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# CONCORD TOWNSHIP FIRE STATION #2

## DESIGN DEVELOPMENT

## CONCORD TOWNSHIP FIRE DEPARTMENT

**10154 PROUTY RD**
**CONCORD TWP, OH 44077**

## LEMAY ERICKSON WILLCOX ARCHITECTS

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GENERAL
- G0.01 COVER SHEET
- G0.02 ADA STANDARDS SHEET
- G0.03 STANDARDS SHEET
- G0.04 CODE REVIEW EGRESS PLAN

CIVIL
- C0.01 TOPOGRAPHIC & BOUNDARY SURVEY
- C1.01 DEMO SITE PLAN
- C2.01 SITE PLAN
- C3.01 GRADING PLAN
- C4.01 UTILITY PLAN
- C5.01 SITE DETAILS
- L1.01 PLANTING & SEEDING PLAN

ARCHITECTURAL
- A0.01 DOOR SCHEDULE - DETAILS
- A0.02 DOOR DETAILS
- A0.04 WALL TYPES
- A0.05 FINISH SCHEDULE
- A1.07 UL DETAILS
- A2.01 ARCHITECTURAL SITE PLAN
- A3.01 FIRST AND MEZZANINE FLOOR PLANS
- A3.02 REFLECTED CEILING PLANS
- A4.01 ROOF PLAN
- A5.01 BUILDING ELEVATIONS
- A5.02 BUILDING SECTIONS
- A5.03 WALL SECTIONS
- A8.01 ENLARGED PLANS
- A8.02 STORM SHELTER
- A8.03 APPARATUS BAY ELEVATIONS

STRUCTURAL
- S0.01 GENERAL NOTES
- S1.01 FOUNDATION PLAN
- S1.02 ROOF AND MEZZANINE PLAN
- S3.01 FOUNDATION PLAN
- S3.02 FRAMING SECTIONS
- S3.03 FOUNDATION DETAILS
- S3.04 MASONRY DETAILS
- S3.05 STEEL DETAILS

MECHANICAL
- M0.01 GENERAL INFO - HVAC
- M1.01 FIRST FLOOR - HVAC DUCTWORK PLAN
- M1.02 FIRST FLOOR - HVAC PIPING PLAN
- M1.03 MEZZANINE MECHANICAL PLAN
- M1.04 MECHANICAL ROOF PLAN
- M5.01 MECHANICAL DETAILS
- M5.02 MECHANICAL DETAILS
- M5.03 MECHANICAL DETAILS
- M6.01 MECHANICAL SCHEDULES

PLUMBING
- P0.01 PLUMBING GENERAL NOTES AND SCHEDULES
- P1.00 UNDERSLAB PLUMBING PLAN
- P1.01 FIRST FLOOR - PLUMBING PLAN
- P1.02 MEZZANINE PLUMBING PLAN
- P1.03 PLUMBING ROOF PLAN
- P5.01 PLUMBING DETAILS

ELECTRICAL
- E0.01 ELECTRICAL SYMBOLS AND ABBREVIATIONS
- E1.01 ELECTRICAL SITE PLAN
- E1.02 ELECTRICAL SITE SECTION AND DETAILS
- E2.01 FIRST FLOOR AND MEZZANINE LIGHITING PLANS
- E3.01 FIRST FLOOR AND MEZZANINE POWER PLANS
- E3.02 ROOF POWER PLAN
- E4.01 FIRST FLOOR AND MEZZANINE FIRE ALARM PLANS
- E5.01 LUMINAIRE SCHEDULES
- E6.01 ONE-LINE DIAGRAM

TECHNOLOGY
- T0.01 TECHNOLOGY SYMBOLS AND ABBREVIATIONS
- T1.01 FIRST FLOOR TECHNOLOGY & SECURITY PLAN
- T1.02 MEZZANINE TECHNOLOGY & SECURITY PLAN

FIRE PROTECTION
- FP0.01 GENERAL INFO - FIRE PROTECTION
- FP1.01 FIRST FLOOR - FIRE PROTECTION PLAN
- FP1.02 MEZZANINE FIRE PROTECTION PLAN

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SEAL

DATE OF RECORD

COVER SHEET

G0.01

PROJECT NO. LEWA-21820

# MECHANICAL ABBREVIATIONS

**NOTE: NOT ALL ABBREVIATIONS MAY BE USED.**

| ABBREVIATION | DESCRIPTION |
|---|---|
| (D) | EXISTING TO BE DEMOLISHED |
| (E) | EXISTING TO REMAIN |
| (F) | FUTURE |
| AFF | ABOVE FINISHED FLOOR |
| AMB | AMBIENT |
| APD | AIR PRESSURE DROP |
| BAS | BUILDING AUTOMATION SYSTEM |
| BFP | BACKFLOW PREVENTOR |
| BHP | BRAKE HORSEPOWER |
| BLDG | BUILDING |
| BOB | BOTTOM OF BEAM |
| BOD | BOTTOM OF DUCT |
| BOP | BOTTOM OF PIPE |
| BOS | BOTTOM OF STRUCTURE |
| BTUH | BRITISH TEHRMAL UNITS PER HOUR |
| CFM | CUBIC FEET PER MINUTE |
| CL | CENTER LINE |
| CO | CLEAN OUT |
| COMPR | COMPRESSOR |
| COP | COEFFICIENT OF PERFORMANCE |
| CV | CONSTANT VOLUME |
| DB | DRY BULB |
| DIA | DIAMETER |
| DN | DOWN |
| EAT | ENTERING AIR TEMPERATURE |
| EER | ENERGY EFFICIENCY RATIO |
| EFF | EFFICIENCY |
| EG | ETHYLENE GLYCOL |
| ESP | EXTERNAL STATIC PRESSURE |
| EWT | ENTERING WATER TEMPERATURE |
| FLA | FULL LOAD AMPS |
| FPI | FINS PER INCH |
| FPM | FEET PER MINUTE |
| FPS | FEET PER SECOND |
| FT | FEET |
| GAL | GALLONS |
| GPM | GALLONS PER MINUTE |
| HD | HEAD |
| HP | HORSEPOWER |
| ID | INNER DIAMETER |
| IPLV | INTEGRATED PART LOAD VALUE |
| KW | KILOWATTS |
| LAT | LEAVING AIR TEMPERATURE |
| LWT | LEAVING WATER TEMPERATURE |
| MBH | THOUSAND BTUH |
| MCA | MAXIMUM CURRENT AMPACITY |
| MFR | MANUFACTURER |
| MOCP | MAXIMUM OVERCURRENT PROTECTION |
| N/A | NOT APPLICABLE |
| NC | NORMALLY CLOSED |
| NO | NORMALLY OPEN |
| NOX | NITROUS OXIDE |
| NPLV | NON-STANDARD PART LOAD VALUE |
| NPSH | NET POSITIVE SUCTION HEAD |
| NTS | NOT TO SCALE |
| OD | OUTSIDE DIAMETER |
| PD | PRESSURE DROP |
| PG | PROPYLENE GLYCOL |
| PPH | POUNDS PER HOUR |
| PPM | PARTS PER MILLION |
| PRV | PRESSURE REDUCING VALVE |
| PSI | PUNDS PER SQUARE INCH |
| REFRIG | REFRIGERANT |
| RH | RELATIVE HUMIDITY |
| RPM | REVOLUTIONS PER MINUTE |
| SEER | SEASONAL ENERGY EFFICIENCY RATIO |
| SP | STATIC PRESSURE |
| TSP | TOTAL STATIC PRESSURE |
| TYP | TYPICAL |
| UNO | UNLESS NOTED OTHERWISE |
| VAV | VARIABLE AIR VOLUME |
| VFD | VARIABLE FREQUENCY DRIVE |
| VRF | VARIABLE REFRIGERANT FLOW |
| W | WATTS |
| WB | WET BULB |
| WG | WATER GAUGE |
| WPD | WATER PRESSURE DROP |

# MECHANICAL SYSTEM TYPES AND ABBREVIATIONS

**NOTE: NOT ALL ABBREVIATIONS MAY BE USED.**

| ABBREVIATION | DESCRIPTION |
|---|---|
| CHR | CHILLED WATER RETURN |
| CHS | CHILLED WATER SUPPLY |
| CWR | CONDENSER WATER RETURN |
| CWS | CONDENSER WATER SUPPLY |
| D | DRAIN |
| EA | EXHAUST AIR |
| GR | GEOTHERMAL RETURN |
| GS | GEOTHERMAL SUPPLY |
| HR | HEAT PUMP RETURN |
| HS | HEAT PUMP SUPPLY |
| HWR | HEATING HOT WATER RETURN |
| HWS | HEATING HOT WATER SUPPLY |
| MW | MAKEUP WATER - GENERIC |
| OA | OUTDOOR AIR |
| PC | PUMPED CONDENSATE |
| R | REFRIGERANT |
| RA | RETURN AIR |
| REL | RELIEF AIR |
| SA | SUPPLY AIR |
| V | VENT |

# MECHANICAL STEAM SYSTEM TYPES AND ABBREVIATIONS

**NOTE: NOT ALL ABBREVIATIONS MAY BE USED.**

| ABBREVIATION | DESCRIPTION |
|---|---|
| BBD | STEAM BOILER BOTTOM BLOWDOWN |
| BD | STEAM BOILER BLOWDOWN |
| BFW | STEAM BOILER FEEDWATER |
| CBD | STEAM BOILER CONTINUOUS BLOWDOWN |
| CF | CHEMICAL FEED |
| CLPS(PSI) | CLEAN LOW PRESSURE STEAM (PSI) |
| HPC | HIGH PRESSURE STEAM CONDENSATE |
| HPS(PSI) | HIGH PRESSURE STEAM (PSI) = 60 PSI AND ABOVE |
| LPC | LOW PRESSURE STEAM CONDENSATE |
| LPS(PSI) | LOW PRESSURE STEAM (PSI) = 15PSI AND BELOW |
| MPC | MEDIUM PRESSURE STEAM CONDENSATE |
| MPS(PSI) | MEDIUM PRESSURE STEAM (PSI) = 16 PSI - 59 PSI |
| PSC | PUMPED STEAM CONDENSATE |
| SV | STEAM VENT |
| VSC | VACUUM STEAM CONDENSATE |

# MECHANICAL SYMBOLS LIST

**NOTE: NOT ALL SYMBOLS MAY BE USED.**

| SYMBOL | DESCRIPTION |
|---|---|
| 1 | KEYNOTE (SEE LEGEND ON SHEET) |
| | AIRFLOW ARROW |
| | FLOW ARROW |
| | CONNECT TO EXISTING |
| | END OF DEMOLITION |
| | PIPE CAPPED |
| | PIPE DROP |
| | PIPE RISE |
| | PIPE TEE DOWN |
| | PIPE REDUCER |
| | PIPE UNION |
| | PIPE GUIDES OR SLEEVES |
| | PIPE ANCHOR |
| | FLEXIBLE PIPE CONNECTION |
| | GENERAL SERVICE VALVE (SEE SPECIFICATIONS FOR VALVE TYPE PER APPLICATION) |
| | CHECK VALVE (ARROW INDICATES DIRECTION OF FLOW) |
| | MANUAL BALANCING VALVE |
| | AUTOMATIC BALANCING VALVE |
| | TWO-WAY CONTROL VALVE |
| | THREE-WAY CONTROL VALVE |
| PICBV | TWO-WAY PRESSURE INDEPENDENT CONTROL AND BALANCE VALVE |
| | PRESSURE REDUCING VALVE |
| | STEAM PRESSURE REGULATING VALVE |
| | RELIEF VALVE |
| | DRAIN VALVE WITH THREADED HOSE CONNECTION |
| | REDUCED PRESSURE BACKFLOW PREVENTER |
| | PRESSURE GAUGE WITH STOPCOCK |
| | STRAINER WITH BLOW DOWN VALVE |
| AV | AUTOMATIC AIR VENT |
| MAV | MANUAL AIR VENT |
| | TEMPERATURE/PRESSURE TEST PLUG (PETE'S PLUG) |
| | STEAM TRAP |
| CO CO | CLEAN OUT |
| | FLOW METER |
| | THERMOMETER |
| | PITCH DOWN IN DIRECTION OF ARROW |
| H | HUMIDISTAT WITH ADJUSTABLE CONTROL |
| T | THERMOSTAT WITH ADJUSTABLE CONTROL |
| H | HUMIDITY SENSOR |
| T | TEMPERATURE SENSOR |
| CO2 | CARBON DIOXIDE SENSOR |
| CO | CARBON MONOXIDE SENSOR |
| NO2 | NITROGEN DIOXIDE SENSOR |
| OS | OCCUPANCY SENSOR |

# MECHANICAL SYMBOLS LIST CONT.

**NOTE: NOT ALL SYMBOLS MAY BE USED.**

| SYMBOL | DESCRIPTION |
|---|---|
| | SUPPLY DIFFUSER WITH FLEXIBLE DUCT<br>TAG - NECK SIZE / AIRFLOW (CFM) — TAG EXAMPLE: S1-6ø / 100 |
| | SUPPLY DIFFUSER<br>TAG - NECK SIZE / AIRFLOW (CFM) — TAG EXAMPLE: S1-6ø / 100 |
| | RETURN/EXHAUST GRILLE — R1 / 500<br>TAG / AIRFLOW (CFM) — TAG EXAMPLE: E1 / 500 |
| | SIDEWALL SUPPLY DIFFUSER<br>TAG - NECK SIZE / AIRFLOW (CFM) — TAG EXAMPLE: S2-12x8 / 100 |
| | SIDEWALL RETURN/EXHAUST GRILLE — R2 / 100<br>TAG / AIRFLOW (CFM) — TAG EXAMPLE: E2 / 100 |
| BDD | DAMPERS/DUCT ACCESSORIES<br>BDD: BACKDRAFT DAMPER<br>FSD: FIRE/SMOKE DAMPER<br>FD: FIRE DAMPER<br>MD: MOTORIZED DAMPER<br>SD: SMOKE DAMPER<br>VD: VOLUME DAMPER<br>SB: SECURITY BARS |
| | SUPPLY AND OUTDOOR AIR<br>RECTANGULAR DUCT ELBOW UP<br>OVAL DUCT ELBOW UP<br>ROUND DUCT ELBOW UP |
| | RETURN, RELIEF, AND EXHAUST AIR<br>RECTANGULAR DUCT ELBOW UP<br>OVAL DUCT ELBOW UP<br>ROUND DUCT ELBOW UP |
| | SUPPLY AND OUTDOOR AIR<br>RECTANGULAR DUCT ELBOW DOWN<br>OVAL DUCT ELBOW DOWN<br>ROUND DUCT ELBOW DOWN |
| | RETURN, RELIEF, AND EXHAUST AIR<br>RECTANGULAR DUCT ELBOW DOWN<br>OVAL DUCT ELBOW DOWN<br>ROUND DUCT ELBOW DOWN |
| | NEW WORK DUCTWORK |
| | EXISTING DUCTWORK |
| | DEMOLITION DUCTWORK |
| | NEW WORK PIPING |
| | EXISTING PIPING |
| | DEMOLISHED PIPING |
| | NEW WORK MECHANICAL EQUIPMENT (WITH CLEARANCE SHOWN) |
| | EXISTING MECHANICAL EQUIPMENT |
| | DEMOLISHED MECHANICAL EQUIPMENT |
| | GENERIC FAN |
| | GENERIC PUMP |
| | ACCESS DOOR |
| | TERMINAL BOXES<br>VAV TERMINAL BOX (WITH REHEAT)<br>VAV TERMINAL BOX (NO REHEAT) |
| | TERMINAL BOX NOTES<br>1. IF MIN COOLING CFM IS NOT SHOWN ON PLANS, THEN MIN COOLING CFM IS EQUAL TO 65% OF MAX COOLING CFM.<br>2. HEATING CFM IS EQUAL TO MIN COOLING CFM. |
| | DUCTWORK PLANS<br>TAG / MAX COOLING CFM / MIN COOLING CFM |
| | PIPING PLANS<br>TAG / GPM |
| | TAG EXAMPLES: DUCTWORK PLANS: TB1 500/200; TB1 500 — PIPING PLANS: TB1 0.5 |

# MECHANICAL CONTROLS SYMBOLS LIST

**NOTE: NOT ALL SYMBOLS MAY BE USED.**

| SYMBOL | DESCRIPTION |
|---|---|
| AF | AIR FLOW MEASURING DEVICE |
| AS | AIR SWITCH |
| CT | CONDUCTIVITY TRANSMITTER |
| CS | CURRENT SENSOR |
| DP | DIFFERENTIAL PRESSURE TRANSMITTER |
| EPT | ELECTRONIC PNEUMATIC TRANSDUCER |
| ES | END SWITCH |
| FM | FLOW METER |
| HOA | HAND-OFF-AUTO SWITCH |
| LT | LEVEL TRANSMITTER |
| M | METER |
| PHT | PH TRANSMITTER |
| PS | PRESSURE SWITCH |
| PT | PRESSURE TRANSMITTER |
| SD | SMOKE DETECTOR |
| | STARTER |
| TS | TEMPERATURE SWITCH |
| VFD | VARIABLE FREQUENCY DRIVE |
| VT | VIBRATION TRANSMITTER |
| FS | WATER FLOW SWITCH |

# MECHANICAL GENERAL NOTES

1. VISIT THE SITE OF THE WORK TO GAIN AN ACCEPTABLE KNOWLEDGE OF CONDITIONS AFFECTING THE EXECUTION OF THE WORK. AFTER VISITING THE SITE, REQUEST SUCH INFORMATION AND/OR CLARIFICATIONS AS NECESSARY TO FULLY UNDERSTAND THE WORK REQUIRED AND TO PROPERLY ESTIMATE COSTS.
2. REVIEW ALL DRAWINGS TO VERIFY EXTENT AND SCHEDULING OF ALL DEMOLITION ACTIVITIES PRIOR TO COMMENCING DEMOLITION WORK. FIELD VERIFY ALL SIZES AND LOCATIONS OF EXISTING DUCTWORK AND PIPING TO REMAIN. NOTIFY ARCHITECT/ENGINEER OF DEVIATIONS WHICH AFFECT RENOVATION WORK PRIOR TO PROCEEDING WITH THE WORK.
3. ITEMS NOTED TO BE DEMOLISHED INCLUDES BUT IS NOT LIMITED TO ALL ASSOCIATED COMPONENTS, CONTROL WIRING, PIPING, DUCTWORK, ELECTRICAL CONNECTIONS, SUPPORTS, INSULATION, ETC. COORDINATE WITH OTHER TRADES AS REQUIRED.
4. ALL WORK IS TO BE PHASED AS INDICATED ON THE ARCHITECTURAL DRAWINGS. COORDINATE PHASING OF ALL DEMOLITION, RENOVATION, AND NEW WORK WITH OTHER TRADES. CLOSELY COORDINATE PHASING OF WORK WITHIN CORRIDORS WITH THE OWNER. CORRIDORS CANNOT BE COMPLETELY CLOSED OFF TO PEDESTRIAN TRAFFIC. TO ACCOMMODATE PHASING, CORRIDOR ACCESS WORK MAY NEED TO BE PERFORMED DURING OFF PEAK PERIODS. PRIOR TO MOVING ON TO THE NEXT PHASE, ALL WORK IN PREVIOUSLY PHASED AREAS MUST BE COMPLETE AND OPERATIONAL.
5. ENSURE THAT THE WORK WILL NOT INTERFERE OR INTERRUPT SERVICES TO AREAS OUTSIDE OF THE DESIGNATED CONTRACT AREAS. SCHEDULE ALL WORK AS TO CAUSE MINIMAL SERVICE INTERRUPTIONS FOR THE OWNER. UNAVOIDABLE INTERRUPTIONS ARE TO BE SCHEDULED WITH THE OWNER NO LESS THAN TWO WEEKS PRIOR TO THEIR EXPECTED COMMENCEMENT. WORK SHALL BE PERFORMED AT SUCH TIMES AS DIRECTED BY THE OWNER AND, IF POSSIBLE, ARE TO OCCUR DURING OFF PEAK PERIODS.
6. THE CONTRACTOR IS TO VERIFY THE EXACT SERVICE OF ANY EXISTING PIPING OR DUCTWORK PRIOR TO INSTALLING ANY NEW CONNECTIONS. ANY DISCREPANCIES BETWEEN THE CONSTRUCTION DOCUMENTS OR THE DESIGN INTENT AND ACTUAL CONDITIONS ARE TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY, PRIOR TO FABRICATION OR INSTALLATION.
7. CONTRACTOR SHALL REMOVE AND REPLACE EXISTING LAY-IN CEILING GRID AND TILES AS NECESSARY TO COMPLETE ABOVE CEILING WORK. RETURN CEILING TO ORIGINAL CONDITION FOLLOWING COMPLETION OF CONSTRUCTION.
8. EACH TRADE SHALL PAY THE GENERAL CONTRACTOR TO PATCH FLOOR SLAB AND WALL PENETRATIONS TO MATCH EXISTING WHERE THEIR PIPING, DUCT OR EQUIPMENT IS BEING REMOVED OR INSTALLED.
9. ALL ROOFING MODIFICATIONS SHALL BE DONE BY OWNER'S ROOFING VENDOR TO MAINTAIN ANY AND ALL WARRANTIES. COST TO BE INCLUDED IN THIS CONTRACT UNLESS SPECIFICALLY INCLUDED IN GENERAL TRADES CONTRACTOR'S SCOPE OF WORK.
10. INSULATE DUCTWORK AND PIPING WHERE EXISTING INSULATION HAS BEEN DAMAGED AND/OR REMOVED IN THE PERFORMANCE OF WORK FOR THIS PROJECT.
11. FOR RENOVATION WORK, IT IS PROHIBITED TO SUSPEND NEW WORK FROM THE EXISTING FLOOR SLAB OR ROOF DECK.
12. INSTALL ALL WORK TO COMPLY WITH ALL LAWS, REGULATIONS, CODES, AND STANDARDS (FEDERAL, STATE, AND LOCAL), AS ADOPTED BY THE AGENCIES HAVING JURISDICTION, INCLUDING REASONABLY ANTICIPATED REVISIONS BASED ON EMERGING TRENDS IN BUILDING REGULATIONS, WHERE ANY OF THESE DIFFER, THE MOST STRINGENT SHALL APPLY.
13. CONTRACT DOCUMENTS FOR MECHANICAL WORK ARE SCHEMATIC IN NATURE AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY.
14. PROVIDE ALL MATERIALS AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE SYSTEMS AS INDICATED ON THE DRAWINGS AND SPECIFICATIONS. INCLUDE ALL NECESSARY AND APPLICABLE APPURTENANCES, WHETHER INDICATED OR NOT.
15. ANY DEVIATIONS FROM THE BASIS OF DESIGN THAT REQUIRE ADDITIONAL PROVISIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
16. COORDINATE THE EXACT REQUIREMENTS AND LOCATION OF WORK WITH THE WORK OF OTHER TRADES PRIOR TO FABRICATION AND INSTALLATION. PROVIDE ADDITIONAL OFFSETS AND SECTIONS IN DUCTWORK AND/OR PIPING REQUIRED TO MEET THE APPLICABLE JOB CONDITION REQUIREMENTS. VERIFY JOB SITE ELEVATIONS, DIMENSIONS, AND CONDITIONS, PRIOR TO FABRICATION OR INSTALLATION OF THE WORK. COORDINATE EXACT ROUTING OF DUCTWORK AND PIPING WITH OTHER TRADES SO THAT NO CONFLICTS OCCUR WITH DUCTWORK, PIPING, LIGHTS, STRUCTURE, ETC. PROVIDE ALL PERTINENT DATA CONCERNING THE LOCATION, DIMENSIONS, ETC., OF THE MECHANICAL EQUIPMENT THAT REQUIRES BASES, CURBS AND SUPPORTS TO THE APPROPRIATE TRADES.
17. WHERE CEILINGS ARE INDICATED, ALL DUCTS AND PIPES SHALL BE RAN ABOVE CEILING. IN EXPOSED CONDITIONS, INSTALL DUCTWORK AND PIPING TIGHT TO THE BOTTOM OF STRUCTURE.
18. ALL RATED WALL AND FLOOR PENETRATIONS ARE TO BE SEALED WATER TIGHT AND PACKED WITH FIRE STOP MATERIAL.
19. ALL ITEMS THAT REQUIRE MAINTENANCE OR ADJUSTMENT MUST BE INSTALLED IN ACCESSIBLE LOCATIONS. PROVIDE AN APPROPRIATELY SIZED ACCESS DOOR AS REQUIRED.
20. ALL SEALS, BEARINGS, PACKINGS, AND ACCESSORIES FOR ALL EQUIPMENT AND PIPING SPECIALTIES SHALL BE SUITABLE FOR THE CONTINUOUS OPERATIONAL TEMPERATURES, PRESSURES AND CHARACTERISTICS, OF THE SYSTEM THEY SERVE.
21. PERFORM A COMPLETE AIR AND WATER SYSTEM FLOW BALANCE FOR ALL EQUIPMENT THAT IS SHOWN, SCHEDULED OR OTHERWISE IDENTIFIED, AT THE END OF CONSTRUCTION.
22. INSTALL EQUIPMENT, MATERIALS, ETC. IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND DIRECTION. PROVIDE STRAIGHT INLET AND OUTLET DUCTS/PIPES BASED ON MANUFACTURER'S RECOMMENDATIONS. IF IN CONFLICT WITH THE DESIGN INDICATED HEREIN, ADVISE THE ENGINEERS PRIOR TO INSTALLATION FOR CLARIFICATION.
23. COORDINATE THE EXACT LOCATIONS OF DIFFUSERS, GRILLES AND REGISTERS WITH ARCHITECTURAL REFLECTED CEILING PLANS, AREA SMOKE DETECTORS, SPRINKLERS, LIGHTS AND ELECTRICAL DEVICES. AIR DEVICES SHALL NOT BE WITHIN 3 FEET OF AN AREA SMOKE DETECTOR.
24. UNLESS NOTED OTHERWISE, PROVIDE BRANCH DUCT TO DIFFUSERS SAME SIZE AS DIFFUSER NECK. FLEXIBLE DUCT CONNECTION TO THE DIFFUSER SHALL BE NO MORE THAN FIVE FEET IN LENGTH. ALL BRANCH DUCT TAKEOFFS TO AIR DEVICES SHALL HAVE A MANUAL BALANCING DAMPER INSTALLED IN AN ACCESSIBLE LOCATION.
25. AIR DEVICES PROVIDED WITH INTEGRAL BALANCE DAMPERS DO NOT REQUIRE ADDITIONAL BALANCING DAMPER AT AIR DEVICE BRANCH TAKEOFF.
26. PROVIDE ROOM TEMPERATURE THERMOSTATS FOR ALL EQUIPMENT THAT MAINTAINS SPACE TEMPERATURE. PREFERRED LOCATIONS ARE SHOWN ON THE PLANS. THERMOSTATS SHALL BE MOUNTED AT 48" ABOVE FINISHED FLOOR, UNLESS NOTED OTHERWISE. COORDINATE THE EXACT LOCATIONS OF THERMOSTATS WITH MARKERBOARDS, SWITCHES, AND ANY OTHER WALL MOUNTED FIXTURES PRIOR TO ROUGH IN.
27. UNLESS NOTED OTHERWISE, MINIMUM PIPE SIZE TO TERMINAL EQUIPMENT SHALL BE 3/4 INCH AND MINIMUM FLOW SHALL BE 0.5 GPM.
28. PROVIDE SHUT-OFF VALVES WITHIN ALL SUPPLY PIPING BRANCH TAKEOFFS FROM MAINS. PROVIDE A MANUAL BALANCE VALVE AND A SEPARATE SHUT-OFF VALVE WITHIN ALL RETURN PIPING BRANCH TAKE-OFFS FROM MAINS. LOCATE VALVES IN ACCESSIBLE LOCATIONS.
29. INSTALL ALL PIPING IN LOCATIONS AND ELEVATIONS SUCH THAT COILS, TUBES, AND FILTERS CAN BE REMOVED AND REPLACED WITHOUT MAJOR PIPING REMOVAL. LOCATE VALVES IN APPROPRIATE PLACES TO ACCOMMODATE MAINTENANCE. FOR GRAVITY FLOW PIPING, ADEQUATE SLOPE SHALL BE PROVIDED.
30. INSTALL TWO-WAY CONTROL VALVES ON ALL EQUIPMENT UNLESS NOTED OTHERWISE.
31. AT TIME OF ROUGH INSTALLATION, DURING STORAGE ON THE CONSTRUCTION SITE, AND UNTIL FINAL STARTUP OF THE HEATING AND COOLING EQUIPMENT, ALL DUCT AND OTHER RELATED AIR DISTRIBUTION COMPONENT OPENINGS SHALL BE COVERED WITH TAPE, PLASTIC, SHEET METAL OR OTHER METHODS ACCEPTABLE FOR PROTECTION TO THE ENFORCING AGENCY TO REDUCE THE AMOUNT OF DUST OR DEBRIS WHICH MAY COLLECT IN THE SYSTEM(S).
32. IN MECHANICALLY VENTILATED BUILDINGS, PROVIDE REGULARLY OCCUPIED AREAS OF THE BUILDING WITH AIR FILTRATION MEDIA FOR OUTSIDE AND RETURN AIR THAT PROVIDES AT LEAST A MINIMUM EFFICIENCY REPORTING VALUE (MERV) OF 8 PRIOR TO OCCUPANCY. FILTERS SHALL BE CHANGED PRIOR TO AIR BALANCE AND COMMISSIONING, AND AGAIN AT THE COMPLETION OF CONSTRUCTION JUST PRIOR TO OCCUPANCY OF THE BUILDING WITH FINAL FILTERS PER SPECIFICATIONS. MAINTENANCE RECOMMENDATIONS FOR FILTERS OF THE SAME VALUE SHALL BE INCLUDED IN THE OPERATION AND MAINTENANCE MANUAL.
33. INSTALLATION OF HVAC, REFRIGERATION, AND FIRE SUPPRESSION EQUIPMENT SHALL NOT CONTAIN ANY CFCS OR HALONS.
34. ALL SUPPORTS FOR EQUIPMENT, DUCTWORK AND PIPING SYSTEMS, DEVICES SHALL BE FROM THE BUILDING STRUCTURE. SUPPORT FROM STRUCTURAL BRIDGING IS UNACCEPTABLE.
35. INSTALL NO PIPING, CONDUIT, DUCTWORK, ETC., IN A LOCATION OR IN A MANNER THAT WILL ALLOW FREEZING AND/OR THE COLLECTION OF CONDENSATION.
36. CONTRACTOR IS RESPONSIBLE FOR DRAINING, FLUSHING, PURGING, AND FILLING ALL PIPING SYSTEMS AS REQUIRED. THESE SYSTEMS INCLUDE (BUT MAY NOT BE LIMITED TO): HEATING HOT WATER SYSTEMS, CHILLED WATER SYSTEMS, BUILDING STEAM SYSTEMS, ALL REQUIRED CHEMICAL TREATMENT SYSTEMS, CONDENSER WATER SYSTEMS (AND COOLING TOWER SUMPS), WATER-SOURCE HEAT PUMP LOOP SYSTEMS, GROUND-SOURCE HEAT PUMP LOOP SYSTEMS, AND MAKE-UP WATER CONNECTIONS.


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CONCORD FIRE STATION 2
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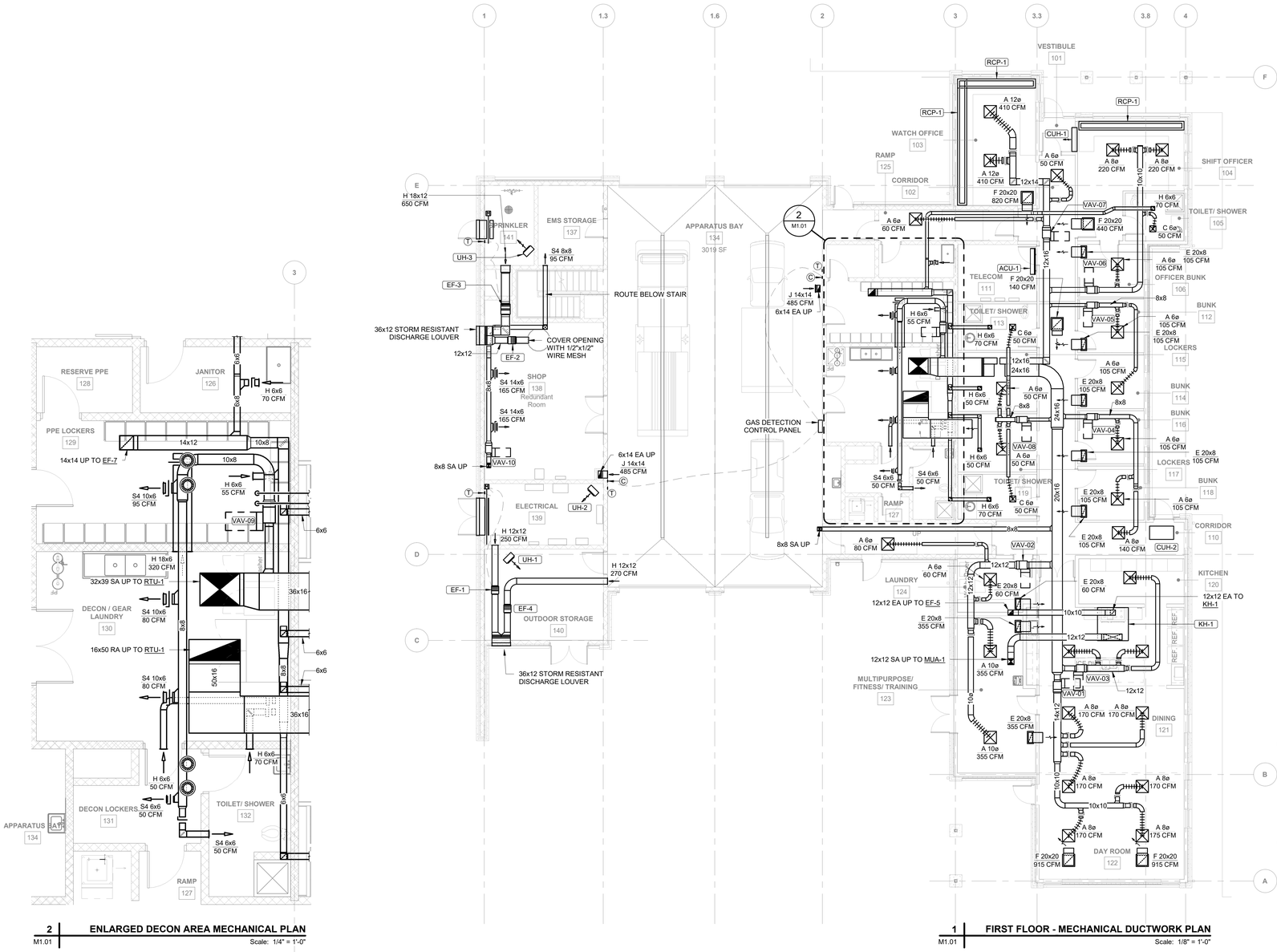
SEAL

DATE OF RECORD

GENERAL INFO - HVAC

M0.01

PROJECT NO. 00000000




1 | M1.01 **FIRST FLOOR - MECHANICAL DUCTWORK PLAN**

Scale: 1/8" = 1'-0"




2 | M1.01 **ENLARGED DECON AREA MECHANICAL PLAN**

Scale: 1/4" = 1'-0"

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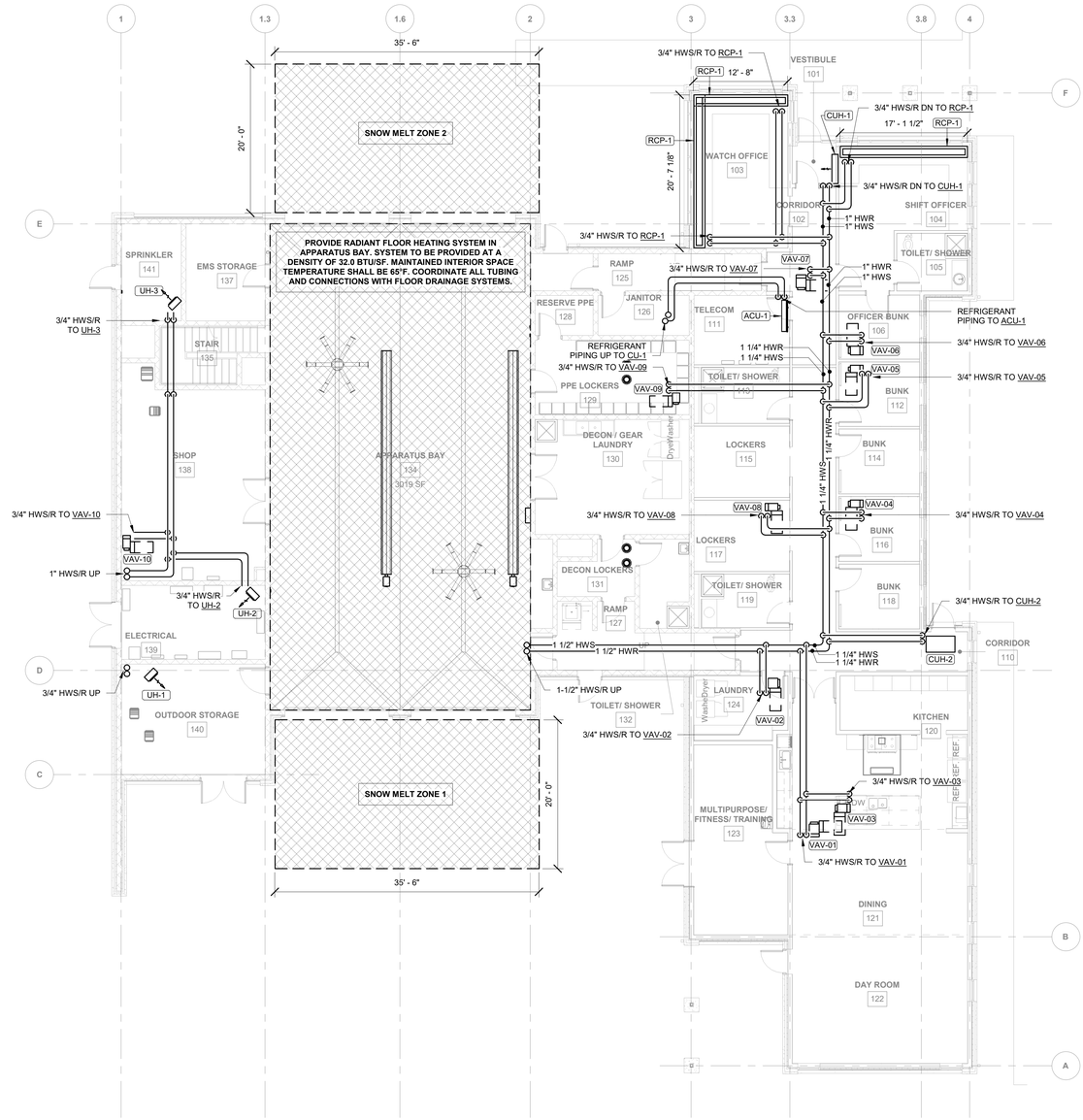
FIRST FLOOR - HVAC DUCTWORK PLAN

M1.01

PROJECT NO. 00000000




1 M1.02 **FIRST FLOOR - MECHANICAL PIPING PLAN**

Scale: 1/8" = 1'-0"



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FIRST FLOOR - HVAC PIPING PLAN

M1.02

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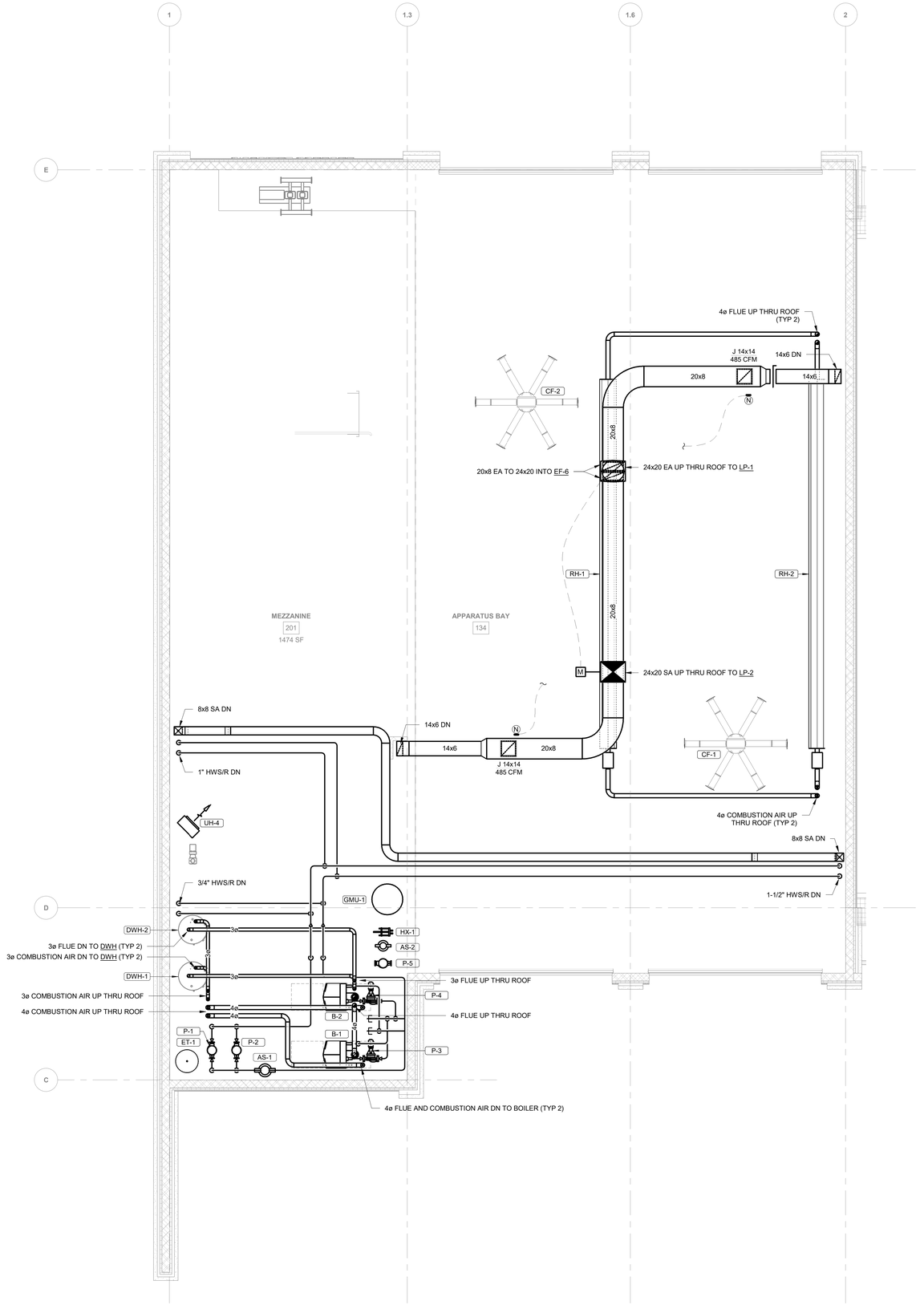


**2** M1.03 **MEZZANINE - MECHANICAL PLAN**

Scale: 1/4" = 1'-0"



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MEZZANINE MECHANICAL PLAN

M1.03

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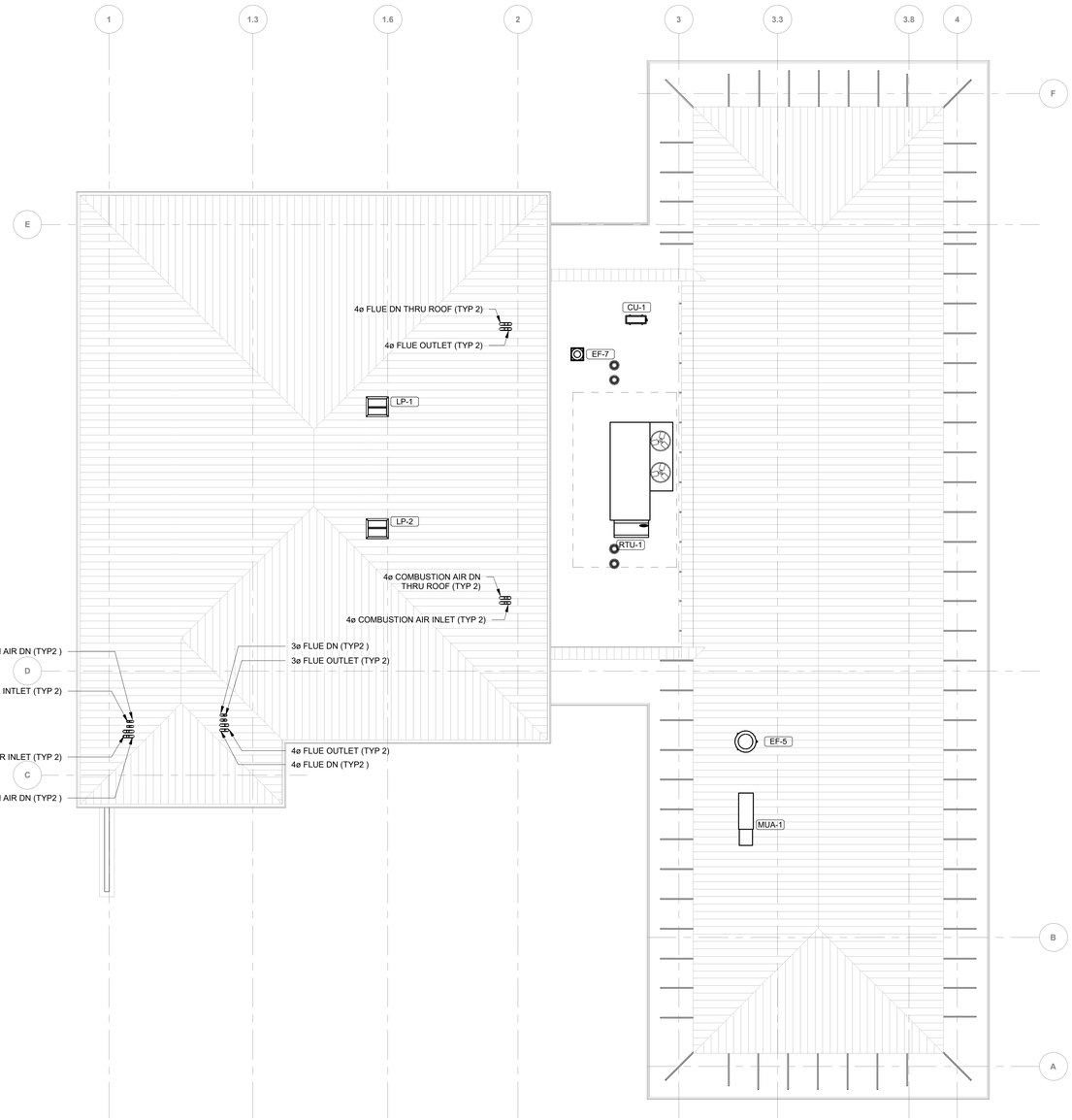


1 M1.04 **MECHANICAL ROOF PLAN**
Scale: 1/8" = 1'-0"

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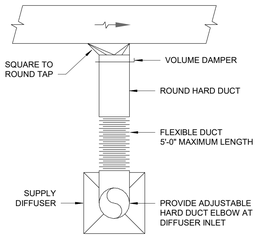
MECHANICAL
ROOF PLAN

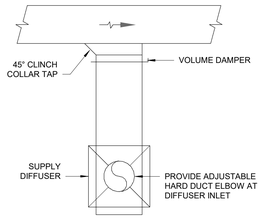
M1.04

PROJECT NO. 00000000

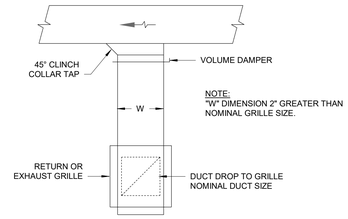
## A1 SUPPLY DIFFUSER WITH FLEXIBLE DUCT CONNECTION



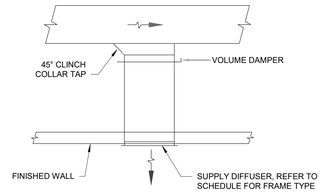

## A2 SUPPLY DIFFUSER WITH HARD DUCT CONNECTION



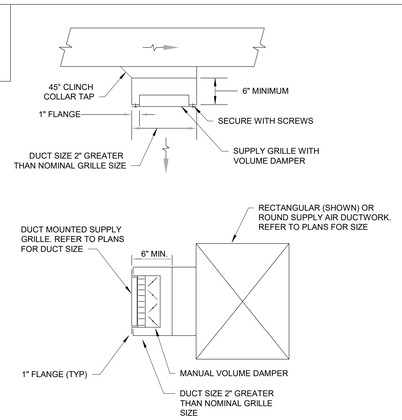

## A3 RETURN OR EXHAUST GRILLE



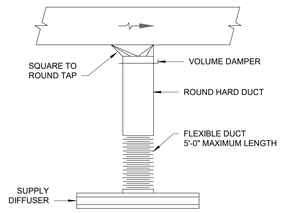

## A4 SIDEWALL SUPPLY DIFFUSER



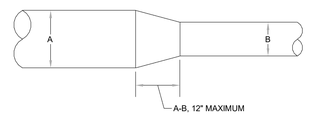

## A5 EXPOSED SUPPLY GRILLE



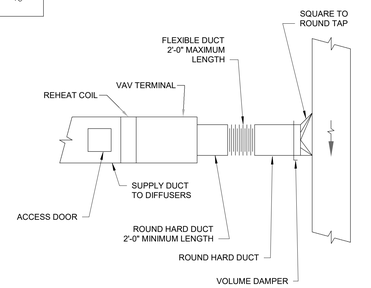

## A6 LINEAR SUPPLY DIFFUSER



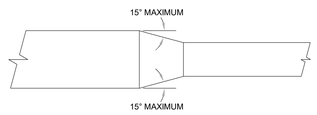

## A7 ROUND DUCT TRANSITION



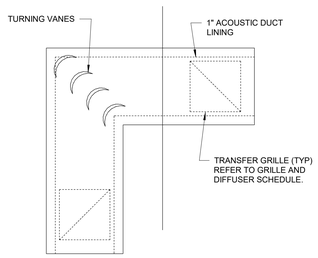

## A8 VAV TERMINAL WITH REHEAT COIL



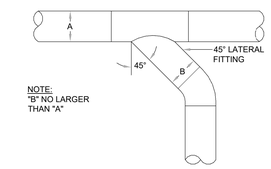

## A9 CONCENTRIC RECTANGULAR DUCT TRANSITION



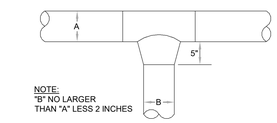

## A10 AIR TRANSFER DUCT WITH LINING



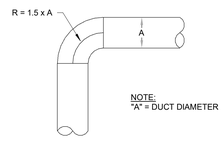

## A11 ROUND TO ROUND DUCT TAKE-OFF (45° LATERAL)



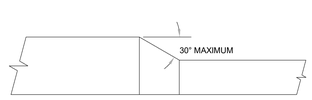

## A12 ROUND TO ROUND DUCT TAKE-OFF CONICAL TEE



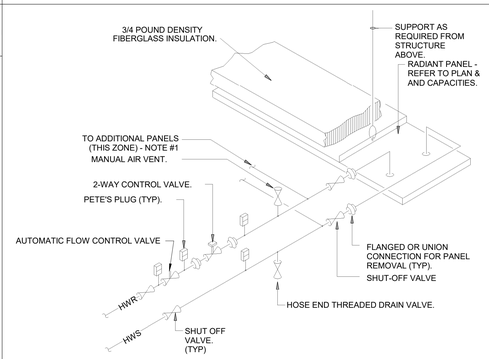

## A13 ROUND 90° DUCT ELBOW




## A14 ECCENTRIC RECTANGULAR DUCT TRANSITION

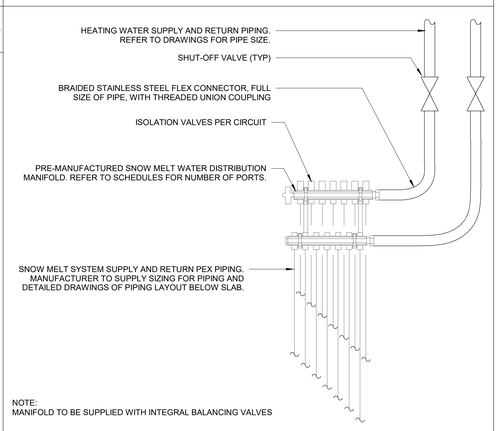



## A15 RADIANT CEILING PANEL PIPING CONNECTION DETAIL




NOTES:
1. CONNECTION SHOWN IS FOR SINGLE PANEL. PROVIDE PARALLEL-PIPED CONNECTION (WITH FLANGES OR UNIONS), MINIMUM OF EVERY 8' OF PANEL LENGTH.
2. CONNECT SUPPLY LINE CLOSEST TO GLAZING AND RETURN LINE FURTHEST FROM GLAZING.

## A16 SNOW MELT MANIFOLD CONNECTION DETAIL




NOTE:
MANIFOLD TO BE SUPPLIED WITH INTEGRAL BALANCING VALVES



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MECHANICAL DETAILS

M5.01

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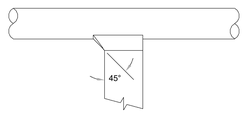
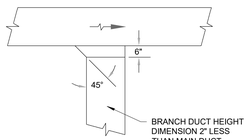
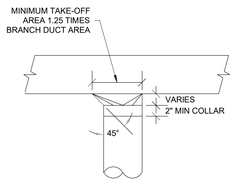
## B1 ROUND TO RECTANGULAR DUCT TAKE-OFF



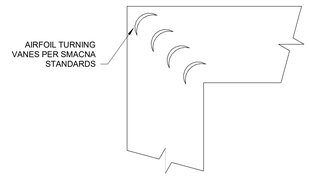

## B2 RECTANGULAR DUCT TAKE-OFF (45° CLINCH COLLAR TAP)




## B3 RECTANGULAR TO ROUND DUCT TAKE-OFF (SQUARE TO ROUND TAP)

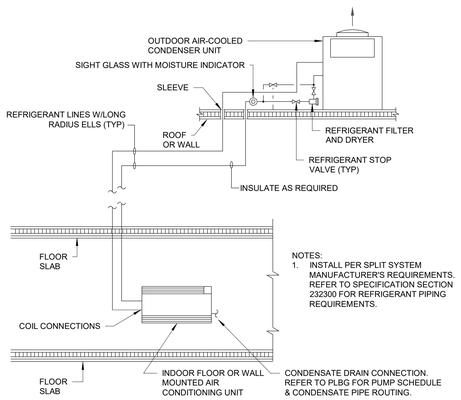



## B4 RECTANGULAR 90^ DUCT ELBOW WITH TURNING VANES



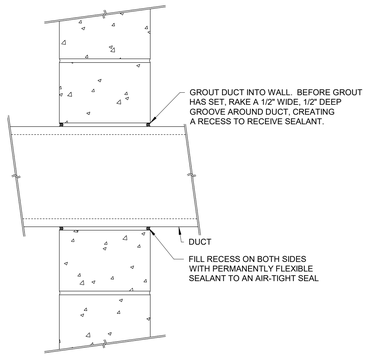

NOTE:
2" RADIUS VANES - DUCT WIDTH TO 12"
4" RADIUS VANES - DUCT WIDTH 13" AND ABOVE

## B5 SPLIT-SYSTEM REFRIGERANT PIPING DETAIL



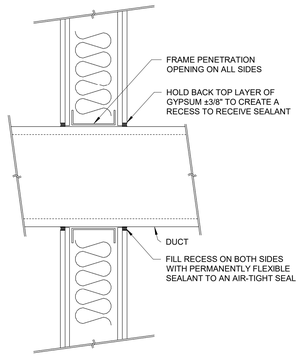

NOTES:
1. INSTALL PER SPLIT SYSTEM MANUFACTURER'S REQUIREMENTS. REFER TO SPECIFICATION SECTION 232300 FOR REFRIGERANT PIPING REQUIREMENTS.

## B6 AIR-TIGHT DUCT PENETRATION (BLOCK OR CONCRETE WALL OR SLAB)



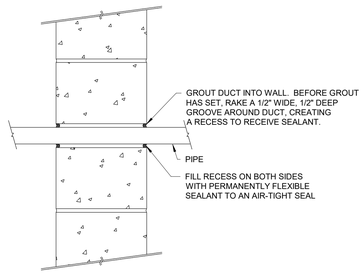

NOTES:
1. DUCT SHALL PENETRATE PERPENDICULARLY AT ACOUSTICALLY SENSITIVE ROOMS.

## B7 AIR-TIGHT DUCT PENETRATION (FRAMED WALL)



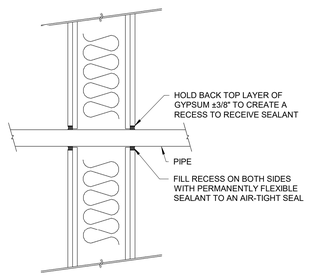

NOTES:
1. DUCT SHALL PENETRATE PERPENDICULARLY AT ACOUSTICALLY SENSITIVE ROOMS.

## B8 AIR-TIGHT PIPE PENETRATION (BLOCK OR CONCRETE WALL OR SLAB)



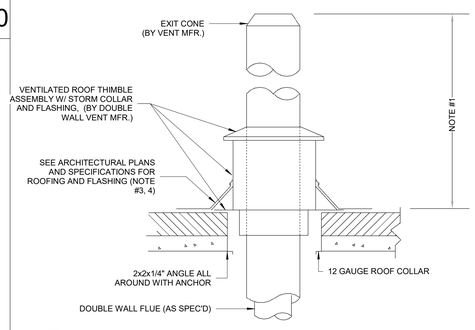

NOTES:
1. PIPE SHALL PENETRATE PERPENDICULARLY AT ACOUSTICALLY SENSITIVE ROOMS.

## B9 AIR-TIGHT PIPE PENETRATION (FRAMED WALL)



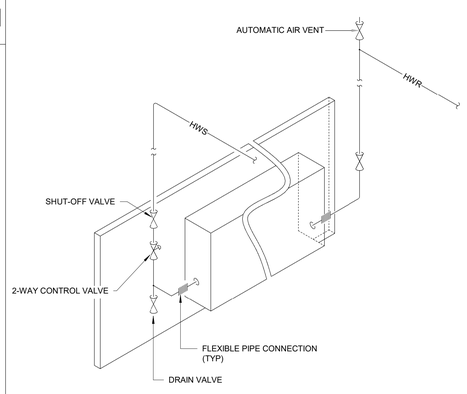

NOTES:
1. PIPE SHALL PENETRATE PERPENDICULARLY AT ACOUSTICALLY SENSITIVE ROOMS.

## B10 BOILER FLUE THROUGH ROOF

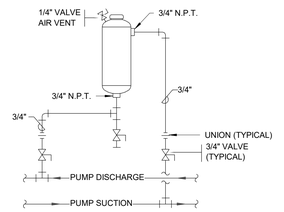



NOTES:
1. TERMINATE VENT STACK IN ACCORDANCE WITH ALL APPLICABLE CODES, BUT NOT LESS THAN 3'-0" ABOVE THE ROOF AT THE POINT OF PENETRATION, AND 2'-0" ABOVE ANY RIDGE, WALL, OR PARAPET WITHIN 10'-0" (HORIZONTALLY).
2. PROVIDE BOTTOM CLEAN-OUT AND DRAIN CONNECTION.
3. ROOF DECK SHOWN FLAT, SEE ARCH. SECTIONS/ELEVATIONS FOR PITCH & MATERIAL.
4. ROOF FLASHING.

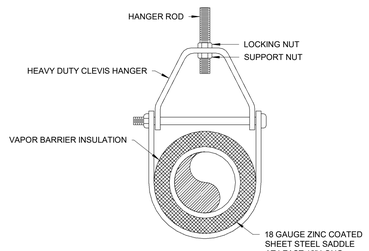
## B11 CABINET UNIT HEATER PIPING DETAIL




## B12 CHEMICAL SHOT FEEDER DETAIL

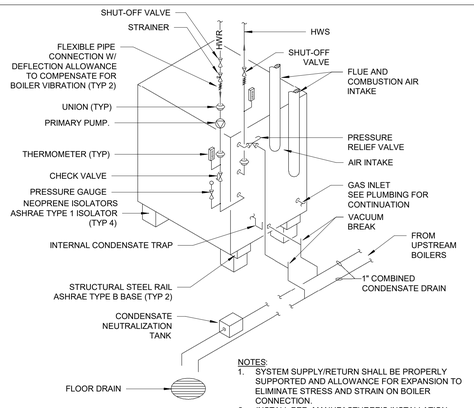



## B13 CLEVIS HANGER DETAIL



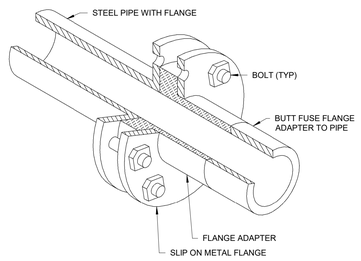

SINGLE HORIZONTAL RUNS WITH
VAPOR BARRIER INSULATION.

## B14 CONDENSING BOILER DETAIL

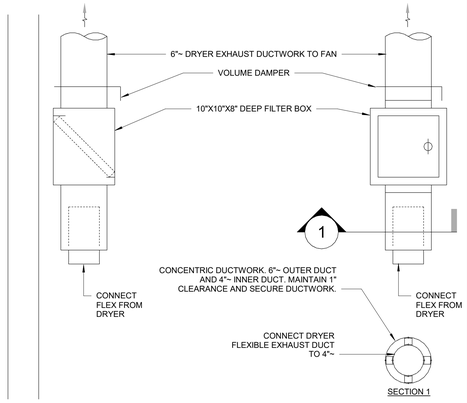



NOTES:
1. SYSTEM SUPPLY/RETURN SHALL BE PROPERLY SUPPORTED AND ALLOWANCE FOR EXPANSION TO ELIMINATE STRESS AND STRAIN ON BOILER CONNECTION.
2. INSTALL PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.

## B15 DISIMILAR PIPING MATERIAL COUPLING DETAIL




## B16 DRYER EXHAUST DUCTWORK DETAIL

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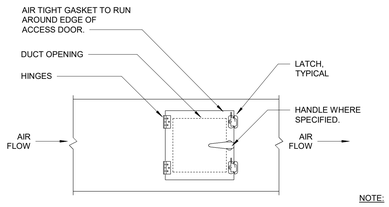
1 | M502
M5.02 | Scale: 1/8" = 1'-0"

## C1 DUCT ACCESS DOOR

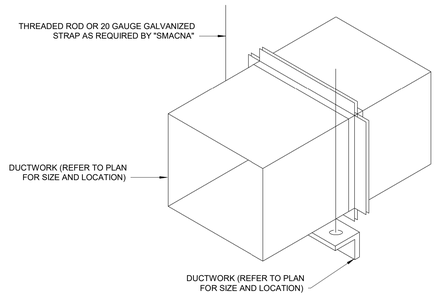



| ACCESS PANEL SIZE SCHEDULE | |
|---|---|
| DUCT SIZE | ACCESS PANEL SIZE |
| 6" TO 15" | 10" W x (DUCT DEPTH-2") D |
| 15" TO 21" | 12" W x (DUCT DEPTH-2") D |
| 21" AND ABOVE | 18" W x (DUCT DEPTH-2") D |

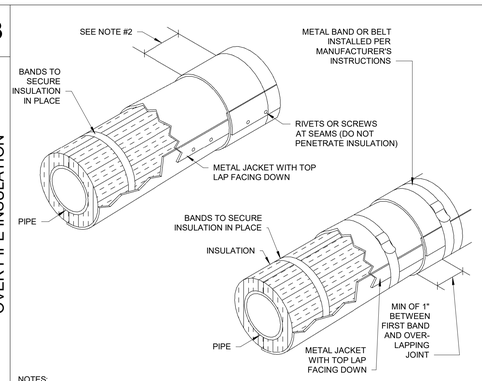
NOTE:

PROVIDE FOUR CAM LATCHES ON PANELS LARGER THAN 18" x 18" SIZE. REQUIRED AT ALL HEATING COILS, FIRE DAMPERS, SMOKE DAMPERS, CONTROL DAMPERS, COMBINATION FIRE/SMOKE DAMPERS, SMOKE DETECTORS, AND HUMIDIFIERS, ETC. SEE SPECIFICATIONS.

## C2 DUCT SUPPORT DETAIL

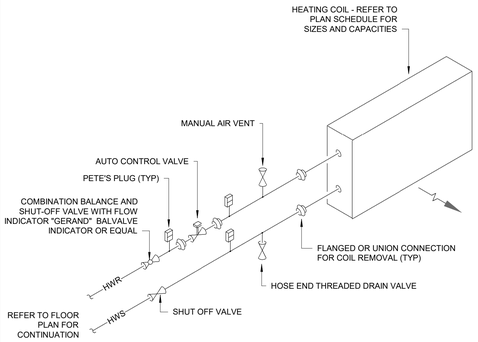



## C3 FIELD APPLIED METAL JACKETING OVER PIPE INSULATION

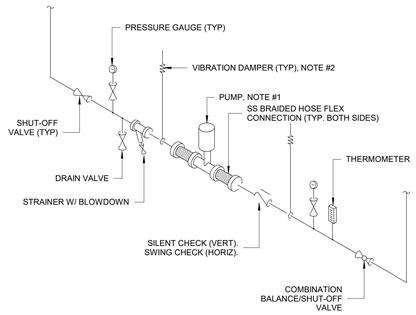



NOTES:
1. LONGITUDINAL JACKETING SEAMS POSITIONED AT 3 OR 9 O'CLOCK ONLY WITH TOP LAP FACING DOWN FOR WEATHER PROOFING.
2. OVERLAP JACKETING A MINIMUM OF 1-1/2".
3. INSTALL HEAT TRACE PER MANUFACTURER'S RECOMMENDATIONS.

## C4 HEATING COIL PIPING DIAGRAM



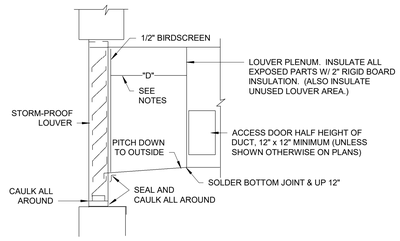

## C5 INLINE PUMP DETAIL




NOTES:

1. SUPPORT PUMP INDEPENDENTLY OF PIPING.
2. REFER TO SPECIFICATIONS FOR VIBRATION ISOLATION REQUIREMENTS.

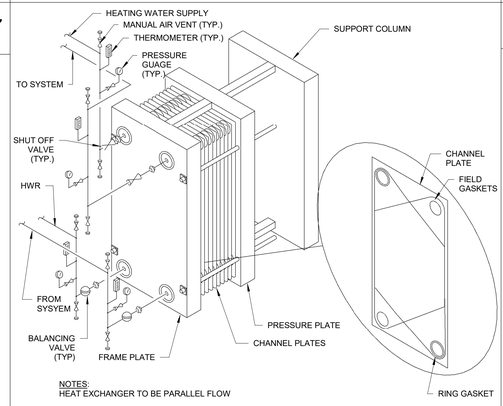
## C6 LOUVER CONNECTION DETAIL




NOTES:

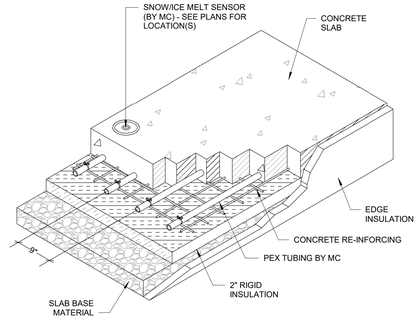
1. WHEN "D" IS OVER 24" PROVIDE 3/4" DRAIN AT 5'-0" CENTERS (IF DEPTH INTO PAPER IS GREATER THAN 5'-0"), 6" FROM LOUVER WITH TRAP.

## C7 PLATE AND FRAME HEAT EXCHANGER



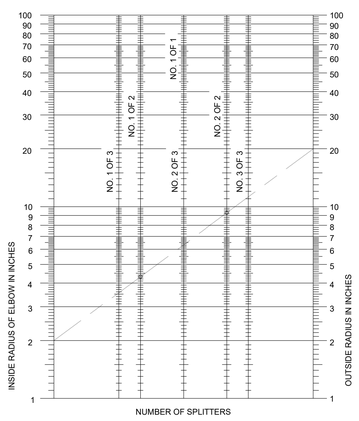

NOTES:
HEAT EXCHANGER TO BE PARALLEL FLOW

## C8 SNOW/ICE MELT SYSTEM PIPING DETAIL




NOTES:
1. REFER TO CONTROLS DIAGRAM FOR SCHEMATIC LAYOUT OF SYSTEM COMPONENTS.
2. REFER TO A/S DRAWINGS FOR DETAILS ON SLAB CONSTRUCTION.
3. MC TO COORDINATE WITH DIV. 2 FOR PHASING AND INSTALLATION OF SNOW/ICE MELT SYSTEM COMPONENTS.

## C9 RADIUS ELBOW DETAIL




RADIUS ELBOW AND SPLITTER VANE REQUIREMENTS

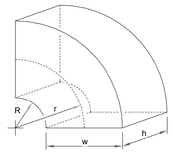
| r/w RATIO: | NO. OF VANES FOR 1 ELBOW: | NO. OF VANES WHEN 2 ELBOWS ARE WITHIN 2 EQUIV. DIA.: |
|---|---|---|
| r/w < = 1.50 | 0 | 1 |
| 1.5 < = r/w < = 0.70 | 1 | 2 |
| 0.7 < = r/w < = 0.60 | 2 | 3 |
| 0.6 < = r/w < = 0.55 | 3 | 3 |

EQUIVALENT DIAMETER = (w+h)/2

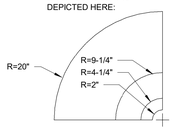
NOTE:

r/w = 0.5 IS A SQUARE THROAT ELBOW! HOWEVER, MINIMUM INSIDE RADIUS R SHOULD BE 2".

r = CENTERLINE RADIUS
R = INSIDE RADIUS
w = DUCT WIDTH
h = DUCT HEIGHT




EXAMPLE AT LEFT IS DEPICTED HERE:

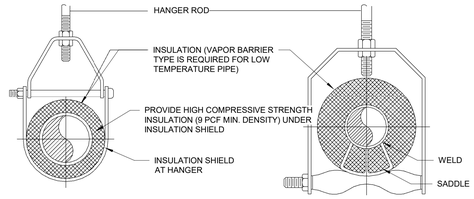



TERMINOLOGY:

"NO. 1 OF 3" = NO. 1 VANE OF A TOTAL OF 3 VANES.

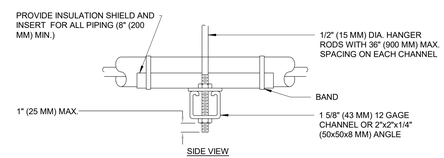
"NO. 2 OF 3" = NO. 2 VANE OF A TOTAL OF 3 VANES.

## C10 TYPICAL PIPE HANGERS




ADJUSTABLE CLEVIS HANGER TYPE 1 - SEE SPECIFICATIONS

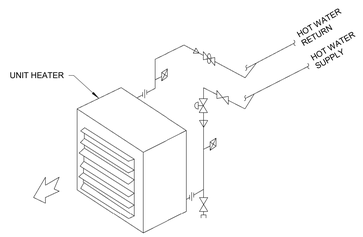
ADJUSTABLE CLEVIS HANGER TYPE 43 - SEE SPECIFICATIONS




TRAPEZE HANGER FOR UP TO 1000 LB. (453 KG) UNIFORM LOAD

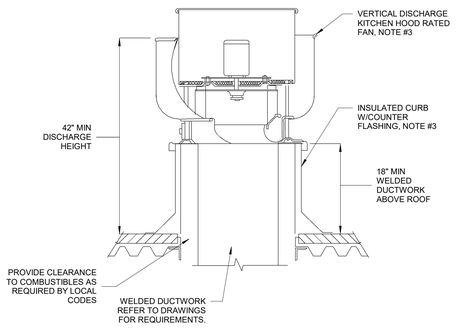
| MAXIMUM PIPE/TUBING SUPPORT SPACING | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NOM. SIZE | IN. (MM) | THRU 3/4 THRU (20) | 1 (25) | 1 1/4 (32) | 1 1/2 (40) | 2 (50) | 2 1/2 (65) | 3 (75) | 4 (100) | 5 (125) | 6 (150) | 8 (200) | 10 (250) | 12 (300) | 14 (350) | 16 (400) | 18 (450) | 20 (500) | 24 (600) |
| PIPE | FT. (M) | 7 (2.1) | 7 (2.1) | 7 (2.1) | 9 (2.7) | 10 (3.0) | 11 (3.4) | 12 (3.7) | 14 (4.1) | 16 (4.9) | 17 (5.2) | 19 (5.8) | 22 (6.7) | 23 (7.0) | 25 (7.6) | 27 (8.2) | 28 (8.5) | 30 (9.1) | 32 (9.6) |
| TUBING | FT. (M) | 5 FT 5 FT | 6 (1.8) | 7 (2.1) | 8 (2.4) | 8 (2.4) | 9 (2.7) | 10 (3.0) | 12 (3.7) | 13 (4.0) | 14 (4.1) | 16 (4.9) | - | - | - | - | - | - | - |
| NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST SIZE ON TRAPEZE. | | | | | | | | | | | | | | | | | | | |

## C11 TYPICAL CONNECTIONS TO HORIZONTAL AND VERTICAL HOT WATER UNIT HEATER



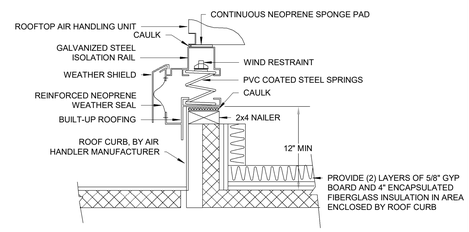

TYPICAL CONNECTIONS TO HORIZONTAL HOT WATER UNIT HEATER

## C12 ROOF MOUNTED KITCHEN EXHAUST FAN DETAIL

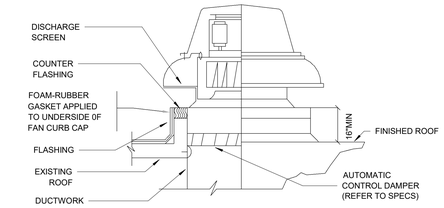



NOTES:
1. BLOCK CURB AS REQUIRED TO LEVEL FAN.
2. PROVIDE GREASE CLEAN OUT
3. FURNISH EXHAUST FAN AND ROOF CURB. MC SHALL INSTALL FAN AND CURB AND CONNECT DUCTWORK TO FAN AND EXHAUST HOOD.

## C13 ROOFTOP UNIT MOUNTING DETAIL




## C14 ROOF MOUNTED EXHAUST FAN DETAIL





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# CONCORD FIRE STATION 2
10154 PROUTY RD
CONCORD, OH 44077

SEAL

DATE OF RECORD

MECHANICAL DETAILS

M5.03

PROJECT NO. 00000000



1 M5.03 — M503 — Scale: 1/8" = 1'-0"

## SINGLE DUCT TERMINAL UNIT SCHEDULE

| TAG | AHU | ROOM | SIZE | | CFM | | STATIC PRESSURE | | NC LEVEL | | HOT WATER HEAT COIL | | | | | | | | | BASIS OF DESIGN | | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | UNIT | INLET | MAX | MIN | INLET | DOWN | RAD. | DISCH. | CFM | MBH | EAT | LAT | APd | EWT | LWT | GPM | WPd | ROWS | WEIGHT | MANUFACTURER | MODEL | |
| VAV-01 | AHU-1 | | 12 | 12 | 1025 | 655 | 1 | 0.25 | - | - | 655 | 27.7 | 55 | 93.9 | 0.27 | 140 | 117.0 | 1.49 | 0.27 | 2 | - | PRICE | SDV5 | 1,2,3 |
| VAV-02 | AHU-1 | | 12 | 12 | 850 | 775 | 1 | 0.25 | - | - | 775 | 28.2 | 55 | 88.5 | 0.2 | 140 | 111.4 | 2.00 | 0.20 | 2 | - | PRICE | SDV5 | 1,2,3 |
| VAV-03 | AHU-1 | | 10 | 10 | 810 | 250 | 1 | 0.25 | - | - | 250 | 10.1 | 55 | 92.3 | 0.3 | 140 | 102.9 | 0.55 | 0.09 | 2 | - | PRICE | SDV5 | 1,2,3 |
| VAV-04 | AHU-1 | | 8 | 8 | 350 | 245 | 1 | 0.25 | - | - | 245 | 10.7 | 55 | 94.9 | 0.14 | 140 | 113.4 | 0.81 | 0.13 | 2 | - | PRICE | SDV5 | 1,2,3 |
| VAV-05 | AHU-1 | | 6 | 6 | 210 | 125 | 1 | 0.25 | - | 21 | 125 | 5.5 | 55 | 95.2 | 0.08 | 140 | 107.9 | 0.34 | 0.02 | 2 | - | PRICE | SDV5 | 1,2,3 |
| VAV-06 | AHU-1 | | 10 | 10 | 645 | 415 | 1 | 0.25 | - | - | 415 | 18.1 | 55 | 95 | 0.21 | 140 | 116.2 | 1.53 | 0.53 | 2 | - | PRICE | SDV5 | 1,2,3 |
| VAV-07 | AHU-1 | | 12 | 12 | 920 | 480 | 1 | 0.25 | - | - | 480 | 20.9 | 55 | 95 | 0.22 | 140 | 112.1 | 1.51 | 0.63 | 2 | - | PRICE | SDV5 | 1,2,3 |
| VAV-08 | AHU-1 | | 6 | 6 | 200 | 100 | 1 | 0.25 | - | 20 | 100 | 3.4 | 55 | 85.3 | 0.07 | 140 | 92.7 | 0.14 | 0.01 | 2 | - | PRICE | SDV5 | 1,2,3 |
| VAV-09 | AHU-1 | | 8 | 8 | 405 | 215 | 1 | 0.25 | - | - | 215 | 7.1 | 55 | 85 | 0.17 | 140 | 96.7 | 0.33 | 0.03 | 2 | - | PRICE | SDV5 | 1,2,3 |
| VAV-10 | AHU-1 | | 8 | 8 | 425 | 340 | 1 | 0.25 | - | - | 340 | 11.7 | 55 | 86.5 | 0.19 | 140 | 106.2 | 0.70 | 0.10 | 2 | - | PRICE | SDV5 | 1,2,3 |

NOTES:
1. ALL PERFORMANCE BASED ON TESTS CONDUCTED IN ACCORDANCE WITH ASHRAE 130-2008 AND AHRI 880-2011.
2. ALL NC LEVELS DETERMINED USING AHRI 885-2008 APPENDIX E.
3. PROVIDE WITH DISCONNECT.

## MAKE UP AIR UNIT SCHEDULE

| | | | |
|---|---|---|---|
| TAG | | | MUA-1 |
| LOCATION | | | ROOF |
| SUPPLY FAN | AIRFLOW | CFM | 900 |
| | ESP | INCH WG | 0.4 |
| | RPM | | 1233 |
| | MOTOR | HP | - |
| | | BHP | 0.28 |
| NATRUAL GAS FIRED FURNACE (INDIRECT) | INPUT CAPACITY | MBH | 75 |
| | OUTPUT CAPACITY | MBH | 60 |
| | EAT (COIL) | DB (°F) | 3 |
| | LAT (COIL) | DB (°F) | 70 |
| SOUND POWER DATA | 62.5 Hz | dB | 73 |
| | 125 Hz | dB | 73 |
| | 250 Hz | dB | 73 |
| | 500 Hz | dB | 64 |
| | 1 KHz | dB | 56 |
| | 2 KHz | dB | 47 |
| | 4 KHz | dB | 40 |
| | 8 KHz | dB | 39 |
| FILTER | PRE-FILTER | MERV | 8 |
| ELECTRICAL | VOLTAGE | V | 208 |
| | PHASE | | 3 |
| | MCA | A | - |
| | MOCP | A | - |
| WEIGHT | LBS | | 417 |
| BASIS OF DESIGN | MANUFACTURER | | ACCUREX |
| | MODEL NUMBER | | XDG-P115-H05 |
| NOTES | | | 1,2 |

NOTES:
1. PROVIDE FACTORY INSTALLED SPRING ISOLATORS.
2. PROVIDE SINGLE POINT POWER CONNECTION.

## TYPE II KITCHEN HOOD SCHEDULE

| | | | | |
|---|---|---|---|---|
| TAG | | | | KH-1 |
| LOCATION | | | | KITCHEN |
| DIMENSIONS | | WIDTH | INCH | 60 |
| | | DEPTH | INCH | 62 |
| EXHAUST PLENUM | AIRFLOW | | CFM | 1,125 |
| | RISERS | WIDTH | INCH | 10 |
| | | HEIGHT | INCH | 10 |
| | | QUANTITY | | 1 |
| | | PRESSURE DROP | INCH WG | 0.448 |
| SUPPLY PLENUM | AIRFLOW | | CFM | 900 |
| | RISERS | WIDTH | INCH | 36 |
| | | HEIGHT | INCH | 10 |
| | | QUANTITY | | 1 |
| | | PRESSURE DROP | INCH WG | 0.15 |
| CONSTRUCTION | | | | STAINLESS |
| FILTER | | | | BAFFLE |
| FIRE SYSTEM PIPING | | | | YES |
| LIGHTING | TYPE | | | CFL |
| | WIRE GUARD | | | YES |
| | QUANTITY | | | 3 |
| ELECTRICAL | VOLTAGE | | V | 120 |
| | PHASE | | | 1 |
| WEIGHT | LBS | | | 175 |
| BASIS OF DESIGN | MANUFACTURER | | | ACCUREX |
| | MODEL NUMBER | | | XBEW |
| NOTES | | | | - |

NOTES:
1.

## ROOF TOP UNIT SCHEDULE

| | | | | |
|---|---|---|---|---|
| TAG | | | | RTU-1 |
| LOCATION | | | | ROOF |
| TYPE | | | | VAV |
| SUPPLY FAN | AIRFLOW | | CFM | 6,000 |
| | OA AIRFLOW | | CFM | 1500 |
| | ESP | | INCH WG | 2.5 |
| | RPM | | | 1433 |
| | QTY / HP EACH | | | 1 / 7.5 |
| RETURN FAN | AIRFLOW | | CFM | 6,000 |
| | ESP | | INCH WG | 1.5 |
| | RPM | | | 1664 |
| | QTY / HP EACH | | | 2 / 2 |
| DX COOLING COIL | AIRFLOW | | CFM | 6,000 |
| | REFRIGERANT TYPE | | | R410a |
| | TOTAL CAPACITY | | MBH | 210.6 |
| | SENSIBLE CAPACITY | | MBH | 141.4 |
| | EAT (COIL) | | DB (°F) | 80.8 |
| | | | WB (°F) | 66.5 |
| | LAT (COIL) | | DB (°F) | 53.4 |
| | | | WB (°F) | 51.2 |
| | COIL ROWS | | | 6 |
| | FINS PER INCH | | | 12 |
| | AIR PRESSURE DROP | | INCH WG | 0.31 |
| | MAX FACE VELOCITY | | FPM | 500 |
| GAS FIRED FURNACE | AIRFLOW | | CFM | 3,000 |
| | INPUT CAPACITY | | MBH | 270 |
| | OUTPUT CAPACITY | | MBH | 219 |
| | EAT (COIL) | | DB (°F) | 0 |
| | LAT (COIL) | | DB (°F) | 65 |
| | AIR PRESSURE DROP | | INCH WG | 0.19 |
| | TURNDOWN | | MIN | 9:1 |
| COOLING EFFICIENCY | | | EER | 12.2 |
| | | | IEER | 14.8 |
| SOUND POWER DATA (INLET/OUTLET) | | 62.5 Hz | dB | 91/93 |
| | | 125 Hz | dB | 92/92 |
| | | 250 Hz | dB | 84/93 |
| | | 500 Hz | dB | 82/92 |
| | | 1 KHz | dB | 85/89 |
| | | 2 KHz | dB | 84/88 |
| | | 4 KHz | dB | 80/88 |
| | | 8 KHz | dB | 77/84 |
| FILTER | PRE-FILTER | | MERV | 6 |
| | DIRT ALLOWANCE | | INCH WG | 0.5 |
| | FINAL FILTER | | MERV | 13 |
| | DIRT ALLOWANCE | | INCH WG | 0.5 |
| ELECTRICAL | VOLTAGE | | V | 208 |
| | PHASE | | | 3 |
| | FLA | | A | 113 |
| | MCA | | A | 121 |
| | MOCP | | A | 150 |
| WEIGHT | LBS | | | 3373 |
| BASIS OF DESIGN | MANUFACTURER | | | AAON |
| | MODEL NUMBER | | | RN-020 |
| NOTES | | | | 1,2 |

NOTES:
1. PROVIDE FACTORY INSTALLED SPRING ISOLATORS.
2. PROVIDE SINGLE POINT POWER CONNECTION.

## DIFFUSER, GRILLE, AND REGISTER SCHEDULE

| TAG | TYPE | BOARDER TYPE | MODULE SIZE | NECK SIZE | FINISH | MANUFACTURER | MODEL | NOTES |
|---|---|---|---|---|---|---|---|---|
| A | SQ. PLAQUE | LAY IN | 24x24 | SEE PLANS | WHITE | TITUS | OMNI | - |
| B | SQ. PLAQUE | SURFACE | 24x24 | SEE PLANS | WHITE | TITUS | OMNI | - |
| C | SQ. PLAQUE | SURFACE | 12x12 | SEE PLANS | WHITE | TITUS | OMNI-AA | 2 |
| D | GRILLE | SURFACE | SEE PLANS | SEE PLANS | WHITE | TITUS | 300RL | - |
| E | GRILLE | LAY IN | 24x12 | SEE PLANS | WHITE | TITUS | 350RL | - |
| F | GRILLE | LAY IN | 24x24 | SEE PLANS | WHITE | TITUS | 350RL | - |
| G | GRILLE | SURFACE | SEE PLANS | SEE PLANS | WHITE | TITUS | 350RL | - |
| H | GRILLE | SURFACE | SEE PLANS | SEE PLANS | WHITE | TITUS | 50F | 2 |
| I | GRILLE | LAY IN | 24x12 | SEE PLANS | WHITE | TITUS | 50F | - |
| J | GRILLE | SURFACE | SEE PLANS | SEE PLANS | WHITE | TITUS | 63FL | 1 |

NOTES
1. GRILLE TO BE HEAVY DUTY, ALUMINUM CONSTRUCTION.
2. DEVICE SHALL BE ALUMINUM CONSTRUCTION.

## RADIANT CEILING PANEL SCHEDULE

| | | | |
|---|---|---|---|
| TAG | | | RCP-1 |
| LOCATION | | | VARIOUS |
| | | | RADIANT CEILING |
| CAPACITY/LINEAL FOOT | | BTU | 154 |
| LENGTH | | FEET | 25 |
| WIDTH | | INCH | 18 |
| HOT WATER | PASSES | | 6 |
| | EWT | °F | 140 |
| | LWT | °F | 110 |
| | FLOW | GPM | 0.25 |
| BASIS OF DESIGN | MANUFACTURER | | PRICE |
| | MODEL NUMBER | | RPL |
| NOTES | | | 1 |

NOTES:
1. PROVIDE SMOOTH FINISH.

## CABINET UNIT HEATER SCHEDULE

| | | | | |
|---|---|---|---|---|
| TAG | | | CUH-1 | CUH-2 |
| LOCATION | | | 101 VESTIBULE | 110 CORRIDOR |
| MOUNTING ARRANGEMENT | | | WALL RECESSED | CEILING RECESSED |
| AIRFLOW | | CFM | 430 | 430 |
| HOT WATER | CAPACITY | MBH | 46.3 | 46.3 |
| | COIL ROWS | | 2 | 2 |
| | EWT | °F | 140 | 140 |
| | LWT | °F | 110 | 110 |
| | FLOW | GPM | 3.25 | 3.25 |
| MOTOR | | HP | 1/15 | 1/15 |
| ELECTRICAL | VOLTAGE | V | 120 | 120 |
| | PHASE | | 1 | 1 |
| | FLA | A | 0.65 | 0.65 |
| WEIGHT | | LBS | 135 | 135 |
| BASIS OF DESIGN | MANUFACTURER | | STERLING | STERLING |
| | MODEL NUMBER | | RWI-1200-04 | RC-1200-04 |
| NOTES | | | 1 | 1 |

NOTES:
1. UNIT TO BE FURNISHED WITH UNIT MOUNTED THERMOSTAT AND ECM MOTOR.

## UNIT HEATER SCHEDULE

| | | | | | | |
|---|---|---|---|---|---|---|
| TAG | | | UH-1 | UH-2 | UH-3 | UH-4 |
| LOCATION | | | 140 OUT. STORAGE | 139 ELECTRICAL | 141 ELECTRICAL | M01 MEZZANINE |
| FLOW DIRECTION | | | HORIZONTAL | HORIZONTAL | HORIZONTAL | HORIZONTAL |
| AIRFLOW | | CFM | 420 | 420 | 420 | 900 |
| HOT WATER | CAPACITY | MBH | 15.65 | 15.65 | 15.65 | 43.6 |
| | EWT | °F | 140 | 140 | 140 | 140 |
| | LWT | °F | 110 | 110 | 110 | 110 |
| | FLOW | GPM | 1.2 | 1.2 | 1.2 | 2.9 |
| | PRESSURE DROP | FT HEAD | 2.0 | 2.0 | 2.0 | 0.2 |
| NATURAL GAS | INPUT CAPACITY | MBH | - | - | - | - |
| | OUTPUT CAPACITY | MBH | - | - | - | - |
| | EAT | °F | - | - | - | - |
| | LAT | °F | - | - | - | - |
| | GAS PRESSURE | IN WG | - | - | - | - |
| MOTOR | | HP | 16W | 16W | 16W | 1/20 |
| ELECTRICAL | VOLTAGE | V | 120 | 120 | 120 | 120 |
| | PHASE | | 1 | 1 | 1 | 1 |
| | FLA | A | 0.8 | 0.8 | 0.8 | 1.4 |
| | MCA | A | - | - | - | - |
| | MOCP | A | - | - | - | - |
| WEIGHT | | LBS | 24 | 24 | 24 | 41 |
| BASIS OF DESIGN | MANUFACTURER | | STERLING | STERLING | STERLING | STERLING |
| | MODEL NUMBER | | HS-118A | HS-118A | HS-118A | HS-60 |
| NOTES | | | 1 | 1 | 1 | 1 |

NOTES:
1. UNIT TO BE FURNISHED WITH WALL-MOUNTED ANALOG THERMOSTAT AND VIBRATION ISOLATION HANGERS.

## LOUVERED PENTHOUSE SCHEDULE

| | | | | |
|---|---|---|---|---|
| TAG | | | LP-1 | LP-2 |
| LOCATION | | | ROOF | ROOF |
| SERVICE | | | APP. BAY | APP. BAY |
| AIRFLOW | | CFM | 1,940 | 1,940 |
| DIMENSIONS | THROAT WIDTH | IN | 24 | 24 |
| | THROAT HEIGHT | IN | 20 | 20 |
| | THROAT VELOCITY: | FPM | 582 | 582 |
| PRESSURE DROP | | IN WG | 0.052 | 0.061 |
| HOOD HEIGHT | | IN | 26.75 | 26.75 |
| WEIGHT | LBS | | 35 | 35 |
| BASIS OF DESIGN | MANUFACTURER | | GREENHECK | GREENHECK |
| | MODEL NUMBER | | WRH-24x20 | WIH-24x20 |
| NOTES | | | 1,3,4 | 1,2,4 |

NOTES:
1. PROVIDE PREINSULATED ROOF CURB WITH DAMPER TRAY
2. FURNISH AND INSTALL HOOD WITH BIRDSCREEN AND MOTOR OPERATED DAMPER.
3. FURNISH AND INSTALL HOOD WITH BIRDSCREEN AND GRAVITY DAMPER.
4. COLOR AS SELECTED BY ARCHITECT.

## AUTOMATIC GLYCOL SOLUTION MAKE UP SCHEDULE

| | |
|---|---|
| TAG | GMU-1 |
| LOCATION | MEZZANINE |
| TYPE | AUTOMATIC |
| % PROP. GLYCOL | 40 |
| FLOW (GPM) | 10 |
| FILL PRESSURE (PSI) | 30 |
| PUMP HP | 1/2 |
| PUMP RPM | 3600 |
| TANK VOLUME (GAL) | 55 |
| VOLTS / PH | 120 / 1 |
| MANUFACTURER | BELL & GOSSETT |
| MODEL | GMU-30 |
| NOTES | 1,2 |

NOTES:
1. UNIT TO COME COMPLETE WITH ALL NECESSARY VALVES, STRAINERS, PRESSURE GAUGES, EXPANSION TANK, ETC FOR A COMPLETE AND OPERABLE SYSTEM.
2. PROVIDE LOW WATER CUT OFF.

## PLATE AND FRAME HEAT EXCHANGER SCHEDULE

| | | | | |
|---|---|---|---|---|
| TAG | | | | HX-1 |
| LOCATION | | | | MEZZANINE |
| SERVICE | | | | SNOW MELT |
| HOT SIDE | FLOW | GPM | | - |
| | EWT | °F | | - |
| | LWT | °F | | - |
| | MAX PRESSURE DROP | FT | | 5 |
| COLD SIDE | FLOW | GPM | | - |
| | EWT | °F | | - |
| | LWT | °F | | - |
| | MAX PRESSURE DROP | FT | | 5 |
| CAPACITY | | MBH | | - |
| NUMBER OF PLATES | | | | - |
| SURFACE AREA | | SQFT | | - |
| BASIS OF DESIGN | MANUFACTURER | | | BELL AND GOSSETT |
| | MODEL NUMBER | | | |
| NOTES | | | | - |

NOTES:
1.

## CONDENSING UNIT SCHEDULE

| | | | |
|---|---|---|---|
| TAG | | | CU-1 |
| SYSTEM SERVED | | | ACU-1 |
| CAPACITY | COOLING | MBH | 36 |
| | HEATING | MBH | 40 |
| REFRIGERANT | | | R410a |
| TOTAL AIRFLOW | | CFM | 3,040 |
| EFFICIENCY | | EER | 9.3 |
| | | IEER | - |
| ELECTRICAL | VOLTAGE | V | 208 |
| | PHASE | | 1 |
| | FLA | A | 17.8 |
| | MCA | A | 23.2 |
| | MOCP | A | 35.0 |
| WEIGHT | LBS | | 194 |
| BASIS OF DESIGN | MANUFACTURER | | SAMSUNG |
| | MODEL NUMBER | | AC036JXADCH/AA |
| NOTES | | | 1 |

NOTES:
1. PROVIDE WITH FACTORY MOUNTED DISCONNECT.

## AIR CONDITIONING UNIT SCHEDULE

| | | |
|---|---|---|
| TAG | | ACU-1 |
| LOCATION | | 111 TELECOM. |
| COOLING CAPACITY | TOTAL (BTU) | 36,000 |
| HEATING CAPACITY | TOTAL (BTU) | 40,000 |
| EFFICIENCY | SEER | 18.3 |
| | COP | 2.84 |
| FAN | WATTS | 58 |
| | CFM | 830 |
| REFRIGERANT | | R410a |
| ELECTRICAL | | POWERED FROM OUTDOOR UNIT |
| MANUFACTURER | | SAMSUNG |
| MODEL NUMBER | | AC036MNTDCH/AA |
| NOTES | | 1 |

NOTES:
1 PROVIDE WALL MOUNTED AND WIRED THERMOSTAT

## FAN SCHEDULE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| TAG | | | EF-1 | EF-2 | EF-3 | EF-4 | EF-5 | EF-6 | EF-7 |
| FAN TYPE | | | CENTRIFUGAL | CENTRIFUGAL | CENTRIFUGAL | CENTRIFUGAL | CENTRIFUGAL | CENTRIFUGAL | CENTRIFUGAL |
| ARRANGEMENT | | | INLINE | INLINE | INLINE | INLINE | UPBLAST | INLINE | DOWNBLAST |
| DRIVE | | | EC | EC | EC | EC | DIRECT | EC | DIRECT |
| AIRFLOW | | CFM | 250 | 240 | 650 | 270 | 1125 | 1940 | 875 |
| ESP | | INCH WG | 0.25 | 0.3 | 0.25 | 0.3 | 1.0 | 0.5 | 0.3 |
| FAN | MOTOR | HP | 1/6 | 1/6 | 1/2 | 1/6 | 1/2 | 1-1/2 | 1/6 |
| | | BHP | 35W | 37W | 0.055 | 45W | 0.377 | 0.453 | 0.143 |
| | | SPEED CONTROL | EC | EC | EC | EC | VFD | EC | EC |
| | RPM | | 1169 | 1233 | 906 | 1275 | 1639 | 631 | 1725 |
| | OUTLET VELOCITY | FPM | - | - | - | - | - | - | - |
| SOUND POWER DATA (INLET/OUTLET) | 62.5 Hz | dB | 57/75 | 58/76 | 57/68 | 58/76 | 71 | 72/72 | 71 |
| | 125 Hz | dB | 61/68 | 62/69 | 59/63 | 62/70 | 76 | 73/72 | 72 |
| | 250 Hz | dB | 64/65 | 66/66 | 57/55 | 67/67 | 79 | 73/75 | 76 |
| | 500 Hz | dB | 56/58 | 57/59 | 51/53 | 58/60 | 74 | 67/67 | 72 |
| | 1 KHz | dB | 51/53 | 52/54 | 46/52 | 53/56 | 68 | 62/61 | 66 |
| | 2 KHz | dB | 45/48 | 46/49 | 44/46 | 48/50 | 67 | 55/56 | 63 |
| | 4 KHz | dB | 41/42 | 42/43 | 38/38 | 43/45 | 65 | 47/48 | 57 |
| | 8 KHz | dB | 38/40 | 39/40 | 32/31 | 40/41 | 61 | 39/40 | 52 |
| ELECTRICAL | VOLTAGE | V | 120 | 120 | 208 | 120 | 120 | 208 | 120 |
| | PHASE | | 1 | 1 | 1 | 1 | 1 | 3 | 1 |
| | FLA | A | - | - | - | - | - | - | - |
| WEIGHT | | LBS | 54 | 54 | 77 | 54 | 92 | 526 | 28 |
| BASIS OF DESIGN | MANUFACTURER | | LOREN COOK | LOREN COOK | LOREN COOK | LOREN COOK | LOREN COOK | LOREN COOK | LOREN COOK |
| | MODEL NUMBER | | 90SQN17DEC | 90SQN17DEC | 120SQN17DEC | 90SQN17DEC | 165VX17D | 225QMXD08 | 101C17D |
| NOTES | | | 2 | 2 | 2 | 2 | 3 | 2 | 1 |

NOTES:
1. PROVIDE WITH 14" CURB AND INTEGRAL BACKDRAFT DAMPER.
2. PROVIDE BACKDRAFT DAMPER.
3. FAN TO BE HIGH TEMPERATURE RATED. PROVIDE FAN WITH ALUMINUM DRAIN TUBE.

## HVLS FAN SCHEDULE

| | | | | |
|---|---|---|---|---|
| TAG | | | CF-1 | CF-2 |
| DIAMETER | | FT | 8 | 8 |
| DRIVE | | | DIRECT | DIRECT |
| FAN | MOTOR | HP | 1 | 1 |
| | | SPEED CONTROL | VFD | VFD |
| | RPM | | 191 | 191 |
| ELECTRICAL | VOLTAGE | V | 208 | 208 |
| | PHASE | | 1 | 1 |
| | FLA | A | 15 | 15 |
| WEIGHT | | LBS | 124 | 124 |
| BASIS OF DESIGN | MANUFACTURER | | BIG ASS SOLUTIONS | BIG ASS SOLUTIONS |
| | MODEL NUMBER | | BASIC 6 | BASIC 6 |
| NOTES | | | 1,2 | 1,2 |

NOTES:
1. FAN TO BE INSTALLED 14'-0" AFF.
2. PROVIDE WITH WALL-MOUNTED KEYPAD

## EXPANSION TANK SCHEDULE

| | | | |
|---|---|---|---|
| TAG | | ET-1 | ET-2 |
| SERVICE | | HEATING WATER | SNOW MELT |
| TYPE | | BLADDER | DIAPHRAGM |
| TANK VOLUME | GAL. | | |
| ACCEPTANCE VOLUME | GAL. | | |
| DIAMETER | IN | | |
| HEIGHT | IN | | |
| DESIGN TEMPERATURE | °F | 140 | 95 |
| DESIGN PRESSURE | PSI | 150 | 150 |
| WEIGHT | LBS | | |
| BASIS OF DESIGN | MANUFACTURER | BELL AND GOSSETT | BELL AND GOSSETT |
| | MODEL NUMBER | B-XXX | |
| NOTES | | | |

NOTES:
1.

## AIR SEPARATOR SCHEDULE

| | | | |
|---|---|---|---|
| TAG | | AS-1 | AS-2 |
| SERVICE | | HEATING WATER | SNOW MELT |
| OPERATING TEMPERATURE | °F | 140 | 95 |
| WORKING PRESSURE | PSI | 150 | 150 |
| SIZE | IN | 2 | - |
| FLOW | GPM | 35 | - |
| MAX PRESSURE DROP | FT | 1 | - |
| WEIGHT | LBS | 107 | - |
| BASIS OF DESIGN | MANUFACTURER | SPIROTHERM | SPIROTHERM |
| | MODEL NUMBER | VDN200 | - |
| NOTES | | 1 | 1 |

NOTES:
1. PROVIDE WITH REMOVABLE HEAD

## BOILER SCHEDULE

| | | | | |
|---|---|---|---|---|
| TAG | | | B-1 | B-2 |
| LOCATION | | | - | - |
| TYPE | | | CONDENSING | CONDENSING |
| CAPACITY | INPUT | MBH | 500 | 500 |
| | OUTPUT | MBH | 450 | 450 |
| EFFICIENCY | | % | 90 | 90 |
| ENTERING WATER TEMPERATURE | | °F | 110 | 110 |
| LEAVING WATER TEMPERATURE | | °F | 140 | 140 |
| FLOW | | GPM | 37 | 37 |
| PRESSURE DROP | | FT | 3.9 | 3.9 |
| FUEL TYPE | | | NATURAL GAS | NATURAL GAS |
| TURNDOWN RATIO | | | 10:1 | 10:1 |
| PRV SETTING | | PSI | 50 | 50 |
| ELECTRICAL | VOLTS | V | 120 | 120 |
| | PHASE | | - | - |
| | FLA | A | - | - |
| | MCA | A | - | - |
| | MOCP | A | - | - |
| WEIGHT | LBS | | 560 | 560 |
| BASIS OF DESIGN | MANUFACTURER | | LOCHINVAR | LOCHINVAR |
| | MODEL NUMBER | | FTX500 | FTX500 |
| NOTES | | | 1,2 | 1,2 |

NOTES:
1. PROVIDE CONDENSATE NEUTRALIZATION KIT.
2. PROVIDE BMS INTERFACE

## HYDRONIC SNOW MELT SCHEDULE

| TAG | LOCATION | ZONE | SURFACE TEMP (°F) | TYPE | FLOW (GPM) | % PROP. GLYCOL | EWT (°F) | FLUID TEMP. DROP (°F) | PRESSURE DROP (FT) | MANUFACTURER | MODEL | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SM-1 | APP. BAY DRIVE | 1 | 36 | CONCRETE EMBEDDED | - | 40 | 90 | 25 | - | UPONOR | - | 1 |
| SM-2 | APP. BAY DRIVE | 2 | 36 | CONCRETE EMBEDDED | - | 40 | 90 | 25 | - | UPONOR | - | 1 |

NOTES:
1. MANIFOLD SHALL COME COMPLETE, FULLY ASSEMBLED WITH ISOLATION AND BALANCING VALVES.

## PUMP SCHEDULE

| | | | | | | |
|---|---|---|---|---|---|---|
| TAG | | | P-1 | P-2 | P-3 | P-4 | P-5 |
| LOCATION | | | MEZZANINE | MEZZANINE | MEZZANINE | MEZZANINE | MEZZANINE |
| SERVICE | | | HEATING WATER | HEATING WATER | BOILER WATER | BOILER WATER | SNOW MELT |
| PUMP TYPE | | | INLINE | INLINE | INLINE | INLINE | INLINE |
| SIZE | | | 1.5x1.5 | 1.5x1.5 | 1.5x1.5 | 1.5x1.5 | 1.5x1.5 |
| CAPACITY | | GPM | 35 | 35 | 35 | 35 | 20 |
| TOTAL HEAD | | FT | 40 | 40 | 15 | 15 | 35 |
| NPSH REQUIRED | | FT | 6.2 | 6.2 | 4.1 | 4.1 | 5.87 |
| IMPELLER DIAMETER | | IN | 6.25 | 6.25 | 6.25 | 6.25 | 6.0 |
| FLUID TEMPERATURE | | °F | 140 | 140 | 140 | 140 | 95 |
| MOTOR | | HP | 1.5 | 1.5 | 3/4 | 3/4 | 1 |
| | | BHP | 0.659 | 0.659 | 0.247 | 0.247 | 0.44 |
| | | RPM | 1800 | 1800 | 1200 | 1200 | 1800 |
| SPEED CONTROLLER | | | VARIABLE | VARIABLE | CONSTANT | CONSTANT | VARIABLE |
| ELECTRICAL | VOLTAGE | V | 208 | 208 | 208 | 208 | 208 |
| | PHASE | | 3 | 3 | 3 | 3 | 3 |
| WEIGHT | | LBS | 200 | 200 | 200 | 200 | 200 |
| BASIS OF DESIGN | MANUFACTURER | | BELL AND GOSSETT | BELL AND GOSSETT | BELL AND GOSSETT | BELL AND GOSSETT | BELL AND GOSSETT |
| | MODEL NUMBER | | e-80SC 1.5x1.5x7C | e-80SC 1.5x1.5x7C | e-80SC 1.5x1.5x7C | e-80SC 1.5x1.5x7C | e-80SC 1.5x1.5x7C |
| NOTES | | | - | - | - | - | 1 |

NOTES:
1. PUMPED FLUID IS A SOLUTION OF WATER AND 30% PROPYLENE GLYCOL.

## MODULATING GAS FIRED RADIANT HEATER SCHEDULE

| TAG | SERVICE | VOLTS/PH | AMPS | NAT.GAS PRESSURE IN. W.C. | INPUT MBH | DIMENSION (LxWxH) | MANUFACTURER | MODEL | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| RH-1 | 151 APPARATUS BAY | 120/1 | 1.2 | 5.3" - 14" | 80 | 360"x16"x6" | ADVANCED RADIANT SYSTEMS | VA-80 | 1,2 |
| RH-2 | 151 APPARATUS BAY | 120/1 | 1.2 | 5.3" - 14" | 80 | 360"x16"x6" | ADVANCED RADIANT SYSTEMS | VA-80 | 1,2 |

NOTES:
1. UNIT TO BE FURNISHED WITH WALL-MOUNTED ANALOG THERMOSTAT.
2. FURNISH WITH MANUFACTURERS VERTICAL THROUGH THE ROOF END CAP.


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SEAL

DATE OF RECORD

MECHANICAL SCHEDULES

M6.01

PROJECT NO. 00000000

## PLUMBING EQUIPMENT ABBREVIATIONS

**NOTE: NOT ALL ABBREVIATIONS MAY BE USED.**

| ABBREVIATION | DESCRIPTION |
|---|---|
| AAV | AUTOMATIC AIR VENT |
| AC | AIR COMPRESSOR |
| AD | AREA DRAIN |
| AST | ABOVE GROUND STORAGE TANK |
| BAC | BREATHING AIR COMPRESSOR |
| BT | BATHTUB |
| CO | CLEANOUT |
| CS | CLINICAL SINK |
| DAC | DENTAL AIR COMPRESSOR |
| DF | DRINKING FOUNTAIN |
| DVP | DENTAL VACUUM PUMP |
| DW | DISHWASHER |
| EEW | EMERGENCY EYE WASH |
| ESH | EMERGENCY SHOWER |
| ESP | ELEVATOR SUMP PUMP |
| ET | EXPANSION TANK |
| EWC | ELECTRIC WATER COOLER |
| EWH | ELECTRIC WATER HEATER |
| FCO | FLOOR CLEANOUT |
| FD | FLOOR DRAIN |
| FOP | FUEL OIL PUMP |
| FPHB | FREEZE PROOF HOSE BIBB |
| FS | FLOOR SINK |
| GCO | GRADE CLEANOUT |
| GI | GREASE INTERCEPTOR |
| GWH | GAS WATER HEATER |
| HB | HOSE BIBB |
| HD | HUB DRAIN |
| HS | HAND SINK |
| L | LAVATORY |
| LAC | LABORATORY AIR COMPRESSOR |
| LVP | LABORATORY VACUUM PUMP |
| MAC | MEDICAL AIR COMPRESSOR |
| MB | MOP BASIN |
| MVP | MEDICAL VACUUM PUMP |
| NT | NEUTRALIZATION TANK |
| OFD | OVERFLOW DRAIN |
| OI | OIL INTERCEPTOR |
| P | PUMP |
| RCP | RECIRCULATING PUMP |
| RD | ROOF DRAIN |
| RH | ROOF HYDRANT |
| RPBP | REDUCED PRESSURE BACKFLOW PREVENTER |
| S | SINK |
| SE | SEWAGE EJECTOR |
| SH | SHOWER |
| SP | SUMP PUMP |
| SS | SERVICE SINK |
| SWH | STEAM WATER HEATER |
| TD | TRENCH DRAIN |
| TMV | THERMOSTATIC MIXING VALVE |
| TP | TRAP PRIMER |
| UR | URINAL |
| UST | UNDERGROUND STORAGE TANK |
| VB | VACUUM BREAKER |
| WC | WATER CLOSET |
| WCO | WALL CLEANOUT |
| WHA | WATER HAMMER ARRESTOR |
| YH | YARD HYDRANT |

## PLUMBING ABBREVIATIONS

**NOTE: NOT ALL ABBREVIATIONS MAY BE USED.**

| ABBREVIATION | DESCRIPTION |
|---|---|
| A/E | ARCHITECT / ENGINEER |
| AD | ACCESS DOOR |
| AFF | ABOVE FINSED FLOOR |
| AFG | ABOVE FINISHED GRADE |
| AMB | AMBIENT |
| APPROX | APPROXIMATE |
| ARCH | ARCHITECTURE |
| ASHRAE | AMERICAN SOCIETY OF HEATING, REFRIGERATION, AIR CONDITIONING ENGINEERS |
| ASME | AMERICAN SOCIETY OF MECHANICAL ENGINEERS |
| ASPE | AMERICAN SOCIETY OF PLUMBING ENGINEERS |
| AVTR | ACID VENT THROUGH ROOF |
| BFP | BLACKFLOW PREVENTER |
| BHP | BRAKE HORSEPOWER |
| BLDG | BUILDING |
| BTUH | BRITISH THERMAL UNITS PER HOUR |
| BV | BALANCE VALVE |
| CFH | CUBIC FEET PER HOUR |
| CI | CAST IRON |
| CL | CENTERLINE |
| DN | DOWN |
| DSN | DOWN SPOUT NOZZLE |
| DWG | DRAWING |
| DWV | DRAIN WASTE VENT |
| EFF | EFFICIENCY |
| EL | ELEVATION |
| FFE | FINISHED FLOOR ELEVATION |
| FLA | FULL LOAD AMPS |
| FT | FEET |
| FU | FIXTURE UNIT |
| GAL | GALLON |
| GPD | GALLONS PER DAY |
| GPH | GALLONS PER HOUR |
| GPM | GALLONS PER MINUTE |
| HP | HORSEPOWER |
| IE | INVERT ELEVATION |
| KW | KILOWATT |
| LF | LINEAR FEET |
| MAV | MANUAL AIR VENT |
| MBH | THOUSAND BTUH |
| MCA | MINIMUM CIRCUIT AMPACITY |
| MCF | THOUSAND CUBIC FEET |
| MECH | MECHANICAL |
| MFR | MANUFACTURER |
| MH | MANHOLE |
| MOCP | MAXIMUM OVER CURRENT PROTECTION |
| MOU | MEMORANDUM OF UNDERSTANDING |
| N/A | NOT APPLICABLE |
| NC | NORMALLY CLOSED |
| NIC | NOT IN CONTRACT |
| NO | NORMALLY OPEN |
| NPSH | NET POSITIVE SUCTION HEAD |
| NTS | NOT TO SCALE |
| OD | OUTSIDE DIAMETER |
| PD | PRESSURE DROP |
| PDI | PLUMBING AND DRAINAGE INSTITUTE |
| PPM | PARTS PER MILLION |
| PRV | PRESSURE REGULATING VALVE |
| PSI | POUNDS PER SQUARE INCH |
| RPM | REVOLUTIONS PER MINUTE |
| SCFM | STANDARD CUBIC FEET PER MINUTE |
| SF | SQUARE FEET |
| SS | STAINLESS STEEL |
| TEMP | TEMPERATURE |
| TYP | TYPICAL |
| UNO | UNLESS NOTED OTHERWISE |
| VTR | VENT THROUGH ROOF |
| W | WATTS |
| WG | WATER GAUGE |
| WM | WATER METER |
| WPD | WATER PRESSURE DROP |
| °C | DEGREES CENTIGRADE (CELCIUS) |
| °F | DEGREES FAHRENHEIT |
| Ø | DIAMETER |

## PLUMBING STANDARD SYSTEM ABBREVIATIONS

**NOTE: NOT ALL ABBREVIATIONS MAY BE USED.**

| ABBREVIATION | DESCRIPTION |
|---|---|
| A | COMPRESSED AIR (SHOP AIR) |
| AI | AIR INTAKE |
| CD | CONDENSATE DRAIN |
| D | DRAIN |
| DCW | DOMESTIC COLD WATER |
| DCWR | DOMESTIC COLD WATER RETURN |
| DHW | DOMESTIC HOT WATER |
| DHWR | DOMESTIC HOT WATER RETURN |
| DS | DOWN SPOUT |
| FOO | FUEL OIL OVERFLOW |
| FOR | FUEL OIL RETURN |
| FOS | FUEL OIL SUPPLY |
| FOV | FUEL OIL VENT |
| G | NATURAL GAS |
| ID | INDIRECT DRAIN |
| LP | LIQUID PROPANE |
| NPW | NON POTABLE WATER |
| PD | PUMP DISCHARGE |
| PW | POTABLE WATER |
| RO | REVERSE OSMOSIS |
| ROR | REVERSE OSMOSIS RETURN |
| ROS | REVERSE OSMOSIS SUPPLY |
| SAN | SANITARY SEWER |
| SCW | SOFTENED COLD WATER |
| SCWR | SOFTENED COLD WATER RETURN |
| SST | SECONDARY STORM |
| ST | STORM |
| TW | TEPID WATER |
| TWR | TEPID WATER RETURN |
| TWS | TEPID WATER SUPPLY |
| V | VENT |
| VAC | VACUUM |
| W | WATER |

## PLUMBING SPECIALITY SYSTEM ABBREVIATIONS

**NOTE: NOT ALL ABBREVIATIONS MAY BE USED.**

| ABBREVIATION | DESCRIPTION |
|---|---|
| AR | ARGON |
| AV | ACID VENT |
| AW | ACID WASTE |
| BA | BREATHING AIR |
| C02 | CARBON DIOXIDE |
| CV | CENTRAL VACUUM |
| CVE | CENTRAL VACUUM EXHAUST |
| DA | DENTAL AIR |
| DAI | DENTAL AIR INTAKE |
| DI | DEIONIZED WATER |
| DV | DENTAL VACUUM |
| DVE | DENTAL VACUUM EXHAUST |
| DW | DISTILLED WATER |
| GV | GREASE VENT |
| GW | GREASE WASTE |
| H2 | HYDROGEN |
| HE | HELIUM |
| IR | IRRIGATION |
| LA | LABORATORY AIR |
| LAI | LABORATORY AIR INTAKE |
| LCW | LABORATORY COLD WATER |
| LHW | LABORATORY HOT WATER |
| LV | LABORATORY VACUUM |
| LVE | LABORATORY VACUUM EXHAUST |
| MA | MEDICAL AIR |
| MAI | MEDICAL AIR INTAKE |
| MV | MEDICAL VACUUM |
| MVE | MEDICAL VACUUM EXHAUST |
| N2 | NITROGEN |
| N2O | NITROUS OXIDE |
| O2 | OXYGEN |
| OW | OIL WASTE |
| WAG | WASTE ANESTHESIA GAS |
| WAGE | WASTE ANESTHESIA GAS EXHAUST |
| ZA | ZERO AIR |

## PLUMBING SYMBOLS LIST

**NOTE: NOT ALL SYMBOLS MAY BE USED.**

| SYMBOL | DESCRIPTION |
|---|---|
| (1) | KEYNOTE (SEE LEGEND ON SHEET) |
| | FLOW ARROW |
| | CONNECT TO EXISTING |
| | END OF DEMOLITION |
| | PIPE CAPPED |
| | PIPE UNION |
| | PIPE GUIDES OR SLEEVES |
| | PIPE ANCHOR |
| | FLEXIBLE PIPE CONNECTION |
| | GENERAL SERVICE VALVE (SEE SPECIFICATIONS FOR VALVE TYPE PER APPLICATION) |
| | CHECK VALVE (ARROW INDICATES DIRECTION OF FLOW) |
| | MANUAL BALANCING VALVE |
| | AUTOMATIC BALANCING VALVE |
| | SOLENOID VALVE |
| | TWO-WAY CONTROL VALVE |
| | THREE-WAY CONTROL VALVE |
| PICBV | TWO-WAY PRESSURE INDEPENDENT CONTROL AND BALANCE VALVE |
| | THERMOSTATIC MIXING VALVE |
| | PRESSURE REDUCING VALVE |
| VB | VACUUM BREAKER |
| | PLUG VALVE |
| | TEMPERATURE AND PRESSURE RELIEF VALVE |
| | DRAIN VALVE WITH THREADED HOSE CONNECTION |
| | REDUCED PRESSURE BACKFLOW PREVENTER |
| | PRESSURE GAUGE WITH STOPCOCK |
| | STRAINER WITH BLOW DOWN VALVE |
| AV | AUTOMATIC AIR VENT |
| MAV | MANUAL AIR VENT |
| | TEMPERATURE/PRESSURE TEST PLUG (PETE'S PLUG) |
| FS | WATER FLOW SWITCH |
| PS | PRESSURE SWITCH |
| CO | CLEAN OUT |
| WCO | WALL CLEAN OUT |
| FCO | FLOOR CLEAN OUT |
| GCO | GRADE CLEAN OUT |
| AD | AREA DRAIN |
| FD | FLOOR DRAIN |
| OFD | OVERFLOW ROOF DRAIN |
| RD | ROOF DRAIN |
| HB | HOSE BIBB |
| WH | WALL HYDRANT |
| YH | YARD HYDRANT |
| | FLOW METER |
| | THERMOMETER |
| | PITCH DOWN IN DIRECTION OF ARROW |
| M | METER |
| W # | RISER OR STACK DESIGNATION & NUMBER |
| A | HOT WATER MAINTENANCE CABLE START POINT |
| A | HOT WATER MAINTENANCE CABLE TEE POINT |
| A | HOT WATER MAINTENANCE CABLE END POINT |

## PLUMBING GENERAL NOTES

1. COORDINATE PHASING OF ALL DEMOLITION AND RENOVATION WORK WITH OWNER AND OTHER TRADES. REVIEW RENOVATION DRAWINGS TO VERIFY AND/OR DETERMINE EXTENT OF, AND SCHEDULING FOR, ALL DEMOLITION PRIOR TO PERFORMING DEMOLITION WORK.
2. FIELD VERIFY ALL SIZES AND LOCATION OF EXISTING PIPING AND EQUIPMENT TO REMAIN. NOTIFY ARCHITECT/ENGINEER OF DEVIATIONS WHICH AFFECT RENOVATION WORK PRIOR TO PROCEEDING WITH THE WORK.
3. SAWCUT OR CORE DRILL EXISTING FLOOR SLAB AS REQUIRED FOR INSTALLATION OF NEW PIPING. DO NOT USE JACK HAMMER AS A MEANS OF CUTTING.
4. ALL PLUMBING FIXTURES AND EQUIPMENT TO BE REMOVED SHALL BE STORED OR DISCARDED AS DIRECTED BY OWNER.
5. ALL WORK IS TO BE PHASED AS INDICATED ON THE ARCHITECTURAL DRAWINGS. COORDINATE PHASING OF ALL DEMOLITION, RENOVATION AND NEW WORK WITH OTHER TRADES. CLOSELY COORDINATE PHASING OF WORK WITHIN CORRIDORS WITH THE OWNER. CORRIDORS CANNOT BE COMPLETELY CLOSED OFF TO PEDESTRIAN TRAFFIC. TO ACCOMMODATE PHASING, CORRIDOR ACCESS WORK MAY NEED TO BE PERFORMED DURING OFF PEAK PERIODS. PRIOR TO MOVING ON TO A NEXT PHASE, ALL WORK IN PREVIOUSLY PHASED AREAS MUST BE COMPLETE AND OPERATIONAL.
6. BEFORE STARTING WORK, ARRANGE TO SHUT DOWN UTILITIES AND SERVICE LINES IN AREA OF DEMOLITION WORK. BE SURE THAT LOCATIONS OF UTILITIES IN VICINITY ARE KNOWN AND IDENTIFIED AS "IN SERVICE" OR "SHUT DOWN". COORDINATE DEMOLITION AND UTILITY SHUT DOWN OF PLUMBING SYSTEMS WITH OTHER TRADES ON SITE.
7. PROMPTLY REMOVE MATERIALS FROM THE PROPERTY, OTHER THAN THOSE SPECIFIED HEREIN OR NOTED ON THE DRAWINGS AS BEING REUSED OR SALVAGED. REMOVE DEMOLISHED PIPING AND VALVES, DEBRIS AND RUBBISH FROM THE PROPERTY.
8. PROMPTLY REPAIR ANY ITEMS DAMAGED DURING PROCESS OF THIS WORK, INCLUDING ANY DAMAGE TO STRUCTURE, PAVEMENT, SIDEWALKS OR ADJACENT GROUND CAUSED BY TRANSPORTING MATERIALS OR EQUIPMENT.
9. INFORMATION CONTAINED IN THESE DRAWINGS WAS OBTAINED FROM ARCHIVED DRAWINGS AND SITE VISITS. NOT ALL EXISITING PLUMBING (FIRE PROTECTION) PIPING AND EQUIPMENT MAY BE SHOWN.
10. ABANDONED PIPING IS TO BE CAPPED. DEMOLITION OF PIPING SHALL BE DONE IN A MANNER SO AS NOT TO CREATE DEAD-LEGS OFF ANY MAINS.
11. THE CONTRACTOR SHALL INSTALL A TEST TEE IN THE NEW SANITARY WASTE AND VENT PIPING IN ORDER TO TEST THE SYSTEM.
12. COORDINATE EXACT REQUIREMENTS AND LOCATION OF WORK WITH THE WORK OF OTHER TRADES PRIOR TO FABRICATION. PROVIDE ADDITIONAL OFF SETS AND SECTIONS OF PIPING AS MAY BE REQUIRED TO MEET THE APPLICABLE JOB CONDITION REQUIREMENTS. VERIFY JOB-SITE ELEVATIONS, DIMENSIONS, AND CONDITIONS, PRIOR TO FABRICATION OR INSTALLATION OF THE WORK. COORDINATE EXACT ROUTING OF PIPING WITH OTHER TRADES SO THAT NO CONFLICTS OCCUR WITH DUCTWORK, PIPING, LIGHTS, STRUCTURE, ETC.
13. VISIT THE SITE OF THE WORK TO GAIN AN ACCEPTABLE KNOWLEDGE OF CONDITIONS AFFECTING THE EXECUTION OF THE WORK. AFTER VISITING THE SITE, REQUEST SUCH INFORMATION AND/OR CLARIFICATIONS AS NECESSARY TO FULLY UNDERSTAND THE WORK REQUIRED AND TO PROPERLY ESTIMATE COSTS.
14. VISIT THE SITE OF THE WORK TO GAIN AN ACCEPTABLE KNOWLEDGE OF CONDITIONS AFFECTING THE EXECUTION OF THE WORK. AFTER VISITING THE SITE, REQUEST SUCH INFORMATION AND/OR CLARIFICATIONS AS NECESSARY TO FULLY UNDERSTAND THE WORK REQUIRED AND TO PROPERLY ESTIMATE COSTS.
15. ENSURE THAT WORK WILL NOT INTERFERE OR INTERRUPT SERVICES TO AREAS OUTSIDE OF THE DESIGNATED CONTRACT AREAS. AS ANY INTERRUPTIONS OF EXISTING SERVICES BECOMES NECESSARY, SCHEDULE SUCH INTERRUPTIONS WITH THE OWNER PRIOR TO THEIR COMMENCEMENT. GIVE THE OWNER NO LESS THAN TWO WEEKS NOTICE AS TO WHEN HE EXPECTS SUCH INTERRUPTIONS. WORK SHALL BE PERFORMED AT SUCH TIMES AS DIRECTED BY THE OWNER.
16. HIRE A TEST LABORATORY OR AGENCY TO LOCATE FLOOR SLAB PRE STRESSED CABLES AND STRUCTURAL RIBS BY MEANS OF X-RAY OR OTHER RELIABLE METHOD PRIOR TO CUTTING OR CORE DRILLING. ADJUST FLOOR PENETRATIONS, WITH ARCHITECT'S APPROVAL; TO AVOID DAMAGING THE PRE STRESSED CABLES OR CUTTING THE STRUCTURAL RIBS. ALL PIPING PENETRATIONS MUST OCCUR WITHIN THE SLAB VOID AREAS.
17. ALL FLOOR PENETRATIONS TO BE SEALED WATER TIGHT AND COMPLETELY PACKED WITH SEALANT OR FIRE STOP MATERIAL WHERE APPLICABLE BY TRADE CONTRACTORS.
18. EACH TRADE SHALL PAY THE GENERAL CONTRACTOR TO PATCH FLOOR SLAB AND WALL PENETRATIONS TO MATCH EXISTING WHERE PIPING IS BEING REMOVED OR INSTALLED.
19. PROVIDE ALL MATERIALS AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE SYSTEMS AS INDICATED ON THE DRAWINGS AND SPECIFICATIONS. INCLUDE ALL NECESSARY AND APPLICABLE APPURTENANCES, WHETHER INDICATED OR NOT.
20. INSTALL ALL WORK TO COMPLY WITH ALL LAWS, REGULATIONS, CODES AND STANDARDS (FEDERAL, STATE, AND LOCAL), AS ADOPTED BY THE AGENCIES HAVING JURISDICTION, INCLUDING REASONABLY ANTICIPATED REVISIONS BASED ON EMERGING TRENDS IN BUILDING REGULATIONS. WHERE ANY OF THESE DIFFER, THE MOST STRINGENT SHALL APPLY.
21. COORDINATE THE LOCATION OF ALL UTILITY CONNECTION POINTS, FLOOR DRAINS AND HUB DRAINS FOR EQUIPMENT WITH OTHER TRADES.
22. PROVIDE LINE SIZED SHUT-OFF VALVE IN ALL HOT AND COLD WATER BRANCHES SERVING PLUMBING FIXTURES OR EQUIPMENT.
23. ALL PIPING PENETRATIONS THRU COUNTERTOPS BY PLUMBING CONTRACTOR. PROVIDE CHROME PLATED ESCUTCHEON.
24. PROVIDE A WATER HAMMER ARRESTOR ON HOT AND COLD WATER LINES AT ENDS OF MAINS. AT ENDS OF BRANCH LINES, AT END OF LINES SERVING GROUPS OF PLUMBING FIXTURES AND FOR ALL QUICK CLOSING VALVES. SIZE AND INSTALL ARRESTORS AS RECOMMENDED BY PDI WH-201 TO ELIMINATE WATER HAMMER. INSTALL WHERE ACCESSIBLE FOR SERVICE AND PROVIDE ISOLATION VALVE AND ACCESS DOOR IF REQUIRED.
25. REFER TO ARCHITECTUAL DRAWINGS FOR LOCATION, QUANTITY AND ARANGEMENT OF MEDICAL GAS OUTLETS AND ZONE VALVE LOCATIONS.
26. ALL NEW ZONE VALVE ENCLOSURES TO HAVE LINE SIZE BALL VALVES WITH ENCLOSURE FOR EACH MEDICAL GAS.
27. ALL MEDICAL GAS VALVES, ABOVE CEILINGS, TO HAVE LOCKABLE HANDLES.
28. CEILING MOUNTED EQUIPMENT BOOM ASSEMBLY SHALL COMPLY WITH NPFA 99C, PARAGRAPH 5.1.6.
29. PROVIDE ACCESS PANEL IN DRYWALL CEILINGS TO ACCESS ITEMS SUCH AS VALVES OR AREA ALARM SENSORS.
30. WHERE WAG OUTLETS ARE LOCATED IN ROOM, CONNECT ¾" WAG INTO MV LINE SERVING ROOM. CONNECTION POINT TO BE AS REQUIRED BY NFPA 99.
31. ALTERNATE MEDICAL GAS AREA ALARM SENSOR LOCATION: PROVIDE ZONE VALVE BOX WITH SENSORS ON PATIENT SIDE OF VALVES.
32. THE CONTRACTOR IS RESPONSIBLE FOR FIRESTOPPING AT ALL PLUMBING RELATED PENETRATIONS OF FIRE, SMOKE AND OTHER RATED STRUCTURES, INCLUDING FLOORS, WALLS, PARTITIONS, ETC. REFER TO ARCHITECTURAL DOCUMENTATION FOR LOCATIONS OF ALL RATED STRUCTURES, AND SPECIFIC INFORMATION AND REQUIRMENTS PERTAINING TO SAME.
33. LAYOUT AND INSTALLATION OF PIPING, EQUIPMENT AND APPURTENANCES INDICATED ON PLANS IS SCHEMATIC IN NATURE. EXAT LOCATION, ROUTING AND INSTALLATION TO BE COORDINATED WITH BUILDING STRUCTURES AND ALL OTHER TRADES.
34. UNLESS INDICATED OTHERWISE, ALL FIXTURES AND EQUIPMENT PROVIDED WITH PLUMBING SUPPLY PIPING TO BE FURNISHED WITH APPROVED/LISTED STOPS IN ACCESSIBLE LOCATIONS.
35. UNLESS INDICATED OTHERWISE BY THE ARCHITECTURAL DOCUMNETATION (WHICH SHALL TAKE PRECEDENCE), PLUMBING FIXTURES AND EQUIPMENT MOUNTING HEIGHTS SHALL BE AS INDICTAED ON PLUMBING FIXTURE SCHEDULE.
36. PLUMBING PIPING IS NOT PERMITTED TO RUN ABOVE ANY ELECTRICAL SWITCH GEAR, MOTOR CONTROL CENTERS OR PANELS (INCLUDING ACCESS/CLEARANCE SPACE 42" IN FRONT OF THESE ITEMS, AND MIN 30" WIDE), UNDER ANY CIRCUMSTANCES. LOCATION OF NEW ITEMS OF THESE TYPES TO BE DETERMINED AND CONFIRMED FROM INDICATION BY THE PROJECT ELECTRICAL DOCUMENTATION, AND ACTUAL INSTALLATION CONFIRMED WITH THE ELECTRICAL CONTRACTOR PRIOR TO START OF WORK.
37. THE SIZES OF SOIL, WASTE, VENT AND WATER BRANCH PIPING TO SINGLE FIXTURES SHALL BE AS SCHEDULED IN THE PLUMBING FIXTURE SCHEDULE.
38. CONTRACTOR TO PROVIDE MISCELLANEOUS STEEL AS REQUIRED TO SUUPORT EQUIPMENT AND ASSOCIATED COMPONENTS SUCH AS CONTROL PANELS, TANKS, VALVES, PIPING, VIARIABLE SPEED DRIVES, ETC. MISCELLANEOUS STEEL TO CONSIST OF GALVANIZED STRUT, ANGLE IRON, CHANNELS OR OTHER STANDARD GLAVANIZED STEEL ELEMENTS. ALL WELDED CONNECTIONS TO BE GROUND AND COLD GALVANIZED IN THE FIELD.
39. THE MEDICAL GAS SYSTEMS ARE TO BE DESIGNED AND INSTALLED PER NFPA 99, 2015 VERSION, AND ASSE 6000 SERIES REQUIREMENTS.
40. PROVIDE BACKFLOW PREVENTER OR VACUUM BREAKER IN DOMESTIC WATER LINES, WHERE BACKFLOW OR BACK PRESSURE MAY OCCUR, AS REQUIRED BY THE STATE OR LOCAL JURISDICTION. EQUIPMENT SUCH AS STERILIZERS, COFFEE MAKERS, WASHERS/DISINFECTORS, ULTRASONIC CLEANERS, CARBONATED VENDING MACHINES, WATER COOLED ICE MAKERS, SHOWER MIXING VALVES WITH HOSES, HOSE BIBBS AND WALL HYDRANTS ARE TO INCLUDE BACKFLOW PREVENTION DEVICES IN THE WATER LINES THAT SERVE THEM.
41. ALL SANITARY VENT LINES ARE TO TAKE OFF FROM SANITARY WASTE BRANCHES AT 45 DEGREE RISE OFF TOP OF PIPE.
42. PROVIDE SHUT-OFF BALL VALVE IN WATER LINES SERVING TRAP PRIMER DISTRIBUTION UNITS, BALANCING VALVES AND WATER HAMMER ARRESTORS.

### Domestic Water Branch Pipe Size Schedule

| QUANTITY | FIXTURES | SIZE |
|---|---|---|
| 2 TO 3 | FLUSH TANK W, L, S, EWC, DF, BT, OR SH | 3/4" CW, HW |
| 4 TO 6 | FLUSH TANK W, L, S, EWC, DF, BT, OR SH | 1" CW, HW |
| OVER 6 | FLUSH TANK W, L, S, EWC, DF, BT, OR SH | REFER TO PLAN |
| 2 TO 3 | FLUSH VALVE W OR U | 1-1/2" CW |
| 4 TO 8 | FLUSH VALVE W OR U | 2" CW |
| OVER 8 | FLUSH VALVE W OR U | REFER TO PLAN |

### Plumbing Fixture Connection Schedule

| FIXTURE | WASTE | VENT | CW | HW | REMARKS |
|---|---|---|---|---|---|
| W | 3" | 1-1/2" | 1-1/4" | - | FLUSH VALVE |
| W | 3" | 1-1/2" | 1/2" | - | TANK |
| U | 2" | 1-1/2" | 1" | - | BLOWOUT |
| U | 2" | 1-1/2" | 1/2" | - | WASHOUT |
| L | 1-1/2" | 1-1/2" | 1/2" | 1/2" | - |
| SS | 3" | 1-1/2" | 3/4" | 3/4" | - |
| S | 1-1/2" | 1-1/2" | 1/2" | 1/2" | - |
| EWC | 1-1/2" | 1-1/2" | 1/2" | - | - |
| DF | 1-1/2" | 1-1/2" | 1/2" | - | - |
| FD | 4" | 1-1/2" | - | - | - |
| FD | 3" | 1-1/2" | - | - | - |
| FPHB | - | - | 3/4" | - | - |
| HB | - | - | 3/4" | - | - |
| CS | 4" | 2" | 1-1/4" | 1/2" | - |
| BT | 1-1/2" | 1-1/2" | 1/2" | 1/2" | - |
| SH | 3" | 1-1/2" | 1/2" | 1/2" | - |

### BOOSTER PUMP SCHEDULE

| | | |
|---|---|---|
| TAG | | DWBP-1 |
| LOCATION | | MEZZANINE |
| SERVICE | | DOMESTIC WATER |
| PUMP TYPE | | DUPLEX BOOSTER |
| HEADER SIZE | INCH | - |
| CAPACITY | GPM | 140 |
| BOOSTED PRESSURE | PSI | 15 |
| FLUID TEMPERATURE | °F | 40 |
| MOTOR | HP/PUMP | 5 /2 |
| | RPM | - |
| SPEED CONTROLLER | | VFD |
| ELECTRICAL VOLTAGE | V | 208 |
| ELECTRICAL PHASE | | 3 |
| WEIGHT | LBS | 756 |
| BASIS OF DESIGN MANUFACTURER | | GRUNDFOS |
| BASIS OF DESIGN MODEL NUMBER | | HYDRO MPC E 2CRE32-1 |
| NOTES | | 1 |

NOTES:
1. PROVIDE LEAD FREE CONSTRUCTION

### THERMOSTATIC MIXING VALVE SCHEDULE

| | | | |
|---|---|---|---|
| TAG | | TMV-1 | TMV-2 |
| LOCATION | | MEZZANINE | DECON. |
| SERVICE | | RECRIC. HW | EYE WASH |
| RATED FLOW | GPM | 35 | 20 |
| MINIMUM FLOW | GPM | 3 | 1 |
| PRESSURE DROP | PSI | 3 | 15 |
| INLET TEMPERATURE | °F | 140 | 140 |
| OUTLET TEMPERATURE | °F | 110 | 80 |
| BASIS OF DESIGN MANUFACTURER | | LAWLER | LAWLER |
| BASIS OF DESIGN MODEL NUMBER | | 86603 | 9201E |
| BASIS OF DESIGN VALVE NUMBER | | 803 | - |
| NOTES | | 1 | 2 |

NOTES:
1. VALVE SHALL BE INSTALLED IN PRE-PIPED MANIFOLD SYSTEM WITH PUMP (RP-1)
2. PROVIDE WITH SURFACE MOUNTED STAINLESS STEEL CABINET.

### AIR COMPRESSOR SCHEDULE

| | | |
|---|---|---|
| TAG | | AC-1 |
| LOCATION | | 149 MAINTENANCE |
| SERVICE | | |
| TYPE | | 2-STAGE RECIP. |
| TANK CAPACITY | GALLON | 120 |
| MAX PRESSURE | PSI | 175 |
| WORKING PRESSURE | PSI | 125 |
| SCFM @ 90 PSI | | 35.6 |
| MOTOR | HP | 10 |
| ELECTRICAL VOLTAGE | V | 208 |
| ELECTRICAL PHASE | | 3 |
| WEIGHT | LBS | 800 |
| BASIS OF DESIGN MANUFACTURER | | INGERSOLL-RAND |
| BASIS OF DESIGN MODEL NUMBER | | 32545K10 |
| NOTES | | 1 |

NOTES:
1. PROVIDE WITH DRAIN VALVE, OIL/WATER SEPARATOR AND FILTER.

### EXPANSION TANK SCHEDULE

| | | |
|---|---|---|
| TAG | | ET-1 |
| SERVICE | | DOMESTIC HOT WATER |
| TYPE | | BLADDER |
| TANK VOLUME | GAL. | 4.4 |
| ACCEPTANCE VOLUME | GAL. | 3.2 |
| DIAMETER | IN | 11 |
| HEIGHT | IN | 15 |
| DESIGN TEMPERATURE | °F | 140 |
| WEIGHT | LBS | 9 |
| BASIS OF DESIGN MANUFACTURER | | BELL AND GOSSETT |
| BASIS OF DESIGN MODEL NUMBER | | PT-12 |
| NOTES | | - |

NOTES:
1.

### DOMESTIC WATER HEATER SCHEDULE

| | | | |
|---|---|---|---|
| TAG | | DWH-1 | DWH-1 |
| LOCATION | | - | - |
| TYPE | | CONDENSING | CONDENSING |
| CAPACITY | MBH | 150 | 150 |
| STORAGE VOLUME | GAL | 90 | 90 |
| STORAGE TEMPERATURE | °F | 110 | 110 |
| EWT | °F | 40 | 40 |
| RECOVERY | GPH | 165 | 165 |
| FUEL TYPE | | NATURAL GAS | NATURAL GAS |
| TURNDOWN RATIO | | 5:1 | 5:1 |
| OPERATING PRESSURE | PSI | 150 | 150 |
| ELECTRICAL VOLTS | V | 120 | 120 |
| ELECTRICAL PHASE | | 1 | 1 |
| WEIGHT | LBS | 1,541 | 1,541 |
| BASIS OF DESIGN MANUFACTURER | | LOCHINVAR | LOCHINVAR |
| BASIS OF DESIGN MODEL NUMBER | | SNA151-100 | SNA151-100 |
| NOTES | | 1,2 | 1,2 |

NOTES:
1. PROVIDE CONDENSATE NEUTRALIZATION KIT.
2. PROVIDE BMS INTERFACE

### OIL SEPARATOR SCHEDULE

| | | | |
|---|---|---|---|
| TAG | | | OWS-1 |
| SERVICE | | | APPARATUS BAY |
| FLOW RATE | | GPM | 30 |
| CAPACITY | TOTAL | US GAL | 300 |
| | OIL | US GAL | 156 |
| | SEDIMENT | US GAL | 103 |
| BASIS OF DESIGN | MANUFACTURER | | ZURN |
| | MODEL NUMBER | | OMC 300 |
| NOTES | | | 1,2,3 |

NOTES:
1. FURNISH AND INSTALL WITH TRAFFIC RATED COVER AND EXTENSION COLLAR.
2. PROVIDE HIGH LEVEL SENSOR AND CONTROL PANEL.
3. PROVIDE WITH INTEGRAL OIL COALESCING FILTER.

### PUMP SCHEDULE

| | | |
|---|---|---|
| TAG | | RP-1 |
| LOCATION | | MEZZANINE |
| SERVICE | | DOMESTIC HOT WATER RECIRCULATION |
| PUMP TYPE | | INLINE |
| CAPACITY | GPM | 6 |
| TOTAL HEAD | FT | 21 |
| FLUID TEMPERATURE | °F | 110 |
| MOTOR | HP | 1/4 |
| | RPM | 1750 |
| SPEED CONTROLLER | | CONSTANT |
| ELECTRICAL VOLTAGE | V | 120 |
| ELECTRICAL PHASE | | 1 |
| WEIGHT | LBS | 33 |
| BASIS OF DESIGN MANUFACTURER | | THRUSH CO. |
| BASIS OF DESIGN MODEL NUMBER | | TCB 1413-1030 |
| NOTES | | 1 |

NOTES:
1. PROVIDE LEAD FREE ALL BRONZE CONSTRUCTION



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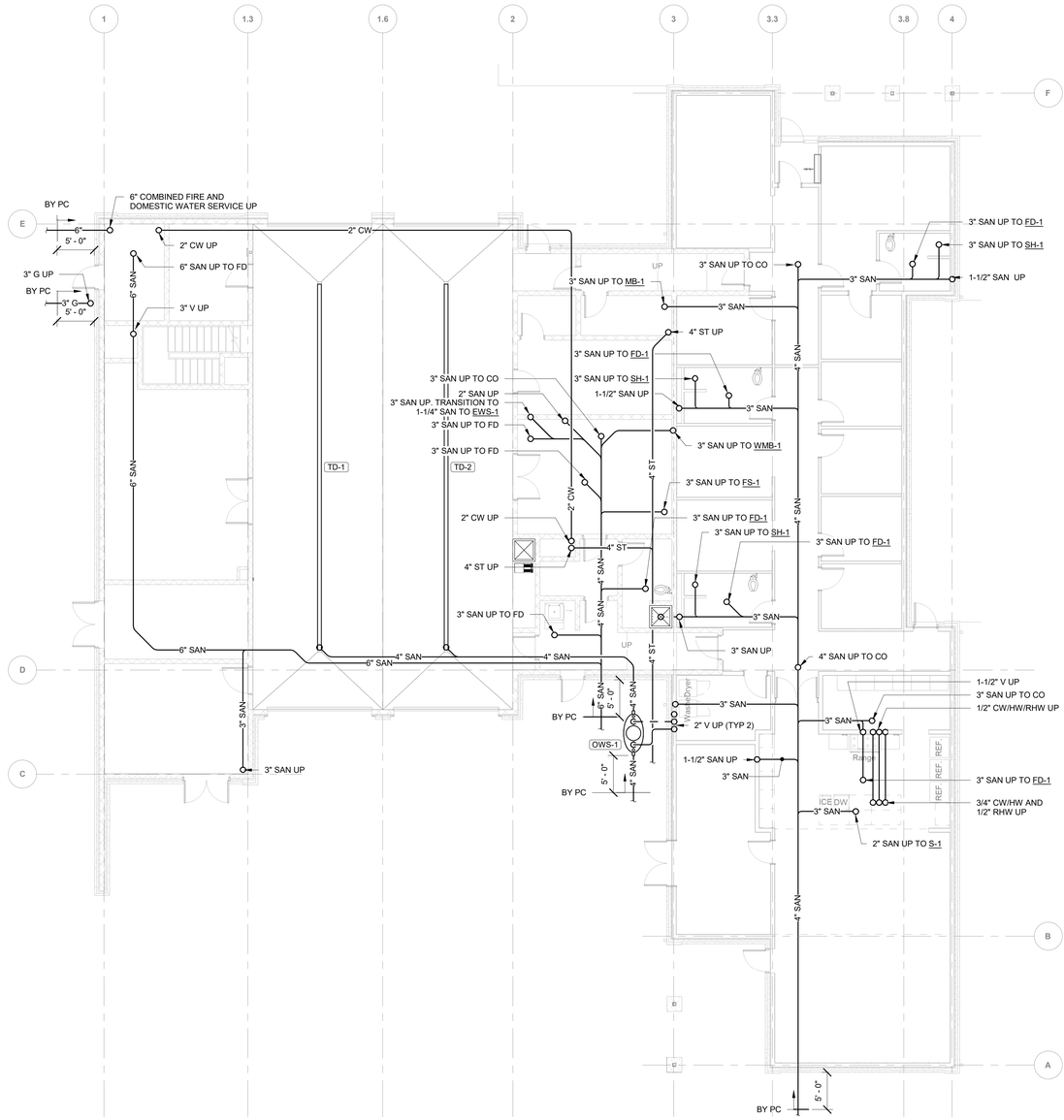
SEAL

DATE OF RECORD

PLUMBING GENERAL NOTES AND SCHEDULES

P0.01

PROJECT NO. 00000000




**1 UNDERSLAB PLUMBING PLAN**
P1.00 Scale: 1/8" = 1'-0"



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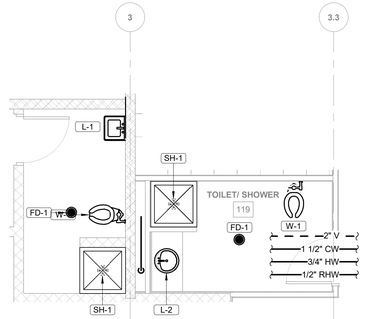
SEAL

DATE OF RECORD

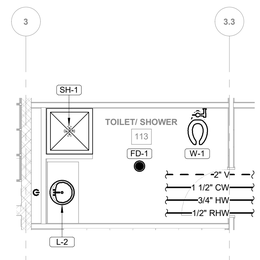
UNDERSLAB PLUMBING PLAN

P1.00

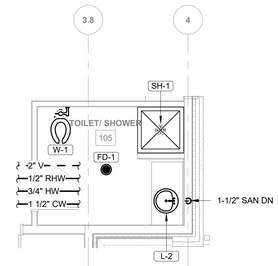
PROJECT NO. 00000000



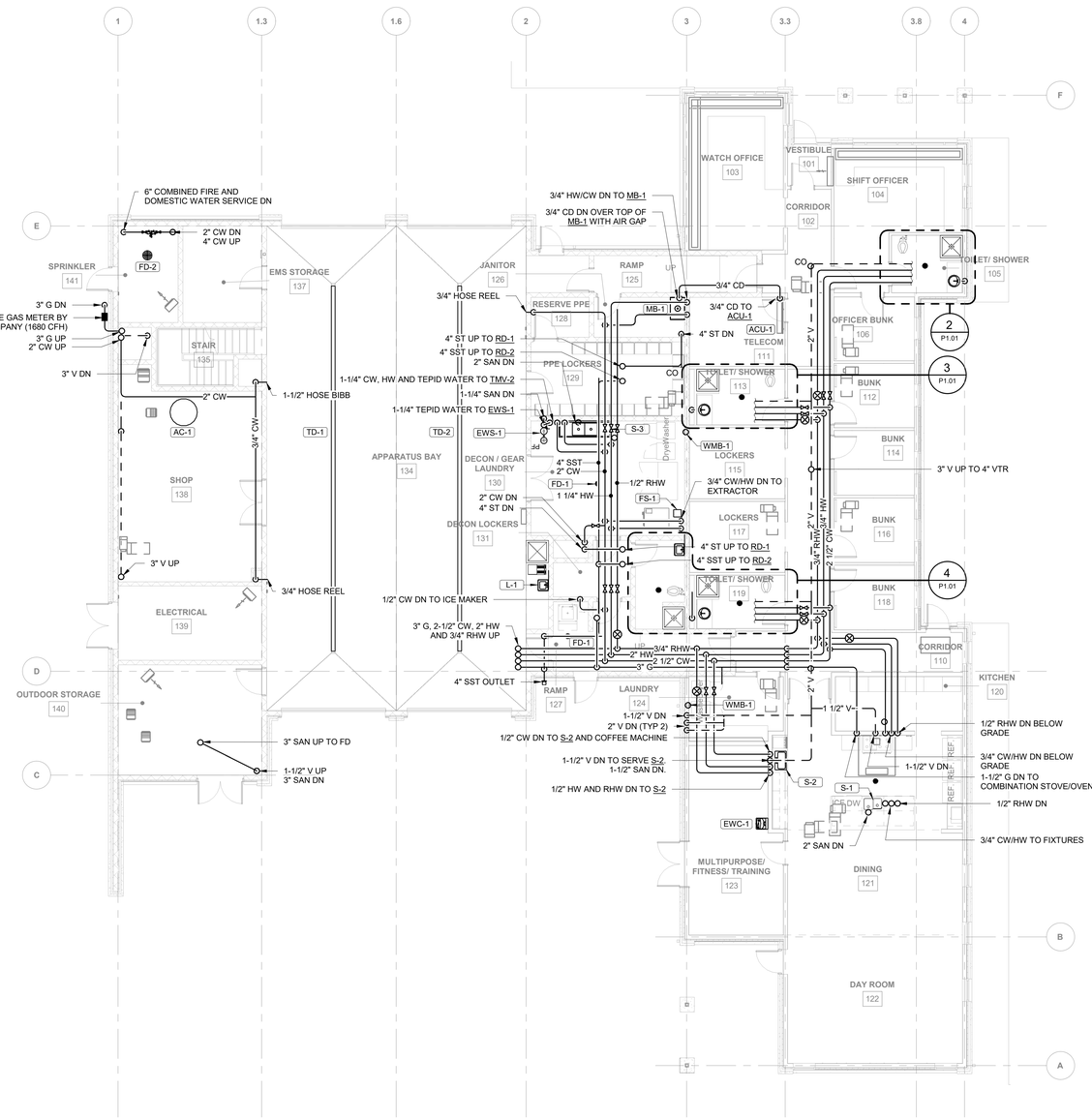

**4** P1.01 **TOILET 119 ENLARGED PLUMBING PLAN**
Scale: 1/4" = 1'-0"




**3** P1.01 **TOILET 113 ENLARGED PLUMBING PLAN**
Scale: 1/4" = 1'-0"




**2** P1.01 **TOILET 105 ENLARGED PLUMBING PLAN**
Scale: 1/4" = 1'-0"




**1** P1.01 **FIRST FLOOR - PLUMBING PLAN**
Scale: 1/8" = 1'-0"



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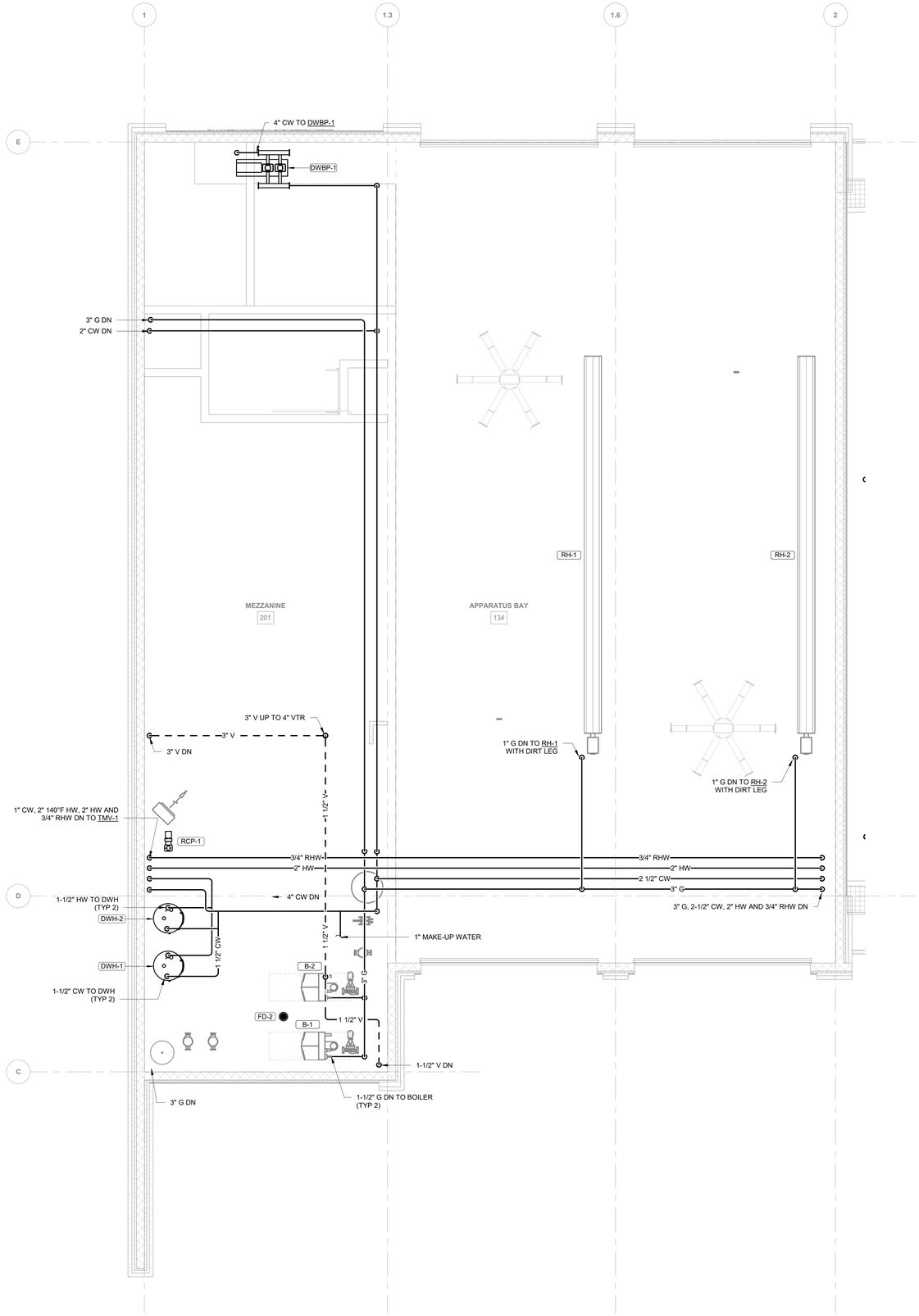
FIRST FLOOR - PLUMBING PLAN

P1.01

PROJECT NO. 00000000




1 P1.02 **MEZZANINE - PLUMBING PLAN**
Scale: 1/4" = 1'-0"



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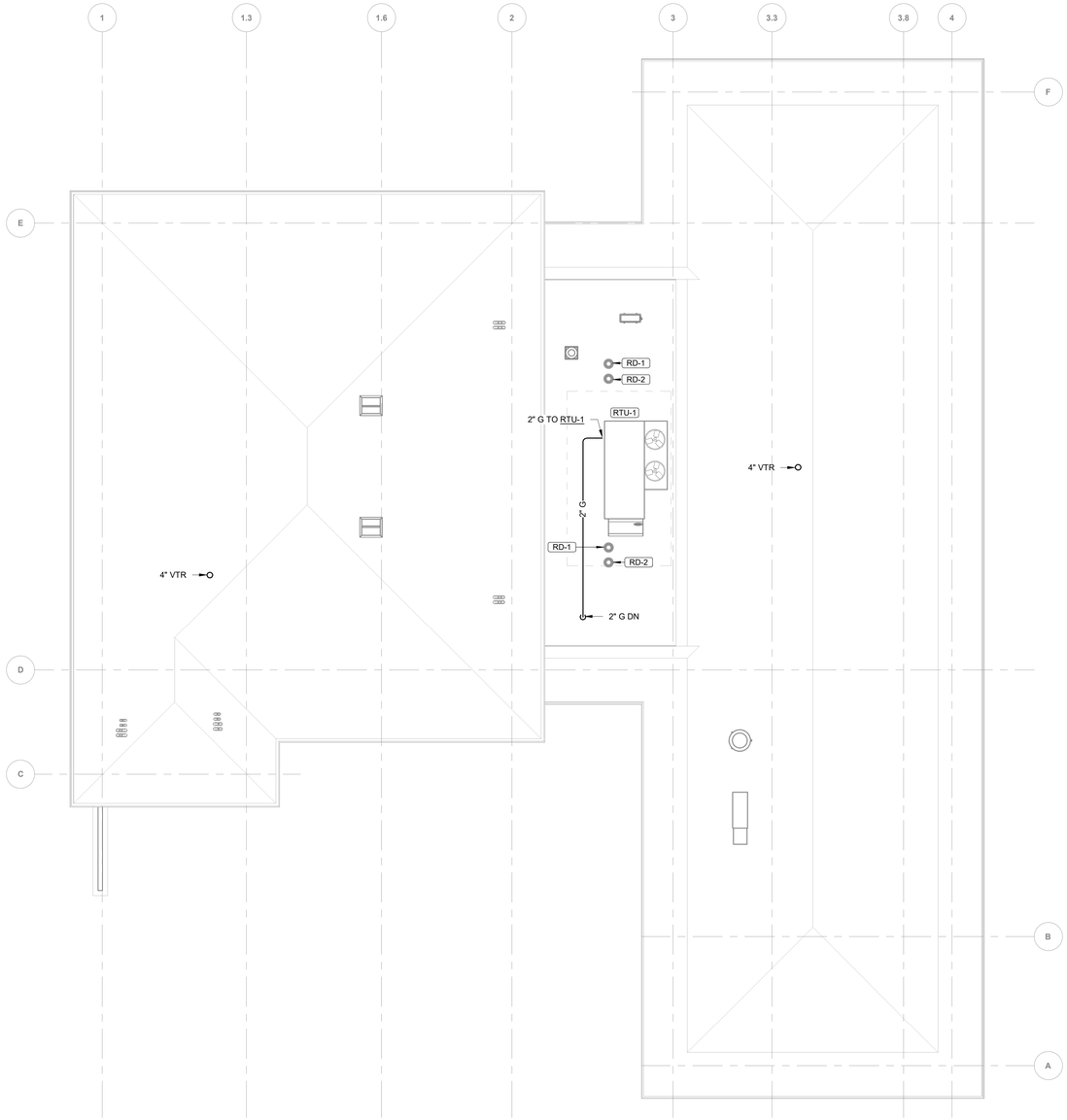
SEAL

DATE OF RECORD

MEZZANINE
PLUMBING PLAN

P1.02

PROJECT NO. 00000000




**1 PLUMBING ROOF PLAN**
P1.03 Scale: 1/8" = 1'-0"

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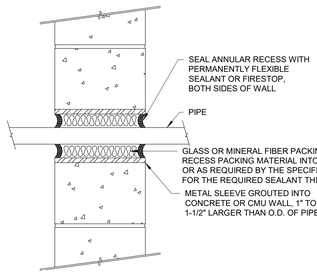
DATE OF RECORD

PLUMBING ROOF PLAN

P1.03

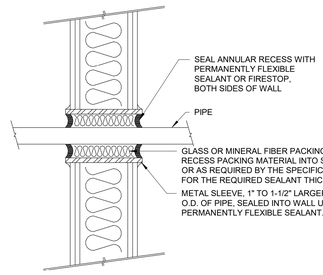
PROJECT NO. 00000000

## A1 AIR-TIGHT & RESILIENT PIPE PENETRATION (BLOCK OR CONCRETE WALL OR SLAB)



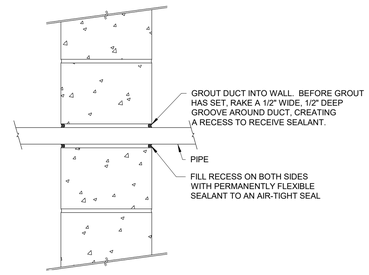

NOTES:
1. PIPE SHALL PENETRATE PERPENDICULARLY AT ACOUSTICALLY SENSITIVE ROOMS AND NOISE PRODUCING ROOMS.

## A2 AIR-TIGHT & RESILIENT PIPE PENETRATION (FRAMED WALL)



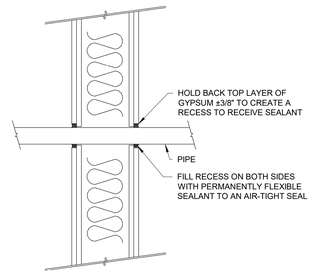

NOTES:
1. PIPE SHALL PENETRATE PERPENDICULARLY AT ACOUSTICALLY SENSITIVE ROOMS AND NOISE PRODUCING ROOMS.

## A3 AIR-TIGHT PIPE PENETRATION (BLOCK OR CONCRETE WALL OR SLAB)



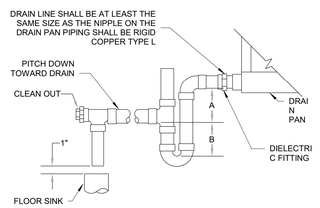

NOTES:
1. PIPE SHALL PENETRATE PERPENDICULARLY AT ACOUSTICALLY SENSITIVE ROOMS.

## A4 AIR-TIGHT PIPE PENETRATION (FRAMED WALL)




NOTES:
1. PIPE SHALL PENETRATE PERPENDICULARLY AT ACOUSTICALLY SENSITIVE ROOMS.

## A5 CONDENSATE DRAIN TRAP DETAIL

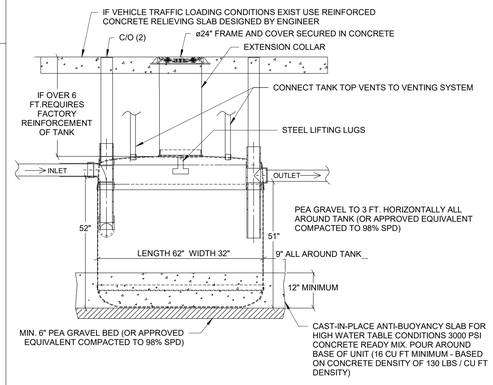



NOTE: 1. DIELECTRIC FITTING TO BE USED WHEN TWO DISSIMILAR METALS ARE TO BE CONNECTED.

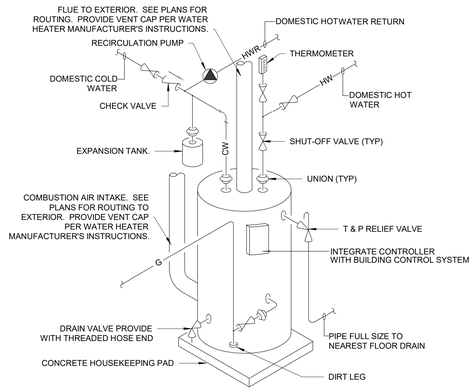
| UNIT TYPE | A | B |
|---|---|---|
| DRAW THRU | 2" [50mm] PLUS X | X |
| BLOW THRU | 1" [25mm] MINIMUM | 2X |

WHERE X = STATIC PRESSURE IN PAN

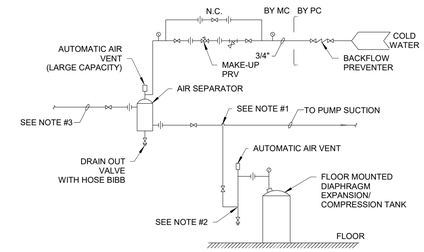
## E6 OIL SEPARATOR DETAIL




## A7 DOMESTIC WATER HEATER PIPING DETAIL

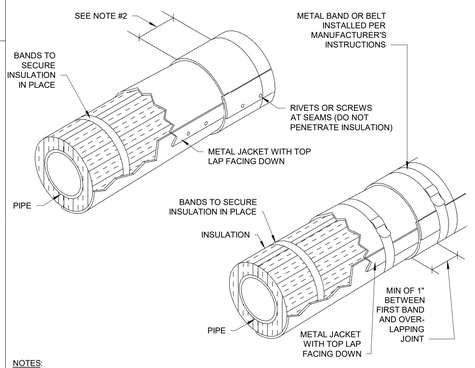



## A8 EXPANSION TANK FITTING DETAIL



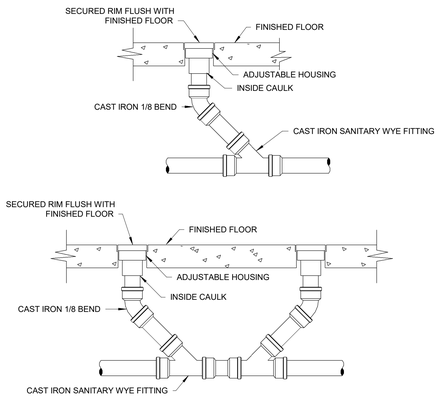

NOTES:
1. CONNECT TO SIDE OF MAIN TO PREVENT AIR OR DEBRIS FROM ENTERING PIPE TO TANK. TOP OR BOTTOM CONNECTION NOT PERMITTED.
2. PROVIDE ANTI THERMOSYPHON LOOP TO PREVENT GRAVITY HEATING OF TANK.
3. FROM BOILER OR HEAT EXCHANGER DISCHARGE ON HOT WATER SYSTEMS.

## A9 FIELD APPLIED METAL JACKETING OVER PIPE INSULATION

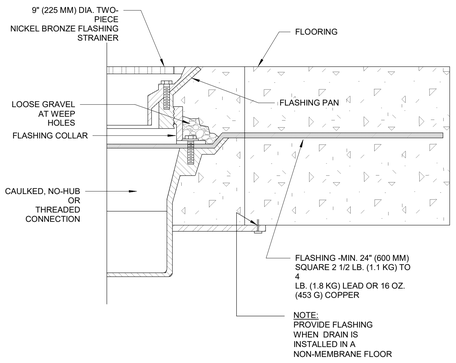



NOTES:
1. LONGITUDINAL JACKETING SEAMS POSITIONED AT 3 OR 9 O'CLOCK ONLY WITH TOP LAP FACING DOWN FOR WEATHER PROOFING.
2. OVERLAP JACKETING A MINIMUM OF 1-1/2".
3. INSTALL HEAT TRACE PER MANUFACTURER'S RECOMMENDATIONS.

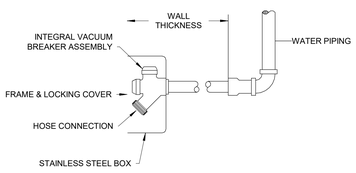
## A10 FLOOR & TWO-WAY CLEANOUT DETAIL



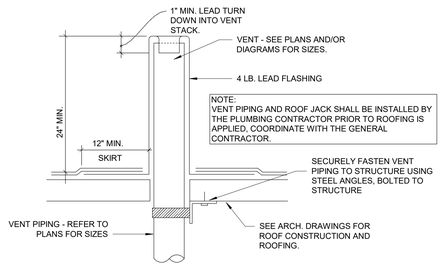

## A11 FLOOR DRAIN DETAIL



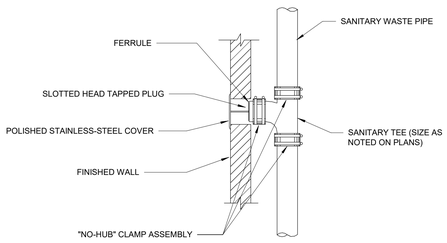

## A12 FREEZE-PROOF HOSE BIBB DETAIL



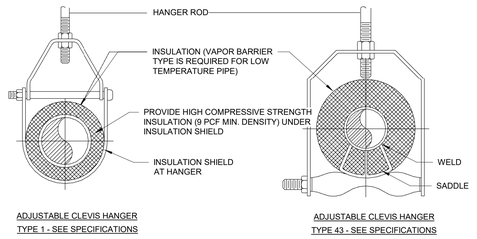

## A13 VENT THROUGH ROOF DETAIL




## A14 WALL CLEANOUT DETAIL

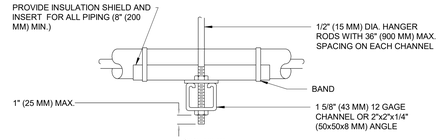



## A15 TYPICAL PIPE HANGERS




ADJUSTABLE CLEVIS HANGER
TYPE 1 - SEE SPECIFICATIONS

ADJUSTABLE CLEVIS HANGER
TYPE 43 - SEE SPECIFICATIONS




SIDE VIEW
TRAPEZE HANGER FOR UP TO 1000 LB. (453 KG) UNIFORM LOAD

| MAXIMUM PIPE/TUBING SUPPORT SPACING | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NOM. SIZE | IN. (MM) | THRU 3/4 THRU (20) | 1 (25) | 1 1/4 (32) | 1 1/2 (40) | 2 (50) | 2 1/2 (65) | 3 (75) | 4 (100) | 5 (125) | 6 (150) | 8 (200) | 10 (250) | 12 (300) | 14 (350) | 16 (400) | 18 (450) | 20 (500) | 24 (600) |
| PIPE | FT. (M) | 7 (2.1) | 7 (2.1) | 7 (2.1) | 9 (2.7) | 10 (3.0) | 11 (3.4) | 12 (3.7) | 14 (4.1) | 16 (4.9) | 17 (5.2) | 19 (5.8) | 22 (6.7) | 23 (7.0) | 25 (7.6) | 27 (8.2) | 28 (8.5) | 30 (9.1) | 32 (9.6) |
| TUBING | FT. (M) | 5 FT 5 FT | 6 (1.8) | 7 (2.1) | 8 (2.4) | 8 (2.4) | 9 (2.7) | 10 (3.0) | 12 (3.7) | 13 (4.0) | 14 (4.1) | 16 (4.9) | - - | - - | - - | - - | - - | - - | - - |
| NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST SIZE ON TRAPEZE. | | | | | | | | | | | | | | | | | | | |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SEAL
DATE OF RECORD

PLUMBING DETAILS

P5.01

PROJECT NO. 00000000



1 P5.01 — P501 Scale: 1/8" = 1'-0"

# ELECTRICAL ABBREVIATIONS

| | | | |
|---|---|---|---|
| 1PH | SINGLE-PHASE | ICCB | INSULATED CASE CIRCUIT BREAKER |
| 1P | 1 POLE (2P,3P,4P, ETC.) | IESNA | ILLUMINATION ENGINEERING SOCIETY OF NORTH AMERICA |
| 2/C | 2 CONDUCTOR (3/C, 4/C, ETC.) | IG | ISOLATED GROUND |
| 2W | 2-WIRE (3W, 4W, ETC.) | IMC | INTERMEDIATE METAL CONDUIT |
| 3PH | THREE-PHASE | I/O | INPUT / OUTPUT |
| | | IR | INFRARED |
| A | AMMETER, AMPERE | | |
| AC | ALTERNATING CURRENT OR ARMORED CABLE | J-BOX | JUNCTION BOX |
| A/C | AIR CONDITIONING UNIT | | |
| ACT | ABOVE COUNTERTOP | kV | KILOVOLT |
| ADDL | ADDITIONAL | kVA | KILOVOLT AMPERE |
| ADJ | ADJACENT, ADJOINING | kV/H | KILOVOLT AMPERE PER HOUR |
| ADO | AUTOMATIC DOOR OPENER | kVAR | KILOVOLT AMPERE REACTIVE |
| A/E | ARCHITECT/ENGINEER | kW | KILOWATT |
| AF | AMPERE FRAME OR AMP FUSE | kWH | KILOWATT HOUR |
| AFC | AVAILABLE FAULT CURRENT | | |
| AFCI | ARC FAULT CIRCUIT INTERRUPTER | LAN | LOCAL AREA NETWORK |
| AFF | ABOVE FINISHED FLOOR | LCP | LIGHTING CONTROL PANEL |
| AFG | ABOVE FINISHED GRADE | LED | LIGHT EMITTING DIODE |
| AHJ | AUTHORITY HAVING JURISDICTION | LF | LINEAR FEET (FOOT) |
| AHU | AIR HANDLING UNIT | LP | LIGHT POLE |
| AIC | AMPERE INTERRUPTING CAPACITY | LRA | LOCKED ROTOR AMPS |
| AL | ALUMINUM | LRP | LIGHTING RELAY PANEL |
| ALT | ALTERNATE | LSIG | LONG, SHORT, INSTANTANEOUS, GROUND |
| AMB | AMBIENT | LS | LIFE SAFETY |
| AMP | AMPERE, AMPACITY, AMPLIFIER | LTG | LIGHTING |
| APPROX | APPROXIMATELY | LTNG | LIGHTNING |
| ARCH | ARCHITECT, ARCHITECTURAL | LV | LOW VOLTAGE |
| AT | AMPERE TRIP | | |
| ATS | AUTOMATIC TRANSFER SWITCH | MAX | MAXIMUM |
| AUTO | AUTOMATIC | MC | METAL-CLAD OR MECHANICAL CONTRACTOR |
| AUX | AUXILIARY | MCA | MINIMUM CIRCUIT AMPS |
| A/V | AUDIO / VISUAL | MCB | MAIN CIRCUIT BREAKER |
| AWG | AMERICAN WIRE GAUGE | MCC | MOTOR CONTROL CENTER |
| | | MCCB | MOLDED CASE CIRCUIT BREAKER |
| BAT | BATTERY | MDP | MAIN DISTRIBUTION PANEL |
| BKR | BREAKER | MECH | MECHANICAL |
| BLDG | BUILDING | MEGB | MAIN ELECTRICAL GROUND BUSBAR |
| BMS | BUILDING MANAGEMENT SYSTEM | MFR | MANUFACTURER |
| BOD | BASIS OF DESIGN | MH | MANHOLE |
| BOF | BOTTOM OF FIXTURE | MIN | MINIMUM |
| BYP | BYPASS | MISC | MISCELLANEOUS |
| | | MOCP | MAXIMUM OVERCURRENT PROTECTION |
| C | CONDUIT | MLO | MAIN LUGS ONLY |
| CAP | CAPACITY | MSB | MAIN SWITCHBOARD |
| CAT | CATALOG | MT,MTD,MTG | MOUNT, MOUNTED, MOUNTING |
| CATV | COMMUNITY ANTENNA TELEVISION | MTGB | MAIN TELECOM GROUND BUSBAR |
| CCTV | CLOSED CIRCUIT TELEVISION | MTR | MOTOR, MOTORIZED |
| CD | CANDELA | MTS | MANUAL TRANSFER SWITCH |
| CD | CONSTRUCTION DOCUMENTS | MV | MEDIUM VOLTAGE |
| CFCI | CONTRACTOR FURNISHED, CONTRACTOR INSTALLED | MVA | MEGAVOLT-AMPERE |
| CFOI | CONTRACTOR FURNISHED, OWNER INSTALLED | MW | MEGAWATT |
| CKT | CIRCUIT | | |
| CKT BKR | CIRCUIT BREAKER | N/A | NOT APPLICABLE |
| CLF | CURRENT LIMITING FUSE | N.C. | NORMALLY CLOSED |
| CLG | CEILING | NEC | NATIONAL ELECTRICAL CODE |
| CMU | CONCRETE MASONRY UNIT | NEMA | NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION |
| COAX | COAXIAL CABLE | NEUT OR N | NEUTRAL |
| COMB | COMBINATION | NFPA | NATIONAL FIRE PROTECTION ASSOCIATION |
| COMM | COMMUNICATION | NIC | NOT IN CONTRACT |
| CONC | CONCRETE | NL | NIGHT LIGHT |
| CONN | CONNECTION | N.O. | NORMALLY OPEN |
| CONST | CONSTRUCTION | NTS | NOT TO SCALE |
| CONT | CONTINUE, CONTINUATION | | |
| CONTR | CONTRACTOR | OC | ON CENTER |
| CPT | CONTROL POWER TRANSFORMER | OFCI | OWNER FURNISHED, CONTRACTOR INSTALLED |
| CR | CRITICAL | OFOI | OWNER FURNISHED, OWNER INSTALLED |
| CRI | COLOR RENDERING INDEX | OL | OVERLOAD |
| CT | CURRENT TRANSFORMER | | |
| CTR | CENTER | P | POLE |
| CU | COPPER | PA | PUBLIC ADDRESS |
| | | PB | PULL BOX, OR PUSHBUTTON |
| DB | DECIBEL, DUCTBANK | PF | POWER FACTOR |
| DC | DIRECT CURRENT | PH | PHASE |
| DEG C | DEGREES CELSIUS | PIV | POST INDICATOR VALVE |
| DEG F | DEGREES FAHRENHEIT | PLC | PROGRAMMABLE LOGIC CONTROLLER |
| DEMO | DEMOLITION | PNL | PANEL |
| DIA | DIAMETER | PP | POWER POLE |
| DIAG | DIAGRAM | PR | PAIR |
| DISC | DISCONNECT | PRI | PRIMARY |
| DIST | DISTRIBUTION | PT | POTENTIAL TRANSFORMER |
| DN | DOWN | PVC | POLYVINYL CHLORIDE (PLASTIC) |
| DPDT | DOUBLE POLE, DOUBLE THROW | PWR | POWER |
| DPST | DOUBLE POLE, SINGLE THROW | | |
| DS | DISCONNECT SWITCH | QTY | QUANTITY |
| DWG | DRAWING | | |
| | | RCP | REFLECTED CEILING PLAN |
| EC | ELECTRICAL CONTRACTOR | RCPT | RECEPTACLE |
| EG | EQUIPMENT GROUND | RGS | RIGID GALVANIZED STEEL |
| EGB | ELECTRICAL GROUND BUSBAR | RMS | ROOT MEAN SQUARE |
| EL | ELEVATION | RM | ROOM |
| ELEC | ELECTRIC, ELECTRICAL | RTU | ROOF TOP UNIT |
| EM | EMERGENCY | | |
| EMI | ELECTROMAGNETIC INTERFERENCE | SA | SURGE ARRESTER |
| EMT | ELECTRICAL METALLIC TUBING | SCC | SHORT CIRCUIT CAPACITY |
| E.O. | ELECTRICALLY OPERATED | SEC | SECONDARY |
| EPMS | ELECTRICAL POWER MANAGEMENT SYSTEM | SF | SQUARE FOOT (FEET) |
| EPO | EMERGENCY POWER OFF | SP | SPARE |
| EWC | ELECTRIC WATER COOLER | SPD | SURGE PROTECTIVE DEVICE |
| EWH | ELECTRIC WATER HEATER | SPEC | SPECIFICATION |
| EXIST | EXISTING | SPST | SINGLE POLE, SINGLE THROW |
| EXP | EXPLOSION PROOF | STD | STANDARD |
| | | SW | SWITCH |
| FA | FIRE ALARM | SWBD | SWITCHBOARD |
| FAAP | FIRE ALARM ANNUNCIATOR PANEL | SWGR | SWITCHGEAR |
| FABP | FIRE ALARM BOOSTER POWER SUPPLY PANEL | SYM | SYMMETRICAL |
| FACP | FIRE ALARM CONTROL PANEL | SYS | SYSTEM |
| FBO | FURNISHED BY OTHERS | | |
| FC | FOOTCANDLE | T/C | TIME CLOCK |
| FCU | FAN COIL UNIT | TL | TWIST LOCK |
| FIXT | FIXTURE | TR | TAMPER RESISTANT, TIMER RELAY |
| FLA | FULL LOAD AMPS | TTB | TELEPHONE TERMINAL BOARD |
| FLEX | FLEXIBLE METALLIC CONDUIT | TV | TELEVISION |
| FLR | FLOOR | TYP | TYPICAL |
| FLT | FLOODLIGHT | | |
| FLUOR | FLUORESCENT | UC | UNDER COUNTER |
| FT | FEET OR FOOT | UG | UNDERGROUND |
| FU | FUSE | UL | UNDERWRITERS LABORATORY |
| | | UNO | UNLESS NOTED OTHERWISE |
| G/GRD/GND | GROUND | UPS | UNINTERRUPTIBLE POWER SUPPLY |
| GA | GAUGE | UTIL | UTILITY |
| GAL | GALLON | | |
| GC | GENERAL CONTRACTOR | V | VOLT, VOLTAGE |
| GEC | GROUNDING ELECTRODE CONDUCTOR | VA | VOLT AMPERE |
| GEN | GENERATOR | VAR | VOLT AMPERE REACTIVE |
| GFCI | GROUND FAULT CIRCUIT INTERRUPTER | VFD | VARIABLE FREQUENCY DRIVE |
| GRC | GALVANIZED RIGID CONDUIT | | |
| GTB | GROUND TERMINAL BOX | W | WATT |
| | | W/ | WITH |
| HH | HANDHOLE | WG | WIRE GUARD |
| HOA | HAND-OFF-AUTOMATIC | WH | WATT HOUR, WATER HEATER |
| HP | HORSEPOWER | W/O | WITHOUT |
| HRG | HIGH RESISTANCE GROUND | WP | WEATHERPROOF |
| HV | HIGH VOLTAGE | | |
| HVAC | HEATING, VENTILATING AND AIR CONDITIONING | XFER | TRANSFER |
| HZ | HERTZ | XFMR | TRANSFORMER |

# ONE-LINE DIAGRAM SYMBOLS

| | | | |
|---|---|---|---|
| X, Y | DISCONNECT SWITCH<br>X INDICATES SIZE,<br>Y INDICATES NUMBER OF POLES IF OTHER THAN 3. | X, Y, Z | CIRCUIT BREAKER<br>X INDICATES FRAME SIZE,<br>Y INDICATES TRIP RATING,<br>Z INDICATES NUMBER OF POLES IF OTHER THAN 3. |
| X, Z, Y | FUSED SWITCH<br>X INDICATES SWITCH SIZE,<br>Y INDICATES FUSE SIZE,<br>Z INDICATES NUMBER OF POLES IF OTHER THAN 3. | X, Z, LSI, Y | DRAWOUT CIRCUIT BREAKER<br>X INDICATES FRAME SIZE,<br>Y INDICATES TRIP RATING,<br>Z INDICATES NUMBER OF POLES IF OTHER THAN 3. |
| X | FUSE<br>X INDICATES SIZE | | TRANSFORMER<br>KVA, PRI & SEC VOLTAGE,<br>K-RATING, ETC. AS INDICATED OR SPECIFIED. |
| | TRANSFER SWITCH<br>AMP RATING, NUMBER OF POLES, ETC. AS INDICATED OR SPECIFIED. | | FULL VOLTAGE, NON-REVERSING STARTER |
| | FUSED POTENTIAL TRANSFORMER | | CURRENT TRANSFORMER |
| | EARTH GROUND | K | KEYED INTERLOCK |
| GFP | GROUND FAULT PROTECTOR | XXX | PANELBOARD |
| SPD | SURGE PROTECTIVE DEVICE | | |
| A | AMMETER | W | WATT METER |
| V | VOLTMETER | G | GENERATOR |
| | | M | MOTOR (M=HP) |

# GENERAL ELECTRICAL NOTES

A. THIS IS A STANDARD LEGEND SHEET. SOME SYMBOLS OR ABBREVIATIONS APPEAR ON THIS SHEET AND NOT ON PROJECT DRAWINGS.

B. UNLESS OTHERWISE INDICATED, MOUNTING ELEVATIONS ARE CENTERLINE ELEVATIONS.

C. CONDUIT HOMERUNS NOT OTHERWISE MARKED SHALL BE CONSIDERED 2#12 AND 1#12 GROUND IN 3/4" MIN. CONDUIT.

D. CIRCUITS ARE RATED FOR INDOOR OVERHEAD ROUTING. OBTAIN ENGINEER APPROVAL ON DERATING FOR UNDERGROUND, TRAY, PLENUM AND ROOF-MOUNTED INSTALLATIONS. LIMIT VOLTAGE DROP TO 2% FOR FEEDERS AND 3% FOR BRANCH CIRCUITS.

E. CONTRACTOR SHALL NOT BE PERMITTED TO CONSOLIDATE INDIVIDUAL BRANCH CIRCUIT HOME RUNS EXCEPT AS FOLLOWS:
   a: WHEN SHOWN ON DRAWINGS
   b: WITH PRIOR WRITTEN APPROVAL BY THE ENGINEER
   c: ABOVE ACCESSIBLE CEILING NEAR PANEL.
ALL 120V & 277V BRANCH CIRCUITS SHALL HAVE DEDICATED NEUTRAL CONDUCTORS. CONSOLIDATED HOMERUNS SHALL HAVE A MAXIMUM OF 3 SEPARATE PHASE CONDUCTORS.

F. WIRE AND CONDUIT SIZES AND QUANTITIES FOR FEEDERS AND BRANCH CIRCUITS WHICH ARE SHOWN ON ONE-LINE DIAGRAMS APPLY TO PLAN SHEETS.

G. ALL WALL AND FLOOR PENETRATIONS FOR CONDUIT INSTALLATION SHALL BE PROPERLY SEALED AND FIRE STOPPED.

H. NEMA 1 UNLESS INDICATED OTHERWISE, 3R=NEMA 3R, 4X=NEMA 4X, WP=WEATHERPROOF, X=EXPLOSIONPROOF.

J. TRAVELERS FOR MULTIPLE LOCATION SWITCHING ARE NOT MARKED ON THE PLANS. CONTRACTOR SHALL PROVIDE QUANTITY OF CONDUCTORS REQUIRED FOR THE INDICATED SWITCHING.

K. CIRCUIT IDENTIFICATION SHALL BE AS FOLLOWS:
   A-5,7 INDICATES TWO SINGLE POLE BREAKERS AT CIRCUITS 5 & 7 OF PANELBOARD A.
   F-19/21/23 INDICATES A THREE POLE BREAKER AT CIRCUITS 19, 21 & 23 OF PANELBOARD F.

L. SERIES OR CASCADED RATINGS ARE NOT ALLOWED UNLESS SPECIFICALLY NOTED.

M. NO WIRING DEVICES OR OUTLET BOXES SHALL BE INSTALLED BACK-TO-BACK. CONTRACTOR SHALL COORDINATE ALL RECEPTACLE MOUNTING HEIGHTS WITH APPROVED CASEWORK SHOP DRAWINGS PRIOR TO INSTALLATION OF AFFECTED RECEPTACLES.

N. WALL-MOUNTED EXIT SIGNS INDICATED ABOVE DOORS SHALL BE CENTERED BETWEEN THE TOP OF DOOR FRAME AND CEILING IF VERTICAL DISTANCE BETWEEN THE TWO IS 24 INCHES OR LESS; OTHERWISE, MOUNT BOTTOM OF EXIT SIGN 6 INCHES ABOVE TOP OF DOOR FRAME.

P. CONSTRUCTION DETAILS SHOWN ON X-X SERIES DRAWINGS SHOW TYPICAL INSTALLATION UNLESS OTHERWISE NOTED AND APPLY TO ELECTRICAL WORK INCLUDED IN THIS PACKAGE EVEN THOUGH NOT SPECIFICALLY REFERENCED ON THE PLAN DRAWINGS.

Q. COORDINATE LOCATIONS OF DEVICES WITH ARCHITECTURAL ELEVATIONS AND DETAILS. ARCHITECTURAL ELEVATIONS AND DETAILS TAKE PRECEDENCE OVER LOCATIONS SHOWN ON ELECTRICAL DRAWINGS.

R. DRAWINGS REPRESENT ELECTRICAL DESIGN INTENT. CONTRACTOR SHALL FURNISH, INSTALL, AND SIZE ALL SLEEVES, HOLES, CORES, PATCHING, SLOTS, ANCHORS, BRACKETS, SUPPORTS, JUNCTION BOXES, PULL BOXES, AND OTHER APPURTENANCES NECESSARY TO EXECUTE THE CONTRACT DOCUMENTS COMPLETE. SOME OF THESE ITEMS MAY BE SHOWN ON THE DRAWINGS FOR CLARITY OR DESIGN PREFERENCE, HOWEVER, NOT ALL OF THE ITEMS, NECESSARY FOR COMPLETE EXECUTION AND INSTALLATION, ARE SHOWN.

S. THE RECOMMENDED CIRCUIT LENGTHS AND CIRCUIT LOADING SHALL NOT EXCEED THESE REQUIREMENTS WHEN INSTALLING THE EMERGENCY LIGHTING REMOTE HEADS. 24 VOLT WIRE SIZE, #10AWG.

| TOTAL WATTS | WIRING DISTANCE IN FEET |
|---|---|
| 8 | 1,698 |
| 16 | 754 |
| 24 | 543 |
| 32 | 377 |
| 40 | 308 |
| 48 | 271 |
| 56 | 242 |
| 64 | 194 |

T. ALL CIRCUITING IS BASED ON MECHANICAL SCHEDULE ON DRAWING M6.01 AND PLUMBING SCHEDULE ON DRAWING P0.01. ANY DEVIATIONS ON MANUFACTURERS THAT AFFECTS CIRCUITING, OVERCURRENT PROTECTION, ETC., THIS WORK SHALL BE REVISED, FURNISHED, AND INSTALLED AT NO ADDITIONAL COST TO THE OWNER.

# LIGHTING PLAN SYMBOLS

| | |
|---|---|
| X, $ Y | WALL SWITCH WITH COVERPLATE, STANDARD MOUNTING HEIGHT 48" A.F.F.: x LOWER CASE LETTER INDICATES CONTROL, Y UPPER CASE LETTERINDICATES THE FOLLOWING:<br><br>BLANK =SINGLE POLE<br>3 =THREE POLE (3-WAY)<br>WP =WEATHER-RESISTANT & WEATHERPROOF-IN-USE |
| $ LVTb | SINGLE GANG, LOW VOLTAGE TIMER SWITCH, LOWER CASE LETTER INDICATES CONTROL |
| $ LVOSa | SINGLE GANG, LOW VOLTAGE OCCUPANCY (VACANCY TYPE) SENSOR, LOWER CASE LETTER INDICATES CONTROL |
| $ LVa | SINGLE GANG, LOW VOLTAGE MOMENTARY PUSHBUTTON (DIMMER) SWITCH, LOWER CASE LETTER INDICATES CONTROL |
| $ LVDa,b | 2-GANG W/ (2) LOW VOLTAGE MOMENTARY PUSHBUTTON (DIMMER) SWITCHES, LOWER CASE LETTERS INDICATE CONTROLS |
| $ LVDa,b,c | 4-GANG W/ (3) LOW VOLTAGE MOMENTARY PUSHBUTTON (DIMMER) SWITCHES & (1) 5-BUTTON SCENE SWITCH, LOWER CASE LETTERS INDICATE CONTROLS |
| DH | CLG MTD DAYLIGHT HARVESTING (DH) SENSOR, SINGLE ZONE CLOSED LOOP TYPE |
| OS | CLG OR WALL MTD OCCUPANCY SENSOR (OS), PASSIVE INFRARED TYPE |
| VS | CLG MTD VACANCY SENSOR (VS), DUAL TECHNOLOGY TYPE |
| PC | PHOTOCELL, AIM IN NORTHERN DIRECTION |
| XX x,y # | LIGHT FIXTURE - "#" INDICATES CIRCUIT NUMBER, "XX" INDICATES FIXTURE TYPE (REFER TO LUMINAIRE SCHEDULE), & "x,y" INDICATES SWITCH CONTROL. |
| | LIGHT FIXTURE ON LIFE SAFETY BRANCH CIRCUIT |
| | EMERGENCY BATTERY PACK (REFER TO LUMINAIRE SCHEDULE) |
| # | CEILING MOUNTED, EXIT SIGN (REFER TO LUMINAIRE SCHEDULE), DIRECTIONAL ARROWS AS INDICATED ON PLANS, SHADED SIDES ARE ILLUMINATED. |
| # | CEILING MOUNTED, DOUBLE FACED EXIT SIGN |
| # | WALL MOUNTED, SINGLE FACED EXIT SIGN (REFER TO LUMINAIRE SCHEDULE), DIRECTIONAL ARROWS AS INDICATED ON PLANS, SHADED SIDES ARE ILLUMINATED. |
| # | WALL MOUNTED, DOUBLE FACED EXIT SIGN |
| | DOWNLIGHT (REFER TO LUMINAIRE SCHEDULE) |
| | WALL MOUNTED LIGHT (REFER TO LUMINAIRE SCHEDULE) |

# CIRCUITS

| | |
|---|---|
| # | HOME RUN. HASH MARKS INDICATE QTY OF WIRE, # INDICATES SIZE OF WIRE OTHER THAN #12 AWG. ALL UNMARKED CONDUITS TO CONTAIN 2-#12 AWG PLUS GND WIRE, UNLESS NOTED OTHERWISE. |
| | CIRCUIT CONTINUATION |

# FIRE ALARM SYMBOLS

| | |
|---|---|
| X WP X WP | FIRE ALARM DEVICE, X INDICATES TYPE<br>WP INDICATES WEATHERPROOF-IN-USE |
| S | SMOKE DETECTOR - PHOTOELECTRIC |
| RTS | REMOTE TEST STATIONS |
| H | HEAT DETECTOR |
| D | DUCT DETECTOR (FURNISHED BY MC, WIRING BY EC) |
| PS | MANUAL PULL STATION |
| F | WATER FLOW SWITCH (PROVIDED BY MC, WIRING BY EC) |
| T | VALVE TAMPER SWITCH (PROVIDED BY MC, WIRING BY EC) |
| R | CONTROL RELAY MODULE |
| M | MONITOR MODULE |
| L | STROBE LIGHT |
| SL | HORN STROBE |
| FACP | FIRE ALARM CONTROL PANEL |
| FAAP | FIRE ALARM ANNUNCIATOR PANEL |
| FAXP | FIRE ALARM POWER EXTENDER PANEL |
| PIV | FIRE ALARM YARD MOUNT POST INDICATOR VALVE (PROVIDED BY MC, WIRING BY EC |

# POWER PLAN SYMBOLS

| | |
|---|---|
| X Y Z | NORMAL POWER DUPLEX RECEPTACLE WITH COVERPLATE, NEMA 5-20R, STANDARD MOUNTING HEIGHT 18" A.F.F. UNLESS OTHERWISE NOTED: X INDICATES CIRCUIT NUMBER, Y INDICATES NON-STANDARD MOUNTING HEIGHT, AND Z INDICATES THE FOLLOWING:<br><br>A =ABOVE COUNTER TOP; MTD 44" A.F.F.<br>AC =HVAC CONTROL CONNECTION ABOVE CEILING<br>COPY =COPIER; MTD 42" A.F.F.<br>COFF =COFFEE MAKER; MTD 44" A.F.F.<br>DW =DISHWASHER<br>DO =DOOR OPERATOR<br>EWC =ELECTRIC WATER COOLER<br>EXTR =EXTRACTOR<br>GD =GARBAGE DISPOSAL<br>ICE =ICE MACHINE; MTD 44" A.F.F.<br>M =MICROWAVE; MTD 44" A.F.F.<br>OC =CONTROLLED VIA OCCUPANCY SENSOR<br>P =PRINTER; MTD 44" A.F.F.<br>REF =REFRIGERATOR; MTD 48" A.F.F.<br>S =SURGE PROTECTED<br>SHR =SHREDDER<br>TL =TWIST LOCK<br>T =TAMPER RESISTANT<br>TV =TELEVISION; MTD 72" A.F.F., UNLESS NOTED OTHERWISE<br>U =USB<br>UC REF =UNDER COUNTER REFRIGERATOR<br>V =VENDING, MTD 48" A.F.F.<br>WP =WEATHER PROOF<br>XP =EXPLOSION PROOF |
| | EMERGENCY DUPLEX RECEPTACLE, SAME NOTATION AS ABOVE. |
| | GFCI DUPLEX RECEPTACLE , SAME NOTATION AS ABOVE. |
| | EMERGENCY GFCI RECEPTACLE, SAME NOTATIONS AS ABOVE. |
| | DOUBLE DUPLEX RECEPTACLE , SAME NOTATION AS ABOVE. |
| | EMERGENCY DOUBLE DUPLEX RECEPTACLE, SAME NOTATION AS ABOVE. |
| | SIMPLEX RECEPTACLE, SAME NOTATION AS ABOVE. |
| | EMERGENCY SINGLE RECEPTACLE, SAME NOTATION AS ABOVE. |
| X | SPECIAL RECEPTACLE, 'X' INDICATES THE FOLLOWING:<br>CS = NEMA L6-50R<br>SA = NEMA L6-30R |
| X | EMERGENCY SPECIAL RECEPTACLE, 'X' INDICATES SAME NOTATION AS "SPECIAL RECEPTACLE" ABOVE. |
| | FLOOR BOX WITH FLUSH MOUNTED DEVICE |
| | CEILING MOUNTED DUPLEX RECEPTACLE |
| J | JUNCTION BOX / EQUIPMENT CONNECTION<br>AV = AUDIO VISUAL WALL BOX FOR FLAT PANEL DISPLAY<br>IR = CEILING MOUNTED INFRARED HEATER |
| M | 1-PHASE MOTOR CONNECTION |
| M | 3-PHASE MOTOR CONNECTION |
| m $ | MANUAL MOTOR STARTER, TOGGLE TYPE, WITH THERMAL OVERLOAD DEVICE |
| | NON-FUSED DISCONNECT SWITCH |
| F | FUSED DISCONNECT SWITCH, FUSE SIZE AS SHOWN<br>WP = NEMA 3R, WEATHERPROOF |
| | COMBINATION MOTOR STARTER/DISCONNECT |
| | PUSH BUTTON, TYPE AS INDICATED OR NOTED |
| | PANELBOARD (SIZED TO SCALE) |
| | POWER TRANSFORMER (SIZED TO SCALE) |
| | GROUND ROD |
| | GROUND BONDING POINT TO STEEL STRUCTURE, REBAR, PIPE, ETC. |
| | GROUNDING CONNECTION (TYPE AS SHOWN OR NOTED) |
| | BARE COPPER GROUND CONDUCTOR, SIZE AS SHOWN |
| | GROUND BAR |
| MH X | MANHOLE: X INDICATES TYPE AS FOLLOWS<br>P = POWER MANHOLE<br>T = TELECOMMUNICATIONS MANHOLE |

# PANELBOARD IDENTIFICATION

R 1 W

**LOAD DESIGNATION:**
E - EMERGENCY PANELBOARD
L - LIGHTING (NORMAL) PANELBOARD
M - MECHANICAL PANELBOARD
R - RECEPTACLE/POWER PANELBOARD

**SEQUENTIAL NUMBER**
OF PARTICULAR TYPE OF PANEL IN THIS AREA:
(BLANK) - DISTRIBUTION STYLE PANEL
1 - FIRST
2 - SECOND
3 - THIRD
4 - FOURTH
5 - FIFTH
6 - SIXTH
7 - SEVENTH
8 - EIGHTH
9 - NINTH

**EAST OR WEST (LOCATION):**
E - EAST
W - WEST



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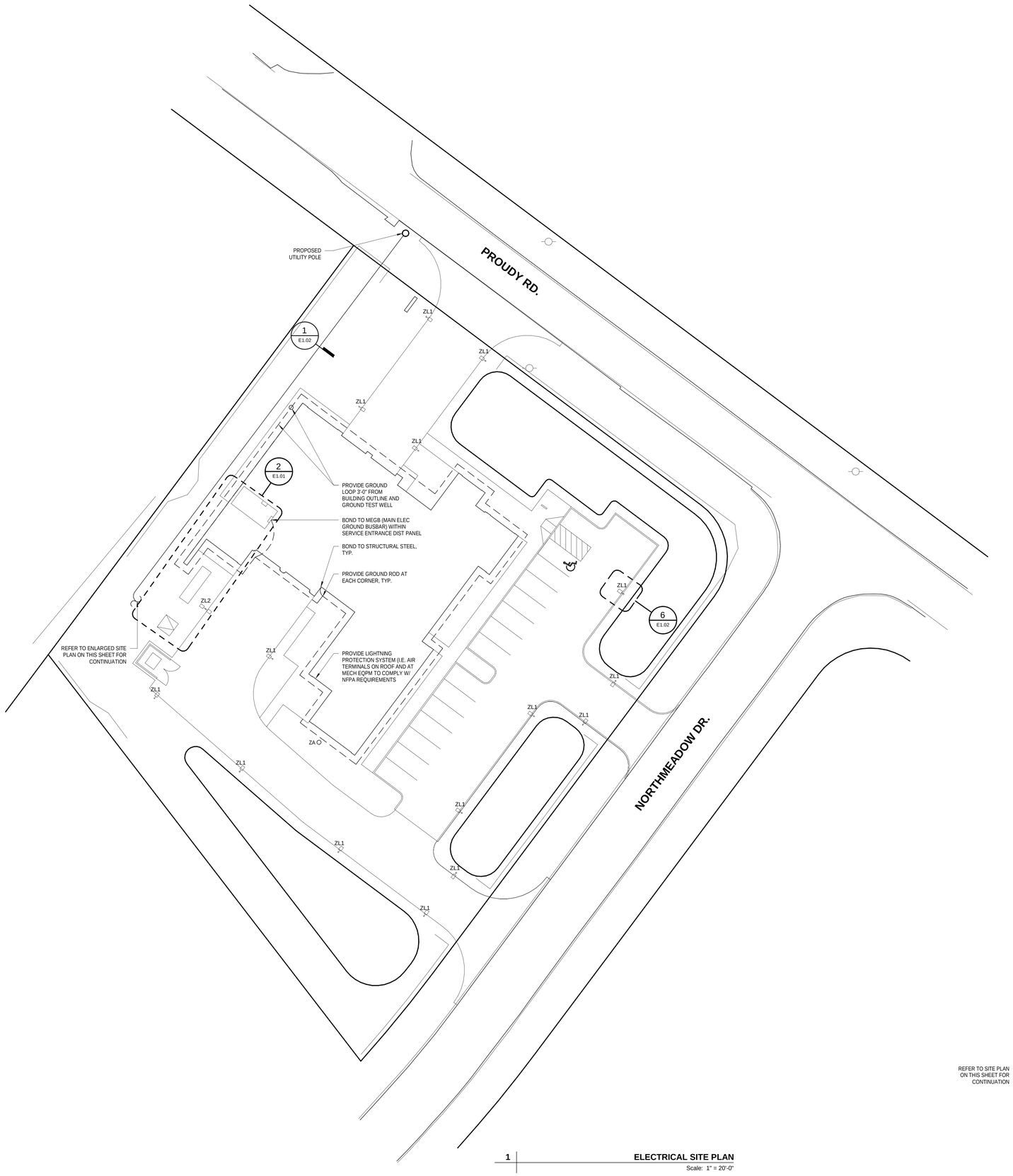
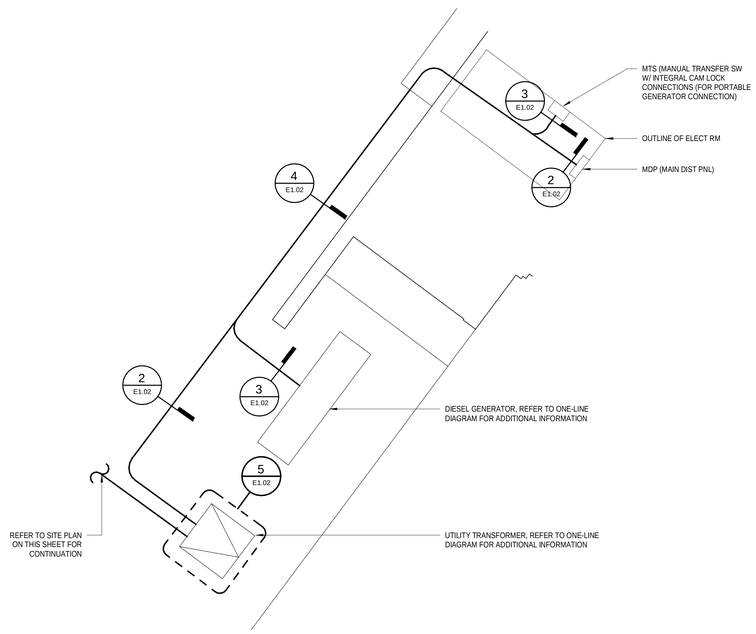
ELECTRICAL SYMBOLS AND ABBREVIATIONS

E0.01

PROJECT NO. 60593642




**1** **ELECTRICAL SITE PLAN**
Scale: 1" = 20'-0"




**2** **ENLARGED ELECTRICAL SITE PLAN**
E1.01 Scale: 1/8" = 1'-0"



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ELECTRICAL SITE PLAN

E1.01

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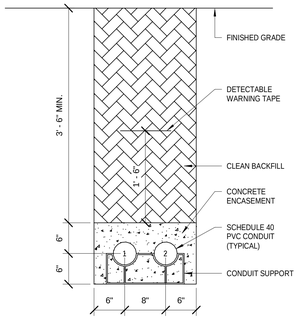
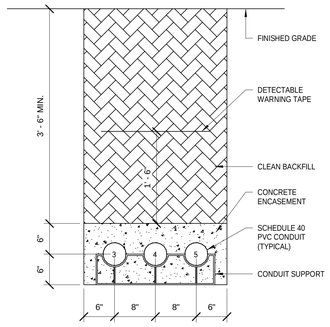
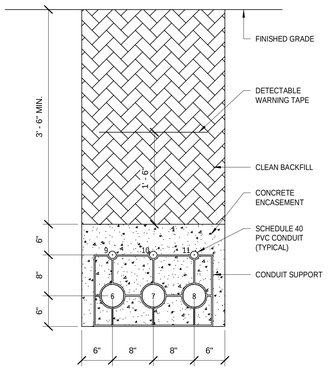


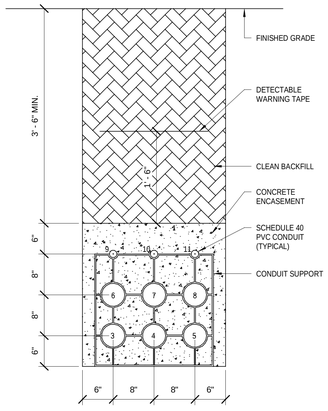

**1 DUCT BANK SECTION 1**
E1.01 Scale: 1" = 1'-0"




**2 DUCT BANK SECTION 2**
E1.01 Scale: 1" = 1'-0"




**3 DUCT BANK SECTION 3**
E1.01 Scale: 1" = 1'-0"

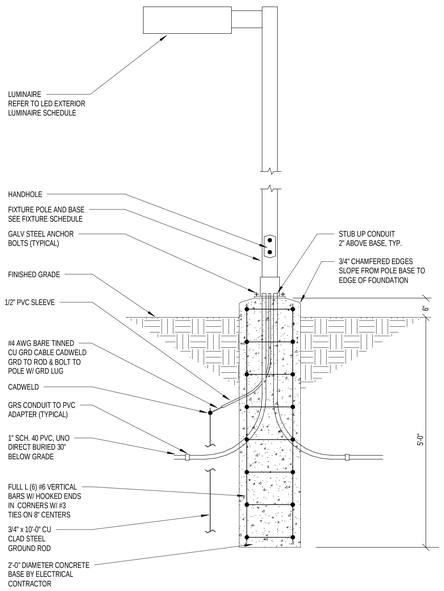



**4 DUCT BANK SECTION 4**
E1.01 Scale: 1" = 1'-0"

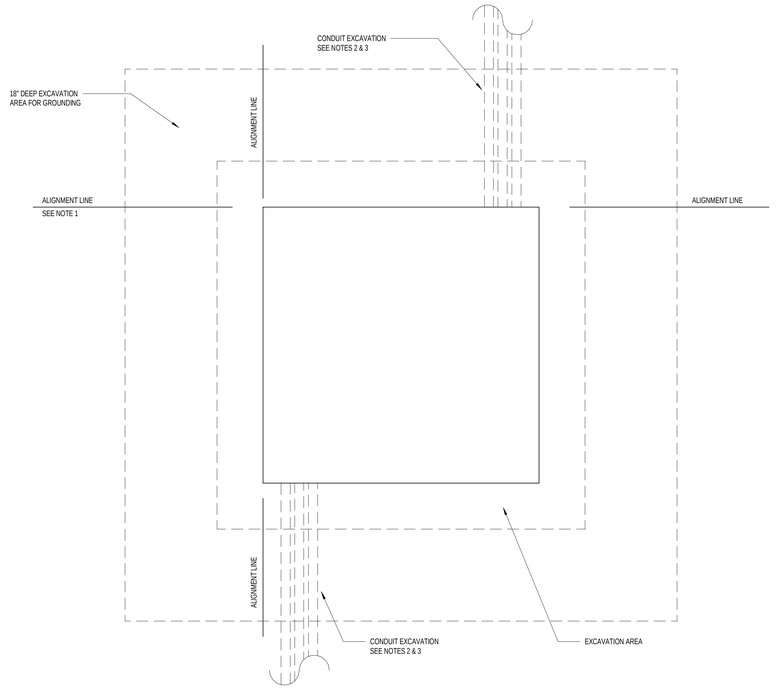
NOTES:

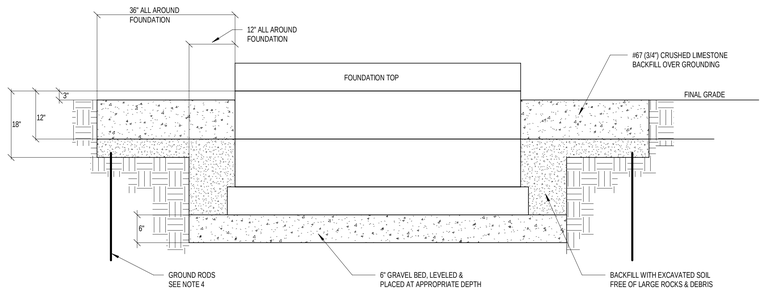
1. ROCK AND/OR ADVERSE SOIL CONDITIONS MAY BE PRESENT ON SITE. THE ELECTRICAL CONTRACTOR SHALL COORDINATE INSTALLATION REQUIREMENTS FOR BELOW GRADE WORK WITH GEOTECHNICAL REPORT, AND SHALL INCLUDE IN HIS BID ANY WORK RELATED TO GEOTECHNICAL CONSIDERATIONS AS IT MAY PERTAIN TO THE INSTALLATION OF ELECTRICAL DUCT BANKS.
2. IF 3'-0" MINIMUM COVER REQUIREMENTS CAN NOT BE MAINTAINED, CONTACT THE ENGINEER FOR DIRECTION.
3. PROVIDE REINFORCING BARS PER SPEC SECTION 260543.
4. FOR ALL ADDITIONAL INSTALLATION REQUIREMENTS REFER TO SPEC SECTION 260543.

| CONDUIT SCHEDULE | | | |
|---|---|---|---|
| TAG | SIZE | FROM | TO |
| 1 | 4" | PROPOSED UTILITY POLE | UTILITY TRANSFORMER (SPARE W/ PULL WIRE, STUB-UP, AND CAP) |
| 2 | 4" | PROPOSED UTILITY POLE | UTILITY TRANSFORMER |
| 3 | 4" | UTILITY TRANSFORMER | ELEC RM 139 MDP (MAIN DISTRIBUTION PANEL) |
| 4 | 4" | UTILITY TRANSFORMER | ELEC RM 139 MDP (MAIN DISTRIBUTION PANEL) |
| 5 | 4" | UTILITY TRANSFORMER | ELEC RM 139 MDP (MAIN DISTRIBUTION PANEL) |
| 6 | 4" | GENERATOR | ELEC RM 139 MTS (MANUAL TRANSFER SWITCH) |
| 7 | 4" | GENERATOR | ELEC RM 139 MTS (MANUAL TRANSFER SWITCH) |
| 8 | 4" | GENERATOR | ELEC RM 139 MTS (MANUAL TRANSFER SWITCH) |
| 9 | 1" | GENERATOR CONTROL PANEL | GENERATOR ANNUCIATOR PANEL AND FACP |
| 10 | 1" | GENERATOR CONTROL PANEL | ELEC RM 139 ATS-LS, ATS-DP1, ATS-RTU STARTING CKTS |
| 11 | 1" | GEN JACKET WATER HTR & BATT CHARGER | ELEC RM 139 PANEL E1W |




**6 SITE LIGHTING POLE BASE DETAIL**
E1.01 Scale: 12" = 1'-0"




NOTES:

1. FOR DELIVERY OF PRE-CAST FOUNDATION, THE CUSTOMER MUST COMPLETE THE FOLLOWING: EXCAVATION TO THE DESIGNATED DEPTH; 6" GRAVEL BED INSTALLED (TAMPED & LEVELED AT APPROPRIATE DEPTH); PAVEMENT (EITHER CONCRETE ASPHALT OR GRASSCRETE) TO WITHIN 10' OF INSTALLATION FOR DELIVERY TRUCK; PAINTED LINES OR STAKES & STRING FOR ALIGNMENT IN PLACE; THREE 4" X 4" LUMBER OFF TO SIDE FOR UNLOADING FOUNDATION TOP (AT DELIVERY TIME).
2. CUSTOMER TO PROVIDE, INSTALL, AND SEAL A MIN. 5' SECTION OF PVC CONDUIT THRU THE WALL OF THE FOUNDATION BASE (SLOPING DOWN AWAY FROM FOUNDATION) FOR FE OPERATING CO. (FEOC) PRIMARY CABLE AT FEOC DESIGNATED LOCATION. CONDUIT POSITIONS VARY. REFER TO FEOC CONSTRUCTION PLANS FOR ACTUAL LOCATIONS.
3. EXCAVATION FOR CONDUITS CAN BE DONE AT SAME TIME AS FOR FOUNDATION.
4. GROUNDING PROVIDED BY FEOC.

**5 UTILITY TRANSFORMER FOUNDATION DETAIL**
E1.01 Scale: 12" = 1'-0"

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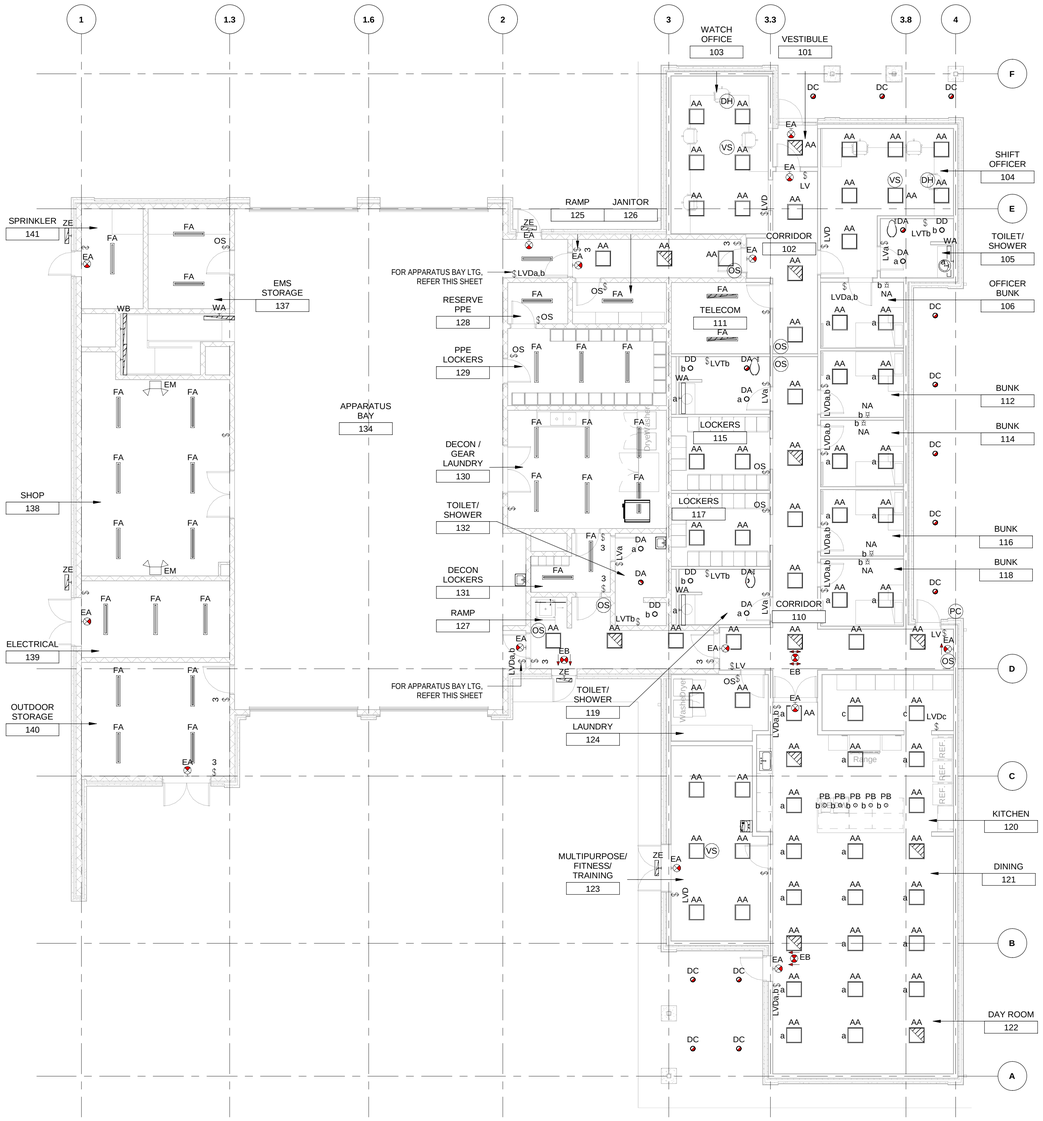
ELECTRICAL SITE SECTION AND DETAILS

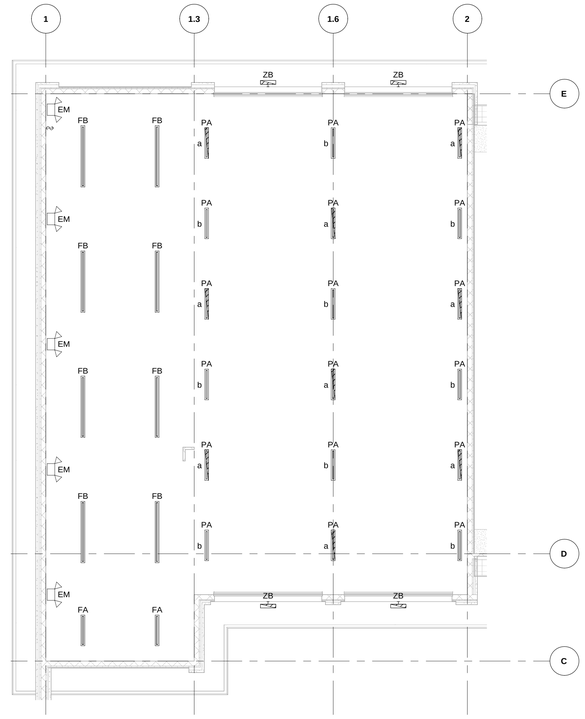
E1.02

PROJECT NO. 60593642




1 **FIRST FLOOR LIGHTING PLAN**

Scale: 1/8" = 1'-0"




2 **MEZZANINE LIGHTING PLAN**

Scale: 1/8" = 1'-0"

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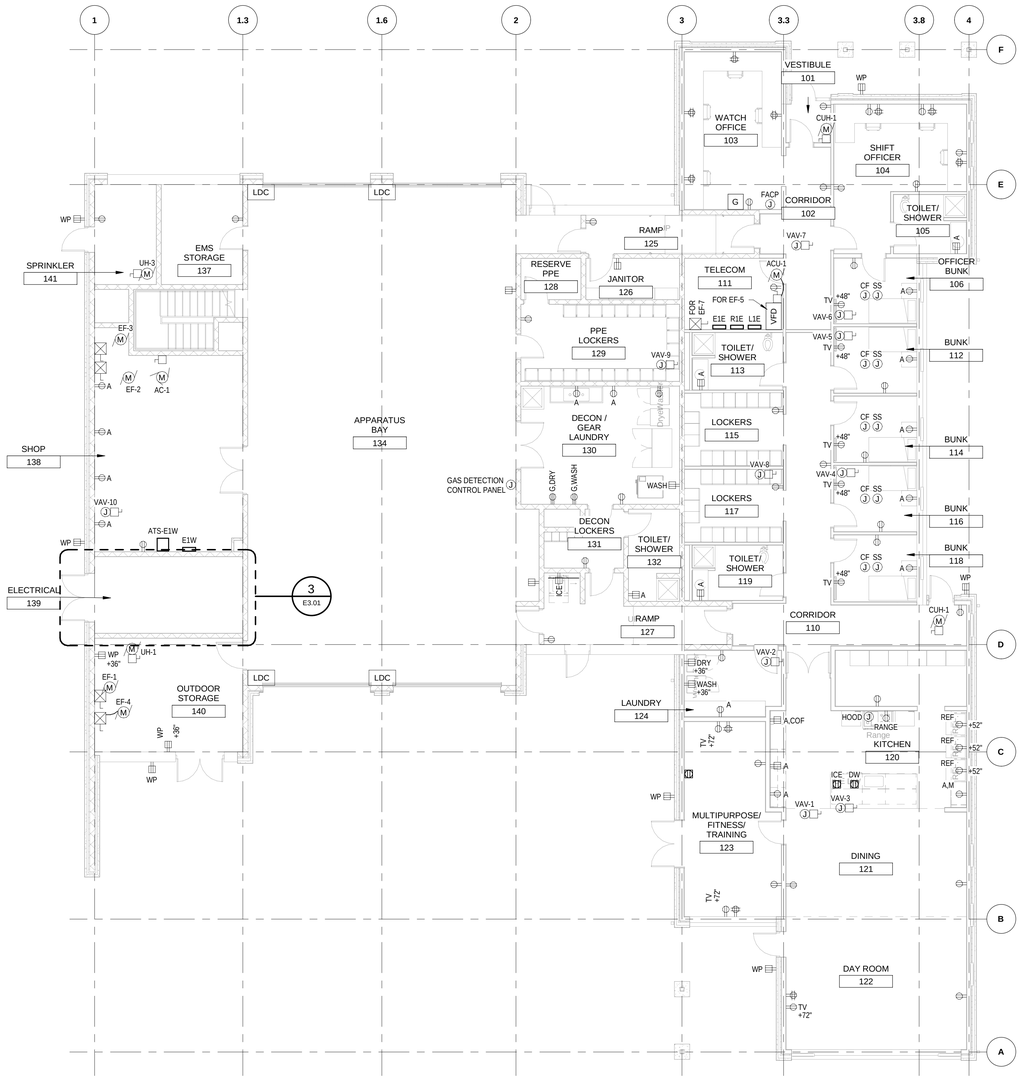
FIRST FLOOR AND MEZZANINE LIGHTING PLANS

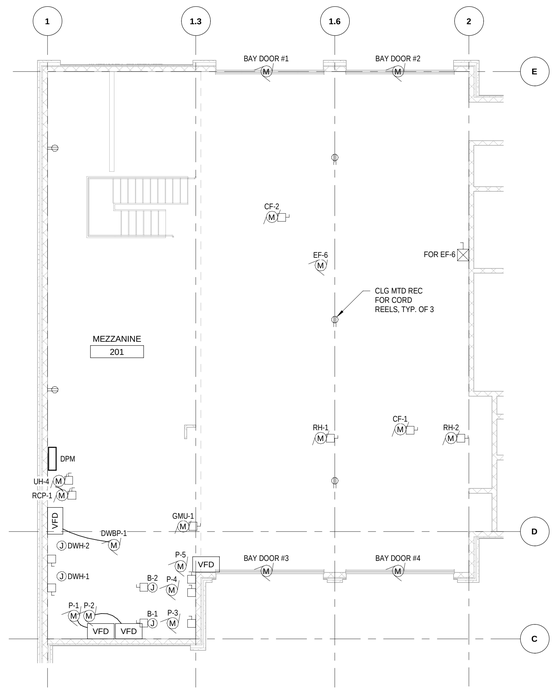
E2.01

PROJECT NO. 60593642



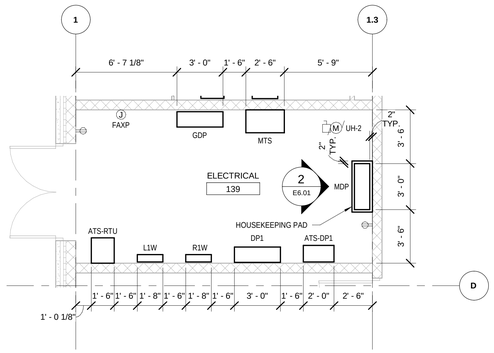

1 **FIRST FLOOR POWER PLAN**

Scale: 1/8" = 1'-0"




2 **MEZZANINE POWER PLAN**

Scale: 1/8" = 1'-0"




3 **FIRST FLOOR ENLARGED POWER PLAN**

E3.01 Scale: 1/4" = 1'-0"

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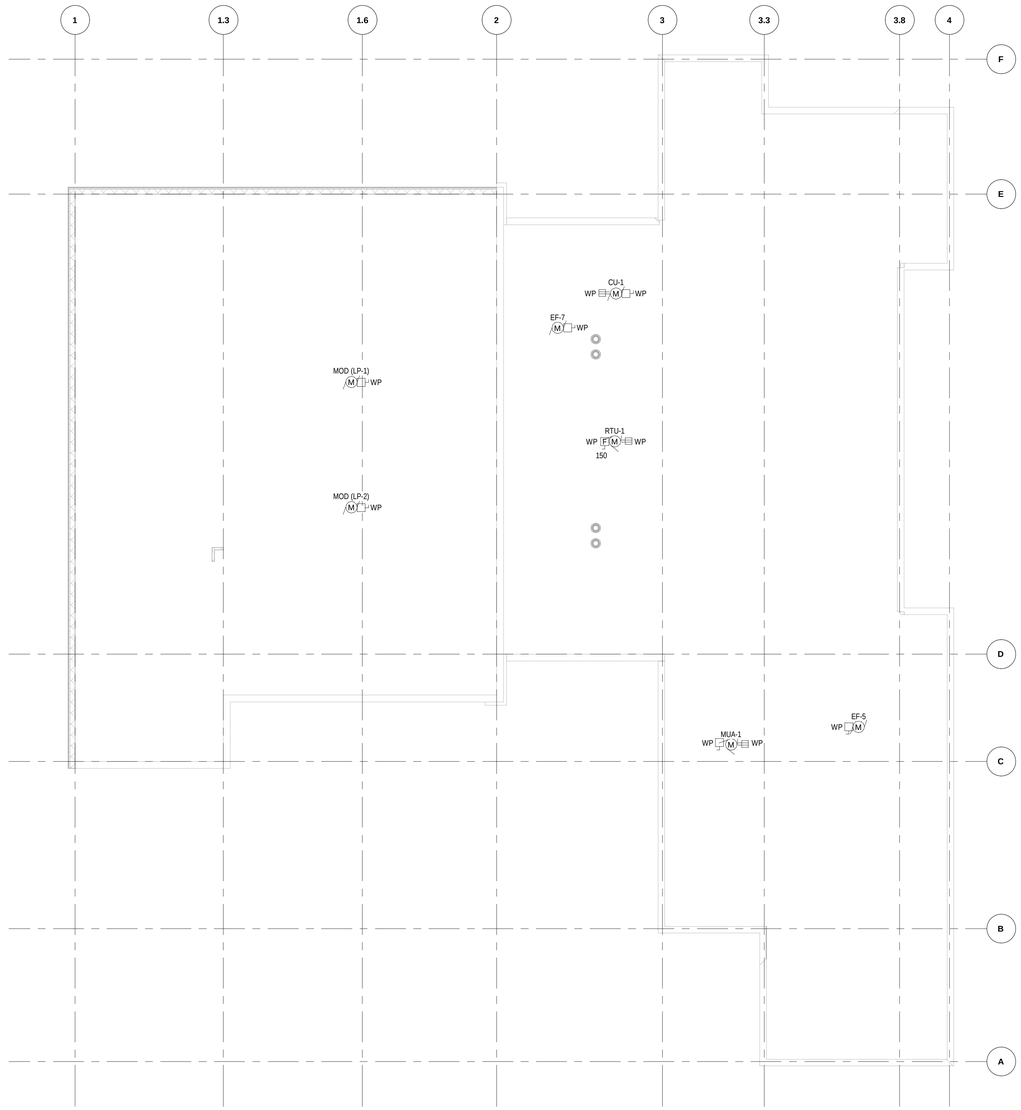
DATE OF RECORD

FIRST FLOOR AND MEZZANINE POWER PLANS

E3.01

PROJECT NO. 60593642




1 **ROOF POWER PLAN**

Scale: 1/8" = 1'-0"

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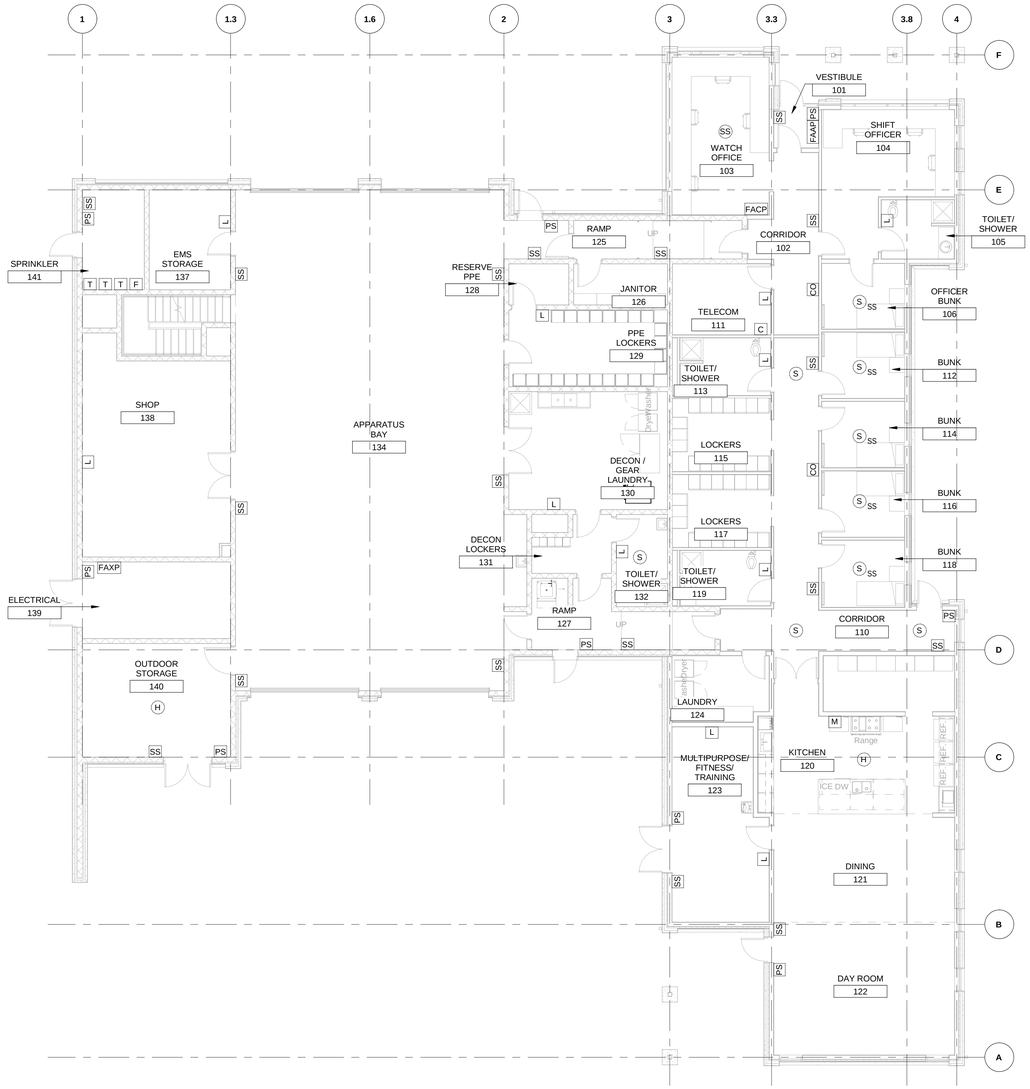
ROOF POWER PLAN

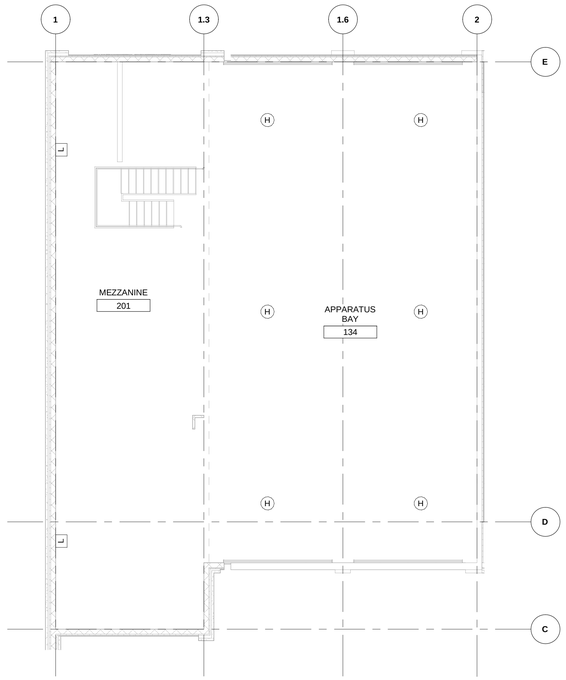
E3.02

PROJECT NO. 60593642




**1** **FIRST FLOOR FIRE ALARM PLAN**

Scale: 1/8" = 1'-0"




**2** **MEZZANINE FIRE ALARM PLAN**

Scale: 1/8" = 1'-0"

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# CONCORD TOWNSHIP FIRE STATION #2
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SEAL

DATE OF RECORD

FIRST FLOOR AND MEZZANINE FIRE ALARM PLANS

E4.01

PROJECT NO. 60593642

## LED INTERIOR LUMINAIRE SCHEDULE

| TYPE | LAMPS | 120V | 208V | DESCRIPTION | MANUFACTURER | MODEL | COMMENTS |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| AA | 16W/LED<br>2000 LUMENS<br>4000°K, 85 CRI | Yes | No | 2' x 2' RECESSED LED ARCHITECURAL STYLE FIXT W/ EXTRUDED AL HOUSING; HIGH EFFICACY LUMEN OUTPUT; SMOOTH FROSTED ACRYLIC LENS; 0-10V DIMMING DRIVER; LM79/LM80 COMPLIANT; AND MAX OVERALL DEPTH OF 3.25" | EATON METALUX<br>OR A/E APPROVED EQUAL | 22CZ2 | |
| DA | 11W/LED<br>1000 LUMENS<br>3500°K, 80 CRI | Yes | No | RECESSED LED DOWNLIGHT W/ 6" ROUND APERTURE; CLEAR SPECULAR MEDIUM REFLECTOR; WHIT TRIM RING; COMPLETE W/ MOUNTING BRACKET; PRE-WIRED JUCTION BOX; AND 0-10V DIMMING DRIVER; MAIXIMUM DEPTH 7" | COOPER PORFOLIO<br>LITHONIA<br>PRESCOLITE | LD6B<br>LDN6<br>LF6SL | |
| DC | 11W/LED<br>1000 LUMENS<br>3500°K, 80 CRI | Yes | No | SAME AS TYPE "DA" EXCEPT W/ IP66 GASKET KIT | EATON PORTFOLIO<br>LITHONIA<br>PRESCOLITE | LD6B<br>LDN6<br>LF6SL | |
| DD | 9W/LED<br>600 LUMENS,<br>3500°K, 80 CRI | Yes | No | RECESSED LED NON-CONDUCTIVE SHOWER LIGHT W/ 6" ROUND APERTURE; WHITE DEAD FRONT RECESSED TRIP; UL WET LOCATION LISTED; COMPLETE W/ MTG BRACKET; PRE-WIRED JB; AND 0-10V DIMMING DRIVER; MAX DEPTH 8" | EATON HALO<br>LITHONIA<br>PRESCOLITE | H750ICAT<br>LDN6<br>LF6SL | |
| FA | 16.4W/LED<br>2000 LUMENS<br>3500°K, 85 CRI | Yes | No | 4' LONG x 3" NOMINAL WIDE PENDANT MOUNTED LED STRIP LIGHT W/ DIE-FORMED STEEL HOUSING; CLEAR LENS; BACKED WHITE ENAMEL FINISH; 0-10V DIMMING DRIVER; WIREGUARD; AND CHAIN HANGER SET | COOPER METALUX<br>LITHONIA<br>HUBBELL COLUMBIA | SNLED<br>ZL1N<br>LCL | MOUNT 8'-0" AFF. TO BOF. |
| FB | 16.4W/LED<br>2000 LUMENS<br>3500°K, 85 CRI | Yes | No | SAME AS TYPE "FA" EXCEPT 8' LONG | COOPER METALUX<br>LITHONIA<br>HUBBELL COLUMBIA | SNLED<br>ZL1N<br>LCL | MOUNT 8'-0" AFF. TO BOF. |
| NA | LED | Yes | No | 5" x 5" WALL MOUNTED LED NIGHTLIGHT, AMBER COLOR LED'S, WHITE ANTI-MICROBIAL FACEPLATE; AND WHITE FINISH | KIRLIN | LNS-05086 | MOUNT 2'-0" AFF. TO BOF. |
| PA | 93W/LED<br>12000 LUMENS<br>3500°K, 80CRI | Yes | No | 4' TAMPER RESISTANT LED VAPOPPROOF FIXTURE W/ FIBERGLASS HOUSING AND HIGH IMPACT DIFFUSER; FROSTED ACRYLIC HIGH IMPACT LENS; STAINLESS STEEL LATCHES AND MOUNTING BRACKETS; NEMA 4X, IP65, AND IP67 RATED; RATED UP TO 1500PSI HOUSEDOWN; AND 0-10V DIMMING DRIVER | COOPER FAIL-SAFE | VRVT4 | MOUNT 14'-0" AFF. TO BOF. (QTY OF 12) FOR ROWS AT & EAST OF COL 1.6. MOUNT 16'-6" TO BOF. FOR ROW NEAR COL 1.3 (QTY OF 6). |
| PB | 8W/LED<br>667 LUMENS<br>3500°K, 80 CRI | Yes | No | 6.34"DIA DECORATIVE PENDANT; COORDINATE SHADE, TRIM AND MOUNTING OPTIONS W/ ARCHITECT PRIOR TO ORDERING | COOPER SHAPER | 1400 | MOUNT 5'-6" AFF. TO BOF. |
| WA | 16.4W/LED<br>2000 LUMENS<br>500 LUMENS/FT<br>3500°K, 80 CRI | Yes | No | 4' WALL MOUNTED LED FIXT W/ LOW PROFILE HOUSING AND INTEGRAL GEAR TRAY CONSTRUCTED FROM DIE-FORMED 20 GA CRS FORMING A 4" x 1.5" PROFILE; FROSTED LENS; UL LISTED FOR DAMP LOCATIONS; WHITE FINISH; AND 0-10V DIMMING DRIVER | COOPER CORELITE<br>PEERLESS<br>HUBBELL LITECONTROL | JAYLUM (JW)<br>BRUNO<br>SAE103 | MOUNT 8'-0" AFF. TO BOF. |
| WB | 32.8W/LED<br>4000 LUMENS<br>500 LUMENS/FT<br>3500°K, 80 CRI | Yes | No | SAME AS TYPE "WA" EXCEPT 8' LONG | COOPER CORELITE<br>PEERLESS<br>HUBBELL LITECONTROL | JAYLUM (JW)<br>BRUNO<br>SAE103 | MOUNT 8'-0" AFF. TO BOF. |

## EMERGENCY AND EXIT LUMINAIRE SCHEDULE

| TYPE | LAMPS | 120V | 208V | DESCRIPTION | MANUFACTURER | MODEL | COMMENTS |
|---|---|---|---|---|---|---|---|
| EA | 1W/LED<br>EVEN<br>ILLUMINATION | Yes | No | SINGLE FACE EXIT W/ THERMOPLASTIC HOUSING, AC ONLY; LED LAMP MODULES; RED UNIFORMLY ILLUMINATED FACE; WHITE HOUSING FINISH; UL 924 LISTED; UNVERSAL ARROWS; AND REFER TO PLANS FOR WALL AND PENDANT MOUNTED | ISOLITE<br>LITHONIA<br>HUBBELL DUAL-LITE | RL<br>LQM<br>EVE | MOUNT 8'-0" AFF. TO BOF. WIRE AHEAD OF LOCAL SWITCHING, CHEVRONS AS INDICATED ON PLANS. WIRE AHEAD OF LOCAL SWITCHING |
| EB | 1W/LED<br>EVEN<br>ILLUMINATION | Yes | No | SAME AS TYPE "XA" EXCEPT DOUBLE FACE | ISOLITE<br>LITHONIA<br>HUBBELL DUAL-LITE | RL<br>LQM<br>EVE | MOUNT 8'-0" AFF. TO BOF. WIRE AHEAD OF LOCAL SWITCHING, CHEVRONS AS INDICATED ON PLANS. WIRE AHEAD OF LOCAL SWITCHING |
| EM | LED | Yes | No | EM LIGHTING UNIT WITH TWO ADJUSTABLE HEADS, UNIVERSAL MTG, 3.6V SEALED MAINTENANCE FREE NICAD BAT, UV STABLE WHITE THERMOPLATIC HOUSING, SELF-DIAGNOSTICS AND DAMP LOCATION LISTED. | ISOLITE<br>LITHONIA<br>HUBBELL COMPASS | IMR-LED<br>ELM2 LED HO<br>CU2RC | MOUNT 8'-0" AFF. TO BOF. WIRE AHEAD OF LOCAL SWITCHING |

## LED EXTERIOR LUMINAIRE SCHEDULE

| TYPE | LAMPS | 120V | 208V | DESCRIPTION | MANUFACTURER | MODEL | COMMENTS |
|---|---|---|---|---|---|---|---|
| ZA | 24W/LED<br>2300 LUMENS<br>5000°K, 80 CRI | Yes | No | FLAGPOLE LIGHT W/ ALUMINUM HOUSING; SUITABLE FOR 9" POLE DIAMETER; WHITE POWDERCOAT PAINTED FINISH; AND REMOTE 24VDC, CLASS II LED DRIVER BY INVENTRONICS OR A/E APPROVED EQUAL | POLELED | O2 | |
| ZB | 55.1W/LED<br>5400 LUMENS<br>4000°K, 70 CRI<br>B1-U0-G1 MAX | Yes | No | 16"x8"x8" SMALL CYLINDER SHAPED WALL MOUNTED LED FIXTURE W/ DIE-CAST AL HOUSING; TYPE III W/ BACKLIGHT CONTROL; BRONZE FINISH; AND 0-10V DIMMING DRIVER | COOPER McGRAW-EDISON<br>LITHONIA<br>HUBBELL COLUMBIA | ISC<br>WSR<br>TRP2 | MOUNT 16'-0" AFF. TO BOF. |
| ZE | 25.5W/LED<br>2600 LUMENS<br>4000°K, 70 CRI<br>B1-U0-G1 MAX | Yes | No | 16"x8"x8" SMALL CYLINDER SHAPED WALL MOUNTED LED FIXTURE W/ DIE-CAST AL HOUSING; TYPE IV W/ BACKLIGHT CONTROL; BRONZE FINISH; AND 0-10V DIMMING DRIVER | EATON McGRAW-EDISON<br>LITHONIA<br>HUBBELL COLUMBIA | ISC<br>WSR<br>TRP2 | MOUNT 7'-8" AFF. TO BOF. |
| ZL1 | 96W/LED<br>11363 LUMENS<br>4000°K, 70CRI<br>B2-U0-G2 MAX | No | Yes | ARCHITECTURAL LED AREA/SITE FIXTURE W/ HEAVY WALL DIE-CAST AL HOUSING; TYPE II W/ SPILL CONTROL (CUTOFF) OPTICS; SINGLE 6" ARM W/ MTG ACCESSORIES; WEATHER- RESISTANT GFCI RECPT WITHIN POLE'S HANDHOLE LOCATED 18" ABOVE BASE; 10kV SURGE MODULE; AND DRIVE CURRENT FACTORY SET TO 600mA MAX | EATON McGRAW-EDISON<br>OR A/E APPROVED EQUAL | GLEON | 20'HSTRAIGHT ROUND AL POLE, REFER TO SPEC SECTON 265613 FOR ADD'L INFORMATION, BLACK FINISH-POLE & FIXT |
| ZL2 | 96W/LED<br>11363 LUMENS<br>4000°K, 70CRI<br>B2-U0-G2 MAX | No | Yes | SAME AS TYPE "XL1" EXCEPT W/ TYPE III W/ TWO (2) LUMINAIRES ON DUAL 6" ARMS, 180° APART | EATON McGRAW-EDISON<br>OR A/E APPROVED EQUAL | GLEON | STRAIGHT ROUND AL POLE, REFER TO SPEC SECTON 265613 FOR ADD'L INFORMATION, BLACK FINISH-POLE & FIXT |



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CONCORD TOWNSHIP FIRE STATION #2
10154 PROUTY RD
CONCORD, OH 44077

SEAL

DATE OF RECORD

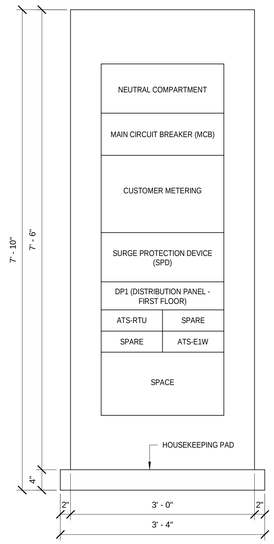
LUMINAIRE SCHEDULES

E5.01

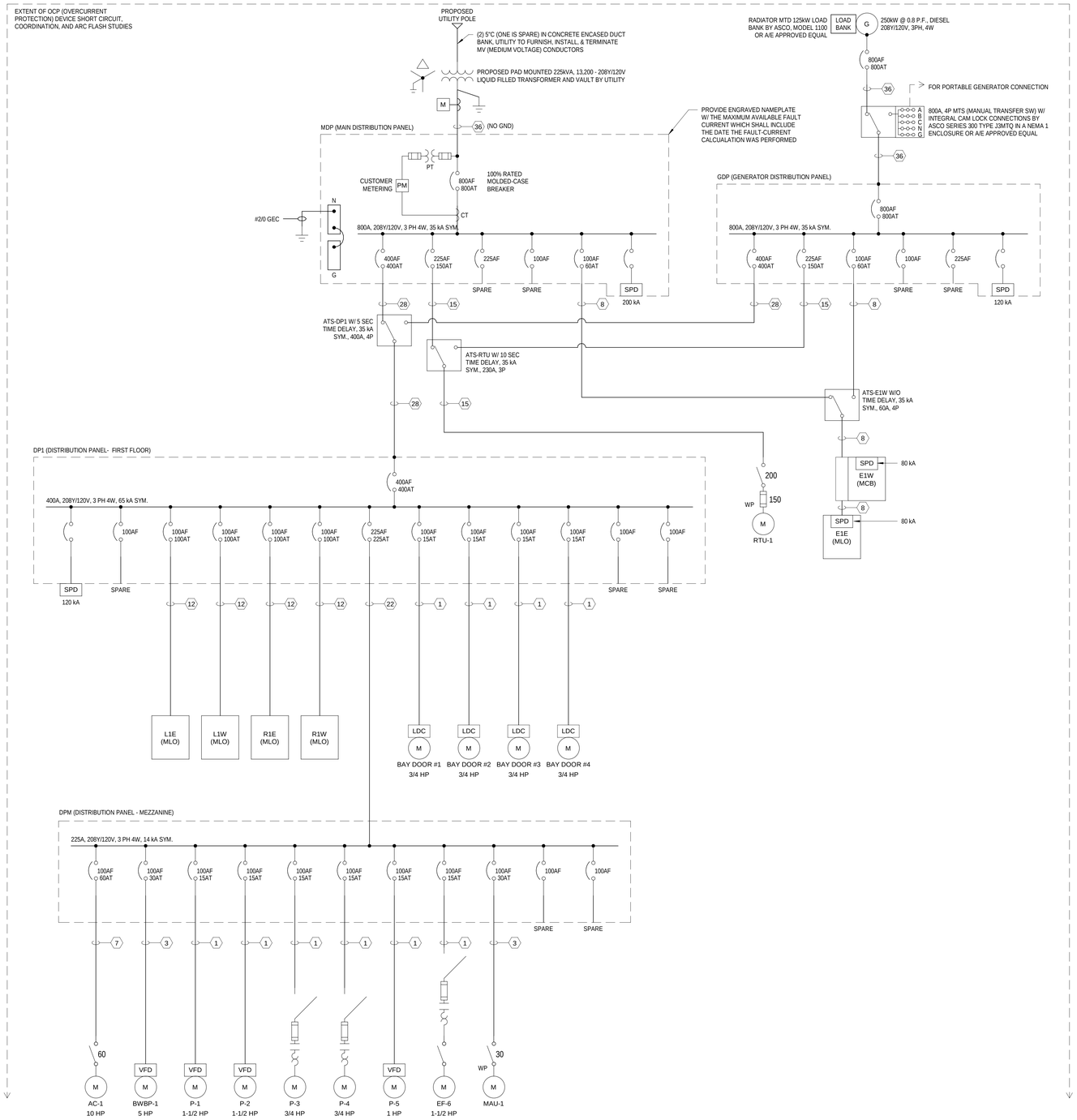
PROJECT NO. 60593642

**ELECTRICAL FEEDER SCHEDULE**

| Key Note # | Max Amps | # of Parallel Runs | # of Phase Conductors Per Conduit | Phase Conductor Size | Ground Size | Conduit Size, unless noted otherwise |
|---|---|---|---|---|---|---|
| 1 | 20 | 1 | 3 | 12 | 12 | 3/4" |
| 2 | 20 | 1 | 4 | 12 | 12 | 3/4" |
| 3 | 30 | 1 | 3 | 10 | 10 | 3/4" |
| 4 | 30 | 1 | 4 | 10 | 10 | 3/4" |
| 5 | 40 | 1 | 3 | 8 | 10 | 3/4" |
| 6 | 40 | 1 | 4 | 8 | 10 | 3/4" |
| 7 | 50 or 60 | 1 | 3 | 6 | 10 | 3/4" |
| 8 | 50 or 60 | 1 | 4 | 6 | 10 | 1" |
| 9 | 70 | 1 | 3 | 4 | 8 | 1-1/4" |
| 10 | 70 | 1 | 4 | 4 | 8 | 1-1/4" |
| 11 | 100 | 1 | 3 | 2 | 8 | 1-1/4" |
| 12 | 100 | 1 | 4 | 2 | 8 | 1-1/4" |
| 13 | 125 | 1 | 3 | 1 | 6 | 1-1/2" |
| 14 | 125 | 1 | 4 | 1 | 6 | 1-1/2" |
| 15 | 150 | 1 | 3 | 1/0 | 6 | 1-1/2" |
| 16 | 150 | 1 | 4 | 1/0 | 6 | 2" |
| 17 | 175 | 1 | 3 | 2/0 | 6 | 2" |
| 18 | 175 | 1 | 4 | 2/0 | 6 | 2" |
| 19 | 200 | 1 | 3 | 3/0 | 6 | 2" |
| 20 | 200 | 1 | 4 | 3/0 | 6 | 2" |
| 21 | 225 | 1 | 3 | 4/0 | 4 | 2" |
| 22 | 225 | 1 | 4 | 4/0 | 4 | 2-1/2" |
| 23 | 250 | 1 | 3 | 250kcmil | 4 | 2-1/2" |
| 24 | 250 | 1 | 4 | 250kcmil | 4 | 3" |
| 25 | 300 | 1 | 3 | 350kcmil | 4 | 3" |
| 26 | 300 | 1 | 4 | 350kcmil | 4 | 4" |
| 27 | 400 | 1 | 3 | 500kcmil | 3 | 4" |
| 28 | 400 | 1 | 4 | 500kcmil | 3 | 4" |
| 29 | 500 | 2 | 3 | 250kcmil | 2 | 2-1/2" |
| 30 | 500 | 2 | 4 | 250kcmil | 2 | 3" |
| 31 | 600 | 2 | 3 | 350kcmil | 1 | 3" |
| 32 | 600 | 2 | 4 | 350kcmil | 1 | 4" |
| 33 | 700 | 2 | 3 | 500kcmil | 1/0 | 4" |
| 34 | 700 | 2 | 4 | 500kcmil | 1/0 | 4" |
| 35 | 800 | 3 | 3 | 300kcmil | 1/0 | 3" |
| 36 | 800 | 3 | 4 | 300kcmil | 1/0 | 4" |
| 37 | 1000 | 3 | 3 | 500kcmil | 2/0 | 4" |
| 38 | 1000 | 3 | 4 | 500kcmil | 2/0 | 4" |
| 39 | 1200 | 4 | 3 | 350kcmil | 3/0 | 3" |
| 40 | 1200 | 4 | 4 | 350kcmil | 3/0 | 4" |
| 41 | 1600 | 5 | 3 | 500kcmil | 4/0 | 4" |
| 42 | 1600 | 5 | 4 | 500kcmil | 4/0 | 4" |
| 43 | 2000 | 6 | 3 | 500kcmil | 250kcmil | 4" |
| 44 | 2000 | 6 | 4 | 500kcmil | 250kcmil | 4" |




**2** MAIN DISTRIBUTION PANEL (MDP) ELEVATION
E3.01 Scale: 1" = 1'-0"




**1** ONE-LINE DIAGRAM
NTS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# CONCORD TOWNSHIP FIRE STATION #2
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ONE-LINE DIAGRAM

E6.01

PROJECT NO. 60593642

## TECHNOLOGY SYMBOLS LEGEND

| | | |
|---|---|---|
| ▶ | DATA OUTLET - WALL OR FLOOR | TWO CAT 6 CABLES |
| ▷ | DATA/PHONE OUTLET - WALL MOUNTED | TWO CAT 6 CABLES |
| W | WIRELESS ACCESS POINT - CEILING MOUNTED | TWO CAT 6A CABLES WITH 20' EXTRA CABLE AT LOCATION |
| SP | PUBLIC ADDRESS SPEAKER - CEILING MOUNTED | 18 AWG TWISTED, JACKETED PAIR |
| ▷SP | PUBLIC ADDRESS HORN TYPE SPEAKER - WALL MOUNTED | 18 AWG TWISTED, JACKETED PAIR |
| I S | INTERCOM STATION - SECURITY TYPE - WALL MOUNTED | CAT 6 CABLE |
| ←C1 | SECURITY SYSTEM VIDEO DOME CAMERA - CEILING MOUNTED | CAT 6 CABLE |
| ↑←C1→↓ | SECURITY SYSTEM MULTI-HEAD DOME CAMERA - CEILING MOUNTED | CAT 6 CABLE |
| CR1 | SECURITY SYSTEM CARD ACCESS READER | CABLE BY SECURITY CONTRACTOR |
| CR2 | SECURITY SYSTEM CARD ACCESS READER WITH KEYPAD | CABLE BY SECURITY CONTRACTOR |

1 **AECOM TECHNOLOGY/SECURITY PLAN SYMBOLS**
Scale: 12" = 1'-0"

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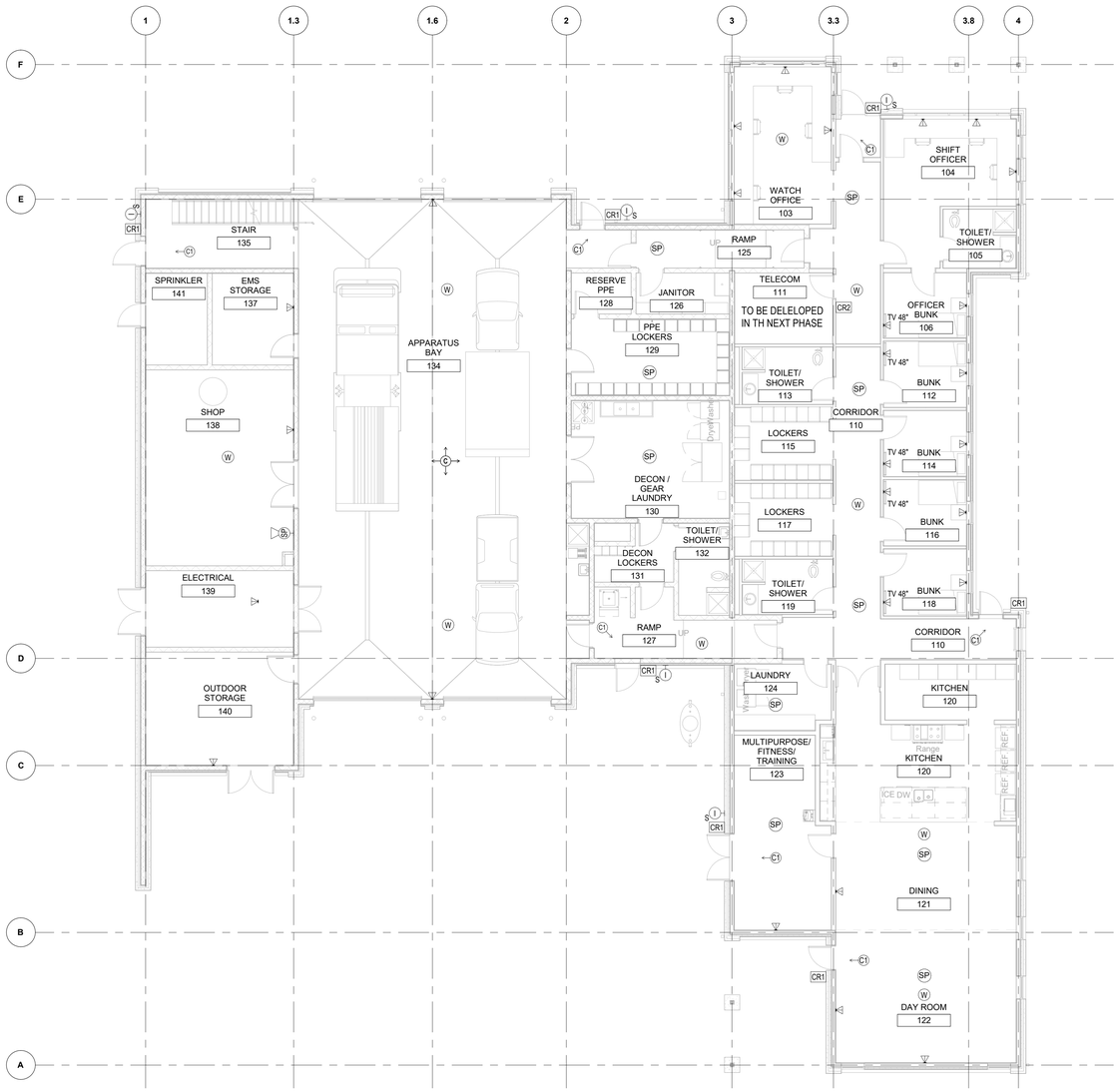
TECHNOLOGY SYMBOLS AND ABBREVIATIONS

T0.01

PROJECT NO. 60593642




**1 FIRST FLOOR TECHNOLOGY & SECURITY PLAN**

Scale: 1/8" = 1'-0"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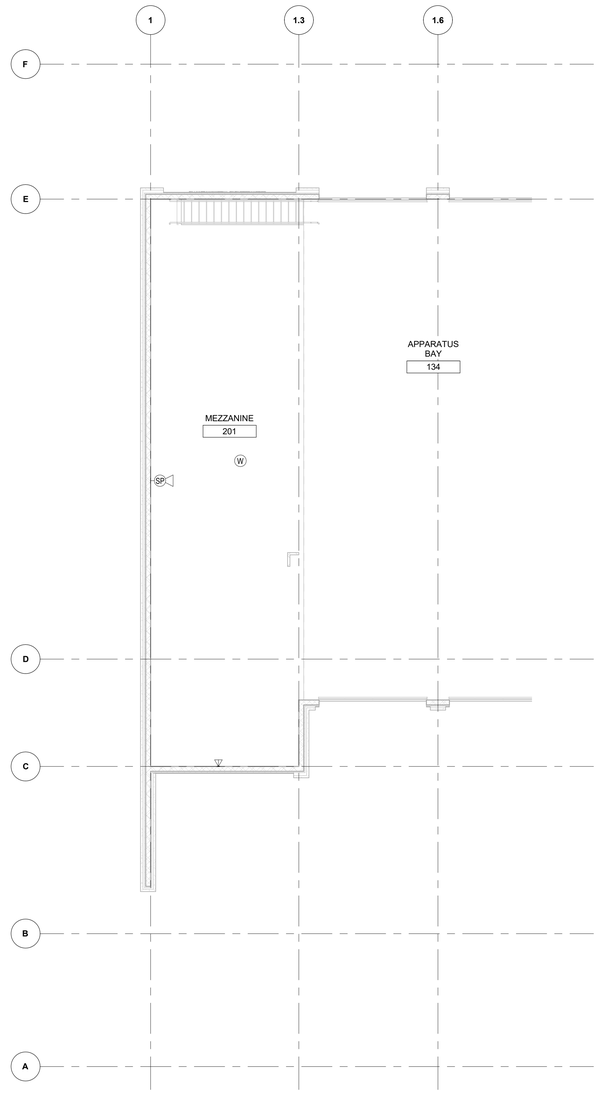
FIRST FLOOR TECHNOLOGY & SECURITY PLAN

T1.01

PROJECT NO. 60593642




1 **MEZZANINE TECHNOLOGY & SECURITY PLAN**
Scale: 1/8" = 1'-0"

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MEZZANINE
TECHNOLOGY &
SECURITY PLAN

T1.02

PROJECT NO. 60593642

## FIRE SUPPRESSION GENERAL NOTES

1. INSTALLATION OF AUTOMATIC WET PIPE SPRINKLER SYSTEM COMPLY WITH OHIO BUILDING CODE (2017), OHIO FIRE CODE (2017).

2. AREAS SHOWN TO BE PROTECTED BY THE AUTOMATIC SPRINKLER SYSTEMS SHALL BE FULLY SPRINKLED THROUGHOUT IN ACCORDANCE WITH NFPA 13, INCLUDING UNDER ALL OBSTRUCTIONS GREATER THAN 4 FEET WIDE INCLUDING, BUT NOT LIMITED TO, DUCTWORK, EQUIPMENT PLATFORMS, ABOVE ROLL-BACK DOORS, AND EXTERIOR OVERHANGS.

3. SPRINKLER SYSTEM DESIGN HAZARD CRITERIA INFORMATION IS SHOWN ON INDIVIDUAL DRAWINGS FOR EACH INDIVIDUAL AREA.

4. CONTRACTOR IS RESPONSIBLE FOR ALL PERMITS REQUIRED FOR THE WORK. CONTRACTOR SHALL SUBMIT DRAWINGS TO LOCAL FIRE AND BUILDING DEPARTMENT, THE ARCHITECT AND OWNER FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.

5. FIRE SUPPRESSION CONTRACTOR SHALL UTILIZE A FIRE WATER SUPPLY AS FOLLOWS:

   A. 50 PSIG STATIC PRESSURE AND 20 PSIG AT 1380 GPM FLOWING IN THE UNDERGROUND MAIN LOCATED UNDER PROUTY ROAD. FIRE HYDRANT FLOW TEST WAS CONDUCTED ON JUNE 10, 2019 BY CONCORD FIRE DEPARTMENT.

   B. AUTOMATIC SPRINKLER SYSTEMS SHALL BE HYDRAULICALLY CALCULATED WITH A MINIMUM SAFETY MARGIN OF 10 PERCENT.

   C. FIRE SUPPRESSION CONTRACTOR SHALL PERFORM A NEW FIRE HYDRANT FLOW TEST TO VERIFY WATER SUPPLY.

6. NO SUPPRESSION SYSTEM MAIN DISTRIBUTION PIPING SHALL BE ROUTED THROUGH OR ABOVE ELECTRICAL ROOMS.

7. DO NOT INSTALL PIPING IN DEDICATED WORKING SPACE AS DEFINED BY NFPA 70 IN ELECTRICAL ROOMS. DO NOT INSTALL PIPING DIRECTLY OVER ELECTRICAL EQUIPMENT.

8. ALL SPRINKLER SYSTEM EQUIPMENT, INCLUDING BUT NOT LIMITED TO SPRINKLER PIPING, HEADS, NOZZLES, VALVES, FITTINGS, ESCUTCHEONS, HANGERS, AND ASSEMBLIES SHALL BE UL LISTED FOR THEIR INTENDED USE.

9. ALL SPRINKLERS AND HANGERS SHALL BE SPACED PER NFPA 13 AND COORDINATED WITH ALL OTHER ARCHITECTURAL, STRUCTURAL, ELECTRICAL, AND MECHANICAL EQUIPMENT. PROVIDE ADDITIONAL HANGERS AS REQUIRED.

10. MINIMUM PIPE SCHEDULE SHALL BE BLACK STEEL SCHEDULE 40 FOR PIPE 2 INCHES OR SMALLER AND SCHEDULE 10 FOR PIPE 2.5 INCHES OR LARGER FOR WET PIPE SPRINKLER SYSTEM.

11. DRAWINGS ARE SCHEMATIC IN NATURE AND ARE INTENDED TO SPECIFY BASIC DESIGN PARAMETERS. DRAWINGS SHOW APPROXIMATE PIPE SIZE. SPRINKLER CONTRACTOR IS RESPONSIBLE FOR HYDRAULICALLY CALCULATING THE SPRINKLER SYSTEM BASED ON THE AREA DENSITY METHOD PER NFPA 13. PIPE SHOWN ON DRAWING IS MINIMUM SIZE.

12. CONTRACTOR SHALL COORDINATE AND PROVIDE ALL SLEEVES REQUIRED FOR ALL AND SLAB PENETRATIONS. FIRESTOP PENETRATIONS THROUGH ALL FIRE RESISTANCE RATED ASSEMBLIES WITH APPROVED MATERIALS IN ACCORDANCE WITH ASTM E-184.

13. ALL PIPING SHALL BE HYDRAULICALLY TESTED IN ACCORDANCE WITH NFPA 13 AT NO LESS THAN 200 PSI OR 50 PSI IN EXCESS OF SYSTEM WORKING PRESSURE, WHICHEVER IS HIGHER, FOR 2 HOURS.

14. ALL VALVES SHALL BE SUPERVISED BY THE FIRE ALARM SYSTEM. COORDINATE WITH FIRE ALARM CONTRACTOR.

15. SPARE SPRINKLER CABINET WITH SPARE WRENCHES AND SPRINKLER HEADS SHALL BE PROVIDED IN ACCORDANCE WITH NFPA 13. LOCATE CABINET IN SPRINKLER ROOM 141 ADJACENT TO THE FIRE SPRINKLER RISER.

16. PENDENT SPRINKLER SHALL BE LOCATED IN THE CENTER OF THE CEILING TILE WHERE DROP CEILING IS INSTALLED.

17. UL LISTED HEAD GUARDS SHALL BE PROVIDED ON ALL EXPOSED SPRINKLERS INSTALLED THAT ARE SUBJECT TO MECHANICAL DAMAGE INCLUDING SPRINKLERS INSTALLED UNDER STAIR LANDINGS, FIRE POLE ENCLOSURES, AND INSIDE MECHANICAL, STORAGE, AND ELECTRICAL ROOMS.

18.CONTRACTOR SHALL PROVIDE INSPECTORS TEST CONNECTION LOCATED ON THE MOST REMOTE BRANCHLINE DRAINING TO THE EXTERIOR, WITH A RESTRICTED ORIFICE EQUAL TO A SINGLE SPRINKLER ORIFICE.

19.CONTRACTOR SHALL PROVIDE AUXILIARY DRAINS FOR TRAPPED WATER SECTIONS OF PIPING CONTAINING IN EXCESS OF 5 GALLONS.

20.SPRINKLER PIPING MAINS AND BRANCHLINES SHALL BE SEISMICALLY BRACED PER NFPA 13 AND ASCE/SEI7 FOR SEISMIC DESIGN CATEGORY C. CONTRACTOR SHALL PROVIDE SEISMIC SEPARATION ASSEMBLIES FOR ALL SPRINKLER PIPE CROSSING OVER BUILDING SEISMIC JOINTS.

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SEAL

DATE OF RECORD

GENERAL INFO - FIRE PROTECTION

FP0.01

PROJECT NO. 00000000


1 FP1.01 **FIRST FLOOR - FIRE PROTECTION PLAN**
Scale: 1/8" = 1'-0"

## FIRE SUPRESSION DESIGN CRITERIA

| | |
|---|---|
| 1 | LIGHT HAZARD: UNLESS OTHERWISE NOTED, INSTALL AUTOMATIC WET PIPE SPRINKLER SYSTEM HYDRAULICALLY DESIGNED IN ACCORDANE WITH NFPA 13. PROVIDE A DENSITY OF **0.1 GPM/SQ FT** OVER THE HYDRAULICALLY MOST DEMANDING **1500 SQ FT SPACED AT A MAXIMUM 225 SQ FT, WITH 100 GPM HOSE DEMAND.** |
| 2 | ORDINARY HAZARD GROUP I: UNLESS OTHERWISE NOTED, INSTALL AUTOMATIC WET PIPE SPRINKLER SYSTEM HYDRAULICALLY DESIGNED IN ACCORDANE WITH NFPA 13. PROVIDE A DENSITY OF **0.15 GPM/SQ FT OVER THE HYDRAULICALLY MOST DEMANDING 1500 SQ FT SPACED AT A MAXIMUM 130 SQ FT, WITH 250 GPM HOSE DEMAND.** |
| 3 | ORDINARY HAZARD GROUP II: UNLESS OTHERWISE NOTED, INSTALL AUTOMATIC WET PIPE SPRINKLER SYSTEM HYDRAULICALLY DESIGNED IN ACCORDANE WITH NFPA 13. PROVIDE A DENSITY OF **0.2 GPM/SQ FT OVER THE HYDRAULICALLY MOST DEMANDING 1950 SQ FT SPACED AT A MAXIMUM 130 SQ FT, WITH 250 GPM HOSE DEMAND.** |

## KEY NOTES

1. 6-INCH COMBINED DOMESTIC/FIRE WATER SERVICE LINE.
2. FIRE WATER BACKFLOW PREVENTER. STACK FIRE WATER AND DOMESTIC BACKFLOW PREVENTERS. COORDINATE WITH PLUMBING CONTRACTOR.
3. FIRE DEPARTMENT CONNECTION.
4. AUTOMATIC WET PIPE SPRINKLER SYSTEM RISER.



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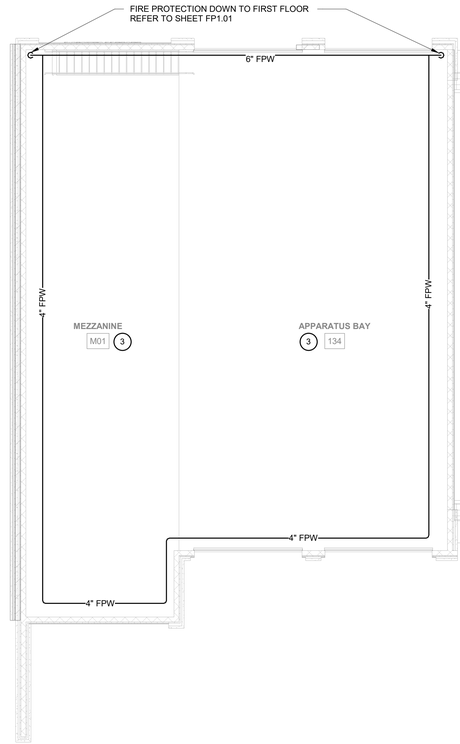
DATE OF RECORD

FIRST FLOOR - FIRE PROTECTION PLAN

FP1.01

PROJECT NO. 00000000




1 FP1.02 **MEZZANINE**
Scale: 1/8" = 1'-0"

## FIRE SUPRESSION DESIGN CRITERIA

| | |
|---|---|
| 1 | LIGHT HAZARD: UNLESS OTHERWISE NOTED, INSTALL AUTOMATIC WET PIPE SPRINKLER SYSTEM HYDRAULICALLY DESIGNED IN ACCORDANE WITH NFPA 13. PROVIDE A DENSITY OF **0.1 GPM/SQ FT** OVER THE HYDRAULICALLY MOST DEMANDING **1500 SQ FT SPACED AT A MAXIMUM 225 SQ FT. WITH 100 GPM HOSE DEMAND.** |
| 2 | ORDINARY HAZARD GROUP I: UNLESS OTHERWISE NOTED, INSTALL AUTOMATIC WET PIPE SPRINKLER SYSTEM HYDRAULICALLY DESIGNED IN ACCORDANE WITH NFPA 13. PROVIDE A DENSITY OF **0.15 GPM/SQ FT OVER THE HYDRAULICALLY MOST DEMANDING 1500 SQ FT SPACED AT A MAXIMUM 130 SQ FT. WITH 250 GPM HOSE DEMAND.** |
| 3 | ORDINARY HAZARD GROUP II: UNLESS OTHERWISE NOTED, INSTALL AUTOMATIC WET PIPE SPRINKLER SYSTEM HYDRAULICALLY DESIGNED IN ACCORDANE WITH NFPA 13. PROVIDE A DENSITY OF **0.2 GPM/SQ FT OVER THE HYDRAULICALLY MOST DEMANDING 1950 SQ FT SPACED AT A MAXIMUM 130 SQ FT. WITH 250 GPM HOSE DEMAND.** |

**FP ZONES**
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MEZZANINE FIRE PROTECTION PLAN

FP1.02

PROJECT NO. 00000000