF RADIANT SLAB MANIFOLD, PUMP AND MIXING STATIONS. SEE DETAIL 4/M902 FOR PEX DESIGN/LAYOUT.

2. ALL PIPING IS 3/4" UNLESS OTHERWISE NOTED.

3. PROVIDE PRESSURE INDEPENDENT CONTROL VALVE ASSEMBLY.

4. EACH ZONE SHALL GET ITS OWN VALVES AT ALL CHILLED BEAM, RADIANT HEATING, BEAM ZONE.

5. EVERY OTHER PEX TUBING ROUTED CONGESTION. MANUFACTURER TO REVIEW DETAILS. EVERY OTHER PEX TUBING ROUTED CONGESTION. MANUFACTURER TO REVIEW DETAILS.

6. MANUFACTURER TO REVIEW DETAILS. EVERY OTHER PEX TUBING ROUTED CONGESTION. MANUFACTURER TO REVIEW DETAILS.

7. DETAIL 5/M902 FOR CHILLED BEAM PIPE SIZES. WHERE ROUTING EXPOSED - PIPING INSULATION.

8. SEE M300 SERIES FOR THERMAL ZONING.

9. REQUIREMENTS. EACH ZONE SHALL GET ITS OWN VALVES AT ALL CHILLED BEAM, RADIANT HEATING, BEAM ZONE.

10. DETAIL 4/M902 FOR PEX DESIGN/LAYOUT. EVERY OTHER PEX TUBING ROUTED CONGESTION. MANUFACTURER TO REVIEW DETAILS. EVERY OTHER PEX TUBING ROUTED CONGESTION. MANUFACTURER TO REVIEW DETAILS.

11. DETAIL 5/M902 FOR CHILLED BEAM PIPE SIZES. WHERE ROUTING EXPOSED - PIPING INSULATION.

12. SEE M300 SERIES FOR THERMAL ZONING.

13. REQUIREMENTS. EACH ZONE SHALL GET ITS OWN VALVES AT ALL CHILLED BEAM, RADIANT HEATING, BEAM ZONE.

14. DETAIL 4/M902 FOR PEX DESIGN/LAYOUT. EVERY OTHER PEX TUBING ROUTED CONGESTION. MANUFACTURER TO REVIEW DETAILS. EVERY OTHER PEX TUBING ROUTED CONGESTION. MANUFACTURER TO REVIEW DETAILS.

15. DETAIL 5/M902 FOR CHILLED BEAM PIPE SIZES. WHERE ROUTING EXPOSED - PIPING INSULATION.

16. SEE M300 SERIES FOR THERMAL ZONING.

17. REQUIREMENTS. EACH ZONE SHALL GET ITS OWN VALVES AT ALL CHILLED BEAM, RADIANT HEATING, BEAM ZONE.

18. DETAIL 4/M902 FOR PEX DESIGN/LAYOUT. EVERY OTHER PEX TUBING ROUTED CONGESTION. MANUFACTURER TO REVIEW DETAILS. EVERY OTHER PEX TUBING ROUTED CONGESTION. MANUFACTURER TO REVIEW DETAILS.

19. DETAIL 5/M902 FOR CHILLED BEAM PIPE SIZES. WHERE ROUTING EXPOSED - PIPING INSULATION.

20. SEE M300 SERIES FOR THERMAL ZONING.

21. REQUIREMENTS. EACH ZONE SHALL GET ITS OWN VALVES AT ALL CHILLED BEAM, RADIANT HEATING, BEAM ZONE.

22. DETAIL 4/M902 FOR PEX DESIGN/LAYOUT. EVERY OTHER PEX TUBING ROUTED CONGESTION. MANUFACTURER TO REVIEW DETAILS. EVERY OTHER PEX TUBING ROUTED CONGESTION. MANUFACTURER TO REVIEW DETAILS.

23. DETAIL 5/M902 FOR CHILLED BEAM PIPE SIZES. WHERE ROUTING EXPOSED - PIPING INSULATION.

24. SEE M300 SERIES FOR THERMAL ZONING.

25. REQUIREMENTS. EACH ZONE SHALL GET ITS OWN VALVES AT ALL CHILLED BEAM, RADIANT HEATING, BEAM ZONE.

26. DETAIL 4/M902 FOR PEX DESIGN/LAYOUT. EVERY OTHER PEX TUBING ROUTED CONGESTION. MANUFACTURER TO REVIEW DETAILS. EVERY OTHER PEX TUBING ROUTED CONGESTION. MANUFACTURER TO REVIEW DETAILS.

27. DETAIL 5/M902 FOR CHILLED BEAM PIPE SIZES. WHERE ROUTING EXPOSED - PIPING INSULATION.

28. SEE M300 SERIES FOR THERMAL ZONING.

29. REQUIREMENTS. EACH ZONE SHALL GET ITS OWN VALVES AT ALL CHILLED BEAM, RADIANT HEATING, BEAM ZONE.

30. DETAIL 4/M902 FOR PEX DESIGN/LAYOUT. EVERY OTHER PEX TUBING ROUTED CONGESTION. MANUFACTURER TO REVIEW DETAILS. EVERY OTHER PEX TUBING ROUTED CONGESTION. MANUFACTURER TO REVIEW DETAILS.
GENERAL NOTES

1. TERMINAL UNIT LOCATED VERTICALLY IN RISER. PROVIDE ACCESS PANEL IN SHAFT.

2. CHILLED BEAM PIPING SHOWN SCHEMATICALLY - ZONES SHALL BE PIPED REVERSE RETURN. SEE DETAILS FOR PIPING INTENT TO EACH CHILLED BEAM ZONE.

3. PROVIDE PRESSURE INDEPENDENT CONTROL VALVES AT ALL CHILLED BEAM, RADIANT HEATING, AND TERMINAL UNIT REHEAT ZONES.

4. ALL PIPING IS 3/4" UNLESS OTHERWISE NOTED.

5. SEE DETAILS AND HYDRONIC RISERS FOR ADDITIONAL INFORMATION.

6. SEE M300 SERIES FOR THERMAL ZONING REQUIREMENTS. EACH ZONE SHALL GET ITS OWN CONTROL VALVE ASSEMBLY.

7. WHERE ROUTING EXPOSED - PIPING INSULATION SHALL BE BLACK.

8. SEE DETAIL 5/M902 FOR CHILLED BEAM PIPE SIZES.
GENERAL NOTES
A CHILLED BEAM PIPING SHOWN SCHEMATICALLY - ZONES SHALL BE PIPED REVERSE RETURN. SEE DETAILS FOR PIPING INTENT TO EACH CHILLED BEAM ZONE.
B PROVIDE PRESSURE INDEPENDENT CONTROL VALVES AT ALL CHILLED BEAM, RADIANT HEATING, AND TERMINAL UNIT REHEAT ZONES.
C ALL PIPING IS 3/4" UNLESS OTHERWISE NOTED.
D SEE DETAILS AND HYDRONIC RISERS FOR ADDITIONAL INFORMATION.
E SEE M300 SERIES FOR THERMAL ZONING REQUIREMENTS. EACH ZONE SHALL GET ITS OWN CONTROL VALVE ASSEMBLY.
F WHERE ROUTING EXPOSED - PIPING INSULATION SHALL BE BLACK.
G SEE DETAIL 5/M902 FOR CHILLED BEAM PIPE SIZES.

SHEET NOTES
GENERAL NOTES

A CHILLED BEAM PIPING SHOWN SCHEMATICALLY - ZONES SHALL BE PIPED REVERSE RETURN. SEE DETAILS FOR PIPING INTENT TO EACH CHILLED BEAM ZONE.

B PROVIDE PRESSURE INDEPENDENT CONTROL VALVES AT ALL CHILLED BEAM, RADIANT HEATING, AND TERMINAL UNIT REHEAT ZONES.

C ALL PIPING IS 3/4" UNLESS OTHERWISE NOTED.

D SEE DETAILS AND HYDRONIC RISERS FOR ADDITIONAL INFORMATION.

E SEE M300 SERIES FOR THERMAL ZONING REQUIREMENTS. EACH ZONE SHALL GET ITS OWN CONTROL VALVE ASSEMBLY.

F WHERE ROUTING EXPOSED - PIPING INSULATION SHALL BE BLACK.

G SEE DETAIL 5/M902 FOR CHILLED BEAM PIPE SIZES.

SHEET NOTES

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GENERAL NOTES
A Provide flexible pipe across seismic joint.
B CHilled beam piping shown schematically - zones shall be piped reverse return. See details for piping intent to each chilled beam zone.
C Provide pressure independent control valves at all chilled beam, radiant heating, and terminal unit reheat zones.
D All piping is 3/4" unless otherwise noted.
E See M300 series for thermal zoning requirements. Each zone shall get its own control valve assembly.
F Where routing exposed - piping insulation shall be black.
G See detail 5/M902 for chilled beam pipe sizes.

LEVEL 1 FLOOR PLAN - SECTOR C - HYDRONIC
GENERAL NOTES

A CHILLED BEAM PIPING SHOWN SCHEMATICALLY - ZONES SHALL BE PIPED REVERSE RETURN. SEE DETAILS FOR PIPING INTENT TO EACH CHILLED BEAM ZONE.

B PROVIDE PRESSURE INDEPENDENT CONTROL VALVES AT ALL CHILLED BEAM, RADIANT HEATING, AND TERMINAL UNIT REHEAT ZONES.

C ALL PIPING IS 3/4" UNLESS OTHERWISE NOTED.

D SEE DETAILS AND HYDRONIC RISERS FOR ADDITIONAL INFORMATION.

E SEE M300 SERIES FOR THERMAL ZONING REQUIREMENTS. EACH ZONE SHALL GET ITS OWN CONTROL VALVE ASSEMBLY.

F WHERE ROUTING EXPOSED - PIPING INSULATION SHALL BE BLACK.

G SEE DETAIL 5/M902 FOR CHILLED BEAM PIPE SIZES.

MEZZANINE LEVEL 1 FLOOR PLAN - SECTOR B - HYDRONIC
GENERAL NOTES

A CHILLED BEAM PIPING SHOWN SCHEMATICLY - ZONES SHALL BE PIPED REVERSE RETURN. SEE DETAILS FOR PIPING INTENT TO EACH CHILLED BEAM ZONE.

B PROVIDE PRESSURE INDEPENDENT CONTROL VALVES AT ALL CHILLED BEAM, RADIANT HEATING, AND TERMINAL UNIT REHEAT ZONES

C ALL PIPING IS 3/4" UNLESS OTHERWISE NOTED

D SEE DETAILS AND HYDRONIC RISERS FOR ADDITIONAL INFORMATION

E SEE M300 SERIES FOR THERMAL ZONING REQUIREMENTS. EACH ZONE SHALL GET ITS OWN CONTROL VALVE ASSEMBLY.

F WHERE ROUTING EXPOSED - PIPING INSULATION SHALL BE BLACK.

G SEE DETAIL 5/M902 FOR CHILLED BEAM PIPE SIZES.
GENERAL NOTES

A CHILLED BEAM PIPING SHOWN SCHEMATICLY - ZONES SHALL BE PIPED REVERSE RETURN. SEE DETAILS FOR PIPING INTENT TO EACH CHILLED BEAM ZONE.

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G SEE DETAIL 5/M902 FOR CHILLED BEAM PIPE SIZES.

KEY PLAN (NTS)
GENERAL NOTES

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F WHERE ROUTING EXPOSED - PIPING INSULATION SHALL BE BLACK.

G SEE DETAIL 5/M902 FOR CHILLED BEAM PIPE SIZES.

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GENERAL NOTES

A CHILLED BEAM PIPING SHOWN SCHEMATICALLY - ZONES SHALL BE PIPED REVERSE RETURN. SEE DETAILS FOR PIPING INTENT TO EACH CHILLED BEAM ZONE.

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F WHERE ROUTING EXPOSED - PIPING INSULATION SHALL BE BLACK.

G SEE DETAIL 5/M902 FOR CHILLED BEAM PIPE SIZES.

1 PROVIDE OSA INTAKE HOOD W/ OSA MONITORING STATION.

SHEET NOTES
1. PROVIDE (N) VFD AND ALL ASSOCIATE CONTROLS TO CONVERT THIS UNIT TO VAV.

GENERAL NOTES:
- PROVIDE INSULATED SHEETMETAL PLENUMS OFF LOUVERS. SIZE SHALL MATCH ACTIVE LOUVER SECTION AND SHALL BE 18" DEEP UNLESS NOTED OTHERWISE.
- STRUCTURAL TO PROVIDE 6" TALL CONCRETE CURBS UNDER AHUS. MC TO LAY NEOPRENE PADS BETWEEN CONCRETE & AHU BASE.
- ROUTE CHILLED WATER & HEATING WATER PIPING TO AHU & REHEAT COILS AS REQUIRED. SEE DETAILS.

SHEET NOTES:
- A REFERENCE HYDRONIC RISER DIAGRAM FOR BUILDING PIPING DISTRIBUTION AND SIZES
- B REFERENCE AIRSIDE RISER DIAGRAM FOR BUILDING DUCTWORK DISTRIBUTION AND SIZES
- C LAYOUT IS SCHEMATIC IN NATURE. EQUIPMENT SHALL BE INSTALLED TO PROVIDE ADEQUATE MAINTENANCE AND ELECTRICAL CLEARANCES
- D PROVIDE ENLARGED PLANS - MECHANICAL

LOWER LEVEL - BAT CAVE MECHANICAL ROOM

LOWER LEVEL - NORTH MECHANICAL ROOM
1. Route to inline exhaust fan and to exterior louver on north side of penthouse.
2. Provide 5' sound trap in AHU 3-1 supply & return ductwork.
3. CHWS/R & HWS/R to AHU coils.

A. Reference hydronic riser diagram for building piping distribution and sizes.
B. Reference airside riser diagram for building ductwork distribution and sizes.

C. Layout is schematic in nature. Equipment shall be installed to provide adequate maintenance and electrical clearances.

D. Provide insulated sheetmetal plenums off louvers. Size shall match active louver section and shall be 18" deep unless noted otherwise.

E. Structural to provide 6" tall concrete curbs under AHUs. MC to lay neoprene pads between concrete & AHU base.

F. Route chilled water & heating water piping to AHU & reheat coils as required. See details.
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ERB MEMORIAL UNION - RENOVATION & ADDITION
PACKAGE 4

50% CONSTRUCTION DOCUMENTS

TYPICAL DOAS SUPPLY SECTION
SECTION VIEW

TYPICAL DOAS EXHAUST SECTION
SECTION VIEW

TYPICAL DOAS LAYOUT
PLAN VIEW

TYPICAL DOAS SUPPLY SECTION
SECTION VIEW

TYPICAL AHU PLAN VIEW

TYPICAL AHU SECTION VIEW

TYPICAL AHU SECTION VIEW
1. CONVECTORS SHALL BE CONTROLLED BY HYDRONIC CONTROL VALVE WITH T-STAT.

2. PROVIDE ISOLATION VALVES TO EACH ROW OF BEAMS.

3. FLEXIBLE CONNECTIONS TO BEAMS IS ACCEPTABLE.

4. PROVIDE SPRING ACTUATED VALVES.

5. LOCATE SLAB TEMPERATURE SENSORS AT MIDPOINTS OF PIPING CIRCUITS TO SENSE AVERAGE TEMPERATURES.

6. PROVIDE MINIMUM THREE FLEXIBLE MECHANICAL COUPLINGS ON EACH SIDE.

NOTES:

1. INSULATE ALL FITTINGS, VALVES, STRAINER, CHECK VALVE, PIPE AND PUMP IMPPELLER. EXTEND MEASUREMENT PORTS TO EXTERIOR OF INSULATION.

2. REMOVE FINE MESH STRAINER PRIOR TO FINAL WATER BALANCE.

3. PROVIDE MINIMUM THREE FLEXIBLE MECHANICAL COUPLINGS ON EACH SIDE.

4. STAPLE TUBING TO RIGID INSULATION WITH TUBING MANUFACTURER'S RECOMMENDED STAPLE.

5. PROVIDE SPRING ACTUATED VALVES.

1. PROVIDE ONE SUPPLY AND RETURN CONNECTION PER FLOOR CIRCUIT.

2. THIS DETAIL INDICATES GENERAL FLOOR CONSTRUCTION INFORMATION ONLY. REFER TO OTHER DIVISIONS FOR EXACT SPECIFICATIONS AND DRAWINGS OF FLOOR CONSTRUCTION.

3. COORDINATE RADIANT FLOOR PIPING WITH ELECTRICAL FLOOR BOXES AND DUCT PENETRATIONS.

4. STAPLE TUBING TO RIGID INSULATION WITH TUBING MANUFACTURER'S RECOMMENDED STAPLE.

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5. LOCATE SLAB TEMPERATURE SENSORS AT MIDPOINTS OF PIPING CIRCUITS TO SENSE AVERAGE TEMPERATURES.

6. PROVIDE MINIMUM THREE FLEXIBLE MECHANICAL COUPLINGS ON EACH SIDE.
1. ATTACH SUREBOARD TO INSIDE OF ROOF CURB FOR STRUCTURAL INTEGRITY.

2. IF PENETRATION MUST BE FIRE RATED, THE PACKING & SEALING MATERIALS & SYSTEM OF
   COORDINATE ROOF OPENING BLOCKING, CURBING, CANT STRIP & FLASHING WITH ROOFING
   CONTRACTOR IN THE PRESENCE OF AN AUTHORIZED REPRESENTATIVE OF THE BUILDING
   DEVICES REQUIRED TO PERFORM THE TESTS. TESTS SHALL BE CONDUCTED BY THE
   SPECIFIED. THE CONTRACTOR SHALL FURNISH THE NECESSARY TEST EQUIPMENT AND
   SHALL BE REQUIRED TO VERIFY THE RATE OF AIRFLOW AND PROPER OPERATION AS
   SYSTEM SERVING COMMERCIAL FOOD HEAT-PROCESSING EQUIPMENT, A PERFORMANCE TEST
   UPON COMPLETION AND BEFORE FINAL APPORVAL OF THE INSTALLATION OF A VENTILATION
   BETWEEN THE LIP OF THE HOOD AND THE COOKING SURFACE SHALL NOT EXCEED 4 FEET.

3. SEAL AS REQUIRED TO MAKE ALL JOINTS AND PENETRATIONS WATERTIGHT.

4. SUPPLEMENTAL WIND BRACING MAY BE REQUIRED, COORDINATE WITH STRUCTURAL ENGINEER.

5. GREASE DUCT SYSTEMS SERVING A TYPE 1 HOOD SHALL BE DESIGNED AND INSTALLED IN A
   MANNER TO PROVIDE AN AIR VELOCITY WITHIN THE DUCT SYSTEM OF NOT LESS THAN 1,500
   SHAFT OF ENCLOSURE. ACCESS OPENINGS WITHIN THE SHAFT OR ENCLOSURE SHALL BE
   IN TYPES I AND II FIRE RESISTIVE BUILDINGS. THE DUCT ENCLOSURE SHALL BE SEALED
   FOR ALL DUCTS SHALL PASS THROUGH ANY CONSTRUCTION WHICH WOULD REQUIRE THE OPENING
   CONSTRUCTION IN ALL BUILDINGS AND SHALL BE OF TWO-HOUR FIRE-RESISTIVE CONSTRUCTION
   IN TYPES I AND II FIRE RESISTIVE BUILDINGS. THE DUCT ENCLOSURE SHALL BE SEALED
   INTO THE POINT OF CEILING PENETRATION TO THE TOP OF THE HOOD ENCLOSURE.

6. THE DUCT SYSTEM SHALL:

   1. THE ENTIRE INSTALLATION SHALL BE IN ACCORDANCE WITH IMC SECTION 506.
   2. ALL EDGES SHALL BE ROLLED AND TURNED DOWN, SHARP EDGES WILL NOT
      BE ACCEPTED.
   3. SEAL AS REQUIRED TO MAKE ALL JOINTS AND PENETRATIONS WATERTIGHT.
   4. WHEN CLEANOUTS OR ACCESS OPENINGS ARE LOCATED IN DUCTS WITHIN A FREE-RESISTIVE
      SPACE, THE ENCLOSURE OR FIRE RATED DUCT, OR AT LEAST 6 INCH ON ALL
      OPEN SIDES.
   5. WHEN CLEANOUTS OR ACCESS OPENINGS ARE LOCATED IN DUCTS WITHIN A FREE-RESISTIVE
      SPACE, THE ENCLOSURE OR FIRE RATED DUCT, OR AT LEAST 6 INCH ON ALL
      OPEN SIDES.
   6. THE DUCT SYSTEM SHALL HAVE AN ENCLOSURE FROM THE POINT OF CEILING PENETRATION TO
      THE TOP OF THE HOOD ENCLOSURE.
   7. EXPOSED GREASE DUCT SYSTEMS SERVING A TYPE 1 HOOD SHALL HAVE A CLEARANCE
      FROM HOOD BY FOOD SERVICE CONTRACTOR, DUCTWORK BY MC.
   8. WHEN CLEANOUTS OR ACCESS OPENINGS ARE LOCATED IN DUCTS WITHIN A FREE-RESISTIVE
      SPACE, THE ENCLOSURE OR FIRE RATED DUCT, OR AT LEAST 6 INCH ON ALL
      OPEN SIDES.

7. EXPOSED GREASE DUCT SYSTEMS SERVING A TYPE 1 HOOD SHALL HAVE A CLEARANCE
   FROM THE UNPROTECTED COMBUSTIBLE CONSTRUCTION OF AT LEAST 18 INCHES. THIS
   CLEARANCE MAY BE REDUCED TO NOT LESS THAN 3 INCHES, PROVIDED THE COMBUSTIBLE
   CONSTRUCTION IS PROTECTED WITH MATERIAL REQUIRED FOR ONE-HOUR FIRE-RESISTIVE
   CONSTRUCTION.

8. THE DUCT SYSTEM SHALL HAVE AN ENCLOSURE FROM THE POINT OF CEILING PENETRATION TO
   THE TOP OF THE HOOD ENCLOSURE.

9. THE DUCT SYSTEM SHALL HAVE AN ENCLOSURE FROM THE POINT OF CEILING PENETRATION TO
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