MECHANICAL LEGEND AND ABBREVIATIONS

DUCTWORK

SYMBOL	DESCRIPTION
	SUPPLY AIR DUCT UP
	SUPPLY AIR DUCT DOWN
	RETURN AIR DUCT UP
	RETURN AIR DUCT DOWN
	EXHAUST AIR DUCT UP
	EXHAUST AIR DUCT DOWN
	FLEX DUCTWORK
20x14 20x14	DUCT WIDTH X DEPTH
	ROUND TO RECTANGULAR TRANSITION
	90° ELBOW WITH TURNING VANES
	90° RADIUS ELBOW (NO VANES)
	45° ELBOW (NO VANES)
M M	MOTOR OPERATED DAMPER
	MANUAL VOLUME DAMPER
20° MAX	TRANSITION (DIVERGING FLOW)
30° MAX	TRANSITION (CONVERGING FLOW)
	VERTICAL FIRE DAMPER
	VERTICAL SMOKE DAMPER
	VERTICAL FIRE/SMOKE DAMPER
	HORIZONTAL FIRE DAMPER
	HORIZONTAL SMOKE DAMPER
	HORIZONTAL FIRE/SMOKE DAMPER

DIFFUSERS / AIRFLOW

	4-WAY BLOW SUPPLY DIFFUSER
BLANKED PORTION OR DIRECTION OF NO AIRFLOW	1, 2, OR 3-WAY SUPPLY DIFFUSER
	RETURN AIR GRILLE/REGISTER
	EXHAUST AIR GRILLE/REGISTER
	RETURN/EXHAUST AIRFLOW
	SUPPLY AIRFLOW
U	3/4" DOOR UNDERCUT
CD-1 (AIR DEVICE TYPE) / 10x10 (FACE OR NECK SIZE) / 200 (AIRFLOW QUANTITY)	DIFFUSER/REGISTER TAG

MECHANICAL PIPING

SYMBOL	DESCRIPTION
LPS	LOW PRESSURE STEAM
LPC	LOW PRESSURE CONDENSATE
HPS	HIGH PRESSURE STEAM
HPC	HIGH PRESSURE CONDENSATE
HWS	HEATING WATER SUPPLY
HWR	HEATING WATER RETURN
CHWS	CHILLED WATER SUPPLY
CHWR	CHILLED WATER RETURN
GLS	GEOTHERMAL LOOP SUPPLY
GLR	GEOTHERMAL LOOP RETURN
RS/RL	REFRIGERANT SUCTION & LIQUID
COND	COOLING COIL/FURNACE CONDENSATE
CA	FURNACE COMBUSTION AIR
CEX	FURNACE COMBUSTION EXHAUST
	PIPE DROP
	PIPE BOTTOM TAKEOFF
	45° PIPE ROLL DOWN
	PIPING RISER
	PIPE CAP
	DIRECTION OF PIPE FLOW
	UNION
	BALL VALVE
	OS&Y VALVE
	GATE VALVE
	CHECK VALVE
	BALANCING VALVE
	PRESSURE REDUCING VALVE (PRV)
	STRAINER WITH BLOWDOWN VALVE
	PRESSURE GAUGE

CONTROLS

SYMBOL	DESCRIPTION
T	THERMOSTAT
H	HUMIDISTAT
CO	CARBON MONOXIDE SENSOR
CO2	CARBON DIOXIDE SENSOR

REFERENCE SYMBOLS

EF / 1 (EQUIPMENT TYPE / EQUIPMENT NUMBER)	EQUIPMENT DESIGNATION
1	DEMOLITION NOTE DESIGNATION
1	KEY NOTE DESIGNATION
	EXTENT OF DEMOLITION
	EXTENT OF NEW WORK
1	REVISION NOTE DESIGNATION
1 / M-1 (PLAN NUMBER / DRAWING NUMBER)	PLAN/DRAWING DESIGNATION

ABBREVIATIONS

AP	ACCESS PANEL
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
BDD	BACKDRAFT DAMPER
CCC	COOLING COIL CONDENSATE
CD	CONDENSATE DRAIN
CFM	CUBIC FEET PER MINUTE
CHWS	CHILLED WATER SUPPLY
CHWR	CHILLED WATER RETURN
CO	CARBON MONOXIDE
CU	CONDENSING UNIT
DB	DRY BULB
DN	DOWN
DWG	DRAWING
(E)	EXISTING
E/A	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
ECH	ELECTRIC CABINET HEATER
ER	EXHAUST REGISTER
EUH	ELECTRIC UNIT HEATER
EWH	ELECTRIC WALL HEATER
FCU	FAN COIL UNIT
FD	FIRE DAMPER
FD/AP	FIRE DAMPER WITH ACCESS PANEL
FLR	FLOOR
F/SD	COMBINATION FIRE & SMOKE DAMPER
GLS	GEOTHERMAL LOOP SUPPLY
GLR	GEOTHERMAL LOOP RETURN
GC	GENERAL CONTRACTOR
HP	HEAT PUMP
HWS	HEATING WATER SUPPLY
HWR	HEATING WATER RETURN
LAT	LEAVING AIR TEMPERATURE
MC	MECHANICAL CONTRACTOR
MBH	THOUSAND BRITISH THERMAL UNITS
MOD	MOTOR OPERATED DAMPER
(N)	NEW
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
N.T.S.	NOT TO SCALE
OA	OUTSIDE AIR
PC	PLUMBING CONTRACTOR
PRV	PRESSURE REDUCING VALVE
R/A	RETURN AIR
RAR	RETURN AIR REGISTER
RS/RL	REFRIGERANT SUCTION & LIQUID
S/A	SUPPLY AIR
SAR	SUPPLY AIR REGISTER
SD	SMOKE DAMPER
SF	SUPPLY FAN
TA	TRANSFER AIR
TG	TRANSFER GRILLE
TYP	TYPICAL
WB	WET BULB

NOTE:
NOT ALL SYMBOLS AND ABBREVIATIONS APPLY

CONTROL LEGEND & ABBR.

AI	CONTROL SIGNAL – ANALOG INPUT
AO	CONTROL SIGNAL – ANALOG OUTPUT
DI	CONTROL SIGNAL – DIGITAL INPUT (BINARY)
DO	CONTROL SIGNAL – DIGITAL OUTPUT (BINARY)
AFM	AIRFLOW MONITOR
CS	CURRENT SENSOR
DM	DAMPER MOTOR
DPT	DIFFERENTIAL PRESSURE TRANSMITTER
FZ	FREEZESTAT
H	HUMIDITY SENSOR
SD	SMOKE DETECTOR
SP	STATIC PRESSURE SENSOR
TT	TEMPERATURE TRANSMITTER
TS	TEMPERATURE SWITCH
CV	CONTROL VALVE
N.O.	NORMALLY OPEN
N.C.	NORMALLY CLOSED
M	MOTOR

GENERAL NOTES

1. TRADE CONTRACTOR IS FULLY RESPONSIBLE TO CORDINATE/VERIFY ALL REQUIRED EQUIPMENT MANUFACTURER CLEARANCES. REQUIRED FUTURE MAINTENANCE CLEARANCES, ACCESSIBILITY AND AVAILABLE MEANS TO FACILITATE INSTALLATION OF PROPOSED EQUIPMENT AND SYSTEMS INTO FINAL OPERATING LOCATIONS. CONTRACTOR IS ALSO RESPONSIBLE TO REVIEW IN DETAIL PROPOSED LOCATIONS AND CLEARANCES FOR ALL ADJACENT TRADE WORK, BUILDING STRUCTURE AND ARCHITECTURAL CONSTRUCTION AND COORDINATE ACCORDINGLY PRIOR TO PURCHASING AND/OR INSTALLING ANY AND ALL SYSTEMS OR EQUIPMENT. REFER TO TRADE COVER SHEET REGARDING COORDINATION DRAWINGS AND RATED SYSTEM PENETRATIONS FOR ADDITIONAL WORK AND NOTING.
2. ALL MECHANICAL EQUIPMENT AND INSTALLATIONS SHALL CONFORM WITH THE REQUIREMENTS OF THE 2015 INTERNATIONAL MECHANICAL CODE, 2015 INTERNATIONAL BUILDING CODE, 2015 INTERNATIONAL ENERGY CONSERVATION CODE, 2015 INTERNATIONAL FUEL GAS CODE, NFPA 90A, UNDERWRITERS LABORATORIES (UL), AND ALL APPLICABLE LOCAL CODES ENFORCED BY THE AUTHORITY HAVING JURISDICTION.
3. PRIOR TO PURCHASING ANY MATERIALS OR COMMENCING WORK, CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS, DUCTWORK SIZES AND LOCATIONS, EQUIPMENT, ETC. SHOWN ON THE DRAWINGS OR AFFECTING THIS WORK AND SHALL REPORT ANY DEVIATIONS TO THE ENGINEER.
4. PROVIDE ALL LABOR, MATERIAL, AND EQUIPMENT COMPLETELY TO PROVIDE FULLY OPERATIONAL SYSTEMS.
5. ALL MECHANICAL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
6. LONG LINE REFRIGERANT PIPING APPLICATIONS SHALL BE INSTALLED IN ACCORDANCE WITH THE UNIT MANUFACTURER'S RECOMMENDATIONS.
7. DUCTWORK VISIBLE THROUGH AIR DEVICES SHALL BE PAINTED FLAT BLACK.
8. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL MECHANICAL EQUIPMENT, DUCTWORK, PIPING, ETC. TO FIT WITHIN THE SPACE ALLOWED BY THE ARCHITECTURAL AND STRUCTURAL CONDITIONS. CUTTING OR ALTERING ANY STRUCTURAL MEMBERS SHALL NOT BE PERMITTED WITHOUT WRITTEN PERMISSION FROM THE ARCHITECT OR STRUCTURAL ENGINEER.
9. ALL PIPE AND DUCT PENETRATIONS OF FIRE AND/OR SMOKE RATED ASSEMBLIES SHALL BE FIRE-STOPPED TO RESTORE ASSEMBLY TO ORIGINAL INTEGRITY. FIRESTOP PRODUCTS SHALL BE MANUFACTURED BY 3M COMPANY AS RECOMMENDED BY MANUFACTURER FOR SPECIFIC APPLICATION AND APPROVED BY LOCAL AUTHORITY HAVING JURISDICTION. ALL FIRE PENETRATIONS MUST BE PROTECTED.
10. EXTERNAL STATIC PRESSURE DOES NOT INCLUDE COIL, CASING, OR FILTER PRESSURE DROP.
11. ALL THERMOSTATS INSTALLED IN PUBLIC AREAS TO BE FURNISHED WITH CLEAR, LOCKABLE TYPE COVERS.
12. PRIOR TO FINAL FLASHING OR INSTALLATION/PLACEMENT OF MECHANICAL EQUIPMENT OR ROOFCURB ASSEMBLIES, CONTRACTOR IS TO PROVIDE SECURE WEATHERPROOF SEALING OF ANY ROOF OPENINGS. SEALING IS TO BE SAFE AND SECURE AND WATER TIGHT TO PREVENT ANY DAMAGE TO INTERIOR PORTIONS, CONSTRUCTION AND FINISHES WITHIN THE BUILDING ENVELOPE. IF ANY DAMAGE OCCURS TO ANY INTERIOR SPACES, CONSTRUCTION OR FINISHES DURING TEMPORARY PATCHING, DEMOLITION AND NEW WORK, CONTRACTOR IS RESPONSIBLE TO FULLY RESTITUTE AND/OR REPLACE/REPAIR DAMAGED AREAS AND ITEMS AT NO COST TO THE OWNER.
13. CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF REMOVAL OF ALL EQUIPMENT, SYSTEM COMPONENTS, PIPING, VALVING ETC, FROM INTERIOR OF BUILDING TO ALLOW FOR ACCESS AND OTHER REMOVAL TO OCCUR.
14. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL REQUIRED WORK.
15. REFER TO ARCHITECTURAL DRAWINGS FOR CONSTRUCTION DETAILS.
16. MAINTAIN MINIMUM 10'-0" CLEARANCE BETWEEN ALL OUTSIDE AIR INTAKE AND EXHAUST AIR DISCHARGE OPENINGS.
17. MAINTAIN MINIMUM 10'-0" CLEARANCE FROM ROOFTOP MECHANICAL EQUIPMENT AND ROOF OFFSETS GREATER THAN OR EQUAL TO 30". TYPICAL FOR ALL ROOFTOP EQUIPMENT REQUIRING MAINTENANCE.
18. MAINTAIN FURNISHED HEAT PUMP MANUFACTURER'S REQUIRED CLEARANCES FOR PROPER EQUIPMENT OPERATION AND FOR ACCESS/MAINTENANCE. INSTALL PER MANUFACTURER'S WRITTEN INSTRUCTIONS.
19. PROVIDE TURNING VANES IN ALL ELBOWS, PROVIDE FLEXIBLE CONNECTIONS AT ALL DUCTWORK TO EQUIPMENT CONNECTIONS, PROVIDE ALL SUPPORTS NECESSARY TO FACILITATE INSTALLATION OF DUCTWORK.
20. MECHANICAL DUCTWORK LAYOUTS ARE SCHEMATIC IN NATURE, CONTRACTOR IS REQUIRED TO PROVIDE OFFSETS AND FITTINGS AS REQUIRED TO ACCOMMODATE FIELD CONDITIONS.
21. REFER TO ARCHITECTURAL DRAWINGS AND CODE REVIEW SHEETS FOR REQUIRED FIRE RATED CONSTRUCTION AND PROVIDE ALL FIRE DAMPERS AND/OR REQUIRED PENETRATION ASSEMBLIES AS REQUIRED BASED ON ACTUAL ROUTING OF DUCTWORK IN ACCORDANCE PENETRATED SYSTEM RATINGS.
22. PROVIDE BALANCING/VOLUME DAMPERS AT ALL TAKE-OFFS TO AIR DEVICES, AT ALL BRANCH MAIN CONNECTIONS AND AS INDICATED FOR AIR SYSTEM BALANCING.
23. GENERAL NOTES APPLY TO ALL DRAWINGS, PLANS AND SCHEDULES.
24. PROVIDE PLACARD (BLACK WITH WHITE ETCHED LETTERING) FOR EACH PIECE OF HVAC EQUIPMENT AT A VISIBLE LOCATION INDICATING THE DESIGNATION AND EQUIPMENT NUMBER FOR FUTURE REFERENCING
EXAMPLE :

RTU-2

MECHANICAL/ELECTRICAL COORDINATION

1. CONTRACTOR SHALL COORDINATE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH ELECTRICAL DRAWINGS & ELECTRICAL CONTRACTOR PRIOR TO ORDERING OR INSTALLING EQUIPMENT. CONTRACTOR SHALL FURNISH EQUIPMENT COMPATIBLE FOR THE VOLTAGES SHOWN ON THE ELECTRICAL DRAWINGS.
2. ALL MECHANICAL EQUIPMENT REQUIRING ELECTRICAL POWER SHALL BE INSTALLED WITH DISCONNECT SWITCHES AT EACH PIECE OF EQUIPMENT. COORDINATE SWITCH TYPE (FUSED OR NON-FUSED) WITH EQUIPMENT CHARACTERISTICS, MANUFACTURER'S RECOMMENDATIONS, AND THE ELECTRICAL DRAWINGS.
3. INDOOR HEAT PUMP DISCONNECTS SHALL BE PER SCHEDULES, OUTDOOR CONDENSING UNIT DISCONNECTS SHALL BE BY THE E.C.
4. ALL REQUIRED CONTROL WIRING (INCLUDING WIRING FOR TEMPERATURE CONTROL PANELS, DEVICES, ETC.) NOT SHOWN ON THE DRAWINGS SHALL BE INCLUDED AS PART OF THE MECHANICAL WORK.

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MUNICIPAL BUILDING
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Construction Issue Date: 1-26-2021
Drawn By: NCB
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Scale: AS NOTED

Sheet Name: COVER SHEET
Progress Prints:
Revisions:

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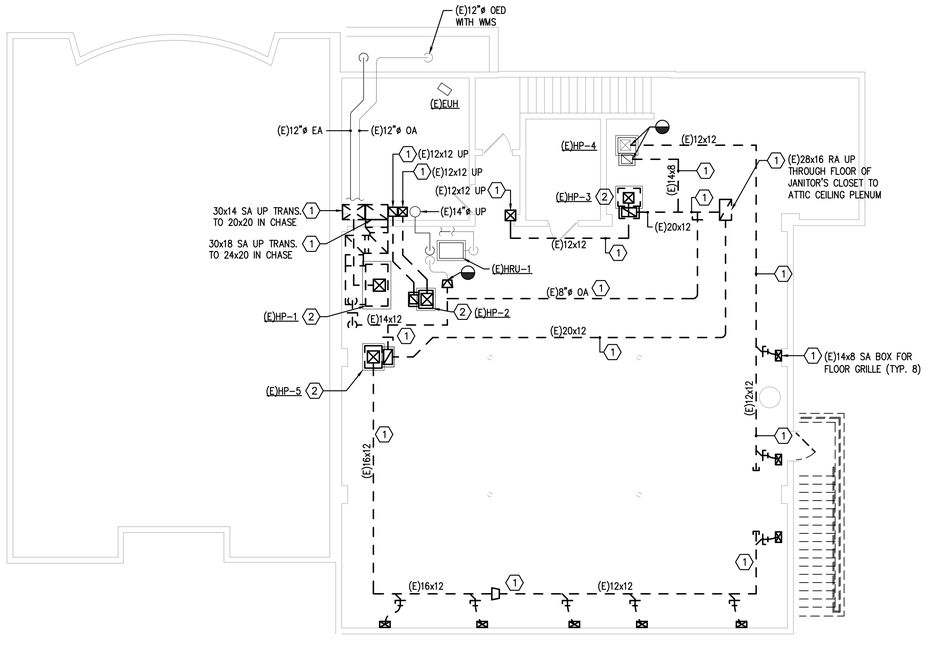
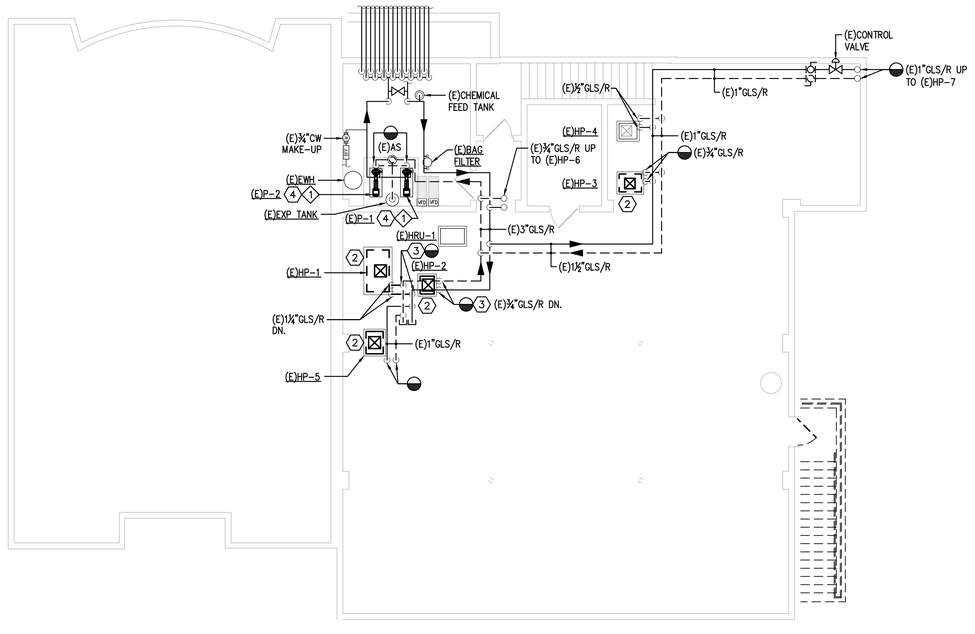


1 M1.1 MECHANICAL - BASEMENT FLOOR PLAN - DUCTWORK

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



2 M1.1 MECHANICAL - BASEMENT FLOOR PLAN - PIPING

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

GENERAL SHEET KEY NOTES

1. COORDINATE ALL REMOVAL WORK WITH PROJECT PHASING. CONTRACTOR TO PROVIDE ALL NECESSARY DEVICES, VALVES, PIPING, ETC. TO MAINTAIN OPERATION OF ALL SYSTEMS REQUIRED TO REMAIN OPERATING DURING DEMOLITION WORK PHASES AS NECESSARY DUE TO BUILDING USAGE AND OVERALL PROJECT PHASING. REFER TO PHASING PROJECT SCOPE IN DETAIL PRIOR TO WORK COMMENCING.
2. EACH PRIME CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF REMOVAL OF ALL THEIR EQUIPMENT, SYSTEM COMPONENTS, PIPING, VALVING, ETC. FROM INTERIOR OF BUILDING TO ALLOW FOR ACCESS AND OTHER DEMOLITION TO OCCUR. SEE SELECTIVE DEMOLITION SPECIFICATION.
3. AT LOCATIONS WHERE REMOVAL OF ANY SYSTEM COMPONENT LEAVES AN OPENING IN THE EXTERIOR OF THE BUILDING WALL, ANY AND ALL LINTELS OR STRUCTURAL SUPPORT OF SUCH OPENINGS ARE TO REMAIN IN PLACE.
4. ALL DEMOLITION WORK TO BE PERFORMED IN ACCORDANCE TO NATIONAL, STATE AND LOCAL STANDARDS AND CODES.
5. VERIFY AND REMOVE ALL EQUIPMENT MARKED FOR DEMOLITION CONTAINING REFRIGERANT IN ITS ENTIRETY INCLUDING COILS, HANGERS, SUPPORTS, PIPING AND ASSOCIATED APPURTENANCES. DISCONNECT REFRIGERANT LINES IN SUCH A MANNER AS TO CAPTURE REFRIGERANT. REMOVE EQUIPMENT WITHOUT RELEASING REFRIGERANT TO THE ATMOSPHERE. COMPLY WITH ALL APPLICABLE CURRENT CODES, REGULATIONS AND PROVISIONS OF THE CLEAN AIR ACT REGULATIONS CONCERNING THE USE, RECOVERY AND RECYCLING OF REFRIGERANTS.
6. COORDINATE ALL REMOVAL WORK WITH INTERIOR CEILING DEMOLITION WORK. COORDINATE AND VERIFY EXTENT OF G.C. CEILING DEMOLITION WORK PRIOR TO REMOVAL WORK COMMENCING.
7. SCHEDULE AND OBTAIN APPROVAL FOR ALL SYSTEM SHUTDOWNS WITH OWNER PRIOR TO COMMENCING WITH DEMOLITION WORK. COORDINATE WITH ALL REMOVAL WORK WITH PROJECT PHASING. REFER TO ITEM 1 ABOVE.
8. PIPING DROPS LOCATED IN EXISTING WALLS OR CHASES ARE TO REMAIN. PIPING IS TO BE ABANDONED IN PLACE WHERE EXISTING EQUIPMENT IS REMOVED AND NEW EQUIPMENT WILL NOT NEED TO UTILIZE CHASE OR EXISTING WALL PIPING DROPS. ABANDONED PIPE DROPS ARE TO BE CUT, DRAINED, CAPPED AND SUPPORTED ABOVE CEILING. PIPING DROPS IN EXISTING WALLS OR CHASES SHALL BE REUSED WHERE EXISTING EQUIPMENT IS REPLACED IN KIND WITH NEW AND EXISTING PIPE ROUTING CAN BE UTILIZED.
9. REFER TO ALL ARCHITECTURAL DEMOLITION DRAWINGS AND NOTES FOR ADDITIONAL REQUIRED WORK.

DEMOLITION WORK NOTES:

(1) REMOVE DUCTWORK IN ITS ENTIRETY INCLUDING SUPPORTS, HANGERS, INSULATION, DAMPERS, FIRE DAMPERS, GRILLES, REGISTERS, FLEXIBLE CONNECTIONS, FLEXIBLE DUCTWORK AND ALL ASSOCIATED APPURTENANCES TO LOCATIONS INDICATED. COORDINATE REMOVAL OF DUCTWORK WITH EXISTING CONSTRUCTION AND ALL OTHER TRADE WORK. REFER TO NEW WORK NOTES FOR ADDITIONAL COORDINATION. PATCH WALL AND REMAINING PENETRATIONS DUE TO COMPLETION OF REMOVAL TO MATCH EXISTING CONSTRUCTION, LAYERS, RATING AND MATERIALS. COORDINATE PATCHWORK TIMEFRAME WITH OVERALL GC PRIMING AND PAINTING OF ROOM PRIOR TO COMMENCING. REFER TO PHASED CONSTRUCTION NOTES FOR ADDITIONAL INFORMATION.

(2) REMOVE EXISTING WATER SOURCE HEAT PUMP IN ITS ENTIRETY INCLUDING ALL SUPPORTS, HANGERS, DUCTWORK TO EXTENTS INDICATED, AND CONDENSATE PIPING TO POINTS INDICATED, CONTROLS WIRING, VALVES, INSULATION, DAMPERS AND ALL ASSOCIATED APPURTENANCES. COORDINATE WITH OWNER FOR ALL SYSTEM SHUTDOWNS PRIOR TO WORK COMMENCING. REFER TO PHASED CONSTRUCTION NOTES FOR ADDITIONAL INFORMATION.

(3) REMOVE PIPING IN ITS ENTIRETY INCLUDING INSULATION, SUPPORTS, HANGERS, VALVES, FITTINGS, UNIONS, ESCUTCHEONS AND ALL ASSOCIATED APPURTENANCES TO LOCATIONS INDICATED. CAP PIPING AT MAIN. COORDINATE REMOVAL OF PIPING WITH EXISTING CONSTRUCTION AND ALL OTHER TRADE WORK. REFER TO NEW WORK NOTES FOR ADDITIONAL COORDINATION.

(4) REMOVE EXISTING PUMP IN ITS ENTIRETY DURING PHASE 2 CONSTRUCTION. EXISTING PUMPING SYSTEM TO REMAIN OPERATIONAL DURING PHASE 1. REFER TO NEW WORK NOTES AND PHASED CONSTRUCTION NOTES BELOW FOR ADDITIONAL COORDINATION

PHASED CONSTRUCTION NOTES

1. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL PHASING REQUIREMENTS.
2. GENERAL TO ALL DRAWINGS AND ALL AREAS OF WORK. PHASING NOTES ON DEMOLITION SHEETS ARE RECOMMENDATIONS ONLY. CONTRACTOR IS REQUIRED TO REVIEW PHASING REQUIREMENTS AND PROVIDE ALL NECESSARY ISOLATION VALVES, FITTINGS, OFFSETS, SYSTEM DRAINAGE, SYSTEM FILLING, PIPING, SUPPORTS AND ALL ASSOCIATED APPURTENANCES WHERE SPECIFICALLY INDICATED AND WHERE REQUIRED TO ENSURE ABILITY OF PROJECT PHASING AND ALSO TO ENSURE NECESSARY MECHANICAL EQUIPMENT IS OPERATIONAL DURING ADJACENT AREAS OF WORK AND OVERALL PROJECT PHASING. CONTRACTOR IS TO REVIEW IN DETAIL THE PROJECT PHASING DRAWINGS AND REQUIREMENTS IN FULL AND COORDINATE WITH ALL OTHER TRADES PRIOR TO WORK COMMENCING.
3. DURING PHASE 1 CONSTRUCTION EXISTING HP-3, 4, 5, 6 & 7 ARE TO REMAIN OPERATIONAL UNTIL SUCH TIME AS PHASE 2 CONSTRUCTION IS TO COMMENCE. EXISTING HRU-1 IS ALSO TO REMAIN OPERATIONAL DURING PHASE 1 CONSTRUCTION. EXISTING HP-1 & 2 ARE TO BE DEMOLISHED DURING PHASE 1 CONSTRUCTION. PROVIDE NECESSARY CAPPING OF VENTILATION DUCTWORK AND PIPING TO FACILITATE OPERATION OF EXISTING PUMP SYSTEM AND OUTSIDE AIR SYSTEM(HRU-1). REFER TO NEW WORK PHASING NOTES FOR ADDITIONAL INFORMATION. COORDINATE ANY HEAT PUMP SYSTEM SHUTDOWNS WITH OWNER PRIOR TO COMMENCING WORK.

TESTING AND BALANCING NOTE

(1) PRIOR TO ANY WORK BEING PERFORMED AND/OR PUMP AND APPURTENANCES BEING ORDERED, CONTRACTOR IS TO PERFORM A PUMP FLOW TEST, AND MEASURE AND RECORD PUMP MINIMUM AND MAXIMUM FLOW RATE AND FEET OF HEAD PRESSURE AT PUMP DISCHARGE. SUBMIT REPORT TO ENGINEER FOR REVIEW.

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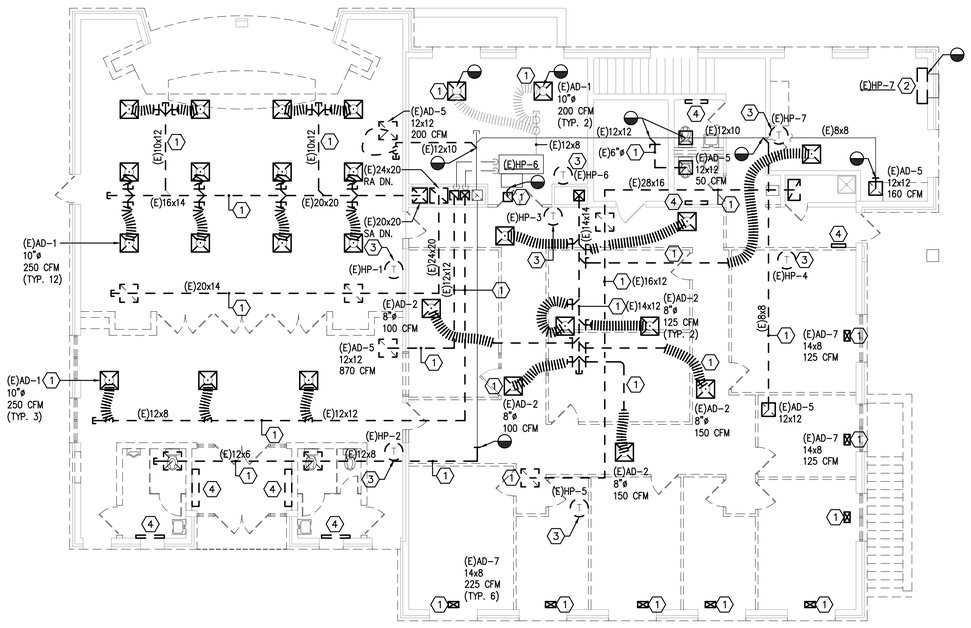
M1.1



1 / M1.2 MECHANICAL - GROUND FLOOR PLAN - DUCTWORK

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

GENERAL SHEET KEY NOTES

1. COORDINATE ALL REMOVAL WORK WITH PROJECT PHASING. CONTRACTOR TO PROVIDE ALL NECESSARY DEVICES, VALVES, PIPING, ETC. TO MAINTAIN OPERATION OF ALL SYSTEMS REQUIRED TO REMAIN OPERATING DURING DEMOLITION WORK PHASES AS NECESSARY DUE TO BUILDING USAGE AND OVERALL PROJECT PHASING. REFER TO PHASING PROJECT SCOPE IN DETAIL PRIOR TO WORK COMMENCING.
2. EACH PRIME CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF REMOVAL OF ALL THEIR EQUIPMENT, SYSTEM COMPONENTS, PIPING, VALVING, ETC. FROM INTERIOR OF BUILDING TO ALLOW FOR ACCESS AND OTHER DEMOLITION TO OCCUR. SEE SELECTIVE DEMOLITION SPECIFICATION.
3. AT LOCATIONS WHERE REMOVAL OF ANY SYSTEM COMPONENT LEAVES AN OPENING IN THE EXTERIOR OF THE BUILDING WALL, ANY AND ALL LINTELS OR STRUCTURAL SUPPORT OF SUCH OPENINGS ARE TO REMAIN IN PLACE.
4. ALL DEMOLITION WORK TO BE PERFORMED IN ACCORDANCE TO NATIONAL, STATE AND LOCAL STANDARDS AND CODES.
5. VERIFY AND REMOVE ALL EQUIPMENT MARKED FOR DEMOLITION CONTAINING REFRIGERANT IN ITS ENTIRETY INCLUDING COILS, HANGERS, SUPPORTS, PIPING AND ASSOCIATED APPURTENANCES. DISCONNECT REFRIGERANT LINES IN SUCH A MANNER AS TO CAPTURE REFRIGERANT. REMOVE EQUIPMENT WITHOUT RELEASING REFRIGERANT TO THE ATMOSPHERE. COMPLY WITH ALL APPLICABLE CURRENT CODES, REGULATIONS AND PROVISIONS OF THE CLEAN AIR ACT REGULATIONS CONCERNING THE USE, RECOVERY AND RECYCLING OF REFRIGERANTS.
6. COORDINATE ALL REMOVAL WORK WITH INTERIOR CEILING DEMOLITION WORK. COORDINATE AND VERIFY EXTENT OF G.C. CEILING DEMOLITION WORK PRIOR TO REMOVAL WORK COMMENCING.
7. SCHEDULE AND OBTAIN APPROVAL FOR ALL SYSTEM SHUTDOWNS WITH OWNER PRIOR TO COMMENCING WITH DEMOLITION WORK. COORDINATE WITH ALL REMOVAL WORK WITH PROJECT PHASING. REFER TO ITEM 1 ABOVE.
8. PIPING DROPS LOCATED IN EXISTING WALLS OR CHASES ARE TO REMAIN. PIPING IS TO BE ABANDONED IN PLACE WHERE EXISTING EQUIPMENT IS REMOVED AND NEW EQUIPMENT WILL NOT NEED TO UTILIZE CHASE OR EXISTING WALL PIPING DROPS. ABANDONED PIPE DROPS ARE TO BE CUT, DRAINED, CAPPED AND SUPPORTED ABOVE CEILING. PIPING DROPS IN EXISTING WALLS OR CHASES SHALL BE REUSED WHERE EXISTING EQUIPMENT IS REPLACED IN KIND WITH NEW AND EXISTING PIPE ROUTING CAN BE UTILIZED.
9. REFER TO ALL ARCHITECTURAL DEMOLITION DRAWINGS AND NOTES FOR ADDITIONAL REQUIRED WORK.

DEMOLITION WORK NOTES:

1. REMOVE DUCTWORK IN ITS ENTIRETY INCLUDING SUPPORTS, HANGERS, INSULATION, DAMPERS, FIRE DAMPERS, GRILLES, REGISTERS, FLEXIBLE CONNECTIONS, FLEXIBLE DUCTWORK AND ALL ASSOCIATED APPURTENANCES TO LOCATIONS INDICATED. COORDINATE REMOVAL OF DUCTWORK WITH EXISTING CONSTRUCTION AND ALL OTHER TRADE WORK. REFER TO NEW WORK NOTES FOR ADDITIONAL COORDINATION. PATCH WALL AND REMAINING PENETRATIONS DUE TO COMPLETION OF REMOVAL TO MATCH EXISTING CONSTRUCTION, LAYERS, RATING AND MATERIALS. COORDINATE PATCHWORK TIMEFRAME WITH OVERALL GC PRIMING AND PAINTING OF ROOM PRIOR TO COMMENCING. REFER TO PHASED CONSTRUCTION NOTES FOR ADDITIONAL INFORMATION.
2. REMOVE EXISTING WATER SOURCE HEAT PUMP IN ITS ENTIRETY INCLUDING ALL SUPPORTS, HANGERS, DUCTWORK TO EXTENTS INDICATED, AND CONDENSATE PIPING TO POINTS INDICATED, CONTROLS WIRING, VALVES, INSULATION, DAMPERS AND ALL ASSOCIATED APPURTENANCES. COORDINATE WITH OWNER FOR ALL SYSTEM SHUTDOWNS PRIOR TO WORK COMMENCING.
3. REMOVE WALL MOUNTED THERMOSTAT IN ITS ENTIRETY INCLUDING SUPPORTS AND WIRING.
4. REMOVE ELECTRIC HEATER IN ITS ENTIRETY INCLUDING ALL SUPPORTS, BRACKETS AND ASSOCIATED APPURTENANCES.

PHASED CONSTRUCTION NOTES

1. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL PHASING REQUIREMENTS.
2. GENERAL TO ALL DRAWINGS AND ALL AREAS OF WORK. PHASING NOTES ON DEMOLITION SHEETS ARE RECOMMENDATIONS ONLY. CONTRACTOR IS REQUIRED TO REVIEW PHASING REQUIREMENTS AND PROVIDE ALL NECESSARY ISOLATION VALVES, FITTINGS, OFFSETS, SYSTEM DRAINAGE, SYSTEM FILLING, PIPING, SUPPORTS AND ALL ASSOCIATED APPURTENANCES WHERE SPECIFICALLY INDICATED AND WHERE REQUIRED TO ENSURE ABILITY OF PROJECT PHASING AND ALSO TO ENSURE NECESSARY MECHANICAL EQUIPMENT IS OPERATIONAL DURING ADJACENT AREAS OF WORK AND OVERALL PROJECT PHASING. CONTRACTOR IS TO REVIEW IN DETAIL THE PROJECT PHASING DRAWINGS AND REQUIREMENTS IN FULL AND COORDINATE WITH ALL OTHER TRADES PRIOR TO WORK COMMENCING.
3. DURING PHASE 1 CONSTRUCTION EXISTING HP-3, 4, 5, 6 & 7 ARE TO REMAIN OPERATIONAL UNTIL SUCH TIME AS PHASE 2 CONSTRUCTION IS TO COMMENCE. EXISTING HRU-1 IS ALSO TO REMAIN OPERATIONAL DURING PHASE 1 CONSTRUCTION. EXISTING HP-1 & 2 ARE TO BE DEMOLISHED DURING PHASE 1 CONSTRUCTION. PROVIDE NECESSARY CAPPING OF VENTILATION DUCTWORK AND PIPING TO FACILITATE OPERATION OF EXISTING PUMP SYSTEM AND OUTSIDE AIR SYSTEM(HRU-1). REFER TO NEW WORK PHASING NOTES FOR ADDITIONAL INFORMATION.

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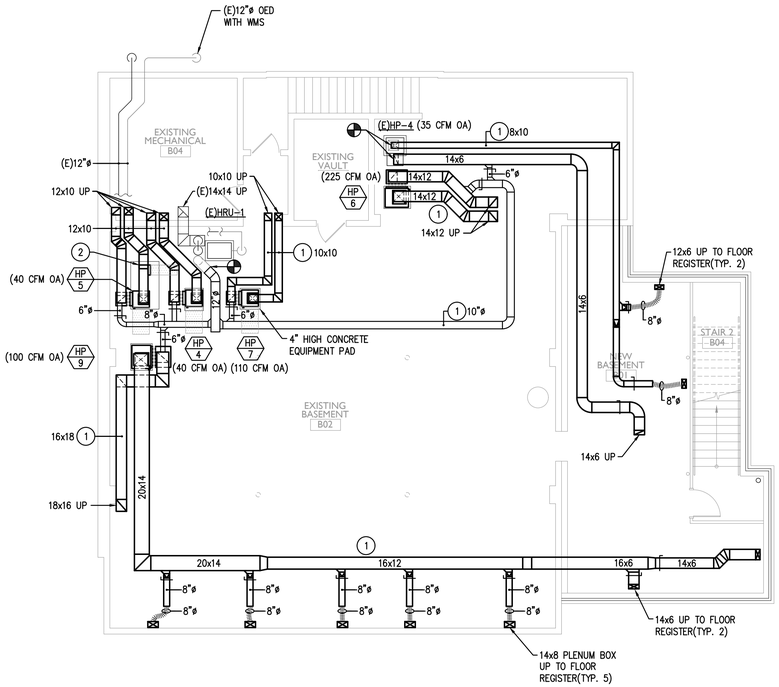
MUNCIPAL BUILDING
WEST BRADFORD TOWNSHIP
1385 CAMPUS DRIVE
WEST BRADFORD, PA 19335

Construction Issue Date: 1-26-2021
Drawn By: NCB
Checked By: JRS
Scale: AS NOTED

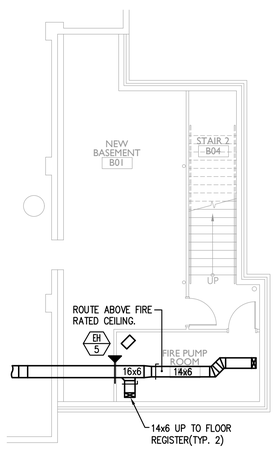
Sheet Name: GROUND FLOOR DEMOLITION PLAN
Progress Prints:
Revisions:

M1.2



1 M2.1 MECHANICAL - BASEMENT FLOOR PLAN - DUCTWORK

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



2 M2.1 MECHANICAL - PARTIAL BASEMENT FLOOR PLAN - FIRE PUMP ROOM ADD ALTERANTE

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

GENERAL SHEET NOTES

1. PROVIDE ALL WALL/CEILING/FLOOR PENETRATIONS TO FACILITATE INSTALLATION OF PIPING AND DUCTWORK SYSTEMS.
2. PROVIDE ALL HANGERS, SUPPORTS, VIBRATION ISOLATION DEVICES, AND APPURTENANCES TO FACILITATE INSTALLATION OF ALL DUCTWORK AND PIPING SYSTEM SYSTEMS ADND ASSOCIATED COMPONENTS/EQUIPMENT. COORDINATE LOCATION OF SUPPORTS WITH AL OTHER ADJACENT TRADE WORK.
3. COORDINATE LOCATION OF ALL PROPOSED ROUTING AND INSTALLATION LOCATIONS OF HYDRONIC EQUIPMENT AND PIPING SYSTEMS WITH ALL ELECTRIC SYSTEMS AND COMPONENTS INCLUDING BUT NOT LIMITED TO PANELS, CONDUITS, SUBSTATIONS, TRANSFORMERS, ETC. PIPING IS NOT TO BE ROUTED ABOVE SUCH ITEMS.
4. COORDINATE PIPING RISERS FROM BELOW WITH STRUCTURAL ELEMENTS, UNIT LOCATION, ARCHITECTURAL FEATURES ON INSTALLED FLOOR, ETC. COORDINATE WITH GC FOR ALL INSTALLATION LOCATION REQUIREMENTS PRIOR TO INSTALLING.
5. PROVIDE INTERNAL DUCT LINING FOR FIRST 10 FEET OF SUPPLY AND RETURN DUCTWORK ASSOCIATED WITH EACH HEAT PUMP.
6. TRADE CONTRACTOR IS FULLY RESPONSIBLE TO COORDINATE/VERIFY ALL REQUIRED EQUIPMENT MANUFACTURER CLEARANCES, REQUIRED FUTURE MAINTENANCE CLEARANCES, ACCESSIBILITY AND AVAILABLE MEANS TO FACILITATE INSTALLATION OF PROPOSED EQUIPMENT AND SYSTEMS INTO FINAL OPERATING LOCATIONS. CONTRACTOR IS ALSO RESPONSIBLE TO REVIEW IN DETAIL PROPOSED LOCATIONS AND CLEARANCES FOR ALL ADJACENT TRADE WORK, BUILDING STRUCTURE AND ARCHITECTURAL CONSTRUCTION AND COORDINATE ACCORDINGLY PRIOR TO PURCHASING AND/OR INSTALLING ANY AND ALL SYSTEMS OR EQUIPMENT. REFER TO TRADE COVER SHEET REGARDING COORDINATION DRAWINGS AND RATED SYSTEM PENETRATIONS FOR ADDITIONAL WORK AND NOTING.
7. ALL DUCT DIMENSIONS REPRESENT INTERNAL INSIDE FREE AREA OF DUCTWORK.

PHASED CONSTRUCTION NOTES

1. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL PHASING REQUIREMENTS.
2. GENERAL TO ALL DRAWINGS AND ALL AREAS OF WORK. PHASING NOTES ON DEMOLITION SHEETS ARE RECOMMENDATIONS ONLY. CONTRACTOR IS REQUIRED TO REVIEW PHASING REQUIREMENTS AND PROVIDE ALL NECESSARY ISOLATION VALVES, FITTINGS, OFFSETS, SYSTEM DRAINAGE, SYSTEM FILLING, PIPING, SUPPORTS AND ALL ASSOCIATED APPURTENANCES WHERE SPECIFICALLY INDICATED AND WHERE REQUIRED TO ENSURE ABILITY OF PROJECT PHASING AND ALSO TO ENSURE NECESSARY MECHANICAL EQUIPMENT IS OPERATIONAL DURING ADJACENT AREAS OF WORK AND OVERALL PROJECT PHASING. CONTRACTOR IS TO REVIEW IN DETAIL THE PROJECT PHASING DRAWINGS AND REQUIREMENTS IN FULL AND COORDINATE WITH ALL OTHER TRADES PRIOR TO WORK COMMENCING.
3. DURING PHASE 1 CONSTRUCTION NEW HP-1, 2, 3, 4, 5 & 10 ARE TO BE INSTALLED WHILE REMAINING EXISTING HEAT PUMPS REMAIN OPERATIONAL UNTIL PHASE 2 COMMENCES. REMAINING HEAT PUMPS TO BE INSTALLED DURING PHASE 2 CONSTRUCTION. EXISTING HRU-1 IS ALSO TO REMAIN OPERATIONAL DURING PHASE 1 CONSTRUCTION. PROVIDE NECESSARY CAPPING AND/OR BALANCING DAMPERS IN VENTILATION DUCTWORK TO KEEP EXISTING OUTSIDE AIR SYSTEM(HRU-1) OPERATIONAL DURING PHASE 1 CONSTRUCTION.

NEW WORK KEY NOTES

1. ROUTE DUCTWORK AS HIGH AS POSSIBLE TIGHT TO UNDERSIDE OF STRUCTURE.
2. PROVIDE HEAT PUMP MANUFACTURER'S 4KW AUX. DUCT MOUNTED ELECTRIC HEATER. MAINTAIN 36" CLEARANCE FROM ELBOWS. ROUTE HEAT PUMP RETURN AIR DUCTWORK AS TIGHT AS POSSIBLE TO BOTTOM OF STRUCTURE. ROUTE SUPPLY DUCTWORK BELOW ADJACENT RETURN AIR DUCTWORK TO ALLOW ACCESS AND MAINTENANCE TO ELECTRIC DUCT COIL. COORDINATE AND MAINTAIN MANUFACTURER'S CLEARANCE REQUIREMENTS PRIOR TO INSTALLATION.

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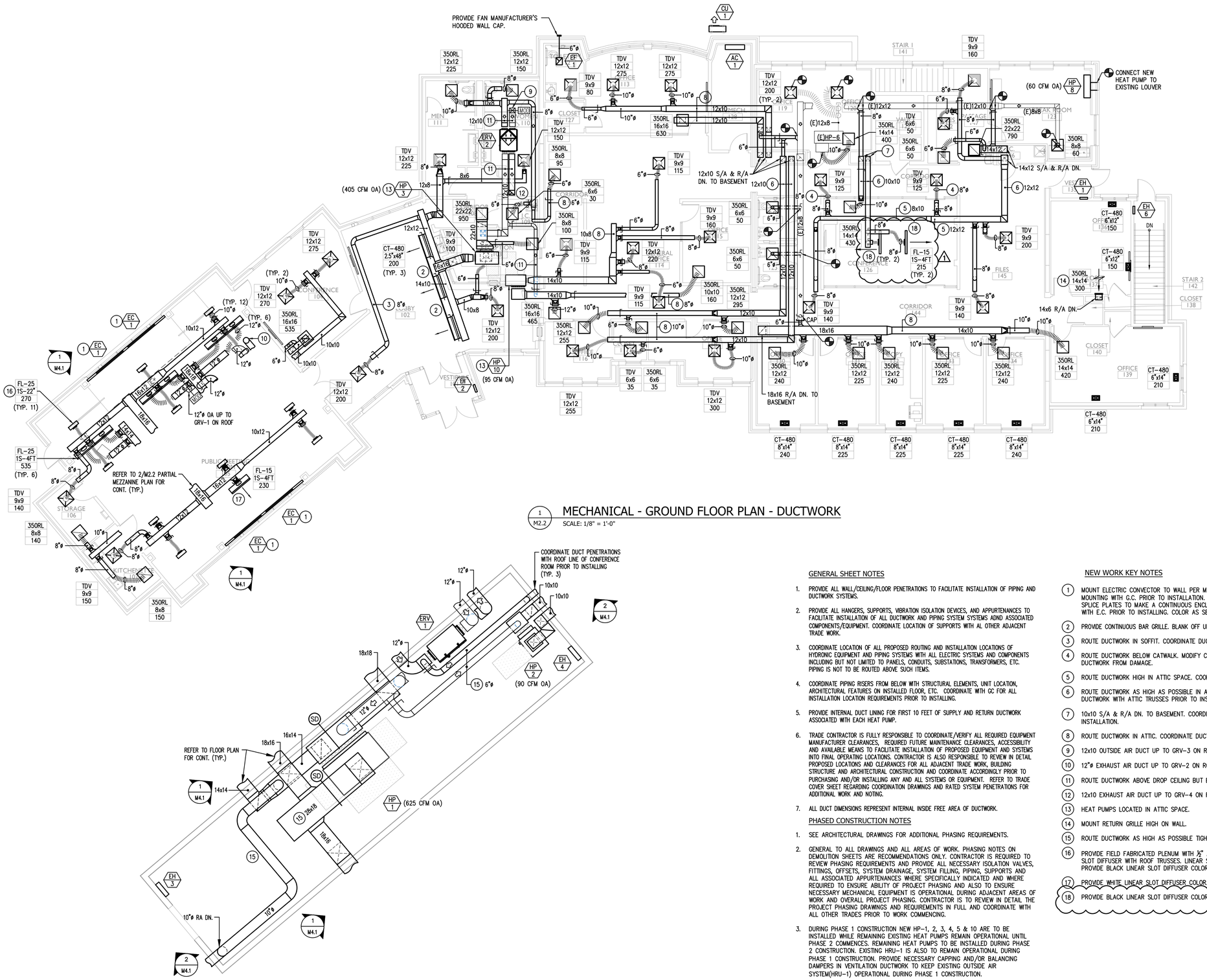

1 M2.2 MECHANICAL - GROUND FLOOR PLAN - DUCTWORK
SCALE: 1/8" = 1'-0"

2 M2.2 MECHANICAL - PARTIAL PLAN - MEZZANINE - DUCTWORK
SCALE: 1/4" = 1'-0"

GENERAL SHEET NOTES

1. PROVIDE ALL WALL/CEILING/FLOOR PENETRATIONS TO FACILITATE INSTALLATION OF PIPING AND DUCTWORK SYSTEMS.
2. PROVIDE ALL HANGERS, SUPPORTS, VIBRATION ISOLATION DEVICES, AND APPURTENANCES TO FACILITATE INSTALLATION OF ALL DUCTWORK AND PIPING SYSTEM SYSTEMS ADND ASSOCIATED COMPONENTS/EQUIPMENT. COORDINATE LOCATION OF SUPPORTS WITH AL OTHER ADJACENT TRADE WORK.
3. COORDINATE LOCATION OF ALL PROPOSED ROUTING AND INSTALLATION LOCATIONS OF HYDRONIC EQUIPMENT AND PIPING SYSTEMS WITH ALL ELECTRIC SYSTEMS AND COMPONENTS INCLUDING BUT NOT LIMITED TO PANELS, CONDUITS, SUBSTATIONS, TRANSFORMERS, ETC. PIPING IS NOT TO BE ROUTED ABOVE SUCH ITEMS.
4. COORDINATE PIPING RISERS FROM BELOW WITH STRUCTURAL ELEMENTS, UNIT LOCATION, ARCHITECTURAL FEATURES ON INSTALLED FLOOR, ETC. COORDINATE WITH GC FOR ALL INSTALLATION LOCATION REQUIREMENTS PRIOR TO INSTALLING.
5. PROVIDE INTERNAL DUCT LINING FOR FIRST 10 FEET OF SUPPLY AND RETURN DUCTWORK ASSOCIATED WITH EACH HEAT PUMP.
6. TRADE CONTRACTOR IS FULLY RESPONSIBLE TO COORDINATE/VERIFY ALL REQUIRED EQUIPMENT MANUFACTURER CLEARANCES, REQUIRED FUTURE MAINTENANCE CLEARANCES, ACCESSIBILITY AND AVAILABLE MEANS TO FACILITATE INSTALLATION OF PROPOSED EQUIPMENT AND SYSTEMS INTO FINAL OPERATING LOCATIONS. CONTRACTOR IS ALSO RESPONSIBLE TO REVIEW IN DETAIL PROPOSED LOCATIONS AND CLEARANCES FOR ALL ADJACENT TRADE WORK, BUILDING STRUCTURE AND ARCHITECTURAL CONSTRUCTION AND COORDINATE ACCORDINGLY PRIOR TO PURCHASING AND/OR INSTALLING ANY AND ALL SYSTEMS OR EQUIPMENT. REFER TO TRADE COVER SHEET REGARDING COORDINATION DRAWINGS AND RATED SYSTEM PENETRATIONS FOR ADDITIONAL WORK AND NOTING.
7. ALL DUCT DIMENSIONS REPRESENT INTERNAL INSIDE FREE AREA OF DUCTWORK.

PHASED CONSTRUCTION NOTES

1. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL PHASING REQUIREMENTS.
2. GENERAL TO ALL DRAWINGS AND ALL AREAS OF WORK. PHASING NOTES ON DEMOLITION SHEETS ARE RECOMMENDATIONS ONLY. CONTRACTOR IS REQUIRED TO REVIEW PHASING REQUIREMENTS AND PROVIDE ALL NECESSARY ISOLATION VALVES, FITTINGS, OFFSETS, SYSTEM DRAINAGE, SYSTEM FILLING, PIPING, SUPPORTS AND ALL ASSOCIATED APPURTENANCES WHERE SPECIFICALLY INDICATED AND WHERE REQUIRED TO ENSURE ABILITY OF PROJECT PHASING AND ALSO TO ENSURE NECESSARY MECHANICAL EQUIPMENT IS OPERATIONAL DURING ADJACENT AREAS OF WORK AND OVERALL PROJECT PHASING. CONTRACTOR IS TO REVIEW IN DETAIL THE PROJECT PHASING DRAWINGS AND REQUIREMENTS IN FULL AND COORDINATE WITH ALL OTHER TRADES PRIOR TO WORK COMMENCING.
3. DURING PHASE 1 CONSTRUCTION NEW HP-1, 2, 3, 4, 5 & 10 ARE TO BE INSTALLED WHILE REMAINING EXISTING HEAT PUMPS REMAIN OPERATIONAL UNTIL PHASE 2 COMMENCES. REMAINING HEAT PUMPS TO BE INSTALLED DURING PHASE 2 CONSTRUCTION. EXISTING HRU-1 IS ALSO TO REMAIN OPERATIONAL DURING PHASE 1 CONSTRUCTION. PROVIDE NECESSARY CAPPING AND/OR BALANCING DAMPERS IN VENTILATION DUCTWORK TO KEEP EXISTING OUTSIDE AIR SYSTEM(HRU-1) OPERATIONAL DURING PHASE 1 CONSTRUCTION.

NEW WORK KEY NOTES

1. MOUNT ELECTRIC CONVECTOR TO WALL PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. COORDINATE MOUNTING WITH G.C. PRIOR TO INSTALLATION. ENCLOSURE TO BE CONTINUOUS FROM WALL TO WALL. PROVIDE SPLICE PLATES TO MAKE A CONTINUOUS ENCLOSURE. COORDINATE LOCATION OF ELECTRICAL CONNECTIONS WITH E.C. PRIOR TO INSTALLING. COLOR AS SELECTED BY ARCHITECT.
2. PROVIDE CONTINUOUS BAR GRILLE. BLANK OFF UNUSED SECTIONS.
3. ROUTE DUCTWORK IN SOFFIT. COORDINATE DUCTWORK ROUTING WITH G.C. PRIOR TO INSTALLING.
4. ROUTE DUCTWORK BELOW CATWALK. MODIFY CATWALK TO STEP OVER DUCTWORK AS REQUIRED TO PROTECT DUCTWORK FROM DAMAGE.
5. ROUTE DUCTWORK HIGH IN ATTIC SPACE. COORDINATE ROUTING WITH ATTIC TRUSSES PRIOR TO INSTALLING.
6. ROUTE DUCTWORK AS HIGH AS POSSIBLE IN ATTIC SPACE ACROSS CATWALK. COORDINATE ROUTING OF DUCTWORK WITH ATTIC TRUSSES PRIOR TO INSTALLING.
7. 10x10 S/A & R/A DN. TO BASEMENT. COORDINATE ROUTING WITH EXISTING CHASE OPENING PRIOR TO INSTALLATION.
8. ROUTE DUCTWORK IN ATTIC. COORDINATE DUCTWORK WITH ATTIC TRUSSES PRIOR TO INSTALLING.
9. 12x10 OUTSIDE AIR DUCT UP TO GRV-3 ON ROOF.
10. 12"ø EXHAUST AIR DUCT UP TO GRV-2 ON ROOF.
11. ROUTE DUCTWORK ABOVE DROP CEILING BUT BELOW ATTIC SPACE.
12. 12x10 EXHAUST AIR DUCT UP TO GRV-4 ON ROOF.
13. HEAT PUMPS LOCATED IN ATTIC SPACE.
14. MOUNT RETURN GRILLE HIGH ON WALL.
15. ROUTE DUCTWORK AS HIGH AS POSSIBLE TIGHT TO UNDERSIDE OF CEILING.
16. PROVIDE FIELD FABRICATED PLENUM WITH ½" ACOUSTICAL DUCT LINING. COORDINATE LOCATION OF LINEAR SLOT DIFFUSER WITH ROOF TRUSSES. LINEAR SLOT DIFFUSERS TO BE LOCATED BETWEEN ROOF TRUSSES. PROVIDE BLACK LINEAR SLOT DIFFUSER COLOR.
17. PROVIDE WHITE LINEAR SLOT DIFFUSER COLOR.
18. PROVIDE BLACK LINEAR SLOT DIFFUSER COLOR. (1)

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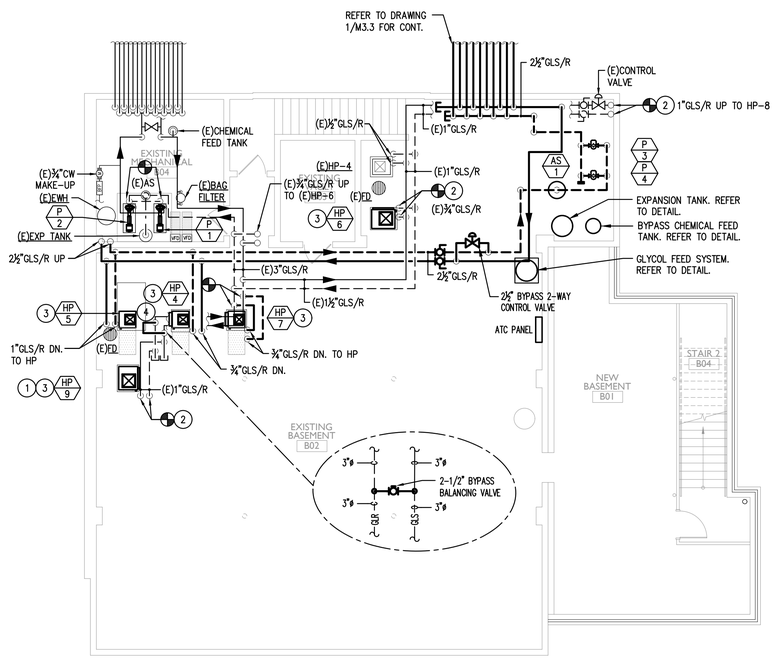
Sheet Name: GROUND FLOOR DUCTWORK PLAN

Progress Prints:	Revisions:
MODIFIED DURING BIDDING	1

M2.2



1 M3.1 MECHANICAL - BASEMENT FLOOR PLAN - PIPING

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

GENERAL SHEET NOTES

1. PROVIDE ALL WALL/CEILING/FLOOR PENETRATIONS TO FACILITATE INSTALLATION OF PIPING AND DUCTWORK SYSTEMS.
2. PROVIDE ALL HANGERS, SUPPORTS, VIBRATION ISOLATION DEVICES, AND APPURTENANCES TO FACILITATE INSTALLATION OF ALL DUCTWORK AND PIPING SYSTEM SYSTEMS AOND ASSOCIATED COMPONENTS/EQUIPMENT. COORDINATE LOCATION OF SUPPORTS WITH AL OTHER ADJACENT TRADE WORK.
3. COORDINATE LOCATION OF ALL PROPOSED ROUTING AND INSTALLATION LOCATIONS OF HYDRONIC EQUIPMENT AND PIPING SYSTEMS WITH ALL ELECTRIC SYSTEMS AND COMPONENTS INCLUDING BUT NOT LIMITED TO PANELS, CONDUITS, SUBSTATIONS, TRANSFORMERS, ETC. PIPING IS NOT TO BE ROUTED ABOVE SUCH ITEMS.
4. COORDINATE PIPING RISERS FROM BELOW WITH STRUCTURAL ELEMENTS, UNIT LOCATION, ARCHITECTURAL FEATURES ON INSTALLED FLOOR, ETC. COORDINATE WITH GC FOR ALL INSTALLATION LOCATION REQUIREMENTS PRIOR TO INSTALLING.
5. PROVIDE INTERNAL DUCT LINING FOR FIRST 10 FEET OF SUPPLY AND RETURN DUCTWORK ASSOCIATED WITH EACH HEAT PUMP.
6. TRADE CONTRACTOR IS FULLY RESPONSIBLE TO COORDINATE/VERIFY ALL REQUIRED EQUIPMENT MANUFACTURER CLEARANCES, REQUIRED FUTURE MAINTENANCE CLEARANCES, ACCESSIBILITY AND AVAILABLE MEANS TO FACILITATE INSTALLATION OF PROPOSED EQUIPMENT AND SYSTEMS INTO FINAL OPERATING LOCATIONS. CONTRACTOR IS ALSO RESPONSIBLE TO REVIEW IN DETAIL PROPOSED LOCATIONS AND CLEARANCES FOR ALL ADJACENT TRADE WORK, BUILDING STRUCTURE AND ARCHITECTURAL CONSTRUCTION AND COORDINATE ACCORDINGLY PRIOR TO PURCHASING AND/OR INSTALLING ANY AND ALL SYSTEMS OR EQUIPMENT. REFER TO TRADE COVER SHEET REGARDING COORDINATION DRAWINGS AND RATED SYSTEM PENETRATIONS FOR ADDITIONAL WORK AND NOTING.
7. AT CONCLUSION OF THE PIPING MODIFICATIONS TO THE EXISTING GEOTHERMAL SYSTEM CONTRACTOR IS TO FILL, FLUSH AND PRESSURE TEST THE COMPLETE EXISTING INTERIOR GEOTHERMAL LOOP SYSTEM IN ACCORDANCE WITH IGHSPA. PROVIDE WRITTEN REPORT AT COMPLETION OF TESTING INDICATING COMPLIANCE.

PHASED CONSTRUCTION NOTES

1. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL PHASING REQUIREMENTS.
2. GENERAL TO ALL DRAWINGS AND ALL AREAS OF WORK. PHASING NOTES ON DEMOLITION SHEETS ARE RECOMMENDATIONS ONLY. CONTRACTOR IS REQUIRED TO REVIEW PHASING REQUIREMENTS AND PROVIDE ALL NECESSARY ISOLATION VALVES, FITTINGS, OFFSETS, SYSTEM DRAINAGE, SYSTEM FILLING, PIPING, SUPPORTS AND ALL ASSOCIATED APPURTENANCES WHERE SPECIFICALLY INDICATED AND WHERE REQUIRED TO ENSURE ABILITY OF PROJECT PHASING AND ALSO TO ENSURE NECESSARY MECHANICAL EQUIPMENT IS OPERATIONAL DURING ADJACENT AREAS OF WORK AND OVERALL PROJECT PHASING. CONTRACTOR IS TO REVIEW IN DETAIL THE PROJECT PHASING DRAWINGS AND REQUIREMENTS IN FULL AND COORDINATE WITH ALL OTHER TRADES PRIOR TO WORK COMMENCING.
3. DURING PHASE 1 CONSTRUCTION NEW HP-1, 2, 3, 4, 5 & 10 ARE TO BE INSTALLED WHILE REMAINING EXISTING HEAT PUMPS REMAIN OPERATIONAL UNTIL PHASE 2 COMMENCES. REMAINING HEAT PUMPS TO BE INSTALLED DURING PHASE 2 CONSTRUCTION. EXISTING GEOTHERMAL PUMP SYSTEM IS TO REMAIN OPERATIONAL DURING PHASE 1 CONSTRUCTION. PROVIDE TEMPORARY 2-1/2" BYPASS PIPING BETWEEN GEOTHERMAL SUPPLY AND RETURN PIPING WITH BYPASS CONTROL VALVE. REFER TO DRAWINGS FOR BYPASS LOCATION. BYPASS TO ALLOW FOR OPERATION OF EXISTING PUMPS IF PUMP VFD'S CANNOT TURN DOWN TO SYSTEM GPM AFTER REMOVAL OF PHASE 1 HEAT PUMPS. SYSTEM FLOWRATE OF EXISTING GEOTHERMAL PIPING SYSTEM AFTER REMOVAL OF PHASE 1 HEAT PUMPS WILL BE APPROXIMATELY 33 GPM. COORDINATE ANY HEAT PUMP SYSTEM SHUTDOWNS WITH OWNER PRIOR TO COMMENCING WORK.

NEW WORK KEY NOTES

1. RECONNECT HOT WATER PIPING FROM WATER HEATER TO HOT WATER GENERATION OPTION ON HEAT PUMP.
2. RECONNECT EXISTING PIPING TO NEW HEAT PUMP.
3. ROUTE CONDENSATE TO NEAREST FLOOR DRAIN.
4. TEMPORARY BY-PASS PIPING FOR OPERATION OF EXISTING PUMP SYSTEM DURING PHASE 1 CONSTRUCTION. REFER TO PHASING NOTES FOR ADDITIONAL INFORMATION.

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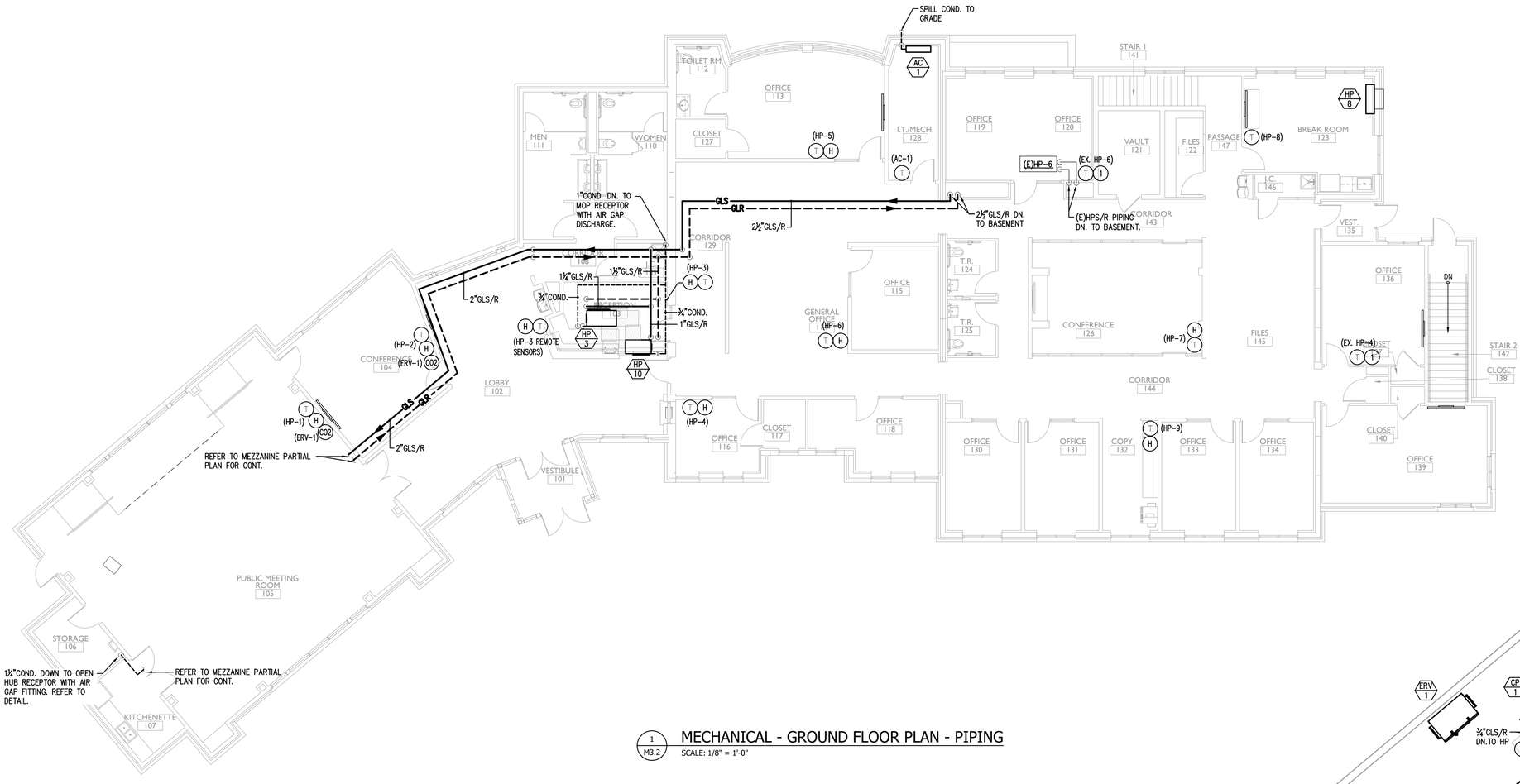
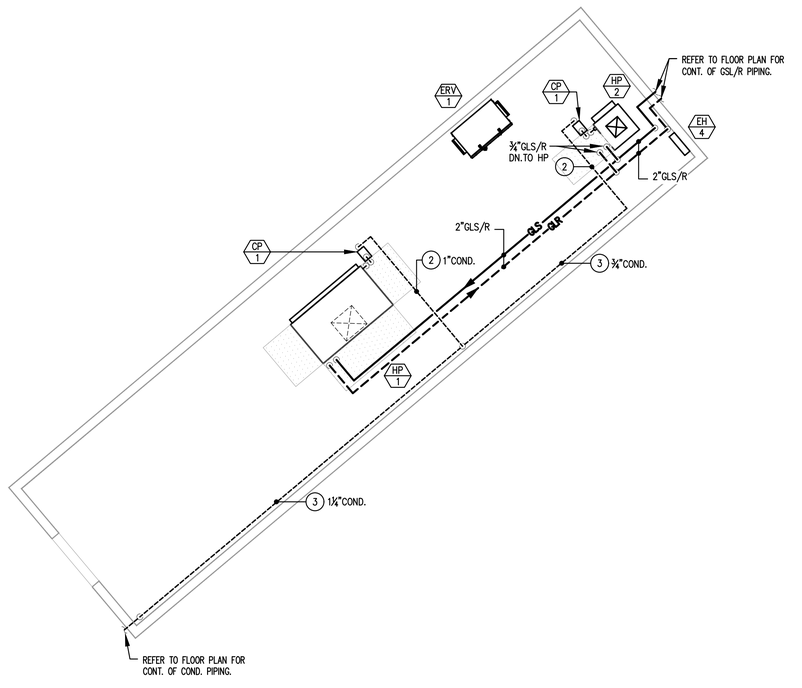


1 M3.2 MECHANICAL - GROUND FLOOR PLAN - PIPING

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



2 M3.2 MECHANICAL - PARTIAL PLAN - MEZZANINE

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

GENERAL SHEET NOTES

1. PROVIDE ALL WALL/CEILING/FLOOR PENETRATIONS TO FACILITATE INSTALLATION OF PIPING AND DUCTWORK SYSTEMS.
2. PROVIDE ALL HANGERS, SUPPORTS, VIBRATION ISOLATION DEVICES, AND APPURTENANCES TO FACILITATE INSTALLATION OF ALL DUCTWORK AND PIPING SYSTEM SYSTEMS ADND ASSOCIATED COMPONENTS/EQUIPMENT. COORDINATE LOCATION OF SUPPORTS WITH AL OTHER ADJACENT TRADE WORK.
3. COORDINATE LOCATION OF ALL PROPOSED ROUTING AND INSTALLATION LOCATIONS OF HYDRONIC EQUIPMENT AND PIPING SYSTEMS WITH ALL ELECTRIC SYSTEMS AND COMPONENTS INCLUDING BUT NOT LIMITED TO PANELS, CONDUITS, SUBSTATIONS, TRANSFORMERS, ETC. PIPING IS NOT TO BE ROUTED ABOVE SUCH ITEMS.
4. COORDINATE PIPING RISERS FROM BELOW WITH STRUCTURAL ELEMENTS, UNIT LOCATION, ARCHITECTURAL FEATURES ON INSTALLED FLOOR, ETC. COORDINATE WITH GC FOR ALL INSTALLATION LOCATION REQUIREMENTS PRIOR TO INSTALLING.
5. PROVIDE INTERNAL DUCT LINING FOR FIRST 10 FEET OF SUPPLY AND RETURN DUCTWORK ASSOCIATED WITH EACH HEAT PUMP.
6. TRADE CONTRACTOR IS FULLY RESPONSIBLE TO COORDINATE/VERIFY ALL REQUIRED EQUIPMENT MANUFACTURER CLEARANCES, REQUIRED FUTURE MAINTENANCE CLEARANCES, ACCESSIBILITY AND AVAILABLE MEANS TO FACILITATE INSTALLATION OF PROPOSED EQUIPMENT AND SYSTEMS INTO FINAL OPERATING LOCATIONS. CONTRACTOR IS ALSO RESPONSIBLE TO REVIEW IN DETAIL PROPOSED LOCATIONS AND CLEARANCES FOR ALL ADJACENT TRADE WORK, BUILDING STRUCTURE AND ARCHITECTURAL CONSTRUCTION AND COORDINATE ACCORDINGLY PRIOR TO PURCHASING AND/OR INSTALLING ANY AND ALL SYSTEMS OR EQUIPMENT. REFER TO TRADE COVER SHEET REGARDING COORDINATION DRAWINGS AND RATED SYSTEM PENETRATIONS FOR ADDITIONAL WORK AND NOTING.
7. AT CONCLUSION OF THE PIPING MODIFICATIONS TO THE EXISTING GEOTHERMAL SYSTEM CONTRACTOR IS TO FILL, FLUSH AND PRESSURE TEST THE COMPLETE EXISTING INTERIOR GEOTHERMAL LOOP SYSTEM IN ACCORDANCE WITH IGHSPA. PROVIDE WRITTEN REPORT AT COMPLETION OF TESTING INDICATING COMPLIANCE.

PHASED CONSTRUCTION NOTES

1. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL PHASING REQUIREMENTS.
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NEW WORK KEY NOTES

1. PROVIDE NEW THERMOSTAT EQUAL TO WATER FURNACE TP32U04. COORDINATE AND CONFIRM COMPATIBILITY WITH EXISTING HEAT PUMP PRIOR TO INSTALLING.
2. ROUTE CONDENSATE PIPING AS HIGH AS POSSIBLE TO TO CEILING.
3. ROUTE CONDENSATE TIGHT TO WALL. SLOPE PIPING TO OPEN HUB RECEPTOR.

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WEST BRADFORD, PA 19335

Construction Issue Date: 1-26-2021
Drawn By: NCB
Checked By: JRS
Scale: AS NOTED

Sheet Name: GROUND FLOOR PIPING PLAN
Revisions:
Progress Prints:

M3.2

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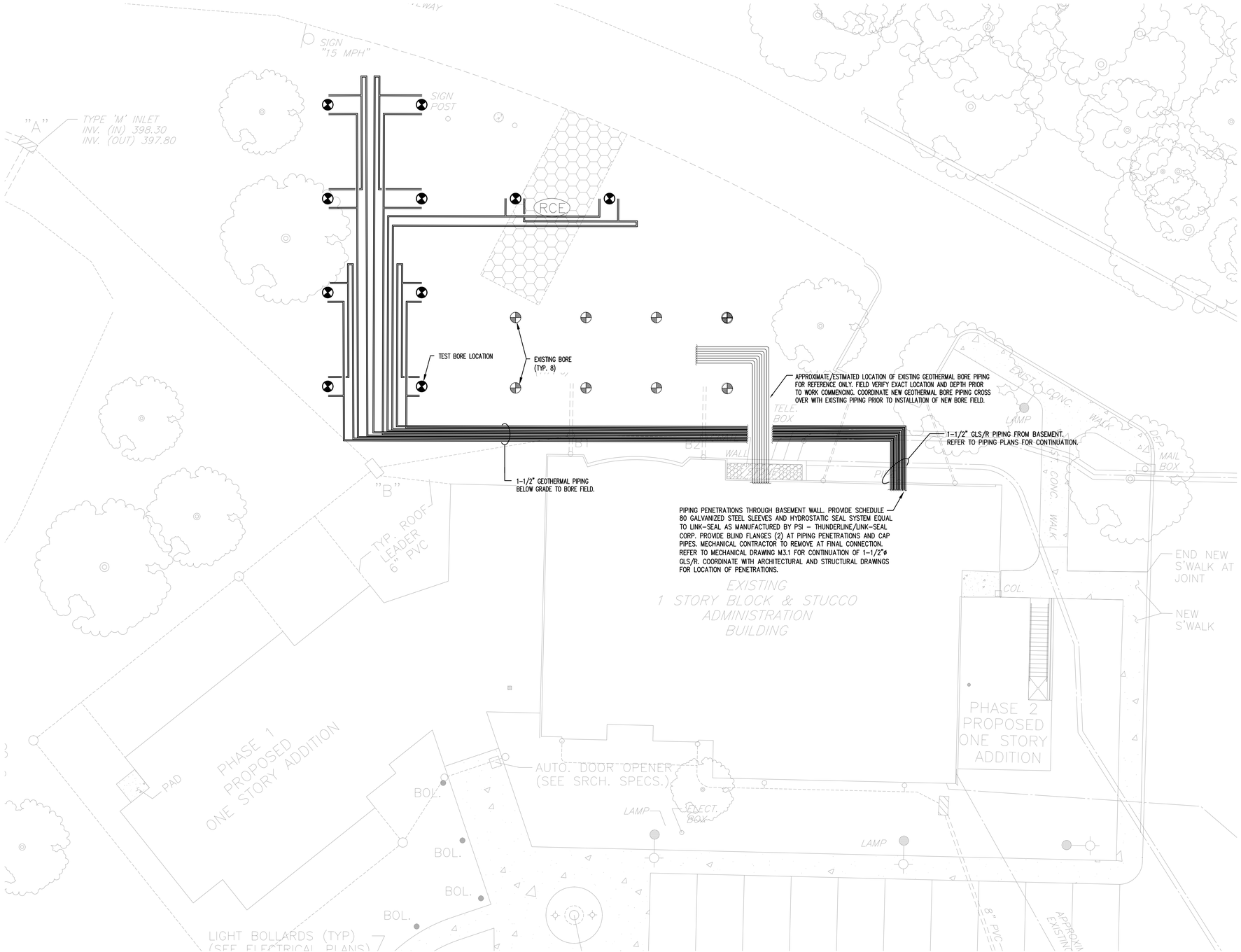
SE Project #20126



1 / M3.3 MECHANICAL - GEOTHERMAL BORE FIELD

SCALE: 3/32" = 1'-0"

GENERAL SHEET NOTES

1. REFER TO SITE/CIVIL DRAWINGS FOR COORDINATION OF ALL SITE WORK, SITE ELEVATIONS, AND LOCATIONS OF UTILITIES.
2. REFER TO THE ELECTRICAL DRAWINGS FOR COORDINATION OF SITE WORK,
3. COORDINATE WORK WITH ALL TRADE CONTRACTORS, UTILITY COMPANY REQUIREMENTS AND ALL APPLICABLE CODES. PROVIDE ALL NECESSARY CONSTRUCTION FOR COMPLIANCE OF INSTALLATION REQUIREMENTS AND TO PROVIDE A FULLY OPERATIONAL SYSTEM.
4. ROUTE PIPING IN ACCORDANCE WITH SITE CONSTRUCTION.
5. EXISTING AND NEW UNDERGROUND UTILITIES SHOWN ON OTHER TRADE DRAWINGS ARE FOR REFERENCE AND COORDINATION OF WORK UNLESS NOTED OTHERWISE. ACTUAL ROUTING, LOCATION AND QUANTITY OF UNDERGROUND EXISTING UTILITIES ARE UNKNOWN. SURVEY AND REVIEW ACTUAL FIELD CONDITIONS PRIOR TO BEGINNING ANY SITE WORK. CONTACT AND REQUEST UTILITY MARKING FROM PENNSYLVANIA "ONE CALL" 1-800-242-1776. TAKE ALL NECESSARY PRECAUTIONS AND HAND DIG AREAS OF SUSPECTED UNDERGROUND UTILITIES.
6. THE HVAC CONTRACTOR WILL PROVIDE THE REQUIRED TRENCHING, BACKFILLING AND SITE WORK FOR THE INSTALLATION OF THE GEOTHERMAL PIPING. FOR TRENCHING AND BACKFILLING WORK, REFER TO DIVISION 31 SPECIFICATION SECTIONS TRENCHING, SHORING, AND BRACING; ALL OTHER SPECIFICATION SECTION; APPLICABLE CODES; AND SPECIFICATION 230100 GENERAL REQUIREMENTS MECHANICAL.
7. THE HVAC CONTRACTOR SHALL PROVIDE COORDINATION WITH NEW AND EXISTING UTILITIES AS REQUIRED FOR THE INSTALLATION OF THE GEOTHERMAL PIPING. REFER TO THE SITE/CIVIL DRAWINGS..
8. COORDINATE WORK WITH ALL TRADE CONTRACTORS, UTILITY COMPANY REQUIREMENTS AND ALL APPLICABLE CODES. PROVIDE ALL NECESSARY MECHANICAL APPURTENANCES FOR COMPLIANCE OF INSTALLATION REQUIREMENTS AND TO PROVIDE A FULLY OPERATIONAL SYSTEM.
9. SITE CLEARING WILL BE BY GENERAL CONTRACTOR'S SITE SUBCONTRACTOR. SITE PRELIMINARY GRADING WILL BE BY GENERAL CONTRACTOR'S SITE SUBCONTRACTOR. MECHANICAL CONTRACTOR TO PERFORM GEOTHERMAL PIPING INSTALLATION DURING TIME PERIOD BETWEEN THE PRELIMINARY SITE GRADING AND THE FINISH/FINAL GRADING OF PROJECT AREA. COORDINATE PRELIMINARY GRADING ELEVATION WITH FINISH GRADING ELEVATION TO MAINTAIN REQUIRED BORE AND PIPING DEPTHS. HVAC CONTRACTOR MUST COORDINATE PIPING INSTALLATION TIME PERIOD AND LOCATIONS WITH GENERAL CONTRACTOR'S SITE SUBCONTRACTOR PRELIMINARY TO FINISH GRADING TIME PERIOD. FINISH/FINAL GRADING OF SITE TO BE BY GENERAL CONTRACTOR'S SITE SUBCONTRACTOR
10. COORDINATE ALL WORK WITH ALL OTHER TRADE CONTRACTORS TO PROVIDE A FULLY COORDINATED PROJECT WORKING ENVIRONMENT.
11. COORDINATE UNDERGROUND GEOTHERMAL PIPING LOCATIONS AND INSTALLATION WITH ALL SITE/CIVIL WORK AND PIPING ROUTING INCLUDING BUT NOT LIMITED TO STORM PIPING. GEOTHERMAL PIPING IS TO BE ROUTED BENEATH STORM PIPING. COORDINATE REQUIRED DEPTHS PRIOR TO EXCAVATION/TRENCHING BEGINS. REFER TO SITE/CIVIL DRAWINGS FOR COORDINATION OF WORK.

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MUNICIPAL BUILDING
WEST BRADFORD TOWNSHIP
1385 CAMPUS DRIVE
WEST BRADFORD, PA 19335

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Sheet Name: GEOTHERMAL BORE FIELD SITE PLAN
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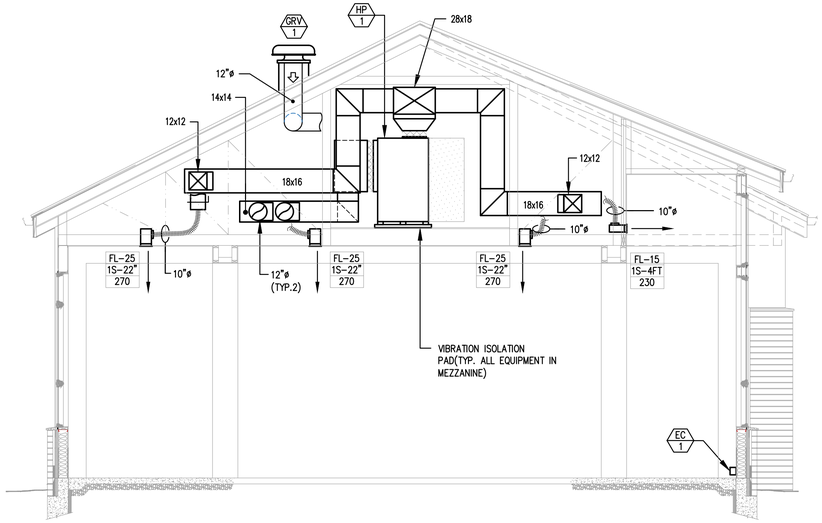
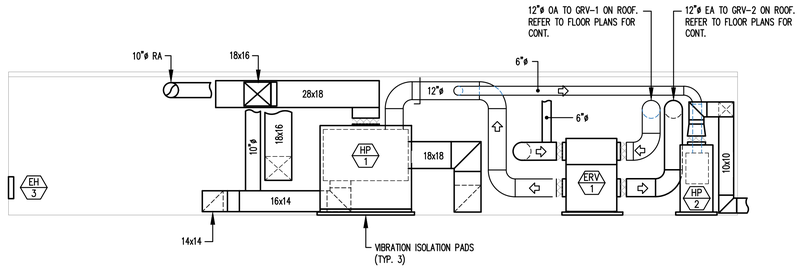
M3.3



1 M4.1 MECHANICAL - MEETING ROOM SECTION

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



2 M4.1 MECHANICAL - MEZZANINE SECTION

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

GENERAL SHEET NOTES

1. PROVIDE ALL WALL/CEILING/FLOOR PENETRATIONS TO FACILITATE INSTALLATION OF PIPING AND DUCTWORK SYSTEMS.
2. PROVIDE ALL HANGERS, SUPPORTS, VIBRATION ISOLATION DEVICES, AND APPURTENANCES TO FACILITATE INSTALLATION OF ALL DUCTWORK AND PIPING SYSTEM SYSTEMS ADND ASSOCIATED COMPONENTS/EQUIPMENT. COORDINATE LOCATION OF SUPPORTS WITH AL OTHER ADJACENT TRADE WORK.
3. COORDINATE LOCATION OF ALL PROPOSED ROUTING AND INSTALLATION LOCATIONS OF HYDRONIC EQUIPMENT AND PIPING SYSTEMS WITH ALL ELECTRIC SYSTEMS AND COMPONENTS INCLUDING BUT NOT LIMITED TO PANELS, CONDUITS, SUBSTATIONS, TRANSFORMERS, ETC. PIPING IS NOT TO BE ROUTED ABOVE SUCH ITEMS.
4. COORDINATE PIPING RISERS FROM BELOW WITH STRUCTURAL ELEMENTS, UNIT LOCATION, ARCHITECTURAL FEATURES ON INSTALLED FLOOR, ETC. COORDINATE WITH GC FOR ALL INSTALLATION LOCATION REQUIREMENTS PRIOR TO INSTALLING.
5. PROVIDE INTERNAL DUCT LINING FOR FIRST 10 FEET OF SUPPLY AND RETURN DUCTWORK ASSOCIATED WITH EACH HEAT PUMP.
6. TRADE CONTRACTOR IS FULLY RESPONSIBLE TO COORDINATE/VERIFY ALL REQUIRED EQUIPMENT MANUFACTURER CLEARANCES, REQUIRED FUTURE MAINTENANCE CLEARANCES, ACCESSIBILITY AND AVAILABLE MEANS TO FACILITATE INSTALLATION OF PROPOSED EQUIPMENT AND SYSTEMS INTO FINAL OPERATING LOCATIONS. CONTRACTOR IS ALSO RESPONSIBLE TO REVIEW IN DETAIL PROPOSED LOCATIONS AND CLEARANCES FOR ALL ADJACENT TRADE WORK, BUILDING STRUCTURE AND ARCHITECTURAL CONSTRUCTION AND COORDINATE ACCORDINGLY PRIOR TO PURCHASING AND/OR INSTALLING ANY AND ALL SYSTEMS OR EQUIPMENT. REFER TO TRADE COVER SHEET REGARDING COORDINATION DRAWINGS AND RATED SYSTEM PENETRATIONS FOR ADDITIONAL WORK AND NOTING.
7. ALL DUCT DIMENSIONS REPRESENT INTERNAL INSIDE FREE AREA OF DUCTWORK.

3 M4.1 MECHANICAL - PARTIAL ROOF PLAN - NEW ADDITION

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

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Sheet Name: PARTAIL PLANS & SECTIONS

Progress Prints:	Revisions:
	1
	2
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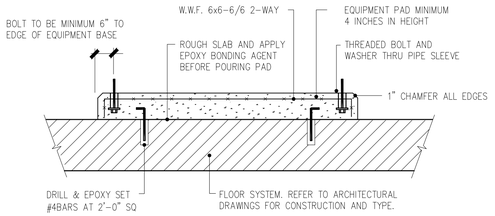
M4.1

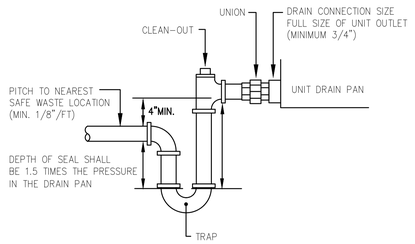


NOTES:

1. COORDINATE LOCATION AND DIMENSION OF REQUIRED EQUIPMENT BASE WITH SURROUNDING TRADE WORK PRIOR TO INSTALLATION COMMENCES.
2. REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR RESONSIBILITY OF WORK.

DETAIL - FLOOR MOUNTED EQUIPMENT BASE

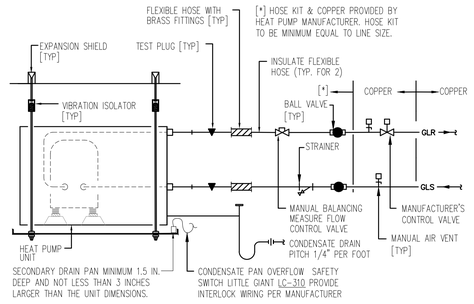
(NOT TO SCALE)



NOTES:

DETAIL - CONDENSATE DRAIN TRAP

(NOT TO SCALE)

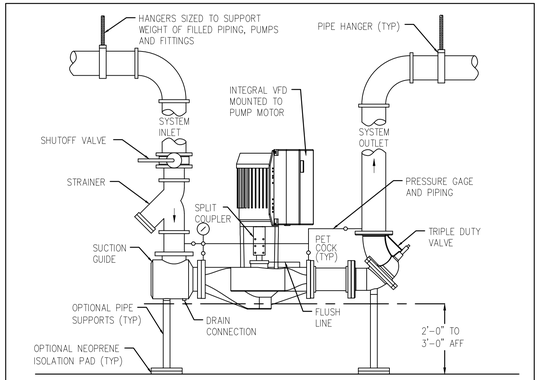


NOTES:

1. PREFABRICATED PLASTIC PANS ARE PREFERRED SUCH AS DIVERSITECH "HIGH RISE PAN" OR AQUAGUARD "GOLIATH" INSTALL PER MANUFACTURER'S DIRECTIONS

DETAIL - GEO WATER SOURCE HEAT PUMP PIPING

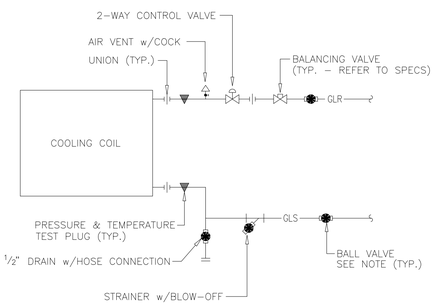
(NOT TO SCALE)



1. IF SUCTION DIFFUSER [SIMILAR TO MANUFACTURED DIFFUSER BY BELL & GOSSETT] IS USED AND THE PUMP HAS ONLY A CONSTRUCTION STRAINER, A PIPE STRAINER WITH BLOW DOWN SHOWN ON THE DETAIL IS REQUIRED. IF A SUCTION DIFFUSER WITH AN INTEGRAL PERMANENT STRAINER IS USED, THE PIPE STRAINER SHOWN WILL NOT BE REQUIRED. MECHANICAL CONTRACTOR IS TO REVIEW AND COORDINATE THESE REQUIREMENTS WITH SUCTION DIFFUSER MANUFACTURER.

DETAIL - INLINE PUMP

(NOT TO SCALE)

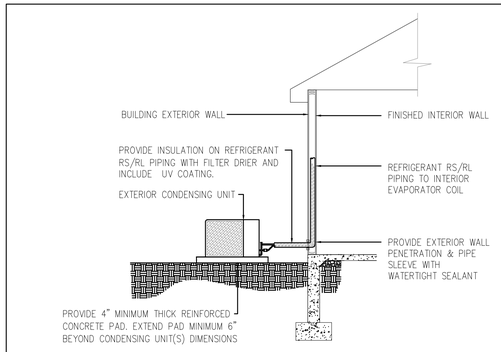


NOTES:

1. BUTTERFLY VALVES ARE TO BE USED FOR PIPING 2.5" AND LARGER.

DETAIL - HEAT PUMP COIL PIPING

(NOT TO SCALE)

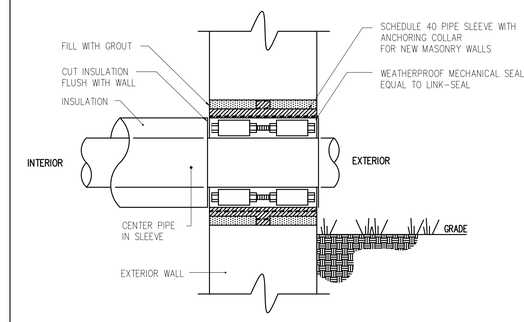


NOTES:

1. COORDINATE INSTALLED LOCATION OF CONDENSING UNIT AND INDOOR UNIT FOR LENGTHS PER MANUFACTURER'S ALLOWABLE DISTANCE BETWEEN INDOOR AND OUTDOOR UNITS. CALCULATE PROPOSED ROUTING TOTAL LENGTH INCLUDING ELBOW QUANTITIES PRIOR TO INSTALLING TO MAINTAIN DISTANCES WITHIN THE ALLOWABLE INSTALLATION LENGTHS OF MANUFACTURER.

DETAIL - EXTERIOR CONDENSING UNIT PIPING

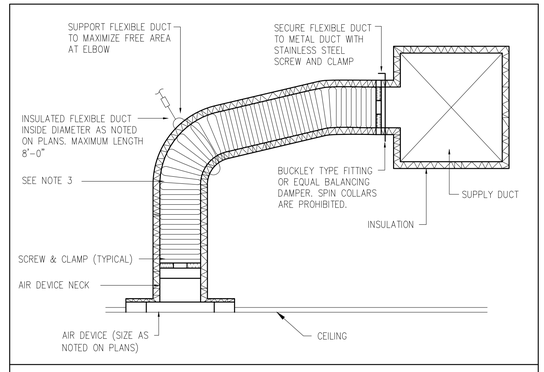
(NOT TO SCALE)



NOTES:

DETAIL - EXTERIOR PIPE SLEEVE THRU WALL

(NOT TO SCALE)

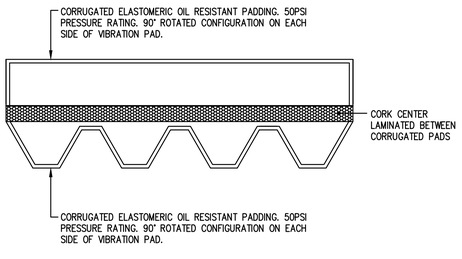


NOTES:

1. EXTEND VOLUME DAMPER PAST INSULATION.
2. EXTEND RIGID ROUND DUCT IN LOCATIONS WHERE MAX. 8' LENGTH OF FLEX DUCT WILL NOT REACH DIFFUSER.
3. PROVIDE FULL RADIUS TURNS WITH FLEX DUCT.

DETAIL - FLEXIBLE DUCT TAKE-OFF

(NOT TO SCALE)

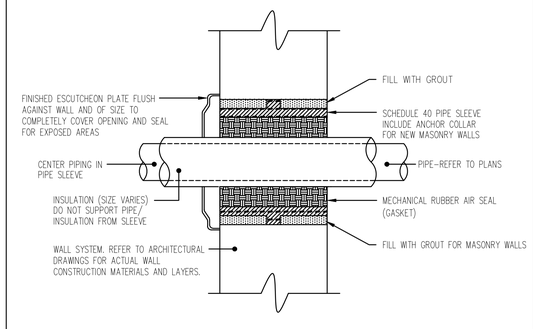


NOTES:

1. COORDINATE PLACEMENT OF VIBRATION ISOLATION PADDING WITH MANUFACTURER SPECIFICATION PRIOR TO INSTALLATION.
2. PROVIDE MINIMUM AT EACH CORNER OF EACH HVAC FLOOR MOUNTED EQUIPMENT BASE. MINIMUM DIMENSION OF VIBRATION PAD TO BE 8"X8"X7/8".

DETAIL - VIBRATION ISOLATION PADDING

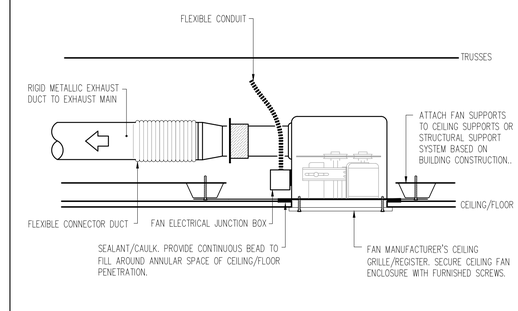
(NOT TO SCALE)



NOTES:

DETAIL - TYPICAL PIPE THRU WALL

(NOT TO SCALE)



NOTES:

DETAIL - CEILING EXHAUST FAN

(NOT TO SCALE)

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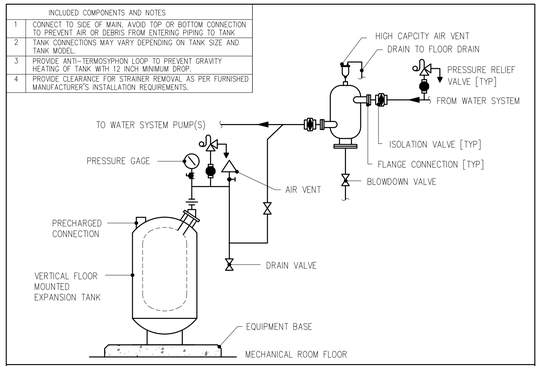
	INCLUDED COMPONENTS AND NOTES
1	CONNECT TO SIDE OF MAIN, AVOID TOP OR BOTTOM CONNECTION TO PREVENT AIR OR DEBRIS FROM ENTERING PIPING TO TANK.
2	TANK CONNECTIONS MAY VARY DEPENDING ON TANK SIZE AND TANK MODEL.
3	PROVIDE ANTI-TERMOSYPHON LOOP TO PREVENT GRAVITY HEATING OF TANK WITH 12 INCH MINIMUM DROP.
4	PROVIDE CLEARANCE FOR STRAINER REMOVAL AS PER FURNISHED MANUFACTURER'S INSTALLATION REQUIREMENTS.

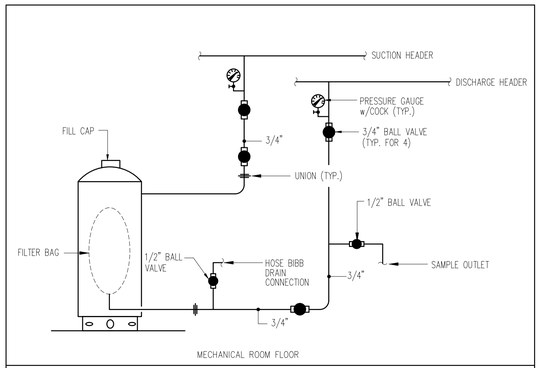


NOTES:

1. PRESSURE REFLIEF VALVE TO BE SIZED PER FURNISHED MANUFACTURER'S RECOMMENDATIONS AND PIPE TO NEAREST FLOOR DRAIN.

DETAIL – FLOOR MOUNTED EXPANSION TANK

(NOT TO SCALE)

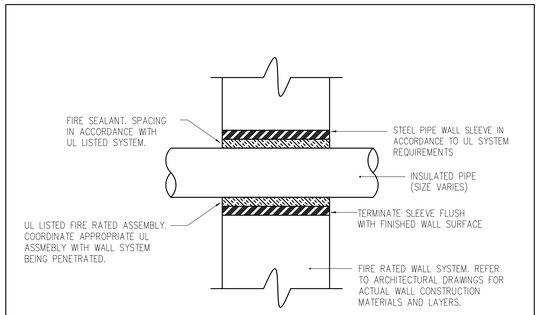


NOTES:

1. COORDINATE TO ENSURE FILTER BAG PIPING IS CONNECTED TO THE DISCHARGE HEADER OF THE BUILDING PUMP SYSTEM AND CAP SIDE PIPING IS CONNECTED TO THE SUCTION HEADER OF THE BUILDING PUMP SYSTEM.

DETAIL – CHEMICAL BYPASS FEEDER

(NOT TO SCALE)

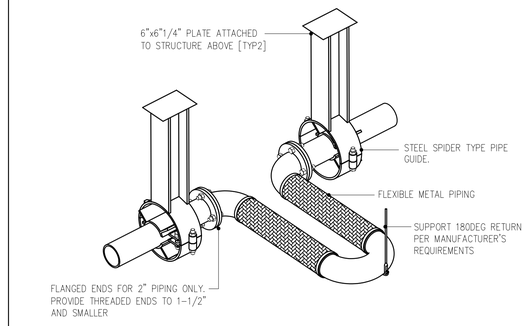


NOTES:

1. PROVIDE UL LISTED FIRE RATED THRU WALL SYSTEM IN ACCORDANCE WITH WALL TYPE, AND SCHEDULED PIPING AND INSULATION.

DETAIL – PIPE THRU FIRE RATED WALL

(NOT TO SCALE)

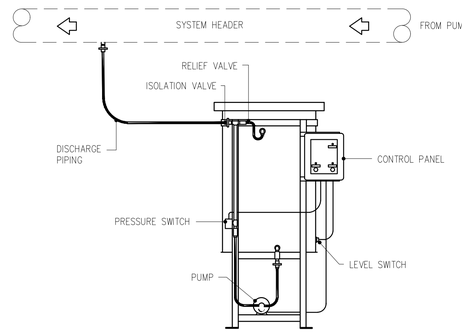


NOTES:

1. REFER TO SPECIFICATIONS FOR REQUIRED WORK REGARDING PIPING EXPANSION DEVICES.
2. INSTALL EXPANSION LOOP WITHIN 4 PIPE DIAMETERS FROM PIPE GUIDE.

DETAIL – TYPICAL PIPING EXPANSION LOOP

(NOT TO SCALE)

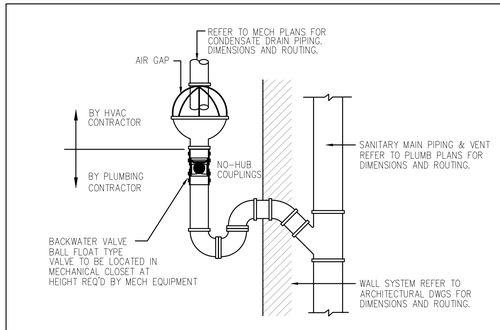


NOTES:

1. DISCHARGE PIPING TO BE 10'-0" MINIMUM AND 25'-0" MAXIMUM AND OF MATERIALS SIZED IN ACCORDANCE TO MANUFACTURER'S REQUIREMENTS.
2. LOCATE DISCHARGE PIPING CONNECTION PER MANUFACTURER'S REQUIREMENTS.
3. COORDINATE WITH E.C. FOR POWER REQUIREMENTS PRIOR TO PURCHASING.

DETAIL – FLOOR MOUNTED GLYCOL FEEDER

(NOT TO SCALE)

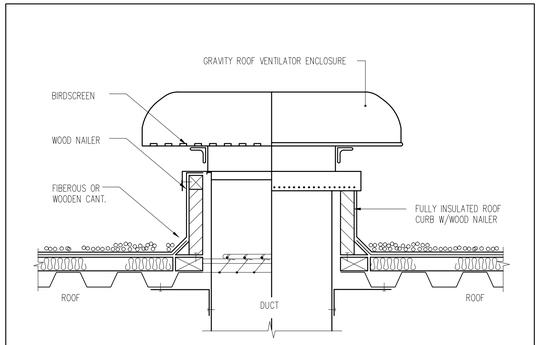


NOTES:

1. DRAINS ARE PROVIDED TO FACILITATE DRAINAGE OF AIR CONDITIONING UNIT CONDENSATE.

DETAIL – TYPICAL SANITARY CONDENSATE VALVE

(NOT TO SCALE)

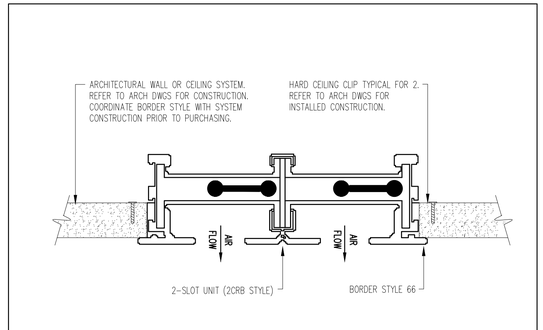


NOTES:

1. FURNISH CURB ASSEMBLY IN ACCORDANCE WITH ROOF SYSTEM, INCLUDING COUNTER & BASE FLASHING.
2. PROVIDE 120V MOTOR OPERATED DAMPER AS INDICATED IN EQUIPMENT SCHEDULE. REFER TO CONTROLS SPECIFICATIONS FOR SEQUENCE OF OPERATIONS. DAMPER TO REMAIN NORMALLY CLOSED.
3. COORDINATE CURB INSTALLATION WITH ROOF SLOP PRIOR TO PURCHASING AND INSTALLING.

DETAIL – GRAVITY ROOFTOP VENT

(NOT TO SCALE)



NOTES:

1. PROVIDE MANUFACTURER'S FULLY INSULATED PLENUM W/ HANGER BRACKETS.
2. PROVIDE FIELD FABRICATED PLENUM ½" ACOUSTICAL DUCTLINING WHERE INDICATED ON DRAWINGS.
3. DETAIL SHOWS 2-SLOT DIFFUSER. REFER TO DRAWINGS FOR ACTUAL DIFFUSER SLOT QUANTITY.

DETAIL – WALL OR CEILING LINEAR SLOT DIFFUSER

(NOT TO SCALE)

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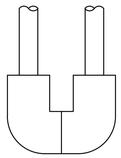
TEST BORE DATA TABLE

DEPTH (FT)	MATERIAL
0'–8'	SOFT WEATHERED SCHIST
8'–32'	BROWN SCHIST
32'–324'	SOFT GRAY SCHIST
324'–450'	HARD GRAY SCHIST (VERY HARD)

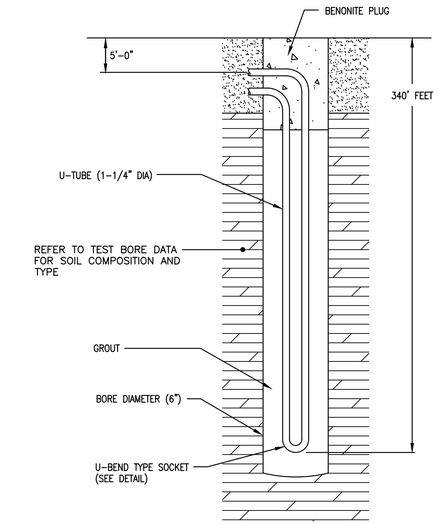
NOTE: TEST BORE PRODUCED 2 GPM WATER AT 221'



NOTES:

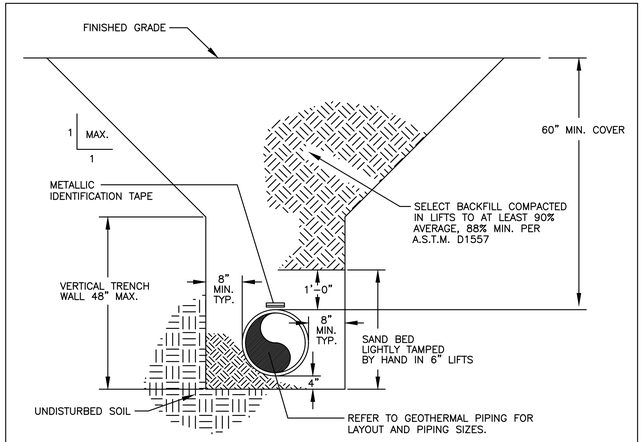
DETAIL – U–BEND TYPE SOCKET

(NOT TO SCALE)



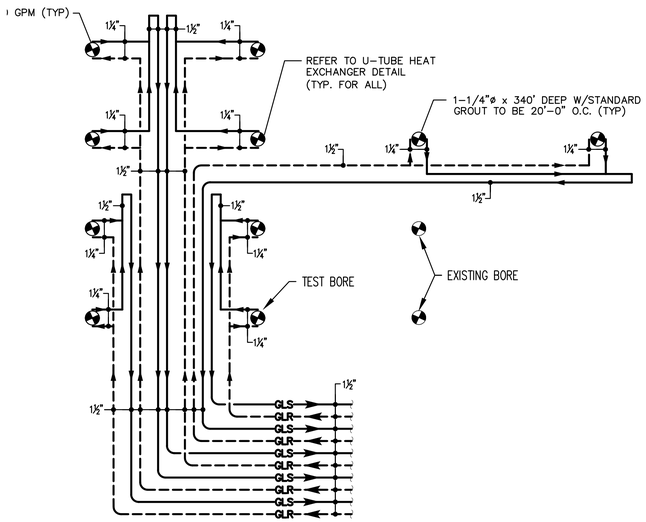
DETAIL – U–TUBE HEAT EXCHANGER

(NOT TO SCALE)



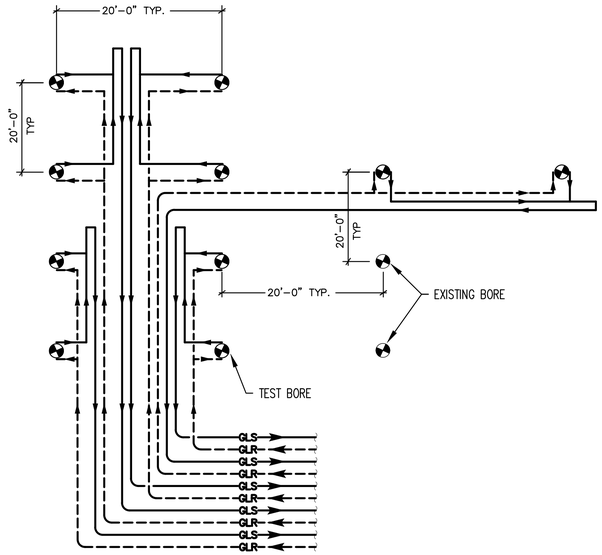
DETAIL – HORIZONTAL GEOTHERMAL PIPING TRENCH FOR SOIL AREAS

(NOT TO SCALE)



DETAIL – GEOTHERMAL HEAT EXCHANGER – TYPICAL PIPING SIZES

(NOT TO SCALE)



DETAIL – GEOTHERMAL HEAT EXCHANGER – TYPICAL PIPING LAYOUT

(NOT TO SCALE)

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MUNCIPAL BUILDING
WEST BRADFORD TOWNSHIP
1385 CAMPUS DRIVE
WEST BRADFORD, PA 19335

Construction Issue Date: 1-26-2021
Drawn By: NCB
Checked By: JRS
Scale: AS NOTED

Sheet Name: GEOTHERMAL BORE DETAILS
Progress Prints:
Revisions:

M5.3

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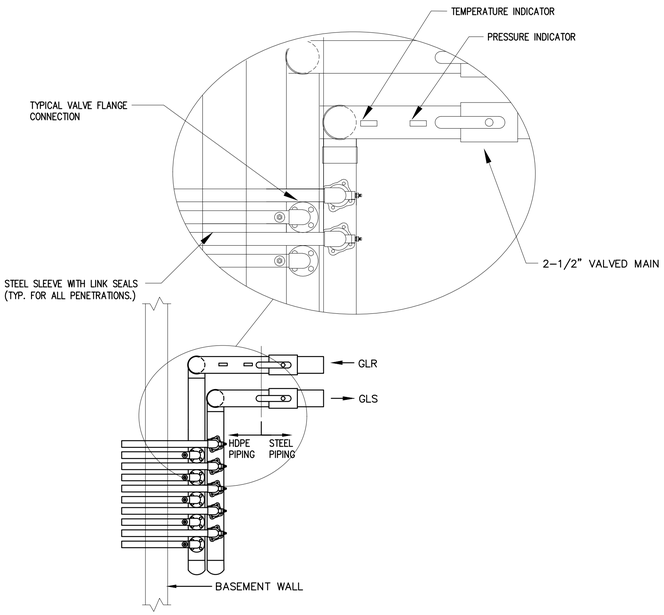
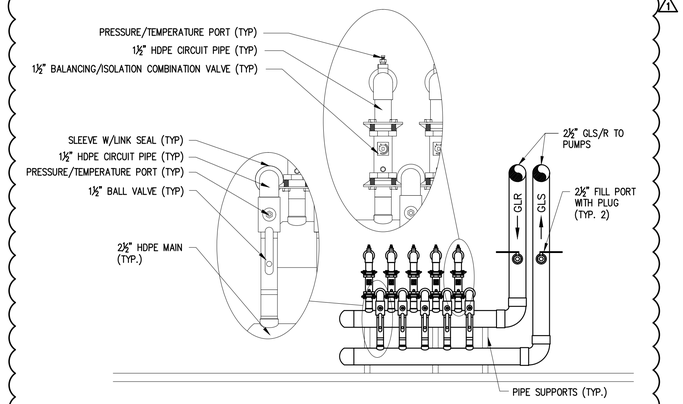


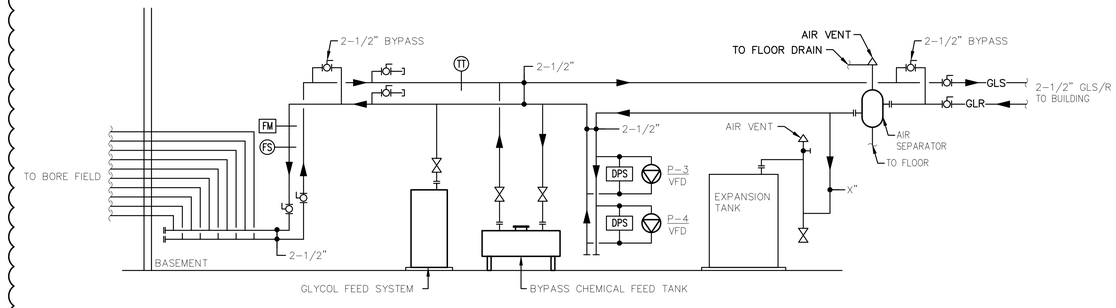
DETAIL – GEOTHERMAL MANIFOLD – PLAN VIEW

(NOT TO SCALE)



DETAIL – GEOTHERMAL MANIFOLD – ELEVATION VIEW

(NOT TO SCALE)



DETAIL – MECHANICAL ROOM – WATER FLOW DIAGRAM

(NOT TO SCALE)

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Construction Issue Date: 1-26-2021
Drawn By: NCB
Checked By: JRS
Scale: AS NOTED

Sheet Name: GEOTHERMAL BORE DETAILS

Revisions:
1

Progress Prints:
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M5.4

ELECTRIC HEATER SCHEDULE

(EH)

TAG NO.	TYPE	MBH	WATTS	NO. STEPS	FAN CFM	MOUNTING HEIGHT	ELECTRICAL CHARACTERISTICS		BASIS OF DESIGN MANUF.	BASIS OF DESIGN MODEL #	REMARKS
							VOLTS	PHASE			
EH-1	FAN FORCED WALL HEATER	6.82	2000	1	100	18" AFF	208	1	QMARK	SSAR4808	1,2
EH-2	FAN FORCED WALL HEATER	16.37	4800	1	100	18" AFF	208	1	QMARK	SSAR4808	1,2
EH-3	FAN FORCED WALL HEATER	5.12	1500	1	100	18" AFF	120	1	QMARK	FRA1512F	1,2
EH-4	FAN FORCED WALL HEATER	5.12	1500	1	100	18" AFF	120	1	QMARK	FRA1512F	1,2
EH-5	FAN FORCED UNIT HEATER	10.2	3000	1	350	7' AFF	208	1	QMARK	MUH03-81	1,3
EH-6	FAN FORCED WALL HEATER	6.82	2000	1	100	18" AFF	208	1	QMARK	SSAR4808	1,2

ADD ALTERNATE

1. PROVIDE UNIT WITH BUILT IN THERMOSTAT, HIGH TEMPERATURE CUTOUT AND DISCONNECT SWITCH.
2. PROVIDE BACK BOX AND RECESS IN WALL.
3. PROVIDE MANUFACTURER'S WALL MOUNTING BRACKET.

ELECTRIC CONVECTOR HEATER SCHEDULE

(EC)

TAG NO.	TYPE	MBH	WATTS	WATTS/FT	HEATER LENGTH	MOUNTING HEIGHT	ELECTRICAL CHARACTERISTICS		BASIS OF DESIGN MANUF.	BASIS OF DESIGN MODEL #	REMARKS
							VOLTS	PHASE			
EC-1	CONVECTOR HEATER	2.60	750	125	6'-0"	3" AFF	208	1	BERKO	ASL3	1,2,3

1. PROVIDE MANUFACTURER'S OVER-TEMPERATURE THERMAL LIMIT ENTIRE LENGTH, POWER ON/OFF SWITCH AND MANUFACTURER'S BUILT IN THERMOSTAT.
2. PROVIDE MANUFACTURER'S END CAPS, SPLICES AND CORNERS FOR CONTINUOUS LENGTH OF HEATER.
3. COLOR AS SELECTED BY ARCHITECT.

DUCTLESS AIR CONDITIONING UNIT SCHEDULE

(AC) (CU)

TAG No.	INDOOR MODEL NO. (AC)	OUTDOOR MODEL NO. (HP)	REFRIG. TYPE	NOMINAL COOLING (BTU/HR) @ 95°F AMB.	NOMINAL HEATING (BTU/HR) @ 19°F AMB.	TOTAL CFM	MIN. SEER (EER)	HSPF	INDOOR UNIT ELECTRICAL CHARACTERISTICS		OUTDOOR UNIT ELECTRICAL CHARACTERISTICS			INDOOR UNIT WEIGHT (LBS)	OUTDOOR UNIT WEIGHT (LBS)	BASIS OF DESIGN MANUF.	NOTES
									VOLTS	PHASE	VOLTS	PHASE	MCA				
AC-1/CU-1	LSN180HSV5	LSU180HSV5	R-410A	18,000	22,340	371	21.5	10.2	208	1	208	1	13.0	25.6	116.8	LG	1-4

1. PROVIDE AND SIZE REFRIGERANT LINES ACCORDING TO MANUFACTURERS RECOMMENDATIONS.
2. PROVIDE ALL EXPOSED CONDENSATE PIPING WITH DECORATIVE COVER; DIVERSITECH LINE-HIDE OR APPROVED EQUAL.
3. PROVIDE UNIT MANUFACTURERS PROGRAMMABLE THERMOSTAT.
4. PROVIDE MANUFACTURER'S WIND BAFFLE FOR LOW AMBIENT OPERATION DOWN TO 0 DEG. F..

AIR & DIRT SEPARATOR SCHEDULE

(AS)

TAG	LOCATION	AREA SERVED	PIPE SIZE [IN]	GPM	OPERATING PRESSURE [PSIG]	MODEL	BASIS OF DESIGN MANUFACTURER	COMMENTS
AS-1	BASEMENT	GEOTHERMAL LOOP	2-1/2	59	150	VDT-250-FA	SPIROTHERM	

EXPANSION TANK SCHEDULE

(EXT)

EQUIP. NO.	LOCATION	SERVICE	NOMINAL TANK SIZE (GALLONS)	MAXIMUM TANK ACCEPT. VOLUME (GALLONS)	MINIMUM OPERATING TEMP. (DEG. F)	MINIMUM OPERATING PRESS. (PSIG)	MAXIMUM OPERATING TEMP. (DEG. F)	MAXIMUM OPERATING PRESS. (PSIG)	MODEL	BASIS OF DESIGN MANUFACTURER	COMMENTS
EXT-1	BASEMENT	GEOTHERMAL LOOP	35	28	26	20	100	60	AX-60V	ARMSTRONG	1

1. PROVIDE UNIT DERATED FOR USE WITH 30% PROPYLENE GLYCOL.

WATER SOURCE HEAT PUMP SCHEDULE

(HP)

TAG No.	AREA SERVED	TYPE	REFRIGERANT TYPE	NOMINAL TONS	COMPRESSOR TYPE	COMPRESSOR QTY.	TOTAL CFM	OA CFM	SUPPLY FAN DATA						CONDENSER COIL		COOLING CAPACITY								HEATING CAPACITY						BASIS OF DESIGN	ACCESSORIES
									EXT. S.P. (IN. W.G)	TOTAL S.P. (IN. W.G)	RPM	HP (KW)	ELECTRICAL CHARACTERISTICS			GPM	WATER P.D. (FT. OF H20)	E.W.T. (°F)	L.W.T. (°F)	TOTAL MBH	SENSIBLE MBH	E.A.T. (°F)		L.A.T. (°F)		EER @ ARI CONDITIONS	E.W.T. (°F)	L.W.T. (°F)	E.A.T. (°F)	L.A.T. (°F)	MBH	COP @ ARI CONDITIONS		
													VOLTS	PHASE	HZ							DB	WB	DB	WB									
HP-1	105 MEETING ROOM	VERTICAL	R-410A	10.0	SCROLL	2	3,490	625	1.20	–	806	2.00	208	3	60	28.0	18.6	90.0	99.5	102.2	80.1	76.0	63.6	54.7	–	21.0	32.0	28.2	68.5	88.8	76.2	4.2	WATER FURANCE – NXV120TR	1,3,4,5,6,8,9,11,14
HP-2	104 CONFERENCE ROOM	VERTICAL	R-410A	1.5	SCROLL	1	535	90	0.50	–	MED	0.50	208	1	60	4.0	6.2	90.0	99.6	14.0	9.6	76.0	63.6	59.3	–	17.5	32.0	27.6	68.5	90.4	12.6	3.7	WATER FURNACE – USV018TR	1,3,5,6,7,8,9,14
HP-3	102 LOBBY	HORIZONTAL	R-410A	4.0	SCROLL	1	1,475	405	0.80	–	MED	1.00	208	1	60	12.0	20.9	90.0	99.9	45.6	31.0	76.8	64.7	57.2	–	18.1	32.0	28.2	66.2	86.8	32.5	3.6	WATER FURNACE – USH048SR	1,3,5,6,7,8,9,14
HP-4	116 & 118 OFFICE	VERTICAL	R-410A	2.0	SCROLL	1	630	40	0.63	–	MED	0.50	208	1	60	4.5	7.7	90.0	99.9	20.7	12.8	73.5	62.5	54.7	–	17.5	32.0	27.2	70.9	94.7	16.1	3.8	WATER FURNACE – USV024TR	1,3,5,6,7,8,9,14
HP-5	113 OFFICE	VERTICAL	R-410A	2.0	SCROLL	1	630	40	0.63	–	MED	0.50	208	1	60	4.5	7.7	90.0	99.9	20.7	12.8	73.5	62.5	54.7	–	17.5	32.0	27.2	70.9	94.7	16.1	3.8	WATER FURNACE – USV024TR	1,3,5,6,7,8,9,10,14
HP-6	143 & 144 CORRIDOR, 145 FILES	VERTICAL	R-410A	2.5	SCROLL	1	940	225	0.62	–	HIGH	0.50	208	1	60	7.5	8.3	90.0	99.4	27.5	18.0	76.2	63.8	57.2	–	18.3	32.0	27.9	67.9	89.8	20.8	3.8	WATER FURNACE – USV030TR	2,3,5,6,7,8,9,14
HP-7	126 CONFERENCE ROOM	VERTICAL	R-410A	1.25	SCROLL	1	430	110	0.72	–	MED HIGH	0.50	208	1	60	3.8	4.5	90.0	98.6	12.6	8.7	76.4	64.2	57.6	–	17.5	32.0	28.1	67.2	89.8	10.5	3.7	WATER FURNACE – USV015TR	2,3,5,6,7,8,9,14
HP-8	123 BREAK ROOM	CONSOLE	R-410A	1.5	SCROLL	1	600	60	0.10	–	HIGH	0.25	208	1	60	4.5	15.7	90.0	99.5	15.8	15.6	80.0	62.9	55.9	–	16.0	32.0	27.3	65.0	87.0	14.3	3.5	WATER FURNACE – NCS18L0	2,5,8,12,14
HP-9	PERIMETER OFFICES	VERTICAL	R-410A	4.0	SCROLL	1	1,570	100	0.60	–	HIGH	0.50	208	3	60	9.0	10.5	90.0	103.2	44.7	33.1	75.3	62.5	55.5	–	18.1	32.0	26.7	70.9	91.2	34.0	3.6	WATER FURNACE – USV048TR	2,3,5,6,7,8,9,12,13,14
HP-10	OFFICE 114 & 115	HORIZONTAL	R-410A	2.0	SCROLL	1	725	95	0.60	–	MED HIGH	0.50	208	1	60	6.0	14.9	90.0	99.4	21.6	14.6	75.7	63.1	56.7	–	17.5	32.0	28.1	69.6	91.4	16.7	3.8	WATER FURNACE – USH024SR	1,3,5,6,7,8,9,14

1. HEAT PUMP SIZED AT 30% PROPYLENE GLYCOL.
2. HEAT PUMP SIZED AT 20% METHANOL.
3. PROVIDE MANUFACTURER'S HOT GAS REHEAT AND DEHUMIDIFICATION CONTROLS.
4. PROVIDE MANUFACTURER'S WATERSIDE ECONOMIZER OPTION.
5. PROVIDE MANUFACTURER'S EXTENDED OPERATION RANGE.
6. PROVIDE MANUFACTURER'S SOUND ATTENUATION PACKAGE.
7. PROVIDE MANUFACTURER'S 5 SPEED ECM.
8. PROVIDE MANUFACTURER'S FACTORY MOUNTED DISCONNECT.
9. PROVIDE MANUFACTURER'S HOT GAS BYPASS.
10. PROVIDE MANUFACTURER'S AUX. 4KW ELECTRIC DUCT HEATER. COORDINATE ELECTRICAL CONNECTION WITH E.C.
11. PROVIDE MANUFACTURER'S HIGH STATIC MOTOR OPTION.
12. PROVIDE MANUFACTURER'S VARIABLE SPEED ECM.
13. PROVIDE MANUFACTURER'S HOT WATER GENERATOR OPTION.
14. PROVIDE MANUFACTURER'S TP32U04 THERMOSTAT/HUMIDISTAT.

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M6.1

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ENERGY RECOVERY VENTILATOR SCHEDULE

ERV-

TAG NO.	AREA SERVED	OUTDOOR AIR CFM	EXHAUST CFM	SUMMER OUTDOOR ENT. AIR °F		WINTER OUTDOOR ENT. AIR °F		SUMMER RETURN AIR °F		WINTER RETURN AIR °F		SUMMER LEAVING AIR °F		WINTER LEAVING AIR °F		TOTAL % EFFECTIVENESS (SUMMER/WINTER)	S/A & E/A FAN DATA		ELECTRICAL CHARACTERISTICS						CONTROL	BASIS OF DESIGN MANUF.	BASIS OF DESIGN MODEL	ACCESORIES
				DB	WB	DB	WB	DB	%	DB	%	DB	WB	DB	WB		HP	ESP	VOLTS	PHASE	HZ	FLA	MCA	MOP				
ERV-1	105 PUBLIC MEETING ROOM & 104 CONFERENCE ROOM	715	715	95.0	78.0	11.0	8.6	75.0	50.0	70.0	35.0	80.8	70.4	52.7	42.1	53.4/66.0	2@0.75	1.00	120	1	60	9.0	20.2	25	CO2 SENSOR	RENEW-AIRE	HE-1XJINV	1,2,3,6
ERV-2	102 LOBBY	500	500	95.0	78.0	11.0	8.6	75.0	50.0	70.0	35.0	81.1	70.6	52.1	41.6	52.2/65.1	0.50	0.60	120	1	60	8.1	10.1	15	OCCUPIED/UNOCCUPIED	RENEW-AIRE	EV450	1,2,3,4,5

1. PROVIDE MANUFACTURER'S NON-FROSTING CORE ENTHALPY RECOVERY TYPE MEDIA, MERV-8 2"PLEATED FILTERS AND SINGLE POINT ELECTRICAL CONNECTION.
2. PROVIDE MANUFACTURER'S GALVANIZED STEEL CONSTRUCTION LINED WITH CLEANABLE FOIL FACED 1# DENSITY INSULATION.
3. PROVIDE MANUFACTURER'S DISCONNECT SWITCH.
4. PROVIDE MANUFACTURER'S ECM.
5. PROVIDE MANUFACTURER'S DIGITAL TIME CLOCK, HANGING BRACKET KIT AND VIBRATION ISOLATION KIT.
6. PROVIDE MANUFACTURER'S WALL MOUNT CO2 SENSORS. WIRE SENSORS IN PARALLEL.

PUMP SCHEDULE

P-

TAG	LOCATION	SYSTEM SERVED	TYPE	GPM	TOTAL HEAD [FT]	PUMP STATUS	FRAME SIZE	EFF	MOTOR ELECTRICAL CHARACTERISTICS						BASIS OF DESIGN MANUFACTURER	MODEL	COMMENTS
									HP	BHP	V	P	HZ	RPM			
P-1	MECH. RM.	EXISTING GEOTHERMAL LOOP	LONG COUPLED BASE MOUNT END SUCTION	33	85	OPERATING	182TC	39.8%	5	1.78	208	3	60	3530	ARMSTRONG	SERIES 4030 - 1.5x1x6	1,4
P-2	MECH. RM.	EXISTING GEOTHERMAL LOOP	LONG COUPLED BASE MOUNT END SUCTION	33	85	STANDBY	182TC	39.8%	5	1.78	208	3	60	3530	ARMSTRONG	SERIES 4030 - 1.5x1x6	1,4
P-3	BASEMENT	GEOTHERMAL LOOP	CLOSE COUPLED VERTICAL INLINE	59	132	OPERATING	IEC112	53.3%	5	3.74	208	3	60	3939	ARMSTRONG	SERIES 4380	1,2,3
P-4	BASEMENT	GEOTHERMAL LOOP	CLOSE COUPLED VERTICAL INLINE	59	132	STANDBY	IEC112	53.3%	5	3.74	208	3	60	3939	ARMSTRONG	SERIES 4380	1,2,3

1. INDICATE MINIMUM FLOW RATE CAPABLE ON SHOPDRAWING SUBMISSION.
2. PROVIDE MANUFACTURER'S INTEGRAL VFD MOUNTED TO PUMP WITH SENSORLESS CONTROL.
3. NOTE: PROVIDE INDICATION IN SHOPDRAWING, SELECTION IS BASED ON 30% PROPYLENE GLYCOL.
4. NOTE: PROVIDE INDICATION IN SHOPDRAWING, SELECTION IS BASED ON 20% METHANOL.

EXHAUST FAN SCHEDULE

EF-

TAG No.	SERVICE AREA	DUTY	CFM [@ 0.25"ESP]	S.P. [IN. W.G.]	TYPE	WATTS	ELECTRICAL CHARACTERISTICS		MANUFACTURER	MODEL	REMARKS
							VOLTS	PHASE			
EF-1	112 TOILET ROOM	EXHAUST	70	0.25	CEILING	21	120	1	GREENHECK	SP-B110	1,2,3

1. PROVIDE MANUFACTURER'S RECTANGULAR HOODED WALL CAP.
2. PROVIDE MANUFACTURER'S HANGING ISOLATION BRACKETS.
3. FAN TO OPERATE VIA WALL SWITCH SEPARATE FROM LIGHT SWITCH. COORDINATE WITH E.C.

GRAVITY ROOF VENTILATOR SCHEDULE

GRV-

REF. NO.	CFM	MAX. PRESS. DROP IN. W.G.	THROAT VELOCITY FPM	ROOF OPENING	HOOD SIZE	INTAKE OR RELIEF	BASIS OF DESIGN MANUF.	BASIS OF DESIGN MODEL	ACCESSORIES
GRV-1	715	0.067	638	18.5x18.5	15"ø	INTAKE	GREENHECK	GRSI-15	1,2,3,4
GRV-2	715	0.047	638	18.5x18.5	15"ø	RELIEF	GREENHECK	GRSR-15	1,2,3,5
GRV-3	500	0.062	610	14.5x14.5	12"ø	INTAKE	GREENHECK	GRSI-12	1,2,3,4
GRV-4	500	0.046	610	14.5x14.5	12"ø	RELIEF	GREENHECK	GRSR-12	1,2,3,5

1. PROVIDE MANUFACTURER'S PRE-FABRICATED FULLY INSULATED PITCHED ROOF CURB. COORDINATE ROOF CURB WITH ROOF SLOPE PRIOR TO PURCHASING.
2. PROVIDE MANUFACTURER'S ALL ALUMINUM HOUSING.
3. PROVIDE MANUFACTURER'S INTERNAL BIRD SCREEN AND OPTIONAL FLASHING FLANGE.
4. PROVIDE MANUFACTURER'S 120V MOTOR OPERATED DAMPER.
5. PROVIDE MANUFACTURER'S GRAVITY BACKDRAFT DAMPER.

CONDENSATE PUMP SCHEDULE

CP-

TAG	MANUFACTURER	MODEL	HP	VOLTS	COMMENTS
CP-1	BECKETT	CB251UL	1/20	115	1,2,3

1. PROVIDE CHECK VALVE AT CONDENSATE RISER.
2. PROVIDE MANUFACTURER'S THERMAL OVERLOAD PROTECTION, AND MANUFACTURER'S TANK SAFETY OVERFLOW SWITCH. OVER FLOW SWITCH TO BE INTERLOCKED WITH ASSOCIATED HVAC UNIT(S) TO SHUT DOWN HVAC UNITS IF OVERFLOW DETECTION OCCURS.
3. PROVIDE MANUFACTURER'S 120V, SINGLE PHASE HARDWIRED ELECTRICAL CONNECTION PER MANUFACTURER'S REQUIREMENTS AND RECOMMENDATIONS.

AIR DEVICE SCHEDULE

TAG No.	MANUF.	MODEL	DUTY	TYPE	MOUNT	MATERIAL	FINISH	FACE SIZE	NECK SIZE	OPPOSED BLADE DAMPER	SQUARE-TO-ROUND TRANSITION	DESCRIPTION
TDV	TITUS	TDV	SUPPLY	CEILING	LAY-IN	STEEL	WHITE	PER PLAN	PER PLAN	YES	YES	HIGH CAPACITY, FIXED DISCHARGE CEILING DIFFUSER W/HORIZ. DISCHARGE PATTERN, & FLUSH FACE. INNER CORE ASSEMBLY CONSISTING OF FIXED DEFLECTION LOUVERS AND INTEGRATED INDUCTION VANES, ASSEMBLY MUST BE REMOVABLE IN THE FIELD W/O TOOLS FOR EASY INSTALLATION, CLEANING OR DAMPER ADJUSTMENT.
FL-25	TITUS	FL-25	SUPPLY RETURN	CEILING	SURFACE	ALUMINUM	WHITE OR AS NOTED ON PLANS	LENGTH PER PLAN	PER PLAN	NO	NO	EXTRUDED ALUMINUM JET THROW DIFFUSER WITH MANUFACTURERS LINED PLENUM. PROVIDE FIELD FABRICATED PLENUM FOR LENGTHS LESS THAN 24"; 2.5" SLOT; ONE SLOT TYPE. BORDER TO BE EXPOSED FLANGE INCLUDING HARD CEILING CLIPS. MANUAL ADJUSTABLE AIRFLOW PATTERN CONTROLLERS TO BE ONE PIECE EXTRUDED ALUMINUM BETWEEN SPRING LOADED SPACERS.
FL-15	TITUS	FL-15	SUPPLY	CEILING	SURFACE	ALUMINUM	WHITE OR AS NOTED ON PLANS	LENGTH PER PLAN	PER PLAN	NO	NO	EXTRUDED ALUMINUM HIGH THROW DIFFUSER WITH MANUFACTURER'S LINED PLENUM. 1.5" SLOT; ONE SLOT TYPE. BORDER TO BE EXPOSED FLANGE INCLUDING HARD CEILING CLIPS. MANUAL ADJUSTABLE AIRFLOW PATTERN CONTROLLERS TO BE ONE PIECE EXTRUDED ALUMINUM BETWEEN SPRING LOADED SPACERS.
350RL	TITUS	350RL	RETURN/ EXHAUST	WALL/ CEILING	SURFACE LAY-IN	STEEL ALUMINUM	WHITE	PER PLAN	PER PLAN	YES	YES	RETURN GRILLE WITH 3/4-INCH, 35 DEG. FIXED BLADES PARALLEL TO THE LONG DIMENSION OF THE GRILLE. 1-1/4 INCH WIDE BORDER ALL SIDES & SCREW HOLES COUNTERSUNK, WELDED CORNERS W/FULL PENETRATION RESISTANCE WELDS OR TEE BAR LAY IN PANEL. OPPOSED-BLADE VOLUME DAMPER CONSTRUCTED OF HEAVY GAUGE STEEL AND OPERABLE FROM THE FACE OF THE GRILLE.
CT-480	TITUS	CT-480	SUPPLY	WALL/ FLOOR	SURFACE	ALUMINUM	WHITE	PER PLAN	PER PLAN	NO	NO	LINEAR BAR DIFFUSER WITH ¼" SPACING WITH FIXED BLADES PARALLEL TO THE LONG DIMENSION OF THE GRILLE. 0 DEGREE FACE DEFLECTION. PROVIDE HEAVY DUTY BORDER AND FRAME FOR FLOOR MOUNTING APPLICATIONS.

NOTE: PROVIDE MANUFACTURER'S FILLER CEILING MODULE, 24x24 CEILING TILE INSTALLATION, FOR ALL T-BAR LAY-IN CEILING SYSTEMS.

1

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Construction Issue Date: 1-26-2021
Drawn By: NCB
Checked By: JRS
Scale: AS NOTED

Sheet Name: SCHEDULES

Revisions:
1

Progress Prints:
MODIFIED DURING BIDDING

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M6.2

ELECTRICAL LEGEND AND ABBREVIATIONS

ABBREVIATIONS

A, AMP	AMPERE
AC	ALTERNATING CURRENT
AF	AMPERE FRAME
AFC	ABOVE FINISHED CEILING
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AIC	AMPEERE INTERRUPTING CAPACITY
AL	ALUMINUM
AM	AMMETER
ANNUN	ANNUNCIATOR PANEL
AS	AMMETER SWITCH
AT	AMPERE TRIP
ATC	AUTOMATIC TEMPERATURE CONTROL
ATS	AUTOMATIC TRANSFER SWITCH
AUX	AUXILIARY
AWG	AMERICAN WIRE GUAGE
–	–
BAS	BUILDING AUTOMATION SYSTEM
BKR	BREAKER
BOC	BOTTOM OF CONDUIT
–	–
C	CONDUIT
CAT	CATALOG
CATV	CENTRAL ANTENNA TELEVISION
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CKT	CIRCUIT
CLG	CEILING
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CT	CURRENT TRANSFORMER
–	–
DC	DIRECT CURRENT
DETD	DUAL ELEMENT TIME DELAY
DISC	DISCONNECT
DN	DOWN
DP	DOUBLE POLE
DT	DOUBLE THROW
DWG	DRAWING
D/W	DISHWASHER
–	–
(E)	EXISTING TO REMAIN
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
EGC	EQUIPMENT GROUNDING CONDUCTOR
EMERG	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
EOL	END OF LINE RESISTOR
(ER)	EXISTING RELOCATED
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
–	–
F	FUSED
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FCU	FAN COIL UNIT
FLR	FLOOR
FLUOR	FLUORESCENT
FU	FUSE
FVNR	FULL VOLTAGE, NON–REVERSING
–	–
GC	GENERAL CONTRACTOR
G/D	GARBAGE DISPOSAL
GEC	GROUNDING ELECTRODE CONDUCTOR
GFI	GROUND FAULT INTERRUPTING
G, GND	GROUND
–	–
HID	HIGH INTENSITY DISCHARGE
HOA	HAND–OFF–AUTOMATIC
HP	HORSEPOWER
HT	HEAT TRACE
HZ	HERTZ
–	–
IDC	INITIATING DEVICE CIRCUIT
IG	ISOLATED GROUND
–	–

JB	JUNCTION BOX
–	–
KCMIL	THOUSAND CIRCULAR MILS (MCM)
KV	KILOVOLTS
KVA	KILOVOLT–AMPERE
KVAR	KILOVOLT–AMPERE REACTIVE
KW	KILOWATT
KWH	KILOWATT–HOUR
–	–
LA	LIGHTNING ARRESTOR
LED	LIGHT EMITTING DIODE
LF	LINEAR FOOT
LP	LIGHTING PANEL
LV	LOW VOLTAGE
–	–
MCB	MAIN CIRCUIT BREAKEER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MLO	MAIN LUGS ONLY
MH	MANHOLE
–	–
(N)	NEW WORK
N	NEUTRAL
NAC	NOTIFICATION APPLIANCE CIRCUIT
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NF	NON–FUSED
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
–	–
OL	OVERLOAD
–	–
PE	PHOTO ELECTRIC
PF	POWER FACTOR
PH	PHASE
PNL	PANELBOARD
PP	POWER PANEL
PRI	PRIMARY
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE CONDUIT
–	–
(R)	REMOVE
(RE)	RELOCATE EXISTING
RECEP	RECEPTACLE
RMC	RIGID METAL CONDUIT (SCHEDULE 40)
RMS	ROOT MEAN SQUARE
–	–
SEC	SECONDARY
SF	SUPPLY FAN
SLC	SIGNAL LINE CIRCUIT (ADDRESSABLE LOOP)
SQ FT	SQUARE FOOT
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
–	–
TEL	TELEPHONE
TV	TELEVISION
TYP	TYPICAL
–	–
UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTABLE POWER SUPPLY
–	–
V	VOLTS
VA	VOLT–AMPERE
VFD	VARIABLE FREQUENCY DRIVE
–	–
W	WIRE, WATTS
WP	WEATHER PROOF
–	–
XFMR	TRANSFORMER

LIGHTING

DESCRIPTION
2'X4' LIGHTING FIXTURE
2'X2' LIGHTING FIXTURE.
1'X4' LIGHTING FIXTURE.
4' INDUSTRIAL LIGHTING FIXTURE.
LINEAR WALL MOUNTED LIGHT
LIGHTING FIXTURE, CEILING MOUNT
LIGHTING FIXTURE, PENDANT MOUNT
LIGHTING FIXTURE, RECESSED
CHANDELIER
LIGHTING FIXTURE, WALL MOUNT
UNDER CABINET LIGHT
WALL WASHER TYPE LIGHTING FIXTURE, CEILING MOUNT.
WALL WASHER TYPE LIGHTING FIXTURE, RECESSED.
TRACK LIGHTS
LED STRIP FIXTURE
2'X4' EMERGENCY LIGHTING FIXTURE.
2'X2' EMERGENCY LIGHTING FIXTURE.
1'X4' EMERGENCY LIGHTING FIXTURE.
4' EMERGENCY INDUSTRIAL LIGHTING FIXTURE.
LINEAR WALL MOUNTED EMERGENCY LIGHT
EMERGENCY LIGHTING FIXTURE, CEILING MOUNT.
EMERGENCY LIGHTING FIXTURE, RECESSED.
EMERGENCY LIGHTING FIXTURE, WALL MOUNT.
EXIT SIGN WITH DIRECTIONAL ARROWS AS INDICATED, SHADING INDICATES LOCATION AND NUMBER OF FACES.
EXIT SIGN, MOUNTED AT 8" AFF TO BOTTOM.
BATTERY EMERGENCY LIGHTING UNIT, WALL MOUNT 7'–6"AFF.
REMOTE LIGHTING HEADS FOR BATTERY EMERGENCY LIGHTING UNIT. WALL MOUNT 7–6" AFF
EXIT SIGN WITH INTEGRAL BATTERY POWERED EMERGENCY LIGHTING HEADS
EMERGENCY LIGHTING INVERTER

RECEPTACLES

DESCRIPTION
DUPLEX RECEPTACLE, 15 OR 20 AMP, 2P, 3WIRE, 125 VOLT NEMA 5–20R, (+) MOUNT ABOVE COUNTER
QUADRUPLEX RECEPTACLE (DOUBLE DUPLEX) (+) MOUNT ABOVE COUNTER
DUPLEX RECEPTACLE WITH GROUND FAULT INTERRUPTER (+) MOUNT ABOVE COUNTER
DUPLEX RECEPTACLE 1/2 SWITCHED (+) MOUNT ABOVE COUNTER
DUPLEX RECEPTACLE WITH INTEGRAL USB OUTLETS, (+) MOUNT ABOVE COUNTER
DUPLEX RECEPTACLE, 15 OR 20 AMP, 2P, 3WIRE, 125 VOLT NEMA 5–20R, MOUNTED ON CEILING
SINGLE RECEPTACLE NEMA 5–20 (+) MOUNT ABOVE COUNTER
SPECIAL PURPOSE RECEPTACLE – NEMA RATING AS INDICATED IN RECEPTACLE SCHEDULE. (+) MOUNT ABOVE COUNTER
DUPLEX RECEPTACLE IN FLUSH FLOOR BOX
MULTI–OUTLET ASSEMBLY
POWER IN–FEED FROM WALL TO ELECTRIFIED FURNITURE
POWER IN–FEED FROM FLOOR TO ELECTRIFIED FURNITURE
POWER POLE FEED TO ELECTRIFIED FURNITURE

POWER

DESCRIPTION
SURFACE MOUNTED 120/208 VOLT PANELBOARD
RECESS MOUNTED 120/208 VOLT PANELBOARD
COMBINATION STARTER
SAFETY SWITCH, NON–FUSED
SAFETY SWITCH, FUSED
TWO–POLE SNAP SWITCH
CONTROL PANEL
VARIABLE FREQUENCY DRIVE
MOTOR
TRANSFORMER
HAND HOLE

SWITCHES

DESCRIPTION
SINGLE POLE SWITCH
THREE WAY SWITCH
FOUR WAY SWITCH
DIMMER SWITCH
TIMER/WALL SWITCH
PILOT LIGHT SWITCH
OCCUPANCY SENSOR, WALL MOUNT
THREE POSITION SPRING RETURN (RAISE–LOWER) SWITCH
KEY SWITCH
ROOM CONTROL STATION (LV)
OCCUPANCY SENSOR, CEILING MOUNT
PHOTOCELL
TIMER
ROOM CONTROLLER

CIRCUITING

DESCRIPTION
BRANCH CIRCUIT CONCEALED IN WALL, CEILING OR BELOW RAISED FLOOR
CONDUIT TURNING UP.
CONDUIT TURNING DOWN.
CONDUIT TERMINATED WITH BUSHING.
HOMERUN TO PANELBOARD OR MOTOR CONTROL CENTER. NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS. NUMERAL AT ARROW INDICATES BREAKER NUMBER ON PANEL SCHEDULE.
JUNCTION BOX

SYSTEMS

DESCRIPTION
DATA OUTLET
WIRELESS ACCESS POINT
DATA OUTLET IN FLUSH FLOOR BOX
POWER FOR ELECTRIC LOCK/STRIKE
VIDEO OUTLET

FIRE ALARM

DESCRIPTION
SYSTEM–TYPE SMOKE DETECTOR
HEAT DETECTOR
SYSTEM–TYPE CARBON MONOXIDE DETECTOR
MANUAL PULL STATION
FLOW SWITCH
TAMPER SWITCH
SUPERVISORY AIR PRESSURE SWITCH
ADDRESSABLE MONITOR MODULE
ADDRESSABLE CONTROL MODULE
INTERPOSING RELAY
STROBE (NUMBER SHOWS CANDELA)
COMBINATION HORN/STROBE (NUMBER SHOWS CANDELA)
FIRE ALARM CONTROL PANEL
FIRE ALARM ANNUNCIATOR PANEL
CEILING SPEAKER
CEILING STROBE (NUMBER SHOWS CANDELA)
CEILING SPEAKER/STROBE (NUMBER SHOWS CANDELA)
CEILING HORN/STROBE (NUMBER SHOWS CANDELA)
END OF LINE DEVICE

SINGLE LINE

DESCRIPTION
CIRCUIT BREAKER
FUSIBLE SWITCH
NON–FUSIBLE SWITCH
MCB, MLO PANELBOARD
GENERATOR, AUTO TRANSFER SWITCH
ELECTRIC UTILITY METER
FUSE
CURRENT TRANSFORMER

REFERENCE

DESCRIPTION
EQUIPMENT INDICATOR – SEE MECHANICAL SCHEDULES
KEYED NOTE INDICATOR
REVISION INDICATOR
LIGHTING KEYED NOTE INDICATOR
ELEVATION REFERENCE
SECTION REFERENCE
EXISTING WORK
EXISTING WORK UNDERGROUND OR UNDER FLOOR
NEW WORK
NEW WORK UNDERGOUND OR UNDER FLOOR
DEMOLITION WORK

GENERAL NOTES

1. ELECTRICAL EQUIPMENT AND INSTALLATIONS SHALL COMPLY WITH THE 2014 EDITION OF THE NEC AND ALL LOCAL CODES ENFORCED BY THE AUTHORITY HAVING JURISDICTION.
2. ELECTRICAL EQUIPMENT, DEVICES AND CONDUIT ROUTINGS ARE SHOWN ON DRAWINGS TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY AND MAY NOT INDICATE ALL EQUIPMENT AND DEVICES REQUIRED FOR A COMPLETE SYSTEM. PROVIDE ALL REQUIRED ELECTRICAL EQUIPMENT, DEVICES AND CONDUIT AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. COORDINATE INSTALLATION OF ELECTRICAL SYSTEMS WITH BUILDING STRUCTURE, OTHER UTILITIES, AND ALL OTHER TRADES.
3. WHERE DEMOLITION OF WALLS, CEILINGS, DEVICES OR PIECES OF EQUIPMENT EXPOSES WIRING OR REMOVES POWER TO EXISTING–TO–REMAIN EQUIPMENT, SPLICE AND EXTEND WIRING AS REQUIRED TO REMAIN CONCEALED AND RETAIN POWER TO EXISTING–TO–REMAIN LOAD(S).
4. LOCATIONS OF UNDERGROUND UTILITIES SHOWN ON THE SITE PLAN HAVE NOT BEEN VERIFIED BY THE ENGINEER. VERIFY WITH THE UTILITY COMPANY HORIZONTAL AND VERTICAL LOCATIONS OF ALL UNDERGROUND UTILITIES PRIOR TO THE START OF CONSTRUCTION. COORDINATE INSTALLATION OF ELECTRICAL WORK TO AVOID INTERFERENCES. HAND DIG IN AREAS ADJACENT TO OTHER UTILITIES.
5. PROVIDE BRANCH CIRCUIT WIRING TO ALL ITEMS REQUIRING ELECTRICAL CONNECTIONS. WHERE BRANCH CIRCUIT WIRING IS NOT SHOWN, CONNECT ITEMS TO CIRCUITS INDICATED. THE CONTRACTOR SHALL DETERMINE EXACT ROUTING OF CONDUITS AND WIRING. UNLESS INDICATED OTHERWISE, ALL BRANCH CIRCUITS SHALL BE #12 AWG.
6. LOCATE ALL CEILING MOUNTED DEVICES ACCORDING TO ARCHITECTURAL REFLECTED CEILING PLANS.
7. CONNECT ALL EXIT AND EMERGENCY LIGHTS TO THE LOCAL LIGHTING BRANCH CIRCUIT SERVING THE AREA, AHEAD OF ANY SWITCHED LEG(S).
8. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR THE CORRECT PHASE SEQUENCE OF ALL THREE–PHASE FEEDERS AND BRANCH CIRCUITS. VERIFY PROPER ROTATION OF ALL MOTORS.
9. WHERE FEEDERS AND BRANCH CIRCUITS EXCEED 60 FEET (120V) TO CENTER OF LOAD, USE NO. 10 AWG WIRE TO THAT POINT. VOLTAGE DROP SHALL NOT EXCEED 2% FOR FEEDERS AND 3% FOR BRANCH CIRCUITS. UNLESS NOTED OTHERWISE, ALL BATTERY POWERED DC EMERGENCY LIGHTING CIRCUITS (SUCH AS FOR REMOTE HEADS) SHALL BE #10 AWG.
10. MULTIPLE HOME RUNS MAY BE COMBINED INTO A SINGLE CONDUIT. APPLY NEC DERATING FACTORS FOR ALL MULTI–CIRCUIT HOME RUNS. PROVIDE DEDICATED NEUTRALS FOR ALL BRANCH CIRCUITS, WHETHER IN DEDICATED OR MULTI–CIRCUIT CONDUITS. INCLUDE NEUTRAL CONDUCTORS IN DERATING CALCULATIONS.
11. THE LEGEND IS NOT INTENDED TO DEFINE THE SCOPE OF WORK. SYMBOLS ON THE LEGEND MAY NOT APPEAR ON THE PLANS.
12. PROVIDE SEALING FITTINGS AND SEAL CONDUITS AT ALL LOCATIONS EMERGING FROM BELOW GRADE.
13. UNLESS OTHERWISE NOTED, OWNER'S LOW VOLTAGE VENDOR WILL SUPPLY ALL POWER, WIRING, CABLING, CONDUITS, PULL STRINGS, AND ALL OTHER WORK REQUIRED FOR COMMUNICATIONS SYSTEMS, CCTV, ACCESS CONTROL, SECURITY ALARM, DISTRESS SIGNALING, AND AUDIO/VISUAL SYSTEMS.

MOUNTING HEIGHTS

ALL DIMENSIONS ARE TO CENTERLINE OF DEVICE, U.O.N.

CARD READERS	42" AFF
EXIT SIGNS	ABOVE DOORS
FIRE ALARM A/V APPLIANCES	84" AFF
FIRE ALARM PULL STATION	44" AFF
MOTOR STARTERS	72" AFF MAXIMUM
PANELBOARDS	72" MAX AFF TO TOP
RECEPTACLES	18" AFF
COUNTERTOP RECEPTACLES	46" MAX AFF TO TOP
SAFETY SWITCHES	72" MAX AFF TO TOP
SWITCHES	42" AFF
TELEPHONE/DATA OUTLET	18" AFF

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Construction Issue Date: 1-26-2021
Drawn By: RDF
Checked By: RDF
Scale: AS NOTED

Sheet Name: COVER SHEET
Revisions:
Progress Prints:

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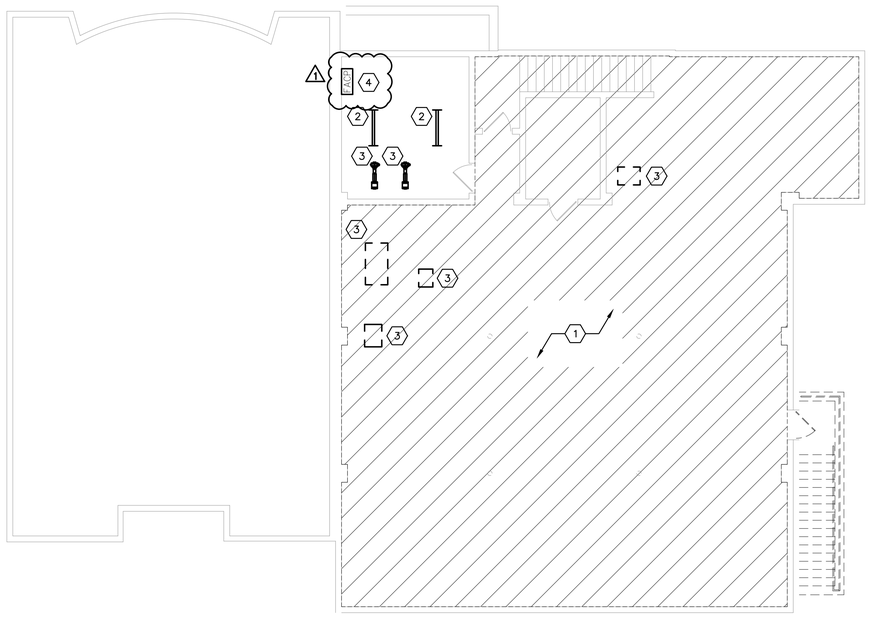
E0.1

GENERAL DEMOLITION NOTES:

1. SEE ARCHITECTURAL DRAWNGS FOR PHASING REQUIREMENTS.

KEY NOTES

1. ~~REMOVE ALL LIGHT FIXTURES IN HATCHED AREA INCLUDING WIRING, CONDUIT, EMERGENCY BATTERIES, EMERGENCY LIGHTING UNITS, AND EXIT SIGNS~~ REMOVE ALL FIRE ALARM DEVICES AND ASSOCIATED CONDUIT, WIRING, BOXES, HANGERS, SUPPORTS, AND ALL ASSOCIATED APPURTENANCES. (1)
2. REMOVE LIGHT FIXTURE. RETAIN WIRING FOR RE-USE.
3. REMOVE ELECTRICAL CONNECTIONS TO HVAC EQUIPMENT AND HVAC EQUIPMENT CONTROLLERS/DISCONNECTS. REMOVE ALL ASSOCIATED CONDUIT, WIRING, BOXES, HANGERS, SUPPORTS, AND ALL ASSOCIATED APPURTENANCES.
4. REMOVE FIRE ALARM CONTROL PANEL AND ALL ASSOCIATED CONDUIT, WIRING, BOXES, HANGERS, SUPPORTS, AND ALL ASSOCIATED APPURTENANCES. FIRE ALARM CONTROL PANEL SHALL ONLY BE REMOVED AFTER NEW FIRE ALARM CONTROL PANEL AND DEVICES ARE INSTALLED AND OPERATIONAL. (1)



1 / E1.1 ELECTRICAL - BASEMENT FLOOR PLAN - DEMOLITION
SCALE: 1/8" = 1'-0"

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Construction Issue Date: 1-26-2021
Drawn By: RDF
Checked By: RDF
Scale: AS NOTED

Sheet Name: BASEMENT DEMOLITION PLAN

Progress Prints:	Revisions:
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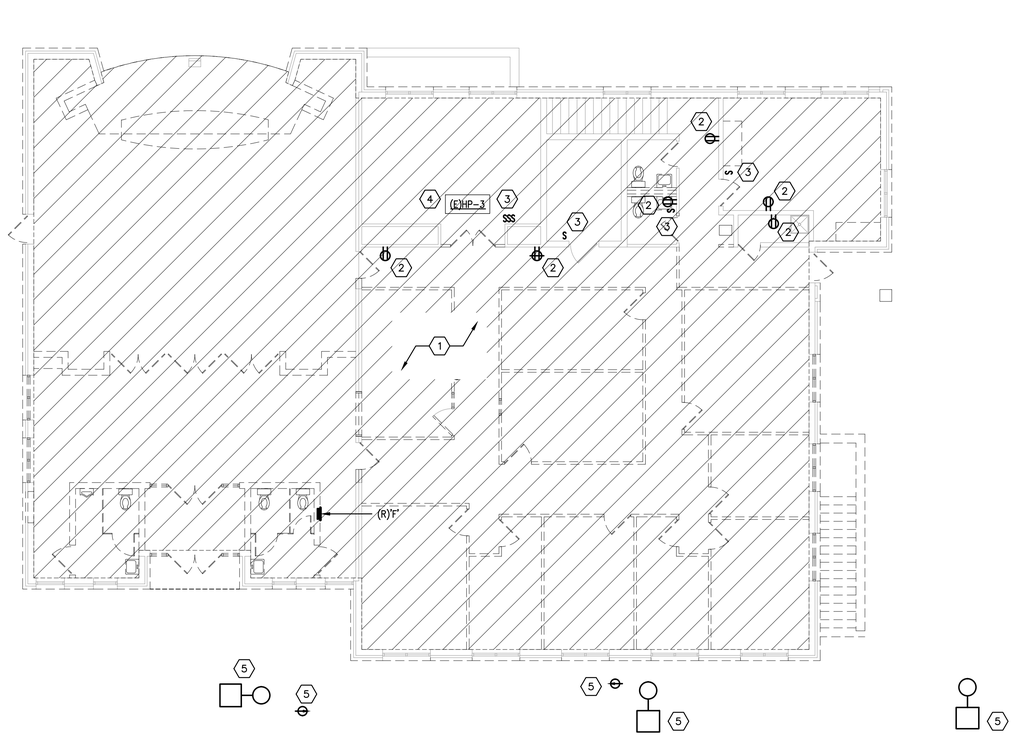
E1.1

GENERAL DEMOLITION NOTES:

1. SEE ARCHITECTURAL DRAWNGS FOR PHASING REQUIREMENTS.

KEY NOTES

1. UNLESS OTHERWISE NOTED, REMOVE ALL ELECTRICAL EQUIPMENT IN HATCHED AREA IN ITS ENTIRETY INCLUDING CONDUIT, WIRING, WIRING DEVICES, BOXES, HANGERS, SUPPORTS, LIGHT FIXTURES, AND ALL ASSOCIATED APPURTENANCES. COORDINATE REMOVAL WORK WITH PROPOSED NEW WORK AND CONNECTION LOCATIONS AND DIMENSIONS. REFER TO NEW WORK PLANS AND NOTES FOR ADDITIONAL COORDINATION. REMOVE PANELBOARDS SPECIFICALLY NOTED FOR REMOVAL ON FLOOR PLANS AND SINGLE LINE DIAGRAM.
2. REMOVE EXISTING RECEPTACLE AND ASSOCIATED WIRING. RETAIN EXISTING BACKBOX AND CONDUIT CONCEALED IN WALL, REMOVE ALL OTHER ASSOCIATED CONDUIT.
3. REMOVE EXISTING SWITCH AND ASSOCIATED WIRING. RETAIN EXISTING BACKBOX AND CONDUIT CONCEALED IN WALL, REMOVE ALL OTHER ASSOCIATED CONDUIT.
4. EXISTING HVAC EQUIPMENT TO REMAIN. DO NOT REMOVE ANY ELECTRICAL WORK ASSOCIATED WITH UNIT.
5. REMOVE SITE LIGHT FIXTURE AND UNUSED PORTIONS OF WIRING AND CONDUIT.



1 E1.2 ELECTRICAL - GROUND FLOOR PLAN - DEMOLITION
SCALE: 1/8" = 1'-0"

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Construction Issue Date: 1-26-2021
Drawn By: RDF
Checked By: RDF
Scale: AS NOTED

Sheet Name: GROUND FLOOR DEMOLITION PLAN
Progress Prints:
Revisions:

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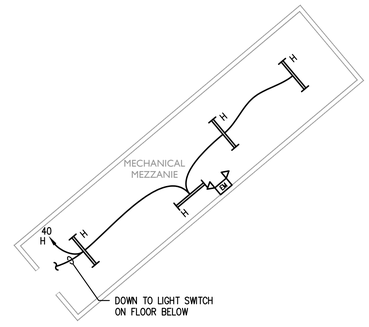
E1.2

LIGHTING CONTROL KEY NOTES (PROVIDE LIGHTING CONTROLS PER KEYNOTES BELOW, IN QUANTITIES AND LOCATIONS AS IDENTIFIED ON THE FLOOR PLANS)

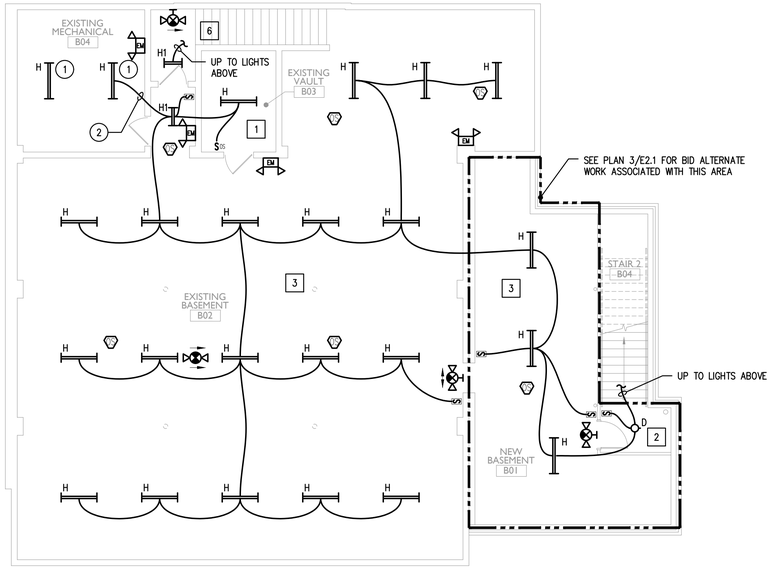
1. WALL SWITCH STYLE OCCUPANCY SENSOR. MANUALLY TURN LIGHTS ON TO 100%. AUTOMATICALLY TURN LIGHTS OFF AFTER 30 MINUTES OF VACANCY.
2. 1-BUTTON WALL STATION: TOGGLE ON/OFF. AUTOMATICALLY TURN LIGHTS ON TO 100% UPON OCCUPANCY. AUTOMATICALLY TURN LIGHTS OFF AFTER 30 MINUTES OF VACANCY.
3. 3-BUTTON WALL STATION: TOGGLE ON/OFF, RAISE, LOWER. AUTOMATICALLY TURN LIGHTS ON TO 50% UPON OCCUPANCY. MANUAL OVERRIDE TO 100% VIA WALL STATION. AUTOMATICALLY TURN LIGHTS OFF AFTER 30 MINUTES OF VACANCY.
4. 5-BUTTON WALL STATION: TOGGLE ALL ZONES ON/ALL ZONES OFF, TOGGLE ZONE 1 ON/OFF, TOGGLE ZONE 2 ON/OFF, RAISE, LOWER. AUTOMATICALLY TURN LIGHTS ON TO 50% UPON OCCUPANCY. MANUAL OVERRIDE TO 100% VIA WALLSTATION. AUTOMATICALLY TURN LIGHTS OFF 100% AFTER 30 MINUTES OF VACANCY. LIGHT FIXTURES ARE ZONED BY FIXTURE TYPE (2 ZONES). WALL STATION IS CAPABLE OF INDIVIDUALLY RAISING/LOWERING EACH LIGHTING ZONE.
5. TOUCHSCREEN WALL CONTROLLERS: AUTOMATICALLY TURN LIGHTS ON TO 50% UPON OCCUPANCY. MANUAL OVERRIDE TO 100% VIA TOUCHSCREENS. AUTOMATICALLY TURN LIGHTS OFF 100% AFTER 30 MINUTES OF VACANCY. FOR BIDDING PURPOSES, ZONE LIGHT FIXTURES ACCORDING TO LOWERCASE LETTERS SHOWN ON FLOOR PLANS. PRIOR TO FINALIZING ZONING TOUCHSCREEN BUTTON LAYOUT, HAVE A MEETING WITH OWNER AND ARCHITECT TO REVIEW AND FINALIZE SCENES AND TOUCHSCREEN LABELS. TOUCHSCREEN DISPLAYS SHALL BE SYNCHRONIZED TOGETHER. TOUCHSCREENS SHALL ALSO OPERATE MOTORIZED BLINDS AND MOTORIZED PROJECTION SCREEN.
6. 100% ON MONDAY THROUGH FRIDAY 6:30 AM – 5:00 PM. AUTOMATICALLY DIM LIGHTS DOWN TO 10% DURING OFF HOURS. MANUAL "AFTER HOURS" OVERRIDE WALL STATION LOCATED IN VESTIBULE 101 TURNS LIGHTS ON TO FULL BRIGHTNESS FOR 1 HOUR; AFTER 1 HOUR, LIGHTS WILL AUTOMATICALLY DIM BACK DOWN TO 10%
7. EXTERIOR LIGHTING SHALL BE CONTROLLED VIA ASTRONOMICAL TIME CLOCK AND PHOTOCELL.

KEY NOTES

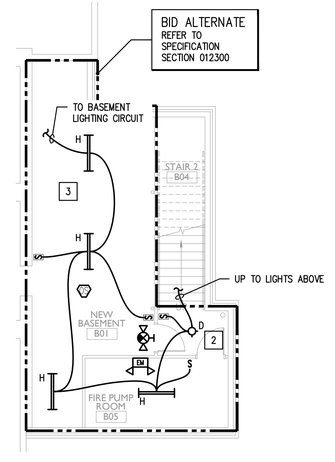
1. CONNECT NEW LIGHT FIXTURE TO EXISTING WIRING.
2. CONNECT TO UNSWITCHED LEG OF EXISTING BASEMENT LIGHTING BRANCH CIRCUIT.



2 E2.1 ELECTRICAL - MEZZANINE FLOOR PLAN - LIGHTING
SCALE: 1/8" = 1'-0"



1 E2.1 ELECTRICAL - BASEMENT FLOOR PLAN - LIGHTING
SCALE: 1/8" = 1'-0"



3 E2.1 ELECTRICAL - FIRE PUMP ROOM ADD ALT.
SCALE: 1/8" = 1'-0"

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SE Project #20126

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Ryan D. Fronheiser
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MUNICIPAL BUILDING
WEST BRADFORD TOWNSHIP
1385 CAMPUS DRIVE
WEST BRADFORD, PA 19335

Construction Issue Date: 1-26-2021
Drawn By: RDF
Checked By: RDF
Scale: AS NOTED

Sheet Name: BASEMENT LIGHTING PLAN
Progress Prints:
Revisions:

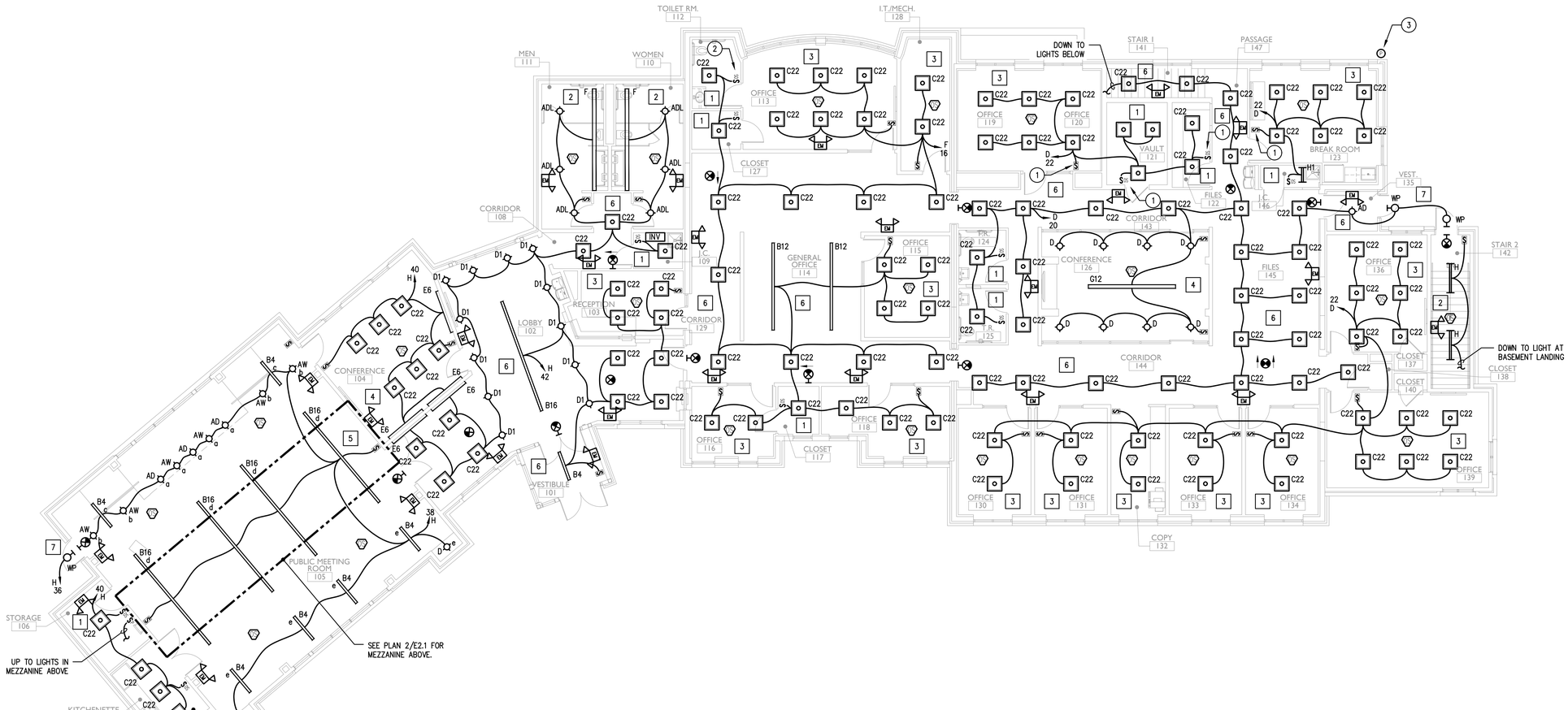
E2.1

LIGHTING CONTROL KEY NOTES (PROVIDE LIGHTING CONTROLS PER KEYNOTES BELOW, IN QUANTITIES AND LOCATIONS AS IDENTIFIED ON THE FLOOR PLANS)

1. WALL SWITCH STYLE OCCUPANCY SENSOR. MANUALLY TURN LIGHTS ON TO 100%. AUTOMATICALLY TURN LIGHTS OFF AFTER 30 MINUTES OF VACANCY.
2. 1-BUTTON WALL STATION: TOGGLE ON/OFF. AUTOMATICALLY TURN LIGHTS ON TO 100% UPON OCCUPANCY. AUTOMATICALLY TURN LIGHTS OFF AFTER 30 MINUTES OF VACANCY.
3. 3-BUTTON WALL STATION: TOGGLE ON/OFF, RAISE, LOWER. AUTOMATICALLY TURN LIGHTS ON TO 50% UPON OCCUPANCY. MANUAL OVERRIDE TO 100% VIA WALL STATION. AUTOMATICALLY TURN LIGHTS OFF AFTER 30 MINUTES OF VACANCY.
4. 5-BUTTON WALL STATION: TOGGLE ALL ZONES ON/ALL ZONES OFF, TOGGLE ZONE 1 ON/OFF, TOGGLE ZONE 2 ON/OFF, RAISE, LOWER. AUTOMATICALLY TURN LIGHTS ON TO 50% UPON OCCUPANCY. MANUAL OVERRIDE TO 100% VIA WALLSTATION. AUTOMATICALLY TURN LIGHTS OFF 100% AFTER 30 MINUTES OF VACANCY. LIGHT FIXTURES ARE ZONED BY FIXTURE TYPE (2 ZONES). WALL STATION IS CAPABLE OF INDIVIDUALLY RAISING/LOWERING EACH LIGHTING ZONE.
5. TOUCHSCREEN WALL CONTROLLERS: AUTOMATICALLY TURN LIGHTS ON TO 50% UPON OCCUPANCY. MANUAL OVERRIDE TO 100% VIA TOUCHSCREENS. AUTOMATICALLY TURN LIGHTS OFF 100% AFTER 30 MINUTES OF VACANCY. FOR BIDDING PURPOSES, ZONE LIGHT FIXTURES ACCORDING TO LOWERCASE LETTERS SHOWN ON FLOOR PLANS. PRIOR TO FINALIZING ZONING TOUCHSCREEN BUTTON LAYOUT, HAVE A MEETING WITH OWNER AND ARCHITECT TO REVIEW AND FINALIZE SCENES AND TOUCHSCREEN LABELS. TOUCHSCREEN DISPLAYS SHALL BE SYNCHRONIZED TOGETHER. TOUCHSCREENS SHALL ALSO OPERATE MOTORIZED BLINDS AND MOTORIZED PROJECTION SCREEN.
6. 100% ON MONDAY THROUGH FRIDAY 6:30 AM – 5:00 PM. AUTOMATICALLY DIM LIGHTS DOWN TO 10% DURING OFF HOURS. MANUAL "AFTER HOURS" OVERRIDE WALL STATION LOCATED IN VESTIBULE 101 TURNS LIGHTS ON TO FULL BRIGHTNESS FOR 1 HOUR; AFTER 1 HOUR, LIGHTS WILL AUTOMATICALLY DIM BACK DOWN TO 10%
7. EXTERIOR LIGHTING SHALL BE CONTROLLED VIA ASTRONOMICAL TIME CLOCK AND PHOTOCELL.

KEY NOTES

1. INSTALL NEW SWITCH IN EXISTING BACK BOX.
2. PROVIDE SWITCH FOR LIGHTING UNDER 2-GANG WALL PLATE WITH EXHAUST FAN SWITCH (SEPARATE SWITCHES FOR LIGHTS AND FAN).
3. MOUNT EXTERIOR PHOTOCELL HIGH ON NORTHEAST CORNER OF BUILDING.



1 / E2.2 ELECTRICAL - GROUND FLOOR PLAN - LIGHTING
SCALE: 1/8" = 1'-0"

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MUNCIPAL BUILDING
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1385 CAMPUS DRIVE
WEST BRADFORD, PA 19335

Construction Issue Date: 1-26-2021
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Sheet Name: GROUND FLOOR LIGHITNG PLAN
Revisions:
Progress Prints:

E2.2

GENERAL SHEET NOTES:

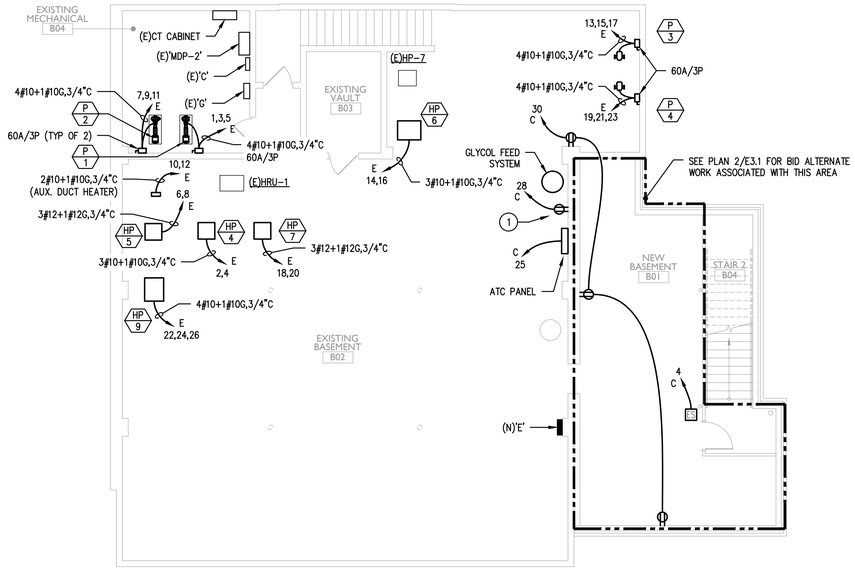
1. SCHEDULE A COORDINATION MEETING WITH THE TOWNSHIP TO REVIEW EXACT LOCATIONS OF ALL DEVICES. TOWNSHIP SHALL BE PERMITTED TO SHIFT DEVICES 5' LATERALLY IN EITHER DIRECTION WITHOUT ADDITIONAL COST. THE COORDINATION MEETING MUST BE HELD PRIOR TO ROUGHING IN DEVICES.

KEY NOTES

(1) RECEPTACLE FOR GLYCOL FEED SYSTEM. COORDINATE LOCATION OF RECEPTACLE WITH MECHANICAL CONTRACTOR.

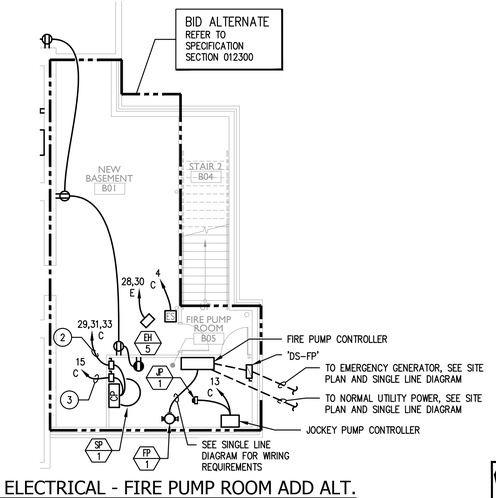
(2) SUMP PUMP POWER. PROVIDE 3#12 WITH 1#12 GROUND IN 3/4" CONDUIT AND 30A/3-POLE DISCONNECT SWITCH.

(3) SUMP PUMP CONTROLLER POWER. PROVIDE 2# WITH 1#12 GROUND IN 3/4" CONDUIT AND 20A/1-POLE DISCONNECT SWITCH.



1 E3.1 ELECTRICAL - BASEMENT FLOOR PLAN - POWER

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



3 E3.1 ELECTRICAL - FIRE PUMP ROOM ADD ALT.

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

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1385 CAMPUS DRIVE
WEST BRADFORD, PA 19335

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Checked By: RDF
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Sheet Name: BASEMENT POWER PLAN
Progress Prints:
Revisions:

E3.1

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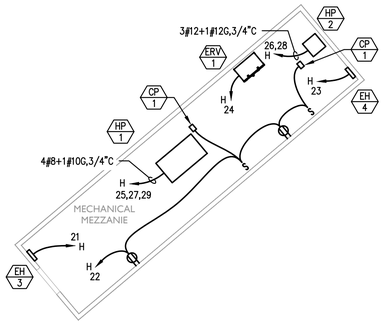
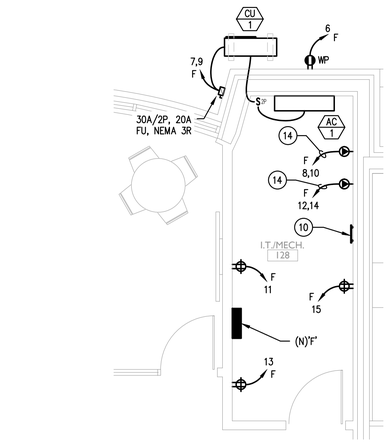


2 E3.2 ELECTRICAL - MEZZANINE FLOOR PLAN - POWER

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



3 E3.2 ELECTRICAL - SERVER ROOM FLOOR PLAN - POWER

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

GENERAL SHEET NOTES:

1. SCHEDULE A COORDINATION MEETING WITH THE TOWNSHIP TO REVIEW EXACT LOCATIONS OF ALL DEVICES. TOWNSHIP SHALL BE PERMITTED TO SHIFT DEVICES 5' LATERALLY IN EITHER DIRECTION WITHOUT ADDITIONAL COST. THE COORDINATION MEETING MUST BE HELD PRIOR TO ROUGHING IN DEVICES.
2. FOR ALL WALL-MOUNTED DATA OUTLETS, U.O.N., PROVIDE EMPTY BACK BOX WITH 1" CONDUIT STUBBED UP INTO CONCEALED, ACCESSIBLE SPACE ABOVE CEILING.

KEY NOTES

(1) RECEPTACLE AND VIDEO OUTLET FOR WALL-MOUNTED TV/MONITOR. COORDINATE MOUNTING HEIGHT AND LOCATION WITH MOUNTING HEIGHT AND LOCATION OF WALL-MOUNTED TV/MONITOR. PROVIDE OUTLETS IN RECESSED IN-WALL MEDIA BOX. PROVIDE 2" CONDUIT FROM MEDIA BOX AT WALL-MOUNTED TV/MONITOR STUBBED UP TO CONCEALED, ACCESSIBLE SPACE ABOVE CEILING.

(2) INSTALL NEW RECEPTACLE IN EXISTING BACK BOX.

(3) PROVIDE 2" CONDUIT FROM FLOOR BOX UNDER CONFERENCE ROOM TABLE STUBBED UP TO CONCEALED, ACCESSIBLE SPACE ABOVE CEILING.

(4) POWER FOR HAND WASHING STATION. COORDINATE MOUNTING HEIGHT AND LOCATION OF RECEPTACLE WITH EQUIPMENT REQUIREMENTS.

(5) POWER AND A/V OUTLETS FOR CEILING-HUNG VIDEO PROJECTOR. PROVIDE HOSPITAL-GRADE RECEPTACLE IN CEILING. FOR A/V OUTLETS, PROVIDE EMPTY 2-GANG BACK BOX IN CEILING. SEE SHEET E5.2 FOR COMMUNICATIONS PATHWAYS REQUIREMENTS.

(6) POWER AND A/V OUTLETS FOR PORTABLE PODIUM. FOR A/V OUTLETS, PROVIDE EMPTY 2-GANG BACK BOX. SEE SHEET E5.2 FOR COMMUNICATIONS PATHWAYS REQUIREMENTS.

(7) POWER AND A/V FLOOR BOXES IN DAIS. SEE SHEET E5.2 FOR COMMUNICATIONS PATHWAYS REQUIREMENTS.

(8) POWER FOR MOTORIZED PROJECTION SCREEN. INTERFACE LIGHTING CONTROLS TOUCHSCREEN WITH PROJECTION SCREEN SO THAT TOUCHSCREEN CONTROLS SCREEN RAISE/LOWER/STOP FUNCTIONS.

(9) PROVIDE SWITCH FOR EXHAUST FAN UNDER 2-GANG WALL PLATE WITH LIGHT SWITCH (SEPARATE SWITCHES FOR LIGHTS AND FAN).

(10) PROVIDE GROUND BUS AND #3/0 GROUND WIRE BACK TO 'MDP-2' GROUNDING BAR.

(11) WIRELESS ACCESS POINT. PROVIDE EMPTY BACK BOX IN CEILING. SEE SHEET E5.2 FOR COMMUNICATIONS PATHWAYS REQUIREMENTS.

(12) POWER, A/V, AND DATA FOR A/V CONTROLS. FOR A/V AND DATA, PROVIDE 2-GANG BACK BOX. SEE SHEET E5.2 FOR COMMUNICATIONS PATHWAYS REQUIREMENTS.

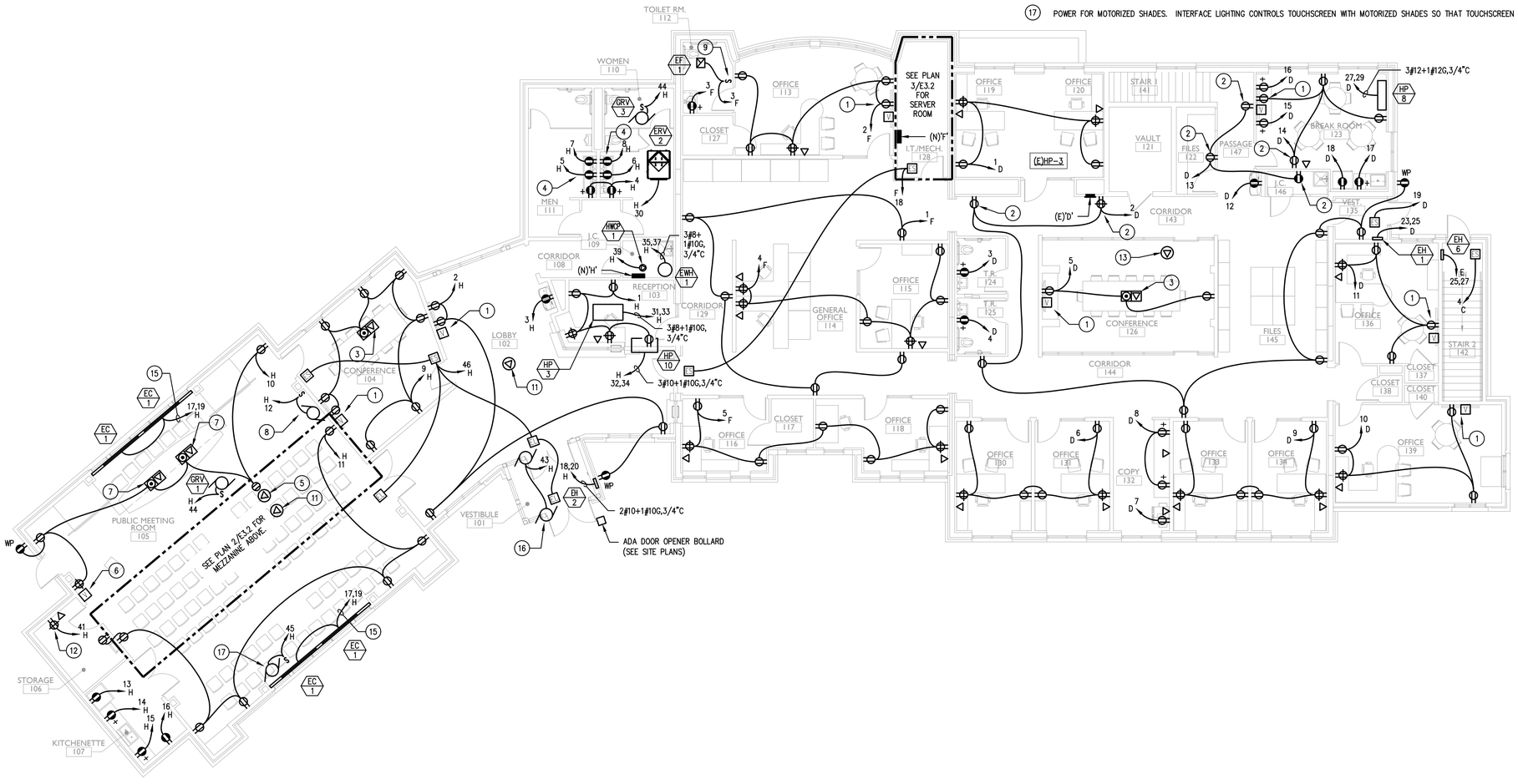
(13) WIRELESS ACCESS POINT. PROVIDE EMPTY BACK BOX IN CEILING.

(14) IT RACK RECEPTACLES. PROVIDE NEMA 14-30L RECEPTACLE AND 3#10 WITH 1#10 GROUND IN 3/4" CONDUIT BACK TO POWER SOURCE. CONFIRM RECEPTACLE TYPE AND MOUNTING HEIGHT WITH OWNER PRIOR TO PURCHASING AND INSTALLING.

(15) COORDINATE POWER FEEDS TO ELECTRIC CONVECTORS WITH MECHANICAL CONTRACTOR. POWER FEEDS MUST STUB UP INTO FOOT OF ELECTRIC CONVECTOR. EXPOSED WIRING IS NOT ACCEPTABLE.

(16) PROVIDE POWER CONNECTIONS TO TWO AUTOMATIC DOOR OPENERS. PROVIDE (1) 1-1/2" CONDUIT FROM POWERED DOOR OPENER ABOVE CEILING DOWN TO BOLLARD OUTSIDE MAIN ENTRANCE. STUB CONDUIT UP INTO BOTTOM OF BOLLARD.

(17) POWER FOR MOTORIZED SHADES. INTERFACE LIGHTING CONTROLS TOUCHSCREEN WITH MOTORIZED SHADES SO THAT TOUCHSCREEN CONTROLS OPEN/CLOSE/STOP FUNCTIONS.



1 E3.2 ELECTRICAL - GROUND FLOOR PLAN - POWER

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

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Scale: AS NOTED

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Progress Prints:
Revisions:

E3.2

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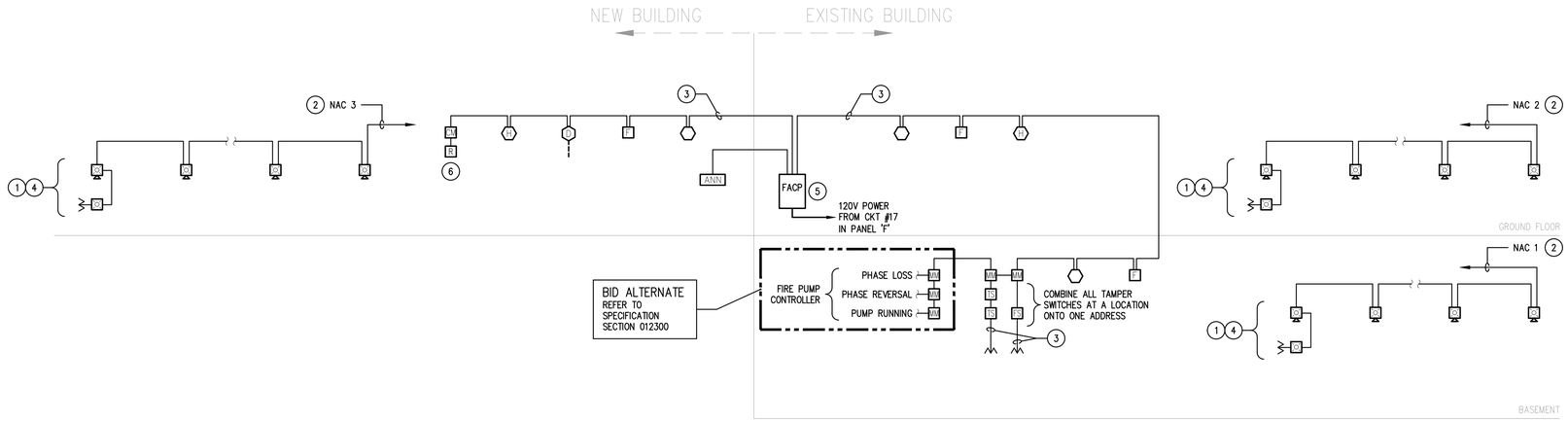
GENERAL SHEET NOTES:

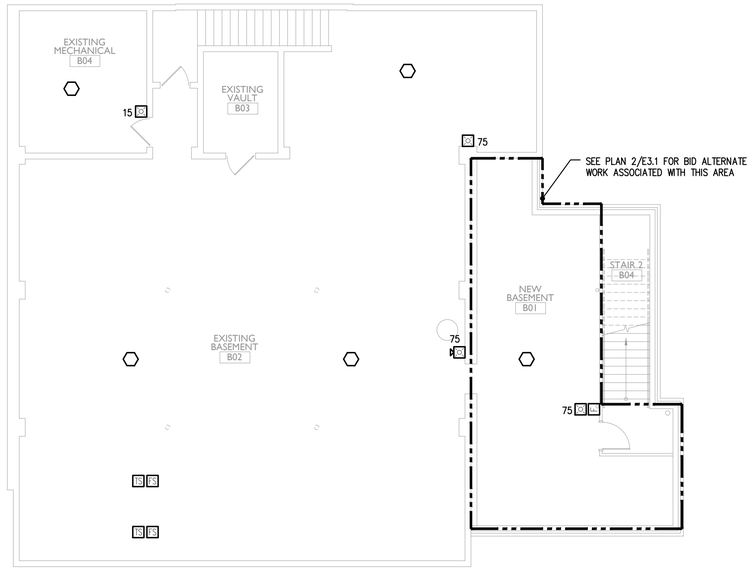
1. SEE SITE PLAN FOR ADDITIONAL FIRE ALARM WORK.



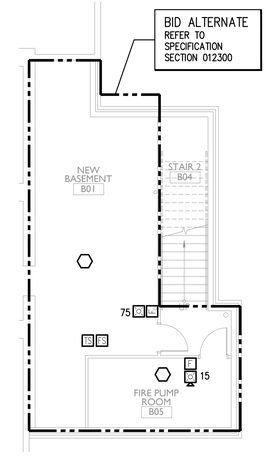
2 E4.1 FIRE ALARM RISER DIAGRAM
SCALE: NONE

FIRE ALARM RISER KEY NOTES

1. LOCATE NAC EOL'S IN CORRIDORS. PROVIDE NAC'S AS REQUIRED FOR LOAD. SEE FLOOR PLANS FOR QUANTITIES AND LOCATIONS OF NOTIFICATION DEVICES.
2. NAC WIRING SHALL BE 2#14 FPLP CABLE.
3. SLC AND IDC WIRING SHALL BE 2#16 FPLP CABLE.
4. REFER TO FLOOR PLANS FOR CANDELA SETTINGS OF ALL STROBES.
5. USE NEW FIRE ALARM CONTROL PANEL INSTALLED IN PHASE 1 TO TEMPORARILY BACK FEED EXISTING FIRE ALARM CONTROL PANEL IN MAIN ELECTRICAL ROOM.
6. PROVIDE ADDRESSABLE INTERFACE DEVICE WITH RELAY FOR ACCESS CONTROL SYSTEM. ACTIVATION OF FIRE ALARM SYSTEM SHALL CLOSE RELAY CONTACTS. FINAL POINT OF CONNECTION TO ACCESS CONTROL SYSTEM IS BY OWNER'S LOW VOLTAGE VENDOR.



1 E4.1 ELECTRICAL - BASEMENT FLOOR PLAN - FIRE ALARM
SCALE: 1/8" = 1'-0"



3 E4.1 ELECTRICAL - FIRE PUMP ROOM ADD ALT.
SCALE: 1/8" = 1'-0"

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Drawn By: RDF
Checked By: RDF
Scale: AS NOTED

Sheet Name: BASEMENT FIRE ALARM PLAN
Progress Prints:
Revisions:

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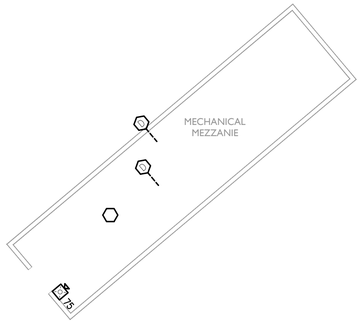
E4.1

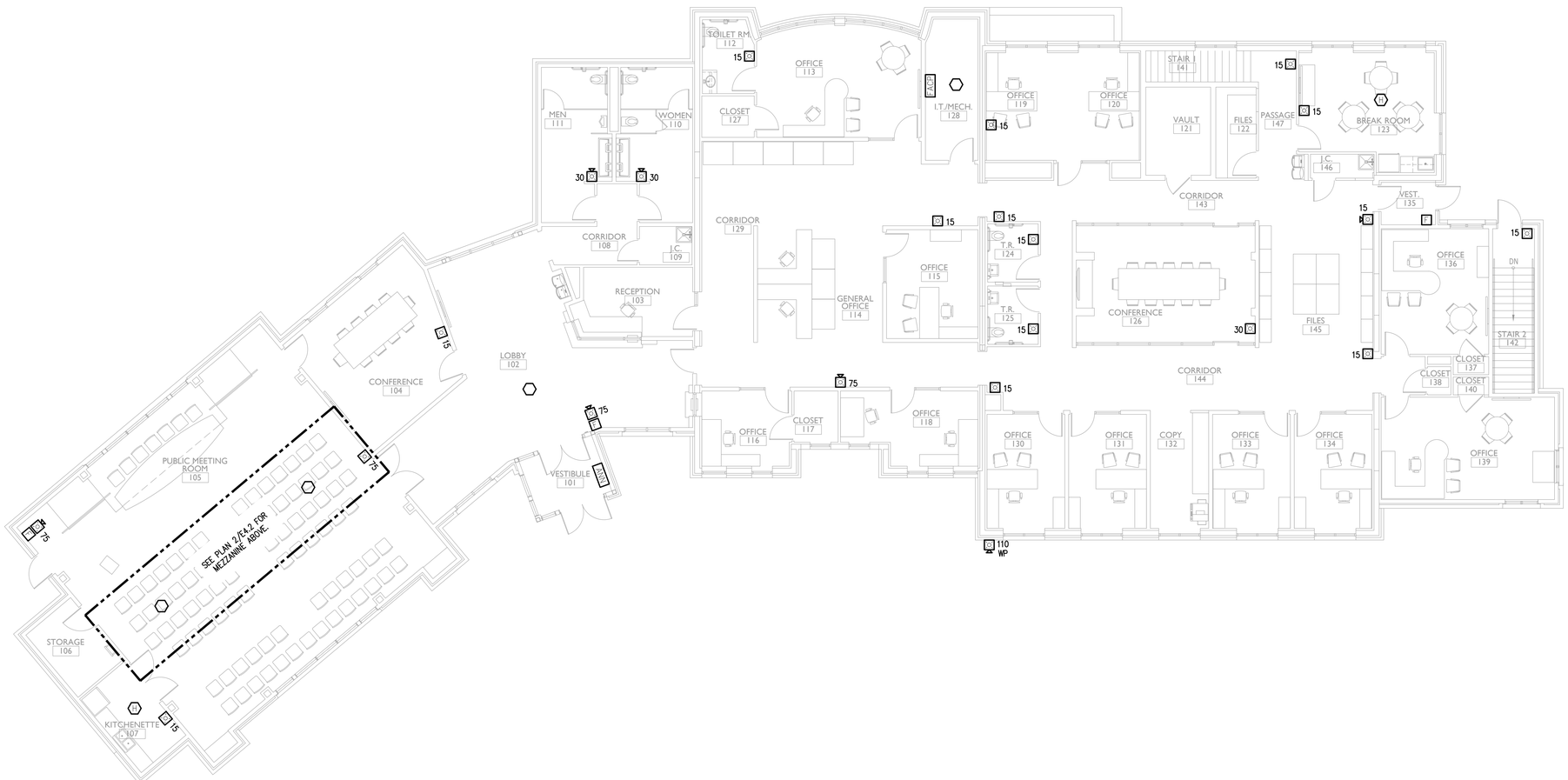
GENERAL SHEET NOTES:

1. SEE SITE PLAN FOR ADDITIONAL FIRE ALARM WORK.



2 / E4.2 ELECTRICAL - MEZZANINE FLOOR PLAN - FIRE ALARM

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



1 / E4.2 ELECTRICAL - GROUND FLOOR PLAN - FIRE ALARM

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

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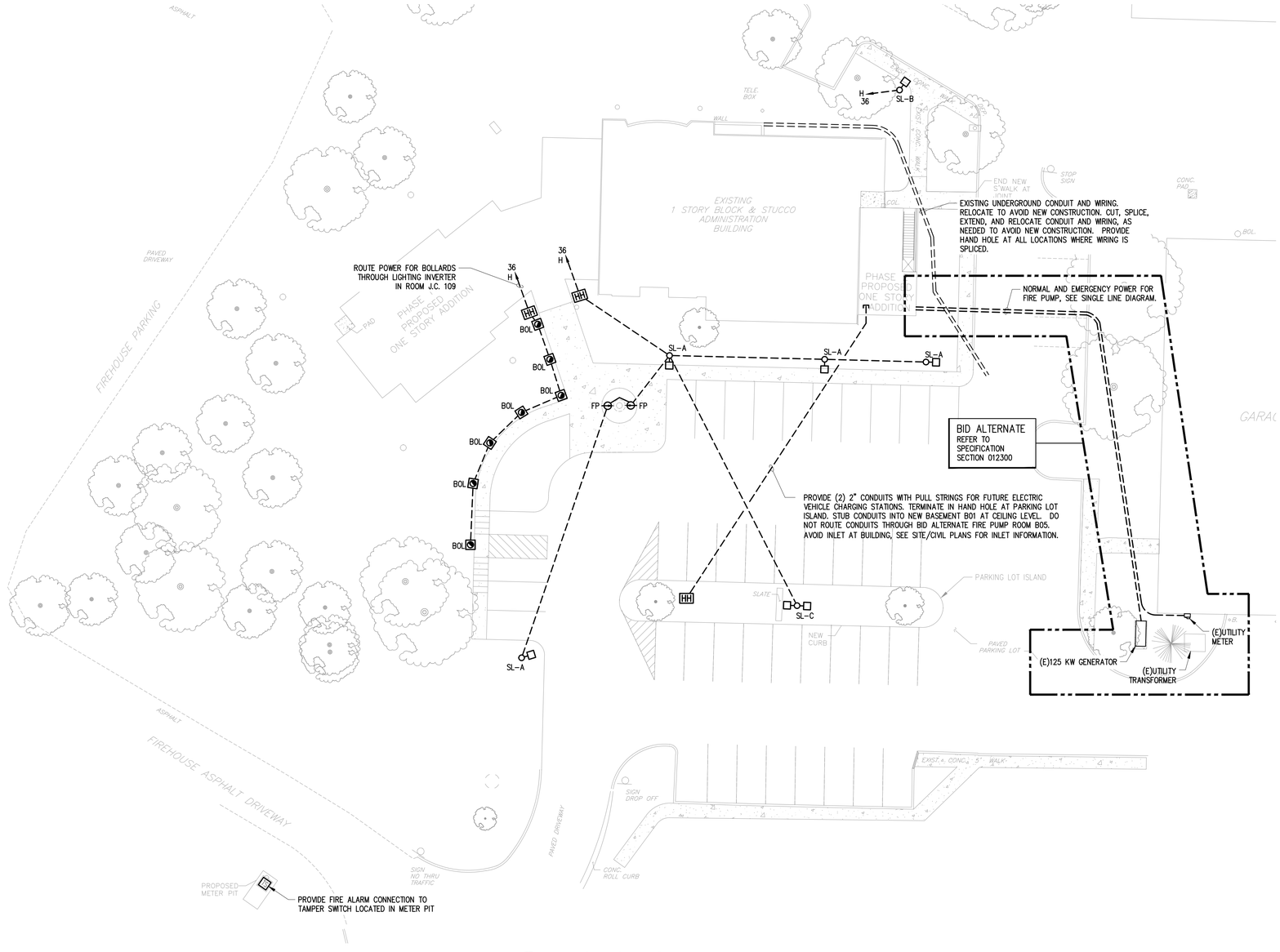
Progress Prints:
Revisions:

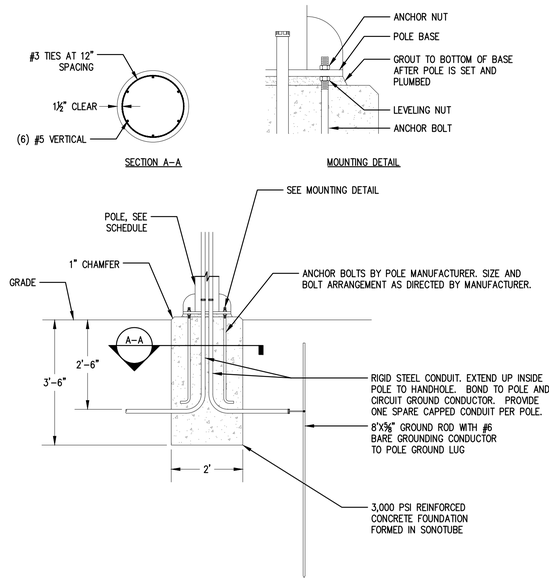
E4.2

GENERAL SHEET NOTES

1. FOR ALL UNDERGROUND WIRING TO SITE LIGHTS, PROVIDE 2#8 WITH 1#8 GROUND IN 1" CONDUIT.
2. PROVIDE NEW WIRING AND FINAL CONNECTIONS TO ALL SITE LIGHT FIXTURES.
3. REMOVE ALL EXISTING UNUSED UNDERGROUND CONDUIT AND WIRING WITH THE EXCEPTION OF THE CONDUIT AND WIRING FOR THE SITE LIGHT LOCATED IN THE PARKING LOT ISLAND. CONDUIT AND WIRING SERVING THE LIGHT FIXTURE IN THE PARKING LOT ISLAND MAY BE ABANDONED IN PLACE.
4. ALL EXTERIOR LIGHTING SHALL BE CONTROLLED VIA ASTRONOMICAL TIME CLOCK AND PHOTOCELL, CONNECTED TO DIGITAL LIGHTING NETWORK.
5. REFER TO PRIME CONTRACTOR CHECKLIST, SPECIFICATION SECTION 01-1201, FOR DELINEATION OF SCOPE OF WORK.



1 / E5.1 ELECTRICAL - SITE PLAN
SCALE: 1" = 20'



2 / E5.1 LIGHT POLE FOUNDATION
SCALE: N.T.S.

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Revisions:
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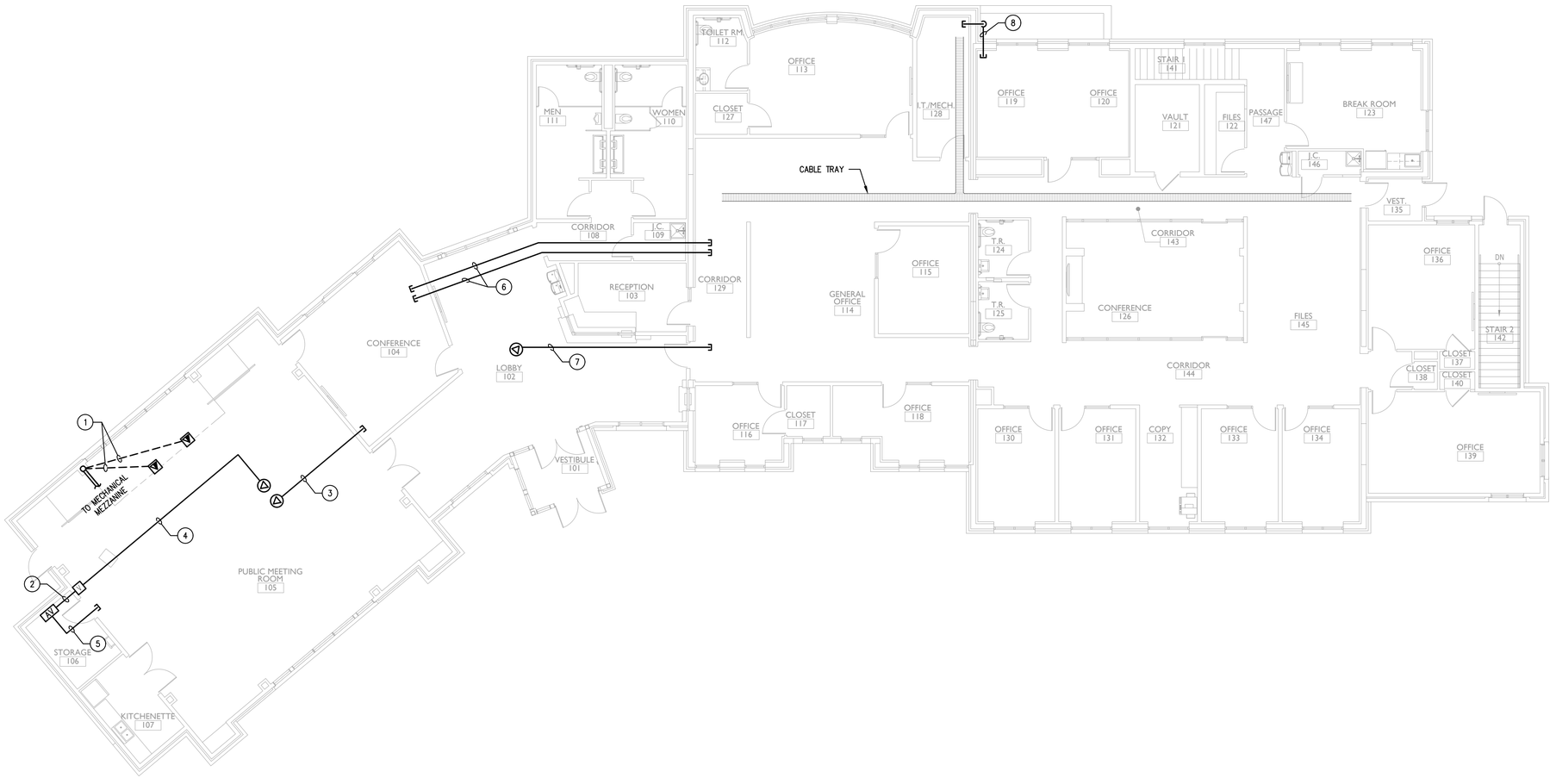
KEY NOTES

1. PROVIDE (1) 3" CONDUIT FROM EACH FLOOR BOX. ROUTE CONDUITS UNDER DAIS, UP THROUGH FAUX COLUMN AT REAR OF DAIS, AND INTO MECHANICAL MEZZANINE SPACE ABOVE.
2. PROVIDE (1) 2" CONDUIT FROM WALL AT PORTABLE PODIUM TO A/V CONTROLS IN MEDIA ROOM.
3. PROVIDE (1) 1" CONDUIT FROM WIRELESS ACCESS POINT TO ACCESSIBLE CONCEALED SPACE ABOVE CEILING IN CONFERENCE 104.
4. PROVIDE (1) 2" CONDUIT FROM CEILING PROJECTOR TO EMPTY BACK BOX AT PORTABLE PODIUM.
5. PROVIDE (1) 2" CONDUIT FROM A/V CONTROLS AND STUB INTO CORNER OF MECHANICAL MEZZANINE ABOVE.
6. PROVIDE (2) 4" CONDUITS FROM ACCESSIBLE CONCEALED SPACE ABOVE CEILING IN CONFERENCE 104 TO ACCESSIBLE CONCEALED SPACE ABOVE CEILING IN CORRIDOR 129. COORDINATE ROUTING OF CONDUIT ACROSS LOBBY CEILING WITH ALL OTHER TRADES. USE SOFFITS PROVIDED FOR CROSSING OF PIPES AND CONDUITS ACROSS LOBBY CEILING.
7. PROVIDE (1) 1" CONDUIT FROM WIRELESS ACCESS POINT TO ACCESSIBLE CONCEALED SPACE ABOVE CEILING IN CORRIDOR 129.
8. PROVIDE (1) 4" CONDUIT FROM I.T./MECH 128 DOWN TO MAIN ELECTRICAL ROOM IN BASEMENT.



1 / E5.2 ELECTRICAL - GROUND FLOOR PLAN - COMMUNICATIONS PATHWAYS
SCALE: 1/8" = 1'-0"

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EXISTING PANEL SCHEDULE 'C'

VOLTS		120/208V, 3ø, 4W		AIC	10,000			
MAINS		100A MCB		LOCATED	MECHANICAL B04			
NOTE	CIR NO	LOAD	DESC	BRKR	BRKR	DESC	LOAD	CIR NO	NOTE
	1		EXISTING LOAD	20/1	20/1	EXISTING LOAD		2	
	3		EXISTING LOAD	20/1	20/1	ELECTRIC DOOR LOCKS	100	4	1
	5		EXISTING LOAD	20/1	20/1	SPARE		6	
	7		EXISTING LOAD	20/1	20/1	EXISTING LOAD		8	
	9		EXISTING LOAD	20/1	20/1	EXISTING LOAD		10	
	11		EXISTING LOAD	20/1	20/1	SPARE		12	
1,3	13	1,200	JOCKEY PUMP JP-1	20/1	20/1	EXISTING LOAD		14	
1,3	15	100	SUMP PUMP CONTROLLER	20/1	20/1	EXISTING LOAD		16	
	17		EXISTING LOAD	20/1	20/1	EXISTING LOAD		18	
	19		EXISTING LOAD	20/1	20/1	EXISTING LOAD		20	
	21		EXISTING LOAD	20/2	20/1	EXISTING LOAD		22	
	23				30/2	EXISTING LOAD		24	
1	25	100	ATC PANEL	20/1				26	
	27		EXISTING LOAD	20/1	20/1	GLYCOL FEED SYSTEM	100	28	1
	29				20/1	BASEMENT RECEPTS	540	30	1
2,3	31	1,440	SUMP PUMP SP-1	20/3	30/2	EXISTING LOAD		32	
	33							34	
	35		EXISTING LOAD	30/2	20/2	EXISTING LOAD		36	
	37							38	
	39		SPARE	30/1	20/1	EXISTING LOAD		40	
	41		SPARE	30/1		SPACE		42	
TOTAL LOAD				3.6 kVA					
DEMAND LOAD				0 kVA					

NOTES:
1. REUSE EXISTING BREAKER.
2. PROVIDE NEW BREAKER IN EXISTING CUTLER-HAMMER PANELBOARD.
3. BID ALTERNATE, REFER TO SPECIFICATION SECTION 012300.

EXISTING PANEL SCHEDULE 'D'

VOLTS		120/208V, 3ø, 4W		AIC	10,000			
MAINS		225A MCB		LOCATED	CORRIDOR 143			
NOTE	CIR NO	LOAD	DESC	BRKR	BRKR	DESC	LOAD	CIR NO	NOTE
1	1	1,080	RECEPTS OFFICE 119, 120	20/1	20/1	RECEPTS CORRIDOR	1,620	2	1
1	3	180	RECEPT TOILET ROOM 124	20/1	20/1	RECEPT TOILET ROOM 125	180	4	1
1	5	720	RECEPTS CONFERENCE 126	20/1	20/1	RECEPTS OFFICE 130, 131	1,440	6	1
1	7	1,000	COPY MACHINE	20/1	20/1	COUNTER RECEPTS COPY 132	360	8	1
1	9	1,440	RECEPTS OFFICE 133, 134	20/1	20/1	RECEPTS OFFICE 139	900	10	1
1	11	900	RECFEPTS OFFICE 136	20/1	20/1	WATER COOLER PASSAGE 147	1,000	12	1
1	13	540	RECEPTS FILES 122, J.C. 146, PASSAGE 147	20/1	20/1	RECEPTS BREAK RM 123	540	14	1
1	15	180	COUNTER RECEPT BREAK RM 123	20/1	20/1	COUNTER RECEPT BREAK RM 123	180	16	1
1	17	180	COUNTER RECEPT BREAK RM 123	20/1	20/1	REFRIGERATOR BREAK RM 123	1,000	18	1
1	19	100	ELECTRIC DOOR LOCKS	20/1	20/1	LTG CORRIDOR, TOILETS, CONF RM	1,560	20	1
	21		SPARE	20/1	20/1	LTG PRIVATE OFFICES, BREAK RM	1,690	22	1
1	23	2,000	EH-1 VESTIBULE 135	20/2	20/1	SPARE		24	
	25				20/1	SPARE		26	
2	27	1,900	HP-8	15/2	20/1	SPARE		28	
	29				20/1	SPARE		30	
	31		SPARE	20/1	20/1	SPARE		32	
	33		SPARE	20/1	20/1	SPARE		34	
	35		SPARE	40/2	20/1	SPARE		36	
	37				20/1	SPARE		38	
	39	3,500	(E)HP-3	20/2	20/1	SPARE		40	
	41					SPACE		42	
TOTAL LOAD				24.2 kVA					
DEMAND LOAD				0 kVA					

NOTES:
1. REUSE EXISTING BREAKER.
2. PROVIDE NEW BREAKER IN EXISTING CUTLER-HAMMER PANELBOARD.

NEW PANEL SCHEDULE 'E'

VOLTS		120/208V, 3ø, 4W		AIC	10,000			
MAINS		MLO		LOCATED	BASEMENT B02			
NOTE	CIR NO	LOAD	DESC	BRKR	BRKR	DESC	LOAD	CIR NO	NOTE
	1				30/2	HP-4	3,660	2	
	3	6,300	P-1	35/3				4	
	5				15/2	HP-5	2,250	6	
	7							8	
	9	6,300	P-2	35/3	25/2	HP-5 AUX. HEAT	4,000	10	
	11							12	
	13				35/2	HP-6	3,800	14	
	15	6,300	P-3	35/3				16	
	17				15/2	HP-7	2,080	18	
	19							20	
	21	6,300	P-4	35/3	40/3	HP-9	7,200	22	
	23							24	
	25							26	
	27	2,000	EH-6	20/2	20/2	EH-5	3,000	28	3
	29		SPARE	20/1				30	
	31		SPARE	20/1	20/1	SPARE		32	
	33		SPARE	20/1	20/1	SPARE		34	
	35		SPARE	20/1	20/1	SPARE		36	
	37		SPARE	20/1	20/1	SPARE		38	
	39		SPARE	20/1	20/1	SPARE		40	
	41		SPARE	20/1	20/1	SPARE		42	
TOTAL LOAD				53.2 kVA					
DEMAND LOAD				41 kVA					

NOTES:
1. NOTE NOT USED.
2. NOTE NOT USED.
3. BID ALTERNATE, REFER TO SPECIFICATION SECTION 012300.

NEW PANEL SCHEDULE 'F'

VOLTS		120/208V, 3ø, 4W		AIC	10,000			
MAINS		MLO		LOCATED	I.T./MECH 128			
CIR NO	LOAD	DESC	BRKR	BRKR	DESC	LOAD	CIR NO	
1	1,080	RECEPTS IT, CORRIDOR	20/1	20/1	RECEPTS OFFICE 113	900	2	
3	200	RECEPT, FAN TOILET RM 112	20/1	20/1	RECEPTS OFFICE 114, 115	1,620	4	
5	1,800	RECEPTS OFFICE 116, 118	20/1	20/1	EXTERIOR RECEPT	180	6	
7	2,000	AC-1/CU-1	20/2	30/2	SERVER RACK	4,000	8	
9							10	
11	360	IT CLOSET RECEPTS	20/1	30/2	SERVER RACK	4,000	12	
13	360	IT CLOSET RECEPTS	20/1				14	
15	360	IT CLOSET RECEPTS	20/1	20/1	LIGHTING	1,520	16	
17	500	FIRE ALARM CONTROL PANEL	20/1	20/1	ELECTRIC DOOR LOCKS	100	18	
19		SPARE	20/1	20/1	SPARE		20	
21		SPARE	20/1	20/1	SPARE		22	
23		SPARE	20/1	20/1	SPARE		24	
25		SPARE	20/1	20/1	SPARE		26	
27		SPARE	20/1	20/1	SPARE		28	
29		SPARE	20/1	20/1	SPARE		30	
31		SPARE	20/1	20/1	SPARE		32	
33		SPARE	20/1	20/1	SPARE		34	
35		SPARE	20/1	20/1	SPARE		36	
37		SPARE	20/1	20/1	SPARE		38	
39		SPARE	20/1	20/1	SPARE		40	
41		SPARE	20/1	20/1	SPARE		42	
TOTAL LOAD				19.0 kVA				
DEMAND LOAD				0 kVA				

EXISTING PANEL SCHEDULE 'G'

VOLTS		120/208V, 3ø, 4W		AIC	10,000			
MAINS		150A MCB		LOCATED	MECHANICAL B04			
NOTE	CIR NO	LOAD	DESC	BRKR	BRKR	DESC	LOAD	CIR NO	NOTE
	1		SPARE	40/3	20/3	SPARE		2	
	3							4	
	5							6	
	7		SPARE	35/3	25/3	SPARE		8	
	9							10	
	11							12	
	13		SPARE	35/3	15/3	(E)HRU-1	440	14	
	15							16	
	17							18	
	19		SPARE	20/2	20/2	(E)HP-4	1,120	20	
	21							22	
	23		SPACE			SPACE		24	
	25		SPACE			SPACE		26	
	27		SPACE			SPACE		28	
	29		SPACE			SPACE		30	
TOTAL LOAD				1.6 kVA					
DEMAND LOAD				34 kVA					

NEW PANEL SCHEDULE 'H'

VOLTS		120/208V, 3ø, 4W		AIC	10,000			
MAINS		MLO		LOCATED	JANITOR'S CLOSET 109			
CIR NO	LOAD	DESC	BRKR	BRKR	DESC	LOAD	CIR NO	
1	1,260	RECEPTS RECEPTION 103	20/1	20/1	RECEPTS LOBBY 102	900	2	
3	1,000	WATER COOLER LOBBY 102	20/1	20/1	RECEPTS TOILET ROOMS	360	4	
5	1,000	SINK POWER MEN 111	20/1	20/1	SINK POWER WOMEN 110	1,000	6	
7	1,000	SINK POWER MEN 111	20/1	20/1	SINK POWER WOMEN 110	1,000	8	
9	1,620	RECEPTS CONFERENCE 104	20/1	20/1	RECEPTS MEETING ROOM 105	1,080	10	
11	1,260	RECEPTS MEETING ROOM 105	20/1	20/1	MOTORIZED PROJ. SCREEN	500	12	
13	1,000	REFRIGERATOR KITCHENETTE 107	20/1	20/1	RECEPT KITCHENETTE 107	180	14	
15	180	RECEPT KITCHENETTE 107	20/1	20/1	RECEPT KITCHENETTE 107	180	16	
17	3,000	ELECTRIC CONVECTORS MEETING ROOM 105	20/2	30/2	EH-2 VESTIBULE 101	4,800	18	
19							20	
21	1,500	EH-3 MEZZANINE	20/1	20/1	RECEPTS MEZZANINE	360	22	
23	1,500	EH-4 MEZZANINE	20/1	25/1	ERV-1	2,160	24	
25	13,700	HP-1	50/3	15/2	HP-2	2,250	26	
27							28	
29				15/1	ERV-2	1,000	30	
31	6,000	HP-3	50/2	30/2	HP-10	3,660	32	
33							34	
35	5,000	ELECTRIC WATER HEATER EWH-1	35/2	20/1	SITE LIGHTING	1,310	36	
37				20/1	LIGHTING MEETING ROOM 105	1,330	38	
39	500	HWCP-1	20/1	20/1	LIGHTING ROOM 104, 106, 107	680	40	
41	360	MEETING RM A/V EQUIPMENT	20/1	20/1	LTG RMS 101-103, 108-111	1,220	42	
43	500	AUTOMATIC DOOR OPENERS	20/1	20/1	GRV-1, GRV-3	100	44	
45	300	MOTORIZED BLINDS	20/1	20/1	ELECTRIC DOOR LOCKS	100	46	
47		SPARE	20/1	20/1	SPARE		48	
49		SPARE	20/1	20/1	SPARE		50	
51		SPARE	20/1	20/1	SPARE		52	
53		SPARE	20/1	20/1	SPARE		54	
TOTAL LOAD				64.9 kVA				
DEMAND LOAD				0 kVA				

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MUNICIPAL BUILDING
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1385 CAMPUS DRIVE
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Construction Issue Date: 1-26-2021
Drawn By: RDF
Checked By: RDF
Scale: AS NOTED

Sheet Name: PANEL SCHEDULES
Revisions:
Progress Prints:

E6.1

LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER AND CATALOG NUMBER	VOLTS	LIGHTING SYSTEM	MOUNTING	INPUT WATTS	NOTES
AD	6" LED DOWNLIGHT; BLACK PAINTED FLANGE	PORTFOLIO HOUSING: LD6B-30-D010 POWER: EU6B-3050-80-30 TRIM: 6LB-M-1-MB	120V	LED	RECESS	27.6W	
		ELITE LED LIGHTING HH6-LED-3000L-DIM10-MVOLT-MD-30K-90+-HH6-6501-CL-WH				36W	
ADL	6" LED DOWNLIGHT; WHITE PAINTED FLANGE	PORTFOLIO HOUSING: LD6B-15-D010 POWER: EU6B-1020-80-30 TRIM: 6LB-M-1-MW	120V	LED	RECESS	15.5W	
		ELITE LED LIGHTING HH6-LED-1500L-DIM10-MVOLT-MD-30K-90+-HH6-6501-CL-WH				20W	
ADW	6" LED DOWNLIGHT; SPECULAR BLACK FLANGE	PORTFOLIO HOUSING: LD6B-30-D010 POWER: EU6B-3050-80-30 TRIM: 6LB-SW-1-B	120V	LED	RECESS	27.6W	
		ELITE LED LIGHTING HH6-LED-3000L-DIM10-MVOLT-MD-30K-90+-HH6-6507-CL-WH				36W	
B4	4' SUSPENDED LED LINEAR LIGHT FIXTURE	AXIS LIGHTING SCDI-750-300-80-30-SO-0.5M-4-BLK-UNV-DP-1-CTS36	120V	LED	PENDANT	47.6W	
		FOCAL POINT FSM1BS-BWPD05-3750N-800UP-30K-1C-UNV-L11-C48*-BKCD-BK-4'				41W	* PROVIDE FINISH AS SELECTED BY ARCHITECT.
B12	12' SUSPENDED LED LINEAR LIGHT FIXTURE	AXIS LIGHTING SCDI-750-300-80-30-SO-0.5M-12-BLK-UNV-DP-1-CT936	120V	LED	PENDANT	142.8W	
		FOCAL POINT FSM1BS-BWPD05-3750N-800UP-30K-1C-UNV-L11-C48*-BKCD-BK-12'				123W	* PROVIDE FINISH AS SELECTED BY ARCHITECT.
B16	16' SUSPENDED LED LINEAR LIGHT FIXTURE	AXIS LIGHTING SCDI-750-300-80-30-SO-0.5M-16-BLK-UNV-DP-1-CTS36	120V	LED	PENDANT	190.4W	
		FOCAL POINT FSM1BS-BWPD05-3750N-800UP-30K-1C-UNV-L11-C48*-BKCD-BK-16'				164W	* PROVIDE FINISH AS SELECTED BY ARCHITECT.
BOL	EXTERIOR BOLLARD LIGHT	LUMIERE 303-B1-LEDB2-3500K-UNV-T2-DIM10-AP-42	120V	LED	BOLLARD	15.5W	
		LIGMAN LIGHTING USA UPRA-10012-14W-T2-W35-*				14W	* PROVIDE FINISH AS SELECTED BY ARCHITECT.
C22	2X2 VOLUMETRIC RECESSED LAY-IN FIXTURE	METALUX 22CZ2-44-UNV-L830-CD-1-U	120V	LED	RECESS	42.7W	
		DAY-BRITE 2EVG45L830-2-R-UNV-DIM				39W	
D	4" DECORATIVE LED RECESSED DOWNLIGHT	PORTFOLIO HOUSING: LD6B-15-D010 POWER: EU6B-1020-80-30 TRIM: 6LB-M-1-H	120V	LED	RECESS	15.5W	
		LIGHTOLIER HOUSING: 6R-N POWER: C6L-15-8-30-M-Z10-U TRIM: C6-R-DL-CL-F				15W	
D1	4" DECORATIVE LED RECESSED DOWNLIGHT WITH DECORATIVE DISC ACCESSORY	PORTFOLIO HOUSING: LD6B-15-D010 POWER: EU6B-1020-80-30 TRIM: 6LB-M-1-H DISC: DT-6-DISC	120V	LED	RECESS	15.5W	
		LIGHTOLIER HOUSING: 6R-N POWER: C6L-15-8-30-M-Z10-U TRIM: C6-R-DL-CL-F DISC: D6A-03				15W	
E6	6' WALL-MOUNTED LINEAR LED WALL WASH FIXTURE	ORGATECH 5000-6-LS-30-U-D1-E12-WH-N	120V	LED	WALL	30W	
		INSIGHT LIGHTING C5X-MO-30K-DL-EXA-X-72-DIM-TW-TW-PL277				54W	
F	14' RECESSED LINEAR LED LIGHT FIXTURE	NEO-RAY S123DR-S-560D-830-FTG-14FO-1-U-DD-A-W	120V	LED	RECESS	67.2W	
		LEDALITE 39-00-L-C-G-L-S-1-14'-1-7-D-E				71.75W	
FP	FLAGPOLE LIGHT	LUMIERE 3002A-RD-25LED3500-NFL-CLR-UNV-CS	120V	LED	IN GROUND	25W	
		VISTA LIGHTING 1182-AL-GM-MF-35-E-DV-AX-ND				14W	
G12	DECORATIVE LINEAR SUSPENDED LED LIGHT FIXTURE	AXIS LIGHTING SCSS-500-80-30-SP-12X4-AP-UNV-DP-1-CT936-RS-SC	120V	LED	PENDANT	115W	
		PRIMUS LIGHTING R-DL-L-3K-SQL-UNV-X-SK48-S-12"X4'				102W	

LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER AND CATALOG NUMBER	VOLTS	LIGHTING SYSTEM	MOUNTING	INPUT WATTS	NOTES
H	4' UTILITY LIGHT	METALUX 4SLSTP40350D-UNV	120V	LED	SURFACE	41W	
		DAY-BRITE FSS-4-40L-835-UNV-DIM				31W	
H1	2' UTILITY LIGHT	METALUX 2SLSTP20350D-UNV	120V	LED	SURFACE	23W	
		DAY-BRITE FSS-2-20L-835-UNV-DIM				17W	
SL-A	SINGLE HEAD POLE LIGHT	U.S. ARCHITECTURAL LIGHTING LIGHT: DSAPB25-PLED-PLED-IV-48LED-875mA-NW-120-XPK-* POLE: RTA 1643-125-*	120V	LED	POLE	143W	* PROVIDE FINISH AS SELECTED BY ARCHITECT.
		HADCO LIGHTING LIGHT: CXF4-80-G2-T-*-4-N-A-5-N-SP1-N POLE: P195-16-* BRACKET: HFP410-P4-*-N				127W	
SL-B	SINGLE HEAD POLE LIGHT	U.S. ARCHITECTURAL LIGHTING LIGHT: DSAPB25-PLED-PLED-III-M-48LED-875mA-NW-120-XPK-* POLE: RTA 1643-125-*	120V	LED	POLE	143W	* PROVIDE FINISH AS SELECTED BY ARCHITECT.
		HADCO LIGHTING LIGHT: CXF4-80-G2-T-*-3-N-A-5-N-SP1-N POLE: P195-16-* BRACKET: HFP410-P4-*-N				127W	
SL-C	DUAL HEAD POLE LIGHT	U.S. ARCHITECTURAL LIGHTING LIGHT: DSAPB25-PLED-PLED-III-M-48LED-875mA-NW-120-XPK-* POLE: RTA 1643-125-*	120V	LED	POLE	286W	PROVIDE MOUNTING FOR DUAL-HEAD LIGHT FIXTURE. * PROVIDE FINISH AS SELECTED BY ARCHITECT.
		HADCO LIGHTING LIGHT: CXF4-80-G2-T-*-4-N-A-5-N-SP1-N POLE: P195-16-* BRACKET: HFP420-P4-*-N				254W	
WP	EXTERIOR WALL PACK, INTEGRAL COLD WEATHER BATTERY PACK	LUMARK XTOR6B-W-AP-CBP	120V	LED	WALL	58W	CONFIGURE LIGHT FIXTURE'S MAXIMUM LIGHT OUTPUT TO APPROXIMATELY 1500 LUMENS. * PROVIDE FINISH AS SELECTED BY ARCHITECT.
		ILP SWP-5L-U-CCTS-*-LEDBB				20W	
	EXIT SIGN - UNIVERSAL MOUNTING LED TYPE WITH BATTERY BACKUP, EMERGENCY LED LAMPS, AND SPARE BATTERY CAPACITY FOR REMOTE LIGHTING HEADS	SURE-LITES APC7RSQ	120V	LED	WALL/ CEILING	3.7W	* PROVIDE DIRECTIONAL CHEVRON ARROWS AND MOUNTING AS SHOWN ON FLOOR PLANS
		EVENLITE TCXCOM-R-U-W				4W	
	EXIT SIGN - UNIVERSAL MOUNTING LED TYPE WITH BATTERY BACKUP	SURE-LITES ES7-1-70-R-*-*	120V	LED	RECESS/ CEILING	5W	* PROVIDE DIRECTIONAL CHEVRON ARROWS AND MOUNTING AS SHOWN ON FLOOR PLANS
		EVENLITE TEXZ-URC-EM-R-URC				2W	
EM	BATTERY POWERED EMERGENCY LIGHTING UNIT WITH TWO LIGHTING HEADS AND SPARE BATTERY CAPACITY FOR REMOTE LIGHTING HEADS	SURE-LITES CU2-LED	120V	LED	SURFACE	2.3W	
		EVENLITE TCL-2-W				4W	

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Construction Issue Date: 1-26-2021
Drawn By: RDF
Checked By: RDF
Scale: AS NOTED

Sheet Name: LIGHT FIXTURE SCHEDULE
Progress Prints:
Revisions:

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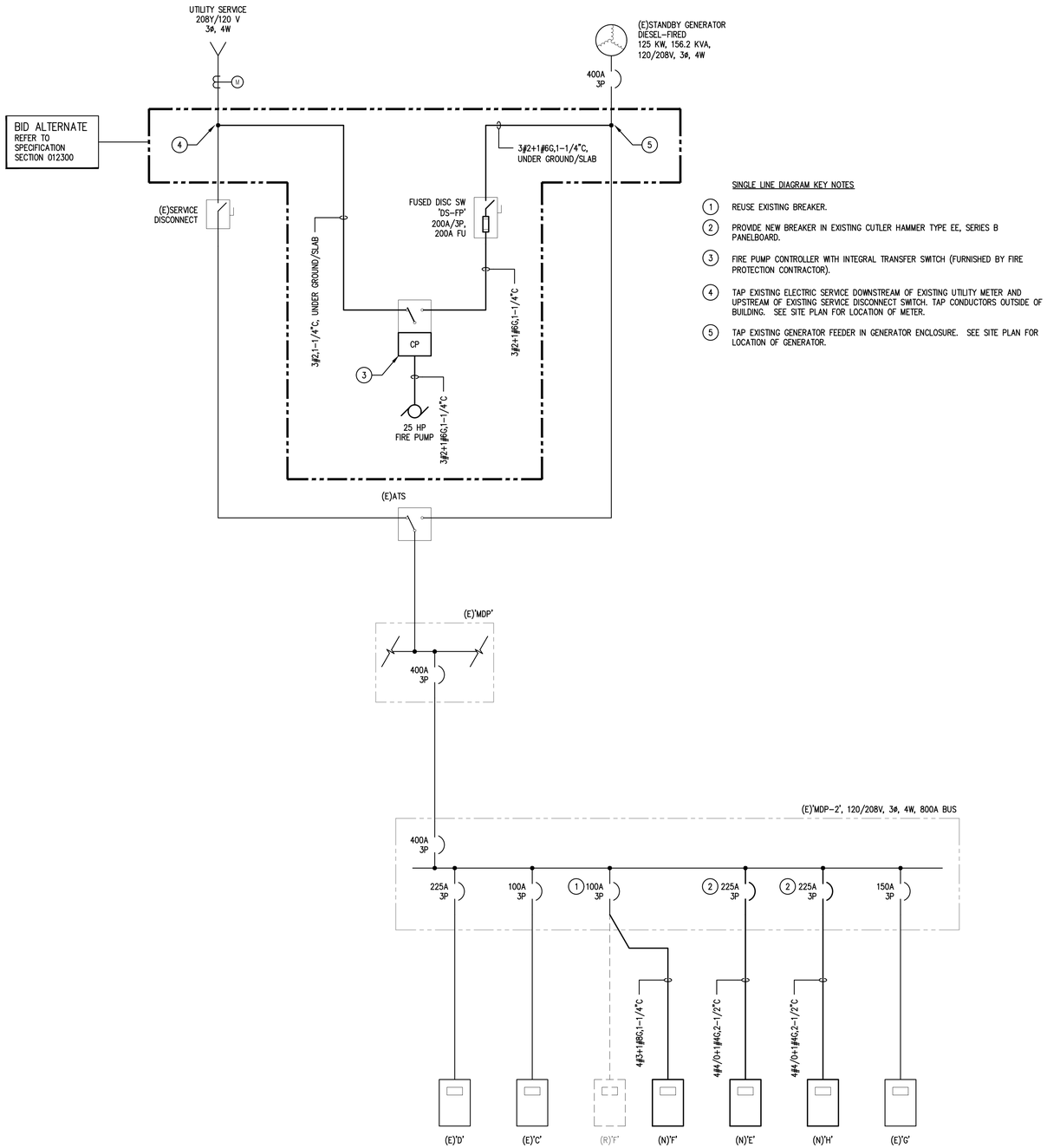
E6.2



SINGLE LINE DIAGRAM KEY NOTES

1. REUSE EXISTING BREAKER.
2. PROVIDE NEW BREAKER IN EXISTING CUTLER HAMMER TYPE EE, SERIES B PANELBOARD.
3. FIRE PUMP CONTROLLER WITH INTEGRAL TRANSFER SWITCH (FURNISHED BY FIRE PROTECTION CONTRACTOR).
4. TAP EXISTING ELECTRIC SERVICE DOWNSTREAM OF EXISTING UTILITY METER AND UPSTREAM OF EXISTING SERVICE DISCONNECT SWITCH. TAP CONDUCTORS OUTSIDE OF BUILDING. SEE SITE PLAN FOR LOCATION OF METER.
5. TAP EXISTING GENERATOR FEEDER IN GENERATOR ENCLOSURE. SEE SITE PLAN FOR LOCATION OF GENERATOR.

1 / E6.3 SINGLE LINE DIAGRAM
SCALE: NONE

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Construction Issue Date: 1-26-2021
Drawn By: RDF
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Progress Prints:
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E6.3

PLUMBING LEGEND AND ABBREVIATIONS

SYMBOL & DESCRIPTION

- SANITARY PIPING
- SANITARY VENT PIPING
- IW — INDIRECT WASTE PIPING
- DOMESTIC COLD WATER PIPING
- DOMESTIC HOT WATER PIPING
- DOMESTIC HOT WATER RETURN PIPING
- G — GAS PIPING
- BFP — BACKFLOW PREVENTER VALVE ASSEMBLY
- BALL VALVE
- CHECK VALVE
- STRAINER WITH BLOWDOWN VALVE
- GAS COCK VALVE
- DOMESTIC WATER METER
- M — NATURAL GAS METER
- MIXING VALVE
- PIPE BREAK
- PIPE DROP IN MIDDLE
- PIPE RISER
- PIPE DROP
- DIRECTION OF PIPE FLOW
- .01 — PIPE SLOPE
- PRESSURE GAUGE
- SAFETY RELIEF VALVE
- UNION

ABBREVIATIONS

AAV	AUTOMATIC AIR VENT
ABV.	ABOVE
AD	AREA DRAIN
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
BFF	BELOW FINISHED FLOOR
BFG	BELOW FINISHED GRADE
BFP	BACK FLOW PREVENTER
BLW.	BELOW
BV	BALANCING VALVE
CD	CONDENSATE DRAIN
CO	CLEANOUT
CP	CIRCULATING PUMP
CFH	CUBIC FEET PER HOUR
CONT.	CONTINUATION
CW	COLD WATER
DCW	DOMESTIC COLD WATER
DF	DRINKING FOUNTAIN
DFU	DRAINAGE FIXTURE UNIT
DHW	DOMESTIC HOT WATER
DIA.	DIAMETER
DN.	DOWN
DWG	DRAWING
(E)	EXISTING
EA.	EACH
E.C.	ELECTRICAL CONTRACTOR
EHD	EQUIVALENT HYDRAULIC DIAMETER
EQUIP.	EQUIPMENT
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FLR.	FLOOR
FM	FORCED MAIN
FP	FIRE PROTECTION
FPC	FIRE PROTECTION CONTRACTOR
FR.	FROM
G	NATURAL GAS
G.C.	GENERAL CONTRACTOR
GF	GAS FURNACE
GM	NATURAL GAS METER
GPM	GALLONS PER MINUTE
GPH	GALLONS PER HOUR
GWH	GAS WATER HEATER
HW	HOT WATER
HWR	HOT WATER RETURN
HWCP	HOT WATER CIRCULATOR PUMP
IMB	ICE MAKER BOX
IN.	INCH
INV.	INVERT
IW	INDIRECT WASTE
IWH	INSTANTANEOUS WATER HEATER
KS	KITCHEN SINK
LAV	LAVATORY
LPG	LIQUIFIED PETROLEUM GAS (PROPANE)
M.C.	MECHANICAL CONTRACTOR
MAX	MAXIMUM
MIN.	MINIMUM
MR	MOP RECEPTOR
MV	MIXING VALVE
(N)	NEW
P	PUMP
PC	PLUMBING CONTRACTOR
PDI	PLUMBING & DRAINAGE INSTITUTE
PRV	PRESSURE REGULATING VALVE
PRESS.	PRESSURE
RPZ	REDUCED PRESSURE ZONE
S	SANITARY
SA	SHOCK ABSORBER
SH	SHOWER
SK	SINK
SP	STANDPIPE
TEMP.	TEMPERATURE
TP	TRAP PRIMER
TW	TEMPERED WATER
TYP	TYPICAL
UG	UNDERGROUND
UR	URINAL
V	VENT
VTR	VENT THRU ROOF
W	WASTE
W/	WITH
WB	WASHER BOX
WC	WATER CLOSET
WCO	WALL CLEANOUT
WH	WALL HYDRANT
WHA	WATER HAMMER ARRESTOR
WSFU	WATER SUPPLY FIXTURE UNIT

REFERENCE SYMBOLS

- (–) / (–) — EQUIPMENT TYPE / EQUIPMENT NUMBER
- (1) — KEY NOTE DESIGNATION
- (X) — DEMOLITION NOTE
- (1 / P-1) — PLAN NUMBER / DRAWING NUMBER
- EXTENT OF DEMOLITION
- CONNECT TO EXISTING
- (CD / 1) — CONDENSATE RISER DESIGNATION
- (S / 1) — SANITARY RISER DESIGNATION
- (V / 1) — VENT RISER DESIGNATION
- (W / 1) — WATER RISER DESIGNATION
- (WSV / 1) — WASTE STACK VENT RISER DESIGNATION
- (WV / 1) — WASTE AND VENT RISER DESIGNATION
- (RWC / 1) — RAIN WATER CONDUCTOR RISER DESIGNATION
- (G / 1) — GAS RISER DESIGNATION

NOTE:

NOT ALL SYMBOLS AND ABBREVIATIONS APPLY

GENERAL NOTES

1. ALL PLUMBING EQUIPMENT AND INSTALLATIONS SHALL CONFORM WITH THE REQUIREMENTS OF THE 2015 INTERNATIONAL PLUMBING CODE, 2015 INTERNATIONAL BUILDING CODE, 2015 ENERGY CONSERVATION CODE, UNDERWRITERS LABORATORIES (UL), AND ALL APPLICABLE LOCAL CODES ENFORCED BY THE AUTHORITY HAVING JURISDICTION.
2. PRIOR TO PURCHASING ANY MATERIALS OR COMMENCING WORK, CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS, PIPING SIZES AND LOCATIONS, EQUIPMENT, ETC. SHOWN ON THE DRAWINGS OR AFFECTING THIS WORK AND SHALL REPORT ANY DEVIATIONS TO THE ENGINEER.
3. PROVIDE ALL LABOR, MATERIAL, AND EQUIPMENT COMPLETELY TO PROVIDE FULLY OPERATIONAL SYSTEMS.
4. ALL PLUMBING EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
5. WATER PIPING ABOVE THE CEILING AND IN EXTERIOR WALLS SHALL BE INSTALLED ON THE HEATED SIDE (UNDERSIDE) OF CEILING INSULATION AND HEATED SIDE (INSIDE) OF WALL INSULATION.
6. SANITARY AND DRAINAGE PIPING 2" AND SMALLER SHALL BE INSTALLED WITH A MINIMUM SLOPE OF 1/4" PER FOOT. PIPING 3" AND LARGER SHALL BE SLOPED AT 1/8" PER FOOT.
7. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL PLUMBING EQUIPMENT, PIPING, ETC. TO FIT WITHIN THE SPACE ALLOWED BY THE ARCHITECTURAL AND STRUCTURAL CONDITIONS. CUTTING OR ALTERING ANY STRUCTURAL MEMBERS SHALL NOT BE PERMITTED WITHOUT WRITTEN PERMISSION FROM THE ARCHITECT OR STRUCTURAL ENGINEER.
8. PROVIDE SHOCK ABSORBERS ON ALL DOMESTIC WATER PIPING SERVING FLUSH VALVE FIXTURES, SOLENOID VALVES, AND OTHER QUICK CLOSING VALVES.
9. REFER TO ARCHITECTURAL DRAWINGS FOR CONSTRUCTION DETAILS.
10. PLUMBING PIPING LAYOUTS ARE SCHEMATIC IN NATURE, CONTRACTOR IS REQUIRED TO PROVIDE ALL OFFSETS AND FITTINGS AS REQUIRED TO ACCOMMODATE FILED CONDITIONS.
11. ATTENTION BIDDERS – ALTERNATE BIDDING REQUIREMENTS – INCORPORATE IN BIDDING SUBMISSION THE COST OF ALTERNATES AS DEFINED AND REQUIRED ON ARCHITECTURAL DRAWINGS AND IN DIVISION 1 SPECIFICATIONS.
12. ATTENTION BIDDERS – PROJECT CONSTRUCTION SCHEDULE REQUIREMENTS AND PHASING – INCORPORATE IN BID THE COST TO ACCOMMODATE ALL CONSTRUCTION SCHEDULE REQUIREMENTS AND PHASING AS REQUIRED BY SCHEDULING OF WORK DEFINED ON ARCHITECTURAL DRAWINGS AND IN DIVISION 1 SPECIFICATIONS. SUBMISSION OF BID INDICATES COMPLIANCE WITH LISTED DOCUMENTS.
13. GENERAL NOTES APPLY TO ALL DRAWINGS, PLANS AND SCHEDULES.

PLUMBING/ELECTRICAL COORDINATION

1. CONTRACTOR SHALL COORDINATE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF ALL PLUMBING EQUIPMENT WITH ELECTRICAL DRAWINGS & ELECTRICAL CONTRACTOR PRIOR TO ORDERING OR INSTALLING EQUIPMENT. CONTRACTOR SHALL FURNISH EQUIPMENT COMPATIBLE FOR THE VOLTAGES SHOWN ON THE ELECTRICAL DRAWINGS.
2. ALL PLUMBING EQUIPMENT REQUIRING ELECTRICAL POWER SHALL BE INSTALLED WITH DISCONNECT SWITCHES AT EACH PIECE OF EQUIPMENT. COORDINATE SWITCH TYPE (FUSED OR NON-FUSED) WITH EQUIPMENT CHARACTERISTICS, MANUFACTURER'S RECOMMENDATIONS, AND THE ELECTRICAL DRAWINGS.

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MUNCIPAL BUILDING
WEST BRADFORD TOWNSHIP
1385 CAMPUS DRIVE
WEST BRADFORD, PA 19335

Construction Issue Date: 1-26-2021
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Scale: AS NOTED

Sheet Name: COVER SHEET
Progress Prints:
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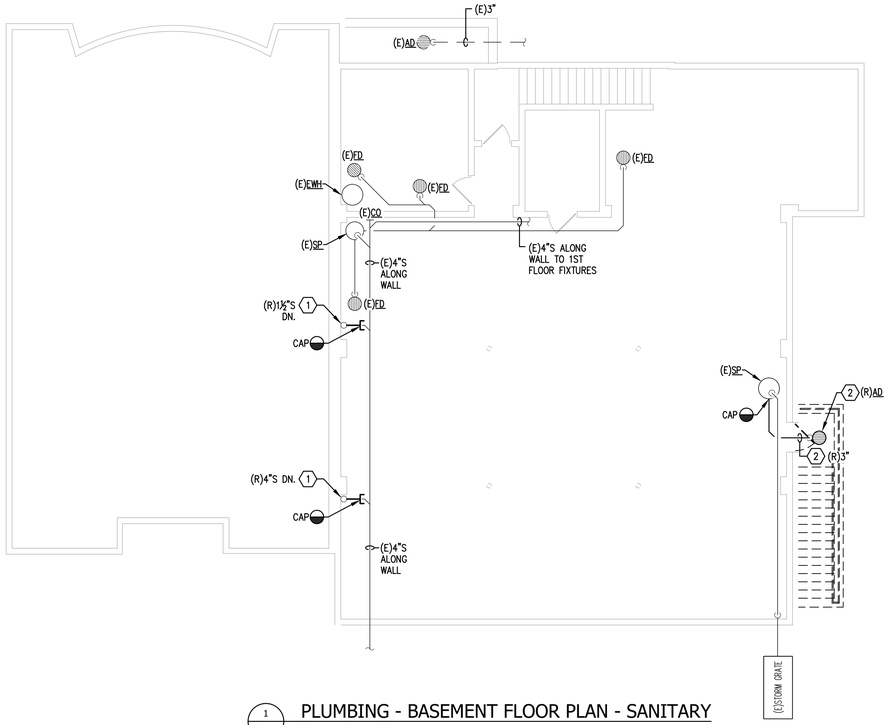
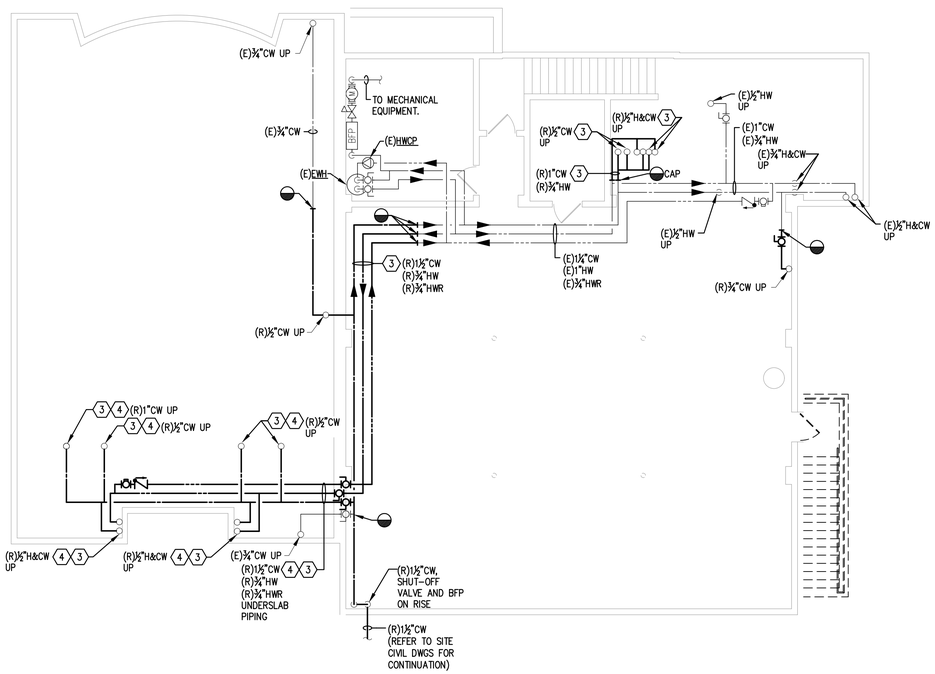


1 P1.1 PLUMBING - BASEMENT FLOOR PLAN - SANITARY

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



2 P1.1 PLUMBING - BASEMENT FLOOR PLAN - DOMESTIC WATER

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

DEMOLITION NOTES:

1. REMOVE EXISTING SANITARY PIPING IN ITS ENTIRETY INCLUDING ASSOCIATED SUPPORTS TO EXTENTS INDICATED ON PLANS AND CAP.
2. SAWCUT FLOOR TO FACILITATE THE REMOVAL OF EXISTING FLOOR/AREA DRAIN IN ITS ENTIRETY INCLUDING PIPING TO POINT INDICATED ON PLAN.
3. REMOVE EXISTING PIPING IN ITS ENTIRETY INCLUDING VALVES, HANGERS AND ACCESSORIES TO EXTENTS INDICATED ON PLAN AND CAP.
4. SAWCUT FLOOR TO FACILITATE THE REMOVAL OF EXISTING BELOW SLAB PIPING IN ITS ENTIRETY TO POINT INDICATED ON PLAN. PATCH FLOOR TO MATCH EXISTING CONDITIONS UPON COMPLETION OF REMOVAL.

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Sheet Name: BASEMENT DEMOLITION PLAN
Progress Prints:
Revisions:

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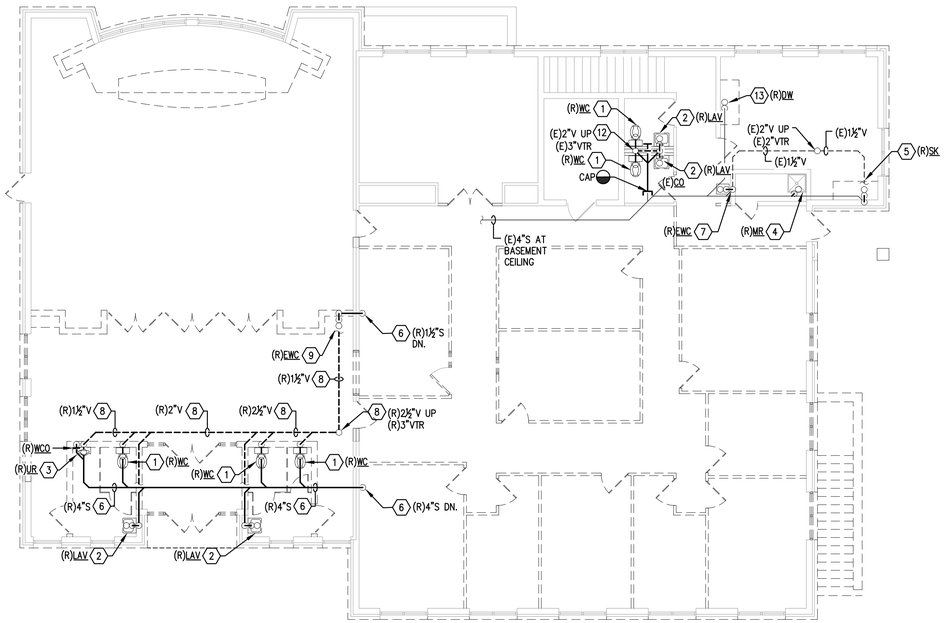
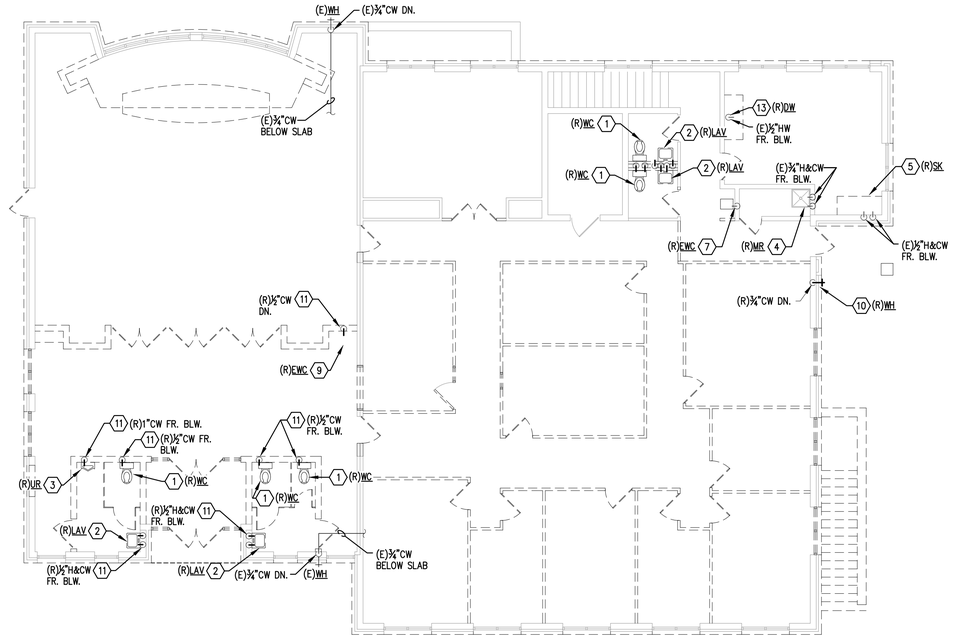
DEMOLITION NOTES:

1. DISCONNECT AND REMOVE EXISTING WATER CLOSET AND CLOSET FLANGE IN ITS ENTIRETY. REMOVE SANITARY PIPING TO EXTENT(S) INDICATED ON PLAN. REMOVE DOMESTIC WATER PIPING BRANCH MAIN TO EXTENT(S) INDICATED ON PLAN. PATCH FLOOR TO MATCH EXISTING.
2. DISCONNECT AND REMOVE EXISTING WALL MOUNTED LAVATORY IN ITS ENTIRETY INCLUDING ASSOCIATED SUPPORTS, HANGERS, FAUCET, TRAP AND ACCESSORIES. REMOVE SANITARY AND VENT PIPING TO EXTENT(S) INDICATED ON PLANS AND CAP. REMOVE EXISTING COLD & HOT WATER SUPPLIES BACK TO EXTENT(S) INDICATED ON PLAN.
3. DISCONNECT AND REMOVE EXISTING WALL MOUNTED URINAL, ASSOCIATED FLUSH VALVE, HANGERS AND SUPPORTS. REMOVE SANITARY AND VENT PIPING TO EXTENT(S) INDICATED ON PLANS AND CAP. REMOVE EXISTING COLD & HOT WATER SUPPLIES BACK TO EXTENT(S) INDICATED ON PLAN AND CAP.
4. DISCONNECT AND REMOVE EXISTING MOP RECEPTOR IN ITS ENTIRETY INCLUDING ASSOCIATED SUPPORTS, FAUCET, TRAP, AND STOPS. REMOVE SANITARY AND VENT PIPING TO EXTENT(S) INDICATED ON PLANS. REMOVE EXISTING COLD & HOT WATER SUPPLIES BACK TO EXTENT(S) INDICATED ON PLAN. REFER TO NEW WORK PLANS FOR CONNECTION OF NEW MOP RECEPTOR AT EXISTING LOCATION.
5. DISCONNECT AND REMOVE EXISTING SINK IN ITS ENTIRETY INCLUDING ASSOCIATED SUPPORTS, HANGERS, FAUCET, TRAP AND ACCESSORIES. REFER TO NEW WORK PLANS FOR CONNECTION OF NEW SINK AT EXISTING LOCATION.
6. SAWCUT FLOOR TO FACILITATE THE REMOVAL OF EXISTING PIPING IN ITS ENTIRETY INCLUDING SUPPORTS TO EXTENTS INDICATED ON PLANS. UPON COMPLETION PATCH FLOOR TO MATCH EXISTING CONDITIONS.
7. DISCONNECT AND REMOVE EXISTING ELECTRIC WATER COOLER IN ITS ENTIRETY INCLUDING ASSOCIATED SUPPORTS, SUPPLIES, TRAP AND ACCESSORIES. REMOVE SANITARY PIPING TO PINT BACK IN TO WALL, REFER TO NEW WORK PLANS FOR CONNECTION OF NEW DRINKING FOUNTAIN AT EXISTING LOCATION.
8. REMOVE EXISTING VENT PIPING AND EXISTING VENT THRU ROOF IN ITS ENTIRETY. PATCH ROOF PENETRATION TO MATCH EXISTING CONDITIONS.
9. DISCONNECT AND REMOVE EXISTING ELECTRIC WATER COOLER IN ITS ENTIRETY INCLUDING ASSOCIATED SUPPORTS, SUPPLIES, TRAP AND ACCESSORIES. REMOVE SANITARY AND VENT PIPING TO EXTENT(S) INDICATED ON PLANS. REMOVE EXISTING COLD & HOT WATER SUPPLIES BACK TO EXTENT(S) INDICATED ON PLAN.
10. DISCONNECT AND REMOVE EXISTING WALL HYDRANT IN ITS ENTIRETY INCLUDING ASSOCIATED SUPPORTS, SUPPLIES, TRAP AND ACCESSORIES. REMOVE COLD WATER SUPPLY TO POINT INDICATED ON PLANS. PATCH WALL TO MATCH EXISTING.
11. REMOVE EXISTING PIPING IN ITS ENTIRETY INCLUDING VALVES, HANGERS AND ACCESSORIES TO EXTENTS INDICATED ON PLAN AND CAP.
12. REMOVE EXISTING VENT PIPING TO POINT BELOW THE ROOF AND CAP THE VENT THROUGH ROOF BELOW THE ROOF AND OUTSIDE ON THE ROOF AT THE END OF THE VENT TERMINAL. PROVIDE A RISER CLAMP IN THE ATTIC SPACE AND SUPPORT ABANDONED EXISTING VENT THRU ROOF TO THE STRUCTURE.
13. DISCONNECT AND REMOVE DISHWASHER IN ITS ENTIRETY INCLUDING ASSOCIATED SUPPORTS, HANGERS, TRAP AND ACCESSORIES. REFER TO NEW WORK PLANS FOR CONNECTION OF NEW DISHWASHER AT EXISTING LOCATION.



1 P1.2 PLUMBING - GROUND FLOOR PLAN - SANITARY
SCALE: 1/8" = 1'-0"



2 P1.2 PLUMBING - GROUND FLOOR PLAN - DOMESTIC WATER
SCALE: 1/8" = 1'-0"

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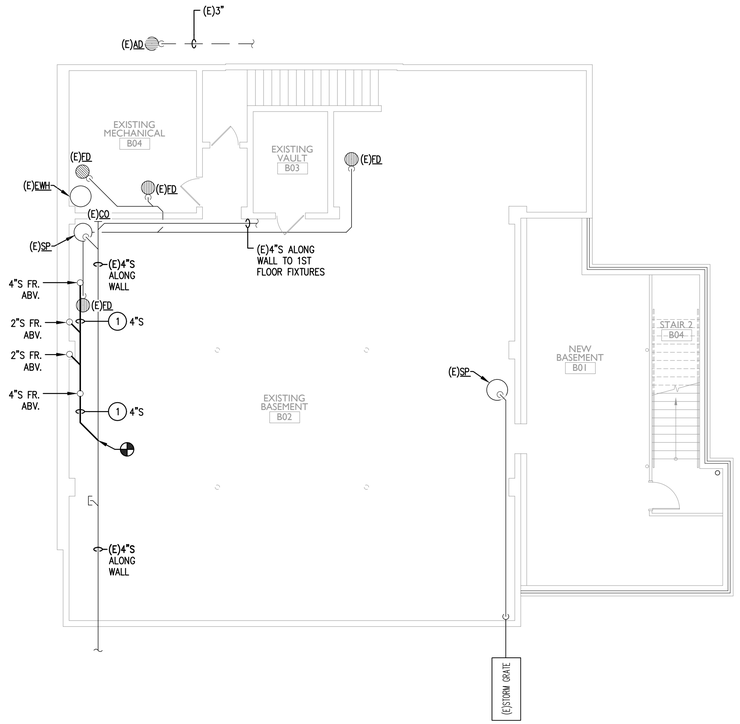
Progress Prints:
Revisions:

P1.2

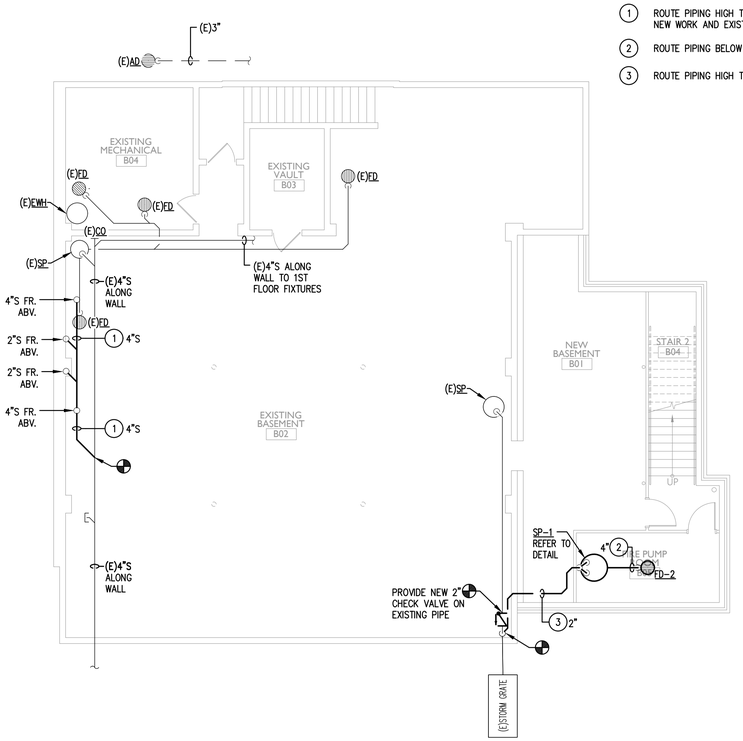
NEW WORK KEY NOTES

1. ROUTE PIPING HIGH TIGHT TO STRUCTURE. COORDINATE PIPE ROUTING WITH ALL NEW WORK AND EXISTING CONDITIONS.
2. ROUTE PIPING BELOW SLAB.
3. ROUTE PIPING HIGH TIGHT TO STRUCTURE.



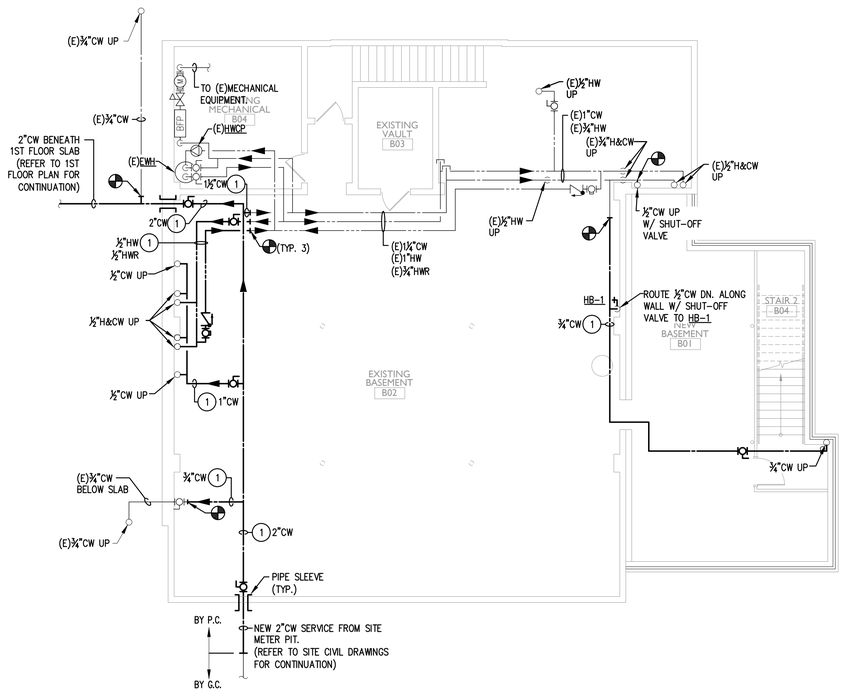
1 P2.1 PLUMBING - BASEMENT FLOOR PLAN - SANITARY

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



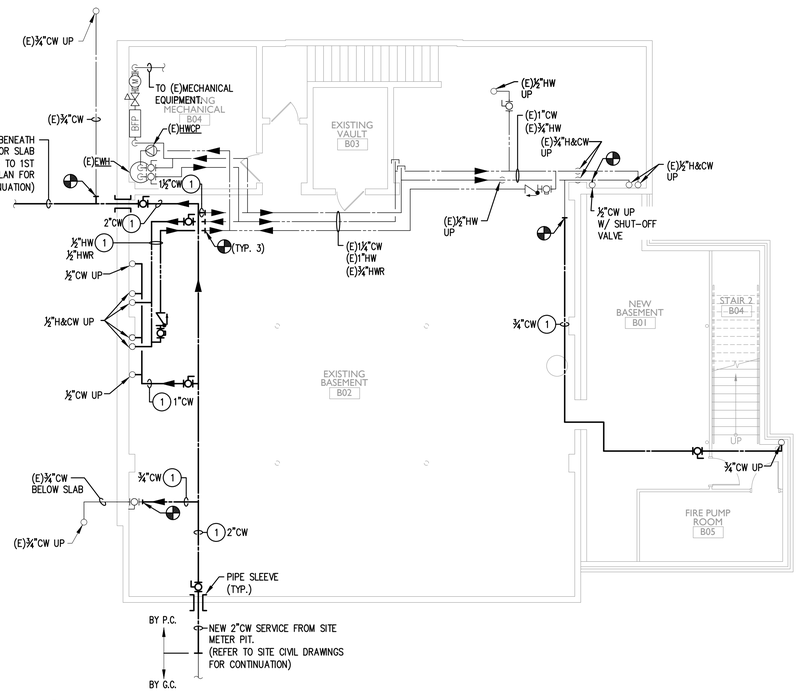
3 P2.1 PLUMBING - ADD ALTERNATE BASEMENT FLOOR PLAN - FIRE PUMP - SANITARY

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



2 P2.1 PLUMBING - BASEMENT FLOOR PLAN - DOMESTIC WATER

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



4 P2.1 PLUMBING - ADD ALTERNATE BASEMENT FLOOR PLAN - FIRE PUMP - DOMESTIC WATER

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

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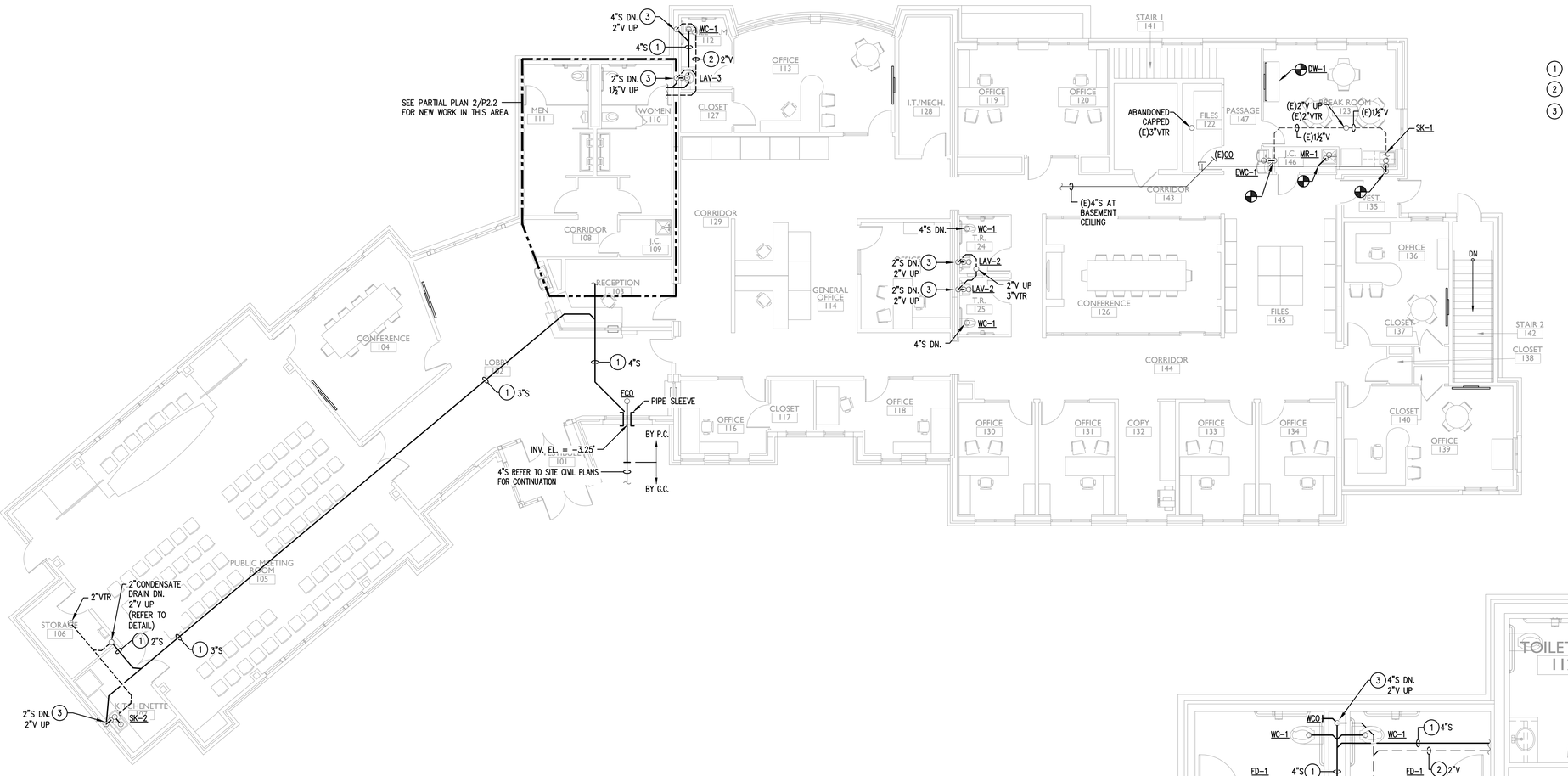
Progress Prints:

Revisions:

P2.1

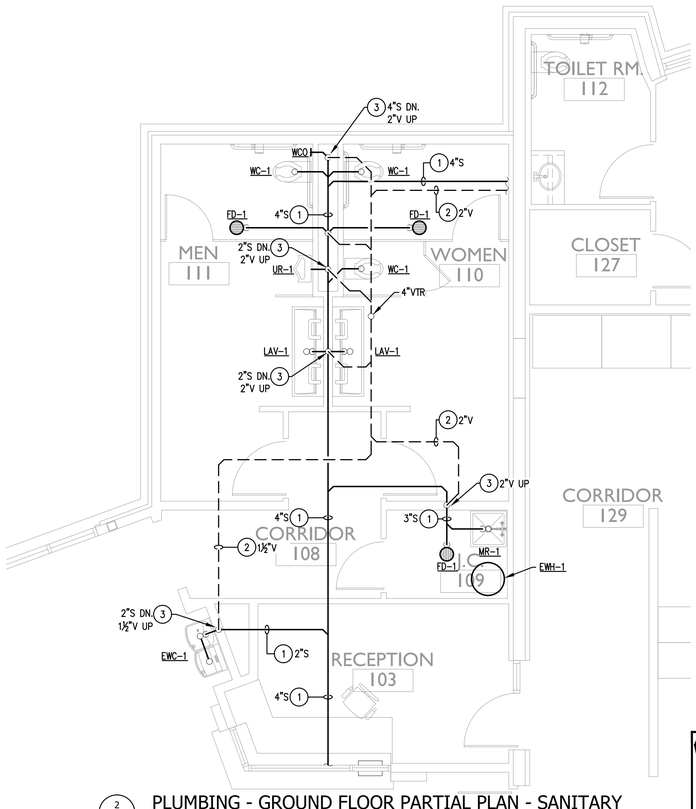


1 P2.2 PLUMBING - GROUND FLOOR PLAN - SANITARY

SCALE: 1/8" = 1'-0" F.F. ELV. = 0.0'

NEW WORK KEY NOTES

1. ROUTE PIPING BELOW SLAB.
2. ROUTE PIPING ABOVE CEILING.
3. ROUTE PIPING UP/DOWN IN WALL/CHASE ENCLOSURE.



2 P2.2 PLUMBING - GROUND FLOOR PARTIAL PLAN - SANITARY

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

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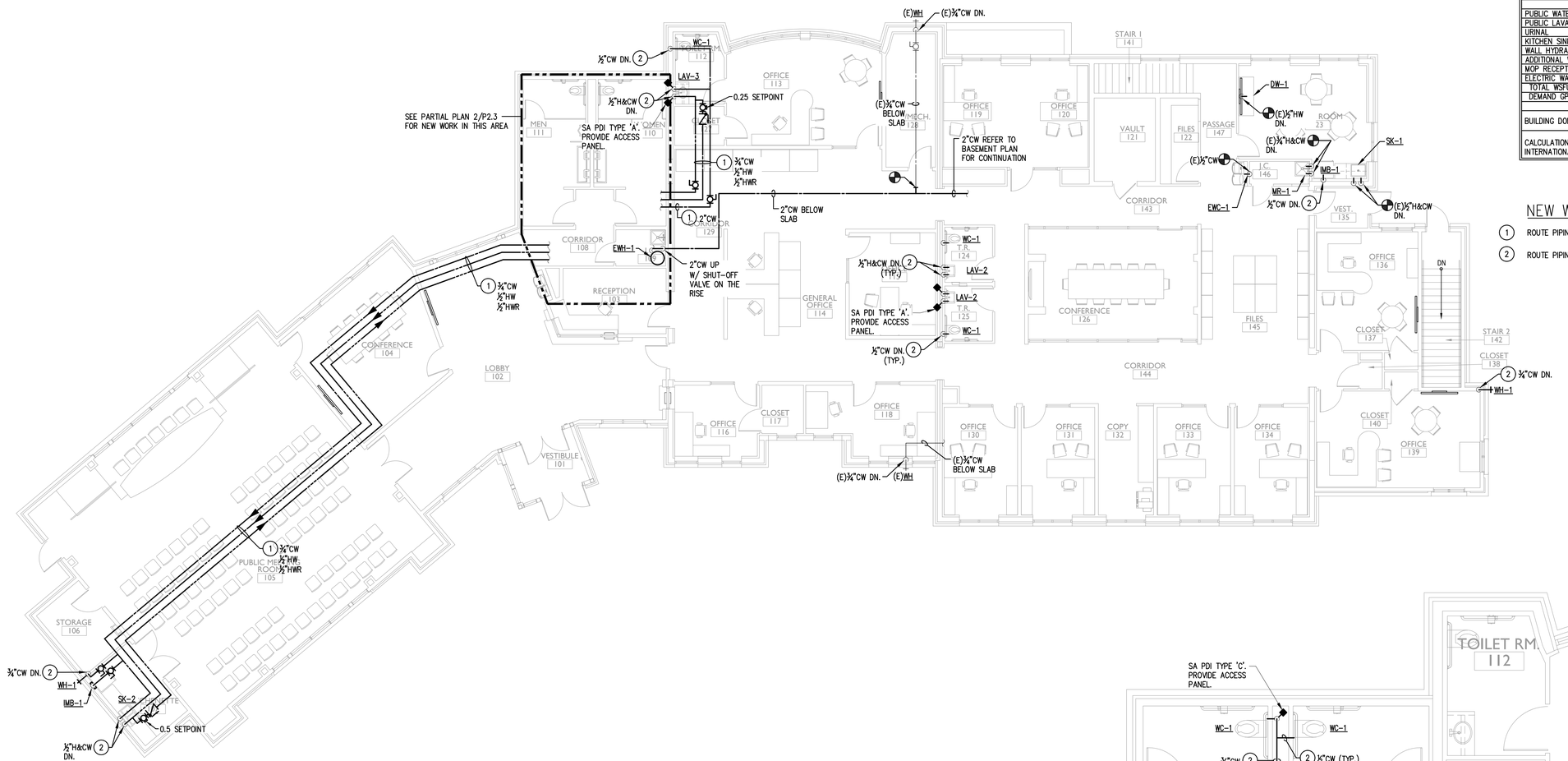
P2.2



1 / P2.3 PLUMBING - GROUND FLOOR PLAN - DOMESTIC WATER
SCALE: 1/8" = 1'-0"

2 / P2.3 PLUMBING - GROUND FLOOR PARTIAL PLAN - DOMESTIC WATER
SCALE: 1/4" = 1'-0"

BUILDING WATER SERVICE SIZING CALCULATION

FIXTURES	QTY	WSFU	TOTAL
PUBLIC WATER CLOSET – FLUSH VALVE	6	10.0	60.0
PUBLIC LAVATORY	7	2.0	14.0
URINAL	1	5.0	5.0
KITCHEN SINK	2	1.4	2.8
WALL HYDRANT	1	2.5	2.5
ADDITIONAL WALL HYDRANT	3	1.0	3.0
MOP RECEPTOR	2	3.0	6.0
ELECTRIC WATER COOLER	2	0.25	0.5
TOTAL WSFU			93.8
DEMAND GPM			42.0

BUILDING DOMESTIC WATER SERVICE 2"

CALCULATION BASED UPON TABLE E103.3(2) OF THE 2015 INTERNATIONAL PLUMBING CODE

NEW WORK KEY NOTES

(1) ROUTE PIPING ABOVE CEILING.

(2) ROUTE PIPING UP/DOWN IN WALL/CHASE ENCLOSURE.

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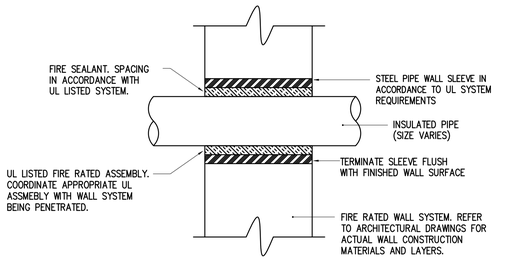
P2.3

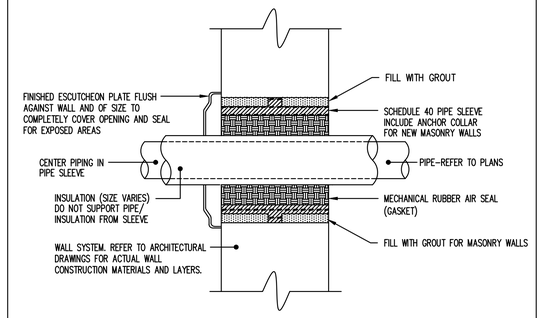


NOTES:

1. PROVIDE UL LISTED FIRE RATED THRU WALL SYSTEM IN ACCORDANCE WITH UL SYSTEM NO. W-L-1039.

DETAIL - PIPE THRU FIRE RATED WALL

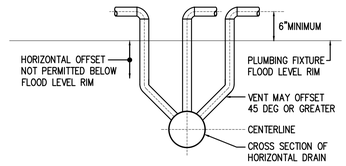
(NOT TO SCALE)



NOTES:

DETAIL - TYPICAL PIPE THRU WALL

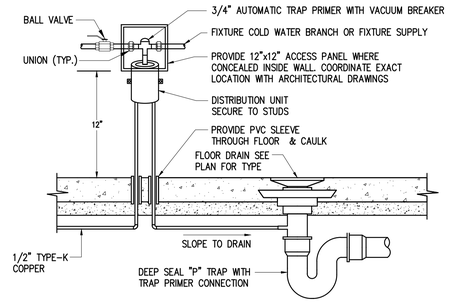
(NOT TO SCALE)



NOTES:

DETAIL - VENT CONNECTION TO HORIZONTAL DRAIN

(NOT TO SCALE)

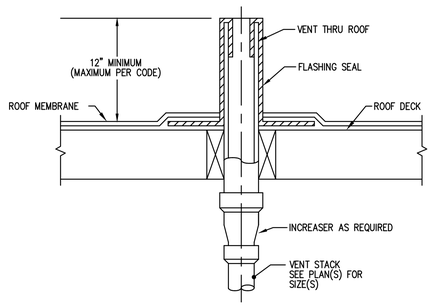


NOTES:

1. PROVIDE DISTRIBUTION UNIT WHERE MORE THAN ONE TRAP PRIMER LINE IS REQUIRED.
2. ALL TRAP PRIMERS IN FINISHED ROOMS SHALL BE RECESSED IN A PARTITION AND PROVIDED WITH AN ACCESS PANEL.
3. TRAP PRIMERS LOCATED IN MECHANICAL ROOMS SHALL BE EXPOSED.

DETAIL - AUTOMATIC TRAP PRIMER

(NOT TO SCALE)

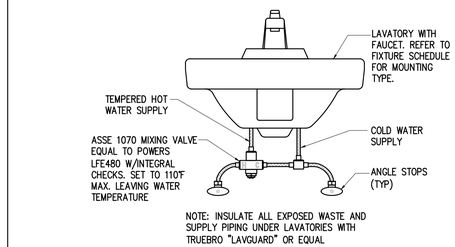


NOTES:

1. COORDINATE LOCATION OF VENT TERMINATIONS WITH ALL ADJACENT OUTDOOR AIR INTAKES PRIOR TO INSTALLING.
2. REFER TO ARCHITECTURAL DRAWINGS FOR FLASHING SEAL DETAILS

DETAIL - TYPICAL SANITARY VENT THRU ROOF

(NOT TO SCALE)

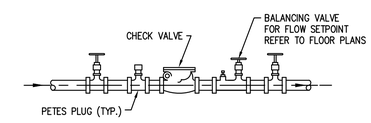


NOTE: INSULATE ALL EXPOSED WASTE AND SUPPLY PIPING UNDER LAVATORIES WITH TRUEBRO "LAVGUARD" OR EQUAL

NOTES:

DETAIL - LAVATORY MIXING VALVE

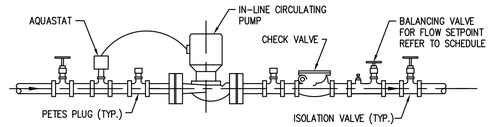
(NOT TO SCALE)



NOTES:

DETAIL - BALANCING VALVE

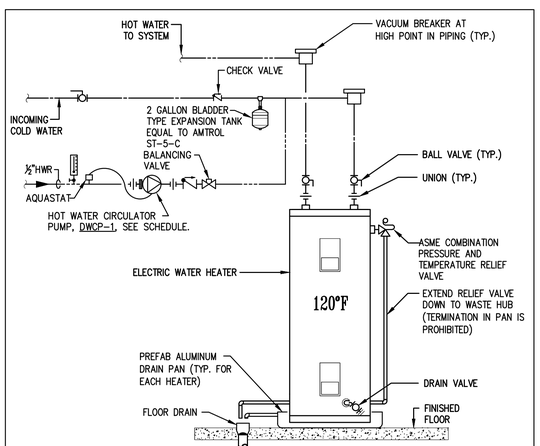
(NOT TO SCALE)



NOTES:

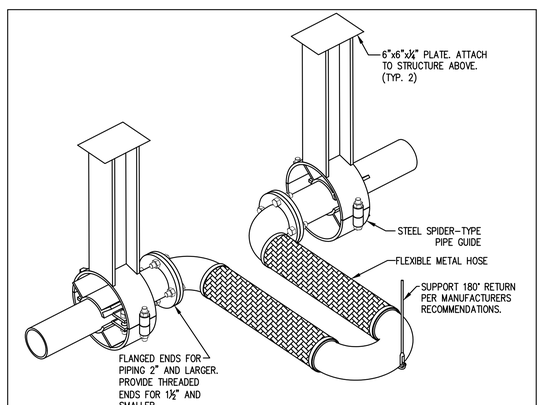
DETAIL - CIRCULATING PUMP

(NOT TO SCALE)



DETAIL - ELECTRIC WATER HEATER PIPING

(NOT TO SCALE)



NOTE:
INSTALL EXPANSION LOOP WITHIN 4 PIPE DIAMETERS FROM PIPE GUIDE.

DETAIL - EXPANSION LOOP

(NOT TO SCALE)

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MUNCIPAL BUILDING
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1385 CAMPUS DRIVE
WEST BRADFORD, PA 19335

Construction Issue Date: 1-26-2021
Drawn By: NCB
Checked By: JRS
Scale: AS NOTED

Sheet Name: DETAILS
Progress Prints:
Revisions:

P4.1

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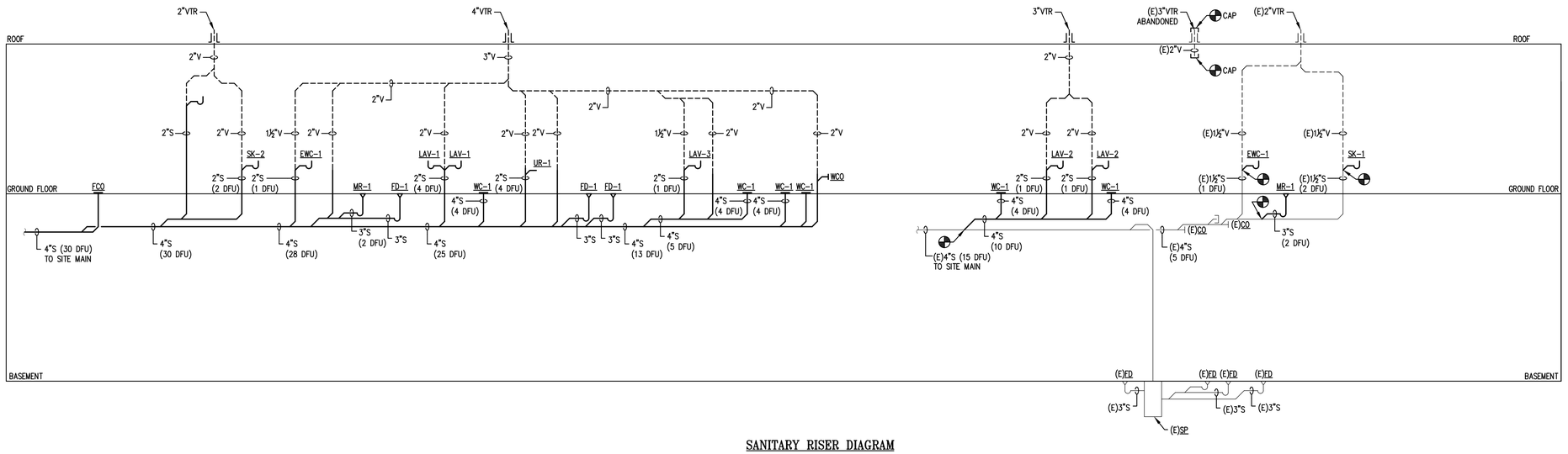
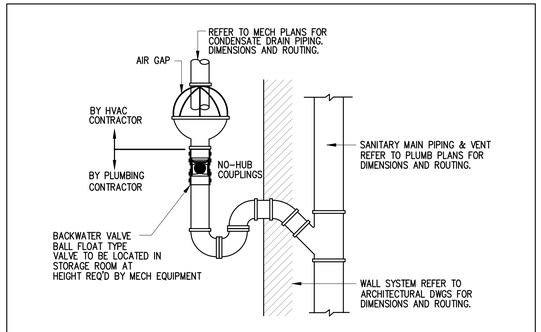


SANITARY RISER DIAGRAM

BUILDING SANITARY SYSTEM SIZING CALCULATION			
FIXTURES	QTY	DFU	TOTAL
PUBLIC WATER CLOSET – FLUSH TANK	6	4.0	24.0
PUBLIC LAVATORY	7	1.0	7.0
URINAL	1	4.0	4.0
MOP RECEPTOR	2	2.0	4.0
KITCHEN SINK	2	2.0	4.0
DRINKING FOUNTAIN	4	0.5	2.0
TOTAL DFUs			45.0
77.5 DFUs = 4" BUILDING DRAIN @ 1/8" PER FT SLOPE			
CALCULATION BASED UPON TABLE 709.1 OF THE 2015 INTERNATIONAL PLUMBING CODE			

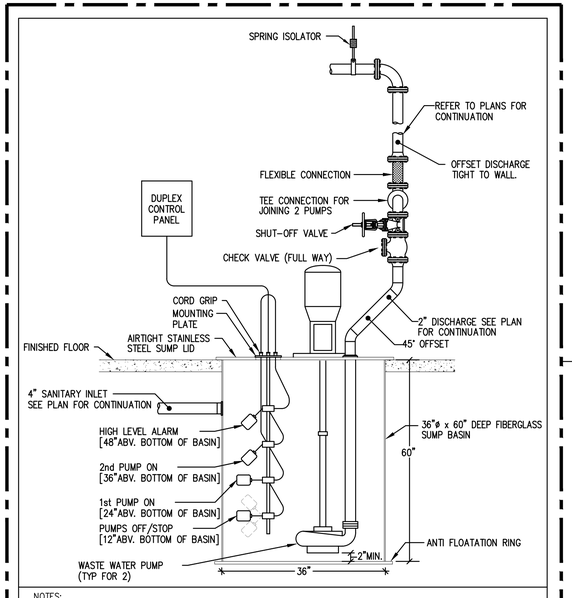


NOTES:

1. DRAINS ARE PROVDED TO FACILITATE DRAINAGE OF HVAC EQUIPMENT CONDENSATE.
2. 3" BACKWATER DRAIN/CHECK VALVE TO BE ZURN MODEL Z-1099 NO HUB BALL FLOAT VALVE OR APPROVED EQUIVALENT.
3. INSTALL PER MANUFACTURER'S WRITTEN INSTRUCTIONS.

DETAIL – TYPICAL SANITARY CONDENSATE VALVE

(NOT TO SCALE)



ADD ALTERNATE

NOTES:

DETAIL – SUMP BASIN AND DUPLEX SUMP PUMP (SP-1)

(NOT TO SCALE)

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Construction Issue Date: 1-26-2021
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Progress Prints:

Revisions:

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P4.2

PLUMBING FIXTURE SCHEDULE

TAG NO.	FIXTURE	HANDICAPPED	MANUF.	MODEL NO.	MATERIAL	FAUCET / FLUSH VALVE	MATERIAL	CONNECTION SIZE				REMARKS / ACCESSORIES
								C.W.	H.W.	WASTE	VENT	
WC-1	WATER CLOSET - TANK TYPE- FLOOR MOUNTED - ADA	♿	TOTO	"DRAKE" CST746CSMFG	VITREOUS CHINA	-	-	½"	-	4"	2"	COTTON WHITE HIGH EFICIENCY DUAL FLUSH 1.28 & 0.8 GPF FLOOR MOUNTED, 12" ROUGH-IN, TANK TYPE, ELONGATED WATER CLOSET, OPEN FRONT WHITE PLASTIC SEAT & STAINLESS STEEL SELF-SUSTAINING HINGES TO SUIT. PROVIDE FLOOR FLANGE AND WAX RING TO SUIT. CONFIRM PRIOR TO FURNISHING THE QUANITY OF LEFT AND RIGHT TRIP LEVERS REQUIRED FOR PROJECT.
UR-1	URINAL - WALL HUNG - ADA	♿	TOTO	UT105UG	VITREOUS CHINA	ZURN #ZTR6203-ULF-LL - BATTERY POWERED SENSOR FLUSH VALVE	BRASS	¾"	-	2"	1½"	WHITE WALL-MOUNTED URINAL WITH TOP SPUD AND SENSOR 0.125 GPF FLUSH VALVE. PROVIDE CONCEALED WALL CARRIER TO SUIT.
LAV-1	LAVATORY - WALL HUNG -2 STATION - ADA	♿	BRADLEY	LVQD2-WB1-A50-TMA-LSD-HD1-DR1	NATURAL QUARTZ SURFACE	INTEGRAL WITH INFARED BATTERY POWERED SENSING FAUCET	CHROME PLATED BRASS	½"	½"	1½"	1½"	PROVIDE WALL CARRIER TO SUIT. REFER TO ARCHITECTURAL DOCUMENTS FOR EXACT MOUNTING HEIGHT, COLOR SELECTIONS, ETC. PROVIDE 0.5 GPM VANDAL-RESISTANT AERATOR, SOAP DISPENSER, HAND DRYER, STAINLESS STEEL TRENCH DRAIN, IN-LINE STOPS, BATTERY POWERED SENSOR FAUCET WITH BELOW DECK ASSE 1070 THERMOSTATIC CONTROL MIXING VALVE, WITH MAXIMUM LEAVING WATER TEMPERATURE SET TO 105°F. LAVATORY AND MIXING VALVE TO BE INSTALLED TO MAINTAIN MINIMUM 9" TOE CLEARANCE.
LAV-2	LAVATORY - WALL HUNG - ADA	♿	ZURN	Z5310	VITREOUS CHINA	ZURN #Z6915-XL-F-TMV - BATTERY POWERED SENSOR FAUCET	CHROME PLATED BRASS	½"	½"	1¼"	1¼"	PROVIDE CHROME SUPPLIES, 0.5 GPM VANDAL-RESISTANT AERATED, GRIDED STRAINER, IN-LINE STOPS, FAUCET WITH INTEGRAL ASSE 1070 TEMPERATURE CONTROL WITH MAXIMUM LEAVING WATER TEMPERATURE SET TO 105°F, HOT WATER AND P-TRAP WITH TRUEBRO "LAVGUARD" INSULATION KIT NO. 102W.
LAV-3	LAVATORY - UNDERMOUNT - ADA	♿	KOHLER	K-2609-SU	STAINLESS STEEL	ZURN #Z6915-XL-F-TMV - BATTERY POWERED SENSOR FAUCET	CHROME PLATED BRASS	½"	½"	1¼"	1¼"	PROVIDE CHROME SUPPLIES, 0.5 GPM VANDAL-RESISTANT AERATED, GRIDED STRAINER, IN-LINE STOPS, FAUCET WITH INTEGRAL ASSE 1070 TEMPERATURE CONTROL WITH MAXIMUM LEAVING WATER TEMPERATURE SET TO 105°F, HOT WATER AND P-TRAP WITH TRUEBRO "LAVGUARD" INSULATION KIT NO. 102W.
MR-1	MOP RECEPTOR	-	FIAT	MSB-2424	MOLDED STONE	FIAT #803-AA	CHROME CAST BRASS	½"	½"	3"	2"	24"Wx24"Dx10"H MOP RECEPTOR W/ 3" CAST BRASS DRAIN & 3" DRAIN SEAL GASKET (MS-2411), DOME STRAINER, LINT BASKET, MS-2437 MOP HANGER, RUBBER HOSE & MS-2405 HANGER.
SK-1	KITCHEN SINK - BREAK ROOM - 22"x19-1/2" - ADA	♿	ELKAY	LRAD221955	STAINLESS STEEL	ELKAY #LK810HA08T6	CHROME PLATED BRASS	½"	½"	1½"	1½"	18 GAUGE STAINLESS STEEL SINGLE BOWL SINK, 22"x19-1/2"x5-1/2" DEEP WITH OFF-CENTERED REAR DRAIN. COORDINATE NUMBER OF FAUCET HOLES WITH FAUCET. PROVIDE SUPPLIES, IN-LINE STOPS, STRAINER, AND P-TRAP TO SUIT. PROVIDE FAUCET W/ 4" ADA COMPLIANT WRIST BLADE HANDLES. PROVIDE UNDER COUNTER MV-1 WITH MAXIMUM LEAVING WATER TEMPERATURE SET TO 105°F.
SK-2	KITCHEN SINK - PUBLIC MEETING ROOM KITCHENETTE - 33"x19" - ADA	♿	ELKAY	LRAD3319	STAINLESS STEEL	ELKAY #LK810HA08T6	CHROME PLATED BRASS	½"	½"	1½"	1½"	18 GAUGE STAINLESS STEEL DOUBLE BOWL SINK, 33"x19-1/2"x5-1/2" DEEP. COORDINATE NUMBER OF FAUCET HOLES WITH FAUCET. PROVIDE SUPPLIES, IN-LINE STOPS, STRAINER, AND P-TRAP TO SUIT. PROVIDE FAUCET W/ 6" ADA COMPLIANT WRIST BLADE HANDLES. PROVIDE UNDER COUNTER MV-1 WITH MAXIMUM LEAVING WATER TEMPERATURE SET TO 105°F.
EWC-1	DUAL HEIGHT ELECTRIC WATER COOLER - WALL MOUNT - W/ BOTTLE FILLING STATION - ADA	♿	ELKAY	LZSTL8WS	STAINLESS STEEL	-	-	½"	-	1½"	1½"	PROVIDE WALL CARRIER TO SUIT, VANDAL-RESISTANT BUBBLER, REPLACEMENT FILTER AND MANUFACTURERS FRONT ACCESS PANEL. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT MOUNTING HEIGHTS.
WH-1	WALL HYDRANT	-	JR SMITH	5509QT	NICKEL BRONZE	-	-	¾"	-	-	-	STAINLESS STEEL HYDRANT BOX W/ BRONZE NICKEL PLATED QUARTER TURN NON-FREEZE WALL HYDRANT W/ INTEGRAL VACUUM BREAKER & "T" HANDLE KEY.
HB-1	HOSE BIBB	-	JR SMITH	5672	NICKEL BRONZE	-	-	½"	-	-	-	ROUGH FINISH BRASS BODY HOSE BIBB W/ INTEGRAL VACUUM BREAKER & REMOVABLE "T" HANDLE KEY.
IMB-1	ICE MAKER BOX	-	GUY GRAY	MIB-1	POWDER COATED STEEL	-	-	½"	-	-	-	RECESSED MOUNTED BOX WITH INTEGRAL STOP.
FCO	FLOOR CLEAN OUT	-	ZURN	ZN1400	CAST IRON/NICKEL BRONZE	-	-	-	-	-	-	ADJUSTABLE CAST IRON CLEAN OUT WITH BRONZE COVER
WCO	WALL CLEANOUT	-	ZURN	ZN1443	CAST IRON/NICKEL BRONZE	-	-	-	-	-	-	CAST IRON BODY - GAS AND WATERTIGHT TAPERED THREAD PLUG, NICKEL BRONZE SECURED SQUARE, SMOOTH WALL ACCESS COVER AND FRAME
TP-1	TRAP PRIMER	-	MIFAB	MR500-MIDU	BRASS	-	-	½"	-	-	-	UNIT TO FEED 1 TO 4 TRAPS.

NOTES:
1. REFER TO ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS AND ACCESSIBILITY REQUIREMENTS OF ALL PLUMBING FIXTURES.

ELECTRIC WATER HEATER SCHEDULE

TAG NO.	BASIS OF DESIGN MANUFACTURER & MODEL NO.	STORAGE VOLUME (GAL)	KW INPUT	RECOVERY 80°F RISE (GPH)	DRY WEIGHT (LBS.)	ELECTRICAL CHARACTERISTICS		REMARKS
						VOLTS	PHASE	
EWH-1	BRADFORD WHITE - LE250S3-3	50	5.0	26	130	208	1	1, 2

1. SET AT 120 °F.
2. PROVIDE PREFAB ALUMINUM DRAIN PAN. PAN SHALL BE 6" LARGER THAN THE WATER HEATER DIAMETER.

HOT WATER CIRCULATOR PUMP SCHEDULE

TAG No.	SYSTEM	GPM	HEAD LOSS FT.	TYPE	MANUFACTURER	MODEL	HP	RPM	ELECTRICAL CHARACTERISTICS		REMARKS
									VOLTS	PHASE	
HWCP-1	HOT WATER RETURN	1.00	20.0	INLINE	TACO	009	1/8	3250	120	1	(1)

1. PROVIDE BRASS BODY VALVE THAT COMPLIES WITH THE LEAD FREE INSTALLATION REQUIREMENTS.

POINT OF USE MIXING VALVE SCHEDULE

TAG NO.	BASIS OF DESIGN MANUFACTURER & MODEL NO.	VALVE TYPE	DESIGN FLOW (GPM)	MIN. FLOW (GPM)	PR. DROP AT FLOW (PSI)	OUTLET TEMP. (°F)	CONNECTION SIZE (INCH)		REMARKS
							INLET	OUTLET	
MV-1	POWERS LFE480	THERMOSTATIC	0.5	0.5	2.0	105	1/2"	1/2"	(1), (2)

1. PROVIDE ASSE 1070 CERTIFIED POINT OF USE VALVE.
2. PROVIDE BRASS BODY VALVE THAT COMPLIES WITH THE LEAD FREE INSTALLATION REQUIREMENTS.

FLOOR DRAIN SCHEDULE

REF. NO.	DRAIN SPECIFICATION	REMARKS
FD-1	ZURN #Z415B-P CAST IRON FLOOR DRAIN WITH 7" DIAMETER NIKALOY STRAINER, TRAP PRIMER CONNECTION.	PROVIDE P-TRAP TO SUIT. (FINISHED FLOOR AREAS)
FD-2	ZURN #Z504-P-Y CAST IRON FLOOR DRAIN WITH 12-1/2" DIA. CAST IRON GRATE AND SEDIMENT BUCKET.	PROVIDE P-TRAP TO SUIT. (MECHANICAL ROOM AREAS)

DUPLEX SUMP PUMP SCHEDULE

TAG No.	SERVICE AREA	GPM	TOTAL DYNAMIC HEAD-FT.	CONN. SIZE DISCHARGE	MANUFACTURER	MODEL	HP	RPM	ELECTRICAL CHARACTERISTICS		REMARKS
									VOLTS	PHASE	
SP-1	BASEMENT FIRE PUMP ROOM	40	20	2"	WEIL - DUPLEX	1303	¾	1150	208	3	(1), (2), (3)

(1) PROVIDE CHECK VALVE AND FLOW CONTROL VALVE ON OUTLET OF SUMP PUMP.
(2) PROVIDE INTEGRAL DIAPHRAGM SWITCH OPERATION.
(3) PROVIDE QUICK REMOVAL SYSTEM, WEIL MODEL# 8159 DUPLEX ALTERNATING PUMP CONTROL PANEL W/ WEIL MODEL# 8230 TETHERED LEVEL CONTROLS.

ADD ALTERNATE

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P5.1

FIRE PROTECTION LEGEND AND ABBREVIATIONS AND DATA

SYMBOL & DESCRIPTION

- SPRINKLER PIPING
- BFP — BACKFLOW PREVENTER VALVE ASSEMBLY
- ZCV — ZONE OR FLOOR CONTROL VALVE ASSEMBLY
- OS&Y VALVE
- OS&Y VALVE WITH TAMPER SWITCH
- BALL VALVE
- CHECK VALVE
- STRAINER WITH BLOWDOWN VALVE
- WATER METER
- PIPE BREAK
- PIPE DROP IN MIDDLE
- PIPE RISER
- PIPE DROP
- PIPE CAP
- PIPE SLEEVE
- UNION
- STANDPIPE HOSE CONNECTION
- FS — FLOW SWITCH
- P — PRESSURE GAUGE
- WET PENDENT SPRINKLER
- UPRIGHT SPRINKLER
- DRY PENDENT SPRINKLER
- DRY UPRIGHT SPRINKLER
- WET SIDEWALL SPRINKLER
- DRY SIDEWALL SPRINKLER
- SIAMESE FIRE DEPARTMENT CONNECTION
- ELECTRIC GONG
- ALARM CHECK VALVE – PLAN VIEW
- DRY PIPE VALVE – PLAN VIEW

ABBREVIATIONS

ACV	ALARM CHECK VALVE
AFF	ABOVE FINISHED FLOOR
BF	BELOW FLOOR
BFF	BELOW FINISHED FLOOR
BFG	BELOW FINISHED GRADE
BFP	BACK FLOW PREVENTER
CONT.	CONTINUATION
CW	COLD WATER
DCV	DOUBLE CHECK VALVE ASSEMBLY
DCW	DOMESTIC COLD WATER
DIA.	DIAMETER
DN	DOWN
DPV	DRY PIPE VALVE
DWG	DRAWING
(E)	EXISTING
EA.	EACH
E.C.	ELECTRICAL CONTRACTOR
FB	FROM BELOW
FDC	FIRE DEPARTMENT CONNECTION
FP	FIRE PROTECTION
FPC	FIRE PROTECTION CONTRACTOR
G.C.	GENERAL CONTRACTOR
GPM	GALLONS PER MINUTE
IN.	INCH
INV.	INVERT
MAX	MAXIMUM
MIN.	MINIMUM
(N)	NEW
OS&Y	OUTSIDE STEM & YOKE
PC	PLUMBING CONTRACTOR
PRESS.	PRESSURE
RPZ	REDUCED PRESSURE ZONE
FSP	FIRE PROTECTION STANDPIPE
TYP	TYPICAL
TS	TAMPER SWITCH
UG	UNDERGROUND
W/	WITH
ZCV	ZONE CONTROL VALVE ASSEMBLY

REFERENCE SYMBOLS

** NOT ALL SYMBOLS AND ABBREVIATIONS APPLY

- XX / # — EQUIPMENT TYPE / EQUIPMENT NUMBER
- 1 / FP-X — PLAN NUMBER / DRAWING NUMBER
- SP / X — STANDPIPE RISER DESIGNATION
- (X) — NEW WORK NOTE DESIGNATION
- (X) — DEMOLITION NOTE DESIGNATION
- EXTENT OF NEW WORK DESIGNATION
- EXTENT OF REMOVAL DESIGNATION
- X — REVISION NUMBER

DESIGN DATA

1. THE SPRINKLER PIPING AND SPRINKLER LOCATIONS ARE ALL SCHEMATIC IN NATURE ONLY AND SHOULD BE USED AND UNDERSTOOD TO BE AS SUCH. ARCHITECTURAL DRAWINGS, RCP'S AND SECTIONS ARE TO BE USED FOR BUILDING CONSTRUCTION UNDERSTANDING AND FOR BIDDING PURPOSES.
2. AS REQUIRED BY DELEGATED DESIGN, FPC IS TO PROVIDE A COMPLETE AND WHOLE DESIGN OF THE PROPOSED SPRINKLER SYSTEM SIGNED AND SEALED BY A PROFESSIONAL ENGINEER. LICENSEE TAKES PROFESSIONAL RESPONSIBILITY FOR THEIR DESIGN DOCUMENTS BASED ON THE ACCEPTED STANDARDS OF PRACTICE IN PLACE AT THE TIME THE DOCUMENTS ARE SEALED, ENTITLING RELIANCE UPON ADEQUACY, ACCURACY AND COMPLETENESS OF SERVICES/DESIGN IN ACCORDANCE TO AIA A201/B101.
3. STANDPIPE SYSTEM TYPE: N/A
4. SPRINKLER SYSTEM TYPE: WET, NFPA 13. AUTOMATIC WET SYSTEM INSTALLED IN CONDITIONED SPACE THROUGHOUT THE BUILDING. DRY-TYPE PENDANTS SHALL BE USED WHEN PENETRATING THROUGH THE CONDITIONED SPACE AND ENTERING UNCONDITIONED SPACES OR AS INDICATED.
4. ATTIC SPACE: DRY, NFPA 13. AUTOMATIC DRY SYSTEM INSTALLED IN UNCONDITIONED SPACE THROUGHOUT
5. MARGIN OF SAFETY FOR FLOW & PRESSURE: 10%
6. SPRINKLER CLASSIFICATION & PROTECTION AREA LIMITATIONS:
   - 6.2. CORRIDORS AND PUBLIC AREAS: LIGHT HAZARD, 0.10 GPM/SQ. FT OVER 1500 SQ. FT.–225 SQ. FT. MAX. SPRINKLER COVERAGE
   - 6.3. STORAGE AND MECHANICAL AREAS: ORDINARY HAZARD GROUP 1, 0.15 GPM/SQ. FT OVER 1500 SQ. FT.–130 SQ. FT. MAX. SPRINKLER COVERAGE
   - 6.4. OFFICE AND PUBLIC AREAS: LIGHT HAZARD, 0.10 GPM/SQ. FT OVER 1500 SQ. FT.–225 SQ. FT. MAX. SPRINKLER COVERAGE

GENERAL NOTES

1. PRIOR TO BID AND INSTALLATION OF THE SPRINKLER SYSTEM, THE FPC SHALL OBTAIN THE ENTIRE SET OF ARCHITECTURAL, CIVIL/SITE, MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS. THE FPC IS RESPONSIBLE FOR COORDINATING PIPING AND SPRINKLER LOCATIONS WITH OTHER TRADES.
2. ALL FIRE PROTECTION EQUIPMENT AND INSTALLATIONS SHALL CONFORM WITH THE REQUIREMENTS OF THE 2009 INTERNATIONAL BUILDING CODE, THE MOST CURRENT VERSION OF NFPA 13, 14, AND 20, UNDERWRITERS LABORATORIES (UL), AND ALL APPLICABLE LOCAL CODES ENFORCED BY THE AUTHORITY HAVING JURISDICTION.
3. PRIOR TO PURCHASING ANY MATERIALS OR COMMENCING WORK, CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS, PIPING SIZES AND LOCATIONS, EQUIPMENT, ETC. SHOWN ON THE DRAWINGS OR AFFECTING THIS WORK AND SHALL REPORT ANY DEVIATIONS TO THE ENGINEER.
4. PROVIDE ALL LABOR, MATERIAL, AND EQUIPMENT COMPLETELY TO PROVIDE FULLY OPERATIONAL SYSTEMS.
5. ALL FIRE PROTECTION EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
6. SPRINKLER PIPING ABOVE THE CEILING AND IN EXTERIOR WALLS SHALL BE INSTALLED ON THE HEATED SIDE (UNDERSIDE) OF CEILING INSULATION AND HEATED SIDE (INSIDE) OF WALL INSULATION.
7. DRAIN PIPING SMALLER THAN 3" SHALL BE INSTALLED WITH A MINIMUM SLOPE OF 1/4" PER FOOT. PIPING 3" AND LARGER SHALL BE SLOPED AT 1/8" PER FOOT.
8. ALL PIPE PENETRATIONS OF FIRE AND/OR SMOKE RATED ASSEMBLIES SHALL BE FIRE-STOPPED TO RESTORE ASSEMBLY TO ORIGINAL INTEGRITY. FIRESTOP PRODUCTS SHALL BE MANUFACTURED BY 3M COMPANY AS RECOMMENDED BY MANUFACTURER FOR SPECIFIC APPLICATION AND APPROVED BY LOCAL AUTHORITY HAVING JURISDICTION. ALL FIRE PENETRATIONS MUST BE PROTECTED.

FIRE PROTECTION/ELECTRICAL COORDINATION

1. CONTRACTOR SHALL COORDINATE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF ALL EQUIPMENT WITH ELECTRICAL DRAWINGS & ELECTRICAL CONTRACTOR PRIOR TO ORDERING OR INSTALLING EQUIPMENT. CONTRACTOR SHALL FURNISH EQUIPMENT COMPATIBLE FOR THE VOLTAGES SHOWN ON THE ELECTRICAL DRAWINGS.

SPRINKLER SYSTEM BASIS

HYDRANT TEST INFORMATION –

BY: AQUA
DATE: 6/11/2020
PRESSURES : 40psi STATIC, 33psi RESIDUAL, 993 GPM

BASIS OF DESIGN – MINIMUM 6" MAIN SUPPLY PIPING, 630 gpm, 36psig FOR BUILDING PRESSURE DROP. CONTRACTOR IS REQUIRED TO REVIEW, COORDINATE AND PROVIDE A SPRINKLER SYSTEM INCLUDING BUT NOT LIMITED TO FITTINGS, PIPING SIZES, AND ROUTING NECESSARY TO ACHIEVE A SYSTEM WITHIN THE BASIS PARAMETERS INDICATED ABOVE. ALL SPRINKLER SYSTEM(S) AND ASSOCIATED COMPONENTS, APPURTENANCES ARE TO BE PROVIDED IN ACCORDANCE TO NFPA 13, NFPA 14, IFC 2015 AND ALL APPLICABLE LOCAL CODES.

FIRE/JOCKEY PUMP SCHEDULE

FP / JP

ITEM No.	SYSTEM SERVED	LOCATION	CAPACITY (gpm)	BOOST PRESS. (PSI)	CONN. SIZE		MOTOR						CONTROLLER			MANUFACTURER	MODEL	REMARKS
					SUCTION	DISCH.	HP	RPM	FUEL	V	P	Hz	V	P	Hz			
FP-1	BUILDING FIRE PROTECTION	PUMP ROOM BASEMENT	500	50	4"	4"	25	3500	ELECTRIC	208	3	60	208	3	60	AURORA	4-383-7C	1,2,3,4
JP-1	BUILDING FIRE PROTECTION	PUMP ROOM BASEMENT	5	60	1-1/4"	1-1/4"	3/4	3500	ELECTRIC	115	1	60	115	1	60	AURORA	PVM1-6	1,2,3,4

1. PROVIDE MANUFACTURER'S FIRE PUMP CONTROLLER, JOCKEY PUMP CONTROLLER AND AUTOMATIC TRANSFER SWITCH.
2. PROVIDE TWO (2) REMOTE ALARM PANELS.
3. PROVIDE MANUFACTURER'S CONCENTRIC DISCHARGE INCREASERS, JOCKEY PUMP AND COOLING WATER PIPING SYSTEM AND ASSOCIATED VALVES, REGULATORS, AND GAUGES.
4. INSTALL IN ACCORDANCE TO MANUFACTURER'S INSTALLATION INSTRUCTIONS/REQUIREMENTS, NFPA 20, IFC 2015 AND APPLICABLE LOCAL CODES.

ADD ALTERNATE

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MUNCIPAL BUILDING
WEST BRADFORD TOWNSHIP
1385 CAMPUS DRIVE
WEST BRADFORD, PA 19335

Construction Issue Date: 1-26-2021
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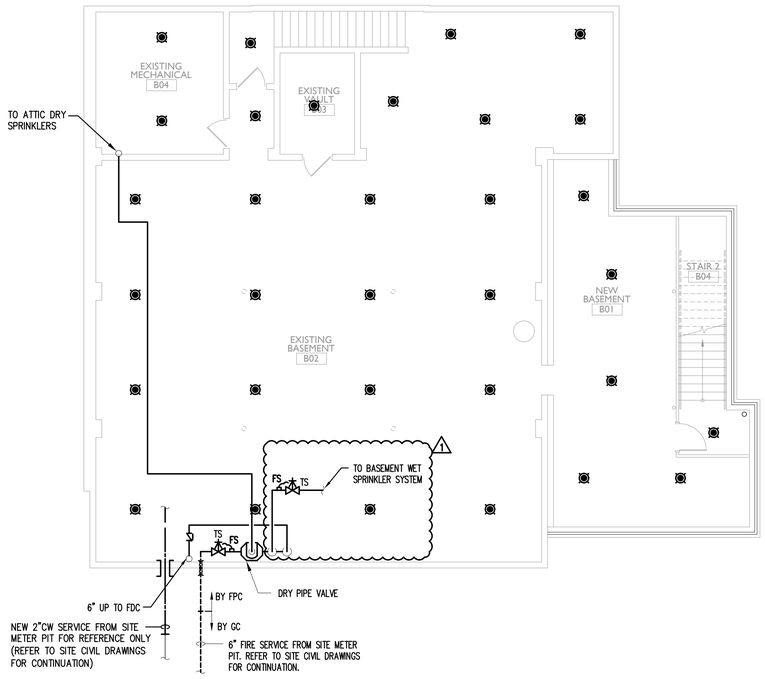
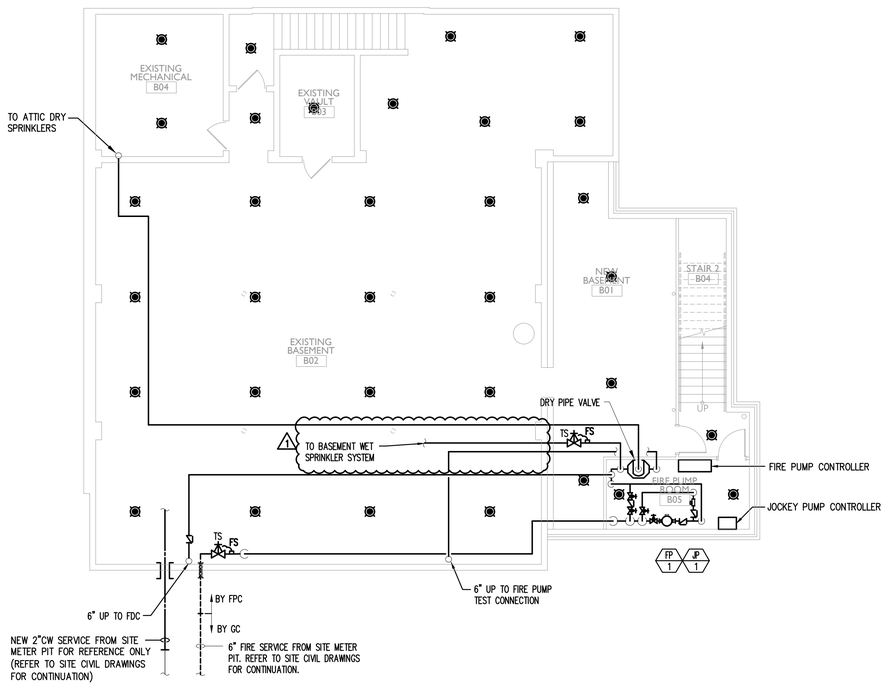
FP0.1



1 FP2.1 FIRE PROTECTION - BASEMENT FLOOR PLAN

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



2 FP2.1 FIRE PROTECTION - ADD ALTERNATE BASEMENT FLOOR PLAN - FIRE PUMP

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

GENERAL SHEET NOTES

1. COORDINATE INSTALLATION AND ROUTING OF SPRINKLER PIPING WITH STRUCTURE, DUCTWORK, MECHANICAL EQUIPMENT, STRUCTURAL JOISTWORK, ELECTRICAL PANELS, ELECTRICAL SYSTEMS, PLUMBING SYSTEMS, ARCHITECTURAL FEATURES AND ALL ASSOCIATED COMPONENTS TO EACH TRADES WORK TO FACILITATE INSTALLATION OF SPRINKLER SYSTEM PIPING.
2. PROVIDE ALL NECESSARY OFFSETS TO FACILITATE INSTALLATION AND INCLUDE DRAIN VALVES AND ASSOCIATED DRAIN PIPING AT ALL LOW POINTS IN SYSTEM IN ACCORDANCE TO PROJECT REQUIREMENTS. PROVIDE AND INSTALL ALL DRAIN PIPING TO GRADE WITH SPLASH BLOCK. IN ACCESSIBLE LOCATIONS PROVIDE DRAIN VALVE ABOVE CEILING WITH NAMEPLATE FOR LOCATION IDENTIFICATION BELOW CEILING. PROVIDE HOSE CONNECTION FITTING TO FACILITATE DRAINAGE.
3. PROVIDE ALL NECESSARY HANGERS AND SUPPORTS TO FACILITATE INSTALLATION OF SPRINKLER PIPING. COORDINATE LOCATIONS OF HANGERS AND SUPPORTS WITH ALL OTHER TRADE WORK PRIOR TO INSTALLING.
4. SPRINKLER DRAWINGS INDICATE SCHEMATIC LAYOUT OF SPRINKLERS. CONTRACTOR IS TO REVIEW/VERIFY BUILDING CONSTRUCTION FROM ARCHITECTURAL RCP'S, PLANS AND SECTIONS AND PROVIDE NECESSARY QUANTITIES OF SPRINKLERS TO FACILITATE REQUIRED AREA OF COVERAGE BASED ON FURNISHED AND INSTALLED BUILDING CONSTRUCTION. COORDINATE WITH ALL TRADE WORK.
5. FIRE SYSTEM HYDRAULIC DATA PLATE IS TO BE PROVIDED AT ALL SPRINKLER ALARM VALVES.
6. FURNISHED AND INSTALLED SPRINKLER SYSTEM IS TO BE IN ACCORDANCE TO NFPA 13 REQUIREMENTS AS NOTED.
7. ALL PIPING TO BE ROUTED ABOVE CEILING SYSTEMS WHERE CEILING SYSTEMS ARE INSTALLED.
8. PROVIDE GUARD CAGES ON ALL SPRINKLERS LOCATED IN AREAS OF POTENTIAL MECHANICAL DAMAGE OR LOW CLEARANCE. POTENTIAL LOCATIONS INCLUDE BUT ARE NOT LIMITED TO STAIRWELLS, JANITORS CLOSETS, STORAGE ROOMS AND MECHANICAL ROOMS.
9. INSTALLING CONTRACTOR IS RESPONSIBLE TO CORDINATE/VERIFY ALL REQUIRED TRADE EQUIPMENT MANUFACTURER CLEARANCES, REQUIRED FUTURE MAINTENANCE CLEARANCES, ACCESSIBILITY AND AVAILABLE MEANS TO FACILITATE INSTALLATION OF PROPOSED EQUIPMENT AND SYSTEMS INTO FINAL OPERATING LOCATIONS. CONTRACTOR IS ALSO RESPONSIBLE TO REVIEW IN DETAIL PROPOSED LOCATIONS AND CLEARANCES FOR ALL ADJACENT TRADE WORK, BUILDING STRUCTURE AND ARCHITECTURAL CONSTRUCTION AND COORDINATE ACCORDINGLY PRIOR TO PURCHASING AND/OR INSTALLING ANY AND ALL SYSTEMS OR EQUIPMENT. REFER TO TRADE COVER SHEET REGARDING COORDINATION DRAWINGS AND RATED SYSTEM PENETRATIONS FOR ADDITIONAL WORK AND NOTING.
10. PROVIDE SPRINKLERS ABOVE CEILINGS IN ALL CONCEALED AREAS OF COMBUSTIBLE WOOD JOIST CONSTRUCTION AND ROOF SLOPE GREATER THEN 4-IN-12. CONTRACTOR TO REFER TO ARCHITETCURAL DRAWINGS FOR ROOF SLOPING AND CONCEALED AREA LOCATIONS BASED ON SECTION VIEWS, CEILING SYSTEMS AND INSTALLATIONS.
11. GENERAL SHEET NOTES APPLY TO ALL FIRE PROTECTION DRAWINGS.

PHASED CONSTRUCTION NOTES

1. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL PHASING REQUIREMENTS.
2. CONTRACTOR IS REQUIRED TO SUBMIT AN ANTICIPATED PHASING PLAN AND DETAILED SCOPE OF WORK TO FIRE MARSHAL FOR REVIEW AND ACCEPTANCE PRIOR TO WORK COMMENCING.
3. COORDINATE SYSTEM DOWN TIME WITH OWNER/AHJ/FIRE MARSHALL AND WITH ALL PHASE WORK COMMENCING. DRAIN SYSTEM AS NECESSARY TO FACILITATE INSTALLATION OF PHASED WORK. CONTRACTOR IS REQUIRED TO REFILL SYSTEM AND PURGE AIR AT COMPLETION OF VALVE INSTALLATION. FILL SPRINKLER SYSTEM WITH WATER AT COMPLETION OF EACH PHASE INSTALLATION. AFTER FILLING, CHARGE SYSTEM AND TEST FOR LEAKS. REPAIR LEAKS AND RETEST UNTIL NO LEAKS EXIST. FLUSH, TEST AND INSPECT ENTIRE SPRINKLER SYSTEM IN DIRECT ACCORDANCE TO NFPA 13, "SYSTEM ACCEPTANCE". SPRINKLER SYSTEM WILL BE CONSIDERED DEFECTIVE IF IT DOES NOT PASS TESTS AND INSPECTIONS. PREPARE AND SUBMIT TEST AND INSPECTION REPORTS IN ACCORDANCE TO NFPA 13 REQUIREMENTS FOR EACH PHASE.

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MUNCIPAL BUILDING
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1385 CAMPUS DRIVE
WEST BRADFORD, PA 19335

Construction Issue Date: 1-26-2021
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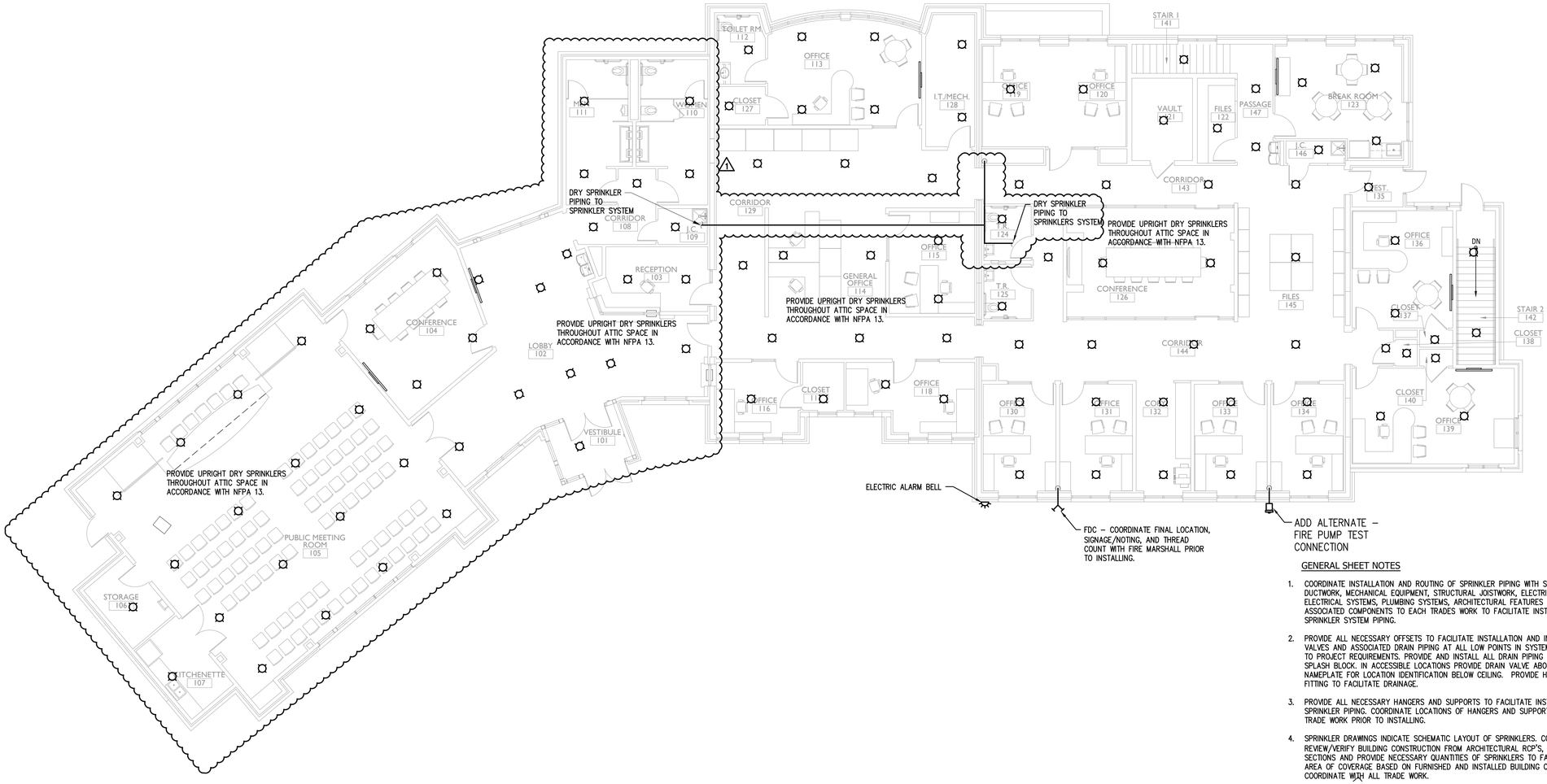
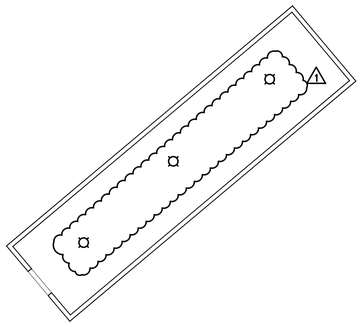
FP2.1



1 FP2.2 FIRE PROTECTION - GROUND FLOOR PLAN - FIRE PROTECTION

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



2 FP2.2 FIRE PROTECTION - PARTIAL PLAN - MEZZANINE

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

GENERAL SHEET NOTES

1. COORDINATE INSTALLATION AND ROUTING OF SPRINKLER PIPING WITH STRUCTURE, DUCTWORK, MECHANICAL EQUIPMENT, STRUCTURAL JOISTWORK, ELECTRICAL PANELS, ELECTRICAL SYSTEMS, PLUMBING SYSTEMS, ARCHITECTURAL FEATURES AND ALL ASSOCIATED COMPONENTS TO EACH TRADES WORK TO FACILITATE INSTALLATION OF SPRINKLER SYSTEM PIPING.
2. PROVIDE ALL NECESSARY OFFSETS TO FACILITATE INSTALLATION AND INCLUDE DRAIN VALVES AND ASSOCIATED DRAIN PIPING AT ALL LOW POINTS IN SYSTEM IN ACCORDANCE TO PROJECT REQUIREMENTS. PROVIDE AND INSTALL ALL DRAIN PIPING TO GRADE WITH SPLASH BLOCK. IN ACCESSIBLE LOCATIONS PROVIDE DRAIN VALVE ABOVE CEILING WITH NAMEPLATE FOR LOCATION IDENTIFICATION BELOW CEILING. PROVIDE HOSE CONNECTION FITTING TO FACILITATE DRAINAGE.
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5. FIRE SYSTEM HYDRAULIC DATA PLATE IS TO BE PROVIDED AT ALL SPRINKLER ALARM VALVES.
6. FURNISHED AND INSTALLED SPRINKLER SYSTEM IS TO BE IN ACCORDANCE TO NFPA 13 REQUIREMENTS AS NOTED.
7. ALL PIPING TO BE ROUTED ABOVE CEILING SYSTEMS WHERE CEILING SYSTEMS ARE INSTALLED.
8. PROVIDE GUARD CAGES ON ALL SPRINKLERS LOCATED IN AREAS OF POTENTIAL MECHANICAL DAMAGE OR LOW CLEARANCE. POTENTIAL LOCATIONS INCLUDE BUT ARE NOT LIMITED TO STAIRWELLS, JANITORS CLOSETS, STORAGE ROOMS AND MECHANICAL ROOMS.
9. INSTALLING CONTRACTOR IS RESPONSIBLE TO CORDINATE/VERIFY ALL REQUIRED TRADE EQUIPMENT MANUFACTURER CLEARANCES, REQUIRED FUTURE MAINTENANCE CLEARANCES, ACCESSIBILITY AND AVAILABLE MEANS TO FACILITATE INSTALLATION OF PROPOSED EQUIPMENT AND SYSTEMS INTO FINAL OPERATING LOCATIONS. CONTRACTOR IS ALSO RESPONSIBLE TO REVIEW IN DETAIL PROPOSED LOCATIONS AND CLEARANCES FOR ALL ADJACENT TRADE WORK, BUILDING STRUCTURE AND ARCHITECTURAL CONSTRUCTION AND COORDINATE ACCORDINGLY PRIOR TO PURCHASING AND/OR INSTALLING ANY AND ALL SYSTEMS OR EQUIPMENT. REFER TO TRADE COVER SHEET REGARDING COORDINATION DRAWINGS AND RATED SYSTEM PENETRATIONS FOR ADDITIONAL WORK AND NOTING.
10. PROVIDE SPRINKLERS ABOVE CEILINGS IN ALL CONCEALED AREAS OF COMBUSTIBLE WOOD JOIST CONSTRUCTION AND ROOF SLOPE GREATER THEN 4–IN–12. CONTRACTOR TO REFER TO ARCHITETCURAL DRAWINGS FOR ROOF SLOPING AND CONCEALED AREA LOCATIONS BASED ON SECTION VIEWS, CEILING SYSTEMS AND INSTALLATIONS.
11. GENERAL SHEET NOTES APPLY TO ALL FIRE PROTECTION DRAWINGS.

PHASED CONSTRUCTION NOTES

1. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL PHASING REQUIREMENTS.
2. CONTRACTOR IS REQUIRED TO SUBMIT AN ANTICIPATED PHASING PLAN AND DETAILED SCOPE OF WORK TO FIRE MARSHAL FOR REVIEW AND ACCEPTANCE PRIOR TO WORK COMMENCING.
3. COORDINATE SYSTEM DOWN TIME WITH OWNER/AHJ/FIRE MARSHALL AND WITH ALL PHASE WORK COMMENCING. DRAIN SYSTEM AS NECESSARY TO FACILITATE INSTALLATION OF PHASED WORK. CONTRACTOR IS REQUIRED TO REFILL SYSTEM AND PURGE AIR AT COMPLETION OF VALVE INSTALLATION. FILL SPRINKLER SYSTEM WITH WATER AT COMPLETION OF EACH PHASE INSTALLATION. AFTER FILLING, CHARGE SYSTEM AND TEST FOR LEAKS. REPAIR LEAKS AND RETEST UNTIL NO LEAKS EXIST. FLUSH, TEST AND INSPECT ENTIRE SPRINKLER SYSTEM IN DIRECT ACCORDANCE TO NFPA 13, "SYSTEM ACCEPTANCE". SPRINKLER SYSTEM WILL BE CONSIDERED DEFECTIVE IF IT DOES NOT PASS TESTS AND INSPECTIONS. PREPARE AND SUBMIT TEST AND INSPECTION REPORTS IN ACCORDANCE TO NFPA 13 REQUIREMENTS FOR EACH PHASE.

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1385 CAMPUS DRIVE
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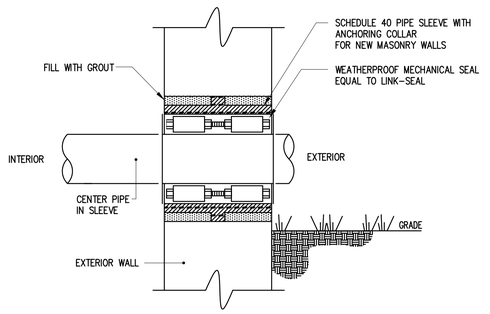
Sheet Name: GROUND FLOOR NEW WORK PLAN

Progress Prints:	Revisions:
MODIFIED DURING BIDDING	1

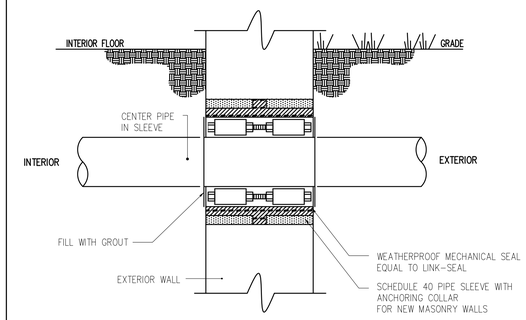
FP2.2



NOTES:

DETAIL - EXTERIOR PIPE SLEEVE THRU WALL

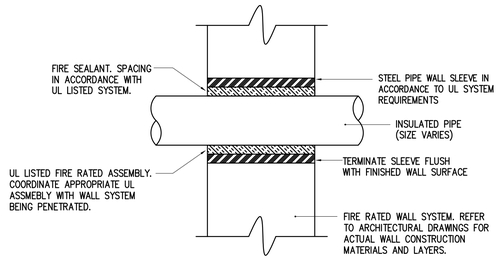
(NOT TO SCALE)



NOTES:

DETAIL - BELOW GRADE PIPE SLEEVE THRU WALL

(NOT TO SCALE)



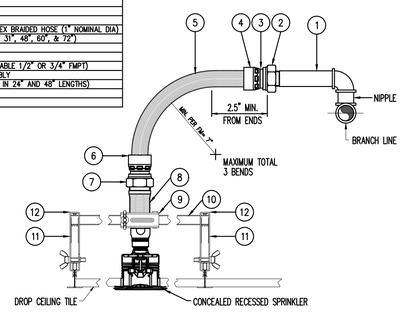
NOTES:

1. PROVIDE UL LISTED FIRE RATED THRU WALL SYSTEM IN ACCORDANCE WITH WALL TYPE, AND SCHEDULED PIPING AND INSULATION.

DETAIL - PIPE THRU FIRE RATED WALL

(NOT TO SCALE)

PRODUCT LEGEND	
1	1" NIPPLE (INLET)
2	NUT
3	ADAPTER RING
4	COLLAR
5	304 STAINLESS STEEL FLEX BRAIDED HOSE (1" NOMINAL DIA) (LENGTHS AVAILABLE 31", 48", 60", & 72")
6	COLLAR
7	NUT
8	REDUCING OUTLET (AVAILABLE 1/2" OR 3/4" FNPT)
9	CENTER BRACKET ASSEMBLY
10	SQUARE BAR (AVAILABLE IN 24" AND 48" LENGTHS)
11	END BRACKET ASSEMBLY
12	SHEET METAL SCREW



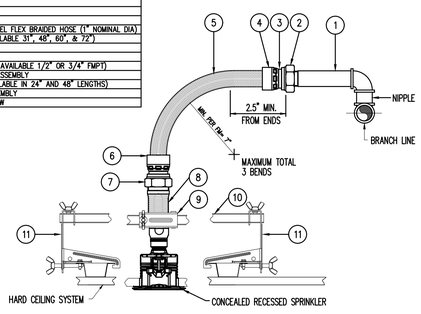
NOTES:

1. COORDINATE SPRINKLER TYPE WITH INSTALLED CEILING SYSTEM CONSTRUCTION. REFER TO ARCHITECTURAL DRAWINGS FOR FINISHES, CONSTRUCTION AND HEIGHTS.
2. COORDINATE EXACT LOCATION OF SPRINKLERS WITH NFPA 13 REQUIREMENTS PRIOR TO INSTALLING.
3. COORDINATE FOR APPROVAL WITH OWNER/ARCHITECT AND PROVIDE SPRINKLER TYPE AND COLOR AS REQUIRED.

DETAIL - LAY-IN CLG FLEX SPRINKLER

(NOT TO SCALE)

PRODUCT LEGEND	
1	1" NIPPLE (INLET)
2	NUT
3	ADAPTER RING
4	COLLAR
5	304 STAINLESS STEEL FLEX BRAIDED HOSE (1" NOMINAL DIA) (LENGTHS AVAILABLE 31", 48", 60", & 72")
6	COLLAR
7	NUT
8	REDUCING OUTLET (AVAILABLE 1/2" OR 3/4" FNPT)
9	CENTER BRACKET ASSEMBLY
10	SQUARE BAR (AVAILABLE IN 24" AND 48" LENGTHS)
11	END BRACKET ASSEMBLY
12	SHEET METAL SCREW

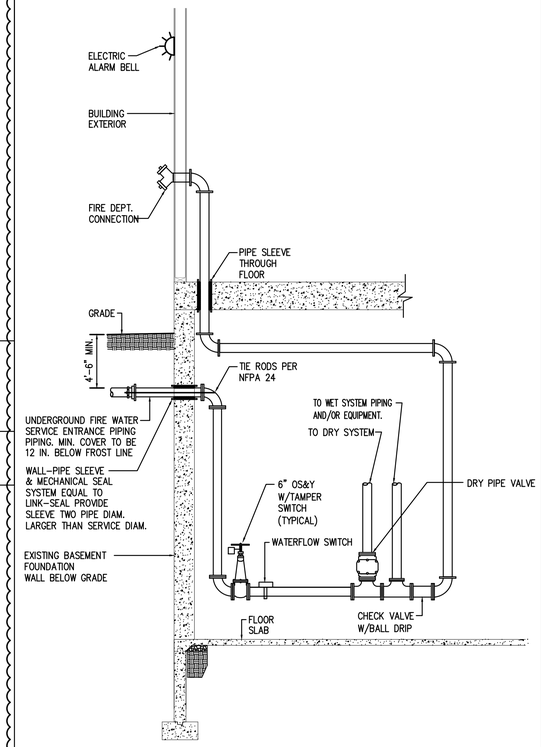


NOTES:

1. COORDINATE SPRINKLER TYPE WITH INSTALLED CEILING SYSTEM CONSTRUCTION. REFER TO ARCHITECTURAL DRAWINGS FOR FINISHES, CONSTRUCTION AND HEIGHTS.
2. COORDINATE EXACT LOCATION OF SPRINKLERS WITH NFPA 13 REQUIREMENTS PRIOR TO INSTALLING.
3. COORDINATE FOR APPROVAL WITH OWNER/ARCHITECT AND PROVIDE SPRINKLER TYPE AND COLOR AS REQUIRED.

DETAIL - HARD CLG FLEX SPRINKLER

(NOT TO SCALE)



NOTES:

1. COORDINATE PROJECT PIPING ROUTING AND VALVE LOCATIONS WITH PLANS.
2. COORDINATE EXACT LOCATION AND SIGNAGE ASSOCIATED WITH FDC WITH LOCAL FIRE INSPECTOR AND FIRE MARSHAL PRIOR TO INSTALLING AND ROUTING PIPING.

DETAIL - FIRE PROTECTION SERVICE PIPING

(NOT TO SCALE)

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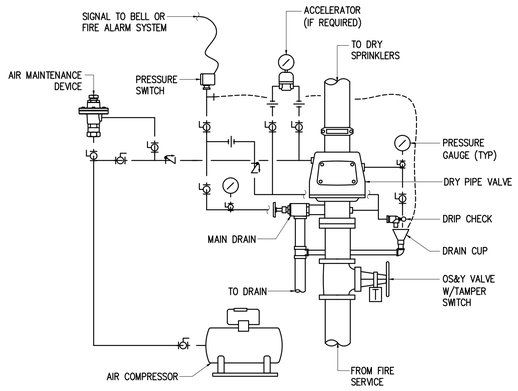
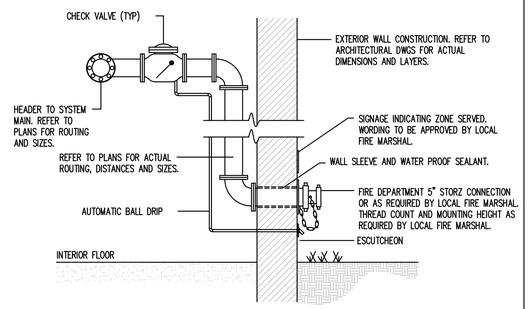


DETAIL – DRY PIPE SYSTEM VALVE ASSEMBLY

(NOT TO SCALE)



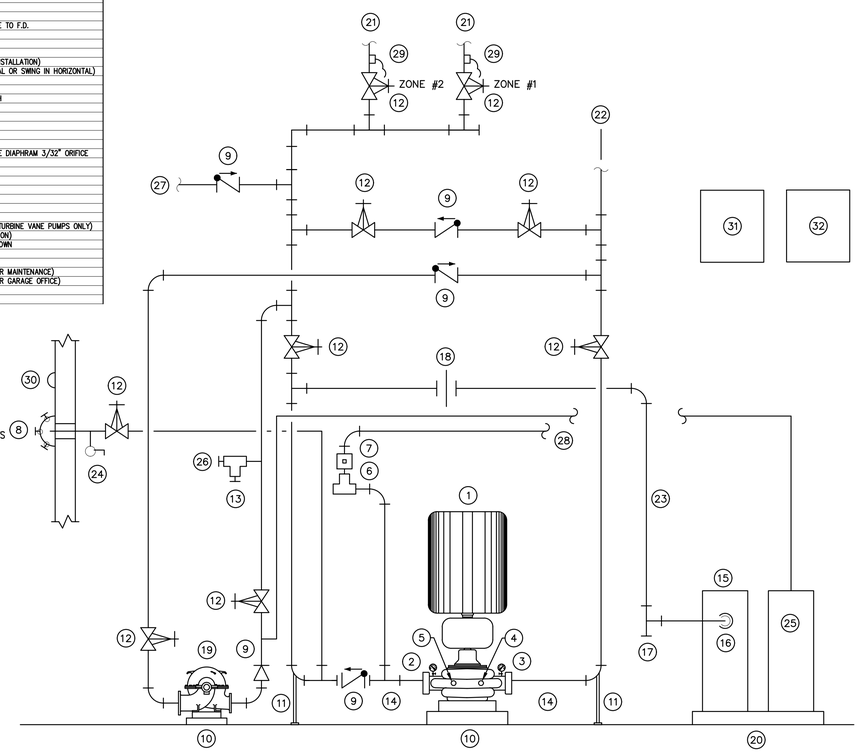
NOTES:

1. COORDINATE PROJECT PIPING ROUTING, VALVE LOCATIONS, AND FDC LOCATION WITH PLANS.
2. COORDINATE EXACT LOCATION AND SIGNAGE ASSOCIATED WITH FDC WITH LOCAL FIRE INSPECTOR AND FIRE MARSHAL PRIOR TO INSTALLING AND ROUTING PIPING.

DETAIL – FIRE DEPARTMENT CONNECTION

(NOT TO SCALE)

PRODUCT LEGEND	
1	AUTOMATIC FIRE PUMP
2	DISCHARGE GAUGE
3	SUCTION GAUGE
4	CASING RELIEF VALVE, PIPE DISCHARGE TO F.D.
5	AIR RELEASE VALVE
6	MAIN RELIEF VALVE
7	SIGHT CONE & GLASS
8	HOSE VALVE AND HEADER (OUTSIDE INSTALLATION)
9	CHECK VALVE (USE SPRING IN VERTICAL OR SWING IN HORIZONTAL)
10	CONCRETE BASE (MINIMUM 6" HIGH)
11	SUPPORT ELBOW
12	OS&Y GATE VALVE W/ TAMPER SWITCH
13	DRAIN TO F.D.
14	ECCENTRIC REDUCER
15	CONTROL PANEL
16	PRESSURE SWITCH
17	PLUG OR PETCOCK
18	GROUND FACE UNION–NON CORROSIZE DIAPHRAM 3/32" ORIFICE
19	JOCKEY PUMP
20	CONCRETE BASE (MINIMUM 6" HIGH)
21	DISCHARGE TO SYSTEM
22	SUCTION SUPPLY
23	COPPER OR BRASS 1/2" PIPE SIZE
24	AUTOMATIC BALL DROP TO F.D.
25	JOCKEY PUMP CONTROLLER
26	PRESSURE RELIEF VALVE (REQ'D FOR TURBINE VANE PUMPS ONLY)
27	TO FDC (REFER TO PLANS FOR LOCATION)
28	DISCHARGE THROUGH WALL W/ TURNDOWN
29	FLOW SWITCH
30	ELECTRIC GONG
31	FIRE PUMP ALARM PANEL (FIRST FLOOR MAINTENANCE)
32	FIRE PUMP ALARM PANEL (FIRST FLOOR GARAGE OFFICE)



ADD ALTERNATE

NOTES:

1. COORDINATE AND PROVIDE PRESSURE GAUGE AT TOP OF RISER.
2. COORDINATE LOCATION OF RISER WITH ARCHITECTURAL STAIR CONSTRUCTION. MAINTAIN ALL REQUIRED ADA CLEARANCES PRIOR TO LOCATING & INSTALLING RISER. LOCATE ALL VALVES AND ASSEMBLIES AT NON–ACCESSIBLE HEIGHTS. COORDINATE WITH FIRE MARSHALL PRIOR TO INSTALLING.

DETAIL – AUTOMATIC / ELECTRIC – VERTICAL INLINE FIRE PUMP FLOW DIAGRAM

(NOT TO SCALE)

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