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DFCM Number:
13020300

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Unified State Laboratory Module 2
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COVER SHEET

GI001
VOLUME 2

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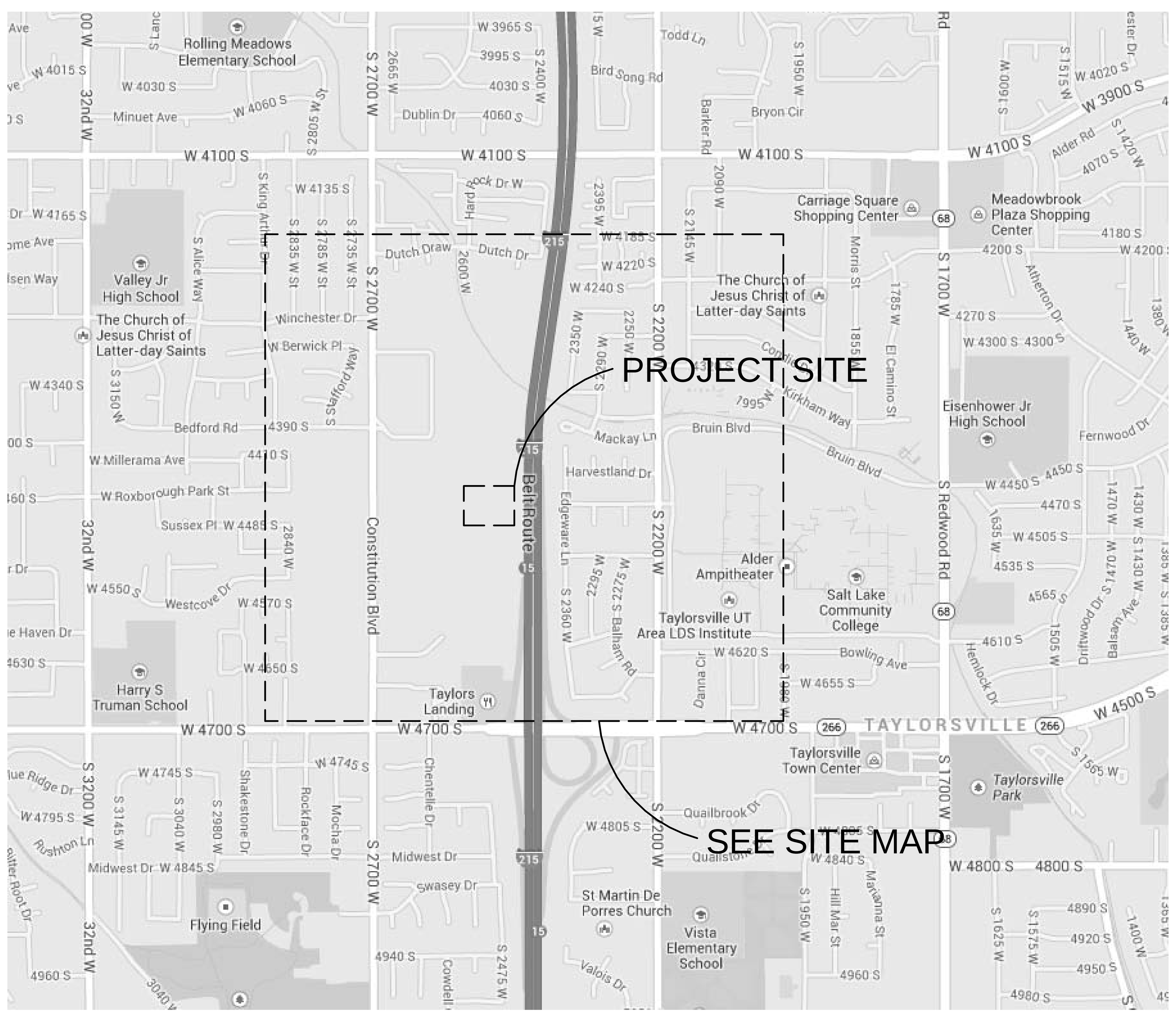

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AUDIO-VIDEO

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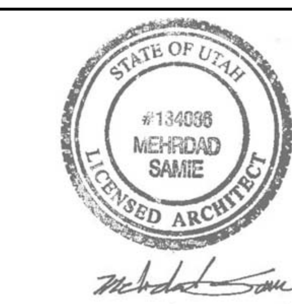

ARCHITECT-ENGINEER STAMP

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INDEX & VICINITY MAP

GI002

VOLUME 2

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LEGEND OF MECHANICAL SYMBOLS AND ABBREVIATIONS

DUCTWORK/GRILLES

- POSITIVE PRESSURE DUCT - RISE
- POSITIVE PRESSURE DUCT - DROP
- NEGATIVE PRESSURE DUCT - RISE
- NEGATIVE PRESSURE DUCT - DROP
- ROUND DUCT - RISE
- ROUND DUCT - DROP
- UNDER FLOOR DUCT
- TURNING VANES
- FRESH AIR LOUVER
- RELIEF AIR OR EXHAUST AIR LOUVER
- 12X12 / 200 — CEILING SUPPLY DIFFUSER
- 22X22 / 200 — CEILING RETURN REGISTER
- 12X12 / 200 — CEILING EXHAUST REGISTER, (BALANCE TO MATCH SUPPLY IF RETURN CFM IS NOT SHOWN)
- 24X10 / 200 — SIDEWALL SUPPLY REGISTER
- 24X10 / 200 — SIDEWALL EXHAUST OR RETURN REGISTER
- 12X12 / 200 — CEILING SUPPLY DIFFUSER WITH FLEXIBLE DUCT
- 12X12 / 200 — CEILING AIR GRILLE WITH FLEXIBLE DUCT

(TOP FIGURES INDICATE NECK SIZE. BOTTOM FIGURE INDICATES CFM.)

- CEILING RETURN AIR GRILE W/ SOUND BOOT
- 3-1" SLOTS @ 48" 400 — LINEAR DIFFUSER WITH PLENUM AND FLEXIBLE DUCT CONNECTION. NO. OF SLOTS & SIZE OF SLOT ON TOP, ACTIVE LENGTH AND CFM ON BOTTOM
- FLEXIBLE DUCT CONNECTION
- FLEXIBLE DUCT
- 12/8 FO — FLAT OVAL DUCT WITH NET INSIDE DIMENSIONS SHOWN IN INCHES.
- 12/8 — RECTANGULAR DUCT WITH NET INSIDE DIMENSIONS SHOWN IN INCHES.
- 12ø — ROUND DUCT WITH NET INSIDE DIMENSIONS SHOWN IN INCHES.
- UP — INCLINED RISE
- DN — INCLINED DROP

(WITH RESPECT TO AIR FLOW 15° NOMINAL INCLINE WITH RADIUS TURNS=DEPTH OF DUCT.)

- W R — R/W=1. ROUND DUCT SIMILAR TO RECTANGULAR
- 12/12 8/8 — RECTANGULAR TO RECTANGULAR OR ROUND TO ROUND DUCT TRANSFORMATION MAXIMUM 15° INCLUDED ANGLE EXCEPT WHERE SHOWN OTHERWISE.
- 12/12 12ø — RECTANGULAR TO ROUND DUCT TRANSFORMATION
- R B — BRANCH DUCT SPLIT WITH 6" WIDTH AND MIN. R=WIDTH OF BRANCH DUCT DOWNSTREAM. ELBOW TURNING VANE OPTIONAL.
- 1.5D 1.25D 45° D D — TAP ENTRY AREA EQUALS 150% OF BRANCH AREA
- 12ø 12/12 — HIGH EFFICIENCY FITTING
- MANUAL VOLUME DAMPER
- FD — FIRE DAMPER IN DUCT, W/ ACCESS PANEL REQD.
- FSD — COMBINATION FIRE/SMOKE DAMPER W/ ACCESS PANEL
- SD — SMOKE DAMPER W/ ACCESS PANEL
- BDD — BACK DRAFT DAMPER
- ATC OR — ATC DAMPER
- AD — ACCESS PANEL IN DUCT OR PLENUM

DUCTWORK/GRILLES CONT.

- HEATING OR COOLING COIL IN DUCT
- SINGLE DUCT AIR TERMINAL BOX VARIABLE OR CONSTANT VOLUME. MIN. 1-1/2 TERMINAL INLET SIZE STRAIGHT DUCT AT TERMINAL INLET.
- SUPPLY VALVE W/ REHEAT COIL
- 4-WAY BLOW PATTERN
- 3-WAY BLOW PATTERN
- 2-WAY BLOW PATTERN
- 2-WAY BLOW PATTERN
- 1-WAY BLOW PATTERN
- SD — DUCT SMOKE DETECTOR

PIPING

- OR — SHUT OFF VALVE
- OR — BALL VALVE
- OR — BUTTERFLY VALVE
- MOTOR OPERATED BUTTERFLY VALVE
- OR — GATE VALVE
- GATE VALVE - NON RISING STEM
- OR — ANGLE VALVE
- OR — GLOBE VALVE
- OR — PLUG VALVE
- SHUT OFF PLUG VALVE FOR FOR USE WITH PRESSURE GAUGE
- OR — CHECK VALVE
- OR — LATERAL STRAINER WITH BLOW-OFF VALVE, PROVIDE HOSE END WITH CAP WHERE DISCHARGE IS NOT PIPED TO DRAIN
- F&T — F&T=FLOAT & THERMOSTATIC STEAM TRAP
- RPBP — REDUCED PRESSURE BACKFLOW PREVENTOR W/ DRAIN PAN
- OR — PRESSURE REDUCING VALVE EXTERNAL PRESSURE
- OR — PRESSURE REDUCING VALVE SELF CONTAINED
- OR — ATC - 2 WAY VALVE
- OR — ATC - 3 WAY VALVE
- SOLENOID VALVE
- 0.0 GPM OR — CALIBRATED BALANCING VALVE WITH GPM INDICATED
- VENTURI FLOW METER
- GPM LB/HR. — FLOW METER ORIFICE
- OR — RELIEF VALVE
- AIR VENT-MANUAL
- A — AIR VENT-AUTO
- FLOW SWITCH
- PS — PRESSURE SWITCH
- OR — TEMPERATURE AND PRESSURE TEST PORT
- T — THERMOMETER WELL
- 0-100°F — THERMOMETER - TEMP RANGE AS INDICATED

PIPING CONT.

- PRESSURE GAUGE WITH SHUT OFF PLUG VALVE
- PRESSURE GAUGE WITH PIGTAIL
- OR — UNION
- OR — FLANGE
- OR — FLEXIBLE EXPANSION JOINT
- REDUCER
- ECCENTRIC REDUCER
- BRANCH - BOTTOM CONNECTION
- BRANCH - TOP CONNECTION
- BRANCH - SIDE CONNECTION
- RISE OR DROP
- RISER - DOWN (ELBOW)
- RISER - UP (ELBOW)
- PIPE CAP
- ARROW INDICATES DIRECTION OF FLOW IN PIPE
- DN — LEADER INDICATES DOWNWORD SLOPE
- VALVE IN RISE
- OR — 90° ELBOW
- 45° ELBOW
- ALIGNMENT GUIDE
- ANCHOR

PLUMBING

- THERMOSTATIC MIXING VALVE
- HOSE BIBB
- FLOOR SINK
- FLOOR DRAIN
- FCO COTG — FLOOR CLEAN-OUT OR CLEAN-OUT TO GRADE
- ROOF DRAIN
- DOWNSPOUT NOZZLE
- VTR — VENT THRU ROOF
- WATER HAMMER ARRESTOR
- CLEAN-OUT
- FILL PORT
- DRAIN PAN AND P-TRAP
- (NAME) — FIXTURE FROM LEVEL ABOVE
- DEMOLITION

EQUIPMENT

- UNIT HEATER
- INLINE PUMP
- INLINE PUMP
- FAN

FIRE

- HOSE VALVE
- NRS GATE VALVE WITH SUPERVISION
- FLOW SWITCH
- FIRE RISER
- SPRINKLER HEAD
- F — FIRE SPRINKLER WATER

ANNOTATIONS

- P-1 — PLUMBING FIXTURES
- POINT OF CONNECTION
- A / M-101 — SECTION TAG - TOP FIGURE IS SECTION NO. BOTTOM FIGURE IS SHEET NO.
- A / M101 — DETAIL TAG - TOP FIGURE IS DETAIL NO. BOTTOM FIGURE IS SHEET NO.
- EF / 1 — EQUIPMENT IDENTIFICATION
- 1 — KEYED NOTE IDENTIFICATION
- S — SWITCH
- S — SENSOR
- T — THERMOSTAT
- TN — NIGHT THERMOSTAT

LINETYPES

- AV — ACID VENT
- AW — ACID WASTE
- BBD — BOILER BLOW DOWN
- BF — BOILER FEED WATER
- B — BRINE
- GW — GREYWATER WASTE
- CA — COMPRESSED AIR
- CF — CHEMICAL FEED
- CHWS — CHILLED WATER SUPPLY
- CHWR — CHILLED WATER RETURN
- CMPS — CLEAN MEDIUM PRESSURE STEAM
- CMPC — CLEAN MEDIUM PRESSURE CONDENSATE
- CWS — CONDENSER WATER SUPPLY
- CWR — CONDENSER WATER RETURN
- DSW — DOMESTIC SOFT COLD WATER
- DCW — DOMESTIC COLD WATER (DCW)
- DHW — DOMESTIC HOT WATER (DHW)
- DHWR — DOMESTIC HOT WATER RETURN (DHWR)
- ES — EMERGENCY SHOWER WATER SUPPLY
- ESR — EMERGENCY SHOWER WATER RETURN
- DI — DEIONIZED WATER SUPPLY
- DIR — DEIONIZED WATER RETURN
- E(NAME) — EXISTING PIPING
- (NAME) — EXISTING PIPING TO BE REMOVED
- GHR — GLYCOL HEAT RECOVERY PIPING
- G(NAME) — GLYCOL PIPING SOLUTION
- FOR — FUEL OIL RETURN
- FOS — FUEL OIL SUPPLY
- FOV — FUEL OIL VENT
- FVS — FLUSH VALVE SUPPLY
- NG — NATURAL GAS
- HG — HOT GAS
- HP(NAME) — HIGH PRESSURE DOMESTIC WATER
- HPC — HIGH PRESSURE CONDENSATE
- HPS — HIGH PRESSURE STEAM
- HWR — HEATING HOT WATER RETURN
- HWS — HEATING HOT WATER SUPPLY

LINETYPES CONT.

- IA — INSTRUMENT AIR
- IA 120 — INSTRUMENT AIR AT PRESSURE INDICATED
- ICW — INDUSTRIAL COLD WATER
- IHW — INDUSTRIAL HOT WATER
- IHWR — INDUSTRIAL HOT WATER RETURN
- ISCW — INDUSTRIAL SOFT COLD WATER
- LA — LAB AIR
- LV — LAB VACUUM
- LPC — LOW PRESSURE CONDENSATE
- LPG — LIQUIFIED PETROLEUM GAS
- LPS — LOW PRESSURE STEAM
- MA — MEDICAL AIR
- MA 120 — MEDICAL AIR AT PRESSURE INDICATED
- MPC — MEDIUM PRESSURE CONDENSATE
- MPS — MEDIUM PRESSURE STEAM
- MUW — MAKE UP WATER
- MV — MEDICAL VACUUM
- N — NITROGEN
- N2O — NITROUS OXIDE
- OX — MEDICAL OXYGEN
- OX 120 — MEDICAL OXYGEN AT PRESSURE INDICATED
- PC — PUMPED CONDENSATE
- RG — REAGENT GRADE WATER SUPPLY
- RGR — REAGENT GRADE WATER RETURN
- RO — REVERSE OSMOSIS WATER SUPPLY
- ROR — REVERSE OSMOSIS WATER RETURN
- RD — ROOF DRAIN
- RDO — ROOF DRAIN OVERFLOW
- RL — REFRIGERANT LIQUID
- RS — REFRIGERANT SUCTION
- SA — SHOP AIR
- SEWER (BELOW GRADE)
- SEWER (ABOVE GRADE)
- SW — SOFT DOMESTIC WATER
- VAC — VACUUM
- VENT (SEWER)

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MECHANICAL LEGEND

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VOLUME 2

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GENERAL NOTES

1. THE CONTRACTOR SHALL INFORM THE DESIGNER OF ANY PROPOSED DEVIATIONS FROM THE CONTRACT DOCUMENTS.
2. NOT ALL INFORMATION IS SHOWN ON THE HVAC DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING INFORMATION ON ALL OTHER CONSTRUCTION DOCUMENTS INCLUDING ARCHITECTURAL, STRUCTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS. THE CONTRACTOR WILL BE FAMILIAR WITH THE DRAWINGS, SPECIFICATIONS, AND ADDENDUMS.
3. THE WORKING DRAWINGS ARE DIAGRAMMATIC (DRAWINGS ARE NOT TO BE SCALED). BECAUSE OF THE SMALL SCALE OF THE DRAWINGS, THEY DO NOT SHOW EVERY OFFSET, BEND OR ELBOW NECESSARY FOR THE COMPLETE INSTALLATION IN THE SPACE PROVIDED. ALL LOCATIONS FOR HVAC EQUIPMENT SHALL BE CHECKED AND COORDINATED WITH THE ARCHITECTURAL, MECHANICAL, STRUCTURAL, AND ELECTRICAL DRAWINGS.
4. SPACE ABOVE ALL CEILINGS IS EXTREMELY LIMITED. CAREFUL COORDINATION IS REQUIRED WITH ALL TRADES BEFORE ANY PIPE, DUCT, OR EQUIPMENT IS ORDERED AND/OR INSTALLED. 1/4" SCALE SHOP DRAWINGS (SUBMITTED TO ENGINEER FOR APPROVAL) ARE REQUIRED FOR ALL DIVISION THIS WORK. ANY CONFLICTS AND/OR CHANGES FOUND DURING INSTALLATION THAT RESULT FROM LACK OF COORDINATION BY THE CONTRACTORS DURING THE SHOP DRAWING PROCESS ARE THE RESPONSIBILITY OF THE CONTRACTOR
5. THE DRAWINGS AND SPECIFICATION HAVE BEEN PREPARED TO SUPPLEMENT EACH OTHER AND THEY SHALL BE INTERPRETED AS AN INTEGRAL UNIT WITH THE ITEMS SHOWN ON ONE AND NOT THE OTHER BEING FURNISHED AND INSTALLED AS THOUGH SHOWN AND CALLED OUT IN BOTH.
6. ANY PART OF THIS INSTALLATION THAT FAILS, IS UNFIT, OR BECOMES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
7. ALL EQUIPMENT SHALL PROVIDE THE SCHEDULED PERFORMANCE AT THE SITE ALTITUDE.
8. THE CONTRACTOR IS RESPONSIBLE FOR ALL EQUIPMENT (INCLUDED IN THIS BID) CHECK-IN, SAFE KEEPING, AND DAMAGE.
9. HEATING HOT WATER, SUPPLY AND RETURN MAY BE DIRECTLY SUPPORTED TO UNISTRUT BY MEANS OF CLAMPS, AND INSULATED UP TO SUPPORT SYSTEM.

PLUMBING GENERAL NOTES

1. UNLESS OTHERWISE NOTED, SLOPE PIPE AS FOLLOWS: WASTE BRANCHES: 1/4" PER FOOT; WASTE MAINS: 1/4" PER FOOT; ROOF DRAIN/ROOF DRAIN OVERFLOW: 1/8" PER FOOT.
2. ALL WORK DONE SHALL BE PERFORMED WITH WATER CONTROL IN MIND. CONTAINMENT OF WATER IS NECESSARY TO PREVENT WATER FROM DAMAGING AREAS ON FLOORS BELOW.
3. PLUMBING DRAWINGS ARE SCHEMATIC IN NATURE. FIELD VERIFY EXACT PIPE ROUTING AND COORDINATE WITH ALL OTHER TRADES.
4. ALL PIPING IN PLUMBING CHASES SHALL BE ARRANGED TO ALLOW MAINTENANCE ACCESS.
5. NO PIPING TO RUN OVER ELECTRICAL PANELS, VFD'S OR MCC'S. PROTECT EQUIPMENT WITH A 42" DEEP ZONE IN FRONT OF PANELS, VFD'S, AND MCC'S.
6. COORDINATE FAN ROOM FLOOR DRAIN LOCATIONS WITH COOLING COIL AND HEATING COIL LOCATIONS.
7. CONTRACTOR TO PROVIDE VALVE IDENTIFICATION AND LOCATION ON ALL CEILING TILES WHERE VALVES ARE LOCATED.
8. EXISTING PIPING AND ROUTING SHOWN, INCLUDING ALL BELOW FLOOR DECK PIPING, IS APPROXIMATE. IT IS UP TO THE CONTRACTOR TO FIELD VERIFY THE EXACT LOCATION AND SIZE OF ALL PIPING.
9. REFER TO ARCHITECTURAL DRAWINGS FOR FIXTURE MOUNTING HEIGHTS, DIMENSIONS, AND OTHER REQUIREMENTS.
10. CONTRACTOR TO VERIFY CONNECTION SIDE OF ADA FIXTURES AND ADJUST ACCORDINGLY. INSTALL FLUSH VALVES HANDLES ON WIDE SIDE OF ALL FIXTURES.
11. LOCATE ALL VENTS MINIMUM 25' AWAY FROM AIR INTAKES.
12. INSTALL ALL DOMESTIC WATER LINES BELOW DUCTWORK.
13. INSTALL A 24" X 24" ACCESS DOOR BELOW ALL ISOLATION VALVES, BALANCING VALVES AND WATER HAMMER ARRESTORS WHERE MOUNTED ABOVE HARD CEILINGS.
14. MOUNT ALL ISOLATION VALVES, CONTROL VALVES, BALANCING VALVES, ETC. NEAR CEILING HEIGHT FOR ACCESSIBILITY.
15. INSTALL ALL EQUIPMENT WITH SUFFICIENT CLEARANCE FOR MAINTENANCE PER MANUFACTURERS RECOMMENDATION.
16. COORDINATE ALL FLOOR PENETRATIONS WITH STRUCTURAL AND PROVIDE SLEEVES AS NECESSARY.
17. COORDINATE THE LOCATION OF THE FLOOR DRAIN, SHOWER DRAIN, OR FLOOR SINK WITH ARCHITECTURAL AND STRUCTURAL, TYPICAL.
18. ACCESS DOORS SHALL BE PROVIDED TO ALL WATER HAMMER ARRESTORS IN WALLS OR ABOVE CEILINGS.
19. SEE PLUMBING FIXTURE SCHEDULE FOR PIPE SIZES OF WASTE, VENT AND DOMESTIC WATER TO/FROM SINGLE FIXTURE.
20. HOSE BIBBS SHOWN AT LAVATORIES ARE TO BE MOUNTED AT AN ACCESSIBLE LOCATION UNDER THE LAVATORY.
21. COORDINATE EXACT LOCATION OF PLUMBING PIPING WITH STRUCTURAL MEMBERS, LIGHTS, REFLECTED CEILING PLANS, CABLE TRAY, ELECTRICAL CONDUITS, DUCTWORK, MECHANICAL AND FIRE PROTECTION PIPING, AND ALL OTHER TRADES AND ALL EXISTING CONDITIONS.
22. ALL PIPE AND DUCT SIZES SHALL REMAIN THE SAME SIZE SHOWN, IN THE DIRECTION OF FLOW, UNTIL SHOWN OTHERWISE.
23. INSTALL CLEANOUTS IN DRAIN PIPING AS INDICATED, AND WHERE NOT INDICATED, ACCORDING TO THE FOLLOWING.
    a) SIZE SAME AS DRAINAGE PIPING UP TO 4" NPS. USE 4" NPS FOR LARGER. DRAINAGE PIPING UNLESS LARGER CLEANOUT IS INDICATED.
    b) LOCATE AT MINIMUM INTERVALS OF 50 FT FOR PIPING 4" NPS AND SMALLER AND 100 FT FOR LARGER PIPING.
    c) LOCATE AT THE BASE OF EACH VERTICAL STACK.

MECHANICAL PIPING GENERAL NOTES

1. PROVIDE ALL MATERIALS AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE PIPING SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED AND AS REQUIRED BY CODE.
2. UNLESS OTHERWISE NOTED: ALL MECHANICAL PIPING IS OVERHEAD TO RUN BELOW DUCTWORK.
3. WHERE VALVING OR EQUIPMENT IS LOCATED ABOVE HARD CEILINGS PROVIDE AN ACCESS DOOR IN CEILING. MINIMUM ACCESS DOOR SIZE OF 24"X24".
4. NO PIPING TO RUN OVER ELECTRICAL PANELS, VFD'S OR MCC'S. PROTECT EQUIPMENT WITH A 42" DEEP ZONE IN FRONT OF PANELS, VFD'S, AND MCC'S.
5. SLEEVE PIPING THRU WALLS/FOUNDATIONS WHERE REQUIRED.
6. INSTALL PIPING SO THAT ALL VALVES, STRAINERS, UNIONS, TRAPS, FLANGES, AND OTHER APPURTENANCES REQUIRING ACCESS ARE ACCESSIBLE.
7. ALL VALVES SHALL BE INSTALLED SO THAT VALVE REMAINS IN SERVICE WHEN EQUIPMENT OR PIPING ON EQUIPMENT SIDE OF VALVE IS REMOVED.
8. PROVIDE AN AIR VENT AT THE HIGH POINT OF EACH DROP IN THE HEATING AND CHILLED WATER PIPING SYSTEM.
9. INSTALL ALL PIPING WITHOUT FORCING OR SPRINGING.
10. ALL VALVES SHALL BE ADJUSTED FOR SMOOTH AND EASY OPERATION.
11. PROVIDE ISOLATION VALVES AT EACH EXIT/ENTRANCE INTO SHAFT WHETHER OR NOT SHOWN.
12. ALL PIPE AND DUCT SIZES SHALL REMAIN THE SAME SIZE SHOWN, IN THE DIRECTION OF FLOW, UNTIL SHOWN OTHERWISE.
13. COORDINATE LOCATION OF THERMOSTAT WITH ARCHITECTURAL FURNISHING PLANS. MOUNT THERMOSTAT AT HEIGHT AS SPECIFIED ON ARCHITECTURAL.
14. CONTRACTOR TO PROVIDE VALVE IDENTIFICATION AND LOCATION ON ALL CEILING TILES WHERE VALVES ARE LOCATED.
15. PIPING DRAWINGS ARE SCHEMATIC IN NATURE. FIELD VERIFY ALL ROUTING AND COORDINATE WITH ALL OTHER TRADES.
16. FIELD VERIFY ALL EQUIPMENT LOCATIONS.
17. DETAILS REFERENCE ALL SHEETS.

FIRE PROTECTION GENERAL NOTES

1. NO FIRE PROTECTION LINE SHALL BE DESIGNED OR INSTALLED PRIOR TO CLOSE COORDINATION WITH ALL OTHER DISCIPLINES. DUCTWORK, MECHANICAL PIPING AND PLUMBING TAKE SPACE PRECEDENCE OVER FIRE PROTECTION PIPING. FAILURE TO COMPLY WILL RESULT IN THE FIRE PROTECTION REMOVAL AND REINSTALLATION AT THE FIRE PROTECTION CONTRACTORS EXPENSE.
2. COORDINATE EXACT LOCATION OF PIPING WITH STRUCTURAL MEMBERS, LIGHTS, REFLECTED CEILING PLANS, CABLE TRAY, ELECTRICAL CONDUITS, DUCTWORK, MECHANICAL AND PLUMBING PIPING, AND ALL OTHER TRADES AND ALL EXISTING CONDITIONS.
3. ALL SPRINKLERS SHALL BE QUICK RESPONSE TYPE.

MECHANICAL GENERAL NOTES

1. COORDINATE EXACT PLACEMENT OF DIFFUSERS, GRILLES, AND REGISTERS WITH ARCHITECTURAL REFLECTED CEILING PLAN, TYPICAL.
2. SEE DETAIL FOR DIFFUSER CONNECTIONS TO DUCTWORK, TYPICAL.
3. BRANCH DUCTWORK SHALL BE SIZED TO MATCH THE NECK INLET SIZE OF THE DIFFUSERS, REGISTER OR GRILLE IT SERVES UNLESS NOTED OTHERWISE, TYPICAL.
4. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CAULKING AND SEALING ALL PENETRATIONS IN FIRE AND SMOKE RATED PARTITIONS TO MAINTAIN RATINGS. SEE SPECIFICATION, TYPICAL.
5. THE MECHANICAL CONTRACTOR SHALL PROVIDE FIRE, SMOKE OR COMBINATION FIRE/SMOKE DAMPERS AT ALL LOCATIONS SHOWN ON THE CONTRACT DOCUMENTS AND AS REQUIRED TO MEET THE INTEGRITY OF ALL SMOKE AND FIRE PARTITIONS. THE CONTRACTOR SHALL REFER TO THE LATEST ARCHITECTURAL LIFE SAFETY PLANS FOR ALL FIRE AND SMOKE PARTITION LOCATIONS. DAMPERS ARE TO BE PROVIDED WITH SHUTOFF/TEST SWITCH AT EACH LOCATION.
6. PROVIDE AND INSTALL TURNING VANES IN ALL SQUARE LOW PRESSURE DUCTWORK AT ELBOWS OR TEES, TYPICAL.
7. INSTALL ALL TERMINAL BOXES IN EASILY ACCESSIBLE AND SERVICEABLE LOCATIONS, MEETING ALL MANUFACTURERS REQUIRED CLEARANCES ON EACH SIDE, SEE DETAILS, TYPICAL.
8. CONTRACTOR SHALL OFF-SET, TRANSITION AND PROVIDE CHANGES AS REQUIRED FOR COORDINATION WITH OTHER TRADES, TYPICAL.
9. DUCTWORK SIZES SHOWN ARE INSIDE CLEAR DIMENSIONS. REFER TO MECHANICAL SPECIFICATIONS FOR EXTENT OF DUCT INSULATION AND LINER.
10. PROVIDE AND INSTALL REMOTE DAMPER OPERATORS FOR ALL DAMPERS INSTALLED ABOVE INACCESSIBLE CEILINGS. SEE MECHANICAL SPECIFICATIONS FOR EQUIPMENT REQUIREMENTS, TYPICAL.
11. PROVIDE AND INSTALL HIGH EFFICIENCY TAKE-OFF FITTINGS AND BALANCING DAMPER AT ALL BRANCH CONNECTIONS TO LOW PRESSURE DUCTWORK.
12. PROVIDE AND INSTALL HIGH EFFICIENCY OR CONICAL TAKE-OFFS AT ALL BRANCH CONNECTIONS TO MEDIUM PRESSURE DUCTWORK.
13. AT LOCATIONS WHERE DIFFUSERS OR GRILLES ARE UNDER DUCTWORK, CONTRACTOR TO FABRICATE TRANSITION BOOT FROM FLEX CONNECTION TO DIFFUSER OR GRILLE, TYPICAL.
14. THE MECHANICAL CONTRACTOR SHALL PROVIDE CEILING MOUNTED ACCESS DOORS FOR ALL FIRE, SMOKE AND COMBINATION FIRE/SMOKE DAMPERS INSTALLED ABOVE INACCESSIBLE CEILING. FIELD VERIFY EXACT INSTALLATION LOCATIONS PRIOR TO COMMENCING WORK AND COORDINATE INSTALLATIONS WITH LATEST ARCHITECTURAL REFLECTED CEILING PLANS.
15. MECHANICAL CONTRACTOR SHALL ENSURE THAT ALL EQUIPMENT IS PROVIDED AND INSTALLED WITH CLEARANCES PER MANUFACTURERS RECOMMENDATIONS. THE CONTRACTOR SHALL MAINTAIN PROPER SERVICE SPACE FOR COIL PULLS, BAS DEVICES, MAINTENANCE ACCESS, ETC.
16. ALL VAV BOXES TO HAVE REHEAT COILS, EXCEPT AS NOTED. PROVIDE A MINIMUM OF TWO DUCT DIAMETERS OF STRAIGHT ROUND DUCT TO INLET OF VAV BOX. BOX SHALL BE HARD CONNECTED (CONICAL) TO MEDIUM PRESSURE DUCT, TYPICAL.
17. PROVIDE ACCESS DOORS TO ACCESS VAV BOX CONTROLS ABOVE HARD CEILINGS. PROVIDE MIN. 24" X 24".
18. ALL PIPE AND DUCT SIZES SHALL REMAIN THE SAME SIZE SHOWN, IN THE DIRECTION OF FLOW, UNTIL SHOWN OTHERWISE.
19. DUCTWORK, PIPING AND EQUIPMENT SHALL BE COORDINATED WITH STRUCTURE, LIGHTS, REFLECTED CEILING PLANS, CABLE TRAY, ELECTRICAL CONDUIT, PLUMBING, MECHANICAL AND FIRE PROTECTION PIPING, AND ALL OTHER TRADES.
20. THE CONTRACTOR SHALL INFORM THE DESIGNER OF ANY PROPOSED DEVIATIONS FROM THE CONTRACT DOCUMENTS.
21. PROVIDE ACCESS TO ALL TEMPERATURE CONTROLS ABOVE CEILING. LOCATE IN ACCESSIBLE LOCATION. WHERE THERE ARE HARD CEILINGS THE CONTRACTOR SHALL PROVIDE 24"X24" ACCESS DOOR.
22. PROVIDE BALANCING DAMPER AT EACH BRANCH TAKE-OFF TO SERVE DIFFUSER OR GRILLE AS WELL AS WHERE INDICATED.
23. DETAILS REFERENCE ALL SHEETS.
24. UNLESS OTHERWISE NOTED, ALL SUPPLY DIFFUSERS SHALL BE OF THE CD-1 TYPE, ALL RETURN GRILLES SHALL BE OF THE RG-1 TYPE AND ALL EXHAUST GRILLES SHALL BE OF THE EG-1 TYPE.

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DFCM #: 13020300

Project #: B13-024

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GENERAL NOTES

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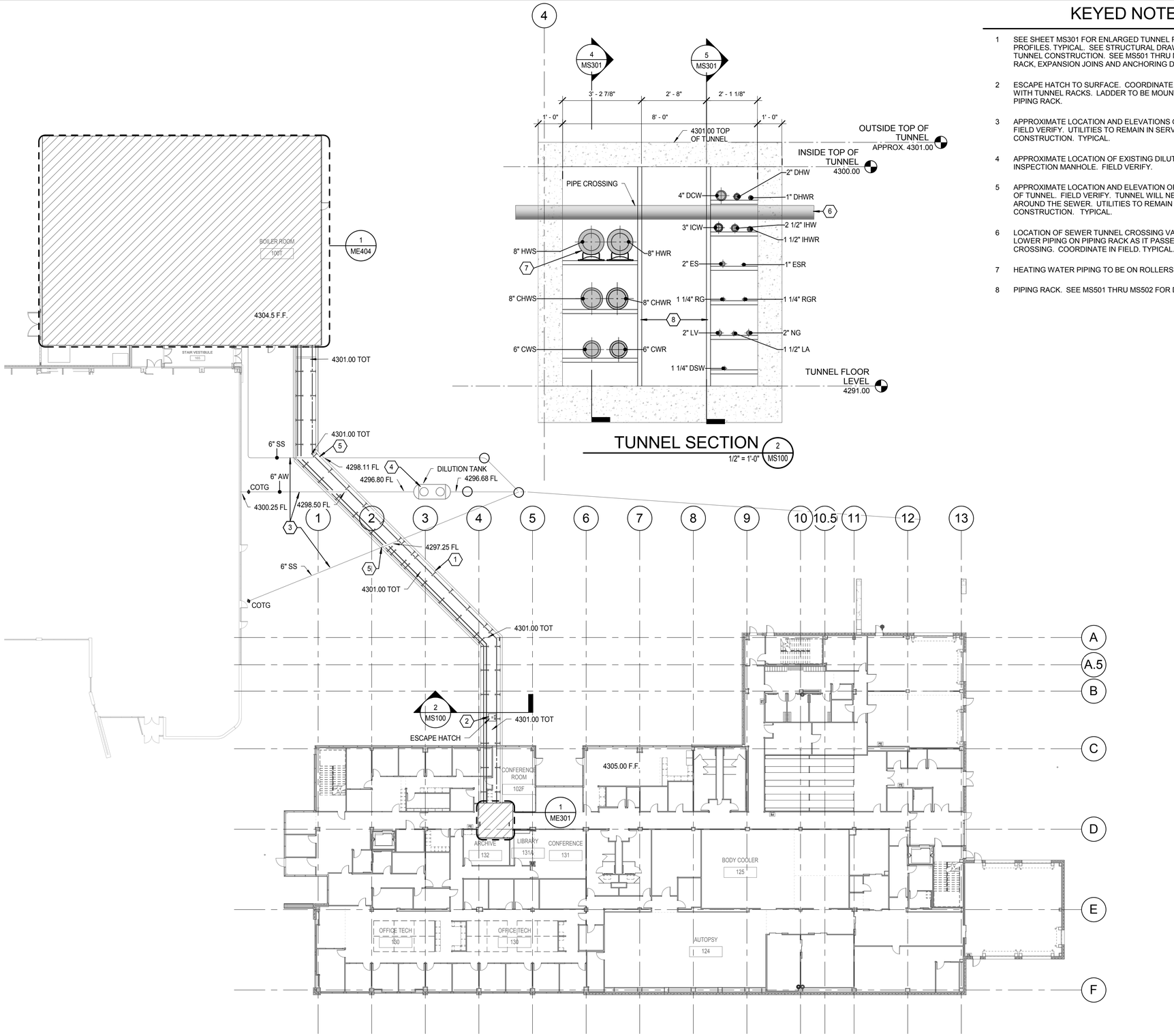

KEYED NOTES

1. SEE SHEET MS301 FOR ENLARGED TUNNEL PLANS, SECTIONS AND PROFILES. TYPICAL. SEE STRUCTURAL DRAWINGS TO REFERENCE TUNNEL CONSTRUCTION. SEE MS501 THRU MS504 FOR TUNNEL RACK, EXPANSION JOINS AND ANCHORING DETAILS. TYPICAL.
2. ESCAPE HATCH TO SURFACE. COORDINATE OPENING LOCATION WITH TUNNEL RACKS. LADDER TO BE MOUNTED ON SIDE OF PIPING RACK.
3. APPROXIMATE LOCATION AND ELEVATIONS OF EXISTING UTILITIES. FIELD VERIFY. UTILITIES TO REMAIN IN SERVICE DURING CONSTRUCTION. TYPICAL.
4. APPROXIMATE LOCATION OF EXISTING DILUTION TANK AND INSPECTION MANHOLE. FIELD VERIFY.
5. APPROXIMATE LOCATION AND ELEVATION OF SEWER CROSSING OF TUNNEL. FIELD VERIFY. TUNNEL WILL NEED TO BE BUILT AROUND THE SEWER. UTILITIES TO REMAIN IN SERVICE DURING CONSTRUCTION. TYPICAL.
6. LOCATION OF SEWER TUNNEL CROSSING VARIES. RAISE OR LOWER PIPING ON PIPING RACK AS IT PASSES THE SEWER CROSSING. COORDINATE IN FIELD. TYPICAL.
7. HEATING WATER PIPING TO BE ON ROLLERS. TYPICAL.
8. PIPING RACK. SEE MS501 THRU MS502 FOR DETAILS.

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LICENSED PROFESSIONAL ENGINEER
No. 178893
DONALD K. BRADSHAW
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #:	13020300
Project #:	B13-024
DATE:	ISSUE TYPE:
April 21, 2014	BID SET
CHECKED BY	S. Muir
DRAWN BY	DL

MECHANICAL SITE PLAN

MS100

VOLUME 2

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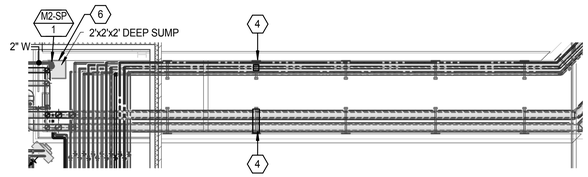
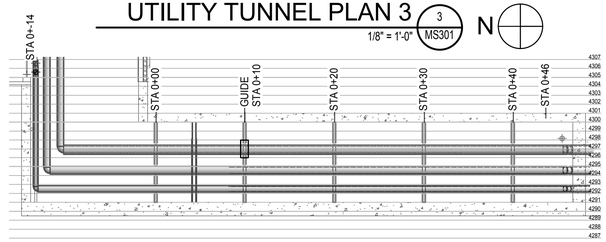


UTILITY TUNNEL PLAN 3

3 / MS301

1/8" = 1'-0"

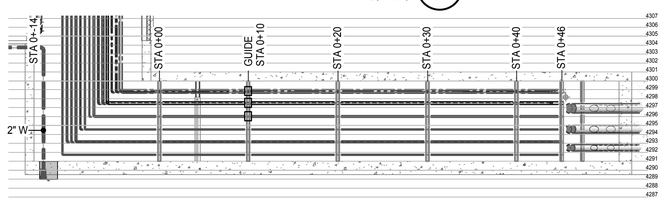
N



TUNNEL PROFILE 3

8 / MS301

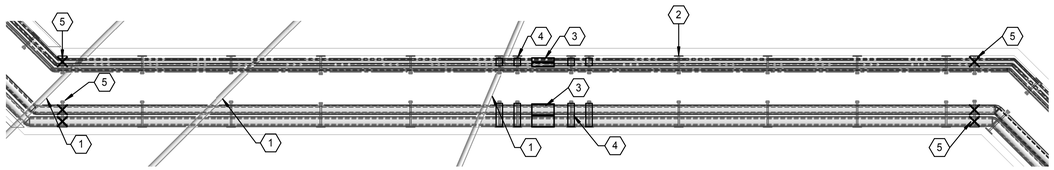
1/8" = 1'-0"



TUNNEL PROFILE 3B

9 / MS301

1/8" = 1'-0"

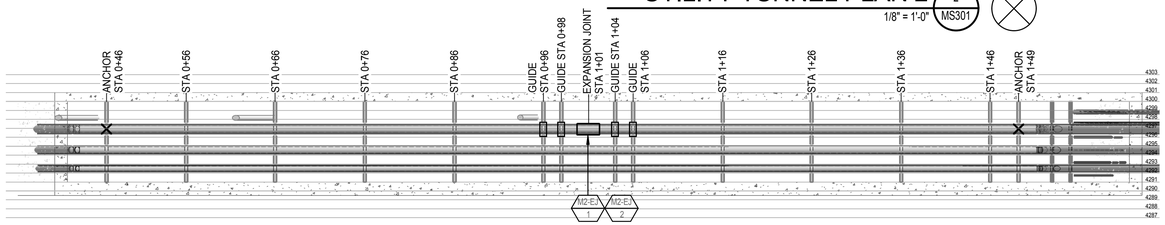


UTILITY TUNNEL PLAN 2

2 / MS301

1/8" = 1'-0"

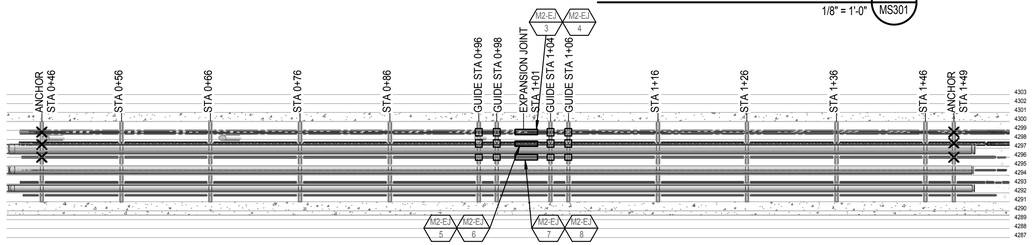
N



TUNNEL PROFILE 2

6 / MS301

1/8" = 1'-0"



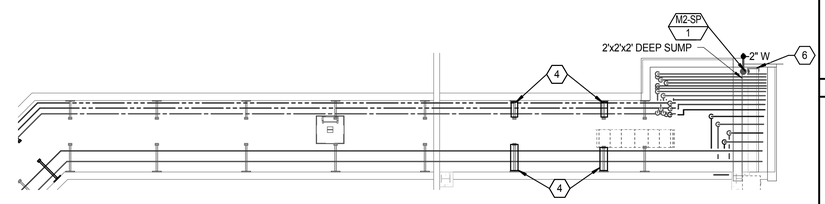
TUNNEL PROFILE 2B

7 / MS301

1/8" = 1'-0"

KEYED NOTES

1. COORDINATE WITH EXACT LOCATION OF EXISTING ACID WASTE AND SANITARY SEWER LINES. RAISE OR LOWER PIPING TO AVOID PIPE CROSSING.
2. PIPING SUPPORT RACK, SEE TUNNEL DETAILS ON SHEETS, TYPICAL.
3. EXPANSION JOINTS. SEE SCHEDULE, TYPICAL.
4. PIPING GUIDES ONLY ON PIPING WITH EXPANSION JOINTS. SEE SHEET MS501 FOR SCHEDULE, TYPICAL.
5. PIPING ANCHOR ONLY ON PIPING WITH EXPANSION JOINTS. SEE SHEET MS504 FOR DETAILS, TYPICAL.
6. 2'X2'X2' DEEP SUMP WITH SUMP PUMP. PROVIDE OPEN GRATE COVER. SEE DETAILS ON PLUMBING PLANS. EXTEND WASTE LINE TO NEAREST INDIRECT WASTE RECEPTOR.

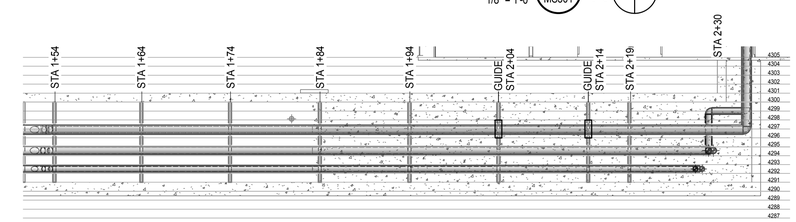


UTILITY TUNNEL PLAN 1

1 / MS301

1/8" = 1'-0"

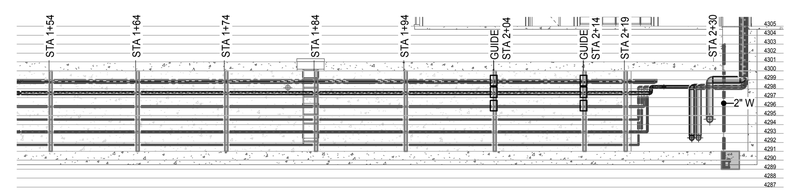
N



TUNNEL PROFILE 1

4 / MS301

1/8" = 1'-0"



TUNNEL PROFILE 1B

5 / MS301

1/8" = 1'-0"

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TUNNEL PLANS AND PROFILES

MS301

VOLUME 2

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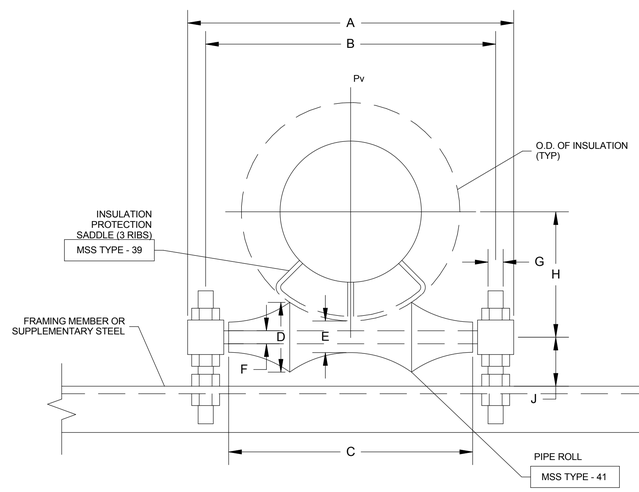
EXPANSION JOINT SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	LOCATION	PRESSURE RATING (PSI)	DIAMETER (IN)	TRAVERSE (IN)	TYPE WITH BASE	NOTES
EJ-1	METRAFLEX GAT04SG0800	TUNNEL HWS	150	8	4	EXTERNAL PRESSURE - AXIAL	1
EJ-2	METRAFLEX GAT04SG0800	TUNNEL HWS	150	8	4	EXTERNAL PRESSURE - AXIAL	1
EJ-3	METRAFLEX MLSNSF80200	TUNNEL DHW	150	2	4	COPPER HOSE & BRAID - LOOP	2
EJ-4	METRAFLEX MLSNSF80100	TUNNEL DHW	150	1	4	COPPER HOSE & BRAID - LOOP	2
EJ-5	METRAFLEX MLSNSF80200	TUNNEL DHW	150	2.5	4	COPPER HOSE & BRAID - LOOP	2
EJ-6	METRAFLEX MLSNSF80200	TUNNEL DHW	150	1.5	4	COPPER HOSE & BRAID - LOOP	2
EJ-7	METRAFLEX MLSNSF80200	TUNNEL DHW	150	2	4	COPPER HOSE & BRAID - LOOP	2
EJ-8	METRAFLEX MLSNSF80200	TUNNEL DHW	150	1	4	COPPER HOSE & BRAID - LOOP	2

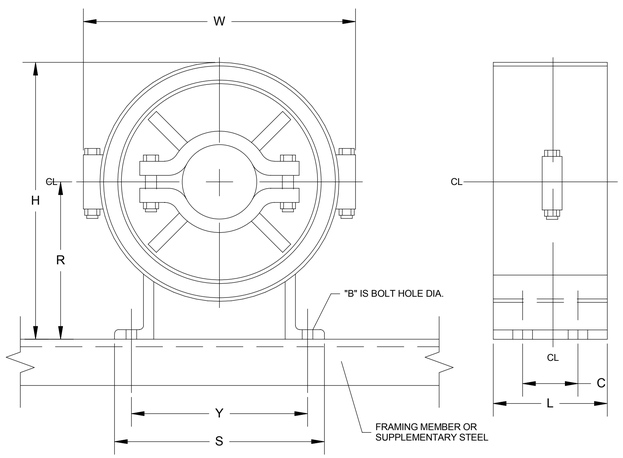
1.FLANGED ENDS, VENT PLUG, DRAIN PLUG, LIFTING LUG.
2. SWEAT ENDS BRONZE HOSE & BRAID, LEAD FREE, POTTABLE WATER USE.

1. FOR 3 1/2" THICK INSULATION USE 3" SADDLE (GRINNEL FIG. 164) WITH PIPE SUPPORT ONLY.
2. FOR 2" THICK INSULATION USE 2" SADDLE (GRINNEL FIG. 162) WITH PIPE SUPPORT ONLY.
3. ALL SADDLES AND GUIDES TO ALLOW A MINIMUM OF 12" GROWTH.
4. INSTALL SUCH THAT PIPE GROWTH (12" MAX.) IS ALLOWED IN THE DIRECTION OF THE EXPANSION JOINT.
5. "J" DIMENSION SHOULD BE FIELD SET TO AVOID INTERFERENCE.

1 / MS501 ROLLER AND GUIDE GENERAL NOTES
NO SCALE



4 / MS501 ROLLER SUPPORT TYPICAL DETAIL
NO SCALE



2 / MS501 GUIDED SUPPORT TYPICAL DETAIL
NO SCALE

PIPE SIZE	SERVICE	INSUL. THICK	DIMENSIONS									BODY SIZE
			A	B	C	D	E	F	G	H	J	
10"	HW	3 1/2"	24 1/2"	21 7/8"	18 1/4"	5 7/16"	2 1/4"	1 1/4"	1"	10 1/2"	2 7/8"	18
8"	HW	3 1/2"	22 1/8"	19 3/4"	16 1/4"	5"	2 5/8"	1 1/4"	1"	9 7/16"	2 7/8"	16
6"	HW	3 1/2"	20 1/8"	19 3/4"	14 1/4"	4 5/8"	2 1/2"	1 1/8"	15/16"	8 3/8"	2 1/2"	14

TYPICAL PIPE SUPPORT
GRINNEL FIG. 171 OR
EQUAL

5 / MS501 ROLLER SUPPORT SCHEDULE
NO SCALE

PIPE SIZE	SERVICE	INSUL. THICK	DIMENSIONS								BODY SIZE
			H	R	W	Y	B	C	L	S	
10"	HW	3 1/2"	22"	11 1/2"	23 5/8"	14 1/8"	7/8"	4"	6"	16"	10
8"	HW	3 1/2"	20"	10 1/2"	21 5/8"	11 1/4"	3/4"	4"	6"	13 3/4"	9
6"	HW	3"	17 7/8"	9 1/2"	18 7/8"	10 1/4"	3/4"	4"	6"	11 3/4"	8

TYPICAL PIPE GUIDE ATS
MODEL GA OR EQUAL

3 / MS501 GUIDE SCHEDULE
NO SCALE

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DRAWN BY	DL

TUNNEL DETAILS

MS501

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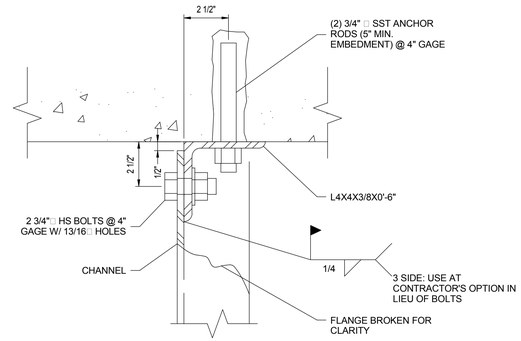
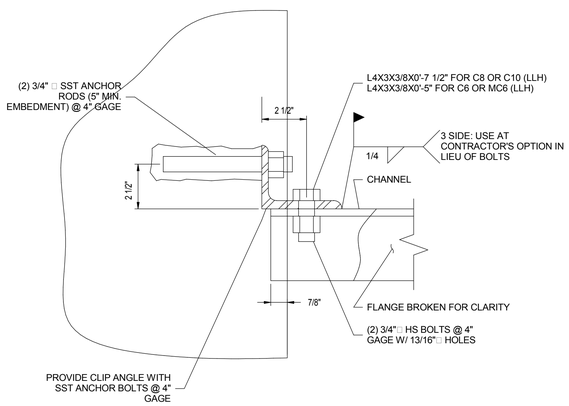


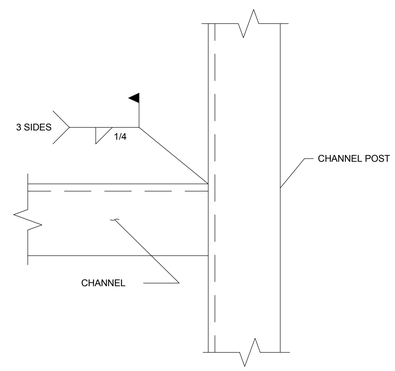
2 / MS502 CLIP ANGLE @ CEILING

SCALE: 3"=1'-0"



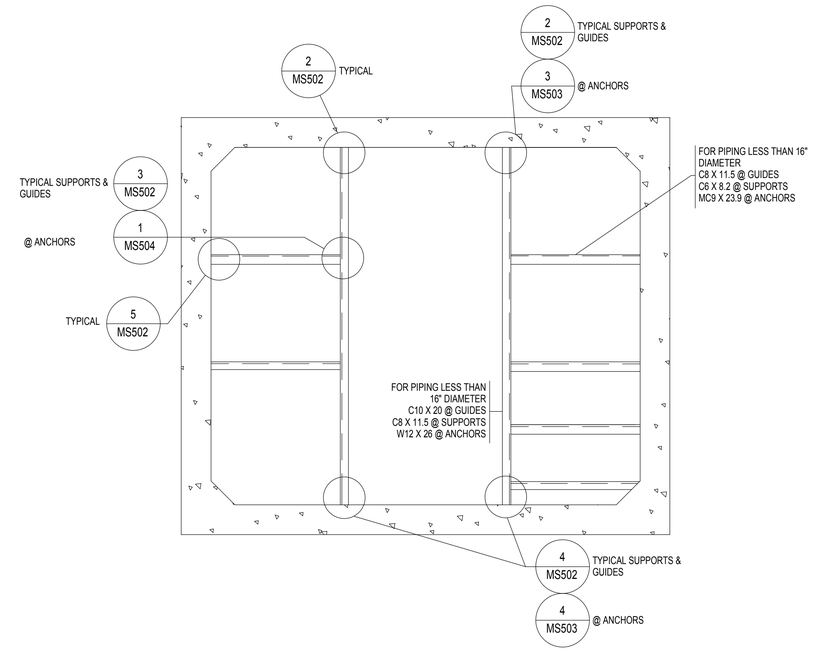
5 / MS502 CLIP ANGLE @ WALL

SCALE: 3"=1'-0"



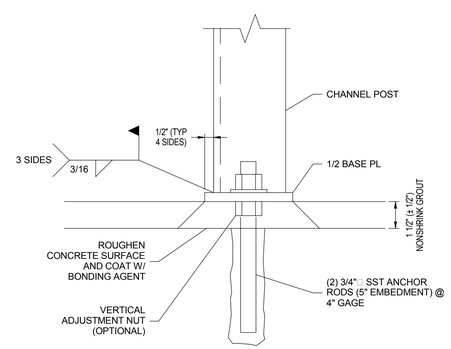
3 / MS502 SUPPORT CHANNEL

SCALE: 3"=1'-0"



1 / MS502 STRUCT. STEEL SUPPORT TYPICAL SECTION

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



4 / MS502 CLIP ANGLE @ CEILING

SCALE: 3"=1'-0"

NOTE: CONTRACTOR TO VERIFY SIZE AND CONFIGURATION OF STRUCTURAL SUPPORTS AND ANCHORS. VERIFY EPOXY AND ANCHOR BOLT TYPES AND CONFIGURATION. VERIFICATION SHALL BE COMPLETED BY A LICENSED STRUCTURAL ENGINEER.

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TUNNEL DETAILS

MS502

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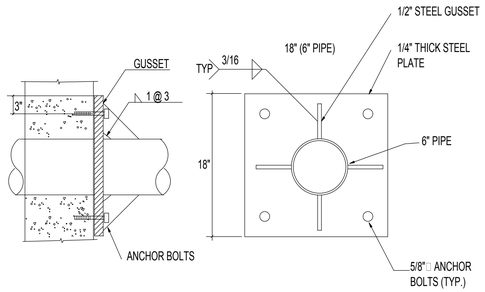
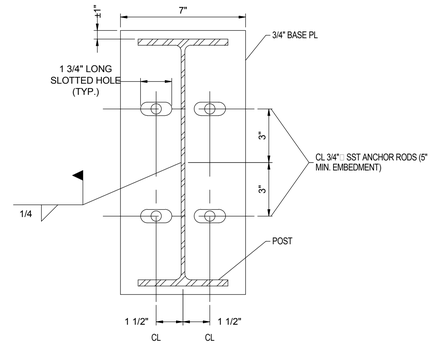


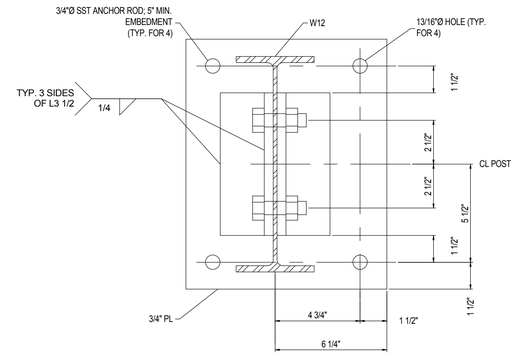
7 / MS503 ANCHOR DETAIL (MANHOLE)

NO SCALE



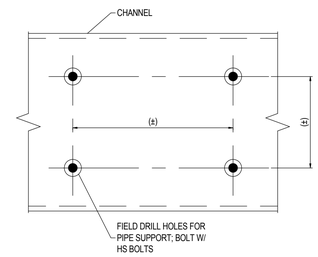
4 / MS503 ANCHOR POST BASE PL

SCALE: 3"=1'-0"



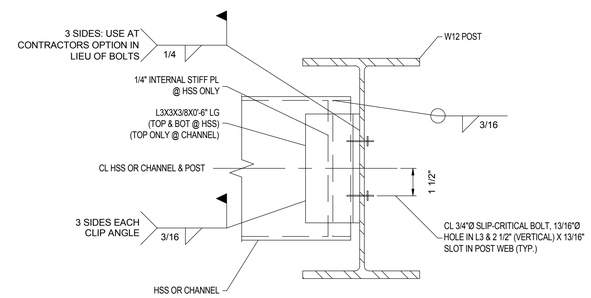
1 / MS503 CLIP ANGLE @ CEILING

SCALE: 3"=1'-0"



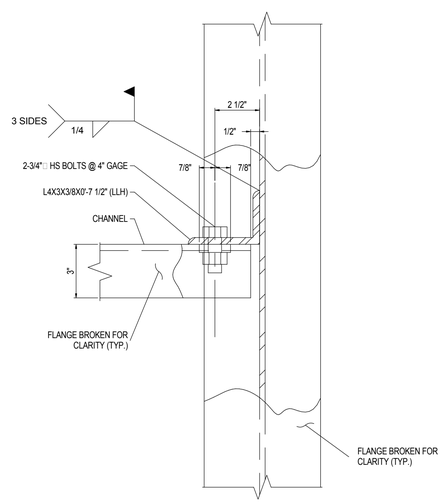
5 / MS503 CHANNEL BOLT LAYOUT

SCALE: 3"=1'-0"



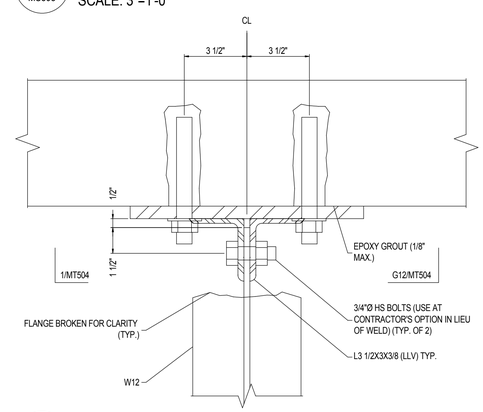
2 / MS503 CHANNEL CONNECTION

SCALE: 3"=1'-0"



6 / MS503 CHANNEL CONNECTION ELEVATION

SCALE: 3"=1'-0"



3 / MS503 CLIP ANGLE @ CEILING

SCALE: 3"=1'-0"

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TUNNEL DETAILS

MS503

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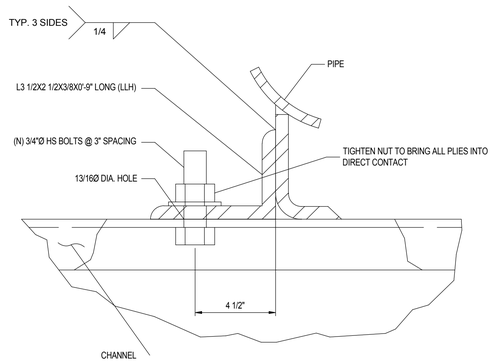
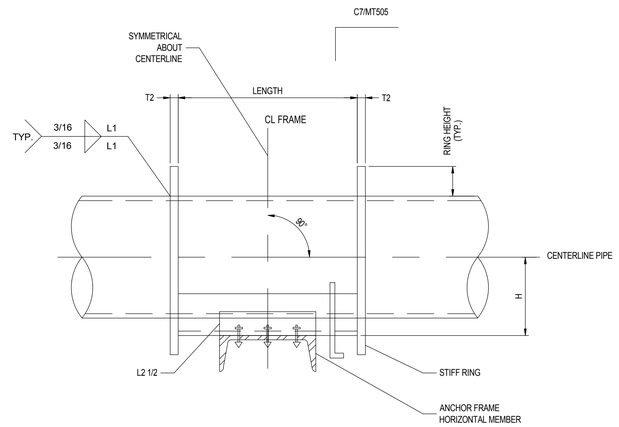


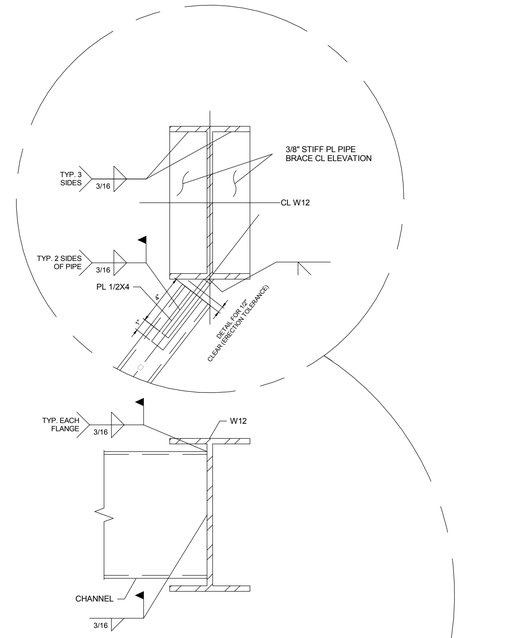
5 / MS504 DETAIL

NO SCALE



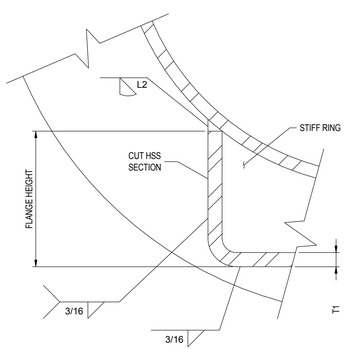
3 / MS504 ANCHOR DETAIL - ELEVATION

NO SCALE



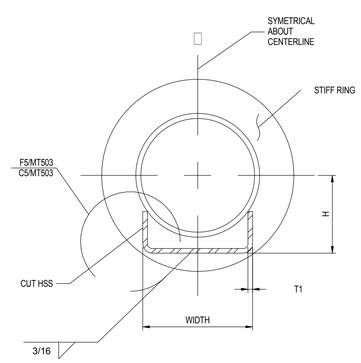
1 / MS504 CHANNEL CONNECTION DETAIL

SCALE: 1" = 1'-0"



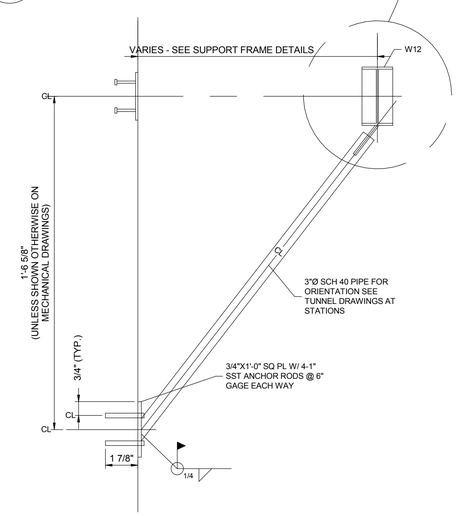
6 / MS504 ATTACHMENT TO CHANNEL DETAIL

NO SCALE



4 / MS504 ANCHOR DETAIL -END VIEW

NO SCALE



2 / MS504 ANCHOR SUPPORT - PLAN VIEW

SCALE: 1" = 1'-0"

B7/MT505 HOT WATER ANCHOR SCHEDULE

PIPE DIA.	LENGTH (IN)	WIDTH (IN)	FLANGE HT (IN)	T1 (IN)	RING HT (IN)	T2 (IN)	L1 (IN-IN)	L2 (IN-IN)	H (IN)	N BOLTS
10"	13	8	3	3/8	2	3/8	2-6	3-5	7	3
8"	10	6	3	3/8	2	3/8	2-8	2-4	6 1/2	2
6" OR SMALLER	9	4	3	1/4	1	1/4	2-8	2-4	5 3/4	2

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Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #:	13020300
Project #:	B13-024
DATE:	ISSUE TYPE:
April 21, 2014	BID SET
CHECKED BY	D. Bradshaw
DRAWN BY	DL

TUNNEL DETAILS

MS504

VOLUME 2

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KEYED NOTES

1 INSTALL CO2 SENSOR BETWEEN 3'-0" AND 6'-0" AFF.

2 AIRFLOW RATE SHALL BE BASED ON OCCUPANCY STATUS OF THE AUTOPSY TABLES. CONNECT TO AUTOPSY LIGHTING CONTROL. SEE SEQUENCE OF OPERATIONS.

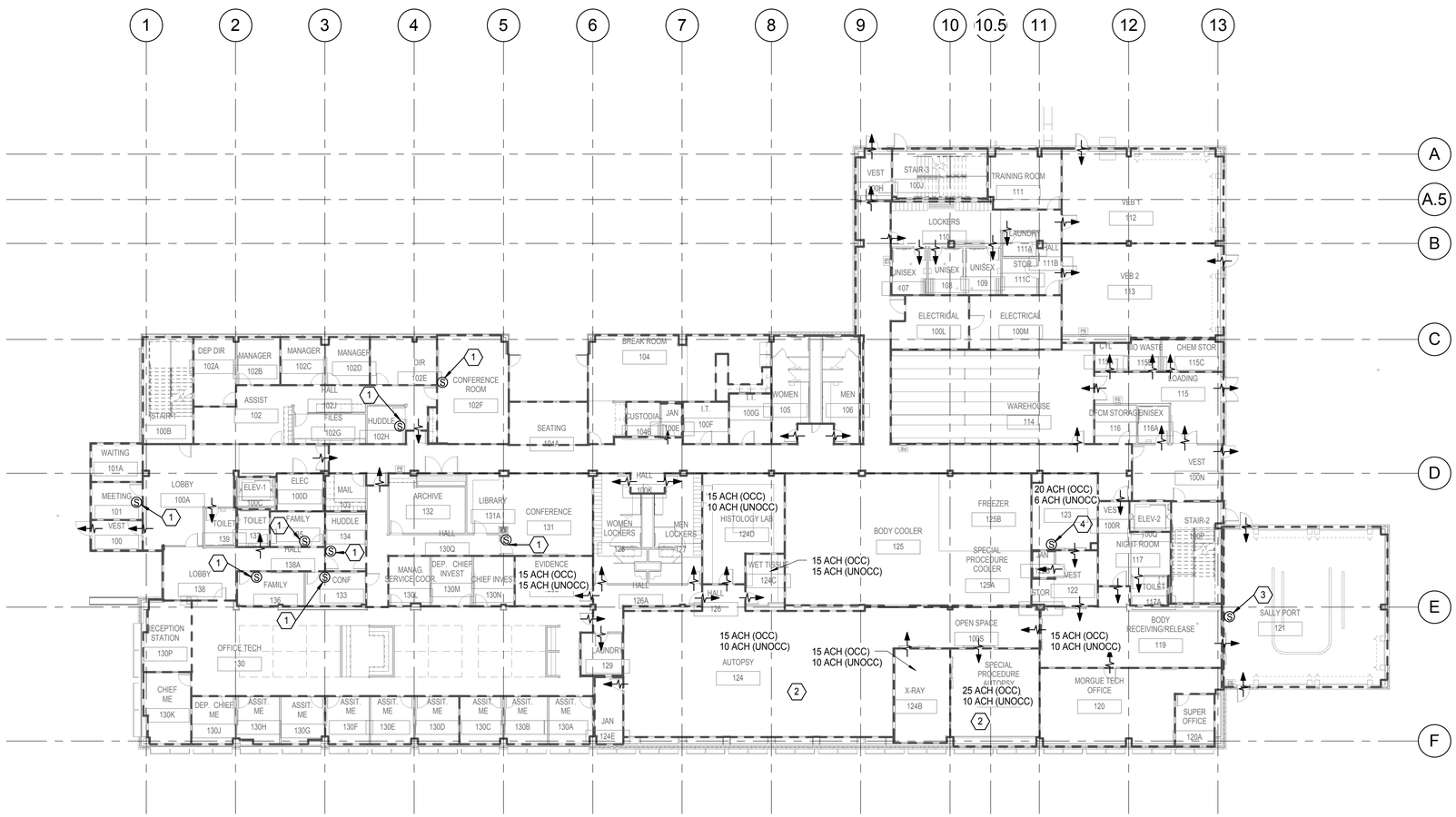
3 WALL MOUNTED CO SENSOR TO CONTROL VENTILATION RATE AND EXHAUST AIRFLOW RATE IN SALLYPORT. INSTALL BETWEEN 3'-0" AND 6'-0" AFF. SEE SEQUENCE OF OPERATIONS.

4 PROVIDE AND INSTALL OCCUPANCY SENSOR TO CONTROL ROOM AIRLFOW IN OCCUPIED/UNOCCUPIED MODE. SEE SEQUENCE OF OPERATIONS.

GENERAL NOTES

1 ARROW DEPICTS REQUIRED DIRECTION OF AIRFLOW (PRESSURIZATION) DURING STEADY STATE OPERATION. UPON SUBSTANTIAL COMPLETION THE MECHANICAL CONTRACTOR SHALL DEMONSTRATE TO THE ENGINEER, ARCHITECT & OWNER'S REPRESENTATIVE THAT THE SYSTEM HAS BEEEN PRESSURE BALANCED USING BOTTLED SMOKE. PRESSURE BALANCE SHALL BE MAINTAINED & DEMONSTRATED AT MINIMUM AND MAXIMUM FLOWS.

2 ZONE MINIMUM AIR CHANGE REATES FOR LABORATORY SPACES SHALL BE 6 ACH (OCCUPIED) / 2 ACH (UNOCCUPIED) UNLESS NOTED OTHERWISE. SEE AIR CONTROL VALVE SCHEDULES FOR MORE INFORMATION.



LEVEL 1 ZONING AND PRESSURIZATION PLAN (1 / MH101)

1/16" = 1'-0"

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SIGNATURE: Ernie Cathy
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 178893
DONALD K. BRADSHAW
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300

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LEVEL 1 ZONING AND PRESSURIZATION PLAN

MH101

VOLUME 2

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KEYED NOTES

1 PROVIDE AND INSTALL WALL MOUNTED DIFFERENTIAL PRESSURE INDICATOR.

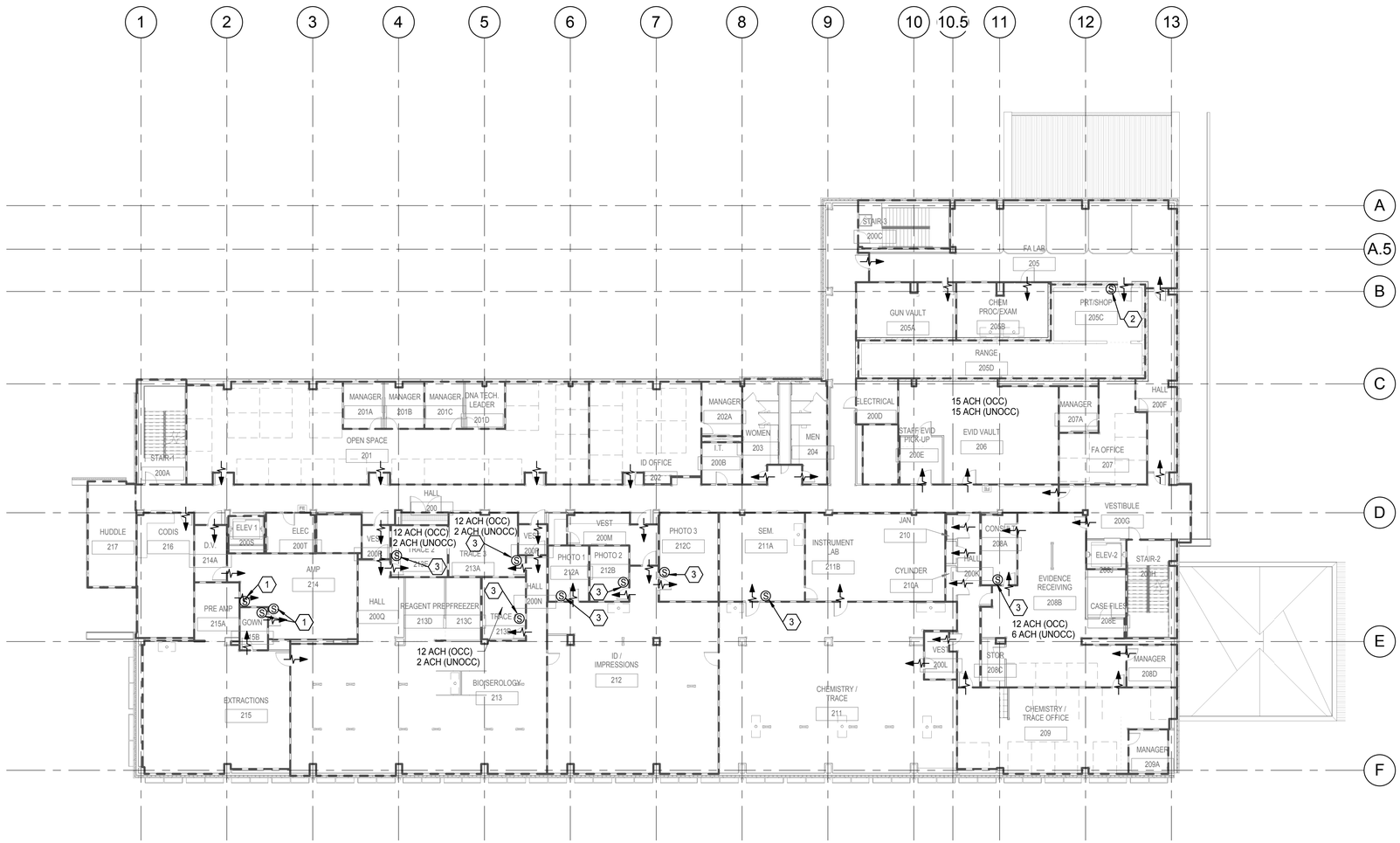
2 FIREARMS RANGE: AIRFLOW TO BE CONTROLLED IN OCCUPIED/UNOCCUPIED MODES. INTERLOCK HVAC OCCUPANCY STATUS WITH LIGHTING. COORDINATE LOCATION AND CONTACTS WITH DIVISION 26.

3 PROVIDE WALL MOUNTED USER OPERABLE AIRFLOW OVERRIDE SWITCH. UPON ACTIVATION OF THE OVERRIDE SWITCH. UPON ACTIVATION OF THE OVERRIDE THE SUPPLY VALVE MINIMUM AIRFLOW SETPOINT SHALL BE INCREASED TO MATCH THE MAXIMUM AIRFLOW. SEE SEQUENCE OF OPERATIONS. PROVIDE PERMANENT LABEL FOR SWITCH STATING "AIRFLOW OVERRIDE SWITCH."

GENERAL NOTES

1 ARROW DEPICTS REQUIRED DIRECTION OF AIRFLOW (PRESSURIZATION) DURING STEADY STATE OPERATION. UPON SUBSTANTIAL COMPLETION THE MECHANICAL CONTRACTOR SHALL DEMONSTRATE TO THE ENGINEER, ARCHITECT & OWNER'S REPRESENTATIVE THAT THE SYSTEM HAS BEEEN PRESSURE BALANCED USING BOTTLED SMOKE. PRESSURE BALANCE SHALL BE MAINTAINED & DEMONSTRATED AT MINIMUM AND MAXIMUM FLOWS.

2 ZONE MINIMUM AIR CHANGE REATES FOR LABORATORY SPACES SHALL BE 6 ACH (OCCUPIED) / 2 ACH (UNOCCUPIED) UNLESS NOTED OTHERWISE. SEE AIR CONTROL VALVE SCHEDULES FOR MORE INFORMATION.



LEVEL 2 ZONING AND PRESSURIZATION PLAN (1 / MH102)
1/16" = 1'-0"

N

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LEVEL 2 ZONING AND PRESSURIZATION PLAN

MH102

VOLUME 2

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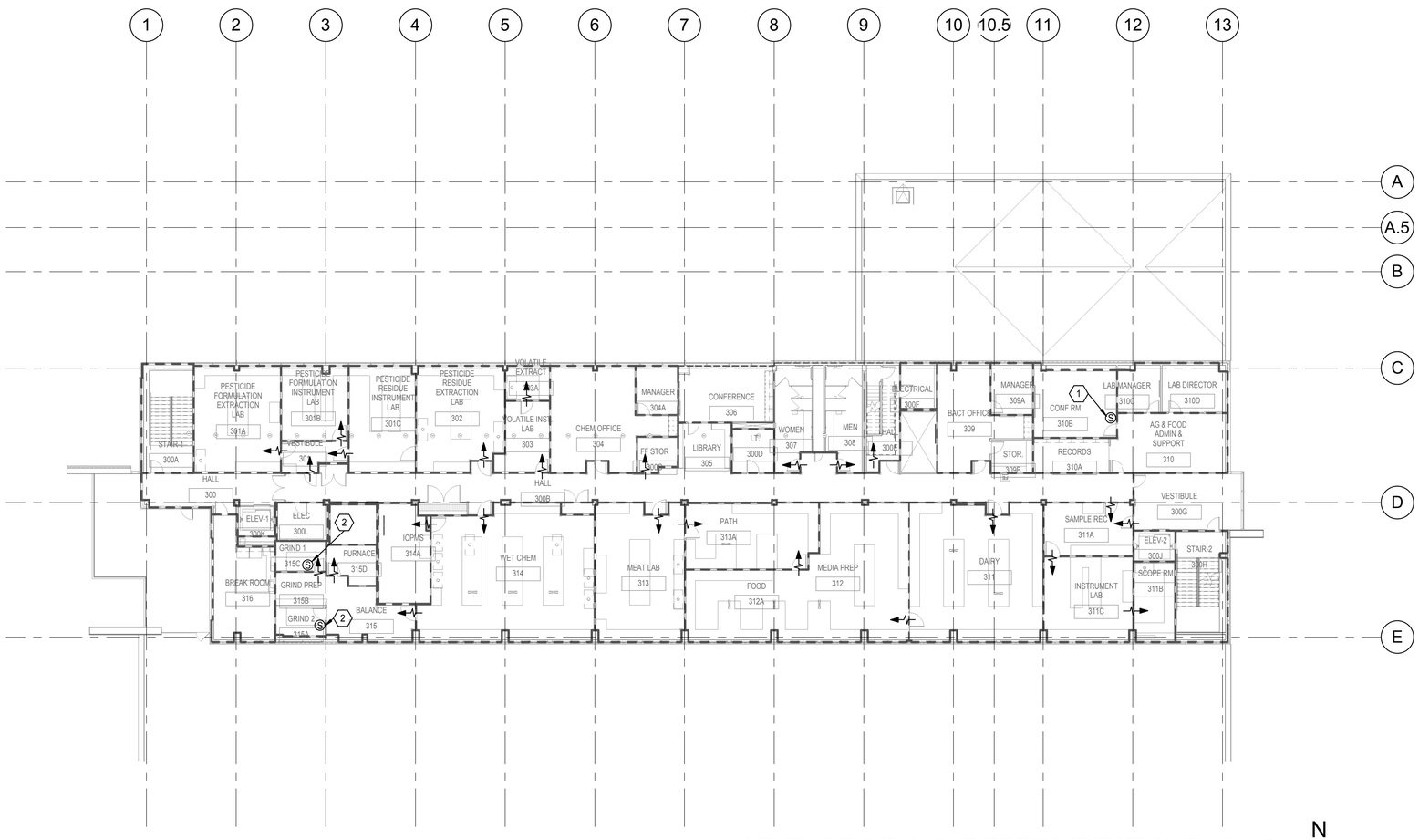
KEYED NOTES

1. INSTALL CO2 SENSOR BETWEEN 3'-0" AND 6'-0" AFF.
2. PROVIDE WALL SWITCH TO OPERATE GRINDING ROOM DUST COLLECTOR. SEE SEQUENCE OF OPERATION FOR MORE INFORMATION.

GENERAL NOTES

1. ARROW DEPICTS REQUIRED DIRECTION OF AIRFLOW (PRESSURIZATION) DURING STEADY STATE OPERATION. UPON SUBSTANTIAL COMPLETION THE MECHANICAL CONTRACTOR SHALL DEMONSTRATE TO THE ENGINEER, ARCHITECT & OWNER'S REPRESENTATIVE THAT THE SYSTEM HAS BEEEN PRESSURE BALANCED USING BOTTLED SMOKE. PRESSURE BALANCE SHALL BE MAINTAINED & DEMONSTRATED AT MINIMUM AND MAXIMUM FLOWS.
2. ZONE MINIMUM AIR CHANGE REATES FOR LABORATORY SPACES SHALL BE 6 ACH (OCCUPIED) / 2 ACH (UNOCCUPIED) UNLESS NOTED OTHERWISE. SEE AIR CONTROL VALVE SCHEDULES FOR MORE INFORMATION.



LEVEL 3 ZONING AND PRESSURIZATION PLAN

1/16" = 1'-0" (1 / MH103)

N

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LEVEL 3 ZONING AND PRESSURIZATION PLAN

MH103

VOLUME 2

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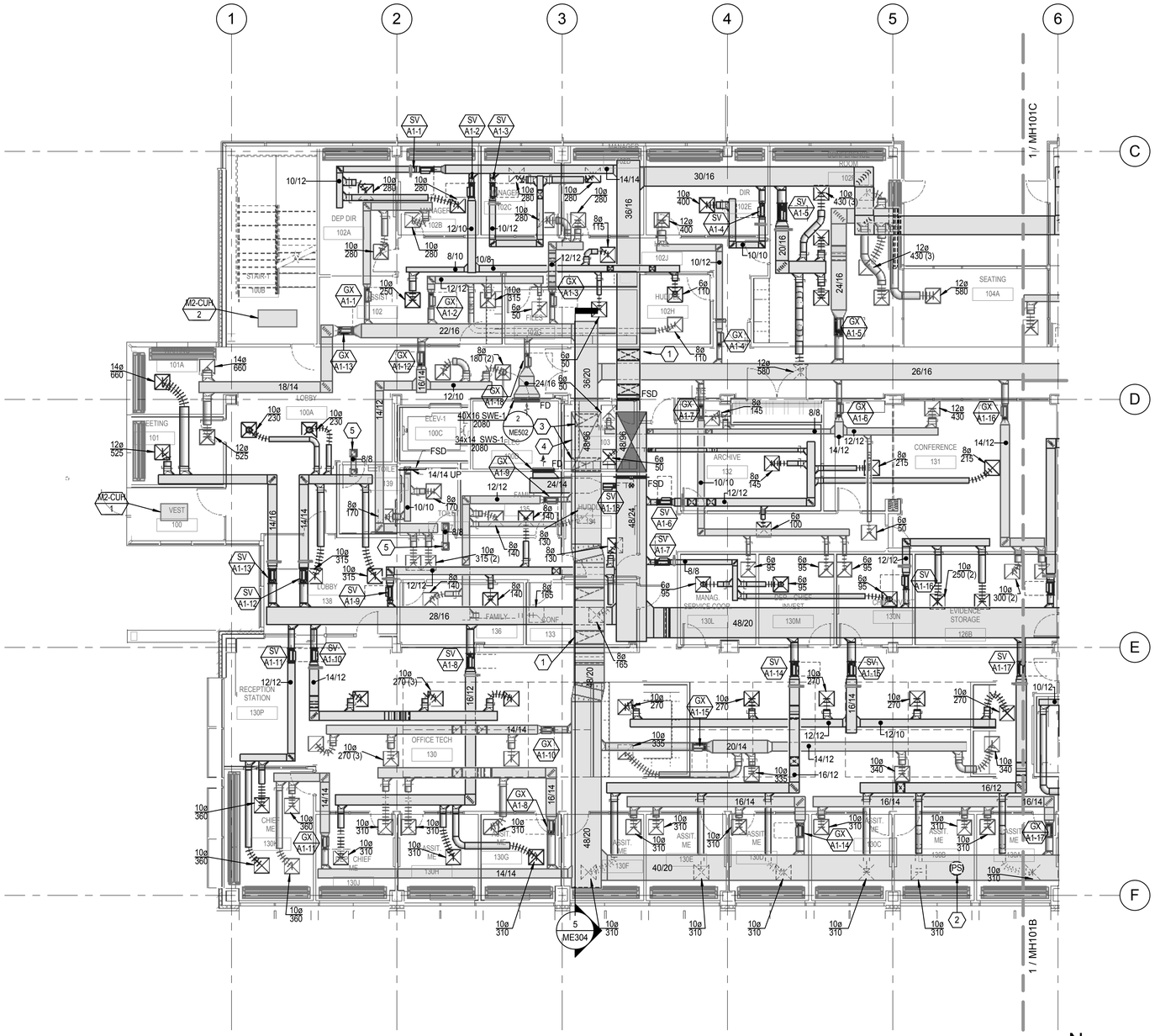


LEVEL 1 MECHANICAL PLAN AREA A (1 / MH101A)

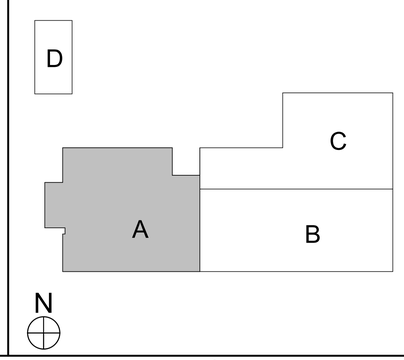
1/8" = 1'-0"

N

KEYED NOTES

1. DUCT TO RISE UP IN TRUSS SPACE AS SHOWN.
2. PROVIDE DUCT STATIC PRESSURE SENSOR. SEE SEQUENCE OF OPERATIONS.
3. EXHAUST DUCT TO PENETRATE EXHAUST RISER AND RISE UP 22" IN RISER.
4. WRAP EXHAUST DUCT IN SHAFT WITH TWO LAYERS OF 1-1/2" THICK FIRE RESISTIVE DUCT WRAP WITH A TWO HOUR RATING.
5. 12"X12" RETURN AIR GRILL (QTY. 2) WITH TRANSER AIR DUCT FOR MAKEUP AIR. SIZE DUCT AS NOTED.

KEY PLAN



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LEVEL 1 MECHANICAL PLAN AREA A

MH101A

VOLUME 2

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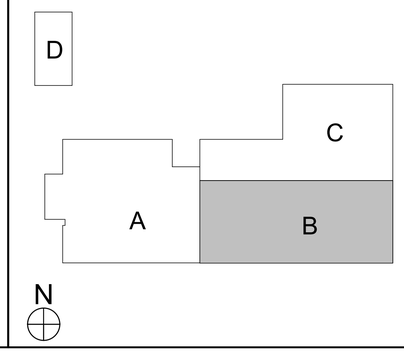
KEYED NOTES

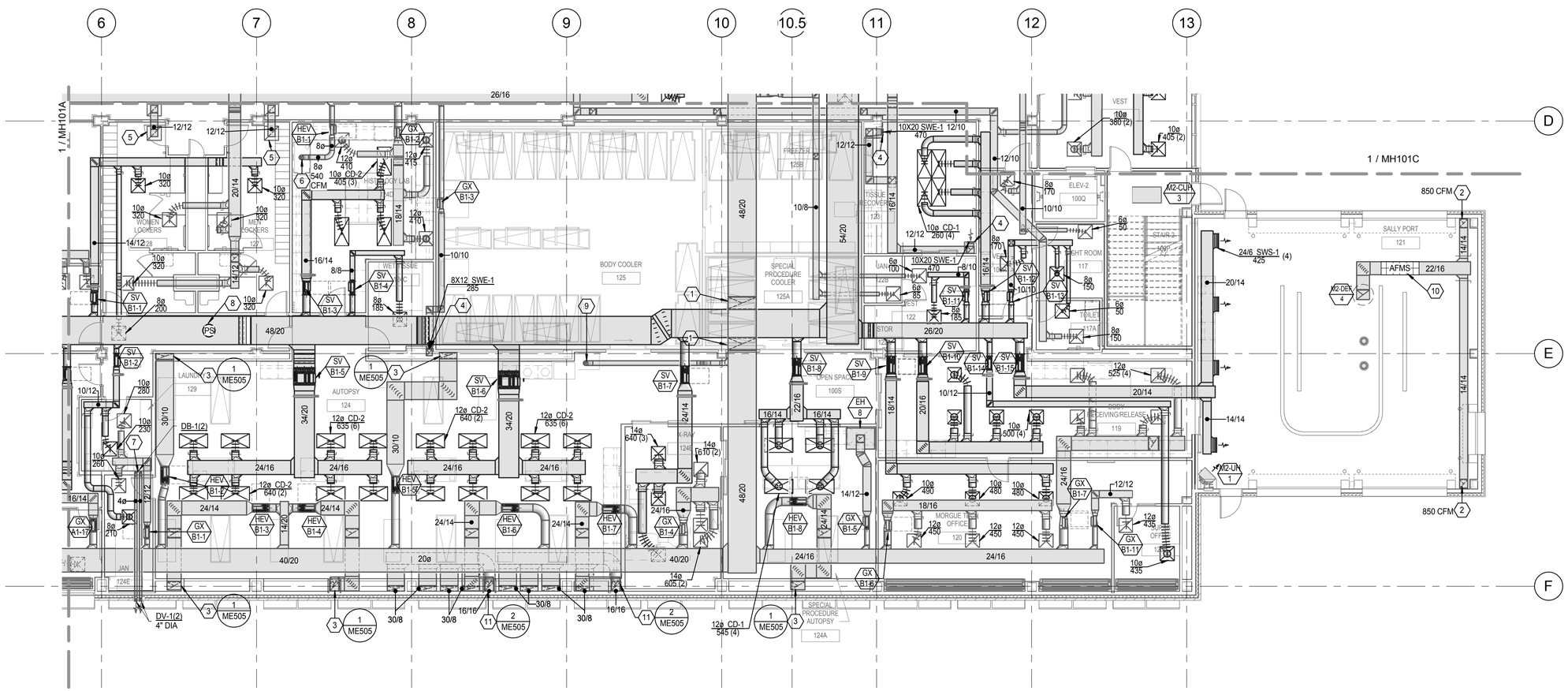
1. DUCT TO RISE UP IN TRUSS SPACE AS SHOWN.
2. DROP DUCT DOWN TO WITHIN 1'-0" AFF. PROVIDE BALANCING DAMPER AND BALANCE TO AIRFLOW NOTED.
3. EXHAUST DUCT TO DROP DOWN IN WALL CHASE AND CONNECT TO (QTY. 7) SIDEWALL EXHAUST GRILLES ON AUTOPSY TABLE. BALANCE TO 240 CFM EACH. SEE AUTOPSY DISSECTION TABLE EXHAUST CONNECTION DETAIL.
4. DROP DUCT DOWN AND INSTALL LOW SIDEWALL EXHAUST GRILL AT 1'-0" AFF. BALANCE TO AIRFLOW NOTED.
5. 24"X24" RETURN AIR GRILL (QTY. 2) WITH TRANSFER AIR DUCT FOR MAKEUP AIR. SIZE DUCT AS NOTED.
6. CONNECT EXHAUST DUCT TO FUME HOOD. INSTALL SASH STOP AT 18". BALANCE TO 100 FPM FACE VELOCITY AT 18" SASH HEIGHT. EXHAUST DUCT SHALL BE WELDED 304 STAINLESS STEEL FROM HOOD CONNECTION TO MEDIUM PRESSURE MAIN. APPROXIMATE AIRFLOW NOTED.

KEYED NOTES

7. CLOTHES DRYER EXHAUST DUCT. EACH VERTICAL RISER SHALL BE PROVIDED WITH A MEANS FOR CLEANOUT. DUCT SHALL NOT BE CONNECTED OR INSTALLED WITH SHEET METAL SCREWS OR OTHER FASTENERS THAT WILL OBSTRUCT EXHAUST FLOW. THE DUCT SHALL HAVE A SMOOTH INTERIOR FINISH WITH THE MALE END OF THE DUCT AT OVERLAPPED JOINTS EXTENDING IN THE DIRECTION OF AIRFLOW IN ACCORDANCE WITH 2012 IMC SECTION 504.6.2. PROVIDE DUCT SUPPORTS EVERY 4 FT.
8. PROVIDE DUCT STATIC PRESSURE SENSOR. SEE SEQUENCE OF OPERATIONS.
9. PROVIDE 8" DIA. EXHAUST DUCT AND DROP THROUGH CEILING IN LOCATION SHOWN FOR FUTURE EQUIPMENT CONNECTION. CAP DUCT AIR TIGHT AND PROVIDE BALANCING DAMPER AND ESCUTCHEON AT CEILING PENETRATION.
10. PROVIDE AND INSTALL AIRFLOW MEASURING STATION IN SALLYPORT EXHAUST DUCT.SEE SPECIFICATION 230994 FOR SEQUENCE OF OPERATIONS. INSTALL AIRFLOW MEASURING STATION TO MAINTAIN MANUFACTURERS REQUIRED LENGTHS OF STRAIGHT DUCT.
11. EXHAUST DUCT TO DROP DOWN IN WALL CHASE AND RUN BELOW GRADE TO CONNECT TO (QTY. 7) SIDEWALL EXHAUST GRILLES ON AUTOPSY TABLE. BALANCE TO 240 CFM EACH. SEE AUTOPSY DISECTION TABLE EXHAUST CONNECTION (UNDERGROUND) DETAIL.

KEY PLAN





LEVEL 1 MECHANICAL PLAN AREA B

1/8" = 1'-0" (1 / MH101B)

N

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LEVEL 1 MECHANICAL PLAN AREA B

MH101B

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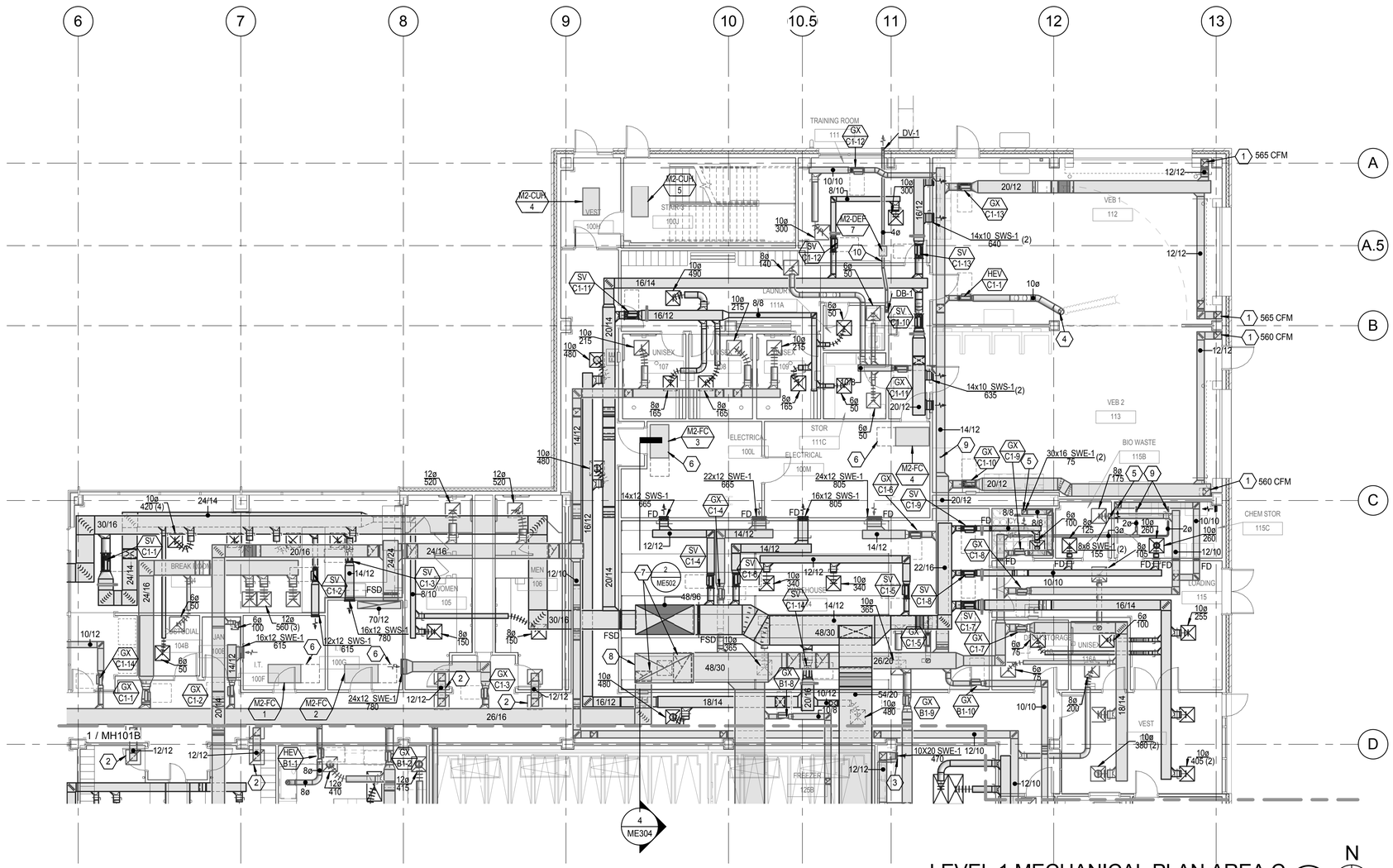


LEVEL 1 MECHANICAL PLAN AREA C (1 / MH101C)

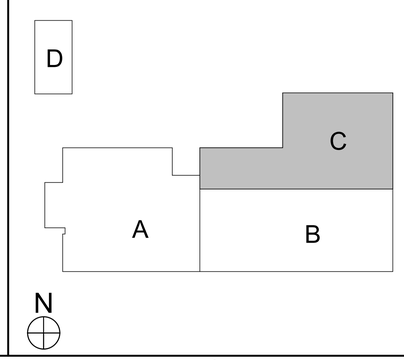
1/8" = 1'-0"

N

KEYED NOTES

1. DROP DUCT DOWN TO WITHIN 1'-0" AFF. PROVIDE BALANCING DAMPER AND BALANCE TO AIRFLOW NOTED.
2. 24"X24" RETURN AIR GRILL (QTY. 2) WITH TRANSFER AIR DUCT FOR MAKEUP AIR. SIZE DUCT AS NOTED.
3. DROP DUCT DOWN AND INSTALL LOW SIDEWALL EXHAUST GRILL AT 1'-0" AFF. BALANCE TO AIRFLOW NOTED.
4. CONNECT EXHAUST DUCT TO SNORKEL WITH 8" DIA. DUCT. BALANCE TO 500 CFM. COORDINATE ACTUAL SIZE AND EXHAUST AIRFLOW RATE WITH EQUIPMENT SUPPLIER.
5. EXHAUST DUCT TO DROP THROUGH CEILING AND EXTEND TO FLOOR. INSTALL SIDEWALL EXHAUST GRILLES BETWEEN 3" -12" ABOVE THE FLOOR AND BETWEEN 3" – 12" BELOW THE CEILING (QTY 2). PROVIDE OBD IN SIDEWALL GRILLES AND BALANCE TO AIRFLOW NOTED.
6. MAINTAIN MANUFACTURER'S MINIMUM SERVICE CLEARANCES AS SHOWN.
7. EXHAUST DUCT TO PENETRATE EXHAUST RISER AND RISE UP 22" IN RISER.
8. WRAP EXHAUST DUCT IN SHAFT WITH TWO LAYERS OF 1-1/2" THICK FIRE RESISTIVE DUCT WRAP WITH A TWO HOUR RATING.
9. CONNECT TO FREESTANDING VENTED ACID STORAGE CABINET WITH 2" DIAMETER SCHEDULE 80 PVC. PVC SHALL BE CONNECTED TO EXHAUST DUCT AS SHOWN. PROVIDE AND INSTALL BUTTERFLY VALVE FOR BALANCING AND BALANCE TO 25 CFM. SEE LABORATORY PLANS FOR INSTALLATION DETAILS.
10. CLOTHES DRYER EXHAUST DUCT. EACH VERTICAL RISER SHALL BE PROVIDED WITH A MEANS FOR CLEANOUT. DUCT SHALL NOT BE CONNECTED OR INSTALLED WITH SHEET METAL SCREWS OR OTHER FASTENERS THAT WILL OBSTRUCT EXHAUST FLOW. THE DUCT SHALL HAVE A SMOOTH INTERIOR FINISH WITH THE MALE END OF THE DUCT AT OVERLAPPED JOINTS EXTENDING IN THE DIRECTION OF AIRFLOW IN ACCORDANCE WITH 2012 IMC SECTION 504.6.2. PROVIDE DUCT SUPPORTS EVERY 4 FT.

KEY PLAN



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ARCHITECT-ENGINEER STAMP

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LEVEL 1 MECHANICAL PLAN AREA C

MH101C

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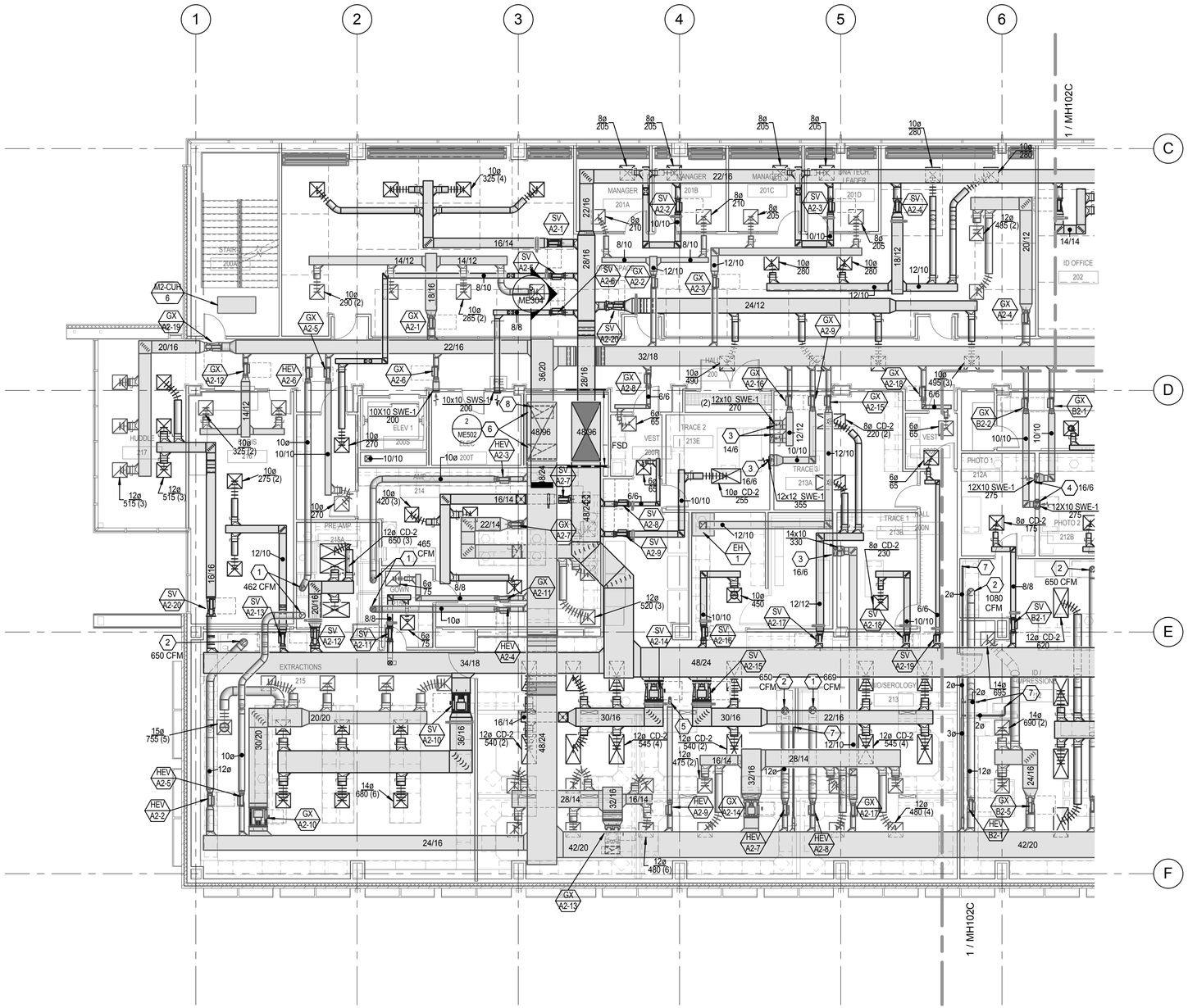


LEVEL 2 MECHANICAL PLAN AREA A (1 / MH102A)

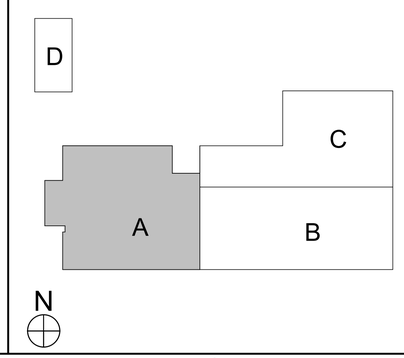
1/8" = 1'-0"

N

KEYED NOTES

1. CONNECT EXHAUST DUCT TO THIMBLE CONNECTION OF BIO SAFETY CABINET. BALANCE EXHAUST FLOW TO 105 FPM FACE VELOCITY AT 10" SASH HEIGHT. EXHAUST DUCT SHALL BE WELDED 316 STAINLESS STEEL FROM THIMBLE CONNECTION TO EXHAUST CONTROL VALVE. APPROXIMATE EXHAUST AIRFLOW NOTED.
2. CONNECT EXHAUST DUCT TO FUME HOOD. INSTALL SASH STOP AT 18". BALANCE TO 100 FPM FACE VELOCITY AT 18" SASH HEIGHT. EXHAUST DUCT SHALL BE WELDED 304 STAINLESS STEEL FROM HOOD CONNECTION TO MEDIUM PRESSURE MAIN. APPROXIMATE EXHAUST AIRFLOW NOTED.
3. EXHAUST DUCT TO DROP DOWN IN 6" WALL CAVITY TO LOW SIDEWALL EXHAUST. EXHAUST DROP IN WALL SHALL BE OF THE SIZE NOTED. MOUNT LOW SIDEWALL EXHAUST GRILL AT 1'-0" AFF.
4. EXHAUST DUCT TO DROP DOWN IN 6" WALL CAVITY TO LOW SIDEWALL EXHAUST GRILL. EXHAUST DROP IN WALL SHALL BE OF THE SIZE NOTED. MOUNT LOW SIDEWALL EXHAUST GRILL AT 1'-0" AFF.
5. CONNECT EXHAUST DUCT TO SNORKEL WITH 4" DIA. DUCT. BALANCE TO 100 CFM. COORDINATE ACTUAL SIZE AND EXHAUST AIRFLOW RATE WITH EQUIPMENT SUPPLIER.
6. EXHAUST DUCT TO PENETRATE EXHAUST RISER AND RISE UP 22" IN RISER.
7. CONNECT TO VENTED ACID STORAGE BASE CABINET WITH 2" DIAMETER SCHEDULE 80 PVC. PVC SHALL BE CONNECTED TO EXHAUST DUCT AS SHOWN. PROVIDE AND INSTALL BUTTERFLY VALVE FOR BALANCING AND BALANCE TO 25 CFM. SEE LABORATORY PLANS FOR INSTALLATION DETAILS.
8. WRAP EXHAUST DUCT IN SHAFT WITH TWO LAYERS OF 1 1/2" THICK FIRE RESISTIVE DUCT WRAP WITH A TWO HOUR RATING.

KEY PLAN



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LEVEL 2 MECHANICAL PLAN AREA A

MH102A

VOLUME 2

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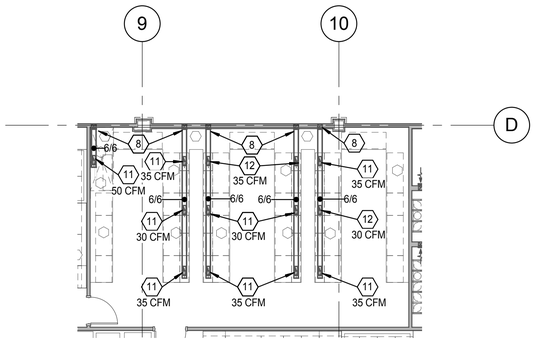
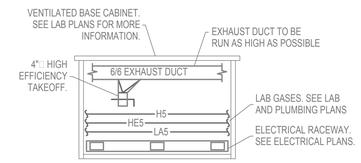


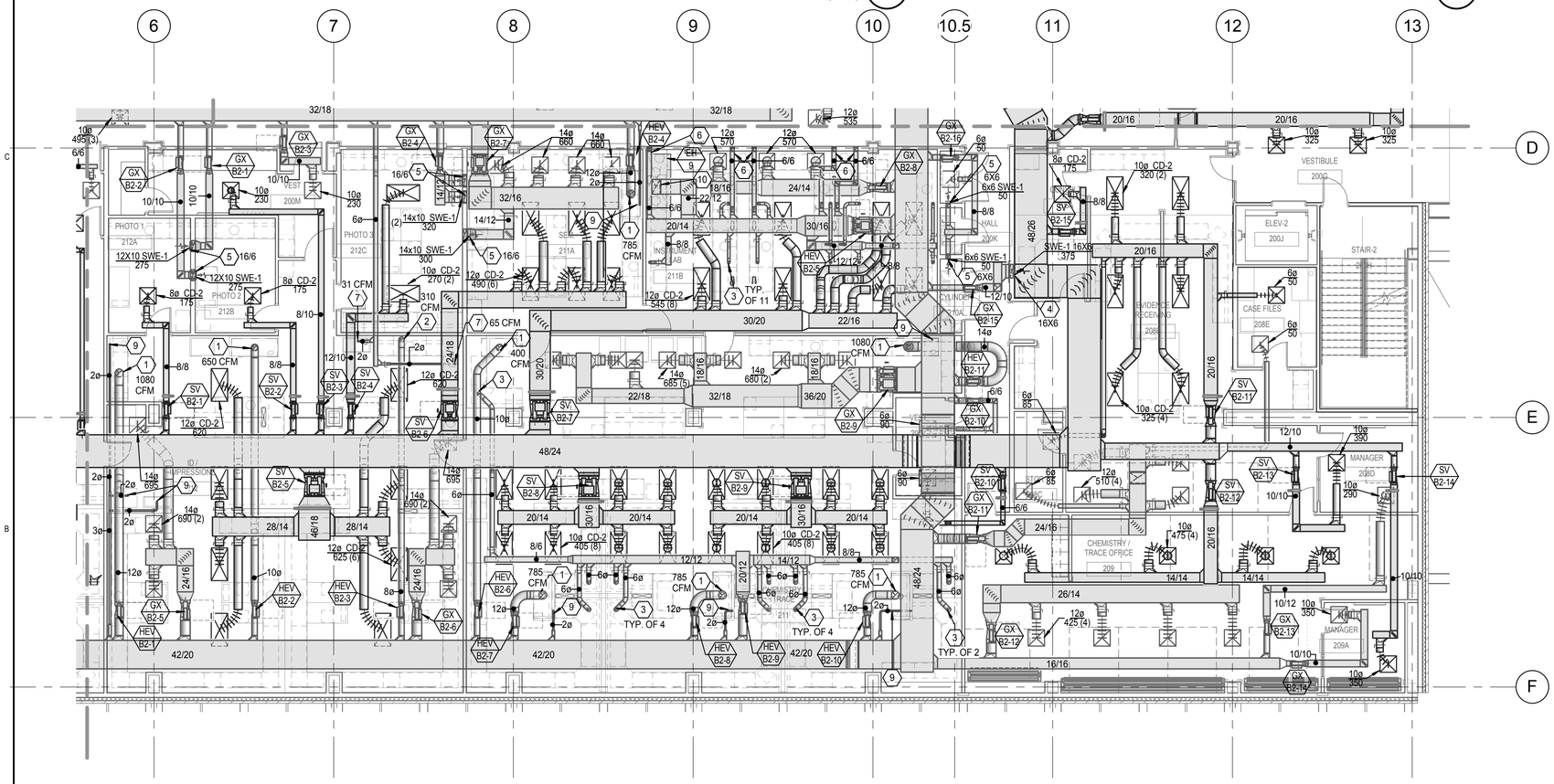
INSTRUMENT LAB 211B CABINET DUCT PLAN (2 / MH102B)

1/8" = 1'-0"



VENTILATED BASE CABINET DETAIL (3 / MH102B)

NOT TO SCALE



LEVEL 2 MECHANICAL PLAN AREA B (1 / MH102B)

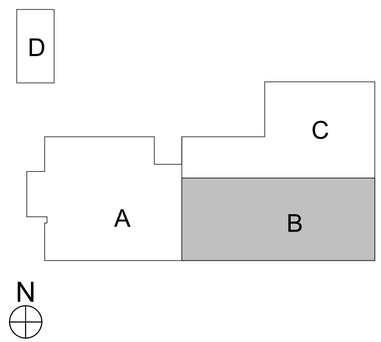
1/8" = 1'-0"

N

KEYED NOTES

1. CONNECT EXHAUST DUCT TO FUME HOOD. INSTALL SASH STOP AT 18". BALANCE TO 100 FPM FACE VELOCITY AT 18" SASH HEIGHT. EXHAUST DUCT SHALL BE WELDED 304 STAINLESS STEEL FROM HOOD CONNECTION TO MEDIUM PRESSURE MAIN. APPROXIMATE EXHAUST AIRFLOW NOTED.
2. CONNECT EXHAUST DUCT TO POWDER HOOD VENTILATION STATION. BALANCE EXHAUST FLOW TO 100 FPM FACE VELOCITY AT SASH WORKING HEIGHT. EXHAUST DUCT SHALL BE WELDED 304 STAINLESS STEEL FROM HOOD CONNECTION TO MEDIUM PRESSURE MAIN. APPROXIMATE AIRFLOW NOTED.
3. CONNECT EXHAUST DUCT TO SNORKEL WITH 4" DIA. DUCT. BALANCE TO 100 CFM. COORDINATE ACTUAL SIZE AND EXHAUST AIRFLOW RATE WITH EQUIPMENT SUPPLIER.
4. EXHAUST DUCT TO DROP DOWN IN 6" WALL CAVITY TO SIDEWALL EXHAUST GRILL. EXHAUST DUCT IN WALL SHALL BE OF THE SIZE NOTED. MOUNT SIDEWALL EXHAUST GRILL AT COUNTER TOP HEIGHT. COORDINATE EXACT HEIGHT WITH CASEWORK SUBMITTAL.
5. EXHAUST DUCT TO DROP DOWN IN 6" WALL CAVITY TO LOW SIDEWALL EXHAUST GRILL. EXHAUST DROP IN WALL SHALL BE OF THE SIZE NOTED. MOUNT LOW SIDEWALL EXHAUST GRILL AT 1'-0" AFF.
6. EXHAUST DUCT TO DROP DOWN IN WALL CAVITY TO SERVE THE VENTILATED BASE CABINETS. SEE 2/MH102B FOR CONTINUATION.
7. CONNECT TO EQUIPMENT EXHAUST CONNECTION WITH 2" DIAMETER SCHEDULE 80 PVC. PVC EXHAUST PIPE SHALL BE CONNECTED TO EXHAUST SYSTEM AS SHOWN. PROVIDE AND INSTALL BUTTERFLY VALVE FOR BALANCING. LOCATE IN VERTICAL RISER FOR ACCESSIBILITY. BALANCE TO AIRFLOW NOTED. CONFIRM EXHAUST REQUIREMENTS WITH EQUIPMENT MANUFACTURER.
8. EXHAUST DUCT TO DROP DOWN IN WALL FROM ABOVE. RUN HORIZONTALLY CONCEALED WITHIN THE VENTILATED BASE CABINETS. RUN DUCTWORK AS HIGH POSSIBLE WITHIN BASE CABINET. SEE DETAIL 3/MH102B.
9. CONNECT TO VENTED ACID STORAGE BASE CABINET WITH 2" DIAMETER SCHEDULE 80 PVC. PVC SHALL BE CONNECTED TO EXHAUST DUCT AS SHOWN. PROVIDE AND INSTALL BUTTERFLY VALVE FOR BALANCING AND BALANCE TO 25 CFM. SEE LABORATORY PLANS FOR INSTALLATION DETAILS.
10. CONNECT EXHAUST DUCT TO EXHAUST COLLAR ON CANOPY EXHAUST HOOD. BALANCE TO AIRFLOW NOTED IN EXHAUST HOOD SCHEDULE.
11. PROVIDE MANUAL BALANCING DAMPER TO BE ACCESSIBLE FROM CORRIDOR.
12. PROVIDE AND INSTALL 4" DIAMETER HIGH EFFICIENCY TAKEOFF WITH MANUAL BALANCING DAMPER ORIENTED DOWN, BALANCE TO AIRFLOW NOTED.

KEY PLAN



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LICENSED PROFESSIONAL ENGINEER
No. 178893
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LEVEL 2 MECHANICAL PLAN AREA B

MH102B

VOLUME 2

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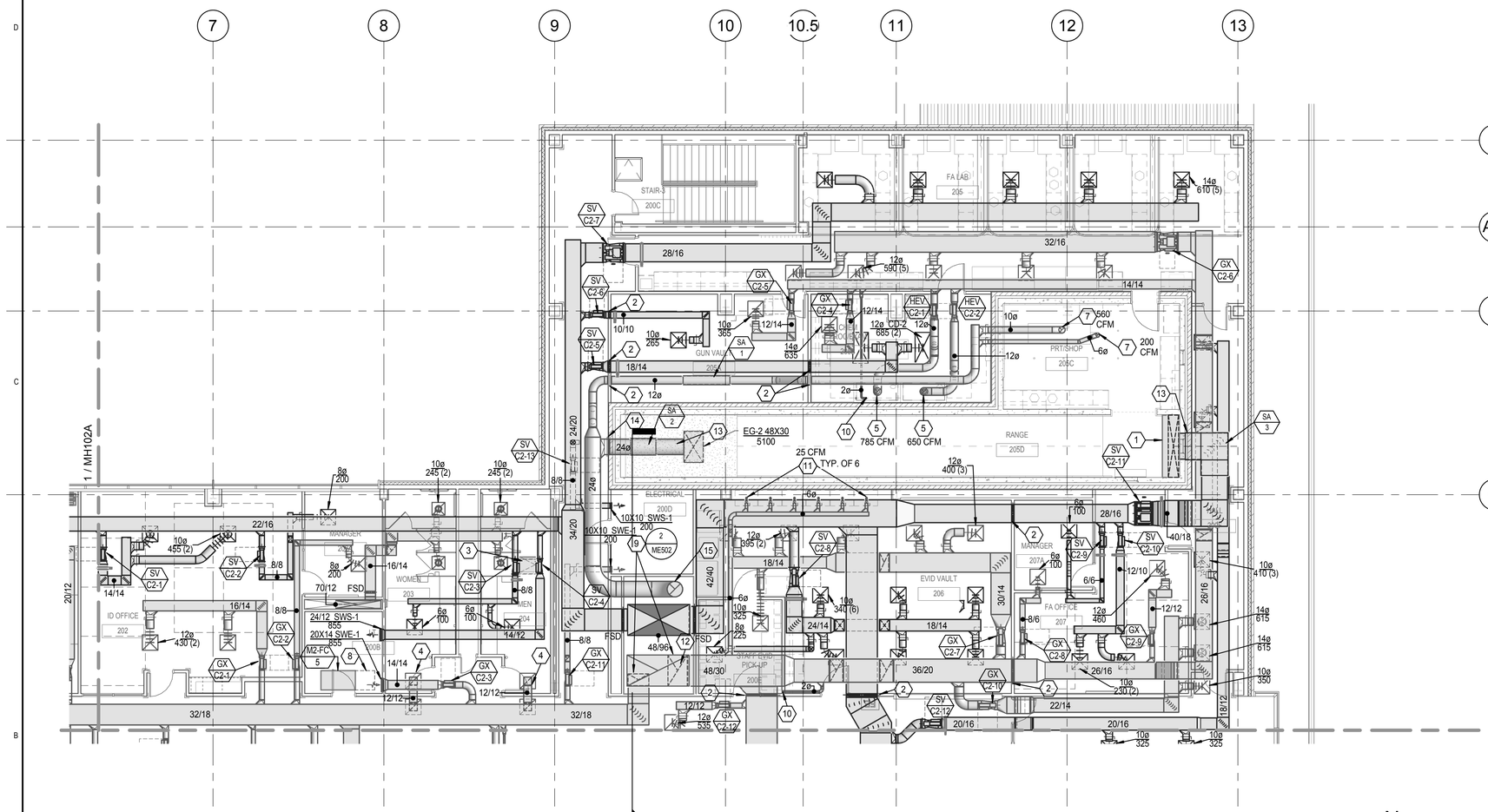


LEVEL 2 MECHANICAL PLAN AREA C

1/8" = 1'-0"

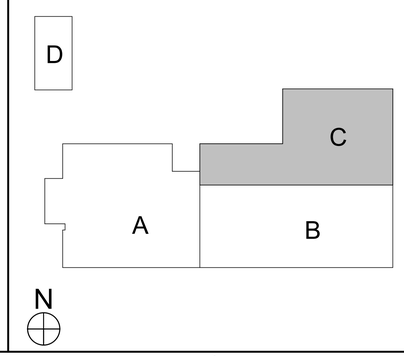
1 MH102C

N

KEYED NOTES

1. CONTRACTOR TO FABRICATE AND INSTALL LAMINAR FLOW SUPPLY PANEL OF 1/2" THICK ACRYLIC. PANEL SHALL BE PERFORATED WITH 1/2" DIAMETER HOLES SPACED AT 1 1/4" ON CENTER. SEE FIRING RANGE PLENUM DETAIL LOCATED ON LABORATORY PLANS FOR MORE INFORMATION. BALANCE TO 5,660 CFM. SEE AIR CONTROL VALVE SCHEDULE FOR MORE INFORMATION.
2. PROVIDE SECURITY BARS IN DUCT PENETRATION OF WALL AS SHOWN.
3. PROVIDE CEILING ACCESS PANEL. COORDINATE EXACT LOCATION AND SIZE WITH ARCHITECTURAL PLANS.
4. 24"X24" RETURN AIR GRILL (QTY.2) WITH TRANSFER AIR DUCT FOR MAKEUP AIR. SIZE DUCT AS NOTED.
5. CONNECT EXHAUST DUCT TO FUME HOOD. INSTALL SASH STOP AT 18". BALANCE TO 100 FPM FACE VELOCITY AT 18" SASH HEIGHT. EXHAUST DUCT SHALL BE WELDED 304 STAINLESS STEEL FROM HOOD CONNECTION TO MEDIUM PRESSURE MAIN. APPROXIMATE EXHAUST AIRFLOW NOTED.
6. EXHAUST DUCT TO DROP DOWN IN WALL CAVITY TO SERVE THE VENTILATED BASE CABINETS. SEE 2/MH102B FOR CONTINUATION.
7. CONNECT TO EQUIPMENT EXHAUST.
8. MAINTAIN MANUFACTURER'S MINIMUM SERVICE CLEARANCES AS SHOWN.
9. EXHAUST DUCT TO PENETRATE EXHAUST RISER AND RISE UP 22" IN RISER.
10. CONNECT TO VENTED ACID STORAGE BASE CABINET WITH 2" DIAMETER SCHEDULE 80 PVC. PVC SHALL BE CONNECTED TO EXHAUST DUCT AS SHOWN. PROVIDE AND INSTALL BUTTERFLY VALVE FOR BALANCING AND BALANCE TO 25 CFM. SEE LABORATORY PLANS FOR INSTALLATION DETAILS.
11. CONNECT TO EQUIPMENT EXHAUST CONNECTION WITH 2" DIAMETER SCHEDULE 80 PVC. PVC EXHAUST PIPE SHALL BE CONNECTED TO EXHAUST SYSTEM AS SHOWN. PROVIDE AND INSTALL BUTTERFLY VALVE FOR BALANCING. LOCATE IN VERTICAL RISER FOR ACCESSIBILITY. BALANCE TO AIRFLOW NOTED. CONFIRM EXHAUST REQUIREMENTS WITH EQUIPMENT MANUFACTURER.
12. WRAP EXHAUST DUCT IN SHAFT WITH TWO LAYERS OF 1 1/2" THICK FIRE RESISTIVE DUCT WRAP WITH A TWO HOUR RATING.
13. DUCT TO PENETRATE AND TERMINATE WITHIN AIR PLENUM CREATED BY CMU ENCLOSURE LOCATED ABOVE THE CEILING. COORDINATE EXACT SIZE AND LOCATION OF PENETRATION WITH ARCHITECTURAL PLAN. SEAL DUCT PENETRATION.
14. PROVIDE MANUAL BALANCING DAMPER TO BE ACCESSIBLE FROM CORRIDOR.
15. 24" DIAMETER FIREARM RANGE EXHAUST DUCT UP. SEE PENTHOUSE MECHANICAL PLAN FOR CONTINUATION.

KEY PLAN



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LEVEL 2 MECHANICAL PLAN AREA C

MH102C

VOLUME 2

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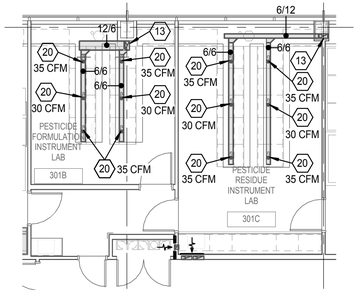
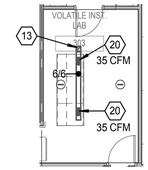
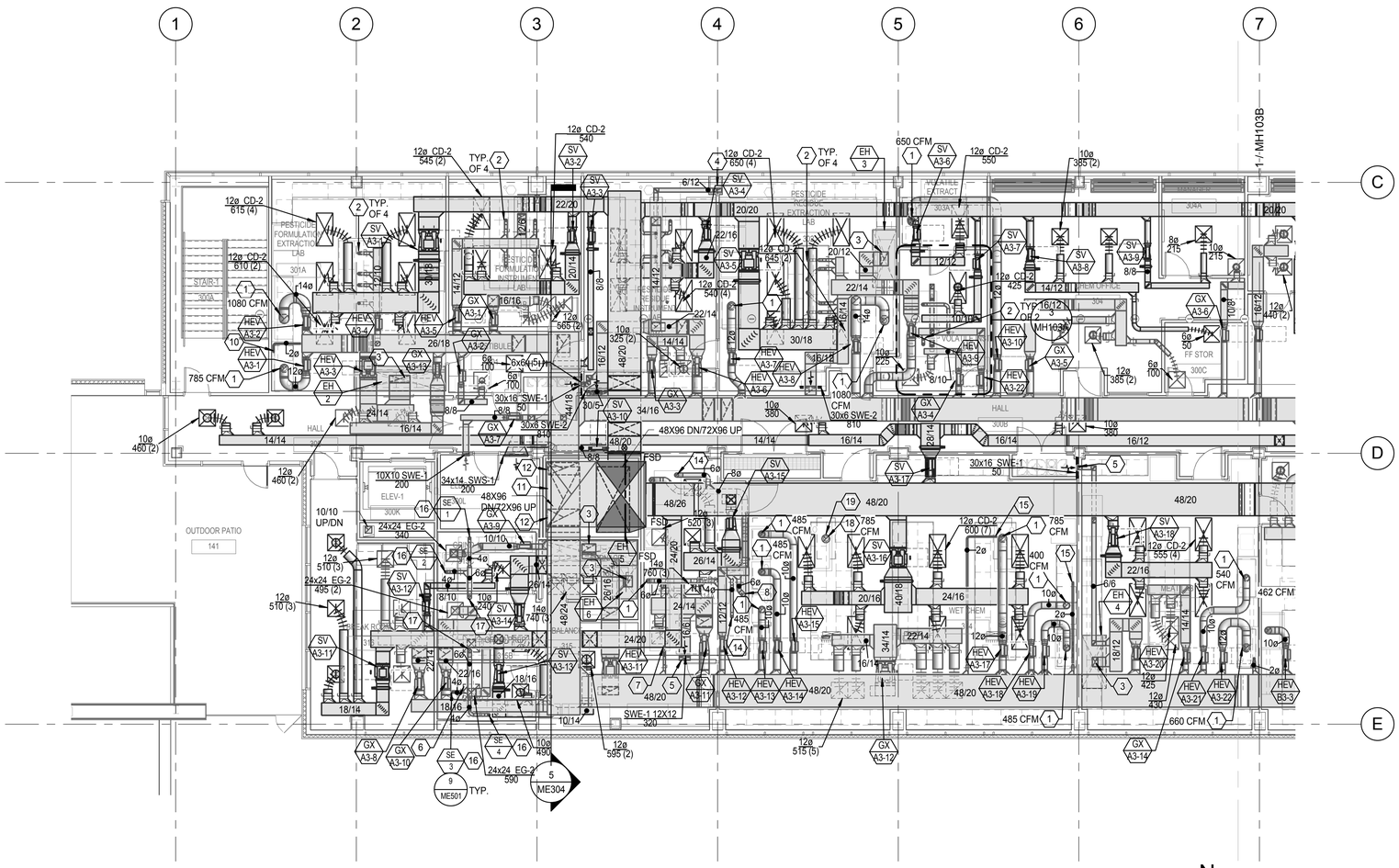


PESTICIDE LABS 301 B & C CABINET DUCT PLAN (2 / MH103A)
1/8" = 1'-0"



VOLATILE INST. LAB 303 DUCT PLAN (3 / MH103A)
1/8" = 1'-0"



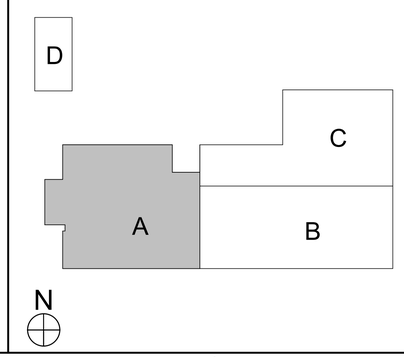
LEVEL 3 MECHANICAL PLAN AREA A (1 / MH103A)
1/8" = 1'-0"

N

KEYED NOTES

1. CONNECT EXHAUST DUCT TO FUME HOOD. INSTALL SASH STOP AT 18". BALANCE TO 100 FPM FACE VELOCITY AT 18" SASH HEIGHT. EXHAUST DUCT SHALL BE WELDED 304 STAINLESS STEEL FROM HOOD CONNECTION TO MEDIUM PRESSURE MAIN. APPROXIMATE EXHAUST AIRFLOW NOTED.
2. CONNECT EXHAUST DUCT TO SNORKEL WITH 4" DIA. DUCT. BALANCE TO 100 CFM. COORDINATE ACTUAL SIZE AND EXHAUST AIRFLOW RATE WITH EQUIPMENT SUPPLIER.
3. CONNECT EXHAUST DUCT TO EXHAUST COLLAR ON CANOPY EXHAUST HOOD. BALANCE TO AIRFLOW NOTED IN EXHAUST HOOD SCHEDULE.
4. EXHAUST DUCT TO DROP DOWN IN WALL CAVITY TO SERVE THE VENTILATED BASE CABINETS. SEE 2/MH103A FOR CONTINUATION.
5. EXHAUST DUCT TO DROP DOWN IN 6" WALL CAVITY TO LOW SIDEWALL EXHAUST. EXHAUST DROP IN WALL SHALL BE OF THE SIZE NOTED. MOUNT LOW SIDEWALL EXHAUST GRILL AT 1'-0" AFF.
6. PROVIDE AND INSTALL REPLACEMENT FILTERS IN THE EXHAUST AND SUPPLY GRILLES LOCATED IN THE GRINDING AREAS.
7. CONNECT TO EQUIPMENT EXHAUST CONNECTION WITH 2" DIA. BLACK IRON PIPING. PIPING SHALL BE CONNECTED TO EXHAUST SYSTEM AS SHOWN. PROVIDE AND INSTALL BUTTERFLY VALVE FOR AIRFLOW BALANCING.
8. CONNECT EXHAUST DUCT TO SNORKEL WITH 6" DIA. DUCT. BALANCE TO 200 CFM. COORDINATE EXACT SIZE AND EXHAUST AIRFLOW RATE WITH EQUIPMENT SUPPLIER.
9. CONNECT EXHAUST DUCT TO THIMBLE CONNECTION OF BIO SAFETY CABINET. BALANCE EXHAUST FLOW TO 105 FPM FACE VELOCITY AT 10" SASH HEIGHT. EXHAUST DUCT SHALL BE WELDED 316 STAINLESS STEEL FROM THIMBLE CONNECTION TO EXHAUST CONTROL VALVE. APPROXIMATE EXHAUST AIRFLOW NOTED.
10. CONNECT TO VENTED ACID STORAGE BASE CABINET WITH 2" DIAMETER SCHEDULE 80 PVC. PVC EXHAUST SHALL BE CONNECTED TO EXHAUST DUCT AS SHOWN. PROVIDE AND INSTALL BUTTERFLY VALVE FOR BALANCING AND BALANCE TO 25 CFM. SEE LABORATORY PLANS FOR INSTALLATION DETAILS.
11. WRAP EXHAUST DUCT IN SHAFT WITH TWO LAYERS OF 1 1/2" THICK FIRE RESISTIVE DUCT WRAP WITH A TWO HOUR RATING.
12. EXHAUST DUCT TO PENETRATE EXHAUST RISER AND RISE UP 22" IN RISER.
13. EXHAUST DUCT TO DROP DOWN IN WALL FROM ABOVE. RUN HORIZONTALLY CONCEALED WITHIN THE VENTILATED BASE CABINETS. RUN DUCTWORK AS HIGH POSSIBLE WITHIN BASE CABINET. SEE DETAIL 3/MH102B.
14. PROVIDE 6" DIA. STAINLESS STEEL FLEXIBLE HOSE EQUIPMENT CONNECTION. BALANCE TO 50 CFM. PROVIDE ESCUTCHEON AT CEILING PENETRATION. EXHAUST DUCT ABOVE THE CEILING SHALL BE HARD DUCTED.
15. CONNECT TO VENTED ACID STORAGE BASE CABINET WITH 2" DIAMETER SCHEDULE 80 PVC. PVC SHALL BE CONNECTED TO EXHAUST DUCT AS SHOWN. PROVIDE AND INSTALL BUTTERFLY VALVE FOR BALANCING AND BALANCE TO 25 CFM. SEE LABORATORY PLANS FOR INSTALLATION DETAILS.
16. CONNECT EXHAUST DUCT TO SNORKEL WITH 4" DIA. DUCT. BALANCE TO 300 CFM.
17. 6" DIA. EXHAUST DUCT UP TO PENTHOUSE MECHANICAL ROOM. PROVIDE DUCT CLEANOUT AT BOTTOM OF VERTICAL RISER. SEE PENTHOUSE MECHANICAL PLAN FOR CONTINUATION.
18. CONNECT EXHAUST DUCT TO PURE ACID FUME HOOD. INSTALL SASH STOP AT 18". BALANCE TO 100 FPM FACE VELICITY AT 18" SASH HEIGHT. EXHAUST DUCT SHALL BE FIBERGLASS AND SHALL BE NON-FERROUS IN ITS ENTIRETY (INCLUDING SCREWS AND FASTENERS). APPROXIMATE EXHAUST NOTED. SEE SPECIFICATIONS FOR MORE INFROMATION.
19. PURE ACID FUME HOOD EXHAUST DUCT UP. SEE PENTHOUSE MECHANICAL PLAN FOR CONTINUATION.
20. PROVIDE AND INSTALL 4" DIAMETER HIGH EFFICIENCY TAKEOFF WITH MANUAL BALANCING DAMPER ORIENTED DOWN. BALANCE TO AIRFLOW NOTED.

KEY PLAN



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DFCM #: 13020300

Project #: B13-024

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LEVEL 3 MECHANICAL PLAN AREA A

MH103A

VOLUME 2

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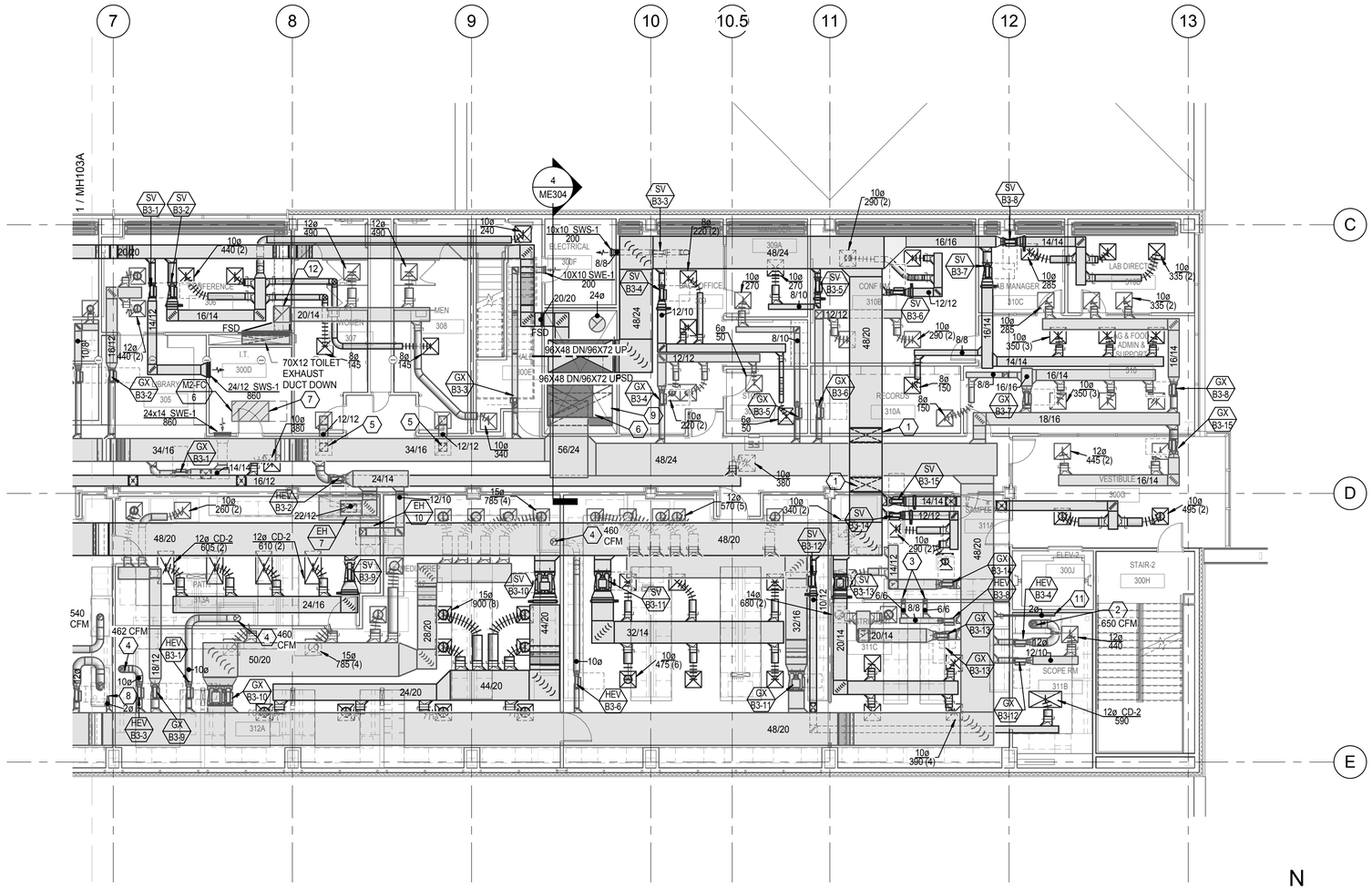
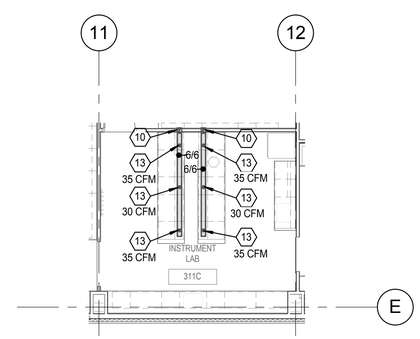


LEVEL 3 MECHANICAL PLAN AREA B

1/8" = 1'-0" (1 / MH103B)

N



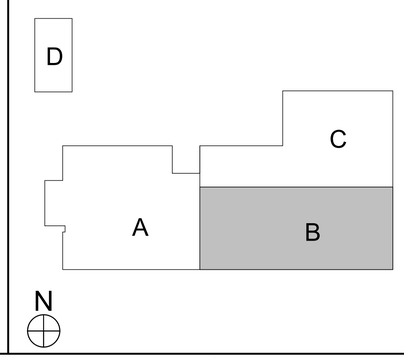
INSTRUMENT LAB 311C CABINET DUCT PLAN

1/8" = 1'-0" (2 / MH103B)

KEYED NOTES

1. DUCT TO RISE UP IN TRUSS SPACE AS SHOWN.
2. CONNECT EXHAUST DUCT TO FUME HOOD. INSTALL SASH STOP AT 18". BALANCE TO 100 FPM FACE VELOCITY AT 18" SASH HEIGHT. EXHAUST DUCT SHALL BE WELDED 304 STAINLESS STEEL FROM HOOD CONNECTION TO MEDIUM PRESSURE MAIN. APPROXIMATE EXHAUST AIRFLOW NOTED.
3. EXHAUST DUCT TO DROP DOWN IN WALL CAVITY TO SERVE THE VENTILATED BASE CABINETS. SEE 2/MH103B FOR CONTINUATION.
4. CONNECT EXHAUST DUCT TO THIMBLE CONNECTION OF BIO SAFETY CABINET. BALANCE EXHAUST FLOW TO 105 FPM FACE VELOCITY AT 10" SASH HEIGHT. EXHAUST DUCT SHALL BE WELDED 316 STAINLESS STEEL FROM THIMBLE CONNECTION TO EXHAUST CONTROL VALVE. APPROXIMATE EXHAUST AIRFLOW NOTED.
5. 24"X24" RETURN AIR GRILL (QTY. 2) WITH TRANSFER AIR DUCT FOR MAKEUP AIR. SIZE DUCT AS NOTED.
6. EXHAUST DUCT TO PENETRATE EXHAUST RISER AND RISE UP 22" IN RISER.
7. MAINTAIN MANUFACTURERS MINIMUM SERVICE CLEARANCE AS SHOWN.
8. CONNECT TO VENTED ACID STORAGE BASE CABINET WITH 2" DIAMETER SCHEDULE 80 PVC. PVC EXHAUST SHALL BE CONNECTED TO EXHAUST DUCT AS SHOWN. PROVIDE AND INSTALL BUTTERFLY VALVE FOR BALANCING AND BALANCE TO 25 CFM. SEE LABORATORY PLANS FOR INSTALLATION DETAILS.
9. WRAP EXHAUST DUCT IN SHAFT WITH TWO LAYERS OF 1 1/2" THICK FIRE RESISTIVE DUCT WRAP WITH A TWO HOUR RATING.
10. EXHAUST DUCT TO DROP DOWN IN WALL FROM ABOVE. RUN HORIZONTALLY CONCEALED WITHIN THE VENTILATED BASE CABINETS. RUN DUCTWORK AS HIGH POSSIBLE WITHIN BASE CABINET. SEE DETAIL 3/MH102B.
11. CONNECT TO VENTED ACID STORAGE BASE CABINET WITH 2" DIAMETER SCHEDULE 80 PVC. PVC SHALL BE CONNECTED TO EXHAUST DUCT AS SHOWN. PROVIDE AND INSTALL BUTTERFLY VALVE FOR BALANCING AND BALANCE TO 25 CFM. SEE LABORATORY PLANS FOR INSTALLATION DETAILS.
12. EXHAUST DUCT UP TO ROOF MOUNTED EXHAUST FAN. SEE ROOF LEVEL MECHANICAL PLAN FOR CONTINUATION.
13. PROVIDE AND INSTALL 4" DIAMETER HIGH EFFICIENCY TAKEOFF WITH MANUAL BALANCING DAMPER ORIENTED DOWN. BALANCE TO AIRFLOW NOTED.

KEY PLAN



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LEVEL 3 MECHANICAL PLAN AREA B

MH103B

VOLUME 2

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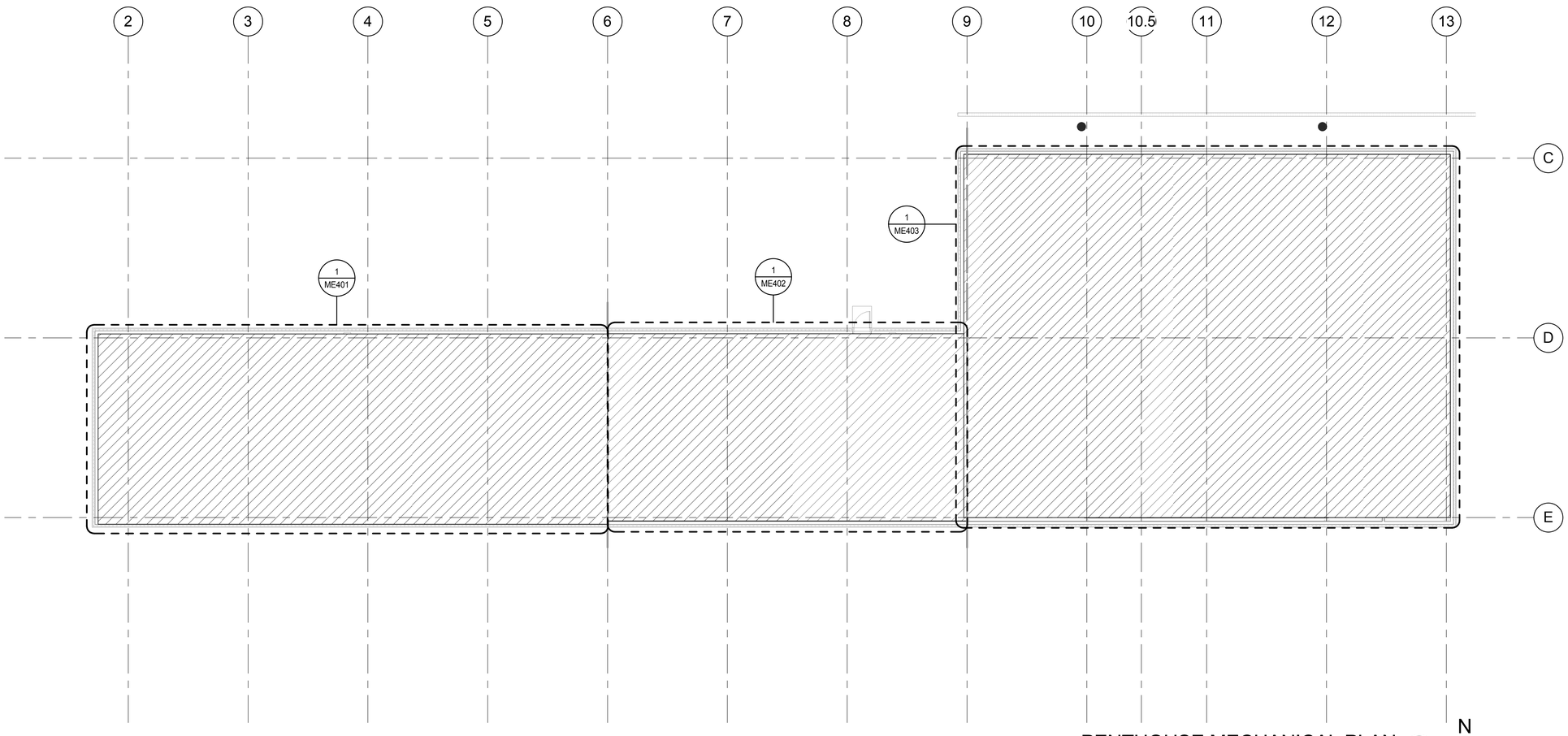

PENTHOUSE MECHANICAL PLAN 1 MH104

3/32" = 1'-0"

N

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PENTHOUSE MECHANICAL PLAN

MH104

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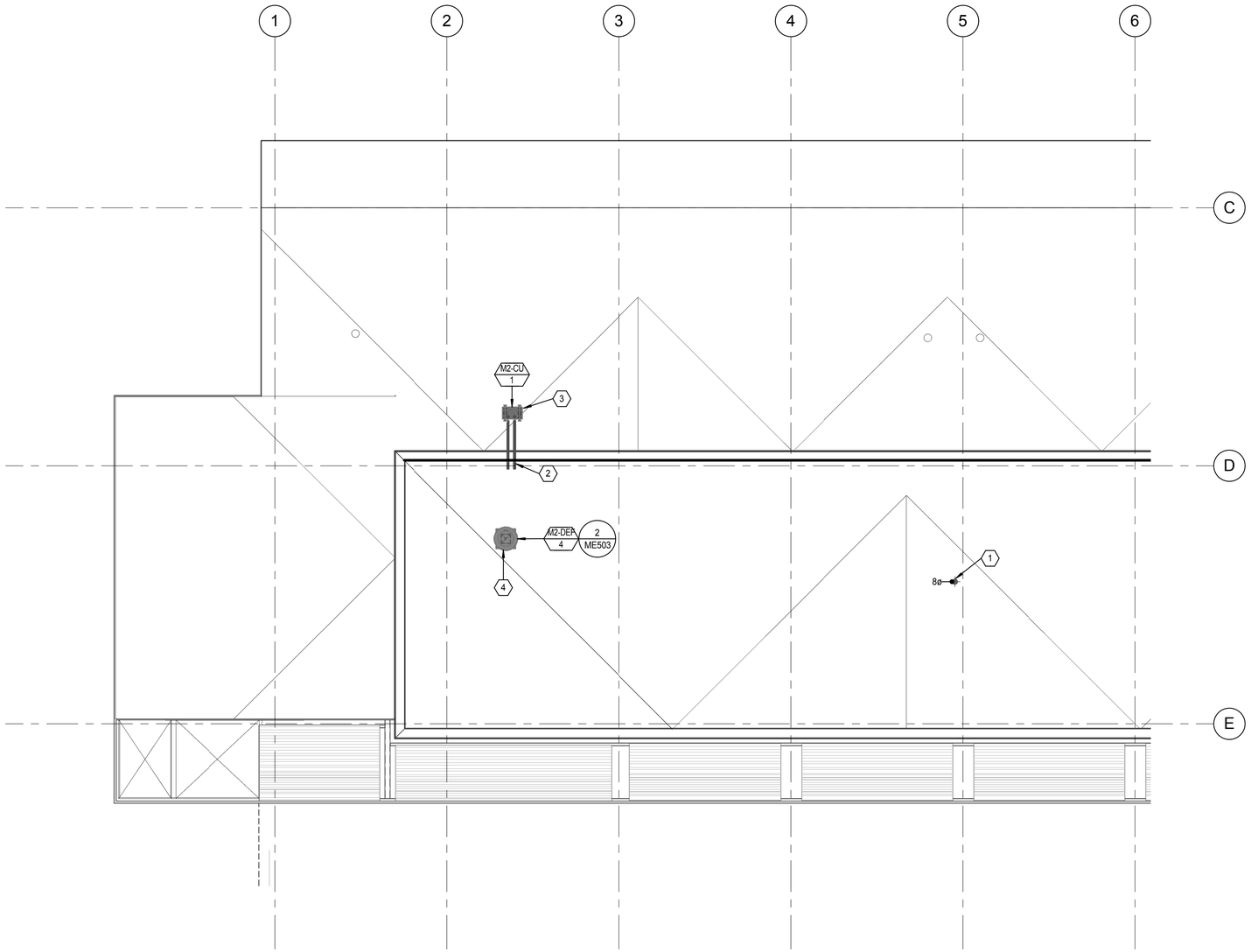


ROOF LEVEL MECHANICAL PLAN AREA A 1 MH105A

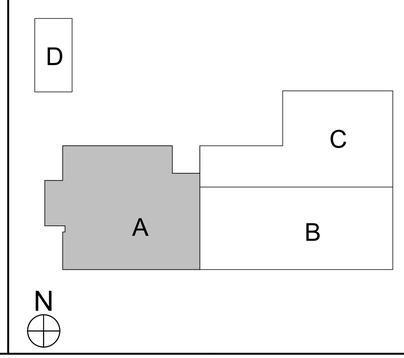
1/8" = 1'-0"

N

KEYED NOTES

1. FIBERGLASS FAN EXHAUST STACK. RUN STACK 10 FT. ABOVE ROOF LINE. SUPPORT STACK FROM MECHANICAL PENTHOUSE FLOOR AND BRACE AT ROOF. STACK TO BE SELF SUPPORTING WITHOUT GUY WIRES ABOVE ROOF.
2. REFRIGERANT SUCTION AND LIQUID LINES TO INDOOR UNIT. SIZE PER MANUFACTURERS RECOMMENDATIONS.
3. SPLIT SYSTEM CONDENSING UNIT. MOUNT ON CURB WITH SHEET METAL CAP.
4. TOILET ROOM EXHAUST FAN. PROVIDE 18" HIGH CURB.

KEY PLAN



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ROOF LEVEL MECHANICAL PLAN AREA A

MH105A

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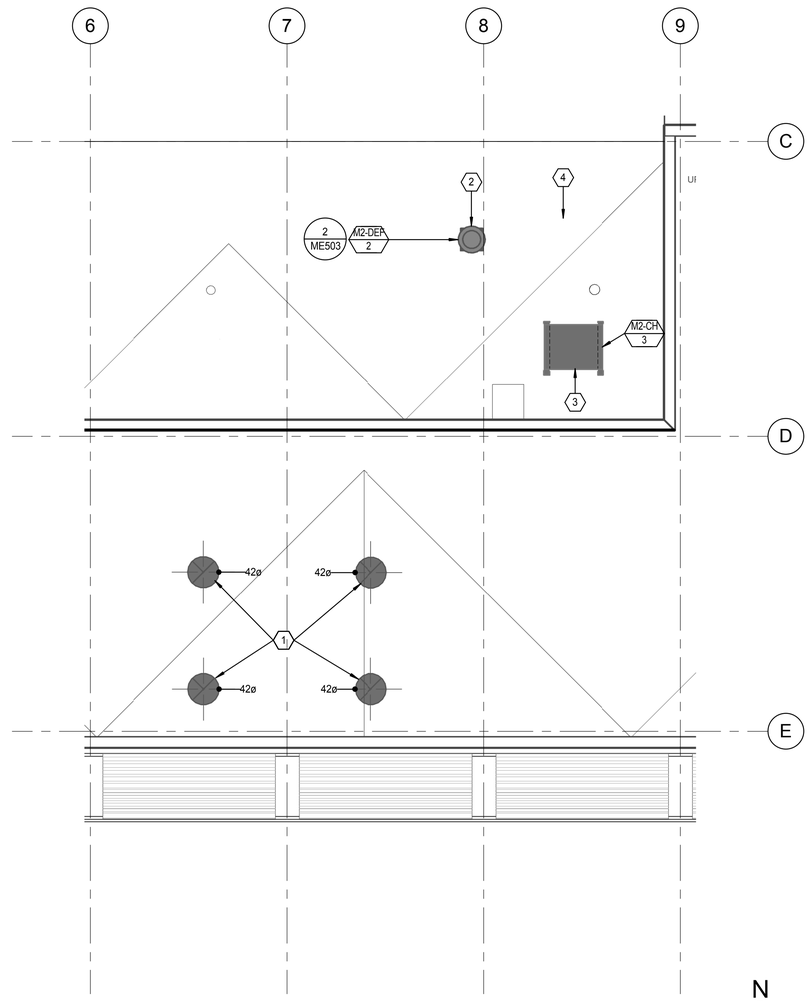


ROOF LEVEL MECHANICAL PLAN AREA B

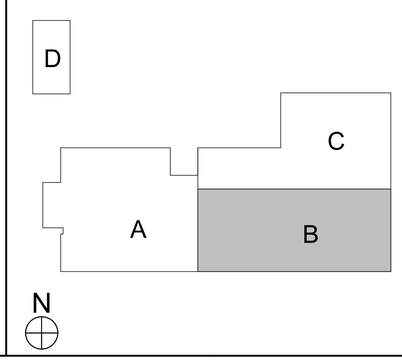
1/8" = 1'-0" (1 / MH105B)

N

KEYED NOTES

1. EXHAUST STACK. EXTEND STACK TO 10' ABOVE ROOF LINE. STACK TO BE SUPPORTED OFF OF AIR HANDLER ROOF. CONNECT STACK TO EXHAUST FANS IN AIR HANDLER. STACK TO BE PAINTED PER COLOR DETERMINED BY ARCHITECT. PROVIDE EPOXY PAINT. SEE SPECIFICATIONS.
2. TOILET ROOM EXHAUST FAN. PROVIDE 18" HIGH CURB.
3. AIR COOLED CHILLER. PROVIDE THY-CURB MOUNTING CURBS 18" TALL UNDER CHILLER.
4. CONDENSING UNITS FOR COLD ROOMS. COORDINATE MOUNTING LOCATION WITH MECHANICAL EQUIPMENT.

KEY PLAN



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DONALD K. BRADSHAW
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ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

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ROOF LEVEL MECHANICAL PLAN AREA B

MH105B

VOLUME 2

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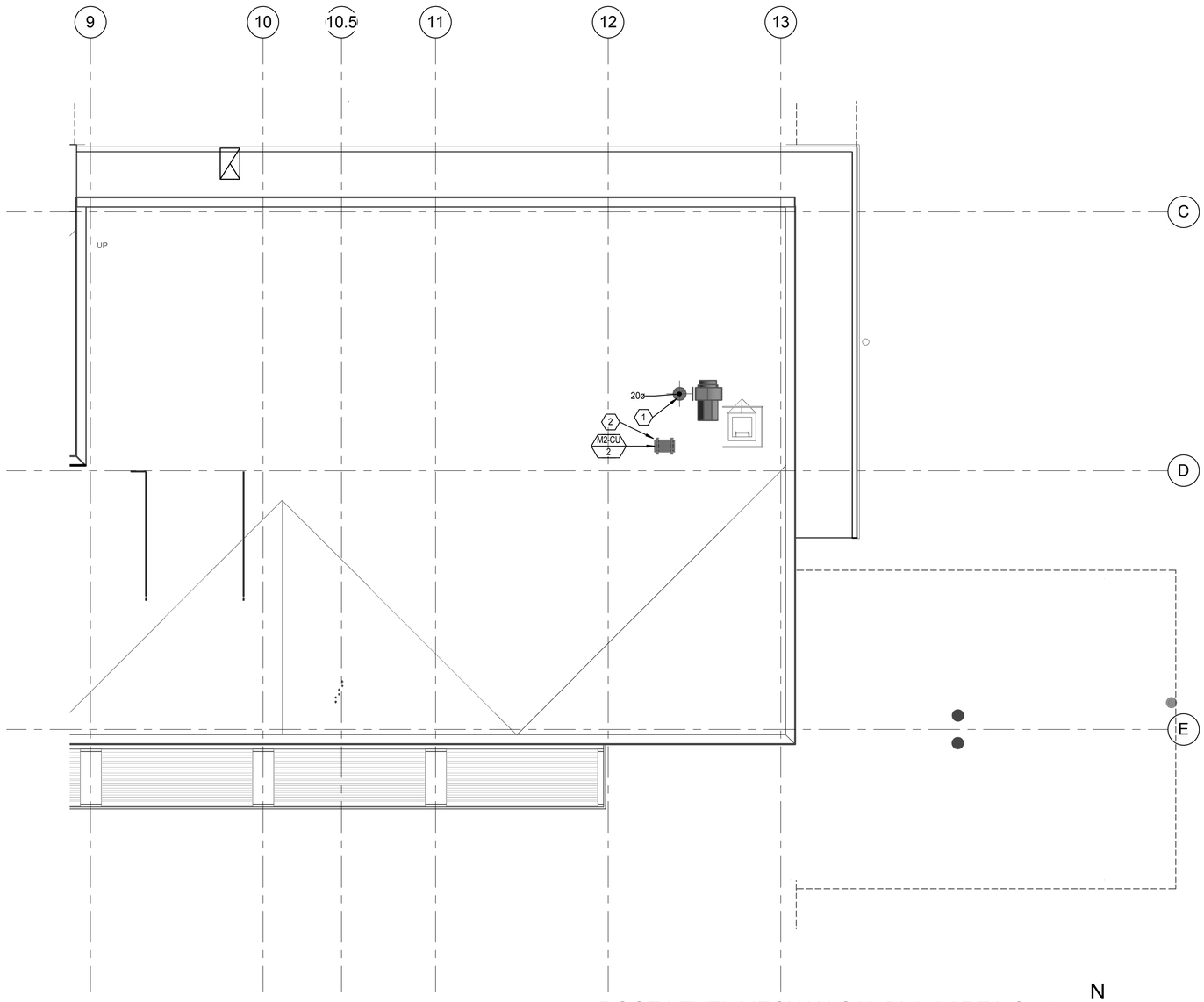


ROOF LEVEL MECHANICAL PLAN AREA C (1 / MH105C)

1/8" = 1'-0"

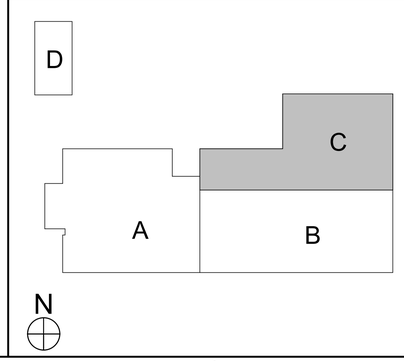
N

KEYED NOTES

1 GUN RANGE EXHAUST STACK. RUN STACK 10 FT ABOVE ROOF LINE. SUPPORT STACK FROM MECHANICAL PENTHOUSE FLOOR AND BRACE AT ROOF. STACK TO BE SELF SUPPORTING WITHOUT GUY WIRES ABOVE ROOF.

2 SPLIT SYSTEM CONDENSING UNIT. MOUNT ON CURB WITH SHEET METAL CAP.

KEY PLAN



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ROOF LEVEL MECHANICAL PLAN AREA C

MH105C

VOLUME 2

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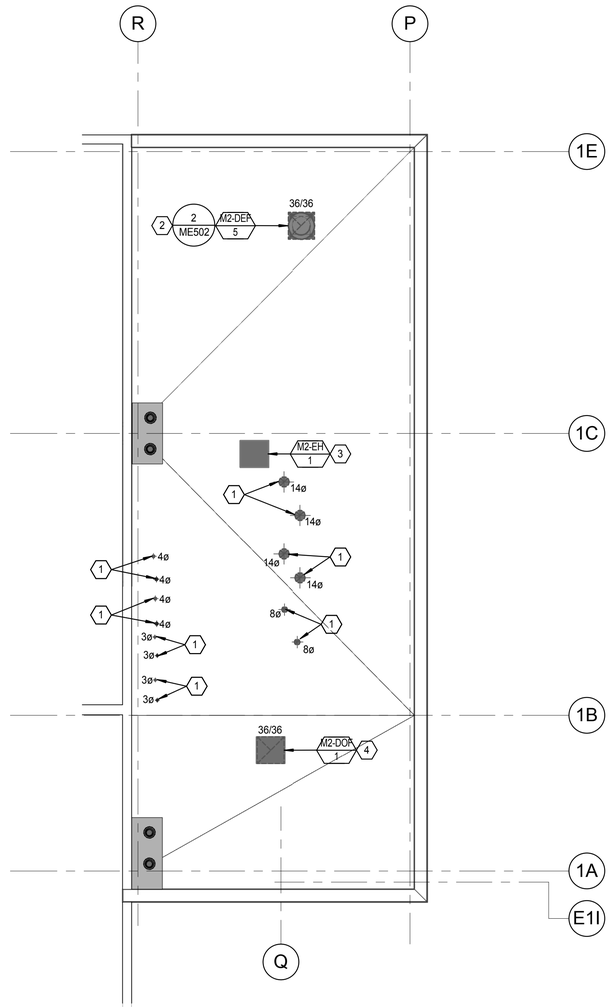


ROOF LEVEL MECHANICAL PLAN AREA D (1 / MH105D)

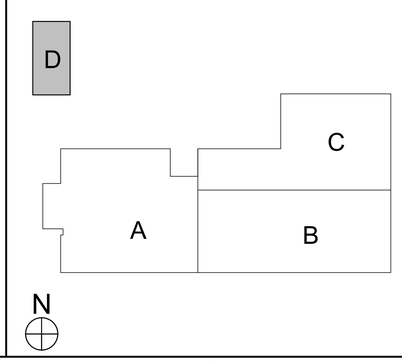
1/8" = 1'-0"

N

KEYED NOTES

1. COMBUSTION AIR INTAKE AND EXHAUST FLUE UP FROM BOILER/WATER HEATER BELOW. SIZE AS NOTED AND EXTEND ABOVE ROOF A MINIMUM OF 3 FT. AND TERMINATE PER MANUFACTURERS RECOMMENDATIONS.
2. DUCTED EXHAUST FAN FOR CHILLER ROOM EXHAUST MOUNT ON 18" HIGH CURB.
3. COMBINATION INTAKE AND EXHAUST HOOD, MUNT ON 18" HIGH CURB.
4. DUCTED OUTSIDE AIR FAN, MOUNT ON 18" HIGH CURB.

KEY PLAN



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ROOF LEVEL MECHANICAL PLAN AREA D

MH105D

VOLUME 2

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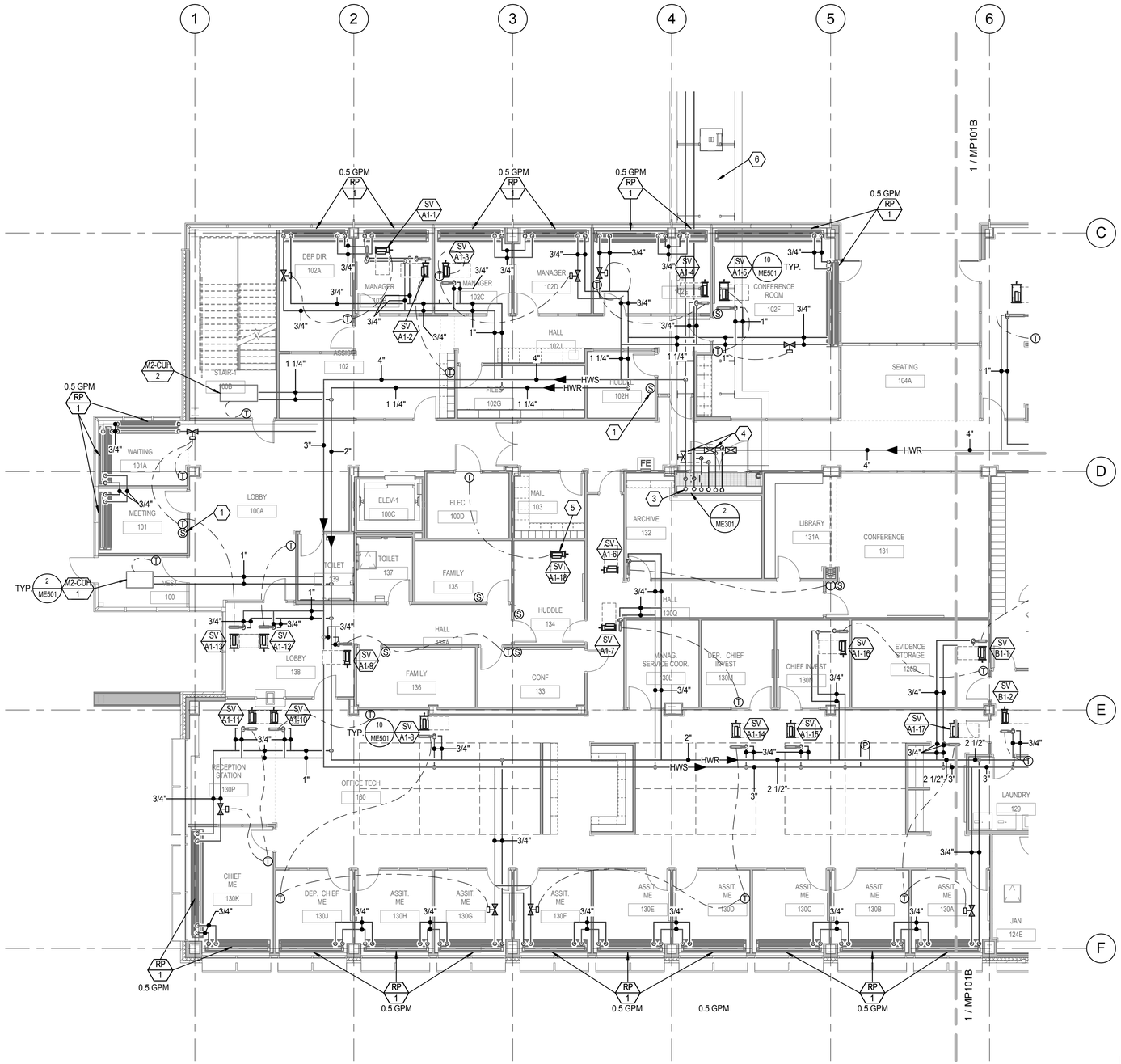


LEVEL 1 MECHANICAL PIPING PLAN AREA A

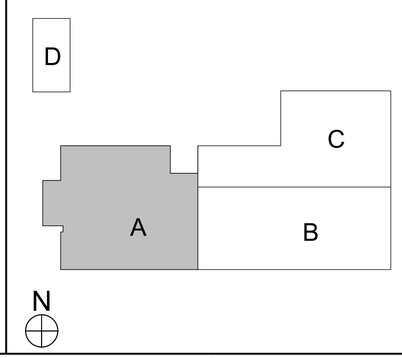
1/8" = 1'-0" (1 / MP101A)

N

KEYED NOTES

1. INSTALL CO2 SENSOR BETWEEN 3'-0" AND 6'-0" AFF.
2. PROVIDE DIFFERENTIAL PRESSURE SENSOR TO CONTROL VARIABLE VOLUME PUMPING SYSTEM. SEE SEQUENCE OF OPERATIONS.
3. 8" HOT WATER SUPPLY AND RETURN PIPING DOWN IN SHAFT TO UNDERGROUND TUNNEL AND 8" PIPING UP IN SHAFT. SEE TUNNEL AND LEVE 2 MECHANICAL PIPING PLANS FOR CONTINUATION.
4. PROVIDE TAKE-OFF RISER IN PIPE CHASE WITH ISOLATION VALVE AND CIRCUIT SETTER INSTALLED IN AN ACCESSIBLE HEIGHT AND LOCATION. BALANCE TO SUM OF FLOWS FOR THIS LEVEL. SEE MECHANICAL SCHEDULES FOR FLOW RATES. VALVES TO BE INSTALLED IN VERTICAL TAKE-OFF, SHOWN IN HORIZONTAL PIPING FOR CLARITY. SEE PIPING SHAFT PLAN AND ISOMETRIC.
5. SUPPLY VALVE IS COOLING ONLY.
6. BELOW GRADE UTILITY TUNNEL CONTAINING HEATING HOT WATER, CHILLED WATER, CONDENSER WATER AND OTHER SERVICE PIPING FROM PHASE 1 MECHANICAL ROOM. SEE MECHANICAL SITE PLAN FOR MORE INFORMATION.

KEY PLAN



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LEVEL 1 MECHANICAL PIPING PLAN AREA A

MP101A

VOLUME 2

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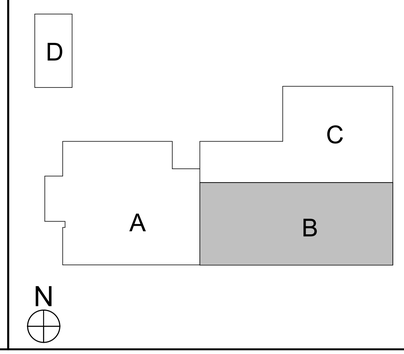
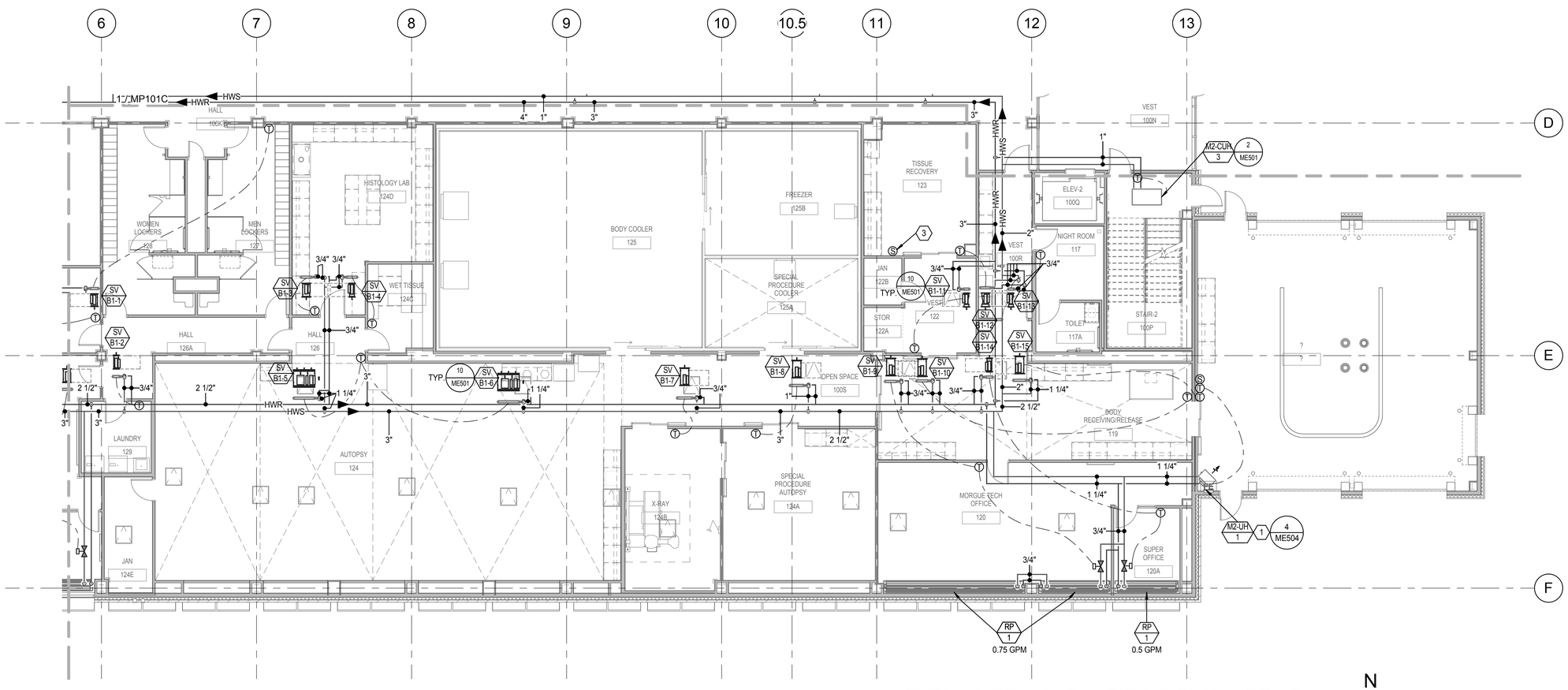
KEYED NOTES

1. PROVIDE THREE WAY VALVE.
2. WALL MOUNTED CO SENSOR TO CONTROL VENTILATION RATE AND EXHAUST AIRFLOW RATE IN SALLYPORT. INSTALL BETWEEN 3'-0" AND 6'-0" AFF. SEE SEQUENCE OF OPERATIONS.
3. PROVIDE AND INSTALL OCCUPANCY SENSOR TO CONTROL ROOM AIRLFOW IN OCCUPIED/UNOCCUPIED MODE. SEE SEQUENCE OF OPERATIONS.

KEY PLAN





LEVEL 1 MECHANICAL PIPING PLAN AREA B (1 / MP101B)

1/8" = 1'-0"

N

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LEVEL 1 MECHANICAL PIPING PLAN AREA B

MP101B

VOLUME 2

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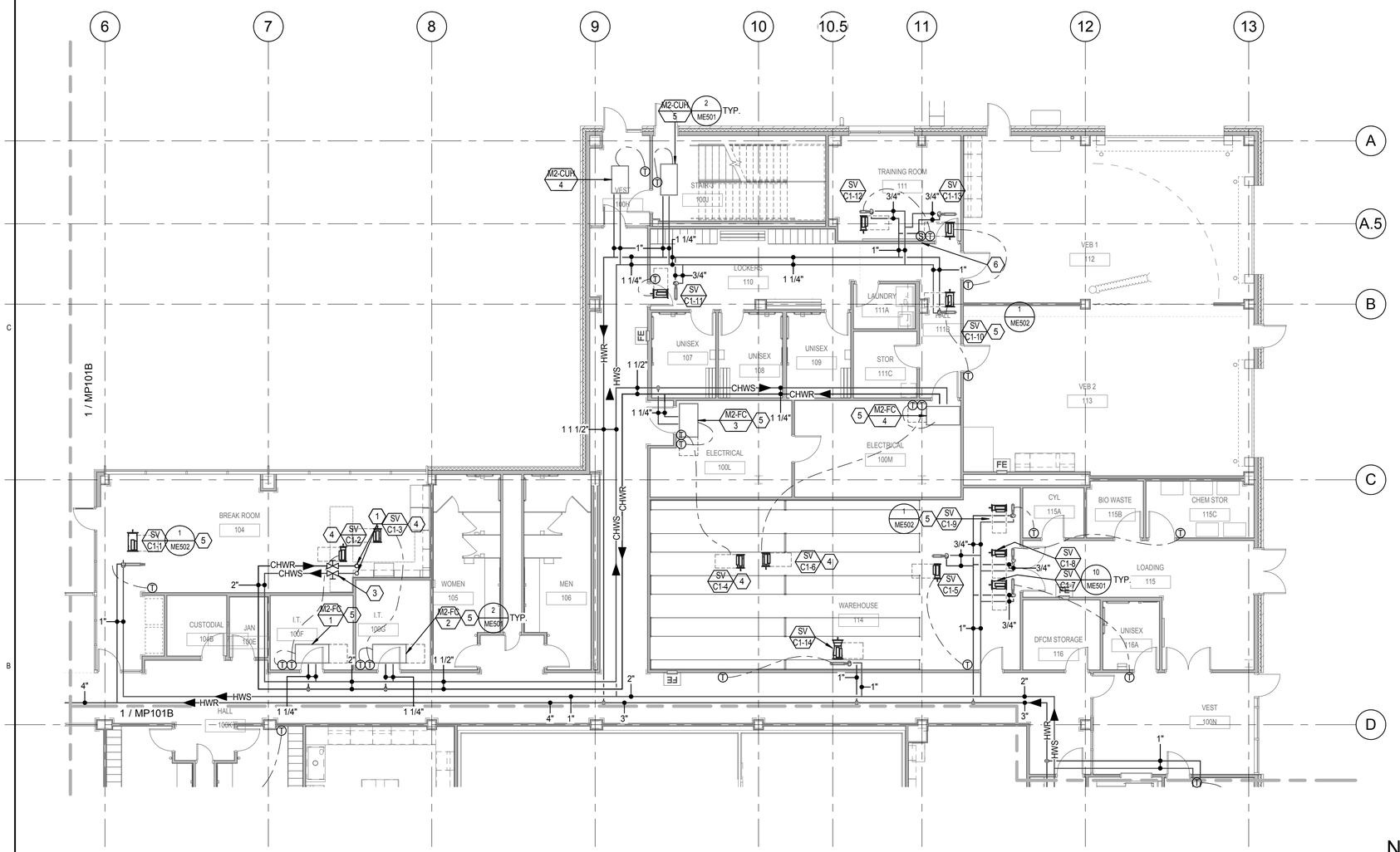


LEVEL 1 MECHANICAL PIPING PLAN AREA C

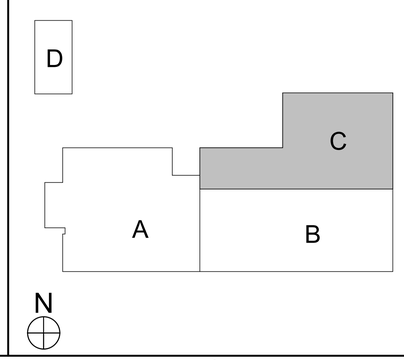
1/8" = 1'-0" (1 / MP101C)

N

KEYED NOTES

1. 2-1/2" CHILLED WATER SUPPLY AND RETURN PIPING UP IN SHAFT. SEE LEVEL 2 MECHANICAL PIPING PLAN FOR CONTINUATION.
2. MAINTAIN MANUFACTURER'S MINIMUM SERVICE CLEARANCES AS SHOWN.
3. PROVIDE ISOLATION VALVES AS SHOWN.
4. SUPPLY VALVE IS COOLING ONLY.
5. PROVIDE THREE WAY VALVE.
6. INSTALL CO2 SENSOR BETWEEN 3'-0" AND 6'-0" AFF.

KEY PLAN



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LEVEL 1 MECHANICAL PIPING PLAN AREA C

MP101C

VOLUME 2

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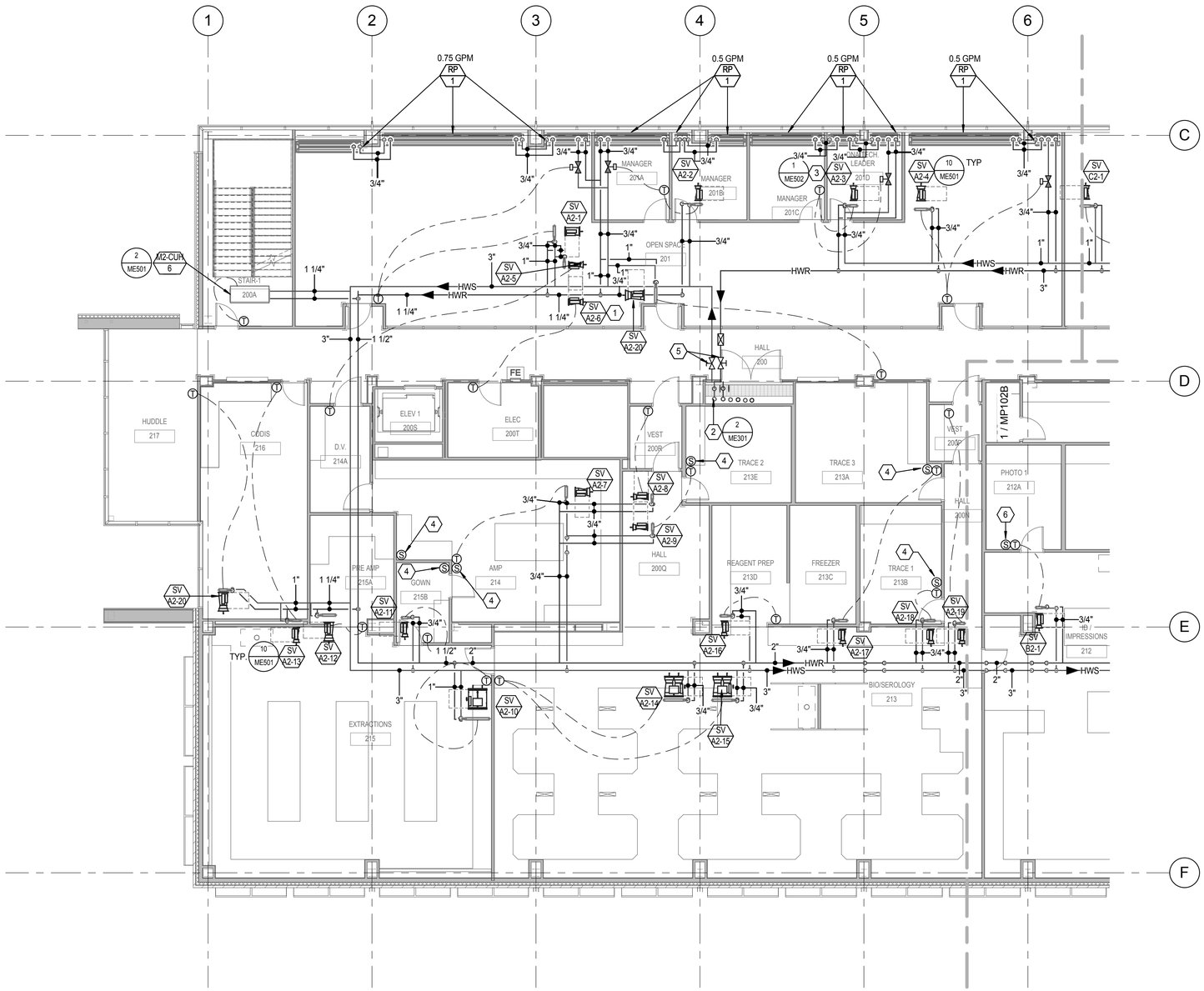


LEVEL 2 MECHANICAL PIPING PLAN AREA A (1 / MP102A)

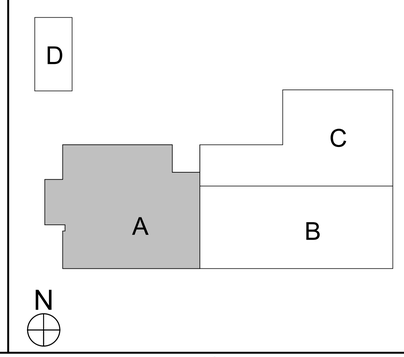
1/8" = 1'-0"

N

KEYED NOTES

1. SUPPLY VALVE IS COOLING ONLY.
2. 6" HOT WATER SUPPLY AND RETURN PIPING UP AND 8" PIPING DOWN IN SHAFT. SEE LEVEL 1 AND LEVEL3 MECHANICAL PIPING PLANS FOR CONTINUATION.
3. PROVIDE THREE WAY VALVE.
4. PROVIDE AND INSTALL WALL MOUNTED DIFFERENTIAL PRESSURE INDICATOR.
5. PROVIDE TAKE-OFF RISER IN PIPE CHASE WITH ISOLATION VALVE AND CIRCUIT SETTER INSTALLED IN AN ACCESSIBLE HEIGHT AND LOCATION. BALANCE TO SUM OF FLOWS FOR THIS LEVEL. SEE MECHANICAL SCHEDULES FOR FLOW RATES. VALVES TO BE INSTALLED IN VERTICAL TAKE-OFF, SHOWN IN HORIZONTAL PIPING FOR CLARITY. SEE PIPING SHAFT PLAN AND ISOMETRIC.
6. PROVIDE WALL MOUNTED USER OPERABLE AIRFLOW OVERRIDE SWITCH. UPON ACTIVATION OF THE OVERRIDE SWITCH. UPON ACTIVATION OF THE OVERRIDE THE SUPPLY VALVE MINIMUM AIRFLOW SETPOINT SHALL BE INCREASED TO MATCH THE MAXIMUM AIRFLOW. SEE SEQUENCE OF OPERATIONS. PROVIDE PERMANENT LABEL FOR SWITCH STATING "AIRFLOW OVERRIDE SWITCH."

KEY PLAN



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LEVEL 2 MECHANICAL PIPING PLAN AREA A

MP102A

VOLUME 2

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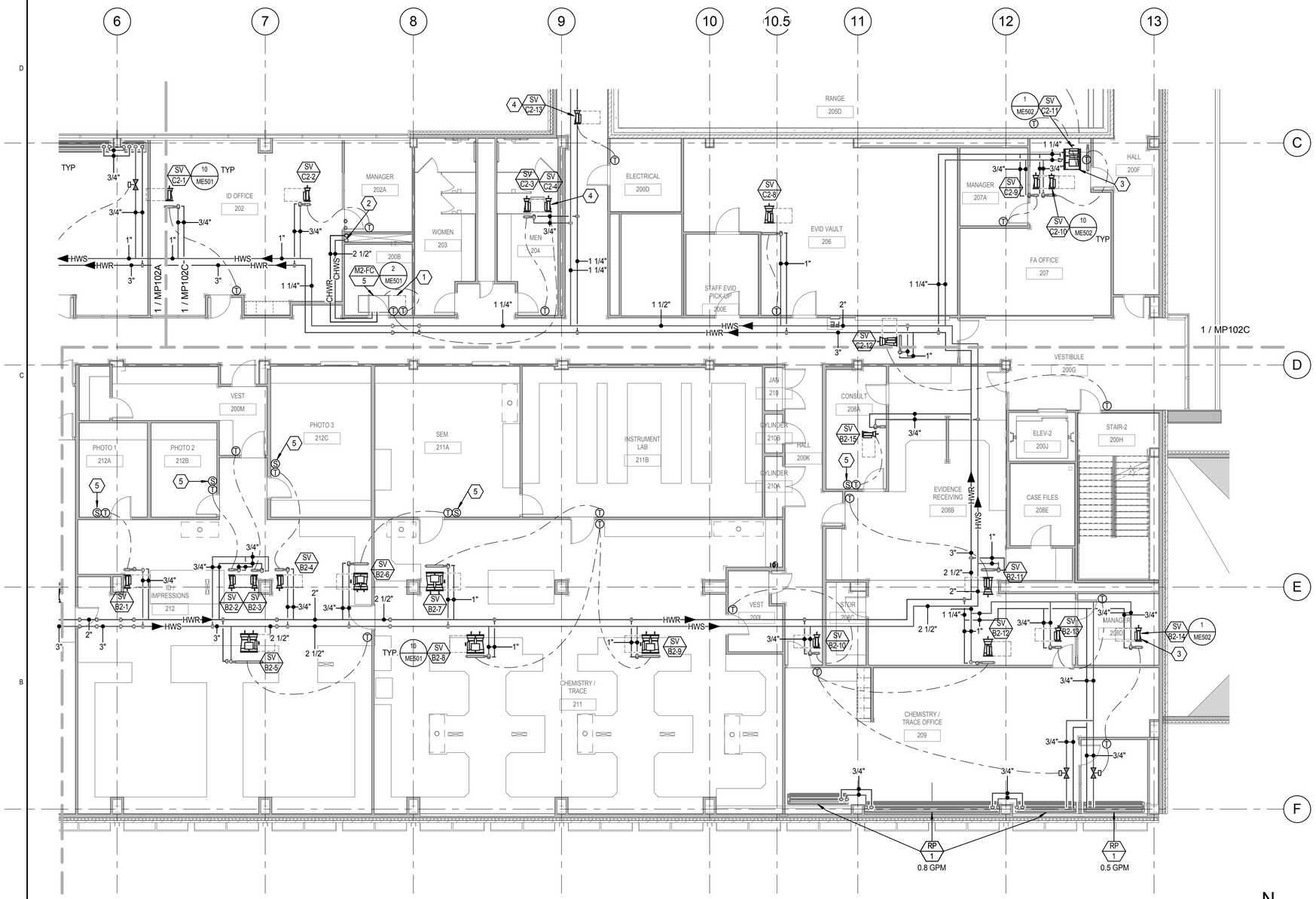


LEVEL 2 MECHANICAL PIPING PLAN AREA B (1 / MP102B)

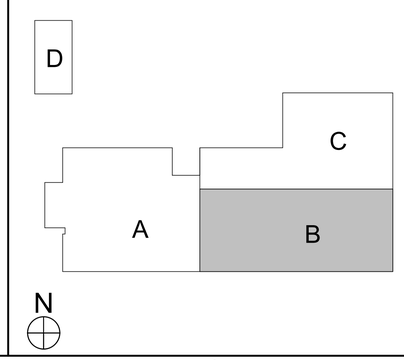
1/8" = 1'-0"

N

KEYED NOTES

1. MAINTAIN MANUFACTURER'S MINIMUM SERVICE CLEARANCES AS SHOWN.
2. 2-1/2" CHILLED WATER PIPING UP/DOWN IN SHAFT. sEE LEVEL 1 AND LEVEL 3 MECHANICAL PIPIN PLANS FOR CONTINUATION.
3. PROVIDE THREE WAY VALVE.
4. SUPPLY VALVE IS COOLING ONLY.
5. PROVIDE WALL MOUNTED USER OPERABLE AIRFLOW OVERRIDE SWITCH. UPON ACTIVATION OF THE OVERRIDE SWITCH. UPON ACTIVATION OF THE OVERRIDE THE SUPPLY VALVE MINIMUM AIRFLOW SETPOINT SHALL BE INCREASED TO MATCH THE MAXIMUM AIRFLOW. SEE SEQUENCE OF OPERATIONS. PROVIDE PERMANENT LABEL FOR SWITCH STATING "AIRFLOW OVERRIDE SWITCH."

KEY PLAN



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LEVEL 2 MECHANICAL PIPING PLAN AREA B

MP102B

VOLUME 2

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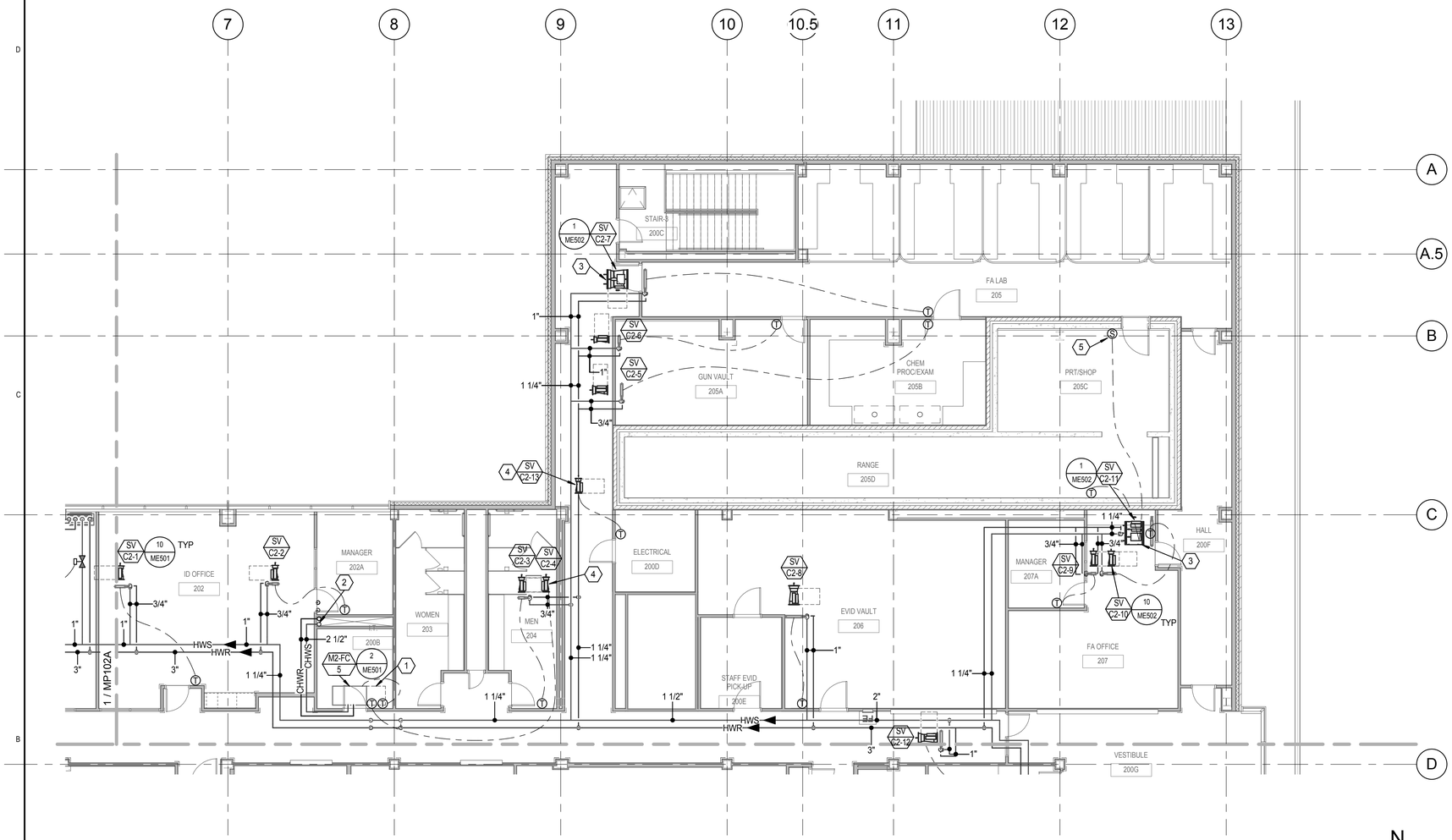


LEVEL 2 MECHANICAL PIPING PLAN AREA C (1 / MP102C)

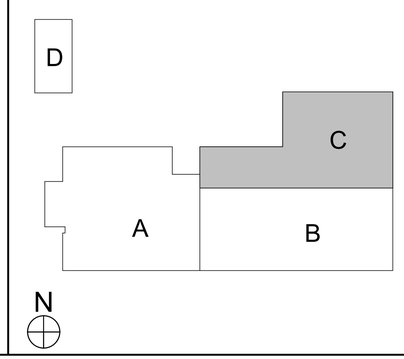
1/8" = 1'-0"

N

KEYED NOTES

1. MAINTAIN MANUFACTURER'S MINIMUM SERVICE CLEARANCES AS SHOWN.
2. 2-1/2" CHILLED WATER PIPING UP/DOWN IN SHAFT. sEE LEVEL 1 AND LEVEL 3 MECHANICAL PIPIN PLANS FOR CONTINUATION.
3. PROVIDE THREE WAY VALVE.
4. SUPPLY VALVE IS COOLING ONLY.
5. FIREARMS RANGE: AIRFLOW TO BE CONTROLLED IN OCCUPIED/UNOCCUPIED MODES. INTERLOCK HVAC OCCUPANCY STATUS WITH LIGHTING. COORDINATE LOCATION AND CONTACTS WITH DIVISION 26.

KEY PLAN



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LEVEL 2 MECHANICAL PIPING PLAN AREA C

MP102C

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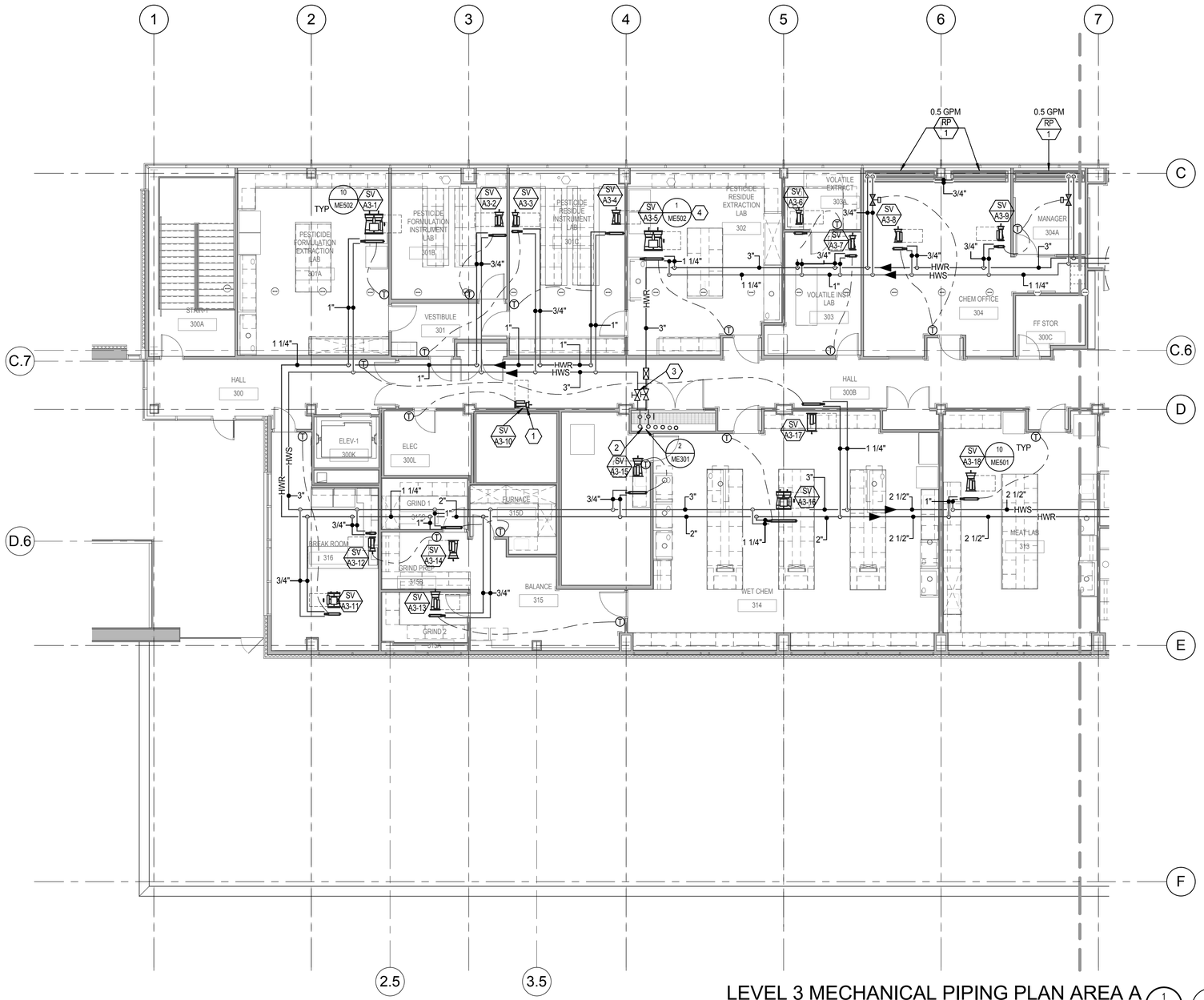


LEVEL 3 MECHANICAL PIPING PLAN AREA A (1 / MP103A)

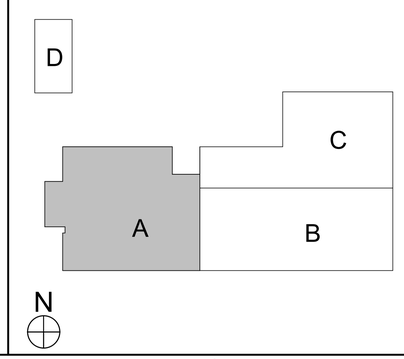
1/8" = 1'-0"

N

KEYED NOTES

1. SUPPLY VALVE IS COOLING ONLY.
2. 6" HOT WATER SUPPLY AND RETURN PIPING UP/DOWN IN SHAFT. SEE LEVEL 2 AND PENTHOUSE LEVEL MECHANICAL PIPING PLANS FOR CONTINUATION.
3. PROVIDE TAKE-OFF RISER IN PIPE CHASE WITH ISOLATION VALVE AND CIRCUIT SETTER INSTALLED IN AN ACCESSIBLE HEIGHT AND LOCATION. BALANCE TO SUM OF FLOWS FOR THIS LEVEL. SEE MECHANICAL SCHEDULES FOR FLOW RATES. VALVES TO BE INSTALLED IN VERTICAL TAKE-OFF, SHOWN IN HORIZONTAL PIPING FOR CLARITY. SEE PIPING SHAFT PLAN AND ISOMETRIC.
4. PROVIDE THREE WAY VALVE.

KEY PLAN



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LEVEL 3 MECHANICAL PIPING PLAN AREA A

MP103A

VOLUME 2

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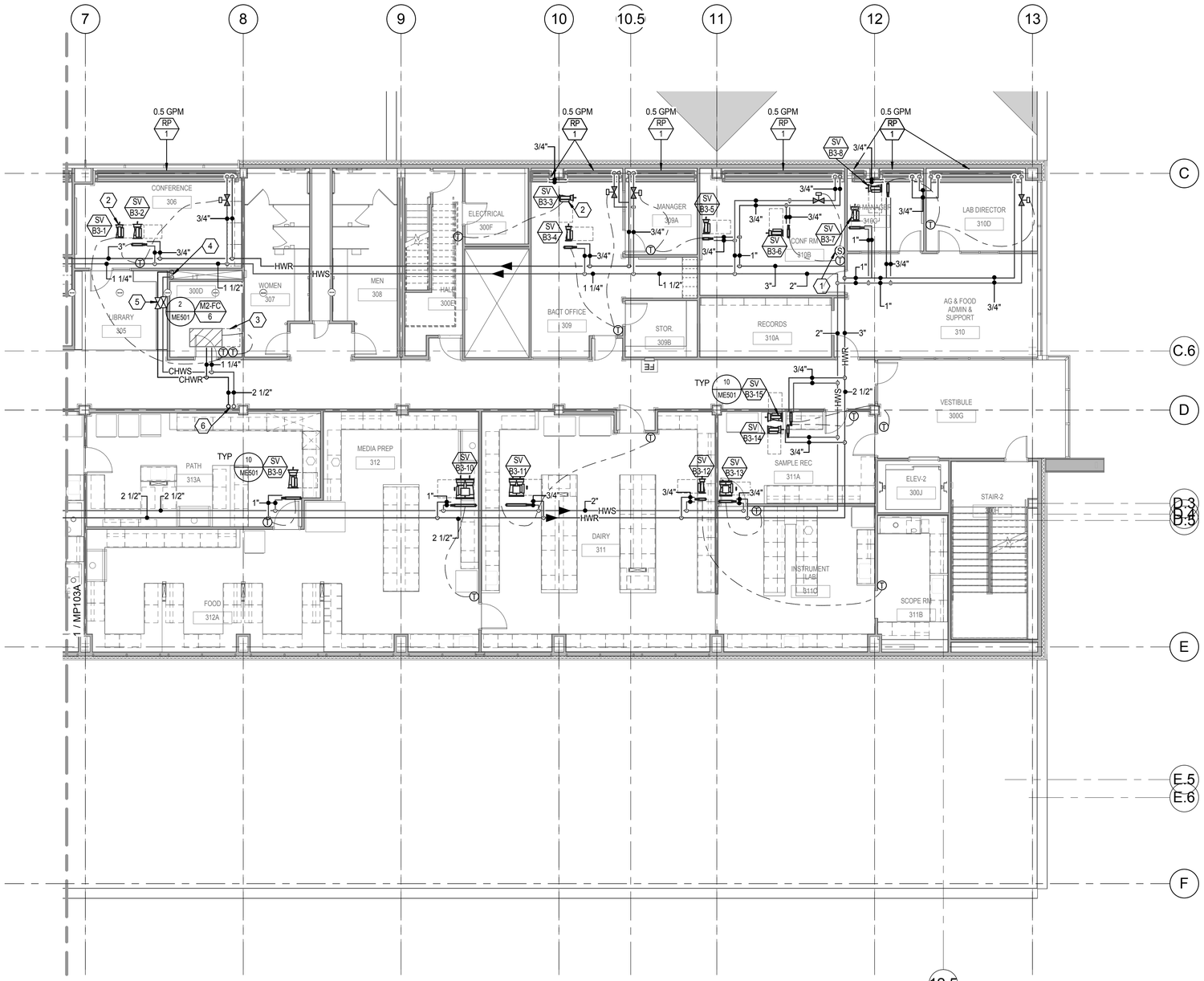


LEVEL 3 MECHANICAL PIPING PLAN AREA B (1 / MP103B)

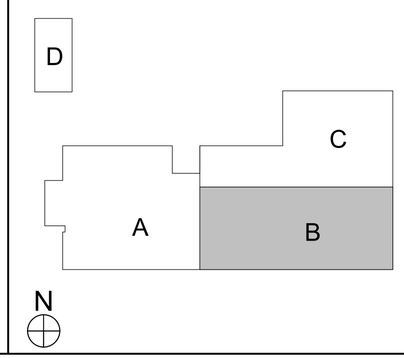
1/8" = 1'-0"

N

KEYED NOTES

1. INSTALL CO2 SENSOR BETWEEN 3'-0" AND 6'-0" AFF.
2. SUPPLY VALVE IS COOLING ONLY.
3. PROVIDE THREE WAY VALVE.
4. CHILLED WATER PIPING DOWN IN SHAFT. SEE LEVEL 2 MECHANICAL PIPING PLAN FOR CONTINUATION.
5. PROVIDE ISOLATION VALVES AS SHOWN.
6. 2-1/2" CHILLED WATER SUPPLY AND RETURN PIPING UP. SEE PENTHOUSE MECHANICAL PIPNG PLAN FOR CONTINUATION.

KEY PLAN



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LEVEL 3 MECHANICAL PIPING PLAN AREA B

MP103B

VOLUME 2

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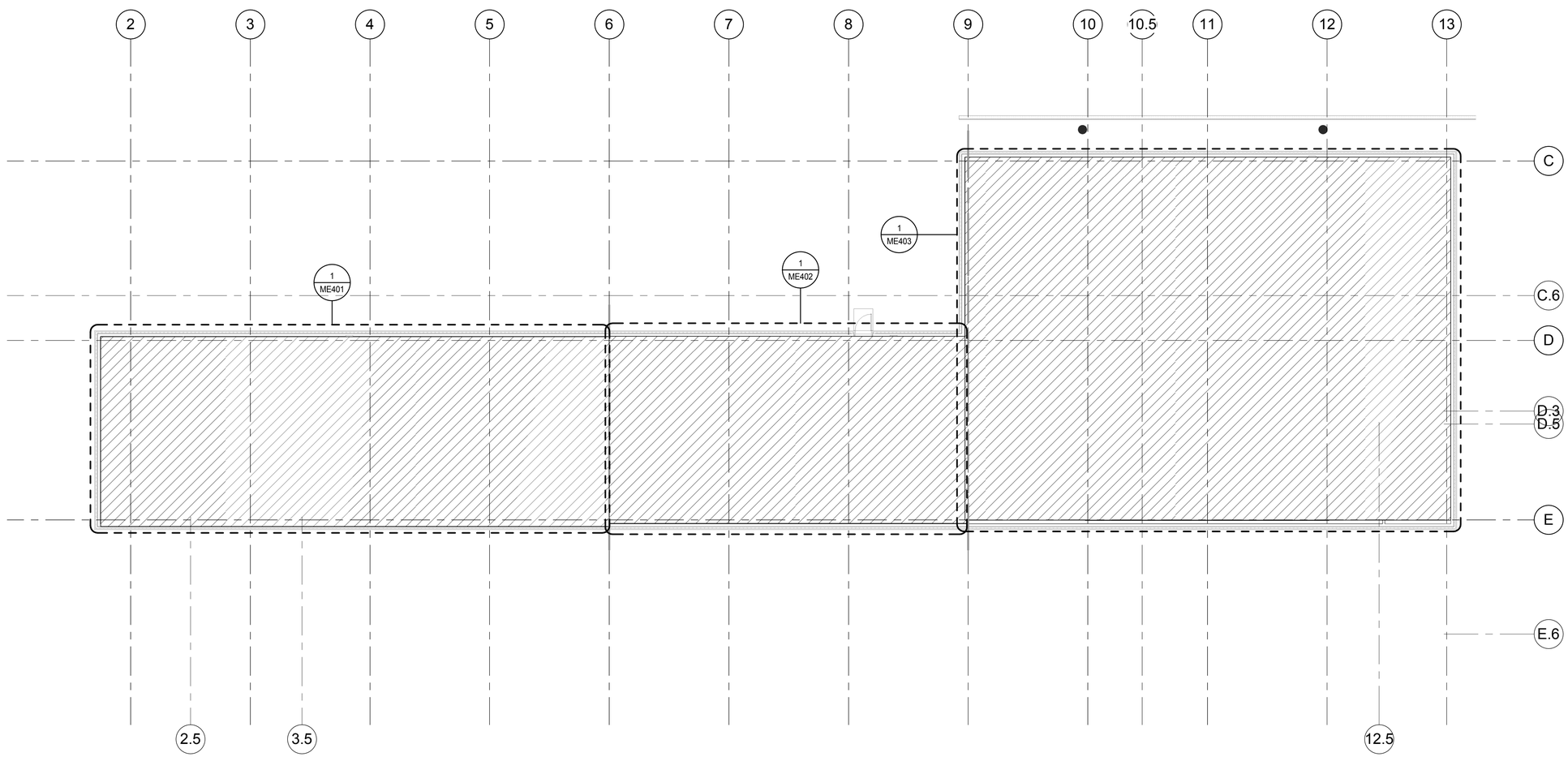

PENTHOUSE MECHANICAL PIPING PLAN

1 MP104

3/32" = 1'-0"

N

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PENTHOUSE MECHANICAL PIPING PLAN

MP104

VOLUME 2

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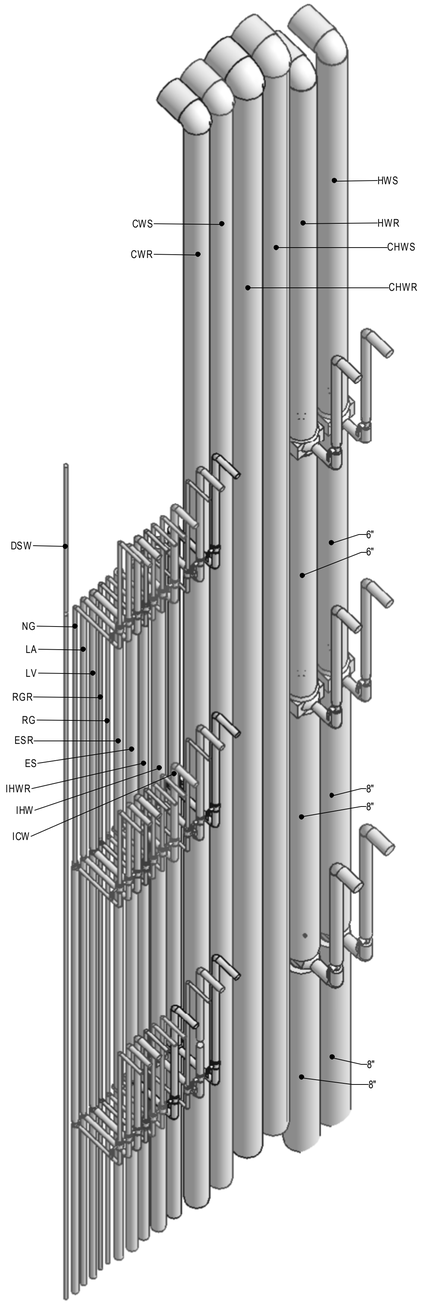
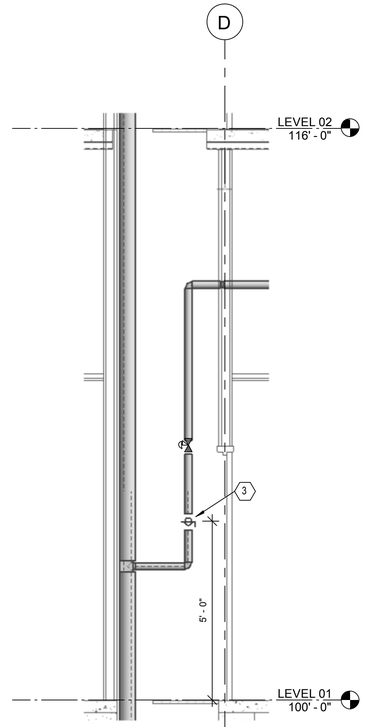
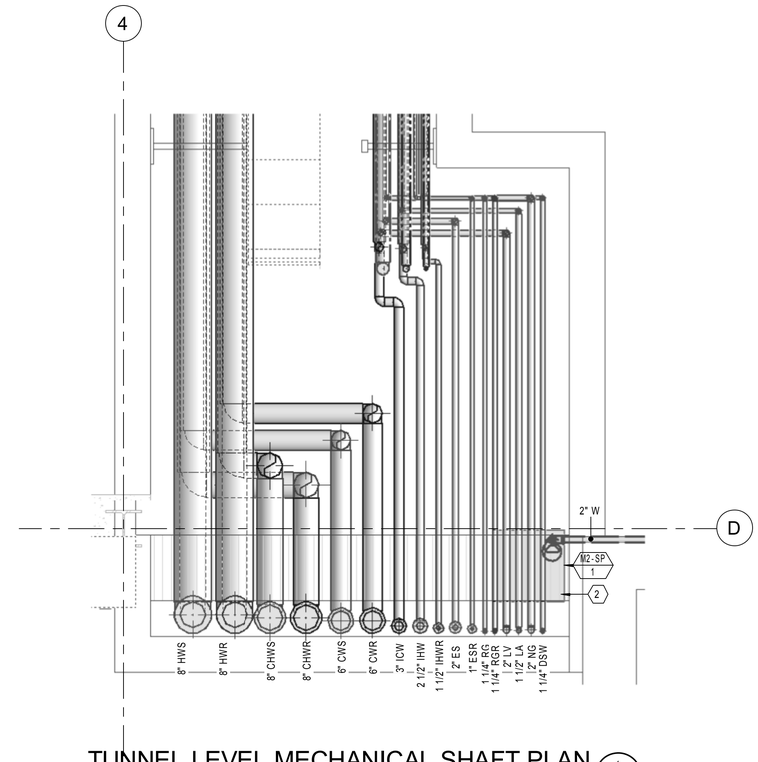


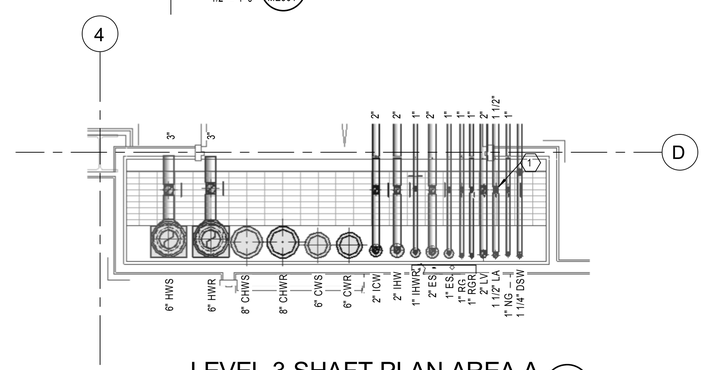
AREA A MECHANICAL SHAFT (2 / ME301)



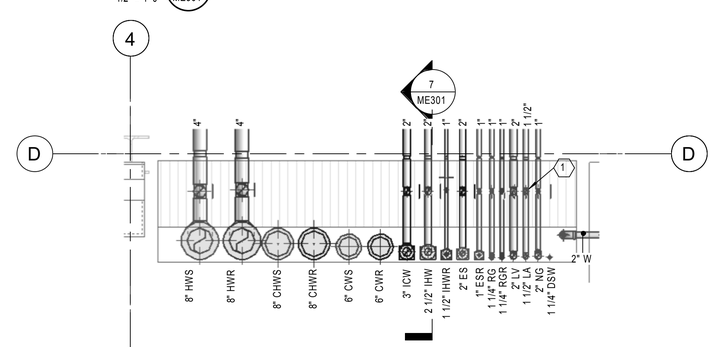
PIPE SHAFT TAKEOFF (7 / ME301)
1/2" = 1'-0"



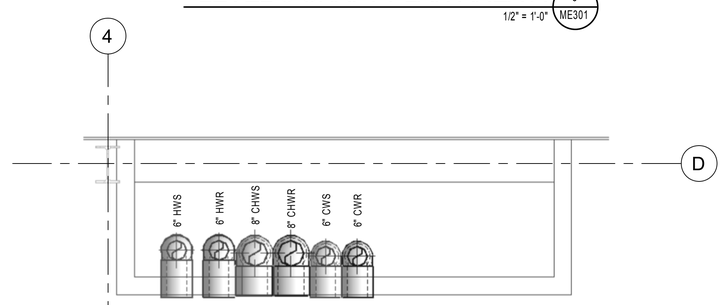
TUNNEL LEVEL MECHANICAL SHAFT (1 / ME301)
1/2" = 1'-0"



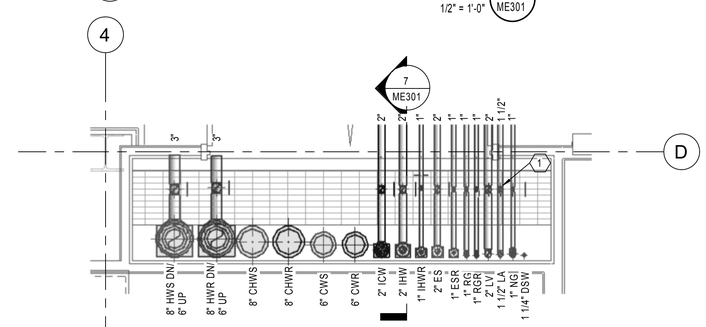
LEVEL 3 SHAFT PLAN AREA A (5 / ME301)
1/2" = 1'-0"



LEVEL 1 SHAFT PLAN AREA A (3 / ME301)
1/2" = 1'-0"



PENTHOUSE LEVEL SHAFT PLAN AREA A (6 / ME301)
1/2" = 1'-0"



LEVEL 2 SHAFT PLAN AREA A (4 / ME301)
1/2" = 1'-0"

KEYED NOTES

1. PROVIDE PRESSURE REDUCING VALVE ON LA LINE SERVING THIS FLOOR AND REDUCE AIR PRESSURE TO 50 PSI. LOCATE ON BRANCH LINE RISE.
2. 2'X2'X2' DEEP SUMP WITH SUMP PUMP. PROVIDE OPEN GRATE COVER. SEE DETAILS ON PLUMBING PLANS. EXTEND WASTE LINE TO NEAREST INDIRECT WASTE RECEPTOR.
3. MOUNT ALL ISOLATION VALVES IN VERTICAL RISE AT APPROXIMATELY 5' AFF, TYPICAL.

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PIPING SHAFT PLAN AND ISOMETRIC

ME301

VOLUME 2

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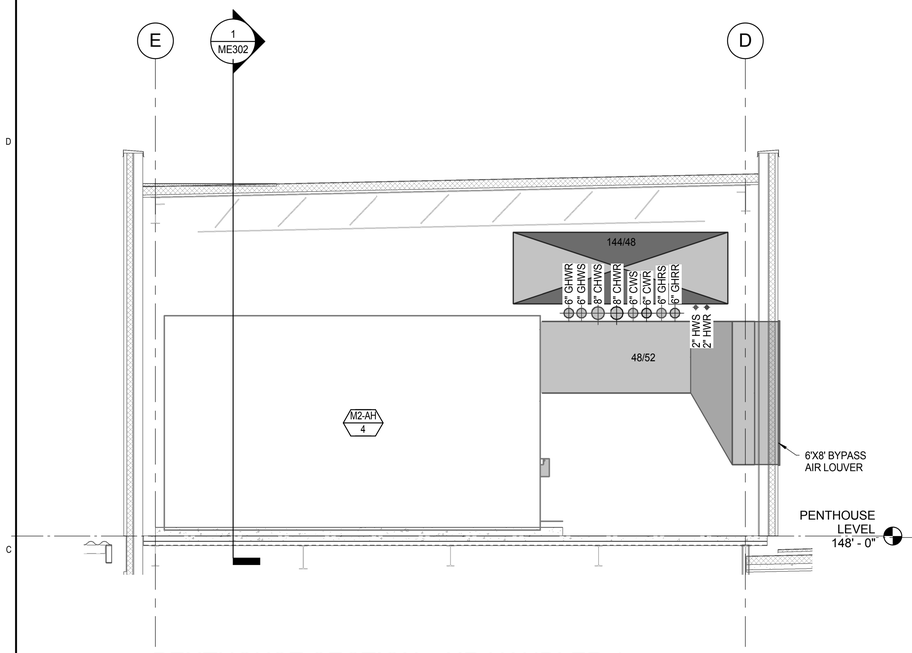
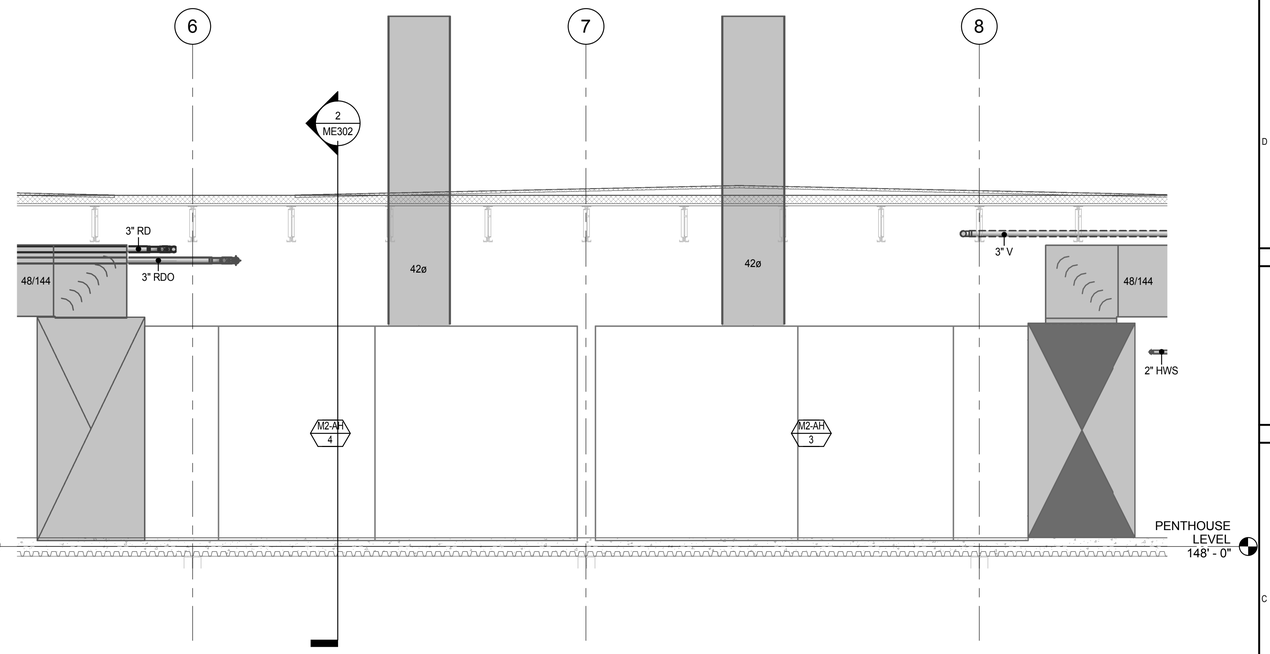
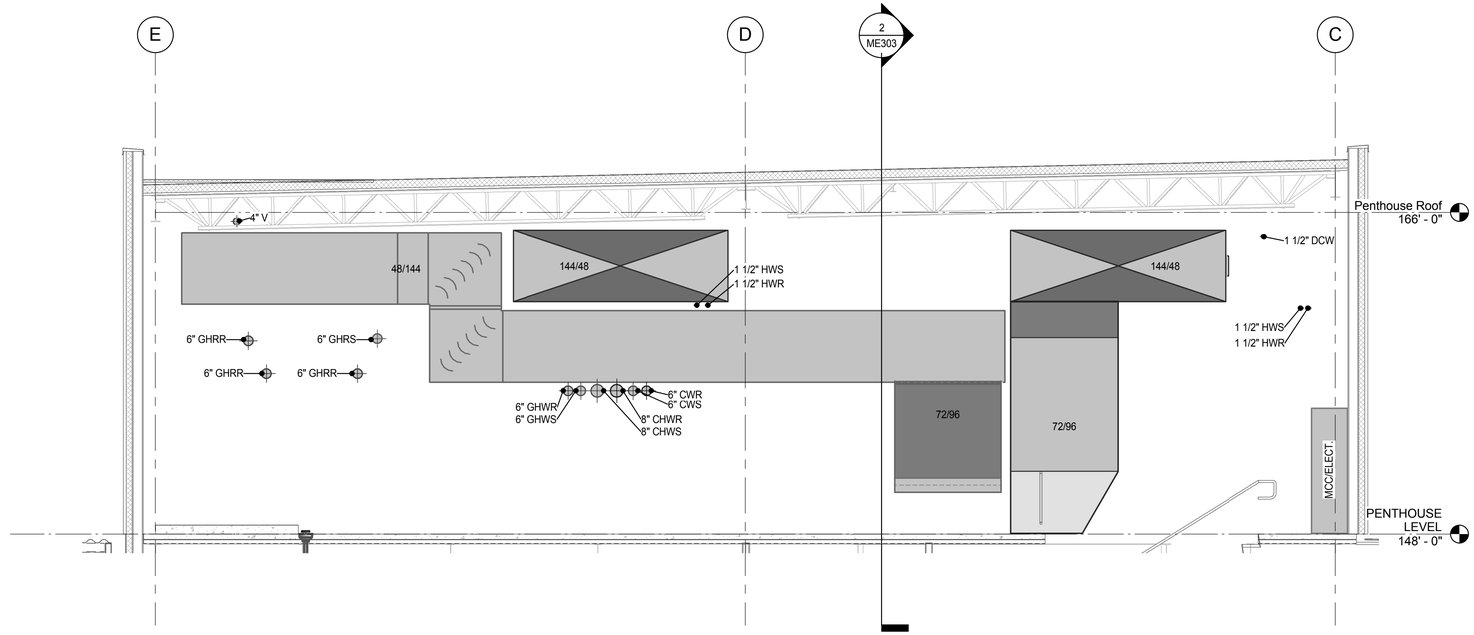


PENTHOUSE SECTION - AIR HANDLER 4 (2 / ME302)
1/4" = 1'-0"



PENTHOUSE SECTION - AIR HANDLERS 3 & 4 (1 / ME302)
1/4" = 1'-0"



PENTHOUSE SECTION (3 / ME302)
1/4" = 1'-0"

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MECHANICAL SECTIONS

ME302

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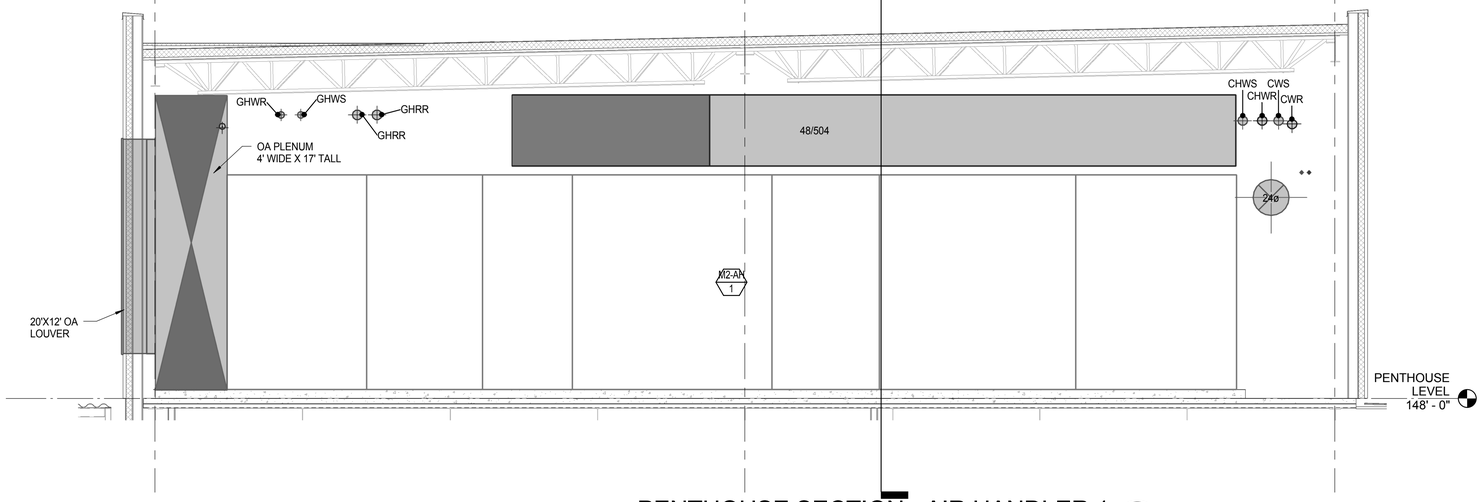
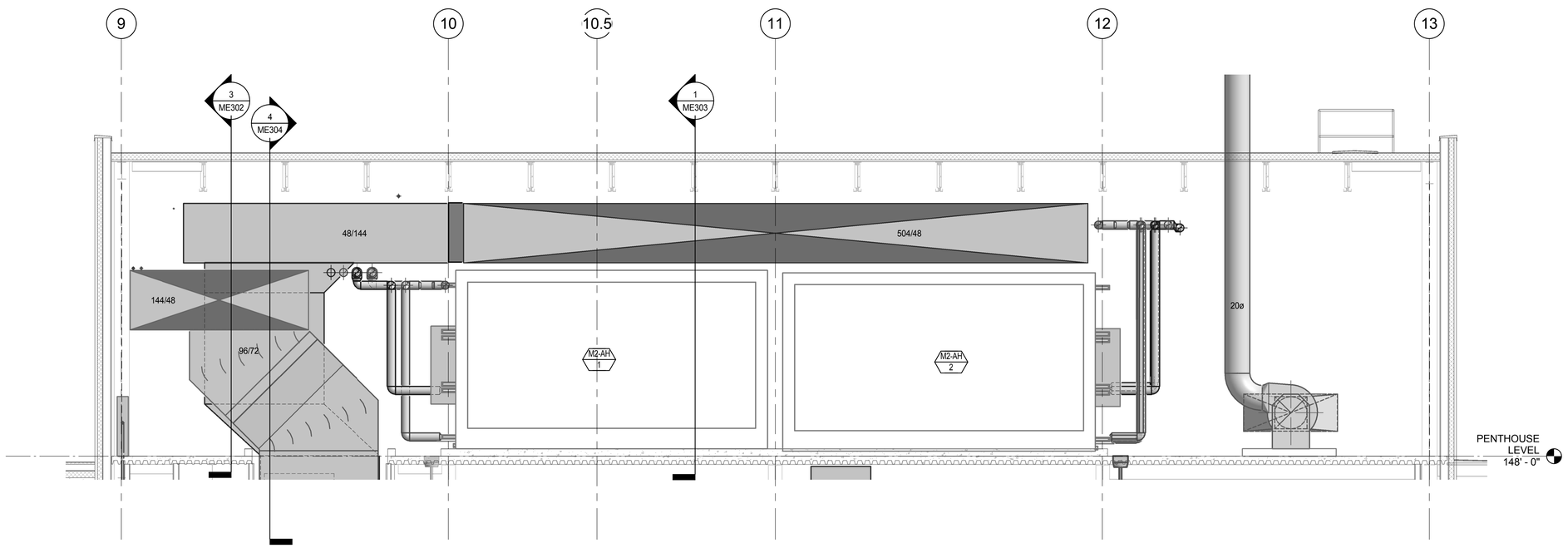


PENTHOUSE SECTION - AIR HANDLER 1 (1 / ME303)

1/4" = 1'-0"



PENTHOUSE SECTIONS - AIR HANDLERS 1 & 2 (2 / ME303)

1/4" = 1'-0"

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MECHANICAL SECTIONS

ME303

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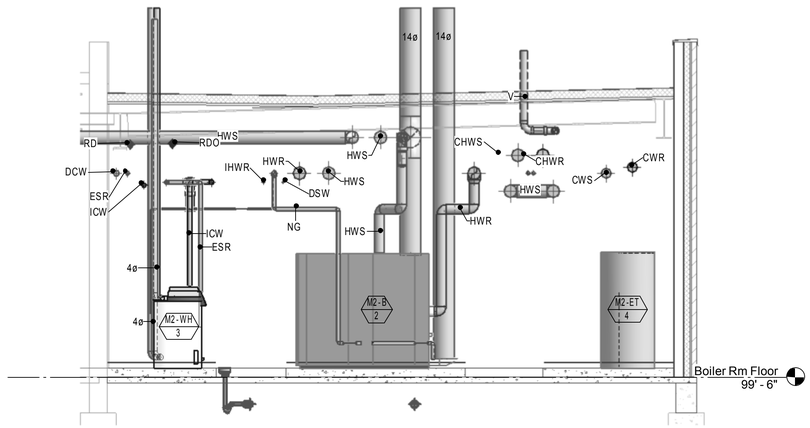
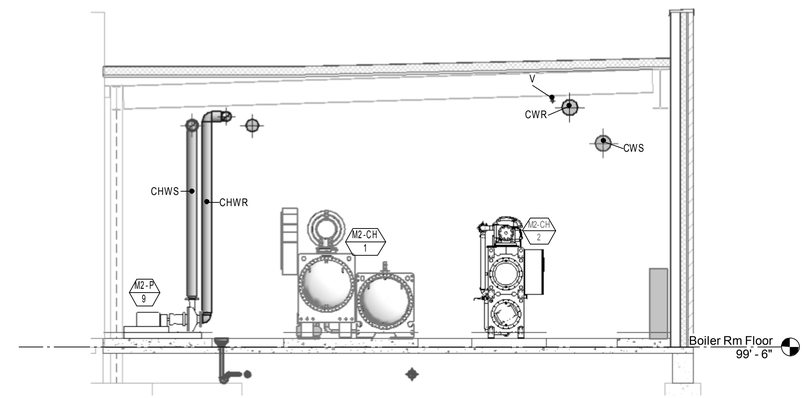
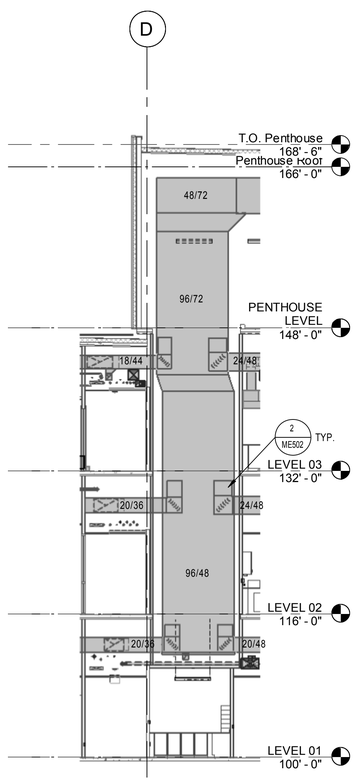


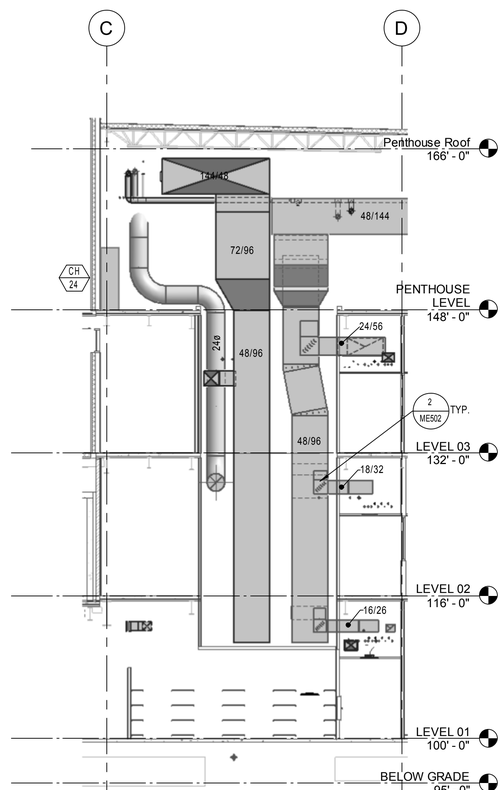
BOILER ROOM SECTION (2 / ME304)
1/4" = 1'-0"



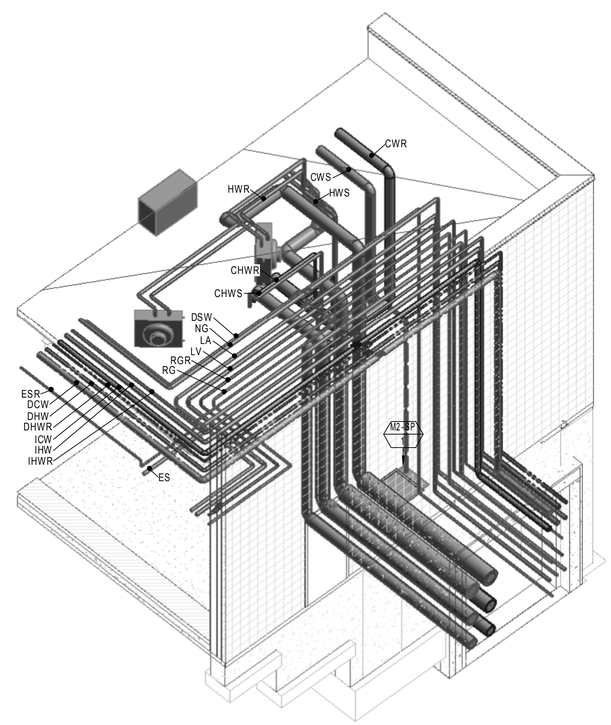
CHILLER ROOM SECTION (1 / ME304)
1/4" = 1'-0"



MECHANICAL SECTION (5 / ME304)
1/8" = 1'-0"



SUB-DUCT ASSEMBLY SECTION (4 / ME304)
1/8" = 1'-0"



BOILER ROOM PIPE RISER (3 / ME304)

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MECHANICAL SECTIONS

ME304

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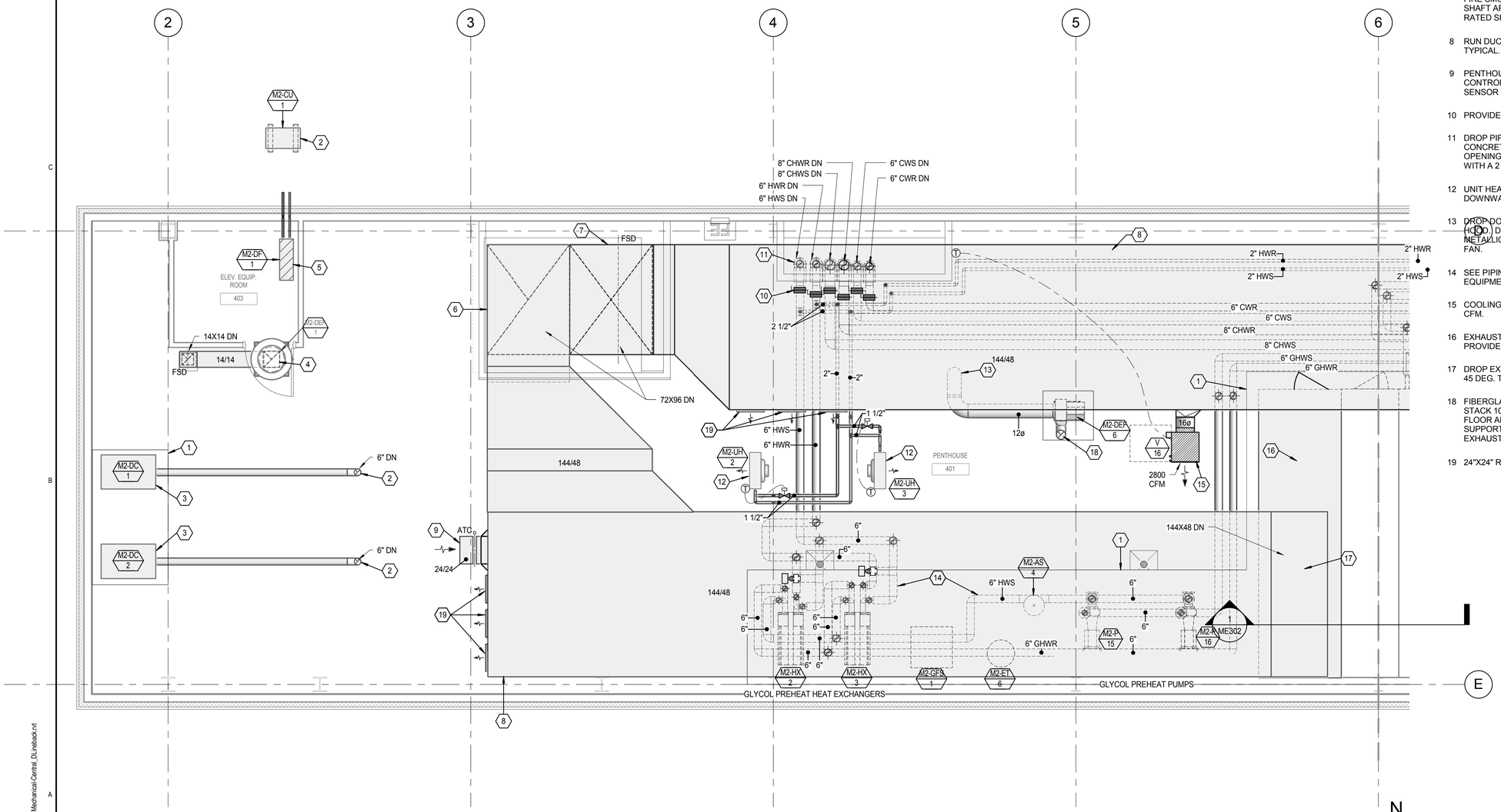

LARGE SCALE PENTHOUSE LEVEL MECHANICAL PLAN AREA A

1/4" = 1'-0" (1 / ME401)

KEYED NOTES

1. 6" HOUSE KEEPING PAD. TYPICAL.
2. CONDENSING UNIT FOR COMPANION FAN COIL IN ELEVATOR EQUIPMENT ROOM. PROVIDE THY-CURB MOUNTING CURBS 18" TALL UNDER CONDENSING UNIT.
3. DUST COLLECTOR. SEE SCHEDULES.
4. RISE UP TO EXHAUST FAN ON ROOF. PROVIDE 18" HIGH CURB.
5. FAN COIL UNIT IN ELEVATOR EQUIPMENT ROOM. COORDINATE LOCATION IN ROOM WITH ELEVATOR EQUIPMENT. PROVIDE CONDENSATE PUMP AND RUN CONDENSATE TO NEAREST FLOOR SINK. RUN REFRIGERANT LINES TO EXTERIOR CONDENSING UNIT.
6. EXHAUST DUCT DROP DOWN SHAFT. PROVIDE 6" CONCRETE CURB AROUND SHAFT OPENING. SEAL OPENING OF SHAFT AROUND DUCT AT FLOOR LINE WITH A 2 HOUR RATED SHAFT ENCLOSURE.
7. SUPPLY DUCT DROP DOWN SHAFT. PROVIDE 6" CONCRETE CURB AROUND SHAFT OPENING. PROVIDE FIRE SMOKE DAMPER AT FLOOR. SEAL OPENING OF SHAFT AROUND DUCT AT FLOOR LINE WITH A 2 HOUR RATED SHAFT ENCLOSURE.
8. RUN DUCT AS HIGH AS POSSIBLE TIGHT TO STRUCTURE, TYPICAL.
9. PENTHOUSE EXHAUST INTAKE WITH AIR TEMPERATURE CONTROL DAMPER. TIE TO PENTHOUSE AIR PRESSURE SENSOR TO MAINTAIN POSITIVE PRESSURE SET POINT.
10. PROVIDE SHUT OFF VALVES IN PIPING RISE. TYPICAL.
11. DROP PIPING DOWN PIPING SHAFT. PROVIDE 6" CONCRETE CURB AROUND SHAFT OPENING. SEAL OPENING OF SHAFT AROUND PIPING AT FLOOR LINE WITH A 2 HOUR RATED SHAFT ENCLOSURE.
12. UNIT HEATERS. MOUNT AS HIGH AS POSSIBLE. AIM AIR DOWNWARD.
13. DROP DOWN THROUGH FLOOR TO SERVE ACID FUME HOOD. DUCT TO BE FIBERGLASS DUCT WITH NO METALLIC MATERIALS. RUN TO FIBERGLASS EXHAUST FAN.
14. SEE PIPING SCHEMATICS AND DETAILS FOR PIPING OF EQUIPMENT . TYPICAL.
15. COOLING ONLY VAV BOX. BOX MINIMUM TO BE SET TO 0 CFM.
16. EXHAUST PLENUM TO BE 72" WIDE BY 144" TALL. PROVIDE WALK IN DOOR INTO PLENUM.
17. DROP EXHAUST DUCT INTO TOP OF PLENUM. PROVIDE 45 DEG. TRANSITION INTO PLENUM.
18. FIBERGLASS EXHAUST FAN. SEE SCHEDULE. RUN STACK 10 FT ABOVE ROOF LINE. SUPPORT STACK FROM FLOOR AND BRACE FROM ROOF. STACK TO BE SELF SUPPORTING WITHOUT GUY WIRES ABOVE ROOF. EXHAUST STACK TO BE MADE OF FIBERGLASS.
19. 24"X24" RELIEF VENT.

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LARGE SCALE PENTHOUSE MECHANICAL PLAN AREA A

ME401

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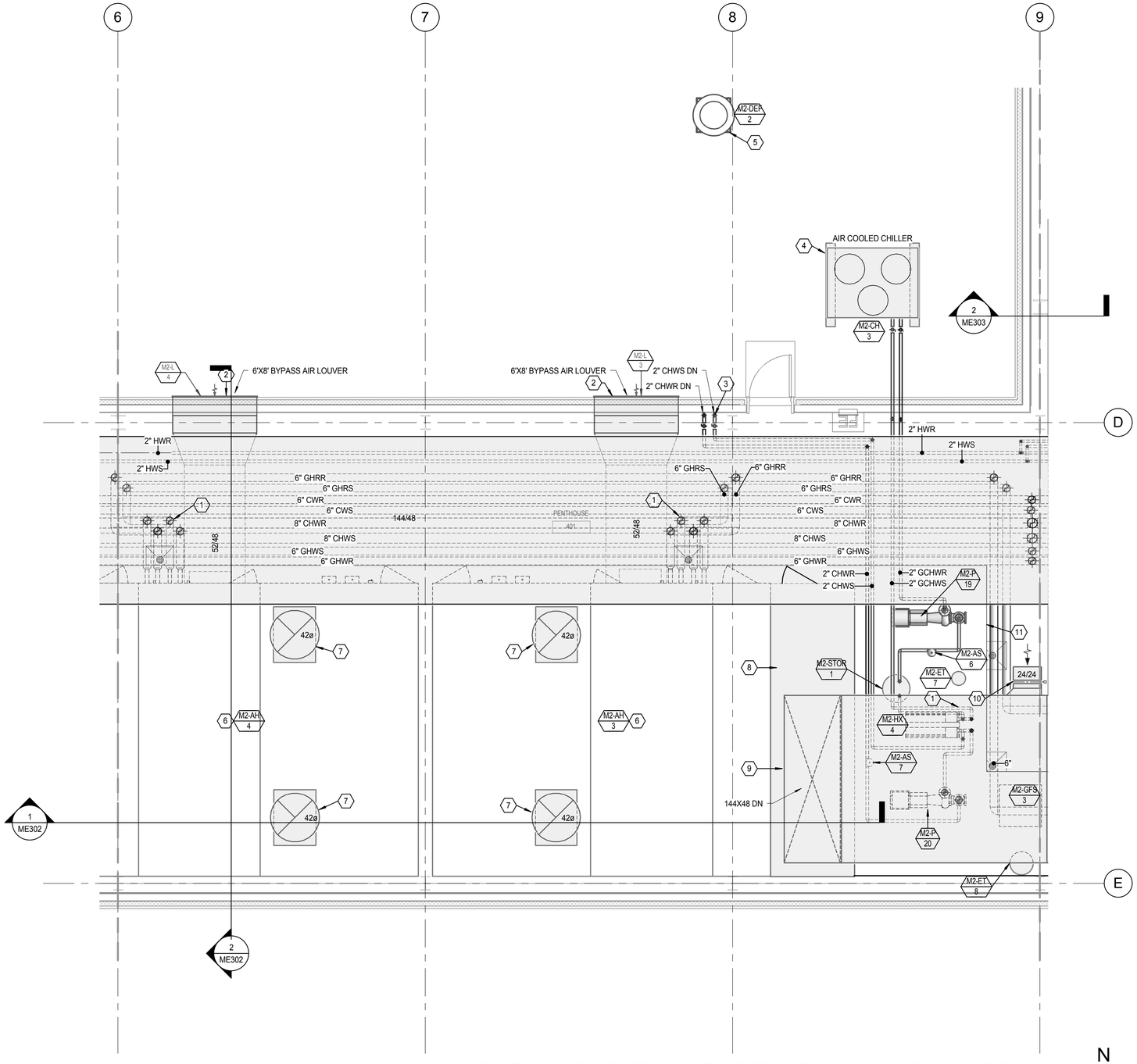

LARGE SCALE PENTHOUSE LEVEL MECHANICAL PLAN AREA B

1/4" = 1'-0" (1 / ME402)

N

KEYED NOTES

1. SEE PIPING SCHEMATICS AND DETAILS FOR PIPING OF EQUIPMENT . TYPICAL.
2. AUXILIARY BYPASS LOUVER FOR BYPASS AIR INTO AIR HANDLER. PROVIDE ACCESS DOOR IN BACK OF LOUVER PLENUM. TOP OF DUCT TO EVEN WITH TOP OF OPENING INTO EXHAUST AIR HANDLER.
3. DROP CHILLED WATER LINES DOWN TO FLOOR BELOW ON NORTH SIDE OF BEAM. PROVIDE SHUT OFF VALVES IN VERTICAL PIPE.
4. AIR COOLED CHILLER. PROVIDE THY-CURB MOUNTING CURBS 18" TALL UNDER CHILLER.
5. TOILET ROOM EXHAUST FAN. PROVIDE 18" HIGH CURB.
6. EXHAUST AIR HANDLER. SEE DETAIL SHEETS FOR LAYOUT.
7. EXHAUST STACK. EXTEND STACK TO 10' ABOVE ROOF LINE. STACK TO BE SUPPORTED OFF OF AIR HANDLER ROOF. CONNECT STACK TO EXHAUST FANS IN AIR HANDLER. STACK TO BE PAINTED PER COLOR DETERMINED BY ARCHITECT. PROVIDE EPOXY PAINT. SEE SPECIFICATIONS.
8. EXHAUST PLENUM TO BE 72" WIDE BY 144" TALL. PROVIDE WALK IN DOOR INTO PLENUM.
9. DROP EXHAUST DUCT INTO TOP OF PLENUM. PROVIDE 45 DEG. TRANSITION INTO PLENUM.
10. PENTHOUSE EXHAUST INTAKE WITH AIR TEMPERATURE CONTROL DAMPER. TIE TO PENTHOUSE AIR PRESSURE SENSOR TO MAINTAIN POSITIVE PRESSURE SET POINT.
11. 6" HOUSE KEEPING PAD. TYPICAL.

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DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 178893
DONALD K. BRADSHAW
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

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DFCM #:	13020300
Project #:	B13-024

DATE:	ISSUE TYPE:
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LARGE SCALE PENTHOUSE MECHANICAL PLAN AREA B

ME402

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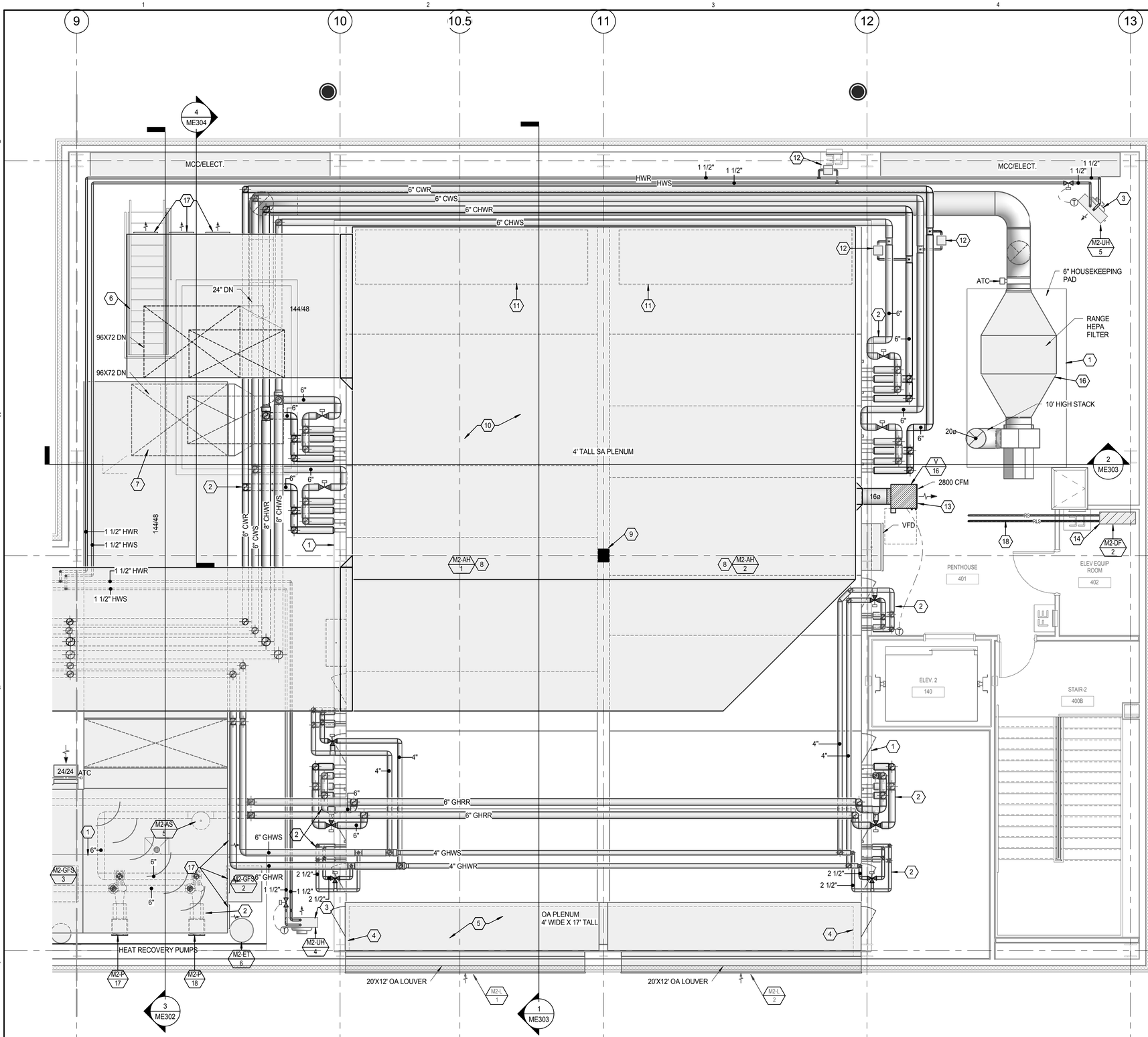

LARGE SCALE PENTHOUSE LEVEL MECHANICAL PLAN AREA C

1/4" = 1'-0" (1 / ME403)

N

KEYED NOTES

1. 6" HOUSE KEEPING PAD. TYPICAL.
2. SEE PIPING SCHEMATICS AND DETAILS FOR PIPING OF EQUIPMENT . TYPICAL.
3. UNIT HEATERS. MOUNT AS HIGH AS POSSIBLE. AIM AIR DOWNWARD.
4. PROVIDE CURB UNDER PLENUM WALLS.
5. OUTSIDE AIR PLENUM. SEAL FLOOR WITH EPOXY PAINT. PROVIDE SHEET METAL COVER ON OUTSIDE WALL AND SEAL TO LOUVER OPENING. FLASH LOUVER SILL OVER SHEET METAL. PROVIDE WALK IN PLENUM DOORS.
6. SUPPLY DUCT DROP DOWN SHAFT. PROVIDE 6" CONCRETE CURB AROUND SHAFT OPENING. PROVIDE FIRE SMOKE DAMPER AT FLOOR. SEAL OPENING OF SHAFT AROUND DUCT AT FLOOR LINE WITH A 2 HOUR RATED SHAFT ENCLOSURE.
7. EXHAUST DUCT DROP DOWN SHAFT. PROVIDE 6" CONCRETE CURB AROUND SHAFT OPENING. SEAL OPENING OF SHAFT AROUND DUCT AT FLOOR LINE WITH A 2 HOUR RATED SHAFT ENCLOSURE.
8. SUPPLY AIR HANDLER. SEE DETAIL SHEETS FOR LAYOUT.
9. WRAP DUCT AROUND COLUMN. SEAL AIR TIGHT.
10. SUPPLY AIR PLENUM. TOP OF AIR HANDLER CAN BE USED AS BOTTOM OF PLENUM.
11. SUPPLY AIR OUTLET FROM AIR HANDLER. PROVIDE BELL MOUTH TRANSITION TO SUPPLY AIR PLENUM.
12. LOCATION OF PRESSURE DIFFERENTIAL SENSOR. TYPICAL.
13. COOLING ONLY VAV BOX. BOX MINIMUM TO BE SET TO 0 CFM.
14. FAN COIL UNIT IN ELEVATOR EQUIPMENT ROOM. COORDINATE LOCATION IN ROOM WITH ELEVATOR EQUIPMENT. PROVIDE CONDENSATE PUMP AND RUN CONDENSATE TO NEAREST FLOOR SINK. RUN REFRIGERANT LINES TO EXTERIOR CONDENSING UNIT.
15. CONDENSING UNIT FOR COMPANION FAN COIL IN ELEVATOR EQUIPMENT ROOM. PROVIDE THY-CURB MOUNTING CURBS 18" TALL UNDER CONDENSING UNIT. MOUNT OF ROOF OF PENTHOUSE.
16. GUN RANGE EXHAUST HEPA FILTER MODULE FOR LEAD COLLECTION. SEE DETAIL SHEET FOR CONFIGURATION.
17. 24"X24" RELIEF VENT.
18. REFRIGERANT SUCTION AND REFRIGERANT LIQUID LINES. SIZE PER MANUFACTURERS RECOMMENDATIONS.

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LARGE SCALE PENTHOUSE MECHANICAL PLAN AREA C

ME403

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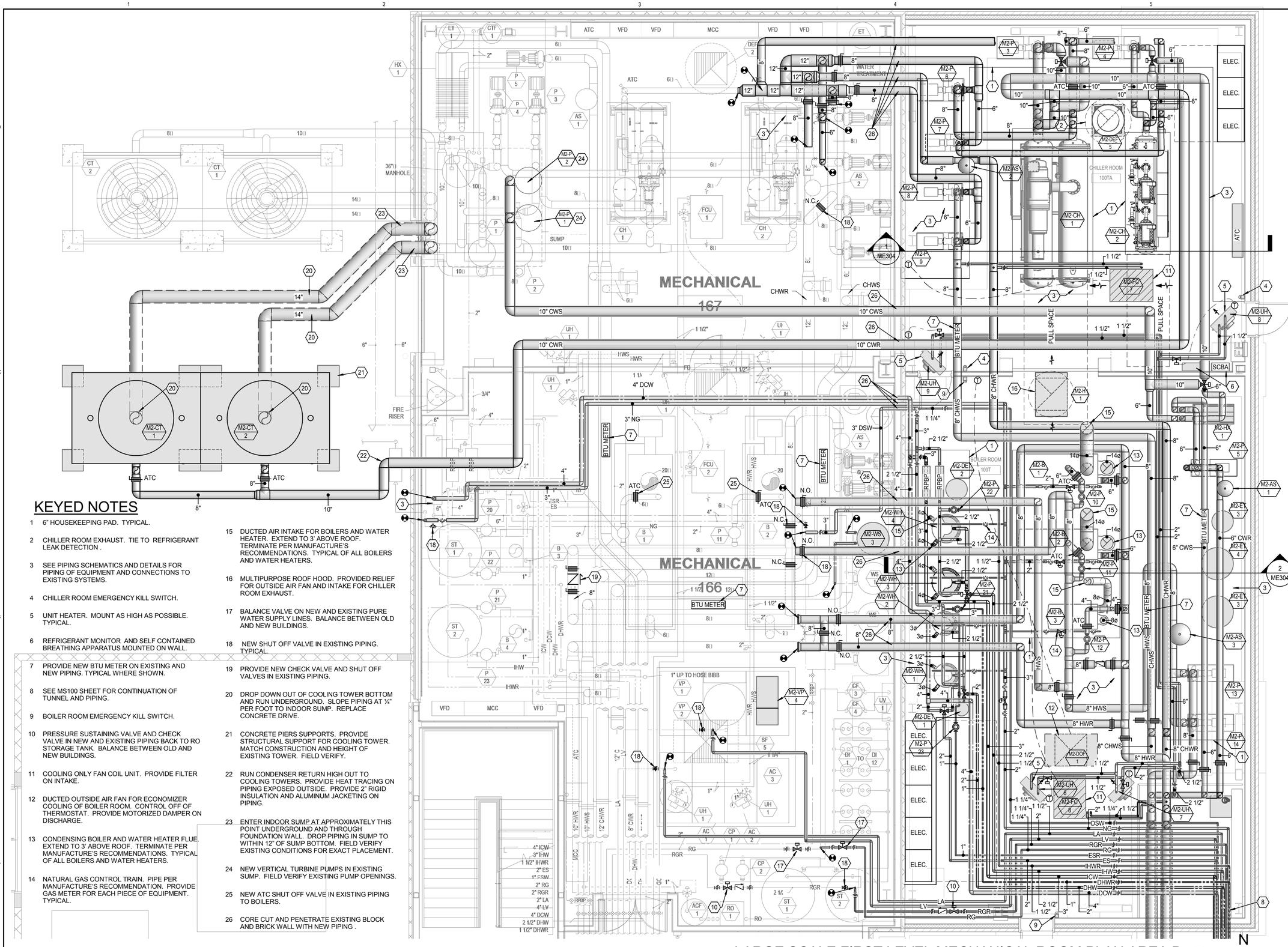

KEYED NOTES

1 6" HOUSEKEEPING PAD. TYPICAL.

2 CHILLER ROOM EXHAUST. TIE TO REFRIGERANT LEAK DETECTION .

3 SEE PIPING SCHEMATICS AND DETAILS FOR PIPING OF EQUIPMENT AND CONNECTIONS TO EXISTING SYSTEMS.

4 CHILLER ROOM EMERGENCY KILL SWITCH.

5 UNIT HEATER. MOUNT AS HIGH AS POSSIBLE. TYPICAL.

6 REFRIGERANT MONITOR AND SELF CONTAINED BREATHING APPARATUS MOUNTED ON WALL.

7 PROVIDE NEW BTU METER ON EXISTING AND NEW PIPING. TYPICAL WHERE SHOWN.

8 SEE MS100 SHEET FOR CONTINUATION OF TUNNEL AND PIPING.

9 BOILER ROOM EMERGENCY KILL SWITCH.

10 PRESSURE SUSTAINING VALVE AND CHECK VALVE IN NEW AND EXISTING PIPING BACK TO RO STORAGE TANK. BALANCE BETWEEN OLD AND NEW BUILDINGS.

11 COOLING ONLY FAN COIL UNIT. PROVIDE FILTER ON INTAKE.

12 DUCTED OUTSIDE AIR FAN FOR ECONOMIZER COOLING OF BOILER ROOM. CONTROL OFF OF THERMOSTAT. PROVIDE MOTORIZED DAMPER ON DISCHARGE.

13 CONDENSING BOILER AND WATER HEATER FLUE. EXTEND TO 3' ABOVE ROOF. TERMINATE PER MANUFACTURE'S RECOMMENDATIONS. TYPICAL OF ALL BOILERS AND WATER HEATERS.

14 NATURAL GAS CONTROL TRAIN. PIPE PER MANUFACTURE'S RECOMMENDATION. PROVIDE GAS METER FOR EACH PIECE OF EQUIPMENT. TYPICAL.

15 DUCTED AIR INTAKE FOR BOILERS AND WATER HEATER. EXTEND TO 3' ABOVE ROOF. TERMINATE PER MANUFACTURE'S RECOMMENDATIONS. TYPICAL OF ALL BOILERS AND WATER HEATERS.

16 MULTIPURPOSE ROOF HOOD. PROVIDED RELIEF FOR OUTSIDE AIR FAN AND INTAKE FOR CHILLER ROOM EXHAUST.

17 BALANCE VALVE ON NEW AND EXISTING PURE WATER SUPPLY LINES. BALANCE BETWEEN OLD AND NEW BUILDINGS.

18 NEW SHUT OFF VALVE IN EXISTING PIPING. TYPICAL.

19 PROVIDE NEW CHECK VALVE AND SHUT OFF VALVES IN EXISTING PIPING.

20 DROP DOWN OUT OF COOLING TOWER BOTTOM AND RUN UNDERGROUND. SLOPE PIPING AT ¼" PER FOOT TO INDOOR SUMP. REPLACE CONCRETE DRIVE.

21 CONCRETE PIERS SUPPORTS. PROVIDE STRUCTURAL SUPPORT FOR COOLING TOWER. MATCH CONSTRUCTION AND HEIGHT OF EXISTING TOWER. FIELD VERIFY.

22 RUN CONDENSER RETURN HIGH OUT TO COOLING TOWERS. PROVIDE HEAT TRACING ON PIPING EXPOSED OUTSIDE. PROVIDE 2" RIGID INSULATION AND ALUMINUM JACKETING ON PIPING.

23 ENTER INDOOR SUMP AT APPROXIMATELY THIS POINT UNDERGROUND AND THROUGH FOUNDATION WALL. DROP PIPING IN SUMP TO WITHIN 12" OF SUMP BOTTOM. FIELD VERIFY EXISTING CONDITIONS FOR EXACT PLACEMENT.

24 NEW VERTICAL TURBINE PUMPS IN EXISTING SUMP. FIELD VERIFY EXISTING PUMP OPENINGS.

25 NEW ATC SHUT OFF VALVE IN EXISTING PIPING TO BOILERS.

26 CORE CUT AND PENETRATE EXISTING BLOCK AND BRICK WALL WITH NEW PIPING .

LARGE SCALE FIRST LEVEL MECHANICAL ROOM PLAN AREA D

1/4" = 1'-0" (1 / ME404)

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LARGE SCALE FIRST LEVEL MECHANICAL ROOM PLAN AREA D

ME404

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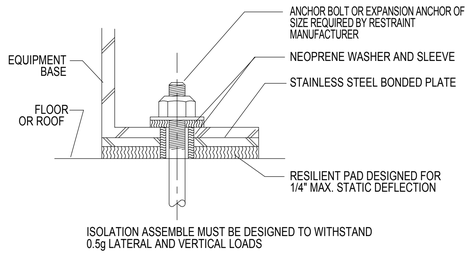

8 ME501 RESILIENT PAD ISOLATOR RESTRAINT DETAIL
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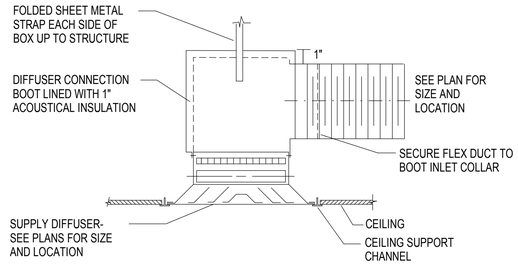

5 ME501 SUPPLY DIFFUSER W/ FLEX DUCT DETAIL
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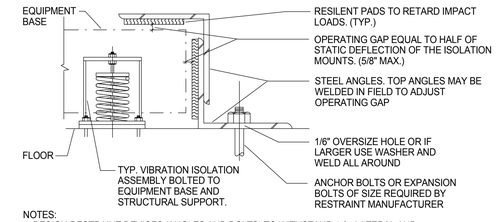
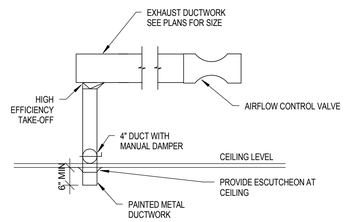


NOTES:
1 DESIGN RESTRAINT DEVICES (ANGLES AND BOLTS) TO WITHSTAND 1.0g LATERAL AND VERTICAL LOADS.
2 INSTALL LATERAL RESTRAINING DEVICES ON ALL SIDES OF EQUIPMENT BASE

1 ME501 SPRING ISOLATOR RESTRAINT DETAIL
NO SCALE



9 ME501 EQUIPMENT EXHAUST DETAIL
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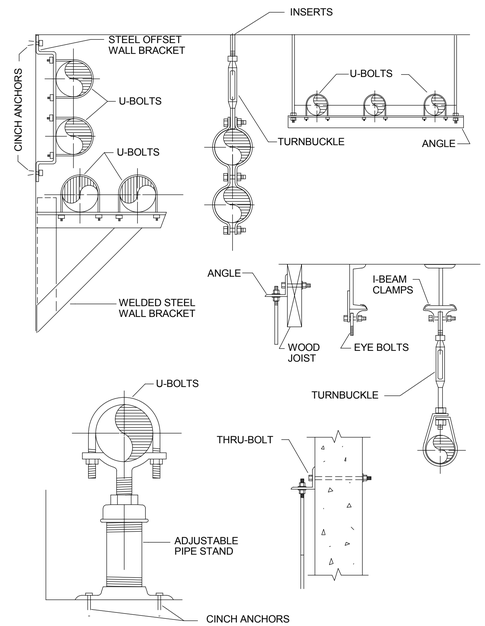

6 ME501 TYPICAL PIPE SUPPORT DETAIL
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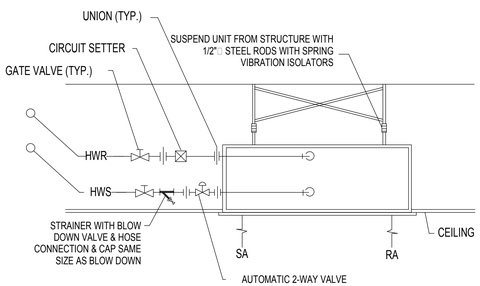
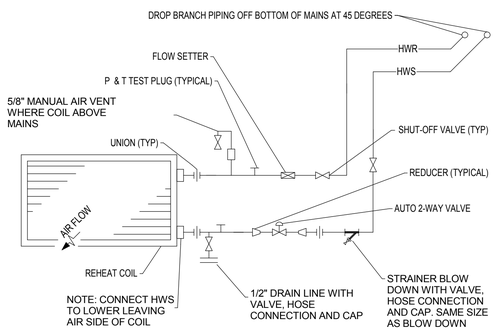


2 ME501 SURFACE MOUNTED FAN W/2-WAY VALVE
NO SCALE



10 ME501 VAV/CV BOX PIPING DETAIL WITH 2-WAY AUTO-VALVE
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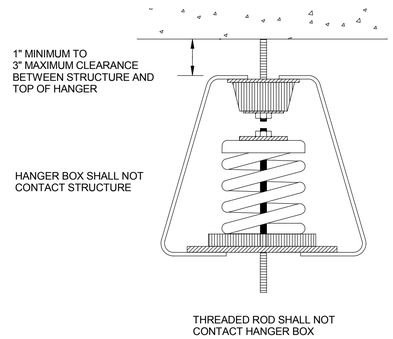

3 ME501 VIBRATION ISOLATION HANGER CLEARANCE
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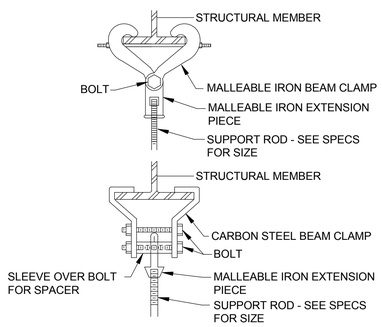
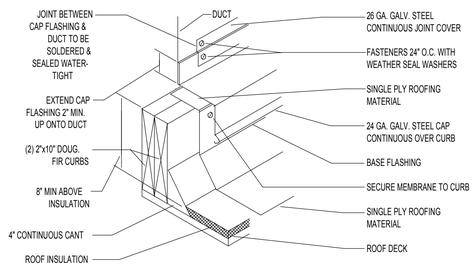


11 ME501 BEAM CLAMPS FOR PIPE OR EQUIPMENT SUPPORT
NO SCALE



7 ME501 ROOF CURB DETAIL
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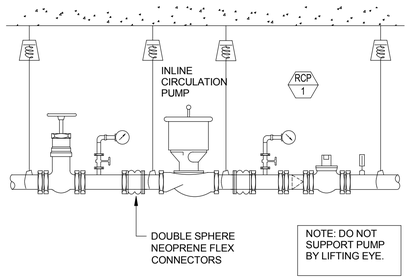

4 ME501 INLINE PUMP VIBRATION ISOLATION
NO SCALE

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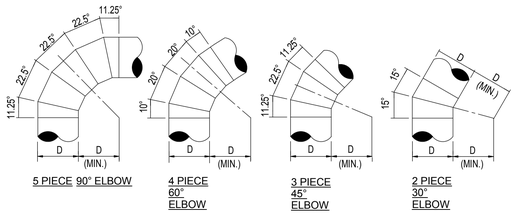

8 ME502 ROUND DUCT ELBOW DETAILS
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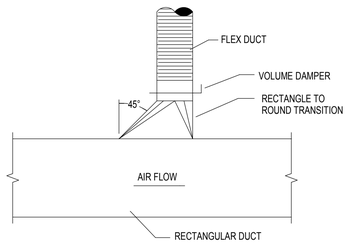

9 ME502 HIGH EFFICIENCY TAKE-OFF DETAIL
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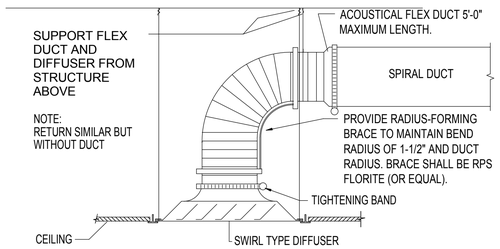

10 ME502 DIFFUSER CONNECTION DETAIL
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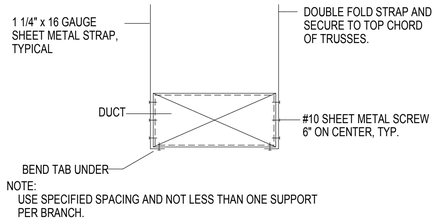

4 ME502 RECTANGULAR DUCT SUPPORT
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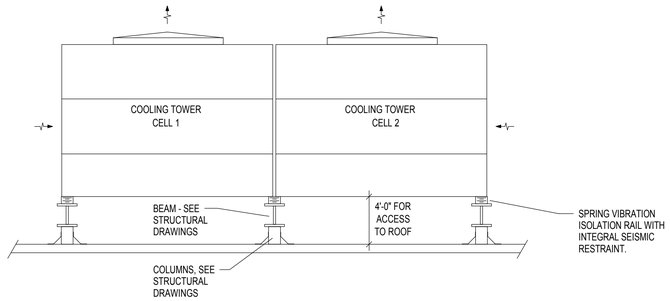

5 ME502 COOLING TOWER SUPPORT DETAIL
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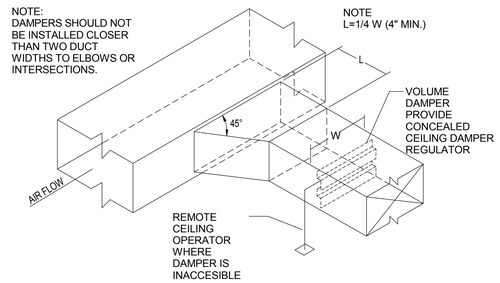

6 ME502 BRANCH DUCT TAKE-OFF & DAMPER DETAIL
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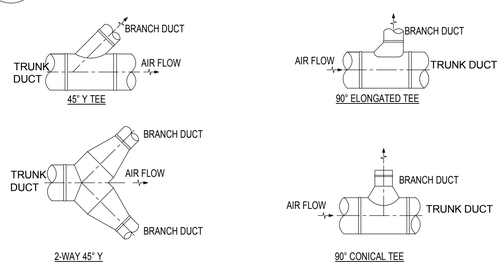

7 ME502 ROUND DUCT BRANCH TAKE-OFF DETAILS
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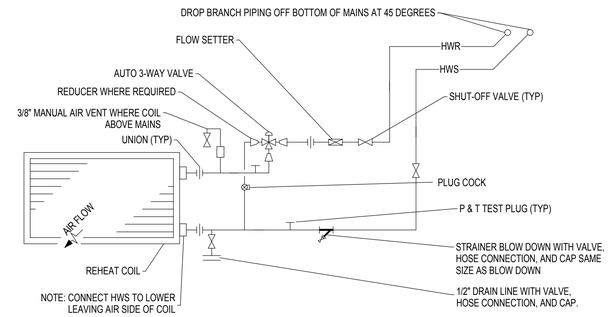

1 ME502 VAV/REHEAT BOX PIPING DETAIL WITH 3-WAY AUTO-VALVE
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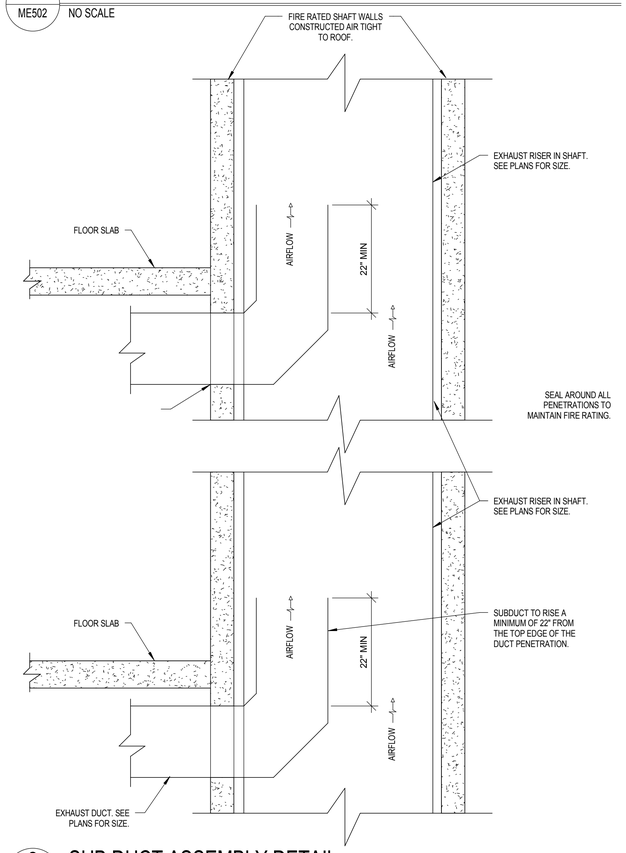

2 ME502 SUB DUCT ASSEMBLY DETAIL
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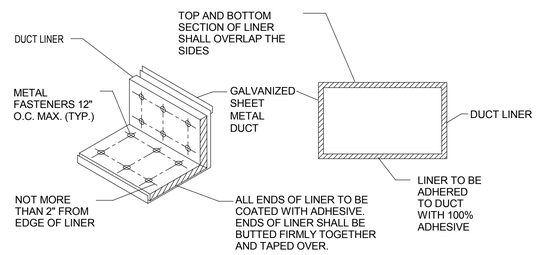

3 ME502 DUCT LINER DETAIL
NO SCALE

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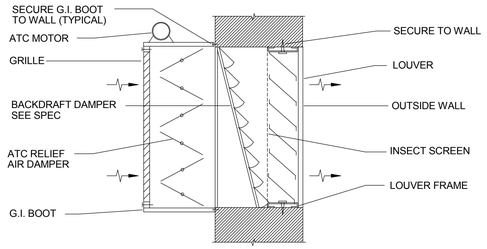
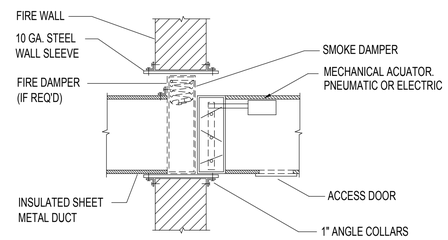


6 ATC RELIEF AIR DAMPER & LOUVER SECTION
ME503 NO SCALE



7 SMOKE DAMPER DETAIL
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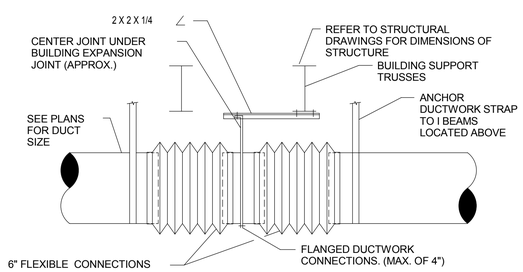

8 FLEX CONNECTION DETAIL
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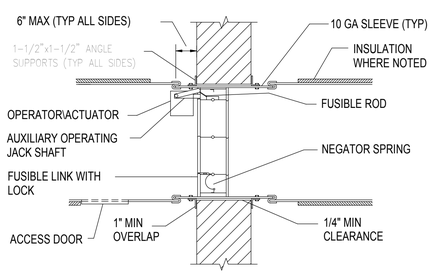

9 COMBINATION FIRE SMOKE DAMPER DETAIL
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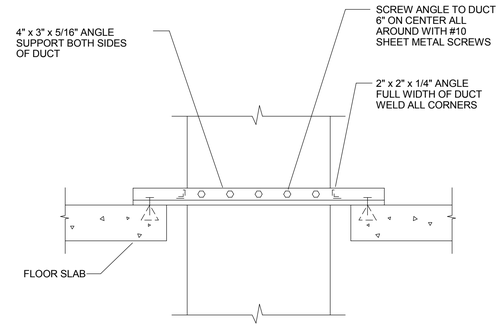
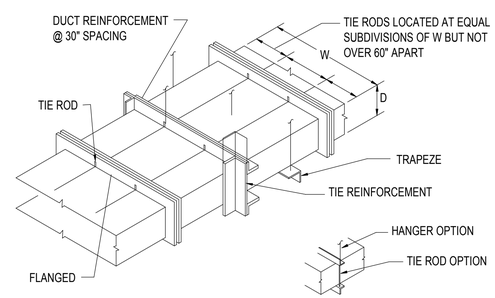
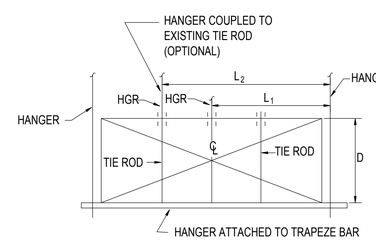


NOTES:

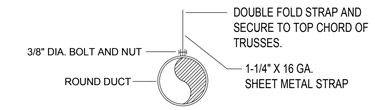
1. SUPPORT DUCT AT EACH FLOOR.
2. SUPPORT OF ROUND DUCT SIMILAR EXCEPT SCREW CLAMP TO DUCT SAME SIZE AS DUCT OUTSIDE DIAMETER AND BOLT CLAMP TO ANGLE SUPPORTS.
3. SIZE SUPPORT ANGLES AND DUCT CLAMPS AS REQUIRED TO SUPPORT WEIGHT OF DUCTWORK.
4. OMIT SCREWS AT FUME EXHAUST DUCTS AND BOLT ANGLES TO DUCT COMPANION ANGLE FLANGES.

4 DUCT RISER SUPPORT IN CHASE DETAIL
ME503 NO SCALE



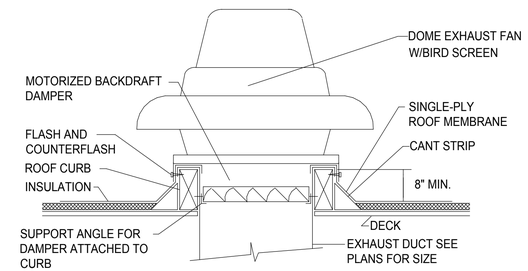


5 LARGE DUCT REINFORCEMENT DETAIL
ME503 NO SCALE

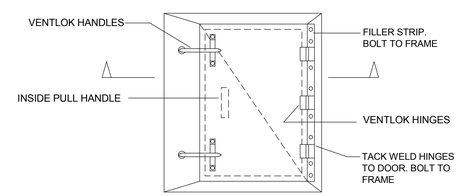


NOTE:
USE SPECIFIED SPACING AND NOT LESS THAN ONE SUPPORT PER BRANCH.

1 ROUND DUCT SUPPORT DETAIL
ME503 NO SCALE



2 EXHAUST FAN DETAIL
ME503 NO SCALE



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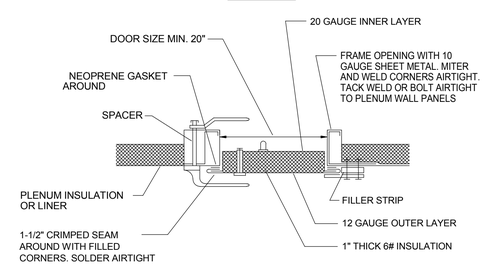

SECTION

NOTES:

1. BOLTED JOINTS SET IN MASTIC FOR AIRTIGHT JOINT.
2. DOORS SHALL BE A MINIMUM 2'-6" x 1'-8" UNLESS SHOWN OTHERWISE

3 PLENUM DOOR
ME503 NO SCALE

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DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
REVIEWED FOR CODE COMPLIANCE
SIGNATURE: Ernie Catt
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 178893
DONALD K. BRADSHAW
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #:	13020300
Project #:	B13-024
DATE:	ISSUE TYPE:
April 21, 2014	BID SET
CHECKED BY	D. Bradshaw
DRAWN BY	DL

MECHANICAL DETAILS

ME503

VOLUME 2

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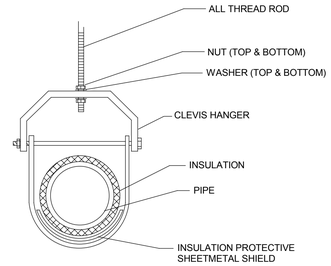

8 TYPICAL CLEVIS HANGER DETAIL
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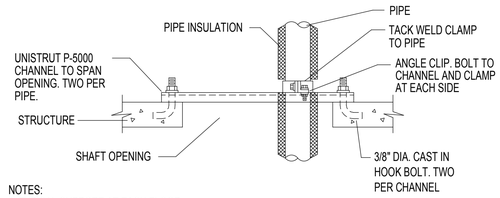
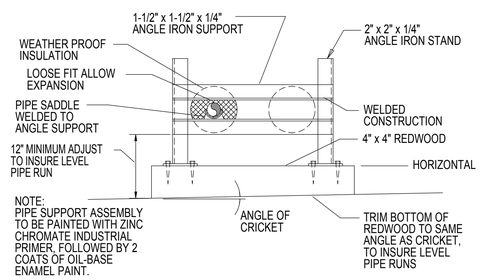
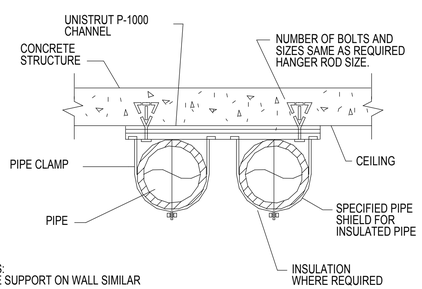


NOTES:
1. TYPICAL SUPPORT AT EACH FLOOR.
2. FOR MULTIPLE PIPES INSTALL CHANNELS IN PARALLEL AND PROVIDE ADDITIONAL FRAMING. SIZES OF FRAMING MEMBERS AS REQUIRED TO SUPPORT TOTAL WEIGHT OF PIPE.
3. INSULATE CLAMP AT CHILLED WATER PIPE ONLY.

9 PIPE RISER SUPPORT DETAIL
ME504 NO SCALE

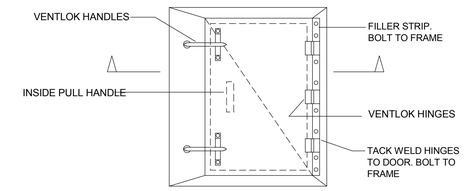


10 ROOF PIPING SUPPORT DETAIL
ME504 NO SCALE



NOTES:
1. PIPE SUPPORT ON WALL SIMILAR

11 PIPE SUPPORT ON CEILING
ME504 NO SCALE



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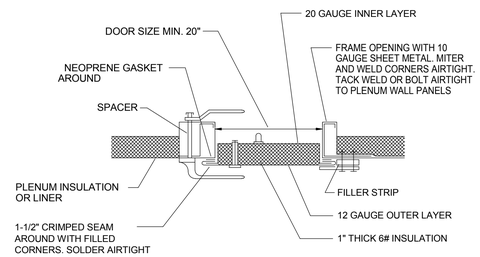
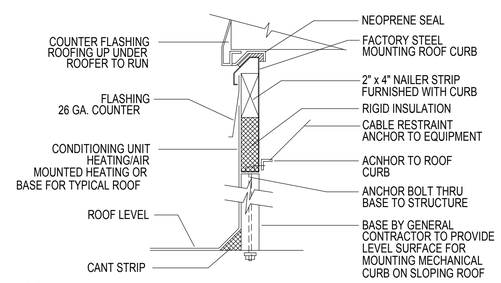


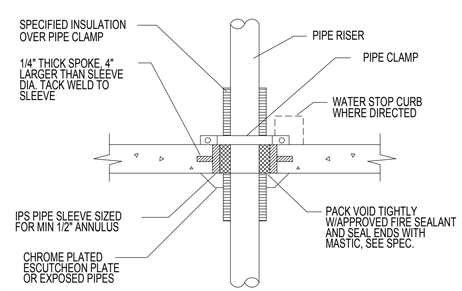
SECTION

NOTES:
1. BOLTED JOINTS SET IN MASTIC FOR AIRTIGHT JOINT.
2. DOORS SHALL BE A MINIMUM 2'-6" x 1'-8" UNLESS SHOWN OTHERWISE

5 PLENUM DOOR
ME504 NO SCALE



6 ROOF CURB DETAIL
ME504 NO SCALE



7 PIPE THROUGH FLOOR SLAB DETAIL
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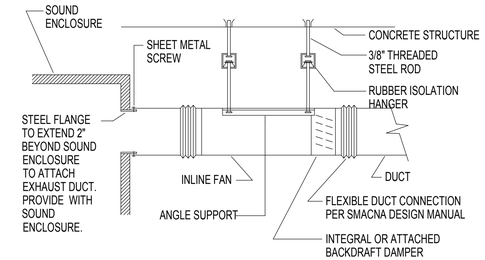

1 EXHAUST FAN SUPPORT DETAIL
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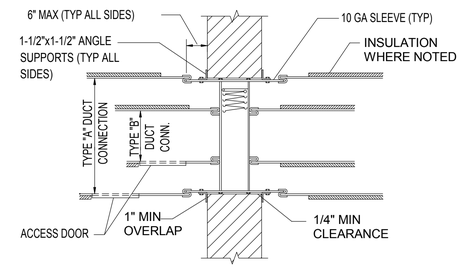

2 WALL MOUNTED FIRE DAMPER DETAIL
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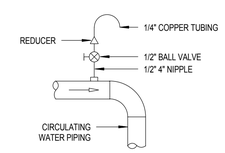
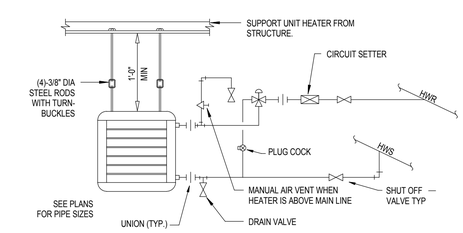


NOTES:
1. VENT ALL HIGH POINTS AS INDICATED ABOVE.
2. IF AUTOMATIC AIR VENTS ARE USED, PIPE DISCHARGE TO DRAIN.

3 TYPICAL AIR VENT
ME504 NO SCALE



4 HOT WATER UNIT HEATER DETAIL
ME504 NO SCALE

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NO. 178893
DONALD K. BRADSHAW
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300
Project #: B13-024

DATE:	ISSUE TYPE:
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CHECKED BY	D. Bradshaw
DRAWN BY	DL

MECHANICAL DETALS

ME504

VOLUME 2

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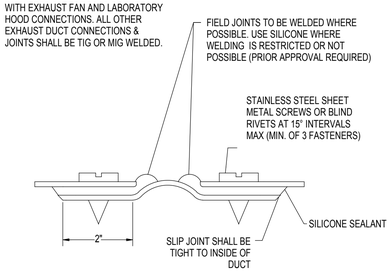
NOTE:
SILICONE SEALANT MAY ONLY BE USED ON FIELD CONNECTIONS WHERE STAINLESS STEEL DUCTS CONNECT WITH EXHAUST FAN AND LABORATORY HOOD CONNECTIONS. ALL OTHER EXHAUST DUCT CONNECTIONS & JOINTS SHALL BE TIG OR MIG WELDED.



4 ME505 DUCT CONNECTION DETAIL
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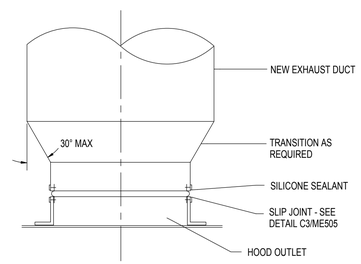
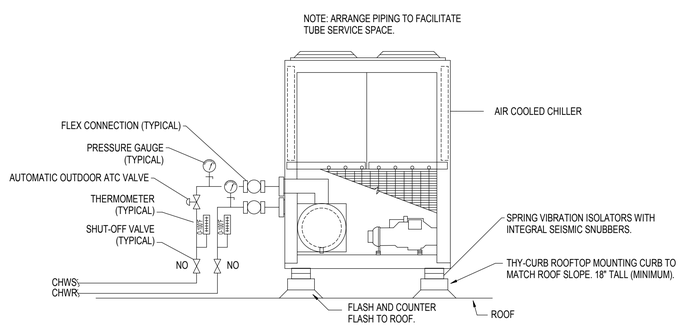
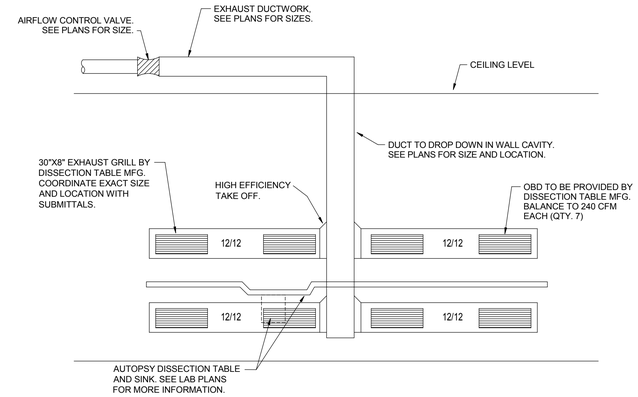


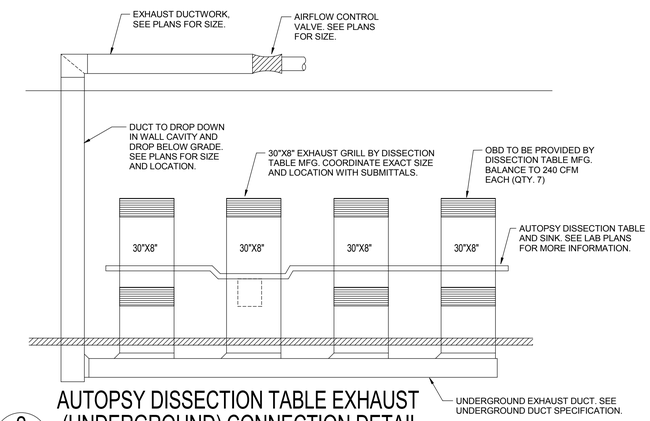
5 ME505 HOOD CONNECTION DETAIL
NO SCALE



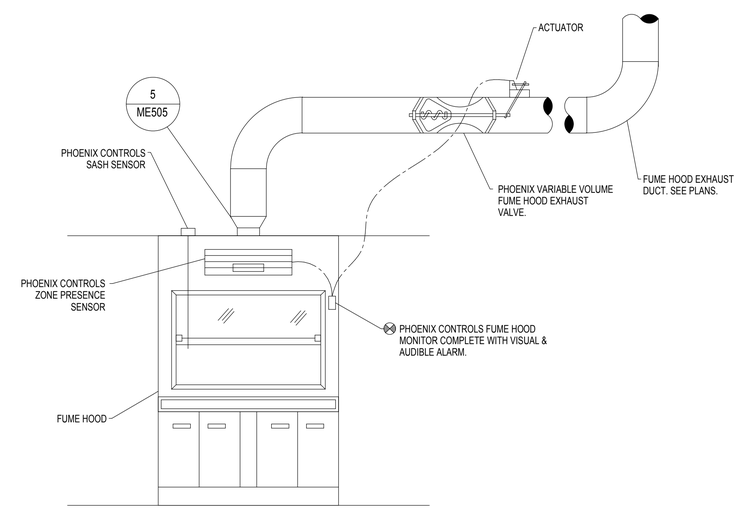
6 ME505 AIR COOLED CHILLER PIPING DETAIL
NO SCALE



1 ME505 AUTOPSY DISSECTION TABLE EXHAUST CONNECTION DETAIL
NO SCALE



2 ME505 AUTOPSY DISSECTION TABLE EXHAUST (UNDERGROUND) CONNECTION DETAIL
NO SCALE



3 ME505 VARIABLE VOLUME BOX FUME HOOD EXHAUST VALVE
NO SCALE

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DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
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DONALD K. BRADSHAW
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ARCHITECT-ENGINEER STAMP

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4451 South 2700 West,
Taylorsville, UT 84118

DFCM #:	13020300
Project #:	B13-024
DATE:	ISSUE TYPE:
April 21, 2014	BID SET
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DRAWN BY	DL

MECHANICAL DETAILS

ME505
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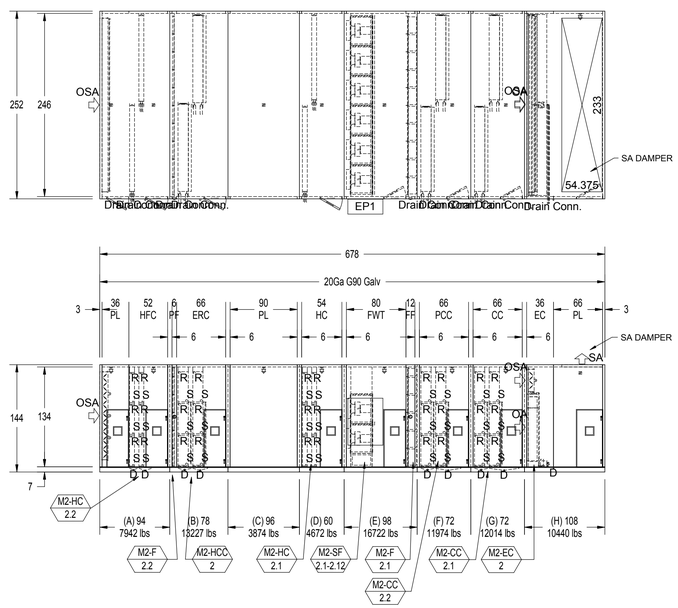

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All
dimensions shown in inches, Operating weights shown in pounds
Integrated Frame Construction 80,000 ACFM

Unified State Labs
Salt Lake City, Utah

Quote No	Job No	Qty	Date
	-008	1	10/12/2013

Design Name	Type	Weight	Box Qty	Rev
AH-2	Indoor	80,865	8	A

Drawn By	Rep
Walter Baranowski	MPI

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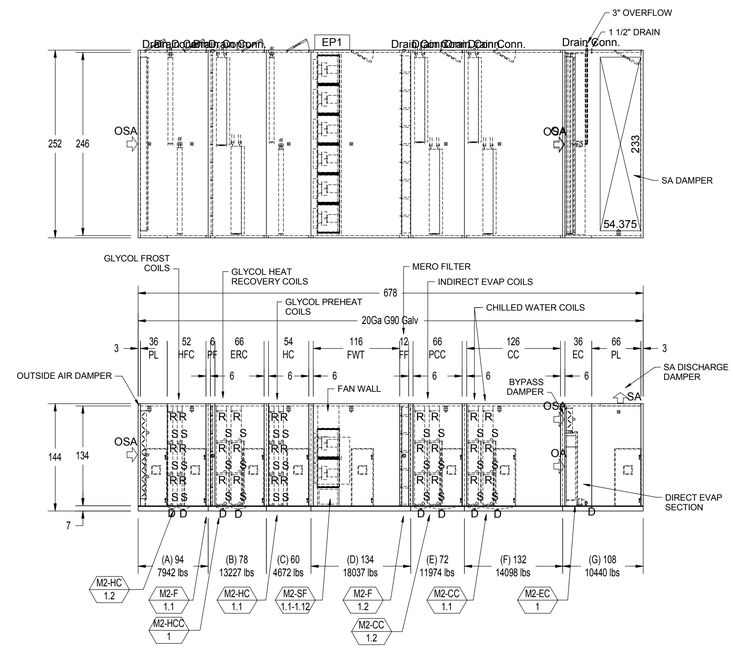
M2 - AH-2



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All
dimensions shown in inches, Operating weights shown in pounds
Integrated Frame Construction 80,000 ACFM

Unified State Labs
Salt Lake City, Utah

Quote No	Job No	Qty	Date
	-007	1	10/12/2013

Design Name	Type	Weight	Box Qty	Rev
AH-1	Indoor	80,391	7	A

Drawn By	Rep
Walter Baranowski	MPI

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Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300
Project #: B13-024

DATE:	ISSUE TYPE:
April 21, 2014	BID SET

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DRAWN BY: DL

AIR HANDLERS AH-1 & AH-2

ME506
VOLUME 2

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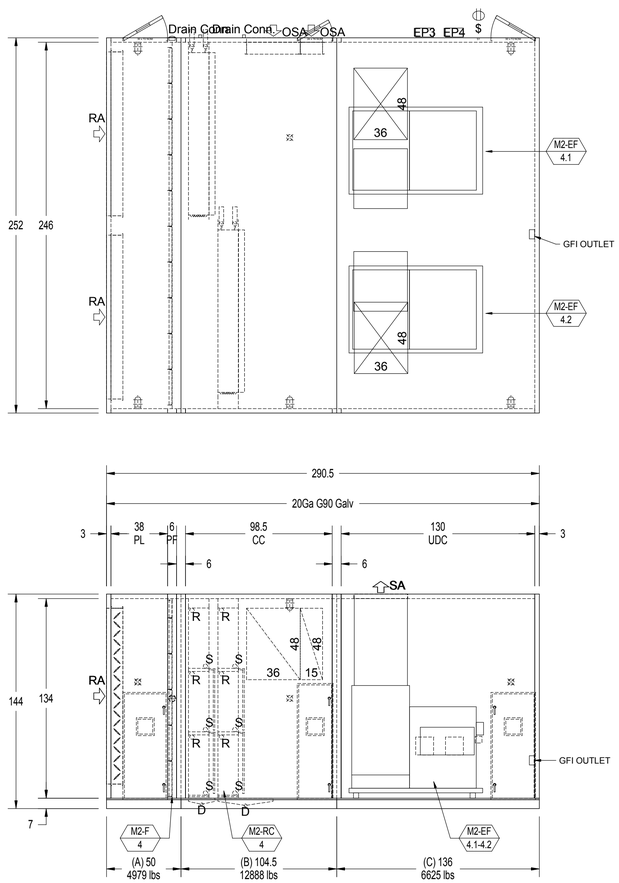

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All
dimensions shown in inches, Operating weights shown in pounds
Integrated Frame Construction 80,000 ACFM

Unified State Labs Salt Lake City, Utah					
Quote No	Job No	Qty	Date		
	-009	1	10/13/2013		
Design Name		Type	Weight	Box Qty	Rev
AH4 Exhaust		Indoor	24,492	3	A
Drawn By	Rep				
Walter Baranowski	MPI				

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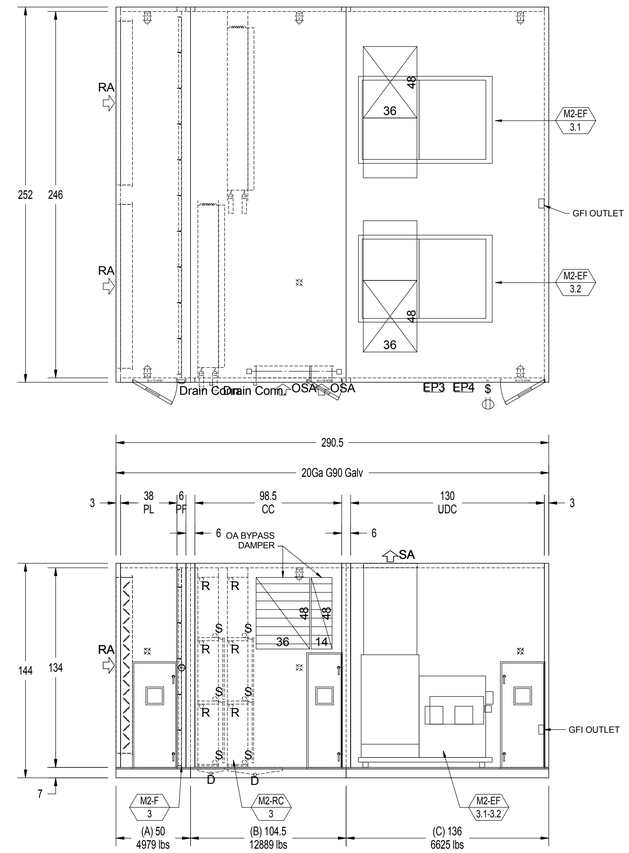

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All
dimensions shown in inches, Operating weights shown in pounds
Integrated Frame Construction 80,000 ACFM

Unified State Labs Salt Lake City, Utah					
Quote No	Job No	Qty	Date		
	-004	1	10/13/2013		
Design Name		Type	Weight	Box Qty	Rev
AH3 Exhaust		Indoor	24,492	3	A
Drawn By	Rep				
Walter Baranowski	MPI				

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DATE: 8-05-2014

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Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #:	13020300
Project #:	B13-024
DATE:	ISSUE TYPE:
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DRAWN BY	Author

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ME507

VOLUME 2

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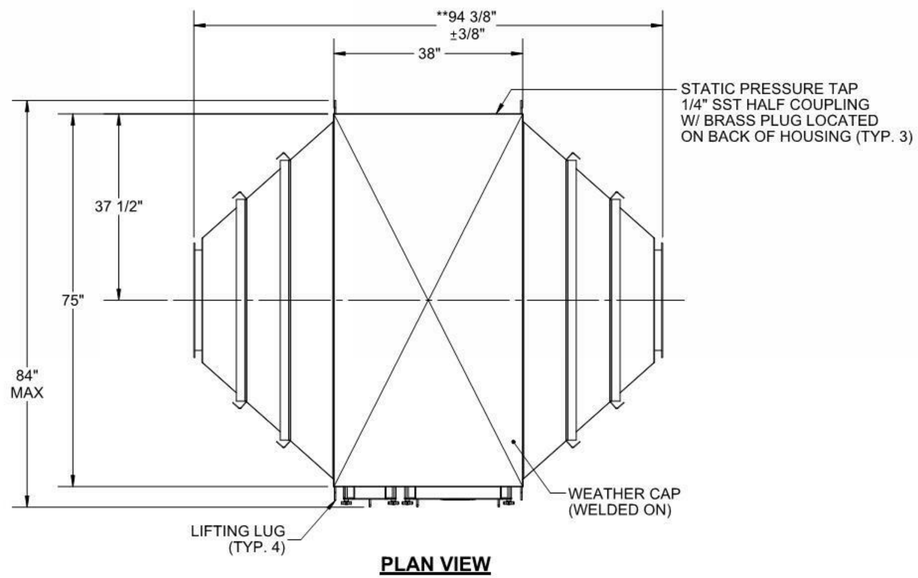
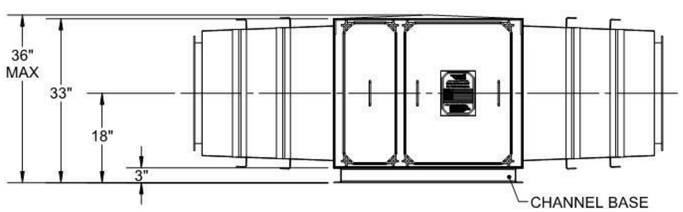
**DIMENSION DOES NOT INCLUDE 1/4" FLANGE GASKET

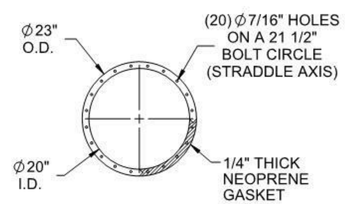


PLAN VIEW

AIR FLOW



ACCESS VIEW



INLET/OUTLET FLANGE DETAIL

HOUSING INFORMATION

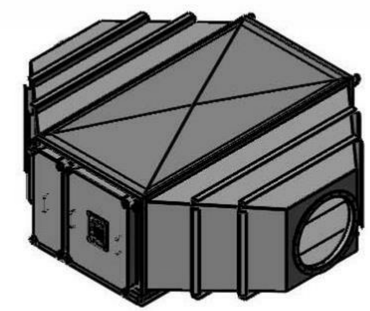
PREFILTER/HEPA HOUSING:

- CF-1X3-212-3FB-SS
- PREFILTER SIZE: 24"x24"x2" NOM.
- QTY. PER SYSTEM = 3
- BAG: 64CX72/3G
- STRAP: 80"
- HEPA FILTER SIZE = 24"x24"x11-1/2"
- QTY. PER SYSTEM = 3
- BAG:86CX96/3G
- STRAP: 100"

GENERAL NOTES

1. ONE (1) FILTER SYSTEM REQUIRED. UNIT SHOWN AS RIGHT HAND ACCESS.
2. INITIAL FILTERS SUPPLIED BY CAMFIL.
3. INITIAL CHANGE OUT BAGS SUPPLIED BY CAMFIL.
4. INLET/OUTLET DUCT CONNECTION FLANGES SHALL BE A MINIMUM OF 1-1/2" WIDE.
5. APPROX. SHIPPING WEIGHT: 1,415 LBS. (WITHOUT FILTERS).
6. A MINIMUM OF FOUR (4) FEET OF CLEARANCE IN FRONT OF ACCESS DOOR IS RECOMMENDED FOR FILTER CHANGE-OUT.
7. SEISMIC CALCULATIONS REQ'D.

PROJECT:
UTAH UNIFIED STATES LAB MODULE 2



PRELIMINARY PROPOSAL DRAWING
NOT FOR CONSTRUCTION

PROPOSAL DRAWING

CUSTOMER: CAMFIL UTAH
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CUSTOMER PO NO.:
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UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:
FRACTION: ±1/8"
DECIMAL: ±0.125"

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DRAWING TITLE:
CAMFIL BAG-IN/BAG-OUT
FLUID SEAL FILTRATION SYSTEM
CF-1X3-212P-3FB-SS

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APPR. BY: ECC	DATE: 10/18/13	
SCALE: 1:24		

DWG SIZE	DRAWING NO.:	SHEET	OF	REV.
B	CB13-0219	1	1	0

REV.	DRAWN BY DATE	DESCRIPTION:	CHECK BY DATE	APPR. BY DATE
			SALES APPR: DS	DATE: 10/18/13

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QL-3

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DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
REVIEWED FOR CODE COMPLIANCE
SIGNATURE: Ernie Catt
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 178893
DONALD K. BRADSHAW
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2
4451 South 2700 West,
Taylorsville, UT 84118

DFCM #: 13020300
Project #: B13-024

DATE:	ISSUE TYPE:
April 21, 2014	BID SET

CHECKED BY	D. Bradshaw
DRAWN BY	DL

FILTER BANK DETAIL

ME508
VOLUME 2

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PROJECT SCHEDULE

NAME	LOCATION	OUTSIDE AIR HEATING SEASON DB/RH (°F/%)	OUTSIDE AIR COOLING SEASON DB/WB (°F)	ALTITUDE (FT)	NOTES
UNIFIED LAB MODULE 2	SALT LAKE CITY, UTAH	0/10	96.44/62.06	4305	

AIR CONTROL VALVE SCHEDULE - LEVEL 1

			SUPPLY AIR									FLUID					COIL					GENERAL EXHAUST					
AREA SERVED	ID	MANUFACTURER AND MODEL NUMBER	INLET DIA. (IN)	COOLING MAXIMUM AIRFLOW (CFM)	HEATING MAXIMUM AIRFLOW (CFM)	MINIMUM AIRFLOW (CFM)	UNOCCUPIED MINIMUM AIRFLOW (CFM)	AIRFLOW DRIVING FACTOR	ENTERING AIR TEMP. DB (DEG. F)	MINIMUM LEAVING AIR TEMP. (DEG. F)	S.P. LOSS AT MAX CFM (IN H20)	HEAT LOAD (MBH)	TOTAL FLUID FLOW (GPM)	ENTERING/ LEAVING FLUID TEMP. (DEG. F)	WORKING FLUID	MAX. FLUID PRESSURE DROP (FT)	MIN. COIL ROWS	MIN. FINS (FPI)	COIL SIZE H x W (IN)	AIR PRESSURE DROP (IN. W.G.)	PIPE SIZE (IN)	INLET DIA. (IN)	MAXIMUM AIRFLOW (CFM)	MINIMUM AIRFLOW (CFM)	UNOCCUPIED MINIMUM AIRFLOW (CFM)	S.P. LOSS AT MAX CFM (IN H20)	NOTES
AREA A																											
DEP DIR 102A & MANAGER 102B	SV-A1-1	PHOENIX TSVA108M	8	560	495	170	---	LOAD	52	95	0.6	19.6	1.4	130/100	WATER	1.1	3	9	9x16	0.25	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A1-1	PHOENIX TEVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	560	170	---	0.6	(1)(2)
ASSIST 102	SV-A1-2	PHOENIX TSVA108M	8	525	160	160	---	LOAD	52	80	0.6	4.1	0.5	130/100	WATER	0.5	2	8	9x16	0.05	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A1-2	PHOENIX TEVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	475	150	---	0.6	(1)(2)
MANAGER 102C & 102D	SV-A1-3	PHOENIX TSVA108M	8	560	495	170	---	LOAD	52	95	0.6	19.6	1.4	130/100	WATER	1.1	3	9	9x16	0.25	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A1-3	PHOENIX TSVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	560	170	---	0.6	(1)(2)
DIRECTOR 102E	SV-A1-4	PHOENIX TSVA108M	8	400	400	120	---	LOAD	52	95	0.6	15.8	1.1	130/100	WATER	0.8	3	8	9x16	0.2	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A1-4	PHOENIX TEVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	400	120	---	0.6	(1)(2)
CONFERENCE ROOM 102F	SV-A1-5	PHOENIX TSVA114M	14	1870	1220	565	---	LOAD	52	95	0.6	48.3	3.4	130/100	WATER	0.6	3	9	15x26	0.2	1	---	---	---	---	---	(1)(2)(5)
	GX-A1-5	PHOENIX TEVA114M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	14	1870	565	----	0.6	(1)(2)
CONFERENCE 131	SV-A1-6	PHOENIX TSVA110M	10	725	220	220	---	LOAD	52	80	0.6	5.7	0.5	130/100	WATER	0.1	2	8	12x12	0.04	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A1-6	PHOENIX TEVA110M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	10	675	170	----	0.6	(1)(2)
MANAG. SERVICE COOR 130L, 130M 130N	SV-A1-7	PHOENIX TSVA108M	8	285	90	90	---	LOAD	52	80	0.6	2.3	0.5	130/100	WATER	0.1	2	8	9x9	0.02	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A1-7	PHOENIX TEVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	285	90	---	0.6	(1)(2)
DEP. CHIEF ME 130J, 130H, 130G	SV-A1-8	PHOENIX TSVA112M	12	930	710	280	---	LOAD	52	95	0.6	28.1	2.0	130/100	WATER	3.0	3	8	12x18	0.2	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A1-8	PHOENIX TEVA112M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	12	930	280	---	0.6	(1)(2)
FAMILY 134, 135, 136	SV-A1-9	PHOENIX TSVA108M	8	575	175	175	---	LOAD	52	80	0.6	4.5	0.5	130/100	WATER	0.2	2	8	12x12	0.03	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A1-9	PHOENIX TEVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	575	175	---	0.6	(1)(2)
OFFICE TECH 130	SV-A1-10	PHOENIX TSVA110M	10	810	405	245	---	LOAD	52	95	0.6	16.0	1.2	130/100	WATER	1.1	3	8	12x14	0.12	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A1-10	PHOENIX TEVA110M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	10	810	245	---	0.6	(1)(2)
CHIEF ME 130K	SV-A1-11	PHOENIX TSVA110M	10	720	655	220	---	LOAD	52	95	0.6	25.9	1.9	130/100	WATER	2.7	3	8	12x18	0.2	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A1-11	PHOENIX TEVA110M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	10	720	220	---	0.6	(1)(2)
LOBBY 100A & 138	SV-A1-12	PHOENIX TSVA112M	12	1090	445	350	---	LOAD	52	95	0.6	17.6	1.4	130/100	WATER	1.9	3	6	15x16	0.05	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A1-12	PHOENIX TEVA112M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	12	990	250	---	0.6	(1)(2)
MEETING 101 &101A	SV-A1-13	PHOENIX TSVA112M	12	1185	865	360	---	LOAD	52	95	0.6	34.2	2.5	130/100	WATER	5.6	3	8	15x18	0.2	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A1-13	PHOENIX TEVA112M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	12	1185	360	---	0.6	(1)(2)
ASSIT. ME 130D, 130E, 130F	SV-A1-14	PHOENIX TSVA112M	12	930	710	280	---	LOAD	52	95	0.6	28.1	2.0	130/100	WATER	3.1	3	8	12x18	0.2	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A1-14	PHOENIX TEVA112M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	12	930	280	---	0.6	(1)(2)
OFFICE TECH 130	SV-A1-15	PHOENIX TSVA112M	12	1350	405	405	--	LOAD	52	80	0.6	10.4	0.9	130/100	WATER	0.6	2	8	15x16	0.04	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A1-15	PHOENIX TEVA112M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	12	1350	405	---	0.6	(1)(2)
EVIDENCE STORAGE 126B	SV-A1-16	PHOENIX TSVA108M	8	500	500	500	500	AIR CHANGE	52	80	0.6	12.9	0.9	130/100	WATER	0.6	3	6	12x12	0.16	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A1-16	PHOENIX TEVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	600	600	---	0.6	(1)(2)
ASSIT ME 130A, 130B, 130C	SV-A1-17	PHOENIX TSVA112M	12	930	710	280	---	LOAD	52	95	0.6	28.1	2.0	130/100	WATER	3.0	3	8	12x18	0.2	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A1-17	PHOENIX TEVA112M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	12	930	280	---	0.6	(1)(2)
ELECTRICAL 100D	SV-A1-18	PHOENIX TSVA114M	14	2080	(4)	215	---	LOAD	52	---	0.6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	(1)(2)(4)
	GX-A1-18	PHOENIX TEVA114M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	14	2080	215	----	0.6	(1)(2)
AREA B																											
MEN / WOMEN LOCKER 127 & 128	SV-B1-1	PHOENIX TSVA110M	10	840	840	840	---	AIR CHANGE	52	80	0.6	21.6	1.6	130/100	WATER	1.9	3	6	12x14	0.3	3/4	---	---	---	---	---	(1)(2)(5)
LAUNDRY 129 & JAN 124E	SV-B1-2	PHOENIX TSVA108M	8	440	440	440	40	AIR CHANGE	52	80	0.6	11.3	1.1	130/100	WATER	0.7	3	6	9x14	0.23	3/4	---	---	---	---	---	(1)(2)(5)
	GX-B1-1	PHOENIX TEVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	540	540	140	0.6	(1)(2)
HISTOLOGY LAB 124D	SV-B1-3	PHOENIX MAVA112M	12	1215	995	995	630	LOAD	52	80	0.6	25.6	1.9	130/100	WATER	2.2	2	9	14x16	0.22	3/4	---	---	---	---	---	(1)(2)(5)(6)
	GX-B1-2	PHOENIX EXVA112M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	12	1235	555	555	0.6	(1)(2)(6)
	HEV-B1-1	PHOENIX EXVB108M	---	---	---	---	---	5' ADA FUME HOOD	---	---	---	---	---	---	---	---	---	---	---	---	---	8	540	80	80	0.6	(1)(2)(6)
WET TISSUE 124C	SV-B1-4	PHOENIX MAVA108M	8	185	185	185	185	AIR CHANGE	52	80	0.6	4.8	0.5	130/100	WATER	0.1	2	8	9x9	0.07	3/4	---	---	---	---	---	(1)(2)(5)
	GX-B1-3	PHOENIX EXVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	285	285	285	0.6	(1)(2)
AUTOPSY 124	SV-B1-5	PHOENIX MAVA314M	3x14	5090	5090	3470	2315	AIR CHANGE	52	80	0.6	131.1	9.75	130/100	WATER	2.1	3	6	21x42	0.39	1-1/4	---	---	---	---	---	(1)(2)(5)(6)
	SV-B1-6	PHOENIX MAVA314M	3x14	5090	5090	3470	2315	AIR CHANGE	52	80	0.6	131.1	9.75	130/100	WATER	2.1	3	6	21x42	0.39	1-1/4	---	---	---	---	---	(1)(2)(5)(6)
	HEV-B1-2	PHOENIX EXVB114M	---	---	---	---	---	AUTOPSY TABLE	---	---	---	---	---	---	---	---	---	---	---	---	---	14	1680	1140	755	0.6	(1)(2)(3)(6)
	HEV-B1-3	PHOENIX EXVB114M	---	---	---	---	---	AUTOPSY TABLE	---	---	---	---	---	---	---	---	---	---	---	---	---	14	1680	1140	755	0.6	(1)(2)(3)(6)
	HEV-B1-4	PHOENIX EXVB114M	---	---	---	---	---	AUTOPSY TABLE	---	---	---	---	---	---	---	---	---	---	---	---	---	14	1680	1140	755	0.6	(1)(2)(3)(6)
	HEV-B1-5	PHOENIX EXVB114M	---	---	---	---	---	AUTOPSY TABLE	---	---	---	---	---	---	---	---	---	---	---	---	---	14	1680	1140	755	0.6	(1)(2)(3)(6)
	HEV-B1-6	PHOENIX EXVB114M	---	---	---	---	---	AUTOPSY TABLE	---	---	---	---	---	---	---	---	---	---	---	---	---	14	1680	1140	755	0.6	(1)(2)(3)(6)
	HEV-B1-7	PHOENIX EXVB114M	---	---	---	---	---	AUTOPSY TABLE	---	---	---	---	---	---	---	---	---	---	---	---	---	14	1680	1140	755	0.6	(1)(2)(3)(6)
XRAY 124B	SV-B1-7	PHOENIX MAVA114M	14	1920	870	870	580	LOAD	52	82	0.6	24.0	1.9	130/100	WATER	2.8	2	8	15x24	0.08	3/4	---	---	---	---	---	(1)(2)(5)(6)
	GX-B1-4	PHOENIX EXVA114M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	14	1820	770	480	0.6	(1)(2)(6)
SPECIAL PROCEDURE AUTOPSY 124A	SV-B1-8	PHOENIX MAVA114M	14	2180	2180	2180	810	AIR CHANGE	52	80	0.6	56.2	4.0	130/100	WATER	0.9	3	6	15x28	0.32	1	---	---	---	---	---	(1)(2)(5)(6)
	GX-B1-5	PHOENIX EXVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	600	600	240	0.6	(1)(2)(6)
	HEV-B1-8	PHOENIX EXVB114M	---	---	---	---	---	AUTOPSY TABLE	---	---	---	---	---	---	---	---	---	---	---	---	---	14	1680	1680	670	0.6	(1)(2)(6)
MORGUE TECH OFFICE 120	SV-B1-9	PHOENIX TSVA114M	14	1450	570	435	215	LOAD	52	95	0.6	22.5	1.7	130/100	WATER	2.9	3	7	15x18	0.08	3/4	---	---	---	---	---	(1)(2)(5)
	GX-B1-6	PHOENIX TEVA112M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	12	1350	335	115	0.6	(1)(2)
BODY RECEIVING/RELEASE 119	SV-B1-10	PHOENIX MAVA114M	14	2000	1525	1525	980	LOAD	52	80	0.6	39.3	3.0	130/110	WATER	6.1	2	9	15x24	0.23	1	---	---	---	---	---	(1)(2)(5)(6)
	GX-B1-7	PHOENIX EXVA114M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	14	2100	1625	1080	0.6	(1)(2)(6)
VESTIBULE 122	SV-B1-11	PHOENIX MAVA108M	8	185	185	185	40	AIR CHANGE	52	80	0.6	4.8	0.5	130/100	WATER	0.1	2	8	9x9	0.07	3/4	---	---	---	---	---	(1)(2)(5)
	GX-B1-8	PHOENIX EXVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	185	185	40	0.6	(1)(2)
TISSUE RECOVERY 123	SV-B1-12	PHOENIX MAVA112M	12	1040	1040	1040	210	AIR CHANGE	52	80	0.6	26.8	2.0	130/100	WATER	3.7	3	6	15x16	0.23	3/4	---	---	---	---	---	(1)(2)(5)(6)
	GX-B1-9	PHOENIX EXVA112M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	12	940	940	110	0.6	(1)(2)(6)
NIGHT ROOM 117	SV-B1-13	PHOENIX TSVA108M	8	370	370	370	370	AIR CHANGE	52	80	0.6	9.5	0.8	130/100	WATER	0.26	3	6	9x10	0.21	3/4	---	---	---	---	---	(1)(2)(5)
	GX-B1-10	PHOENIX TEVA108M	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	220	220	220	0.6	(1)(2)
SUPER OFFICE 120A	SV-B1-14	PHOENIX TSVA108M	8	435	435	135	40	LOAD	52	95	0.6	17.2	1.3	130/100	WATER	1.02	3	8	9x16	0.18	3/4	---	---	---	---	---	(1)(2)(5)
	GX-B1-11	PHOENIX TEVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	435	135	40	0.6	(1)(2)
SALLYPORT 121	SV-B1-15	PHOENIX TSVA114M	14	1700	1700	215	215	LOAD	52	95	0.6	67.3	7.1	130/110	WATER	2.4	3	8	15x28	0.29	1-1/4	---	---	---	---	---	(1)(2)(5)

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DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
REVIEWED FOR CODE COMPLIANCE
SIGNATURE: Ernie Catt
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 178893
DONALD K. BRADSHAW
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300

Project #: B13-024

DATE:	ISSUE TYPE:
April 21, 2014	BID SET
CHECKED BY	D. Bradshaw
DRAWN BY	DL

MECHANICAL SCHEDULES

ME601

VOLUME 2

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AIR CONTROL VALVE SCHEDULE - LEVEL 1

			SUPPLY																			GENERAL EXHAUST					
				AIR								FLUID					COIL										
AREA SERVED	ID	MANUFACTURER AND MODEL NUMBER	INLET DIA. (IN)	COOLING MAXIMUM AIRFLOW (CFM)	HEATING MAXIMUM AIRFLOW (CFM)	MINIMUM AIRFLOW (CFM)	UNOCCUPIED MINIMUM AIRFLOW (CFM)	AIRFLOW DRIVING FACTOR	ENTERING AIR TEMP. DB (DEG. F)	MINIMUM LEAVING AIR TEMP. (DEG. F)	S.P. LOSS AT MAX CFM (IN H20)	HEAT LOAD (MBH)	TOTAL FLUID FLOW (GPM)	ENTERING/ LEAVING FLUID TEMP. (DEG. F)	WORKING FLUID	MAX. FLUID PRESSURE DROP (FT)	MIN. COIL ROWS	MIN. FINS (FPI)	COIL SIZE H x W (IN)	AIR PRESSURE DROP (IN. W.G.)	PIPE SIZE (IN)	INLET DIA. (IN)	MAXIMUM AIRFLOW (CFM)	MINIMUM AIRFLOW (CFM)	UNOCCUPIED MINIMUM AIRFLOW (CFM)	S.P. LOSS AT MAX CFM (IN H20)	NOTES
AREA C																											
BREAK ROOM 104	SV-C1-1	PHOENIX TSVA114M	14	2030	1875	650	---	LOAD	52	95	0.6	74.2	6.0	130/100	WATER	6.3	3	8	18x28	0.25	1	---	---	---	---	---	(1)(2)(5)
	GX-C1-1	PHOENIX TEVA114M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	14	1730	650	---	0.6	(1)(2)
I.T. 100F	SV-C1-2	PHOENIX TSVA108M	8	615	(4)	40	40	LOAD	52	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	(1)(2)(4)
	GX-C1-2	PHOENIX TEVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	615	40	40	0.6	(1)(2)
I.T. 100G	SV-C1-3	PHOENIX TSVA110M	10	780	(4)	55	55	LOAD	52	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	(1)(2)(4)
	GX-C1-3	PHOENIX TEVA110M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	10	780	55	55	0.6	(1)(2)
ELECTRICAL 100L	SV-C1-4	PHOENIX TSVA110M	10	665	(4)	55	55	LOAD	52	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	(1)(2)(4)
	GX-C1-4	PHOENIX TEVA110M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	10	665	55	55	0.6	(1)(2)
WAREHOUSE 114	SV-C1-5	PHOENIX TSVA108M	8	680	205	205	40	LOAD	52	80	0.6	5.3	0.5	130/100	WATER	0.2	2	8	12x12	0.03	3/4	---	---	---	---	---	(1)(2)(5)
	GX-C1-5	PHOENIX TEVA110M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	10	730	255	55	0.6	(1)(2)
ELECTRICAL 100M	SV-C1-6	PHOENIX TSVA110M	10	805	(4)	55	55	LOAD	52	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	(1)(2)(4)
	GX-C1-6	PHOENIX TEVA114M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	10	805	55	55	0.6	(1)(2)
VESTIBULE 100N	SV-C1-7	PHOENIX TSVA112M	12	1240	670	585	485	LOAD	52	95	0.6	26.5	2.0	130/100	WATER	3.6	3	7	15x16	0.13	3/4	---	---	---	---	---	(1)(2)(5)
	GX-C1-7	PHOENIX TEVA112M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	12	940	285	100	0.6	(1)(2)
BIO WASTE 115B & CHEM STORAGE 115C	SV-C1-8	PHOENIX TSVA108M	8	385	385	385	385	AIR CHANGE	52	80	0.6	9.9	0.8	130/100	WATER	0.4	3	8	9x12	0.17	3/4	---	---	---	---	---	(1)(2)(5)
	GX-C1-8	PHOENIX TEVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	485	485	485	0.6	(1)(2)
CYLINDER 115A	SV-C1-9	PHOENIX TSVA108M	8	100	100	100	100	AIR CHANGE	52	80	0.6	2.6	0.5	130/100	WATER	0.2	2	8	9x12	0.03	3/4	---	---	---	---	---	(1)(2)(5)
	GX-C1-9	PHOENIX TEVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	150	150	150	0.6	(1)(2)
VEB 2 - 113	SV-C1-10	PHOENIX TSVA112M	12	1270	1270	1270	100	AIR CHANGE	52	90	0.6	44.4	3.2	130/100	WATER	7.5	3	8	12x20	0.38	1	---	---	---	---	---	(1)(2)(5)
	GX-C1-10	PHOENIX TEVA112M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	12	1120	1120	200	0.6	(1)(2)
LOCKERS 110	SV-C1-11	PHOENIX TSVA112M	12	1085	1085	1085	100	AIR CHANGE	52	80	0.6	27.9	2.0	130/100	WATER	3.0	3	6	12x16	0.37	3/4	---	---	---	---	---	(1)(2)(5)
	GX-C1-11	PHOENIX TEVA110M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	240	240	40	0.6	(1)(2)
TRAINING ROOM 111	SV-C1-12	PHOENIX TSVA108M	8	300	190	90	40	LOAD	52	95	0.6	7.5	0.5	130/100	WATER	0.2	3	8	9x12	0.07	3/4	---	---	---	---	---	(1)(2)(5)
	GX-C1-12	PHOENIX TEVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	300	90	40	0.6	(1)(2)
VEB 1 - 112	SV-C1-13	PHOENIX TSVA112M	12	1280	1280	1280	100	AIR CHANGE	52	90	0.6	44.7	3.2	130/100	WATER	7.5	3	8	12x20	0.38	1	---	---	---	---	---	(1)(2)(5)
	GX-C1-13	PHOENIX TEVA112M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	12	1130	1130	200	0.6	(1)(2)
	HEV-C1-1	PHOENIX TEVA108M	---	---	---	---	---	SNORKEL	---	---	---	---	---	---	---	---	---	---	---	---	---	8	500	500	40	0.6	(1)(2)
HALL 100K	SV-C1-14	PHOENIX TSVA114M	14	1920	1920	1920	1520	AIR CHANGE	52	84	0.6	56.5	3.8	130/100	WATER	0.7	3	7	20x15	0.39	1	---	---	---	---	---	(1)(2)(5)
	GX-C1-14	PHOENIX TEVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	440	440	40	0.6	(1)(2)

(1) ALL CAPACITIES AT 4,305 FT ELEVATION.
(2) PRESSURE INDEPENDENT CONTROL VALVE. VALVE SHALL BE EQUIPPED WITH PRESSURE SWITCH.
(3) VALVE SERVES BACKDRAFT AUTOPSY STATION THAT CONTAINS MULTI-LEVEL LIGHTING INTERFACE. EXHAUST SHALL BE INTERLOCKED WITH LIGHTING PANEL SO WHEN LIGHTING IS ENERGIZED EXHAUST VALVE OPENS TO FULL FLOW. SEE SEQUENCE OF OPERATION.
(4) SUPPLY VALVE IS COOLING ONLY. NO REHEAT COIL REQUIRED.
(5) COIL AIR PRESSURE DROP RATED AT HEATING AIRFLOW. SUBMITTAL SHALL INCLUDE AIR PRESSURE DROP AT MAXIMUM SPECIFIED AIRFLOW. AIR PRESSURE DROP NOT TO EXCEED 0.4" W.G.; WATER PRESSURE DROP NOT TO EXCEED 5 FT HD (EXCEPT WHERE NOTED OTHERWISE).
(6) VALVE TO BE EQUIPPED WITH HIGH SPEED ACTUATOR.

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DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
REVIEWED FOR CODE COMPLIANCE
SIGNATURE: Ernie Catt
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 178893
DONALD K. BRADSHAW
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300

Project #: B13-024

DATE:	ISSUE TYPE:
April 21, 2014	BID SET

CHECKED BY	D. Bradshaw
DRAWN BY	DL

MECHANICAL SCHEDULES

ME602

VOLUME 2

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AIR CONTROL VALVE SCHEDULE - LEVEL 2

			SUPPLY																			GENERAL EXHAUST					
				AIR								FLUID					COIL										
AREA SERVED	ID	MANUFACTURER AND MODEL NUMBER	INLET DIA. (IN)	COOLING MAXIMUM AIRFLOW (CFM)	HEATING MAXIMUM AIRFLOW (CFM)	MINIMUM AIRFLOW (CFM)	UNOCCUPIED MINIMUM AIRFLOW (CFM)	AIRFLOW DRIVING FACTOR	ENTERING AIR TEMP. DB (DEG. F)	MINIMUM LEAVING AIR TEMP. (DEG. F)	S.P. LOSS AT MAX CFM (IN H20)	HEAT LOAD (MBH)	TOTAL FLUID FLOW (GPM)	ENTERING/ LEAVING FLUID TEMP. (DEG. F)	WORKING FLUID	MAX. FLUID PRESSURE DROP (FT)	MIN. COIL ROWS	MIN. FINS (FPI)	COIL SIZE H x W (IN)	AIR PRESSURE DROP (IN. W.G.)	PIPE SIZE (IN)	INLET DIA. (IN)	MAXIMUM AIRFLOW (CFM)	MINIMUM AIRFLOW (CFM)	UNOCCUPIED MINIMUM AIRFLOW (CFM)	S.P. LOSS AT MAX CFM (IN H20)	NOTES
AREA A																											
OPEN SPACE 201	SV-A2-1	PHOENIX TSVA112M	12	1300	785	390	245	LOAD	52	95	0.6	31.1	2.3	130/100	WATER	5.0	3	8	15x18	0.16	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A2-1	PHOENIX TEVA112M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	12	1150	240	95	0.6	(1)(2)
MANAGER 201A & 201B	SV-A2-2	PHOENIX TSVA108M	8	410	410	125	40	LOAD	52	95	0.6	16.2	1.4	130/100	WATER	1.0	3	9	9x12	0.29	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A2-2	PHOENIX TEVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	410	125	40	0.6	(1)(2)
MANAGER 201C & 201D	SV-A2-3	PHOENIX TSVA108M	8	410	410	125	40	LOAD	52	95	0.6	16.2	1.2	130/100	WATER	1.0	3	9	9x12	0.29	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A2-3	PHOENIX TEVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	410	125	40	0.6	(1)(2)
OPEN SPACE 201	SV-A2-4	PHOENIX TSVA112M	12	1120	420	350	245	LOAD	52	95	0.6	16.6	1.4	130/100	WATER	1.75	3	8	12x20	0.07	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A2-4	PHOENIX TEVA112M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	12	970	200	95	0.6	(1)(2)
D.V. 214A	SV-A2-5	PHOENIX TSVA108M	8	270	270	270	90	AIR CHANGE	52	95	0.6	10.7	0.8	130/100	WATER	0.4	3	8	9x12	0.13	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A2-5	PHOENIX TEVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	270	90	90	0.6	(1)(2)
ELECTRICAL 200T	SV-A2-6	PHOENIX TSVA108M	8	200	(4)	200	40	LOAD	52	---	0.6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	(1)(2)(4)
	GX-A2-6	PHOENIX TEVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	200	200	40	0.6	(1)(2)
AMP 214	SV-A2-7	PHOENIX MAVA112M	12	1260	275	275	95	LOAD	52	80	0.6	7.1	0.75	130/100	WATER	0.4	2	8	15x16	0.05	3/4	---	---	---	---	---	(1)(2)(5)(6)
	GX-A2-7	PHOENIX EXVA114M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	14	1560	575	395	0.6	(1)(2)(6)
VESTIBULE 200R	SV-A2-8	PHOENIX TSVA108M	8	65	65	65	---	AIR CHANGE	52	80	0.6	1.7	0.5	130/100	WATER	0.1	2	8	9x9	0.01	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A2-8	PHOENIX TEVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	65	65	65	0.6	(1)(2)
TRACE 2 - 213E	SV-A2-9	PHOENIX MAVA108M	8	255	255	255	40	AIR CHANGE	52	80	0.6	6.6	0.5	130/100	WATER	0.1	2	8	9x12	0.08	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A2-9	PHOENIX EXVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	355	355	140	0.6	(1)(2)
EXTRACTIONS 215	SV-A2-10	PHOENIX MAVA214M	2x14	4080	1475	1275	725	LOAD	52	95	0.6	58.4	3.3	130/100	WATER	1.8	2	8	18x36	0.07	1	---	---	---	---	---	(1)(2)(5)(6)
	GX-A2-10	PHOENIX EXVA214M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	2x14	3775	425	425	0.6	(1)(2)(6)
	HEV-A2-2	PHOENIX EXVB112M	---	---	---	---	---	6' ADA FUME HOOD	---	---	---	---	---	---	---	---	---	---	---	---	---	12	650	100	100	0.6	(1)(2)(6)
GOWN/DEGOWN 215B	SV-A2-11	PHOENIX MAVA108M	8	75	75	75	40	AIR CHANGE	52	80	0.6	1.9	0.5	130/100	WATER	0.1	2	8	9x9	0.01	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A2-11	PHOENIX EXVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	75	75	40	0.6	(1)(2)
PRE-AMP 215A	SV-A2-12	PHOENIX MAVA114M	14	1950	1950	1950	1950	AIR CHANGE	52	80	0.6	50.2	3.8	130/100	WATER	0.8	3	6	15x24	0.35	1	---	---	---	---	---	(1)(2)(5)
	HEV-A2-3	PHOENIX CEVA108M	---	---	---	---	---	4' BSC	---	---	---	---	---	---	---	---	---	---	---	---	---	8	465	465	465	0.6	(1)(2)
	HEV-A2-4	PHOENIX CEVA108M	---	---	---	---	---	4' BSC	---	---	---	---	---	---	---	---	---	---	---	---	---	8	465	465	465	0.6	(1)(2)
	HEV-A2-5	PHOENIX CEVA108M	---	---	---	---	---	4' BSC	---	---	---	---	---	---	---	---	---	---	---	---	---	8	465	465	465	0.6	(1)(2)
	HEV-A2-6	PHOENIX CEVA108M	---	---	---	---	---	4' BSC	---	---	---	---	---	---	---	---	---	---	---	---	---	8	465	465	465	0.6	(1)(2)
CODIS 216	SV-A2-13	PHOENIX MAVA108M	8	550	350	350	50	LOAD	52	92	0.6	12.9	1.0	130/100	WATER	0.6	3	8	9x14	0.15	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A2-12	PHOENIX EXVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	650	450	150	0.6	(1)(2)
HUDDLE 217	SV-A2-20	PHOENIX MAVA114M	14	1545	1120	500	215	LOAD	52	95	0.6	44.3	4.25	130/100	WATER	0.9	3	8	15x22	0.21	1	---	---	---	---	---	(1)(2)(5)
	GX-A2-19	PHOENIX EXVA114M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	14	1545	500	215	0.6	(1)(2)
BIO/SEROLOGY 213	SV-A2-14	PHOENIX MAVA214M	2x14	3260	1100	1100	595	LOAD	52	90	0.6	38.5	2.9	130/100	WATER	0.6	3	6	15x38	0.06	3/4	---	---	---	---	---	(1)(2)(5)(6)
	SV-A2-15	PHOENIX MAVA214M	2x14	3260	1100	1100	595	LOAD	52	90	0.6	38.5	2.9	130/100	WATER	0.6	3	6	15x38	0.06	3/4	---	---	---	---	---	(1)(2)(5)(6)
	GX-A2-13	PHOENIX EXVA212M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	2x12	2880	540	190	0.6	(1)(2)(6)
	GX-A2-14	PHOENIX EXVA212M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	2x12	2870	540	190	0.6	(1)(2)(6)
	HEV-A2-7	PHOENIX EXVB112M	---	---	---	---	---	6' ADA FUME HOOD	---	---	---	---	---	---	---	---	---	---	---	---	---	12	650	100	100	0.6	(1)(2)(6)
	HEV-A2-8	PHOENIX CEVA108M	---	---	---	---	---	6' BSC	---	---	---	---	---	---	---	---	---	---	---	---	---	8	670	670	670	0.6	(1)(2)
	HEV-A2-9	PHOENIX EXVA108M	---	---	---	---	---	SNORKEL	---	---	---	---	---	---	---	---	---	---	---	---	---	8	100	100	40	0.6	(1)(2)
REAGENT PREP 213D	SV-A2-16	PHOENIX MAVA108M	8	450	160	160	55	LOAD	52	80	0.6	4.1	0.5	130/100	WATER	0.2	3	6	9x12	0.03	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A2-15	PHOENIX EXVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	450	160	55	0.6	(1)(2)
TRACE 3 - 213A	SV-A2-17	PHOENIX MAVA108M	8	440	440	440	40	AIR CHANGE	52	80	0.6	11.3	0.9	130/100	WATER	0.6	3	6	12x12	0.13	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A2-16	PHOENIX EXVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	540	540	140	0.6	(1)(2)
TRACE 1 - 213B	SV-A2-18	PHOENIX MAVA108M	8	230	230	230	40	AIR CHANGE	52	95	0.6	9.1	0.75	130/100	WATER	0.4	3	8	9x12	0.1	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A2-17	PHOENIX EXVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	330	330	140	0.6	(1)(2)
VESTIBULE 200P	SV-A2-19	PHOENIX MAVA108M	8	65	65	65	65	AIR CHANGE	52	80	0.6	1.7	0.5	130/100	WATER	0.1	2	8	9x9	0.01	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A2-18	PHOENIX EXVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	65	65	65	0.6	(1)(2)
HALL 200	SV-A2-20	PHOENIX TSVA114M	14	1975	1480	1480	1480	AIR CHANGE	52	88	0.6	49.0	3.5	130/100	WATER	0.7	3	7	28x15	0.19	1	---	---	---	---	---	(1)(2)(5)
	GX-C2-12	PHOENIX TEVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	535	40	40	0.6	(1)(2)
AREA B																											
PHOTO 1 - 212A	SV-B2-1	PHOENIX MAVA108M	8	175	175	175	40	AIR CHANGE	52	80	0.6	4.5	0.5	130/100	WATER	0.11	2	8	9x12	0.04	3/4	---	---	---	---	---	(1)(2)(5)
	GX-B2-1	PHOENIX EXVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	275	275	140	0.6	(1)(2)
PHOTO 2 - 212B	SV-B2-2	PHOENIX MAVA108M	8	175	175	175	40	AIR CHANGE	52	80	0.6	4.5	0.5	130/100	WATER	0.11	2	8	9x12	0.04	3/4	---	---	---	---	---	(1)(2)(5)
	GX-B2-2	PHOENIX EXVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	275	275	140	0.6	(1)(2)
VESTIBULE 200M	SV-B2-3	PHOENIX MAVA108M	8	230	230	230	80	LOAD	52	80	0.6	5.9	0.5	130/100	WATER	0.11	2	8	9x12	0.07	3/4	---	---	---	---	---	(1)(2)(5)
	GX-B2-3	PHOENIX EXVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	230	230	80	0.6	(1)(2)
PHOTO 3 - 212C	SV-B2-4	PHOENIX MAVA108M	8	540	540	220	40	AIR CHANGE	52	80	0.6	13.9	1.3	130/100	WATER	0.9	3	8	9x14	0.31	3/4	---	---	---	---	---	(1)(2)(5)
	GX-B2-4	PHOENIX EXVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	640	320	150	0.6	(1)(2)
ID / IMPRESSIONS 212	SV-B2-5	PHOENIX MAVA214M	2x14	4990	1850	1850	1240	LOAD	52	90	0.6	64.7	4.5	130/100	WATER	3.5	2	9	18x46	0.08	1	---	---	---	---	---	(1)(2)(5)(6)
	GX-B2-5	PHOENIX EXVA114M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	14	2075	215	215	0.6	(1)(2)(6)
	GX-B2-6	PHOENIX EXVA114M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	14	2075	215	215	0.6	(1)(2)(6)
	HEV-B2-1	PHOENIX EXVB112M	---	---	---	---	---	8' FUME HOOD	---	---	---	---	---	---	---	---	---	---	---	---	---	12	1080	135	135	0.6	(1)(2)(6)
	HEV-B2-2	PHOENIX EXVB112M	---	---	---	---	---	6' ADA FUME HOOD	---	---	---	---	---	---	---	---	---	---	---	---	---	12	650	100	100	0.6	(1)(2)(6)
	HEV-B2-3	PHOENIX EXVB108M	---	---	---	---	---	POWDER HOOD	---	---	---	---	---	---	---	---	---	---	---	---	---	8	310	310	310	0.6	(1)(2)(6)
SEM 211A	SV-B2-6	PHOENIX MAVA212M	2x12	2940	350	350	190	LOAD	52	80	0.6	9.0	1.0	130/100	WATER	1.1	2	6	18x24	0.01	3/4	---	---	---	---	---	(1)(2)(5)(6)
	GX-B2-7	PHOENIX EXVA212M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	2x12	2940	190	190	0.6	(1)(2)(6)
	HEV-B2-4	PHOENIX EXVB112M	---	---	---	---	---	6' FUME HOOD	---	---	---	---	---	---	---	---	---	---	---	---	---	12	785	100	100	0.6	(1)(2)(6)
INSTRUMENT LAB 211B	SV-B2-7	PHOENIX MAVA214M	2x14	4360	1940	1940	430	LOAD	52	80	0.6	50.0	4.1	130/100	WATER	2.8	2	7	21x32	0.1	1	---	---	---	---	---	(1)(2)(6)
	GX-B2-8	PHOENIX EXVA114M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	14	1710	215	215	0.6	(1)(2)(6)
	HEV-B2-5	PHOENIX EXVA212M	---	---	---	---	---	SNORKEL	---	---	---	---	---	---	---	---	---	---	---	---	---	2x12	2750	2750	315	0.6	(1)(2)(6)
CHEMISTRY / TRACE 211	SV-B2-8	PHOENIX MAVA214M	2x14	3240	1200	1200	1030	LOAD	52	87	0.6	38.6	3.1	130/100	WATER	8.6	2	8	15x36	0.09	1	---	---	---	---	---	(1)(2)(5)(6)
	SV-B2-9	PHOENIX MAVA214M	2x14	3240	1200	1200	1030	LOAD	52	87	0.6	38.6	3.1	130/100	WATER	8.6	2	8	15x36	0.09	1	---	---	---	---	---	(1)(2)(5)(6)
	GX-B2-9	PHOENIX EXVA214M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	2x14	4785	430	430	0.6	(1)(2)(6)
	HEV-B2-6	PHOENIX EXVB108M	---	---	---	---	---	4' ADA FUME HOOD	---	---	---	---	---	---	---	---	---	---	---	---	---	8	400	60	60	0.6	(1)(2)(6)
	HEV-B2-7	PHOENIX EXVB112M	---	---	---	---	---	6' FUME HOOD	---	---	---	---	---	---	---	---	---	---	---	---	---	12	785	100	100	0.6	(1)(2)(6)
	HEV-B2-8	PHOENIX EXVB112M	---	---	---	---	---	6' FUME HOOD	---	---	---	---	---	---	---	---	---	---	---	---	---	12	785	100	100	0.6	(1)(2)(6)
	HEV-B2-9	PHOENIX EXVB112M	---	---	---	---	---	SNORKEL	---	---	---	---	---	---	---	---	---	---	---	---	---	12	1100	1100	1100	0.6	(1)(2)
	HEV-B2-10	PHOENIX EXVB112M	---	---	---	---	---	6' FUME HOOD	---	---	---	---	---	---	---	---	---	---	---	---	---	12	785	100	100	0.6	(1)(2)(6)
	HEV-B2-11	PHOENIX EXVB112M	---	---	---	---	---	8' FUME HOOD	---	---	---	---	---	---	---	---	---	---	---	---	---	12	1080	135	135	0.6	(1)(2)(6)
VESTIBULE 200L	SV-B2-10	PHOENIX MAVA108M	8	90	90	90	90	AIR CHANGE	52	80	0.6	2.3	0.5	130/100	WATER	0.1	2	8	9x9	0.01	3/4	---	---	---	---	---	(1)(2)(5)
	GX-B2-10	PHOENIX EXVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	90	90	90	0.6	(1)(2)

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REVIEWED FOR CODE COMPLIANCE
SIGNATURE: Ernie Catt
DATE: 8-05-2014

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No. 178893
DONALD K. BRADSHAW
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300

Project #: B13-024

DATE:	ISSUE TYPE:
April 21, 2014	BID SET
CHECKED BY	D. Bradshaw
DRAWN BY	DL

MECHANICAL SCHEDULES

ME603

VOLUME 2

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AIR CONTROL VALVE SCHEDULE - LEVEL 2

AREA SERVED	ID	MANUFACTURER AND MODEL NUMBER	SUPPLY AIR INLET DIA. (IN)	COOLING MAXIMUM AIRFLOW (CFM)	HEATING MAXIMUM AIRFLOW (CFM)	MINIMUM AIRFLOW (CFM)	UNOCCUPIED MINIMUM AIRFLOW (CFM)	AIRFLOW DRIVING FACTOR	ENTERING AIR TEMP. DB (DEG. F)	MINIMUM LEAVING AIR TEMP. (DEG. F)	S.P. LOSS AT MAX CFM (IN H20)	FLUID HEAT LOAD (MBH)	TOTAL FLUID FLOW (GPM)	ENTERING/ LEAVING FLUID TEMP. (DEG. F)	WORKING FLUID	MAX. FLUID PRESSURE DROP (FT)	COIL MIN. COIL ROWS	MIN. FINS (FPI)	COIL SIZE H x W (IN)	AIR PRESSURE DROP (IN. W.G.)	PIPE SIZE (IN)	GENERAL EXHAUST INLET DIA. (IN)	MAXIMUM AIRFLOW (CFM)	MINIMUM AIRFLOW (CFM)	UNOCCUPIED MINIMUM AIRFLOW (CFM)	S.P. LOSS AT MAX CFM (IN H20)	NOTES
EVIDENCE RECEIVING 208B	SV-B2-11	PHOENIX TSVA114M	14	2075	2075	2075	1040	AIR CHANGE	52	80	0.6	53.5	4.3	130/100	WATER	1	3	6	15x26	0.33	1	---	---	---	---	---	(1)(2)(5)
	GX-B2-11	PHOENIX TEVA114M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	14	2175	2175	1140	0.6	(1)(2)
CHEMISTRY / TRACE OFFICE 209	SV-B2-12	PHOENIX TSVA114M	14	1900	1070	570	415	LOAD	52	95	0.6	42.3	3.3	130/100	WATER	0.6	3	8	15x26	0.15	1	---	---	---	---	---	(1)(2)(5)
	GX-B2-12	PHOENIX TEVA114M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	14	1700	370	215	0.6	(1)(2)
MANAGER 208D	SV-B2-13	PHOENIX TSVA108M	8	390	235	140	140	LOAD	52	95	0.6	9.3	0.7	130/100	WATER	0.3	3	8	9x12	0.1	3/4	---	---	---	---	---	(1)(2)(5)
	GX-B2-13	PHOENIX TEVA108M	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	290	40	40	0.6	(1)(2)
MANAGER 209A	SV-B2-14	PHOENIX TSVA108M	8	350	345	105	40	LOAD	52	95	0.6	13.6	1.0	130/100	WATER	0.6	3	8	9x14	0.15	3/4	---	---	---	---	---	(1)(2)(5)
	GX-B2-14	PHOENIX TEVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	350	105	40	0.6	(1)(2)
CONSULT 208A	SV-B2-15	PHOENIX TSVA108M	8	175	175	175	40	AIR CHANGE	52	80	0.6	4.5	0.5	130/100	WATER	0.11	2	8	9x12	0.04	3/4	---	---	---	---	---	(1)(2)(5)
	GX-B2-15	PHOENIX TEVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	375	375	240	0.6	(1)(2)
CYLINDER 210A	GX-B2-16	PHOENIX TEVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	150	150	150	0.6	(1)(2)
AREA C																											
ID OFFICE 202	SV-C2-1	PHOENIX TSVA110M	10	910	565	275	105	LOAD	52	95	0.6	22.4	1.75	130/100	WATER	2.8	3	8	15x14	0.14	3/4	---	---	---	---	---	(1)(2)(5)
	GX-C2-1	PHOENIX TEVA110M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	10	860	225	55	0.6	(1)(2)
MANAGER 202A	SV-C2-2	PHOENIX TSVA108M	8	200	200	80	---	LOAD	52	95	0.6	7.9	0.75	130/100	WATER	0.25	3	8	9x12	0.08	3/4	---	---	---	---	---	(1)(2)(5)
	GX-C2-2	PHOENIX TEVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	200	80	---	0.6	(1)(2)
WOMEN 203 / MEN 204	SV-C2-3	PHOENIX TSVA108M	8	200	200	200	---	AIR CHANGE	52	95	0.6	7.9	0.75	130/100	WATER	0.25	3	8	9x12	0.08	3/4	---	---	---	---	---	(1)(2)(5)
I.T. 200B	SV-C2-4	PHOENIX TSVA110M	10	855	(4)	55	---	LOAD	52	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	(1)(2)(4)
	GX-C2-3	PHOENIX TEVA110M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	10	855	55	---	0.6	(1)(2)
CHEM PROC / EXAM 205B	SV-C2-5	PHOENIX MAVA112M	12	1370	1370	225	140	AIR CHANGE	52	80	0.6	35.3	2.6	130/100	WATER	0.3	3	7	15x18	0.36	3/4	---	---	---	---	---	(1)(2)(5)(6)
	GX-C2-4	PHOENIX EXVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	635	40	40	0.6	(1)(2)(6)
	HEV-C2-1	PHOENIX EXVB112M	---	---	---	---	---	6' FUME HOOD	---	---	---	---	---	---	---	---	---	---	---	---	---	12	785	100	100	0.6	(1)(2)(6)
	HEV-C2-2	PHOENIX EXVB112M	---	---	---	---	---	6' ADA FUME HOOD	---	---	---	---	---	---	---	---	---	---	---	---	---	12	650	100	100	0.6	(1)(2)(6)
GUN VAULT 205A	SV-C2-6	PHOENIX TSVA108M	8	265	265	265	40	AIR CHANGE	52	80	0.6	6.8	0.5	130/100	WATER	0.1	2	8	9x12	0.08	3/4	---	---	---	---	---	(1)(2)(5)
	GX-C2-5	PHOENIX TEVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	365	365	140	0.6	(1)(2)
FIREARMS OFFICE 205	SV-C2-7	PHOENIX TSVA214M	2x14	3050	1575	1300	530	LOAD	52	95	0.6	62.3	4.5	130/100	WATER	4.4	3	7	18x34	0.11	1	---	---	---	---	---	(1)(2)(5)
	GX-C2-6	PHOENIX TEVA214M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	2x14	2950	1200	430	0.6	(1)(2)
EVIDENCE VAULT 206	SV-C2-8	PHOENIX TSVA114M	14	2265	2265	2265	2265	AIR CHANGE	52	80	0.6	58.3	4.3	130/100	WATER	1	3	6	15x26	0.39	1	---	---	---	---	---	(1)(2)(5)
	GX-C2-7	PHOENIX TEVA114M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	14	2315	2315	2315	0.6	(1)(2)
MANAGER 207A	SV-C2-9	PHOENIX TSVA108M	8	100	80	80	40	LOAD	52	80	0.6	2.1	0.5	130/100	WATER	0.1	2	8	9x9	0.02	3/4	---	---	---	---	---	(1)(2)(5)
	GX-C2-8	PHOENIX TEVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	100	80	40	0.6	(1)(2)
FA OFFICE 207	SV-C2-10	PHOENIX TSVA108M	8	460	160	160	40	LOAD	52	80	0.6	4.1	0.5	130/100	WATER	0.1	2	8	9x12	0.04	3/4	---	---	---	---	---	(1)(2)(5)
	GX-C2-9	PHOENIX TEVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	460	160	40	0.6	(1)(2)
RANGE 205D	SV-C2-11	PHOENIX MAVA314M	3x14	5660	5660	5660	640	AIR CHANGE	52	80	0.6	145.8	10.5	130/100	WATER	4	3	6	18x50	0.4	1-1/4	---	---	---	---	---	(1)(2)(5)
VESTIBULE 200G	SV-C2-12	PHOENIX TSVA114M	14	1880	1280	570	515	LOAD	52	95	0.6	50.6	4.0	130/100	WATER	0.9	3	8	15x28	0.18	1	---	---	---	---	---	(1)(2)(5)
	GX-C2-10	PHOENIX TEVA114M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	14	1580	270	215	0.6	(1)(2)
ELECTRICAL 200D	SV-C2-13	PHOENIX TSVA108M	8	200	(4)	200	40	LOAD	52	---	0.6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	(1)(2)(4)
	GX-C2-11	PHOENIX TEVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	200	200	40	0.6	(1)(2)

(1) ALL CAPACITIES AT 4,305 FT ELEVATION.
(2) PRESSURE INDEPENDENT CONTROL VALVE.
(3) VALVE SERVES BACKDRAFT AUTOPSY STATION THAT CONTAINS MULTI-LEVEL LIGHTING INTERFACE. EXHAUST SHALL BE INTERLOCKED WITH LIGHTING PANEL SO WHEN LIGHTING IS ENERGIZED EXHAUST VALVE OPENS TO FULL FLOW. SEE SEQUENCE OF OPERATION.
(4) SUPPLY VALVE IS COOLING ONLY. NO REHEAT COIL REQUIRED.
(5) COIL AIR PRESSURE DROP RATED AT HEATING AIRFLOW. SUBMITTAL SHALL INCLUDE AIR PRESSURE DROP AT MAXIMUM SPECIFIED AIRFLOW. AIR PRESSURE DROP NOT TO EXCEED 0.4" W.G.; WATER PRESSURE DROP NOT TO EXCEED 5 FT HD (EXCEPT WHERE NOTED OTHERWISE).
(6) VALVE TO BE EQUIPPED WITH HIGH SPEED ACTUATOR.

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Project #:	B13-024
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MECHANICAL SCHEDULES

ME604

VOLUME 2

AIR CONTROL VALVE SCHEDULE - LEVEL 3

AREA SERVED	ID	MANUFACTURER AND MODEL NUMBER	SUPPLY AIR INLET DIA. (IN)	COOLING MAXIMUM AIRFLOW (CFM)	HEATING MAXIMUM AIRFLOW (CFM)	MINIMUM AIRFLOW (CFM)	UNOCCUPIED MINIMUM AIRFLOW (CFM)	AIRFLOW DRIVING FACTOR	ENTERING AIR TEMP. DB (DEG. F)	MINIMUM LEAVING AIR TEMP. (DEG. F)	S.P. LOSS AT MAX CFM (IN H20)	FLUID HEAT LOAD (MBH)	TOTAL FLUID FLOW (GPM)	ENTERING/ LEAVING FLUID TEMP. (DEG. F)	WORKING FLUID	FLUID PRESSURE DROP (FT)	COIL MIN. COIL ROWS	MIN. FINS (FPI)	COIL SIZE H x W (IN)	AIR PRESSURE DROP (IN. W.G.)	PIPE SIZE (IN)	GENERAL EXHAUST INLET DIA. (IN)	MAXIMUM AIRFLOW (CFM)	MINIMUM AIRFLOW (CFM)	UNOCCUPIED MINIMUM AIRFLOW (CFM)	S.P. LOSS AT MAX CFM (IN H20)	NOTES
AREA A																											
PEST. FORM. EXT. LAB 301A	SV-A3-1	PHOENIX MAVA214M	2x14	3680	2185	2185	590	AIR CHANGE	52	80	0.6	56.3	5.0	130/100	WATER	3.3	2	8	18x32	0.17	1	---	---	---	---	---	(1)(2)(5)(6)
	HEV-A3-1	PHOENIX EXVB112M	---	---	---	---	---	6' ADA FUME HOOD	---	---	---	---	---	---	---	---	---	---	---	---	---	12	650	100	100	0.6	(1)(2)(6)
	HEV-A3-2	PHOENIX EXVB112M	---	---	---	---	---	8' FUME HOOD	---	---	---	---	---	---	---	---	---	---	---	---	---	12	1080	135	135	0.6	(1)(2)(6)
	HEV-A3-3	PHOENIX EXVA114M	---	---	---	---	---	EXHAUST HOOD	---	---	---	---	---	---	---	---	---	---	---	---	---	14	1650	1650	215	0.6	(1)(2)
	HEV-A3-4	PHOENIX EXVA108M	---	---	---	---	---	SNORKEL	---	---	---	---	---	---	---	---	---	---	---	---	---	8	400	400	40	0.6	(1)(2)
PEST. FORM. INST. LAB 301B	SV-A3-2	PHOENIX MAVA114M	14	1630	600	600	215	LOAD	52	90	0.6	21.0	1.5	130/100	WATER	0.1	3	6	15x22	0.05	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A3-1	PHOENIX EXVA112M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	12	1130	100	100	0.6	(1)(2)
	HEV-A3-5	PHOENIX EXVA108M	---	---	---	---	---	SNORKEL	---	---	---	---	---	---	---	---	---	---	---	---	---	8	600	600	215	0.6	(1)(2)
VESTIBULE 301	SV-A3-3	PHOENIX MAVA108M	8	100	100	100	100	AIR CHANGE	52	80	0.6	2.6	0.5	130/100	WATER	0.2	3	6	9x9	0.03	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A3-2	PHOENIX EXVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	100	100	100	0.6	(1)(2)
PEST. RESIDUE INST LAB 301C	SV-A3-4	PHOENIX MAVA114M	14	2160	1565	1565	370	LOAD	52	85	0.6	47.5	3.3	130/100	WATER	0.6	3	7	15x26	0.24	1	---	---	---	---	---	(1)(2)(5)
	GX-A3-3	PHOENIX EXVA110M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	10	650	55	55	0.6	(1)(2)
	HEV-A3-6	PHOENIX EXVB114M	---	---	---	---	---	SNORKEL	---	---	---	---	---	---	---	---	---	---	---	---	---	14	1410	1410	215	0.6	(1)(2)
PEST. RESIDUE EXT. LAB 302	SV-A3-5	PHOENIX MAVA214M	2x14	3890	3890	2395	350	AIR CHANGE	52	80	0.6	100.2	7.4	130/100	WATER	3.8	3	6	18x38	0.38	1-1/4	---	---	---	---	---	(1)(2)(5)(6)
	HEV-A3-7	PHOENIX EXVB112M	---	---	---	---	---	6' ADA FUME HOOD	---	---	---	---	---	---	---	---	---	---	---	---	---	12	650	100	100	0.6	(1)(2)(6)
	HEV-A3-8	PHOENIX EXVB112M	---	---	---	---	---	8' FUME HOOD	---	---	---	---	---	---	---	---	---	---	---	---	---	12	1080	135	135	0.6	(1)(2)(6)
	HEV-A3-9	PHOENIX EXVA114M	---	---	---	---	---	EXHAUST HOOD	---	---	---	---	---	---	---	---	---	---	---	---	---	14	2260	2260	215	0.6	(1)(2)
VOLATILE EXTRACT 303A	SV-A3-6	PHOENIX MAVA108M	8	550	550	40	40	AIR CHANGE	52	97	0.6	22.8	2.0	130/100	WATER	2.7	3	8	12x14	0.2	3/4	---	---	---	---	---	(1)(2)(5)(6)
	HEV-A3-10	PHOENIX EXVB110M	---	---	---	---	---	6' ADA FUME HOOD	---	---	---	---	---	---	---	---	---	---	---	---	---	10	650	140	140	0.6	(1)(2)(6)
VOLATILE INSTRUMENT LAB 303	SV-A3-7	PHOENIX MAVA108M	8	425	240	240	80	LOAD	52	80	0.6	6.2	0.75	130/100	WATER	0.4	3	6	9x10	0.1	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A3-4	PHOENIX EXVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	225	40	40	0.6	(1)(2)
	HEV-A3-23	PHOENIX EXVA108M	---	---	---	---	---	SNORKEL	---	---	---	---	---	---	---	---	---	---	---	---	---	8	200	200	40	0.6	(1)(2)
CHEM OFFICE 304	SV-A3-8	PHOENIX TSVA110M	10	820	470	270	55	LOAD	52	95	0.6	18.6	1.8	130/100	WATER	2.3	3	7	12x14	0.13	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A3-5	PHOENIX TEVA110M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	10	870	320	105	0.6	(1)(2)
MANAGER 304A	SV-A3-9	PHOENIX TSVA108M	8	215	215	80	40	LOAD	52	95	0.6	8.5	0.9	130/100	WATER	0.5	3	6	9x12	0.06	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A3-6	PHOENIX TEVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	215	80	40	0.6	(1)(2)
ELECTRICAL 300L	SV-A3-10	PHOENIX TSVA108M	8	200	(4)	0	0	LOAD	52	---	0.6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	(1)(2)(4)
	GX-A3-7	PHOENIX TEVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	200	0	0	0.6	(1)(2)
BREAK ROOM 316	SV-A3-11	PHOENIX TSVA114M	14	1530	860	500	215	LOAD	52	95	0.6	34.0	2.75	130/100	WATER	7.4	3	7	15x20	0.14	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A3-8	PHOENIX TEVA114M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	14	1530	500	215	0.6	(1)(2)
GRIND 1 - 315C	SV-A3-12	PHOENIX MAVA108M	8	240	240	240	40	AIR CHANGE	52	80	0.6	6.2	0.6	130/100	WATER	0.2	3	6	9x12	0.06	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A3-9	PHOENIX EXVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	340	40	140	0.6	(1)(2)
GRIND 2 - 315A	SV-A3-13	PHOENIX MAVA114M	14	1680	620	590	315	LOAD	52	95	0.6	24.5	2.0	130/100	WATER	0.2	3	7	15x22	0.07	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A3-10	PHOENIX EXVA114M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	14	1580	490	215	0.6	(1)(2)
FURNACE 315D	SV-A3-14	PHOENIX MAVA114M	14	2220	2220	215	215	LOAD	52	80	0.6	57.2	4.5	130/100	WATER	1.04	3	6	15x26	0.38	1	---	---	---	---	---	(1)(2)(5)
	HEV-A3-11	PHOENIX EXVA114M	---	---	---	---	---	EXHAUST HOOD	---	---	---	---	---	---	---	---	---	---	---	---	---	14	2325	315	315	0.6	(1)(2)
ICPMS 314A	SV-A3-15	PHOENIX MAVA114M	14	2280	615	615	215	LOAD	52	80	0.6	15.8	1.6	130/100	WATER	2.1	2	8	15x26	0.04	3/4	---	---	---	---	---	(1)(2)(5)
	GX-A3-11	PHOENIX EXVA114M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	14	1880	215	215	0.6	(1)(2)
	HEV-A3-12	PHOENIX EXVA108M	---	---	---	---	---	SNORKEL	---	---	---	---	---	---	---	---	---	---	---	---	---	8	500	500	100	0.6	(1)(2)
WET CHEM 314	SV-A3-16	PHOENIX MAVA214M	2x14	4200	4200	1465	1465	AIR CHANGE	52	80	0.6	108.2	8.2	130/100	WATER	4.75	3	6	18x40	0.39	1-1/4	---	---	---	---	---	(1)(2)(5)(6)
	GX-A3-12	PHOENIX EXVA212M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	2x12	2575	215	215	0.6	(1)(2)(6)
	HEV-A3-13	PHOENIX EXVB108M	---	---	---	---	---	4' FUME HOOD	---	---	---	---	---	---	---	---	---	---	---	---	---	8	485	60	160	0.6	(1)(2)(6)
	HEV-A3-14	PHOENIX EXVB108M	---	---	---	---	---	4' FUME HOOD	---	---	---	---	---	---	---	---	---	---	---	---	---	8	485	60	160	0.6	(1)(2)(6)
	HEV-A3-15	PHOENIX EXVB108M	---	---	---	---	---	4' FUME HOOD	---	---	---	---	---	---	---	---	---	---	---	---	---	8	485	60	160	0.6	(1)(2)(6)
	HEV-A3-17	PHOENIX EXVB112M	---	---	---	---	---	6' FUME HOOD	---	---	---	---	---	---	---	---	---	---	---	---	---	12	785	100	250	0.6	(1)(2)(6)
	HEV-A3-18	PHOENIX EXVB108M	---	---	---	---	---	4' ADA FUME HOOD	---	---	---	---	---	---	---	---	---	---	---	---	---	8	400	60	160	0.6	(1)(2)(6)
	HEV-A3-19	PHOENIX EXVB108M	---	---	---	---	---	4' FUME HOOD	---	---	---	---	---	---	---	---	---	---	---	---	---	8	485	60	160	0.6	(1)(2)(6)
HALL 300B	SV-A3-17	PHOENIX TSVA114M	14	2440	2440	2440	1200	AIR CHANGE	52	95	0.6	96.5	11.0	130/100	WATER	6.5	3	8	18x30	0.34	1-1/4	---	---	---	---	---	(1)(2)(5)
	GX-A3-13	PHOENIX TEVA114M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	10	920	920	55	0.6	(1)(2)
MEAT LAB 313	SV-A3-18	PHOENIX MAVA114M	14	2220	2220	1190	315	AIR CHANGE	52	80	0.6	57.2	4.0	130/100	WATER	0.9	3	6	15x28	0.33	1	---	---	---	---	---	(1)(2)(5)(6)
	GX-A3-14	PHOENIX EXVA110M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	10	855	55	55	0.6	(1)(2)(6)
	HEV-A3-20	PHOENIX EXVA112M	---	---	---	---	---	EXHAUST HOOD	---	---	---	---	---	---	---	---	---	---	---	---	---	12	1025	100	100	0.6	(1)(2)
	HEV-A3-21	PHOENIX EXVB110M	---	---	---	---	---	5' ADA FUME HOOD	---	---	---	---	---	---	---	---	---	---	---	---	---	10	540	80	80	0.6	(1)(2)(6)
	HEV-A3-22	PHOENIX EXVB110M	---	---	---	---	---	5' FUME HOOD	---	---	---	---	---	---	---	---	---	---	---	---	---	10	660	80	80	0.6	(1)(2)(6)
AREA B																											
I.T. 300D	SV-B3-1	PHOENIX TSVA110M	10	860	(4)	55	55	LOAD	52	---	0.6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	(1)(2)(4)
	GX-B3-1	PHOENIX TEVA110M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	10	860	55	55	0.6	(1)(2)
CONFERENCE 306	SV-B3-2	PHOENIX TSVA112M	12	1410	1010	425	100	LOAD	52	95	0.6	40.0	3.0	130/100	WATER	7.7	3	8	15x20	0.21	1	---	---	---	---	---	(1)(2)(5)
	GX-B3-2	PHOENIX TEVA112M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	10	880	275	55	0.6	(1)(2)
ELECTRICAL 300F	SV-B3-3	PHOENIX TSVA108M	8	200	(4)	40	40	LOAD	52	---	0.6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	(1)(2)(4)
	GX-B3-3	PHOENIX TEVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	200	40	40	0.6	(1)(2)
BACT OFFICE 309	SV-B3-4	PHOENIX TSVA108M	8	490	225	160	40	LOAD	52	95	0.6	8.9	0.75	130/100	WATER	0.4	3	8	9x12	0.9	3/4	---	---	---	---	---	(1)(2)(5)
	GX-B3-4	PHOENIX TEVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	490	160	40	0.6	(1)(2)
MANAGER 309A	SV-B3-5	PHOENIX TSVA108M	8	270	270	85	40	LOAD	52	95	0.6	10.7	0.8	130/100	WATER	0.38	3	8	9x12	0.89	3/4	---	---	---	---	---	(1)(2)(5)
	GX-B3-5	PHOENIX TEVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	270	85	40	0.6	(1)(2)
CONFERENCE RM 310B	SV-B3-6	PHOENIX TSVA108M	8	580	535	175	40	LOAD	52	95	0.6	21.2	2.0	130/100	WATER	2.5	3	8	12x12	0.25	3/4	---	---	---	---	---	(1)(2)(5)
	GX-B3-6	PHOENIX TEVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	580	175	40	0.6	(1)(2)
AG & FOOD ADMIN & SUPPORT 310	SV-B3-7	PHOENIX TSVA112M	12	1200	385	360	100	LOAD	52	95	0.6	15.2	1.1	130/100	WATER	1.3	3	6	15x16	0.04	3/4	---	---	---	---	---	(1)(2)(5)
	GX-B3-7	PHOENIX TEVA112M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	12	1200	360	100	0.6	(1)(2)
LAB DIRECTOR 310D	SV-B3-8	PHOENIX TSVA110M	10	955	955	350	55	LOAD	52	95	0.6	37.8	2.8	130/100	WATER	7	3	8	15x18	0.23	3/4	---	---	---	---	---	(1)(2)(5)
	GX-B3-8	PHOENIX TEVA110M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	10	955	350	55	0.6	(1)(2)
PATH 313A	SV-B3-9	PHOENIX MAVA114M	14	2430	1950	1950	515	LOAD	52	80	0.6	50.2	3.8	130/100	WATER	0.8	3	6	15x28	0.26	1	---	---	---	---	---	(1)(2)(5)
	GX-B3-9	PHOENIX EXVA112M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	12	520	40	40	0.6	(1)(2)
	HEV-B3-1	PHOENIX CEVA108M	---	---	---	---	---	4' BSC	---	---	---	---	---	---	---	---	---	---	---	---	---	8	460	460	460	0.6	(1)(2)
	HEV-B3-2	PHOENIX EXVA114M	---	---	---	---	---	EXHAUST HOOD	---	---	---	---	---	---	---	---	---	---	---	---	---	14	1650	1650	215	0.6	(1)(2)
MEDIA PREP 312	SV-B3-10	PHOENIX MAVA314M	3x14	7200	2160	1560	1560	LOAD	52	90	0.6	75.5	4.3	130/100	WATER	4.6	2	8	21x56	0.03	1	---	---	---	---	---	(1)(2)(5)
	GX-B3-10	PHOENIX EXVA314M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	3x14	6280	640	450	0.6	(1)(2)
	HEV-B3-3	PHOENIX CEVA108M	---	---	---	---	---	4' BSC	---	---	---	---	---	---	---	---	---	---	---	---	---	8	460	460	460	0.6	(1)(2)
	HEV-B3-6	PHOENIX CEVA108M	---	---	---	---	---	4' BSC	---	---	---	---	---	---	---	---	---	---	---	---	---	8	460	460	460	0.6	(1)(2)

CRSA

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DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
REVIEWED FOR CODE COMPLIANCE
SIGNATURE: Ernie Catt
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 178893
DONALD K. BRADSHAW
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300

Project #: B13-024

DATE:	ISSUE TYPE:
April 21, 2014	BID SET
CHECKED BY	D. Bradshaw
DRAWN BY	DL

MECHANICAL SCHEDULES

ME605

VOLUME 2

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AIR CONTROL VALVE SCHEDULE - LEVEL 3

			SUPPLY																			GENERAL EXHAUST					
				AIR								FLUID					COIL										
AREA SERVED	ID	MANUFACTURER AND MODEL NUMBER	INLET DIA. (IN)	COOLING MAXIMUM AIRFLOW (CFM)	HEATING MAXIMUM AIRFLOW (CFM)	MINIMUM AIRFLOW (CFM)	UNOCCUPIED MINIMUM AIRFLOW (CFM)	AIRFLOW DRIVING FACTOR	ENTERING AIR TEMP. DB (DEG. F)	MINIMUM LEAVING AIR TEMP. (DEG. F)	S.P. LOSS AT MAX CFM (IN H20)	HEAT LOAD (MBH)	TOTAL FLUID FLOW (GPM)	ENTERING/ LEAVING FLUID TEMP. (DEG. F)	WORKING FLUID	FLUID PRESSURE DROP (FT)	MIN. COIL ROWS	MIN. FINS (FPI)	COIL SIZE H x W (IN)	AIR PRESSURE DROP (IN. W.G.)	PIPE SIZE (IN)	INLET DIA. (IN)	MAXIMUM AIRFLOW (CFM)	MINIMUM AIRFLOW (CFM)	UNOCCUPIED MINIMUM AIRFLOW (CFM)	S.P. LOSS AT MAX CFM (IN H20)	NOTES
DAIRY 311	SV-B3-11	PHOENIX MAVA212M	2x12	2850	1020	1020	340	LOAD	52	89	0.6	34.7	2.5	130/100	WATER	5.4	2	8	15x32	0.06	3/4	---	---	---	---	---	(1)(2)(5)
	GX-B3-11	PHOENIX EXVA212M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	2x12	2850	1020	340	0.6	(1)(2)
SCOPE RM 311B	SV-B3-12	PHOENIX MAVA108M	8	590	590	95	40	AIR CHANGE	52	85	0.6	17.9	1.5	130/100	WATER	1.1	3	8	9x14	0.36	3/4	---	---	---	---	---	(1)(2)(5)(6)
	GX-B3-12	PHOENIX EXVA108M	---	---	---	---		---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	440	40	40	0.6	(1)(2)(6)
	HEV-B3-4	PHOENIX EXVB112M	---	---	---	---		6' ADA FUME HOOD	---	---	---	---	---	---	---	---	---	---	---	---	---	12	650	100	100	0.6	(1)(2)(6)
INSTRUMENT LAB 311C	SV-B3-13	PHOENIX MAVA114M	14	1560	430	430	290	LOAD	52	95	0.6	17.0	1.3	130/100	WATER	1.9	3	6	15x20	0.03	3/4	---	---	---	---	---	(1)(2)(5)
	GX-B3-13	PHOENIX EXVA112M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	12	1360	230	250	0.6	(1)(2)
	HEV-B3-5	PHOENIX EXVA108M	---	---	---	---	---	VENTED BASE CAB.	---	---	---	---	---	---	---	---	---	---	---	---	---	8	200	200	40	0.6	(1)(2)
SAMPLE REC 311A	SV-B3-14	PHOENIX MAVA108M	8	580	165	165	40	LOAD	52	80	0.6	4.3	0.5	130/100	WATER	0.1	2	8	9x12	0.04	3/4	---	---	---	---	---	(1)(2)(5)
	GX-B3-14	PHOENIX EXVA108M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8	680	265	140	0.6	(1)(2)
VESTIBULE 300C	SV-B3-15	PHOENIX TSVA112M	12	990	600	340	155	LOAD	52	95	0.6	23.7	1.8	130/100	WATER	2.8	3	8	15x14	0.16	3/4	---	---	---	---	---	(1)(2)(5)
	GX-B3-15	PHOENIX TEVA112M	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	10	890	240	55	0.6	(1)(2)

(1) ALL CAPACITIES AT 4,305 FT ELEVATION.
(2) PRESSURE INDEPENDENT CONTROL VALVE.
(3) VALVE SERVES BACKDRAFT AUTOPSY STATION THAT CONTAINS MULTI-LEVEL LIGHTING INTERFACE. EXHAUST SHALL BE INTERLOCKED WITH LIGHTING PANEL SO WHEN LIGHTING IS ENERGIZED EXHAUST VALVE OPENS TO FULL FLOW. SEE SEQUENCE OF OPERATION.
(4) SUPPLY VALVE IS COOLING ONLY. NO REHEAT COIL REQUIRED.
(5) COIL AIR PRESSURE DROP RATED AT HEATING AIRFLOW. SUBMITTAL SHALL INCLUDE AIR PRESSURE DROP AT MAXIMUM SPECIFIED AIRFLOW. AIR PRESSURE DROP NOT TO EXCEED 0.4" W.G.; WATER PRESSURE DROP NOT TO EXCEED 5 FT HD (EXCEPT WHERE NOTED OTHERWISE).
(6) VALVE TO BE EQUIPPED WITH HIGH SPEED ACTUATOR.

AIR HANDLER SCHEDULE

			AIR	COMPONENTS				ELECTRICAL	PHYSICAL		
ID	MANUFACTURER AND MODEL NUMBER	LOCATION	SUPPLY AIRFLOW (CFM)	FANS	COILS	FILTERS	OTHER	SINGLE POINT VOLT/PH/HZ	CABINET LENGTH/ WIDTH/HEIGHT (IN)	WEIGHT (LB)	NOTES
M2-AH-1	TEMTROL	PENTHOUSE	80000	M2-SF-1.1, M2-SF-1.2, M2-SF-1.3, M2-SF-1.4, M2-SF-1.5, M2-SF-1.6, M2-SF-1.7, M2-SF-1.8, M2-SF-1.9, M2-SF-1.10, M2-SF-1.11, M2-SF-1.12	M2-CC-1.1, M2-CC-1.2, M2-HC-1.1, M2-HC-1.2, M2-HCC-1	M2-F-1.1, M2-F-1.2	M2-EC-1 DIRECT EVAP,	N/A	678/252/144	80391	1,2
M2-AH-2	TEMTROL	PENTHOUSE	80000	M2-SF-2.1, M2-SF-2.2, M2-SF-2.3, M2-SF-2.4, M2-SF-2.5, M2-SF-2.6, M2-SF-2.7, M2-SF-2.8, M2-SF-2.9, M2-SF-2.10, M2-SF-2.11, M2-SF-2.12	M2-CC-2.1, M2-CC-2.2, M2-HC-2.1, M2-HC-2.2, M2-HCC-2	M2-F-2.1, M2-F-2.2	M2-EC-2 DIRECT EVAP,	N/A	678/252/144	80391	1,2
M2-AH-3	TEMTROL	PENTHOUSE	80000	M2-EF-3.1, M2-EF-3.2	M2-RC-3	M2-F-3		N/A	290.5/252/144	24492	1,2
M2-AH-4	TEMTROL	PENTHOUSE	80000	M2-EF-4.1, M2-EF-4.2	M2-RC-4	M2-F-4		N/A	280.5/252/144	24492	1,2

1. ON EMERGENCY POWER
2. VFD BY AIR HANDLER MANUFACTURE

AIR SEPARATOR SCHEDULE

				FLUID			PHYSICAL	
ID	MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	FLOW RATE (GPM)	WORKING FLUID	HEAD LOSS (FT)	DIA./ HEIGHT (IN)	NOTES
M2-AS-1	TACO ACT06	BOIL RM	TANK	495	WATER	3	20/34.88	1
M2-AS-2	TACO ACT08	CHILLER RM	TANK	1273.3	WATER	3	20/44	1
M2-AS-3	TACO ACT8	BOIL RM	TANK	818.1	WATER	3	20/44	1
M2-AS-4	TACO ACT6	PENTHOUSE	TANK	433.8	40% P GLY	3	20/34.88	1
M2-AS-5	TACO ACT6	PENTHOUSE	TANK	517	40% P GLY	2	20/34.88	1
M2-AS-6	TACO ACT025	PENTHOUSE	TANK	35.7	40% P GLY	3	12/22.5	1
M2-AS-7	TACO ACT025	PENTHOUSE	TANK	51.2	WATER	3	12/22.5	1

1. ASME CERTIFIED

HYDRONIC BOILER SCHEDULE

							FLUID				ELECTRICAL				PHYSICAL		
ID	MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	FUEL TYPE	INPUT LOAD (BTU/H)	OUTPUT LOAD (BTU/H)	FLOW RATE (GPM)	ENTERING/ LEAVING TEMP. (°F)	WORKING FLUID	HEAD LOSS (FT)	MOTOR QUAN.	MOTOR SIZE (HP)	MOTOR VOLT/PH/HZ	CONTROL CIRCUIT VOLT/PH/HZ	STACK DIAMETER (IN)	LENGTH/ WIDTH/ HEIGHT (IN)	NOTES
M2-B-1	AERCO BMK-6.0LN	BOILER ROOM	CONDENSING, FORCED	NAT GAS	5340000	4640400	326.2	150.8/180	WATER	15	1	5	460/3/60	120/1/60	1@14	90/34/80	1-8
M2-B-2	AERCO BMK-6.0LN	BOILER ROOM	CONDENSING, FORCED	NAT GAS	5340000	4640400	326.2	150.8/180	WATER	15	1	5	460/3/60	120/1/60	1@14	90/34/80	1-8
M2-B-3	AERCO BMK-3.0LN	BOILER ROOM	CONDENSING, FORCED	NAT GAS	2663900	2320200	163.1	150.8/180	WATER	15	1	3.2	460/3/60	120/1/60	1@8	64/27/77	1-8

1. SEALED COMBUSTION
2. 15 AMP POWER FOR B-3, 20 AMP POWER FOR B-1&2
3. 15:1 TURNDOWN
4. UNIT WITH ON BOARD SEQUENCEING PACKAGE.
5. DUAL FUEL FOR PROPANE BACK UP.
6. ASME CERTIFIED
7. FIRETUBE 439 SS HEAT EXCHANGER
8. ON EMERGENCY POWER.

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LICENSED PROFESSIONAL ENGINEER
No. 178893
DONALD K. BRADSHAW
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2
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Taylorsville, UT 84118

DFCM #: 13020300
Project #: B13-024

DATE:	ISSUE TYPE:
April 21, 2014	BID SET
CHECKED BY	D. Bradshaw
DRAWN BY	DL

MECHANICAL SCHEDULES

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CABINET UNIT HEATER SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	LOCATION	MOUNTING ARRANGEMENT	AIR: AIRFLOW RATE (CFM)	AIR: HEATING CAPACITY (MBH)	AIR: LEAVING TEMP. DB (°F)	FLUID: FLOW RATE (GPM)	FLUID: ENTERING/ LEAVING TEMP. (°F)	FLUID: WORKING FLUID	FLUID: HEAD LOSS (FT)	ELECTRICAL: MOTOR SIZE (HP)	ELECTRICAL: AMPS	ELECTRICAL: POWER INPUT (W)	ELECTRICAL: VOLT/PH/HZ	PHYSICAL: CABINET DIMENSIONS LxWxH (IN)	NOTES
M2-CUH-1	RITTLING RFRC-420-03	VESTIBULE 100	(3)	370	15.4	98.6	4.0	130/110	WATER	2.1	1/30	0.7	80	115/1/60	44/27/10	(1)(2)(3)
M2-CUH-2	RITTLING RFRC-420-06	STAIR 1 - 100B	(3)	700	28.8	98.1	7.5	130/110	WATER	1.4	1/15	1.1	125	115/1/60	62/27/10	(1)(2)(3)
M2-CUH-3	RITTLING RFRC-420-04	STAIR 2 - 100P	(3)	550	22.2	97.4	6.0	130/110	WATER	4.7	1/25	0.85	80	115/1/60	50/27/10	(1)(2)(3)
M2-CUH-4	RITTLING RFRC-420-03	VESTIBULE 100H	(3)	370	15.4	98.6	4.0	130/110	WATER	2.1	1/30	0.7	80	115/1/60	44/27/10	(1)(2)(3)
M2-CUH-5	RITTLING RFRC-420-04	STAIR 3 - 100J	(3)	550	22.2	97.4	6.0	130/110	WATER	4.7	1/25	0.85	80	115/1/60	50/27/10	(1)(2)(3)
M2-CUH-6	RITTLING RFRC-420-06	STAIR 1 - 200A	(3)	700	28.8	98.1	7.5	130/110	WATER	1.4	1/15	1.1	125	115/1/60	62/27/10	(1)(2)(3)

(1) CAPACITIES BASED ON 130 DEG EWT, 60 DEG EAT, 4,305 FEET ELEVATION.
(2) UNIT COMPLETE WITH FACTORY MOUNTED STARTER, DISCONNECT, AND ALL ACCESSORIES REQUIRED FOR CEILING MOUNTING.
(3) HORIZONTAL RECESSED CEILING MOUNT WITH EXPOSED HINGED BOTTOM ACCESS PANEL CONTAINING SUPPLY AND RETURN OPENINGS. COLOR TO BE SELECTED BY ARCHITECT FROM MANUFACTURER'S STANDARD COLOR PALLET.

CHEMICAL FEED SYSTEM SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	FLUID: WORKING FLUID	COLD: TOTAL VOLUME (GAL)	COLD: STATIC FILL PRESSURE (PSIG)	COLD: PRESSURE RATING (PSIG)	ELECTRICAL: VOLT/PH/HZ	ELECTRICAL: ALARM PANEL	PHYSICAL: LENGTH/ WIDTH/ HEIGHT (IN)	PHYSICAL: NPT FITTING (IN)	PHYSICAL: TANK SIZE (GAL)	NOTES
CHEM	-----	INDIRECT COOLING LOOP	BY-PASS FEEDER	WATER	315.4	4	150	-----	-----	-----	-----	2.5	
CHEM	-----	HEATING WATER	BY-PASS FEEDER	WATER	9932.8	4	150	-----	-----	-----	-----	2.5	
CHEM	-----	CHILLED WATER	BY-PASS FEEDER	WATER	9932.8	4	150	-----	-----	-----	-----	2.5	

AIR-COOLED CHILLER SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	REFRIG.	LOAD (TONS)	AIR: AMBIENT ENTERING TEMP. DB/WB (°F)	FLUID: FLOW RATE (GPM)	FLUID: ENTERING/ LEAVING TEMP. (°F)	FLUID: WORKING FLUID	FLUID: HEAD LOSS (FT)	ELECTRICAL: MAXIMUM KW	ELECTRICAL: TOTAL MCA	ELECTRICAL: MAXIMUM UNIT EFFICIENCY (KW/TON)	ELECTRICAL: EFFICIENCY RATING	ELECTRICAL: CHILLER AND CONTROL CIRCUIT VOLT/PH/HZ	PHYSICAL: LENGTH/ WIDTH/ HEIGHT (IN)	NOTES
M2-CH-3	TRANE CGAM-020F	ROOF	SCROLL	R410A	13.7	96.44/62.06	35.7	52/42	40% P GLY	15	-.-	51	-.-	-.-	460/3/60	114/51/85	1,2

1. ON EMERGENCY POWER.
2. PIPE REFRIGERANT RUPTURE DISK TO ROOF.
3. PROVIDE REFRIGERANT MONITOR AND SCBA

WATER-COOLED CHILLER SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	REFRIG.	LOAD (TONS)	EFF. (%)	FLUID: DESCRIPTION	FLUID: FLOW RATE (GPM)	FLUID: ENTERING/ LEAVING TEMP. (°F)	FLUID: WORKING FLUID	FLUID: HEAD LOSS (FT)	ELECTRICAL: MAXIMUM KW	ELECTRICAL: TOTAL MCA	ELECTRICAL: MAXIMUM UNIT EFFICIENCY (KW/TON)	ELECTRICAL: EFFICIENCY RATING	ELECTRICAL: CHILLER AND CONTROL CIRCUIT VOLT/PH/HZ	PHYSICAL: LENGTH/ WIDTH/ HEIGHT (IN)	NOTES
M2-CH-1	CARRIER 23XRV5050NRVR450	CHILLER RM	SCREW	R-134A	446.1	80	EVAPORATOR	892.2	56/44	WATER	10.4	219	411	0.485	NPLV	460/3/60	173/83/91	1
							CONDENSER	1344.6	80/90	WATER	13.2				0.323			
M2-CH-2	ARCTIC COOL ACW220BT3522	CHILLER RM	CENTRIFUGAL	R-134A	191.1	80	EVAPORATOR	382.2	56/44	WATER	15	116.46	270	0.582	IPLV	460/3/60	142/45/83	1
							CONDENSER	576.1	80/90	WATER	15				0.341			

1. WITH UNIT MOUNTED VFD

HYDRONIC COIL SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	LOCATION	USAGE	AIR: AIRFLOW RATE (CFM)	AIR: LOAD (BTU/H)	AIR: SENSIBLE LOAD (BTU/H)	AIR: ENTERING TEMP. DB/WB (°F)	AIR: LEAVING TEMP. DB/WB (°F)	AIR: STATIC PRESSURE (IN. H2O)	HYDRONIC: FLOW RATE (GPM)	HYDRONIC: ENTERING/ LEAVING TEMP. (°F)	HYDRONIC: WORKING FLUID	HYDRONIC: HEAD LOSS (FT)	PHYSICAL: NO. COILS	PHYSICAL: EACH COIL FIN WIDTH/ HEIGHT (IN)	PHYSICAL: MINIMUM FACE AREA (FT²)	PHYSICAL: MINIMUM NO. ROWS/ FINS PER INCH	NOTES
M2-CC-1.1	RAE WC	M2-AH-1	COOLING	80000	3738700	3738700	102.6/64	52/49	0.35	621.7	44/56	WATER	15	6	113/40.5	190.6	6/8	
M2-CC-1.2	RAE WC	M2-AH-1	COOLING	80000	1233300	1233300	94.7/61.5	78/56	0.41	247.5	73/83	WATER	15	6	113/40.5	190.6	8/8	
M2-CC-2.1	RAE WC	M2-AH-2	COOLING	80000	3738700	3738700	102.6/64	52/49	0.35	621.7	44/56	WATER	15	6	113/40.5	190.6	6/8	
M2-CC-2.2	RAE WC	M2-AH-2	COOLING	80000	1233300	1233300	94.7/61.5	78/56	0.41	247.5	73/83	WATER	15	6	113/40.5	190.6	8/8	
M2-HC-1.1	RAE WC	M2-AH-1	HEATING	80000	3324700	3324700	10/5	55/34	0.15	177.6	140/100	40% P GLY	5	6	113/40.5	190.6	2/8	
M2-HC-1.2	RAE WC	M2-AH-1	HEATING	80000	735800	735800	0/-3.1	10/5	0.1	39.3	140/100	40% P GLY	5	6	113/40.5	190.6	1/6	
M2-HC-2.1	RAE WC	M2-AH-2	HEATING	80000	3324700	3324700	10/5	55/34	0.15	177.6	140/100	40% P GLY	5	6	113/40.5	190.6	2/8	
M2-HC-2.2	RAE WC	M2-AH-2	HEATING	80000	735800	735800	0/-3.1	10/5	0.1	39.3	140/100	40% P GLY	5	6	113/40.5	190.6	1/6	
M2-HCC-1	RAE WC	M2-AH-1	HEAT DEL	80000	1403800	1403800	10/5	29.1/18.8	0.41	254	44/32	40% P GLY	15	6	113/40.5	190.6	8/8	
			COOL DEL	80000	600700	591100	96.4/62.1	88.4/59.5	0.41	258.5	80/85		15					
M2-HCC-2	RAE WC	M2-AH-2	HEAT DEL	80000	1403800	1403800	10/5	29.1/18.8	0.41	254	44/32	40% P GLY	15	6	113/40.5	190.6	8/8	
			COOL DEL	80000	600700	591100	96.4/62.1	88.4/59.5	0.41	258.5	80/85		15					
M2-RC-3	RAE WC	M2-AH-3	HEAT REC	80000	1403800	1403800	72/53.3	53/45.5	0.41	254	32/44	40% P GLY	15	6	113/40.5	190.6	8/8	1
			COOL REC	80000	600700	591100	74/58.6	82/61.3	0.41	258.5	85/80		15					
M2-RC-4	RAE WC	M2-AH-4	HEAT REC	80000	1403800	1403800	72/53.3	53/45.5	0.41	254	32/44	40% P GLY	15	6	113/40.5	190.6	8/8	1
			COOL REC	80000	600700	591100	74/58.6	82/61.3	0.41	258.5	85/80		15					

1. PROVIDE ACID RESISTANT COATING ON COIL.

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ARCHITECT-ENGINEER STAMP

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DFCM #: 13020300
Project #: B13-024

DATE:	ISSUE TYPE:
April 21, 2014	BID SET

CHECKED BY: D. Bradshaw
DRAWN BY: DL

MECHANICAL SCHEDULES

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COOLING TOWER SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	FAN AIRFLOW (CFM)	AMBIENT TEMP. DB/WB (°F)	FLUID: FLOW RATE (GPM)	FLUID: ENTERING/ LEAVING TEMP. (°F)	FLUID: WORKING FLUID	FLUID: INLET/ OUTLET HEAD LOSS (FT)	ELECTRICAL, FAN: MOTOR QUAN.	ELECTRICAL, FAN: MOTOR SIZE (HP)	ELECTRICAL, FAN: MOTOR SPEED (RPM)	ELECTRICAL, FAN: TOWER AND CONTROL CIRCUIT VOLT/PH/HZ	PHYSICAL: OPERATING WEIGHT (LB)	PHYSICAL: LENGTH/ WIDTH/ HEIGHT (IN)	NOTES
M2-CT-1	EVAPCO UT 29-824	EQUIP YARD	OPEN, COUNTERFLOW, AXIAL	70805	86/66	960.3	90/80	WATER	15/0	1	25	1750	460/3/60 120/1/60	10000	145/101.5/189.75	1,2,3,4,5
M2-CT-2	EVAPCO UT 29-824	EQUIP YARD	OPEN, COUNTERFLOW, AXIAL	70805	86/66	960.3	90/80	WATER	15/0	1	25	1750	460/3/60 120/1/60	10000	145/101.5/189.75	1,2,3,4,5

1. WITH SUPER LOW NOISE FAN, LADDER AND VIBRATION SWITCH
2. MODEL # IS FOR CT-1 AND CT-2 COMBINED.
3. PROVIDE LOW FLOW NOZZELS.
4. VFD BY MECHANICAL. WIRED BY ELECTRICAL. SPECIFIED BY DIV 26.
5. TOWER TO BE SIZED BASED ON 136% EXTRA CAPACITY.

DUCT SOUND ATTENUATOR SCHEDULE (PRICE)

TAG	TYPE	DIMENSIONS (INCHES): WIDTH	HEIGHT	LENGTH	AIR FLOW (CFM)	VELOCITY (2) (FPM)	PRESSURE DROP (IN. W.G.)	MINIMUM DYNAMIC INSERTION LOSS, dB, OCTAVE BAND CENTER FREQUENCY, HZ: 63	125	250	500	1000	2000	4000	8000	BASIS OF DESIGN EH PRICE MODEL NUMBER	NOTES
SA-1	(5)	12 DIA	12 DIA	72	760	-968	0.03	15	20	41	53	53	50	51	38	CMX72/12C	(5)
SA-2	(5)	24 DIA	24 DIA	72	5100	-1623	0.04	12	19	27	35	43	26	19	18	CMX72/24B	(5)
SA-3	(4)	38	18	72 (1)	5660	+1192	0.16	8	13	20	31	36	31	27	23	ERMX72/7D	(1)(4)

(1) LENGTH SHOWN FOR ELBOW SILENCERS IS CENTERLINE LENGTH.
(2) VELOCITY SHOWN IS +(FORWARD FLOW) OR -(REVERSE FLOW) AS DEFINED BY ASTM E477-06A.
(3) PRESSURE DROP, DYNAMIC INSERTION LOSS, AND SELF GENERATED NOISE PER ASTM E477-06A.
(4) ELBOW SILENCER.
(5) STRAIGHT SILENCER

DUST COLLECTOR SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	LOCATION	AREA SERVED	AIR: AIRFLOW RATE (CFM)	AIR: STATIC PRESSURE (IN. WATER)	FILTER: EFFICIENCY (%)	FILTER: FILTER AREA (SQ FT)	ELECTRICAL: FAN MOTOR (HP)	ELECTRICAL: SHAKER MOTOR (HP)	ELECTRICAL: VOLT/PH/HZ	PHYSICAL: LENGTH/ WIDTH/ HEIGHT (IN)	PHYSICAL: WEIGHT (LBS)	NOTES
M2-DC-1	DONALDSON TORIT UMA 100	PENTHOUSE 401	GRIND 1 - 315C	600	6.25	99 @ 1 MICRON	100	2	1/3	460/3/60	29/42/84	600	(1)(2)(3)
M2-DC-2	DONALDSON TORIT UMA 100	PENTHOUSE 401	GRIND 2 - 315A	600	6.25	99 @ 1 MICRON	100	2	1/3	460/3/60	29/42/84	600	(1)(2)(3)

(1) CAPACITIES BASED ON 4,305 FEET ELEVATION.
(2) DUST COLLECTOR COMPLETE WITH AUTOMATIC SHAKER FOR BAG FILTER CLEANING, 3 CU. FT HOPPER BASE WITH QUICK RELEASE LEVER, ACOUSTIC DIFFUSER SILENCER, MOTOR STARTER, MAGNAHELIC GAUGE, AND EXPLOSION RELIEF VENT.
(3) SINGLE POINT POWER CONNECTION. DIVISION 26 TO PROVIDE ELECTRICAL DISCONNECT.

EVAPORATIVE COOLER SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	AIR: AIRFLOW RATE (CFM)	AIR: SENSIBLE LOAD (BTU/H)	AIR: ENTERING TEMP. DB/WB (°F)	AIR: LEAVING TEMP. DB/WB (°F)	AIR: STATIC PRESSURE (IN. H2O)	MAKE-UP: FLOW RATE (GPM)	MISC: EFF (%)	ELECTRICAL, PUMP: MOTOR SIZE (HP)	ELECTRICAL, PUMP: VOLT/PH/HZ	ELECTRICAL, FAN: MOTOR SIZE (HP)	ELECTRICAL, FAN: VOLT/PH/HZ	PHYSICAL: NO. MODULES	PHYSICAL: EACH MODULE WIDTH/ HEIGHT (IN)	PHYSICAL: MINIMUM FACE AREA (FT^2)	PHYSICAL: PAD THICKNESS (IN)	NOTES
M2-EC-1	TEMPROL MUNTERS	M2-AH-1	DIRECT	80000	884400	64/50.7	52/50.7	0.25	1.7	90	0.5	120/1/60	-----	-----	1	197/130.5	178.5	12	1
M2-EC-2	TEMPROL MUNTERS	M2-AH-2	DIRECT	80000	884400	64/50.7	52/50.7	0.25	1.7	90	0.5	120/1/60	-----	-----	1	197/130.5	178.5	12	1

1. ON EMERGENCY POWER

EXPANSION TANK SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	FLUID: WORKING FLUID	FLUID: MIN. TANK/ ACCEPTANCE VOLUME (GAL)	FLUID: MINIMUM FILL PRESSURE (PSIG)	FLUID: MAXIMUM WORKING PRESSURE (PSIG)	FLUID: RELIEF VALVE PRESSURE (PSIG)	PHYSICAL: TANK SIZE (GAL)	PHYSICAL: DIA./ HEIGHT (IN)	PHYSICAL: NPT FITTING (IN)	NOTES
M2-ET-1	TACO CA-300	BOIL RM	VERT BLADDER FULL	WATER	73.3/13.6	34.3	45	50	79	24/57.75	0.5	1
M2-ET-2	TACO CA-900	CHILLER RM	VERT BLADDER FULL	WATER	217.8/40.3	34.3	45	50	238	36/73.125	0.5	1
M2-ET-3	TACO CA-1800	BOIL RM	VERT BLADDER FULL	WATER	437.2/80.9	34.3	45	50	475	48/83.5	0.5	1
M2-ET-4	TACO CA-1800	BOIL RM	VERT BLADDER FULL	WATER	437.2/80.9	34.3	45	50	475	48/83.5	0.5	1
M2-ET-5	TACO CA-450	PENTHOUSE	VERT BLADDER FULL	40% P GLY	111.4/40.3	12.7	27	30	119	24/77.375	0.5	1
M2-ET-6	TACO CA-300	PENTHOUSE	VERT BLADDER FULL	40% P GLY	63.3/22.9	12.7	27	30	79	24/57.75	0.5	1
M2-ET-7	TACO CA-90	PENTHOUSE	VERT BLADDER FULL	40% P GLY	19.4/7	12.7	27	30	37	20/29.125	0.5	1
M2-ET-8	TACO CA-90	PENTHOUSE	VERT BLADDER FULL	WATER	0.7/0.3	12.7	27	30	37	20/29.125	0.5	1

1. ASME CERTIFIED

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DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
REVIEWED FOR CODE COMPLIANCE
SIGNATURE: Ernie Catt
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 178893
DONALD K. BRADSHAW
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300
Project #: B13-024

DATE:	ISSUE TYPE:
April 21, 2014	BID SET

CHECKED BY: D. Bradshaw
DRAWN BY: DL

MECHANICAL SCHEDULES

ME608

VOLUME 2

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FAN COIL SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	AIR: MAXIMUM AIRFLOW RATE (CFM)	COOLING COIL: SENSIBLE CAPACITY (MBH)	COOLING COIL: TOTAL CAPACITY (MBH)	COOLING COIL: ENTERING AIR TEMP (DB/WB)	COOLING COIL: LEAVING AIR TEMP (DB/WB)	COOLING COIL: FLUID FLOW RATE (GPM)	COOLING COIL: FLUID PRESSURE DROP (FT HD)	COOLING COIL: ENTERING/ LEAVING FLUID TEMP (°F)	COOLING COIL: FLUID	ELECTRICAL: VOLT/PH/HZ	ELECTRICAL: FAN MOTOR (HP)	PHYSICAL: LENGTH/ WIDTH/ HEIGHT (IN)	PHYSICAL: OPERATING WEIGHT (LBS)	NOTES
M2-FC-1	LIEBERT MINIMATE MMD40C	I.T. 100F	(2)	1250	26.3	27.6	75/58.7	52/49.8	9	19.6	45/51.4	WATER	460/3/60	1/2	54/30/24	230	1,2,3
M2-FC-2	LIEBERT MINIMATE MMD40C	I.T. 100G	(2)	1250	26.3	27.6	75/58.7	52/49.8	9	19.6	45/51.4	WATER	460/3/60	1/2	54/30/24	230	1,2,3
M2-FC-3	LIEBERT MINIMATE MMD40C	ELECTRICAL 100L	(2)	1250	26.3	27.6	75/58.7	52/49.8	9	19.6	45/51.4	WATER	460/3/60	1/2	54/30/24	230	1,2,3
M2-FC-4	LIEBERT MINIMATE MMD40C	ELECTRICAL 100M	(2)	1250	26.3	27.6	75/58.7	52/49.8	9	19.6	45/51.4	WATER	460/3/60	1/2	54/30/24	230	1,2,3
M2-FC-5	LIEBERT MINIMATE MMD40C	I.T. 200B	(2)	1250	26.3	27.6	75/58.7	52/49.8	9	19.6	45/51.4	WATER	460/3/60	1/2	54/30/24	230	1,2,3
M2-FC-6	LIEBERT MINIMATE MMD40C	I.T. 300D	(2)	1250	26.3	27.6	75/58.7	52/49.8	9	19.6	45/51.4	WATER	460/3/60	1/2	54/30/24	230	1,2,3
M2-FC-7	TRANE BCHC-072	CHILLER RM	(2)	2,400	61	-.-	80/62	56/53	10	5	42/56	WATER	460/3/60	2	-.-	-.-	1,2,4
M2-FC-8	TRANE BCHC-072	BOILER RM	(2)	2,400	61	-.-	80/62	56/53	10	5	42/56	WATER	460/3/60	2	-.-	-.-	1,2,4

(1) CAPACITIES BASED AT 4,305 FEET ELEVATION.
(2) HORIZONTAL EXPOSED CEILING MOUNT (PLENUM DISCHARGE).
(3) COMPLETE WITH FACTORY MOUNTED DISCONNECT, HUMIDIFIER, AND MERV 8 INTERNAL FILTER.
(4) COMPLETE WITH FACTORY MOUNTED DISCONNECT,AND MERV 8 FILTER.

FAN SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	AIR TYPE	AIR: MAXIMUM AIRFLOW RATE (CFM)	AIR: STATIC PRESSURE (IN. H2O)	FAN: FAN SPEED (RPM)	FAN: FAN WHEEL DIAMETER (IN)	FAN: STATIC EFFICIENCY (%)	ELECTRICAL: MOTOR SIZE (HP)	ELECTRICAL: MOTOR BHP (HP)	ELECTRICAL: MOTOR SPEED (RPM)	ELECTRICAL: VOLT/PH/HZ	PHYSICAL: LENGTH/ WIDTH/ HEIGHT (IN)	NOTES
M2-DOF-1	TWIN CITY	BOILER RM	ROOF FILTERED,CENTRIF	OUTSIDE AIR	4000	0.4	435	30	69.5	0.5	0.362	1800	120/1/60	52.5/44.88/71.82	
M2-DEF-1	TWIN CITY BCRD 085D	PENTHOUSE ROOF	ROOF DOWNBLAST, DOME	EXHAUST AIR	600	0.83	1948	10.5	57.9	0.33	0.136	1800	120/1/60	27.88/27.88/28	
M2-DEF-2	TWIN CITY BCRD 300DHP	3RD FL ROOF	ROOF DOWNBLAST, DOME	EXHAUST AIR	7000	1.06	846	31.5	61.9	5	1.887	1800	460/3/60	52/52/41.88	
M2-DEF-3	TWIN CITY BCV 270	PENTHOUSE	BACKWARD INCLINED VENT	EXHAUST AIR	7200	3.76	1248	27	74	10	5.756	1800	460/3/60	44.63/45.94/60.56	1,2,4,7
M2-DEF-4	TWIN CITY BCRD 160D	SALLYPORT ROOF	ROOF DOWNBLAST, DOME	EXHAUST AIR	2000	0.63	1046	16.5	62.4	0.75	0.317	1800	460/3/60	33.81/33.81/35.25	9
M2-DEF-5	TWIN CITY BCRU 140B	CHILLER RM	ROOF UPBLAST, DOME	EXHAUST AIR	2550	0.3	1449	15	24.3	1	0.495	1800	460/3/60	31/31/32	2,4,5
M2-DEF-6	MK PLASTICS CNW 200	PENTHOUSE	BACKWARD INCLINED FRP	EXHAUST AIR	1000	2.95	2367	12.75	60.3	1.5	0.96	1800	460/3/60	20.31/27.19/28.44	2,4,8,10
M2-DEF-7	FANTECH DBF4XLT	LVL 1 LAUNDRY	INLINE	EXHAUST AIR	135	0.5	2800	---	---	72 W MAX	.73 AMP MAX	1800	120/1/60	10 DIA / 8	10
M2-EF-3.1	TWIN CITY BC-SW 600	M2-AH-3	BACKWARD INCLINED SW	EXHAUST AIR	40000	4.31	592	60	76.6	50	35.344	1800	460/3/60	99.38/95.56/113.75	1.2.3.4
M2-EF-3.2	TWIN CITY BC-SW 600	M2-AH-3	BACKWARD INCLINED SW	EXHAUST AIR	40000	4.31	592	60	76.6	50	35.344	1800	460/3/60	99.38/95.56/113.75	1.2.3.4
M2-EF-4.1	TWIN CITY BC-SW 600	M2-AH-4	BACKWARD INCLINED SW	EXHAUST AIR	40000	4.31	592	60	76.6	50	35.344	1800	460/3/60	99.38/95.56/113.75	1.2.3.4
M2-EF-4.2	TWIN CITY BC-SW 600	M2-AH-4	BACKWARD INCLINED SW	EXHAUST AIR	40000	4.31	592	60	76.6	50	35.344	1800	460/3/60	99.38/95.56/113.75	1.2.3.4
M2-SF-1.1	TEMTROL FWT 18-90	M2-AH-1	PLENUM, CENTRIFUGAL	SUPPLY AIR	6667	5.1	3293	18	70	15	7.9	3500	460/3/60	41.5/26/26	1,2,6,8
M2-SF-1.2	TEMTROL FWT 18-90	M2-AH-1	PLENUM, CENTRIFUGAL	SUPPLY AIR	6667	5.1	3293	18	70	15	7.9	3500	460/3/60	41.5/26/26	1,2,6,8
M2-SF-1.3	TEMTROL FWT 18-90	M2-AH-1	PLENUM, CENTRIFUGAL	SUPPLY AIR	6667	5.1	3293	18	70	15	7.9	3500	460/3/60	41.5/26/26	1,2,6,8
M2-SF-1.4	TEMTROL FWT 18-90	M2-AH-1	PLENUM, CENTRIFUGAL	SUPPLY AIR	6667	5.1	3293	18	70	15	7.9	3500	460/3/60	41.5/26/26	1,2,6,8
M2-SF-1.5	TEMTROL FWT 18-90	M2-AH-1	PLENUM, CENTRIFUGAL	SUPPLY AIR	6667	5.1	3293	18	70	15	7.9	3500	460/3/60	41.5/26/26	1,2,6,8
M2-SF-1.6	TEMTROL FWT 18-90	M2-AH-1	PLENUM, CENTRIFUGAL	SUPPLY AIR	6667	5.1	3293	18	70	15	7.9	3500	460/3/60	41.5/26/26	1,2,6,8
M2-SF-1.7	TEMTROL FWT 18-90	M2-AH-1	PLENUM, CENTRIFUGAL	SUPPLY AIR	6667	5.1	3293	18	70	15	7.9	3500	460/3/60	41.5/26/26	1,2,6,8
M2-SF-1.8	TEMTROL FWT 18-90	M2-AH-1	PLENUM, CENTRIFUGAL	SUPPLY AIR	6667	5.1	3293	18	70	15	7.9	3500	460/3/60	41.5/26/26	1,2,6,8
M2-SF-1.9	TEMTROL FWT 18-90	M2-AH-1	PLENUM, CENTRIFUGAL	SUPPLY AIR	6667	5.1	3293	18	70	15	7.9	3500	460/3/60	41.5/26/26	1,2,6,8
M2-SF-1.10	TEMTROL FWT 18-90	M2-AH-1	PLENUM, CENTRIFUGAL	SUPPLY AIR	6667	5.1	3293	18	70	15	7.9	3500	460/3/60	41.5/26/26	1,2,6,8
M2-SF-1.11	TEMTROL FWT 18-90	M2-AH-1	PLENUM, CENTRIFUGAL	SUPPLY AIR	6667	5.1	3293	18	70	15	7.9	3500	460/3/60	41.5/26/26	1,2,6,8
M2-SF-1.12	TEMTROL FWT 18-90	M2-AH-1	PLENUM, CENTRIFUGAL	SUPPLY AIR	6667	5.1	3293	18	70	15	7.9	3500	460/3/60	41.5/26/26	1,2,6,8
M2-SF-2.1	TEMTROL FWT 18-90	M2-AH-2	PLENUM, CENTRIFUGAL	SUPPLY AIR	6667	5.1	3293	18	70	15	7.9	3500	460/3/60	41.5/26/26	1,2,6,8
M2-SF-2.2	TEMTROL FWT 18-90	M2-AH-2	PLENUM, CENTRIFUGAL	SUPPLY AIR	6667	5.1	3293	18	70	15	7.9	3500	460/3/60	41.5/26/26	1,2,6,8
M2-SF-2.3	TEMTROL FWT 18-90	M2-AH-2	PLENUM, CENTRIFUGAL	SUPPLY AIR	6667	5.1	3293	18	70	15	7.9	3500	460/3/60	41.5/26/26	1,2,6,8
M2-SF-2.4	TEMTROL FWT 18-90	M2-AH-2	PLENUM, CENTRIFUGAL	SUPPLY AIR	6667	5.1	3293	18	70	15	7.9	3500	460/3/60	41.5/26/26	1,2,6,8
M2-SF-2.5	TEMTROL FWT 18-90	M2-AH-2	PLENUM, CENTRIFUGAL	SUPPLY AIR	6667	5.1	3293	18	70	15	7.9	3500	460/3/60	41.5/26/26	1,2,6,8
M2-SF-2.6	TEMTROL FWT 18-90	M2-AH-2	PLENUM, CENTRIFUGAL	SUPPLY AIR	6667	5.1	3293	18	70	15	7.9	3500	460/3/60	41.5/26/26	1,2,6,8
M2-SF-2.7	TEMTROL FWT 18-90	M2-AH-2	PLENUM, CENTRIFUGAL	SUPPLY AIR	6667	5.1	3293	18	70	15	7.9	3500	460/3/60	41.5/26/26	1,2,6,8
M2-SF-2.8	TEMTROL FWT 18-90	M2-AH-2	PLENUM, CENTRIFUGAL	SUPPLY AIR	6667	5.1	3293	18	70	15	7.9	3500	460/3/60	41.5/26/26	1,2,6,8
M2-SF-2.9	TEMTROL FWT 18-90	M2-AH-2	PLENUM, CENTRIFUGAL	SUPPLY AIR	6667	5.1	3293	18	70	15	7.9	3500	460/3/60	41.5/26/26	1,2,6,8
M2-SF-2.10	TEMTROL FWT 18-90	M2-AH-2	PLENUM, CENTRIFUGAL	SUPPLY AIR	6667	5.1	3293	18	70	15	7.9	3500	460/3/60	41.5/26/26	1,2,6,8
M2-SF-2.11	TEMTROL FWT 18-90	M2-AH-2	PLENUM, CENTRIFUGAL	SUPPLY AIR	6667	5.1	3293	18	70	15	7.9	3500	460/3/60	41.5/26/26	1,2,6,8
M2-SF-2.12	TEMTROL FWT 18-90	M2-AH-2	PLENUM, CENTRIFUGAL	SUPPLY AIR	6667	5.1	3293	18	70	15	7.9	3500	460/3/60	41.5/26/26	1,2,6,8

1. BACKWARD INCLINE CLASS III ALUMINUM AIRFOIL WHEEL.
2. ON EMERGENCY POWER.
3. PROVIDE SHAFT SEAL, TYPE B SPARK PROOF CONSTRUCTION, PHENOLIC COATING ON INTERNAL PARTS, UP BLAST, DRAIN PLUG AT BOTTOM.
4. VFD BY MECHANICAL WIRED BY ELECTRICAL. SPECIFIED BY DIV 26
5. CLASS II FAN
6. ON VFD BY AIR HANDLER MANUFACTURE..
7. PROVIDE SHAFT SEAL, TYPE B SPARK PROOF CONSTRUCTION, UP BLAST, DRAIN PLUG AT BOTTOM.
8. CLASS III FAN
9. PROVIDE ECM MOTOR.
10. CLOTHES DRYER BOOSTER FAN COMPLETE WITH PRESSURE SENSING SWITCH AND TUBING, STATUS INDICATOR PANEL WITH 50 FT CABLE & REMOTE MOUNT, 5 FT 120V POWER CORD, AND MOUNTING BRACKET.

FILTER SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	LOCATION	FILTRATION	TYPE	ARRANG.	AIR: CLEAN STATIC PRESSURE (IN. H2O)	AIR: DIRTY STATIC PRESSURE (IN. H2O)	PHYSICAL: NUMBER 24"X24" MODULES	PHYSICAL: NUMBER 12"X24" MODULES	NOTES
M2-DF-1	FARR 3030	ROOF	MERV 8	CARTRIDGE	FLAT	0.31	0.31	3	0	1
M2-DF-2	FARR HEPA	ROOF	MERV 20	HEPA	FLAT	1.35	1.35	3	0	1
M2-F-1.1	FARR 3030	M2-AH-1	MERV 8	CARTRIDGE	FLAT	0.31	0.31	50	15	2
M2-F-1.2	FARR RIGA-FLO	M2-AH-1	MERV 14	BAG	FLAT	0.53	0.53	50	15	2
M2-F-2.1	FARR 3030	M2-AH-2	MERV 8	CARTRIDGE	FLAT	0.31	0.31	50	15	2
M2-F-2.2	FARR RIGA-FLO	M2-AH-2	MERV 14	BAG	FLAT	0.53	0.53	50	15	2
M2-F-3	FARR 3030	M2-AH-3	MERV 8	CARTRIDGE	FLAT	0.31	0.31	50	15	2
M2-F-4	FARR 3030	M2-AH-4	MERV 8	CARTRIDGE	FLAT	0.31	0.31	50	15	2

1. PART OF BAG-IN/BAG-OUT GASKET SEAL FILTATION SYSTEM CAMFIL MODEL CF-3X3-P27SU-012P-1GB-ASTST-SS W/BTFB-36-M DAMPERS
2. PROVIDE INDIVIUAL GASKETTED FILTER FRAMES

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ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300

Project #: B13-024

DATE:	ISSUE TYPE:
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MECHANICAL SCHEDULES

ME609

VOLUME 2

GRILLES, REGISTERS AND DIFFUSERS

ID	MANUFACTURER	MODEL	SIZE	MAX CFM	MAX NC	DESCRIPTION
CD-1	EH PRICE	SPD	6" DIA 8" DIA 10" DIA 12" DIA 14" DIA 15" DIA	110 235 420 600 800 890	30	SQUARE PLAQUE CEILING DIFFUSERS. REMOVABLE FACE & CORE ALUMINUM CONSTRUCTION WITH OBD. FRAME SHALL BE FOR SURFACE OR LAY-IN MOUNTING AS REQUIRED BY CEILING TYPE. LAY-IN FRAMES SHALL BE 24" x 24", 24" x 12" OR 12" x 12" AS REQUIRED TO FIT CEILING TILE SPACE AVAILABLE. PROVIDE ROUND NECK ADAPTER.
CD-2	KRUEGER	5RF	24 x 24 (8"Ø) 24 x 48 (10"Ø) 24 x 48 (12"Ø)	240 420 650	30	FLUSH FACE ALUMINUM LAMINAR FLOW DIFFUSER WITH PERFORATED FACE. FACTORY SET TWO-WAY PATTERN; INTERNAL AIR BAFFLE FOR AIRFLOW EQUALIZATION; FLUSH CEILING INSTALLATION; WHITE BAKED ENAMEL FINISH. FRAME SHALL BE FOR SURFACE OR LAY-IN MOUNTING AS REQUIRED BY CEILING TYPE.
EG-1	EH PRICE	PDDR	6" DIA 8" DIA 10" DIA 12" DIA 14" DIA	100 210 380 600 750	30	PERFORATED FACE EXHAUST AIR UNIT, REMOVABLE FACE & CORE. FRAME SHALL BE FOR SURFACE OR LAY-IN MOUNTING AS REQUIRED BY CEILING TYPE. LAY-IN FRAMES SHALL BE 24" x 24", 24" x 12" OR 12" x 12" AS REQUIRED TO FIT CEILING TILE SPACE AVAILABLE. AIR QUANTITY SHALL MATCH ROOM SUPPLY OR EXHAUST AIR QUANTITY. PROVIDE ROUND NECK ADAPTER.
EG-2	EH PRICE	80FF	12" x 12" FACE 24" x 24" FACE 48" x 30" FACE	450 750 5100	30	EGGCRATE FACE FILTERED EXHAUST AIR GRILL. GRILL SHALL CONSIST OF 1/2" X 1/2" ALUMINUM GRID AND A FORMED STEEL BORDER AND FILTER FRAME. FRAME SHALL BE FOR SURFACE OR LAY-IN MOUNTING AS REQUIRED BY CEILING TYPE. A HINGE TAB SHALL ALLOW FOR REMOVAL OF THE GRILLE FROM THE FRAME FOR CLEANING. THE FRAME SHALL BE DESIGNED TO ACCEPT A STANDARD 1" DEEP FILTER MEDIA.
SWS-1	EH PRICE	620	SEE PLANS	SEE PLANS	30	DOUBLE DEFLECTION ALUMINUM SIDE WALL SUPPLY REGISTER. HORIZONTAL FRONT WITH VERTICAL REAR DEFLECTION VANES SPACED AT 3/4" O.C. COMPLETE WITH O.B.D. ADJUSTABLE THROUGH FACE. COLOR SHALL BE WHITE.
SWE-1	EH PRICE	630	SEE PLANS	SEE PLANS	30	SINGLE DEFLECTION ALUMINUM SIDE WALL EXHAUST REGISTER. HORIZONTAL DEFLECTION VANES SPACED AT 3/4" O.C. COMPLETE WITH O.B.D. ADJUSTABLE THROUGH FACE. COLOR SHALL BE WHITE.
SWE-2	EH PRICE	LBP 15B	30" x 6"	810	30	SINGLE DEFLECTION ALUMINUM SIDEWALL EXHAUST GRILL. HORIZONTAL DEFLECTION VANES SPACED AT 1/2" O.C. WITH 0 ° DEFLECTION. THE BORDER SHALL BE COMPLETE WITH FACTORY MITERED CORNERS. COLOR SHALL BE WHITE.
DV-1	SEIHO	RCC-S	4"Ø	---	---	304 STAINLESS STEEL DRYER VENT WITH BACKDRAFT FLAPPER DAMPER. COLOR TO BE SELECTED BY ARCHITECT. PROVIDE MANUFACTURERS CUSTOM COLOR PALLET TO ARCHITECT FOR SELECTION.
DB-1	IN-O-VATE TECHNOLOGIES	425	4.5"Ø	---	---	DRYER WALL BOX. 6 INCH DEEP.

GLYCOL FEED SYSTEM SCHEDULE

				FLUID	COLD			ELECTRICAL		PHYSICAL			
ID	MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	WORKING FLUID	TOTAL VOLUME (GAL)	STATIC FILL PRESSURE (PSIG)	PRESSURE RATING (PSIG)	VOLT/PH/HZ	ALARM PANEL	LENGTH/ WIDTH/ HEIGHT (IN)	NPT FITTING (IN)	TANK SIZE (GAL)	NOTES
M2-GFS-1	-----	PENTHOUSE	STANDARD	40% P GLY	1436.9	4	0	120/1/60	-----			0	
M2-GFS-2	-----	PENTHOUSE	STANDARD	40% P GLY	530.2	4	0	120/1/60	-----			0	
M2-GFS-3	-----	PENTHOUSE	STANDARD	40% P GLY	591.3	4	0	120/1/60	-----			0	

HYDRONIC-TO-HYDRONIC HEAT EXCHANGER SCHEDULE

						SOURCE MEDIUM (HYDRONIC)				TRANSFER MEDIUM (HYDRONIC)				PHYSICAL		
ID	MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	USAGE	LOAD (BTU/H)	FLOW RATE (GPM)	ENTERING/ LEAVING TEMP. (°F)	WORKING FLUID	HEAD LOSS (FT)	FLOW RATE (GPM)	ENTERING/ LEAVING TEMP. (°F)	WORKING FLUID	HEAD LOSS (FT)	DIA./ LENGTH/ NO. PLATES (IN/IN)	SURFACE AREA (FT²)	NOTES
M2-HX-1	TACO PF 71-115-1-XX	BOILER RM	PLATE & FRAME	COOLING	2466600	494.7	70/80	WATER	15	495	83/73	WATER	15	/43.307/115	851.43	
M2-HX-2	TACO PF 19-111-1-XX	PENTHOUSE	PLATE & FRAME	HEATING	8121000	416.4	180/140	WATER	15	433.8	100/140	40% P GLY	15	/43.307/111	222.92	
M2-HX-3	TACO PF 19-111-1-XX	PENTHOUSE	PLATE & FRAME	HEATING	8121000	416.4	180/140	WATER	15	433.8	100/140	40% P GLY	15	/43.307/111	222.92	
M2-HX-4	TACO PF 22-57-1-XX	PENTHOUSE	PLATE & FRAME	COOLING	164500	35.7	42/52	40% P GLY	15	51.2	51.4/45	WATER	15	/27.362/57	124.32	

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SIGNATURE: Ernie Catt
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 178893
DONALD K. BRADSHAW
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300

Project #: B13-024

DATE:	ISSUE TYPE:
April 21, 2014	BID SET

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MECHANICAL SCHEDULES

ME610

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EXHAUST HOOD SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	AIR TYPE	AIR: MAXIMUM AIRFLOW RATE (CFM)	AIR: STATIC PRESSURE (IN. WATER)	PHYSICAL: EXHAUST OPENING LENGTH / WIDTH (IN)	PHYSICAL: TOTAL HEIGHT (IN)	PHYSICAL: HOOD LENGTH / WIDTH (IN)	PHYSICAL: WEIGHT (LBS)	NOTES
EH-1	GREENHECK GD2	REAGENT PREP 213D	2	HEAT & CONDENSATE	450	0.034	11x11	24	36/36	130	(1)(2)
EH-2	GREENHECK GD2	PEST. FORMULATION LAB 301A	2	HEAT & CONDENSATE	1650	0.036	36x12	24	132/36	520	(1)(2)
EH-3	GREENHECK GD2	PEST. RESIDUE EXTRACTION LAB 302	2	HEAT & CONDENSATE	1050	0.03	23x12	24	84/36	310	(1)(2)
EH-4	GREENHECK GD2	MEAT LAB 313	2	HEAT & CONDENSATE	975	0.031	23x12	24	78/36	310	(1)(2)
EH-5	GREENHECK GD2	FURNACE 315D	2	HEAT & CONDENSATE	1725	0.04	36x12	24	138/36	545	(1)(2)
EH-6	GREENHECK GD2	FURNACE 315D	2	HEAT & CONDENSATE	600	0.032	14x12	24	48/36	190	(1)(2)
EH-7	GREENHECK GD2	PATH 313A	2	HEAT & CONDENSATE	1200	0.035	29x11	24	96/36	380	(1)(2)
EH-8	GREENHECK GD2	SPECIAL PROCEDURE AUTOPSY 124A	2	HEAT & CONDENSATE	600	0.032	14x12	24	48/36	190	(1)(2)
EH-9	GREENHECK GD2	INSTRUMENT LAB 211B	2	HEAT & CONDENSATE	1200	0.035	29x11	24	96/36	380	(1)(2)
EH-10	GREENHECK GD2	PATH 313A	2	HEAT & CONDENSATE	450	0.034	11x11	24	36/36	130	(1)(2)

(1) 430 STAINLESS STEEL CONSTRUCTION.
(2) EXHAUST HOOD COMES COMPLETE WITH CONDENSATE BAFFLE.

HOOD SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	AIR TYPE	AIR: MAXIMUM AIRFLOW RATE (CFM)	AIR: STATIC PRESSURE (IN. H2O)	PHYSICAL: INLET HEIGHT ABOVE ROOF (IN)	PHYSICAL: TOTAL HEIGHT (IN)	PHYSICAL: THROAT LENGTH/ WIDTH (IN)	NOTES
M2-H-1	COOK VI	BOILER RM	SINGLE	INTAKE	4000	0.1	14	-.-	30/39	1,2

1. PROVIDE MOTORIZED DAMPER.
2. ON EMERGENCY POWER.

LOUVER SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	AIR TYPE	AIR: MAXIMUM AIRFLOW RATE (CFM)	AIR: STATIC PRESSURE (IN. H2O)	PHYSICAL: WIDTH/ HEIGHT/ THICKNESS (IN)	NOTES
L-1	RUSKIN ELF6375DX	PENTHOUSE	STATIONARY	INTAKE	80000	0.1	238/144/6	1
L-2	RUSKIN ELF6375DX	PENTHOUSE	STATIONARY	INTAKE	80000	0.1	238/144/6	1
L-3	RUSKIN ELF6375DX	PENTHOUSE	STATIONARY	INTAKE	20000	0.1	72/96/6	1
L-4	RUSKIN ELF6375DX	PENTHOUSE	STATIONARY	INTAKE	20000	0.1	72/96/6	1

1. BAKED ENAMEL FINISH OF COLOR SELECTED BY ARCHITECT.

CEILING RADIANT HEAT PANEL SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	LOCATION	EFFECTIVE LENGTH (FT)	TUBES	MINIMUM HEATING CAPACITY (BTUH/FT)	FLUID: ENTERING/ LEAVING FLUID TEMP (DEG. F)	FLUID: TOTAL FLOW PER PANEL (GPM)	PHYSICAL: PANEL WIDTH (IN)	NOTES
RP-1	PRICE RPL	(3)	(3)	6	131	130/110	(3)	18	(1)(2)(4)(5)

1. REFER TO ARCHITECTURAL CEILING PLANS FOR EXACT LENGTHS AS ABOVE DATA IS APPROXIMATE. COLOR TO MATCH SURROUNDING.
2. FIELD VERIFY ALL SIZES AND METERING OF ENDS.
3. SEE PLANS.
4. DIVISION 23 SHALL PROVIDE AND INSTALL 3" THICK, 1.5 LB DENSITY FIBERGLASS INSULATION ON TOP OF RADIANT PANELS.
5. ALL CAPACITIES BASED ON 70 DEG-F ROOM TEMPERATURE, 120 DEG-F AVERAGE WATER TEMPERATURE, AND HOT WATER AS WORKING FLUID.
6. PANELS SHALL APPEAR CONTINUOUS WITH NO VISIBLE JOINTS AND SHALL HAVE SMOOTH FINISH.

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PUMP SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	FLUID FLOW RATE (GPM)	FLUID WORKING FLUID	FLUID HEAD LOSS (FT)	PUMP EFFICIENCY (%)	PUMP CONSTRUCTION	ELECTRICAL MOTOR SIZE (HP)	ELECTRICAL MOTOR BHP (HP)	ELECTRICAL MOTOR SPEED (RPM)	ELECTRICAL VOLT/PH/HZ	NOTES
M2-P-1	B & G VIT-CATM 8 X 13 CMC	CHILLER RM	SUMP	973.7	WATER	70.7	82	OTHER	30	23.3	1750	460/3/60	1,2
M2-P-2	B & G VIT-CATM 8 X 13 CMC	CHILLER RM	SUMP	973.7	WATER	70.7	82	OTHER	30	23.3	1750	460/3/60	1,2
M2-P-3	TACO FI6011	CHILLER ROOM	HORIZ FRAME-MOUNT END-SUCTION	1344.6	WATER	68.7	82.5	BRONZE FITTED	30	28.213	1760	460/3/60	2,4
M2-P-4	TACO FI4009C	CHILLER ROOM	HORIZ FRAME-MOUNT END-SUCTION	576.1	WATER	68.7	80.2	BRONZE FITTED	20	12.434	1760	460/3/60	2,4
M2-P-5	TACO FI4013	CHILLER ROOM	HORIZ FRAME-MOUNT END-SUCTION	495	WATER	157.9	76.7	BRONZE FITTED	50	26.912	1760	460/3/60	2,4
M2-P-6	TACO FI6011	CHILLER ROOM	HORIZ FRAME-MOUNT END-SUCTION	892.2	WATER	30.7	81	BRONZE FITTED	10	8.556	1160	460/3/60	4
M2-P-7	TACO FI4007	CHILLER ROOM	HORIZ FRAME-MOUNT END-SUCTION	382.2	WATER	30.4	78.3	BRONZE FITTED	5	3.754	1760	460/3/60	4
M2-P-8	TACO FI4013	CHILLER ROOM	HORIZ FRAME-MOUNT END-SUCTION	636.7	WATER	139.9	79.7	BRONZE FITTED	50	28.236	1760	460/3/60	2,4
M2-P-9	TACO FI4013	CHILLER ROOM	HORIZ FRAME-MOUNT END-SUCTION	636.7	WATER	139.9	79.7	BRONZE FITTED	50	28.236	1760	460/3/60	2,4
M2-P-10	TACO KV4007	BOIL RM	VERTICAL CLOSE-COUPLED INLINE	326.2	WATER	27.5	78.8	BRONZE FITTED	3	2.829	1760	460/3/60	3
M2-P-11	TACO KV4007	BOIL RM	VERTICAL CLOSE-COUPLED INLINE	326.2	WATER	27.5	78.8	BRONZE FITTED	3	2.829	1760	460/3/60	3
M2-P-12	TACO VR30@29FT	BOIL RM	VERTICAL CLOSE-COUPLED INLINE	163.1	WATER	27.5	N/A	IRON	2.175	N/A	3450	460/3/60	3
M2-P-13	TACO FI5013	BOIL RM	HORIZ FRAME-MOUNT END-SUCTION	818.1	WATER	136.7	82.5	BRONZE FITTED	50	33.684	1760	460/3/60	2,3,4
M2-P-14	TACO FI5013	BOIL RM	HORIZ FRAME-MOUNT END-SUCTION	818.1	WATER	136.7	82.5	BRONZE FITTED	50	33.684	1760	460/3/60	2,3,4
M2-P-15	TACO FI4013	PENTHOUSE	HORIZ FRAME-MOUNT END-SUCTION	433.8	40% P GLY	79.8	75.3	BRONZE FITTED	25	11.933	1760	460/3/60	2,3,4
M2-P-16	TACO FI4013	PENTHOUSE	HORIZ FRAME-MOUNT END-SUCTION	433.8	40% P GLY	79.8	75.3	BRONZE FITTED	25	11.933	1760	460/3/60	2,3,4
M2-P-17	TACO FI3011	PENTHOUSE	HORIZ FRAME-MOUNT END-SUCTION	258.5	40% P GLY	104.3	66.8	BRONZE FITTED	20	10.534	1760	460/3/60	4
M2-P-18	TACO FI3011	PENTHOUSE	HORIZ FRAME-MOUNT END-SUCTION	258.5	40% P GLY	104.3	66.8	BRONZE FITTED	20	10.534	1760	460/3/60	4
M2-P-19	TACO FI1206	PENTHOUSE	HORIZ FRAME-MOUNT END-SUCTION	35.7	40% P GLY	65	45.2	BRONZE FITTED	2	1.352	3500	460/3/60	3,4
M2-P-20	TACO FI1507	PENTHOUSE	HORIZ FRAME-MOUNT END-SUCTION	51.2	WATER	55.8	52	BRONZE FITTED	3	1.391	1760	460/3/60	3,4
M2-P-21	B & G 90 1 1/2A	BOILER RM	VERTICAL CLOSE-COUPLED INLINE	10	DHW	30	N/A	BRONZE FITTED	0.5	0.27	1725	120/1/60	
M2-P-22	B & G 90 1AA	BOILER RM	VERTICAL CLOSE-COUPLED INLINE	33	WATER	39	N/A	BRONZE FITTED	1	0.88	3450	120/1/60	
M2-P-23	B & G 90 1AA	BOILER RM	VERTICAL CLOSE-COUPLED INLINE	33	WATER	39	N/A	BRONZE FITTED	1	0.88	3450	120/1/60	

1. VERTICAL TURBINE PUMP WITH INLET STRAINER. THREE BOWLS
2. VFD BY MECHANICAL. WIRED BY ELECTRICAL. SPECIFIED BY DIV 26.
3. ON EMERGENCY POWER
4. PROVIDE SUCTION DIFFUSER.

SNORKEL EXHAUST SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	LOCATION	AIRFLOW (CFM)	PRESSURE DROP (IN H20)	PHYSICAL INLET DIAMETER (IN)	PHYSICAL LENGTH (FT)	NOTES
SE-1	AIRFLOW SYSTEMS 4E08	GRIND 1 315C	300	1.1	4	8	(1)
SE-2	AIRFLOW SYSTEMS 4E08	GRIND 1 315C	300	1.1	4	8	(1)
SE-3	AIRFLOW SYSTEMS 4E08	GRIND 2 315A	300	1.1	4	8	(1)
SE-4	AIRFLOW SYSTEMS 4E08	GRIND 2 315A	300	1.1	4	8	(1)

(1) CEILING MOUNTED ARTICULATED EXHAUST ARM ASSEMBLY COMPLETE WITH FLANGED INLET HOOD.
PROVIDE ALL ACCESSORIES REQUIRED FOR CEILING MOUNTING.

SPACE SCHEDULE

ID	LOCATION	AIRFLOW (HEATING SEASON/COOLING SEASON) SUPPLY AIRFLOW RATE (CFM)	RETURN AIRFLOW RATE (CFM)	RELIEF AIRFLOW RATE (CFM)	OUTSIDE AIRFLOW RATE (CFM)	EXHAUST AIRFLOW RATE (CFM)	PRESSURIZATION AIRFLOW RATE (CFM)	VENTILATION AIRFLOW RATE (CFM)	AIR HEATING SEASON COOLING SEASON DB/RH (°F/%)	NOTES
LAB AND OFFICE SPACES		160000/160000	0/0	0/0	160000/160000	160000/160000	0/0	160000/160000	72/30 72/45	

STACK SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	AIR TYPE	AIR MAXIMUM AIRFLOW RATE (CFM)	AIR STATIC PRESSURE (IN. H2O)	PHYSICAL TOTAL HEIGHT (IN)	PHYSICAL THROAT DIAMETER (IN)	NOTES
M2-STK-1	CONTRACTOR FIELD FABRICATED	PENTHOUSE ROOF	FLAT	EXHAUST	40000	0.5	120	42	1,3
M2-STK-2	CONTRACTOR FIELD FABRICATED	PENTHOUSE ROOF	FLAT	EXHAUST	40000	0.5	120	42	1,3
M2-STK-3	CONTRACTOR FIELD FABRICATED	PENTHOUSE ROOF	FLAT	EXHAUST	40000	0.5	120	42	1,3
M2-STK-4	CONTRACTOR FIELD FABRICATED	PENTHOUSE ROOF	FLAT	EXHAUST	40000	0.5	120	42	1,3
M2-STK-5	CONTRACTOR FIELD FABRICATED	PENTHOUSE ROOF	FLAT	EXHAUST	7200	0.5	120	20	1,3
M2-STK-6	CONTRACTOR FIELD FABRICATED	PENTHOUSE ROOF	FLAT	EXHAUST	1000	0.75	120	8	2,3

1. EPOXY COATED STEEL STACK CONSTRUCTED PER SMACNA GUIDELINES FOR 150 MPH WIND. PAINT COLOR TO BE SELECTED BY ARCHITECT.
2. FRP STACK. CONSTRUCTED TO WITHSTAND 150 MPH WIND. COLOR TO BE SELECTED BY ARCHITECT.
3. STACK HEIGTH LISTED IS ABOVE ROOF INSULATION

HOLDING STORAGE TANK SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	LOCATION	TYPE	FLUID FLOW RATE (GPM)	FLUID WORKING FLUID	FLUID INLET/ OUTLET HEAD LOSS (FT)	PHYSICAL DIAMETER/ LENGTH (IN)	PHYSICAL TANK SIZE (GAL)	NOTES
M2-STOR-1	AO SMITH TJV 80A	PENTHOUSE	CLOSED, VERTICAL	35.7	40% P GLY	1/1	27/55	80	1

1. WITH INSULATING JACKET.

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SUMP PUMP SCHEDULE

SYMBOL	MANUF. AND MODEL NO.	LOCATION	SYSTEM SERVED	PUMP FLOW RATE (GPM)	HEAD (FT)	WORKING FLUID	% EFF.	PUMP TYPE	MOTOR BHP	HP	RPM	VOLT/PH	REMARKS
SP-1	HYDROMATIC HP 50	TUNNEL	TUNNEL DRAINAGE	6	30	WATER	-.-	SUBMERSIBLE	-.-	1/2	3450	110/1	1

1. SUMP PUMP PACKAGE TO INCLUDE PUMP, CONTROL PANEL, LEVEL CONTROLS, AND CONNECTION OF ALARM STATUS TO BMS.

HOT WATER UNIT HEATER SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	LOCATION	AIR DELIVERY	AIR: AIRFLOW RATE (CFM)	HEATING CAPACITY (MBH)	LEAVING TEMP. DB (°F)	FLUID: FLOW RATE (GPM)	ENTERING/ LEAVING TEMP. (°F)	WORKING FLUID	HEAD LOSS (FT)	ELECTRICAL: MOTOR SIZE (HP)	AMPS	VOLT/PH/HZ	PHYSICAL: CABINET DIMENSIONS LxWxH (IN)	NOTES
M2-UH-1	RITTLING RH-108	SALLYPORT 121	HORIZONTAL	1340	40.5	88.8	8.1	130/110	WATER	0.85	1/8	1.58	115/1/60	26/16/27	(1)(2)
M2-UH-2	RITTLING RH-108	PENTHOUSE	HORIZONTAL	1340	40.5	88.8	8.1	130/110	WATER	0.85	1/8	1.58	115/1/60	26/16/27	(1)(2)
M2-UH-3	RITTLING RH-108	PENTHOUSE	HORIZONTAL	1340	40.5	88.8	8.1	130/110	WATER	0.85	1/8	1.58	115/1/60	26/16/27	(1)(2)
M2-UH-4	RITTLING RH-108	PENTHOUSE	HORIZONTAL	1340	40.5	88.8	8.1	130/110	WATER	0.85	1/8	1.58	115/1/60	26/16/27	(1)(2)
M2-UH-5	RITTLING RH-108	PENTHOUSE	HORIZONTAL	1340	40.5	88.8	8.1	130/110	WATER	0.85	1/8	1.58	115/1/60	26/16/27	(1)(2)
M2-UH-6	RITTLING RH-108	BOILER RM	HORIZONTAL	1340	40.5	88.8	8.1	130/110	WATER	0.85	1/8	1.58	115/1/60	26/16/27	(1)(2)
M2-UH-7	RITTLING RH-108	BOILER RM	HORIZONTAL	1340	40.5	88.8	8.1	130/110	WATER	0.85	1/8	1.58	115/1/60	26/16/27	(1)(2)
M2-UH-8	RITTLING RH-108	CHILLER RM	HORIZONTAL	1340	40.5	88.8	8.1	130/110	WATER	0.85	1/8	1.58	115/1/60	26/16/27	(1)(2)
M2-UH-9	RITTLING RH-108	CHILLER RM	HORIZONTAL	1340	40.5	88.8	8.1	130/110	WATER	0.85	1/8	1.58	115/1/60	26/16/27	(1)(2)

(1) CAPACITIES BASED ON 130 DEG EWT, 60 DEG EAT, 4,305 FEET ELEVATION.
(2) UNIT COMPLETE WITH FACTORY MOUNTED STARTER AND DISCONNECT.

DUCT FREE FAN COIL UNIT WITH REMOTE CONDENSER SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	LOCATION	AIR: TOTAL AIR FLOW RATE (CFM)	ENTERING AIR TEMP. DB/WB (DEG. F)	LEAVING AIR TEMP. DB/WB (DEG. F)	COIL: MINIMUM TOTAL COOLING LOAD (MBH)	MINIMUM TOTAL SENSIBLE LOAD (MBH)	CONDENSING UNIT: REFRIG.	COMPRESSOR LRA	COMPRESSOR RLA	MCA	MOCP	VOLT/PH	NOTES
M2-DF-1 & 2	CARRIER 40QNC	ELEVATOR EQUIPMENT ROOM	900	80/67	55.8	36.0	24.0	R410A	-.-	-.-	0.55	15	460/3	1, 2, 6, 7
M2-CU-1 & 2	CARRIER 38HDF	ROOF	1720	95	-.-	-.-	-.-	R410A	44.0	6.6	8.3	15	460/3	3, 4, 5

1. SPLIT SYSTEM WITH REMOTE CONDENSING UNIT
2. PROVIDE REFRIGERANT LINE SET AS PER MANUFACTURER'S RECOMMENDATIONS
3. PROVIDE FACTORY SNOW STAND FOR CONDENSING UNIT
4. WITH LOW AMBIENT CONTROL AND WINTER START KIT
5. CONDENSING UNIT TO BE SIZE MATCHED TO INDOOR UNIT AND TO BE BY SAME MANUFACTURER
6. WITH CONDENSATE PUMP
7. LOAD RATING AT 95 DEG. F. AMBIENT - SEA LEVEL

VAV BOX SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	INLET SIZE (IN)	AIR: COOLING MAXIMUM AIR (5) (CFM)	HEATING MAXIMUM AIR (CFM)	MINIMUM AIR (3) (CFM)	ENTERING AIR TEMP. DB (DEG. F)	LEAVING AIR TEMP. DB (DEG. F)	S.P. LOSS AT MAX CFM (4) (IN H20)	NC AT 1" H2O (1) S.P.	FLUID (2): HEAT LOAD (MB)	TOTAL FLUID FLOW (GPM)	ENT. FLUID TEMP (DEG. F)	WORKING FLUID	MAX. FLUID PRESSURE DROP (FT)	COIL: MIN. COIL ROWS	PIPE SIZE (IN)	BALANCING VALVE SIZE (IN)	REMARKS
V-16	TITUS-ESV-3	16	2800	1680	580	52	-.-	0.7	26	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1,2,3,4,5,6

1. MAXIMUM DISCHARGE NC AT BOX DIFFENTIAL PRESSURE BASED ON ARI STANDARD 880-89
2. COOLING ONLY BOX. NO REHEAT COIL.
3. MINIMUM CFM IS LOWEST CONTROLLABLE CFM SETTING (BASED ON 400 FPM INLET VELOCITY).
4. MAXIMUM STATIC PRSSURE DROP PERMISSABLE ACROSS BOX AT MAXIMUM COOLING CFM.
5. BOX COOLING MAXIMUM IS THE SUM OF DIFFUSERS CFM VALUES AS SHOWN IN THE DRAWINGS. BOX MINIMUM CFM TO BE SET AT 30% OF THIS MAXIMUM.
6. PRESSURE INDEPENDENT TYPE BOX.

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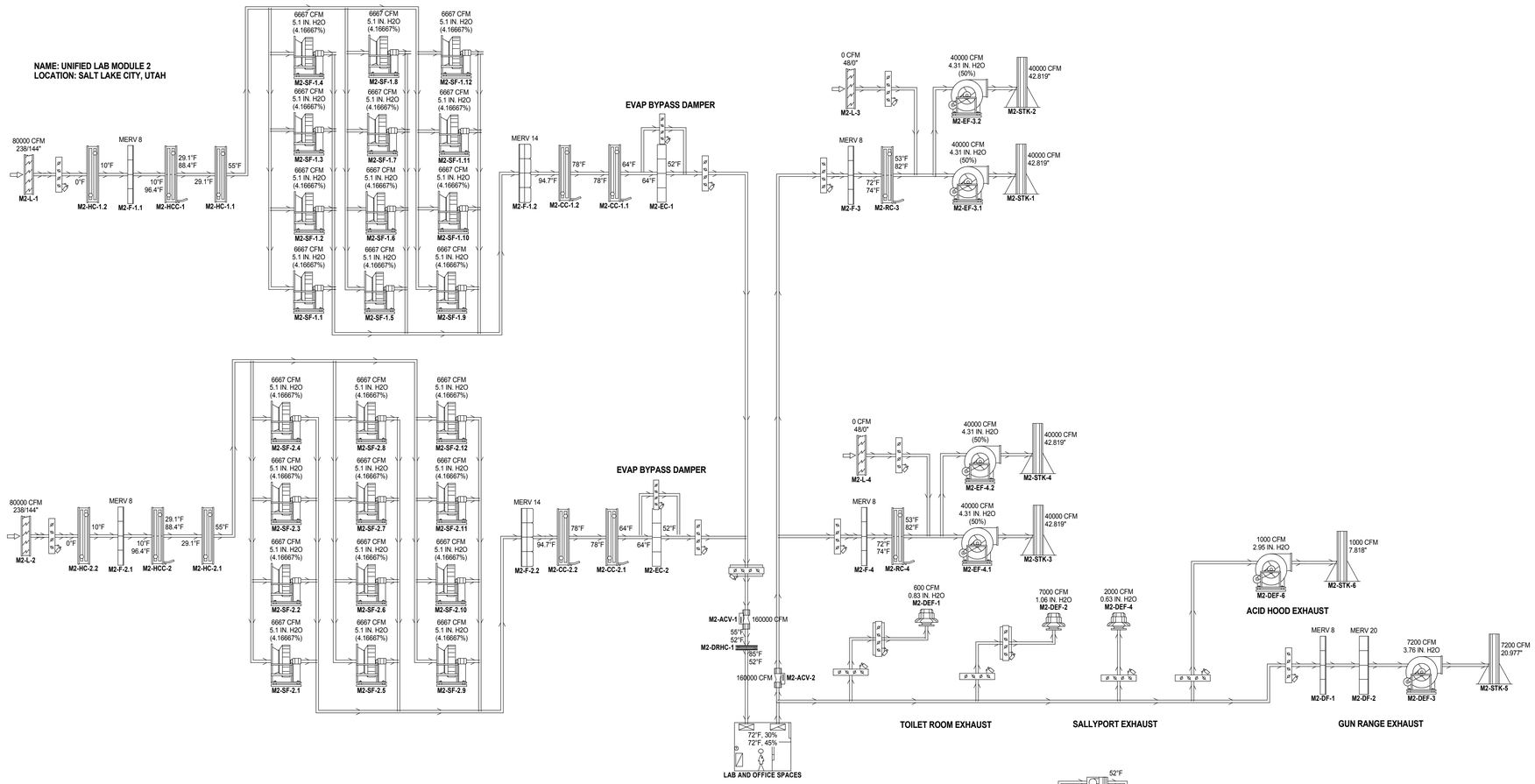
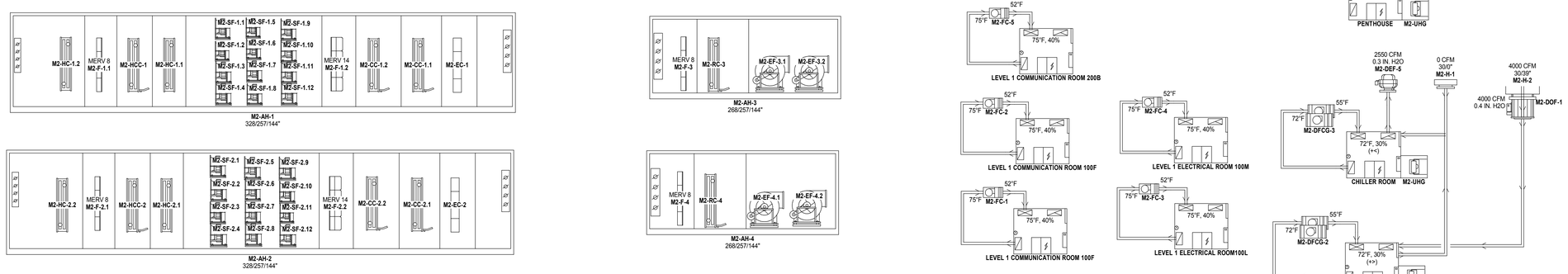


LABORATORY AND OFFICE SPACE AIR FLOW SCHEMATIC



AIR HANDLER SCHEMATICS

SYSTEM SIZING AND PIPING SCHEMATIC WITH ENERGY SAVING DEVICES TURNED ON

USE FOR SIZING HEAT RECOVERY, PRECOOL AND EVAP.
97/62 EVERYTHING ON
MIN COOLING LOAD
MIN HEATING LOAD

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DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
REVIEWED FOR CODE COMPLIANCE
SIGNATURE: Ernie Catt
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 178893
DONALD K. BRADSHAW
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #:	13020300
Project #:	B13-024
DATE:	ISSUE TYPE:
April 21, 2014	BID SET
CHECKED BY	D. Bradshaw
DRAWN BY	DL

MECHANICAL SCHEMATIC

ME701

VOLUME 2

D:_BIM\Local Files\13245-Unified Lab Mod I-V\13-Mechanical-Central_DL\ineback.rvt
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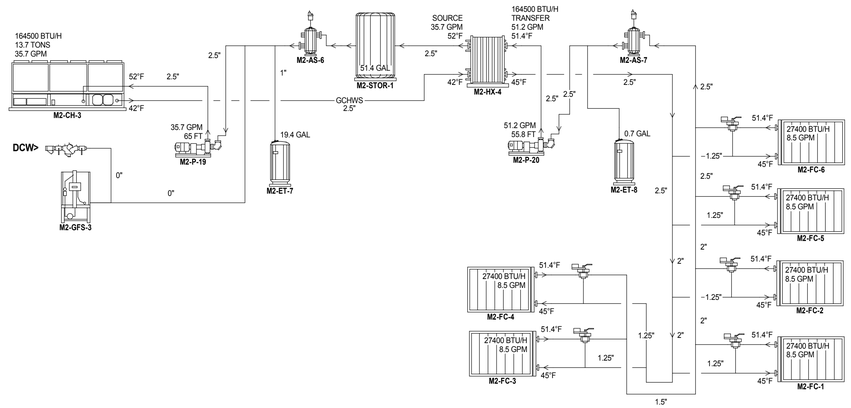
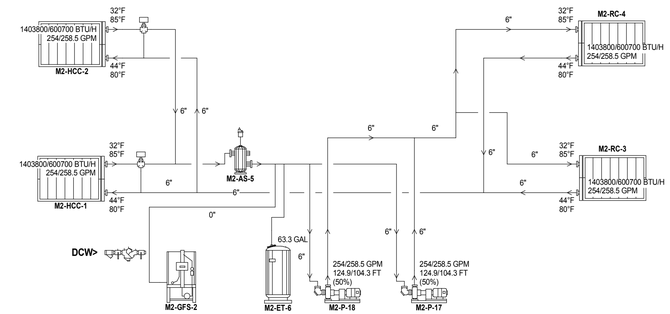
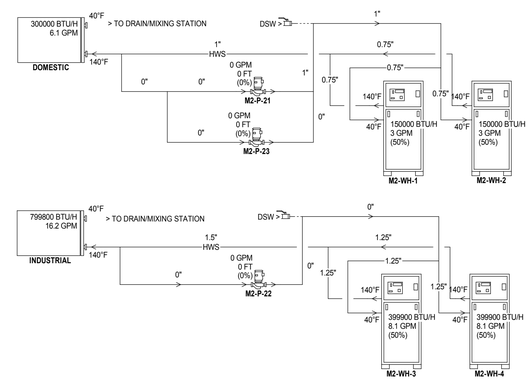


COMM RM FAN COIL UNITS SCHEMATIC



HEAT RECOVERY SCHEMATIC



DOMESTIC AND INDUSTRIAL WATER SCHEMATIC

SYSTEM SIZING AND PIPING SCHEMATIC WITH ENERGY SAVING DEVICES TURNED ON

USE FOR SIZING HEAT RECOVERY, PRECOOL AND EVAP.
97/62 EVERYTHING ON
MIN COOLING LOAD
MIN HEATING LOAD

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MECHANICAL SCHEMATIC

ME702

VOLUME 2

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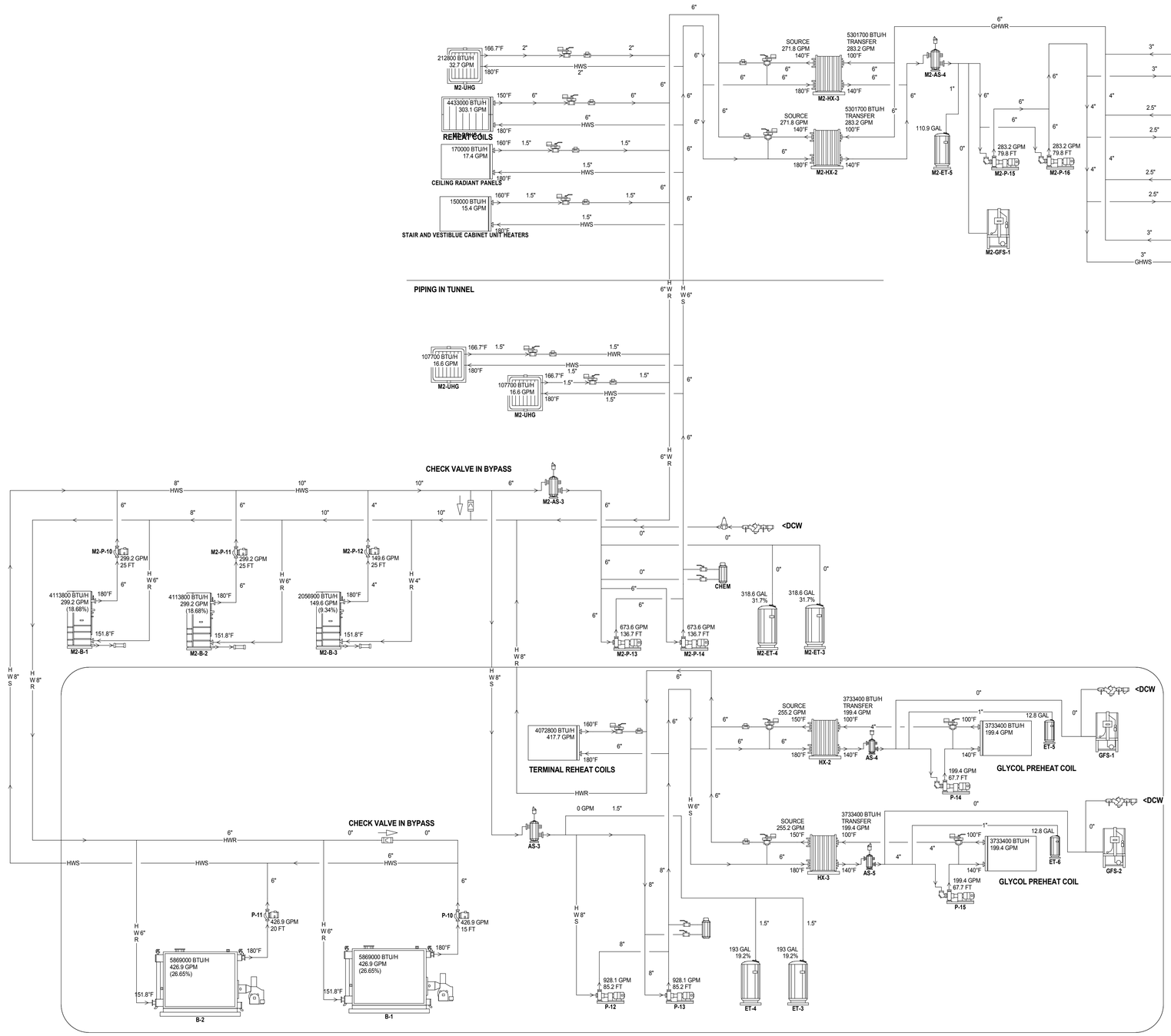

HEATING WATER SCHEMATIC

SYSTEM SIZING AND PIPING SCHEMATIC WITH ENERGY SAVING DEVICES TURNED ON

USE FOR SIZING HEAT RECOVERY, PRECOOL AND EVAP.
97/62 EVERYTHING ON
MIN COOLING LOAD
MIN HEATING LOAD

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MECHANICAL SCHEMATIC

ME703
VOLUME 2

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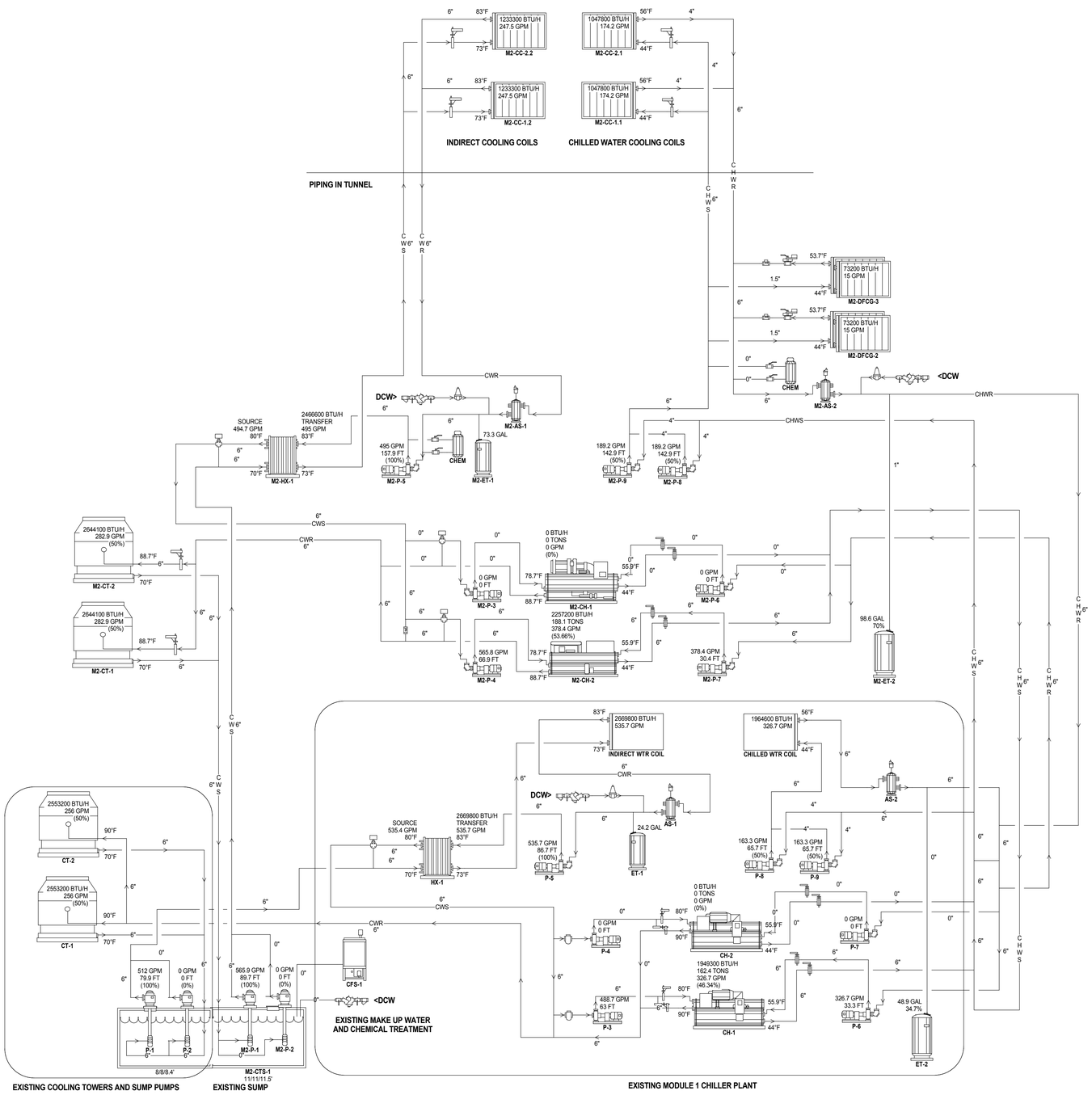

CHILLED AND INDIRECT COOLING SCHEMATIC

SYSTEM SIZING AND PIPING SCHEMATIC WITH ENERGY SAVING DEVICES TURNED ON

USE FOR SIZING HEAT RECOVERY, PRECOOL AND EVAP.
97/62 EVERYTHING ON
MIN COOLING LOAD
MIN HEATING LOAD

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DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
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LICENSED PROFESSIONAL ENGINEER
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MECHANICAL SCHEMATIC

ME704

VOLUME 2

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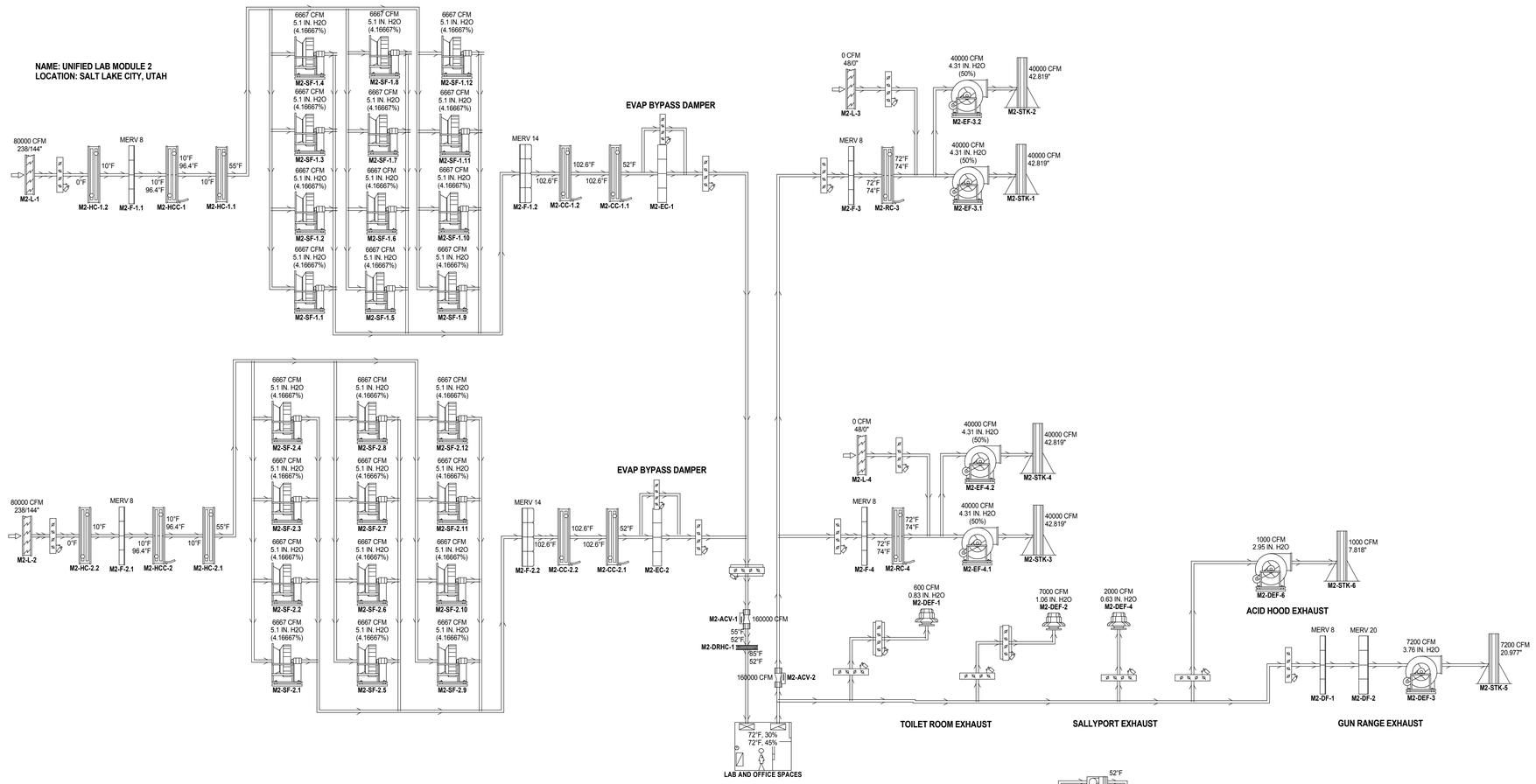
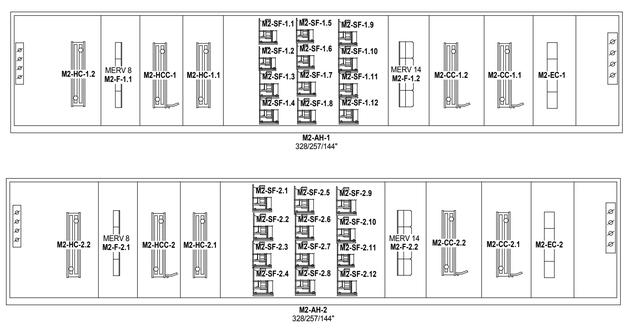
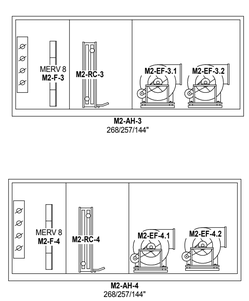
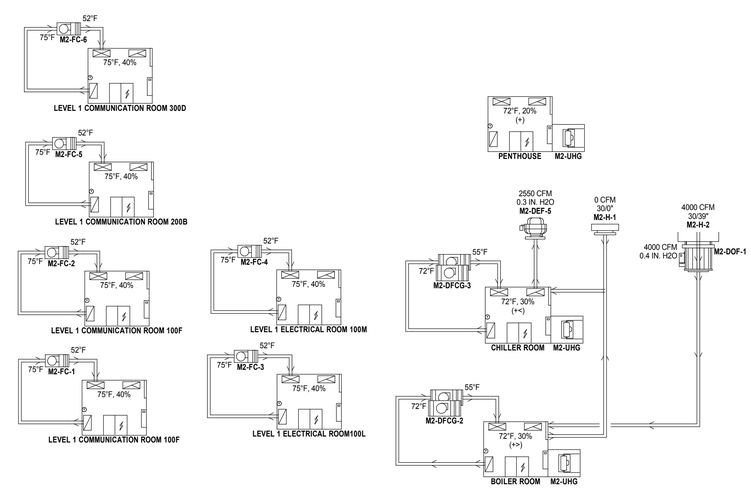


LABORATORY AND OFFICE SPACE AIR FLOW SCHEMATIC







AIR HANDLER SCHEMATICS

SYSTEM SIZING AND PIPING SCHEMATIC WITH ENERGY SAVING DEVICES TURNED OFF

USE FOR SIZING EVERYTHING EXCEPT HEAT RECOVERY, PRECOOL AND EVAP
97/62 HEAT RECOVERY OFF, PRECOOL OFF, EVAP OFF
MAX COOLING LOAD
MAX HEATING LOAD

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LICENSED PROFESSIONAL ENGINEER
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MECHANICAL SCHEMATIC

ME705

VOLUME 2

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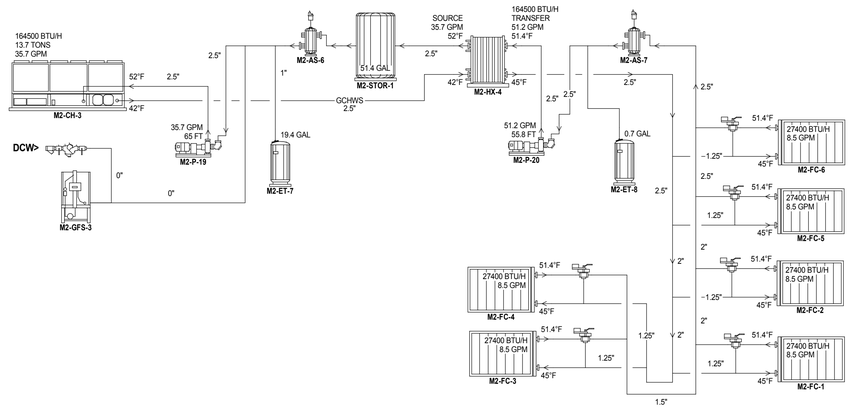
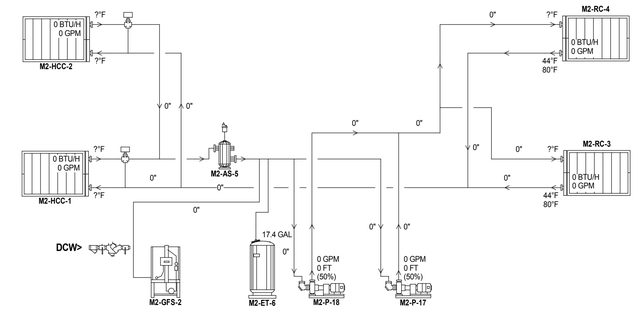
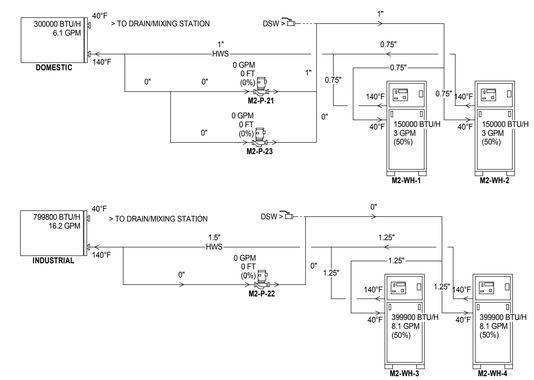


COMM RM FAN COIL UNITS SCHEMATIC



HEAT RECOVERY SCHEMATIC



DOMESTIC AND INDUSTRIAL WATER SCHEMATIC

SYSTEM SIZING AND PIPING SCHEMATIC WITH ENERGY SAVING DEVICES TURNED OFF

USE FOR SIZING EVERYTHING EXCEPT HEAT RECOVERY, PRECOOL AND EVAP
97/62 HEAT RECOVERY OFF, PRECOOL OFF, EVAP OFF
MAX COOLING LOAD
MAX HEATING LOAD

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MECHANICAL SCHEMATIC

ME706

VOLUME 2

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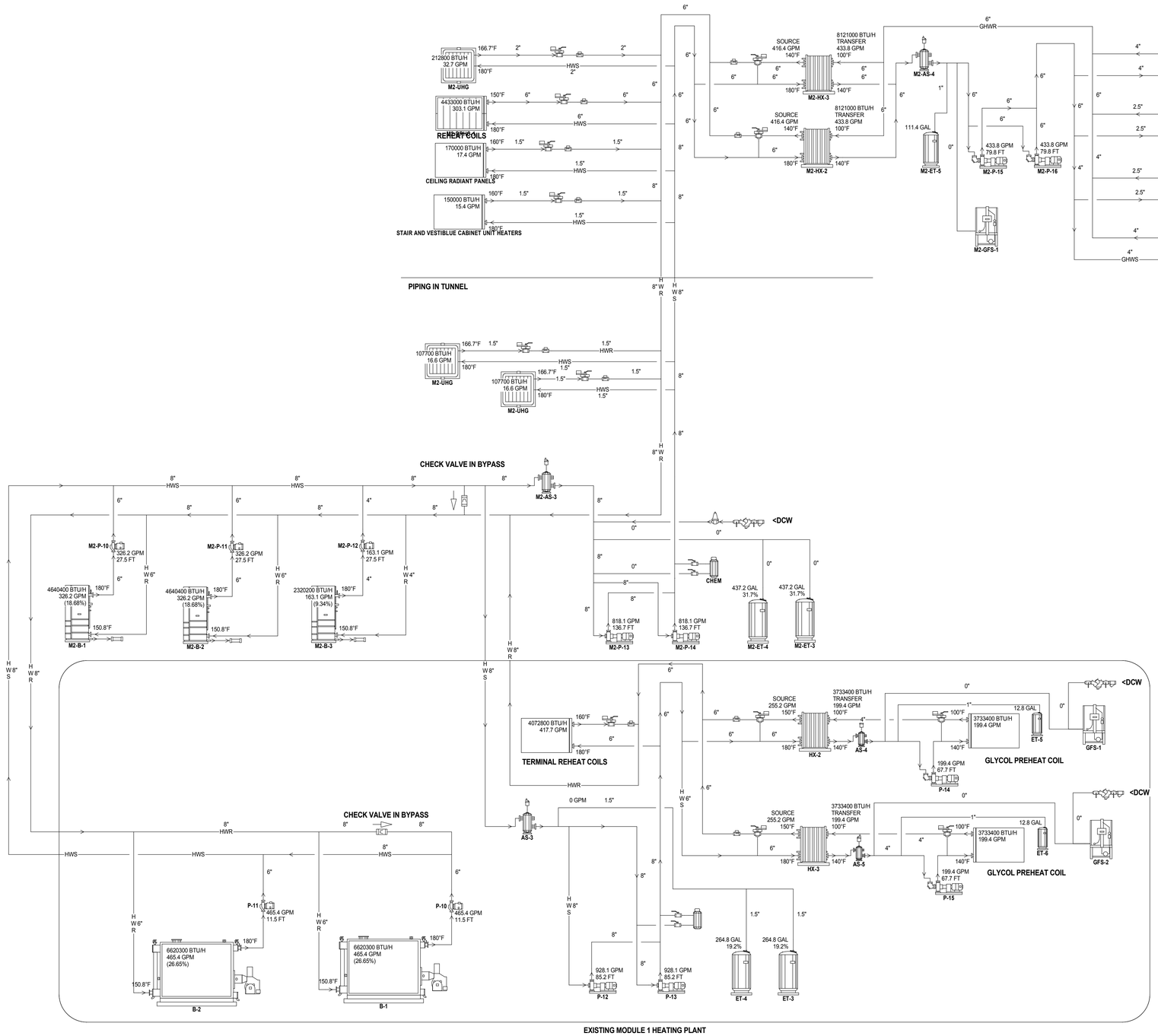

HEATING WATER SCHEMATIC

SYSTEM SIZING AND PIPING SCHEMATIC WITH ENERGY SAVING DEVICES TURNED OFF

USE FOR SIZING EVERYTHING EXCEPT HEAT RECOVERY, PRECOOL AND EVAP
97/62 HEAT RECOVERY OFF, PRECOOL OFF, EVAP OFF
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MECHANICAL SCHEMATIC

ME707
VOLUME 2

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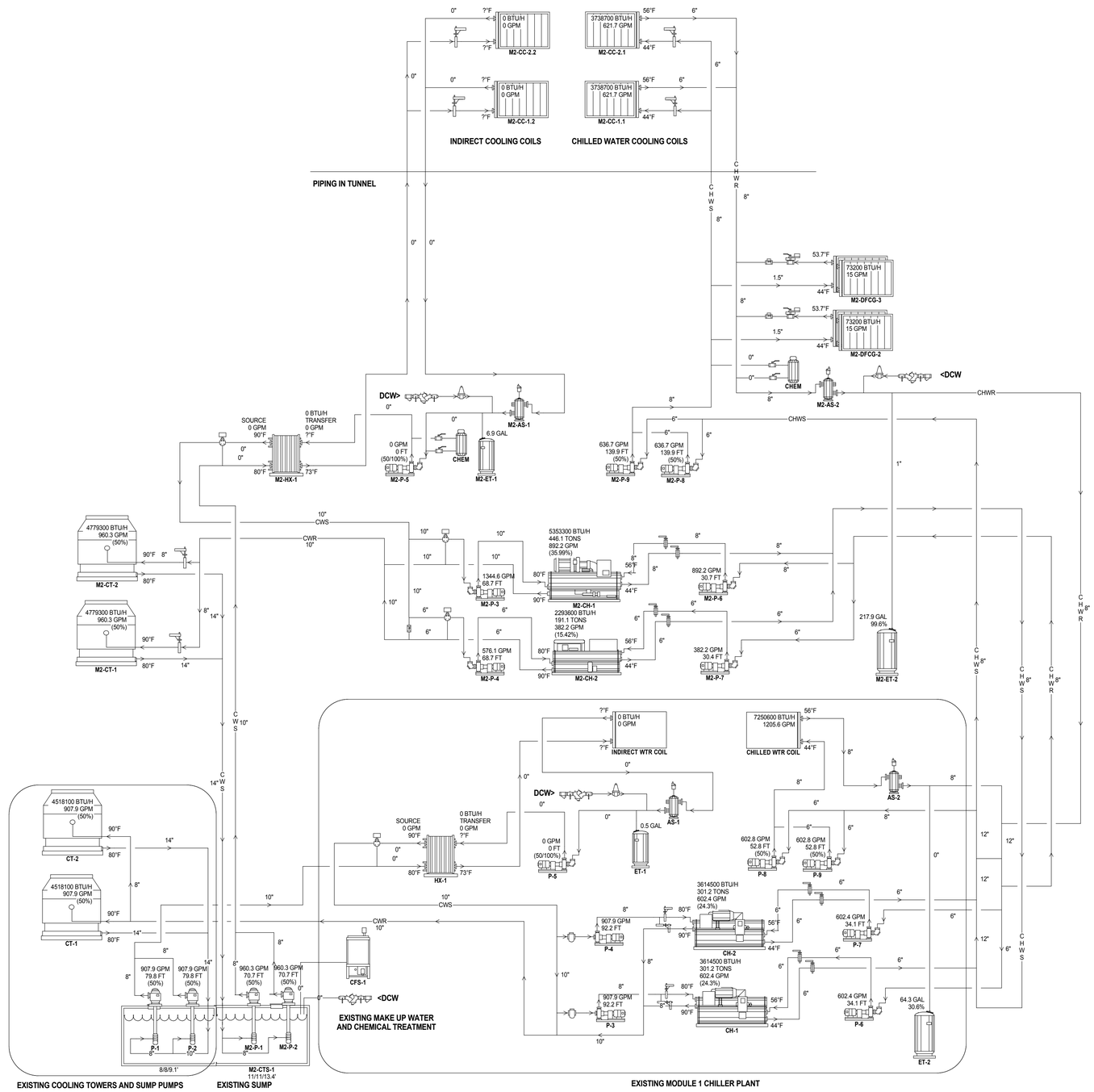

CHILLED AND INDIRECT COOLING SCHEMATIC

SYSTEM SIZING AND PIPING SCHEMATIC WITH ENERGY SAVING DEVICES TURNED OFF

USE FOR SIZING EVERYTHING EXCEPT HEAT RECOVERY, PRECOOL AND EVAP
97/62 HEAT RECOVERY OFF, PRECOOL OFF, EVAP OFF
MAX COOLING LOAD
MAX HEATING LOAD

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DRAWN BY	Author

MECHANICAL SCHEMATIC

ME708

VOLUME 2

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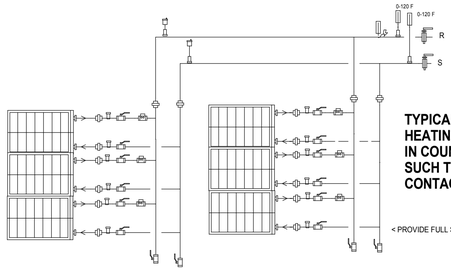
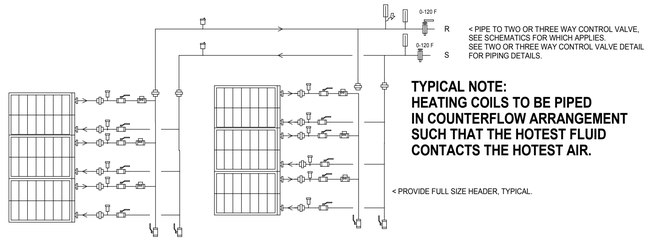
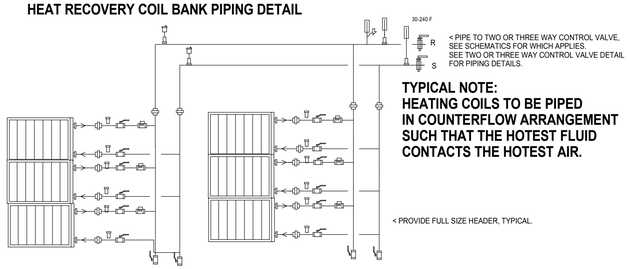


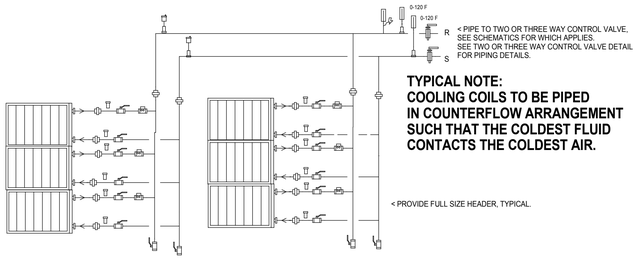
HEAT RECOVERY DELIVERY COIL BANK PIPING DETAIL



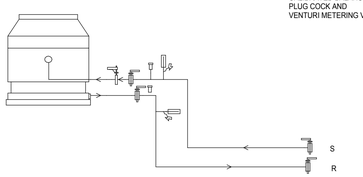
HEAT RECOVERY COIL BANK PIPING DETAIL



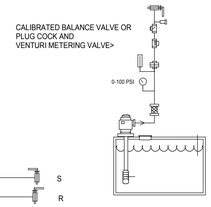
PREHEAT COIL BANK PIPING DETAIL



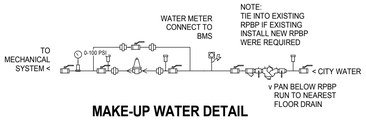
CHILLED WATER COOLING COIL BANK PIPING DETAIL



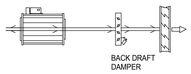
COOLING TOWER DETAIL



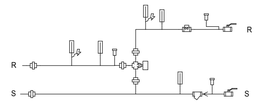
COOLING TOWER SUMP DETAIL



MAKE-UP WATER DETAIL

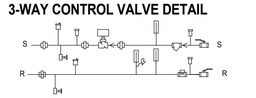


EXHAUST FAN DETAIL

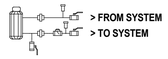


3-WAY CONTROL VALVE DETAIL

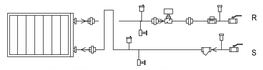
CHEMICAL FEEDER DETAIL



2-WAY CONTROL VALVE DETAIL

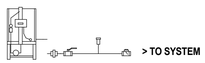


BYPASS FEEDER DETAIL

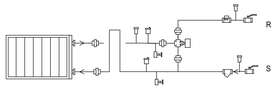


PROVIDE HEAT TRAP IF MAIN PIPING IS BELOW REHEAT COIL.
PROVIDE 30" X 36" CLEAR SPACE AT SIDE OF COIL TO FLOOR FOR ACCESS

VAV/CV REHEAT BOX WITH 2-WAY VALVE DETAIL

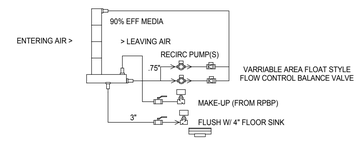


GLYCOL FEEDER DETAIL

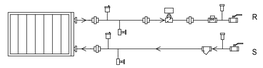


PROVIDE HEAT TRAP IF MAIN PIPING IS BELOW REHEAT COIL.
PROVIDE 30" X 36" CLEAR SPACE AT SIDE OF COIL TO FLOOR FOR ACCESS

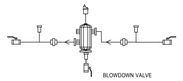
VAV/CV REHEAT BOX WITH 3-WAY VALVE DETAIL



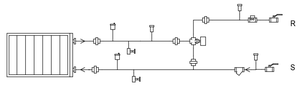
AIR WASHER DETAIL



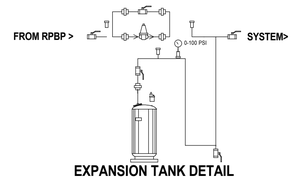
FAN COIL/UNIT HEATER WITH 2-WAY VALVE DETAIL



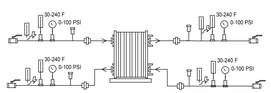
AIR SEPARATOR TANK DETAIL



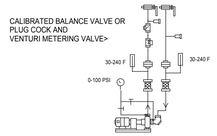
FAN COIL WITH 3-WAY VALVE DETAIL



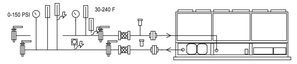
EXPANSION TANK DETAIL



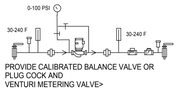
HEAT EXCHANGER DETAIL



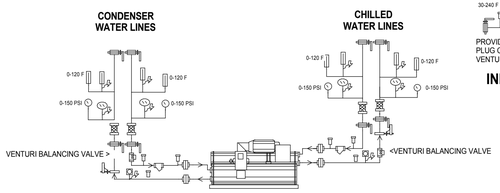
FRAME MOUNT END SUCTION PUMP DETAIL



AIR COOLED CHILLER DETAIL



INLINE PUMP DETAIL



WATER COOLED CHILLER DETAIL

PARTIAL LEGEND

- VALVE (<2"=BALL, >2"=BUTTERFLY)
- GATE VALVE
- PLUG COCK
- BUTTERFLY VALVE
- GLOBE VALVE
- CHECK VALVE
- TEMPERATURE AND PRESSURE TEST PORT - TTE, PTE
- FLANGE
- UNION
- STRAINER WITH BLOWDOWN VALVE
- CALIBRATED BALANCING VALVE OR PLUG COCK AND VENTURI METERING VALVE
- PRESSURE RELIEF VALVE
- VACUUM RELIEF VALVE
- MANUAL AIR VENT
- 3-WAY CONTROL VALVE - CV
- 2-WAY CONTROL VALVE - CV
- PRESSURE GUAGE WITH SHUT-OFF COCK
- TEMPERATURE INDICATOR
- FLEXIBLE CONNECTOR
- RPBP
- EQUIPMENT
- DRAIN VALVE
- RELIEF VALVE
- PUMP W/ SUCTION DIFFUSER
- MAKE-UP — MAKE-UP WATER SELF FILL VALVE
- DRAIN VALVE WITH HOSE END
- RELIEF VALVE
- F&T TRAP
- PRESSURE REDUCING VALVE
- REMOVABLE FLEXIBLE CONNECTION FOR QUICK FILL
- FLOOR DRAIN/SINK
- FLUID LEVEL SENSOR
- FLUID FLOW METER / SENSOR
- FLUID FLOW INDICATING SENSOR
- FLUID PRESSURE SENSOR
- FLUID TEMPERATURE SENSOR
- FLEXIBLE CONNECTION
- MANUAL BALANCING DAMPER
- ATC DAMPER
- WINTER AIRFLOW / SUMMER AIRFLOW / STATIC PRESSURE
- EQUIPMENT ID
- LEAVING AIR TEMPERATURE

COIL BRANCH PIPE SIZES (SEE SCHEDULE FOR FLOW):

.75"	=	<	3.5 GPM
1"	= 3.6	TO	6.3 GPM
1.25"	= 6.7	TO	14 GPM
1.5"	= 14.1	TO	21 GPM
2"	= 21.1	TO	42 GPM
2.5"	= 42.1	TO	66 GPM
3"	= 66.1	TO	120 GPM
4"	= 120.1	TO	240 GPM
6"	= 240.1	TO	600 GPM
8"	= 600.1	TO	1000 GPM

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Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300

Project #: B13-024

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DRAWN BY	Author

SCHEMATIC DETAILS

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VOLUME 2

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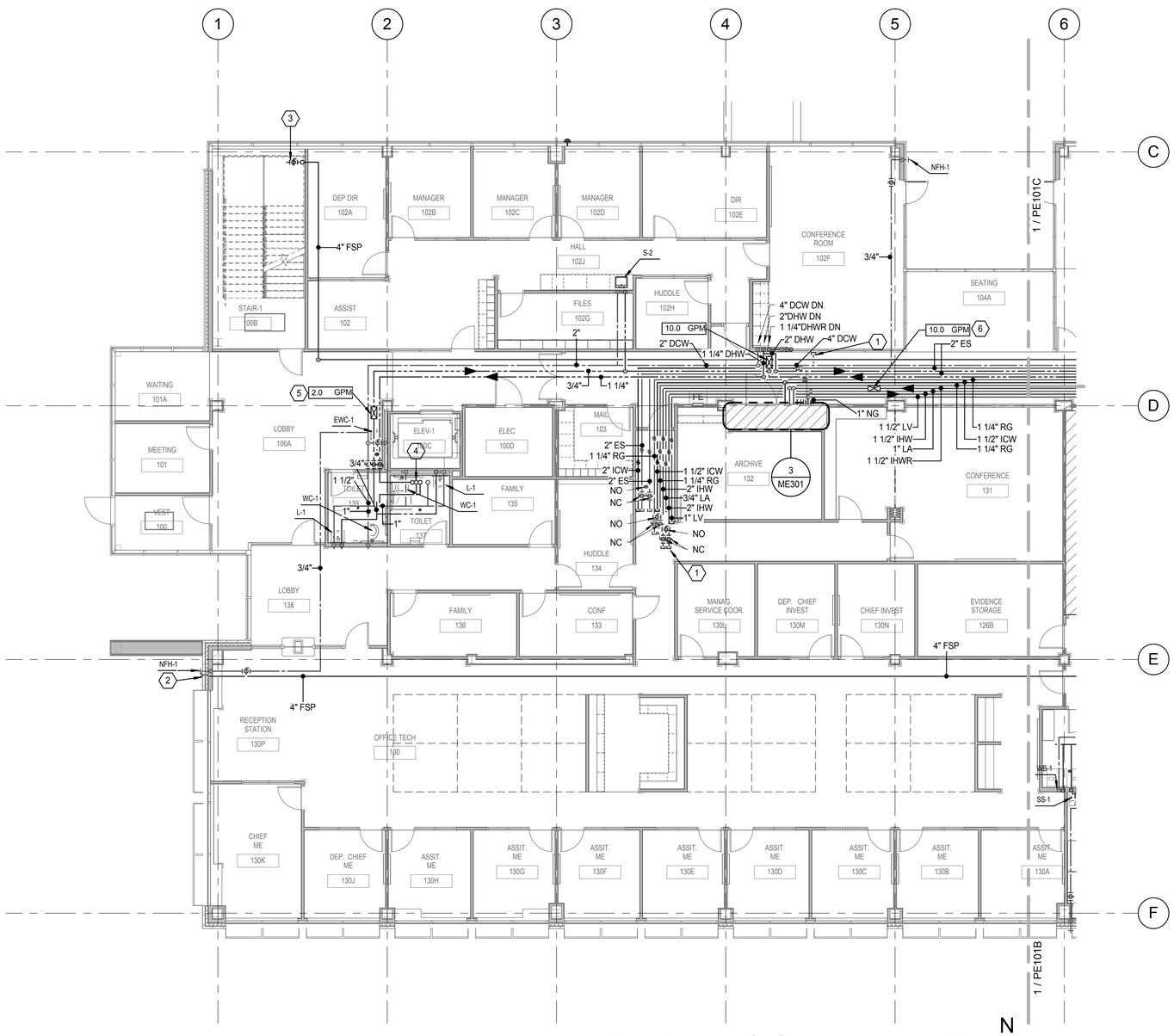


LEVEL 1 PLUMBING PLAN AREA A

1 PE101A

1/8" = 1'-0"

N

KEYED NOTES

1 VALVE AND CAP PIPING FOR FUTURE.

2 FIRE DEPARTMENT CONNECTION, CHECK VALVE IS TO BE LOCATED IN AN ACCESIBLE HEATED SPACE. MAKE CONNECTION TO FIRE SUPPRESSION SYSTEM UP-STREAM OF STANDPIPE ISOLATION VALVES.

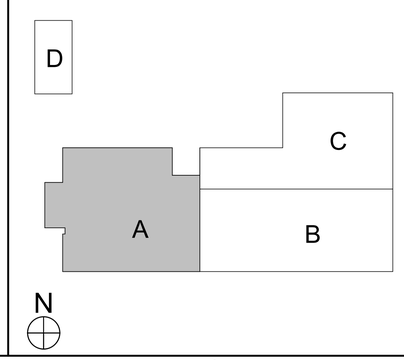
3 CLASS 1 MANUAL WET STANDPIPE WITH 2 1/2" X 1 1/2" REDUCING CAPS.

4 EXTEND 1-1/4" DHW AND 3/4" DCW UP THRU CHASE ON LEVEL ABOVE.

5 CALIBRATED CIRCUIT SETTER BALANCING VALVE. BALANCE TO FLOW INDICTED.

6 CALIBRATED CIRCUIT SETTER BALANCING VALVE AT THE END OF IHW AND ES CIRCULATION LOOP. BALANCE TO FLOW INDICATED.

KEY PLAN



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LEVEL 1 PLUMBING PLAN AREA A

PE101A

VOLUME 2

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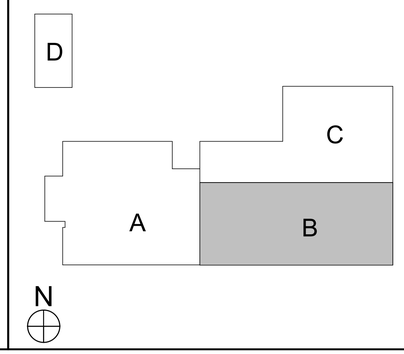
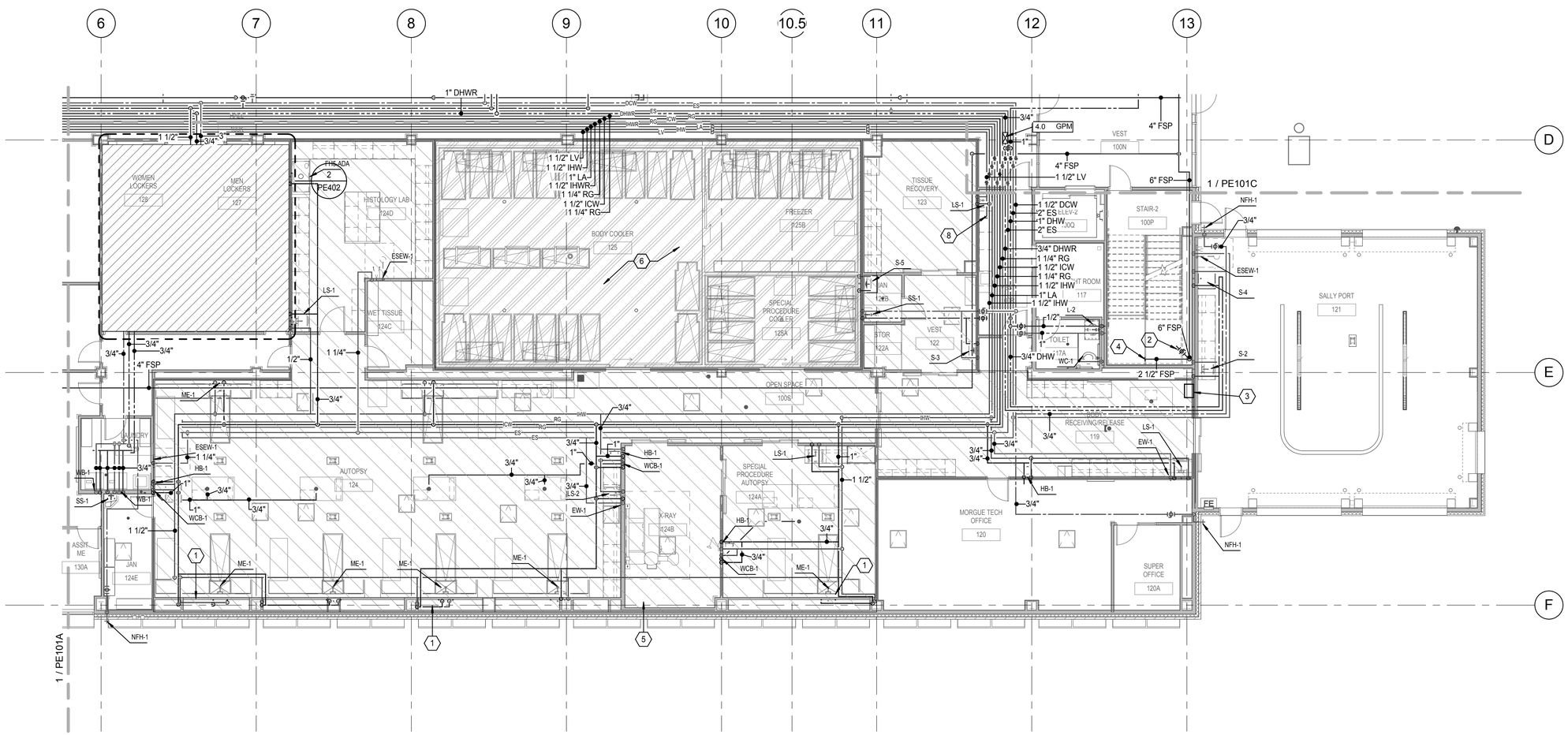
KEYED NOTES

1. EXTEND PIPING THRU WALL CAVITY TO PLUMBING FIXTURE.
2. COMBINED MANUAL-WET STANDPIPE WITH 2 1/2" X 1 1/2" REDUCING CAPS.
3. FLOOR CONTROL VALVE ASSEMBLY SEE FIRE PROTECTION DETAILS.
4. WET FIRE SUPPRESSION PIPE TO CONTINUE TO SERVE FIRE SPRINKLER SYSTEM.
5. AREA TO HAVE FLAT PLATE CONCEALED SPRINKLERS.
6. AREA TO BE PROTECTED BY DRY PENDANT SPRINKLERS, LOCATE BRANCH-LINE IN HEATED SPACE.
7. CALIBRATED CIRCUIT SETTER BALANCING VALVE. BALANCE TO FLOW INDICATED.
8. VALVE AND CAP PIPING FOR FUTURE.

KEY PLAN





LEVEL 1 PLUMBING PLAN AREA B

1/8" = 1'-0" (1 / PE101B)

N

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LEVEL 1 PLUMBING PLAN AREA B

PE101B

VOLUME 2

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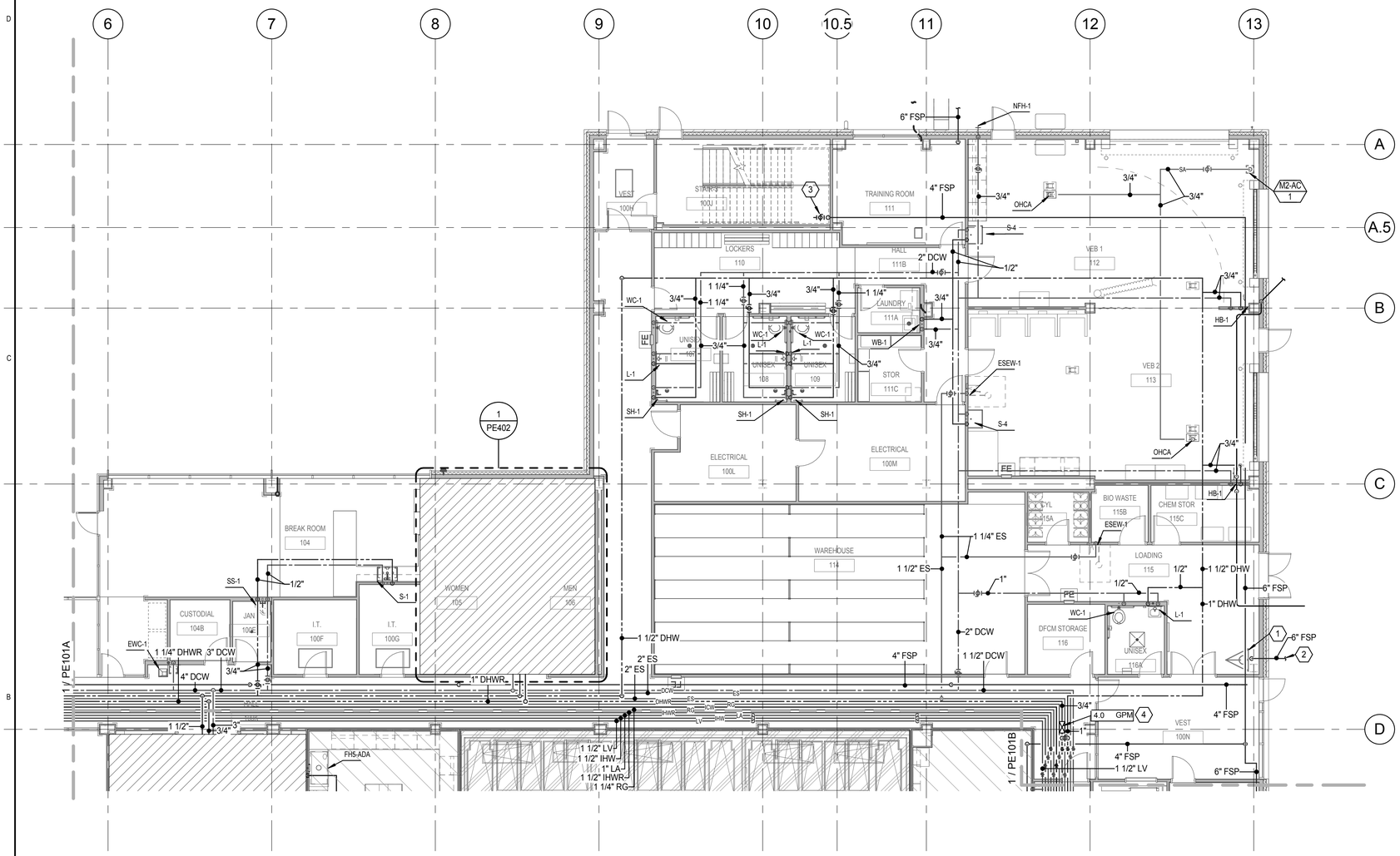


LEVEL 1 PLUMBING PLAN AREA C

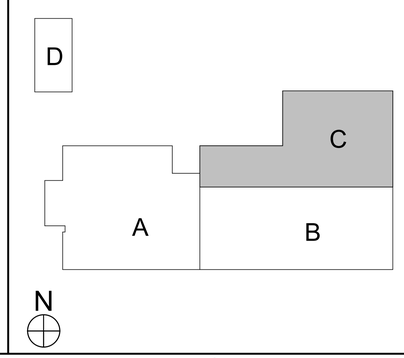
1/8" = 1'-0" (1 / PE101C)

N

KEYED NOTES

1. FIRE RISER, SEE DETAIL.
2. SEE CIVIL PLANS FOR CONTINUATION.
3. CLASS 1 MANUAL WET STANDPIPE WITH 2 1/2" X 1 1/2" REDUCING CAPS.
4. CALIBRATED CIRCUIT SETTER BALANCING VALVE. BALANCE TO FLOW INDICATED.

KEY PLAN



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LEVEL 1 PLUMBING PLAN AREA C

PE101C

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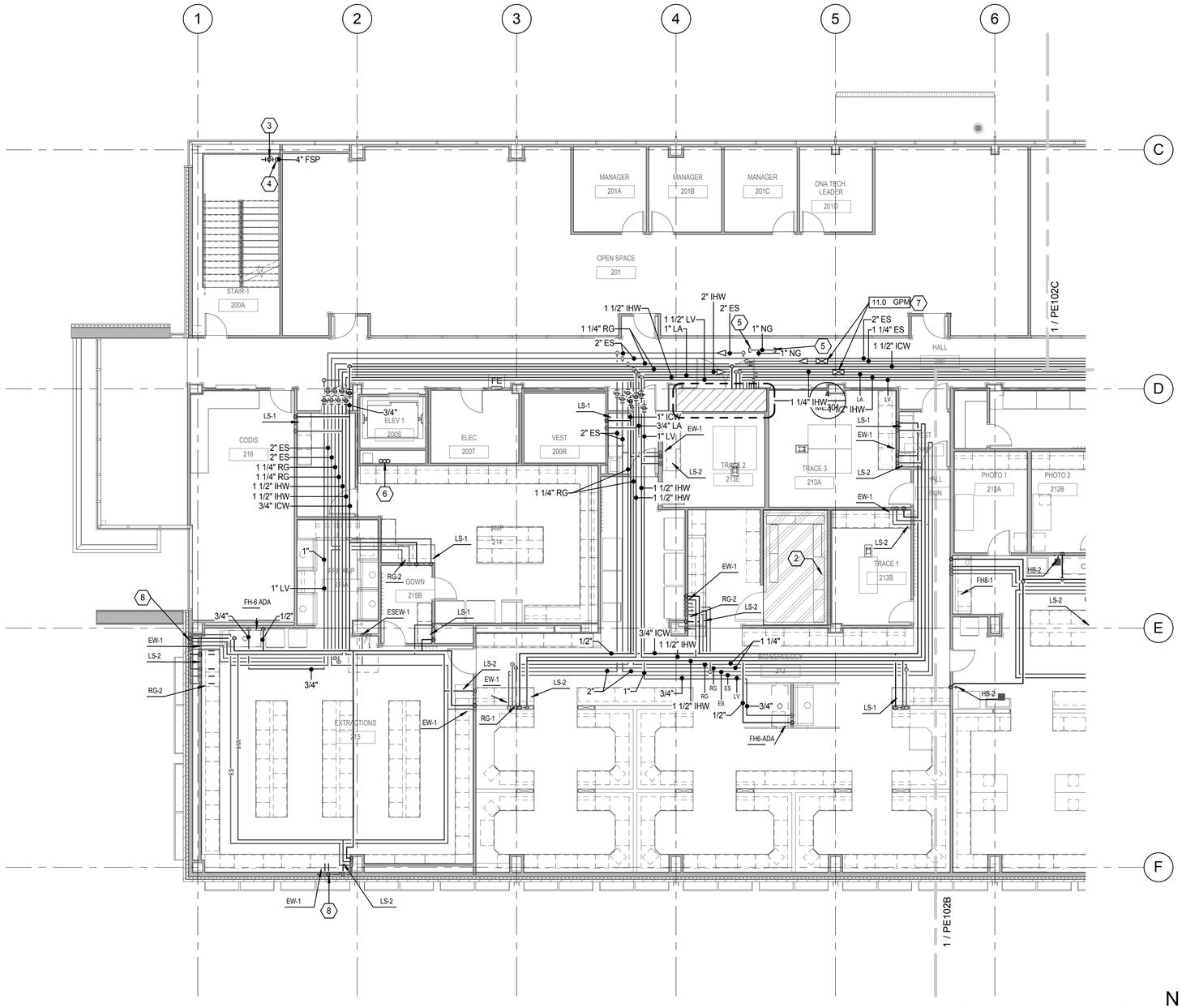


LEVEL 2 PLUMBING PLAN AREA A

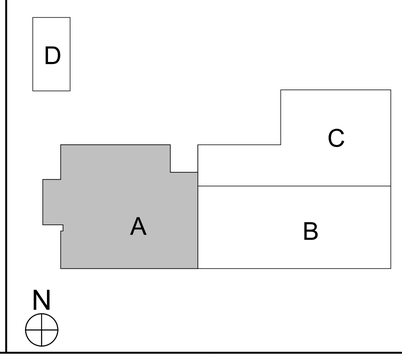
1/8" = 1'-0" (1 / PE102A)

N

KEYED NOTES

1. FROM UMBILICAL CHASE EXTEND 3/4" RG, 3/4" IHW AND 3/4" ICW THRU CABINETRY TO GLASS WASHER. PROVIDE VALVE WITH 3/4" HOSE THREAD OUTLET FOR EACH UTILITY.
2. AREA TO BE PROTECTED BY DRY PENDANT SPRINKLERS, LOCATE BRANCH-LINE IN HEATED SPACE.
3. CLASS 1 MANUAL WET STANDPIPE WITH 2 1/2" X 1 1/2" REDUCING CAPS.
4. FSP TO RISE TO HOSE VALVE ON ROOF, INCLUDE SHUTOFF VALVE IN HEATED SPACE ACCESSIBLE FROM ROOF. LOCATE ALL VALVES AN OUTLETS A MINIMUM OF 10-FEET AWAY FROM EDGE OF ROOF.
5. VALVE AND CAP PIPING FOR FUTURE.
6. 1-1/4" DHW (TWO LINES), 3/4" DCW UP/DN.
7. CALIBRATED CIRCUIT SETTER BALANCING VALVE AT THE END OF IHW AND ES CIRCULATION LOOP. BALANCE TO FLOW INDICATED.
8. EXTEND PIPING TO SINK THRU WALL.

KEY PLAN



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LEVEL 2 PLUMBING PLAN AREA A

PE102A

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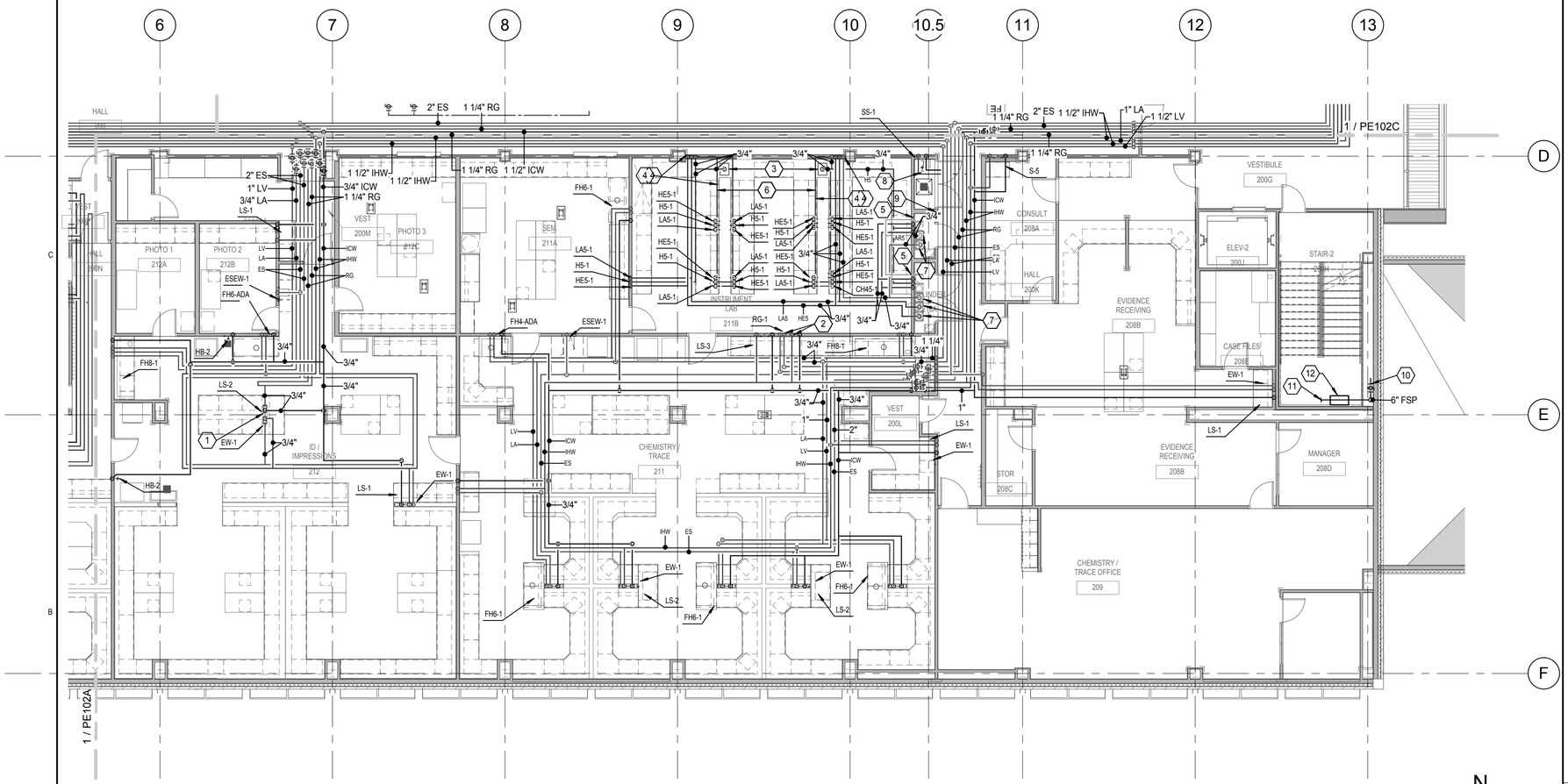


LEVEL 2 PLUMBING PLAN AREA B

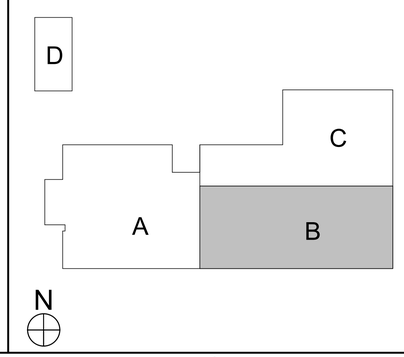
1/8" = 1'-0" (1 / PE102B)

N

KEYED NOTES

1. FROM UMBILICAL CHASE EXTEND 3/4" RG, 3/4" IHW AND 3/4" ICW THRU CABINETRY TO GLASS WASHER. PROVIDE VALVE WITH 3/4" HOSE THREAD OUTLET FOR EACH UTILITY.
2. EXTEND 3/4" RG, 3/4" IHW AND 3/4" ICW TO GLASS WASHER. PROVIDE VALVE WITH 3/4" HOSE THREAD OUTLET FOR EACH UTILITY.
3. HYDROGEN GENERATOR. COORDINATE WITH LAB PLANS.
4. DROP PIPING THRU WALL, EXTEND THRU CABINETRY TO WORK BENCH RACEWAY AND OUT TO BENCH TOP OUTLETS.
5. GAS OUTLETS: AR5-1, HE5-1, H5-1, LA5-1.
6. EACH PIPE IN RACEWAY TO BE SIZED AT 3/4".
7. PROVIDE MAINFOLD AT CYLINDER.
8. LOCATE PRE-ACTION VALVE ON WALL IN JANITOR CLOSET. RISER-MOUNTED AIR COMPRESSOR.
9. LOCATE PRE-ACTION RELEASING PANEL.
10. COMBINED MANUAL-WET STANDPIPE WITH 2 1/2" X 1 1/2" REDUCING CAPS.
11. WET FIRE SUPPRESSION PIPE TO CONTINUE TO SERVE FIRE SPRINKLER SYSTEM.
12. FLOOR CONTROL VALVE ASSEMBLY SEE FIRE PROTECTION DETAILS.

KEY PLAN



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LEVEL 2 PLUMBING PLAN AREA B

PE102B

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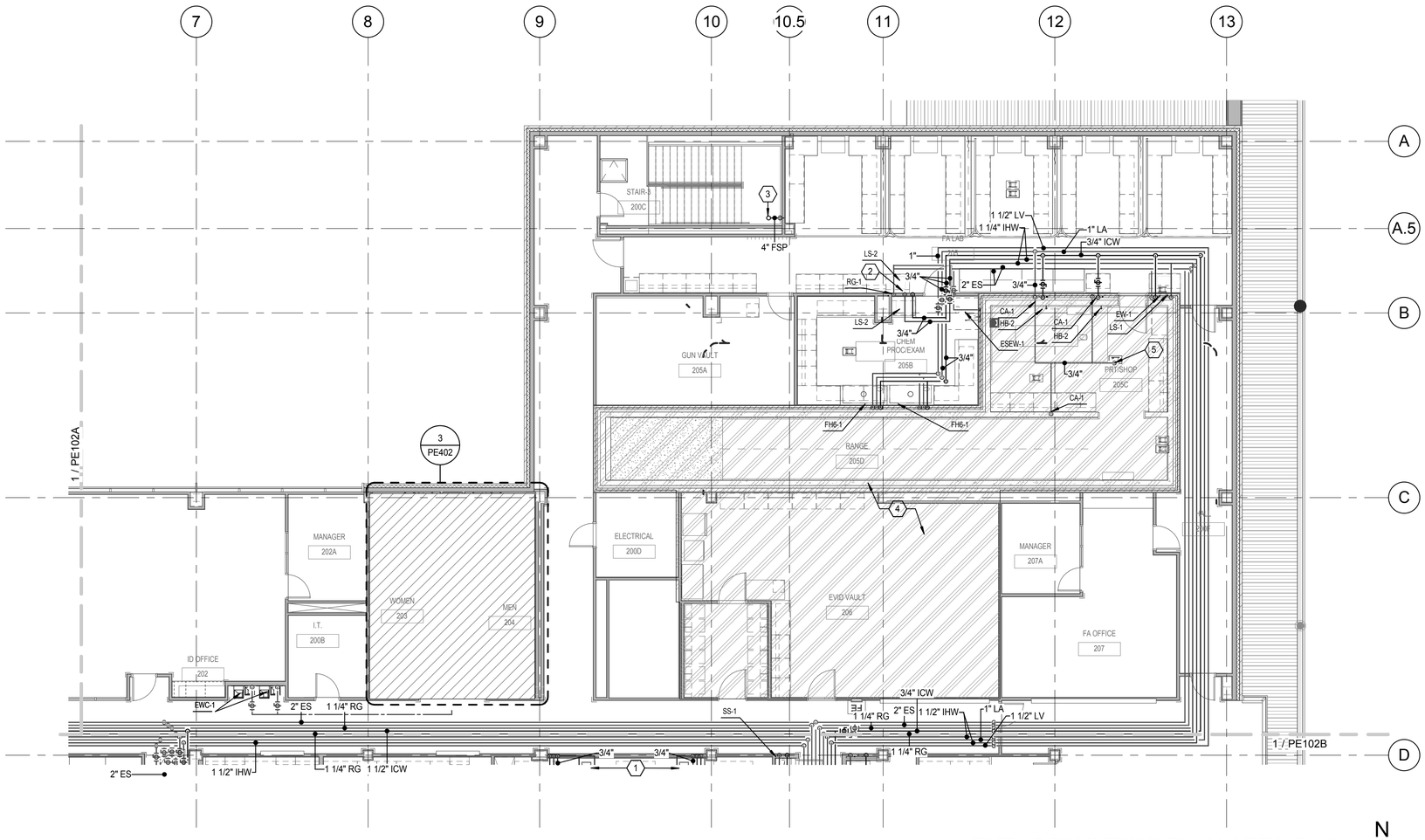


LEVEL 2 PLUMBING PLAN AREA C (1 / PE102C)

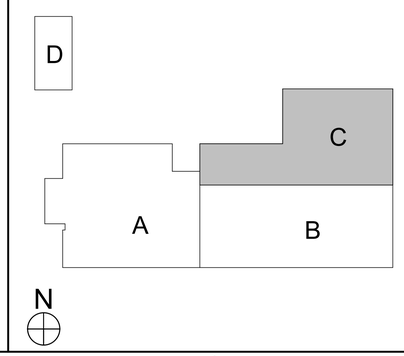
1/8" = 1'-0"

N

KEYED NOTES

1. HYDROGEN GENERATOR. COORDINATE WITH LAB PLANS.
2. SERVE BACK-TO-BACK LS-2'S WITH SAME PIPING.
3. FSP TO RISE TO HOSE VALVE ON ROOF, INCLUDE SHUTOFF VALVE IN HEATED SPACE ACCESSIBLE FROM ROOF. LOCATE ALL VALVES AN OUTLETS A MINIMUM OF 10-FEET AWAY FROM EDGE OF ROOF.
4. AREA TO BE PROTECTED BY DOUBLE-INTERLOCK PRE-ACTION SYSTEM. ONLY ONE PIPE PENETRATION IS ALLOWED INTO THE RANGE/PRT SHOP ROOM. DRY PIPING IS TO BE GALVANIZED.
5. LA CONNECTION TO OVER HEAD SERVICE CARRIER: 1/2".

KEY PLAN



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LEVEL 2 PLUMBING PLAN AREA C

PE102C

VOLUME 2

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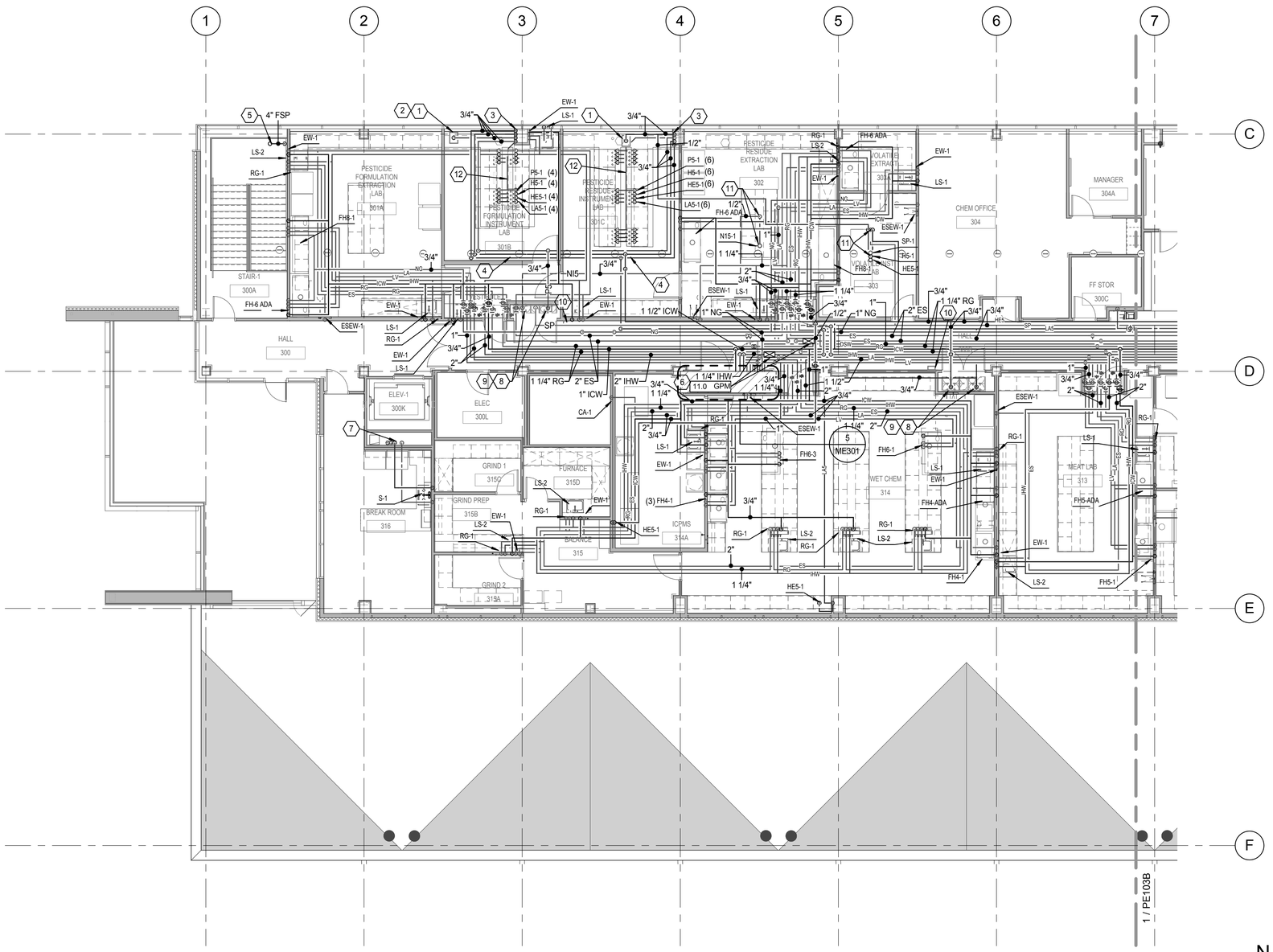


LEVEL 3 PLUMBING PLAN AREA A

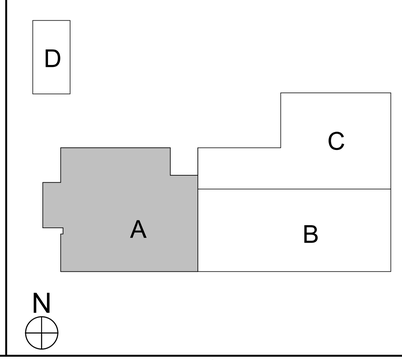
1/8" = 1'-0" (1 / PE103A)

N

KEYED NOTES

1. HYDROGEN GENERATOR. FURNISHED BY OTHERS. COORDINATE WITH LAB PLANS.
2. HYDROGEN GENERATOR SHOWN AT THIS LOCATION FOR CLARITY. COORDINATE EXACT LOCATION WITH LAB PLANS.
3. DROP PIPING THRU WALL, EXTEND THRU CABINETRY TO WORK BENCH RACEWAY AND OUT TO BENCH TOP OUTLETS.
4. SWEDGELOK ELECTRO-POLISHED STAINLESS STEEL TUBING.
5. FSP TO RISE TO HOSE VALVE ON ROOF, INCLUDE SHUTOFF VALVE IN HEATED SPACE ACCESSIBLE FROM ROOF. LOCATE ALL VALVES AN OUTLETS A MINIMUM OF 10-FEET AWAY FROM EDGE OF ROOF.
6. CALIBRATED CIRCUIT SETTER BALANCING VALVE AT THE END OF IHW AND ES CIRCULATION LOOP. BALANCE TO FLOW INDICATED.
7. 1-1/4" DHW LOOP AND 3/4" DCW DN.
8. PROVIDE PRESSURE REGULATOR AND MAINFOLD AT GAS TANKS.
9. CHANGE OVER MANIFOLD. WIRE MANIFOLD TO REMOTE ENUNCIATOR. COORDINATE ENUNCIATOR LOCATION WITH LAB PLANS.
10. REMOTE ENUNCIATOR FOR CHANGE OVER MANIFOLDS.
11. DROP PIPING THRU UMBILICAL AND EXTEND THRU CABINETRY RACEWAY TO COUNTER OUTLETS.
12. EACH PIPE IN RACEWAY TO BE 1/2".

KEY PLAN



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Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #:	13020300
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LEVEL 3 PLUMBING PLAN AREA A

PE103A

VOLUME 2

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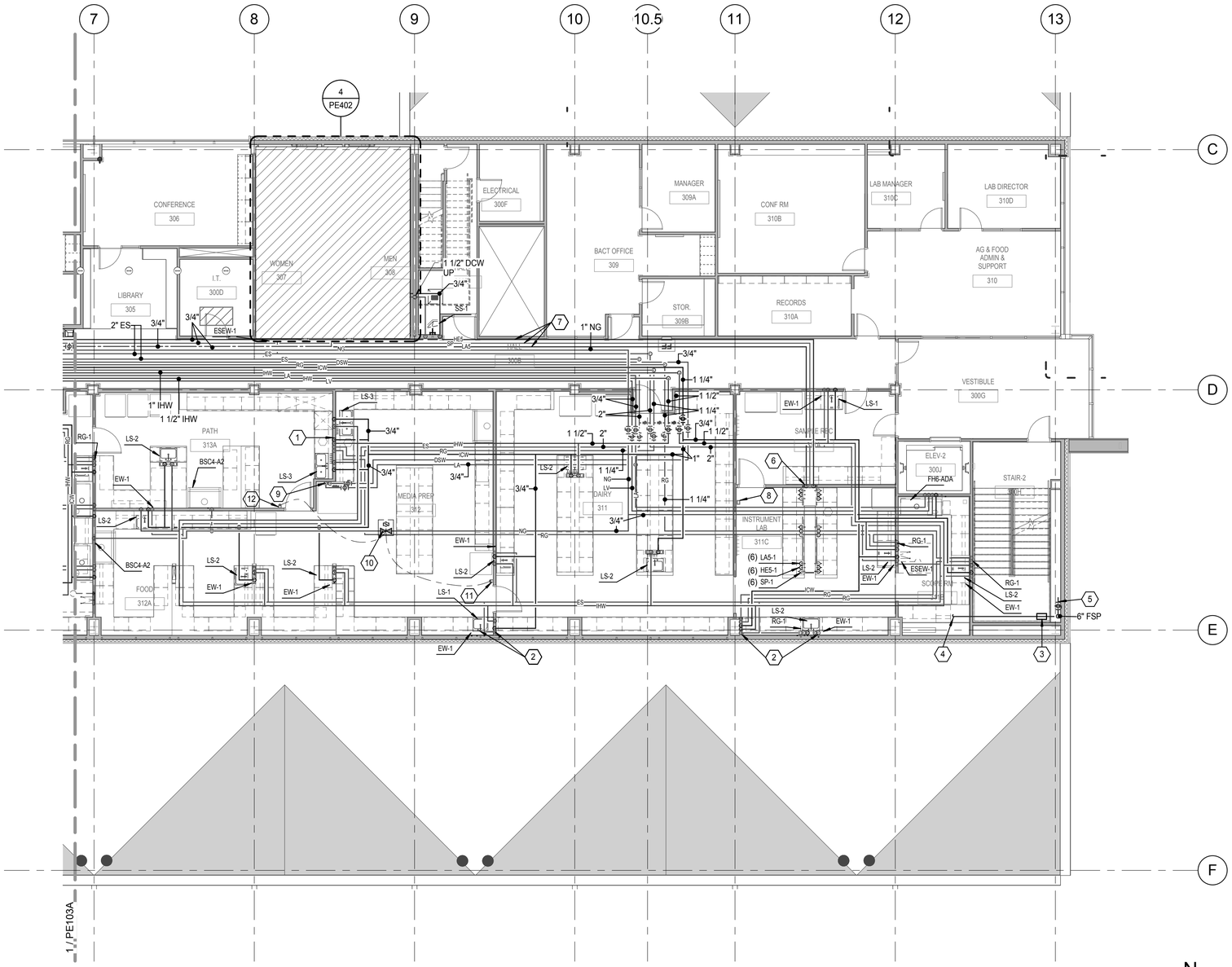


LEVEL 3 PLUMBING PLAN AREA B (1 / PE103B)

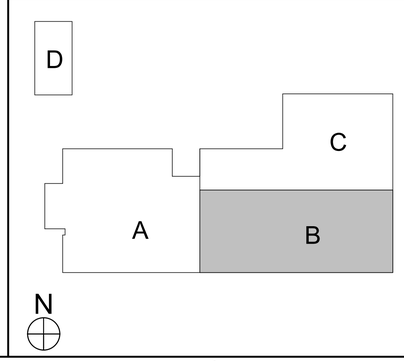
1/8" = 1'-0"

N

KEYED NOTES

1. 3/4" RG, 3/4" IHW AND 3/4" ICW DOWN THRU WALL. SERVE BACK TO BACK GLASS WASHERS FROM SAME DROPS. PROVIDE ESCUTCHEON, VALVE AND HOSE THREAD OUTLET ON BOTH SIDES OF THE WALL FOR FINAL CONNECTION TO GLASS WASHERS.
2. DROP PIPING THRU WALL AND EXTEND THRU CABINETRY TO PLUMBING FIXTURE.
3. FLOOR CONTROL VALVE ASSEMBLY SEE FIRE PROTECTION DETAILS.
4. WET FIRE SUPPRESSION PIPE TO CONTINUE TO SERVE FIRE SPRINKLER SYSTEM.
5. COMBINED MANUAL-WET STANDPIPE WITH 2 1/2" X 1 1/2" REDUCING CAPS.
6. DROP PIPING THRU WALL, EXTEND THRU CABINETRY TO WORK BENCH RACEWAY AND OUT TO BENCH TOP OUTLETS.
7. SWEDGELOK ELECTRO-POLISHED STAINLESS STEEL TUBING.
8. REMOTE ENUNCIATOR FOR CHANGE-OVER MANIFOLDS.
9. DROP DSW AND LA TO CONNECT TO AUTOCLAVE. FIELD VERIFY CONNECTION POINT AND COORDINATE PIPING ACCORDINGLY.
10. SOLENOID VALVE BOX: ISIMET S-SERIES ENCLOSURE 2-4211-K12U ASSEMBLY WITH SINGLE GAS VALVE. IDENTIFY ENCLOSURE AS "NATURAL GAS VALVE BOX".
11. LAB UTILITY CONTROL PANEL WITH NATURAL GAS EMERGENCY SHUT OFF SWITCH: ISIMET FLA-2235 UTILITY CONTROLLER FOR CONTROL OF NATURAL GAS VALVE BOX, 120V WITH 24V OUTPUTS SWITCH TO BE LABELED "GAS".
12. NATURAL GAS EMERGENCY SHUT OFF: ISIMET IPO REMOTE PUSH BUTTON.

KEY PLAN



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LEVEL 3 PLUMBING PLAN AREA B

PE103B

VOLUME 2

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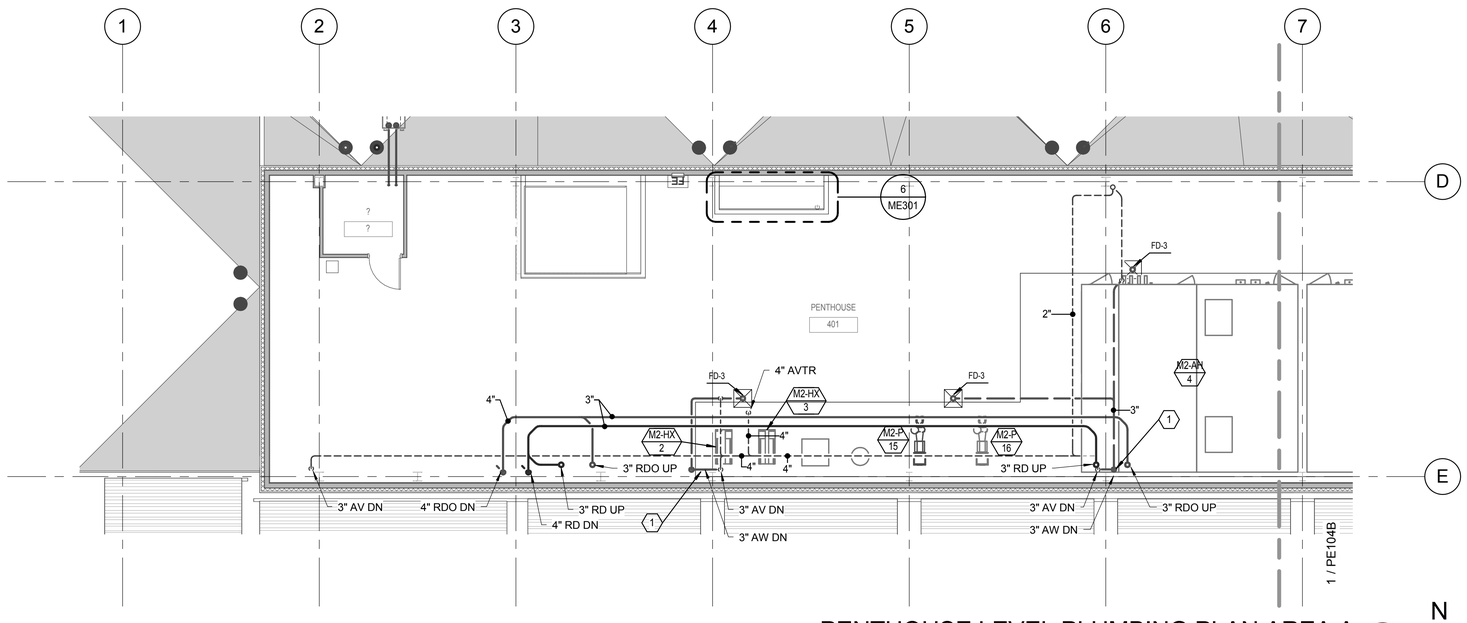


PENTHOUSE LEVEL PLUMBING PLAN AREA A (1 / PE104A)

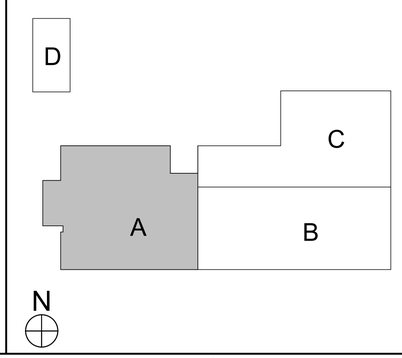
1/8" = 1'-0"

N

KEYED NOTES

1 CONNECT TOP OF AW RISER TO AV RISER.

KEY PLAN



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PENTHOUSE PLUMBING PLAN AREA A

PE104A

VOLUME 2

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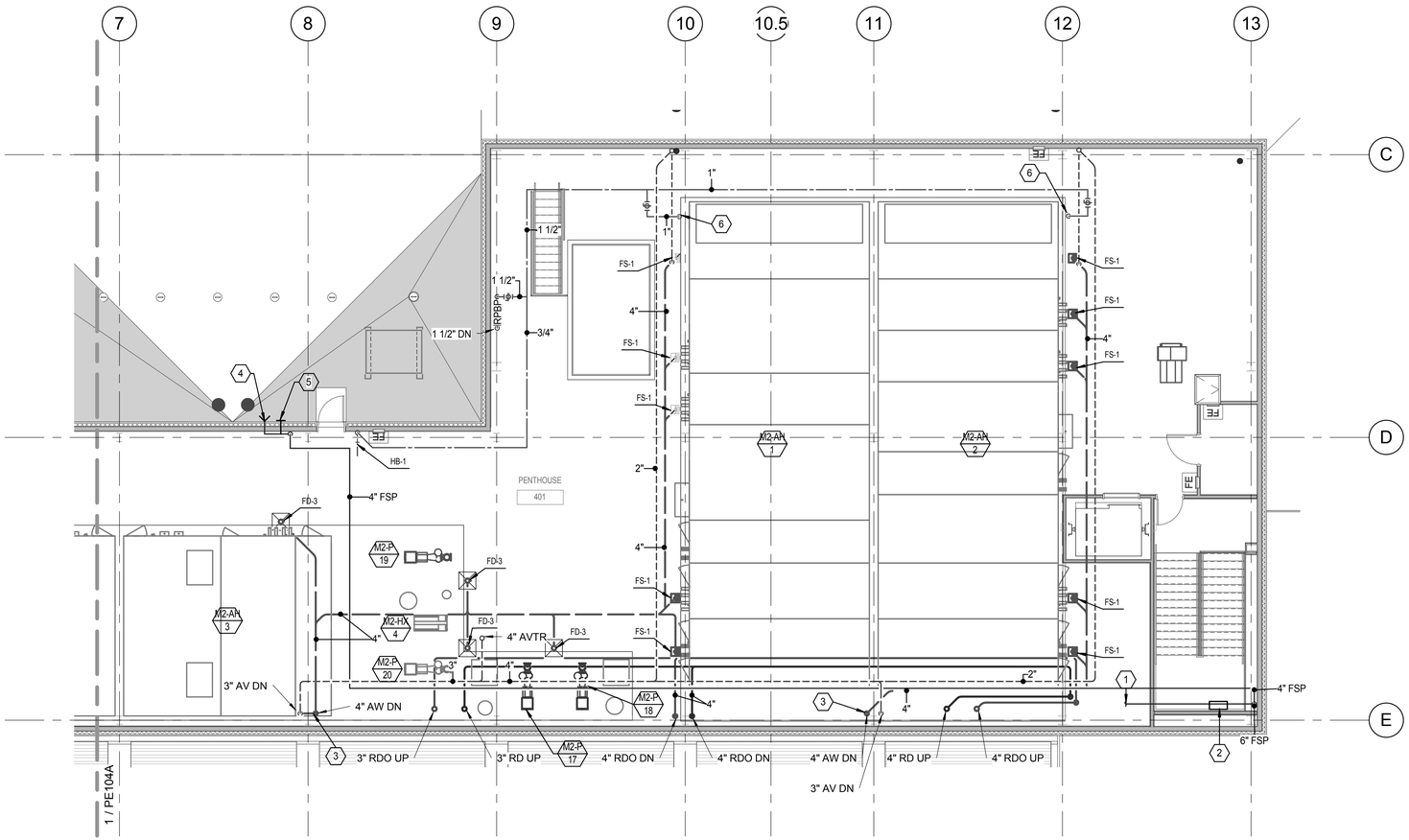


PENTHOUSE LEVEL PLUMBING PLAN AREA B

1 / PE104B

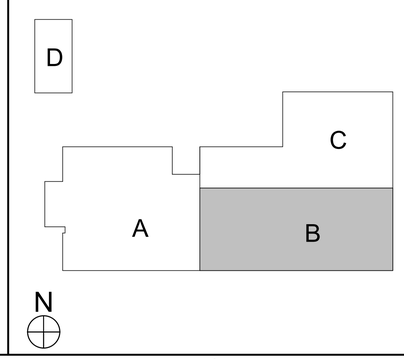
1/8" = 1'-0"

N

KEYED NOTES

1. WET FIRE SUPPRESSION PIPE TO CONTINUE TO SERVE FIRE SPRINKLER SYSTEM.
2. FLOOR CONTROL VALVE ASSEMBLY SEE FIRE PROTECTION DETAILS.
3. CONNECT TOP OF AW RISER TO AV RISER.
4. ROOF HYDRANT.
5. ROOF POST INDICATING VALVE LOCATED IN HEATED SPACE.
6. CONNECT TO AIR WASHER WATER INLET.

KEY PLAN



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PENTHOUSE PLUMBING PLAN AREA B

PE104B

VOLUME 2

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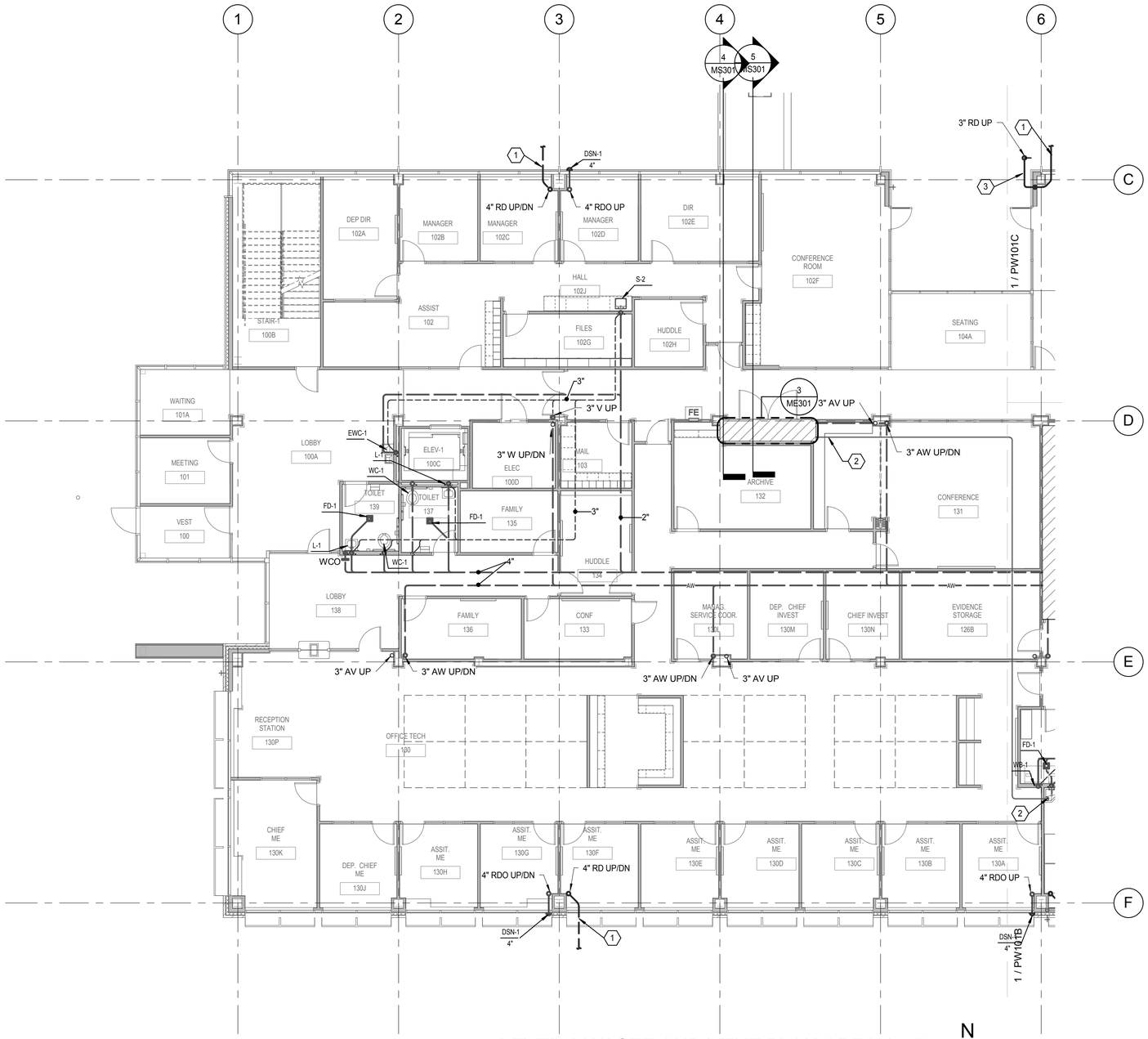


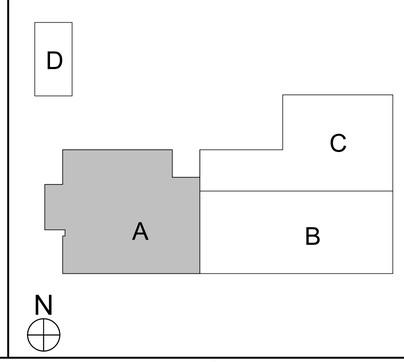
LEVEL 1 WASTE AND VENT PLAN AREA A (1 / PW101A)

1/8" = 1'-0"

KEYED NOTES

1. LEAVING INVERT ELEVATION: 33" BELOW FINISHED FLOOR.
2. PUMPED WASTE LINE FROM TUNNEL SUMP PUMP. TAKE TO JANITORS SINK.
3. PROVIDE RAYCHEM 8XL-TRACE 8W/FT, 120V HEAT CABLE IN CANOPY DRAINS.

KEY PLAN



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LEVEL 1 WASTE AND VENT PLAN AREA A

PW101A

VOLUME 2

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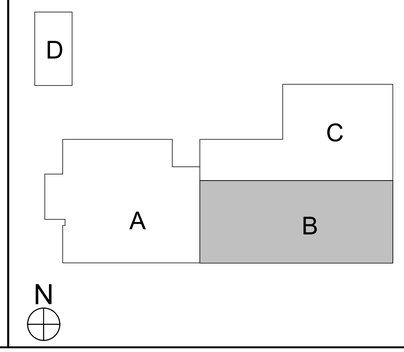
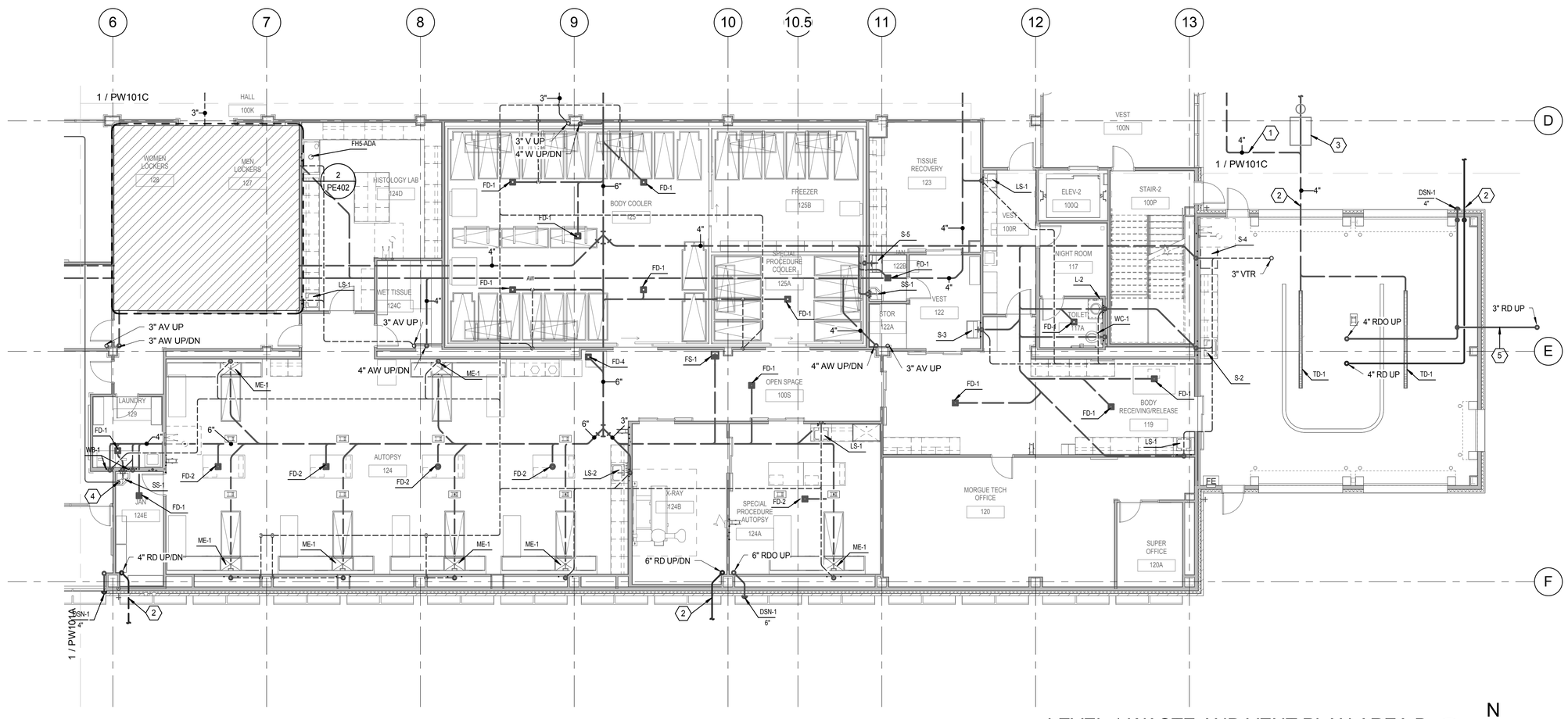
KEYED NOTES

1. WASTE LINE FROM GARAGE. SEE SHEET PW101C.
2. LEAVING INVERT ELEVATION: 33" BELOW FINISHED FLOOR.
3. 400 GAL. SAND/OIL INTERCEPTOR BY AMCOR. DURACRETE OR APPROVED EQUIVALENT. PROVIDE WITH SAMPLING MANHOLE.
4. PUMPED WASTE LINE FROM TUNNEL SUMP PUMP. TAKE TO JANITORS SINK.
5. PROVIDE RAYCHEM 8XL-TRACE 8W/FT, 120V HEAT CABLE IN CANOPY DRAINS.

KEY PLAN





LEVEL 1 WASTE AND VENT PLAN AREA B

1/8" = 1'-0" (1 / PW101B)

N

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LEVEL 1 WASTE AND VENT PLAN AREA B

PW101B

VOLUME 2

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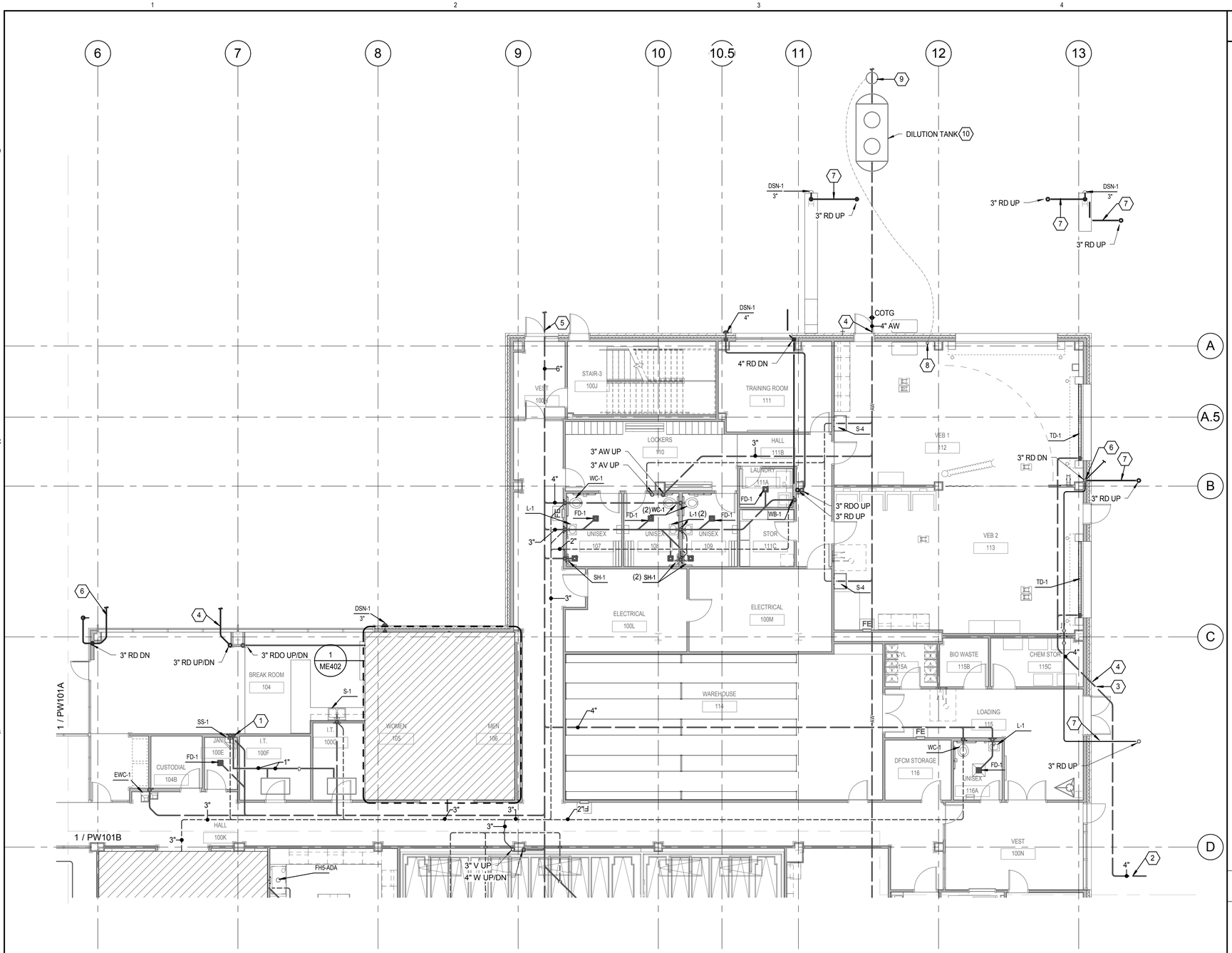


LEVEL 1 WASTE AND VENT PLAN AREA C

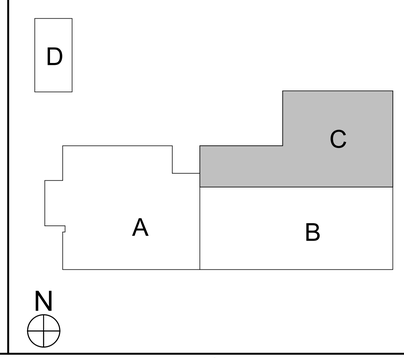
1/8" = 1'-0" (1 / PW101C)

N

KEYED NOTES

1. EXTEND CONDENSATE DRAIN LINE AND SLOPE TO JANITOR SINK.
2. WASTE LINE FROM GARAGE. SEE SHEET PW101C.
3. WASTE LINE TO SAND/OIL INTERCEPTOR. SEE SHEET PW101B FOR CONTINUATION.
4. LEAVING INVERT ELEVATION: 46" BELOW FINISHED FLOOR.
5. LEAVING INVERT ELEVATION: 54" BELOW FINISHED FLOOR.
6. LEAVING INVERT ELEVATION: 33" BELOW FINISHED FLOOR.
7. PROVIDE RAYCHEM 8XL-TRACE 8W/FT, 120V HEAT CABLE IN CANOPY DRAINS.
8. IPEX NEUTRASYSTEM 2 PH MONITERING SYSTEM WITH PROBE, ALARM AND CHART. INSTALL PROBE IN SAMPLING MANHOLE. TIE MONITOR INTO BMS. 120 VAC.
9. SAMPLING MANHOLE WITH PH PROBE.
10. CONTAINMENT SOLUTIONS DWT 6(6) 3000 3000 GAL TANK. TANK TO HAVE VINYL ESTER LINER.

KEY PLAN



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LEVEL 1 WASTE AND VENT PLAN AREA C

PW101C

VOLUME 2

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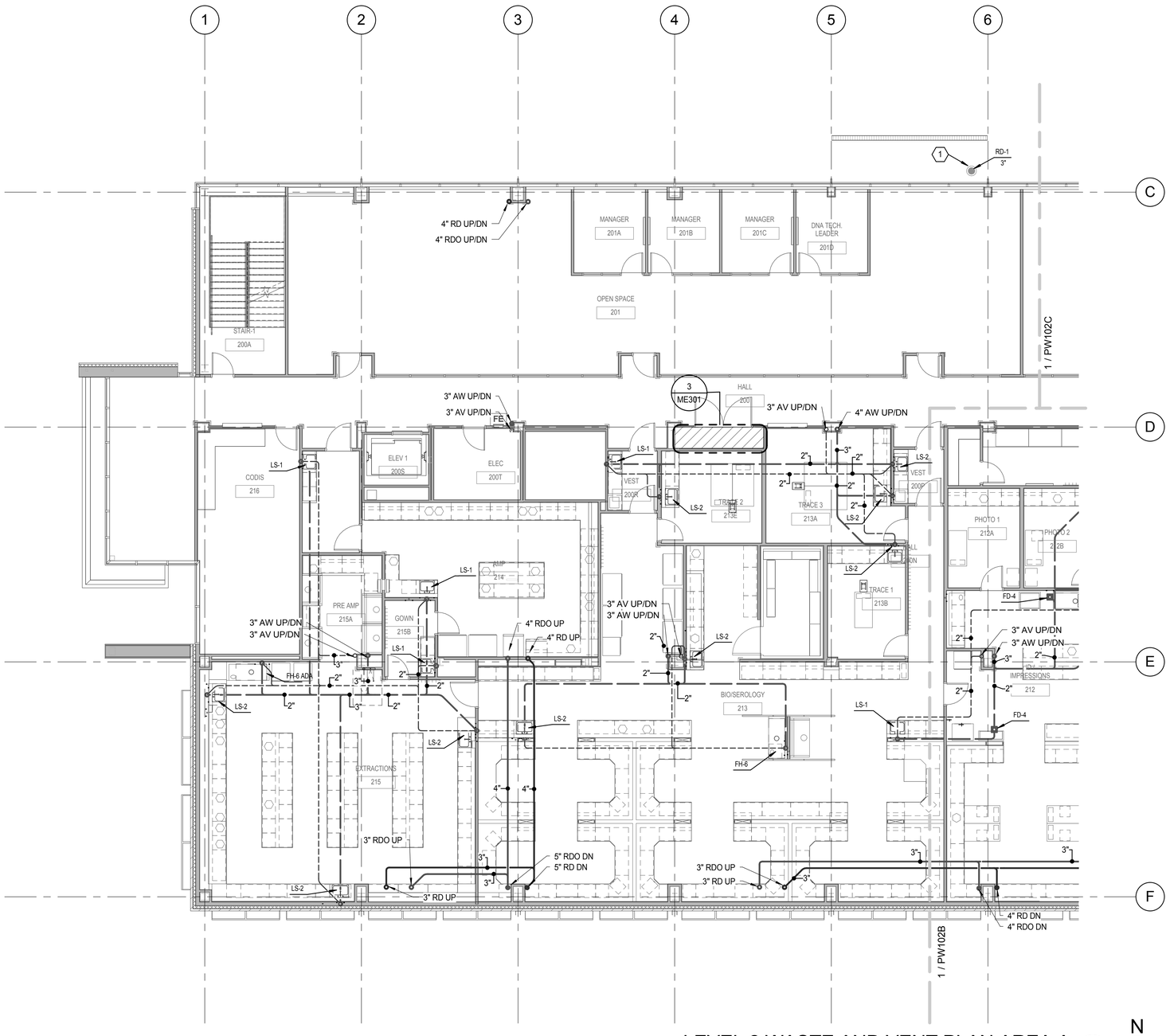


LEVEL 2 WASTE AND VENT PLAN AREA A (1 / PW102A)

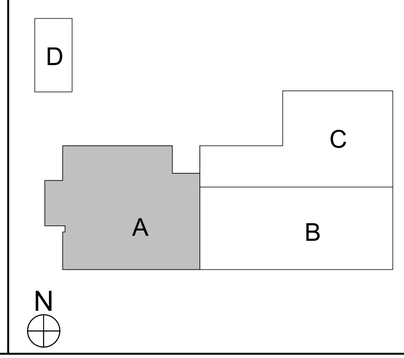
1/8" = 1'-0"

N

KEYED NOTES

1 PROVIDE FREEZE PROTECTION CABLE IN EXTERIOR ROOF DRAINAGE PIPING.

KEY PLAN



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LEVEL 2 WASTE AND VENT PLAN AREA A

PW102A

VOLUME 2

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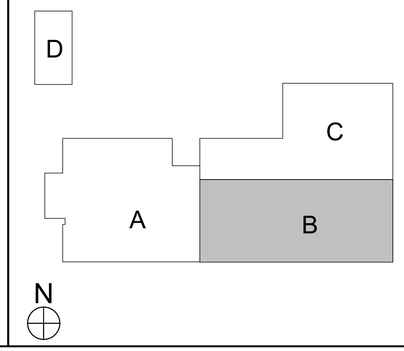
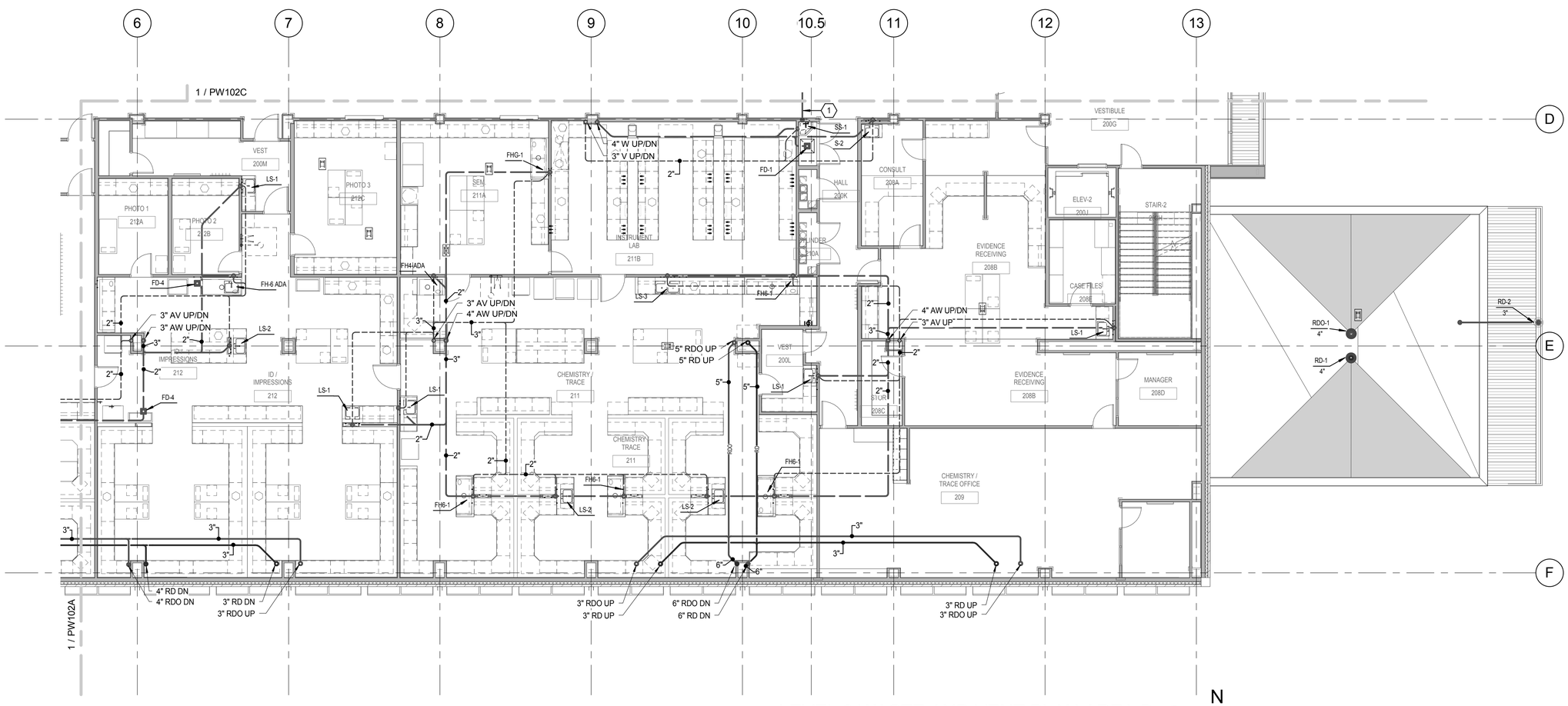
KEYED NOTES

1 CONDENSATE DRAIN FROM IT FAN COIL UNIT.

KEY PLAN





LEVEL 2 WASTE AND VENT PLAN AREA B (1 / PW102B)

1/8" = 1'-0"

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LEVEL 2 WASTE AND VENT PLAN AREA B

PW102B

VOLUME 2

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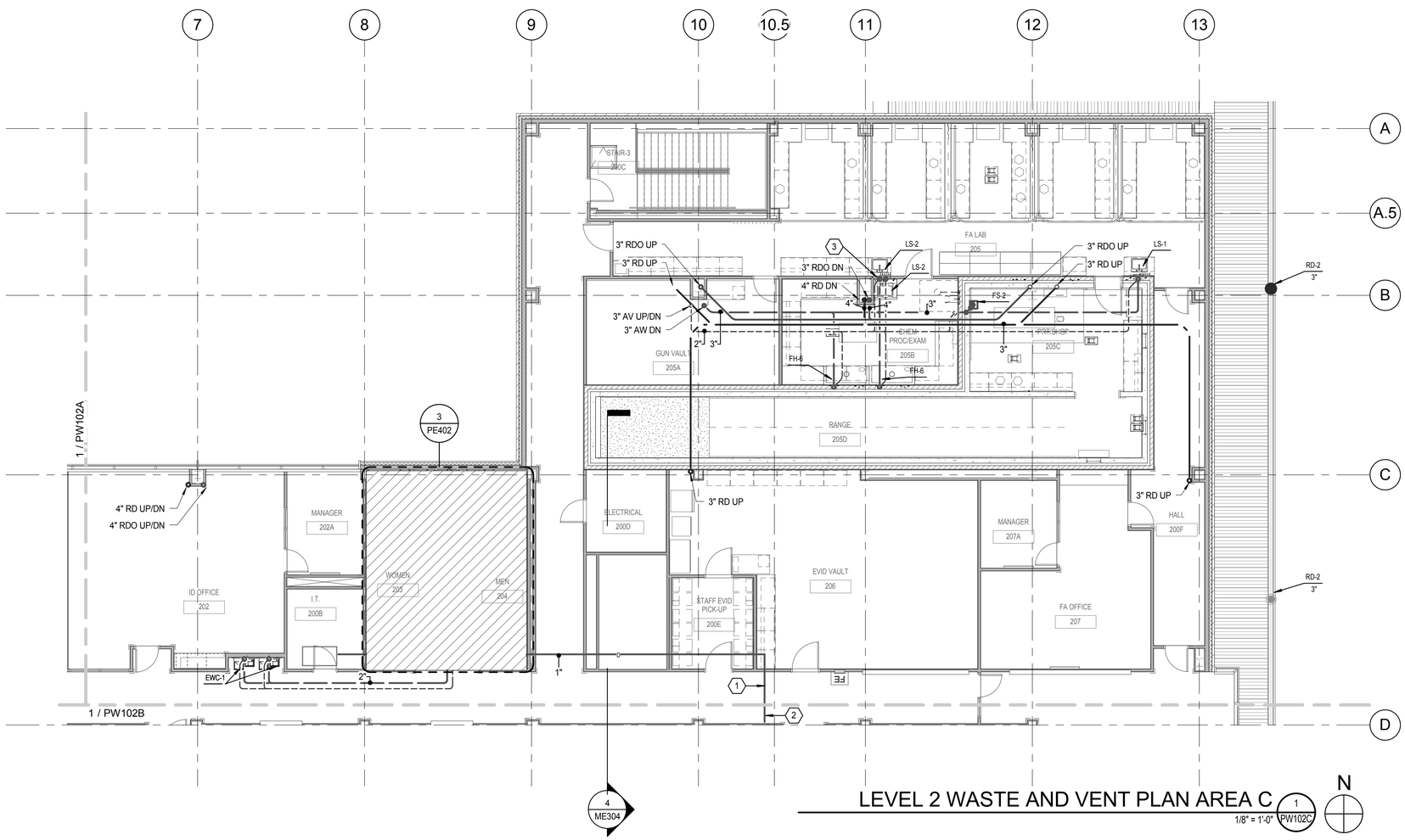


LEVEL 2 WASTE AND VENT PLAN AREA C

1/8" = 1'-0" (1 / PW102C)

N

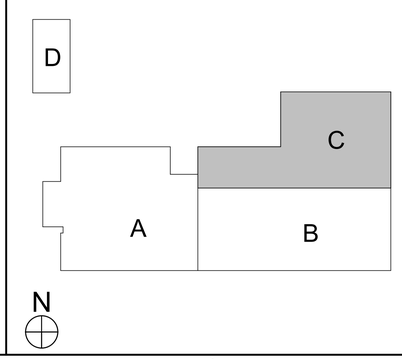
KEYED NOTES

1 EXTEND CONDENSATE DRAIN LINE AND SLOPE TO JANITOR SINK.

2 CONDENSATE DRAIN FROM IT FAN COIL UNIT.

3 BACK TO BACK SINKS SERVED FROM THE SAME WASTE AND VENT LINES.

KEY PLAN



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LEVEL 2 WASTE AND VENT PLAN AREA C

PW102C

VOLUME 2

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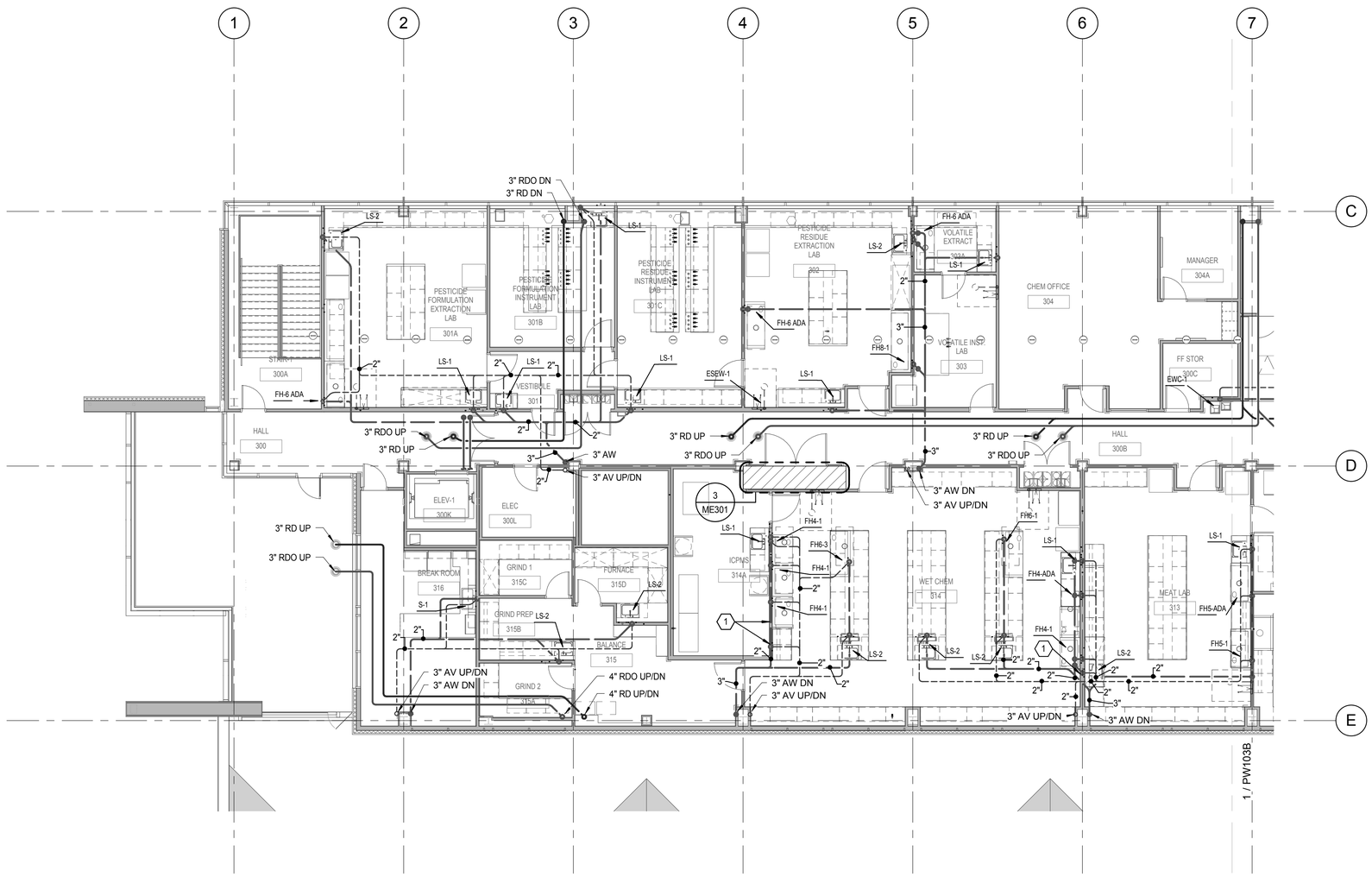


LEVEL 3 WASTE AND VENT PLAN AREA A

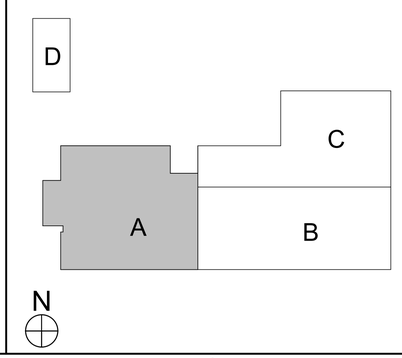
1 PW103A
1/8" = 1'-0"

N

KEYED NOTES

1 EXTEND WASTE LINE THRU WALL BEFORE DROPPING TO LEVEL BELOW AT THIS POINT.

KEY PLAN



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DFCM #:	13020300
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LEVEL 3 WASTE AND VENT PLAN AREA A

PW103A

VOLUME 2

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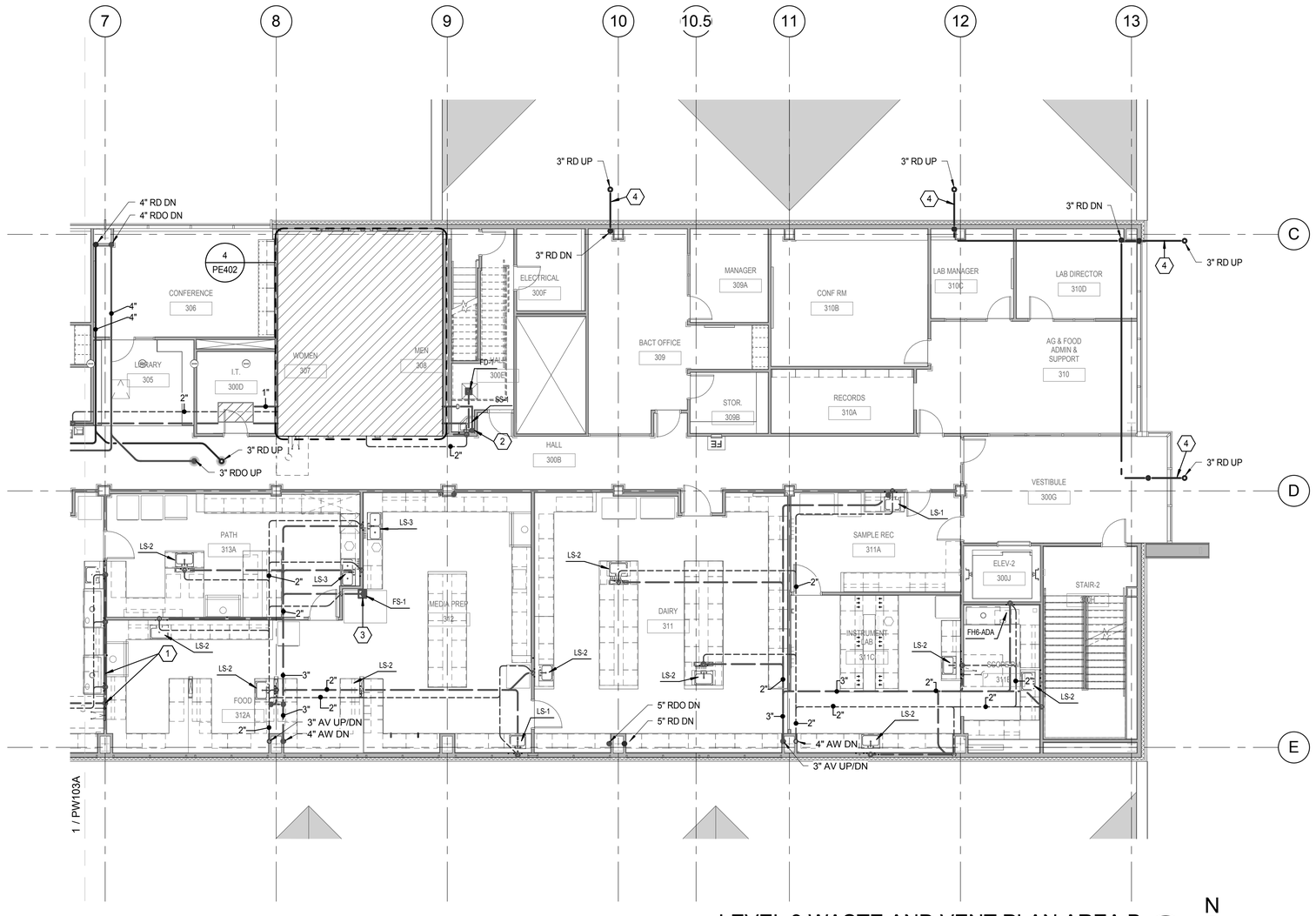


LEVEL 3 WASTE AND VENT PLAN AREA B (1 / PW103B)

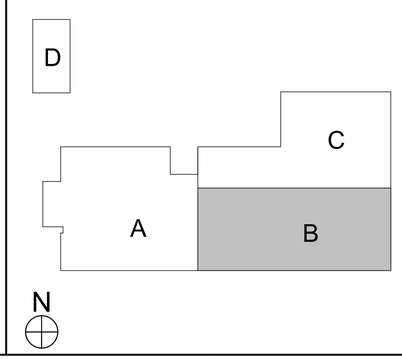
1/8" = 1'-0"

N

KEYED NOTES

1. EXTEND WASTE LINE THRU WALL BEFORE DROPPING TO LEVEL BELOW AT THIS POINT.
2. EXTEND CONDENSATE DRAIN LINE AND SLOPE TO JANITOR SINK.
3. COORDINATE FLOOR SINK LOCATION WITH AUTOCLAVE WASTE LINE CONFIGURATION.
4. PROVIDE RAYCHEM 8XL-TRACE 8W/FT, 120V HEAT CABLE IN CANOPY DRAINS.

KEY PLAN



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ARCHITECT-ENGINEER STAMP

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LEVEL 3 WASTE AND VENT PLAN AREA B

PW103B

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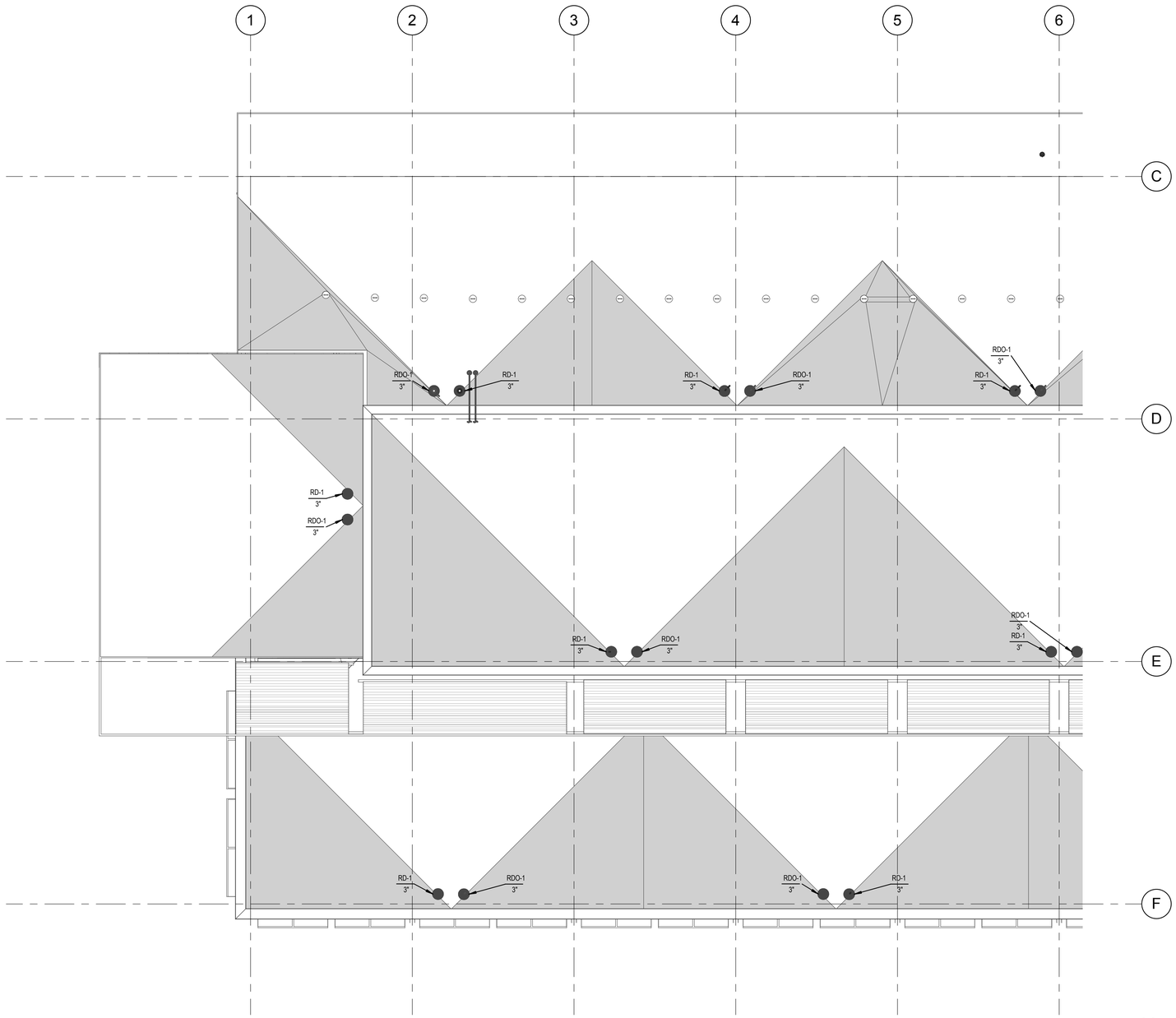


ROOF LEVEL PLUMBING PLAN AREA A

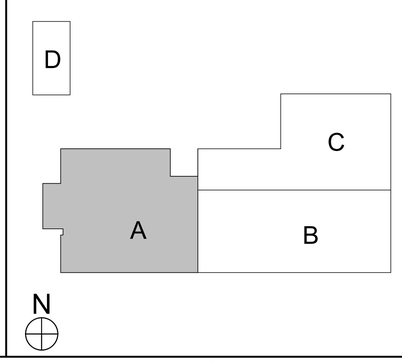
1 / PW105A

1/8" = 1'-0"

N

KEYED NOTES

KEY PLAN



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ROOF LEVEL PLUMBING PLAN AREA A

PW105A

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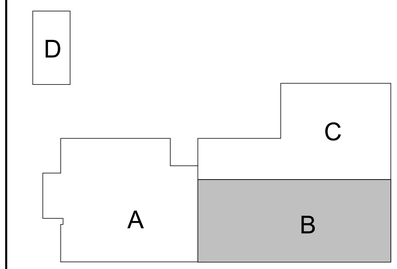
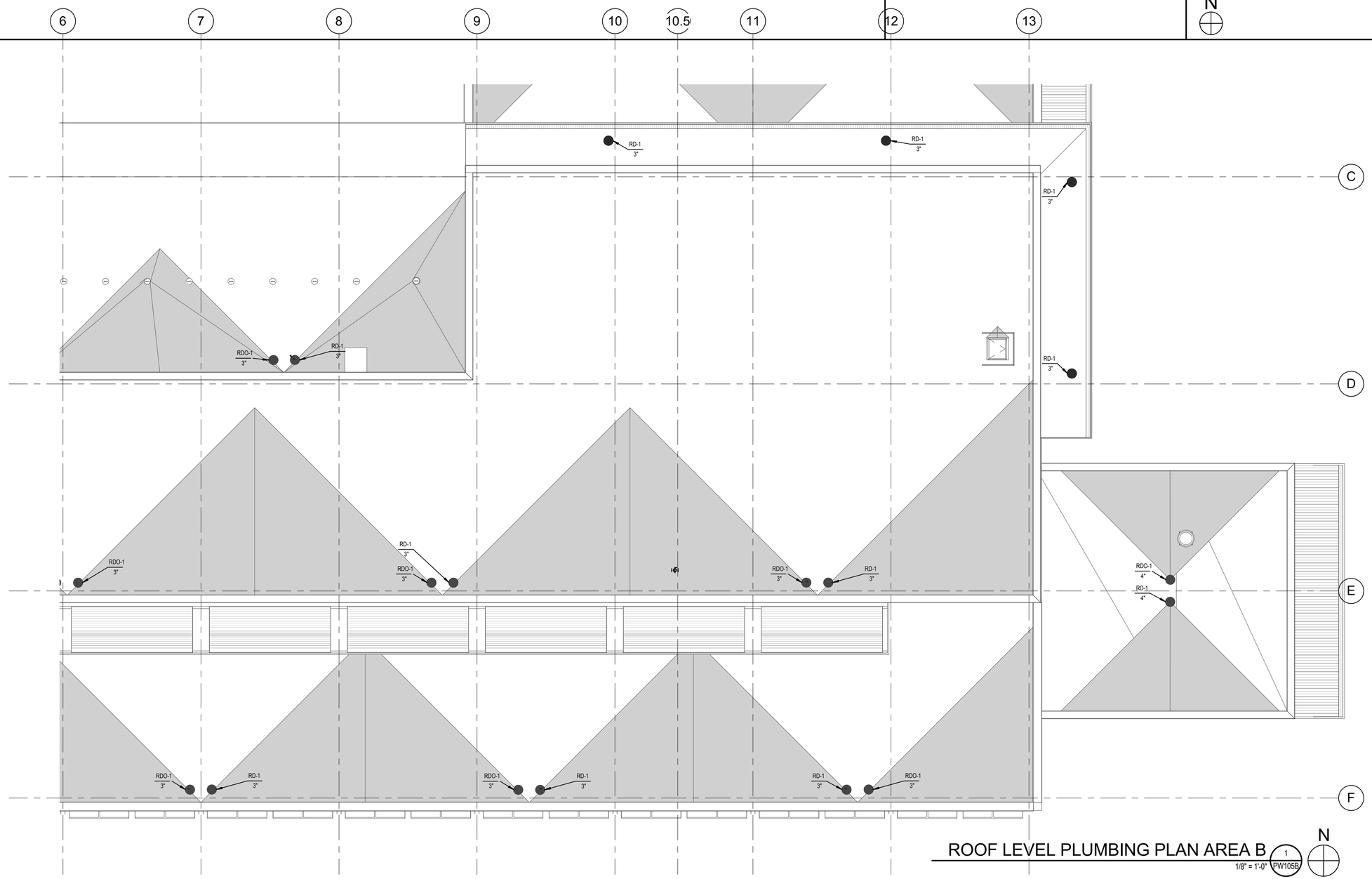
KEYED NOTES

KEY PLAN





ROOF LEVEL PLUMBING PLAN AREA B

1/8" = 1'-0" (1 / PW105B)

N

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ROOF LEVEL PLUMBING PLAN AREA B

PW105B

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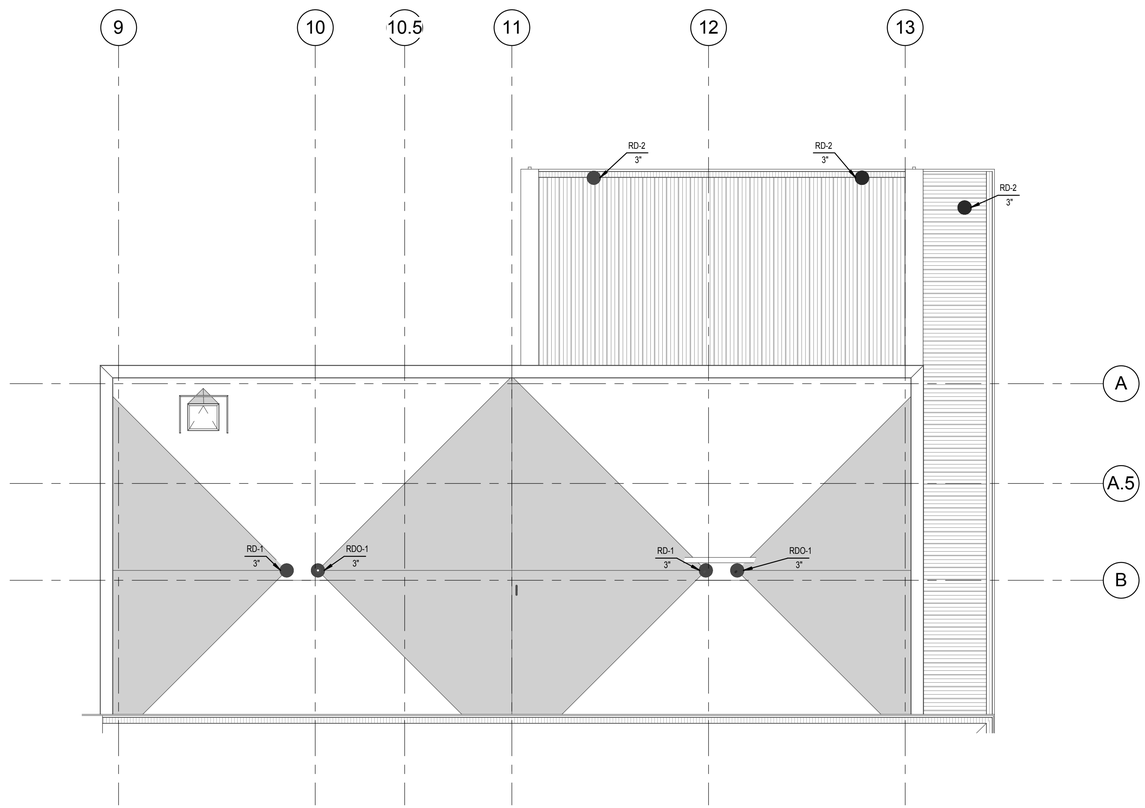


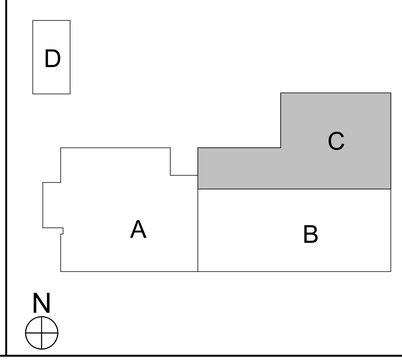
ROOF LEVEL PLUMBING PLAN AREA C (1 / PW105C)

1/8" = 1'-0"

N

KEYED NOTES

KEY PLAN



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ROOF LEVEL PLUMBING PLAN AREA C

PW105C

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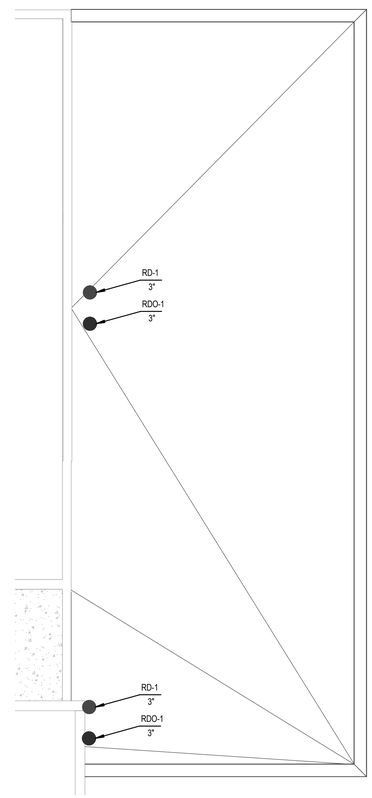
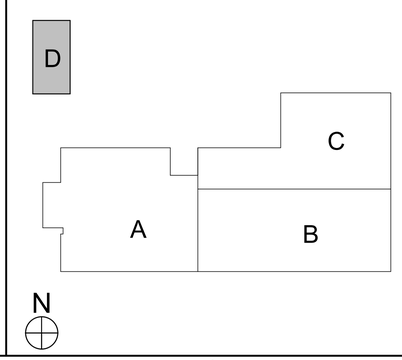


ROOF LEVEL PLUMBING PLAN AREA D (1 / PW105D)
1/8" = 1'-0"

N

KEYED NOTES

KEY PLAN



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ROOF LEVEL PLUMBING PLAN AREA D

PW105D

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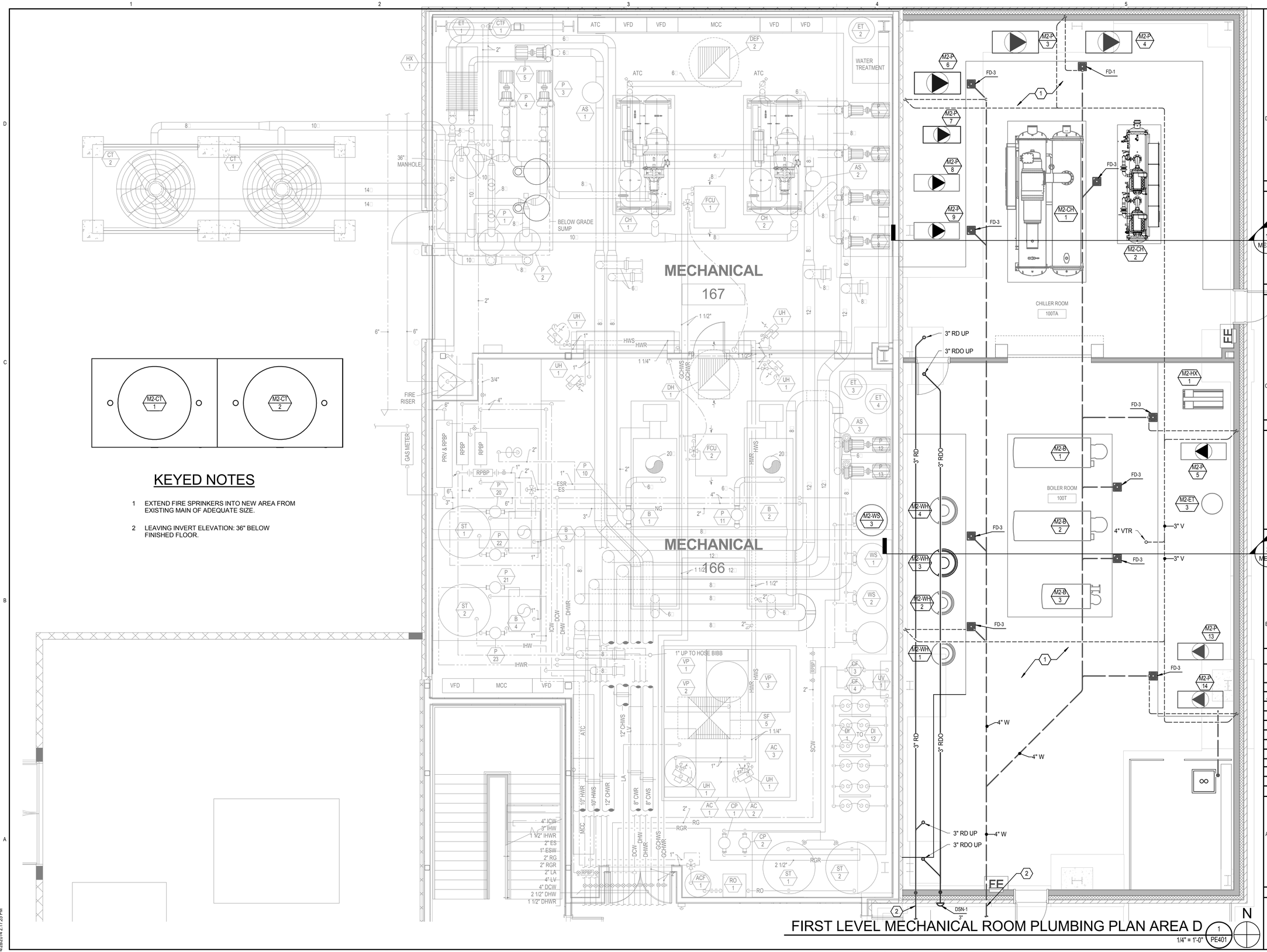

KEYED NOTES

1 EXTEND FIRE SPRINKERS INTO NEW AREA FROM EXISTING MAIN OF ADEQUATE SIZE.

2 LEAVING INVERT ELEVATION: 36" BELOW FINISHED FLOOR.

FIRST LEVEL MECHANICAL ROOM PLUMBING PLAN AREA D

1 PE401 — 1/4" = 1'-0"

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MECHANICAL ROOM PLUMBING PLAN

PE401

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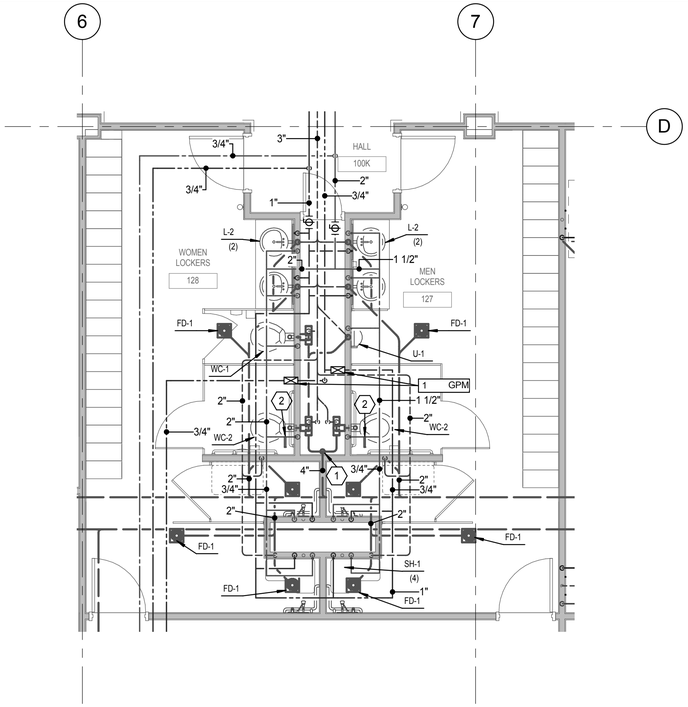
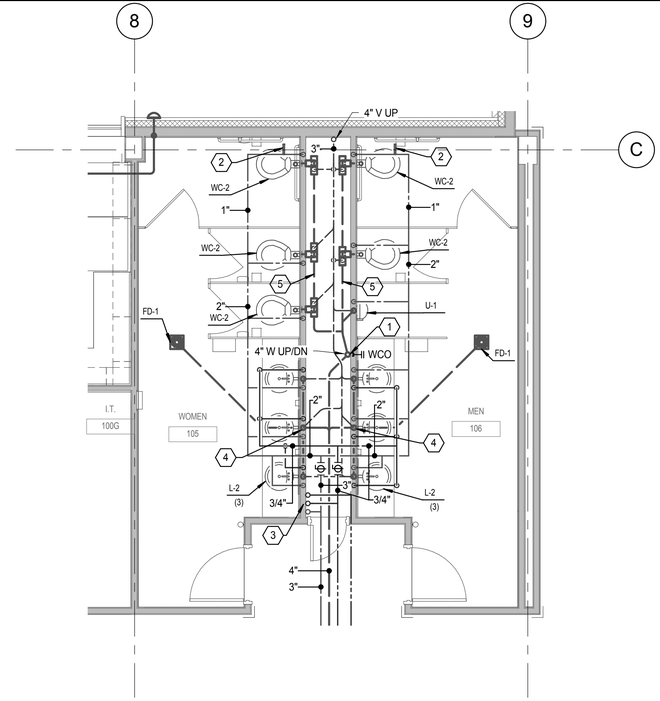


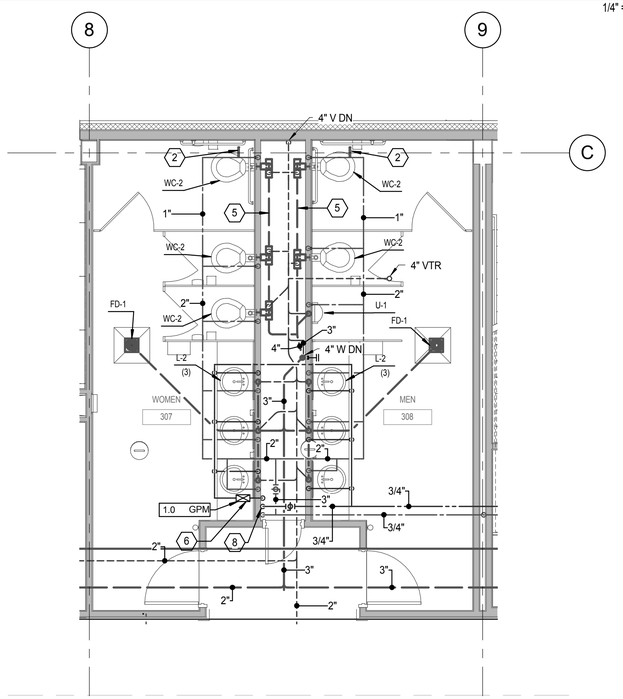
LARGE SCALE FIRST LEVEL LOCKER ROOMS PLUMBING PLAN (2 / PE402)

1/4" = 1'-0"



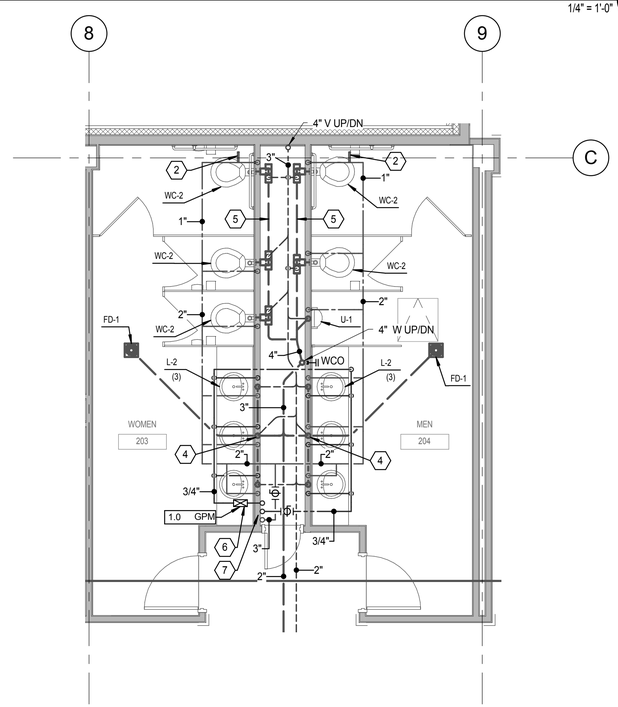
LARGE SCALE FIRST LEVEL TOILET ROOM PLUMBING PLAN (1 / PE402)

1/4" = 1'-0"



LARGE SCALE THIRD LEVEL TOILET ROOM PLUMBING PLAN (4 / PE402)

1/4" = 1'-0"



LARGE SCALE SECOND LEVEL TOILET ROOM PLUMBING PLAN (3 / PE402)

1/4" = 1'-0"

KEYED NOTES

1. DROP WASTE LINE BELOW GRADE.
2. WATER HAMMER ARRESTOR. INSTALL ABOVE CEILING WITH ACCESS DOOR OR IN ACCESSIBLE LOCATION IN CHASE.
3. 3" DCW, 1 1/2" IHW, 3/4" IHWR UP.
4. EXTEND LAVATORY WASTE LINES THRU WALL TO COLLECT AND DROP BELOW AT THIS LOCATION.
5. WASTE LINE ABOVE GRADE ON CHASE FLOOR.
6. CALIBRATED CIRCUIT SETTER BALANCING VALVE. BALANCE TO VALVE INDICATED.
7. 3" DCW UP/DN, 1" IHW UP/DN, 3/4" IHWR UP/DN.
8. 3" DCW, 1" DHW, 3/4" DHWR DN.

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LARGE SCALE PLUMBING PLANS

PE402

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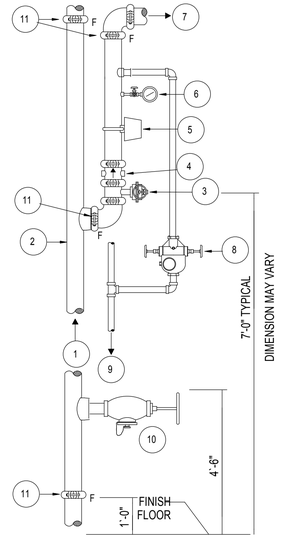
		SUPERVISORY SIGNAL TO FACP (TROUBLE)	ALARM SIGNAL TO FACP	ACTUATE DELUGE VALVE RELEASING WATER INTO PIPES	RELAY TO EPO (OPTIONAL)		
SINGLE INTERLOCK (WET-PIPE DESIGN)	PULL STATION		X	X			
	SMOKE (I)		X	X			
	SMOKE (P)		X	X			
	* AIR	X					
DOUBLE INTERLOCK (DRY-PIPE DESIGN)	PULL STATION	X			X		
	SMOKE (I)		X				
	SMOKE (P)		X				
	LOW AIR PRESSURE	X					
	PULL & AIR			X	X		
	SMOKE(I) & AIR			X	X		
	SMOKE (P) & AIR			X	X		

*ONLY REQUIRED IF OVER 20 SPRINKLERS (NFPA 13 7.3.4.1)

5 PE501 PREACTION SYSTEM SEQUENCE OF OPERATION
NO SCALE

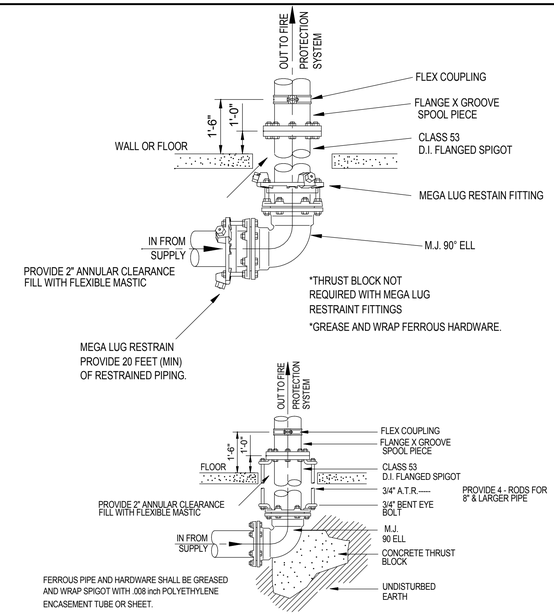


FLOOR CONTROL ASSEMBLY & HOSE VALVE

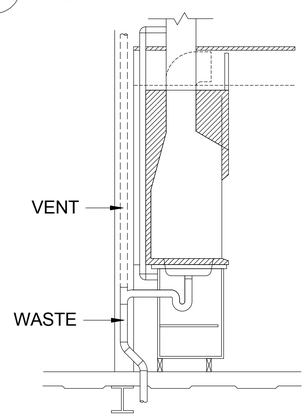
3 PE501 COMBINED STANDPIPE & FLOOR CONTROL ASSEMBLY
NO SCALE

DETAIL L E G E N D

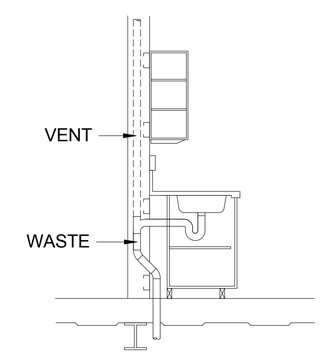
1. FROM SUPPLY
2. VERTICAL RISER
3. INDICATING TYPE FLOOR CONTROL VALVE WITH SUPERVISORY SWITCH
4. CHECK VALVE
5. VANE TYPE WATERFLOW SWITCH WIRING BY DIVISION 28
6. PRESSURE GAUGE, AND 3 WAY VALVE WITH PLUG AND NIPPLES.
7. TO SPRINKLER SYSTEM
8. DRAIN/TEST VALVE WITH ORIFICE, SIZED AS REQUIRED
9. EXPRESS DRAIN
10. 2 1/2" HOSE VALVE, WITH 1 1/2" REDUCER AND CAP
11. FLEXIBLE COUPLINGS AS REQUIRED FOR SEISMIC PROTECTION OF PIPING



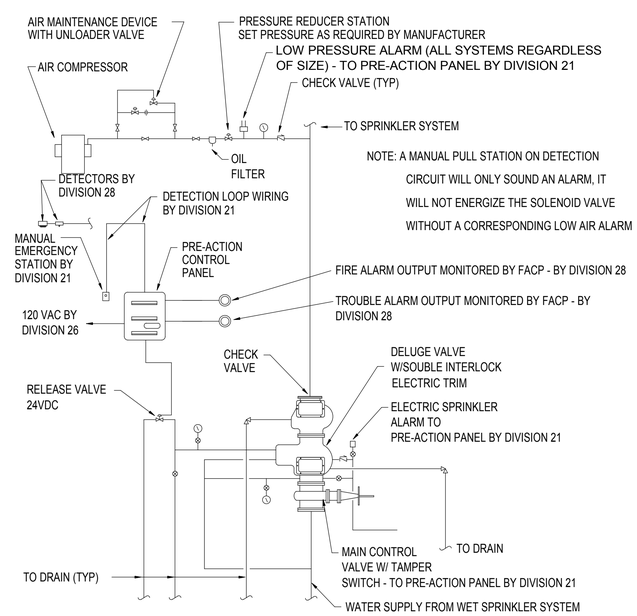
1 PE501 FLANGED SPIGOT THROUGH FLOOR
NO SCALE



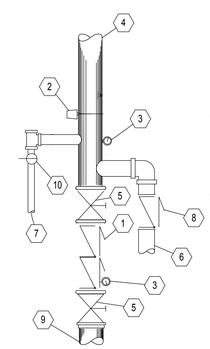
6 PE501 WASTE/VENT IN FUME HOOD CABINET
NO SCALE



7 PE501 WASTE/VENT IN FIXED WALL CABINET
NO SCALE



4 PE501 DOUBLE INTERLOCK PREACTION SYSTEM DETAIL - ADDRESSABLE DETECTION
NO SCALE



1. DOUBLE CHECK VALVE ASSEMBLY
2. FLOW SWITCH TO HORN STROBE ALARM, WIRING BY DIVISION 26/28.
3. WATER PRESSURE GAGE
4. TO WET SYSTEM.
5. CONTROL VALVE WITH TAMPER SWITCH, WIRING BY DIVISION 26.
6. TO FIRE DEPARTMENT CONNECTION.
7. MAIN DRAIN PIPED TO EXTERIOR.
8. CHECK VALVE
9. FIRE LINE FROM SUPPLY. PROVIDE GALVANIZED PIPING UP TO VALVE ASSEMBLY. PROVIDE RESTRAINTS, FLEXIBLE COUPLINGS, AND ANNULAR CLEARANCE AS REQUIRED BY NFPA.
10. MAINTENANCE VALVE

2 PE501 FIRE RISER DETAIL
NO SCALE

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PLUMBING DETAILS

PE501

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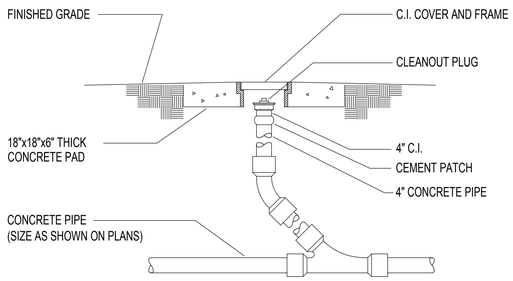
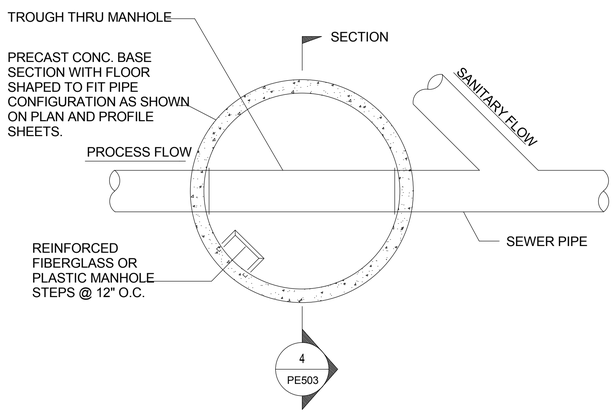


6 / PE502 CLEANOUT TO GRADE DETAIL (COTG)

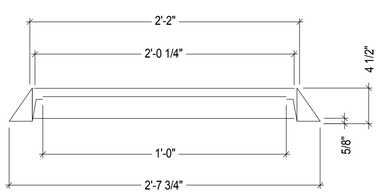
NO SCALE



7 / PE502 PLAN-MANHOLE

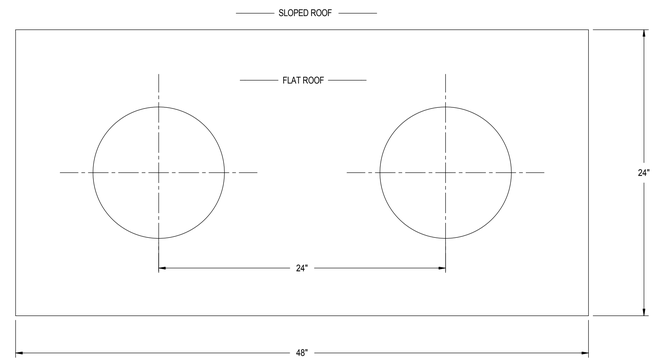
NO SCALE

NOTE: IF CONCRETE GRADE RINGS ARE USED ON A SAMPLING MANHOLE INSTALLATION, THE TOTAL HEIGHT OF STACKED RINGS MUST NOT EXCEED 12".

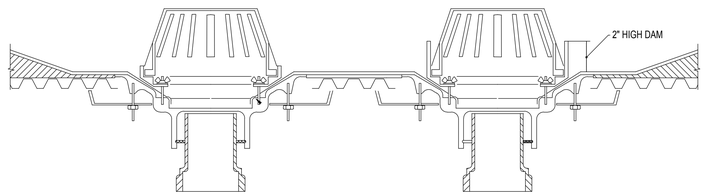


8 / PE502 MANHOLE RING

NO SCALE

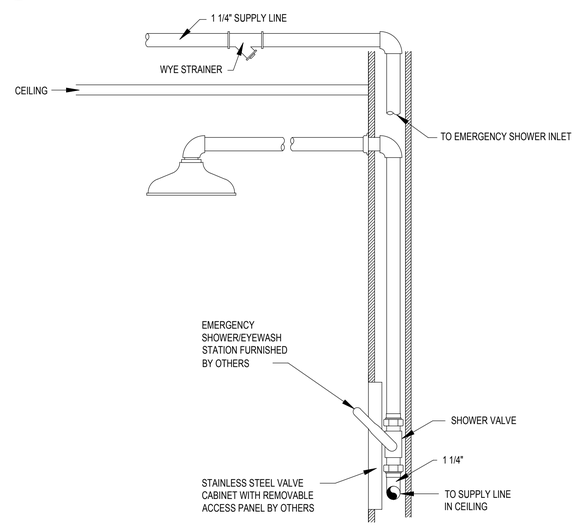


ROOF DRAIN ROOF DRAIN OVERFLOW



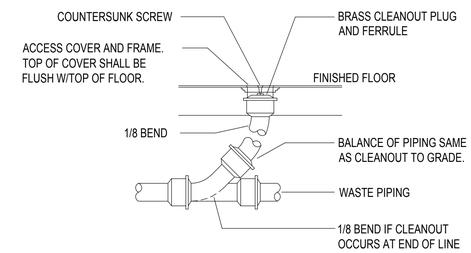
4 / PE502 ROOF DRAIN DETAIL

NO SCALE



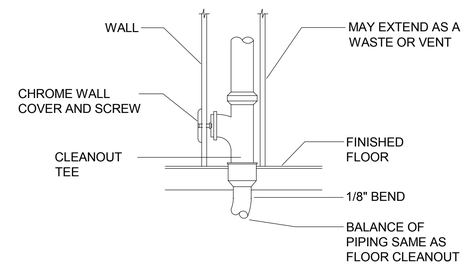
5 / PE502 EMERGENCY SHOWER STATION DETAIL

NO SCALE



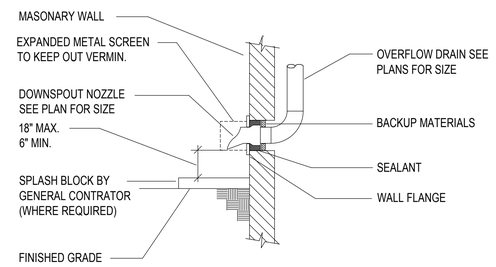
1 / PE502 FLOOR CLEANOUT DETAIL

NO SCALE



2 / PE502 WALL CLEANOUT DETAIL

NO SCALE



3 / PE502 DOWNSPOUT NOZZLE DETAIL

NO SCALE

CRSA
649 E. South Temple
Salt Lake City, UT 84102
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DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
REVIEWED FOR CODE COMPLIANCE
SIGNATURE: Ernie Catt
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 178893
DONALD K. BRADSHAW
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #:	13020300
Project #:	B13-024
DATE:	ISSUE TYPE:
April 21, 2014	BID SET
CHECKED BY	Checker
DRAWN BY	Author

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VOLUME 2

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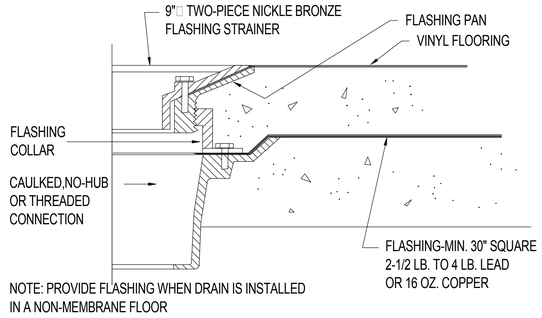


6 PE503 FLOOR DRAIN
NO SCALE

NOTES:

1. PIPING, CLEANOUT CONFIGURATION, SIZE AND TYPE OF PIPING MATERIAL AS PER CITY OR SANITARY DISTRICT. INSPECTION BY SVWRF PRIOIR TO BACK FILING AS REQUIRED.
2. WIDTH OF THROUGH IN THE MANHOLE MUST BE THE SAME SIZE AS THE INLET PIPE INTO MANHOLE. DEPTH OF THROUGH MUST BE THE SAME AS 1/2 OF INLET
3. PIPE DIAMETER.
4. CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4000 PSI.
5. REINFORCEMENT STEEL SHALL BE ASTW A615 GRADE 60.
6. THE CONCRETE COVER OVER REINFORCEMENT STEEL SHALL BE A MINIMUM OF 1 1/2 INCHES.
7. THE STRUCTURE SHALL BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF UTAH.

A) THE STRUCTURE SHALL BE DESIGNED FOR THE FOLLOWING LOADING CRITERIA:

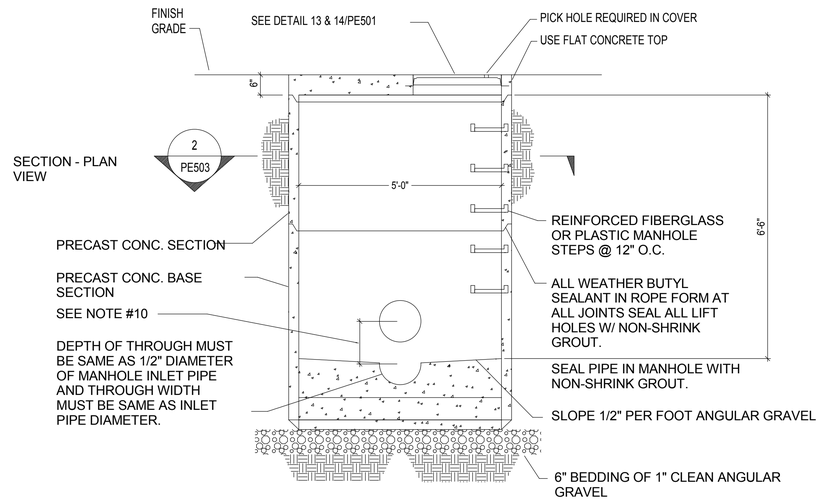
B) WALLS DESIGNED FOR A SATURATED EQUIVALENT FLUID AT-REST SOIL
8. PRESSURE OF 90° PCF PLUS TRUCK SURCHARGE.
TRUCK LOADING USING AN AASHTO H-20 TRUCK LOAD.
9. MANHOLES OVER 4 FEET IN DEPTH WILL HAVE STAINLESS OR PLASTIC STEPS.
10. ALL MANHOLES MUST HAVE ROUND NOTCHED COVERS WITH PICK HOLE FOR REMOVAL.

FOR NEW CONSTRUCTION, BOTTOM OF INLET PIPE INTO MANHOLE MUST BE AT LEAST 3 INCHES ABOVE THE BOTTOM OF THE THROUGH THRU THE MANHOLE.

BRANCH WATER LINE SCHEDULE

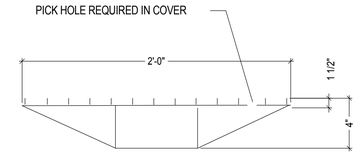
FIXTURE	FIXTURE UNITS	QUANTITY OF FIXTURES SERVED BY					
		1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
WATER CLOSET (FLUSH VALVE)	10	---	---	1	3	5	15
WATER CLOSET (TANK TYPE)	3	1	2	4	10	---	---
N. GAS	---	5	10	20	40	---	---
LA OUTLET	---	---	2	5	9	14	---
HLA OUTLET	---	3	6	10	---	---	---
URINAL	5	---	1	2	6	10	30
LAVATORY	2	1	3	6	15	25	---
LAB SINK	4	1	3	6	---	---	---
CUP SINK	1	2	6	---	---	---	---
QUANTITY OF FIXTURE UNITS SERVED BY	---	3	6	1	30	55	110

NOTE:
WHERE PIPING IS SIZED ON DRAWINGS IT SHALL BE FOLLOWED. OTHERWISE INSTALL ACCORDING TO TABLE. WHERE FIXTURES ON A BRANCH ARE MIXED. TAKE THE SUM OF FIXTURE UNITS TO DETERMINE SIZING. THE BRANCHES SHALL BE REDUCED AS THE LOAD IS TAKEN OFF. MINIMUM SIZE TO ONE (1) FIXTURE SHALL BE 1/2".

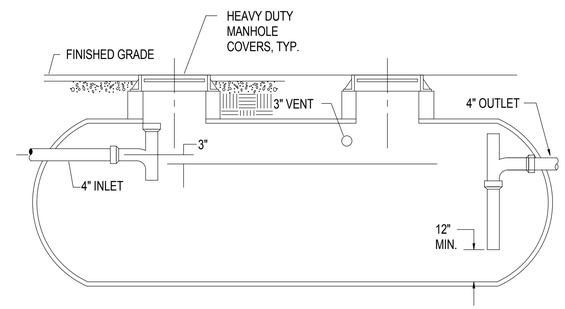


4 PE503 SECTION–MANHOLE
NO SCALE

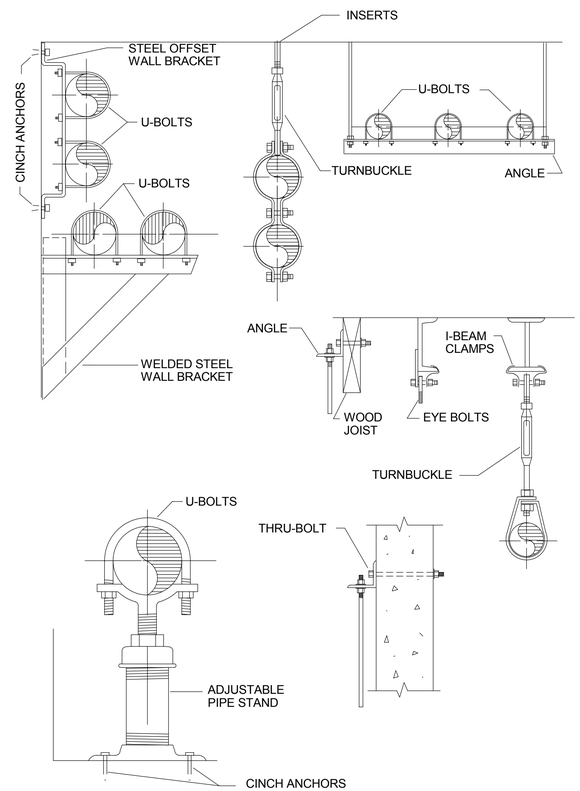
NOTE: IF CONCRETE GRADE RINGS ARE USED ON A SAMPLING MANHOLE INSTALLATION, THE TOTAL HEIGHT OF STACKED RINGS MUST NOT EXCEED 12".



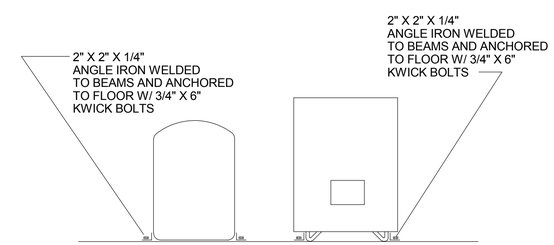
1 PE503 MANHOLE COVER
NO SCALE



2 PE503 DILUTION TANK
NO SCALE



5 PE503 TYPICAL PIPE SUPPORT DETAIL
NO SCALE



3 PE503 WATER SOFTENER ANCHORAGE DETAIL
NO SCALE

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649 E. South Temple
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DONALD K. BRADSHAW
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Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300
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DRAWN BY	Author

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PE503

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PLUMBING FIXTURE SCHEDULE

ID	FIXTURE	DCW (IN)	DHW (IN)	ICW (IN)	IHW (IN)	RG (IN)	ES (IN)	SA (IN)	LA (IN)	LV (IN)	W (IN)	V (IN)	AW (IN)	AV (IN)	NOTES
WC-1	WATER CLOSET	1	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	4	2	-.-	-.-	WATER CLOSET (FLOOR MOUNT, FLUSH VALVE, ADA): KOHLER K4368, HIGHCLIFF TOILET, FLOOR MOUNT, VITREOUS CHINA, 1.6 GALLON FLUSH. ELONGATED BOWL DESIGN, SIPHON JET FLUSHING, 2-1/4" PASSAGEWAY AND 1-1/2" TOP SPUD. SLOAN WES-111 DUAL FLUSH VALVE, 1.6 GPF UP/1.1 GPF DN. BEMIS 3155-C "DURAGUARD" WHITE, SOLID PLASTIC, OPEN-FRONT SEAT, LESS COVER.
WC-2	WATER CLOSET	1	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	4	2	-.-	-.-	WATER CLOSET (WALL HUNG, FLUSH VALVE, ADA): KOHLER K4330, KINGSTON TOILET, WALL HUNG, VITREOUS CHINA, 1.6 GALLON FLUSH. ELONGATED BOWL DESIGN, SIPHON JET FLUSHING, 2-1/4" PASSAGEWAY AND 1-1/2" TOP SPUD. SLOAN WES-111 DUAL FLUSH VALVE, 1.6 GPF UP/1.1 GPF DN. BEMIS 3155-C "DURAGUARD" WHITE, SOLID PLASTIC, OPEN-FRONT SEAT, LESS COVER. SMITH 0210 HORIZONTAL (LEFT OR RIGHT HAND AS REQUIRED) OR SMITH 0230 VERTICAL ADJUSTABLE CARRIER WITH FOOT SUPPORT. SEE ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS.
U-1	URINAL	3/4	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	2	2	-.-	-.-	URINAL (WALL HUNG): SLOAN WEUS 1000.1402-0.13 COMPLETE HEU SYSTEM WITH BATTERY POWERED SENSOR OPERATED G2 OPTIMA PLUS 0.125 GAL/FLUSH FLUSHOMETER AND VITREOUS CHINA URINAL WITH INTEGRAL FLUSHING RIM, ¾" TOP SPUD, 2" SPUD OUTLET. SEE ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHT.
L-1	LAVATORY	1/2	1/2	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1 1/2	1 1/2	-.-	-.-	LAVATORY: (WALL HUNG) KOHLER K-2084, SOHO, 20" X 18". VITREOUS CHINA, WITH OVERFLOW AND SINGLE CENTER HOLES. SYMMONS SYMMETRIX SLS-2010-0.5 LAVATORY FAUCET, WITH SINGLE SWIVEL LEVER HANDLE AND 0.5 GPM AERATOR. WATTS USG-B-M2 THERMOSTATIC MIXING VALVE WITH WATTS NO. 7 DUAL CHECKS ON HOT AND COLD SUPPLIES. FLEXIBLE STAINLESS STEEL SUPPLIES WITH LOOSE KEY ANGLE STOPS. CHICAGO 327-XCP OPEN-GRID STRAINER AND CAST BRASS, CHROME PLATED P-TRAP WITH CLEAN OUT PLUG. SMITH 0700-Z CONCEALED ARM CHAIR ARRIER WITH FOOT SUPPORT. PROVIDE ADA COMPLIANT UNDER COUNTER PIPING WRAP BY TRUE-BRO, COLOR TO BE WHITE.
L-2	LAVATORY	1/2	1/2	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1 1/2	1 1/2	-.-	-.-	LAVATORY (UNDERCOUNTER MOUNT): KOHLER K-2355 ARCHER 18" X 13" BASIN, UNDER-MOUNT LAVATORY; CHICAGO 116.750.AB.1-FC ELECTRONIC FAUCET WITH DUAL BEAM INFARED SENSOR SINGLE HOLE DECK MOUNTED WITH 0.5 GPM VANDAL PROOF AERATOR, PROVIDE FAUCET WITH 12V AC PLUG-IN TRANFORMER AND 4" CENTERS COVER PLATE. WATTS USG-B-M2 THERMOSTATIC MIXING VALVE WITH WATTS NO. 7 DUAL CHECKS IN HOT AND COLD SUPPLIES. FLEXIBLE STAINLESS STEEL SUPPLIES WITH LOOSE KEY ANGLE STOPS. CHICAGO 327-XCP OPEN-GRID STRAINER AND CAST BRASS, CHROME PLATED P-TRAP WITH CLEAN OUT PLUG. PROVIDE ADA COMPLIANT UNDER COUNTER PIPING WRAP BY TRUE-BRO, COLOR TO BE WHITE.
L-3	LAVATORY	1/2	1/2	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1 1/2	1 1/2	-.-	-.-	LAVATORY (COUNTER MOUNT): KOHLER 2202 BROOKLINE 19" DIA. SELF RIMMING LAVATORY WITH 4" CENTERS; CHICAGO 895-317E2805-5ABCP FACUET, WITH WRIST BLADE HANDLES, GN2 RIGID/SWING GOOSENECK SPOUT WITH 0.5 GPM VANDAL PROOF AERATOR, PROVIDE FAUCET. WATTS USG-B-M2 THERMOSTATIC MIXING VALVE WITH WATTS NO. 7 DUAL CHECKS IN HOT AND COLD SUPPLIES. FLEXIBLE STAINLESS STEEL SUPPLIES WITH LOOSE KEY ANGLE STOPS. CHICAGO 327-XCP OPEN-GRID STRAINER AND CAST BRASS, CHROME PLATED P-TRAP WITH CLEAN OUT PLUG. PROVIDE ADA COMPLIANT UNDER COUNTER PIPING WRAP BY TRUE-BRO, COLOR TO BE WHITE.
S-1	BREAK ROOM SINK	1/2	1/2	-.-	-.-	-.-	-.-	-.-	-.-	-.-	2	1 1/2	-.-	-.-	SINK (STAINLESS STEEL, COUNTER MOUNTED, 2- COMPARTMENT): JUST DL-1933-A-GR 18 GA. TYPE 304 STAINLESS STEEL SINK, 33" X 19 1/2" X 7-1/2" DEEP, SELF RIMMING, 8" CENTERS DRILLING AND J-35 CUP STRAINERS. CHICAGO 1100-369ABCP FAUCET WITH 1.5 GPM AERATOR. FLEXIBLE STAINLESS STEEL SUPPLIES WITH LOOSE KEY ANGLE STOPS, CAST BRASS P-TRAP WITH CLEAN-OUT PLUG. IN-SINK-ERATOR MODEL 444 GARBAGE DISPOSER, 3/4 HP, 120V/60HZ, 8.1 AMPS.
S-2	WORK SINK	1/2	1/2	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1 1/2	1 1/2	SINK (COUNTER MOUNTED): JUST SL-1921-A-GR 18 GA. TYPE 304 STAINLESS STEEL SINK,14" X 18" X 7-1/2" DEEP BASIN, SELF RIMMING, 8" CENTERS DRILLING WITH J-35 CUP STRAINER. CHICAGO 1100-GN8AE35-317AB FAUCET WITH GOOSENECK SPOUT AND 1.5 GPM AERATOR. FLEXIBLE STAINLESS STEEL SUPPLIES WITH LOOSE KEY ANGLE STOPS, CAST BRASS P-TRAP WITH CLEAN-OUT PLUG.
S-3	SCRUB SINK	1/2	1/2	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1 1/2	1 1/2	-.-	-.-	SCRUB SINK (WALL HUNG): WHITEHALL 4101 SCRUB STATION, STAINLESS STEEL SINGE SCRUB STATION, KNEE PUSH ACTUATED VALVE, THERMOSTATIC ANTI-SCALD MIXING VALVE AND CHAIR CARRIER FOR USE WITH SINGLE SINK. FLEXIBLE STAINLESS STEEL SUPPLIES WITH LOOSE KEY ANGLE STOPS, CAST BRASS P-TRAP WITH CLEAN-OUT PLUG.
S-4	MUD SINK	1/2	1/2	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1 1/2	1 1/2	-.-	-.-	MUD SINK (FLOOR MOUNTED): JUST NSFB-130 (12/12) ONE COMPARTMENT SINK, 14 GAGE TYPE 304 STAINLESS STEEL, 30"X24" ID BOWL DIMENSIONS 12" DEEP. CHICAGO 445 ABCP FAUCET WITH ADJUSTABLE ARMS FOR 8" CENTERS. J-35 CUP STRAINER AND CAST BRASS P-TRAP WITH CLEAN-OUT PLUG.
S-5	ADA WORK SINK	1/2	1/2	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1 1/2	1 1/2	-.-	-.-	SINK (COUNTER MOUNTED): JUST SL-ADA-1921-A-GR 18 GA. TYPE 304 STAINLESS STEEL SINK,14" X 18" X 6-1/2" DEEP BASIN, SELF RIMMING, 8" CENTERS DRILLING WITH J-35 CUP STRAINER. CHICAGO 1100-GN8AE35-317AB FAUCET WITH GOOSENECK SPOUT AND 1.5 GPM AERATOR. FLEXIBLE STAINLESS STEEL SUPPLIES WITH LOOSE KEY ANGLE STOPS, CAST BRASS P-TRAP WITH CLEAN-OUT PLUG.
S-6	WORK TUB	1/2	1/2	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1 1/2	1 1/2	-.-	-.-	WORK TUB (FLOOR MOUNTED): JUST J-127 SINGLE COMPARTMENT TUP, 14 GAGE TYPE 304 STAINLESS STEEL, 27"X27" ID BOWL DIMENSIONS 16" DEEP. CHICAGO 445 ABCP FAUCET WITH ADJUSTABLE ARMS FOR 8" CENTERS. J-35 CUP STRAINER AND CAST BRASS P-TRAP WITH CLEAN-OUT PLUG.
SS-1	SERVICE SINK	3/4	3/4	-.-	-.-	-.-	-.-	-.-	-.-	-.-	3	2	-.-	-.-	SERVICE SINK (FLOOR MOUNTED): KOHLER K6710, WHITBY, 28 X 28-INCH, ENAMELED CAST IRON FLOOR-MOUNTED CORNER MODEL, K9146-3" DRAIN WITH STRAINER, NO. K8940 REMOVABLE VINYL-COATED RIM GUARD; CHICAGO 897 FAUCET WITH VACUUM BREAKER, SCREWDRIVER STOPS IN SHANKS, 5 FOOT RUBBER HOSE AND 853 WALL HOOK.
LS-1	LAB SINK	-.-	-.-	1/2	1/2	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1 1/2	1 1/2	LAB SINK: PROVIDED UNDER SEPARATE DIVISION. ROUGH-IN AND CONNECT.
LS-2	LAB SINK	-.-	-.-	1/2	1/2	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1 1/2	1 1/2	LAB SINK: PROVIDED UNDER SEPARATE DIVISION. ROUGH-IN AND CONNECT.
SH-1	SHOWER	1/2	1/2	-.-	-.-	-.-	-.-	-.-	-.-	-.-	2	2	-.-	-.-	SHOWER (ADA COMPLIANT): SYMMONS 96-T500-T36-V-X-L-231-1.5 TEMPTROL, PACKAGED LOW FLOW 1.5 GPM SHOWER UNIT WITH HAND SPRAY AND HOSE; PRESSURE BALANCE PISTON OPERATED VALVE, 231-1.5 SUPER SHOWERHEAD WITH ADJUSTABLE SPRAY; 300S ARM; FS HAND SPRAY UNIT WITH FLEXIBLE HOSE, 36" GRAB/SLIDE BAR, WALL CONNECTION AND IN-LINE VACUUM BREAKER; 4-458 LEVERTROL DIVERTER, DOUBLE OUTLET WITH VOLUME CONTROL FOR SHOWER HEAD AND HAND SPRAY. SHOWER DRAIN; SMITH 2005-B-CP, 6-INCH SQUARE CHROME PLATED STRAINER, 2-INCH NO HUB OUTLET, CAST IRON BODY.
EWC-1	ELECTRIC WATER COOLER	1/2	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1 1/2	1 1/2	-.-	-.-	ELECTRIC WATER COOLER: ELKAY EZSTL8C TWO STATION, WALL MOUNTED, BARRIER FREE, ADA ELECTRIC WATER COOLER WITH FLEXIBLE BUBBLER GUARD AND STAINLESS STEEL BOWLS. COMPRESSOR TO BE 115V, 60 HZ WITH CAPACITY TO DELIVER AT LEAST 8.0 GPH OF 50°F WATER. 1-1/2" CAST BRASS CHROME-PLATED P-TRAPS. SEE ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS.
ESEW-1	EMERGENCY SHOWER/EYEWASH	-.-	-.-	-.-	-.-	-.-	1 1/4	-.-	-.-	-.-	-.-	-.-	-.-	-.-	EMERGENCY SHOWER EYEWASH STATION: FURNISHED UNDER SEPARATE DIVISION. ROUGH-IN AND CONNECT.
EW-1	EYE WASH	-.-	-.-	-.-	-.-	-.-	3/4	-.-	-.-	-.-	-.-	-.-	-.-	-.-	DECK MOUNTED EYEWASH: FURNISHED UNDER SEPARATE DIVISION. ROUGH-IN AND CONNECT.
HB-1	HOSE BIB	3/4	3/4	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	LEONARD SW-75-EVBD WATER BLENDER HOSE STATION WITH DIAL THERMOMETER, VACUUM BREAKER, STOP AND CHECK VALVES, STAINLESS STEEL HOSE RACK AND LEONARD HDH 50' HOSE.
HB-2	HOSE BIB	-.-	3/4	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	CHICAGO FAUCET 387-E27CP HOSE VALVE WITH VACUUM BREAKER, 3/4" MALE HOSE THREAD AND 2 1/4" TEE HANDLE.
NFH-1	NON FREEZE WALL HYDRANT	3/4	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	NON-FREEZE HYDRANT: SMITH 5609QT HYDRANT, 3/4-INCH CONNECTION WITH BRASS CASING, INTEGRAL SELF DRAINING VACUUM BREAKER AND LOOSE KEY.
WCB-1	WATER CONTROL BOX	1/2	1/2	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	SMITH 3380 WALL RECESSED WATER SUPPLY CONTROL BOX FOR FLUSHING FLOOR DRAINS: TYPE 304 STAINLESS STEEL BOX WITH HINGED DOOR, BRONZE CONTROL VALVES WITH SCREWDRIVER STOPS AND ATMOSPHERIC VACUUM BREAKER.
WB-1	WASHER BOX														WATER-TITE MODEL W4700HA 6" DIAMETER OUTLET BOX WITH ¼ TURN VALVE AND WATER HAMMER ARRESTOR.
RG-1	PURE WATER FAUCET	-.-	-.-	-.-	-.-	1/2	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	PURE WATER FAUCET: PROVIDED UNDER SEPARATE DIVISION. ROUGH-IN AND CONNECT.
ME-1	MORGUE AUTOPSY STATION	1/2	3/4	-.-	-.-	-.-	-.-	-.-	-.-	-.-	3	2	-.-	-.-	AUTOPSY STATION: PROVIDED UNDER SEPARATE DIVISION. ROUGH-IN AND CONNECT.
OCHA	OVERHEAD COMPRESSED AIR REEL	-.-	-.-	-.-	-.-	-.-	-.-	1/2	-.-	-.-	-.-	-.-	-.-	-.-	HOSE REEL: BALCRANK 2120-020 50' X 1/2" CLASSIC HOSE REEL WITH 50 FT OF HOSE FITTED FOR COMPRESSED AIR.
FD-1	FLOOR DRAIN	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	2	2	-.-	-.-	FLOOR DRAIN (GENERAL USE): SMITH FIGURE 2005Y FLOOR DRAIN WITH CAST IRON BODY AND FLASHING COLLAR WITH ROUND NICKEL BRONZE ADJUSTABLE STRAINER HEAD WITH SECURED GRATE. PROVIDE WITH DEEP SEAL P-TRAP AND TRAP GUARD TRAP SEAL DEVICE.
FD-2	FLOOR DRAIN	3/4	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	4	2	-.-	-.-	FLOOR DRAIN (RIM FLUSHING): SMITH 2506T FLOOR DRAIN, DUCO CAST IRON BODY AND FLANGE WITH ACID RESISTANT COATED INTERIOR AND HINGED WIDE BAR GRATE.
FD-3	FLOOR DRAIN	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	3	2	FLOOR DRAIN: SMITH FIGURE 2110Y FLOOR DRAIN WITH CAST IRON BODY AND FLASHING COLLAR WITH ROUND CAST IRON BAR GRATE, DEEP SEAL P-TRAP AND TRAP GUARD TRAP SEAL DEVICE.
FD-4	FLOOR DRAIN	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	4	2	FLOOR DRAIN (HUB DRAIN): SMITH FIGURE 3510Y FLOOR DRAIN WITH CAST IRON BODY AND FLASHING COLLAR WITH 6" ROUND NICKEL BRONZE ADJUSTABLE STRAINER HEAD WITH SECURED GRATE AND FUNNEL ATTACHED TO GRATE. PROVIDE WITH DEEP SEAL P-TRAP.
FS-1	FLOOR SINK	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	3	2	FLOOR SINK: SMITH FIGURE 3100Y CAST IRON FLANGED RECEPTOR WITH ACID RESISTANT INTERIOR COATING, NICKEL BRONZE RIM AND SECURED GRATE AND ALUMINUM DOME BOTTOM STRAINER.
FS-2	FLOOR SINK	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	4	2	FLOOR SINK: SMITH FIGURE 3100Y CAST IRON FLANGED RECEPTOR WITH ACID RESISTANT INTERIOR COATING, NICKEL BRONZE RIM AND SECURED GRATE AND ALUMINUM DOME BOTTOM STRAINER.
TD-1	TRENCH DRAIN	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	3	2	-.-	-.-	SMITH 9930-M ENVIRO-FLO II TRENCH DRAIN SYSTEM. POLYPROPLENE CONSTRUCTION IN PRESLOPED SECTIONS WITH 9849 RANTE ARROW INCLUDED FOR SECTION INSTALLATION. HEAVY DUTY DUCTILE IRON GRATE. COORDINATE LENGTH WITH DRAWINGS.
RD-1	ROOF DRAIN	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	ROOF DRAIN: SMITH FIGURE 1020Y-R-C-CID CAST IRON BODY WITH COMBINED FLASHING CLAMP AND CAST IRON GRAVEL STOP, CAST IRON DOME, EXTENSION, SUMP RECEIVER AND UNDERDECK CLAMP, BOTTOM OUTLET. SEE PLANS FOR SIZE
RDO-1	ROOF DRAIN OVERFLOW	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	ROOF DRAIN: SMITH FIGURE 1020Y-R-C-CID CAST IRON BODY WITH COMBINED FLASHING CLAMP AND CAST IRON GRAVEL STOP, CAST IRON DOME, EXTENSION, SUMP RECEIVER AND UNDERDECK CLAMP, BOTTOM OUTLET, 2" WATER DAM. SEE PLANS FOR SIZE
RD-2	ROOF DRAIN	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	ROOF DRAIN: SMITH SERIES 1600 CAST IRON BODY WITH COMBINED FLASHING CLAMP, LOW DOME, BOTTOM OUTLET. SEE PLANS FOR SIZE.
DSN-1	DOWN SPOUT NOZZLE	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	DOWNSPOUT NOZZLE: SMITH 1770 DOWNSPOUT NOZZLE WITH CAST BRONZE BODY AND FLANGE. SEE PLANS FOR SIZE

1. ALL UNDER GROUND WASTE AND VENT SHALL BE 2" OR GREATER.

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Unified State Laboratory Module 2

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DFCM #: 13020300

Project #: B13-024

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PLUMBING SCHEDULES

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DOMESTIC EXPANSION TANK SCHEDULE

SYMBOL	MANUF. AND MODEL NO.	LOCATION	SYSTEM SERVED	TYPE	TANK SIZE (GAL)	WORKING FLUID	RELIEF VALVE (PSI)	DIA/ HEIGHT (IN)	NPTM FITTING (IN)	REMARKS
M2-DET-1	AMTROL ST-42-C	MECHANICAL ROOM	DOMESTIC HOT WATER	DIAPHRAM	17.5	WATER	150	16.5/24.5	3/4	
M2-DET-2	AMTROL ST-80-C	MECHANICAL ROOM	INDUSTRIAL HOT WATER	DIAPHRAM	53	WATER	150	24/40.5	1-1/4	

GAS FIRED WATER HEATER SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	LOCATION	SERVICE	INPUT LOAD (BTUH)	EFFICIENCY (%)	TYPE	RECOVERY RATE @ 100 F DELTA T	TANK SIZE (GAL)	FLUE SIZE (IN)	HEIGHT/ DIAMETER (IN)	ELECTRICAL (AMP)	ELECTRICAL V/PH	NOTES
WH-1	A.O. SMITH CYCLONE Xi BTH 150	CENTRAL MECH.	DOMESTIC HOT WATER	150,000	95	TANK	173	100	4	76/28	6.2	120/1	1
WH-2	A.O. SMITH CYCLONE Xi BTH 150	CENTRAL MECH.	DOMESTIC HOT WATER	150,000	95	TANK	173	100	4	76/28	6.2	120/1	1
WH-3	A.O. SMITH CYCLONE Xi BTH 400	CENTRAL MECH.	INDUSTRIAL HOT WATER	399,900	95	TANK	466	130	6	76/28	6.2	120/1	1
WH-4	A.O. SMITH CYCLONE Xi BTH 400	CENTRAL MECH.	INDUSTRIAL HOT WATER	399,900	95	TANK	466	130	6	76/28	6.2	120/1	1

1. PROVIDE WITH CONCENTRIC VENT KIT

WATER SOFTENER SCHEDULE

SYMBOL	MANUF. AND MODEL NO.	LOCATION	TYPE	TOTAL (GRAINS)	WATER FLOW @ 15 PSI LOSS (GPM)	WATER FLOW @ 25 PSI LOSS (GPM)	RESIN EACH (FT^3)	RESIN TANK HGHT/DIA (IN)	REMARKS
M2-WS-3	CULLIGAN CSM 600-2	MECH. RM.	TRYPLEX	600,000	183	252	20	36/60	1,2

1. PRESENTLY EXISTING DUPLEX SOFTNER SYSTEM, PROVIDE ADDITIONAL TANK FOR TRIPLEX SET UP.
2. PROVIDE 115V CONTROL POWER TO UNIT.

VACUUM PUMP SCHEDULE

SYMBOL	MANUF. AND MODEL NO.	LOCATION	SERVICE	TYPE	MAXIMUM FLOW EA. PUMP @ 19" HG (SCFM)	MAXIMUM FLOW EA. PUMP @ 23" HG (SCFM)	SEAL WATER (GPM)	COOLANT WATER (GPM)	RECEIVER SIZE (GAL)	RECEIVER TYPE	HEIGHT/ DIA. (IN)	MOTOR HP EACH MOTOR	RPM	VOLT/PH	SIZE LENGTH/ WIDTH/ HEIGHT (IN)	REMARKS
VP-4	BEACON LPV25T-L240	MECH. RM.	LAB	LUB ROTRY	159	115	-.-	-.-	-.-	-.-	-.-	1@25	1740	460/3	153/78/96	1,2

1. ADD ADDITIONAL PUMP TO EXISTING LUBRICATED ROTARY VANE TRIPLEX PUMP PACKAGE, MODIFY CONTROL PANEL, STARTERS AND DISCONNECT.
2. PUMP SELECTION BASED ON SEA LEVEL VALUES AS SHOWN.

FUMEHOOD AND BIO SAFETY CABINET PLUMBING CONNECTION SCHEDULE

SYMBOL	LEVEL	ROOM NUMBER	QTY OF FH PER ROOM	ICW*	IHW*	CUPSINK WASTE	VENT	LA	LV	NG
FH4-1	3	314	3	1/2	-.-	1 1/2	1 1/2	1/2	3/4	-.-
FH4-1	3	314	1	1/2	-.-	1 1/2	1 1/2	1/2	-.-	-.-
FH4-ADA	2	211	1	1/2	-.-	1 1/2	1 1/2	1/2	3/4	-.-
FH4-ADA	3	314	1	1/2	-.-	1 1/2	1 1/2	1/2	-.-	-.-
FH5-ADA	1	124D	1	1/2	-.-	1 1/2	1 1/2	-.-	-.-	-.-
FH5-ADA	3	313	1	1/2	-.-	1 1/2	1 1/2	1/2	3/4	-.-
FH6-1	2	211	3	1/2	-.-	1 1/2	1 1/2	1/2	3/4	-.-
FH6-1	2	211A	1	1/2	-.-	1 1/2	1 1/2	1/2	3/4	-.-
FH6-1	2	205B	1	1/2	-.-	1 1/2	1 1/2	1/2	3/4	-.-
FH6-1	3	314	1	1/2	-.-	1 1/2	1 1/2	1/2	3/4	-.-
FH6-3	3	314	1	1/2	-.-	1 1/2	1 1/2	1/2	3/4	-.-
FH6-ADA	1	215	1	1/2	-.-	1 1/2	1 1/2	-.-	3/4	-.-
FH6-ADA	1	213	1	1/2	-.-	1 1/2	1 1/2	-.-	3/4	1/2
FH6-ADA	1	205B	1	1/2	-.-	1 1/2	1 1/2	1/2	3/4	-.-
FH6-ADA	3	301A	1	1/2	-.-	1 1/2	1 1/2	1/2	3/4	1/2
FH6-ADA	3	302	1	1/2	-.-	1 1/2	1 1/2	-.-	3/4	1/2
FH6-ADA	3	303A	1	1/2	-.-	1 1/2	1 1/2	1/2	3/4	1/2
FH6-ADA	3	311B	1	1/2	-.-	1 1/2	1 1/2	1/2	3/4	1/2
FH6-ADASS	2	212	1	1/2	1/2	-.-	-.-	1/2	3/4	-.-
FH8-1	2	211	1	1/2	-.-	1 1/2	1 1/2	1/2	3/4	-.-
FH8-1	3	301A	1	1/2	-.-	1 1/2	1 1/2	1/2	3/4	1/2
FH8-1	3	302	1	1/2	-.-	1 1/2	1 1/2	-.-	3/4	1/2
FH8-1SS	2	212	1	1/2	1/2	-.-	-.-	1/2	3/4	-.-
BSC4-A2	3	313A	1	-.-	-.-	-.-	-.-	-.-	-.-	1/2
BSC4-A2	3	312A	1	-.-	-.-	-.-	-.-	-.-	-.-	1/2

* ICW AND IHW WATER PIPING SHALL HAVE AN ACCESSIBLE, BELOW CEILING SPILL PROOF VACUUM BREAKER BEFORE CONNECTING TO THE FUME HOOD.

LAB GAS OUTLET CONNECTION SCHEDULE

SYMBOL	ROOM NUMBER(S)	LAB GAS AR5	CH45	H5	HE5	LA5	LA	NI5	SP	NOTES
AR5-1	211B	3/8	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1
CA-1	205C	-.-	-.-	-.-	-.-	-.-	1/2	-.-	-.-	1
CH45-1	211B	-.-	3/8	-.-	-.-	-.-	-.-	-.-	-.-	1
H5-1	211B,301B,301C,304	-.-	-.-	3/8	-.-	-.-	-.-	-.-	-.-	1
HE5-1	211B,301B,301C,303,304,311C,314	-.-	-.-	-.-	3/8	-.-	-.-	-.-	-.-	1
LA5-1	211B,301B,303,304,301C,311C	-.-	-.-	-.-	-.-	3/8	-.-	-.-	-.-	1
NI5-1	302	-.-	-.-	-.-	-.-	-.-	-.-	3/8	-.-	1
SP-1	301B,301C,303	-.-	-.-	-.-	-.-	-.-	-.-	-.-	3/8	1
-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-

1. OUTLET FURNISHED BY SEPARATE DIVISION. ROUGH IN AND CONNECT.

THERMOSTATIC MIXING VALVE SCHEDULE

ID	MANUFACTURER AND MODEL NUMBER	LOCATION	SYSTEM	BODY CONSTRUCTION	FLUID FLOW RATE (GPM)	FLUID HEAD LOSS (PSI)	PHYSICAL INLET/OUTLET SIZE (IN)	NOTES
M2- TMV-1	LEONARD TM-LV-984-LF-BDT	MECH. RM.	DHW	BRONZE/SS	35	<5	1 1/4/1 1/2	1
M2- TMV-2	LEONARD TM-LV-984-LF-BDT	MECH. RM.	IHW	BRONZE/SS	41	5	1 1/4/1 1/2	1
M2- TMV-3	LEONARD TM-5100	MECH. RM.	ES	BRONZE	46	5	1 1/4/1 1/2	2

1 SET OUTLET TEMPERATURE TO 125ºF
2. SET OUTLET TEMPERATURE TO 90º F.

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PLUMBING SCHEDULES

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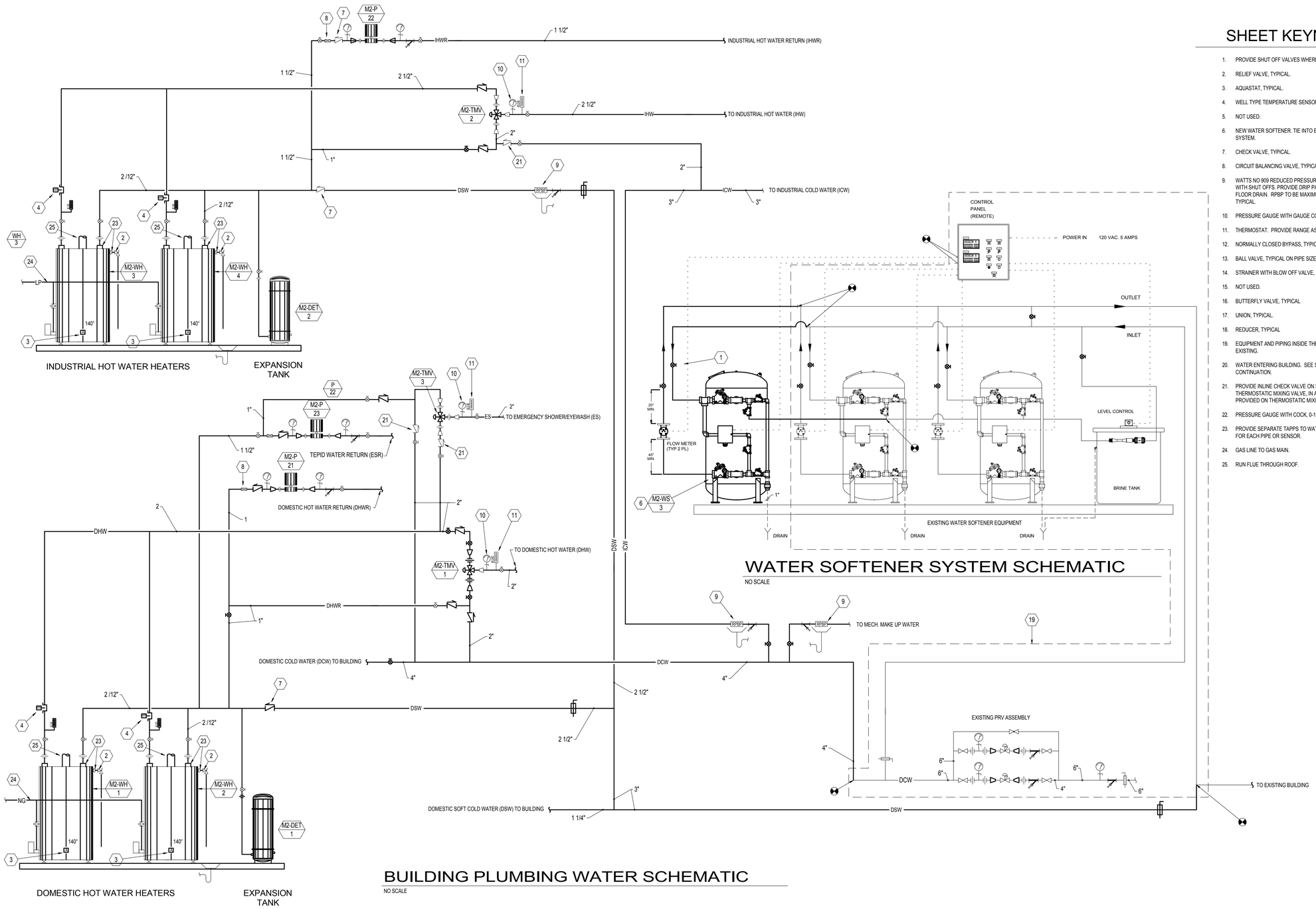

WATER SOFTENER SYSTEM SCHEMATIC

NO SCALE

BUILDING PLUMBING WATER SCHEMATIC

NO SCALE

SHEET KEYNOTES

1. PROVIDE SHUT OFF VALVES WHERE SHOWN, TYPICAL.
2. RELIEF VALVE, TYPICAL.
3. AQUASTAT, TYPICAL.
4. WELL TYPE TEMPERATURE SENSOR, TYPICAL.
5. NOT USED.
6. NEW WATER SOFTENER. TIE INTO EXISTING SOFT WATER SYSTEM.
7. CHECK VALVE, TYPICAL.
8. CIRCUIT BALANCING VALVE, TYPICAL.
9. WATTS NO 909 REDUCED PRESSURE BACK FLOW PREVENTOR WITH SHUT OFFS. PROVIDE DRIP PAN AND PIPE TO NEAREST FLOOR DRAIN. RPBP TO BE MAXIMUM OF 5'-0" OFF OF FLOOR, TYPICAL.
10. PRESSURE GAUGE WITH GAUGE COCK, 0-100 PSI, TYPICAL.
11. THERMOSTAT. PROVIDE RANGE AS INDICATED, TYPICAL.
12. NORMALLY CLOSED BYPASS, TYPICAL.
13. BALL VALVE, TYPICAL ON PIPE SIZES 2" AND BELOW.
14. STRAINER WITH BLOW OFF VALVE, TYPICAL.
15. NOT USED.
16. BUTTERFLY VALVE, TYPICAL
17. UNION, TYPICAL.
18. REDUCER, TYPICAL
19. EQUIPMENT AND PIPING INSIDE THE DASHED LINE ARE EXISTING.
20. WATER ENTERING BUILDING. SEE SITE PLAN FOR CONTINUATION.
21. PROVIDE INLINE CHECK VALVE ON SUPPLIES TO THERMOSTATIC MIXING VALVE, IN ADDITION TO THOSE PROVIDED ON THERMOSTATIC MIXING VALVE.
22. PRESSURE GAUGE WITH COCK, 0-150 PSI.
23. PROVIDE SEPARATE TAPPS TO WATER HEATER AS INDICATED FOR EACH PIPE OR SENSOR.
24. GAS LINE TO GAS MAIN.
25. RUN FLUE THROUGH ROOF.

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SCHEMATIC

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SYMBOLS LEGEND

SYMBOL	DESCRIPTION
REFERENCE AND LINE SYMBOLS	
A5 / E-501	DETAIL INDICATOR: A5 INDICATES DETAIL NUMBER, E-501 INDICATES DRAWING SHEET WHERE DETAIL IS SHOWN.
A5 / E-201	ELEVATION OR SECTION INDICATOR, EXTERIOR: A5 INDICATES ELEVATION OR SECTION NUMBER, E-201 INDICATES DRAWING SHEET WHERE ELEVATION OR SECTION IS SHOWN.
A5 / E-201	ELEVATION OR SECTION INDICATOR, INTERIOR: A5 INDICATES ELEVATION OR SECTION NUMBER, E-201 INDICATES DRAWING SHEET WHERE ELEVATION OR SECTION IS SHOWN.
ROOM NAME 100	ROOM IDENTIFIER WITH ROOM NAME AND NUMBER.
1	KEYNOTE INDICATOR.
1	REVISION INDICATOR.
CU-1	EQUIPMENT INDICATOR.
X-X / XMDP	MECHANICAL EQUIPMENT INDICATOR. "X-X" INDICATES EQUIPMENT MARK SHOWN ON EQUIPMENT SCHEDULE. "XMDP" IDENTIFIES PANEL EQUIPMENT IS CIRCUITED TO. PROVIDE CONDUIT AND WIRING AND ALL OTHER EQUIPMENT PER EQUIPMENT SCHEDULE.
X-X / XLB	LAB EQUIPMENT INDICATOR. "X-X" INDICATES EQUIPMENT MARK SHOWN ON EQUIPMENT SCHEDULE. "XLB" IDENTIFIES PANEL EQUIPMENT IS CIRCUITED TO. PROVIDE CONDUIT AND WIRING AND ALL OTHER EQUIPMENT PER EQUIPMENT SCHEDULE.
	BREAK, STRAIGHT: TO BREAK PARTS OF DRAWING
	BREAK, ROUND
MATCH LINE SEE XX/X-XXX	MATCH LINE INDICATOR: CENTER, EXTRA WIDE LINE.
WIRING METHODS	
	WIRING.
	WIRING TURNED UP OR TOWARDS OBSERVER.
	WIRING TURNED DOWN OR AWAY FROM OBSERVER.
A-1,3,5	BRANCH CIRCUIT HOME RUN TO PANELBOARD: NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS. LETTER AND NUMBER NOTATIONS IDENTIFY PANEL AND CIRCUIT NUMBERS. USE #12 CONDUCTORS, EXCEPT #10 CONDUCTORS SHALL BE INSTALLED IF DISTANCES EXCEED THOSE SPECIFIED IN THE ELECTRICAL SPECIFICATIONS.
1 / A-1,3,5	BRANCH CIRCUIT HOME RUN TO PANELBOARD: NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS. LETTER AND NUMBER NOTATIONS IDENTIFY PANEL AND CIRCUIT NUMBERS. NUMBER IN BOX REFERS TO THE CONDUCTOR AND CONDUIT SCHEDULE.
— X —	WIRING AND/OR RACEWAY: THIN LINE. WHERE "X" = : CCTV = CLOSED CIRCUIT TELEVISION; P = POWER; S = SOUND; FA = FIRE ALARM; T = TELEPHONE; T = TELEPHONE; I = INTERCOM; TV = TELEVISION OTHERS AS NOTED IN OTHER SCHEDULES. RACEWAYS AND WIRING SHALL BE SIZED AS SHOWN AND/OR SPECIFIED.
	LOW VOLTAGE WIRING: DIVIDE, MEDIUM LINE.
	CONDUIT STUB. DIMENSION RECORD DRAWINGS AND MARK.
1	CONDUCTOR & CONDUIT ("CC") SCHEDULE INDICATOR. REFER TO ONE-LINE DIAGRAM.
1	CONDUCTOR RUN IDENTIFICATION.
	JUNCTION BOX.
SC	JUNCTION BOX, SYSTEMS FURNITURE COMMUNICATION CONNECTION.
SP	JUNCTION BOX, SYSTEMS FURNITURE POWER CONNECTION.
PB	PULL BOX.
C C	CABLE TRAY ABOVE ACCESSIBLE CEILING.
	EARTH GROUND (ONE-LINE DIAGRAM).
C	JUNCTION BOX, CEILING.
	LADDER RACK.

SYMBOLS LEGEND

SYMBOL	DESCRIPTION
WIRING DEVICES	
	RECEPTACLE, DUPLEX: NEMA 5-20R.
A	RECEPTACLE, DUPLEX, ABOVE COUNTER: NEMA 5-20R.
C	RECEPTACLE, DUPLEX, CEILING: NEMA 5-20R.
DF	RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER, DRINKING FOUNTAIN. CONCEAL WATER COOLER RECEPTACLE BEHIND WATER COOLER. SEE MECHANICAL/PLUMBING SHOP DRAWINGS FOR INSTALLATION REQUIREMENTS.
IG	RECEPTACLE, DUPLEX, ISOLATED GROUND: NEMA 5-20R.
W	RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER, WET LABEL, "WEATHERPROOF IN USE": NEMA 5-20R.
	RECEPTACLE, DUPLEX ON EMERGENCY POWER: NEMA 5-20R.
	RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER: NEMA 5-20R.
WP	RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER, WEATHERPROOF: NEMA 5-20R.
	RECEPTACLE, QUADRAPLEX: NEMA 5-20R.
	RECEPTACLE, QUADRAPLEX ON EMERGENCY POWER: NEMA 5-20R.
	RECEPTACLE, SPECIAL PURPOSE. PROVIDE RECEPTACLE TO MATCH EQUIPMENT PLUG.
	RECEPTACLE, SPECIAL PURPOSE ON EMERGENCY POWER. PROVIDE RECEPTACLE TO MATCH EQUIPMENT PLUG.
	MULTI-OUTLET SURFACE RACEWAY ASSEMBLY: OUTLETS AS INDICATED.
D	SINGLE DROP CORD ASSEMBLY WITH NEMA 5-20 QUAD. SEE SPECIFICATIONS.
D	DOUBLE DROP CORD ASSEMBLY WITH (2) NEMA 5-20 QUAD. SEE SPECIFICATIONS.
FB#	FLUSH FLOOR BOX. "#" SHOWN ON DRAWINGS. REFER TO WIRING DEVICE SCHEDULE IN THE ELECTRICAL SPECIFICATIONS FOR CONFIGURATION AND DEVICES.
PT#	FLUSH FIRE RATED POKE THRU. "#" SHOWN ON DRAWINGS. REFER TO WIRING DEVICE SCHEDULE IN THE ELECTRICAL SPECIFICATIONS FOR CONFIGURATION AND DEVICES.
	SWITCH, DIMMER.
X $	SWITCH, SINGLE POLE ("x" INDICATES FIXTURES CONTROLLED).
X $2	SWITCH, DOUBLE POLE ("x" INDICATES FIXTURES CONTROLLED).
X $3	SWITCH, THREE-WAY ("x" INDICATES FIXTURES CONTROLLED).
X $4	SWITCH, FOUR-WAY ("x" INDICATES FIXTURES CONTROLLED).
$K	SWITCH, KEY OPERATED.
$P	SWITCH, PILOT LIGHT.
$T	SWITCH, TIMER OPERATED.
$WP	SWITCH, WEATHERPROOF.
SITE ELECTRICAL AND COMMUNICATIONS UTILITIES	
—3ØUP—	ELECTRIC LINE: THIN LINE. 1Ø = SINGLE PHASE, 2Ø = 2-PHASE, 3Ø = 3-PHASE, O = OVERHEAD, UG = UNDERGROUND, P = PRIMARY, S = SECONDARY
	UTILITY POLE.
C	UTILITY, COMMUNICATIONS MANHOLE.
E	UTILITY, ELECTRICAL MANHOLE.
T	UTILITY, TELEPHONE MANHOLE.

ELECTRICAL SHEET INDEX

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EE503	DETAILS
EE504	DETAILS
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EE602	GROUNDING RISER DIAGRAM
EE701	TYPICAL MOUNTING HEIGHT DETAILS
ES101	OVERALL SITE ELECTRICAL PLAN
ES102	SITE ELECTRICAL PLAN
EP100	TUNNEL LEVEL POWER PLAN
EP101a	FIRST LEVEL POWER PLAN - AREA A
EP101b	FIRST LEVEL POWER PLAN - AREA B
EP101c	FIRST LEVEL POWER PLAN - AREA C
EP101d	FIRST LEVEL POWER PLAN - AREA D
EP102a	SECOND LEVEL POWER PLAN - AREA A
EP102b	SECOND LEVEL POWER PLAN - AREA B
EP103a	THIRD LEVEL POWER PLAN - AREA A
EP103b	THIRD LEVEL POWER PLAN - AREA B
EP104	PENTHOUSE LEVEL POWER PLAN
EP105	ROOF POWER PLAN
EP401	ENLARGED POWER PLANS
EP402	ENLARGED LAB POWER PLANS
EP601	POWER ONE-LINE DIAGRAM - MODULE 2 (a)
EP602	POWER ONE-LINE DIAGRAM - MODULE 2 (b)
EP603	POWER ONE-LINE DIAGRAM - MODULE 2 (c)
EP604	POWER ONE-LINE DIAGRAM - MODULE 2 (d)
EP605	POWER ONE-LINE DIAGRAM - MODULE 2 (e)
EP606	EXISTING POWER ONE-LINE DIAGRAM - MODULE 1 (a)
EP607	EXISTING POWER ONE-LINE DIAGRAM - MODULE 1 (b)
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EP609	EXISTING POWER ONE-LINE DIAGRAM - MODULE 1 (d)
EP610	LAB EQUIPMENT SCHEDULE
EP611	MECHANICAL EQUIPMENT SCHEDULE - MOD 2 BLDG (a)
EP612	MECHANICAL EQUIPMENT SCHEDULE - MOD 2 BLDG (b)
EP613	MECHANICAL EQUIPMENT SCHEDULE - MOD 1 ADDITION
EP614	PANEL SCHEDULES
EP615	PANEL SCHEDULES
EP616	PANEL SCHEDULES
EP617	PANEL SCHEDULES
EP618	PANEL SCHEDULES
EP619	PANEL SCHEDULES
EP620	PANEL SCHEDULES
EP621	PANEL SCHEDULES
EP622	PANEL SCHEDULES
EP623	PANEL SCHEDULES
EP624	PANEL SCHEDULES
EP625	PANEL SCHEDULES
EP626	PANEL SCHEDULES
EP627	PANEL SCHEDULES
EP628	PANEL SCHEDULES
EP629	PANEL SCHEDULES
EL100	TUNNEL LEVEL LIGHTING PLAN
EL101a	FIRST LEVEL LIGHTING PLAN - AREA A
EL101b	FIRST LEVEL LIGHTING PLAN - AREA B
EL101c	FIRST LEVEL LIGHTING PLAN - AREA C
EL101d	FIRST LEVEL LIGHTING PLAN - AREA D
EL102a	SECOND LEVEL LIGHTING PLAN - AREA A
EL102b	SECOND LEVEL LIGHTING PLAN - AREA B
EL103a	THIRD LEVEL LIGHTING PLAN - AREA A
EL103b	THIRD LEVEL LIGHTING PLAN - AREA B
EL104	PENTHOUSE LEVEL LIGHTING PLAN
EL501	LIGHTING DETAILS AND DIAGRAMS
EL502	LIGHTING DETAILS AND DIAGRAMS
EL503	LIGHTING CONTROL DIAGRAMS
EL504	LIGHTING CONTROL DIAGRAMS
EL505	RELAY PANEL SCHEDULES
EL601	LIGHTING FIXTURE SCHEDULE
EL602	LIGHTING FIXTURE SCHEDULE (CONT.)
EY101a	FIRST LEVEL AUXILIARY PLAN - AREA A
EY101b	FIRST LEVEL AUXILIARY PLAN - AREA B
EY101c	FIRST LEVEL AUXILIARY PLAN - AREA C
EY102a	SECOND LEVEL AUXILIARY PLAN - AREA A
EY102b	SECOND LEVEL AUXILIARY PLAN - AREA B
EY103a	THIRD LEVEL AUXILIARY PLAN - AREA A
EY103b	THIRD LEVEL AUXILIARY PLAN - AREA B
EY104	PENTHOUSE LEVEL AUXILIARY PLAN
EY501	AUXILIARY DETAILS
EY601	AUXILIARY DIAGRAMS
EJ101a	FIRST LEVEL PLAN AUDIO VISUAL ROUGH-IN PLAN - AREA A
EJ101b	FIRST LEVEL PLAN AUDIO VISUAL ROUGH-IN PLAN - AREA B
EJ101c	FIRST LEVEL PLAN AUDIO VISUAL ROUGH-IN PLAN - AREA C
EJ102a	SECOND LEVEL AUDIO VISUAL ROUGH-IN PLAN - AREA A
EJ102b	SECOND LEVEL AUDIO VISUAL ROUGH-IN PLAN - AREA B
EJ103b	THIRD LEVEL AUDIO VISUAL ROUGH-IN PLAN - AREA B
EJ301	AUDIO VISUAL ROUGH-IN SECTION DETAILS
EJ302	AUDIO VISUAL ROUGH-IN SECTION DETAILS
EJ501	AUDIO VISUAL DETAILS
EJ601	AUDIO VISUAL SCHEDULES
EJ602	AV ROUGH IN RISER DIAGRAMS
EK101	LIGHTNING PROTECTION PLAN
EK501	LIGHTNING PROTECTION DETAILS
FA101a	FIRST LEVEL FIRE ALARM PLAN - AREA A
FA101b	FIRST LEVEL FIRE ALARM PLAN - AREA B
FA101c	FIRST LEVEL FIRE ALARM PLAN - AREA C
FA101d	FIRST LEVEL FIRE ALARM PLAN - AREA D
FA102a	SECOND LEVEL FIRE ALARM PLAN - AREA A
FA102b	SECOND LEVEL FIRE ALARM PLAN - AREA B
FA103a	THIRD LEVEL FIRE ALARM PLAN - AREA A
FA103b	THIRD LEVEL FIRE ALARM PLAN - AREA B
FA104	PENTHOUSE LEVEL FIRE ALARM PLAN
FA601	FIRE ALARM RISER

ABBREVIATIONS

NOTE: ALL ABBREVIATIONS MAY NOT BE USED.

1P	SINGLE POLE
1PH	SINGLE-PHASE
3/C	THREE-CONDUCTOR
4W	FOUR-WIRE
A	ABOVE COUNTER
ADA	AMERICANS WITH DISABILITIES ACT
ADJ	ADJACENT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AIC	AMPERE INTERRUPTING CAPACITY
ALUM	ALUMINUM
AMP	AMPERE
ANN	ANNUNCIATOR
AP	ACCESS POINT (WIRELESS DATA)
AR	AS REQUIRED
ASC	AMPS SHORT CIRCUIT
ATS	AUTOMATIC TRANSFER SWITCH
AV	AUDIO VISUAL
AWG	AMERICAN WIRE GAGE
C	CEILING MOUNTED
CB	CIRCUIT BREAKER
CCBA	CUSTOM COLOR AS SELECTED BY ARCHITECT
CCTV	CLOSED CIRCUIT TELEVISION
CF/CI	CONTRACTOR FURNISHED/ CONTRACTOR INSTALLED
CF/OI	CONTRACTOR FURNISHED/ OWNER INSTALLED
CFBA	CUSTOM FINISH AS SELECTED BY ARCHITECT
CKT	CIRCUIT
CND	CONDUIT
CO	CONVENIENCE OUTLET
CP	CONTROL PANEL
CT	CURRENT TRANSFORMER
CTV	CABLE TELEVISION
CU	COPPER
dBA	UNIT OF SOUND LEVEL
DPDT	DOUBLE THROW DOUBLE THROW
EA	EACH
EM	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
ENT	ELECTRIC NONMETALLIC TUBING
EPO	EMERGENCY POWER OFF
EQUIP	EQUIPMENT
EX	EXISTING
F	FURNITURE MOUNTED
FA	FIRE ALARM
FCP	FIRE ALARM CONTROL PANEL
FLA	FULL LOAD AMPS
FMC	FLEXIBLE METAL CONDUIT
FOB	FREIGHT ON BOARD
FVNR	FULL VOLTAGE NON-REVERSING
FVR	FULL VOLTAGE REVERSING
G	GROUND
GEN	GENERATOR
GFCI	GROUND FAULT INTERRUPTER
GFP	GROUND FAULT PROTECTION
HD	HEAVY DUTY
HID	HIGH INTENSITY DISCHARGE
HOA	HAND-OFF-AUTOMATIC
HP	HORSE POWER
HPF	HIGH POWER FACTOR
HPS	HIGH PRESSURE SODIUM
HV	HIGH VOLTAGE
HZ	HERTZ
I/O	INPUT/ OUTPUT
IG	ISOLATED GROUND
IMC	INTERMEDIATE METAL CONDUIT
IN/IS	INSULATED/ ISOLATED
IR	INFRARED
J-BOX	JUNCTION BOX
kV	KILOVOLT
kVA	KILOVOLT AMPERE
kVAR	KILOVOLT AMPERE REACTIVE
kW	KILOWATT
kWh	KILOWATT HOUR
LED	LIGHT EMITTING DIODE
LFMC	LIQUID TIGHT FLEXIBLE METAL CONDUIT
LRA	LOCKED ROTOR AMPS
LTG	LIGHTING
LV	LOW VOLTAGE
MAX	MAXIMUM
MC	METAL CLAD
MCA	MINIMUM CIRCUIT AMPS
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTION
MDP	MAIN DISTRIBUTION PANEL
MH	MANHOLE
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MOCP	MAXIMUM OVERCURRENT PROTECTION
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIOANL ELECTRICAL MANUFACTURERS ASSOCIATION
NFC	NATIONAL FIRE CODE
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OC	ON CENTER
OCP	OVER CURRENT PROTECTION
OF/CI	OWNER FURNISHED/ CONTRACTOR INSTALLED
OF/OI	OWNER FURNISHED/ OWNER INSTALLED
OFP	OBTAIN FROM PLANS
OH DR	OVERHEAD (COILING) DOOR
OL	OVERLOAD
PB	PUSHBUTTON
PF	POWER FACTOR
PH	PHASE
PNL	PANEL
PT	POTENTIAL TRANSFORMER
PTZ	PAN/TILT/ZOOM
QTY	QUANTITY
RCP	REFLECTED CEILING PLAN
RMC	RIGID METAL CONDUIT
RNC	RIGID NONMETAL CONDUIT
RPM	REVOLUTIONS PER MINUTE
S/S	START/STOP
SCA	SHORT CIRCUIT AMPS
SCBA	STANDARD COLOR AS SELECTED BY ARCHITECT
SF	SQUARE FOOT (FEET)
SFBA	STANDARD FINISH AS SELECTED BY ARCHITECT
SPD	SURGE PROTECTIVE DEVICE
SPDT	SINGLE POLE, DOUBLE THROW
SPEC	SPECIFICATION
SPST	SINGLE POLE, SINGLE THROW
ST	SINGLE THROW
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TL	TWIST LOCK
TP	TWISTED PAIR
TTB	TELEPHONE TERMINAL BOARD
TV	TELEVISION
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSER
TYP	TYPICAL
UF	UNDERFLOOR
UG	UNDERGROUND
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLTS
VA	VOLT AMPERE
VFC/VFD	VARIABLE FREQUENCY MOTOR CONTROLLER
W/	WITH
W/O	WITHOUT
WP	WEATHERPROOF
XFMR	TRANSFORMER

GENERAL ELECTRICAL NOTES

1. CLARIFICATION METHODS: AT THE TIME OF BIDDING, BIDDERS SHALL FAMILIARIZE THEMSELVES WITH THE DRAWINGS AND SPECIFICATIONS. ANY QUESTIONS, MISUNDERSTANDINGS, CONFLICTS, DELETIONS, DISCONTINUED PRODUCTS, CATALOG NUMBER DISCREPANCIES, DISCREPANCIES BETWEEN THE EQUIPMENT SUPPLIED AND THE INTENT OR FUNCTION OF THE EQUIPMENT, ETC, SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER IN WRITING FOR CLARIFICATION PRIOR TO ISSUANCE OF THE FINAL ADDENDUM AND BIDDING OF THE PROJECT. WHERE DISCREPANCIES OR MULTIPLE INTERPRETATIONS OCCUR, THE MOST STRINGENT (WHICH IS GENERALLY RECOGNIZED AS THE MOST COSTLY) THAT MEETS THE INTENT OF THE DOCUMENTS SHALL BE ENFORCED.

2. OWNER FURNISHED ITEMS: THE OWNER WILL FURNISH MATERIAL AND EQUIPMENT AS INDICATED IN THE CONTRACT DOCUMENTS TO BE INCORPORATED INTO THE WORK. THESE ITEMS ARE ASSIGNED TO THE INSTALLER AND COSTS FOR RECEIVING, HANDLING, STORAGE, IF REQUIRED, AND INSTALLATION ARE INCLUDED IN THE CONTRACT SUM.

   A. THE INSTALLER'S RESPONSIBILITIES ARE THE SAME AS IF THE INSTALLER FURNISHED THE MATERIALS OR EQUIPMENT.

   B. THE OWNER WILL ARRANGE AND PAY FOR DELIVERY OF OWNER FURNISHED ITEMS FREIGHT ON BOARD JOB SITE AND THE INSTALLER WILL INSPECT DELIVERIES FOR DAMAGE. IF OWNER FURNISHED ITEMS ARE DAMAGED, DEFECTIVE OR MISSING, DOCUMENT DAMAGED ITEMS WITH THE TRANSPORT COMPANY AND THE OWNER WILL ARRANGE FOR REPLACEMENT. THE OWNER WILL ALSO ARRANGE FOR MANUFACTURER'S FIELD SERVICES, AND THE DELIVERY OF MANUFACTURER'S WARRANTIES AND BONDS TO THE INSTALLER.

   C. THE INSTALLER IS RESPONSIBLE FOR DESIGNATING THE DELIVERY DATES OF OWNER FURNISHED ITEMS AND FOR RECEIVING, UNLOADING AND HANDLING OWNER FURNISHED ITEMS AT THE SITE.THE INSTALLER IS RESPONSIBLE FOR PROTECTING OWNER FURNISHED ITEMS FROM DAMAGE, INCLUDING DAMAGE FROM EXPOSURE TO THE ELEMENTS, AND TO REPAIR OR REPLACE ITEMS DAMAGED AS A RESULT OF HIS OPERATIONS.

3. EXPOSED STRUCTURE AREAS (EXCLUDING MECHANICAL, ELECTRICAL, AND COMMUNICATION SPACES): INSTALL RACEWAYS BETWEEN DECK AND STRUCTURE WHEREVER POSSIBLE IN EXPOSED STRUCTURE CEILING AREAS. ROUTE RACEWAYS IN CONCEALED AREAS WHEREVER POSSIBLE. REFER ALL CONDITIONS WHERE RACEWAYS MUST BE INSTALLED WHICH CANNOT COMPLY WITH THESE REQUIREMENTS TO THE ARCHITECT.

4. SUBMITTALS: PROVIDE ORIGINAL ELECTRONIC PDF FORMAT, BOUND, BOOKMARKED (EACH SECTION AND PRODUCT), AND HIGHLIGHTED. JOB NAME AND SUBCONTRACTOR SHALL BE ON THE FRONT COVER. PREPARE INDEX OF EQUIPMENT SUBMITTED IN EACH TAB.

5. REFLECTED CEILING PLANS: COORDINATE THE LOCATION OF LIGHT FIXTURES WITH THE ARCHITECTURAL REFLECTED CEILING PLANS. REFER ALL DISCREPANCIES TO THE ARCHITECT AND ENGINEER.

6 ALL WORK SHALL BE DONE ACCORDING TO THE CURRENT NATIONAL ELECTRIC CODE (NEC), IBC, NFPA, AND IFC. COMPLIANCE AND FINAL APPROVAL IS SUBJECT TO THE ON SITE FIELD INSPECTION OF THE AHJ.

DEFINITIONS

NOTE: ALL DEFINITIONS MAY NOT BE USED.

INDICATED: THE TERM "INDICATED" REFERS TO GRAPHIC REPRESENTATIONS, NOTES, OR SCHEDULES ON THE DRAWINGS, OTHER PARAGRAPHS OR SCHEDULES IN THE SPECIFICATIONS, AND SIMILAR REQUIREMENTS IN THE CONTRACT DOCUMENTS. WHERE TERMS SUCH AS "SHOWN", "NOTED", "SCHEDULED", AND "SPECIFIED" ARE USED, IT IS TO HELP THE READER LOCATE THE REFERENCE, NO LIMITATION ON LOCATION IS INTENDED.

DIRECTED: TERMS SUCH AS "DIRECTED", "REQUESTED", AUTHORIZED", "SELECTED", "APPROVED", "REQUIRED", AND "PERMITTED" MEAN "DIRECTED BY THE ENGINEER", "REQUESTED BY THE ENGINEER", AND SIMILAR PHRASES.

APPROVED: THE TERM "APPROVED", WHERE USED IN CONJUNCTION WITH THE ENGINEER'S ACTION ON THE CONTRACTOR'S SUBMITTALS, APPLICATIONS, AND REQUESTS, IS LIMITED TO THE ENGINEER'S DUTIES AND RESPONSIBILITIES AS STATED IN GENERAL AND SUPPLEMENTARY CONDITIONS.

FURNISH: THE TERM "FURNISH" IS USED TO MEAN "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS."

INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS."

PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."

INSTALLER: AN "INSTALLER" IS THE CONTRACTOR OR AN ENTITY ENGAGED BY THE CONTRACTOR, EITHER AS AN EMPLOYEE, SUBCONTRACTOR, OR SUB-SUBCONTRACTOR, FOR PERFORMANCE OF A PARTICULAR CONSTRUCTION ACTIVITY, INCLUDING INSTALLATION, ERECTION, APPLICATION, AND SIMILAR OPERATIONS. INSTALLERS ARE REQUIRED TO BE EXPERIENCED IN THE OPERATIONS THEY ARE ENGAGED TO PERFORM.

TECHNOLOGY SYSTEMS: THE TERM "TECHNOLOGY SYSTEMS" IS USED TO DESCRIBE ALL LOW VOLTAGE SYSTEMS GENERALLY REFERRED TO AS "SPECIAL SYSTEMS". THESE SYSTEMS INCLUDE BUT ARE NOT NECESSARILY LIMITED TO ALL SYSTEMS WHICH UTILIZE VOLTAGES OF LESS THAN 71 VOLTS SUCH AS SOUND SYSTEMS, VIDEO SYSTEMS, TV SYSTEMS, SECURITY SYSTEMS, VOICE AND DATA CABLING SYSTEMS, ETC...

SITE COORDINATION

THE LOCATION, CAPACITY, AND VOLTAGE OF THE LINES ARE ALL IN ACCORDANCE WITH DATA GIVEN THIS OFFICE BY THE UTILITY COMPANY. COORDINATE WITH THE LOCAL UTILITY COMPANY FOR THE INSTALLATION OF THE ELECTRICAL SERVICE. COMPLY WITH UTILITY REGULATIONS. REPORT DISCREPANCIES TO THE ENGINEER.

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LICENSED PROFESSIONAL ENGINEER
No. 181563
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04-21-2014
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ARCHITECT-ENGINEER STAMP

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DATE:	ISSUE TYPE:
April 21, 2014	BID SET
CHECKED BY	D. WESEMANN
DRAWN BY	DLM

SHEET INDEX, ABBREVIATIONS, AND GENERAL NOTES

EE001

VOLUME 2

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SYMBOLS LEGEND

SYMBOL	DESCRIPTION
ELECTRICAL POWER AND DISTRIBUTION	
	FUSE WITH RATING (ONE-LINE DIAGRAM).
	DISCONNECT, FUSED (ONE-LINE DIAGRAM).
	DISCONNECT, NONFUSED (ONE-LINE DIAGRAM).
	DISCONNECT WITH FUSE AND MOTOR STARTER COMBINATION (ONE-LINE DIAGRAM).
	OVERLOAD RELAY (ONE-LINE DIAGRAM).
	STARTER (ONE-LINE DIAGRAM).
	CIRCUIT BREAKER, MOLDED CASE (ONE-LINE DIAGRAM).
	CIRCUIT BREAKER, MOLDED CASE WITH SHUNT TRIP (ONE-LINE DIAGRAM).
MCP	CIRCUIT BREAKER, MOTOR CIRCUIT PROTECTION (ONE-LINE DIAGRAM).
	CIRCUIT BREAKER, SOLID STATE (ONE-LINE DIAGRAM).
GFP	CIRCUIT BREAKER, SOLID STATE WITH GROUND FAULT PROTECTION (ONE-LINE DIAGRAM).
	MOTOR.
	HEATER, ELECTRIC RESISTANCE.
	TRANSFORMER (ONE-LINE DIAGRAM).
	TRANSFORMER, CURRENT (ONE-LINE DIAGRAM).
	CAPACITOR (ONE-LINE DIAGRAM).
	DELTA CONNECTION (ONE-LINE DIAGRAM).
	WYE CONNECTION (ONE-LINE DIAGRAM).
"1H"	PANELBOARD (ONE-LINE DIAGRAM).
225/3 "1H"	PANELBOARD WITH MAIN LUGS ONLY. BUS SIZE AND PHASE AS SHOWN (ONE-LINE DIAGRAM).
225/3 "1H"	PANELBOARD WITH MAIN CIRCUIT BREAKER. SIZE AND PHASE AS SHOWN (ONE-LINE DIAGRAM).
225/3 "1H" 60/3	PANELBOARD WITH MAIN AND SUB FEED CIRCUIT BREAKER (ONE-LINE DIAGRAM).
225/3 "1H" 25/3	PANELBOARD WITH MAIN LUGS ONLY AND SURGE PROTECTION WITH CIRCUIT BREAKER (ONE-LINE DIAGRAM).
225/3 "1H" 225/3 "1H"	PANELBOARD WITH SUB FEED LUGS (ONE-LINE DIAGRAM).
225/3 "1H" "1H"	PANELBOARD WITH CIRCUIT BREAKER AND THROUGH FEED LUGS (ONE-LINE DIAGRAM).

SYMBOLS LEGEND

SYMBOL	DESCRIPTION
ELECTRICAL POWER AND DISTRIBUTION	
	CT CABINET PER UTILITY'S REQUIREMENTS (ONE-LINE DIAGRAM).
	CT CABINET PER UTILITY'S REQUIREMENTS (ONE-LINE DIAGRAM).
	TRANSFER SWITCH (ONE-LINE DIAGRAM).
DMM	DIGITAL MULTIMETER (ONE-LINE DIAGRAM).
	SERVICE ENTRANCE SURGE PROTECTION (ONE-LINE DIAGRAM).
G	GENERATOR, ANNUNCIATOR (ONE-LINE DIAGRAM).
G	GENERATOR, POWER (ONE-LINE DIAGRAM).
M	METER.
VFC VFD	VARIABLE FREQUENCY MOTOR CONTROLLER (ONE-LINE DIAGRAM).
	DISCONNECT SWITCH, FUSED.
	DISCONNECT SWITCH, UNFUSED.
	STARTER, COMBINATION WITH DISCONNECT SWITCH.
	STARTER OR MOTOR CONTROLLER.
	PUSHBUTTON.
	PUSHBUTTONS, MOTOR CONTROL.
	PANELBOARD CABINET, FLUSH MOUNTED.
	PANELBOARD CABINET, SURFACE MOUNTED, 1 SECTION.
	PANELBOARD CABINET, SURFACE MOUNTED, 2 SECTION.
DP#_	DISTRIBUTION PANEL OR SWITCHBOARD.
LP	LIGHTING RELAY, CONTACTOR PANEL, OR DIMMING ENCLOSURE.
	LIGHTING CONTROL STATION.
	DIMMING ENTRY STATION OR CONTROL STATION, FLUSH MOUNTED.
$ST	SWITCH, TOGGLE MOTOR STARTER WITH OVERLOAD PROTECTION.
75	TRANSFORMER: NUMBER INDICATES kVA.
	RELAY CONTACT, NORMALLY CLOSED (ONE-LINE DIAGRAM).
	RELAY CONTACT, NORMALLY OPEN (ONE-LINE DIAGRAM).
	PUSHBUTTON, NORMALLY CLOSED (ONE-LINE DIAGRAM).
	PUSHBUTTON, NORMALLY OPEN (ONE-LINE DIAGRAM).
	SWITCH, MULTIPOSITION (ONE-LINE DIAGRAM).
	SWITCH, SINGLE BREAK (ONE-LINE DIAGRAM).
	SPECIALIZED TRANSFER SWITCH (ONE-LINE DIAGRAM).
HC	ACCESSIBLE DOOR ENTRY PUSH PLATE OPERATOR.
	CIRCUIT BREAKER, DRAW OUT (ONE-LINE DIAGRAM).
LIGHTING (REFER TO FIXTURE SCHEDULE FOR SYMBOLS)	
(W-3)	FIXTURE IDENTIFICATION: (W-3) INDICATES FIXTURE TYPE AS SCHEDULED.
(W-3)	FIXTURE IDENTIFICATION, EMERGENCY WITH BATTERY PACK, CONNECTED TO GENERATOR AS INDICATED: (W-3) INDICATES FIXTURE TYPE AS SCHEDULED.
EM	EMERGENCY.
NL	NIGHT LIGHT: DO NOT SWITCH.
↑	EGRESS DIRECTION ARROW.
LV	LOW VOLTAGE LIGHTING TRANSFORMER.

SYMBOLS LEGEND

SYMBOL	DESCRIPTION
LIGHTING CONTROL	
	OCCUPANCY SENSOR, DUAL TECHNOLOGY, OMNI-DIRECTIONAL, CEILING.
	OCCUPANCY SENSOR, DUAL TECHNOLOGY, WALL.
	OCCUPANCY SENSOR, DUAL TECHNOLOGY, DIRECTIONAL.
	VACANCY SENSOR, DUAL TECHNOLOGY, OMNI-DIRECTIONAL, CEILING.
	VACANCY SENSOR, DUAL TECHNOLOGY, DIRECTIONAL.
P	PHOTOCELL.
	VACANCY SENSOR, DUAL TECHNOLOGY, WALL.
STRUCTURED CABLING	
X	TELEPHONE, WALL MOUNTED ("X" INDICATES QUANTITY OF CABLES).
E	ELEVATOR LOBBY EMERGENCY PHONE; FLUSH /HANDS FREE STAINLESS STEEL; VIKING MODEL E-1600-30A.
W	TELEPHONE, WALL MOUNTED: WALL PHONE.
X	OUTLET, DATA COMMUNICATION ("X" INDICATES QUANTITY OF CABLES).
	OUTLET, BUILDING STANDARD COMBINATION TELEPHONE/ DATA COMMUNICATION.
	TELEPHONE TERMINAL BOARD, FIRE TREATED PLYWOOD PAINTED.
	LAN RACK, FLOOR STANDING.
D	DATA CABLE, CATEGORY 5 (ONE-LINE DIAGRAM).
V	VOICE CABLE, CATEGORY 3 (ONE-LINE DIAGRAM).
FIRE ALARM	
FSA	FIRE SYSTEM ANNUNCIATOR.
FCP	FIRE ALARM CONTROL PANEL, SEMI-RECESSED.
FPS	FIRE ALARM NOTIFICATION POWER SUPPLY.
FTR	FIRE ALARM TRANSPONDER OR TRANSMITTER.
C	AUTOMATIC DOOR CLOSERS: DOOR CLOSERS SHALL BE FURNISHED WITH DOOR HARDWARE AND CONNECTED TO BY FIRE ALARM INSTALLERS.
CM	CONTROL MODULE.
MM	MONITOR MODULE.
P	FIRE ALARM MANUAL PULL STATION.
R	SHUT DOWN RELAY: INSTALL RELAY IN CONTROL CIRCUIT OF EQUIPMENT TO BE CONTROLLED IN THE EVENT OF A FIRE.
	MAGNETIC DOOR HOLDER.
	DETECTOR, SMOKE.
E	DETECTOR, SMOKE, ELEVATOR RECALL DESIGNATION.
	DETECTOR, SMOKE, DUCT WITH HOUSING AND SAMPLING TUBE.
	DETECTOR, HEAT.
75	STROBE. SUBSCRIPT INDICATES CANDELA RATING.
WP	ALARM, HORN/SPEAKER, WEATHERPROOF.
75	ALARM, HORN/STROBE, ONE ASSEMBLY. SUBSCRIPT INDICATES CANDELA RATING.
E	SPEAKER, EVACUATION.
E	SPEAKER, EVACUATION, COMBINATION STROBE.
	DETECTOR, FLOW SWITCH: FLOW SWITCHES SHALL BE PROVIDED AND INSTALLED WITH FIRE SPRINKLER SYSTEM AND SHALL BE CONNECTED TO LOCATIONS SHOWN ON THE FIRE SPRINKLER SHOP DRAWINGS.
	DETECTOR, TAMPER SWITCH WITH VALVE: TAMPER SWITCHES SHALL BE PROVIDED AND INSTALLED WITH FIRE SPRINKLER SYSTEM AND SHALL BE CONNECTED TO LOCATIONS SHOWN ON THE FIRE SPRINKLER SHOP DRAWINGS.
SD	SMOKE DAMPER.
FSD	FIRE AND SMOKE DAMPER.
75	ALARM, HORN/STROBE, ONE ASSEMBLY, CEILING MOUNTED. SUBSCRIPT INDICATES CANDELA RATING.
75	ALARM, HORN, CEILING MOUNTED. SUBSCRIPT INDICATES CANDELA RATING.
75	ALARM, STROBE, CEILING MOUNTED. SUBSCRIPT INDICATES CANDELA RATING.

SYMBOLS LEGEND

SYMBOL	DESCRIPTION
TECHNOLOGY SYSTEMS	
X	TECHNOLOGY SYSTEM CABLE. SEE SPECIFIC JOB EQUIPMENT LIST FOR APPLICABLE DESIGNATIONS. EXAMPLES: C = CONTROL CABLE G = GROUND CABLE, 10 AWG, 1 CONDUCTOR, GREEN INSULATED M = MICROPHONE CABLE S = SPEAKER CABLE, 70 VOLT SYSTEM Z = SPEAKER CABLE, 8 OHM SYSTEM
S #	SPEAKER, CEILING MOUNTED.
S #	SPEAKER, WALL MOUNTED.
	EQUIPMENT CABINET.
	SCREEN, PROJECTION, CEILING MOUNTED.
	PROJECTOR, CEILING MOUNTED.
V	VIDEO CONFERENCING CAMERA.
M	MICROPHONE INPUT.
CLOCK	
C	CLOCK.
CCTV	
P	CCTV CABLE, POWER.
V	CCTV CABLE, VIDEO SIGNAL.
CCTV	CCTV HEADEND EQUIPMENT.
M	CCTV MONITOR.
	CCTV CAMERA/ENCLOSURE WITH LENS, TYPICAL. SEE SCHEDULE.
PTZ	CCTV CAMERA WITH PAN, TILT AND ZOOM.
360°	PANNING CAMERA TRANSVERSE ANGLE.
SECURITY	
X	SECURITY CABLE. SEE EQUIPMENT SCHEDULE FOR CABLE TYPE.
ACC	ACCESS CONTROL HEADEND EQUIPMENT.
CTR	SECURITY CONTROL PANEL.
SEC	INTRUSION DETECTION HEADEND EQUIPMENT.
#1	CARD ACCESS DOOR TYPE #1 OR AS NOTED. SEE SCHEDULE.
CR	CARD READER.
KCR	KEYPAD/CARD READER COMBINATION.
	DOOR SWITCH, BALANCED MAGNETIC CONTROL.
ER	EXIT REQUEST.
RL	REMOTE DOOR RELEASE BUTTON.
IC	INTERCOM STATION.
IRU	DUAL TECHNOLOGY PASSIVE INFRARED SENSOR AND ULTRASONIC MOTION DETECTOR.
IR	PASSIVE INFRARED SENSOR.
P	PANIC DURESS SWITCH.
TV DISTRIBUTION	
T	TV DISTRIBUTION CABLE, INDIVIDUAL DROPS.
TR	TV DISTRIBUTION CABLE, TRUNK.
CMB	COMBINER.
DC	DIRECTIONAL COUPLER.
DA	DISTRIBUTION AMPLIFIER (ONE-LINE DIAGRAM).
SPL	SPLITTER (ONE-LINE DIAGRAM).
	TV OUTLET.
	SATELLITE ANTENNA.
	TV ANTENNA (ONE-LINE DIAGRAM).
	TERMINATOR, 75 OHM (TV DISTRIBUTION).

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DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
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LICENSED PROFESSIONAL ENGINEER
No. 181563
DAVID E. WESEMANN
04-21-2014
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ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300

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SYMBOLS LEGEND

EE002

VOLUME 2

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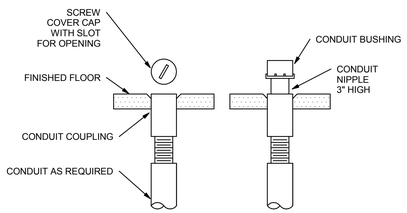
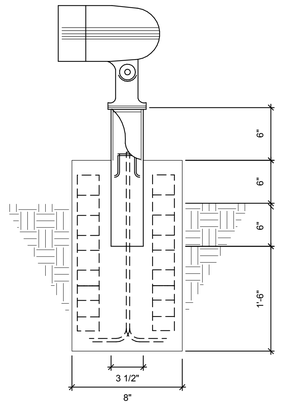


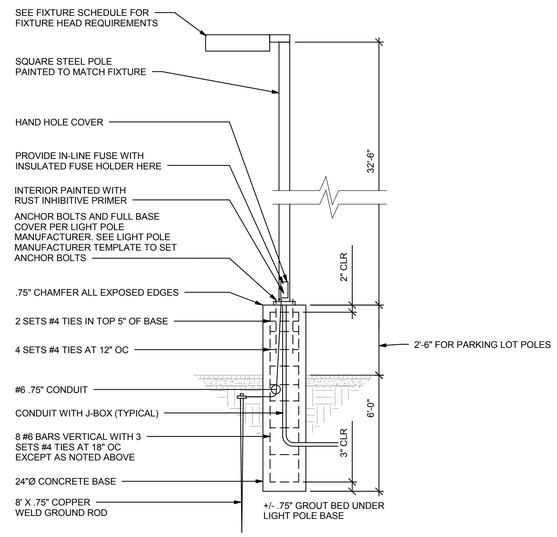
D1 CONDUIT IN FLOOR SLAB DETAIL

SCALE: NTS



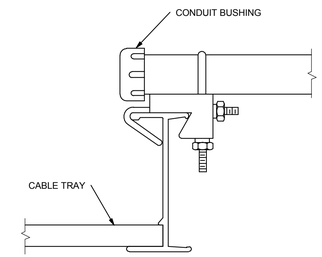
D2 SMALL FLOOD STANCHION MOUNT DETAIL

SCALE: NTS



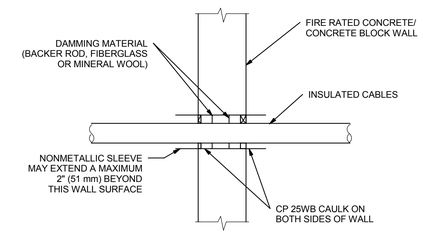
C3 PARKING LOT LIGHT POLE BASE DETAIL

SCALE: NTS



D5 CONDUIT TO TRAY ADAPTER

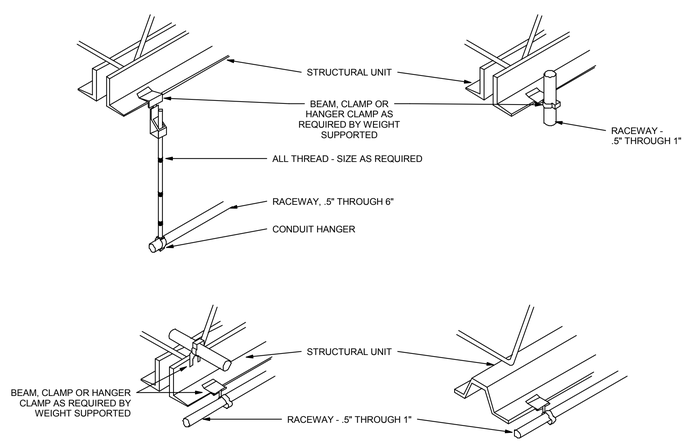
SCALE: NTS



C5 TYPICAL FIRE STOP FOR CABLES/CONDUIT THROUGH CONCRETE WALLS

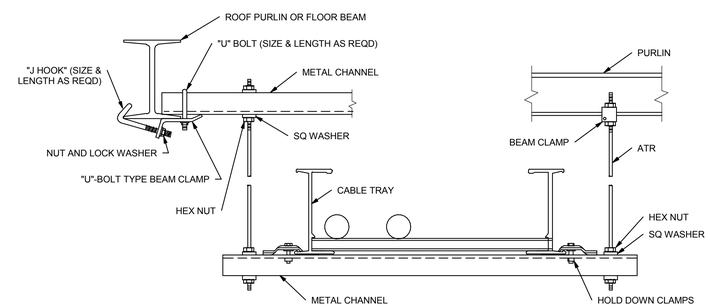
SCALE: NTS

NOTE:
TIE WIRE SHALL NOT BE USED AS A COMPONENT OF ANY RACEWAY HANGER SYSTEM.



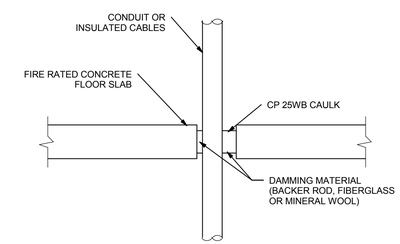
B1 TYPICAL RACEWAY SUPPORT METHODS DETAIL

SCALE: NTS



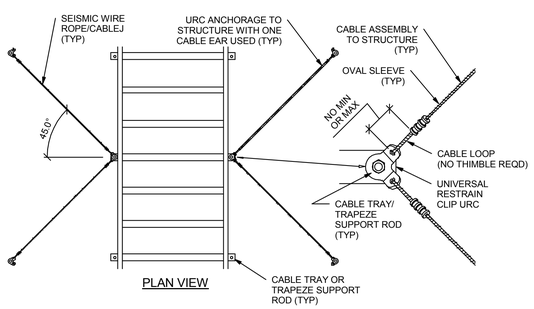
B3 TYPICAL INDOOR CABLE TRAY MOUNTING DETAIL

SCALE: NTS



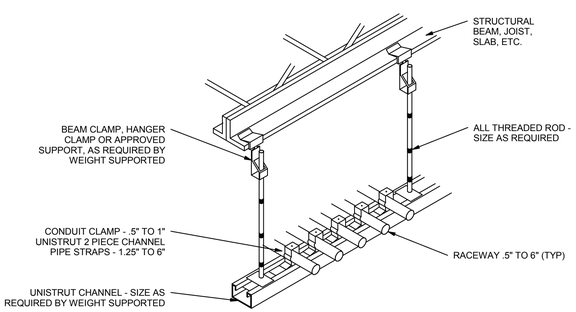
B5 TYPICAL FIRE STOP FOR CABLES/CONDUIT THROUGH CONCRETE FLOORING

SCALE: NTS



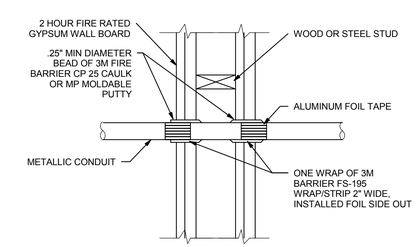
A1 SEISMIC WIRE ROPE/CABLEJ BRACING

SCALE: NTS



A3 TYPICAL CONDUIT RACK DETAIL

SCALE: NTS



A5 FIRE STOP FOR METAL CONDUIT THROUGH GYPSUM WALL BOARD

SCALE: NTS

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EE501

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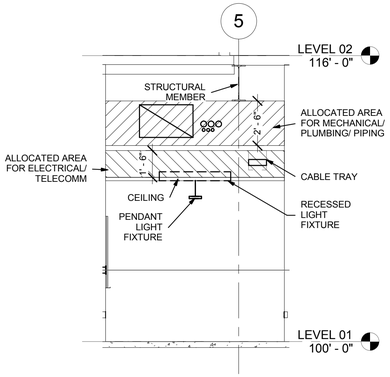
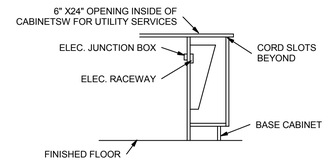


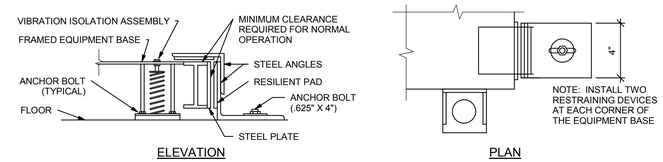
C1 TYPICAL ALLOCATION OF PLENUM SPACE

SCALE: NTS



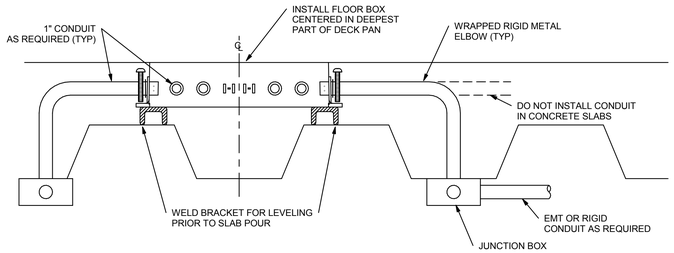
D3 INSTRUMENT BENCH SECTION DETAIL

SCALE: NTS



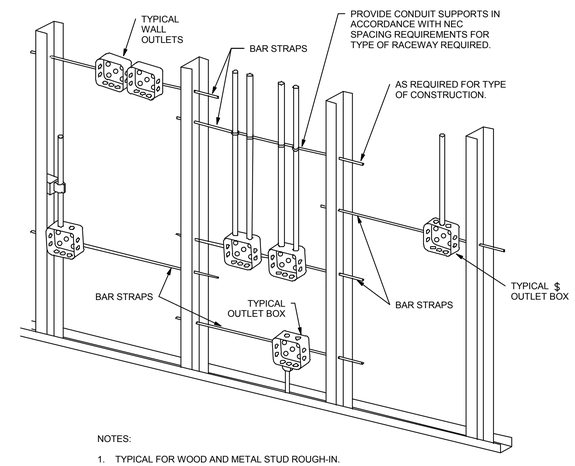
D4 GENERATOR RESTRAINT DETAIL

SCALE: NTS



C2 TYPICAL FLOOR BOX IN CONCRETE SLAB

SCALE: NTS

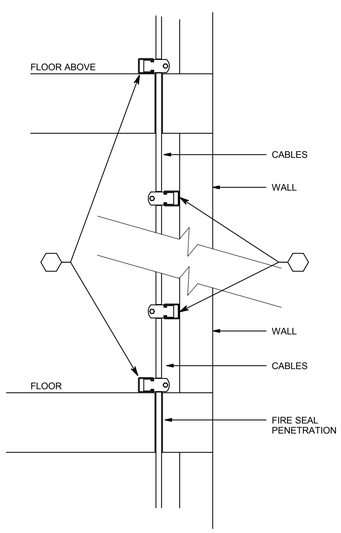


NOTES:

1. TYPICAL FOR WOOD AND METAL STUD ROUGH-IN.
2. PLASTER RINGS NOT SHOWN.
3. LOCATE ALL OUTLET BOXES IN ACCORDANCE WITH ARCHITECTURAL AND MECHANICAL DRAWINGS AND WITH ALL APPLICABLE SHOP DRAWINGS.
4. IN ACCORDANCE WITH IBC 711.3.2 EXCEPTION 1, OUTLETS ON OPPOSITE SIDES OF WALLS OR PARTITIONS IN THE SAME STUD SPACE IN A RATED FIRE SEPARATION WALL MUST BE SEPARATED BY A MINIMUN OF 24" HORIZONTAL DISTANCE.
5. IN NON-RATED WALLS, OUTLETS ON OPPOSITE SIDES OF WALLS OR PARTITIONS MUST BE SEPARATED BY 16" FOR SOUND ATTENUATION.

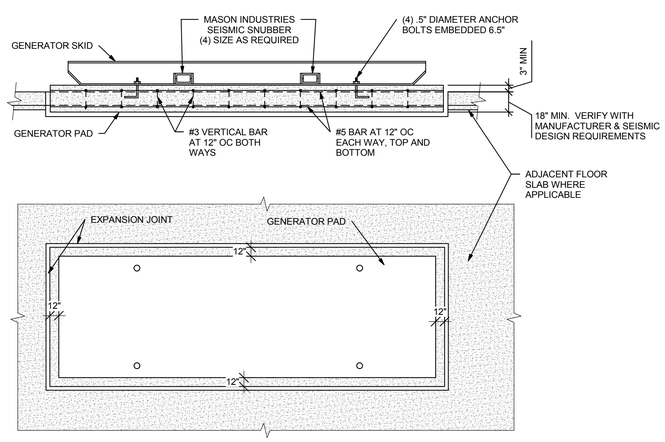
B4 TYPICAL ROUGH-IN REQUIREMENTS DETAIL

SCALE: NTS



A1 CABLE SUPPORT DETAIL

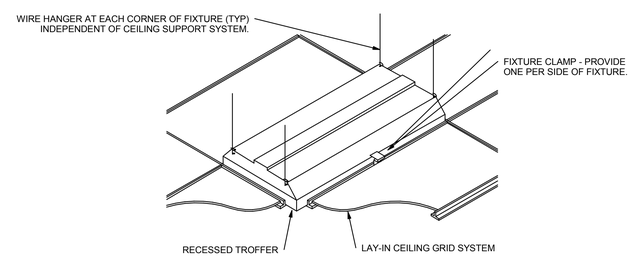
SCALE: NTS



NOTE:
ELECTRICAL CONTRACTOR SHALL FURNISH GENERAL CONTRACTOR WITH GENERATOR PAD DIMENSIONS SO THAT BLOCK WILL BE MADE FOR GENERATOR PAD. GENERATOR PAD SHALL BE SEPARATE FROM BUILDING FLOOR SLAB TO PROVIDE PROPER VIBRATION ISOLATION.

A2 GENERATOR PAD DETAIL

SCALE: NTS



A4 RECESSED FIXTURE MOUNTING DETAIL

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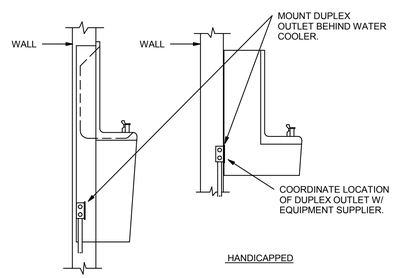
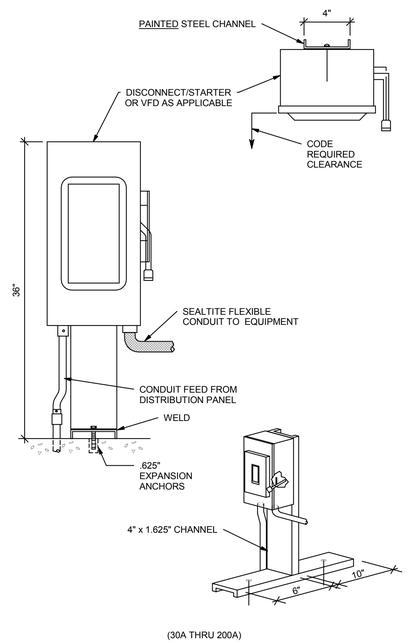


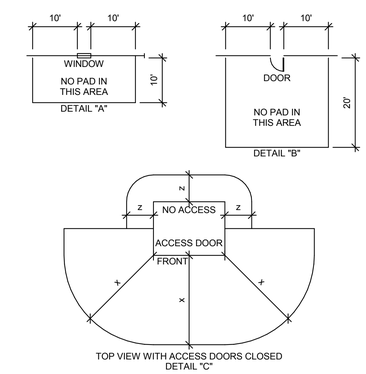
A2 ELECTRIC WATER COOLER DETAIL

SCALE: NTS



A3 REMOTE DISCONNECT/STARTER

SCALE: NTS



CLEARANCE GENERAL NOTES:

1. CLEARANCES: THE FRONT OF THE PAD SHOULD ALWAYS FACE AWAY FROM ADJACENT STRUCTURES AND BE FREE OF OBSTRUCTIONS. AT LEAST 3 FEET MUST SEPARATE THE EDGES OF THE PAD FROM ANY ADJACENT STRUCTURE. THE EDGES OF THE PAD MUST BE AT LEAST 10 FEET FROM ANY COMBUSTIBLE STRUCTURE. IF AN ADJACENT STRUCTURE HAS ANY OVERHANG OR EAVE WITHIN 27 VERTICAL FEET OF THE TOP OF THE PAD, CLEARANCES MUST BE MEASURED FROM THE OUTSIDE OF THE OVERHANG. THE PAD MUST NOT BE PLACED IN AN AREA 10 FEET IN LINE WITH OR 10 FEET TO EITHER SIDE OF ANY WINDOW IN AN ADJACENT STRUCTURE (SEE DETAIL "A"). CLEARANCE FOR A DOOR MUST BE 20 FEET IN LINE WITH IT AND 10 FEET ON THE SIDES (SEE DETAIL "B"). PADS MUST NOT BE PLACED WITHIN 15 FEET OF ANY VALVE OR WITHIN 25 FEET OF ANY PLUMBING OR STORAGE FACILITY CONTAINING FLAMMABLE MATERIAL. NO WALLS, FENCES, OR ANY OTHER OBSTRUCTIONS WILL BE PLACED WITHIN 3 FEET OF THE SIDES OR BACK OF THE PAD, OR WITHIN 10 FEET OF THE FRONT OF THE PAD (SEE DETAIL "C"). THE AREA IN FRONT OF THE PAD MUST HAVE 10 FEET OF CLEAR, LEVEL WORKING AREA FOR MAINTENANCE OF THE TRANSFORMER. THE PAD MAY NOT BE PLACED IN LINE WITH AN AIR INTAKE WITHIN 32 VERTICAL FEET OF THE SURFACE PAD. ALSO VERTICALLY, IT MUST NOT BE PLACED WITHIN 12 FEET OF A DOOR OR WINDOW. VAULTS SHALL BE LOCATED WITHIN 15 FEET OF A GRAVELED OR PAVED SURFACE SUITABLE FOR INCIDENTAL HEAVY TRUCK ACCESS.

2. BARRIERS: IF THE TRANSFORMER PAD IS TO BE LOCATED IN AREAS SUBJECT TO VEHICULAR TRAFFIC, (PARKING LOTS, DRIVEWAYS, ETC) CONTACT ROCKY MOUNTAIN POWER FOR PROTECTIVE BARRIER REQUIREMENTS.

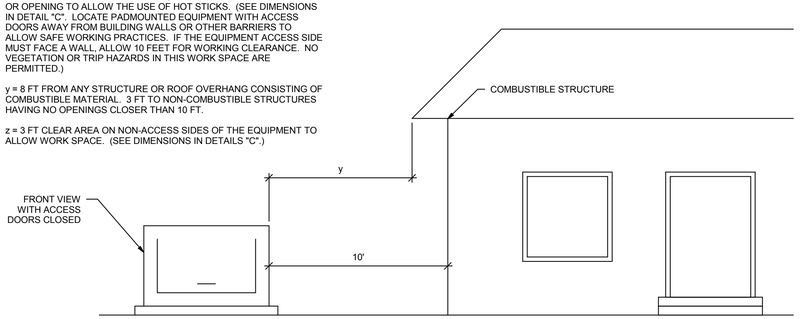
3. IF THE TRANSFORMER WILL NOT COVER THE CABLE OPENINGS ON THESE STANDARD PADS, SEAL THE SIDES OF THE CABLE OPENING TO FIT THE TRANSFORMER USING SACKRETE OR COMPARABLE.

MINIMUM DISTANCE REQUIRED FROM PAD:

x = 10 FT. CLEAR AREA IN FRONT OF, ANY EQUIPMENT ACCESS DOOR OR OPENING TO ALLOW THE USE OF HOT STICKS. (SEE DIMENSIONS IN DETAIL "C". LOCATE PADMOUNTED EQUIPMENT WITH ACCESS DOORS AWAY FROM BUILDING WALLS OR OTHER BARRIERS TO ALLOW SAFE WORKING PRACTICES. IF THE EQUIPMENT ACCESS SIDE MUST FACE A WALL, ALLOW 10 FEET FOR WORKING CLEARANCE. NO VEGETATION OR TRIP HAZARDS IN THIS WORK SPACE ARE PERMITTED.)

y = 8 FT FROM ANY STRUCTURE OR ROOF OVERHANG CONSISTING OF COMBUSTIBLE MATERIAL. 3 FT TO NON-COMBUSTIBLE STRUCTURES HAVING NO OPENINGS CLOSER THAN 10 FT.

z = 3 FT CLEAR AREA ON NON-ACCESS SIDES OF THE EQUIPMENT TO ALLOW WORK SPACE. (SEE DIMENSIONS IN DETAILS "C".)



A4 TRANSFORMER CLEARANCE DETAIL

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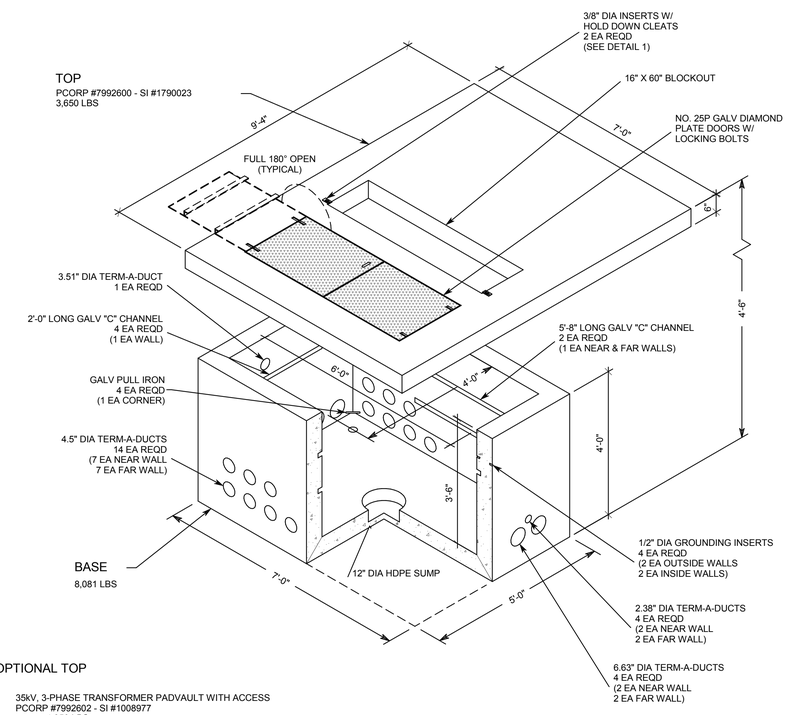
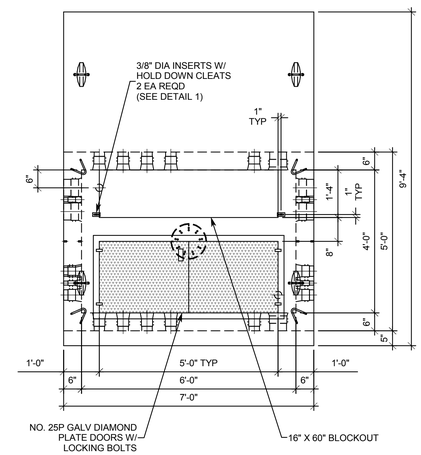
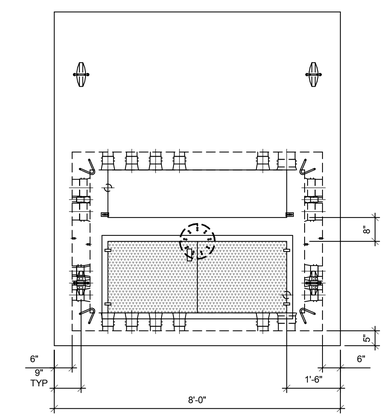
2.4 - 25kV, 3-PHASE TRANSFORMER PADVAULT WITH ACCESS, STOCK ITEM 7992600-STOCK ITEM 1790023
35kV, 3-PHASE TRANSFORMER PADVAULT WITH ACCESS, STOCK ITEM 7992602-STOCK ITEM 1008977





PLAN VIEW

2.4-25 kV, 3-PHASE TRANSFORMER PADVAULT WITH ACCESS
PCORP #7992600 - SI #1790023

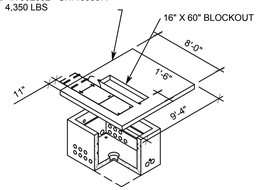


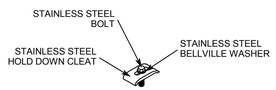
PLAN VIEW

35 kV, 3-PHASE TRANSFORMER PADVAULT WITH ACCESS
PCORP #7992602 - SI #1008977

OPTIONAL TOP

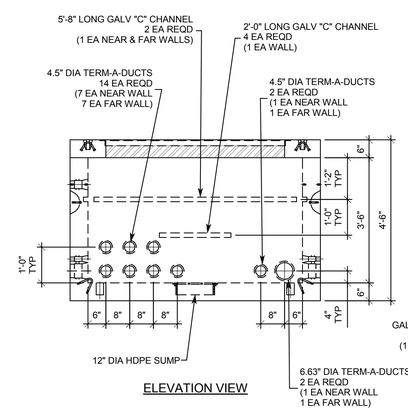
35kV, 3-PHASE TRANSFORMER PADVAULT WITH ACCESS
PCORP #7992602 - SI #1008977
4,350 LBS



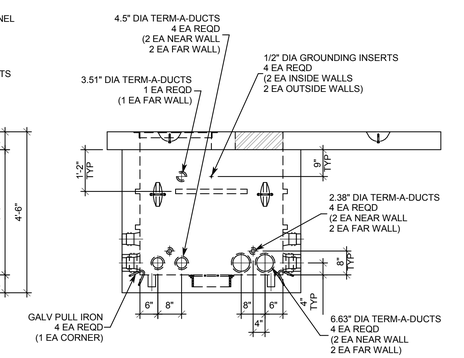


HOLD DOWN CLEAT
DETAIL 1

1 1/4" X 2 1/2" STAINLESS STEEL HOLD-DOWN CLEAT - 2 REQD
3/8" X 1 1/4" STAINLESS STEEL BOLT - 2 REQD
3/8" STAINLESS STEEL BELLVILLE WASHER - 2 REQD



ELEVATION VIEW



END VIEW

*LIFTING DEVICE TYPE & LOCATION MAY CHANGE WITHOUT NOTICE.

NOTE: PRIOR TO ORDERING AND INSTALLING THE PADVAULT, SUBMIT PADVAULT TO ROCKY MOUNTAIN POWER FOR APPROVAL AND VERIFICATION, AND COORDINATE EXACT SIZE AND LOCATION OF DUCT OPENINGS WITH ROCKY MOUNTAIN POWER.

A2 THREE-PHASE TRANSFORMER PADVAULT (ROCKY MOUNTAIN POWER STANDARD)

SCALE: NTS

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DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 181563
DAVID E. WESEMANN
04-21-2014
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #:	13020300
Project #:	B13-024

DATE:	ISSUE TYPE:
April 21, 2014	BID SET
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DETAILS

EE504

VOLUME 2

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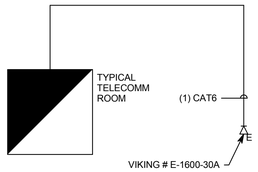
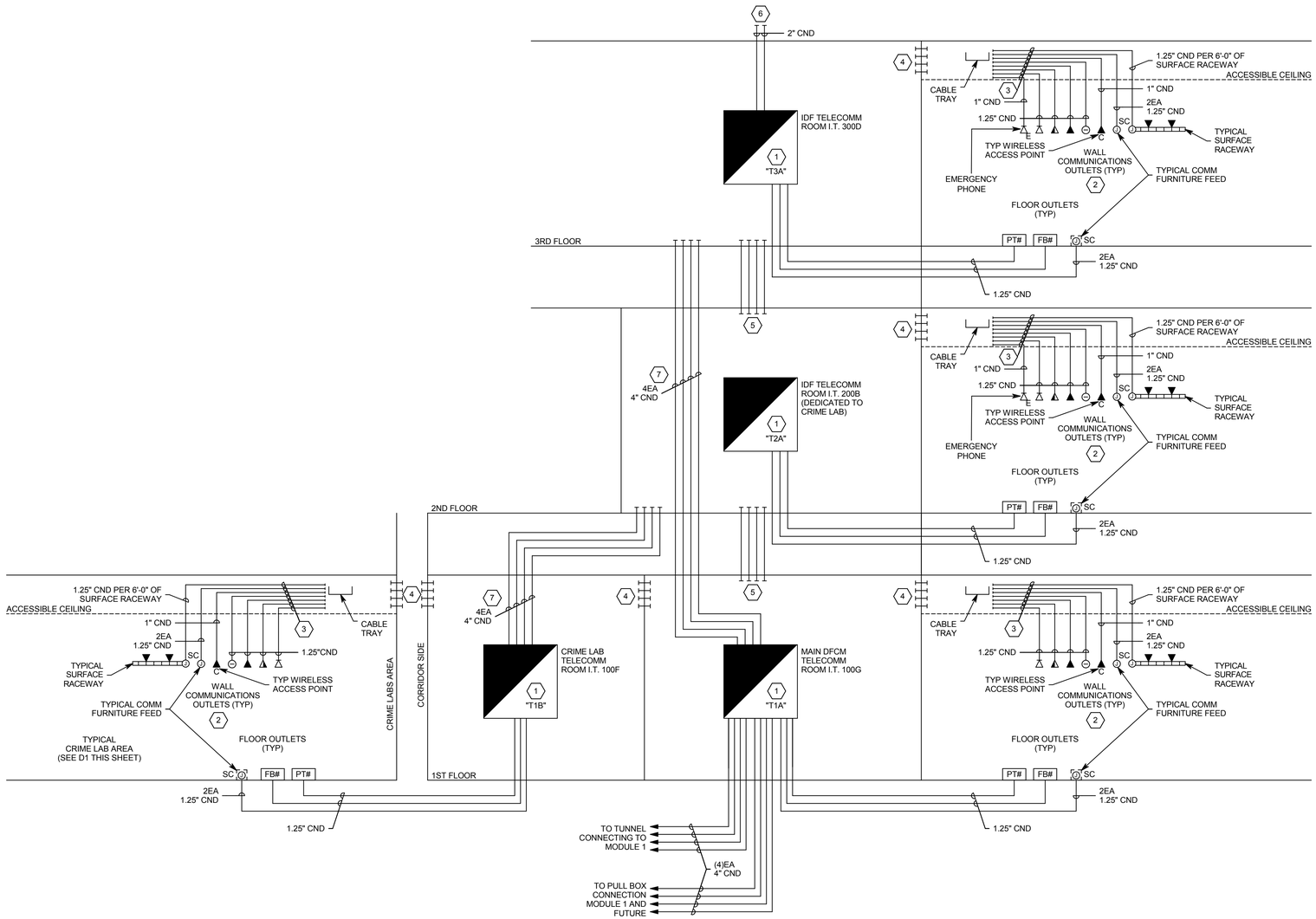


D1 ELEVATOR LOBBY EMERGENCY PHONE SINGLE-LINE

SCALE: N.T.S.



A2 TELECOMM RACEWAY RISER DIAGRAM

SCALE: NTS

GENERAL SHEET NOTES

1. LOCATE CABLE TRAYS ABOVE ACCESSIBLE CEILINGS, BELOW DUCT WORK AND PIPING. ALLOW SUFFICIENT SPACE ABOVE CEILING GRID AND BELOW THE CABLE TRAY TO ALLOW REMOVAL OF CEILING TILES TO ACCESS CABLE TRAY.
2. MAINTAIN 12" SEPARATION BETWEEN CABLE TRAY AND LIGHTING FIXTURES, AND 6" SEPARATION BETWEEN CABLE TRAY AND POWER RACEWAYS AND CABLES.
3. ROUTE EMPTY RACEWAYS FOR TELECOMM CABLING SUCH THAT WHEN CABLING IS RUN FROM OUTLET TO I.T. CLOSET THE CABLE DISTANCE WILL NOT EXCEED 250' LINEAR FEET.
4. GROUND CABLE TRAY SECTIONS.

SHEET KEYNOTES

1. PROVIDE 0.75" THICK X 8' HIGH FIRE-HEATED, PAINTED PLYWOOD ON ALL WALLS OF COMMUNICATIONS ROOMS.
2. PROVIDE DEEP 4" SQUARE BOX WITH SINGLE GANG MUD RING AND COVER PLATE.
3. STUB CONDUITS ALL THE WAY TO CABLE TRAY. PROVIDE INSULATED THROATS.
4. STUB 4EA 4" CND SLEEVES THROUGH WALL ABOVE CEILING INTO COMMUNICATIONS ROOM. FIRE STOP AFTER CABLING INSTALLATION IS COMPLETE.
5. PROVIDE 4" CND SLEEVES BETWEEN FLOORS. FIRE STOP AFTER CABLING INSTALLATION IS COMPLETE.
6. STUB CONDUITS TO ROOF. PROVIDE FLASHING AND CAP.
7. PROVIDE CONTINUOUS CONDUIT BETWEEN ROOMS AS INDICATED TO KEEP SEPARATION OF CRIME LAB TELECOMM SPACES.

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TELECOMM RACEWAY RISER DIAGRAM

EE601

VOLUME 2

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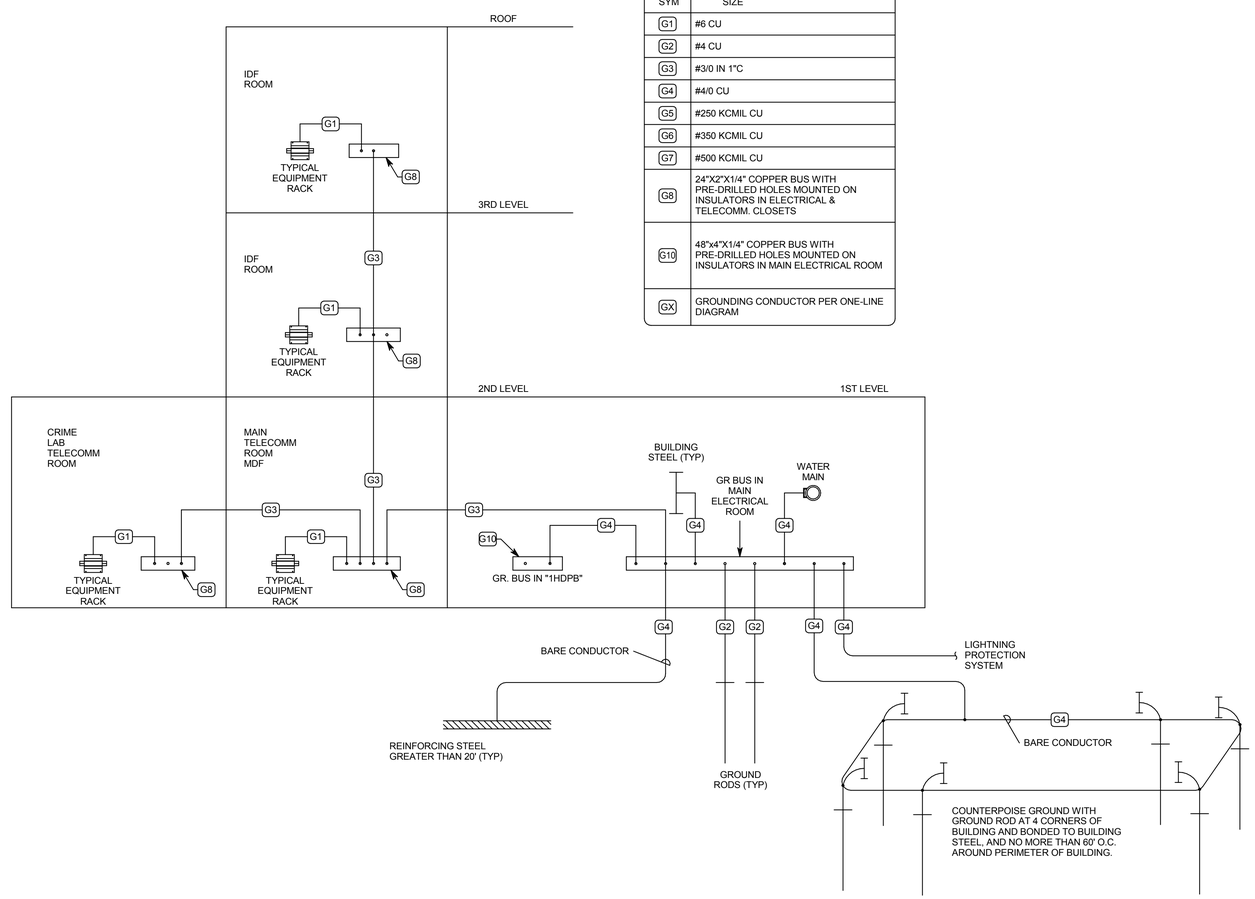
GROUNDING SCHEDULE

ALL CONDUCTORS ARE INSULATED UNLESS INDICATED OTHERWISE

SYM	SIZE
G1	#6 CU
G2	#4 CU
G3	#3/0 IN 1"C
G4	#4/0 CU
G5	#250 KCMIL CU
G6	#350 KCMIL CU
G7	#500 KCMIL CU
G8	24"X2"X1/4" COPPER BUS WITH PRE-DRILLED HOLES MOUNTED ON INSULATORS IN ELECTRICAL & TELECOMM. CLOSETS
G10	48"x4"X1/4" COPPER BUS WITH PRE-DRILLED HOLES MOUNTED ON INSULATORS IN MAIN ELECTRICAL ROOM
GX	GROUNDING CONDUCTOR PER ONE-LINE DIAGRAM



A2 GROUNDING RISER DIAGRAM

SCALE: NTS

GENERAL SHEET NOTES

1 REFER TO ONE-LINES, PLANS, AND SPECIFICATIONS FOR ADDITIONAL GROUNDING REQUIREMENTS.

2 BOND SPECIFIED GROUND CONDUCTOR TO INDIVIDUAL EQUIPMENT RACKS.

SHEET KEYNOTES

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GROUNDING RISER DIAGRAM

EE602

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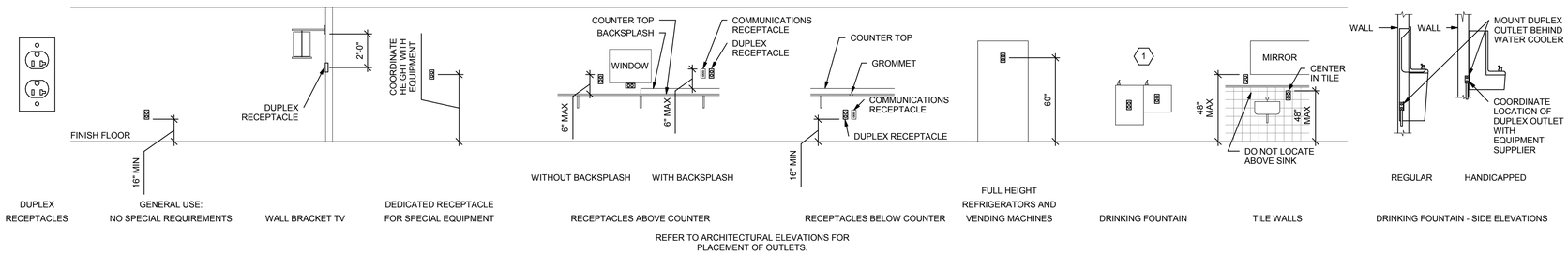
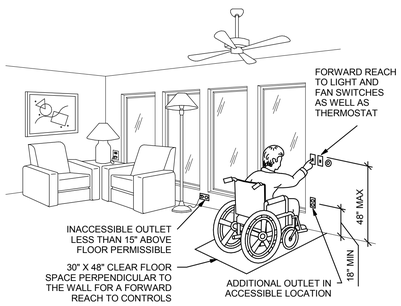


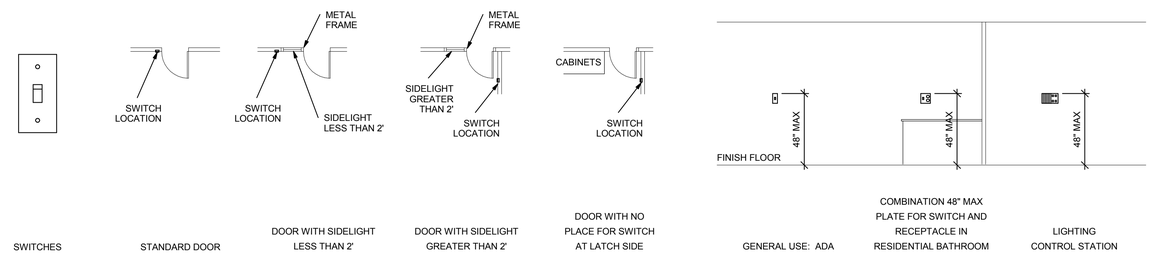
D1 RECEPTACLE MOUNTING DETAILS

SCALE: NTS



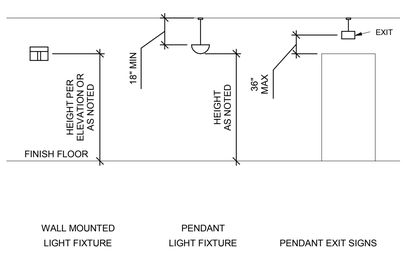
C1 ADA DETAIL

SCALE: NTS



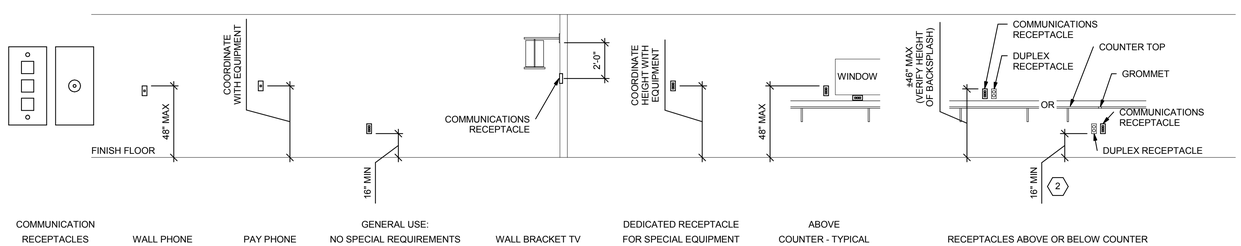
C2 SWITCH MOUNTING DETAILS

SCALE: NTS



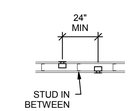
B1 LIGHTING MOUNTING DETAILS

SCALE: NTS



B2 COMMUNICATIONS MOUNTING DETAILS

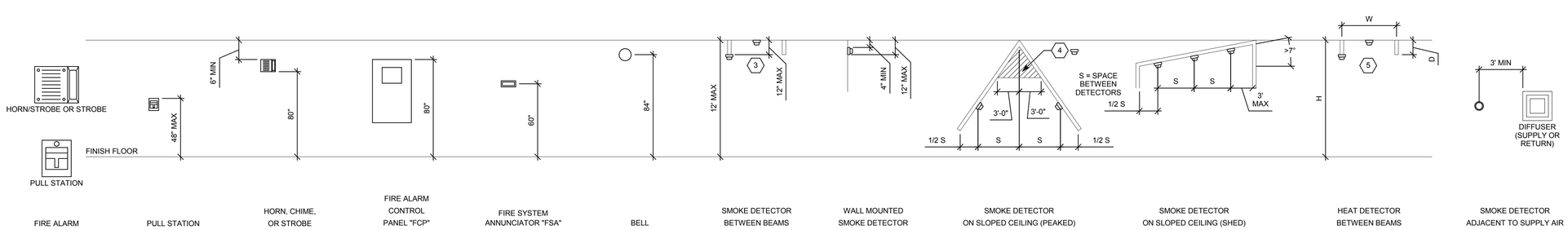
SCALE: NTS



BOXES ON OPPOSITE SIDES OF WALL

B5 BOX MOUNTING DETAILS

SCALE: NTS



A1 FIRE ALARM MOUNTING DETAILS

SCALE: NTS

GENERAL SHEET NOTES

1. DETERMINE MOUNTING HEIGHTS OF ELECTRICAL AND ELECTRONIC EQUIPMENT IN THE FOLLOWING ORDER OF PRIORITY:

   1 - ELEVATIONS (ARCHITECTURAL, ELECTRICAL, MECHANICAL, ETC).

   2 - EQUIPMENT SHOP DRAWINGS.

   3 - FIELD INSTRUCTIONS.
2. LOCATE RECEPTACLES SERVING THE SAME TYPE OF USE AT A UNIFORM HEIGHT UNLESS DIRECTED OTHERWISE.
3. MECHANICAL, ELECTRICAL, AND COMMUNICATION ROOMS: COORDINATE LOCATION OF LIGHTING AND POWER RECEPTACLES WITH EQUIPMENT, PIPING, AND DUCTWORK. DO NOT INSTALL RECEPTACLES BEHIND EQUIPMENT OR WHERE OTHERWISE INACCESSIBLE. POSITION LIGHTING REGARDLESS OF WHERE SHOWN ON DRAWING TO PROVIDE PROPER ILLUMINATION.
4. MOUNT RECEPTACLE BOXES FOR SWITCHES AND RECEPTACLES WITH LONG AXIS OF THE DEVICE VERTICAL UNLESS OTHERWISE INDICATED.
5. SET BOXES WITH PLASTER RINGS FLUSH WITH FINISHED SURFACE.
6. LOCATE BOX COVERS OR DEVICE PLATES SO THEY WILL NOT SPAN DIFFERENT TYPES OF BUILDING FINISHES EITHER VERTICALLY OR HORIZONTALLY.
7. VERIFY ALL DOOR CONDITIONS ON ARCHITECTURAL DRAWINGS PRIOR TO INSTALLING SWITCHES.
8. LOCATE WIREING DEVICES WHICH ARE ADJACENT AND ARE COMPATIBLE VOLTAGES IN ONE PLATE.

SHEET KEYNOTES

1. LOCATE RECEPTACLES BEHIND DRINKING FOUNTAINS.
2. REFER TO ARCHITECTURAL ELEVATIONS FOR PLACEMENT OF OUTLETS.
3. LOCATE AT BOTTOM OF BEAMS (OR JOISTS) OR AT CEILING. (REDUCE SPACING BY .5 PERPENDICULAR TO BEAM OR JOIST DIRECTION.) FOR OTHER CONDITIONS, REFER TO NFPA 72.
4. LOCATE DETECTOR ANYWHERE IN SHADED AREA BUT NOT IN TOP 4" OF PEAK.
5. LOCATE AT BOTTOM OF BEAMS IF D/H < .1 OR W/H < .4; OTHERWISE, LOCATE IN BEAM POCKET. FOR D > 4 REDUCE SPACING .33 PERPENDICULAR TO BEAMS.

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TYPICAL MOUNTING HEIGHT DETAILS

EE701

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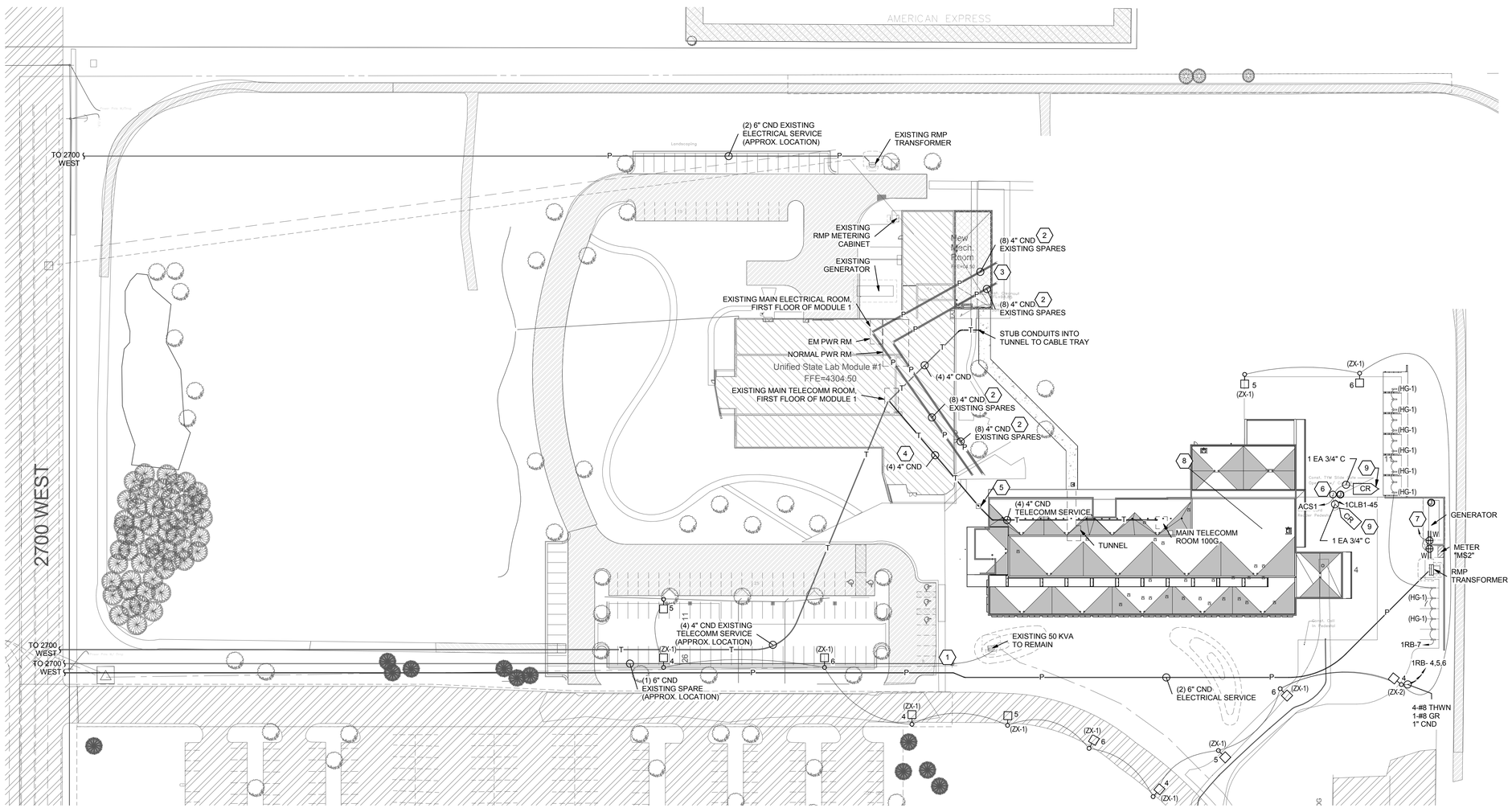
GENERAL SHEET NOTES

SHEET KEYNOTES

1. EXISTING 6" CND PROVIDED IN PREVIOUS PROJECT FOR USE OF RMP PRIMARY POWER. FIELD VERIFY EXACT LOCATION.
2. EXISTING CONDUITS STUBBED OUT FROM MODULE 1 FOR FUTURE USE (NOT ANTICIPATED TO BE USED FOR MODULE 2). LOCATE AND MARK ON RECORD DRAWINGS.
3. LOCATE AND PROTECT EXISTING CONDUIT STUBOUTS DURING CONSTRUCTION OF NEW ADDITION. EXTEND CONDUITS AND STUB BEYOND THE EXTENTS OF THE NEW ADDITION.
4. EXISTING TELECOMM CONDUITS STUBBED OUT OF MODULE 1. FIELD VERIFY LOCATION TO CONNECT AND EXTEND AS INDICATED.
5. EXTEND TELECOMM CONDUITS. PROVIDE 4'X4'X4' CONCRETE PULL BOX WITH HINGED METAL LID, THEN PROVIDE NEW (4) 4" CONDUITS FROM PULL BOX INTO NEW BUILDING MAIN TELECOMM ROOM.
6. PROVIDE 1 EA, 1" C FOR GATE CONTROL BACK TO ACS1 IN COMM ROOM 100G.
7. CIRCUIT TO 120/208 V GENERATOR AUXILIARY PANEL.
8. RECEPTACLE OUTLET FOR IRRIGATION CONTROLLER. PROVIDE 2" CND FROM DFCM STORAGE ROOM #116 TO APPROXIMATE LOCATION SHOWN ON ES102.
9. MOUNT CARD READER ON PEDESTAL INDICATED. PROVIDE CONDUITS FROM PEDESTALS TO LOCATION AT GATE CONTROLLER. SEE KEYNOTE 6.



A1 OVERALL ELECTRICAL SITE PLAN

SCALE: 1" = 50'-0"

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OVERALL SITE ELECTRICAL PLAN

ES101

VOLUME 2

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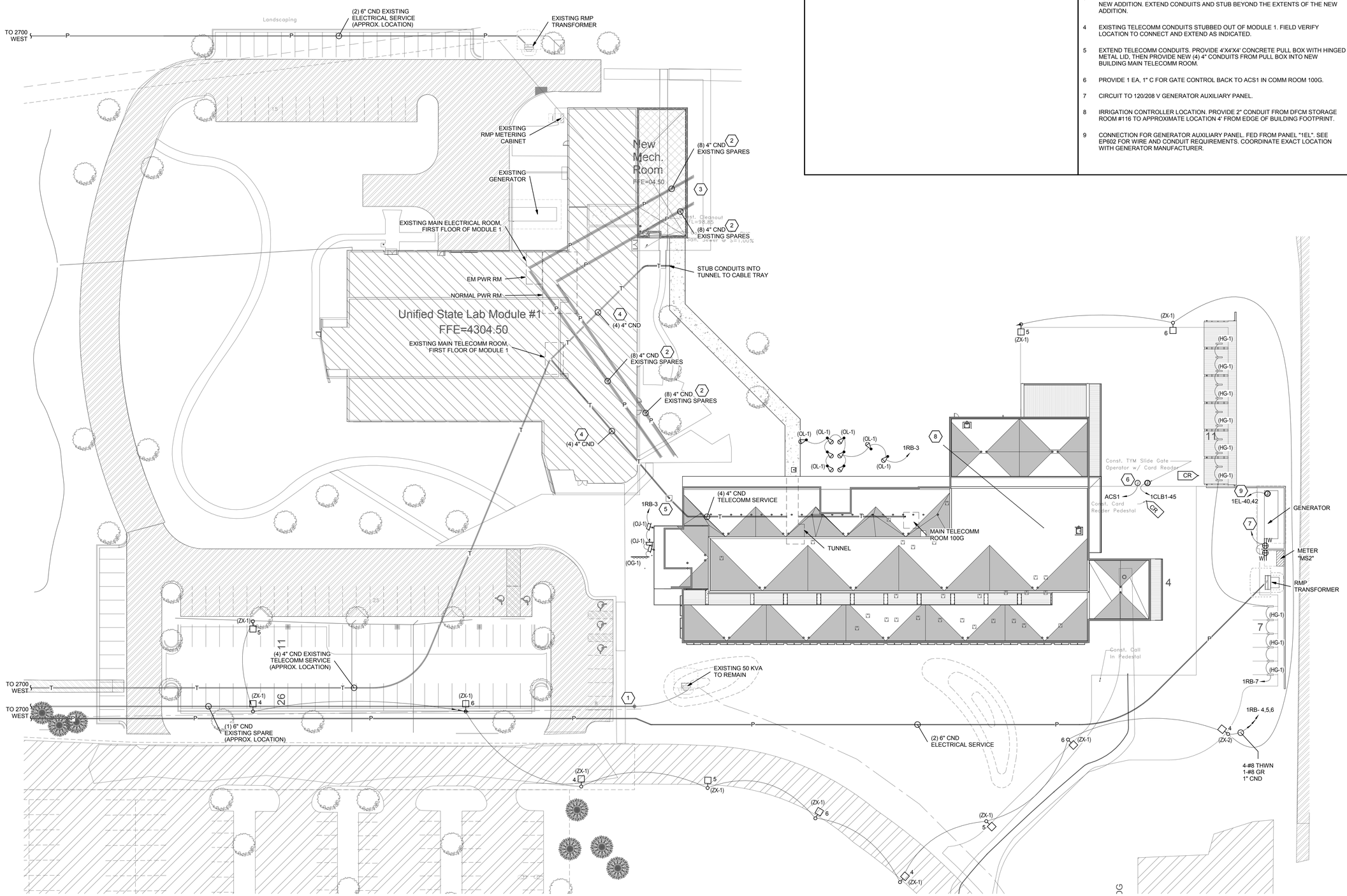

A1 ELECTRICAL SITE PLAN

SCALE: 1" = 30'-0"

GENERAL SHEET NOTES

SHEET KEYNOTES

1. EXISTING 6" CND PROVIDED IN PREVIOUS PROJECT FOR USE OF RMP PRIMARY POWER. FIELD VERIFY EXACT LOCATION.
2. EXISTING CONDUITS STUBBED OUT FROM MODULE 1 FOR FUTURE USE (NOT ANTICIPATED TO BE USED FOR MODULE 2). LOCATE AND MARK ON RECORD DRAWINGS.
3. LOCATE AND PROTECT EXISTING CONDUIT STUBOUTS DURING CONSTRUCTION OF NEW ADDITION. EXTEND CONDUITS AND STUB BEYOND THE EXTENTS OF THE NEW ADDITION.
4. EXISTING TELECOMM CONDUITS STUBBED OUT OF MODULE 1. FIELD VERIFY LOCATION TO CONNECT AND EXTEND AS INDICATED.
5. EXTEND TELECOMM CONDUITS. PROVIDE 4'X4'X4' CONCRETE PULL BOX WITH HINGED METAL LID, THEN PROVIDE NEW (4) 4" CONDUITS FROM PULL BOX INTO NEW BUILDING MAIN TELECOMM ROOM.
6. PROVIDE 1 EA, 1" C FOR GATE CONTROL BACK TO ACS1 IN COMM ROOM 100G.
7. CIRCUIT TO 120/208 V GENERATOR AUXILIARY PANEL.
8. IRRIGATION CONTROLLER LOCATION. PROVIDE 2" CONDUIT FROM DFCM STORAGE ROOM #116 TO APPROXIMATE LOCATION 4' FROM EDGE OF BUILDING FOOTPRINT.
9. CONNECTION FOR GENERATOR AUXILIARY PANEL. FED FROM PANEL "1EL". SEE EP602 FOR WIRE AND CONDUIT REQUIREMENTS. COORDINATE EXACT LOCATION WITH GENERATOR MANUFACTURER.

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SITE ELECTRICAL PLAN

ES102

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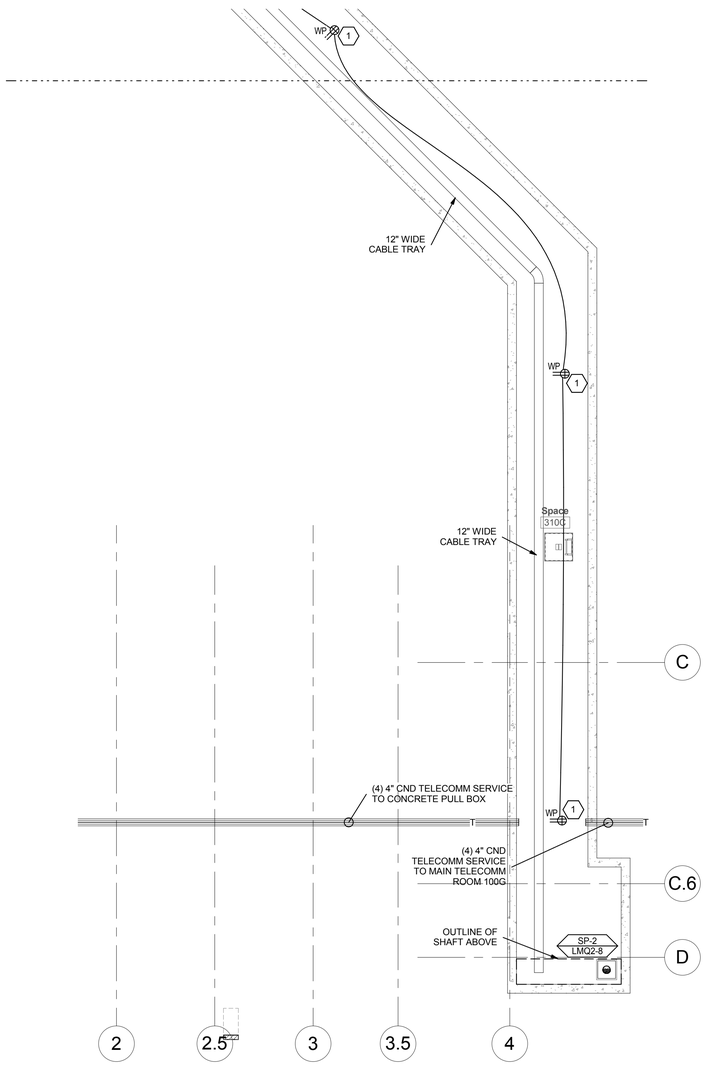
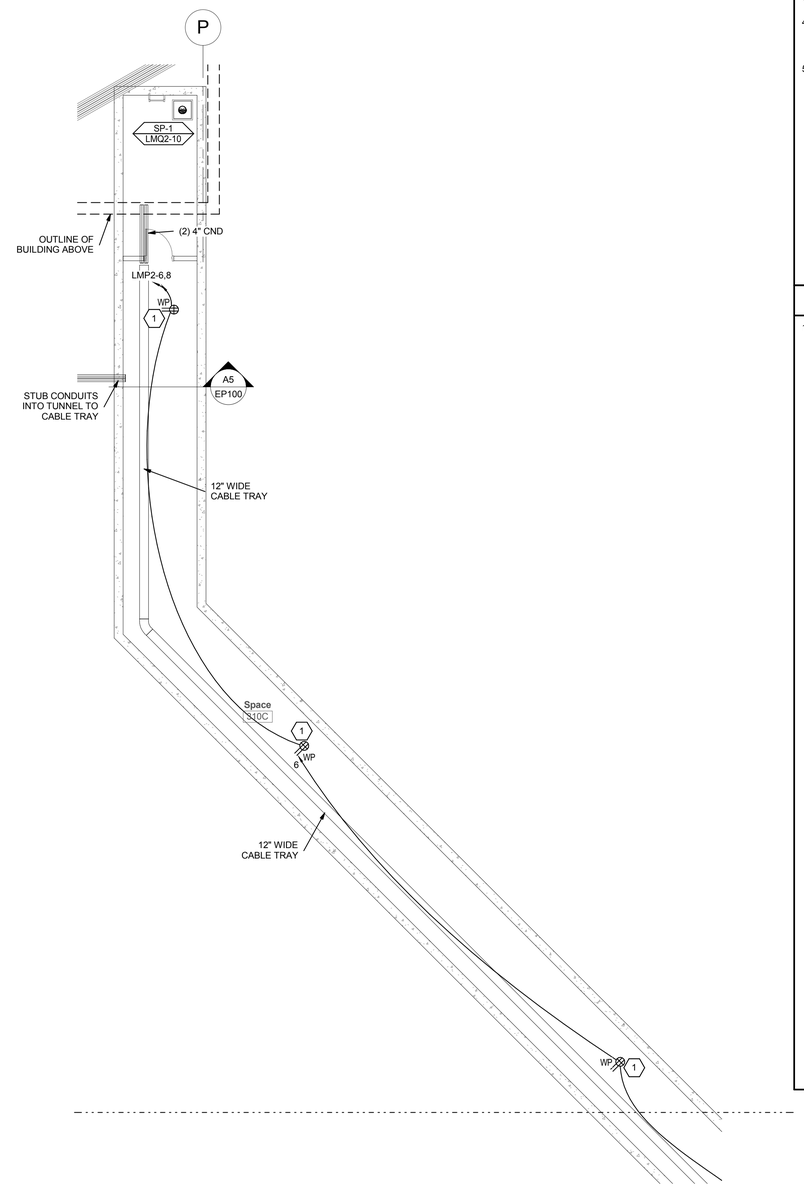


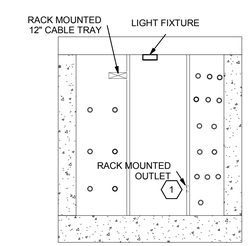
A1 TUNNEL LEVEL POWER PLAN - AREA A

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



A3 TUNNEL LEVEL POWER PLAN - AREA D

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



A5 TUNNEL SECTION

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

GENERAL SHEET NOTES

1. LOCATIONS OF MECHANICAL EQUIPMENT SHOWN IS APPROXIMATE. FIELD COORDINATE EXACT LOCATIONS OF EQUIPMENT PRIOR TO ROUGH-IN.
2. SEE FIRE ALARM PLANS (FA) FOR ELECTRICAL CONNECTIONS TO FIRE ALARM EQUIPMENT/DEVICES.
3. PROVIDE DRY CONTACT FOR ALL REFRIGERATORS TO TIE INTO BMS SYSTEM.
4. MINIMUM BRANCH CIRCUIT CONDUCTOR SIZE FOR 20A, 120V OR 208V CIRCUITS SHALL BE #10 AWG, UNLESS A LARGER SIZE IS INDICATED OR REQUIRED TO MINIMIZE VOLTAGE DROP.
5. CONTRACTOR TO PROVIDE AT TIME OF OWNER MOVE-IN/OCCUPATION OF BUILDING, (20) NEMA PLUG CONVERSION/REVISIONS TO ACCOMMODATE DIFFERENT EQUIPMENT PLUGS. THIS QUANTITY IS A TOTAL FOR THE BUILDING AND NOT PER DRAWING SHEET.

SHEET KEYNOTES

1. ELECTRICAL OUTLETS TO BE MOUNTED ON MECHANICAL RACKS.

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TUNNEL LEVEL POWER PLAN

EP100

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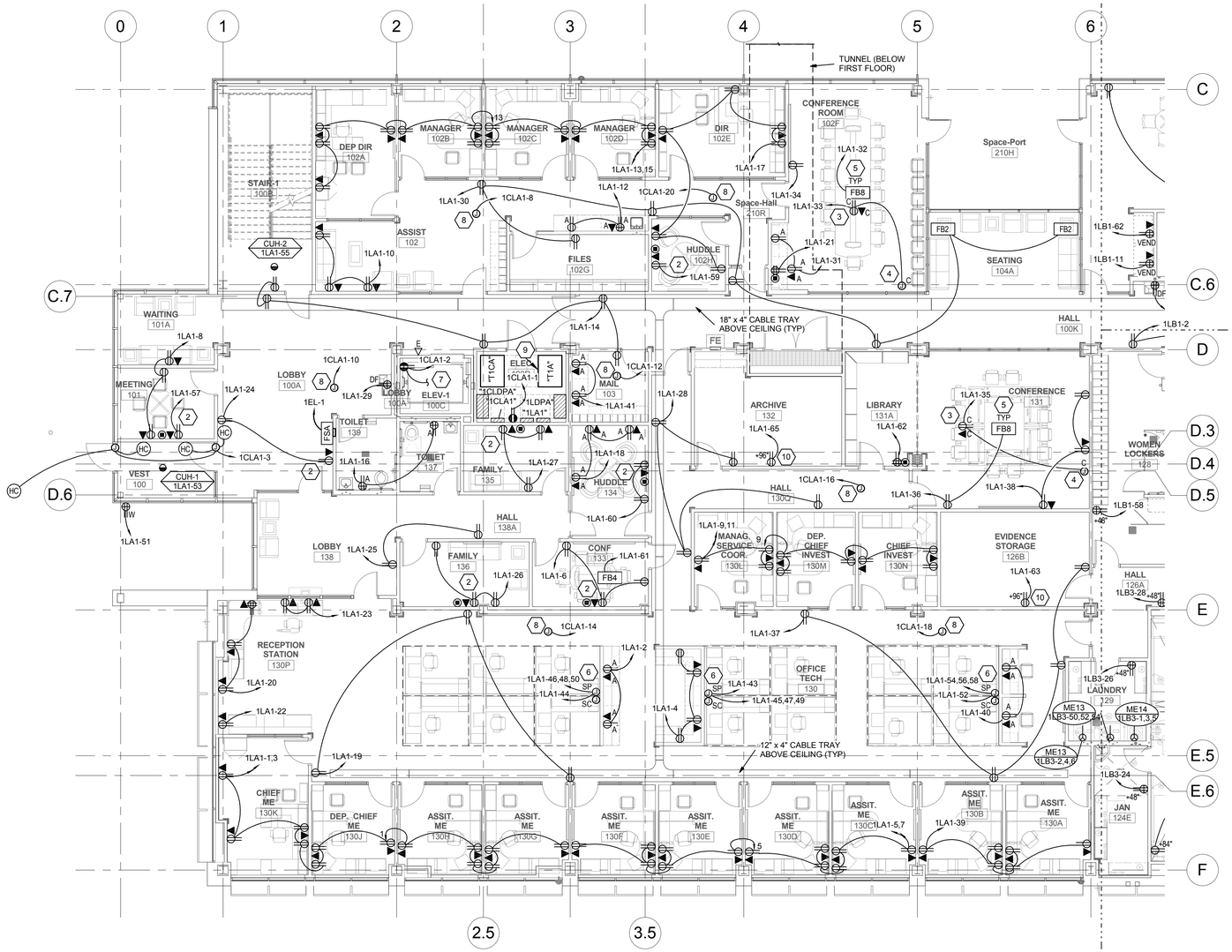


A1 FIRST LEVEL POWER PLAN - AREA A

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

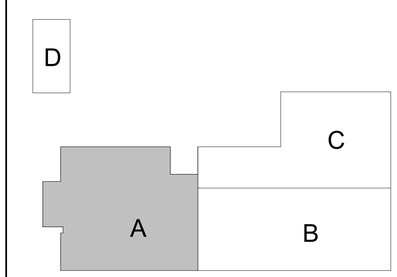
GENERAL SHEET NOTES

1. LOCATIONS OF MECHANICAL EQUIPMENT SHOWN IS APPROXIMATE. FIELD COORDINATE EXACT LOCATIONS OF EQUIPMENT PRIOR TO ROUGH-IN.
2. SEE FIRE ALARM PLANS (FA) FOR ELECTRICAL CONNECTIONS TO FIRE ALARM EQUIPMENT/DEVICES.
3. PROVIDE DRY CONTACT FOR ALL REFRIGERATORS TO TIE INTO BMS SYSTEM.
4. MINIMUM BRANCH CIRCUIT CONDUCTOR SIZE FOR 20A, 120V OR 208V CIRCUITS SHALL BE #10 AWG, UNLESS A LARGER SIZE IS INDICATED OR REQUIRED TO MINIMIZE VOLTAGE DROP.
5. CONTRACTOR TO PROVIDE AT TIME OF OWNER MOVE-IN/OCCUPATION OF BUILDING, (20) NEMA PLUG CONVERSION/REVISIONS TO ACCOMMODATE DIFFERENT EQUIPMENT PLUGS. THIS QUANTITY IS A TOTAL FOR THE BUILDING AND NOT PER DRAWING SHEET.

SHEET KEYNOTES

1. INSTALL GFCI IN PROVIDED SINGLE GANG BOX AND RACEWAY IN AUTOPSY BACKDRAFT STATION.
2. POWER AND DATA FOR WALL MOUNTED T.V. COORDINATE WITH A/V ROUGH-IN DETAILS.
3. POWER AND DATA FOR CEILING MOUNTED PROJECTOR. PROVIDE ALL ELECTRICAL AND CONTROL CONDUIT AND WIRING PER MANUFACTURER'S INSTRUCTIONS. INSTALL CONTROL SWITCH IN LOCATION APPROVED BY ARCHITECT. ALSO COORDINATE WITH AV INSTALLER AND INTERFACE WITH AV CONTROLS.
4. POWER FOR MOTORIZED SCREEN. PROVIDE ALL ELECTRICAL & CONTROL CONDUIT AND WIRING PER MANUFACTURER'S WRITTEN INSTRUCTIONS. INSTALL CONTROL SWITCH IN LOCATION APPROVED BY ARCHITECT. ALSO COORDINATE WITH AV INSTALLER AND INTERFACE WITH AV CONTROLS.
5. COORDINATE LOCATION OF FLOOR BOX WITH FURNITURE LAYOUT SHOWN ON ARCHITECTURAL DRAWINGS PRIOR TO ROUGH-IN.
6. PROVIDE ELECTRICAL CONNECTIONS TO SYSTEMS FURNITURE. DESIGN IS BASED ON 4 CIRCUIT/8 WIRE SYSTEM (3 CIRCUITS, SHARED OVERSIZED NEUTRAL AND GROUND, PLUS 1 CIRCUIT WITH DEDICATED NEUTRAL AND GROUND). VERIFY WIRING CONFIGURATION AND FEED POINT WITH SYSTEMS FURNITURE INSTALLER PRIOR TO INSTALLATION. COORDINATE WITH FURNITURE INSTALLER SUCH THAT CIRCUITS ARE UNIFORMLY DISTRIBUTED TO NO MORE THAN 4 WORKSTATIONS PER CIRCUIT AND EACH WORKSTATION ONLY HAVING AVAILABLE IT'S ASSIGNED CIRCUIT. COPIER OR PRINTERS LOCATED IN A GROUP OF WORKSTATIONS SHALL RECEIVE A DEDICATED CIRCUIT.
7. CIRCUIT ELEVATOR PIT LIGHT TO SAME CIRCUIT AS THE ELEVATOR PIT RECEPTACLE.
8. PROVIDE J-BOX FOR MECHANICAL CONTROL CIRCUITS. COORDINATE EXACT LOCATION WITH CONTROL CONTRACTOR PRIOR TO ROUGH-IN.
9. RELOCATE/REUSE EXISTING 300 KVA TRANSFORMER FROM A PREVIOUS PROJECT. SEE A2/EP101D.
10. PROVIDE OUTLET FOR SPACESAVER. FINAL OUTLET LOCATION TO BE COORDINATED WITH ARCHITECT.

KEY PLAN



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FIRST LEVEL POWER PLAN - AREA A

EP101a

VOLUME 2

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GENERAL SHEET NOTES

1. LOCATIONS OF MECHANICAL EQUIPMENT SHOWN IS APPROXIMATE. FIELD COORDINATE EXACT LOCATIONS OF EQUIPMENT PRIOR TO ROUGH-IN.
2. SEE FIRE ALARM PLANS (FA) FOR ELECTRICAL CONNECTIONS TO FIRE ALARM EQUIPMENT/DEVICES.
3. PROVIDE DRY CONTACT FOR ALL REFRIGERATORS TO TIE INTO BMS SYSTEM.
4. MINIMUM BRANCH CIRCUIT CONDUCTOR SIZE FOR 20A, 120V OR 208V CIRCUITS SHALL BE #10 AWG, UNLESS A LARGER SIZE IS INDICATED OR REQUIRED TO MINIMIZE VOLTAGE DROP.
5. CONTRACTOR TO PROVIDE AT TIME OF OWNER MOVE-IN/OCCUPATION OF BUILDING, (20) NEMA PLUG CONVERSION/REVISIONS TO ACCOMMODATE DIFFERENT EQUIPMENT PLUGS. THIS QUANTITY IS A TOTAL FOR THE BUILDING AND NOT PER DRAWING SHEET.

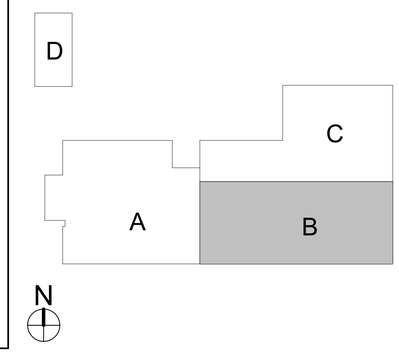
SHEET KEYNOTES

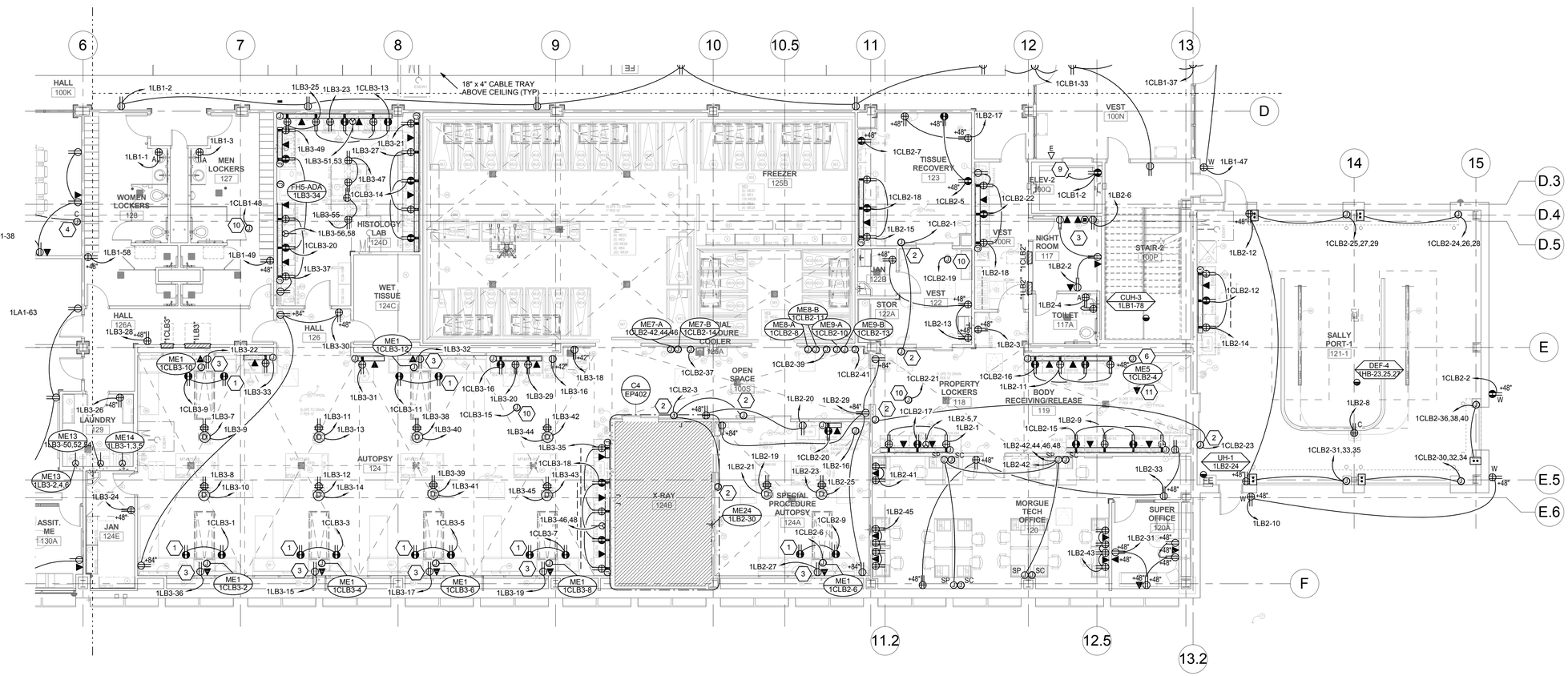
1. INSTALL GFCI IN PROVIDED SINGLE GANG BOX AND RACEWAY IN AUTOPSY BACKDRAFT STATION.
2. PROVIDE POWER FOR AUTOMATIC SLIDING DOOR. COORDINATE WITH ARCHITECT EXACT LOCATION OF J-BOX AND POWER CONNECTION, FOR SLIDING DOOR, PRIOR TO ROUGH-IN.
3. POWER AND DATA FOR WALL MOUNTED T.V. COORDINATE WITH A/V ROUGH-IN DETAILS.
4. POWER FOR MOTORIZED SCREEN. PROVIDE ALL ELECTRICAL & CONTROL CONDUIT AND WIRING PER MANUFACTURER'S WRITTEN INSTRUCTIONS. INSTALL CONTROL SWITCH IN LOCATION APPROVED BY ARCHITECT. ALSO COORDINATE WITH AV INSTALLER AND INTERFACE WITH AV CONTROLS.
5. COORDINATE LOCATION OF FLOOR BOX WITH FURNITURE LAYOUT SHOWN ON ARCHITECTURAL DRAWINGS PRIOR TO ROUGH-IN.
6. PROVIDE 3/4" CND IN WALL FROM SCALE INDICATOR J-BOX THROUGH SCALE PIT METAL FRAME FOR LOAD CELL CABLE.
7. PROVIDE ELECTRICAL CONNECTIONS TO SYSTEMS FURNITURE. DESIGN IS BASED ON 4 CIRCUIT/8 WIRE SYSTEM (3 CIRCUITS, SHARED OVERSIZED NEUTRAL AND GROUND, PLUS 1 CIRCUIT WITH DEDICATED NEUTRAL AND GROUND). VERIFY WIRING CONFIGURATION AND FEED POINT WITH SYSTEMS FURNITURE INSTALLER PRIOR TO INSTALLATION. COORDINATE WITH FURNITURE INSTALLER SUCH THAT CIRCUITS ARE UNIFORMLY DISTRIBUTED TO NO MORE THAN 4 WORKSTATIONS PER CIRCUIT AND EACH WORKSTATION ONLY HAVING AVAILABLE IT'S ASSIGNED CIRCUIT. COPIER OR PRINTERS LOCATED IN A GROUP OF WORKSTATIONS SHALL RECEIVE A DEDICATED CIRCUIT.

SHEET KEYNOTES

8. RECEPTACLE OUTLET FOR IRRIGATION CONTROLLER. PROVIDE 2" CND FROM DFCM STORAGE ROOM #116 TO APPROXIMATE LOCATION SHOWN ON ES102.
9. CIRCUIT ELEVATOR PIT LIGHT TO SAME CIRCUIT AS THE ELEVATOR PIT RECEPTACLE.
10. PROVIDE J-BOX FOR MECHANICAL CONTROL CIRCUITS. COORDINATE EXACT LOCATION WITH CONTROL CONTRACTOR PRIOR TO ROUGH-IN.
11. CEILING DATA OUTLET FOR PTZ DOCUMENT CAMERA. COORDINATE EXACT LOCATION WITH AV INSTALLER/OWNER/ARCHITECT PRIOR TO ROUGH-IN.
12. PROVIDE OUTLET FOR SPACESAVER. FINAL OUTLET LOCATION TO BE COORDINATED WITH ARCHITECT.

KEY PLAN





A1 FIRST LEVEL POWER PLAN - AREA B

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

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FIRST LEVEL POWER PLAN - AREA B

EP101b

VOLUME 2

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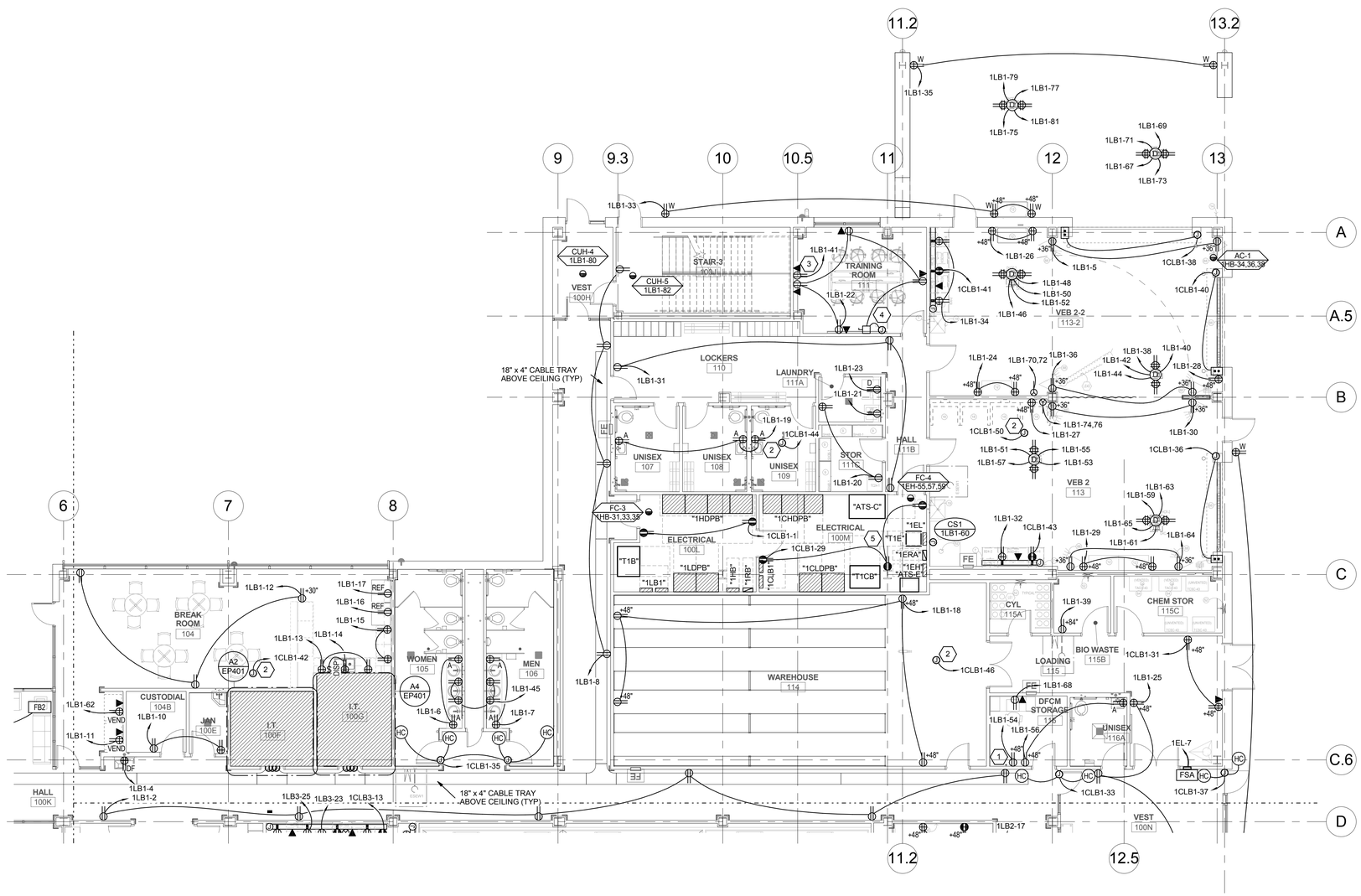


A1 FIRST LEVEL POWER PLAN - AREA C

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

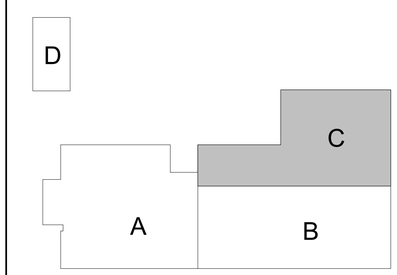
GENERAL SHEET NOTES

1. LOCATIONS OF MECHANICAL EQUIPMENT SHOWN IS APPROXIMATE. FIELD COORDINATE EXACT LOCATIONS OF EQUIPMENT PRIOR TO ROUGH-IN.
2. SEE FIRE ALARM PLANS (FA) FOR ELECTRICAL CONNECTIONS TO FIRE ALARM EQUIPMENT/DEVICES.
3. PROVIDE DRY CONTACT FOR ALL REFRIGERATORS TO TIE INTO BMS SYSTEM.
4. MINIMUM BRANCH CIRCUIT CONDUCTOR SIZE FOR 20A, 120V OR 208V CIRCUITS SHALL BE #10 AWG, UNLESS A LARGER SIZE IS INDICATED OR REQUIRED TO MINIMIZE VOLTAGE DROP.
5. CONTRACTOR TO PROVIDE AT TIME OF OWNER MOVE-IN/OCCUPATION OF BUILDING, (20) NEMA PLUG CONVERSION/REVISIONS TO ACCOMMODATE DIFFERENT EQUIPMENT PLUGS. THIS QUANTITY IS A TOTAL FOR THE BUILDING AND NOT PER DRAWING SHEET.

SHEET KEYNOTES

1. RECEPTACLE OUTLET FOR IRRIGATION CONTROLLER. PROVIDE 2" CND FROM DFCM STORAGE ROOM #116 TO APPROXIMATE LOCATION SHOWN ON ES102.
2. PROVIDE J-BOX FOR MECHANICAL CONTROL CIRCUITS. COORDINATE EXACT LOCATION WITH CONTROL CONTRACTOR PRIOR TO ROUGH-IN.
3. POWER AND DATA FOR WALL MOUNTED T.V. COORDINATE WITH A/V ROUGH-IN DETAILS.
4. NF FUSED DISCONNECT AND J-BOX FOR BOOSTER EXHAUST FAN. INSTALL BOTH ABOVE LAY-IN CEILING. COORDINATE EXACT REQUIREMENTS WITH HVAC CONTRACTOR.
5. SUPPORT AND HANG TRANSFORMER "T1E" FROM BUILDING STRUCTURE.

KEY PLAN



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A FIRST LEVEL POWER PLAN - AREA C

EP101c

VOLUME 2

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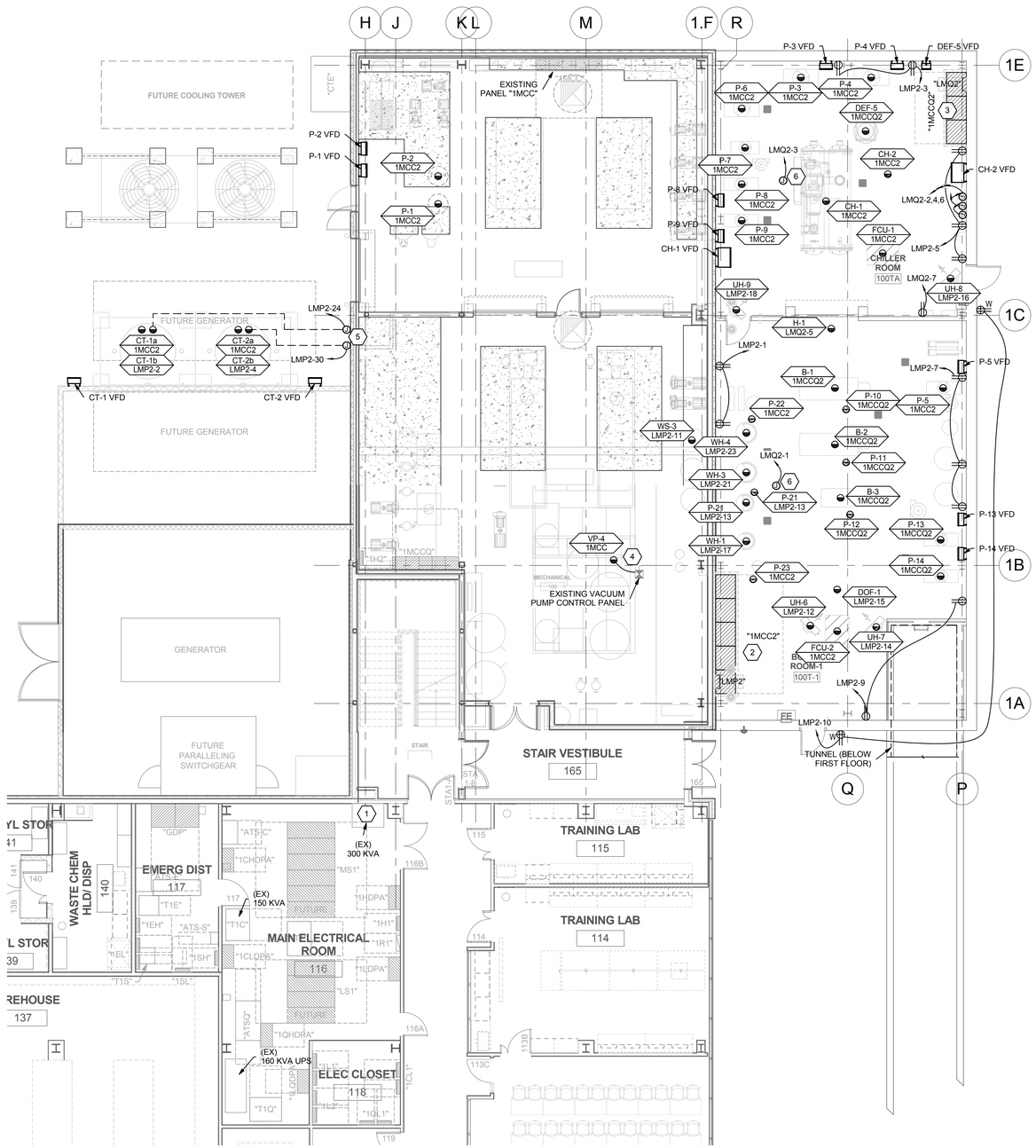


A2 FIRST LEVEL POWER PLAN - AREA D

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

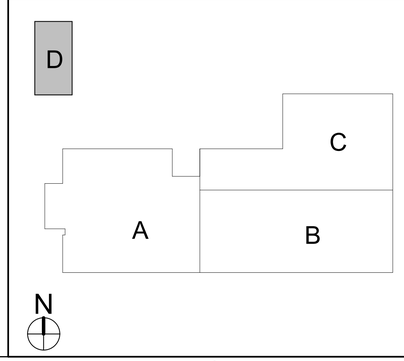
GENERAL SHEET NOTES

1. LOCATIONS OF MECHANICAL EQUIPMENT SHOWN IS APPROXIMATE. FIELD COORDINATE EXACT LOCATIONS OF EQUIPMENT PRIOR TO ROUGH-IN.
2. SEE FIRE ALARM PLANS (FA) FOR ELECTRICAL CONNECTIONS TO FIRE ALARM EQUIPMENT/DEVICES.
3. PROVIDE DRY CONTACT FOR ALL REFRIGERATORS TO TIE INTO BMS SYSTEM.
4. MINIMUM BRANCH CIRCUIT CONDUCTOR SIZE FOR 20A, 120V OR 208V CIRCUITS SHALL BE #10 AWG, UNLESS A LARGER SIZE IS INDICATED OR REQUIRED TO MINIMIZE VOLTAGE DROP.
5. CONTRACTOR TO PROVIDE AT TIME OF OWNER MOVE-IN/OCCUPATION OF BUILDING, (20) NEMA PLUG CONVERSION/REVISIONS TO ACCOMMODATE DIFFERENT EQUIPMENT PLUGS. THIS QUANTITY IS A TOTAL FOR THE BUILDING AND NOT PER DRAWING SHEET.

SHEET KEYNOTES

1. EXISTING 300 KVA TRANSFORMER WAS REMOVED AND STORED IN THIS LOCATION FROM A PREVIOUS PROJECT. RELOCATE/REUSE TRANSFORMER AS INDICATED IN DRAWINGS. SEE A1/EP101A AND A1/EP601.
2. TRANSFORMER MCCT2 AND PANEL LM2 LOCATED INSIDE OF 1MCC2.
3. TRANSFORMER MCCQ2T AND PANEL LMQ2 LOCATED INSIDE OF 1MCCQ2.
4. PROVIDE CONNECTION TO VP-4 FROM EXISTING MOTOR CONTROL CENTER "1MCC" THROUGH EXISTING VACUUM PUMP CONTROL PANEL. SEE ONE-LINE AND MECHANICAL EQUIPMENT SCHEDULE FOR ADDITONAL INFORMATION.
5. PROVIDE HEAT TRACE FOR COOLING TOWER PIPES.
6. PROVIDE J-BOX FOR MECHANICAL CONTROL CIRCUITS. COORDINATE EXACT LOCATION WITH CONTROL CONTRACTOR PRIOR TO ROUGH-IN.

KEY PLAN



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FIRST LEVEL POWER PLAN - AREA D

EP101d

VOLUME 2

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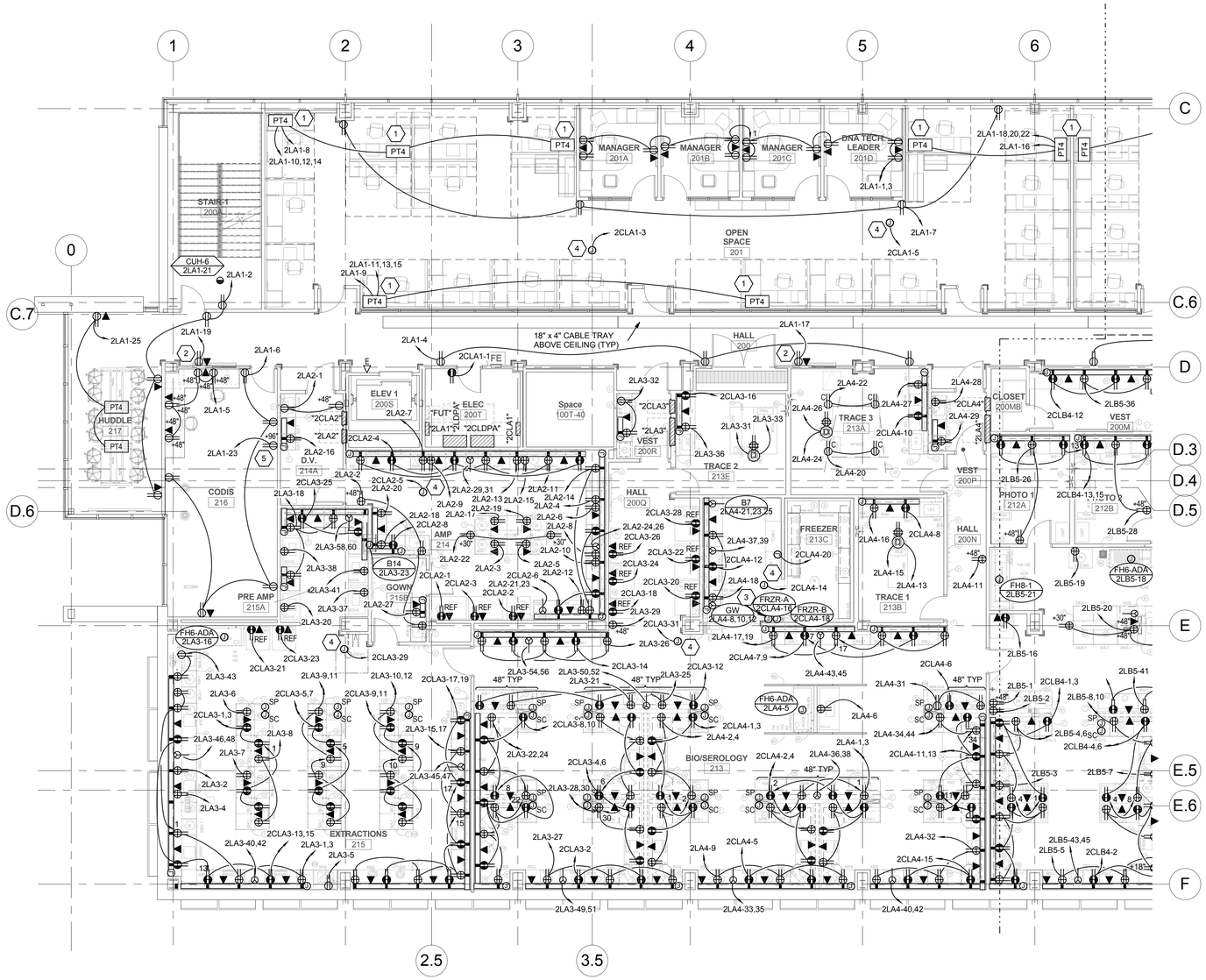


A1 SECOND LEVEL POWER PLAN - AREA A

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

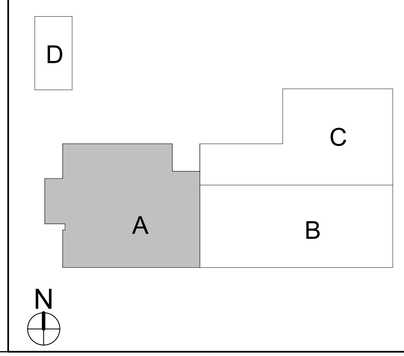
GENERAL SHEET NOTES

1. LOCATIONS OF MECHANICAL EQUIPMENT SHOWN IS APPROXIMATE. FIELD COORDINATE EXACT LOCATIONS OF EQUIPMENT PRIOR TO ROUGH-IN.
2. SEE FIRE ALARM PLANS (FA) FOR ELECTRICAL CONNECTIONS TO FIRE ALARM EQUIPMENT/DEVICES.
3. PROVIDE DRY CONTACT FOR ALL REFRIGERATORS TO TIE INTO BMS SYSTEM.
4. MINIMUM BRANCH CIRCUIT CONDUCTOR SIZE FOR 20A, 120V OR 208V CIRCUITS SHALL BE #10 AWG, UNLESS A LARGER SIZE IS INDICATED OR REQUIRED TO MINIMIZE VOLTAGE DROP.
5. CONTRACTOR TO PROVIDE AT TIME OF OWNER MOVE-IN/OCCUPATION OF BUILDING, (20) NEMA PLUG CONVERSION/REVISIONS TO ACCOMMODATE DIFFERENT EQUIPMENT PLUGS. THIS QUANTITY IS A TOTAL FOR THE BUILDING AND NOT PER DRAWING SHEET.

SHEET KEYNOTES

1. PROVIDE ELECTRICAL CONNECTIONS TO SYSTEMS FURNITURE. DESIGN IS BASED ON 4 CIRCUIT/8 WIRE SYSTEM (3 CIRCUITS, SHARED OVERSIZED NEUTRAL AND GROUND, PLUS 1 CIRCUIT WITH DEDICATED NEUTRAL AND GROUND). VERIFY WIRING CONFIGURATION AND FEED POINT WITH SYSTEMS FURNITURE INSTALLER PRIOR TO INSTALLATION. COORDINATE WITH FURNITURE INSTALLER SUCH THAT CIRCUITS ARE UNIFORMLY DISTRIBUTED TO NO MORE THAN 4 WORKSTATIONS PER CIRCUIT AND EACH WORKSTATION ONLY HAVING AVAILABLE IT'S ASSIGNED CIRCUIT. COPIER OR PRINTERS LOCATED IN A GROUP OF WORKSTATIONS SHALL RECEIVE A DEDICATED CIRCUIT.
2. POWER AND DATA FOR WALL MOUNTED T.V. COORDINATE WITH A/V ROUGH-IN DETAILS.
3. PROVIDE POWER TO FREEZER ROOM SINGLE POINT OF CONNECTION. REFER TO LAB EQUIPMENT SCHEDULE FOR CONDUIT AND CONDUCTOR REQUIREMENTS. COORDINATE EXACT LOCATION WITH FREEZER ROOM CONTRACTOR.
4. PROVIDE J-BOX FOR MECHANICAL CONTROL CIRCUITS. COORDINATE EXACT LOCATION WITH CONTROL CONTRACTOR PRIOR TO ROUGH-IN.
5. PROVIDE OUTLET FOR SPACESAVER. FINAL OUTLET LOCATION TO BE COORDINATED WITH ARCHITECT.

KEY PLAN



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SECOND LEVEL POWER PLAN - AREA A

EP102a

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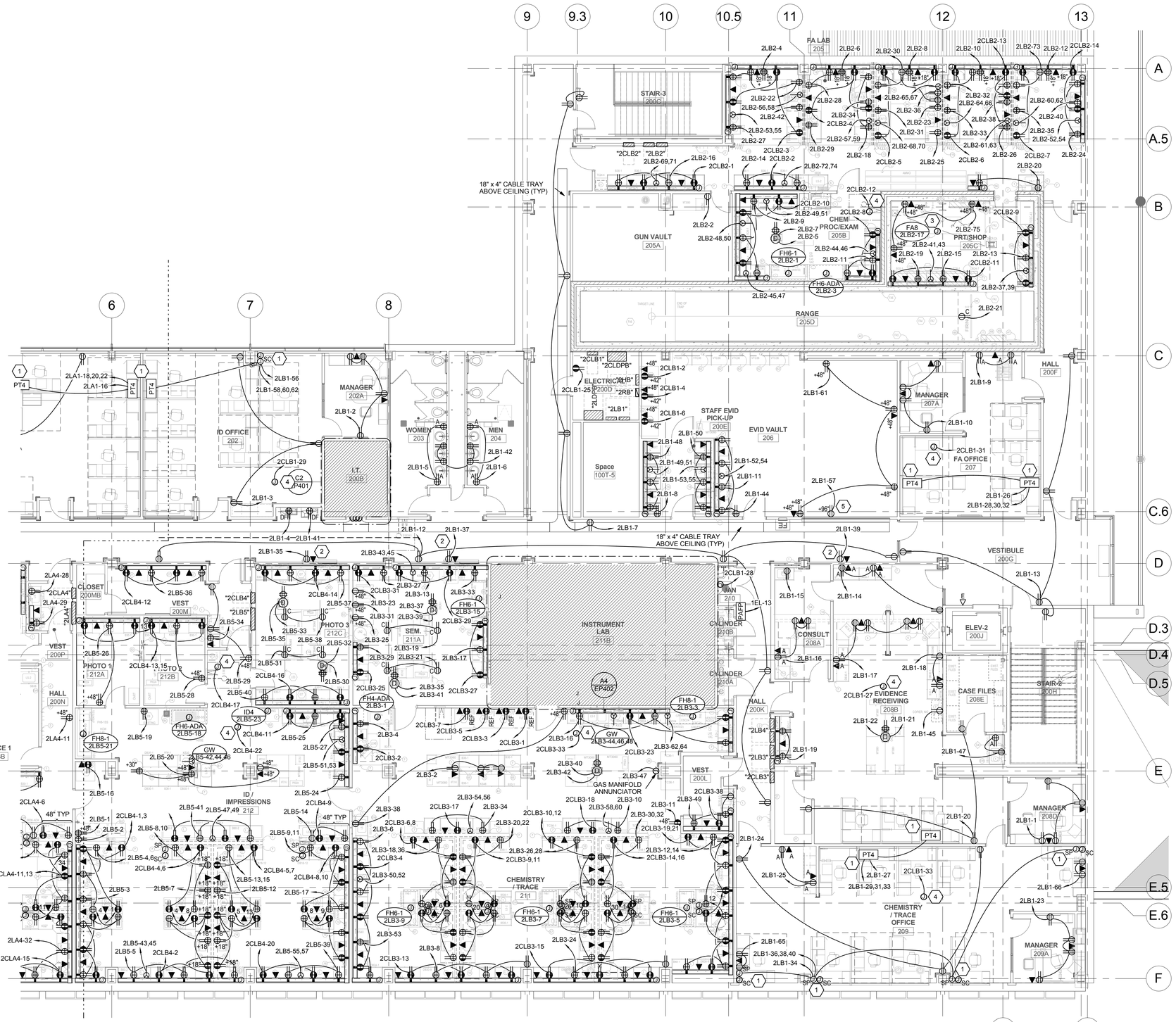


A1 SECOND LEVEL POWER PLAN - AREA B

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

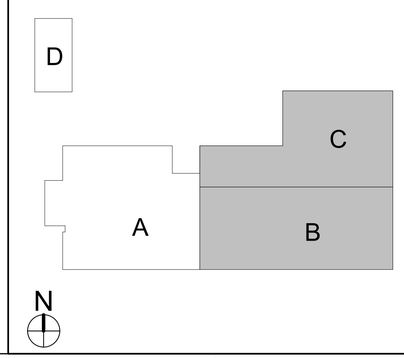
GENERAL SHEET NOTES

1. LOCATIONS OF MECHANICAL EQUIPMENT SHOWN IS APPROXIMATE. FIELD COORDINATE EXACT LOCATIONS OF EQUIPMENT PRIOR TO ROUGH-IN.
2. SEE FIRE ALARM PLANS (FA) FOR ELECTRICAL CONNECTIONS TO FIRE ALARM EQUIPMENT/DEVICES.
3. PROVIDE DRY CONTACT FOR ALL REFRIGERATORS TO TIE INTO BMS SYSTEM.
4. MINIMUM BRANCH CIRCUIT CONDUCTOR SIZE FOR 20A, 120V OR 208V CIRCUITS SHALL BE #10 AWG, UNLESS A LARGER SIZE IS INDICATED OR REQUIRED TO MINIMIZE VOLTAGE DROP.
5. CONTRACTOR TO PROVIDE AT TIME OF OWNER MOVE-IN/OCCUPATION OF BUILDING, (20) NEMA PLUG CONVERSION/REVISIONS TO ACCOMMODATE DIFFERENT EQUIPMENT PLUGS. THIS QUANTITY IS A TOTAL FOR THE BUILDING AND NOT PER DRAWING SHEET.

SHEET KEYNOTES

1. PROVIDE ELECTRICAL CONNECTIONS TO SYSTEMS FURNITURE. DESIGN IS BASED ON 4 CIRCUIT/8 WIRE SYSTEM (3 CIRCUITS, SHARED OVERSIZED NEUTRAL AND GROUND, PLUS 1 CIRCUIT WITH DEDICATED NEUTRAL AND GROUND). VERIFY WIRING CONFIGURATION AND FEED POINT WITH SYSTEMS FURNITURE INSTALLER PRIOR TO INSTALLATION. COORDINATE WITH FURNITURE INSTALLER SUCH THAT CIRCUITS ARE UNIFORMLY DISTRIBUTED TO NO MORE THAN 4 WORKSTATIONS PER CIRCUIT AND EACH WORKSTATION ONLY HAVING AVAILABLE IT'S ASSIGNED CIRCUIT. COPIER OR PRINTERS LOCATED IN A GROUP OF WORKSTATIONS SHALL RECEIVE A DEDICATED CIRCUIT.
2. POWER AND DATA FOR WALL MOUNTED T.V. COORDINATE WITH A/V ROUGH-IN DETAILS.
3. DISCONNECT SHALL BE MOUNTED ON WALL ADJACENT TO THE SYSTEM ELECTRICAL PANEL AT BACK OF TANK.
4. PROVIDE J-BOX FOR MECHANICAL CONTROL CIRCUITS. COORDINATE EXACT LOCATION WITH CONTROL CONTRACTOR PRIOR TO ROUGH-IN.
5. PROVIDE OUTLET FOR SPACESAVER. FINAL OUTLET LOCATION TO BE COORDINATED WITH ARCHITECT.

KEY PLAN



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SECOND LEVEL POWER PLAN - AREA B

EP102b

VOLUME 2

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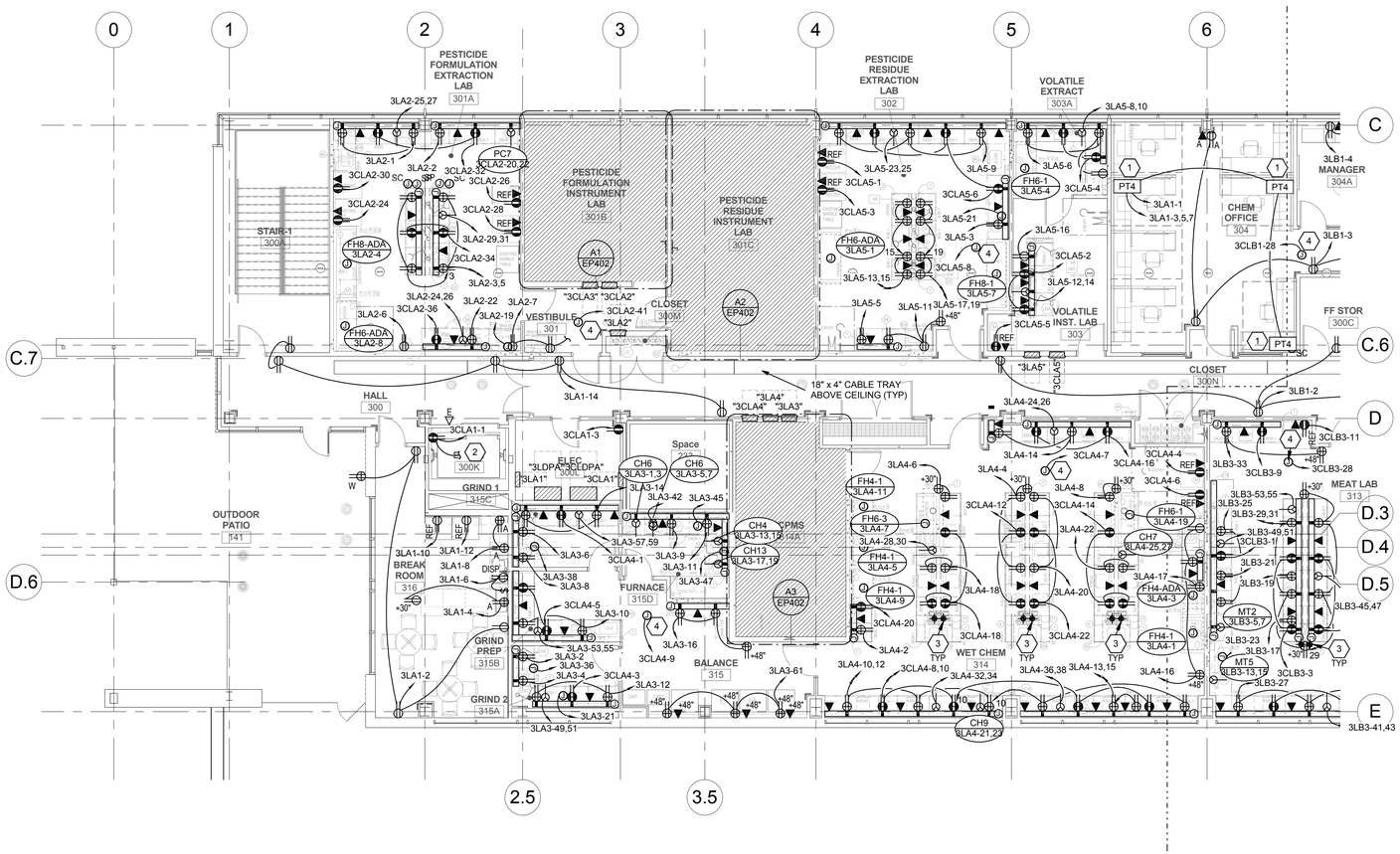

A1 THIRD LEVEL POWER PLAN - AREA A

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

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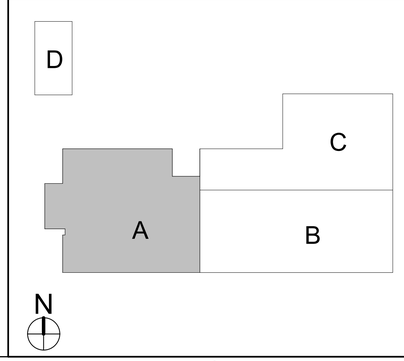
GENERAL SHEET NOTES

1. LOCATIONS OF MECHANICAL EQUIPMENT SHOWN IS APPROXIMATE. FIELD COORDINATE EXACT LOCATIONS OF EQUIPMENT PRIOR TO ROUGH-IN.
2. SEE FIRE ALARM PLANS (FA) FOR ELECTRICAL CONNECTIONS TO FIRE ALARM EQUIPMENT/DEVICES.
3. PROVIDE DRY CONTACT FOR ALL REFRIGERATORS TO TIE INTO BMS SYSTEM.
4. MINIMUM BRANCH CIRCUIT CONDUCTOR SIZE FOR 20A, 120V OR 208V CIRCUITS SHALL BE #10 AWG, UNLESS A LARGER SIZE IS INDICATED OR REQUIRED TO MINIMIZE VOLTAGE DROP.
5. CONTRACTOR TO PROVIDE AT TIME OF OWNER MOVE-IN/OCCUPATION OF BUILDING, (20) NEMA PLUG CONVERSION/REVISIONS TO ACCOMMODATE DIFFERENT EQUIPMENT PLUGS. THIS QUANTITY IS A TOTAL FOR THE BUILDING AND NOT PER DRAWING SHEET.

SHEET KEYNOTES

1. PROVIDE ELECTRICAL CONNECTIONS TO SYSTEMS FURNITURE. DESIGN IS BASED ON 4 CIRCUIT/8 WIRE SYSTEM (3 CIRCUITS, SHARED OVERSIZED NEUTRAL AND GROUND, PLUS 1 CIRCUIT WITH DEDICATED NEUTRAL AND GROUND). VERIFY WIRING CONFIGURATION AND FEED POINT WITH SYSTEMS FURNITURE INSTALLER PRIOR TO INSTALLATION. COORDINATE WITH FURNITURE INSTALLER SUCH THAT CIRCUITS ARE UNIFORMLY DISTRIBUTED TO NO MORE THAN 4 WORKSTATIONS PER CIRCUIT AND EACH WORKSTATION ONLY HAVING AVAILABLE IT'S ASSIGNED CIRCUIT. COPIER OR PRINTERS LOCATED IN A GROUP OF WORKSTATIONS SHALL RECEIVE A DEDICATED CIRCUIT.
2. CIRCUIT ELEVATOR HOISTWAY LIGHT TO SAME CIRCUIT AS THE ELEVATOR HOISTWAY RECEPTACLE.
3. 1" CND STUBBED THROUGH SLAB TO NORMAL AND EMERGENCY POWER PANELS FEEDING THIS ROOM. 1.25" CND STUBBED THROUGH SLAB TO NEAREST I.T./TELECOMM ROOM ON THIS FLOOR.
4. PROVIDE J-BOX FOR MECHANICAL CONTROL CIRCUITS. COORDINATE EXACT LOCATION WITH CONTROL CONTRACTOR PRIOR TO ROUGH-IN.

KEY PLAN



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04-21-2014
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Unified State Laboratory Module 2

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DFCM #:	13020300
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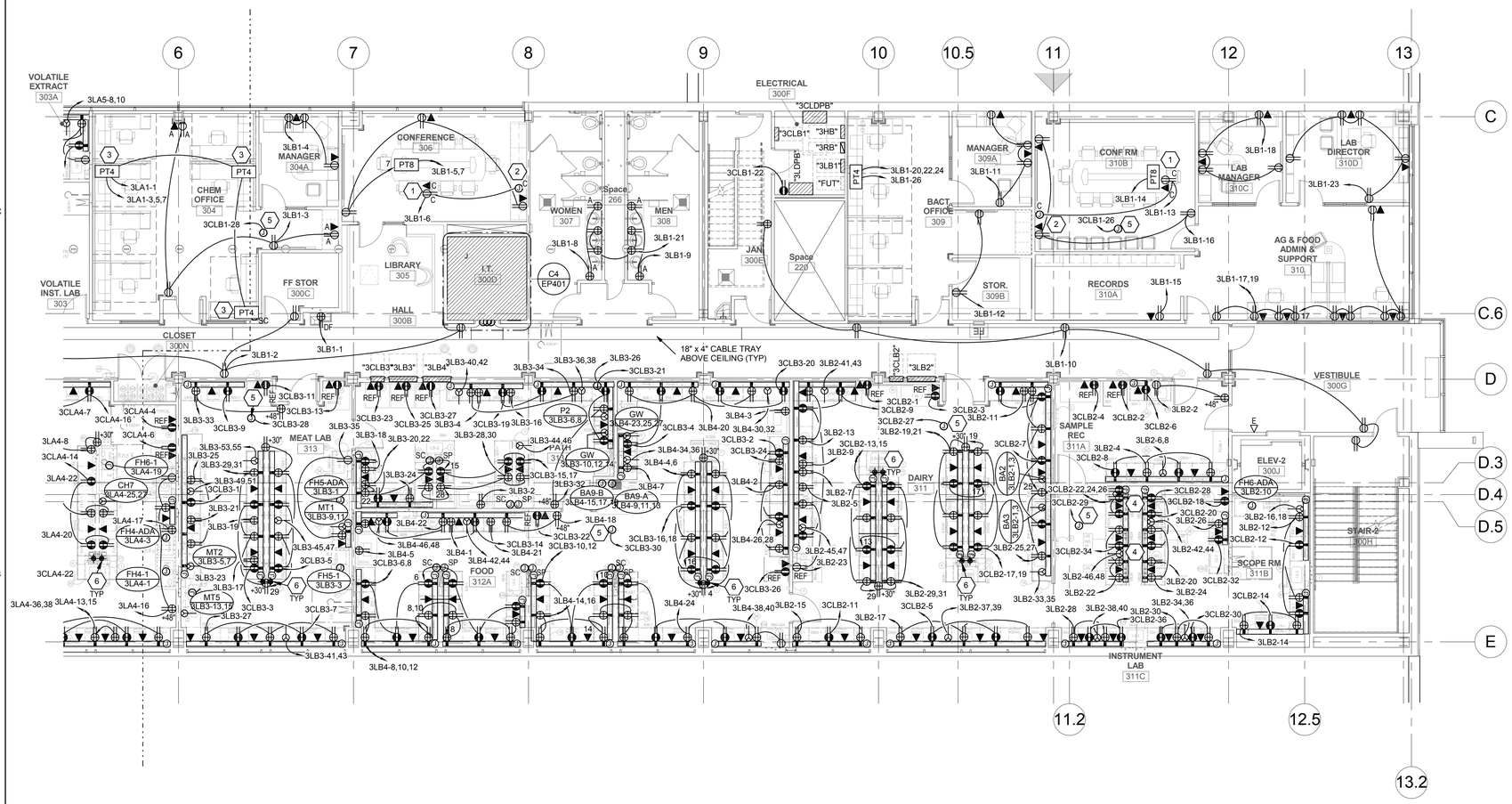
THIRD LEVEL POWER PLAN - AREA A

EP103a

VOLUME 2



A1 THIRD LEVEL POWER PLAN - AREA B

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

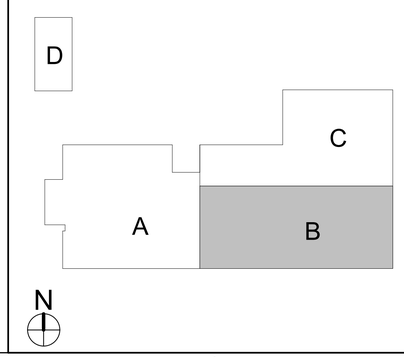
GENERAL SHEET NOTES

1. LOCATIONS OF MECHANICAL EQUIPMENT SHOWN IS APPROXIMATE. FIELD COORDINATE EXACT LOCATIONS OF EQUIPMENT PRIOR TO ROUGH-IN.
2. SEE FIRE ALARM PLANS (FA) FOR ELECTRICAL CONNECTIONS TO FIRE ALARM EQUIPMENT/DEVICES.
3. PROVIDE DRY CONTACT FOR ALL REFRIGERATORS TO TIE INTO BMS SYSTEM.
4. MINIMUM BRANCH CIRCUIT CONDUCTOR SIZE FOR 20A, 120V OR 208V CIRCUITS SHALL BE #10 AWG, UNLESS A LARGER SIZE IS INDICATED OR REQUIRED TO MINIMIZE VOLTAGE DROP.
5. CONTRACTOR TO PROVIDE AT TIME OF OWNER MOVE-IN/OCCUPATION OF BUILDING, (20) NEMA PLUG CONVERSION/REVISIONS TO ACCOMMODATE DIFFERENT EQUIPMENT PLUGS. THIS QUANTITY IS A TOTAL FOR THE BUILDING AND NOT PER DRAWING SHEET.

SHEET KEYNOTES

1. POWER AND DATA FOR CEILING MOUNTED PROJECTOR. PROVIDE ALL ELECTRICAL AND CONTROL CONDUIT AND WIRING PER MANUFACTURER'S INSTRUCTIONS. INSTALL CONTROL SWITCH IN LOCATION APPROVED BY ARCHITECT. ALSO COORDINATE WITH AV INSTALLER AND INTERFACE WITH AV CONTROLS.
2. POWER FOR MOTORIZED SCREEN. PROVIDE ALL ELECTRICAL & CONTROL CONDUIT AND WIRING PER MANUFACTURER'S WRITTEN INSTRUCTIONS. INSTALL CONTROL SWITCH IN LOCATION APPROVED BY ARCHITECT. ALSO COORDINATE WITH AV INSTALLER AND INTERFACE WITH AV CONTROLS.
3. PROVIDE ELECTRICAL CONNECTIONS TO SYSTEMS FURNITURE. DESIGN IS BASED ON 4 CIRCUIT/8 WIRE SYSTEM (3 CIRCUITS, SHARED OVERSIZED NEUTRAL AND GROUND, PLUS 1 CIRCUIT WITH DEDICATED NEUTRAL AND GROUND). VERIFY WIRING CONFIGURATION AND FEED POINT WITH SYSTEMS FURNITURE INSTALLER PRIOR TO INSTALLATION. COORDINATE WITH FURNITURE INSTALLER SUCH THAT CIRCUITS ARE UNIFORMLY DISTRIBUTED TO NO MORE THAN 4 WORKSTATIONS PER CIRCUIT AND EACH WORKSTATION ONLY HAVING AVAILABLE IT'S ASSIGNED CIRCUIT. COPIER OR PRINTERS LOCATED IN A GROUP OF WORKSTATIONS SHALL RECEIVE A DEDICATED CIRCUIT.
4. COORDINATE PLACEMENT OF THIS RACEWAY AND ASSOCIATED ELECTRICAL RECEPTACLES AND CONNECTIONS WITH LAB EQUIPMENT INSTALLER, TO BE PLACED UNDERNEATH BACKSIDE OF LAB FURNITURE.
5. PROVIDE J-BOX FOR MECHANICAL CONTROL CIRCUITS. COORDINATE EXACT LOCATION WITH CONTROL CONTRACTOR PRIOR TO ROUGH-IN.
6. 1" CND STUBBED THROUGH SLAB TO NORMAL AND EMERGENCY POWER PANELS FEEDING THIS ROOM. 1.25" CND STUBBED THROUGH SLAB TO NEAREST I.T./TELECOMM ROOM ON THIS FLOOR.

KEY PLAN



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Project #: B13-024

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DRAWN BY: DLM

THIRD LEVEL POWER PLAN - AREA B

EP103b

VOLUME 2

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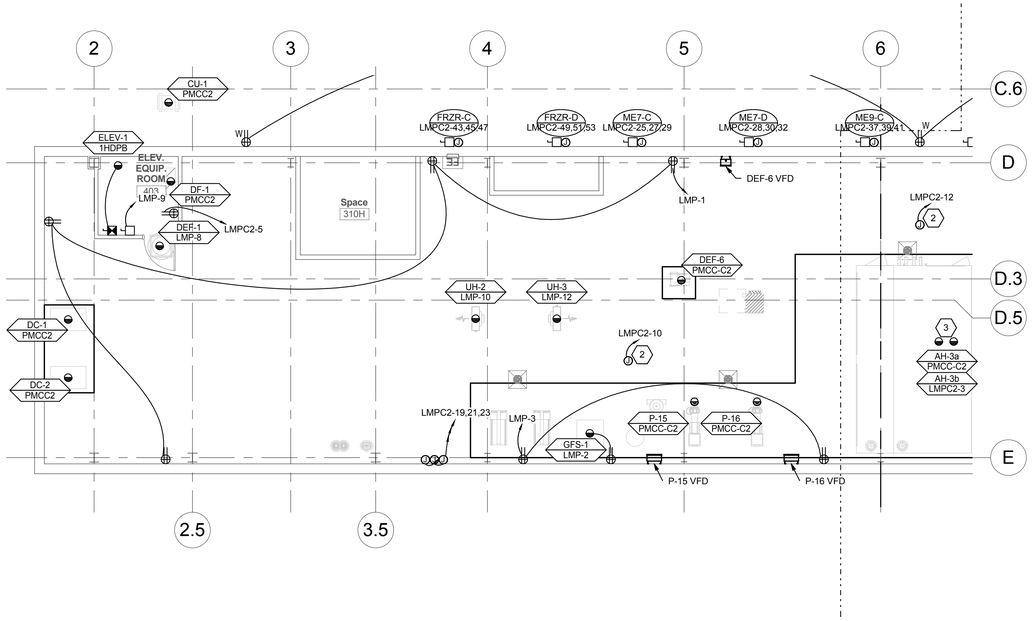
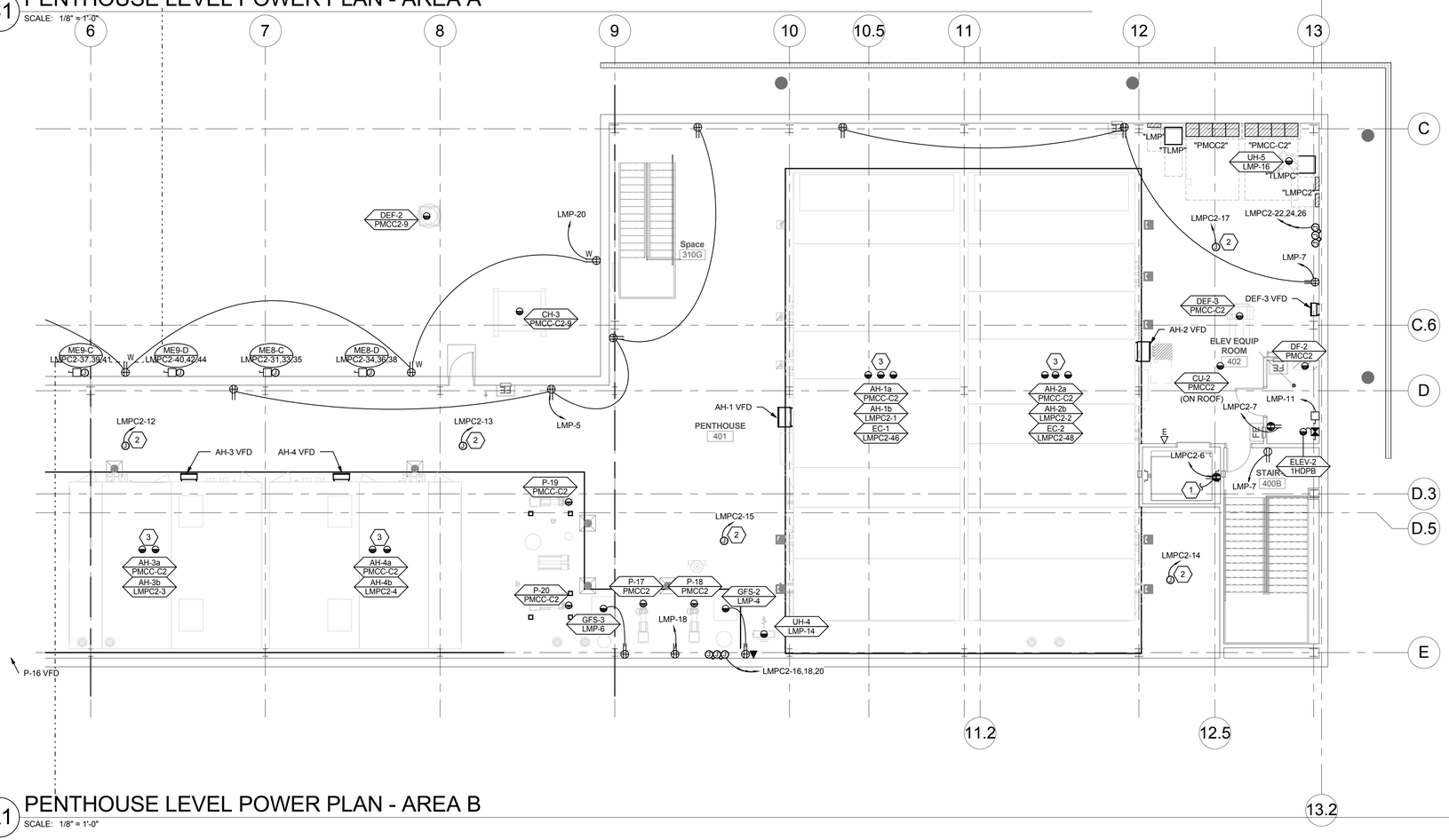


C1 PENTHOUSE LEVEL POWER PLAN - AREA A

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



A1 PENTHOUSE LEVEL POWER PLAN - AREA B

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

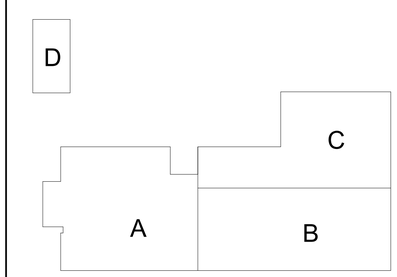
GENERAL SHEET NOTES

1. LOCATIONS OF MECHANICAL EQUIPMENT SHOWN IS APPROXIMATE. FIELD COORDINATE EXACT LOCATIONS OF EQUIPMENT PRIOR TO ROUGH-IN.
2. SEE FIRE ALARM PLANS (FA) FOR ELECTRICAL CONNECTIONS TO FIRE ALARM EQUIPMENT/DEVICES.
3. PROVIDE DRY CONTACT FOR ALL REFRIGERATORS TO TIE INTO BMS SYSTEM.
4. MINIMUM BRANCH CIRCUIT CONDUCTOR SIZE FOR 20A, 120V OR 208V CIRCUITS SHALL BE #10 AWG, UNLESS A LARGER SIZE IS INDICATED OR REQUIRED TO MINIMIZE VOLTAGE DROP.
5. CONTRACTOR TO PROVIDE AT TIME OF OWNER MOVE-IN/OCCUPATION OF BUILDING, (20) NEMA PLUG CONVERSION/REVISIONS TO ACCOMMODATE DIFFERENT EQUIPMENT PLUGS. THIS QUANTITY IS A TOTAL FOR THE BUILDING AND NOT PER DRAWING SHEET.

SHEET KEYNOTES

1. CIRCUIT ELEVATOR HOISTWAY LIGHT TO SAME CIRCUIT AS THE ELEVATOR HOISTWAY RECEPTACLE.
2. PROVIDE J-BOX FOR MECHANICAL CONTROL CIRCUITS. COORDINATE EXACT LOCATION WITH CONTROL CONTRACTOR PRIOR TO ROUGH-IN.
3. COORDINATE EXACT LOCATIONS AND REQUIREMENTS OF DIFFERENT ELECTRICAL CONNECTIONS FOR AIR HANDLER UNIT WITH HVAC CONTRACTOR.

KEY PLAN



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PENTHOUSE LEVEL POWER PLAN

EP104

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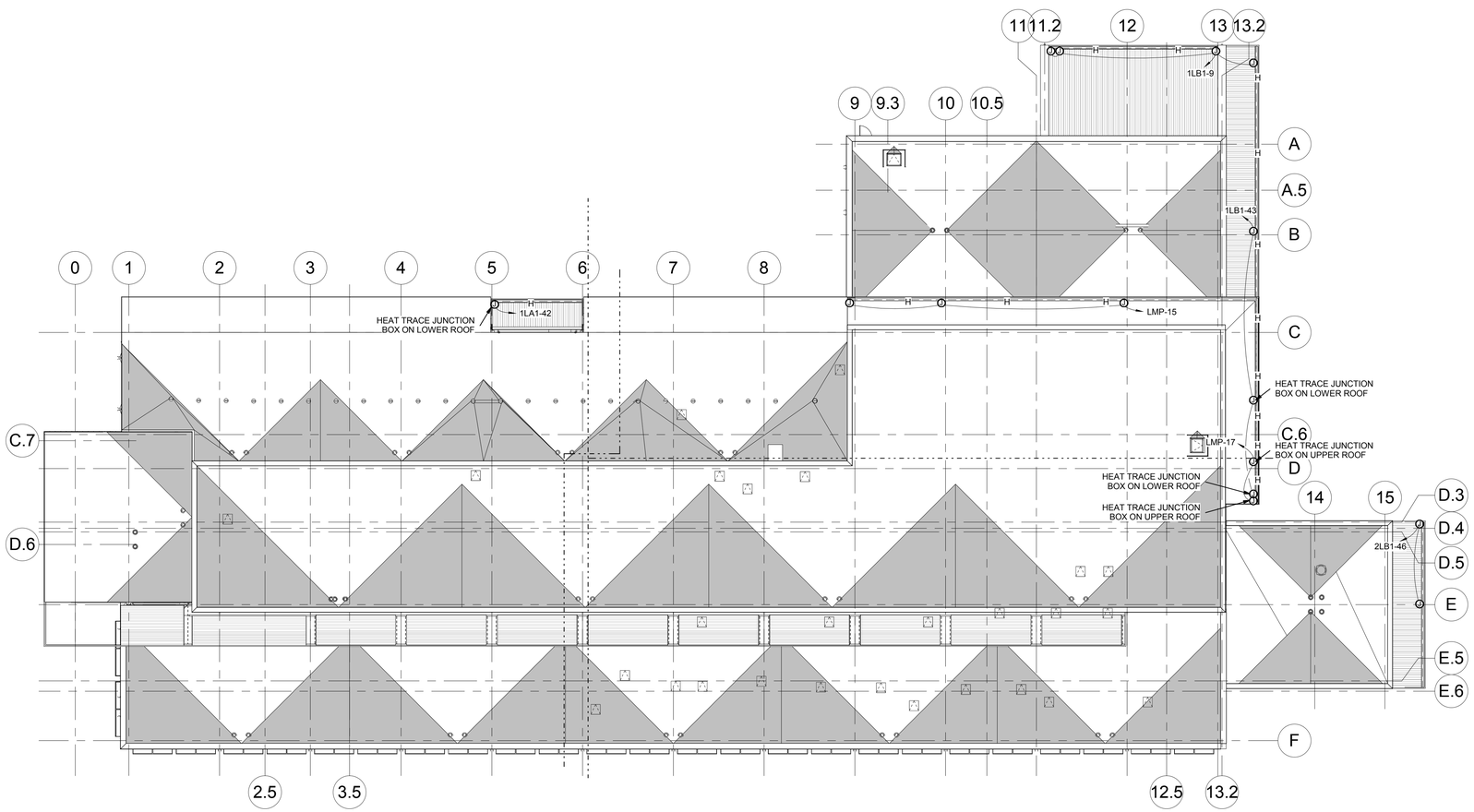

A1 ROOF POWER PLAN
SCALE: 1/16" = 1'-0"

GENERAL SHEET NOTES

1 LOCATIONS OF MECHANICAL EQUIPMENT SHOWN IS APPROXIMATE. FIELD COORDINATE EXACT LOCATIONS OF EQUIPMENT PRIOR TO ROUGH-IN.

2 SEE FIRE ALARM PLANS (FA) FOR ELECTRICAL CONNECTIONS TO FIRE ALARM EQUIPMENT/DEVICES.

3 PROVIDE DRY CONTACT FOR ALL REFRIGERATORS TO TIE INTO BMS SYSTEM.

4 MINIMUM BRANCH CIRCUIT CONDUCTOR SIZE FOR 20A, 120V OR 208V CIRCUITS SHALL BE #10 AWG, UNLESS A LARGER SIZE IS INDICATED OR REQUIRED TO MINIMIZE VOLTAGE DROP.

5 CONTRACTOR TO PROVIDE AT TIME OF OWNER MOVE-IN/OCCUPATION OF BUILDING, (20) NEMA PLUG CONVERSION/REVISIONS TO ACCOMMODATE DIFFERENT EQUIPMENT PLUGS. THIS QUANTITY IS A TOTAL FOR THE BUILDING AND NOT PER DRAWING SHEET.

SHEET KEYNOTES

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ROOF POWER PLAN

EP105

VOLUME 2

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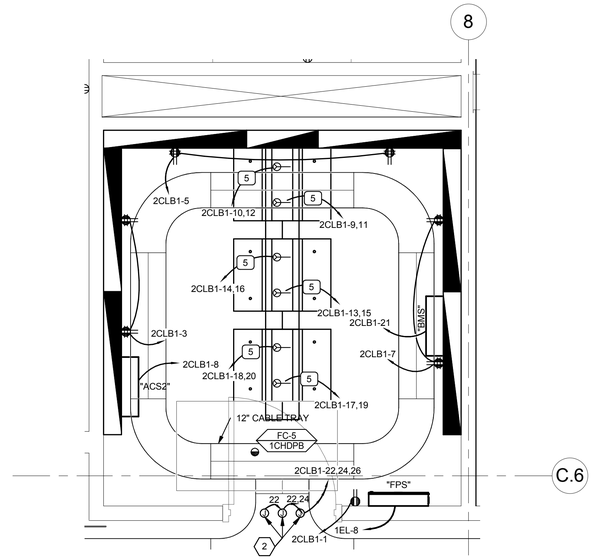
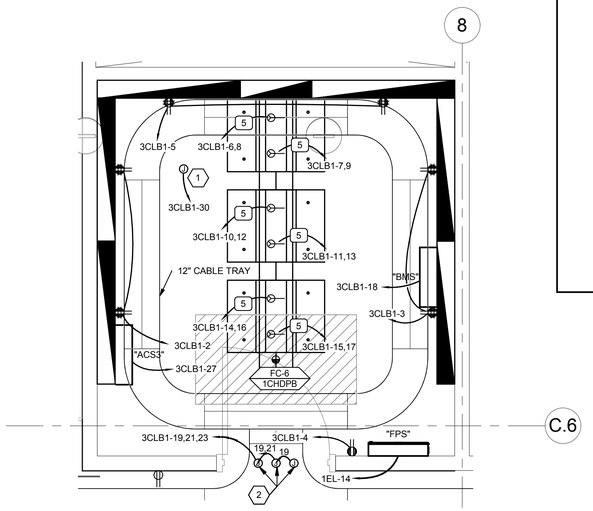
SHEET KEYNOTES

1 PROVIDE J-BOX FOR MECHANICAL CONTROL CIRCUITS. COORDINATE EXACT LOCATION WITH CONTROL CONTRACTOR PRIOR TO ROUGH-IN.

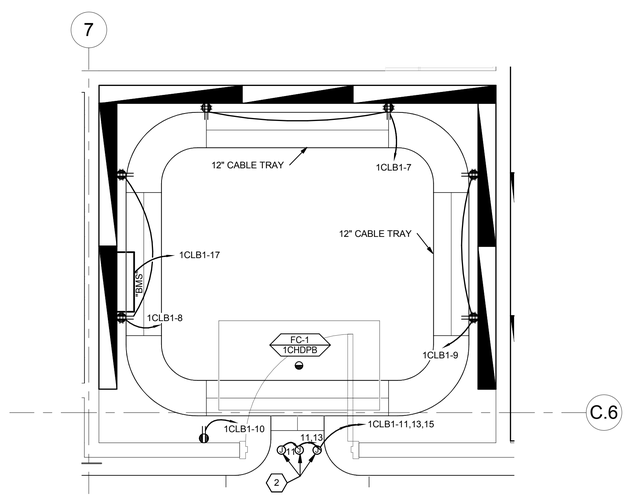
2 120V J-BOXES FOR BMS CONTROL TRANSFORMERS COORDINATE WITH BMS INSTALLER AND MAKE FINAL CONNECTIONS.



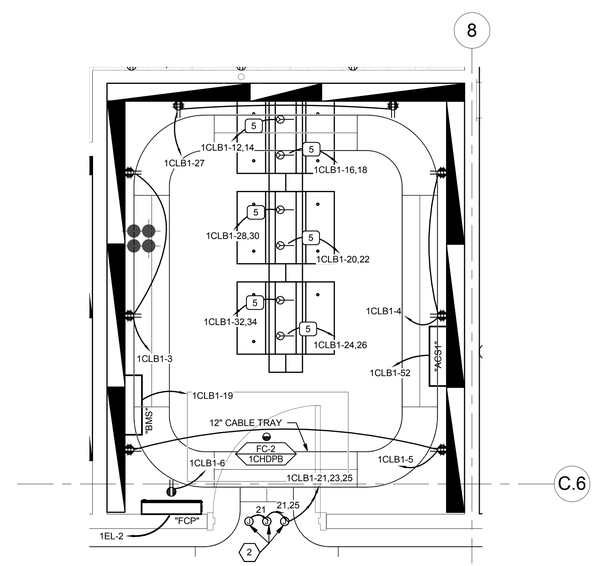
C2 I.T. 200B POWER PLAN
SCALE: 1/2" = 1'-0"



C4 I.T. 300D POWER PLAN
SCALE: 1/2" = 1'-0"



A2 I.T. 100F POWER PLAN
SCALE: 1/2" = 1'-0"



A4 I.T. 100G POWER PLAN
SCALE: 1/2" = 1'-0"

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ENLARGED POWER PLANS

EP401

VOLUME 2

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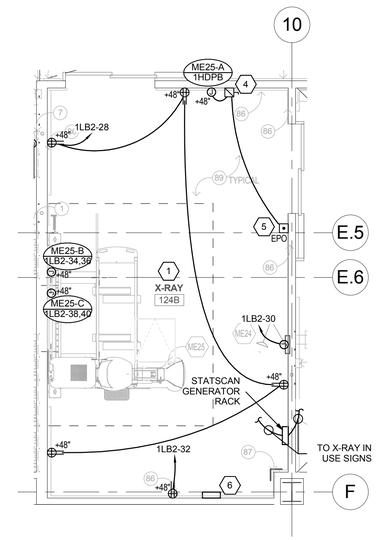
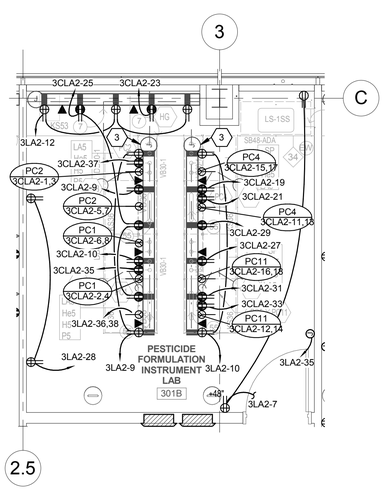
SHEET KEYNOTES

1. COORDINATE EXACT XRAY EQUIPMENT LOCATION AND LAYOUT IN THIS SPACE WITH OWNER, ARCHITECT, AND LAB CONSULTANT PRIOR TO ROUGH-IN. PROVIDE COMPLETE ROUGH-IN AND CONNECTIONS PER EQUIPMENT SHOP DRAWINGS.
2. PROVIDE J-BOX FOR MECHANICAL CONTROL CIRCUITS. COORDINATE EXACT LOCATION WITH CONTROL CONTRACTOR PRIOR TO ROUGH-IN.
3. COORDINATE PLACEMENT OF THIS RACEWAY AND ASSOCIATED ELECTRICAL RECEPTACLES AND CONNECTIONS WITH LAB EQUIPMENT INSTALLER, TO BE PLACED UNDERNEATH BACKSIDE OF LAB FURNITURE.
4. PROVIDE NEMA 1, 480V,3-PHASE FRONT OPERATED, CIRCUIT BREAKER ENCLOSURE WITH GROUND ACCESSORRIES FOR ME25-A MAIN CIRCUIT BREAKER. ENCLOSURE SHALL CONTAIN 75A, 3-POLE CB WITH SHUNT TRIP DEVICE. FLUSH MOUNT IN WALL WHERE SHOWN. LOCATE TOP OF ENCLOSURE 6' AFF. ENCLOSURE LUGS SHALL BE ABLE TO FACILITATE #250 MCM SIZE WIRE.
5. PROVIDE 4"X2"X2" DEEP SWITCH BOX. FLUSH MOUNT IN WALL WHERE SHOWN. LOCATE BOX CENTER LINE AT 6' AFF. EC SHALL PROVIDE ONE NORMALLY OPEN SWITCH WITH RED MUSHROOM HEAD AND AN "EMERGENCY OFF" NAME PLATE. SWITCH WILL BE USED FOR ME25-A MAIN CIRCUIT BREAKER SHUNT TRIP DEVICE. COORDINATE EXACT REQUIREMENTS AND LOCATION WITH EQUIPMENT INSTALLERS PRIOR TO ROUGH-IN.
6. 12" X 12" X 4" DEEP J-BOX. LOCATE ENCLOSURE CENTER LINE AT 12" A.F.F..



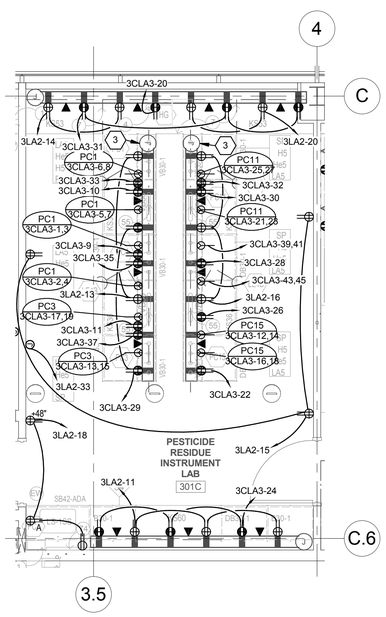
ENLARGED POWER PLAN
X-RAY 124B

C4 SCALE: 1/4" = 1'-0"



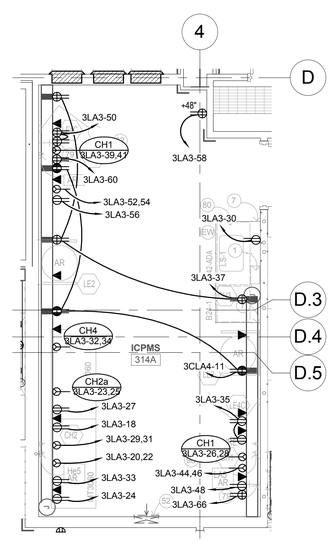
ENLARGED POWER PLAN
PESTICIDE FORMULATION
INSTRUMENT LAB 301B

A1 SCALE: 1/4" = 1'-0"



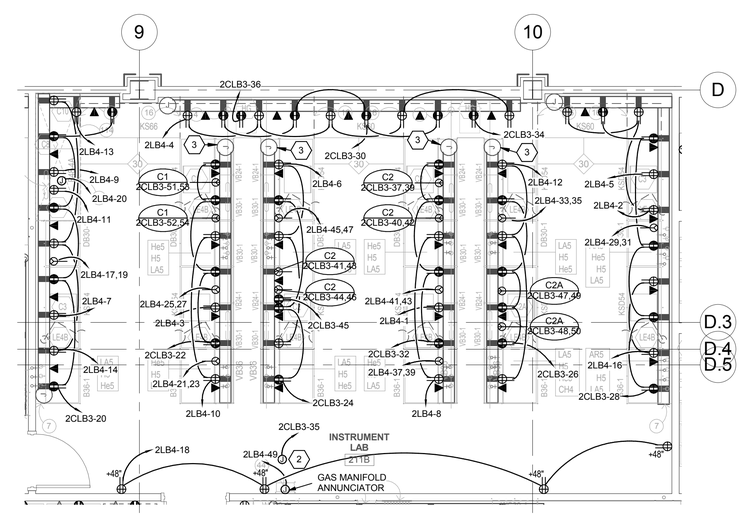
ENLARGED POWER PLAN
PESTICIDE RESIDUE
INSTRUMENT LAB 301C

A2 SCALE: 1/4" = 1'-0"



ENLARGED POWER PLAN
ICPMS 314A

A3 SCALE: 1/4" = 1'-0"



ENLARGED POWER PLAN INSTRUMENT LAB 211B

A4 SCALE: 1/4" = 1'-0"

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ENLARGED LAB POWER PLANS

EP402

VOLUME 2

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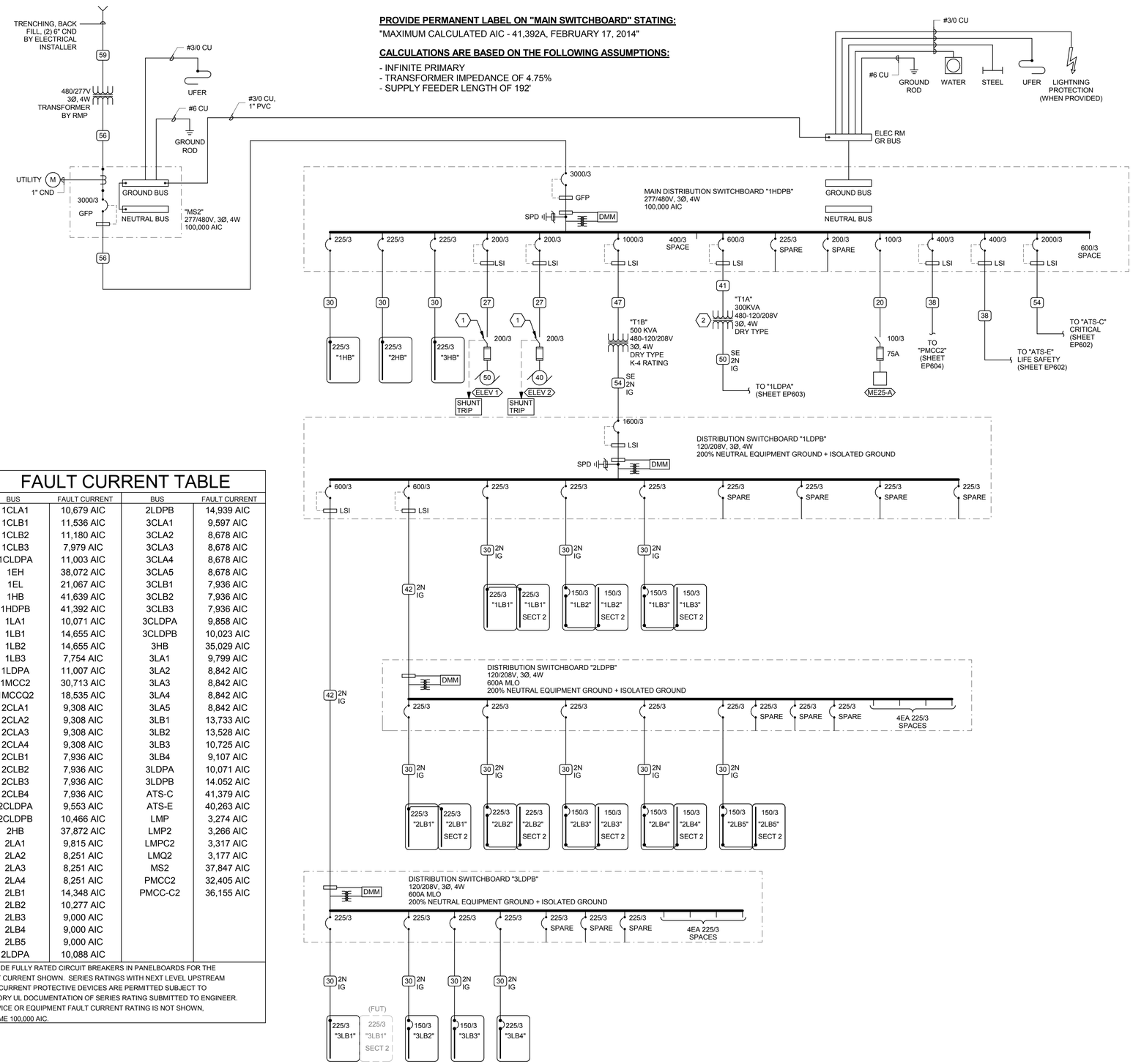
PROVIDE PERMANENT LABEL ON "MAIN SWITCHBOARD" STATING:

"MAXIMUM CALCULATED AIC - 41,392A, FEBRUARY 17, 2014"

CALCULATIONS ARE BASED ON THE FOLLOWING ASSUMPTIONS:

- INFINITE PRIMARY
- TRANSFORMER IMPEDANCE OF 4.75%
- SUPPLY FEEDER LENGTH OF 192'



FAULT CURRENT TABLE

BUS	FAULT CURRENT	BUS	FAULT CURRENT
1CLA1	10,679 AIC	2LDPB	14,939 AIC
1CLB1	11,536 AIC	3CLA1	9,597 AIC
1CLB2	11,180 AIC	3CLA2	8,678 AIC
1CLB3	7,979 AIC	3CLA3	8,678 AIC
1CLDPA	11,003 AIC	3CLA4	8,678 AIC
1EH	38,072 AIC	3CLA5	8,678 AIC
1EL	21,067 AIC	3CLB1	7,936 AIC
1HB	41,639 AIC	3CLB2	7,936 AIC
1HDPB	41,392 AIC	3CLB3	7,936 AIC
1LA1	10,071 AIC	3CLDPA	9,858 AIC
1LB1	14,655 AIC	3CLDPB	10,023 AIC
1LB2	14,655 AIC	3HB	35,029 AIC
1LB3	7,754 AIC	3LA1	9,799 AIC
1LDPA	11,007 AIC	3LA2	8,842 AIC
1MCC2	30,713 AIC	3LA3	8,842 AIC
1MCCQ2	18,535 AIC	3LA4	8,842 AIC
2CLA1	9,308 AIC	3LA5	8,842 AIC
2CLA2	9,308 AIC	3LB1	13,733 AIC
2CLA3	9,308 AIC	3LB2	13,528 AIC
2CLA4	9,308 AIC	3LB3	10,725 AIC
2CLB1	7,936 AIC	3LB4	9,107 AIC
2CLB2	7,936 AIC	3LDPA	10,071 AIC
2CLB3	7,936 AIC	3LDPB	14.052 AIC
2CLB4	7,936 AIC	ATS-C	41,379 AIC
2CLDPA	9,553 AIC	ATS-E	40,263 AIC
2CLDPB	10,466 AIC	LMP	3,274 AIC
2HB	37,872 AIC	LMP2	3,266 AIC
2LA1	9,815 AIC	LMPC2	3,317 AIC
2LA2	8,251 AIC	LMQ2	3,177 AIC
2LA3	8,251 AIC	MS2	37,847 AIC
2LA4	8,251 AIC	PMCC2	32,405 AIC
2LB1	14,348 AIC	PMCC-C2	36,155 AIC
2LB2	10,277 AIC		
2LB3	9,000 AIC		
2LB4	9,000 AIC		
2LB5	9,000 AIC		
2LDPA	10,088 AIC		

PROVIDE FULLY RATED CIRCUIT BREAKERS IN PANELBOARDS FOR THE FAULT CURRENT SHOWN. SERIES RATINGS WITH NEXT LEVEL UPSTREAM OVERCURRENT PROTECTIVE DEVICES ARE PERMITTED SUBJECT TO FACTORY UL DOCUMENTATION OF SERIES RATING SUBMITTED TO ENGINEER. IF DEVICE OR EQUIPMENT FAULT CURRENT RATING IS NOT SHOWN, ASSUME 100,000 AIC.

A1 POWER ONE-LINE DIAGRAM - MODULE 2 (a)

SCALE: NTS

GENERAL SHEET NOTES

1. PROVIDE NEMA 3R ENCLOSURES FOR EQUIPMENT LOCATED OUTDOORS. REFER TO PLANS FOR EQUIPMENT LOCATIONS.
2. REFER TO PLANS FOR CONSTRAINTS ON PHYSICAL DIMENSIONS AND CLEARANCE REQUIREMENTS OF EQUIPMENT. PROVIDE EQUIPMENT DIMENSIONS THAT FALL WITHIN THE CONSTRAINTS OF EACH SPECIFIC LOCATION.
3. ALL EQUIPMENT SHALL BE CONSTRUCTED AND BRACED FOR THE SEISMIC CONDITIONS OF THE PROJECT. REFER TO SPECIFICATIONS SECTION 16071 FOR REQUIREMENTS.
4. ALL 120/208V PANELBOARDS SHALL BE PROVIDED WITH 200% NEUTRAL CAPACITY AND AN ISOLATED GROUND BUS IN ADDITION TO THE EQUIPMENT GROUNDING BUS.
5. PROVIDE PERFORMANCE TESTING FOR GROUND-FAULT PROTECTION SYSTEMS ON SITE WITH A WRITTEN RECORD OF THIS TEST SUBMITTED TO THE AUTHORITY HAVING JURISDICTION PER 2011 NEC 230.95(C).

⬡ SHEET KEYNOTES

1. PROVIDE SHUNT TRIP FUSIBLE SWITCH WITH FUSE SIZE BASED ON MANUFACTURER'S WRITTEN INSTRUCTIONS AND ACTUAL MOTOR NAMEPLATE.
2. RELOCATE/REUSE EXISTING 300 KVA TRANSFORMER FROM A PREVIOUS PROJECT. SEE A2/EP101D.

CONDUCTOR AND CONDUIT "CC" SCHEDULE

SCHEDULE NUMBER
SUBSCRIPT (NOTE 5)
(E.G.) 5 IG

SYM	AMP	CONDUIT SIZE	CONDUCTOR (NOTE 1) QTY	SIZE	G	IG	SE	NOTES
1	20	.75	2	12	12	12	8	2
2	20	.75	3	12	12	12	8	2,3
3	20	.75	4	12	12	12	8	2,3
4	30	.75	2	10	10	10	8	2
5	30	.75	3	10	10	10	8	2
6	30	.75	4	10	10	10	8	2
7	40	1	2	8	10	8	6	2
8	40	1	3	8	10	8	6	2
9	40	1	4	8	10	8	6	2
10	55	1	2	6	10	8	4	2
11	55	1	3	6	10	8	4	2
12	55	1.25	4	6	10	8	4	2
13	70	1	2	4	8	4	2	2
14	70	1.25	3	4	8	4	2	2
15	70	1.25	4	4	8	4	2	2
16	85	1.25	2	3	8	3	2	2
17	85	1.25	3	3	8	3	2	2
18	85	1.25	4	3	8	3	2	2
19	95	1.25	3	2	8	2	2	2
20	95	1.50	4	2	8	2	2	2
21	130	1.50	3	1	6	2	2	2
22	130	1.50	4	1	6	2	2	2
23	150	2	3	1/0	6	2	1/0	2
24	150	2	4	1/0	6	2	1/0	2
25	175	2	3	2/0	6	2	2/0	2
26	175	2	4	2/0	6	2	2/0	2
27	200	2	3	3/0	6	2	2/0	2
28	200	2.50	4	3/0	6	2	2/0	2
29	230	2.50	3	4/0	4	2	2/0	2
30	230	2.50	4	4/0	4	2	2/0	2
31	255	2.50	3	250	4	1	2/0	2
32	255	2.50	4	250	4	1	2/0	2
33	310	3	3	350	3	1/0	3/0	2
34	310	3	4	350	3	1/0	3/0	2
35	380	3.50	3	500	3	3/0	3/0	2
36	380	4	4	500	3	3/0	3/0	2
37	400	2 EA 2	3	3/0	3	3/0	3/0	2
38	400	2 EA 2.50	4	3/0	3	3/0	3/0	2
39	510	2 EA 2.50	3	250	1	4/0	3/0	2
40	510	2 EA 3	4	250	1	4/0	3/0	2
41	620	2 EA 3	3	350	1/0	4/0	3/0	2,4
42	620	2 EA 3.50	4	350	1/0	4/0	3/0	2,4
43	780	2 EA 3.50	3	500	1/0	4/0	3/0	2,4
44	780	2 EA 4	4	500	1/0	4/0	3/0	2,4
45	855	3 EA 3	3	300	2/0	4/0	3/0	2,4
46	855	3 EA 3	4	300	2/0	4/0	3/0	2,4
47	1000	3 EA 3.50	3	400	2/0	4/0	3/0	4
48	1000	3 EA 3.50	4	400	2/0	4/0	3/0	4
49	1140	3 EA 4	3	500	3/0	4/0	3/0	4
50	1140	3 EA 4	4	500	3/0	4/0	3/0	4
51	1240	4 EA 3	3	350	3/0	4/0	3/0	4
52	1240	4 EA 3	4	350	3/0	4/0	3/0	4
53	1675	5 EA 4	4	400	4/0	4/0	4/0	4
54	2010	6 EA 4	4	400	250	250	250	4
55	2660	7 EA 4	4	500	350	350	350	4
56	3040	8 EA 4	4	500	500	500	500	4
57	4180	11 EA 4	4	500	500	500	500	4
58		5 EA 4						6
59		2 EA 6						6
60		10 EA 4						6

CONDUIT AND CONDUCTOR SCHEDULE NOTES

1. CONDUCTORS SHOWN ARE SHOWN FOR EACH CONDUIT WITH MODIFICATIONS AS NOTED IN NOTE 5. ALL CONDUCTORS SHOWN ARE THWN UNLESS OTHERWISE NOTED.
2. PROVIDE EQUIPMENT GROUND CONDUCTORS PER TABLE 250-122 WHEN CIRCUIT BREAKERS ARE SIZED GREATER THAN AMPERE RATING SHOWN IN TABLE.
3. PROVIDE #10 NEUTRALS FOR MULTIWIRE BRANCH CIRCUITS SERVING COMPUTERS.
4. GROUND (G) CONDUCTOR MAY BE DELETED ON SERVICE ENTRANCE CONDUCTORS.
5. SYMBOL SUBSCRIPTS:

   "IG": INCLUDE IG (INSULATED/ISOLATED GROUND CONDUCTOR) SCHEDULED ALONG WITH THE GROUND OF EQUIPMENT GROUND CONDUCTOR.

   "SE": SUBSTITUTE "SE" CONDUCTOR FOR "G" CONDUCTOR SHOWN, WHICH IS SIZED FOR THE GROUNDING OF THE SECONDARY OF THE SEPARATELY DERIVED SYSTEM.

   "2N": INCLUDE TWO NEUTRAL CONDUCTORS, SIZED AS SCHEDULED FOR PHASED AND NEUTRAL CONDUCTORS.

6. RACEWAY ONLY. CONDUCTORS PROVIDED BY UTILITY.

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DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
REVIEWED FOR CODE COMPLIANCE
SIGNATURE: Ernie Cutler
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 181563
DAVID E. WESEMANN
04-21-2014
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300

Project #: B13-024

DATE:	ISSUE TYPE:
April 21, 2014	BID SET

CHECKED BY: D. WESEMANN

DRAWN BY: DLM

POWER ONE-LINE DIAGRAM - MODULE 2 (a)

EP601

VOLUME 2

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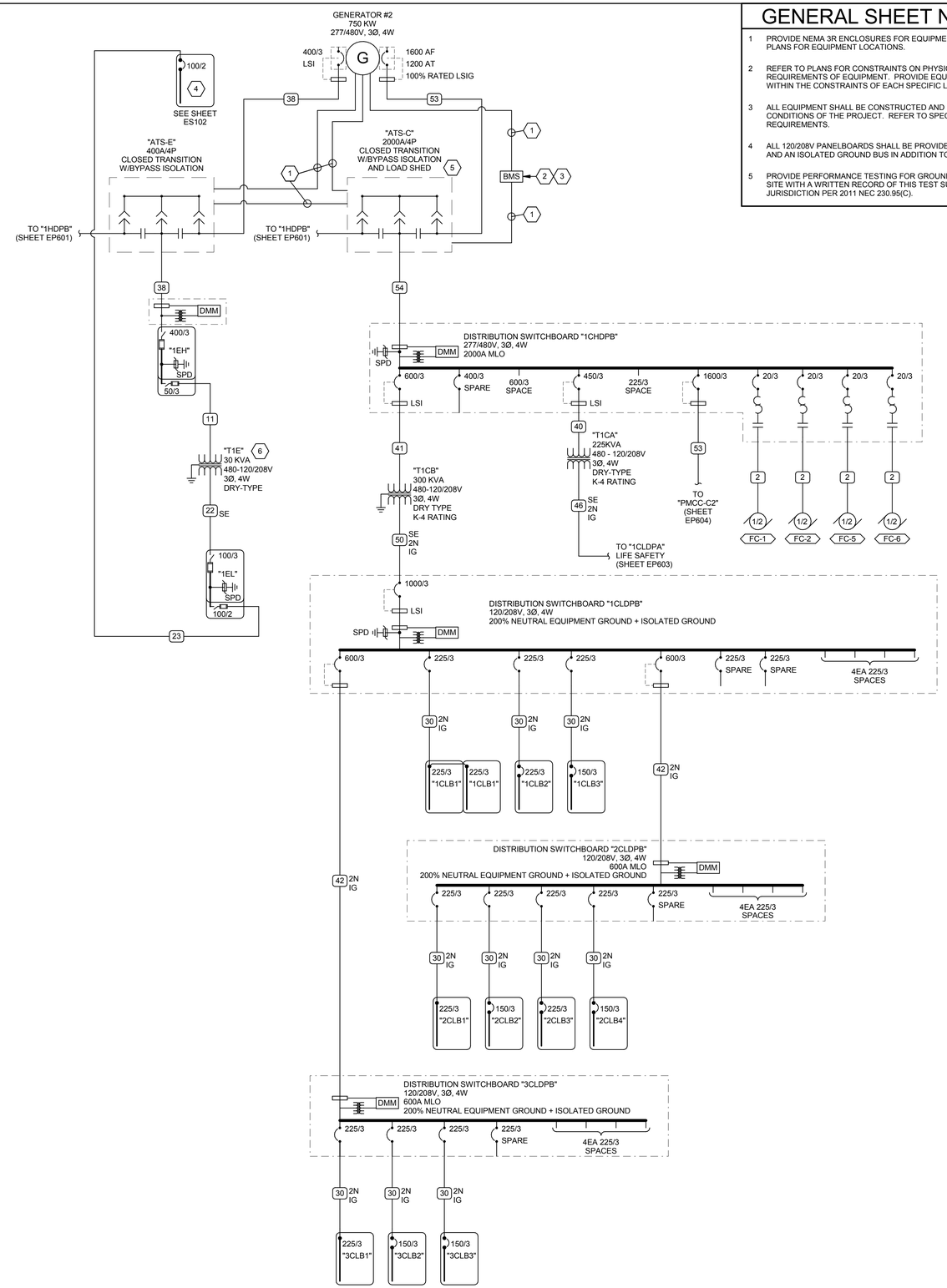

GENERAL SHEET NOTES

1. PROVIDE NEMA 3R ENCLOSURES FOR EQUIPMENT LOCATED OUTDOORS. REFER TO PLANS FOR EQUIPMENT LOCATIONS.
2. REFER TO PLANS FOR CONSTRAINTS ON PHYSICAL DIMENSIONS AND CLEARANCE REQUIREMENTS OF EQUIPMENT. PROVIDE EQUIPMENT DIMENSIONS THAT FALL WITHIN THE CONSTRAINTS OF EACH SPECIFIC LOCATION.
3. ALL EQUIPMENT SHALL BE CONSTRUCTED AND BRACED FOR THE SEISMIC CONDITIONS OF THE PROJECT. REFER TO SPECIFICATIONS SECTION 16071 FOR REQUIREMENTS.
4. ALL 120/208V PANELBOARDS SHALL BE PROVIDED WITH 200% NEUTRAL CAPACITY AND AN ISOLATED GROUND BUS IN ADDITION TO THE EQUIPMENT GROUNDING BUS.
5. PROVIDE PERFORMANCE TESTING FOR GROUND-FAULT PROTECTION SYSTEMS ON SITE WITH A WRITTEN RECORD OF THIS TEST SUBMITTED TO THE AUTHORITY HAVING JURISDICTION PER 2011 NEC 230.95(C).

SHEET KEYNOTES

1. 1.5" CND WITH WIRING PER MANUFACTURERS WRITTEN INSTRUCTIONS.
2. COORDINATE CONNECTION AND MONITORING OF GENERATOR AND EACH TRANSFER SWITCH WITH BMS INSTALLER.
3. WHEN CONNECTED TO GENERATOR, BMS SHALL INITIATE A LOAD-SHED SEQUENCE SUCH THAT LIMITS TOTAL FAN LOAD TO 50% OF LESS.
4. GENERATOR ENCLOSURE LOAD CENTER, PREWIRED TO GENERATOR AUXILIARY LOADS SHALL BE PROVIDED WITH GENERATOR SET: 120/208V 1-PHASE, 3-WIRE. APPROXIMATE TOTAL LOAD: 15 KW.
5. PROGRAM ATS-C TO TRANSFER TO GENERATOR WITH A 20 SECOND DELAY AFTER ATS-E TRANSFERS, AND TO LOAD SHED IF GENERATOR LOSES FREQUENCY FOR A PRE-DEFINED PERIOD OF TIME, OR IS IN OVERTEMP ALARM.
6. SUPPORT AND HANG TRANSFORMER "T1E" FROM BUILDING STRUCTURE.

CONDUCTOR AND CONDUIT "CC" SCHEDULE

SCHEDULE NUMBER
SUBSCRIPT (NOTE 5)
(E.G.) 5 IG

SYM	AMP	CONDUIT SIZE	CONDUCTOR (NOTE 1) QTY	SIZE	G	IG	SE	NOTES
1	20	.75	2	12	12	12	8	2
2	20	.75	3	12	12	12	8	2,3
3	20	.75	4	12	12	12	8	2,3
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5	30	.75	3	10	10	10	8	2
6	30	.75	4	10	10	10	8	2
7	40	1	2	8	10	8	6	2
8	40	1	3	8	10	8	6	2
9	40	1	4	8	10	8	6	2
10	55	1	2	6	10	8	4	2
11	55	1	3	6	10	8	4	2
12	55	1.25	4	6	10	8	4	2
13	70	1	2	4	8	4	2	2
14	70	1.25	3	4	8	4	2	2
15	70	1.25	4	4	8	4	2	2
16	85	1.25	2	3	8	3	2	2
17	85	1.25	3	3	8	3	2	2
18	85	1.25	4	3	8	3	2	2
19	95	1.25	3	2	8	2	2	2
20	95	1.50	4	2	8	2	2	2
21	130	1.50	3	1	6	2	2	2
22	130	1.50	4	1	6	2	2	2
23	150	2	3	1/0	6	2	1/0	2
24	150	2	4	1/0	6	2	1/0	2
25	175	2	3	2/0	6	2	2/0	2
26	175	2	4	2/0	6	2	2/0	2
27	200	2	3	3/0	6	2	2/0	2
28	200	2.50	4	3/0	6	2	2/0	2
29	230	2.50	3	4/0	4	2	2/0	2
30	230	2.50	4	4/0	4	2	2/0	2
31	255	2.50	3	250	4	1	2/0	2
32	255	2.50	4	250	4	1	2/0	2
33	310	3	3	350	3	1/0	3/0	2
34	310	3	4	350	3	1/0	3/0	2
35	380	3.50	3	500	3	3/0	3/0	2
36	380	4	4	500	3	3/0	3/0	2
37	400	2 EA 2	3	3/0	3	3/0	3/0	2
38	400	2 EA 2.50	4	3/0	3	3/0	3/0	2
39	510	2 EA 2.50	3	250	1	4/0	3/0	2
40	510	2 EA 3	4	250	1	4/0	3/0	2
41	620	2 EA 3	3	350	1/0	4/0	3/0	2,4
42	620	2 EA 3.50	4	350	1/0	4/0	3/0	2,4
43	780	2 EA 3.50	3	500	1/0	4/0	3/0	2,4
44	780	2 EA 4	4	500	1/0	4/0	3/0	2,4
45	855	3 EA 3	3	300	2/0	4/0	3/0	2,4
46	855	3 EA 3	4	300	2/0	4/0	3/0	2,4
47	1000	3 EA 3.50	3	400	2/0	4/0	3/0	4
48	1000	3 EA 3.50	4	400	2/0	4/0	3/0	4
49	1140	3 EA 4	3	500	3/0	4/0	3/0	4
50	1140	3 EA 4	4	500	3/0	4/0	3/0	4
51	1240	4 EA 3	3	350	3/0	4/0	3/0	4
52	1240	4 EA 3	4	350	3/0	4/0	3/0	4
53	1675	5 EA 4	4	400	4/0	4/0	4/0	4
54	2010	6 EA 4	4	400	250	250	250	4
55	2660	7 EA 4	4	500	350	350	350	4
56	3040	8 EA 4	4	500	500	500	500	4
57	4180	11 EA 4	4	500	500	500	500	4
58		5 EA 4						6
59		2 EA 6						6
60		10 EA 4						6

CONDUIT AND CONDUCTOR SCHEDULE NOTES

1. CONDUCTORS SHOWN ARE SHOWN FOR EACH CONDUIT WITH MODIFICATIONS AS NOTED IN NOTE 5. ALL CONDUCTORS SHOWN ARE THWN UNLESS OTHERWISE NOTED.
2. PROVIDE EQUIPMENT GROUND CONDUCTORS PER TABLE 250-122 WHEN CIRCUIT BREAKERS ARE SIZED GREATER THAN AMPERE RATING SHOWN IN TABLE.
3. PROVIDE #10 NEUTRALS FOR MULTIWIRE BRANCH CIRCUITS SERVING COMPUTERS.
4. GROUND (G) CONDUCTOR MAY BE DELETED ON SERVICE ENTRANCE CONDUCTORS.
5. SYMBOL SUBSCRIPTS:

   "IG": INCLUDE IG (INSULATED/ISOLATED GROUND CONDUCTOR) SCHEDULED ALONG WITH THE GROUND OF EQUIPMENT GROUND CONDUCTOR.

   "SE": SUBSTITUTE "SE" CONDUCTOR FOR "G" CONDUCTOR SHOWN, WHICH IS SIZED FOR THE GROUNDING OF THE SECONDARY OF THE SEPARATELY DERIVED SYSTEM.

   "2N": INCLUDE TWO NEUTRAL CONDUCTORS, SIZED AS SCHEDULED FOR PHASED AND NEUTRAL CONDUCTORS.

6. RACEWAY ONLY. CONDUCTORS PROVIDED BY UTILITY.

A1 POWER ONE-LINE DIAGRAM - MODULE 2 (b)
SCALE: NTS

CRSA
649 E. South Temple
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DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
REVIEWED FOR CODE COMPLIANCE
SIGNATURE: Ernie Cate
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 181563
DAVID E. WESEMANN
04-21-2014
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300
Project #: B13-024

DATE:	ISSUE TYPE:
April 21, 2014	BID SET
CHECKED BY	D. WESEMANN
DRAWN BY	DLM

POWER ONE-LINE DIAGRAM - MODULE 2 (b)

EP602

VOLUME 2

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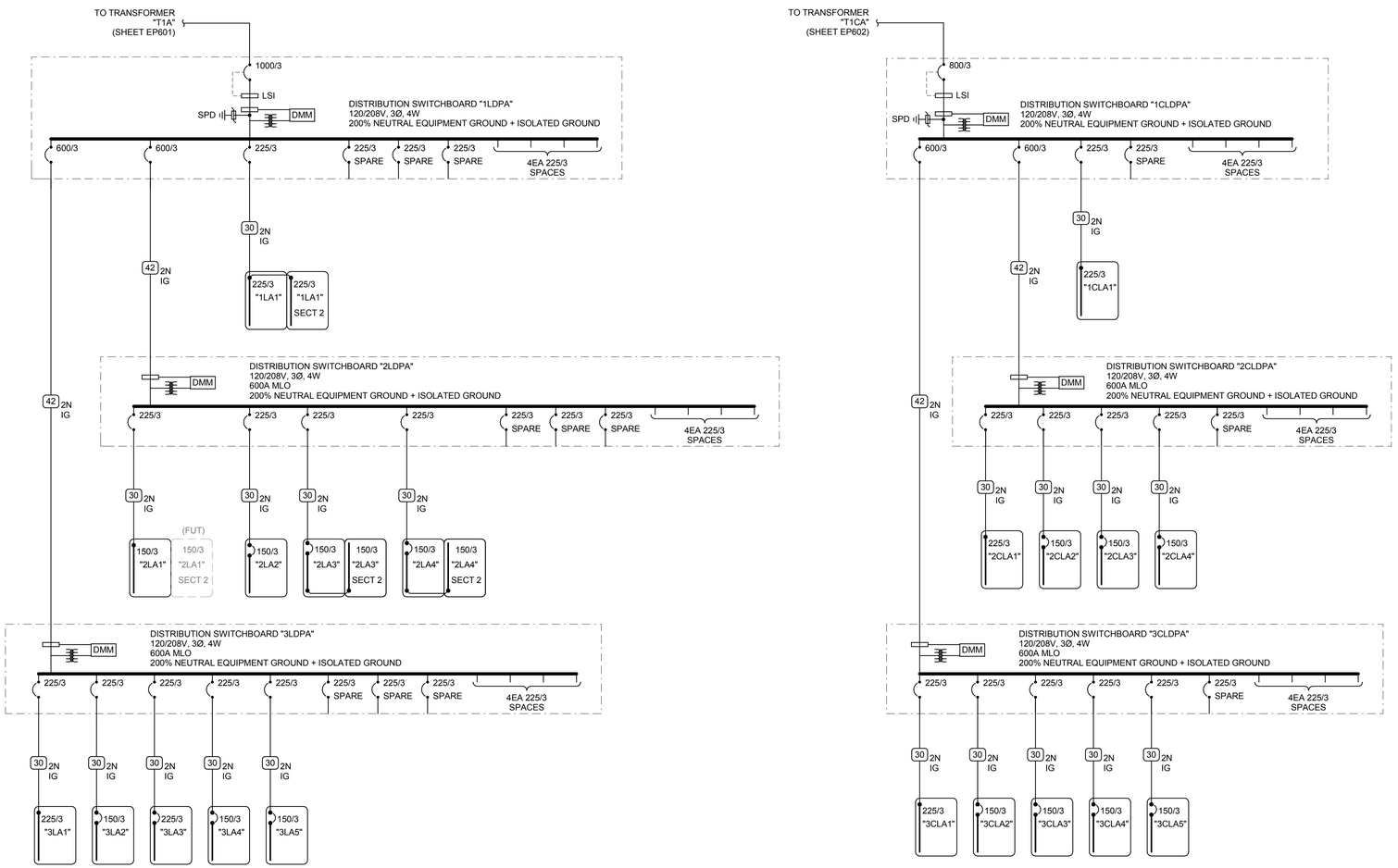

A1 POWER ONE-LINE DIAGRAM - MODULE 2 (c)

SCALE: NTS

GENERAL SHEET NOTES

1. PROVIDE NEMA 3R ENCLOSURES FOR EQUIPMENT LOCATED OUTDOORS. REFER TO PLANS FOR EQUIPMENT LOCATIONS.
2. REFER TO PLANS FOR CONSTRAINTS ON PHYSICAL DIMENSIONS AND CLEARANCE REQUIREMENTS OF EQUIPMENT. PROVIDE EQUIPMENT DIMENSIONS THAT FALL WITHIN THE CONSTRAINTS OF EACH SPECIFIC LOCATION.
3. ALL EQUIPMENT SHALL BE CONSTRUCTED AND BRACED FOR THE SEISMIC CONDITIONS OF THE PROJECT. REFER TO SPECIFICATIONS SECTION 16071 FOR REQUIREMENTS.
4. ALL 120/208V PANELBOARDS SHALL BE PROVIDED WITH 200% NEUTRAL CAPACITY AND AN ISOLATED GROUND BUS IN ADDITION TO THE EQUIPMENT GROUNDING BUS.
5. PROVIDE PERFORMANCE TESTING FOR GROUND-FAULT PROTECTION SYSTEMS ON SITE WITH A WRITTEN RECORD OF THIS TEST SUBMITTED TO THE AUTHORITY HAVING JURISDICTION PER NEC 700.5(D)(2).

CONDUCTOR AND CONDUIT "CC" SCHEDULE

SCHEDULE NUMBER

SUBSCRIPT (NOTE 5)

(E.G.) 5 IG

SYM	AMP	CONDUIT SIZE	CONDUCTOR (NOTE 1) QTY	SIZE	G	IG	SE	NOTES
1	20	,75	2	12	12	12	8	2
2	20	,75	3	12	12	12	8	2,3
3	20	,75	4	12	12	12	8	2,3
4	30	,75	2	10	10	10	8	2
5	30	,75	3	10	10	10	8	2
6	30	,75	4	10	10	10	8	2
7	40	1	2	8	10	8	6	2
8	40	1	3	8	10	8	6	2
9	40	1	4	8	10	8	6	2
10	55	1	2	6	10	8	4	2
11	55	1	3	6	10	8	4	2
12	55	1.25	4	6	10	8	4	2
13	70	1	2	4	8	4	2	2
14	70	1.25	3	4	8	4	2	2
15	70	1.25	4	4	8	4	2	2
16	85	1.25	2	3	8	3	2	2
17	85	1.25	3	3	8	3	2	2
18	85	1.25	4	3	8	3	2	2
19	95	1.25	3	2	8	2	2	2
20	95	1.50	4	2	8	2	2	2
21	130	1.50	3	1	6	2	2	2
22	130	1.50	4	1	6	2	2	2
23	150	2	3	1/0	6	2	1/0	2
24	150	2	4	1/0	6	2	1/0	2
25	175	2	3	2/0	6	2	2/0	2
26	175	2	4	2/0	6	2	2/0	2
27	200	2	3	3/0	6	2	2/0	2
28	200	2.50	4	3/0	6	2	2/0	2
29	230	2.50	3	4/0	4	2	2/0	2
30	230	2.50	4	4/0	4	2	2/0	2
31	255	2.50	3	250	4	1	2/0	2
32	255	2.50	4	250	4	1	2/0	2
33	310	3	3	350	3	1/0	3/0	2
34	310	3	4	350	3	1/0	3/0	2
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57	4180	11 EA 4	4	500	500	500	500	4
58		5 EA 4						6
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CONDUIT AND CONDUCTOR SCHEDULE NOTES

1. CONDUCTORS SHOWN ARE SHOWN FOR EACH CONDUIT WITH MODIFICATIONS AS NOTED IN NOTE 5. ALL CONDUCTORS SHOWN ARE THWN UNLESS OTHERWISE NOTED.
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DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
REVIEWED FOR CODE COMPLIANCE
SIGNATURE: Eric Cathy
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
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04-21-2014
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ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300

Project #: B13-024

DATE:	ISSUE TYPE:
April 21, 2014	BID SET
CHECKED BY	D. WESEMANN
DRAWN BY	DLM

POWER ONE-LINE DIAGRAM - MODULE 2 (c)

EP603

VOLUME 2

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GENERAL SHEET NOTES

1. PROVIDE NEMA 3R ENCLOSURES FOR EQUIPMENT LOCATED OUTDOORS. REFER TO PLANS FOR EQUIPMENT LOCATIONS.
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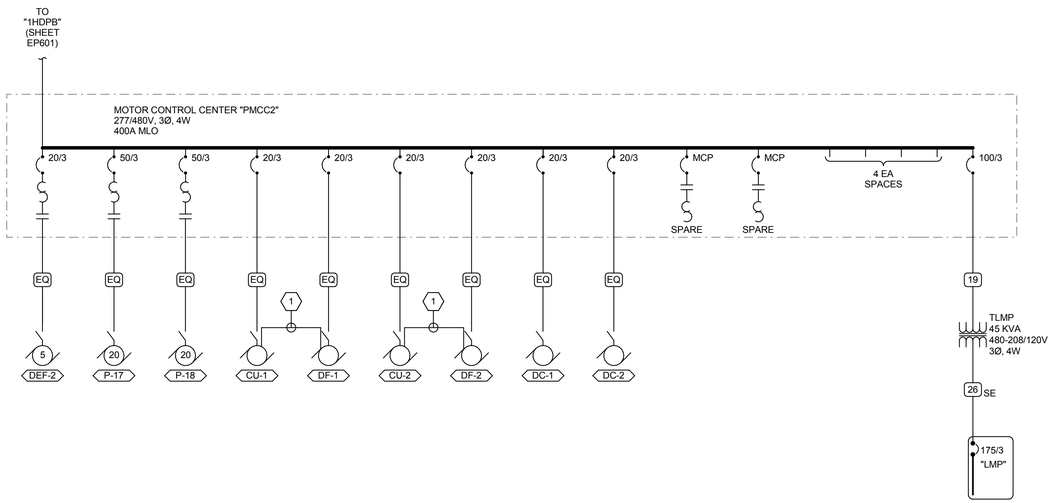
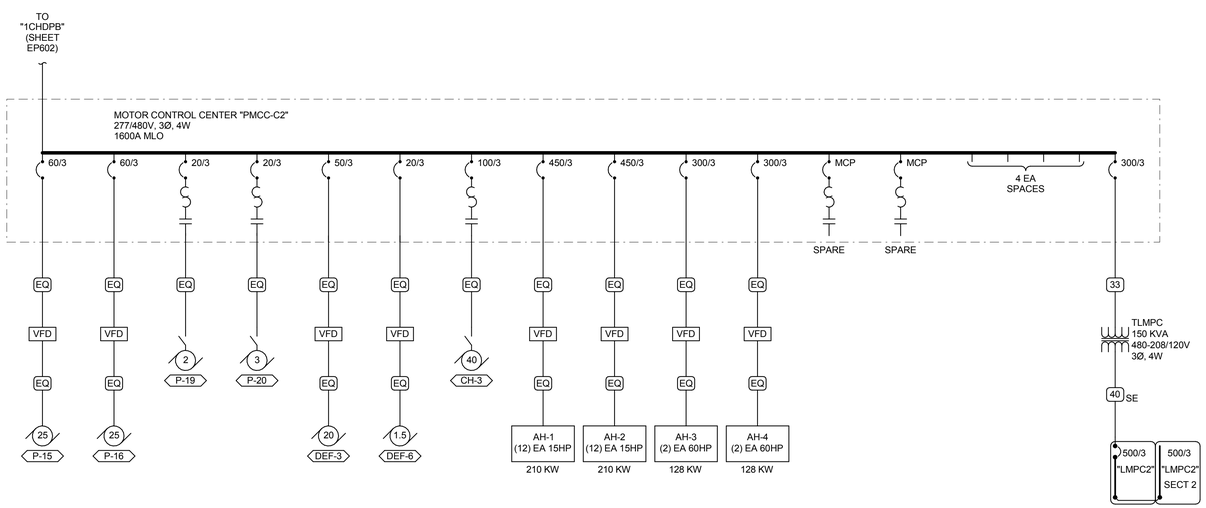
3. ALL EQUIPMENT SHALL BE CONSTRUCTED AND BRACED FOR THE SEISMIC CONDITIONS OF THE PROJECT. REFER TO SPECIFICATIONS SECTION 16071 FOR REQUIREMENTS.
4. ALL 120/208V PANELBOARDS SHALL BE PROVIDED WITH 200% NEUTRAL CAPACITY AND AN ISOLATED GROUND BUS IN ADDITION TO THE EQUIPMENT GROUNDING BUS.
5. PROVIDE PERFORMANCE TESTING FOR GROUND-FAULT PROTECTION SYSTEMS ON SITE WITH A WRITTEN RECORD OF THIS TEST SUBMITTED TO THE AUTHORITY HAVING JURISDICTION PER 2011 NEC 230.95(C).

SHEET KEYNOTES

1. PROVIDE CONDUIT AND WIRING TO INTERLOCK INDOOR UNIT WITH OUTDOOR UNIT.





CONDUCTOR AND CONDUIT "CC" SCHEDULE

SCHEDULE NUMBER
SUBSCRIPT (NOTE 5)
(E.G.) 5 IG

SYM	AMP	CONDUIT SIZE	CONDUCTOR (NOTE 1) QTY	SIZE	G	IG	SE	NOTES
1	20	.75	2	12	12	12	8	2
2	20	.75	3	12	12	12	8	2,3
3	20	.75	4	12	12	12	8	2,3
4	30	.75	2	10	10	10	8	2
5	30	.75	3	10	10	10	8	2
6	30	.75	4	10	10	10	8	2
7	40	1	2	8	10	8	6	2
8	40	1	3	8	10	8	6	2
9	40	1	4	8	10	8	6	2
10	55	1	2	6	10	8	4	2
11	55	1	3	6	10	8	4	2
12	55	1.25	4	6	10	8	4	2
13	70	1	2	4	8	4	2	2
14	70	1.25	3	4	8	4	2	2
15	70	1.25	4	4	8	4	2	2
16	85	1.25	2	3	8	3	2	2
17	85	1.25	3	3	8	3	2	2
18	85	1.25	4	3	8	3	2	2
19	95	1.25	3	2	8	2	2	2
20	95	1.50	4	2	8	2	2	2
21	130	1.50	3	1	6	2	2	2
22	130	1.50	4	1	6	2	2	2
23	150	2	3	1/0	6	2	1/0	2
24	150	2	4	1/0	6	2	1/0	2
25	175	2	3	2/0	6	2	2/0	2
26	175	2	4	2/0	6	2	2/0	2
27	200	2	3	3/0	6	2	2/0	2
28	200	2.50	4	3/0	6	2	2/0	2
29	230	2.50	3	4/0	4	2	2/0	2
30	230	2.50	4	4/0	4	2	2/0	2
31	255	2.50	3	250	4	1	2/0	2
32	255	2.50	4	250	4	1	2/0	2
33	310	3	3	350	3	1/0	3/0	2
34	310	3	4	350	3	1/0	3/0	2
35	380	3.50	3	500	3	3/0	3/0	2
36	380	4	4	500	3	3/0	3/0	2
37	400	2 EA 2	3	3/0	3	3/0	3/0	2
38	400	2 EA 2.50	4	3/0	3	3/0	3/0	2
39	510	2 EA 2.50	3	250	1	4/0	3/0	2
40	510	2 EA 3	4	250	1	4/0	3/0	2
41	620	2 EA 3	3	350	1/0	4/0	3/0	2,4
42	620	2 EA 3.50	4	350	1/0	4/0	3/0	2,4
43	780	2 EA 3.50	3	500	1/0	4/0	3/0	2,4
44	780	2 EA 4	4	500	1/0	4/0	3/0	2,4
45	855	3 EA 3	3	300	2/0	4/0	3/0	2,4
46	855	3 EA 3	4	300	2/0	4/0	3/0	2,4
47	1000	3 EA 3.50	3	400	2/0	4/0	3/0	4
48	1000	3 EA 3.50	4	400	2/0	4/0	3/0	4
49	1140	3 EA 4	3	500	3/0	4/0	3/0	4
50	1140	3 EA 4	4	500	3/0	4/0	3/0	4
51	1240	4 EA 3	3	350	3/0	4/0	3/0	4
52	1240	4 EA 3	4	350	3/0	4/0	3/0	4
53	1675	5 EA 4	4	400	4/0	4/0	4/0	4
54	2010	6 EA 4	4	400	250	250	250	4
55	2660	7 EA 4	4	500	350	350	350	4
56	3040	8 EA 4	4	500	500	500	500	4
57	4180	11 EA 4	4	500	500	500	500	4
58		5 EA 4						6
59		2 EA 6						6
60		10 EA 4						6

CONDUIT AND CONDUCTOR SCHEDULE NOTES

1. CONDUCTORS SHOWN ARE SHOWN FOR EACH CONDUIT WITH MODIFICATIONS AS NOTED IN NOTE 5. ALL CONDUCTORS SHOWN ARE THWN UNLESS OTHERWISE NOTED.
2. PROVIDE EQUIPMENT GROUND CONDUCTORS PER TABLE 250-122 WHEN CIRCUIT BREAKERS ARE SIZED GREATER THAN AMPERE RATING SHOWN IN TABLE.
3. PROVIDE #10 NEUTRALS FOR MULTIWIRE BRANCH CIRCUITS SERVING COMPUTERS.
4. GROUND (G) CONDUCTOR MAY BE DELETED ON SERVICE ENTRANCE CONDUCTORS.
5. SYMBOL SUBSCRIPTS:
   - "IG": INCLUDE IG (INSULATED/ISOLATED GROUND CONDUCTOR) SCHEDULED ALONG WITH THE GROUND OF EQUIPMENT GROUND CONDUCTOR.
   - "SE": SUBSTITUTE "SE" CONDUCTOR FOR "G" CONDUCTOR SHOWN, WHICH IS SIZED FOR THE GROUNDING OF THE SECONDARY OF THE SEPARATELY DERIVED SYSTEM.
   - "2N": INCLUDE TWO NEUTRAL CONDUCTORS, SIZED AS SCHEDULED FOR PHASED AND NEUTRAL CONDUCTORS.
6. RACEWAY ONLY. CONDUCTORS PROVIDED BY UTILITY.

A1 POWER ONE-LINE DIAGRAM - MODULE 2 (d)

SCALE: NTS

CRSA
649 E. South Temple
Salt Lake City, UT 84102
801.355.5915

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11798 N. Lakeridge Pkwy.
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Phone: (801) 538 - 3018
Fax: (801) 538 - 3267

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
REVIEWED FOR CODE COMPLIANCE
SIGNATURE: Eric Catt
DATE: 8-05-2014

ARCHITECT-ENGINEER STAMP
LICENSED PROFESSIONAL ENGINEER
No. 181563
DAVID E. WESEMANN
04-21-2014
STATE OF UTAH

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300
Project #: B13-024

DATE:	ISSUE TYPE:
April 21, 2014	BID SET
CHECKED BY	D. WESEMANN
DRAWN BY	DLM

POWER ONE-LINE DIAGRAM - MODULE 2 (d)

EP604

VOLUME 2

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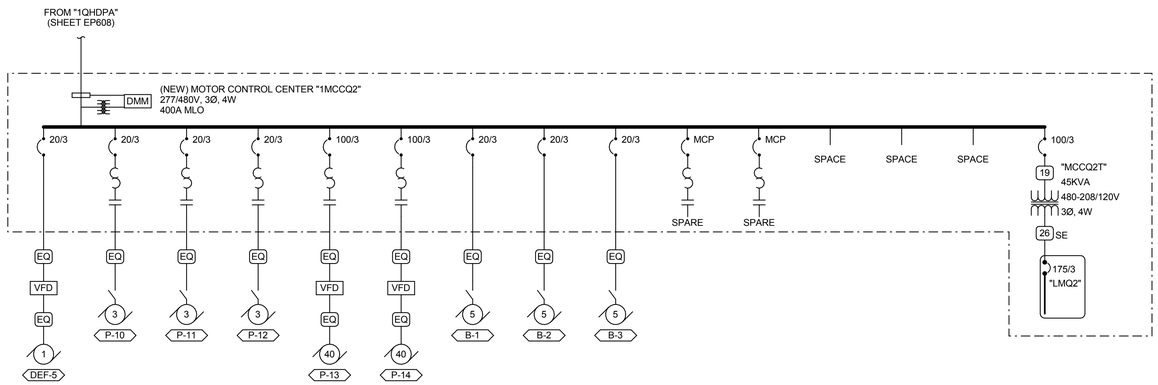
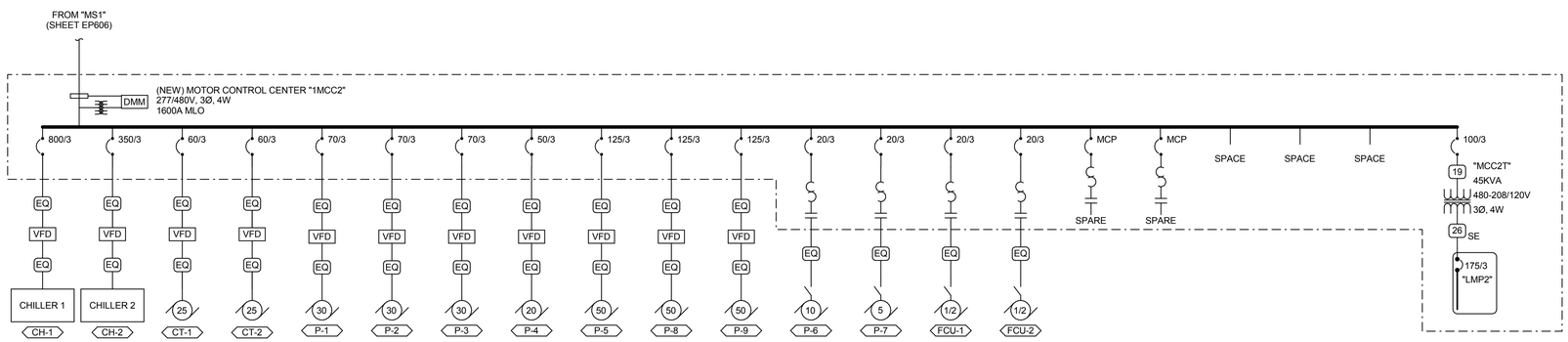
GENERAL SHEET NOTES

1. PROVIDE NEMA 3R ENCLOSURES FOR EQUIPMENT LOCATED OUTDOORS. REFER TO PLANS FOR EQUIPMENT LOCATIONS.
2. REFER TO PLANS FOR CONSTRAINTS ON PHYSICAL DIMENSIONS AND CLEARANCE REQUIREMENTS OF EQUIPMENT. PROVIDE EQUIPMENT DIMENSIONS THAT FALL WITHIN THE CONSTRAINTS OF EACH SPECIFIC LOCATION.
3. ALL EQUIPMENT SHALL BE CONSTRUCTED AND BRACED FOR THE SEISMIC CONDITIONS OF THE PROJECT. REFER TO SPECIFICATIONS SECTION 16071 FOR REQUIREMENTS.
4. ALL 120/208V PANELBOARDS SHALL BE PROVIDED WITH 200% NEUTRAL CAPACITY AND AN ISOLATED GROUND BUS IN ADDITION TO THE EQUIPMENT GROUNDING BUS.
5. PROVIDE PERFORMANCE TESTING FOR GROUND-FAULT PROTECTION SYSTEMS ON SITE WITH A WRITTEN RECORD OF THIS TEST SUBMITTED TO THE AUTHORITY HAVING JURISDICTION PER 2011 NEC 230.95(C).

SHEET KEYNOTES





CONDUCTOR AND CONDUIT "CC" SCHEDULE

SCHEDULE NUMBER
SUBSCRIPT (NOTE 5)
(E.G.) 5 IG

SYM	AMP	CONDUIT SIZE	CONDUCTOR (NOTE 1) QTY	SIZE	G	IG	SE	NOTES
1	20	.75	2	12	12	12	8	2
2	20	.75	3	12	12	12	8	2,3
3	20	.75	4	12	12	12	8	2,3
4	30	.75	2	10	10	10	8	2
5	30	.75	3	10	10	10	8	2
6	30	.75	4	10	10	10	8	2
7	40	1	2	8	10	8	6	2
8	40	1	3	8	10	8	6	2
9	40	1	4	8	10	8	6	2
10	55	1	2	6	10	8	4	2
11	55	1	3	6	10	8	4	2
12	55	1.25	4	6	10	8	4	2
13	70	1	2	4	8	4	2	2
14	70	1.25	3	4	8	4	2	2
15	70	1.25	4	4	8	4	2	2
16	85	1.25	2	3	8	3	2	2
17	85	1.25	3	3	8	3	2	2
18	85	1.25	4	3	8	3	2	2
19	95	1.25	3	2	8	2	2	2
20	95	1.50	4	2	8	2	2	2
21	130	1.50	3	1	6	2	2	2
22	130	1.50	4	1	6	2	2	2
23	150	2	3	1/0	6	2	1/0	2
24	150	2	4	1/0	6	2	1/0	2
25	175	2	3	2/0	6	2	2/0	2
26	175	2	4	2/0	6	2	2/0	2
27	200	2	3	3/0	6	2	2/0	2
28	200	2.50	4	3/0	6	2	2/0	2
29	230	2.50	3	4/0	4	2	2/0	2
30	230	2.50	4	4/0	4	2	2/0	2
31	255	2.50	3	250	4	1	2/0	2
32	255	2.50	4	250	4	1	2/0	2
33	310	3	3	350	3	1/0	3/0	2
34	310	3	4	350	3	1/0	3/0	2
35	380	3.50	3	500	3	3/0	3/0	2
36	380	4	4	500	3	3/0	3/0	2
37	400	2 EA 2	3	3/0	3	3/0	3/0	2
38	400	2 EA 2.50	4	3/0	3	3/0	3/0	2
39	510	2 EA 2.50	3	250	1	4/0	3/0	2
40	510	2 EA 3	4	250	1	4/0	3/0	2
41	620	2 EA 3	3	350	1/0	4/0	3/0	2,4
42	620	2 EA 3.50	4	350	1/0	4/0	3/0	2,4
43	780	2 EA 3.50	3	500	1/0	4/0	3/0	2,4
44	780	2 EA 4	4	500	1/0	4/0	3/0	2,4
45	855	3 EA 3	3	300	2/0	4/0	3/0	2,4
46	855	3 EA 3	4	300	2/0	4/0	3/0	2,4
47	1000	3 EA 3.50	3	400	2/0	4/0	3/0	4
48	1000	3 EA 3.50	4	400	2/0	4/0	3/0	4
49	1140	3 EA 4	3	500	3/0	4/0	3/0	4
50	1140	3 EA 4	4	500	3/0	4/0	3/0	4
51	1240	4 EA 3	3	350	3/0	4/0	3/0	4
52	1240	4 EA 3	4	350	3/0	4/0	3/0	4
53	1675	5 EA 4	4	400	4/0	4/0	4/0	4
54	2010	6 EA 4	4	400	250	250	250	4
55	2660	7 EA 4	4	500	350	350	350	4
56	3040	8 EA 4	4	500	500	500	500	4
57	4180	11 EA 4	4	500	500	500	500	4
58		5 EA 4						6
59		2 EA 6						6
60		10 EA 4						6

CONDUIT AND CONDUCTOR SCHEDULE NOTES

1. CONDUCTORS SHOWN ARE SHOWN FOR EACH CONDUIT WITH MODIFICATIONS AS NOTED IN NOTE 5. ALL CONDUCTORS SHOWN ARE THWN UNLESS OTHERWISE NOTED.
2. PROVIDE EQUIPMENT GROUND CONDUCTORS PER TABLE 250-122 WHEN CIRCUIT BREAKERS ARE SIZED GREATER THAN AMPERE RATING SHOWN IN TABLE.
3. PROVIDE #10 NEUTRALS FOR MULTIWIRE BRANCH CIRCUITS SERVING COMPUTERS.
4. GROUND (G) CONDUCTOR MAY BE DELETED ON SERVICE ENTRANCE CONDUCTORS.
5. SYMBOL SUBSCRIPTS:

   "IG": INCLUDE IG (INSULATED/ISOLATED GROUND CONDUCTOR) SCHEDULED ALONG WITH THE GROUND OF EQUIPMENT GROUND CONDUCTOR.

   "SE": SUBSTITUTE "SE" CONDUCTOR FOR "G" CONDUCTOR SHOWN, WHICH IS SIZED FOR THE GROUNDING OF THE SECONDARY OF THE SEPARATELY DERIVED SYSTEM.

   "2N": INCLUDE TWO NEUTRAL CONDUCTORS, SIZED AS SCHEDULED FOR PHASED AND NEUTRAL CONDUCTORS.

6. RACEWAY ONLY. CONDUCTORS PROVIDED BY UTILITY.

A1 POWER ONE-LINE DIAGRAM - MODULE 2 (e)
SCALE: NTS

CRSA
649 E. South Temple
Salt Lake City, UT 84102
801.355.5915

MWL
11798 N. Lakeridge Pkwy.
Ashland, VA 23005
804-228-7473

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Department of Administrative Services
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Salt Lake City, Utah 84114
Phone: (801) 538 - 3018
Fax: (801) 538 - 3267

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
REVIEWED FOR CODE COMPLIANCE
SIGNATURE: Ernie Catt
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 181563
DAVID E. WESEMANN
04-21-2014
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2
4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300
Project #: B13-024

DATE:	ISSUE TYPE:
April 21, 2014	BID SET

CHECKED BY: D. WESEMANN
DRAWN BY: DLM

POWER ONE-LINE DIAGRAM - MODULE 2 (e)

EP605
VOLUME 2

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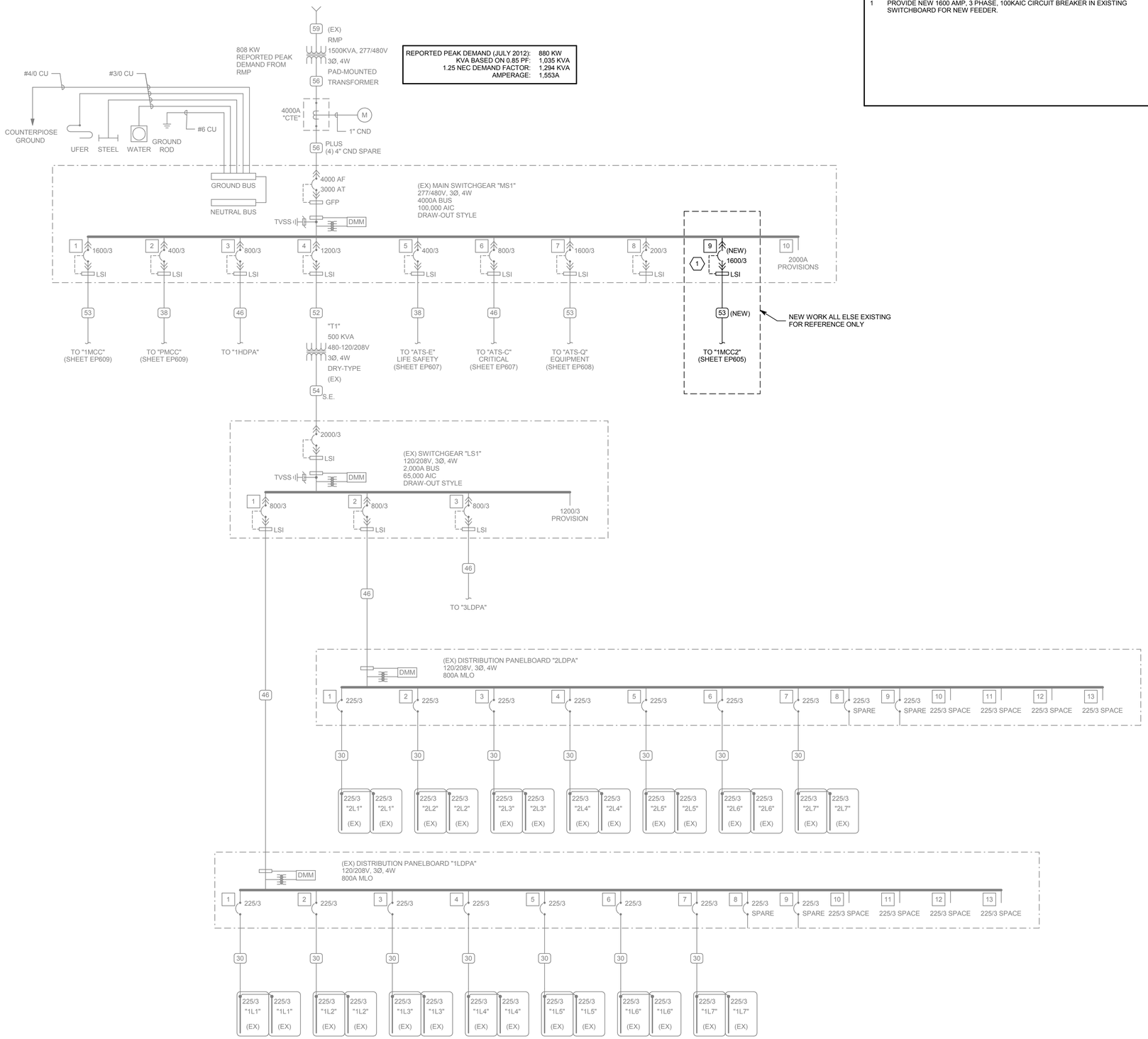

A1 EXISTING POWER ONE-LINE DIAGRAM - MODULE 1 (a)

SCALE: NTS

SHEET KEYNOTES

1 PROVIDE NEW 1600 AMP, 3 PHASE, 100KAIC CIRCUIT BREAKER IN EXISTING SWITCHBOARD FOR NEW FEEDER.

GENERAL SHEET NOTES

1 PROVIDE NEMA 3R ENCLOSURES FOR EQUIPMENT LOCATED OUTDOORS. REFER TO PLANS FOR EQUIPMENT LOCATIONS.

2 REFER TO PLANS FOR CONSTRAINTS ON PHYSICAL DIMENSIONS AND CLEARANCE REQUIREMENTS OF EQUIPMENT. PROVIDE EQUIPMENT DIMENSIONS THAT FALL WITHIN THE CONSTRAINTS OF EACH SPECIFIC LOCATION.

3 ALL EQUIPMENT SHALL BE CONSTRUCTED AND BRACED FOR THE SEISMIC CONDITIONS OF THE PROJECT. REFER TO SPECIFICATIONS SECTION 16071 FOR REQUIREMENTS.

4 ALL 120/208V PANELBOARDS SHALL BE PROVIDED WITH 200% NEUTRAL CAPACITY AND AN ISOLATED GROUND BUS IN ADDITION TO THE EQUIPMENT GROUNDING BUS.

5 PROVIDE PERFORMANCE TESTING FOR GROUND-FAULT PROTECTION SYSTEMS ON SITE WITH A WRITTEN RECORD OF THIS TEST SUBMITTED TO THE AUTHORITY HAVING JURISDICTION PER 2011 NEC 230.95(C).

CONDUCTOR AND CONDUIT "CC" SCHEDULE

SCHEDULE NUMBER
SUBSCRIPT (NOTE 5)
(E.G.) 5 IG

SYM	AMP	CONDUIT SIZE	CONDUCTOR (NOTE 1) QTY	SIZE	G	IG	SE	NOTES
1	20	.75	2	12	12	12	8	2
2	20	.75	3	12	12	12	8	2,3
3	20	.75	4	12	12	12	8	2,3
4	30	.75	2	10	10	10	8	2
5	30	.75	3	10	10	10	8	2
6	30	.75	4	10	10	10	8	2
7	40	1	2	8	10	8	6	2
8	40	1	3	8	10	8	6	2
9	40	1	4	8	10	8	6	2
10	55	1	2	6	10	8	4	2
11	55	1	3	6	10	8	4	2
12	55	1.25	4	6	10	8	4	2
13	70	1	2	4	8	4	2	2
14	70	1.25	3	4	8	4	2	2
15	70	1.25	4	4	8	4	2	2
16	85	1.25	2	3	8	3	2	2
17	85	1.25	3	3	8	3	2	2
18	85	1.25	4	3	8	3	2	2
19	95	1.25	3	2	8	2	2	2
20	95	1.50	4	2	8	2	2	2
21	130	1.50	3	1	6	2	2	2
22	130	1.50	4	1	6	2	2	2
23	150	2	3	1/0	6	2	1/0	2
24	150	2	4	1/0	6	2	1/0	2
25	175	2	3	2/0	6	2	2/0	2
26	175	2	4	2/0	6	2	2/0	2
27	200	2	3	3/0	6	2	2/0	2
28	200	2.50	4	3/0	6	2	2/0	2
29	230	2.50	3	4/0	4	2	2/0	2
30	230	2.50	4	4/0	4	2	2/0	2
31	255	2.50	3	250	4	1	2/0	2
32	255	2.50	4	250	4	1	2/0	2
33	310	3	3	350	3	1/0	3/0	2
34	310	3	4	350	3	1/0	3/0	2
35	380	3.50	3	500	3	3/0	3/0	2
36	380	4	4	500	3	3/0	3/0	2
37	400	2 EA 2	3	3/0	3	3/0	3/0	2
38	400	2 EA 2.50	4	3/0	3	3/0	3/0	2
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40	510	2 EA 3	4	250	1	4/0	3/0	2
41	620	2 EA 3	3	350	1/0	4/0	3/0	2,4
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51	1240	4 EA 3	3	350	3/0	4/0	3/0	4
52	1240	4 EA 3	4	350	3/0	4/0	3/0	4
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57	4180	11 EA 4	4	500	500	500	500	4
58		5 EA 4						6
59		2 EA 6						6
60		10 EA 4						6

CONDUIT AND CONDUCTOR SCHEDULE NOTES

1. CONDUCTORS SHOWN ARE SHOWN FOR EACH CONDUIT WITH MODIFICATIONS AS NOTED IN NOTE 5. ALL CONDUCTORS SHOWN ARE THWN UNLESS OTHERWISE NOTED.
2. PROVIDE EQUIPMENT GROUND CONDUCTORS PER TABLE 250-122 WHEN CIRCUIT BREAKERS ARE SIZED GREATER THAN AMPERE RATING SHOWN IN TABLE.
3. PROVIDE #10 NEUTRALS FOR MULTIWIRE BRANCH CIRCUITS SERVING COMPUTERS.
4. GROUND (G) CONDUCTOR MAY BE DELETED ON SERVICE ENTRANCE CONDUCTORS.
5. SYMBOL SUBSCRIPTS:
   "IG": INCLUDE IG (INSULATED/ISOLATED GROUND CONDUCTOR) SCHEDULED ALONG WITH THE GROUND OF EQUIPMENT GROUND CONDUCTOR.
   "SE": SUBSTITUTE "SE" CONDUCTOR FOR "G" CONDUCTOR SHOWN, WHICH IS SIZED FOR THE GROUNDING OF THE SECONDARY OF THE SEPARATELY DERIVED SYSTEM.
   "2N": INCLUDE TWO NEUTRAL CONDUCTORS, SIZED AS SCHEDULED FOR PHASED AND NEUTRAL CONDUCTORS.
6. RACEWAY ONLY. CONDUCTORS PROVIDED BY UTILITY.

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DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
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SIGNATURE: Ernie Catt
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LICENSED PROFESSIONAL ENGINEER
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DAVID E. WESEMANN
04-21-2014
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300

Project #: B13-024

DATE:	ISSUE TYPE:
April 21, 2014	BID SET
CHECKED BY	D. WESEMANN
DRAWN BY	DLM

EXISTING POWER ONE-LINE DIAGRAM - MODULE 1 (a)

EP606

VOLUME 2

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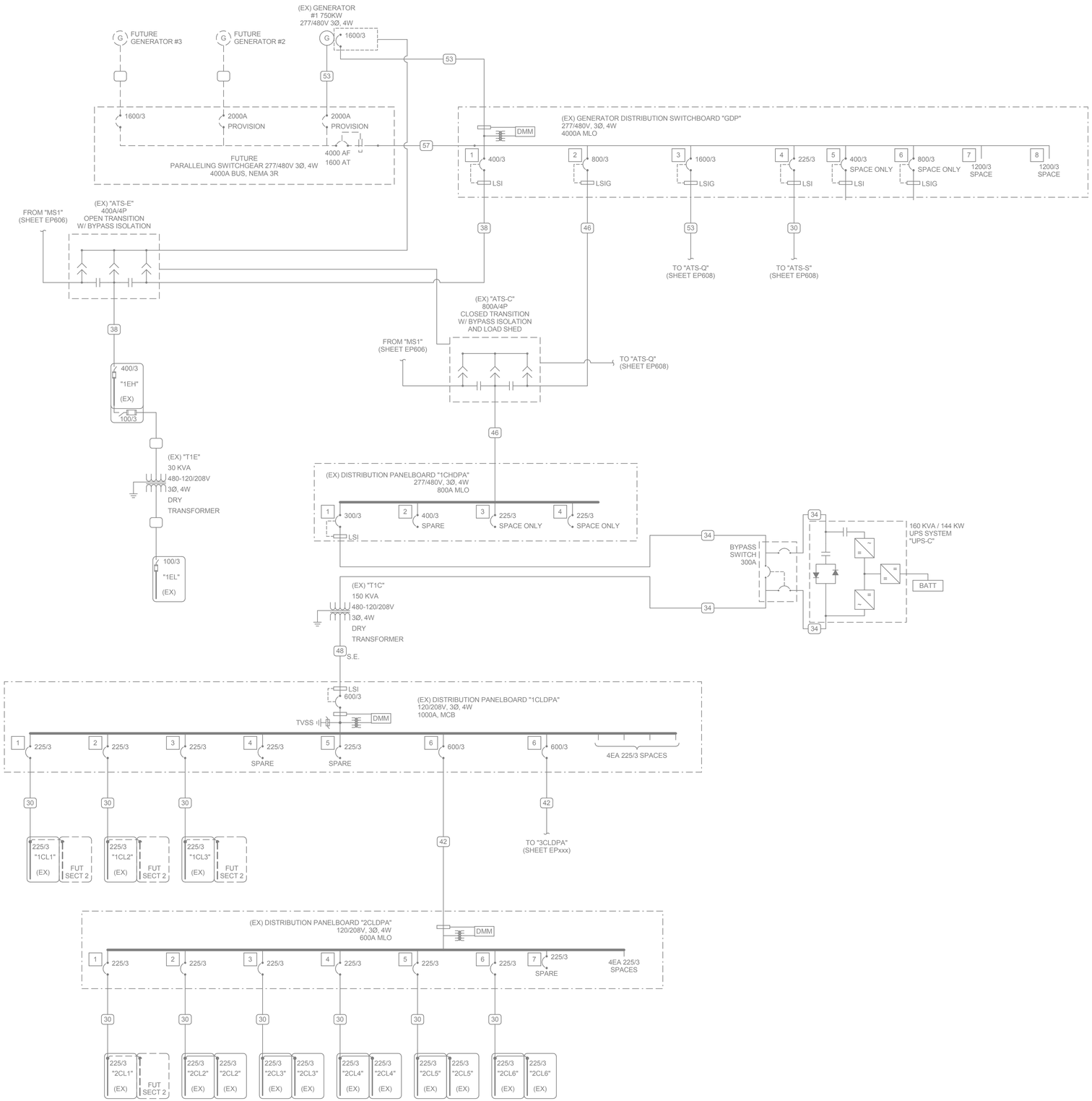

A1 EXISTING POWER ONE-LINE DIAGRAM - MODULE 1 (b) - FOR REFERENCE ONLY

SCALE: NTS

GENERAL SHEET NOTES

1. PROVIDE NEMA 3R ENCLOSURES FOR EQUIPMENT LOCATED OUTDOORS. REFER TO PLANS FOR EQUIPMENT LOCATIONS.
2. REFER TO PLANS FOR CONSTRAINTS ON PHYSICAL DIMENSIONS AND CLEARANCE REQUIREMENTS OF EQUIPMENT. PROVIDE EQUIPMENT DIMENSIONS THAT FALL WITHIN THE CONSTRAINTS OF EACH SPECIFIC LOCATION.
3. ALL EQUIPMENT SHALL BE CONSTRUCTED AND BRACED FOR THE SEISMIC CONDITIONS OF THE PROJECT. REFER TO SPECIFICATIONS SECTION 16071 FOR REQUIREMENTS.
4. ALL 120/208V PANELBOARDS SHALL BE PROVIDED WITH 200% NEUTRAL CAPACITY AND AN ISOLATED GROUND BUS IN ADDITION TO THE EQUIPMENT GROUNDING BUS.
5. PROVIDE PERFORMANCE TESTING FOR GROUND-FAULT PROTECTION SYSTEMS ON SITE WITH A WRITTEN RECORD OF THIS TEST SUBMITTED TO THE AUTHORITY HAVING JURISDICTION PER 2011 NEC 230.95(C).

CONDUCTOR AND CONDUIT "CC" SCHEDULE

SCHEDULE NUMBER
SUBSCRIPT (NOTE 5)
(E.G.) 5 IG

SYM	AMP	CONDUIT SIZE	CONDUCTOR (NOTE 1) QTY	SIZE	G	IG	SE	NOTES
1	20	.75	2	12	12	12	8	2
2	20	.75	3	12	12	12	8	2,3
3	20	.75	4	12	12	12	8	2,3
4	30	.75	2	10	10	10	8	2
5	30	.75	3	10	10	10	8	2
6	30	.75	4	10	10	10	8	2
7	40	1	2	8	10	8	6	2
8	40	1	3	8	10	8	6	2
9	40	1	4	8	10	8	6	2
10	55	1	2	6	10	8	4	2
11	55	1	3	6	10	8	4	2
12	55	1.25	4	6	10	8	4	2
13	70	1	2	4	8	4	2	2
14	70	1.25	3	4	8	4	2	2
15	70	1.25	4	4	8	4	2	2
16	85	1.25	2	3	8	3	2	2
17	85	1.25	3	3	8	3	2	2
18	85	1.25	4	3	8	3	2	2
19	95	1.25	3	2	8	2	2	2
20	95	1.50	4	2	8	2	2	2
21	130	1.50	3	1	6	2	2	2
22	130	1.50	4	1	6	2	2	2
23	150	2	3	1/0	6	2	1/0	2
24	150	2	4	1/0	6	2	1/0	2
25	175	2	3	2/0	6	2	2/0	2
26	175	2	4	2/0	6	2	2/0	2
27	200	2	3	3/0	6	2	2/0	2
28	200	2.50	4	3/0	6	2	2/0	2
29	230	2.50	3	4/0	4	2	2/0	2
30	230	2.50	4	4/0	4	2	2/0	2
31	255	2.50	3	250	4	1	2/0	2
32	255	2.50	4	250	4	1	2/0	2
33	310	3	3	350	3	1/0	3/0	2
34	310	3	4	350	3	1/0	3/0	2
35	380	3.50	3	500	3	3/0	3/0	2
36	380	4	4	500	3	3/0	3/0	2
37	400	2 EA 2	3	3/0	3	3/0	3/0	2
38	400	2 EA 2.50	4	3/0	3	3/0	3/0	2
39	510	2 EA 2.50	3	250	1	4/0	3/0	2
40	510	2 EA 3	4	250	1	4/0	3/0	2
41	620	2 EA 3	3	350	1/0	4/0	3/0	2,4
42	620	2 EA 3.50	4	350	1/0	4/0	3/0	2,4
43	780	2 EA 3.50	3	500	1/0	4/0	3/0	2,4
44	780	2 EA 4	4	500	1/0	4/0	3/0	2,4
45	855	3 EA 3	3	300	2/0	4/0	3/0	2,4
46	855	3 EA 3	4	300	2/0	4/0	3/0	2,4
47	1000	3 EA 3.50	3	400	2/0	4/0	3/0	4
48	1000	3 EA 3.50	4	400	2/0	4/0	3/0	4
49	1140	3 EA 4	3	500	3/0	4/0	3/0	4
50	1140	3 EA 4	4	500	3/0	4/0	3/0	4
51	1240	4 EA 3	3	350	3/0	4/0	3/0	4
52	1240	4 EA 3	4	350	3/0	4/0	3/0	4
53	1675	5 EA 4	4	400	4/0	4/0	4/0	4
54	2010	6 EA 4	4	400	250	250	250	4
55	2660	7 EA 4	4	500	350	350	350	4
56	3040	8 EA 4	4	500	500	500	500	4
57	4180	11 EA 4	4	500	500	500	500	4
58		5 EA 4						6
59		2 EA 6						6
60		10 EA 4						6

CONDUIT AND CONDUCTOR SCHEDULE NOTES

1. CONDUCTORS SHOWN ARE SHOWN FOR EACH CONDUIT WITH MODIFICATIONS AS NOTED IN NOTE 5. ALL CONDUCTORS SHOWN ARE THWN UNLESS OTHERWISE NOTED.
2. PROVIDE EQUIPMENT GROUND CONDUCTORS PER TABLE 250-122 WHEN CIRCUIT BREAKERS ARE SIZED GREATER THAN AMPERE RATING SHOWN IN TABLE.
3. PROVIDE #10 NEUTRALS FOR MULTIWIRE BRANCH CIRCUITS SERVING COMPUTERS.
4. GROUND (G) CONDUCTOR MAY BE DELETED ON SERVICE ENTRANCE CONDUCTORS.
5. SYMBOL SUBSCRIPTS:

   "IG": INCLUDE IG (INSULATED/ISOLATED GROUND CONDUCTOR) SCHEDULED ALONG WITH THE GROUND OF EQUIPMENT GROUND CONDUCTOR.

   "SE": SUBSTITUTE "SE" CONDUCTOR FOR "G" CONDUCTOR SHOWN, WHICH IS SIZED FOR THE GROUNDING OF THE SECONDARY OF THE SEPARATELY DERIVED SYSTEM.

   "2N": INCLUDE TWO NEUTRAL CONDUCTORS, SIZED AS SCHEDULED FOR PHASED AND NEUTRAL CONDUCTORS.
6. RACEWAY ONLY. CONDUCTORS PROVIDED BY UTILITY.

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DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
REVIEWED FOR CODE COMPLIANCE
SIGNATURE: Ernie Catt
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 181563
DAVID E. WESEMANN
04-21-2014
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300

Project #: B13-024

DATE:	ISSUE TYPE:
April 21, 2014	BID SET

CHECKED BY	D. WESEMANN
DRAWN BY	DLM

EXISTING POWER ONE-LINE DIAGRAM - MODULE 1 (b)

EP607

VOLUME 2

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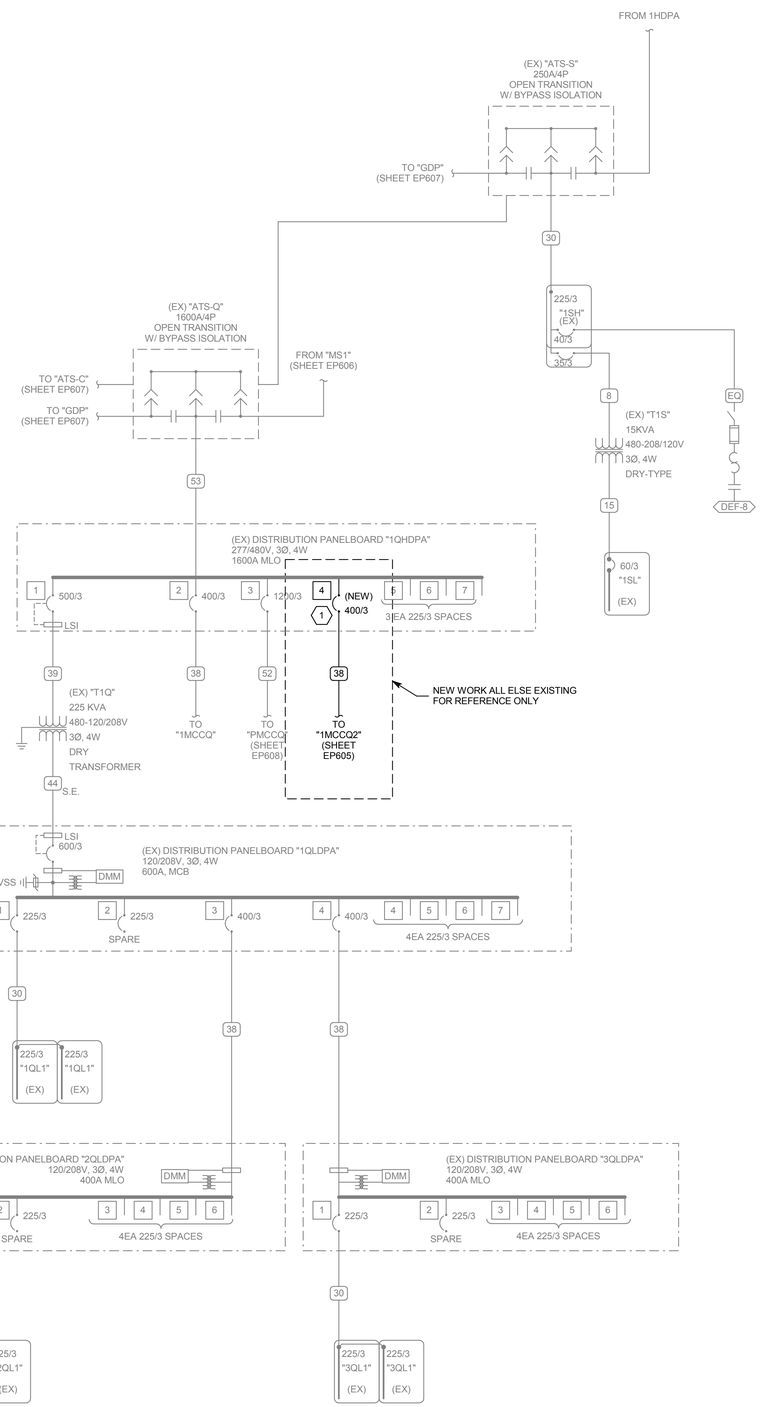

A1 EXISTING POWER ONE-LINE DIAGRAM - MODULE 1 (c)

SCALE: NTS

SHEET KEYNOTES

1 PROVIDE NEW 400 AMP, 3 PHASE, 100KAIC CIRCUIT BREAKER IN EXISTING PANELBOARD.

GENERAL SHEET NOTES

1 PROVIDE NEMA 3R ENCLOSURES FOR EQUIPMENT LOCATED OUTDOORS. REFER TO PLANS FOR EQUIPMENT LOCATIONS.

2 REFER TO PLANS FOR CONSTRAINTS ON PHYSICAL DIMENSIONS AND CLEARANCE REQUIREMENTS OF EQUIPMENT. PROVIDE EQUIPMENT DIMENSIONS THAT FALL WITHIN THE CONSTRAINTS OF EACH SPECIFIC LOCATION.

3 ALL EQUIPMENT SHALL BE CONSTRUCTED AND BRACED FOR THE SEISMIC CONDITIONS OF THE PROJECT. REFER TO SPECIFICATIONS SECTION 16071 FOR REQUIREMENTS.

4 ALL 120/208V PANELBOARDS SHALL BE PROVIDED WITH 200% NEUTRAL CAPACITY AND AN ISOLATED GROUND BUS IN ADDITION TO THE EQUIPMENT GROUNDING BUS.

5 PROVIDE PERFORMANCE TESTING FOR GROUND-FAULT PROTECTION SYSTEMS ON SITE WITH A WRITTEN RECORD OF THIS TEST SUBMITTED TO THE AUTHORITY HAVING JURISDICTION PER 2011 NEC 230.95(C).

CONDUCTOR AND CONDUIT "CC" SCHEDULE

SCHEDULE NUMBER
SUBSCRIPT (NOTE 5)
(E.G.) 5 IG

SYM	AMP	CONDUIT SIZE	CONDUCTOR (NOTE 1) QTY	SIZE	G	IG	SE	NOTES
1	20	.75	2	12	12	12	8	2
2	20	.75	3	12	12	12	8	2,3
3	20	.75	4	12	12	12	8	2,3
4	30	.75	2	10	10	10	8	2
5	30	.75	3	10	10	10	8	2
6	30	.75	4	10	10	10	8	2
7	40	1	2	8	10	8	6	2
8	40	1	3	8	10	8	6	2
9	40	1	4	8	10	8	6	2
10	55	1	2	6	10	8	4	2
11	55	1	3	6	10	8	4	2
12	55	1.25	4	6	10	8	4	2
13	70	1	2	4	8	4	2	2
14	70	1.25	3	4	8	4	2	2
15	70	1.25	4	4	8	4	2	2
16	85	1.25	2	3	8	3	2	2
17	85	1.25	3	3	8	3	2	2
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20	95	1.50	4	2	8	2	2	2
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24	150	2	4	1/0	6	2	1/0	2
25	175	2	3	2/0	6	2	2/0	2
26	175	2	4	2/0	6	2	2/0	2
27	200	2	3	3/0	6	2	2/0	2
28	200	2.50	4	3/0	6	2	2/0	2
29	230	2.50	3	4/0	4	2	2/0	2
30	230	2.50	4	4/0	4	2	2/0	2
31	255	2.50	3	250	4	1	2/0	2
32	255	2.50	4	250	4	1	2/0	2
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34	310	3	4	350	3	1/0	3/0	2
35	380	3.50	3	500	3	3/0	3/0	2
36	380	4	4	500	3	3/0	3/0	2
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38	400	2 EA 2.50	4	3/0	3	3/0	3/0	2
39	510	2 EA 2.50	3	250	1	4/0	3/0	2
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56	3040	8 EA 4	4	500	500	500	500	4
57	4180	11 EA 4	4	500	500	500	500	4
58		5 EA 4						6
59		2 EA 6						6
60		10 EA 4						6

CONDUIT AND CONDUCTOR SCHEDULE NOTES

1. CONDUCTORS SHOWN ARE SHOWN FOR EACH CONDUIT WITH MODIFICATIONS AS NOTED IN NOTE 5. ALL CONDUCTORS SHOWN ARE THWN UNLESS OTHERWISE NOTED.
2. PROVIDE EQUIPMENT GROUND CONDUCTORS PER TABLE 250-122 WHEN CIRCUIT BREAKERS ARE SIZED GREATER THAN AMPERE RATING SHOWN IN TABLE.
3. PROVIDE #10 NEUTRALS FOR MULTIWIRE BRANCH CIRCUITS SERVING COMPUTERS.
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DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
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SIGNATURE: Ernie Cate
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 181563
DAVID E. WESEMANN
04-21-2014
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #:	13020300
Project #:	B13-024
DATE: April 21, 2014	ISSUE TYPE: BID SET
CHECKED BY	D. WESEMANN
DRAWN BY	DLM

EXISTING POWER ONE-LINE DIAGRAM - MODULE 1 (c)

EP608

VOLUME 2

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SHEET KEYNOTES

1 PROVIDE NEW 65KAIC CIRCUIT BREAKERS IN EXISITNG MCC.

GENERAL SHEET NOTES

1 PROVIDE NEMA 3R ENCLOSURES FOR EQUIPMENT LOCATED OUTDOORS. REFER TO PLANS FOR EQUIPMENT LOCATIONS.

2 REFER TO PLANS FOR CONSTRAINTS ON PHYSICAL DIMENSIONS AND CLEARANCE REQUIREMENTS OF EQUIPMENT. PROVIDE EQUIPMENT DIMENSIONS THAT FALL WITHIN THE CONSTRAINTS OF EACH SPECIFIC LOCATION.

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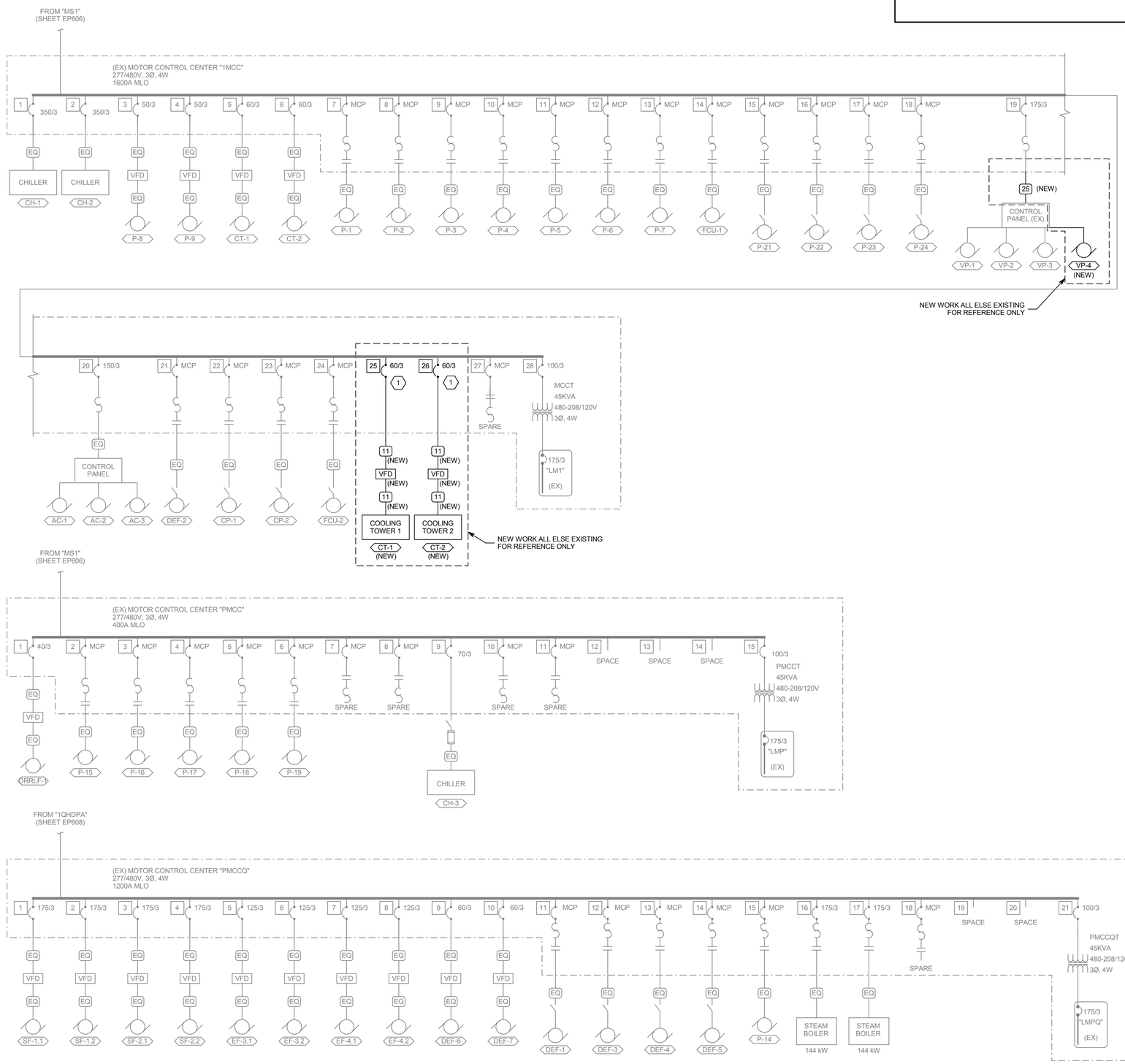

A1 EXISTING POWER ONE-LINE DIAGRAM - MODULE 1 (d)

SCALE: NTS

CONDUCTOR AND CONDUIT "CC" SCHEDULE

SCHEDULE NUMBER — SUBSCRIPT (NOTE 5) — (E.G.) 5 IG

SYM	AMP	CONDUIT SIZE	CONDUCTOR (NOTE 1) QTY	SIZE	G	IG	SE	NOTES
1	20	,75	2	12	12	12	8	2
2	20	,75	3	12	12	12	8	2,3
3	20	,75	4	12	12	12	8	2,3
4	30	,75	2	10	10	10	8	2
5	30	,75	3	10	10	10	8	2
6	30	,75	4	10	10	10	8	2
7	40	1	2	8	10	8	6	2
8	40	1	3	8	10	8	6	2
9	40	1	4	8	10	8	6	2
10	55	1	2	6	10	8	4	2
11	55	1	3	6	10	8	4	2
12	55	1.25	4	6	10	8	4	2
13	70	1	2	4	8	4	2	2
14	70	1.25	3	4	8	4	2	2
15	70	1.25	4	4	8	4	2	2
16	85	1.25	2	3	8	3	2	2
17	85	1.25	3	3	8	3	2	2
18	85	1.25	4	3	8	3	2	2
19	95	1.25	3	2	8	2	2	2
20	95	1.50	4	2	8	2	2	2
21	130	1.50	3	1	6	2	2	2
22	130	1.50	4	1	6	2	2	2
23	150	2	3	1/0	6	2	1/0	2
24	150	2	4	1/0	6	2	1/0	2
25	175	2	3	2/0	6	2	2/0	2
26	175	2	4	2/0	6	2	2/0	2
27	200	2	3	3/0	6	2	2/0	2
28	200	2.50	4	3/0	6	2	2/0	2
29	230	2.50	3	4/0	4	2	2/0	2
30	230	2.50	4	4/0	4	2	2/0	2
31	255	2.50	3	250	4	1	2/0	2
32	255	2.50	4	250	4	1	2/0	2
33	310	3	3	350	3	1/0	3/0	2
34	310	3	4	350	3	1/0	3/0	2
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57	4180	11 EA 4	4	500	500	500	500	4
58		5 EA 4						6
59		2 EA 6						6
60		10 EA 4						6

CONDUIT AND CONDUCTOR SCHEDULE NOTES

1. CONDUCTORS SHOWN ARE SHOWN FOR EACH CONDUIT WITH MODIFICATIONS AS NOTED IN NOTE 5. ALL CONDUCTORS SHOWN ARE THWN UNLESS OTHERWISE NOTED.
2. PROVIDE EQUIPMENT GROUND CONDUCTORS PER TABLE 250-122 WHEN CIRCUIT BREAKERS ARE SIZED GREATER THAN AMPERE RATING SHOWN IN TABLE.
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April 21, 2014	BID SET
CHECKED BY	D. WESEMANN
DRAWN BY	DLM

EXISTING POWER ONE-LINE DIAGRAM - MODULE 1 (d)

EP609

VOLUME 2

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LAB EQUIPMENT SCHEDULE

ITEM NO.	QTY	DECSRIPTION	SCHEDULE REMARKS	ELEC. CONN.	VOLT	PH	AMPS	CONDUIT & CONDUCTOR	CIRCUIT BREAKER SIZE	NOTES
B7	1	AUTOCLAVE (TUTTNAUER - BRINKMAN / 3870 EL)		SPR	208 V	3	17	CC #2	20/3	
B14	1	UV PASS-THRU		JB	120 V	1	15	CC #2	20/1	
BA2	1	FLUOROPHOS / FLUOROMETER	SHARES CIRCUIT WITH BA3	SPR	208 V	2	1	CC #2	20/2	
BA3	1	FLUOROPHOS / HEATING BLOCK	SHARES CIRCUIT WITH BA2	SPR	208 V	2	1	CC #2	20/2	
BA9-A	1	AUTOCLAVE		JB	208 V	3	60	CC #14	70/3	
BA9-B	1	AUTOCLAVE		JB	208 V	3	50	CC #14	60/3	
C1	2	GC-MS W/PYROLYZER		SPR	208 V	2	15	CC #2	20/2	
C2	4	GC-MS		SPR	208 V	2	15	CC #2	20/2	
C2A	2	GC-MS		SPR	208 V	2	15	CC #2	20/2	
CH1	2	ICP-OES (PERKIN ELMER / 3300 DV)		SPR	208 V	2	28	CC #4	30/2	
CH2a	1	ICP-MS (AGILENT / 7700 X)		SPR	208 V	2	24	CC #4	30/2	
CH2b	1	12.2 AMP CHILLER		SPR	208 V	2	12	CC #2	20/2	
CH2c	1	20 AMP CHILLER		SPR	208 V	2	20	CC #4	20/2	
CH4	2	MICROWAVE DIGESTION SYSTEM		SPR	208 V	2	15	CC #2	20/2	
CH6	2	FURNACE, 315D		SPR	208 V	2	21	CC #4	30/2	
CH7	1	FAT EXTRACTOR		SPR	208 V	2	14	CC #2	20/2	
CH9	1	NITROGEN ANALYZER		SPR	208 V	2	6	CC #2	20/2	
CH13	1	GLASSWARE WASHER		SPR	208 V	2	10	CC #2	20/2	
CS1	1	SUPER GLUE CABINET		JB	120 V	1	5	CC #2	20/1	
FA8	1	PROJECTILE RECOVERY TANK		JB	120 V	1	24	CC #4	30/1	
FH4-1	4	FUME HOOD (FISHER HAMILTON CONCEPT)		JB	120 V	1	16	CC #2	20/1	
FH4-ADA	2	FUME HOOD (FISHER HAMILTON CONCEPT)		JB	120 V	1	16	CC #2	20/1	
FH5-1	1	FUME HOOD (FISHER HAMILTON CONCEPT)		JB	120 V	1	16	CC #2	20/1	
FH5-ADA	2	FUME HOOD (FISHER HAMILTON CONCEPT)		JB	120 V	1	16	CC #2	20/1	
FH6-1	7	FUME HOOD (FISHER HAMILTON CONCEPT)		JB	120 V	1	16	CC #2	20/1	
FH6-3	1	FUME HOOD (FISHER HAMILTON CONCEPT)		JB	120 V	1	16	CC #2	20/1	
FH6-ADA	7	FUME HOOD (FISHER HAMILTON CONCEPT)		JB	120 V	1	16	CC #2	20/1	
FH8-1	3	FUME HOOD (FISHER HAMILTON SAFE-AIRE II)		JB	120 V	1	16	CC #2	20/1	
FH8-ADA	1	FUME HOOD (FISHER HAMILTON CONCEPT)		JB	120 V	1	16	CC #2	20/1	
FRZR-A	1	LEVEL 2 WALK-IN FREEZER - EVAPORATOR		JB	120 V	1	16	CC #2	20/1	1,2
FRZR-B	1	LEVEL 2 WALK-IN FREEZER - EVAPORATOR (REDUNDANT)		JB	120 V	1	16	CC #2	20/1	1,2
FRZR-C	1	LEVEL 2 WALK-IN FREEZER - CONDENSER		JB	208 V	3	15	CC #2	20/3	1,2,4
FRZR-D	1	LEVEL 2 WALK-IN FREEZER - CONDENSER (REDUNDANT)		JB	208 V	3	15	CC #2	20/3	1,2,4
GW	5	GLASSWARE WASHER		SPR	208 V	3	20	CC #5	20/3	
ID4	1	SUPER GLUE CABINET (CYANOACRYLATE FUMING CHAMBER)		JB	120 V	1	16	CC #2	20/1	
ME1	7	BACKDRAFT AUTOPSY STATION (DISPOSAL)	2HP MOTOR GRINDER	JB	120 V	1	24	CC #7	40/1	
ME5	1	RECESSED BODY SCALE		JB	120 V	1	15	CC #2	20/1	1
ME7-A	1	MAIN BODY COOLER - EVAPORATOR		JB	208 V	3	16	CC #2	20/3	1,2
ME7-B	1	MAIN BODY COOLER - EVAPORATOR (REDUNDANT)		JB	120 V	1	16	CC #2	20/1	1,2
ME7-C	1	BODY COOLER - CONDENSER		JB	208 V	3	45	CC #14	70/3	1,2,4
ME7-D	1	BODY COOLER - CONDENSER (REDUNDANT)		JB	208 V	3	45	CC #14	70/3	1,2,4
ME8-A	1	SPECIAL PROCEDURE COOLER - EVAPORATOR		JB	120 V	1	10	CC #2	20/1	1,2
ME8-B	1	SPECIAL PROCEDURE COOLER - EVAPORATOR (REDUNDANT)		JB	120 V	1	2	CC #2	20/1	1,2
ME8-C	1	SPECIAL PROCEDURE COOLER - CONDENSER		JB	208 V	3	11	CC #2	20/3	1,2,4
ME8-D	1	SPECIAL PROCEDURE COOLER - CONDENSER (REDUNDANT)		JB	208 V	3	11	CC #2	20/3	1,2,4
ME9-A	1	DECOMP BODY FREEZER - EVAPORATOR		JB	120 V	1	8	CC #2	20/1	1,2
ME9-B	1	DECOMP BODY FREEZER - EVAPORATOR (REDUNDANT		JB	120 V	1	12	CC #2	20/1	1,2
ME9-C	1	DECOMP BODY FREEZER - CONDENSER		JB	208 V	3	38	CC #11	50/3	1,2,4
ME9-D	1	DECOMP BODY FREEZER - CONDENSER (REDUNDANT)		JB	208 V	3	38	CC #11	50/3	1,2,4
ME13	2	WASHER EXTRACTOR		SPR	208 V	3	4	CC #2	20/3	
ME14	1	COMMERCIAL DRYER - STACKING		SPR	208 V	3	26	CC #5	30/3	
ME24	1	DENTAL X-RAY		JB	120 V	1	15	CC #2	20/1	
ME25-A	1	XRAY MACHINE (FUTURE)		JB	480 V	3	56	CC #20	100/3	
ME25-B	1	XRAY MACHINE (STATSCAN ASP)		JB	208 V	2	10	CC #2	20/2	
ME25-C	1	XRAY MACHINE (STATSCAN GURNEY)		JB	208 V	2	10	CC #2	20/2	
MT1	1	KJELDAHL UNIT		SPR	208 V	2	16	CC #2	20/2	
MT2	1	OVEN (THERMOLYNE; MODEL F6020)		SPR	208 V	2	17	CC #4	30/2	
MT5	1	FURNACE		SPR	208 V	2	18	CC #4	30/2	
P2	1	AUTOCLAVE (TUTTNAUER / 3870EA)		SPR	208 V	2	21	CC #4	30/2	
PC1	6	GAS CHROMATOGRAPH W/ AUTO INJECTOR		SPR	208 V	2	10	CC #2	20/2	1
PC2	2	GAS CHROMATOGRAPH W/ AUTO INJECTOR		SPR	208 V	2	5	CC #2	20/2	1
PC3	2	GAS CHROMATOGRAPH MASS SPECTROMETER W/ AUTO INJECTOR		SPR	208 V	2	21	CC #4	30/2	1
PC4	2	TRIPLE QUAD LC-MS		SPR	208 V	2	15	CC #2	20/2	1
PC7	1	FURNACE (LINDVERG HEAVY DUTY) EXISTING		SPR	208 V	2	23	CC #4	30/2	
PC11	4	TRIPLE QUAD LC-MS (FUTURE)		SPR	208 V	2	15	CC #2	20/2	
PC15	2	TRIPLE QUAD GC-MS (FUTURE)		SPR	208 V	2	10	CC #2	20/2	1

LAB EQUIPMENT SCHEDULE NOTES:
1. ON EMERGENCY POWER.
2. CONNECT CIRCUIT TO SINGLE POINT OF CONNECTION. COORDINATE EXACT LOCATION WITH REFRIGERATION EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN.
3. PROVIDE 1" CONDUIT AND WIRING TO INTERLOCK INDOOR CONTROL PANEL WITH OUTDOOR UNIT.

LAB EQUIPMENT SCHEDULE KEY

CC #X	SEE CONDUCTOR AND CONDUIT SCHEDULE FOR WIRE SIZE AND QUANTITY AND CONDUIT SIZE.
JB	JUNCTION BOX.
SPR	SPECIAL RECEPTACLE; COORDINATE TYPE WITH EQUIPMENT.

CONDUCTOR AND CONDUIT "CC" SCHEDULE

SCHEDULE NUMBER
SUBSCRIPT (NOTE 5)
(E.G.) 5 IG

SYM	AMP	CONDUIT SIZE	CONDUCTOR (NOTE 1) QTY	SIZE	G	IG	SE	NOTES
1	20	.75	2	12	12	12	8	2
2	20	.75	3	12	12	12	8	2,3
3	20	.75	4	12	12	12	8	2,3
4	30	.75	2	10	10	10	8	2
5	30	.75	3	10	10	10	8	2
6	30	.75	4	10	10	10	8	2
7	40	1	2	8	10	8	6	2
8	40	1	3	8	10	8	6	2
9	40	1	4	8	10	8	6	2
10	55	1	2	6	10	8	4	2
11	55	1	3	6	10	8	4	2
12	55	1.25	4	6	10	8	4	2
13	70	1	2	4	8	4	2	2
14	70	1.25	3	4	8	4	2	2
15	70	1.25	4	4	8	4	2	2
16	85	1.25	2	3	8	3	2	2
17	85	1.25	3	3	8	3	2	2
18	85	1.25	4	3	8	3	2	2
19	95	1.25	3	2	8	2	2	2
20	95	1.50	4	2	8	2	2	2
21	130	1.50	3	1	6	2	2	2
22	130	1.50	4	1	6	2	2	2
23	150	2	3	1/0	6	2	1/0	2
24	150	2	4	1/0	6	2	1/0	2
25	175	2	3	2/0	6	2	2/0	2
26	175	2	4	2/0	6	2	2/0	2
27	200	2	3	3/0	6	2	2/0	2
28	200	2.50	4	3/0	6	2	2/0	2
29	230	2.50	3	4/0	4	2	2/0	2
30	230	2.50	4	4/0	4	2	2/0	2
31	255	2.50	3	250	4	1	2/0	2
32	255	2.50	4	250	4	1	2/0	2
33	310	3	3	350	3	1/0	3/0	2
34	310	3	4	350	3	1/0	3/0	2
35	380	3.50	3	500	3	3/0	3/0	2
36	380	4	4	500	3	3/0	3/0	2
37	400	2 EA 2	3	3/0	3	3/0	3/0	2
38	400	2 EA 2.50	4	3/0	3	3/0	3/0	2
39	510	2 EA 2.50	3	250	1	4/0	3/0	2
40	510	2 EA 3	4	250	1	4/0	3/0	2
41	620	2 EA 3	3	350	1/0	4/0	3/0	2,4
42	620	2 EA 3.50	4	350	1/0	4/0	3/0	2,4
43	780	2 EA 3.50	3	500	1/0	4/0	3/0	2,4
44	780	2 EA 4	4	500	1/0	4/0	3/0	2,4
45	855	3 EA 3	3	300	2/0	4/0	3/0	2,4
46	855	3 EA 3	4	300	2/0	4/0	3/0	2,4
47	1000	3 EA 3.50	3	400	2/0	4/0	3/0	4
48	1000	3 EA 3.50	4	400	2/0	4/0	3/0	4
49	1140	3 EA 4	3	500	3/0	4/0	3/0	4
50	1140	3 EA 4	4	500	3/0	4/0	3/0	4
51	1240	4 EA 3	3	350	3/0	4/0	3/0	4
52	1240	4 EA 3	4	350	3/0	4/0	3/0	4
53	1675	5 EA 4	4	400	4/0	4/0	4/0	4
54	2010	6 EA 4	4	400	250	250	250	4
55	2660	7 EA 4	4	500	350	350	350	4
56	3040	8 EA 4	4	500	500	500	500	4
57	4180	11 EA 4	4	500	500	500	500	4
58		5 EA 4						6
59		2 EA 6						6
60		10 EA 4						6

CONDUIT AND CONDUCTOR SCHEDULE NOTES

1. CONDUCTORS SHOWN ARE SHOWN FOR EACH CONDUIT WITH MODIFICATIONS AS NOTED IN NOTE 5. ALL CONDUCTORS SHOWN ARE THWN UNLESS OTHERWISE NOTED.
2. PROVIDE EQUIPMENT GROUND CONDUCTORS PER TABLE 250-122 WHEN CIRCUIT BREAKERS ARE SIZED GREATER THAN AMPERE RATING SHOWN IN TABLE.
3. PROVIDE #10 NEUTRALS FOR MULTIWIRE BRANCH CIRCUITS SERVING COMPUTERS.
4. GROUND (G) CONDUCTOR MAY BE DELETED ON SERVICE ENTRANCE CONDUCTORS.
5. SYMBOL SUBSCRIPTS:

   "IG": INCLUDE IG (INSULATED/ISOLATED GROUND CONDUCTOR) SCHEDULED ALONG WITH THE GROUND OF EQUIPMENT GROUND CONDUCTOR.

   "SE": SUBSTITUTE "SE" CONDUCTOR FOR "G" CONDUCTOR SHOWN, WHICH IS SIZED FOR THE GROUNDING OF THE SECONDARY OF THE SEPARATELY DERIVED SYSTEM.

   "2N": INCLUDE TWO NEUTRAL CONDUCTORS, SIZED AS SCHEDULED FOR PHASED AND NEUTRAL CONDUCTORS.

6. RACEWAY ONLY. CONDUCTORS PROVIDED BY UTILITY.

CRSA
649 E. South Temple
Salt Lake City, UT 84102
801.355.5915

MWL
11798 N. Lakeridge Pkwy.
Ashland, VA 23005
804-228-7473

State of Utah
Department of Administrative Services
Division of Facilities Construction & Management
4110 State Office Building
Salt Lake City, Utah 84114
Phone: (801) 538 - 3018
Fax: (801) 538 - 3267

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
REVIEWED FOR CODE COMPLIANCE
SIGNATURE: Ernie Catt
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 181563
DAVID E. WESEMANN
04-21-2014
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300

Project #: B13-024

DATE:	ISSUE TYPE:
April 21, 2014	BID SET

CHECKED BY: D. WESEMANN
DRAWN BY: DLM

LAB EQUIPMENT SCHEDULE

EP610

VOLUME 2

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EQUIPMENT SCHEDULE KEY

E	DIVISION 26
Q	FURNISHED WITH THE EQUIPMENT OR BY MECHANICAL INSTALLER
*	COORDINATE WITH THE DIVISION 23 TEMPERATURE CONTROL INSTALLER
**	AUTOMATIC CONTROL WIRING BY DIVISION 23

NOTE:
1. ON EMERGENCY POWER
2. PROVIDE CONDUIT AND WIRING TO INTERLOCK INDOOR UNIT WITH OUTDOOR UNIT.
3. PROVIDE DISCONNECT WITH QUICK-BREAK/SLOW MAKE CONTACT AND INTERLOCK TO PROTECT VFD.
4. PROVIDE SHUNT TRIP FUSIBLE SWITCH AND INTERLOCK WITH FIRE ALARM SYSTEM PER CODE.
5. PROVIDE SINGLE POINT OF CONNECTION FOR EQUIPMENT.

EQUIPMENT SCHEDULE

UNIFIED STATE LAB MODULE 2

			LOAD DATA								OVERCURRENT PROTECTION			DISCONNECT			STARTER									
MARK	QTY	ITEM DESCRIPTION	HP	kW	MCA	FLA	VOLT	PH	Hz	WIRE AND CONDUIT SIZE	FURN BY	DEVICE	LOCATION	FURN BY	DEVICE	LOCATION	FURN BY	DEVICE	SIZES	SELECTOR SWITCH	PILOT LAMP	NORMALLY OPEN CONTACT	NORMALLY CLOSED CONTACT	PHASE FAILURE RELAY	NOTES	MARK
AC-1	1	AIR COMPRESSOR (VEB)	7.5	-	-	7.6	480	3	60	3 #12, #12GR 0.75" CND	E	20/3 CB	1HB	E	30A/3P NF	ADJ TO EQUIP	E	FVNR	1	HOA	R,G	2	2	YES		AC-1
AH-1a	1	AIR HANDLER UNIT	(12) 15	-	-	252	480	3	60	3 #350, #3 GR 3" CND	E	450/3 CB	PMCC-C2	Q	VFD	ADJ TO EQUIP	Q	VFD							1,3	AH-1a
AH-1b	1	AIR HANDLER UNIT ACCESSORIES	-	-	-	16	120	1	60	2 #12, #12 GR 0.75" CND	E	20/1 CB	LMPC2	E	30A/1P NF	ADJ TO EQUIP	-								1	AH-1b
AH-2a	1	AIR HANDLER UNIT	(12) 15	-	-	252	480	3	60	3 #350, #3 GR 3" CND	E	450/3 CB	PMCC-C2	Q	VFD	ADJ TO EQUIP	Q	VFD							1,3	AH-2a
AH-2b	1	AIR HANDLER UNIT ACCESSORIES	-	-	-	16	120	1	60	2 #12, #12 GR 0.75" CND	E	20/1 CB	LMPC2	E	30A/1P NF	ADJ TO EQUIP	-								1	AH-2b
AH-3a	1	LARGE AIR HANDLER UNIT	(2) 60	-	-	154	480	3	60	3 #4/0, #4 GR 2.5" CND	E	350/3 CB	PMCC-C2	Q	VFD	ADJ TO EQUIP	Q	VFD							1,3	AH-3a
AH-3b	1	LARGE AIR HANDLER UNIT ACCESSORIES	-	-	-	16	120	1	60	2 #12, #12 GR 0.75" CND	E	20/1 CB	LMPC2	E	30A/1P NF	ADJ TO EQUIP	-								1	AH-3b
AH-4a	1	LARGE AIR HANDLER UNIT	(2) 60	-	-	154	480	3	60	3 #4/0, #4 GR 2.5" CND	E	350/3 CB	PMCC-C2	Q	VFD	ADJ TO EQUIP	Q	VFD							1,3	AH-4a
AH-4b	1	LARGE AIR HANDLER UNIT ACCESSORIES	-	-	-	16	120	1	60	2 #12, #12 GR 0.75" CND	E	20/1 CB	LMPC2	E	30A/1P NF	ADJ TO EQUIP	-								1	AH-4b
CH-3	1	AIR-COOLED CHILLER	40	-	-	52	480	3	60	3 #4, #8 GR 1.25" CND	E	100/3 CB	PMCC-C2	E	100A/3P NF	ADJ TO EQUIP	E	FVNR	3	HOA	R,G	2	2	YES	1	CH-3
CU-1	1	REMOTE CONDENSING UNIT	-	-	-	8.3	480	3	60	3 #12, #12GR 0.75" CND	E	20/3 CB	PMCC2	E	30A/3P NF	ADJ TO EQUIP	-								2	CU-1
CU-2	1	REMOTE CONDENSING UNIT	-	-	-	8.3	480	3	60	3 #12, #12GR 0.75" CND	E	20/3 CB	PMCC2	E	30A/3P NF	ADJ TO EQUIP	-								2	CU-2
CUH-1	1	CABINET UNIT HEATER	1/30	-	-	0.7	120	1	60	2 #12, 12 GR 0.75" CND	E	20/1 CB	1LA1	Q			Q									CUH-1
CUH-2	1	CABINET UNIT HEATER	1/15	-	-	1.1	120	1	60	2 #12, 12 GR 0.75" CND	E	20/1 CB	1LA1	Q			Q									CUH-2
CUH-3	1	CABINET UNIT HEATER	1/25	-	-	0.4	120	1	60	2 #12, 12 GR 0.75" CND	E	20/1 CB	1LB1	Q			Q									CUH-3
CUH-4	1	CABINET UNIT HEATER	1/30	-	-	0.7	120	1	60	2 #12, 12 GR 0.75" CND	E	20/1 CB	1LB1	Q			Q									CUH-4
CUH-5	1	CABINET UNIT HEATER	1/25	-	-	0.4	120	1	60	2 #12, 12 GR 0.75" CND	E	20/1 CB	1LB1	Q			Q									CUH-5
CUH-6	1	CABINET UNIT HEATER	1/15	-	-	1.1	120	1	60	2 #12, 12 GR 0.75" CND	E	20/1 CB	2LA1	Q			Q									CUH-6
DC-1	1	DUST COLLETOR	(1) 2 (1) 1/3	-	5.25	4.4	480	3	60	3 #12, #12GR 0.75" CND	E	20/3 CB	PMCC2	E	30A/1P NF	ADJ TO EQUIP	Q								5	DC-1
DC-2	1	DUST COLLETOR	(1) 2 (1) 1/3	-	5.25	4.4	480	3	60	3 #12, #12GR 0.75" CND	E	20/3 CB	PMCC2	E	30A/1P NF	ADJ TO EQUIP	Q								5	DC-2
DEF-1	1	ROOF DOWNBLAST, DOME EXHAUST FAN	1/3	-	-	7.2	120	1	60	2 #12, 12 GR 0.75" CND	E	20/1 CB	LMP	E	30A/1P NF	ADJ TO EQUIP	E	FVNR	0	HOA	R,G	2	2	NO		DEF-1
DEF-2	1	ROOF DOWNBLAST, DOME EXHAUST FAN	5	-	-	7.6	480	3	60	3 #12, #12GR 0.75" CND	E	20/3 CB	PMCC2	E	30A/3P NF	ADJ TO EQUIP	E	FVNR	1	HOA	R,G	2	2	YES		DEF-2
DEF-3	1	BACKWARD INCLINED VENT	20	-	-	27	480	3	60	3 #8, #10 GR 1" CND	E	50/3 CB	PMCC-C2	Q	VFD	ADJ TO EQUIP	Q	VFD							1,3	DEF-3
DEF-4	1	ROOF DOWNBLAST, DOME EXHAUST FAN	3/4	-	-	1.4	480	3	60	3 #12, #12GR 0.75" CND	E	20/3 CB	1HB	E	30A/1P NF	ADJ TO EQUIP	E	FVNR	0	HOA	R,G	2	2	YES		DEF-4
DEF-6	1	BACKWARD INCLINED FRP	1.5	-	-	2.6	480	3	60	3 #12, #12GR 0.75" CND	E	20/3 CB	PMCC-C2	Q	VFD	ADJ TO EQUIP	Q	VFD							1,3	DEF-6
DF-1	1	DUCT FREE FAN COIL WITH REMOTE CONDENSER	-	-	-	0.6	480	3	60	3 #12, #12GR 0.75" CND	E	20/3 CB	PMCC2	E	30A/3P NF	ADJ TO EQUIP	-								2	DF-1
DF-2	1	DUCT FREE FAN COIL WITH REMOTE CONDENSER	-	-	-	0.6	480	3	60	3 #12, #12GR 0.75" CND	E	20/3 CB	PMCC2	E	30A/3P NF	ADJ TO EQUIP	-								2	DF-2
EC-1	1	EVAPORATIVE COOLER (AH-1)	1/2	-	-	9.8	120	1	60	2 #12, 12 GR 0.75" CND	E	20/1 CB	LMPC2	E	30A/1P NF	ADJ TO EQUIP	E	FVNR	0	HOA	R,G	2	2	NO	1	EC-1
EC-2	1	EVAPORATIVE COOLER (AH-2)	1/2	-	-	9.8	120	1	60	2 #12, 12 GR 0.75" CND	E	20/1 CB	LMPC2	E	30A/1P NF	ADJ TO EQUIP	E	FVNR	0	HOA	R,G	2	2	NO	1	EC-2
ELEV-1	1	ELEVATOR 1	50	-	-	65	480	3	60	3 #3/0, #2 GR 2" CND	E	125/3 CB	1HDPB	E	200A/3P CLASS J	1HDPB	Q								4	ELEV-1
ELEV-2	1	ELEVATOR 2	40	-	-	52	480	3	60	3 #3/0, #2 GR 2" CND	E	100/3 CB	1HDPB	E	200A/3P CLASS J	1HDPB	Q								4	ELEV-2
FC-1	1	FAN COIL	.5	-	-	1	480	3	60	3 #12, #12GR 0.75" CND	E	20/3 CB	1CHDPB	Q			E	FVNR	1	HOA	R,G	2	2	YES		FC-1
FC-2	1	FAN COIL	.5	-	-	1	480	3	60	3 #12, #12GR 0.75" CND	E	20/3 CB	1CHDPB	Q			E	FVNR	1	HOA	R,G	2	2	YES		FC-2
FC-3	1	FAN COIL	.5	-	-	1	480	3	60	3 #12, #12GR 0.75" CND	E	20/3 CB	1HB	Q			E	FVNR	1	HOA	R,G	2	2	YES		FC-3
FC-4	1	FAN COIL	.5	-	-	1	480	3	60	3 #12, #12GR 0.75" CND	E	20/3 CB	1EH	Q			E	FVNR	1	HOA	R,G	2	2	YES	1	FC-4
FC-5	1	FAN COIL	.5	-	-	1	480	3	60	3 #12, #12GR 0.75" CND	E	20/3 CB	1CHDPB	Q			E	FVNR	1	HOA	R,G	2	2	YES		FC-5
FC-6	1	FAN COIL	.5	-	-	1	480	3	60	3 #12, #12GR 0.75" CND	E	20/3 CB	1CHDPB	Q			E	FVNR	1	HOA	R,G	2	2	YES		FC-6
GFS-1	1	GLYCOL FEED SYSTEM	-	-	-	16	120	1	60	2 #12, #12 GR 0.75" CND	E	20/1 CB	LMP	E	OUTLET	ADJ TO EQUIP	-									GFS-1
GFS-2	1	GLYCOL FEED SYSTEM	-	-	-	16	120	1	60	2 #12, #12 GR 0.75" CND	E	20/1 CB	LMP	E	OUTLET	ADJ TO EQUIP	-									GFS-2
GFS-3	1	GLYCOL FEED SYSTEM	-	-	-	16	120	1	60	2 #12, #12 GR 0.75" CND	E	20/1 CB	LMP	E	OUTLET	ADJ TO EQUIP	-									GFS-3

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DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
REVIEWED FOR CODE COMPLIANCE
SIGNATURE: Ernie Catt
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 181563
DAVID E. WESEMANN
04-21-2014
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300

Project #: B13-024

DATE:	ISSUE TYPE:
April 21, 2014	BID SET

CHECKED BY	D. WESEMANN
DRAWN BY	DLM

MECHANICAL EQUIPMENT SCHEDULE - MOD 2 BLDG (a)

EP611

VOLUME 2

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EQUIPMENT SCHEDULE KEY

E	DIVISION 26
Q	FURNISHED WITH THE EQUIPMENT OR BY MECHANICAL INSTALLER
*	COORDINATE WITH THE DIVISION 23 TEMPERATURE CONTROL INSTALLER
**	AUTOMATIC CONTROL WIRING BY DIVISION 23

NOTE:
1. ON EMERGENCY POWER
2. PROVIDE CONDUIT AND WIRING TO INTERLOCK INDOOR UNIT WITH OUTDOOR UNIT.
3. PROVIDE DISCONNECT WITH QUICK-BREAK/SLOW MAKE CONTACT AND INTERLOCK TO PROTECT VFD.
4. PROVIDE SHUNT TRIP FUSIBLE SWITCH AND INTERLOCK WITH FIRE ALARM SYSTEM PER CODE.

EQUIPMENT SCHEDULE

UNIFIED STATE LAB MODULE 2

			LOAD DATA								OVERCURRENT PROTECTION			DISCONNECT			STARTER										
MARK	QTY	ITEM DESCRIPTION	HP	kW	MCA	FLA	VOLT	PH	Hz	WIRE AND CONDUIT SIZE	FURN BY	DEVICE	LOCATION	FURN BY	DEVICE	LOCATION	FURN BY	DEVICE	SIZES	SELECTOR SWITCH	PILOT LAMP	NORMALLY OPEN CONTACT	NORMALLY CLOSED CONTACT	PHASE FAILURE RELAY	NOTES	MARK
P-15	1	PUMP	25	-	-	34	480	3	60	3 #6, #10 GR 1" CND	E	175/3 CB	PMCC-C2	Q	VFD	ADJ TO EQUIP	Q	VFD							1	P-15
P-16	1	PUMP	25	-	-	34	480	3	60	3 #6, #10 GR 1" CND	E	175/3 CB	PMCC-C2	Q	VFD	ADJ TO EQUIP	Q	VFD							1	P-16
P-17	1	PUMP	20	-	-	27	480	3	60	3 #8, #10 GR 1" CND	E	50/3 CB	PMCC2	E	60A/3P NF	ADJ TO EQUIP	E	FVNR	2	HOA	R,G	2	2	YES		P-17
P-18	1	PUMP	20	-	-	27	480	3	60	3 #8, #10 GR 1" CND	E	50/3 CB	PMCC2	E	60A/3P NF	ADJ TO EQUIP	E	FVNR	2	HOA	R,G	2	2	YES		P-18
P-19	1	PUMP	2	-	-	3.4	480	3	60	3 #12, #12GR 0.75" CND	E	20/3 CB	PMCC-C2	E	30A/3P NF	ADJ TO EQUIP	E	FVNR	1	HOA	R,G	2	2	YES	1	P-19
P-20	1	PUMP	3	-	-	4.8	480	3	60	3 #12, #12GR 0.75" CND	E	20/3 CB	PMCC-C2	E	30A/1P NF	ADJ TO EQUIP	E	FVNR	1	HOA	R,G	2	2	YES		P-20
SP-1	1	SUMP PUMP	1/2	-	-	9.8	120	1	60	2 #12, 12 GR 0.75" CND	E	20/1 CB	LMQ2	E	THERMAL SWITCH	ADJ TO EQUIP	E	FVNR	0	HOA	R,G	2	2	NO		SP-1
SP-2	1	SUMP PUMP	1/2	-	-	9.8	120	1	60	2 #12, 12 GR 0.75" CND	E	20/1 CB	LMQ2	E	THERMAL SWITCH	ADJ TO EQUIP	E	FVNR	0	HOA	R,G	2	2	NO		SP-2
UH-1	1	HOT WATER UNIT HEATER (SALLY PORT)	1/8	-	-	4	120	1	60	2 #12, 12 GR 0.75" CND	E	20/1 CB	1LB2	Q			Q									UH-1
UH-2	1	HOT WATER UNIT HEATER (PENTHOUSE)	1/8	-	-	4	120	1	60	2 #12, 12 GR 0.75" CND	E	20/1 CB	LMP	Q			Q									UH-2
UH-3	1	HOT WATER UNIT HEATER (PENTHOUSE)	1/8	-	-	4	120	1	60	2 #12, 12 GR 0.75" CND	E	20/1 CB	LMP	Q			Q									UH-3
UH-4	1	HOT WATER UNIT HEATER (PENTHOUSE)	1/8	-	-	4	120	1	60	2 #12, 12 GR 0.75" CND	E	20/1 CB	LMP	Q			Q									UH-4
UH-5	1	HOT WATER UNIT HEATER (PENTHOUSE)	1/8	-	-	4	120	1	60	2 #12, 12 GR 0.75" CND	E	20/1 CB	LMP	Q			Q									UH-5

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LICENSED PROFESSIONAL ENGINEER
No. 181563
DAVID E. WESEMANN
04-21-2014
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300

Project #: B13-024

DATE:	ISSUE TYPE:
April 21, 2014	BID SET

CHECKED BY	D. WESEMANN
DRAWN BY	DLM

MECHANICAL EQUIPMENT SCHEDULE - MOD 2 BLDG (b)

EP612

VOLUME 2

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EQUIPMENT SCHEDULE KEY

E	DIVISION 26
Q	FURNISHED WITH THE EQUIPMENT OR BY MECHANICAL INSTALLER
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**	AUTOMATIC CONTROL WIRING BY DIVISION 23

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4. PROVIDE SHUNT TRIP FUSIBLE SWITCH AND INTERLOCK WITH FIRE ALARM SYSTEM PER CODE.

EQUIPMENT SCHEDULE

UNIFIED STATE LAB MODULE 2

			LOAD DATA								OVERCURRENT PROTECTION			DISCONNECT			STARTER									
MARK	QTY	ITEM DESCRIPTION	HP	kW	MCA	FLA	VOLT	PH	Hz	WIRE AND CONDUIT SIZE	FURN BY	DEVICE	LOCATION	FURN BY	DEVICE	LOCATION	FURN BY	DEVICE	SIZES	SELECTOR SWITCH	PILOT LAMP	NORMALLY OPEN CONTACT	NORMALLY CLOSED CONTACT	PHASE FAILURE RELAY	NOTES	MARK
B-1	1	HYDRONIC BOILER	5	-	-	7.6	480	3	60	3 #12, #12GR 0.75" CND	E	20/3 CB	1MCCQ2	E	30A/3P NF	ADJ TO EQUIP	E	FVNR	1	HOA	R,G	2	2	YES	1	B-1
B-2	1	HYDRONIC BOILER	5	-	-	7.6	480	3	60	3 #12, #12GR 0.75" CND	E	20/3 CB	1MCCQ2	E	30A/3P NF	ADJ TO EQUIP	E	FVNR	1	HOA	R,G	2	2	YES	1	B-2
B-3	1	HYDRONIC BOILER	5	-	-	7.6	480	3	60	3 #12, #12GR 0.75" CND	E	20/3 CB	1MCCQ2	E	30A/3P NF	ADJ TO EQUIP	E	FVNR	1	HOA	R,G	2	2	YES	1	B-3
CH-1	1	WATER-COOLED CHILLER	-	-	-	411	480	3	60	3 #350, #3/0 GR 3 EA. 3" CND	E	700/3 CB	1MCC2	Q	VFD	ADJ TO EQUIP	Q	VFD							3	CH-1
CH-2	1	WATER-COOLED CHILLER	-	-	-	270	480	3	60	3 #350, #1/0 GR 3" CND	E	450/3 CB	1MCC2	Q	VFD	ADJ TO EQUIP	Q	VFD							3	CH-2
CT-1a	1	COOLING TOWER	25	-	-	34	480	3	60	3 #6, #10 GR 1" CND	E	175/3 CB	1MCC2	Q	VFD	ADJ TO EQUIP	Q	VFD							3	CT-1a
CT-1b	1	COOLING TOWER ACCESSORIES	-	-	-	16	120	1	60	2 #10, 10 GR 0.75" CND	E	40/1 CB	LMP2	E	30A/1P NF	ADJ TO EQUIP	-									CT-1b
CT-2a	1	COOLING TOWER	25	-	-	34	480	3	60	3 #6, #10 GR 1" CND	E	175/3 CB	1MCC2	Q	VFD	ADJ TO EQUIP	Q	VFD							3	CT-2a
CT-2b	1	COOLING TOWER ACCESSORIES	-	-	-	16	120	1	60	2 #10, 10 GR 0.75" CND	E	40/1 CB	LMP2	E	30A/1P NF	ADJ TO EQUIP	-									CT-2b
DEF-5	1	ROOF UPBLAST, DOME EXHAUST FAN	1	-	-	2.1	480	3	60	3 #12, #12GR 0.75" CND	E	20/3 CB	1MCCQ2	Q	VFD	ADJ TO EQUIP	Q	VFD							1,3	DEF-5
DOF-1	1	ROOF FILTERED; DOME OUTSIDE FAN	1/2	-	-	9.8	120	1	60	2 #12, 12 GR 0.75" CND	E	20/1 CB	LMP2	E	30A/1P NF	ADJ TO EQUIP	E	FVNR	0	HOA	R,G	2	2	NO		DOF-1
FCU-1	1	FAN COIL UNIT	.5	-	-	1	480	3	60	3 #12, #12GR 0.75" CND	E	20/3 CB	1MCC2	E	30A/3P NF	ADJ TO EQUIP	E	FVNR	1	HOA	R,G	2	2	YES		FCU-1
FCU-2	1	FAN COIL UNIT	.5	-	-	1	480	3	60	3 #12, #12GR 0.75" CND	E	20/3 CB	1MCC2	E	30A/3P NF	ADJ TO EQUIP	E	FVNR	1	HOA	R,G	2	2	YES		FCU-2
H-1	1	INTAKE HOOD (BOILER ROOM)	-	-	-	4.2	120	1	60	2 #12, 12 GR 0.75" CND	E	20/1 CB	LMQ2	E	30A/1P NF	ADJ TO EQUIP	E	FVNR	0	HOA	R,G	2	2	NO	1	H-1
P-1	1	PUMP	30	-	-	40	480	3	60	3 #6, #10 GR 1" CND	E	70/3 CB	1MCC2	Q	VFD	ADJ TO EQUIP	Q	VFD							3	P-1
P-2	1	PUMP	30	-	-	40	480	3	60	3 #6, #10 GR 1" CND	E	70/3 CB	1MCC2	Q	VFD	ADJ TO EQUIP	Q	VFD							3	P-2
P-3	1	PUMP	30	-	-	40	480	3	60	3 #6, #10 GR 1" CND	E	70/3 CB	1MCC2	Q	VFD	ADJ TO EQUIP	Q	VFD							3	P-3
P-4	1	PUMP	20	-	-	27	480	3	60	3 #8, #10 GR 1" CND	E	50/3 CB	1MCC2	Q	VFD	ADJ TO EQUIP	Q	VFD							3	P-4
P-5	1	PUMP	50	-	-	65	480	3	60	3 #2, #8 GR 1.25" CND	E	125/3 CB	1MCC2	Q	VFD	ADJ TO EQUIP	Q	VFD							3	P-5
P-6	1	PUMP	10	-	-	14	480	3	60	3 #12, #12GR 0.75" CND	E	20/3 CB	1MCC2	E	30A/3P NF	ADJ TO EQUIP	E	FVNR	1	HOA	R,G	2	2	YES		P-6
P-7	1	PUMP	5	-	-	7.6	480	3	60	3 #12, #12GR 0.75" CND	E	20/3 CB	1MCC2	E	30A/3P NF	ADJ TO EQUIP	E	FVNR	1	HOA	R,G	2	2	YES		P-7
P-8	1	PUMP	50	-	-	65	480	3	60	3 #2, #8 GR 1.25" CND	E	100/3 CB	1MCC2	Q	VFD	ADJ TO EQUIP	Q	VFD							3	P-8
P-9	1	PUMP	50	-	-	65	480	3	60	3 #2, #8 GR 1.25" CND	E	100/3 CB	1MCC2	Q	VFD	ADJ TO EQUIP	Q	VFD							3	P-9
P-10	1	PUMP	3	-	-	4.8	480	3	60	3 #12, #12GR 0.75" CND	E	20/3 CB	1MCCQ2	E	30A/1P NF	ADJ TO EQUIP	E	FVNR	1	HOA	R,G	2	2	YES	1	P-10
P-11	1	PUMP	3	-	-	4.8	480	3	60	3 #12, #12GR 0.75" CND	E	20/3 CB	1MCCQ2	E	30A/1P NF	ADJ TO EQUIP	E	FVNR	1	HOA	R,G	2	2	YES	1	P-11
P-12	1	PUMP	3	-	-	4.8	480	3	60	3 #12, #12GR 0.75" CND	E	20/3 CB	1MCCQ2	E	30A/1P NF	ADJ TO EQUIP	E	FVNR	1	HOA	R,G	2	2	YES	1	P-12
P-13	1	PUMP	50	-	-	65	480	3	60	3 #2, #8 GR 1.25" CND	E	125/3 CB	1MCCQ2	Q	VFD	ADJ TO EQUIP	Q	VFD							1,3	P-13
P-14	1	PUMP	50	-	-	65	480	3	60	3 #2, #8 GR 1.25" CND	E	125/3 CB	1MCCQ2	Q	VFD	ADJ TO EQUIP	Q	VFD							1,3	P-14
P-21	1	PUMP	1/2	-	-	9.8	120	1	60	2 #12, 12 GR 0.75" CND	E	20/1 CB	LMP2	E	30A/1P NF	ADJ TO EQUIP	E	FVNR	0	HOA	R,G	2	2	NO		P-21
P-22	1	PUMP	1	-	-	2.1	480	3	60	3 #12, #12GR 0.75" CND	E	20/3 CB	1MCC2	E	30A/3P NF	ADJ TO EQUIP	E	FVNR	1	HOA	R,G	2	2	YES		P-22
P-23	1	PUMP	1	-	-	2.1	480	3	60	3 #12, #12GR 0.75" CND	E	20/3 CB	1MCC2	E	30A/3P NF	ADJ TO EQUIP	E	FVNR	1	HOA	R,G	2	2	YES	1	P-23
UH-6	1	HOT WATER UNIT HEATER (BOILER ROOM)	1/8	-	-	4	120	1	60	2 #12, 12 GR 0.75" CND	E	20/1 CB	LMP2	Q			Q									UH-6
UH-7	1	HOT WATER UNIT HEATER (BOILER ROOM)	1/8	-	-	4	120	1	60	2 #12, 12 GR 0.75" CND	E	20/1 CB	LMP2	Q			Q									UH-7
UH-8	1	HOT WATER UNIT HEATER (CHIILLER ROOM)	1/8	-	-	4	120	1	60	2 #12, 12 GR 0.75" CND	E	20/1 CB	LMP2	Q			Q									UH-8
UH-9	1	HOT WATER UNIT HEATER (CHIILLER ROOM)	1/8	-	-	4	120	1	60	2 #12, 12 GR 0.75" CND	E	20/1 CB	LMP2	Q			Q									UH-9
VP-4	1	VACUUM PUMP	25	-	-	34	480	3	60	3 #6, #10 GR 1" CND	EX	175/3 CB	1MCC	EX	CONTROL PANEL	ADJ TO EQUIP	EX									VP-4
WH-1	1	GAS FIRED WATER HEATER	-	-	-	6.2	120	1	60	2 #12, 12 GR 0.75" CND	E	20/1 CB	LMP2	E	30A/1P NF	ADJ TO EQUIP	E	FVNR	0	HOA	R,G	2	2	NO		WH-1
WH-2	1	GAS FIRED WATER HEATER	-	-	-	6.2	120	1	60	2 #12, 12 GR 0.75" CND	E	20/1 CB	LMP2	E	30A/1P NF	ADJ TO EQUIP	E	FVNR	0	HOA	R,G	2	2	NO		WH-2
WH-3	1	GAS FIRED WATER HEATER	-	-	-	6.2	120	1	60	2 #12, 12 GR 0.75" CND	E	20/1 CB	LMP2	E	30A/1P NF	ADJ TO EQUIP	E	FVNR	0	HOA	R,G	2	2	NO		WH-3
WH-4	1	GAS FIRED WATER HEATER	-	-	-	6.2	120	1	60	2 #12, 12 GR 0.75" CND	E	20/1 CB	LMP2	E	30A/1P NF	ADJ TO EQUIP	E	FVNR	0	HOA	R,G	2	2	NO		WH-4
WS-3	1	WATER SOFTENER	-	-	-	2	120	1	60	2 #12, 12 GR 0.75" CND	E	20/1 CB	LMP2	E	30A/1P NF	ADJ TO EQUIP	E	FVNR	0	HOA	R,G	2	2	YES		WS-3

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MECHANICAL EQUIPMENT SCHEDULE - MOD 1 ADDITION

EP613

VOLUME 2

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PANEL: "1CLA1"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE MAIN LUG	ELEC 100D	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 10,679 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.0	0.2	CO: ELEC 100D	0.2	0.2					CO: ELEV-1 100C	0.2	0.0	0.1	1	20	2
3	20	1	0.0	1.0	0.0	PWR: ADA DOOR VEST 100			1.0	0.0			PWR: FSD TOILET 137, 139	0.0	0.0	0.0	1	20	4
5	20	1	--	--	--	SPARE					0.0	0.1	PWR: FSD HALL 130Q	0.0	0.1	0.0	1	20	6
7	20	1	--	--	--	SPARE	0.0	1.9					PWR: MECH CTRL POWER	0.0	1.9	0.0	1	20	8
9	20	1	--	--	--	SPARE			0.0	1.9			PWR: MECH CTRL POWER	0.0	1.9	0.0	1	20	10
11	20	1	--	--	--	SPARE					0.0	1.9	PWR: MECH CTRL POWER	0.0	1.9	0.0	1	20	12
13	20	1	--	--	--	SPARE	0.0	1.9					PWR: MECH CTRL POWER	0.0	1.9	0.0	1	20	14
15	20	1	--	--	--	SPARE			0.0	1.9			PWR: MECH CTRL POWER	0.0	1.9	0.0	1	20	16
17	20	1	--	--	--	SPARE					0.0	1.9	PWR: MECH CTRL POWER	0.0	1.9	0.0	1	20	18
19	20	1	--	--	--	SPARE	0.0	1.9					PWR: MECH CTRL POWER	0.0	1.9	0.0	1	20	20
21	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	22
23	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	24
25	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	28
29	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42

TOTALS:		A	B	C		
	CONNECTED kVA PER PHASE	**6**	**5**	**4**	CONNECTED TOTAL kVA =	**15**
	CONNECTED AMPS PER PHASE	**52**	**42**	**32**	AVERAGE CONNECTED AMPS PER PHASE =	**41**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **0.1 kVA @ 125% = 0.1 kVA** - 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL kVA = **15**

RECEPTACLES: **0.4 kVA @ 100% = 0.4 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = **41**

ALL OTHER LOADS @ 100% : **14.4 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "1CLB2"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE MAIN CB	VEST 100R	RECESSED	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 11,180 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.7	0.0	PWR: SLIDNG DOOR TSSE RCVRY	0.7	0.2					CO: SLY PRT - EMER DOOR EXT...	0.2	0.0	0.0	1	20	2
3	20	1	0.0	1.1	0.0	PWR: SLIDING DOORS X-RAY 124B			1.1	1.8			PWR: (ME5) BODY RCV/RLSE 119	0.0	1.8	0.0	1	20	4
5	20	1	0.0	0.0	0.4	CO: TISSUE RECOVERY 123					0.4	2.8	PWR: (ME1) AUTOPSY 124A	0.0	2.8	0.0	1	20	6
7	20	1	0.0	0.0	0.2	CO: CHEST FRZR TISSUE RCVRY...	0.2	1.1					PWR: (ME8-A) OPEN SPACE 100S	0.0	1.1	0.0	1	40	8
9	20	1	0.0	0.0	0.4	CO: AUTOPSY 124A			0.4	1.7			PWR: (ME9-A) OPEN SPACE100S	0.0	1.7	0.0	1	20	10
11	20	1	0.0	0.3	0.0	PWR: (ME8-B) OPEN SPACE100S					0.3	0.2	CO: SALLY PORT 121	0.2	0.0	0.0	1	20	12
13	20	1	0.0	1.4	0.0	PWR: (ME9-B) OPEN SPACE100S	1.4	1.9					PWR: (ME7-B) AUTOPSY 124A	0.0	1.9	0.0	1	20	14
15	20	1	0.0	0.0	0.4	CO: BODY RECEIVING/RELEASE 119			0.4	0.4			CO: BODY RECEIVING/RELEASE 119	0.4	0.0	0.0	1	20	16
17	20	1	0.0	0.0	0.2	CO: PROPERTY LOCKERS 118					0.2	0.2	CO: TISSUE RECOVERY 123	0.2	0.0	0.0	1	20	18
19	20	1	0.0	1.9	0.0	PWR: MECH CTRL POWER	1.9	0.2					CO: SPECIAL PROCEDURE AUTOPSY...	0.2	0.0	0.0	1	20	20
21	20	1	0.0	1.9	0.0	PWR: MECH CTRL POWER			1.9	0.2			CO: VEST 100R	0.2	0.0	0.0	1	20	22
23	20	1	0.0	0.7	0.0	PWR: SLIDING DOORS LCKRS 118					0.7	1.0	PWR: OH DOOR SALLY PORT 121	0.0	2.9	0.0	3	20	24
25	20	3	0.0	2.9	0.0	PWR: OH DOOR SALLY PORT 121	1.0	1.0					--	--	--	--	--	--	26
27	--	--	--	--	--	--			1.0	1.0			--	--	--	--	--	--	28
29	--	--	--	--	--	--					1.0	1.0	PWR: OH DOOR SALLY PORT 121	0.0	2.9	0.0	3	20	30
31	20	3	0.0	2.9	0.0	PWR: OH DOOR SALLY PORT 121	1.0	1.0					--	--	--	--	--	--	32
33	--	--	--	--	--	--			1.0	1.0			--	--	--	--	--	--	34
35	--	--	--	--	--	--					1.0	1.0	PWR: OH DOOR SALLY PORT 121	0.0	2.9	0.0	3	20	36
37	20	1	0.0	1.5	0.0	PWR: LTG ACCESSORIES CIRCUIT	1.5	1.0					--	--	--	--	--	--	38
39	20	1	0.0	1.5	0.0	PWR: LTG ACCESSORIES CIRCUIT			1.5	1.0			--	--	--	--	--	--	40
41	20	1	0.0	1.5	0.0	PWR: LTG ACCESSORIES CIRCUIT					1.5	1.9	PWR: (ME7-A) OPEN SPACE100S	0.0	5.8	0.0	3	20	42
43	20	1	--	--	--	SPARE	0.0	1.9					--	--	--	--	--	--	44
45	20	1	--	--	--	SPARE			0.0	1.9			--	--	--	--	--	--	46
47	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	48
49	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	50
51	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	52
53	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	54
55	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	56
57	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	58
59	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	60
61	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	62
63	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	64
65	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	66
67	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	68
69	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	70
71	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	72
73	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	74
75	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	76
77	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	78
79	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	80
81	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	82
83	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	84

TOTALS:		A	B	C		
	CONNECTED kVA PER PHASE	**16**	**16**	**13**	CONNECTED TOTAL kVA =	**45**
	CONNECTED AMPS PER PHASE	**137**	**138**	**108**	AVERAGE CONNECTED AMPS PER PHASE =	**125**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **0.0 kVA @ 125% = 0.0 kVA** - 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL kVA = **45**

RECEPTACLES: **2.7 kVA @ 100% = 2.7 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = **125**

ALL OTHER LOADS @ 100% : **42.2 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "1CLB1"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE MAIN LUG	ELECTRICAL 100M	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 11,536 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.0	0.4	CO: ROOM 100L, 100M	0.4	0.2					CO: ELEV-2 100Q	0.2	0.0	0.1	1	20	2
3	20	1	0.0	0.0	0.7	CO: I.T. 100G			0.7	0.7			CO: I.T. 100G	0.7	0.0	0.0	1	20	4
5	20	1	0.0	0.0	0.7	CO: I.T. 100G					0.7	0.2	CO: I.T. 100G	0.2	0.0	0.0	1	20	6
7	20	1	0.0	0.0	0.7	CO: I.T. 100F	0.7	0.7					CO: I.T. 100F	0.7	0.0	0.0	1	20	8
9	20	1	0.0	0.0	0.7	CO: I.T. 100F			0.7	0.2			CO: I.T. 100F	0.2	0.0	0.0	1	20	10
11	20	1	0.0	0.5	0.0	PWR: BMS I.T. 100F					0.5	0.8	PWR: RACK I.T. 100G	0.0	1.5	0.0	2	20	12
13	20	1	0.0	0.5	0.0	PWR: BMS I.T. 100F	0.5	0.8					--	--	--	--	--	--	14
15	20	1	0.0	0.5	0.0	PWR: BMS I.T. 100F			0.5	0.8			PWR: RACK I.T. 100G	0.0	1.5	0.0	2	20	16
17	20	1	0.0	1.0	0.0	BMS PANEL I.T. 100F					1.0	0.8	--	--	--	--	--	--	18
19	20	1	0.0	1.0	0.0	BMS PANEL I.T. 100G	1.0	0.8					PWR: RACK I.T. 100G	0.0	1.5	0.0	2	20	20
21	20	1	0.0	0.5	0.0	PWR: BMS I.T. 100G			0.5	0.8			--	--	--	--	--	--	22
23	20	1	0.0	0.5	0.0	PWR: BMS I.T. 100G					0.5	0.8	PWR: RACK I.T. 100G	0.0	1.5	0.0	2	20	24
25	20	1	0.0	0.5	0.0	PWR: BMS I.T. 100G	0.5	0.8					--	--	--	--	--	--	26
27	20	1	0.0	0.0	0.7	CO: I.T. 100G			0.7	0.8			PWR: RACK I.T. 100G	0.0	1.5	0.0	2	20	28
29	20	1	0.0	0.0	0.5	CO: ELECTRICAL 100M					0.5	0.8	--	--	--	--	--	--	30
31	20	1	0.0	0.0	0.4	CO: LOADING 115	0.4	0.8					PWR: RACK I.T. 100G	0.0	1.5	0.0	2	20	32
33	20	1	0.0	0.5	0.0	PWR: ADA DOOR RM 100N, 100K			0.5	0.8			--	--	--	--	--	--	34
35	20	1	0.0	1.0	0.0	PWR: ADA DOORS RM 100K, 105,...					1.0	1.0	PWR: (OH DOOR) VEB 2-1 113-1	0.0	1.0	0.0	1	20	36
37	20	1	0.0	0.5	0.0	PWR: ADA DOOR VEST 100N	0.5	1.0					PWR: (OH DOOR) VEB 2-2 113-2	0.0	1.0	0.0	1	20	38
39	20	1	0.0	0.1	0.0	PWR: FSD WAREHOUSE 114			0.1	1.0			PWR: (OH DOOR) VEB 2-2 113-2	0.0	1.0	0.0	1	20	40
41	20	1	0.0	0.0	0.2	CO: VEB 2 113					0.2	1.9	PWR: MECH CTRL POWER	0.0	1.9	0.0	1	20	42
43	20	1	0.0	0.0	0.2	CO: VEB 2 113	0.2	1.9					PWR: MECH CTRL POWER	0.0	1.9	0.0	1	20	44
45	20	1	0.0	1.2	0.0	PWR: SLIDING GATE MOTOR			1.2	1.9			PWR: MECH CTRL POWER	0.0	1.9	0.0	1	20	46
47	20	1	--	--	--	SPARE					0.0	1.9	PWR: MECH CTRL POWER	0.0	1.9	0.0	1	20	48
49	20	1	--	--	--	SPARE	0.0	1.9					PWR: MECH CTRL POWER	0.0	1.9	0.0	1	20	50
51	20	1	--	--	--	SPARE			0.0	1.0			PWR: PANEL ACS1 I.T. 100G	0.0	1.0	0.0	1	20	52
53	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	54
55	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	56
57	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	58
59	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	60
61	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	62
63	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	64
65	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	66
67	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	68
69	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	70
71	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	72
73	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	74
75	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	76
77	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	78
79	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	80
81	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	82
83	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	84

TOTALS:		A	B	C		
	CONNECTED kVA PER PHASE	**13**	**13**	**12**	CONNECTED TOTAL kVA =	**35**
	CONNECTED AMPS PER PHASE	**108**	**107**	**104**	AVERAGE CONNECTED AMPS PER PHASE =	**97**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **0.1 kVA @ 125% = 0.1 kVA** - 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL kVA = **35**

RECEPTACLES: **7.2 kVA @ 100% = 7.2 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = **97**

ALL OTHER LOADS @ 100% : **27.8 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "1CLB3"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	150 AMPERE MAIN CB	HALL 126A	RECESSED	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 7,979 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.0	0.4	CO: AUTOPSY 124	0.4	2.8					PWR: ME1 AUTOPSY 124	0.0	2.8	0.0	1	40	2
3	20	1	0.0	0.0	0.4	CO: AUTOPSY 124			0.4	2.8			PWR: ME1 AUTOPSY 124	0.0	2.8	0.0	1	40	4
5	20	1	0.0	0.0	0.4	CO: AUTOPSY 124					0.4	2.8	PWR: ME1 AUTOPSY 124	0.0	2.8	0.0	1	40	6
7	20	1	0.0	0.0	0.4	CO: AUTOPSY 124	0.4	2.8					PWR: ME1 AUTOPSY 124	0.0	2.8	0.0	1	40	8
9	20	1	0.0	0.0	0.4	CO: AUTOPSY 124			0.4	2.8			PWR: ME1 AUTOPSY 124	0.0	2.8	0.0	1	40	10
11	20	1	0.0	0.0	0.4	CO: AUTOPSY 124					0.4	2.8	PWR: ME1 AUTOPSY 124	0.0	2.8	0.0	1	40	12
13	20	1	0.0	0.0	0.4	CO: HISTOLOGY LAB 124D	0.4	0.4					CO: HISTOLOGY LAB 124D	0.4	0.0	0.0	1	20	14
15	20	1	0.0	1.9	0.0	PWR: MECH CTRL POWER			1.9	0.2			CO: AUTOPSY 124	0.2	0.0	0.0	1	20	16
17	20	1	--	--	--	SPARE					0.0	0.4	CO: AUTOPSY 124	0.4	0.0	0.0	1	20	18
19	20	1	--	--	--	SPARE	0.0	0.4					CO: HISTOLOGY LAB 124D	0.4	0.0	0.0	1	20	20
21	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	22
23	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	24
25	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	28
29	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42
43	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	44
45	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	46
47	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	48
49	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	50
51	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	52
53	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	54
55	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	56
57	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	58
59	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	60

TOTALS:		A	B	C		
	CONNECTED kVA PER PHASE	**7**	**8**	**7**	CONNECTED TOTAL kVA =	**22**
	CONNECTED AMPS PER PHASE	**63**	**71**	**56**	AVERAGE CONNECTED AMPS PER PHASE =	**62**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: - 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL kVA = **22**

RECEPTACLES: **3.8 kVA @ 100% = 3.8 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = **62**

ALL OTHER LOADS @ 100% : **18.7 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

CRSA

649 E. South Temple
Salt Lake City, UT 84102
801.355.5915

MWL

11798 N. Lakeridge Pkwy.
Ashland, VA 23005
804-228-7473

State of Utah
Department of Administrative Services
DFCM
Division of Facilities Construction & Management
4110 State Office Building
Salt Lake City, Utah 84114
Phone: (801) 538 - 3018
Fax: (801) 538 - 3267

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
REVIEWED FOR CODE COMPLIANCE
SIGNATURE: Enzo Calfa
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 181563
DAVID E. WESEMANN
04-21-2014
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #:	13020300
Project #:	B13-024
DATE:	ISSUE TYPE:
April 21, 2014	BID SET
CHECKED BY	D. WESEMANN
DRAWN BY	DLM

PANEL SCHEDULES

EP614

VOLUME 2

PANEL: "1EH"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
480/277 V, 3 PH 4 WIRE	22" W x 6" D, FUSIBLE	400 AMPERE FUSE	ELECTRICAL 100M	SURFACE	FUSIBLE

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 38,072 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	2.3	0.0	0.0	LTG: OFFICE TECH/AUTOPSY	2.3	0.3					LTG: STAIR-1 100B (1ERA-1)	0.0	0.0	0.3	1	20	2
3	20	1	2.2	0.0	0.0	LTG: SALLYPORT/RECEIVING			2.2	0.4			LTG: STAIR-2 100F (1ERA-2)	0.0	0.0	0.4	1	20	4
5	20	1	2.2	0.0	0.0	LTG: AUTOPSY RM 124					2.2	0.2	LTG: STAIR-3 100J (1ERA-3)	0.0	0.0	0.2	1	20	6
7	20	1	2.2	0.0	0.0	LTG: AUTOPSY RM 124	2.2	2.1					LTG: LEVEL 1 CORRIDOR (1ERA-4)	0.0	0.0	1.7	1	20	8
9	20	1	2.2	0.0	0.0	LTG: AUTOPSY RM 124			2.2	1.3			LTG: LEVEL 2 CORRIDOR (1ERA-5)	0.0	0.0	1.1	1	20	10
11	20	1	2.2	0.0	0.0	LTG: AUTOPSY RM 124					2.2	0.8	LTG: LEVEL 3 CORRIDOR (1ERA-6)	0.0	0.0	0.7	1	20	12
13	20	1	2.2	0.0	0.0	LTG: AUTOPSY RM 124	2.2	0.5					LTG: NE EXT EGRESS LIGHTS (1ERA-7)	0.0	0.0	0.5	1	20	14
15	20	1	2.2	0.0	0.0	LTG: AUTOPSY RM 124			2.2	0.0			SPARE	--	--	--	1	20	16
17	20	1	2.2	0.0	0.0	LTG: AUTOPSY RM 124					2.2	2.3	LTG: VEB/WAREHOUSE (1ERA-8)	0.0	0.0	2.3	1	20	18
19	20	1	2.2	0.0	0.0	LTG: AUTOPSY RM 124	2.2	0.7					LTG: TUNNEL	0.0	0.0	0.7	1	20	20
21	20	1	2.2	0.0	0.0	LTG: AUTOPSY RM 124			2.2	0.0			SPARE	--	--	--	1	20	22
23	20	1	2.2	0.0	0.0	LTG: AUTOPSY RM 124					2.2	1.4	LTG: TISSUE RECOVERY 123	0.0	0.0	1.4	1	20	24
25	20	1	2.4	0.0	0.0	LTG: AUTOPSY RM 124	2.4	1.4					LTG: TISSUE RECOVERY 123	0.0	0.0	1.4	1	20	26
27	20	1	2.4	0.0	0.0	LTG: SPEC PRDCR AUTPSY RM...			2.4	1.6			LTG: EVID VAULT, ELEC 206,200D	0.0	0.0	1.6	1	20	28
29	20	1	2.4	0.0	0.0	LTG: SPEC PRDCR AUTPSY RM...					2.4	1.8	LTG: AMP, EXTRCTNS RM 214,215	0.0	0.0	1.8	1	20	30
31	20	1	1.4	0.0	0.0	LTG: BATHS, OPEN OFFICES 201-4	1.4	1.5					LTG: RM 212, 212C, 211A, 211B, 211	0.0	0.0	1.5	1	20	32
33	20	1	1.6	0.0	0.0	LTG: EVIDENCE RECEIVING 208B			1.6	2.3			LTG: BIO/SEROLOGY, TRACE RM 213,A	0.0	0.0	2.3	1	20	34
35	20	1	1.9	0.0	0.0	LIGHTING CHEMISTRY / TRACE 211					1.9	1.6	LTG: WET CHEM, GRIND RM 314,315	0.0	0.0	1.6	1	20	36
37	20	1	--	--	--	SPARE	0.0	1.7					LTG: PEST LABS/CHEM OFFICE	0.0	0.0	1.7	1	20	38
39	20	1	--	--	--	SPARE			0.0	2.2			LTG: LEVEL 3 CORE RMS/DAIRY LABS	0.0	0.0	2.2	1	20	40
41	20	1	--	--	--	SPARE					0.0	1.5	LTG: MEAT LAB 313	0.0	0.0	1.5	1	20	42
43	20	1	--	--	--	SPARE	0.0	1.0					LTG: PENTHOUSE	0.0	0.0	1.0	1	20	44
45	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	46
47	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	48
49	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	50
51	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	52
53	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	54
55	20	3	0.0	0.8	0.0	MTR: FC-4 ELECTRICAL 100M	0.3	3.0					PANEL 1EL THRU XFMR T1E	0.0	18.0	0.0	3	50	56
57	--	--	--	--	--	--			0.3	7.5			--	--	--	--	--	--	58
59	--	--	--	--	--	--					0.3	7.5	--	--	--	--	--	--	60
61	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	62
63	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	64
65	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	66
67	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	68
69	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	70
71	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	72
73	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	74
75	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	76
77	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	78
79	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	80
81	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	82
83	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	84
TOTALS:						CONNECTED kVA PER PHASE	**25**		**28**		**30**		CONNECTED TOTAL kVA = **81**						
						CONNECTED AMPS PER PHASE	**91**		**103**		**111**		AVERAGE CONNECTED AMPS PER PHASE = **97**						

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **64.1 kVA @ 125% = 80.2 kVA** - 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL kVA = **97**

RECEPTACLES: - FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = **117**

ALL OTHER LOADS @ 100% : **16.0 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "1HB"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
480/277 V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE LUG	ELECTRICAL 100L	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 41,639 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	2.3	0.0	0.0	LTG: SW OFCS 130A-K, STOR 126B	2.2	2.9					LTG: HALL 100K (1RB-1)	0.0	0.0	2.9	1	20	2
3	20	1	2.3	0.0	0.0	LTG: SW LARGE OPEN OFFICE			2.3	0.0			LTG: EXTERIOR CANOPY (1RB-2)	0.0	0.0	0.0	1	20	4
5	20	1	1.8	0.0	0.0	LTG: BRK RM, BATHROOMS, 104-106					1.8	0.4	LTG: NW EXTERIOR LIGHTS (1RB-3)	0.0	0.0	0.3	1	20	6
7	20	1	2.4	0.0	0.0	LTG: VEB 1 112	2.4	1.0					LTG: DRIVEWAY SITE LIGHTS (1RB-4)	0.0	0.0	1.0	1	20	8
9	20	1	2.4	0.0	0.0	LTG: VEB 2 113			2.4	1.4			LTG: DRIVEWAY SITE LIGHTS (1RB-5)	0.0	0.0	1.4	1	20	10
11	20	1	1.9	0.0	0.0	LTG: BODY RECEIVING/RELEASE...					1.9	1.4	LTG: DRIVEWAY SITE LIGHTS (1RB-6)	0.0	0.0	1.4	1	20	12
13	20	1	2.1	0.0	0.0	LTG: LOCKER ROOMS, HISTLGY...	2.1	1.0					LTG: BACK PRKNG CANOPY (1RB-7)	0.0	0.0	1.0	1	20	14
15	20	1	2.2	0.0	0.0	LTG: SALLY PORT 121			2.2	1.5			LTG: OFFICES, CONF; ROOM 102A-F	0.0	0.0	1.5	1	20	16
17	20	1	1.9	0.0	0.0	LTG: PROPERTY LOCKERS 118					1.9	3.3	LTG: HDLE, FAM, OFCS, ARCH, CONF	0.0	0.0	3.3	1	20	18
19	20	1	1.4	0.0	0.0	LTG: X-RAY & SPEC AUTOPSY...	1.4	2.1					LTG: VEB SUPPORT AREA,...	0.0	0.0	2.2	1	20	20
21	20	1	1.1	0.0	0.0	LTG: RECEIVING VEST, NGT RM 117			1.1	2.9			LTG: AUTOPSY CIRCULATION 124	0.0	0.0	2.9	1	20	22
23	20	3	0.0	1.2	0.0	MTR: DEF-4 SALLY PORT 121					0.4	0.8	LTG: MORGUE TECH 120	0.0	0.0	0.8	1	20	24
25	--	--	--	--	--	--	0.4	0.0					SPARE	--	--	--	1	20	26
27	--	--	--	--	--	--			0.4	0.0			SPARE	--	--	--	1	20	28
29	20	1	2.4	0.0	0.0	LTG: VEB EXTERIOR CANOPY					2.4	0.0	SPARE	--	--	--	1	20	30
31	20	3	0.0	0.8	0.0	MTR: FC-3 ELECTRICAL 100L	0.3	0.0					SHUNT TRIP	--	--	--	1	20	32
33	--	--	--	--	--	--			0.3	3.2			MTR: (AC-1) VEB 2 113	0.0	9.5	0.0	3	20	34
35	--	--	--	--	--	--					0.3	3.2	--	--	--	--	--	--	36
37	20	1	--	--	--	SPARE	0.0	3.2					--	--	--	--	--	--	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42
43	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	44
45	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	46
47	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	48
49	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	50
51	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	52
53	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	54
55	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	56
57	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	58
59	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	60
TOTALS:						CONNECTED kVA PER PHASE	**19**		**18**		**18**		CONNECTED TOTAL kVA = **55**						
						CONNECTED AMPS PER PHASE	**69**		**64**		**64**		AVERAGE CONNECTED AMPS PER PHASE = **66**						

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **43.0 kVA @ 125% = 53.8 kVA** - 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL kVA = **68**

RECEPTACLES: - FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = **81**

ALL OTHER LOADS @ 100% : **13.9 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "1EL"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	100 AMPERE MAIN FUSE	ELECTRICAL 100M	SURFACE	FUSIBLE

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 21,067 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.5	0.0	FIRE ALARM PNL FSA - LOBBY 100A	0.5	0.5					FIRE ALARM PANEL FCP IT 100G	0.0	0.5	0.0	1	20	2
3	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	4
5	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	6
7	20	1	0.0	0.5	0.0	FIRE ALARM PANEL FSA - VEST...	0.5	0.5					FIRE ALARM PANEL FPS - IT 200B	0.0	0.5	0.0	1	20	8
9	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	10
11	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	12
13	20	1	0.0	0.5	0.0	PWR: (PAFP) - HALL 200K	0.5	0.5					FIRE ALARM PANEL FPS - IT 300D	0.0	0.5	0.0	1	20	14
15	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	16
17	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	18
19	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	20
21	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	22
23	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	24
25	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	28
29	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	7.5			PWR: GEN AUXILIARY PANEL	0.0	15.0	0.0	2	20	40
41	20	1	--	--	--	SPARE					0.0	7.5	--	--	--	--	--	--	42
TOTALS:						CONNECTED kVA PER PHASE	**3**		**8**		**8**		CONNECTED TOTAL kVA = **15**						
						CONNECTED AMPS PER PHASE	**25**		**68**		**68**		AVERAGE CONNECTED AMPS PER PHASE = **42**						

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: - 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL kVA = **15**

RECEPTACLES: - FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = **42**

ALL OTHER LOADS @ 100% : **15.0 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "1LA1"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE MAIN LUG	ELEC 100D	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 10,071 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.0	1.1	CO: ROOM 130G, 130H	1.1	0.4					CO: OPEN OFFICE CNTR-TOP RM 130	0.4	0.0	0.0	1	20	2
3	20	1	0.0	0.0	1.3	CO: ROOM 130J, 130K			1.3	0.7			CO: OPEN OFFICE CNTR-TOP RM 130	0.7	0.0	0.0	1	20	4
5	20	1	0.0	0.0	1.1	CO: ROOM 130F, 130E					1.1	0.9	PWR/CO: AV MONITOR CONF 133	0.4	0.5	0.0	1	20	6
7	20	1	0.0	0.0	1.1	CO: ROOM 130D, 130C	1.1	0.5					CO: ROOM 101A, 101	0.5	0.0	0.0	1	20	8
9	20	1	0.0	0.0	1.1	CO: ROOM 130N, 130M			1.1	0.5			CO: ASSIST 102	0.5	0.0	0.0	1	20	10
11	20	1	0.0	0.0	0.5	CO: MANAG. SERVICE COOR. 130L					0.5	0.4	CO: HALL 102J	0.4	0.0	0.0	1	20	12
13	20	1	0.0	0.0	1.3	CO: ROOM 102A, 102B	1.3	0.9					CO: ROOM 100B, 100A, 100K, 103	0.9	0.0	0.0	1	20	14
15	20	1	0.0	0.0	1.1	CO: ROOM 102C, 102D			1.1	0.4			CO: ROOM 139, 137	0.4	0.0	0.0	1	20	16
17	20	1	0.0	0.0	1.1	CO: ROOM 102E, 102H					1.1	0.5	CO: HUDDLE 134	0.5	0.0	0.0	1	20	18
19	20	1	0.0	0.0	0.5	CO: OFFICE TECH 130	0.5	0.7					CO: RECEPTION STATION 130P	0.7	0.0	0.0	1	20	20
21	20	1	0.0	0.8	0.0	PWR: AV RACK CONF ROOM 102F			0.8	1.5			CO: RECEPTION STATION 130P	0.0	1.5	0.0	1	20	22
23	20	1	0.0	0.0	0.4	CO: RECEPTION STATION 130P					0.4	0.7	PWR/CO: LOBBY 100A	0.2	0.5	0.0	1	20	24
25	20	1	0.0	0.0	0.4	CO: ROOM 138A, 138	0.4	0.9					PWR/CO: FAMILY 136	0.4	0.5	0.0	1	20	26
27	20	1	0.0	0.5	0.4	PWR/CO: FAMILY 135			0.9	0.7			CO: ROOM 130Q, 132	0.7	0.0	0.0	1	20	28
29	20	1	0.0	0.7	0.0	CO: LOBBY 100A					0.7	0.9	CO: ROOM 100K, 102J, 102G, 102	0.9	0.0	0.0	1	20	30
31	20	1	0.1	0.0	0.4	CO/LTG: CONFERENCE ROOM 102F	0.4	0.5					PWR: AV MNT CONF RM 102F	0.0	0.5	0.0	1	20	32
33	20	1	0.0	0.0	1.0	PWR: SCREEN AND PROJECTOR			1.0	0.2			CO: CONFERENCE ROOM 102F	0.2	0.0	0.0	1	20	34
35	20	1	0.0	0.0	1.0	PWR: SCREEN AND PROJECTOR					1.0	0.7	CO: ROOM 131A, 131	0.2	0.5	0.0	1	20	36
37	20	1	0.0	0.0	0.7	CO: ROOM 126B, 130	0.7	0.5					CO: CONFERENCE 131	0.5	0.0	0.0	1	20	38
39	20	1	0.0	0.0	0.7	CO: ASSIT. ME 130A			0.7	0.4			CO: OFFICE TECH 130	0.4	0.0	0.0	1	20	40
41	20	1	0.0	0.0	0.4	CO: MAIL 103					0.4	0.2	PWR: HEAT TRACE (NOTE 1)	0.0	0.2	0.0	1	20	42
43	20	1	0.0	0.3	0.0	PWR: FURNITURE	0.3	0.5					PWR: FURNITURE	0.0	0.5	0.0	1	20	44
45	20	3	0.0	0.8	0.0	PWR: FURNITURE			0.3	0.4			PWR: FURNITURE	0.0	1.1	0.0	3	20	46
47	--	--	--	--	--	--					0.3	0.4	--	--	--	--	--	--	48
49	--	--	--	--	--	--	0.3	0.4					--	--	--	--	--	--	50
51	20	1	0.0	0.0	0.2	CO: EXT WEST ENTRANCE			0.2	0.3			PWR: FURNITURE	0.0	0.3	0.0	1	20	52
53	20	1	0.0	1.1	0.0	MTR: (CUH-1) VEST 100					1.1	0.3	PWR: FURNITURE	0.0	0.8	0.0	3	20	54
55	20	1	0.0	1.1	0.0	MTR: (CUH-2) STAIR-1 100B	1.1	0.3					--	--	--	--	--	--	56
57	20	1	0.0	0.0	0.2	CO: MEETING 101			0.2	0.3			--	--	--	--	--	--	58
59	20	1	0.0	0.5	0.0	PWR: AV MONITOR HUDDLE 102H					0.5	0.7	PWR/CO: AV MONITOR HUDDLE 134	0.2	0.5	0.0	1	20	60
61	20	1	0.0	0.5	0.0	PWR: FLR BOX CONF 133	0.5	0.8					PWR: AV RACK LIBRARY 131A	0.0	0.8	0.0	1	20	62
63	20	1	0.0	1.5	0.0	PWR: SPACE SAVER EVID...			1.5	0.0			SPARE	--	--	--	1	20	64
65	20	1	0.0	1.5	0.0	PWR: SPACE SAVER ARCHIVE 132					1.5	0.0	SPARE	--	--	--	1	20	66
67	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	68
69	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	70
71	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	72
73	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	74
75	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	76
77	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	78
79	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	80
81	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	82
83	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	84
TOTALS:						CONNECTED kVA PER PHASE	**14**		**14**		**14**		CONNECTED TOTAL kVA = **42**						
						CONNECTED AMPS PER PHASE	**117**		**118**		**117**		AVERAGE CONNECTED AMPS PER PHASE = **117**						

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **0.1 kVA @ 125% = 0.1 kVA** - 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL kVA = **35**

RECEPTACLES: **24.7 kVA @ 70% = 17.3 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = **98**

ALL OTHER LOADS @ 100% : **17.8 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

Notes:

1. 30mA GFCI CIRCUIT BREAKER.

CRSA

649 E. South Temple
Salt Lake City, UT 84102
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MWL

11798 N. Lakeridge Pkwy.
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State of Utah
Department of Administrative Services
Division of Facilities Construction & Management
DFCM
4110 State Office Building
Salt Lake City, Utah 84114
Phone: (801) 538 - 3018
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DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
REVIEWED FOR CODE COMPLIANCE
SIGNATURE: Enzo Calfa
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 181563
DAVID E. WESEMANN
04-21-2014
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #:	13020300
Project #:	B13-024
DATE:	ISSUE TYPE:
April 21, 2014	BID SET
CHECKED BY	D. WESEMANN
DRAWN BY	DLM

PANEL SCHEDULES

EP615

VOLUME 2

C:\Users\jpm\Desktop\Revit Local Files\2013\20130362Elec Central_jpm.rvt
4/25/2014 3:06:26 PM

PANEL: "1LB1"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE MAIN LUG	ELECTRICAL 100L	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 14,655 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.0	0.2	CO: WOMEN'S LOCKERS 128	0.2	1.1					CO: HALL 100K	1.1	0.0	0.0	1	20	2
3	20	1	0.0	0.0	0.2	CO: MEN'S LOCKERS 127			0.2	0.7			PWR: DRINKING FNTN HALL 100K	0.0	0.7	0.0	1	20	4
5	20	1	0.0	0.0	0.4	CO VEB 2 113					0.4	0.4	CO: WOMEN'S BATHROOM 105	0.4	0.0	0.0	1	20	6
7	20	1	0.0	0.0	0.4	CO: MEN'S BATHROOM 106	0.4	0.7					CO: ROOM 100J, 100K	0.7	0.0	0.0	1	20	8
9	20	1	0.0	0.8	0.0	PWR: HEAT TRACE (NOTE 1)			0.8	0.4			CO: ROOM 100E, 104B	0.4	0.0	0.0	1	20	10
11	20	1	0.0	0.0	0.8	CO: VEND MACHINE BREAK RM 104					0.8	0.5	CO: PENINSULA BREAK ROOM 104	0.5	0.0	0.0	1	20	12
13	20	1	0.0	0.0	0.4	CO: CNTR-TOP BREAK ROOM 104	0.4	0.8					PWR: DISP BREAK ROOM 104	0.0	0.8	0.0	1	20	14
15	20	1	0.0	0.0	0.4	CO: CNTR-TOP BREAK ROOM 104			0.4	1.2			PWR: REF BREAK ROOM 104	0.0	1.2	0.0	1	20	16
17	20	1	0.0	1.2	0.0	PWR: REF BREAK ROOM 104					1.2	0.7	CO: WAREHOUSE 114	0.7	0.0	0.0	1	20	18
19	20	1	0.0	0.0	0.5	CO: ROOM 107, 109, 108	0.5	0.4					CO: ROOM 111C, 111A	0.4	0.0	0.0	1	20	20
21	20	1	0.0	1.5	0.0	PWR: WASHER LAUNDRY 111A			1.5	0.8			CO: TRAINING ROOM 111	0.7	0.1	0.0	1	20	22
23	20	1	0.0	1.9	0.0	PWR: DRYER LAUNDRY 111A					1.9	0.4	CO: VEB 2 113	0.4	0.0	0.0	1	20	24
25	20	1	0.0	0.0	0.5	CO: ROOM 100P, 115, 100N	0.5	0.4					CO: VEB 2 113	0.4	0.0	0.0	1	20	26
27	20	1	0.0	0.0	0.2	CO: VEB 1 113			0.2	0.2			CO: VEB 2 113	0.2	0.0	0.0	1	20	28
29	20	1	0.0	0.0	0.4	CO: VEB 1 113					0.4	0.4	CO: VEB 2 113	0.4	0.0	0.0	1	20	30
31	20	1	0.0	0.0	0.5	CO: ROOM 111B, 110	0.5	0.2					CO: VEB 2 113	0.2	0.0	0.0	1	20	32
33	20	1	0.0	0.0	0.5	CO: EXT VEB CANOPY 1			0.5	0.4			CO: VEB 2 113	0.4	0.0	0.0	1	20	34
35	20	1	0.0	0.0	0.4	CO: EXT VEB CANOPY 2					0.4	0.4	CO: VEB 2 113	0.4	0.0	0.0	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.2					CO: DROP CORD VEB 2 113	0.2	0.0	0.0	1	20	38
39	20	1	0.0	0.0	0.2	CO: BIO WASTE 115B			0.2	0.2			CO: DROP CORD VEB 2 113	0.2	0.0	0.0	1	20	40
41	20	1	0.0	0.5	0.0	PWR: TV MNTR TRAINING ROOM...					0.5	0.2	CO: DROP CORD VEB 2 113	0.2	0.0	0.0	1	20	42
43	20	1	0.0	1.1	0.0	PWR: HEAT TRACE (NOTE 1)	1.1	0.2					CO: DROP CORD VEB 2 113	0.2	0.0	0.0	1	20	44
45	20	1	0.0	0.0	0.7	CO: ROOM 105, 106			0.7	0.2			CO: DROP CORD VEB 2 113	0.2	0.0	0.0	1	20	46
47	20	1	0.0	0.0	0.4	CO: EAST EXT. OUTLETS					0.4	0.2	CO: DROP CORD VEB 2 113	0.2	0.0	0.0	1	20	48
49	20	1	0.0	0.0	0.2	CO: LOCKER LTG MENS 127	0.2	0.2					CO: DROP CORD VEB 2 113	0.2	0.0	0.0	1	20	50
51	20	1	0.0	0.0	0.2	CO: DROP CORD VEB 1 113			0.2	0.2			CO: DROP CORD VEB 2 113	0.2	0.0	0.0	1	20	52
53	20	1	0.0	0.0	0.2	CO: DROP CORD VEB 1 113					0.2	0.2	PWR: IRRIGATION CONTROLLER	0.0	0.2	0.0	1	20	54
55	20	1	0.0	0.0	0.2	CO: DROP CORD VEB 1 113	0.2	0.4					CO: ROOM 116A, 116	0.4	0.0	0.0	1	20	56
57	20	1	0.0	0.0	0.2	CO: DROP CORD VEB 1 113			0.2	0.2			CO: LOCKER LTG WOMENS 128	0.2	0.0	0.0	1	20	58
59	20	1	0.0	0.0	0.2	CO: DROP CORD VEB 1 113					0.2	0.6	PWR: (CS1) VEB 1 113	0.0	0.6	0.0	1	20	60
61	20	1	0.0	0.0	0.2	CO: DROP CORD VEB 1 113	0.2	0.8					CO: VEND MACHINE BREAK RM 104	0.8	0.0	0.0	1	20	62
63	20	1	0.0	0.0	0.2	CO: DROP CORD VEB 1 113			0.2	0.4			CO: VEB 1 113	0.4	0.0	0.0	1	20	64
65	20	1	0.0	0.0	0.2	CO: DROP CORD VEB 1 113					0.2	0.0	SPARE	--	--	--	1	20	66
67	20	1	0.0	0.0	0.2	CO: VEB CANOPY DROP CORD 1	0.2	0.2					CO: DFCM STORAGE 116	0.2	0.0	0.0	1	20	68
69	20	1	0.0	0.0	0.2	CO: VEB CANOPY DROP CORD 1			0.2	0.2			PWR: VEB 2 113	0.4	0.0	0.0	2	20	70
71	20	1	0.0	0.0	0.2	CO: VEB CANOPY DROP CORD 1					0.2	0.2	--	--	--	--	--	--	72
73	20	1	0.0	0.0	0.2	CO: VEB CANOPY DROP CORD 1	0.2	0.2					PWR: CARTS VEB 2 113	0.4	0.0	0.0	2	20	74
75	20	1	0.0	0.0	0.2	CO: VEB CANOPY DROP CORD 2			0.2	0.2			--	--	--	--	--	--	76
77	20	1	0.0	0.0	0.2	CO: VEB CANOPY DROP CORD 2					0.2	1.1	MTR: CUH-3 STAIR-2 100P	0.0	1.1	0.0	1	20	78
79	20	1	0.0	0.0	0.2	CO: VEB CANOPY DROP CORD 2	0.2	1.1					MTR: CUH-4 VEST 100H	0.0	1.1	0.0	1	20	80
81	20	1	0.0	0.0	0.2	CO: VEB CANOPY DROP CORD 2			0.2	1.1			MTR: CUH-5 STAIR-3 100J	0.0	1.1	0.0	1	20	82
83	20	1	--	--	--	SPARE					0.0	1.4	LTG: VEB 2 113	0.0	0.0	1.4	1	20	84
85	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	86
87	20	1	1.3	0.0	0.0	LTG: VEB 2 113			1.3	0.0			SPARE	--	--	--	1	20	88
89	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	90
91	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	92
93	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	94
95	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	96
97	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	98
99	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	100
101	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	102
103	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	104
105	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	106
107	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	108
109	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	110
111	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	112
113	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	114
115	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	116
117	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	118
119	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	120

TOTALS:	A	B	C	
CONNECTED kVA PER PHASE	11	13	13	CONNECTED TOTAL kVA = 38
CONNECTED AMPS PER PHASE	94	111	113	AVERAGE CONNECTED AMPS PER PHASE = 104

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **2.7 kVA @ 125% = 3.4 kVA** - 100% CONNECTED LOAD PLUS 25% — DIVERSIFIED TOTAL kVA = **33**

RECEPTACLES: **21.0 kVA @ 74% = 15.5 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% — AVERAGE AMPS PER PHASE = **92**

ALL OTHER LOADS @ 100% : **14.1 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

Notes:

1. 30 mA GFCI CIRCUIT BREAKER.

PANEL: "1LB2"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	150 AMPERE MAIN CB	VEST 100R	RECESSED	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 14,655 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.0	0.4	CO: PROPERTY LOCKERS 118	0.4	0.5					CO: NIGHT ROOM 117	0.5	0.0	0.0	1	20	2
3	20	1	0.0	0.0	1.5	CO: PROPERTY LOCKERS 118			1.5	0.4			CO: TOILET 117A	0.4	0.0	0.0	1	20	4
5	20	2	0.0	0.0	0.4	PWR: PROPERTY LOCKERS 118					0.2	0.5	PWR: NIGHT ROOM 117	0.0	0.5	0.0	1	20	6
7	--	--	--	--	--	--	0.2	1.8					PWR: (ME10) SALLYPORT 121	0.0	1.8	0.0	1	20	8
9	20	1	0.0	0.0	0.4	CO: BODY RECEIVING/RELEASE 119			0.4	0.4			CO: EXT SALLYPORT 121	0.4	0.0	0.0	1	20	10
11	20	1	0.0	0.0	0.4	CO: BODY RECEIVING/RELEASE 119					0.4	0.4	CO: SALLY PORT 121	0.4	0.0	0.0	1	20	12
13	20	1	0.0	0.0	0.5	CO: ROOM 122, 122B	0.5	0.4					CO: SALLY PORT 121	0.4	0.0	0.0	1	20	14
15	20	1	0.0	0.0	0.4	CO: TISSUE RECOVERY 123			0.4	0.5			PWR: EX-HOOD SPCL PROC ATPY 124A	0.0	0.5	0.0	1	20	16
17	20	1	0.0	0.0	0.4	CO: TISSUE RECOVERY 123					0.4	0.5	CO: VEST 100R	0.5	0.0	0.0	1	20	18
19	20	1	0.0	0.0	0.2	CO: DROP CORD AUTOPSY 124A	0.2	0.4					CO: ROOM 100S, 124A	0.4	0.0	0.0	1	20	20
21	20	1	0.0	0.0	0.2	CO: DROP CORD AUTOPSY 124A			0.2	0.0			SPARE	--	--	--	1	20	22
23	20	1	0.0	0.0	0.2	CO: DROP CORD AUTOPSY 124A					0.2	0.5	MOTOR SALLY PORT-1 121-1	0.0	0.5	0.0	1	20	24
25	20	1	0.0	0.0	0.2	CO: DROP CORD AUTOPSY 124A	0.2	0.0					SPARE	--	--	--	1	20	26
27	20	1	0.0	0.5	0.0	PWR: AUTOPSY 124A			0.5	0.7			CO: X-RAY 124B	0.7	0.0	0.0	1	20	28
29	20	1	0.0	0.0	0.7	CO: ROOMS 100S, 124A, 118					0.7	1.8	PWR: X-RAY 124B	0.0	1.8	0.0	1	20	30
31	20	1	0.0	0.0	0.7	CO: MORGUE SUPER OFFICE 120A	0.7	1.0					PWR: (STATSUN DVS) X-RAY 124B	0.0	1.0	0.0	1	20	32
33	20	1	0.0	0.0	0.7	CO: MORGUE TECH OFFICE 120			0.7	0.6			PWR: (ME25-B) X-RAY 124B	0.0	1.2	0.0	2	20	34
35	20	1	0.2	0.0	0.0	LTG: UNDER CABINET RMS 118, 119					0.2	0.6	--	--	--	--	--	--	36
37	20	1	--	--	--	SPARE	0.0	0.6					PWR: (ME25-C) X-RAY 124B	0.0	1.2	0.0	2	20	38
39	20	1	0.1	0.0	0.0	LTG: UNDER CABINET ROOM 123			0.1	0.6			--	--	--	--	--	--	40
41	20	1	0.0	0.0	0.4	CO MORGUE TECH OFFICE 120					0.4	1.1	POWER MORGUE TECH OFFICE 120	0.0	1.1	0.0	1	20	42
43	20	1	0.0	0.0	0.7	CO: MORGUE TECH OFFICE 120	0.7	0.7					POWER MORGUE TECH OFFICE 120	0.0	2.2	0.0	3	20	44
45	20	1	0.0	0.0	0.7	CO: MORGUE TECH OFFICE 120			0.7	0.7			--	--	--	--	--	--	46
47	20	1	--	--	--	SPARE					0.0	0.7	--	--	--	--	--	--	48
49	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	50
51	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	52
53	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	54
55	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	56
57	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	58
59	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	60
61	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	62
63	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	64
65	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	66
67	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	68
69	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	70
71	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	72
73	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	74
75	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	76
77	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	78
79	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	80
81	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	82
83	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	84

TOTALS:	A	B	C	
CONNECTED kVA PER PHASE	8	8	8	CONNECTED TOTAL kVA = 25
CONNECTED AMPS PER PHASE	69	69	71	AVERAGE CONNECTED AMPS PER PHASE = 70

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **0.4 kVA @ 125% = 0.5 kVA** - 100% CONNECTED LOAD PLUS 25% — DIVERSIFIED TOTAL kVA = **24**

RECEPTACLES: **12.5 kVA @ 90% = 11.2 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% — AVERAGE AMPS PER PHASE = **67**

ALL OTHER LOADS @ 100% : **12.3 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

CRSA

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DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
REVIEWED FOR CODE COMPLIANCE
SIGNATURE: Ernie Catt
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 181563
DAVID E. WESEMANN
04-21-2014
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300

Project #: B13-024

DATE:	ISSUE TYPE:
April 21, 2014	BID SET

CHECKED BY	D. WESEMANN
DRAWN BY	DLM

PANEL SCHEDULES

EP616

VOLUME 2

C:\Users\jpm\Desktop\Revit Local Files\20132013030925Elec Central_jpm.rvt
4/25/2014 3:06:29 PM

PANEL: "1LB3"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	150 AMPERE MAIN CB	HALL 126A	RECESSED	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 7,754 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	3	0.0	9.4	0.0	PWR: (ME14) LAUNDRY 129	3.1	0.5					PWR: (ME13) LAUNDRY 129	0.0	1.4	0.0	3	20	2
3	--	--	--	--	--	--			3.1	0.5			--	--	--	--	--	--	4
5	--	--	--	--	--	--					3.1	0.5	--	--	--	--	--	--	6
7	20	1	0.0	0.0	0.2	CO: DROP CORD AUTOPSY 124	0.2	0.2					CO: DROP CORD AUTOPSY 124	0.2	0.0	0.0	1	20	8
9	20	1	0.0	0.0	0.2	CO: DROP CORD AUTOPSY 124			0.2	0.2			CO: DROP CORD AUTOPSY 124	0.2	0.0	0.0	1	20	10
11	20	1	0.0	0.0	0.2	CO: DROP CORD AUTOPSY 124					0.2	0.2	CO: DROP CORD AUTOPSY 124	0.2	0.0	0.0	1	20	12
13	20	1	0.0	0.0	0.2	CO: DROP CORD AUTOPSY 124	0.2	0.2					CO: DROP CORD AUTOPSY 124	0.2	0.0	0.0	1	20	14
15	20	1	0.0	0.5	0.0	PWR: TV MONITOR AUTOPSY 124			0.5	1.2			PWR: (ME11) AUTOPSY 124	0.0	1.2	0.0	1	20	16
17	20	1	0.0	0.5	0.0	PWR: TV MONITOR AUTOPSY 124					0.5	1.2	PWR: (ME6) AUTOPSY 124	0.0	1.2	0.0	1	20	18
19	20	1	0.0	0.5	0.0	PWR: TV MONITOR AUTOPSY 124	0.5	0.2					CO: AUTOPSY 124	0.2	0.0	0.0	1	20	20
21	20	1	0.0	0.0	0.2	CO: HISTOLOGY LAB 124D			0.2	0.5			PWR: TV MONITOR AUTOPSY 124	0.0	0.5	0.0	1	20	22
23	20	1	0.0	0.0	0.2	CO: HISTOLOGY LAB 124D					0.2	0.2	CO: JAN 124E	0.2	0.0	0.0	1	20	24
25	20	1	0.0	0.0	0.5	CO: HISTOLOGY LAB 124D	0.5	0.2					CO: LAUNDRY 129	0.2	0.0	0.0	1	20	26
27	20	1	0.0	0.0	0.4	CO: HISTOLOGY LAB 124D			0.4	0.2			CO: HALL 126A	0.2	0.0	0.0	1	20	28
29	20	1	0.0	0.0	0.2	CO: AUTOPSY 124					0.2	0.5	CO: BUG ZAPPERS ROOM 126, 124	0.5	0.0	0.0	1	20	30
31	20	1	0.0	0.0	0.2	CO: AUTOPSY 124	0.2	0.5					PWR: TV MONITOR AUTOPSY 124	0.0	0.5	0.0	1	20	32
33	20	1	0.0	0.0	0.2	CO: AUTOPSY 124			0.2	1.9			PWR: (FH5-ADA) HISTOLOGY LAB 124D	0.0	1.9	0.0	1	20	34
35	20	1	0.0	0.0	0.5	CO: AUTOPSY 124					0.5	0.5	PWR: TV MONITOR AUTOPSY 124	0.0	0.5	0.0	1	20	36
37	20	1	0.0	0.0	0.5	CO: HISTOLOGY LAB 124D	0.5	0.2					CO: DROP CORD AUTOPSY 124	0.2	0.0	0.0	1	20	38
39	20	1	0.0	0.0	0.2	CO: DROP CORD AUTOPSY 124			0.2	0.2			CO: DROP CORD AUTOPSY 124	0.2	0.0	0.0	1	20	40
41	20	1	0.0	0.0	0.2	CO: DROP CORD AUTOPSY 124					0.2	0.2	CO: DROP CORD AUTOPSY 124	0.2	0.0	0.0	1	20	42
43	20	1	0.0	0.0	0.2	CO: DROP CORD AUTOPSY 124	0.2	0.2					CO: DROP CORD AUTOPSY 124	0.2	0.0	0.0	1	20	44
45	20	1	0.0	0.0	0.2	CO: DROP CORD AUTOPSY 124			0.2	0.2			PWR: AUTOPSY 124	0.4	0.0	0.0	2	20	46
47	20	1	0.0	0.0	0.4	CO: HISTOLOGY LAB 124D					0.4	0.2	--	--	--	--	--	--	48
49	20	1	0.0	1.0	0.0	PWR: (ME15) HISTOLOGY LAB 124D	1.0	0.5					PWR: (ME13) LAUNDRY 129	0.0	1.4	0.0	3	20	50
51	20	2	0.0	0.0	0.4	PWR: HISTOLOGY LAB 124D			0.2	0.5			--	--	--	--	--	--	52
53	--	--	--	--	--	--					0.2	0.5	--	--	--	--	--	--	54
55	20	1	0.0	0.0	0.4	CO: HISTOLOGY LAB 124D	0.4	0.2					PWR: HISTOLOGY LAB 124D	0.4	0.0	0.0	2	20	56
57	20	1	--	--	--	SPARE			0.0	0.2			--	--	--	--	--	--	58
59	20	1	0.2	0.0	0.0	LTG: UNDER CABINET LAB 124D					0.2	0.2	LTG: UNDER CABINET AUTOPSY 124	0.0	0.0	0.2	1	20	60
61	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	62
63	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	64
65	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	66
67	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	68
69	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	70
71	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	72
73	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	74
75	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	76
77	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	78
79	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	80
81	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	82
83	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	84

TOTALS: CONNECTED kVA PER PHASE **9** **11** **10** CONNECTED TOTAL kVA = **30**
CONNECTED AMPS PER PHASE **79** **88** **81** AVERAGE CONNECTED AMPS PER PHASE = **82**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **0.4 kVA @ 125% = 0.5 kVA** - 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL kVA = **30**
RECEPTACLES: **8.8 kVA @ 100% = 8.8 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = **83**
ALL OTHER LOADS @ 100% : **20.5 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "2CLA2"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	150 AMPERE MAIN CB	D.V. 214A	RECESSED	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 9,308 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	1.2	0.0	PWR: (R7) AMP 214	1.2	1.9					PWR: (F1) AMP 214	0.0	1.9	0.0	1	20	2
3	20	1	0.0	1.2	0.0	PWR: (R7) AMP 214			1.2	0.5			CO: AMP 214	0.5	0.0	0.0	1	20	4
5	20	1	0.0	1.9	0.0	PWR: MECH CTRL POWER					1.9	0.5	CO: AMP 214	0.5	0.0	0.0	1	20	6
7	20	1	--	--	--	SPARE	0.0	0.2					CO: AMP 214	0.2	0.0	0.0	1	20	8
9	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	10
11	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	12
13	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	14
15	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	16
17	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	18
19	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	20
21	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	22
23	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	24
25	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	28
29	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42
43	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	44
45	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	46
47	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	48
49	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	50
51	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	52
53	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	54
55	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	56
57	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	58
59	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	60

TOTALS: CONNECTED kVA PER PHASE **3** **2** **2** CONNECTED TOTAL kVA = **7**
CONNECTED AMPS PER PHASE **28** **15** **21** AVERAGE CONNECTED AMPS PER PHASE = **21**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: - 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL kVA = **7**
RECEPTACLES: **1.3 kVA @ 100% = 1.3 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = **21**
ALL OTHER LOADS @ 100% : **6.2 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "2CLA1"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE MAIN LUG	ELEC 200T	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 9,308 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.0	0.2	CO: ELEC 200T	0.2	0.1					PWR: FSD SPACE 100T-40	0.0	0.1	0.0	1	20	2
3	20	1	0.0	1.9	0.0	PWR: MECH CTRL POWER			1.9	0.0			SPARE	--	--	--	1	20	4
5	20	1	0.0	1.9	0.0	PWR: MECH CTRL POWER					1.9	0.0	SPARE	--	--	--	1	20	6
7	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	8
9	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	10
11	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	12
13	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	14
15	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	16
17	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	18
19	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	20
21	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	22
23	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	24
25	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	28
29	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42

TOTALS: CONNECTED kVA PER PHASE **0** **2** **2** CONNECTED TOTAL kVA = **4**
CONNECTED AMPS PER PHASE **2** **18** **18** AVERAGE CONNECTED AMPS PER PHASE = **11**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: - 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL kVA = **4**
RECEPTACLES: **0.2 kVA @ 100% = 0.2 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = **11**
ALL OTHER LOADS @ 100% : **3.9 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "2CLA3"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	150 AMPERE MAIN CB	VEST 200R	RECESSED	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 9,308 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.0	0.4	CO: EXTRACTIONS 215	0.4	0.4					CO: BIO/SEROLOGY 213	0.4	0.0	0.0	1	20	2
3	20	1	0.0	0.0	0.4	CO: EXTRACTIONS 215			0.4	0.5			CO: BIO/SEROLOGY 213	0.5	0.0	0.0	1	20	4
5	20	1	0.0	0.0	0.4	CO: EXTRACTIONS 215					0.4	0.4	CO: BIO/SEROLOGY 213	0.4	0.0	0.0	1	20	6
7	20	1	0.0	0.0	0.4	CO: EXTRACTIONS 215	0.4	0.5					CO: BIO/SEROLOGY 213	0.5	0.0	0.0	1	20	8
9	20	1	0.0	0.0	0.4	CO: EXTRACTIONS 215			0.4	0.5			CO: BIO/SEROLOGY 213	0.5	0.0	0.0	1	20	10
11	20	1	0.0	0.0	0.4	CO: EXTRACTIONS 215					0.4	0.5	CO: BIO/SEROLOGY 213	0.5	0.0	0.0	1	20	12
13	20	1	0.0	0.0	0.4	CO: EXTRACTIONS 215	0.4	0.4					CO: BIO/SEROLOGY 213	0.4	0.0	0.0	1	20	14
15	20	1	0.0	0.0	0.4	CO: EXTRACTIONS 215			0.4	0.2			CO: TRACE 2 213E	0.2	0.0	0.0	1	20	16
17	20	1	0.0	0.0	0.5	CO: EXTRACTIONS 215					0.5	0.9	PWR: (R2) HALL 200Q	0.0	0.9	0.0	1	20	18
19	20	1	0.0	0.0	0.4	CO: EXTRACTIONS 215	0.4	1.9					PWR: (R6) HALL 200Q	0.0	1.9	0.0	1	20	20
21	20	1	0.0	0.9	0.0	PWR: (R2) EXTRACTIONS 215			0.9	1.9			PWR: (R6) HALL 200Q	0.0	1.9	0.0	1	20	22
23	20	1	0.0	0.9	0.0	PWR: (R2) EXTRACTIONS 215					0.9	1.9	PWR: (R6) HALL 200Q	0.0	1.9	0.0	1	20	24
25	20	1	0.0	0.0	0.4	CO: PRE AMP 215A	0.4	1.9					PWR: (R6) HALL 200Q	0.0	1.9	0.0	1	20	26
27	20	1	--	--	--	SPARE			0.0	1.9			PWR: (R6) HALL 200Q	0.0	1.9	0.0	1	20	28
29	20	1	0.0	1.9	0.0	PWR: MECH CTRL POWER					1.9	0.0	SPARE	--	--	--	1	20	30
31	20	1	0.0	1.9	0.0	PWR: MECH CTRL POWER	1.9	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42
43	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	44
45	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	46
47	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	48
49	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	50
51	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	52
53	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	54
55	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	56
57	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	58
59	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	60

TOTALS: CONNECTED kVA PER PHASE **9** **7** **8** CONNECTED TOTAL kVA = **24**
CONNECTED AMPS PER PHASE **74** **59** **65** AVERAGE CONNECTED AMPS PER PHASE = **65**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: - 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL kVA = **24**
RECEPTACLES: **7.6 kVA @ 100% = 7.6 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = **65**
ALL OTHER LOADS @ 100% : **16.0 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

CRSA
649 E. South Temple
Salt Lake City, UT 84102
801.355.5915

MWL
11798 N. Lakeridge Pkwy.
Ashland, VA 23005
804-228-7473

State of Utah
Department of Administrative Services
Division of Facilities Construction & Management
4110 State Office Building
Salt Lake City, Utah 84114
Phone: (801) 538 - 3018
Fax: (801) 538 - 3267

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
REVIEWED FOR CODE COMPLIANCE
SIGNATURE: Ernie Catt
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 181563
DAVID E. WESEMANN
04-21-2014
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2
4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300
Project #: B13-024

DATE:	ISSUE TYPE:
April 21, 2014	BID SET
CHECKED BY	D. WESEMANN
DRAWN BY	DLM

PANEL SCHEDULES

EP617
VOLUME 2

C:\Users\jpm\Desktop\Revit Local Files\2013\2013352\Elec Central_jpm.rvt
4/25/2014 3:06:31 PM

PANEL: "2CLA4"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	150 AMPERE MAIN CB	VEST 200P	RECESSED	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 9,308 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.0	0.4	CO: BIO/SEROLOGY 213	0.4	0.5					CO: BIO/SEROLOGY 213	0.5	0.0	0.0	1	20	2
3	20	1	0.0	0.0	0.5	CO: BIO/SEROLOGY 213			0.5	0.5			CO: BIO/SEROLOGY 213	0.5	0.0	0.0	1	20	4
5	20	1	0.0	0.0	0.4	CO: BIO/SEROLOGY 213					0.4	0.2	CO: BIO/SEROLOGY 213	0.2	0.0	0.0	1	20	6
7	20	1	0.0	0.0	0.2	CO: BIO/SEROLOGY 213	0.2	0.2					CO: TRACE 1 213B	0.2	0.0	0.0	1	20	8
9	20	1	0.0	0.0	0.2	CO: BIO/SEROLOGY 213			0.2	0.2			CO: TRACE 3 213A	0.2	0.0	0.0	1	20	10
11	20	1	0.0	0.0	0.4	CO: BIO/SEROLOGY 213					0.4	0.2	CO: REAGENT PREP 213D	0.2	0.0	0.0	1	20	12
13	20	1	0.0	0.0	0.5	CO: BIO/SEROLOGY 213	0.5	1.9					PWR: MECH CTRL POWER	0.0	1.9	0.0	1	20	14
15	20	1	0.0	0.0	0.4	CO: BIO/SEROLOGY 213			0.4	1.9			PWR: (FRZR-A) FREEZER 213C	0.0	1.9	0.0	1	20	16
17	20	1	--	--	--	SPARE					0.0	1.9	PWR: (FRZR-B) FREEZER 213C	0.0	1.9	0.0	1	20	18
19	20	1	--	--	--	SPARE	0.0	1.9					PWR: AUXILIARY PWR FREEZER 213C	0.0	1.9	0.0	1	20	20
21	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	22
23	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	24
25	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	28
29	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42

TOTALS:	A	B	C	
CONNECTED kVA PER PHASE	6	4	3	CONNECTED TOTAL kVA = 12
CONNECTED AMPS PER PHASE	48	32	25	AVERAGE CONNECTED AMPS PER PHASE = 34

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS:
RECEPTACLES: **4.7 kVA @ 100% = 4.7 kVA**
ALL OTHER LOADS @ 100% : **7.6 kVA**

- 100% CONNECTED LOAD PLUS 25%
- FIRST 10kVA @ 100%, REMAINDER @ 50%
- MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

DIVERSIFIED TOTAL kVA = **12**
AVERAGE AMPS PER PHASE = **34**

PANEL: "2CLB2"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	150 AMPERE MAIN CB	FA LAB 205	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 7,936 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.0	0.4	CO: FA LAB 205	0.4	0.2					CO: FA LAB 205	0.2	0.0	0.0	1	20	2
3	20	1	0.0	0.0	0.5	CO: FA LAB 205			0.5	0.5			CO: FA LAB 205	0.5	0.0	0.0	1	20	4
5	20	1	0.0	0.0	0.5	CO: FA LAB 205					0.5	0.4	CO: FA LAB 205	0.4	0.0	0.0	1	20	6
7	20	1	0.0	0.0	0.4	CO: FA LAB 205	0.4	0.4					CO: CHEM PROC/EXAM 205B	0.4	0.0	0.0	1	20	8
9	20	1	0.0	0.0	0.4	CO: PRT/SHOP 205C			0.4	0.5			CO: CHEM PROC/EXAM 205B	0.5	0.0	0.0	1	20	10
11	20	1	0.0	0.0	0.4	CO: PRT/SHOP 205C					0.4	1.9	PWR: MECH CTRL POWER	0.0	1.9	0.0	1	20	12
13	20	1	0.0	0.0	0.4	CO: FA LAB 205	0.4	0.4					CO: FA LAB 205	0.4	0.0	0.0	1	20	14
15	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	16
17	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	18
19	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	20
21	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	22
23	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	24
25	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	28
29	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42

TOTALS:	A	B	C	
CONNECTED kVA PER PHASE	2	2	3	CONNECTED TOTAL kVA = 7
CONNECTED AMPS PER PHASE	17	17	26	AVERAGE CONNECTED AMPS PER PHASE = 20

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS:
RECEPTACLES: **5.2 kVA @ 100% = 5.2 kVA**
ALL OTHER LOADS @ 100% : **1.9 kVA**

- 100% CONNECTED LOAD PLUS 25%
- FIRST 10kVA @ 100%, REMAINDER @ 50%
- MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

DIVERSIFIED TOTAL kVA = **7**
AVERAGE AMPS PER PHASE = **20**

PANEL: "2CLB1"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE MAIN LUG	ELECTRICAL 200D	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 7,936 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.0	0.2	CO: I.T. 200B	0.2	1.9					PWR: (F1) EVID VAULT 206	0.0	1.9	0.0	1	20	2
3	20	1	0.0	0.0	0.7	CO: I.T. 200B			0.7	1.9			PWR: (R2) EVID VAULT 206	0.0	1.9	0.0	1	20	4
5	20	1	0.0	0.0	0.7	CO: I.T. 200B					0.7	1.9	PWR: (R6) EVID VAULT 206	0.0	1.9	0.0	1	20	6
7	20	1	0.0	0.0	0.7	CO: I.T. 200B	0.7	1.0					PWR: PANEL ACS2 I.T. 200B	0.0	1.0	0.0	1	20	8
9	20	2	0.0	1.5	0.0	PWR: RACK I.T. 200B			0.8	0.8			PWR: RACK I.T. 200B	0.0	1.5	0.0	2	20	10
11	--	--	--	--	--	--					0.8	0.8	--	--	--	--	--	--	12
13	20	2	0.0	1.5	0.0	PWR: RACK I.T. 200B	0.8	0.8					PWR: RACK I.T. 200B	0.0	1.5	0.0	2	20	14
15	--	--	--	--	--	--			0.8	0.8			--	--	--	--	--	--	16
17	20	2	0.0	1.5	0.0	PWR: RACK I.T. 200B					0.8	0.8	PWR: RACK I.T. 200B	0.0	1.5	0.0	2	20	18
19	--	--	--	--	--	--	0.8	0.8					--	--	--	--	--	--	20
21	20	1	0.0	1.0	0.0	BMS PANEL I.T. 200B			1.0	0.5			PWR: BMS	0.0	0.5	0.0	1	20	22
23	20	1	--	--	--	SPARE					0.0	0.5	PWR: BMS	0.0	0.5	0.0	1	20	24
25	20	1	0.0	0.0	0.2	CO: ELECTRICAL 200D	0.2	0.5					PWR: BMS	0.0	0.5	0.0	1	20	26
27	20	1	0.0	1.9	0.0	PWR: MECH CTRL POWER			1.9	0.5			PWR: COMPRESSOR JAN 210	0.0	0.5	0.0	1	20	28
29	20	1	0.0	1.9	0.0	PWR: MECH CTRL POWER					1.9	0.0	SPARE	--	--	--	1	20	30
31	20	1	0.0	1.9	0.0	PWR: MECH CTRL POWER	1.9	0.1					PWR: FSD HALL 200	0.0	0.1	0.0	1	20	32
33	20	1	0.0	1.9	0.0	PWR: MECH CTRL POWER			1.9	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42
43	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	44
45	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	46
47	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	48
49	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	50
51	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	52
53	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	54
55	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	56
57	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	58
59	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	60

TOTALS:	A	B	C	
CONNECTED kVA PER PHASE	9	11	8	CONNECTED TOTAL kVA = 27
CONNECTED AMPS PER PHASE	81	97	67	AVERAGE CONNECTED AMPS PER PHASE = 75

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS:
RECEPTACLES: **2.5 kVA @ 100% = 2.5 kVA**
ALL OTHER LOADS @ 100% : **24.4 kVA**

- 100% CONNECTED LOAD PLUS 25%
- FIRST 10kVA @ 100%, REMAINDER @ 50%
- MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

DIVERSIFIED TOTAL kVA = **27**
AVERAGE AMPS PER PHASE = **75**

PANEL: "2CLB3"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE MAIN CB	HALL 200K	RECESSED	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 7,936 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	1.9	0.0	PWR: (R6) CHEMISTRY / TRACE 211	1.9	0.2					CO: CHEMISTRY / TRACE 211	0.2	0.0	0.0	1	20	2
3	20	1	0.0	1.4	0.0	PWR: (F4) CHEMISTRY / TRACE 211			1.4	0.5			CO: CHEMISTRY / TRACE 211	0.5	0.0	0.0	1	20	4
5	20	1	0.0	1.1	0.0	PWR: (R1) CHEMISTRY / TRACE 211					1.1	0.4	CO: CHEMISTRY / TRACE 211	0.4	0.0	0.0	1	20	6
7	20	1	0.0	0.9	0.0	PWR: (R2) CHEMISTRY / TRACE 211	0.9	0.5					CO: CHEMISTRY / TRACE 211	0.5	0.0	0.0	1	20	8
9	20	1	0.0	0.0	0.4	CO: CHEMISTRY / TRACE 211			0.4	0.4			CO: CHEMISTRY / TRACE 211	0.4	0.0	0.0	1	20	10
11	20	1	0.0	0.0	0.5	CO: CHEMISTRY / TRACE 211					0.5	0.5	CO: CHEMISTRY / TRACE 211	0.5	0.0	0.0	1	20	12
13	20	1	0.0	0.0	0.5	CO: CHEMISTRY / TRACE 211	0.5	0.4					CO: CHEMISTRY / TRACE 211	0.4	0.0	0.0	1	20	14
15	20	1	0.0	0.0	0.5	CO: CHEMISTRY / TRACE 211			0.5	0.5			CO: CHEMISTRY / TRACE 211	0.5	0.0	0.0	1	20	16
17	20	1	0.0	0.0	0.2	CO: CHEMISTRY / TRACE 211					0.2	0.2	CO: CHEMISTRY / TRACE 211	0.2	0.0	0.0	1	20	18
19	20	1	0.0	0.0	0.5	CO: CHEMISTRY / TRACE 211	0.5	0.9					CO: INSTRUMENT LAB 211B	0.9	0.0	0.0	1	20	20
21	20	1	0.0	0.0	0.5	CO: CHEMISTRY / TRACE 211			0.5	0.7			CO: INSTRUMENT LAB 211B	0.7	0.0	0.0	1	20	22
23	20	1	0.0	0.0	0.4	CO: CHEMISTRY / TRACE 211					0.4	0.5	CO: INSTRUMENT LAB 211B	0.5	0.0	0.0	1	20	24
25	20	1	0.0	0.0	0.2	CO: SEM. 211A	0.2	0.7					CO: INSTRUMENT LAB 211B	0.7	0.0	0.0	1	20	26
27	20	1	0.0	0.0	0.4	CO: SEM. 211A			0.4	0.9			CO: INSTRUMENT LAB 211B	0.9	0.0	0.0	1	20	28
29	20	1	0.0	0.0	0.4	CO: SEM. 211A					0.4	0.7	CO: INSTRUMENT LAB 211B	0.7	0.0	0.0	1	20	30
31	20	1	0.0	0.0	0.2	CO: SEM. 211A	0.2	0.7					CO: INSTRUMENT LAB 211B	0.7	0.0	0.0	1	20	32
33	20	1	0.0	1.9	0.0	PWR: MECH CTRL POWER			1.9	0.2			PWR: (HG) INSTRUMENT LAB 211B	0.0	0.2	0.0	1	20	34
35	20	1	0.0	1.9	0.0	PWR: MECH CTRL POWER					1.9	0.2	PWR: (HG) INSTRUMENT LAB 211B	0.0	0.2	0.0	1	20	36
37	20	2	0.0	3.1	0.0	PWR: (C2) INSTRUMENT LAB 211B	1.6	0.2					CO: VEST 200L	0.2	0.0	0.0	1	20	38
39	--	--	--	--	--	--			1.6	1.6			PWR: (C2) INSTRUMENT LAB 211B	0.0	3.1	0.0	2	20	40
41	20	2	0.0	3.1	0.0	PWR: (C2) INSTRUMENT LAB 211B					1.6	1.6	--	--	--	--	--	--	42
43	--	--	--	--	--	--	1.6	1.6					PWR: (C2) INSTRUMENT LAB 211B	0.0	3.1	0.0	2	20	44
45	20	1	0.0	0.0	0.2	CO: INSTRUMENT LAB 211B			0.2	1.6			--	--	--	--	--	--	46
47	20	2	0.0	3.1	0.0	PWR: (C2) INSTRUMENT LAB 211B					1.6	1.6	PWR: (C2) INSTRUMENT LAB 211B	0.0	3.1	0.0	2	20	48
49	--	--	--	--	--	--	1.6	1.6					--	--	--	--	--	--	50
51	20	2	0.0	3.1	0.0	PWR: (C1) INSTRUMENT LAB 211B			1.6	1.6			PWR: (C1) INSTRUMENT LAB 211B	0.0	3.1	0.0	2	20	52
53	--	--	--	--	--	--					1.6	1.6	--	--	--	--	--	--	54
55	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	56
57	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	58
59	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	60
61	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	62
63	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	64
65	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	66
67	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	68
69	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	70
71	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	72
73	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	74
75	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	76
77	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	78
79	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	80
81	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	82
83	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	84

TOTALS:	A	B	C	
CONNECTED kVA PER PHASE	16	16	16	CONNECTED TOTAL kVA = 48
CONNECTED AMPS PER PHASE	130	138	138	AVERAGE CONNECTED AMPS PER PHASE = 134

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS:
RECEPTACLES: **13.9 kVA @ 86% = 11.9 kVA**
ALL OTHER LOADS @ 100% : **34.6 kVA**

- 100% CONNECTED LOAD PLUS 25%
- FIRST 10kVA @ 100%, REMAINDER @ 50%
- MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

DIVERSIFIED TOTAL kVA = **47**
AVERAGE AMPS PER PHASE = **129**

CRSA
649 E. South Temple
Salt Lake City, UT 84102
801.355.5915

MWL
11798 N. Lakeridge Pkwy.
Ashland, VA 23005
804-228-7473

State of Utah
Department of Administrative Services
Division of Facilities Construction & Management
4110 State Office Building
Salt Lake City, Utah 84114
Phone: (801) 538 - 3018
Fax: (801) 538 - 3267

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
REVIEWED FOR CODE COMPLIANCE
SIGNATURE: Ernie Catt
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 181563
DAVID E. WESEMANN
04-21-2014
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300
Project #: B13-024

DATE:	ISSUE TYPE:
April 21, 2014	BID SET
CHECKED BY	D. WESEMANN
DRAWN BY	DLM

PANEL SCHEDULES

EP618

VOLUME 2

C:\Users\jpm\Desktop\Revit Local Files\2013\2013352\Elec Central_jpm.rvt
4/25/2014 3:06:34 PM

PANEL: "2CLB4"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	150 AMPERE MAIN CB	VEST 200M	RECESSED	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 7,936 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.0	0.5	CO: ID / IMPRESSIONS 212	0.5	0.4					CO: ID / IMPRESSIONS 212	0.4	0.0	0.0	1	20	2
3	20	1	0.0	0.0	0.5	CO: ID / IMPRESSIONS 212			0.5	0.5			CO: ID / IMPRESSIONS 212	0.5	0.0	0.0	1	20	4
5	20	1	0.0	0.0	0.5	CO: ID / IMPRESSIONS 212					0.5	0.4	CO: ID / IMPRESSIONS 212	0.4	0.0	0.0	1	20	6
7	20	1	0.0	0.0	0.5	CO: ID / IMPRESSIONS 212	0.5	0.4					CO: ID / IMPRESSIONS 212	0.4	0.0	0.0	1	20	8
9	20	1	0.0	0.0	0.2	CO: ID / IMPRESSIONS 212			0.2	0.5			CO: ID / IMPRESSIONS 212	0.5	0.0	0.0	1	20	10
11	20	1	0.0	0.0	0.5	CO: ID / IMPRESSIONS 212					0.5	0.4	CO: VEST 200M	0.4	0.0	0.0	1	20	12
13	20	1	0.0	0.0	0.4	CO: PHOTO 1 212A	0.4	0.4					CO: PHOTO 3 212C	0.4	0.0	0.0	1	20	14
15	20	1	0.0	0.0	0.4	CO: PHOTO 2 212B			0.4	0.4			CO: PHOTO 3 212C	0.4	0.0	0.0	1	20	16
17	20	1	0.0	1.9	0.0	PWR: MECH CTRL POWER					1.9	0.0	SPARE	--	--	--	1	20	18
19	20	1	0.0	0.0	0.4	CO: ID / IMPRESSIONS 212	0.4	0.4					CO: ID / IMPRESSIONS 212	0.4	0.0	0.0	1	20	20
21	20	1	--	--	--	SPARE			0.0	1.9			PWR: MECH CTRL POWER	0.0	1.9	0.0	1	20	22
23	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	24
25	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	28
29	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42
43	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	44
45	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	46
47	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	48
49	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	50
51	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	52
53	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	54
55	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	56
57	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	58
59	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	60

TOTALS: CONNECTED kVA PER PHASE **3** **4** **4** CONNECTED TOTAL kVA = **11**
CONNECTED AMPS PHASE **27** **37** **31** AVERAGE CONNECTED AMPS PER PHASE = **32**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS:
RECEPTACLES: **7.6 kVA @ 100% = 7.6 kVA**
ALL OTHER LOADS @ 100% : **3.8 kVA**

- 100% CONNECTED LOAD PLUS 25%
- FIRST 10kVA @ 100%, REMAINDER @ 50%
- MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

DIVERSIFIED TOTAL kVA = **11**
AVERAGE AMPS PER PHASE = **32**

PANEL: "2LA1"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE MAIN LUG	ELEC 200T	RECESSED	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 9,815 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.0	1.1	CO: ROOM 201B, 201A	1.1	0.7					CO: ROOM 200A, 200, 217	0.7	0.0	0.0	1	20	2
3	20	1	0.0	0.0	1.1	CO: ROOM 201C, 201D			1.1	0.5			CO: HALL 200	0.5	0.0	0.0	1	20	4
5	20	1	0.0	0.0	0.7	CO: CODIS 216					0.7	0.9	CO: CODIS 216	0.9	0.0	0.0	1	20	6
7	20	1	0.0	0.0	0.7	CO: OPEN SPACE 201	0.7	0.8					PWR: FURNITURE OPEN SPACE 201	0.0	0.8	0.0	1	20	8
9	20	1	0.0	0.5	0.0	PWR: FURNITURE OPEN SPACE 201			0.5	1.6			PWR: FURNITURE OPEN SPACE 201	0.0	1.6	0.0	3	20	10
11	20	3	0.0	1.4	0.0	PWR: FURNITURE OPEN SPACE 201					1.4	0.0	--	--	--	--	--	--	12
13	--	--	--	--	--	--	0.0	0.0					--	--	--	--	--	--	14
15	--	--	--	--	--	--			0.0	27.3			PWR: FURNITURE OPEN SPACE 201	0.0	27.3	0.0	1	20	16
17	20	1	0.0	0.5	0.0	PWR: TV MONITOR HALL 200					0.5	1.1	PWR: FURNITURE OPEN SPACE 201	0.0	1.1	0.0	3	20	18
19	20	1	0.0	0.5	0.0	PWR: TV MONITOR HALL 200	0.5	0.0					--	--	--	--	--	--	20
21	20	1	0.0	1.1	0.0	MTR: (CUH-6) STAIR-1 200A			1.1	0.0			--	--	--	--	--	--	22
23	20	1	0.0	1.5	0.0	PWR: SPACE SAVER CODIS 216					1.5	0.0	SPARE	--	--	--	1	20	24
25	20	1	0.0	0.0	0.2	CO: HUDDLE 217	0.2	0.0					SPARE	--	--	--	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	28
29	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42

TOTALS: CONNECTED kVA PER PHASE **4** **32** **6** CONNECTED TOTAL kVA = **42**
CONNECTED AMPS PER PHASE **33** **271** **53** AVERAGE CONNECTED AMPS PER PHASE = **117**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS:
RECEPTACLES: **5.9 kVA @ 100% = 5.9 kVA**
ALL OTHER LOADS @ 100% : **36.5 kVA**

- 100% CONNECTED LOAD PLUS 25%
- FIRST 10kVA @ 100%, REMAINDER @ 50%
- MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

DIVERSIFIED TOTAL kVA = **42**
AVERAGE AMPS PER PHASE = **118**

PANEL: "2HB"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
480/277 V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE LUG	ELECTRICAL 200D	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 37,872 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	2.4	0.0	0.0	LTG: INSTRUMENT LAB 211B	2.4	1.0					LTG: LEVEL 2 HALL 200 (2RB-1)	0.0	0.0	1.0	1	20	2
3	20	1	1.9	0.0	0.0	LTG: SEM. 211A			1.9	1.0			LTG: CODIS, HUDDLE RM 216, 217	0.0	0.0	1.0	1	20	4
5	20	1	2.2	0.0	0.0	LTG: PHOTO 3 212C					2.2	3.6	LTG: OPEN OFFICE 201	0.0	0.0	3.6	1	20	6
7	20	1	2.7	0.0	0.0	LIGHTING CHEMISTRY / TRACE 211	2.7	1.4					LTG: ID OFFICE 202	0.0	0.0	1.4	1	20	8
9	20	1	3.5	0.0	0.0	LTG: ID / IMPRESSIONS 212			3.5	3.6			LTG: EVIDENCE RECEIVING 208B	0.0	0.0	3.6	1	20	10
11	20	1	3.3	0.0	0.0	LIGHTING ID / IMPRESSIONS 212					3.3	1.6	LTG: FA LAB 205	0.0	0.0	1.6	1	20	12
13	20	1	1.9	0.0	0.0	LTG: EAST BIO/SER, TRACE 1 213,B	1.9	1.9					LTG: GUN VAULT 205A	0.0	0.0	1.9	1	20	14
15	20	1	2.2	0.0	0.0	LTG: BIO/SEROLOGY 213			2.1	3.1			LTG: GUN RANGE 205D	0.0	0.0	3.1	1	20	16
17	20	1	0.6	0.0	0.0	LTG: MEN WOMEN'S RM 203, 204					0.6	3.3	LIGHTING EVID VAULT 206	0.0	0.0	3.3	1	20	18
19	20	1	3.4	0.0	0.0	LTG: EXTRACTIONS 215	3.4	2.2					LTG: CHEM/TRACE OFFICE 209	0.0	0.0	2.2	1	20	20
21	20	1	2.4	0.0	0.0	LTG: AMP 214			2.4	1.0			LTG: HALL 200F	0.0	0.0	1.0	1	20	22
23	20	1	2.5	0.0	0.0	LTG: CHEMISTRY / TRACE 211					2.5	2.3	LTG: RM 213, 213C	0.0	0.0	2.3	1	20	24
25	20	1	2.7	0.0	0.0	LTG: RM 213, 200Q	2.7	0.0					SPARE	--	--	--	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	28
29	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42

TOTALS: CONNECTED kVA PER PHASE **20** **19** **19** CONNECTED TOTAL kVA = **58**
CONNECTED AMPS PER PHASE **71** **67** **70** AVERAGE CONNECTED AMPS PER PHASE = **69**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **57.6 kVA @ 125% = 72.0 kVA**
RECEPTACLES:
ALL OTHER LOADS @ 100% : **0.0 kVA**

- 100% CONNECTED LOAD PLUS 25%
- FIRST 10kVA @ 100%, REMAINDER @ 50%
- MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

DIVERSIFIED TOTAL kVA = **72**
AVERAGE AMPS PER PHASE = **87**

PANEL: "2LA2"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	150 AMPERE MAIN CB	D.V. 214A	RECESSED	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 8,251 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.0	0.4	CO: D.V. 214A	0.4	0.5					CO: AMP 214	0.5	0.0	0.0	1	20	2
3	20	1	0.0	0.2	0.0	PWR: (B2) AMP 214			0.2	0.5			PWR: (B1) AMP 214	0.0	0.5	0.0	1	20	4
5	20	1	0.0	0.2	0.0	PWR: (B2) AMP 214					0.2	0.5	PWR: (B1) AMP 214	0.0	0.5	0.0	1	20	6
7	20	1	0.0	0.5	0.0	PWR: (B1) AMP 214	0.5	0.5					PWR: (B1) AMP 214	0.0	0.5	0.0	1	20	8
9	20	1	0.0	0.5	0.0	PWR: (B1) AMP 214			0.5	0.5			PWR: (B1) AMP 214	0.0	0.5	0.0	1	20	10
11	20	1	0.0	0.0	0.5	CO: AMP 214					0.5	1.8	PWR: (B3) AMP 214	0.0	1.8	0.0	1	20	12
13	20	1	0.0	0.5	0.0	PWR: (B1) AMP 214	0.5	0.4					CO: AMP 214	0.4	0.0	0.0	1	20	14
15	20	1	0.0	0.5	0.0	PWR: (B1) AMP 214			0.5	0.2			CO: D.V. 214A	0.2	0.0	0.0	1	20	16
17	20	1	0.0	0.2	0.0	PWR: (B2) AMP 214					0.2	0.2	CO: AMP 214	0.2	0.0	0.0	1	20	18
19	20	1	0.0	0.2	0.0	PWR: (B2) AMP 214	0.2	1.4					PWR: (B13) AMP 214	0.0	1.4	0.0	1	20	20
21	20	2	0.0	0.0	0.4	PWR: AMP 214			0.2	0.4			CO: AMP 214	0.4	0.0	0.0	1	20	22
23	--	--	--	--	--	--					0.2	0.2	PWR: AMP 214	0.4	0.0	0.0	2	20	24
25	20	1	--	--	--	SPARE	0.0	0.2					--	--	--	--	--	--	26
27	20	1	0.0	0.0	0.2	CO: GOWN 215B			0.2	0.3			LTG: AMP 214	0.0	0.0	0.3	1	20	28
29	20	2	0.0	0.0	0.4	PWR: AMP 214					0.2	0.0	SPARE	--	--	--	1	20	30
31	--	--	--	--	--	--	0.2	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42

TOTALS: CONNECTED kVA PER PHASE **5** **3** **4** CONNECTED TOTAL kVA = **12**
CONNECTED AMPS PER PHASE **40** **28** **33** AVERAGE CONNECTED AMPS PER PHASE = **33**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **0.3 kVA @ 125% = 0.4 kVA**
RECEPTACLES: **3.8 kVA @ 100% = 3.8 kVA**
ALL OTHER LOADS @ 100% : **8.0 kVA**

- 100% CONNECTED LOAD PLUS 25%
- FIRST 10kVA @ 100%, REMAINDER @ 50%
- MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

DIVERSIFIED TOTAL kVA = **12**
AVERAGE AMPS PER PHASE = **34**

CRSA
649 E. South Temple
Salt Lake City, UT 84102
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11798 N. Lakeridge Pkwy.
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DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
REVIEWED FOR CODE COMPLIANCE
SIGNATURE: Ernie Catt
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 181563
DAVID E. WESEMANN
04-21-2014
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300
Project #: B13-024

DATE:	ISSUE TYPE:
April 21, 2014	BID SET

CHECKED BY D. WESEMANN
DRAWN BY DLM

PANEL SCHEDULES

EP619
VOLUME 2

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PANEL: "2LA3"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	150 AMPERE MAIN CB	VEST 200R	RECESSED	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 8,251 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.5	0.0	PWR: (B5) EXTRACTIONS 215	0.5	1.4					PWR: (B13) EXTRACTIONS 215	0.0	1.4	0.0	1	20	2
3	20	1	0.0	0.4	0.4	CO: (B6) EXTRACTIONS 215			0.7	0.2			PWR: (B12) EXTRACTIONS 215	0.0	0.2	0.0	1	20	4
5	20	1	0.0	0.0	0.2	CO: EXTRACTIONS 215					0.2	0.3	PWR: (B4) EXTRACTIONS 215	0.0	0.3	0.0	1	20	6
7	20	1	0.0	0.4	0.0	PWR: (B8)EXTRACTIONS 215	0.4	0.4					CO EXTRACTIONS 215	0.4	0.0	0.0	1	20	8
9	20	1	0.0	0.0	0.4	CO EXTRACTIONS 215			0.4	0.4			CO EXTRACTIONS 215	0.4	0.0	0.0	1	20	10
11	20	1	0.0	0.0	0.4	CO EXTRACTIONS 215					0.4	0.4	CO EXTRACTIONS 215	0.4	0.0	0.0	1	20	12
13	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	14
15	20	1	0.0	0.0	0.5	CO EXTRACTIONS 215			0.5	1.9			PWR: (FH6-ADA) EXTRACTIONS 215	0.0	1.9	0.0	1	20	16
17	20	1	0.0	0.0	0.4	CO EXTRACTIONS 215					0.4	0.7	PWR: (B6) PRE AMP 215A	0.4	0.4	0.0	1	20	18
19	20	1	--	--	--	SPARE	0.0	0.5					PWR: BSC4 PRE AMP 215A	0.0	0.5	0.0	1	20	20
21	20	1	0.0	0.2	0.0	PWR: (B10) BIO/SEROLOGY 213			0.2	0.5			CO BIO/SEROLOGY 213	0.5	0.0	0.0	1	20	22
23	20	1	0.0	1.8	0.0	PWR: (B14) PRE-AMP 215A					1.8	0.5	CO BIO/SEROLOGY 213	0.5	0.0	0.0	1	20	24
25	20	1	0.0	0.4	0.2	PWR: (B6) BIO/SEROLOGY 213	0.5	0.5					CO BIO/SEROLOGY 213	0.5	0.0	0.0	1	20	26
27	20	1	0.0	0.0	0.5	CO BIO/SEROLOGY 213			0.5	0.4			CO BIO/SEROLOGY 213	0.4	0.0	0.0	1	20	28
29	20	1	0.0	0.0	0.2	CO HALL 200Q					0.2	0.5	CO BIO/SEROLOGY 213	0.5	0.0	0.0	1	20	30
31	20	1	0.0	0.0	0.5	PWR: DROP CORD TRACE 2 213E	0.5	0.4					CO VEST 200R	0.4	0.0	0.0	1	20	32
33	20	1	0.0	0.0	0.5	CO			0.5	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.2	CO TRACE 2 213E	0.2	0.0	0.0	1	20	36
37	20	1	0.0	0.5	0.0	PWR: BSC4 PRE AMP 215A	0.5	0.5					PWR: BSC4 PRE AMP 215A	0.0	0.5	0.0	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.2			PWR: EXTRACTIONS 215	0.4	0.0	0.0	2	20	40
41	20	1	0.0	0.5	0.0	PWR: BSC4 PRE AMP 215A					0.5	0.2	--	--	--	--	--	--	42
43	20	1	0.0	0.3	0.2	PWR/CO: (B5), SINK PRE AMP 215A	0.4	0.0					SPARE	--	--	--	1	20	44
45	20	2	0.0	0.0	0.4	PWR: EXTRACTIONS 215			0.2	0.2			PWR: EXTRACTIONS 215	0.4	0.0	0.0	2	20	46
47	--	--	--	--	--	--					0.2	0.2	--	--	--	--	--	--	48
49	20	2	0.0	0.0	0.4	PWR: BIO/SEROLOGY 213	0.2	0.2					PWR: BIO/SEROLOGY 213	0.4	0.0	0.0	2	20	50
51	--	--	--	--	--	--			0.2	0.2			--	--	--	--	--	--	52
53	20	1	--	--	--	SPARE					0.0	0.2	PWR: BIO/SEROLOGY 213	0.4	0.0	0.0	2	20	54
55	20	1	--	--	--	SPARE	0.0	0.2					--	--	--	--	--	--	56
57	20	1	--	--	--	SPARE			0.0	0.2			PWR: PRE AMP 215A	0.4	0.0	0.0	2	20	58
59	20	1	--	--	--	SPARE					0.0	0.2	--	--	--	--	--	--	60
61	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	62
63	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	64
65	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	66
67	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	68
69	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	70
71	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	72
73	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	74
75	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	76
77	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	78
79	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	80
81	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	82
83	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	84
TOTALS:						CONNECTED kVA PER PHASE	**7**		**7**		**7**		CONNECTED TOTAL kVA = **21**						
						CONNECTED AMPS PER PHASE	**59**		**61**		**57**		AVERAGE CONNECTED AMPS PER PHASE = **59**						

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: - 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL kVA = **21**

RECEPTACLES: **11.3 kVA @ 94% = 10.6 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = **57**

ALL OTHER LOADS @ 100% : **10.0 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "2LA4"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	150 AMPERE MAIN CB	VEST 200P	RECESSED	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 8,251 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.0	0.5	CO: BIO/SEROLOGY 213	0.5	0.4					CO: BIO/SEROLOGY 213	0.4	0.0	0.0	1	20	2
3	20	1	0.0	0.0	0.5	CO: BIO/SEROLOGY 213			0.5	0.5			CO: BIO/SEROLOGY 213	0.5	0.0	0.0	1	20	4
5	20	1	0.0	1.9	0.0	PWR: (FH6-ADA) BIO/SEROLOGY 213					1.9	0.5	PWR: (BSC6) BIO/SEROLOGY 213	0.0	0.5	0.0	1	20	6
7	20	1	--	--	--	SPARE	0.0	1.4					PWR: (GW) REAGENT PREP 213D	0.0	4.2	0.0	3	30	8
9	20	1	0.0	0.0	0.5	CO: BIO/SEROLOGY 213			0.5	1.4			--	--	--	--	--	--	10
11	20	1	0.0	0.0	0.2	CO: HALL 200N					0.2	1.4	--	--	--	--	--	--	12
13	20	1	0.0	0.0	0.5	CO: DROP CORD TRACE 1 213B	0.5	0.0					SPARE	--	--	--	1	20	14
15	20	1	0.0	0.0	0.5	CO: DROP CORD TRACE 1 213B			0.5	0.2			CO: TRACE 1 213B	0.2	0.0	0.0	1	20	16
17	20	1	0.0	0.0	0.4	CO: BIO/SEROLOGY 213					0.4	0.4	CO: REAGENT PREP 213D	0.4	0.0	0.0	1	20	18
19	20	1	0.0	0.0	0.4	CO: BIO/SEROLOGY 213	0.4	0.4					CO: TRACE 3 213A	0.4	0.0	0.0	1	20	20
21	30	3	0.0	6.0	0.0	PWR: (B7) REAGENT PREP 213D			2.0	0.4			CO: TRACE 3 213A	0.4	0.0	0.0	1	20	22
23	--	--	--	--	--	--					2.0	0.5	CO: DROP CORD TRACE 3 213A	0.5	0.0	0.0	1	20	24
25	--	--	--	--	--	--	2.0	0.5					CO: DROP CORD TRACE 3 213A	0.5	0.0	0.0	1	20	26
27	20	1	0.0	0.0	0.2	CO: TRACE 3 213A			0.2	0.2			CO: VEST 200P	0.2	0.0	0.0	1	20	28
29	20	1	0.0	0.0	0.2	CO: VEST 200P					0.2	0.0	SPARE	--	--	--	1	20	30
31	20	1	0.0	0.0	0.4	CO: BIO/SEROLOGY 213	0.4	0.5					CO: BIO/SEROLOGY 213	0.5	0.0	0.0	1	20	32
33	20	2	0.0	0.0	0.4	PWR: BIO/SEROLOGY 213			0.2	0.5			CO: BIO/SEROLOGY 213	0.5	0.0	0.0	1	20	34
35	--	--	--	--	--	--					0.2	0.2	PWR: BIO/SEROLOGY 213	0.4	0.0	0.0	2	20	36
37	20	2	0.0	0.0	0.4	PWR: REAGENT PREP 213D	0.2	0.2					--	--	--	--	--	--	38
39	--	--	--	--	--	--			0.2	0.2			PWR: BIO/SEROLOGY 213	0.4	0.0	0.0	2	20	40
41	20	1	--	--	--	SPARE					0.0	0.2	--	--	--	--	--	--	42
43	20	2	0.0	0.0	0.4	PWR: BIO/SEROLOGY 213	0.2	0.4					CO: BIO/SEROLOGY 213	0.4	0.0	0.0	1	20	44
45	--	--	--	--	--	--			0.2	0.5			LTG: BIO/SEROLOGY 213	0.0	0.0	0.5	1	20	46
47	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	48
49	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	50
51	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	52
53	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	54
55	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	56
57	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	58
59	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	60
61	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	62
63	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	64
65	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	66
67	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	68
69	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	70
71	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	72
73	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	74
75	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	76
77	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	78
79	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	80
81	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	82
83	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	84
TOTALS:						CONNECTED kVA PER PHASE	**8**		**8**		**8**		CONNECTED TOTAL kVA = **24**						
						CONNECTED AMPS PER PHASE	**65**		**69**		**66**		AVERAGE CONNECTED AMPS PER PHASE = **67**						

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **0.6 kVA @ 125% = 0.8 kVA** - 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL kVA = **24**

RECEPTACLES: **10.8 kVA @ 96% = 10.4 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = **66**

ALL OTHER LOADS @ 100% : **12.6 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

CRSA
649 E. South Temple
Salt Lake City, UT 84102
801.355.5915

MWL
11798 N. Lakeridge Pkwy.
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State of Utah
Department of Administrative Services
DFCM
Division of Facilities Construction & Management
4110 State Office Building
Salt Lake City, Utah 84114
Phone: (801) 538 - 3018
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DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
REVIEWED FOR CODE COMPLIANCE
SIGNATURE: Enzo Calfa
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 181563
DAVID E. WESEMANN
04-21-2014
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300

Project #: B13-024

DATE:	ISSUE TYPE:
April 21, 2014	BID SET
CHECKED BY	D. WESEMANN
DRAWN BY	DLM

PANEL SCHEDULES

EP620

VOLUME 2

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PANEL: "2LB1"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE MAIN LUG	ELECTRICAL 200D	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 14,348 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.0	0.7	CO: ROOM 208D, 209A	0.7	0.7					CO: MANAGER 202A	0.7	0.0	0.0	1	20	2
3	20	1	0.0	0.0	0.5	CO: ID OFFICE 202			0.5	0.7			PWR: DRINKING FOUNTAIN HALL 200	0.0	0.7	0.0	1	20	4
5	20	1	0.0	0.0	0.4	CO: WOMEN 203					0.4	0.4	CO: MEN 204	0.4	0.0	0.0	1	20	6
7	20	1	0.0	0.0	0.9	CO: ROOM 200, 200C	0.9	0.2					CO: STAFF EVID PICK-UP 200E	0.2	0.0	0.0	1	20	8
9	20	1	0.0	0.0	0.4	CO: FA OFFICE 207			0.4	0.7			CO: MANAGER 207A	0.7	0.0	0.0	1	20	10
11	20	1	0.0	0.0	0.4	CO: EVID VAULT 206					0.4	1.1	CO: ROOM 200, 200K	1.1	0.0	0.0	1	20	12
13	20	1	0.0	0.0	0.9	CO: ROOM 200F, 200G, 200H	0.9	0.5					CO: EVIDENCE RECEIVING 208B	0.5	0.0	0.0	1	20	14
15	20	1	0.0	0.0	0.2	CO: CONSULT 208A			0.2	0.5			CO: CONSULT 208A	0.5	0.0	0.0	1	20	16
17	20	1	0.0	0.0	0.9	CO: EVIDENCE RECEIVING 208B					0.9	0.4	CO: EVIDENCE RECEIVING 208B	0.4	0.0	0.0	1	20	18
19	20	1	0.0	0.0	0.4	CO: EVIDENCE RECEIVING 208B	0.4	0.5					CO: ROOM 208C, 208B, 208E	0.5	0.0	0.0	1	20	20
21	20	1	0.0	0.0	0.5	CO: DROP CORD EVID RCV 208B			0.5	0.5			CO: DROP CORD EVID RCV 208B	0.5	0.0	0.0	1	20	22
23	20	1	0.0	0.0	0.7	CO: MANAGER 209A					0.7	0.5	CO: CHEMISTRY / TRACE OFFICE 209	0.5	0.0	0.0	1	20	24
25	20	1	0.0	0.0	0.4	CO: CHEMISTRY / TRACE OFFICE...	0.4	0.5					PWR: FURNITURE FA OFFICE 207	0.0	0.5	0.0	1	20	26
27	20	1	0.0	0.5	0.0	PWR: FURNITURE 208B			0.5	0.8			PWR: FURNITURE FA OFFICE 207	0.0	0.8	0.0	3	20	28
29	20	3	0.0	1.4	0.0	PWR: FURNITURE 208B					1.4	0.0	--	--	--	--	--	--	30
31	--	--	--	--	--	--	0.0	0.0					--	--	--	--	--	--	32
33	--	--	--	--	--	--			0.0	0.5			PWR: FURNITURE CHEMISTRY / TRAC...	0.0	0.5	0.0	1	20	34
35	20	1	0.0	0.5	0.0	PWR: TV MONITOR HALL 200					0.5	0.4	PWR: FURNITURE CHEMISTRY / TRAC...	0.0	1.1	0.0	3	20	36
37	20	1	0.0	0.5	0.0	PWR: TV MONITOR HALL 200	0.5	0.4					--	--	--	--	--	--	38
39	20	1	0.0	0.5	0.0	PWR: TV MONITOR HALL 200			0.5	0.4			--	--	--	--	--	--	40
41	20	1	0.0	0.7	0.0	PWR: DRINKING FOUNTAIN HALL...					0.7	0.7	CO: ROOM 203, 204	0.7	0.0	0.0	1	20	42
43	20	1	--	--	--	SPARE	0.0	0.5					CO: EVID VAULT 206	0.5	0.0	0.0	1	20	44
45	20	1	0.0	1.5	0.0	PWR: COPIER EVID RECEIVING...			1.5	0.5			PWR: HEAT TRACE (NOTE 1)	0.0	0.5	0.0	1	20	46
47	20	1	0.0	0.0	0.4	CO: EVIDENCE RECEIVING 208B					0.4	0.5	CO: STAFF EVID PICK-UP 200E	0.5	0.0	0.0	1	20	48
49	20	2	0.0	0.0	0.4	PWR: STAFF EVID PICK-UP 200E	0.2	0.5					CO STAFF EVID PICK-UP 200E	0.5	0.0	0.0	1	20	50
51	--	--	--	--	--	--			0.2	0.2			PWR: EVID VAULT 206	0.4	0.0	0.0	2	20	52
53	20	2	0.0	0.0	0.4	PWR: STAFF EVID PICK-UP 200E					0.2	0.2	--	--	--	--	--	--	54
55	--	--	--	--	--	--	0.2	0.5					PWR: ID OFFICE 202	0.0	0.5	0.0	1	20	56
57	20	1	0.0	1.5	0.0	PWR: SPACE SAVER EVID VAULT...			1.5	1.1			PWR: ID OFFICE 202	0.0	1.6	0.0	3	20	58
59	20	1	0.1	0.0	0.0	LTG: EVID VAULT 206					0.1	0.3	--	--	--	--	--	--	60
61	20	1	0.0	0.0	0.7	CO: EVID VAULT 206	0.7	0.3					--	--	--	--	--	--	62
63	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	64
65	20	1	0.0	0.0	0.4	CO: CHEMISTRY / TRACE OFFICE...					0.4	0.4	CO: CHEMISTRY / TRACE OFFICE 209	0.4	0.0	0.0	1	20	66
67	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	68
69	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	70
71	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	72
73	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	74
75	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	76
77	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	78
79	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	80
81	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	82
83	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	84
TOTALS:						CONNECTED kVA PER PHASE	**10**		**12**		**11**		CONNECTED TOTAL kVA = **32**						
						CONNECTED AMPS PER PHASE	**80**		**99**		**90**		AVERAGE CONNECTED AMPS PER PHASE = **89**						

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **0.1 kVA @ 125% = 0.2 kVA** - 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL kVA = **28**

RECEPTACLES: **18.5 kVA @ 77% = 14.2 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = **77**

ALL OTHER LOADS @ 100% : **13.5 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

Notes:

1. 30 mA GFCI CIRCUIT BREAKER.

PANEL: "2LB2"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE MAIN CB	FA LAB 205	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 10,277 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	1.9	0.0	PWR: (FH6-1) CHEM PROC/EXAM...	1.9	0.2					CO: GUN VAULT 205A	0.2	0.0	0.0	1	20	2
3	20	1	0.0	1.9	0.0	PWR: (FH6-ADA) CHEM PROC/EXA...			1.9	1.8			PWR: (FA1) FA LAB 205	0.0	1.8	0.0	1	20	4
5	20	1	0.0	0.0	0.5	CO					0.5	1.8	PWR: (FA1) FA LAB 205	0.0	1.8	0.0	1	20	6
7	20	1	0.0	0.0	0.5	PWR: DROP CORD CHEM...	0.5	1.8					PWR: (FA1) FA LAB 205	0.0	1.8	0.0	1	20	8
9	20	1	0.0	0.0	0.5	CO: CHEM PROC/EXAM 205B			0.5	1.8			PWR: (FA1) FA LAB 205	0.0	1.8	0.0	1	20	10
11	20	1	0.0	0.0	0.4	CO: CHEM PROC/EXAM 205B					0.4	1.8	PWR: (FA1) FA LAB 205	0.0	1.8	0.0	1	20	12
13	20	1	0.0	1.2	0.0	PWR: PRT/SHOP 205C	1.2	0.4					CO: FA LAB 205	0.4	0.0	0.0	1	20	14
15	20	1	0.0	1.2	0.0	PWR: (FA10) PRT/SHOP 205C			1.2	0.4			CO: FA LAB 205	0.4	0.0	0.0	1	20	16
17	30	1	0.0	2.9	0.0	PWR: (FA8) PRT/SHP 205C (NOTE 1)					2.9	0.4	CO: FA LAB 205	0.4	0.0	0.0	1	20	18
19	20	1	0.0	0.4	0.0	PWR: (FA9) PRT/SHOP 205C	0.4	0.4					CO: FA LAB 205	0.4	0.0	0.0	1	20	20
21	20	1	0.0	0.0	0.2	CO: CEILING CO RANGE 205D			0.2	0.5			CO: FA LAB 205	0.5	0.0	0.0	1	20	22
23	20	1	0.0	0.2	0.0	PWR: (FA2A) FA LAB 205					0.2	0.4	CO: FA LAB 205	0.4	0.0	0.0	1	20	24
25	20	1	0.0	2.0	0.0	PWR: (FA2B) FA LAB 205	2.0	0.4					CO: FA LAB 205	0.4	0.0	0.0	1	20	26
27	20	1	0.0	0.6	0.0	PWR: (FA11) FA LAB 205			0.6	0.4			CO: FA LAB 205	0.4	0.0	0.0	1	20	28
29	20	1	0.0	0.6	0.0	PWR: (FA11) FA LAB 205					0.6	0.5	CO: FA LAB 205	0.5	0.0	0.0	1	20	30
31	20	1	0.0	0.6	0.0	PWR: (FA11) FA LAB 205	0.6	0.4					CO FA LAB 205	0.4	0.0	0.0	1	20	32
33	20	1	0.0	0.6	0.0	PWR: (FA11) FA LAB 205			0.6	1.2			PWR: (FA12) FA LAB 205	0.0	1.2	0.0	1	20	34
35	20	1	0.0	0.6	0.0	PWR: (FA11) FA LAB 205					0.6	1.2	PWR: (FA12) FA LAB 205	0.0	1.2	0.0	1	20	36
37	20	2	0.0	0.0	0.4	PWR: PRT/SHOP 205C	0.2	1.2					PWR: (FA12) FA LAB 205	0.0	1.2	0.0	1	20	38
39	--	--	--	--	--	--			0.2	1.2			PWR: (FA12) FA LAB 205	0.0	1.2	0.0	1	20	40
41	20	2	0.0	0.0	0.4	PWR: PRT/SHOP 205C					0.2	1.2	PWR: (FA12) FA LAB 205	0.0	1.2	0.0	1	20	42
43	--	--	--	--	--	--	0.2	0.2					PWR: CHEM PROC/EXAM 205B	0.4	0.0	0.0	2	20	44
45	20	2	0.0	0.0	0.4	PWR: CHEM PROC/EXAM 205B			0.2	0.2			--	--	--	--	--	--	46
47	--	--	--	--	--	--					0.2	0.2	PWR: CHEM PROC/EXAM 205B	0.4	0.0	0.0	2	20	48
49	20	2	0.0	0.0	0.4	PWR: CHEM PROC/EXAM 205B	0.2	0.2					--	--	--	--	--	--	50
51	--	--	--	--	--	--			0.2	0.2			PWR: FA LAB 205	0.4	0.0	0.0	2	20	52
53	20	2	0.0	0.0	0.4	PWR: FA LAB 205					0.2	0.2	--	--	--	--	--	--	54
55	--	--	--	--	--	--	0.2	0.2					PWR: FA LAB 205	0.4	0.0	0.0	2	20	56
57	20	2	0.0	0.0	0.4	PWR: FA LAB 205			0.2	0.2			--	--	--	--	--	--	58
59	--	--	--	--	--	--					0.2	0.2	PWR: FA LAB 205	0.4	0.0	0.0	2	20	60
61	20	2	0.0	0.0	0.4	PWR: FA LAB 205	0.2	0.2					--	--	--	--	--	--	62
63	--	--	--	--	--	--			0.2	0.2			PWR: FA LAB 205	0.4	0.0	0.0	2	20	64
65	20	2	0.0	0.0	0.4	PWR: FA LAB 205					0.2	0.2	--	--	--	--	--	--	66
67	--	--	--	--	--	--	0.2	0.2					PWR: FA LAB 205	0.4	0.0	0.0	2	20	68
69	20	2	0.0	0.0	0.4	PWR: FA LAB 205			0.2	0.2			--	--	--	--	--	--	70
71	--	--	--	--	--	--					0.2	0.2	PWR: FA LAB 205	0.4	0.0	0.0	2	20	72
73	20	1	0.0	0.0	0.4	CO: FA LAB 205	0.4	0.2					--	--	--	--	--	--	74
75	20	1	0.0	0.0	0.5	CO: PRT/SHOP 205C			0.5	0.0			SPARE	--	--	--	1	20	76
77	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	78
79	20	1	0.2	0.0	0.0	LTG: FA LAB 205	0.2	0.1					LTG: CHEM PROC/EXAM 205B	0.0	0.0	0.1	1	20	80
81	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	82
83	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	84
85	20	1	0.1	0.0	0.0	LTG: PRT/SHOP 205C	0.1	0.0					SPARE	--	--	--	1	20	86
87	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	88
89	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	90
91	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	92
93	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	94
95	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	96
97	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	98
99	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	100
101	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	102
103	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	104
105	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	106
107	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	108
109	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	110
111	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	112
113	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	114
115	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	116
117	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	118
119	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	120
TOTALS:						CONNECTED kVA PER PHASE	**14**		**15**		**14**		CONNECTED TOTAL kVA = **43**						
						CONNECTED AMPS PER PHASE	**117**		**124**		**120**		AVERAGE CONNECTED AMPS PER PHASE = **120**						

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **0.3 kVA @ 125% = 0.4 kVA** - 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL kVA = **42**

RECEPTACLES: **13.2 kVA @ 88% = 11.6 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = **116**

ALL OTHER LOADS @ 100% : **29.7 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

Notes:

1. 30 mA GFCI CIRCUIT BREAKER.

CRSA
649 E. South Temple
Salt Lake City, UT 84102
801.355.5915

MWL
11798 N. Lakeridge Pkwy.
Ashland, VA 23005
804-228-7473

State of Utah
Department of Administrative Services
Division of Facilities Construction & Management
DFCM
4110 State Office Building
Salt Lake City, Utah 84114
Phone: (801) 538 - 3018
Fax: (801) 538 - 3267

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
REVIEWED FOR CODE COMPLIANCE
SIGNATURE: Enzo Calfa
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 181563
DAVID E. WESEMANN
04-21-2014
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300

Project #: B13-024

DATE:	ISSUE TYPE:
April 21, 2014	BID SET
CHECKED BY	D. WESEMANN
DRAWN BY	DLM

PANEL SCHEDULES

EP621

VOLUME 2

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PANEL: "2LB3"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	150 AMPERE MAIN CB	HALL 200K	RECESSED	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 9,000 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	1.9	0.0	PWR: REF CHEMISTRY / TRACE 211	1.9	0.5					CO: CHEMISTRY / TRACE 211	0.5	0.0	0.0	1	20	2
3	20	1	0.0	1.9	0.0	PWR: (F4) CHEMISTRY / TRACE 211			1.9	0.2			CO: CHEMISTRY / TRACE 211	0.2	0.0	0.0	1	20	4
5	20	1	0.0	1.9	0.0	PWR: (FH6-1) CHEM / TRACE 211					1.9	0.4	CO: CHEMISTRY / TRACE 211	0.4	0.0	0.0	1	20	6
7	20	1	0.0	1.9	0.0	PWR: (FH6-1) CHEM / TRACE 211	1.9	0.5					CO: CHEMISTRY / TRACE 211	0.5	0.0	0.0	1	20	8
9	20	1	0.0	1.9	0.0	PWR: (FH6-1) CHEM / TRACE 211			1.9	0.4			CO: CHEMISTRY / TRACE 211	0.4	0.0	0.0	1	20	10
11	20	1	0.0	0.0	0.2	CO: CHEMISTRY / TRACE 211					0.2	0.5	CO: CHEMISTRY / TRACE 211	0.5	0.0	0.0	1	20	12
13	20	1	0.0	1.8	0.0	PWR: (C5) SEM. 211A	1.8	0.5					CO: CHEMISTRY / TRACE 211	0.5	0.0	0.0	1	20	14
15	20	1	0.0	1.9	0.0	PWR: (FH6-1) SEM. 211A			1.9	0.5			CO: CHEMISTRY / TRACE 211	0.5	0.0	0.0	1	20	16
17	20	1	0.0	0.4	0.0	PWR: (C6) SEM. 211A					0.4	0.5	CO: CHEMISTRY / TRACE 211	0.5	0.0	0.0	1	20	18
19	20	1	0.0	0.0	0.4	CO: CEILING SEM 211A	0.4	0.4					CO: CHEMISTRY / TRACE 211	0.4	0.0	0.0	1	20	20
21	20	1	0.0	0.0	0.4	CO: CEILING SEM 211A			0.4	0.5			CO: CHEMISTRY / TRACE 211	0.5	0.0	0.0	1	20	22
23	20	1	0.0	0.0	0.2	CO: SEM. 211A					0.2	0.5	CO: CHEMISTRY / TRACE 211	0.5	0.0	0.0	1	20	24
25	20	1	0.0	0.0	0.2	CO: SEM. 211A	0.2	0.4					CO: CHEMISTRY / TRACE 211	0.4	0.0	0.0	1	20	26
27	20	1	0.0	0.0	0.2	CO: SEM. 211A			0.2	0.5			CO: CHEMISTRY / TRACE 211	0.5	0.0	0.0	1	20	28
29	20	1	0.0	0.0	0.2	CO: SEM. 211A					0.2	0.4	CO: CHEMISTRY / TRACE 211	0.4	0.0	0.0	1	20	30
31	20	1	0.0	0.0	0.2	CO: SEM. 211A	0.2	0.5					CO: CHEMISTRY / TRACE 211	0.5	0.0	0.0	1	20	32
33	20	1	0.0	0.0	0.2	CO: SEM. 211A			0.2	0.4			CO: CHEMISTRY / TRACE 211	0.4	0.0	0.0	1	20	34
35	20	1	0.0	0.0	0.5	CO: DROP CORD SEM 211A					0.5	0.4	CO: CHEMISTRY / TRACE 211	0.4	0.0	0.0	1	20	36
37	20	1	0.0	0.0	0.5	CO: DROP CORD SEM 211A	0.5	0.4					CO CHEMISTRY / TRACE 211	0.4	0.0	0.0	1	20	38
39	20	1	0.0	0.0	0.5	CO: DROP CORD SEM 211A			0.5	0.5			CO: DROP CORD TRACE 211	0.5	0.0	0.0	1	20	40
41	20	1	0.0	0.0	0.5	CO: DROP CORD SEM 211A					0.5	0.5	CO: DROP CORD TRACE 211	0.5	0.0	0.0	1	20	42
43	20	2	0.0	0.0	0.4	PWR: SEM. 211A	0.2	2.4					PWR: (GW) CHEMISTRY / TRACE 211	0.0	7.2	0.0	3	30	44
45	--	--	--	--	--	--			0.2	2.4			--	--	--	--	--	--	46
47	20	1	0.0	0.6	0.0	PWR: GAS MANIFOLD ANN...					0.6	2.4	--	--	--	--	--	--	48
49	20	1	0.0	0.0	0.5	CO VEST 200L	0.5	0.2					PWR: CHEMISTRY / TRACE 211	0.4	0.0	0.0	2	20	50
51	20	1	0.1	0.0	0.0	LTG: SEM. 211A			0.1	0.2			--	--	--	--	--	--	52
53	20	1	0.0	0.0	0.4	CO: CHEMISTRY / TRACE 211					0.4	0.2	PWR: CHEMISTRY / TRACE 211	0.4	0.0	0.0	2	20	54
55	20	1	--	--	--	SPARE	0.0	0.2					--	--	--	--	--	--	56
57	20	1	--	--	--	SPARE			0.0	0.2			PWR: CHEMISTRY / TRACE 211	0.4	0.0	0.0	2	20	58
59	20	1	0.4	0.0	0.0	LTG: CHEMISTRY / TRACE 211					0.4	0.2	--	--	--	--	--	--	60
61	20	1	--	--	--	SPARE	0.0	0.2					PWR: CHEMISTRY / TRACE 211	0.4	0.0	0.0	2	20	62
63	20	1	--	--	--	SPARE			0.0	0.2			--	--	--	--	--	--	64
65	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	66
67	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	68
69	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	70
71	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	72
73	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	74
75	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	76
77	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	78
79	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	80
81	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	82
83	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	84
TOTALS:						CONNECTED kVA PER PHASE	**14**		**13**		**11**		CONNECTED TOTAL kVA =	**38**					
						CONNECTED AMPS PER PHASE	**117**		**112**		**93**		AVERAGE CONNECTED AMPS PER PHASE =	**106**					

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **0.4 kVA @ 125% = 0.6 kVA** - 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL kVA = **35**

RECEPTACLES: **16.1 kVA @ 81% = 13.1 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = **97**

ALL OTHER LOADS @ 100% : **21.5 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "2LB4"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	150 AMPERE MAIN CB	HALL 200K	RECESSED	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 9,000 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	1.6	0.0	PWR: (C3) INSTRUMENT LAB 211B	1.6	0.5					CO: INSTRUMENT LAB 211B	0.5	0.0	0.0	1	20	2
3	20	1	0.0	1.6	0.0	PWR: (C3) INSTRUMENT LAB 211B			1.6	0.9			CO: INSTRUMENT LAB 211B	0.9	0.0	0.0	1	20	4
5	20	1	0.0	1.6	0.0	PWR: (C3) INSTRUMENT LAB 211B					1.6	0.5	CO: INSTRUMENT LAB 211B	0.5	0.0	0.0	1	20	6
7	20	1	0.0	1.6	0.0	PWR: (C3) INSTRUMENT LAB 211B	1.6	0.4					CO: INSTRUMENT LAB 211B	0.4	0.0	0.0	1	20	8
9	20	1	0.0	1.1	0.0	PWR: (C8) INSTRUMENT LAB 211B			1.1	0.4			CO: INSTRUMENT LAB 211B	0.4	0.0	0.0	1	20	10
11	20	1	0.0	1.2	0.0	PWR: (C9) INSTRUMENT LAB 211B					1.2	0.5	CO: INSTRUMENT LAB 211B	0.5	0.0	0.0	1	20	12
13	20	1	0.0	1.7	0.0	PWR: (C10) INSTRUMENT LAB 211B	1.7	0.5					CO: INSTRUMENT LAB 211B	0.5	0.0	0.0	1	20	14
15	20	1	--	--	--	SPARE			0.0	0.4			CO: INSTRUMENT LAB 211B	0.4	0.0	0.0	1	20	16
17	20	2	0.0	0.0	0.4	PWR: INSTRUMENT LAB 211B					0.2	0.7	CO: INSTRUMENT LAB 211B	0.7	0.0	0.0	1	20	18
19	--	--	--	--	--	--	0.2	0.5					PWR: HOOD INSTRUMENT LAB 211B	0.0	0.5	0.0	1	20	20
21	20	2	0.0	0.0	0.4	PWR: INSTRUMENT LAB 211B			0.2	0.0			SPARE	--	--	--	1	20	22
23	--	--	--	--	--	--					0.2	0.0	SPARE	--	--	--	1	20	24
25	20	2	0.0	0.0	0.4	PWR: INSTRUMENT LAB 211B	0.2	0.0					SPARE	--	--	--	1	20	26
27	--	--	--	--	--	--			0.2	0.0			SPARE	--	--	--	1	20	28
29	20	2	0.0	0.0	0.4	PWR: INSTRUMENT LAB 211B					0.2	0.0	SPARE	--	--	--	1	20	30
31	--	--	--	--	--	--	0.2	0.0					SPARE	--	--	--	1	20	32
33	20	2	0.0	0.0	0.4	PWR: INSTRUMENT LAB 211B			0.2	0.0			SPARE	--	--	--	1	20	34
35	--	--	--	--	--	--					0.2	0.0	SPARE	--	--	--	1	20	36
37	20	2	0.0	0.0	0.4	PWR: INSTRUMENT LAB 211B	0.2	0.0					SPARE	--	--	--	1	20	38
39	--	--	--	--	--	--			0.2	0.0			SPARE	--	--	--	1	20	40
41	20	2	0.0	0.0	0.4	PWR: INSTRUMENT LAB 211B					0.2	0.0	SPARE	--	--	--	1	20	42
43	--	--	--	--	--	--	0.2	0.0					SPARE	--	--	--	1	20	44
45	20	2	0.0	0.0	0.4	PWR* INSTRUMENT LAB 211B			0.2	0.0			SPARE	--	--	--	1	20	46
47	--	--	--	--	--	--					0.2	0.0	SPARE	--	--	--	1	20	48
49	20	1	0.0	0.6	0.0	PWR: GAS MANIFOLD ANN...	0.6	0.0					SPARE	--	--	--	1	20	50
51	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	52
53	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	54
55	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	56
57	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	58
59	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	60
61	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	62
63	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	64
65	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	66
67	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	68
69	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	70
71	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	72
73	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	74
75	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	76
77	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	78
79	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	80
81	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	82
83	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	84
TOTALS:						CONNECTED kVA PER PHASE	**8**		**5**		**6**		CONNECTED TOTAL kVA =	**19**					
						CONNECTED AMPS PER PHASE	**69**		**43**		**48**		AVERAGE CONNECTED AMPS PER PHASE =	**53**					

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: - 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL kVA = **19**

RECEPTACLES: **7.7 kVA @ 100% = 7.7 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = **53**

ALL OTHER LOADS @ 100% : **11.3 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

CRSA

649 E. South Temple
Salt Lake City, UT 84102
801.355.5915

MWL

11798 N. Lakeridge Pkwy.
Ashland, VA 23005
804-228-7473

State of Utah
Department of Administrative Services
Division of Facilities Construction & Management
4110 State Office Building
Salt Lake City, Utah 84114
Phone: (801) 538 - 3018
Fax: (801) 538 - 3267

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
REVIEWED FOR CODE COMPLIANCE
SIGNATURE: Ernie Catt
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 181563
DAVID E. WESEMANN
04-21-2014
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300

Project #: B13-024

DATE:	ISSUE TYPE:
April 21, 2014	BID SET

CHECKED BY	D. WESEMANN
DRAWN BY	DLM

PANEL SCHEDULES

EP622

VOLUME 2

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4/25/2014 3:06:41 PM

PANEL: "2LB5"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	150 AMPERE MAIN CB	VEST 200M	RECESSED	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 9,000 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	1.2	0.0	PWR: (ID9) ID / IMPRESSIONS 212	1.2	1.2					PWR: (ID5) ID / IMPRESSIONS 212	0.0	1.2	0.0	1	20	2
3	20	1	0.0	0.6	0.0	PWR: (ID3) ID / IMPRESSIONS 212			0.6	0.5			CO ID / IMPRESSIONS 212	0.5	0.0	0.0	1	20	4
5	20	1	0.0	0.0	0.5	CO ID / IMPRESSIONS 212					0.5	0.5	CO ID / IMPRESSIONS 212	0.5	0.0	0.0	1	20	6
7	20	1	0.0	0.6	0.0	PWR: (ID3) ID / IMPRESSIONS 212	0.6	0.4					CO ID / IMPRESSIONS 212	0.4	0.0	0.0	1	20	8
9	20	1	0.0	0.0	0.4	CO ID / IMPRESSIONS 212			0.4	0.5			CO ID / IMPRESSIONS 212	0.5	0.0	0.0	1	20	10
11	20	1	0.0	0.0	0.5	CO ID / IMPRESSIONS 212					0.5	0.6	PWR: (ID3) ID / IMPRESSIONS 212	0.0	0.6	0.0	1	20	12
13	20	1	0.0	0.0	0.4	CO ID / IMPRESSIONS 212	0.4	0.4					CO ID / IMPRESSIONS 212	0.4	0.0	0.0	1	20	14
15	20	1	0.0	0.0	0.4	CO ID / IMPRESSIONS 212			0.4	1.1			PWR: (R2) ID / IMPRESSIONS 212	0.0	1.1	0.0	1	20	16
17	20	1	0.0	0.6	0.0	PWR: (ID3) ID / IMPRESSIONS 212					0.6	1.9	PWR: (FH6-ADA) ID / IMPRESSIONS 212	0.0	1.9	0.0	1	20	18
19	20	1	0.0	1.2	0.0	PWR: (1D6) ID / IMPRESSIONS 212	1.2	0.5					CO ID / IMPRESSIONS 212	0.5	0.0	0.0	1	20	20
21	20	1	0.0	1.9	0.0	PWR: (FH8-1SS) ID / IMPRESSIONS...			1.9	0.0			SPARE	--	--	--	1	20	22
23	20	1	0.0	1.9	0.0	PWR: (1D4) ID / IMPRESSIONS 212					1.9	1.2	PWR: (ID8) ID / IMPRESSIONS 212	0.0	1.2	0.0	1	20	24
25	20	1	0.0	0.0	0.2	CO: ID / IMPRESSIONS 212	0.2	0.8					PWR: (ID7) PHOTO 1 212A	0.2	0.6	0.0	1	20	26
27	20	1	0.0	1.4	0.0	PWR: ID / IMPRESSIONS 212			1.4	0.8			PWR: (ID7) PHOTO 2 212B	0.2	0.6	0.0	1	20	28
29	20	1	0.0	0.0	0.5	CO:ID/IMP, VEST; ROOM 212, 200M					0.5	0.5	CO: DROP CORD PHOTO 3 212C	0.5	0.0	0.0	1	20	30
31	20	1	0.0	0.0	0.4	CO: CEILING PHOTO 3 212C	0.4	0.5					CO: DROP CORD PHOTO 3 212C	0.5	0.0	0.0	1	20	32
33	20	1	0.0	0.0	0.5	CO: DROP CORD PHOTO 3 212C			0.5	0.2			CO: VEST 200M	0.2	0.0	0.0	1	20	34
35	20	1	0.0	0.0	0.5	CO: DROP CORD PHOTO 3 212C					0.5	0.4	CO: VEST 200M	0.4	0.0	0.0	1	20	36
37	20	1	0.0	0.6	0.2	CO: (ID7)PHOTO 3 212C	0.8	0.4					CO: CEILING PHOTO 3 212C	0.4	0.0	0.0	1	20	38
39	20	1	0.0	0.0	0.4	CO: ID / IMPRESSIONS 212			0.4	0.8			CO: (ID7) PHOTO 3 212C	0.2	0.6	0.0	1	20	40
41	20	1	0.0	0.0	0.4	CO: ID / IMPRESSIONS 212					0.4	1.4	PWR: (GW) ID / IMPRESSIONS 212	0.0	4.2	0.0	3	20	42
43	20	2	0.0	0.0	0.4	PWR: ID / IMPRESSIONS 212	0.2	1.4					--	--	--	--	--	--	44
45	--	--	--	--	--	--			0.2	1.4			--	--	--	--	--	--	46
47	20	2	0.0	0.0	0.4	PWR: ID / IMPRESSIONS 212					0.2	0.0	SPARE	--	--	--	1	20	48
49	--	--	--	--	--	--	0.2	0.1					LTG: PHOTO 2 212B	0.0	0.0	0.1	1	20	50
51	20	2	0.0	0.0	0.4	PWR: ID / IMPRESSIONS 212			0.2	0.2			LTG: PHOTO 3 212C	0.0	0.0	0.2	1	20	52
53	--	--	--	--	--	--					0.2	0.1	LTG: ID / IMPRESSIONS 212	0.0	0.0	0.1	1	20	54
55	20	2	0.0	0.0	0.4	PWR: ID / IMPRESSIONS 212	0.2	0.0					SPARE	--	--	--	1	20	56
57	--	--	--	--	--	--			0.2	0.0			SPARE	--	--	--	1	20	58
59	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	60
61	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	62
63	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	64
65	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	66
67	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	68
69	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	70
71	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	72
73	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	74
75	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	76
77	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	78
79	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	80
81	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	82
83	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	84

TOTALS: CONNECTED kVA PER PHASE **11** **12** **12** CONNECTED TOTAL kVA = **34**
CONNECTED AMPS PER PHASE **90** **98** **101** AVERAGE CONNECTED AMPS PER PHASE = **95**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **0.4 kVA @ 125% = 0.5 kVA** - 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL kVA = **33**
RECEPTACLES: **11.9 kVA @ 92% = 11.0 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = **93**
ALL OTHER LOADS @ 100% : **22.1 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "3CLA2"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	150 AMPERE MAIN CB	VESTIBULE 301	RECESSED	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 8,678 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	2	0.0	1.0	0.0	PWR: (PC2) PEST FORM...	0.5	1.1					PWR: (PC1) PEST FORM INSTRUMENT...	0.0	2.1	0.0	2	20	2
3	--	--	--	--	--	--			0.5	1.1			--	--	--	--	--	--	4
5	20	2	0.0	1.0	0.0	PWR: (PC2) PEST FORM...					0.5	1.1	PWR: (PC1) PEST FORM INSTRUMENT...	0.0	2.1	0.0	2	20	6
7	--	--	--	--	--	--	0.5	1.1					--	--	--	--	--	--	8
9	20	1	0.0	1.9	0.0	PWR: (PC2) PEST FORM...			1.9	1.9			PWR: (PC1) PEST FORM INSTRUMENT...	0.0	1.9	0.0	1	20	10
11	20	2	0.0	3.1	0.0	PWR: (PC4) PEST FORM...					1.6	1.6	PWR: (PC11) PEST FORM INSTRUMEN...	0.0	3.1	0.0	2	20	12
13	--	--	--	--	--	--	1.6	1.6					--	--	--	--	--	--	14
15	20	2	0.0	3.1	0.0	PWR: (PC4) PEST FORM...			1.6	1.6			PWR: (PC11) PEST FORM INSTRUMEN...	0.0	3.1	0.0	2	20	16
17	--	--	--	--	--	--					1.6	1.6	--	--	--	--	--	--	18
19	20	1	0.0	1.9	0.0	PWR: (PC4) PEST FORM...	1.9	1.4					PWR: (PC7) PEST FORM EXTRACTION...	0.0	2.7	0.0	2	20	20
21	20	1	0.0	1.9	0.0	PWR: (PC4) PEST FORM...			1.9	1.4			--	--	--	--	--	--	22
23	20	1	0.0	0.2	0.0	PWR:(HG) PESTICIDE...					0.2	0.8	PWR: FRIDGE PEST FORM...	0.0	0.8	0.0	1	20	24
25	20	1	0.0	0.0	0.5	CO: PESTICIDE FORMULATION...	0.5	0.8					PWR: FRIDGE PEST FORM...	0.0	0.8	0.0	1	20	26
27	20	1	0.0	0.0	0.2	CO: PESTICIDE FORMULATION...			0.2	0.8			PWR: FRIDGE PEST FORM...	0.0	0.8	0.0	1	20	28
29	20	1	0.0	0.0	0.2	CO: PESTICIDE FORMULATION...					0.2	0.8	PWR: FRIDGE PEST FORM...	0.0	0.8	0.0	1	20	30
31	20	1	0.0	0.0	0.2	CO: PESTICIDE FORMULATION...	0.2	0.4					CO: PESTICIDE FORMULATION...	0.4	0.0	0.0	1	20	32
33	20	1	0.0	0.0	0.2	CO: PESTICIDE FORMULATION...			0.2	0.4			CO: PESTICIDE FORMULATION...	0.4	0.0	0.0	1	20	34
35	20	1	0.0	0.0	0.2	CO: PESTICIDE FORMULATION...					0.2	0.2	CO: PESTICIDE FORMULATION...	0.2	0.0	0.0	1	20	36
37	20	1	0.0	0.0	0.2	CO: PESTICIDE FORMULATION...	0.2	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	0.0	1.9	0.0	PWR: MECH CTRL POWER					1.9	0.0	SPARE	--	--	--	1	20	42
43	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	44
45	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	46
47	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	48
49	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	50
51	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	52
53	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	54
55	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	56
57	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	58
59	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	60

TOTALS: CONNECTED kVA PER PHASE **12** **13** **12** CONNECTED TOTAL kVA = **37**
CONNECTED AMPS PER PHASE **97** **112** **102** AVERAGE CONNECTED AMPS PER PHASE = **103**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: - 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL kVA = **37**
RECEPTACLES: **2.5 kVA @ 100% = 2.5 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = **103**
ALL OTHER LOADS @ 100% : **34.6 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "3CLA1"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE MAIN LUG	ELEC 300L	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 9,597 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.1	0.0	0.2	CO/LTG: ELEV PIT-1 300K	0.2	0.0					SPARE	--	--	--	1	20	2
3	20	1	0.0	0.0	0.2	CO: ELEC 300L			0.2	0.0			SPARE	--	--	--	1	20	4
5	20	1	0.0	0.1	0.0	PWR: FSD SPACE 233					0.1	0.0	SPARE	--	--	--	1	20	6
7	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	8
9	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	10
11	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	12
13	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	14
15	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	16
17	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	18
19	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	20
21	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	22
23	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	24
25	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	28
29	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42

TOTALS: CONNECTED kVA PER PHASE **0** **0** **0** CONNECTED TOTAL kVA = **0**
CONNECTED AMPS PER PHASE **2** **2** **1** AVERAGE CONNECTED AMPS PER PHASE = **1**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **0.1 kVA @ 125% = 0.1 kVA** - 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL kVA = **0**
RECEPTACLES: **0.4 kVA @ 100% = 0.4 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = **1**
ALL OTHER LOADS @ 100% : **0.1 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "3CLA3"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	150 AMPERE MAIN CB	VESTIBULE 301	RECESSED	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 8,678 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	2	0.0	2.1	0.0	PWR: (PC1) PESTICIDE RESIDUE...	1.1	1.1					PWR: (PC1) PESTICIDE RESIDUE...	0.0	2.1	0.0	2	20	2
3	--	--	--	--	--	--			1.1	1.1			--	--	--	--	--	--	4
5	20	2	0.0	2.1	0.0	PWR: (PC1) PESTICIDE RESIDUE...					1.1	1.1	PWR: (PC1) PESTICIDE RESIDUE...	0.0	2.1	0.0	2	20	6
7	--	--	--	--	--	--	1.1	1.1					--	--	--	--	--	--	8
9	20	1	0.0	1.9	0.0	PWR: (PC1) PESTICIDE RESIDUE...			1.9	1.9			PWR: (PC1) PESTICIDE RESIDUE...	0.0	1.9	0.0	1	20	10
11	20	1	0.0	1.9	0.0	PWR: (PC3) PESTICIDE RESIDUE...					1.9	1.0	PWR: (PC15) PESTICIDE RESIDUE...	0.0	2.1	0.0	2	20	12
13	20	2	0.0	4.4	0.0	PWR: (PC3) PESTICIDE RESIDUE...	2.2	1.0					--	--	--	--	--	--	14
15	--	--	--	--	--	--			2.2	1.0			PWR: (PC15) PESTICIDE RESIDUE...	0.0	2.1	0.0	2	20	16
17	20	2	0.0	4.4	0.0	PWR: (PC3) PESTICIDE RESIDUE...					2.2	1.0	--	--	--	--	--	--	18
19	--	--	--	--	--	--	2.2	0.2					PWR: (HG) PESTICIDE RESIDUE...	0.0	0.2	0.0	1	20	20
21	20	2	0.0	3.1	0.0	PWR: (PC11) PESTICIDE RESIDUE...			1.6	0.2			CO: PESTICIDE RESIDUE INSTRUMEN...	0.2	0.0	0.0	1	20	22
23	--	--	--	--	--	--					1.6	0.5	CO: PESTICIDE RESIDUE INSTRUMEN...	0.5	0.0	0.0	1	20	24
25	20	2	0.0	3.1	0.0	PWR: (PC11) PESTICIDE RESIDUE...	1.6	0.2					CO: PESTICIDE RESIDUE INSTRUMEN...	0.2	0.0	0.0	1	20	26
27	--	--	--	--	--	--			1.6	0.2			CO: PESTICIDE RESIDUE INSTRUMEN...	0.2	0.0	0.0	1	20	28
29	20	1	0.0	0.0	0.4	CO: PESTICIDE RESIDUE...					0.4	0.2	CO: PESTICIDE RESIDUE INSTRUMEN...	0.2	0.0	0.0	1	20	30
31	20	1	0.0	0.0	0.5	CO: PESTICIDE RESIDUE...	0.5	0.2					CO: PESTICIDE RESIDUE INSTRUMEN...	0.2	0.0	0.0	1	20	32
33	20	1	0.0	0.0	0.2	CO: PESTICIDE RESIDUE...			0.2	0.0			SPARE	--	--	--	1	20	34
35	20	1	0.0	0.0	0.2	CO: PESTICIDE RESIDUE...					0.2	0.0	SPARE	--	--	--	1	20	36
37	20	1	0.0	0.0	0.2	CO: PESTICIDE RESIDUE...	0.2	0.0					SPARE	--	--	--	1	20	38
39	20	2	0.0	0.0	0.4	PWR: PEST RSD INST LAB 301C			0.2	0.0			SPARE	--	--	--	1	20	40
41	--	--	--	--	--	--					0.2	0.0	SPARE	--	--	--	1	20	42
43	20	2	0.0	0.0	0.4	PWR: PEST RSD INST LAB 301C	0.2	0.0					SPARE	--	--	--	1	20	44
45	--	--	--	--	--	--			0.2	0.0			SPARE	--	--	--	1	20	46
47	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	48
49	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	50
51	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	52
53	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	54
55	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	56
57	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	58
59	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	60

TOTALS: CONNECTED kVA PER PHASE **13** **13** **11** CONNECTED TOTAL kVA = **37**
CONNECTED AMPS PER PHASE **108** **112** **94** AVERAGE CONNECTED AMPS PER PHASE = **104**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: - 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL kVA = **37**
RECEPTACLES: **3.6 kVA @ 100% = 3.6 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = **104**
ALL OTHER LOADS @ 100% : **33.7 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

CRSA
649 E. South Temple
Salt Lake City, UT 84102
801.355.5915

MWL
11798 N. Lakeridge Pkwy.
Ashland, VA 23005
804-228-7473

State of Utah
Department of Administrative Services
Division of Facilities Construction & Management
4110 State Office Building
Salt Lake City, Utah 84114
Phone: (801) 538 - 3018
Fax: (801) 538 - 3267

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
REVIEWED FOR CODE COMPLIANCE
SIGNATURE: Ernie Catt
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 181563
DAVID E. WESEMANN
04-21-2014
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2
4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300
Project #: B13-024

DATE:	ISSUE TYPE:
April 21, 2014	BID SET

CHECKED BY	D. WESEMANN
DRAWN BY	DLM

PANEL SCHEDULES

EP623
VOLUME 2

C:\Users\jpm\Desktop\Revit Local Files\2013\20130362\Elec Central_jpm.rvt
4/25/2014 3:06:43 PM

PANEL: "3CLA4"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	150 AMPERE MAIN CB	HALL 300B	RECESSED	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 8,678 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD						LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.0	0.2	CO: GRIND 1 315C	0.2	0.0					SPARE	--	--	--	1	20	2
3	20	1	0.0	0.0	0.2	CO: GRIND 2 315A			0.2	0.8			PWR: FRIDGE WET CHEM 314	0.0	0.8	0.0	1	20	4
5	20	1	0.0	0.0	0.4	CO: GRIND PREP 315B					0.4	0.8	PWR: FRIDGE WET CHEM 314	0.0	0.8	0.0	1	20	6
7	20	1	0.0	1.9	0.0	PWR: MECH CTRL POWER	1.9	0.4					CO: WET CHEM 314	0.4	0.0	0.0	1	20	8
9	20	1	0.0	1.9	0.0	PWR: MECH CTRL POWER			1.9	0.4			CO: WET CHEM 314	0.4	0.0	0.0	1	20	10
11	20	1	0.0	0.0	0.5	CO: ICPMS 314A					0.5	0.4	CO: WET CHEM 314	0.4	0.0	0.0	1	20	12
13	20	1	--	--	--	SPARE	0.0	0.5					CO: WET CHEM 314	0.5	0.0	0.0	1	20	14
15	20	1	--	--	--	SPARE			0.0	0.4			CO: WET CHEM 314	0.4	0.0	0.0	1	20	16
17	20	1	--	--	--	SPARE					0.0	0.5	CO: WET CHEM 314	0.5	0.0	0.0	1	20	18
19	20	1	--	--	--	SPARE	0.0	0.2					CO: WET CHEM 314	0.2	0.0	0.0	1	20	20
21	20	1	--	--	--	SPARE			0.0	0.4			CO: WET CHEM 314	0.4	0.0	0.0	1	20	22
23	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	24
25	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	28
29	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42
43	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	44
45	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	46
47	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	48
49	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	50
51	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	52
53	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	54
55	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	56
57	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	58
59	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	60

TOTALS: CONNECTED kVA PER PHASE **3** **4** **3** CONNECTED TOTAL kVA = **10**
CONNECTED AMPS PER PHASE **27** **34** **22** AVERAGE CONNECTED AMPS PER PHASE = **27**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS:
RECEPTACLES: **4.3 kVA @ 100% = 4.3 kVA**
ALL OTHER LOADS @ 100% : **5.4 kVA**

- 100% CONNECTED LOAD PLUS 25%
- FIRST 10kVA @ 100%, REMAINDER @ 50%
- MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

DIVERSIFIED TOTAL kVA = **10**
AVERAGE AMPS PER PHASE = **27**

PANEL: "3CLB1"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE MAIN LUG	ELECTRICAL 300F	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 7,936 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD						LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	--	--	--	SPARE	0.0	0.7					CO I.T. 300D	0.7	0.0	0.0	1	20	2
3	20	1	0.0	0.0	0.7	CO I.T. 300D			0.7	0.2			CO I.T. 300D	0.2	0.0	0.0	1	20	4
5	20	1	0.0	0.0	0.7	CO I.T. 300D					0.7	0.8	PWR: RACK I.T. 300D	0.0	1.5	0.0	2	20	6
7	20	2	0.0	1.5	0.0	PWR: RACK I.T. 300D	0.8	0.8					--	--	--	--	--	--	8
9	--	--	--	--	--	--			0.8	0.8			PWR: RACK I.T. 300D	0.0	1.5	0.0	2	20	10
11	20	2	0.0	1.5	0.0	PWR: RACKR I.T. 300D					0.8	0.8	--	--	--	--	--	--	12
13	--	--	--	--	--	--	0.8	0.8					PWR: RACK I.T. 300D	0.0	1.5	0.0	2	20	14
15	20	2	0.0	1.5	0.0	PWR: RACK I.T. 300D			0.8	0.8			--	--	--	--	--	--	16
17	--	--	--	--	--	--					0.8	1.0	BMS PANEL I.T. 300D	0.0	1.0	0.0	1	20	18
19	20	1	0.0	0.5	0.0	PWR: BMS I.T. 300D	0.5	0.0					SPARE	--	--	--	1	20	20
21	20	1	0.0	0.5	0.0	PWR: BMS I.T. 300D			0.5	0.2			CO: ELECTRICAL 300F	0.2	0.0	0.0	1	20	22
23	20	1	0.0	0.5	0.0	PWR: BMS I.T. 300D					0.5	0.1	PWR: FSD SPACE 220	0.0	0.1	0.0	1	20	24
25	20	1	--	--	--	SPARE	0.0	1.9					PWR: MECH CTRL POWER	0.0	1.9	0.0	1	20	26
27	20	1	0.0	1.0	0.0	PWR: PANEL ACS3 I.T. 300D			1.0	1.9			PWR: MECH CTRL POWER	0.0	1.9	0.0	1	20	28
29	20	1	--	--	--	SPARE					0.0	1.9	PWR: MECH CTRL POWER	0.0	1.9	0.0	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42
43	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	44
45	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	46
47	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	48
49	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	50
51	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	52
53	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	54
55	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	56
57	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	58
59	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	60

TOTALS: CONNECTED kVA PER PHASE **6** **7** **7** CONNECTED TOTAL kVA = **19**
CONNECTED AMPS PER PHASE **51** **64** **62** AVERAGE CONNECTED AMPS PER PHASE = **52**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS:
RECEPTACLES: **2.5 kVA @ 100% = 2.5 kVA**
ALL OTHER LOADS @ 100% : **16.3 kVA**

- 100% CONNECTED LOAD PLUS 25%
- FIRST 10kVA @ 100%, REMAINDER @ 50%
- MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

DIVERSIFIED TOTAL kVA = **19**
AVERAGE AMPS PER PHASE = **52**

PANEL: "3CLA5"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	150 AMPERE MAIN CB	HALL 300B	RECESSED	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 8,678 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD						LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.8	0.0	PWR: FRIDGE PESTICIDE RESIDU...	0.8	0.4					CO: VOLATILE INST. LAB 303	0.4	0.0	0.0	1	20	2
3	20	1	0.0	0.8	0.0	PWR: FRIDGE PESTICIDE RESIDU...			0.8	0.4			CO: VOLATILE EXTRACT 303A	0.4	0.0	0.0	1	20	4
5	20	1	0.0	0.6	0.0	PWR: FRIDGE VOLATILE INST. LAB...					0.6	0.5	CO: PESTICIDE RESIDUE EXTRACTIO...	0.5	0.0	0.0	1	20	6
7	20	1	--	--	--	SPARE	0.0	1.9					PWR: MECH CTRL POWER	0.0	1.9	0.0	1	20	8
9	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	10
11	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	12
13	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	14
15	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	16
17	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	18
19	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	20
21	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	22
23	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	24
25	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	28
29	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42

TOTALS: CONNECTED kVA PER PHASE **3** **1** **1** CONNECTED TOTAL kVA = **5**
CONNECTED AMPS PER PHASE **26** **10** **10** AVERAGE CONNECTED AMPS PER PHASE = **15**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS:
RECEPTACLES: **1.3 kVA @ 100% = 1.3 kVA**
ALL OTHER LOADS @ 100% : **4.1 kVA**

- 100% CONNECTED LOAD PLUS 25%
- FIRST 10kVA @ 100%, REMAINDER @ 50%
- MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

DIVERSIFIED TOTAL kVA = **5**
AVERAGE AMPS PER PHASE = **15**

PANEL: "3CLB2"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	150 AMPERE MAIN CB	HALL 300B	RECESSED	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 7,936 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD						LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	1.9	0.0	PWR: (R6) - DAIRY 311	1.9	1.1					PWR: FUT FRIDGE - SAMPLE REC 311A	0.0	1.1	0.0	1	20	2
3	20	1	0.0	1.9	0.0	PWR: (R6) - DAIRY 311			1.9	1.9			PWR: (R6) - SAMPLE REC 311A	0.0	1.9	0.0	1	20	4
5	20	1	0.0	0.0	0.4	CO: DAIRY 311					0.4	0.2	CO: SAMPLE REC 311A	0.2	0.0	0.0	1	20	6
7	20	1	0.0	0.0	0.7	CO: DAIRY 311	0.7	0.4					CO: SAMPLE REC 311A	0.4	0.0	0.0	1	20	8
9	20	1	0.0	0.0	0.5	CO: DAIRY 311			0.5	0.0			SPARE	--	--	--	1	20	10
11	20	1	0.0	0.0	0.2	CO: DAIRY 311					0.2	0.4	CO: SCOPE RM 311B	0.4	0.0	0.0	1	20	12
13	20	1	0.0	0.0	0.4	CO: DAIRY 311	0.4	0.2					CO: SCOPE RM 311B	0.2	0.0	0.0	1	20	14
15	20	1	0.0	0.0	0.4	CO: DAIRY 311			0.4	0.0			SPARE	--	--	--	1	20	16
17	20	1	0.0	0.0	0.4	CO: DAIRY 311					0.4	1.1	PWR: (R1) - INSTRUMENT LAB 311C	0.0	1.1	0.0	1	20	18
19	20	1	0.0	0.0	0.4	CO: DAIRY 311	0.4	0.2					PWR: (HG) - INSTRUMENT LAB 311C	0.0	0.2	0.0	1	20	20
21	20	1	--	--	--	SPARE			0.0	1.8			PWR: (BA10) - INSTRUMENT LAB 311C	0.0	1.8	0.0	1	20	22
23	20	1	--	--	--	SPARE					0.0	1.8	PWR: (BA10) - INSTRUMENT LAB 311C	0.0	1.8	0.0	1	20	24
25	20	1	--	--	--	SPARE	0.0	0.2					CO: INSTRUMENT LAB 311C	0.2	0.0	0.0	1	20	26
27	20	1	0.0	1.9	0.0	PWR: MECH CTRL POWER			1.9	0.4			CO: INSTRUMENT LAB 311C	0.4	0.0	0.0	1	20	28
29	20	1	0.0	1.9	0.0	PWR: MECH CTRL POWER					1.9	0.4	CO: INSTRUMENT LAB 311C	0.4	0.0	0.0	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.2					CO: INSTRUMENT LAB 311C	0.2	0.0	0.0	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.2			CO: INSTRUMENT LAB 311C	0.2	0.0	0.0	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.4	CO: INSTRUMENT LAB 311C	0.4	0.0	0.0	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42
43	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	44
45	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	46
47	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	48
49	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	50
51	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	52
53	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	54
55	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	56
57	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	58
59	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	60

TOTALS: CONNECTED kVA PER PHASE **6** **9** **7** CONNECTED TOTAL kVA = **22**
CONNECTED AMPS PER PHASE **47** **77** **60** AVERAGE CONNECTED AMPS PER PHASE = **60**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS:
RECEPTACLES: **5.9 kVA @ 100% = 5.9 kVA**
ALL OTHER LOADS @ 100% : **15.7 kVA**

- 100% CONNECTED LOAD PLUS 25%
- FIRST 10kVA @ 100%, REMAINDER @ 50%
- MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

DIVERSIFIED TOTAL kVA = **22**
AVERAGE AMPS PER PHASE = **60**

CRSA
649 E. South Temple
Salt Lake City, UT 84102
801.355.5915

MWL
11798 N. Lakeridge Pkwy.
Ashland, VA 23005
804-228-7473

State of Utah
Department of Administrative Services
DFCM
Division of Facilities Construction & Management
4110 State Office Building
Salt Lake City, Utah 84114
Phone: (801) 538 - 3018
Fax: (801) 538 - 3267

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
REVIEWED FOR CODE COMPLIANCE
SIGNATURE: Ernie Catt
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 181563
DAVID E. WESEMANN
04-21-2014
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300
Project #: B13-024

DATE:	ISSUE TYPE:
April 21, 2014	BID SET

CHECKED BY	D. WESEMANN
DRAWN BY	DLM

PANEL SCHEDULES

EP624

VOLUME 2

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PANEL: "3CLB3"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	150 AMPERE MAIN CB	HALL 300B	RECESSED	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 7,936 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.0	0.2	CO: MEAT LAB 313	0.2	0.4					CO FOOD 312A	0.4	0.0	0.0	1	20	2
3	20	1	0.0	0.0	0.4	CO MEAT LAB 313			0.4	0.4			CO: FOOD 312A	0.4	0.0	0.0	1	20	4
5	20	1	0.0	0.0	0.4	CO: MEAT LAB 313					0.4	0.5	CO: FOOD 312A	0.5	0.0	0.0	1	20	6
7	20	1	0.0	0.0	0.4	CO: MEAT LAB 313	0.4	0.5					CO: FOOD 312A	0.5	0.0	0.0	1	20	8
9	20	1	0.0	0.0	0.2	CO: MEAT LAB 313			0.2	0.5			CO: FOOD 312A	0.5	0.0	0.0	1	20	10
11	20	1	0.0	0.8	0.0	PWR: FRZ MEAT LAB 313					0.8	0.5	CO: FOOD 312A	0.5	0.0	0.0	1	20	12
13	20	1	0.0	0.8	0.0	PWR: REF/FRZ MEAT LAB 313	0.8	0.4					CO: FOOD 312A	0.4	0.0	0.0	1	20	14
15	20	1	0.0	0.0	0.5	CO: PATH 313A			0.5	0.4			CO: FOOD 312A	0.4	0.0	0.0	1	20	16
17	20	1	0.0	0.0	0.5	CO: PATH 313A					0.5	0.4	CO: FOOD 312A	0.4	0.0	0.0	1	20	18
19	20	1	0.0	0.0	0.4	CO: PATH 313A	0.4	0.4					CO FOOD 312A	0.4	0.0	0.0	1	20	20
21	20	1	0.0	0.0	0.4	CO: PATH 313A			0.4	1.1			PWR: (R1) FOOD 312A	0.0	1.1	0.0	1	20	22
23	20	1	0.0	1.1	0.0	PWR: (R1) PATH 313A					1.1	0.4	PWR: COUNTER FREEZER FOOD 312A	0.0	0.4	0.0	1	20	24
25	20	1	0.0	1.1	0.0	PWR: (R1)PATH 313A	1.1	0.8					PWR: FRIDGE FOOD 312A	0.0	0.8	0.0	1	20	26
27	20	1	0.0	0.8	0.0	PWR: (F1) PATH 313A			0.8	1.9			PWR: MECH CTRL POWER	0.0	1.9	0.0	1	20	28
29	20	1	--	--	--	SPARE					0.0	1.9	PWR: MECH CTRL POWER	0.0	1.9	0.0	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42
43	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	44
45	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	46
47	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	48
49	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	50
51	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	52
53	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	54
55	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	56
57	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	58
59	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	60

TOTALS: CONNECTED kVA PER PHASE **5** **7** **7** CONNECTED TOTAL kVA = **18**
CONNECTED AMPS PHASE **44** **56** **56** AVERAGE CONNECTED AMPS PHASE = **51**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: - 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL kVA = **18**
RECEPTACLES: **7.6 kVA @ 100% = 7.6 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = **51**
ALL OTHER LOADS @ 100% : **10.8 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "3LA1"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE MAIN LUG	ELEC 300L	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 9,799 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.8	0.0	PWR: FURN CHEM OFFICE 304	0.8	0.7					CO: BALCONY & BREAK ROOM 317, 316	0.7	0.0	0.0	1	20	2
3	20	3	0.0	1.4	0.0	PWR: FURN CHEM OFFICE 304			1.4	0.4			CO: COUNTER PENINSULA BREAK RM	0.4	0.0	0.0	1	20	4
5	--	--	--	--	--	--					0.0	1.7	CO: DISPOSAL BREAK ROOM 316	1.7	0.0	0.0	1	20	6
7	--	--	--	--	--	--	0.0	0.4					CO: COUNTER TOP BREAK ROOM 316	0.4	0.0	0.0	1	20	8
9	20	1	--	--	--	SPARE			0.0	1.2			CO: REFRIGERATOR BREAK ROOM 316	0.0	1.2	0.0	1	20	10
11	20	1	--	--	--	SPARE					0.0	1.2	CO: REFRIGERATOR BREAK ROOM 316	0.0	1.2	0.0	1	20	12
13	20	1	--	--	--	SPARE	0.0	0.9					CO: HALLWAY	0.9	0.0	0.0	1	20	14
15	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	16
17	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	18
19	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	20
21	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	22
23	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	24
25	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	28
29	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42

TOTALS: CONNECTED kVA PER PHASE **3** **3** **3** CONNECTED TOTAL kVA = **9**
CONNECTED AMPS PHASE **23** **24** **24** AVERAGE CONNECTED AMPS PHASE = **24**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: - 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL kVA = **9**
RECEPTACLES: **4.0 kVA @ 100% = 4.0 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = **24**
ALL OTHER LOADS @ 100% : **4.6 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "3HB"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
480/277 V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE LUG	ELECTRICAL 300F	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 35,029 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	2.6	0.0	0.0	LTG: DAIRY 311	2.6	1.0					LTG: LEVEL 3 CORRIDOR (3RB-1)	0.0	0.0	1.0	1	20	2
3	20	1	2.9	0.0	0.0	LTG: FOOD 312A			2.9	0.2			LTG: BALCONY (3RB-2)	0.0	0.0	0.2	1	20	4
5	20	1	1.3	0.0	0.0	LTG: MEAT LAB 313					1.3	3.3	LTG: PENTHOUSE	0.0	0.0	3.3	1	20	6
7	20	1	2.7	0.0	0.0	LTG: WET CHEM 314	2.7	1.7					LTG: PEST FORM LAB 301A,B	0.0	0.0	1.7	1	20	8
9	20	1	2.5	0.0	0.0	LTG: ICPMS, FURNACE; 314A,315A-D			2.5	2.2			LTG: PEST RESIDUE LAB 301C,2	0.0	0.0	2.2	1	20	10
11	20	1	0.6	0.0	0.0	LTG: BREAK ROOM					0.6	1.2	LTG: VOLATILE/CHEM RMS 303,...	0.0	0.0	1.2	1	20	12
13	20	1	--	--	--	SPARE	0.0	1.4					LTG: CONF, BATH, JAN; RM 306-308,...	0.0	0.0	1.5	1	20	14
15	20	1	--	--	--	SPARE			0.0	2.4			LTG: BACTERIA/AG/FOOD ADMIN	0.0	0.0	2.4	1	20	16
17	20	1	--	--	--	SPARE					0.0	1.7	LTG: SAMPLE/INSTRUMENT LAB 311C	0.0	0.0	1.7	1	20	18
19	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	20
21	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	22
23	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	24
25	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	28
29	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42

TOTALS: CONNECTED kVA PER PHASE **9** **10** **8** CONNECTED TOTAL kVA = **28**
CONNECTED AMPS PER PHASE **35** **37** **29** AVERAGE CONNECTED AMPS PER PHASE = **33**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **27.8 kVA @ 125% = 34.7 kVA** - 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL kVA = **35**
RECEPTACLES: - FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = **42**
ALL OTHER LOADS @ 100% : **0.0 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "3LA2"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	150 AMPERE MAIN CB	VESTIBULE 301	RECESSED	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 8,842 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.0	0.4	CO: PESTICIDE FORMULATION...	0.4	0.2					CO: PESTICIDE FORMULATION...	0.2	0.0	0.0	1	20	2
3	20	1	0.0	0.0	0.4	CO: PESTICIDE FORMULATION...			0.4	1.9			PWR: (FH8-ADA) PEST FORM...	0.0	1.9	0.0	1	20	4
5	20	1	0.0	0.0	0.4	CO: PESTICIDE FORMULATION...					0.4	0.7	PWR: (PC12) PEST FORM EXTRACTIO...	0.0	0.7	0.0	1	20	6
7	20	1	0.0	0.0	0.7	CO: ROOM 301A, 301, 301C	0.7	1.9					PWR: (FH6-ADA) PESTI FORM...	0.0	1.9	0.0	1	20	8
9	20	1	0.0	0.0	0.4	CO: PESTICIDE FORMULATION...			0.4	0.4			CO: PESTICIDE FORMULATION...	0.4	0.0	0.0	1	20	10
11	20	1	0.0	0.0	0.5	CO: PESTICIDE RESIDUE...					0.5	0.5	CO: PESTICIDE FORMULATION...	0.5	0.0	0.0	1	20	12
13	20	1	0.0	0.0	0.4	CO: PESTICIDE RESIDUE...	0.4	0.4					CO: PESTICIDE RESIDUE INSTRUMEN...	0.4	0.0	0.0	1	20	14
15	20	1	0.0	0.0	0.5	CO: PESTICIDE RESIDUE...			0.5	0.5			CO: PESTICIDE RESIDUE INSTRUMEN...	0.5	0.0	0.0	1	20	16
17	20	1	--	--	--	SPARE					0.0	0.5	CO: PESTICIDE RESIDUE INSTRUMEN...	0.5	0.0	0.0	1	20	18
19	20	1	0.0	0.5	0.0	PWR: VENT HOOD PESTICIDE...	0.5	0.4					CO: PESTICIDE RESIDUE INSTRUMEN...	0.4	0.0	0.0	1	20	20
21	20	1	0.2	0.0	0.0	LTG: PESTICIDE FORMULATION...			0.2	0.2			CO: PESTICIDE FORMULATION...	0.2	0.0	0.0	1	20	22
23	20	1	0.2	0.0	0.0	LTG: PESTICIDE FORMULATION...					0.2	0.2	PWR: PESTICIDE FORMULATION...	0.4	0.0	0.0	2	20	24
25	20	2	0.0	0.0	0.4	PWR: PESTICIDE FORMULATION...	0.2	0.2					--	--	--	--	--	--	26
27	--	--	--	--	--	--			0.2	0.4			CO: PESTICIDE FORMULATION...	0.4	0.0	0.0	1	20	28
29	20	2	0.0	0.0	0.4	PWR: PESTICIDE FORMULATION...					0.2	0.0	SPARE	--	--	--	1	20	30
31	--	--	--	--	--	--	0.2	0.0					SPARE	--	--	--	1	20	32
33	20	1	0.0	0.6	0.0	PWR: GAS MANIFOLD ANN...			0.6	0.0			SPARE	--	--	--	1	20	34
35	20	1	0.0	0.6	0.0	PWR: GAS MANIFOLD ANN...					0.6	0.2	PWR: PESTICIDE FORMULATION...	0.4	0.0	0.0	2	20	36
37	20	1	0.2	0.0	0.0	LTG: PESTICIDE RESIDUE...	0.2	0.2					--	--	--	--	--	--	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42
43	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	44
45	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	46
47	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	48
49	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	50
51	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	52
53	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	54
55	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	56
57	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	58
59	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	60

TOTALS: CONNECTED kVA PER PHASE **6** **6** **4** CONNECTED TOTAL kVA = **15**
CONNECTED AMPS PER PHASE **50** **49** **33** AVERAGE CONNECTED AMPS PER PHASE = **42**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **0.6 kVA @ 125% = 0.8 kVA** - 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL kVA = **15**
RECEPTACLES: **8.5 kVA @ 100% = 8.5 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = **43**
ALL OTHER LOADS @ 100% : **6.2 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

CRSA
649 E. South Temple
Salt Lake City, UT 84102
801.355.5915

MWL
11798 N. Lakeridge Pkwy.
Ashland, VA 23005
804-228-7473

State of Utah
Department of Administrative Services
DFCM
Division of Facilities Construction & Management
4110 State Office Building
Salt Lake City, Utah 84114
Phone: (801) 538 - 3018
Fax: (801) 538 - 3267

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
REVIEWED FOR CODE COMPLIANCE
SIGNATURE: Ernie Catt
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 181563
DAVID E. WESEMANN
04-21-2014
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2
4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300
Project #: B13-024

DATE:	ISSUE TYPE:
April 21, 2014	BID SET

CHECKED BY	D. WESEMANN
DRAWN BY	DLM

PANEL SCHEDULES

EP625
VOLUME 2

C:\Users\jpm\Desktop\Revit Local Files\2013\2013352\Elec Central_jpm.rvt
4/25/2014 3:06:47 PM

PANEL: "3LA3"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE MAIN CB	HALL 300B	RECESSED	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 8,842 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD						LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	30	2	0.0	4.4	0.0	PWR: (CH6) FURNACE 315D	2.2	1.5					PWR: (CH5A) GRIND 2 315A	0.0	1.5	0.0	1	20	2
3	--	--	--	--	--	--			2.2	1.0			PWR: (CH5B) GRIND 2 315A	0.0	1.0	0.0	1	20	4
5	30	2	0.0	4.4	0.0	PWR: (CH6) FURNACE 315D					2.2	1.5	PWR: (CH5A) GRIND 1 315C	0.0	1.5	0.0	1	20	6
7	--	--	--	--	--	--	2.2	1.0					PWR: (CH5B) GRIND 1 315C	0.0	1.0	0.0	1	20	8
9	20	1	0.0	1.7	0.0	PWR: (CH11) FURNACE 315D			1.7	0.4			CO: GRIND PREP 315B	0.4	0.0	0.0	1	20	10
11	20	1	0.0	1.7	0.0	PWR: (CH11) FURNACE 315D					1.7	0.4	CO: GRIND 2 315A	0.4	0.0	0.0	1	20	12
13	20	2	0.0	3.1	0.0	PWR: (CH4) FURNACE 315D	1.6	0.4					CO: GRIND 1 315C	0.4	0.0	0.0	1	20	14
15	--	--	--	--	--	--			1.6	0.5			CO: BALANCE 315	0.5	0.0	0.0	1	20	16
17	20	2	0.0	2.1	0.0	PWR: (CH13) FURNACE 315D					1.0	0.7	PWR: (CH2-HTEX) ICPMS 314A	0.0	0.7	0.0	1	20	18
19	--	--	--	--	--	--	1.0	2.1					PWR: (CH2-CHILLER) ICPMS 314A	0.0	4.2	0.0	2	30	20
21	20	1	0.0	0.5	0.0	PWR: VENT HOOD GRIND 2 315A			0.5	2.1			--	--	--	--	--	--	22
23	30	2	0.0	5.0	0.0	PWR: (CH2) ICPMS 314A					2.5	0.2	PWR: (CH2-ASX-500) ICPMS 314A	0.0	0.2	0.0	1	20	24
25	--	--	--	--	--	--	2.5	2.9					PWR: (CH1) ICPMS 314A	0.0	5.8	0.0	2	30	26
27	20	1	0.0	1.2	0.0	PWR: (CH2-MONITOR) ICPMS 314A			1.2	2.9			--	--	--	--	--	--	28
29	20	2	0.0	2.5	0.0	PWR: (CH2-CHILLER) ICPMS 314A					1.3	0.2	CO ICPMS 314A	0.2	0.0	0.0	1	20	30
31	--	--	--	--	--	--	1.3	1.6					PWR: (CH4) ICPMS 314A	0.0	3.1	0.0	2	20	32
33	20	1	0.0	0.2	0.0	PWR: (CH2-I-AS) ICPMS 314A			0.2	1.6			--	--	--	--	--	--	34
35	20	1	0.0	0.4	0.0	PWR: CH1 ACCSRS ICPMS 314A					0.4	0.5	PWR: VENT HOOD GRIND 2 315A	0.0	0.5	0.0	1	20	36
37	20	1	0.0	0.0	0.5	CO: ICPMS 314A	0.5	0.5					PWR: VENT HOOD GRIND 1 315C	0.0	0.5	0.0	1	20	38
39	30	2	0.0	5.8	0.0	PWR: (CH1) ICPMS 314A			2.9	0.0			SPARE	--	--	--	1	0	40
41	--	--	--	--	--	--					2.9	0.5	PWR: VENT HOOD FURNACE 315D	0.0	0.5	0.0	1	20	42
43	20	1	--	--	--	SPARE	0.0	0.6					PWR: CH1 CHILLER 208V ICPMS 314A	0.0	1.3	0.0	2	20	44
45	20	1	0.0	0.5	0.0	PWR: VENT HOOD FURNACE 315D			0.5	0.6			--	--	--	--	--	--	46
47	20	1	0.0	0.5	0.0	PWR: VENT HOOD FURNACE 315D					0.5	0.2	PWR: CH1 CHILLER 120V ICPMS 314A	0.2	0.0	0.0	1	20	48
49	20	2	0.0	0.0	0.4	PWR: GRIND 2 315A	0.2	0.4					CO: ICPMS 314A	0.4	0.0	0.0	1	20	50
51	--	--	--	--	--	--			0.2	0.6			PWR: ICPMS 314A	0.0	1.3	0.0	2	20	52
53	20	2	0.0	0.0	0.4	PWR: GRIND PREP 315B					0.2	0.6	--	--	--	--	--	--	54
55	--	--	--	--	--	--	0.2	0.2					CO: ICPMS 314A	0.2	0.0	0.0	1	20	56
57	20	2	0.0	0.0	0.4	PWR: GRIND 1 315C			0.2	0.2			CO: ICPMS 314A	0.2	0.0	0.0	1	20	58
59	--	--	--	--	--	--					0.2	1.6	CO: ICPMS 314A	1.6	0.0	0.0	1	20	60
61	20	1	0.0	0.0	0.5	CO: BALANCE 315	0.5	0.0					SPARE	--	--	--	1	20	62
63	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	64
65	20	1	--	--	--	SPARE					0.0	1.6	CO: ICPMS 314A	1.6	0.0	0.0	1	20	66
67	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	68
69	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	70
71	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	72
73	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	74
75	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	76
77	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	78
79	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	80
81	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	82
83	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	84
TOTALS:						CONNECTED kVA PER PHASE	**23**		**21**		**21**		CONNECTED TOTAL kVA =	**65**					
						CONNECTED AMPS PER PHASE	**194**		**175**		**172**		AVERAGE CONNECTED AMPS PER PHASE =	**180**					

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **0.0 kVA @ 125% = 0.0 kVA**
RECEPTACLES: **8.0 kVA @ 100% = 8.0 kVA**
ALL OTHER LOADS @ 100% : **56.8 kVA**

- 100% CONNECTED LOAD PLUS 25%
- FIRST 10kVA @ 100%, REMAINDER @ 50%
- MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

DIVERSIFIED TOTAL kVA = **65**
AVERAGE AMPS PER PHASE = **180**

PANEL: "3LA4"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	150 AMPERE MAIN CB	HALL 300B	RECESSED	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 8,842 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD						LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	1.9	0.0	PWR: (FH4-1) WET CHEM 314	1.9	0.2					CO: WET CHEM 314	0.2	0.0	0.0	1	20	2
3	20	1	0.0	1.9	0.0	PWR: (FH4-ADA) WET CHEM 314			1.9	0.5			CO: WET CHEM 314	0.5	0.0	0.0	1	20	4
5	20	1	0.0	1.9	0.0	PWR: (FH4-1) WET CHEM 314					1.9	0.4	CO: WET CHEM 314	0.4	0.0	0.0	1	20	6
7	20	1	0.0	1.9	0.0	PWR: (FH6-3) WET CHEM 314	1.9	0.4					CO: WET CHEM 314	0.4	0.0	0.0	1	20	8
9	20	1	0.0	1.9	0.0	PWR: (FH4-1) WET CHEM 314			1.9	0.4			CO: WET CHEM 314	0.4	0.0	0.0	1	20	10
11	20	1	0.0	1.9	0.0	PWR: (FH4-1) WET CHEM 314					1.9	0.5	CO: WET CHEM 314	0.5	0.0	0.0	1	20	12
13	20	1	0.0	1.2	0.0	PWR: (CH12) WET CHEM 314	1.2	0.4					CO: WET CHEM 314	0.4	0.0	0.0	1	20	14
15	20	1	0.0	1.2	0.0	PWR: (CH12) WET CHEM 314			1.2	0.5			CO: WET CHEM 314	0.5	0.0	0.0	1	20	16
17	20	1	0.0	1.8	0.0	PWR: (CH14) WET CHEM 314					1.8	0.4	CO: WET CHEM 314	0.4	0.0	0.0	1	20	18
19	20	1	0.0	1.9	0.0	PWR: (FH6-1) WET CHEM 314	1.9	0.4					CO: WET CHEM 314	0.4	0.0	0.0	1	20	20
21	20	2	0.0	1.2	0.0	PWR: (CH-9) WET CHEM 314			0.6	0.4			CO: WET CHEM 314	0.4	0.0	0.0	1	20	22
23	--	--	--	--	--	--					0.6	0.2	PWR: WET CHEM 314	0.4	0.0	0.0	2	20	24
25	20	2	0.0	2.8	0.0	PWR: (CH7) WET CHEM 314	1.4	0.2					--	--	--	--	--	--	26
27	--	--	--	--	--	--			1.4	0.2			PWR: WET CHEM 314	0.4	0.0	0.0	2	20	28
29	20	1	0.7	0.0	0.0	LIGHTING WET CHEM 314					0.7	0.2	--	--	--	--	--	--	30
31	20	1	--	--	--	SPARE	0.0	0.2					PWR: WET CHEM 314	0.4	0.0	0.0	2	20	32
33	20	1	--	--	--	SPARE			0.0	0.2			--	--	--	--	--	--	34
35	20	1	--	--	--	SPARE					0.0	0.2	PWR: WET CHEM 314	0.4	0.0	0.0	2	20	36
37	20	1	--	--	--	SPARE	0.0	0.2					--	--	--	--	--	--	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42
43	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	44
45	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	46
47	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	48
49	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	50
51	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	52
53	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	54
55	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	56
57	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	58
59	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	60
61	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	62
63	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	64
65	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	66
67	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	68
69	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	70
71	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	72
73	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	74
75	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	76
77	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	78
79	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	80
81	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	82
83	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	84
TOTALS:						CONNECTED kVA PER PHASE	**10**		**9**		**9**		CONNECTED TOTAL kVA =	**28**					
						CONNECTED AMPS PER PHASE	**85**		**78**		**73**		AVERAGE CONNECTED AMPS PER PHASE =	**78**					

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **0.7 kVA @ 125% = 0.8 kVA**
RECEPTACLES: **5.8 kVA @ 100% = 5.8 kVA**
ALL OTHER LOADS @ 100% : **21.7 kVA**

- 100% CONNECTED LOAD PLUS 25%
- FIRST 10kVA @ 100%, REMAINDER @ 50%
- MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

DIVERSIFIED TOTAL kVA = **28**
AVERAGE AMPS PER PHASE = **78**

PANEL: "3LA5"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	150 AMPERE MAIN CB	HALL 300B	RECESSED	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 8,842 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD						LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	1.9	0.0	PWR: (FH6-ADA) PESTICIDE...	1.9	0.0					SPARE	--	--	--	1	20	2
3	20	1	0.0	1.2	0.0	PWR: (PC10) PESTICIDE RESIDUE...			1.2	1.9			PWR: (FH6-1) VOLATILE EXTRACT 303A	0.0	1.9	0.0	1	20	4
5	20	1	0.0	1.9	0.0	PWR: (PC9) PESTICIDE RESIDUE...					1.9	0.5	CO: VOLATILE EXTRACT 303A	0.5	0.0	0.0	1	20	6
7	20	1	0.0	1.9	0.0	PWR: (FH8-1) PESTICIDE RESIDUE...	1.9	0.2					PWR: VOLATILE EXTRACT 303A	0.4	0.0	0.0	2	20	8
9	20	1	0.0	0.0	0.5	CO: PESTICIDE RESIDUE...			0.5	0.2			--	--	--	--	--	--	10
11	20	1	0.0	0.0	0.5	CO: PESTICIDE RESIDUE...					0.5	0.2	PWR: VOLATILE INST. LAB 303	0.4	0.0	0.0	2	20	12
13	20	1	0.0	0.0	0.4	CO: PESTICIDE RESIDUE...	0.4	0.2					--	--	--	--	--	--	14
15	20	1	0.0	0.0	0.4	CO: PESTICIDE RESIDUE...			0.4	0.2			PWR: VOLATILE INST. LAB 303	0.2	0.0	0.0	1	20	16
17	20	1	0.0	0.0	0.4	CO: PESTICIDE RESIDUE...					0.4	0.2	LTG: PESTICIDE RESIDUE EXTRACTI...	0.0	0.0	0.2	1	20	18
19	20	1	0.0	0.0	0.4	CO: PESTICIDE RESIDUE...	0.4	0.0					SPARE	--	--	--	1	20	20
21	20	1	0.0	0.5	0.0	PWR: HOOD PESTICIDE RESIDUE...			0.5	0.0			SPARE	--	--	--	1	20	22
23	20	2	0.0	0.0	0.4	PWR: PESTICIDE RESIDUE...					0.2	0.0	SPARE	--	--	--	1	20	24
25	--	--	--	--	--	--	0.2	0.0					SPARE	--	--	--	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	28
29	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42
TOTALS:						CONNECTED kVA PER PHASE	**5**		**5**		**4**		CONNECTED TOTAL kVA =	**14**					
						CONNECTED AMPS PER PHASE	**44**		**42**		**33**		AVERAGE CONNECTED AMPS PER PHASE =	**39**					

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **0.2 kVA @ 125% = 0.2 kVA**
RECEPTACLES: **4.3 kVA @ 100% = 4.3 kVA**
ALL OTHER LOADS @ 100% : **9.4 kVA**

- 100% CONNECTED LOAD PLUS 25%
- FIRST 10kVA @ 100%, REMAINDER @ 50%
- MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

DIVERSIFIED TOTAL kVA = **14**
AVERAGE AMPS PER PHASE = **39**

PANEL: "3LB1"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE MAIN LUG	ELECTRICAL 300F	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 13,733 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD						LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.7	0.0	CO: HALL 300B	0.7	0.7					CO: ROOM 300B, 300C	0.7	0.0	0.0	1	20	2
3	20	1	0.0	0.0	0.7	CO: CHEM OFFICE 304			0.7	0.5			CO: MANAGER 304A	0.5	0.0	0.0	1	20	4
5	20	1	0.0	0.5	0.0	PWR: FLR BOXES CONFERENCE...					0.5	1.5	PWR: PROJ AND SCRN 306	1.0	0.5	0.0	1	20	6
7	20	1	0.1	0.0	0.5	CO: CONFERENCE 306	0.7	0.4					CO: WOMEN 307	0.4	0.0	0.0	1	20	8
9	20	1	0.0	0.0	0.4	CO: MEN 308			0.4	1.1			CO: JAN 300E	1.1	0.0	0.0	1	20	10
11	20	1	0.0	0.0	0.7	CO: MANAGER 309A					0.7	0.4	CO: ROOM 309, 309B	0.4	0.0	0.0	1	20	12
13	20	1	0.0	0.0	1.0	PWR: PROJ AND SCRN 310B	1.0	0.5					PWR: CONF RM 310B	0.0	0.5	0.0	1	20	14
15	20	1	0.0	1.5	0.0	PWR: PRINTER RECORDS 310A			1.5	0.5			CO: CONF RM 310B	0.5	0.0	0.0	1	20	16
17	20	1	0.0	0.0	0.9	CO: AG & FOOD ADMIN & SUPPOR...					0.9	0.7	CO: AG & FOOD ADMIN & SUPPORT 310	0.7	0.0	0.0	1	20	18
19	20	1	0.0	0.0	0.7	CO: AG & FOOD ADMIN & SUPPOR...	0.7	0.8					PWR: FURN BACT OFFICE 309	0.0	0.8	0.0	3	20	20
21	20	1	0.0	0.0	0.7	CO: ROOM 307, 308			0.7	0.0			--	--	--	--	--	--	22
23	20	1	0.0	0.0	0.9	CO: ROOM 310D, 310C					0.9	0.0	--	--	--	--	--	--	24
25	20	1	--	--	--	SPARE	0.0	0.3					PWR: FURN BACT OFFICE 309	0.0	0.3	0.0	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	28
29	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42
TOTALS:						CONNECTED kVA PER PHASE	**6**		**5**		**6**		CONNECTED TOTAL kVA =	**17**					
						CONNECTED AMPS PER PHASE	**48**		**46**		**47**		AVERAGE CONNECTED AMPS PER PHASE =	**47**					

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **0.1 kVA @ 125% = 0.2 kVA**
RECEPTACLES: **11.9 kVA @ 92% = 11.0 kVA**
ALL OTHER LOADS @ 100% : **4.8 kVA**

- 100% CONNECTED LOAD PLUS 25%
- FIRST 10kVA @ 100%, REMAINDER @ 50%
- MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

DIVERSIFIED TOTAL kVA = **16**
AVERAGE AMPS PER PHASE = **44**

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DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
REVIEWED FOR CODE COMPLIANCE
SIGNATURE: Ernie Catt
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 181563
DAVID E. WESEMANN
04-21-2014
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300
Project #: B13-024

DATE:	ISSUE TYPE:
April 21, 2014	BID SET

CHECKED BY	D. WESEMANN
DRAWN BY	DLM

PANEL SCHEDULES

EP626

VOLUME 2

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PANEL: "3LB2"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	150 AMPERE MAIN CB	HALL 300B	RECESSED	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 13,528 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	2	0.0	0.4	0.0	PWR: (BA2-BA3) DAIRY 311	0.2	0.4					CO: SAMPLE REC 311A	0.4	0.0	0.0	1	20	2
3	--	--	--	--	--	--			0.2	0.4			CO: SAMPLE REC 311A	0.4	0.0	0.0	1	20	4
5	20	1	0.0	0.6	0.0	PWR: (BA1) DAIRY 311					0.6	0.2	PWR: SAMPLE REC 311A	0.4	0.0	0.0	2	20	6
7	20	1	0.0	0.6	0.0	PWR: (BA1) DAIRY 311	0.6	0.2					--	--	--	--	--	--	8
9	20	1	0.0	0.6	0.0	PWR: (BA1) DAIRY 311			0.6	1.9			PWR: SCOPE RM 311B	0.0	1.9	0.0	1	20	10
11	20	1	0.0	0.6	0.0	PWR: (BA1) DAIRY 311					0.6	0.4	CO: SCOPE RM 311B	0.4	0.0	0.0	1	20	12
13	20	1	0.0	0.0	0.4	CO: DAIRY 311	0.4	0.4					CO: SCOPE RM 311B	0.4	0.0	0.0	1	20	14
15	20	1	0.0	0.0	0.4	CO: DAIRY 311			0.4	0.2			PWR: SCOPE RM 311B	0.4	0.0	0.0	2	20	16
17	20	1	0.0	0.0	0.5	CO: DAIRY 311					0.5	0.2	--	--	--	--	--	--	18
19	20	1	0.0	0.0	0.4	CO: DAIRY 311	0.4	1.8					PWR: (BA5) INSTRUMENT LAB 311C	0.0	1.8	0.0	1	20	20
21	20	1	0.0	0.0	0.5	CO: DAIRY 311			0.5	1.1			PWR: (BA6) INSTRUMENT LAB 311C	0.2	1.0	0.0	1	20	22
23	20	1	0.0	1.2	0.2	CO: DAIRY 311					1.4	0.4	CO: INSTRUMENT LAB 311C	0.4	0.0	0.0	1	20	24
25	20	1	0.0	0.0	0.4	CO: DAIRY 311	0.4	0.2					CO: INSTRUMENT LAB 311C	0.2	0.0	0.0	1	20	26
27	20	1	0.0	0.0	0.4	CO: DAIRY 311			0.4	0.4			CO: INSTRUMENT LAB 311C	0.4	0.0	0.0	1	20	28
29	20	1	0.0	0.0	0.4	CO: DAIRY 311					0.4	0.4	CO: INSTRUMENT LAB 311C	0.4	0.0	0.0	1	20	30
31	20	1	0.0	0.0	0.5	CO: DAIRY 311	0.5	0.0					SPARE	--	--	--	1	20	32
33	20	2	0.0	0.0	0.4	PWR: DAIRY 311			0.2	0.2			PWR: INSTRUMENT LAB 311C	0.4	0.0	0.0	2	20	34
35	--	--	--	--	--	--					0.2	0.2	--	--	--	--	--	--	36
37	20	2	0.0	0.0	0.4	PWR: DAIRY 311	0.2	0.2					PWR: INSTRUMENT LAB 311C	0.4	0.0	0.0	2	20	38
39	--	--	--	--	--	--			0.2	0.2			--	--	--	--	--	--	40
41	20	2	0.0	0.0	0.4	PWR: DAIRY 311					0.2	0.2	PWR: INSTRUMENT LAB 311C	0.4	0.0	0.0	2	20	42
43	--	--	--	--	--	--	0.2	0.2					--	--	--	--	--	--	44
45	20	2	0.0	0.0	0.4	PWR: DAIRY 311			0.2	0.2			PWR: INSTRUMENT LAB 311C	0.4	0.0	0.0	2	20	46
47	--	--	--	--	--	--					0.2	0.2	--	--	--	--	--	--	48
49	20	1	0.6	0.0	0.0	LTG: DAIRY 311	0.6	0.1					LTG: SAMPLE REC 311A	0.0	0.0	0.1	1	20	50
51	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	52
53	20	1	0.3	0.0	0.0	LTG: INSTRUMENT LAB 311C					0.3	0.1	LTG: SCOPE RM 311B	0.0	0.0	0.1	1	20	54
55	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	56
57	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	58
59	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	60
61	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	62
63	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	64
65	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	66
67	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	68
69	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	70
71	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	72
73	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	74
75	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	76
77	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	78
79	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	80
81	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	82
83	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	84
TOTALS:						CONNECTED kVA PER PHASE	**7**		**7**		**6**		CONNECTED TOTAL kVA =	**20**					
						CONNECTED AMPS PER PHASE	**56**		**60**		**53**		AVERAGE CONNECTED AMPS PER PHASE =	**56**					

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **1.1 kVA @ 125% = 1.3 kVA** - 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL kVA = **20**

RECEPTACLES: **10.4 kVA @ 98% = 10.2 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = **56**

ALL OTHER LOADS @ 100% : **8.7 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "3LB3"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	150 AMPERE MAIN CB	HALL 300B	RECESSED	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 10,725 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	1.9	0.0	PWR: (FH5-ADA) MEAT LAB 313	1.9	0.5					PWR: BSC4-A2 - PATH 313A	0.0	0.5	0.0	1	20	2
3	20	1	0.0	1.9	0.0	PWR: (FH5-ADA) MEAT LAB 313			1.9	1.2			PWR: (P4) PATH 313A	0.0	1.2	0.0	1	20	4
5	20	2	0.0	3.5	0.0	PWR: (MT2) MEAT LAB 313					1.8	2.2	PWR: (P2) PATH 313A	0.0	4.4	0.0	2	20	6
7	--	--	--	--	--	--	1.8	2.2					--	--	--	--	--	--	8
9	20	2	0.0	3.3	0.0	PWR: (MT1) MEAT LAB 313			1.7	2.4			PWR: (GW) PATH 313A	0.0	7.2	0.0	3	20	10
11	--	--	--	--	--	--					1.7	2.4	--	--	--	--	--	--	12
13	30	2	0.0	3.8	0.0	PWR: (MT5) MEAT LAB 313	1.9	2.4					--	--	--	--	--	--	14
15	--	--	--	--	--	--			1.9	1.2			PWR: (P5) PATH 313A	0.0	1.2	0.0	1	20	16
17	20	1	0.0	1.3	0.0	PWR: (MT4) MEAT LAB 313					1.3	0.9	PWR: (P-1) PATH 313A	0.0	0.9	0.0	1	20	18
19	20	1	0.0	1.3	0.0	PWR: (MT4) MEAT LAB 313	1.3	0.9					PWR: (P-1) PATH 313A	0.0	0.9	0.0	1	20	20
21	20	1	0.0	1.8	0.0	PWR: (MT3) MEAT LAB 313			1.8	0.9			PWR: (P-1) PATH 313A	0.0	0.9	0.0	1	20	22
23	20	1	0.0	0.5	0.0	PWR: VENT HOOD MEAT LAB 313					0.5	1.8	PWR: (P-3) PATH 313A	0.0	1.8	0.0	1	20	24
25	20	1	0.0	0.0	0.4	CO: MEAT LAB 313	0.4	0.5					PWR: VENT HOOD PATH 313A	0.0	0.5	0.0	1	20	26
27	20	1	0.0	0.0	0.5	CO: MEAT LAB 313			0.5	0.2			CO: PATH 313A	0.2	0.0	0.0	1	20	28
29	20	1	0.0	0.0	0.5	CO: MEAT LAB 313					0.5	0.5	CO: PATH 313A	0.5	0.0	0.0	1	20	30
31	20	1	0.0	0.0	0.5	CO: MEAT LAB 313	0.5	0.4					CO: PATH 313A	0.4	0.0	0.0	1	20	32
33	20	1	0.0	0.0	0.4	CO: MEAT LAB 313			0.4	0.4			CO: PATH 313A	0.4	0.0	0.0	1	20	34
35	20	1	0.0	0.0	0.4	CO: MEAT LAB 313					0.4	0.2	PWR: PATH 313A	0.4	0.0	0.0	2	20	36
37	20	1	--	--	--	SPARE	0.0	0.2					--	--	--	--	--	--	38
39	20	1	--	--	--	SPARE			0.0	0.2			PWR: PATH 313A	0.4	0.0	0.0	2	20	40
41	20	2	0.0	0.0	0.4	PWR: MEAT LAB 313					0.2	0.2	--	--	--	--	--	--	42
43	--	--	--	--	--	--	0.2	0.2					PWR: PATH 313A	0.4	0.0	0.0	2	20	44
45	20	2	0.0	0.0	0.4	PWR: MEAT LAB 313			0.2	0.2			--	--	--	--	--	--	46
47	--	--	--	--	--	--					0.2	0.4	LIGHTING MEAT LAB 313	0.0	0.0	0.4	1	20	48
49	20	2	0.0	0.0	0.4	PWR: MEAT LAB 313	0.2	0.0					SPARE	--	--	--	1	20	50
51	--	--	--	--	--	--			0.2	0.0			SPARE	--	--	--	1	20	52
53	20	2	0.0	0.0	0.4	PWR: MEAT LAB 313					0.2	0.0	SPARE	--	--	--	1	20	54
55	--	--	--	--	--	--	0.2	0.0					SPARE	--	--	--	1	20	56
57	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	58
59	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	60
61	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	62
63	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	64
65	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	66
67	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	68
69	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	70
71	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	72
73	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	74
75	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	76
77	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	78
79	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	80
81	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	82
83	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	84
TOTALS:						CONNECTED kVA PER PHASE	**15**		**15**		**15**		CONNECTED TOTAL kVA =	**46**					
						CONNECTED AMPS PER PHASE	**129**		**126**		**126**		AVERAGE CONNECTED AMPS PER PHASE =	**127**					

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **0.4 kVA @ 125% = 0.4 kVA** - 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL kVA = **46**

RECEPTACLES: **6.7 kVA @ 100% = 6.7 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = **127**

ALL OTHER LOADS @ 100% : **38.7 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

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DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
REVIEWED FOR CODE COMPLIANCE
SIGNATURE: Ernie Catt
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 181563
DAVID E. WESEMANN
04-21-2014
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300

Project #: B13-024

DATE:	ISSUE TYPE:
April 21, 2014	BID SET

CHECKED BY	D. WESEMANN
DRAWN BY	DLM

PANEL SCHEDULES

EP627

VOLUME 2

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PANEL: "3LB4"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE MAIN CB	HALL 300B	RECESSED	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 9,107 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.6	0.0	PWR: (BA1) FOOD 312A	0.6	0.4					CO: FOOD 312A	0.4	0.0	0.0	1	20	2
3	20	1	0.0	0.5	0.0	PWR: (BSC4-A2) FOOD 312A			0.5	0.5			CO: FOOD 312A	0.5	0.0	0.0	1	20	4
5	20	1	0.0	0.5	0.0	PWR: (BSC4-A2) FOOD 312A					0.5	0.5	CO: FOOD 312A	0.5	0.0	0.0	1	20	6
7	20	1	0.0	1.3	0.0	PWR: (BA8) FOOD 312A	1.3	0.4					CO: FOOD 312A	0.4	0.0	0.0	1	20	8
9	75	3	0.0	21.6	0.0	PWR: (BA9-A) FOOD 312A			7.2	0.5			CO: FOOD 312A	0.5	0.0	0.0	1	20	10
11	--	--	--	--	--	--					7.2	0.5	CO: FOOD 312A	0.5	0.0	0.0	1	20	12
13	--	--	--	--	--	--	7.2	0.5					CO: FOOD 312A	0.5	0.0	0.0	1	20	14
15	75	3	0.0	18.0	0.0	PWR: (BA9-B) FOOD 312A			6.0	0.5			CO: FOOD 312A	0.5	0.0	0.0	1	20	16
17	--	--	--	--	--	--					6.0	0.4	CO: FOOD 312A	0.4	0.0	0.0	1	20	18
19	--	--	--	--	--	--	6.0	0.5					CO: FOOD 312A	0.5	0.0	0.0	1	20	20
21	20	1	0.0	1.2	0.0	PWR: (BA11) FOOD 312A			1.2	0.4			CO: FOOD 312A	0.4	0.0	0.0	1	20	22
23	20	3	0.0	7.2	0.0	PWR: (GW) FOOD 312A					2.4	0.5	CO: FOOD 312A	0.5	0.0	0.0	1	20	24
25	--	--	--	--	--	--	2.4	0.2					PWR: FOOD 312A	0.4	0.0	0.0	2	20	26
27	--	--	--	--	--	--			2.4	0.2			--	--	--	--	--	--	28
29	20	1	0.7	0.0	0.0	LIGHTING FOOD 312A					0.7	0.2	PWR: FOOD 312A	0.4	0.0	0.0	2	20	30
31	20	1	--	--	--	SPARE	0.0	0.2					--	--	--	--	--	--	32
33	20	1	--	--	--	SPARE			0.0	0.2			PWR: FOOD 312A	0.4	0.0	0.0	2	20	34
35	20	1	--	--	--	SPARE					0.0	0.2	--	--	--	--	--	--	36
37	20	1	--	--	--	SPARE	0.0	0.2					PWR: FOOD 312A	0.4	0.0	0.0	2	20	38
39	20	1	--	--	--	SPARE			0.0	0.2			--	--	--	--	--	--	40
41	20	1	--	--	--	SPARE					0.0	0.2	PWR: FOOD 312A	0.4	0.0	0.0	2	20	42
43	20	1	--	--	--	SPARE	0.0	0.2					--	--	--	--	--	--	44
45	20	1	--	--	--	SPARE			0.0	0.2			PWR: FOOD 312A	0.4	0.0	0.0	2	20	46
47	20	1	--	--	--	SPARE					0.0	0.2	--	--	--	--	--	--	48
49	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	50
51	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	52
53	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	54
55	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	56
57	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	58
59	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	60
61	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	62
63	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	64
65	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	66
67	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	68
69	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	70
71	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	72
73	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	74
75	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	76
77	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	78
79	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	80
81	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	82
83	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	84

TOTALS: CONNECTED kVA PER PHASE **20** **20** **19** CONNECTED TOTAL kVA = **60**
CONNECTED AMPS PER PHASE **168** **167** **162** AVERAGE CONNECTED AMPS PER PHASE = **165**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **0.7 kVA @ 125% = 0.9 kVA**
RECEPTACLES: **7.9 kVA @ 100% = 7.9 kVA**
ALL OTHER LOADS @ 100% : **50.9 kVA**

- 100% CONNECTED LOAD PLUS 25%
- FIRST 10kVA @ 100%, REMAINDER @ 50%
- MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

DIVERSIFIED TOTAL kVA = **60**
AVERAGE AMPS PER PHASE = **166**

PANEL: "LMQ2"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	175 AMPERE MAIN CB	CHILLER ROOM 100TA	1MCCQ2	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 3,177 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	1.9	0.0	PWR: MECH CTRL POWER	1.9	0.0					PWR: ATC XFMR NEW MECH RM 100TA	0.0	0.0	0.0	1	20	2
3	20	1	0.0	1.9	0.0	PWR: MECH CTRL POWER			1.9	0.0			PWR: ATC XFMR NEW MECH RM 100TA	0.0	0.0	0.0	1	20	4
5	20	1	0.0	0.5	0.0	MTR: (H-1) MECHANICAL ROOM-1...					0.5	0.0	PWR: ATC XFMR NEW MECH RM 100TA	0.0	0.0	0.0	1	20	6
7	20	1	0.0	0.0	0.2	CO: REFRIDGERATION DETECT...	0.2	1.2					MTR: (SP-2) TUNNEL 310C	0.0	1.2	0.0	1	20	8
9	20	1	--	--	--	SPARE			0.0	1.2			MTR: (SP-1) TUNNEL 310C	0.0	1.2	0.0	1	20	10
11	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	12
13	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	14
15	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	16
17	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	18
19	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	20
21	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	22
23	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	24
25	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	28
29	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42

TOTALS: CONNECTED kVA PER PHASE **3** **3** **1** CONNECTED TOTAL kVA = **7**
CONNECTED AMPS PER PHASE **31** **29** **4** AVERAGE CONNECTED AMPS PER PHASE = **19**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS:
RECEPTACLES: **0.2 kVA @ 100% = 0.2 kVA**
ALL OTHER LOADS @ 100% : **7.0 kVA**

- 100% CONNECTED LOAD PLUS 25%
- FIRST 10kVA @ 100%, REMAINDER @ 50%
- MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

DIVERSIFIED TOTAL kVA = **7**
AVERAGE AMPS PER PHASE = **20**

PANEL: "LMP2"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	175 AMPERE MAIN CB	BOILER ROOM 100T	1MCC2	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 3,266 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.0	0.4	CO: NEW MECHANICAL ROOM-1...	0.4	1.9					PWR: CT-1b	0.0	1.9	0.0	1	20	2
3	20	1	0.0	0.0	0.4	CO: NEW MECHANICAL ROOM...			0.4	1.9			PWR: CT-2b	0.0	1.9	0.0	1	20	4
5	20	1	0.0	0.0	0.5	CO: NEW MECHANICAL ROOM...					0.5	0.5	CO: TUNNEL OUTLETS	0.5	0.0	0.0	1	20	6
7	20	1	0.0	0.0	0.5	CO: ROOM 100T-1, 100T-2	0.5	0.4					CO: TUNNEL OUTLETS	0.4	0.0	0.0	1	20	8
9	20	1	0.0	0.0	0.4	CO: ROOM 100T-1, 100T-2			0.4	0.4			CO: ADDITION EXTERIOR	0.4	0.0	0.0	1	20	10
11	20	1	0.0	0.2	0.0	PWR: WS-3 MOD 1 MECH ROOM					0.2	0.5	MTR: UH-6 MECHANICAL ROOM 100T	0.0	0.5	0.0	1	20	12
13	20	1	0.0	1.2	0.0	MTR: P-22 MECH ROOM	1.2	0.5					MTR: UH-7 MECHANICAL ROOM 100T	0.0	0.5	0.0	1	20	14
15	20	1	0.0	1.2	0.0	MTR: DOF-1 MECH ROOM 100T			1.2	0.5			MTR: UH-8 MECHANICAL ROOM 100TA	0.0	0.5	0.0	1	20	16
17	20	1	0.0	0.8	0.0	PWR: WH-1 MECH ROOM 100T					0.8	0.5	MTR: UH-9 MECHANICAL ROOM 100TA	0.0	0.5	0.0	1	20	18
19	20	1	0.0	0.8	0.0	PWR: WH-2 MECH ROOM 100T	0.8	0.0					SPARE	--	--	--	1	20	20
21	20	1	0.0	0.8	0.0	PWR: WH-3 MECH ROOM 100T			0.8	0.0			SPARE	--	--	--	1	20	22
23	20	1	0.0	0.8	0.0	PWR: WH-4 MECH ROOM 100T					0.8	0.4	PWR: HEAT TRACE (NOTE 1)	0.0	0.4	0.0	1	20	24
25	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	28
29	20	1	--	--	--	SPARE					0.0	0.2	PWR: HEAT TRACE (NOTE 1)	0.0	0.2	0.0	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42

TOTALS: CONNECTED kVA PER PHASE **6** **5** **4** CONNECTED TOTAL kVA = **15**
CONNECTED AMPS PER PHASE **48** **47** **37** AVERAGE CONNECTED AMPS PER PHASE = **43**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS:
RECEPTACLES: **3.4 kVA @ 100% = 3.4 kVA**
ALL OTHER LOADS @ 100% : **12.3 kVA**

- 100% CONNECTED LOAD PLUS 25%
- FIRST 10kVA @ 100%, REMAINDER @ 50%
- MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

DIVERSIFIED TOTAL kVA = **16**
AVERAGE AMPS PER PHASE = **44**

Notes:
1. 30 mA GFCI CIRCUIT BREAKER.

PANEL: "LMP"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	175 AMPERE MAIN CB	PENTHOUSE 401	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 3,274 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.0	0.7	CO: PENTHOUSE-1 401	0.7	3.4					PWR: (GFS-1) PENTHOUSE-1 401	0.0	3.4	0.0	1	20	2
3	20	1	0.0	0.0	0.4	CO: PENTHOUSE-1 401			0.4	3.4			PWR: (GFS-2) PENTHOUSE-1 401	0.0	3.4	0.0	1	20	4
5	20	1	0.0	0.0	0.7	CO: PENTHOUSE-1 401					0.7	3.4	PWR: (GFS-3) PENTHOUSE-1 401	0.0	3.4	0.0	1	20	6
7	20	1	0.0	0.0	0.7	CO: PENTHOUSE-1 401-1	0.7	0.9					MTR: DEF-1 PENTHOUSE-1 401-1	0.0	0.9	0.0	1	20	8
9	20	1	0.0	0.5	0.0	PWR: LTG ELEV EQUIP ROOM 142			0.5	0.5			MTR: UH-2 PENTHOUSE	0.0	0.5	0.0	1	20	10
11	20	1	0.0	0.5	0.0	PWR: LTG ELEV EQUIP ROOM 402					0.5	0.5	MTR: UH-3 PENTHOUSE	0.0	0.5	0.0	1	20	12
13	20	1	--	--	--	SPARE	0.0	0.5					MTR: UH-4 PENTHOUSE	0.0	0.5	0.0	1	20	14
15	20	1	0.0	1.0	0.0	PWR: HEAT TRACE (NOTE 1)			1.0	0.5			MTR: UH-5 PENTHOUSE	0.0	0.5	0.0	1	20	16
17	20	1	0.0	0.5	0.0	PWR: HEAT TRACE (NOTE 1)					0.5	0.2	CO: PENTHOUSE	0.2	0.0	0.0	1	20	18
19	20	1	--	--	--	SPARE	0.0	0.7					CO: NORTH ROOFTOP	0.7	0.0	0.0	1	20	20
21	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	22
23	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	24
25	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	28
29	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42

TOTALS: CONNECTED kVA PER PHASE **7** **6** **6** CONNECTED TOTAL kVA = **19**
CONNECTED AMPS PER PHASE **58** **53** **48** AVERAGE CONNECTED AMPS PER PHASE = **53**

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS:
RECEPTACLES: **3.4 kVA @ 100% = 3.4 kVA**
ALL OTHER LOADS @ 100% : **15.8 kVA**

- 100% CONNECTED LOAD PLUS 25%
- FIRST 10kVA @ 100%, REMAINDER @ 50%
- MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

DIVERSIFIED TOTAL kVA = **19**
AVERAGE AMPS PER PHASE = **53**

Notes:
1. 30 mA GFCI CIRCUIT BREAKER.

CRSA
649 E. South Temple
Salt Lake City, UT 84102
801.355.5915

MWL
11798 N. Lakeridge Pkwy.
Ashland, VA 23005
804-228-7473

State of Utah
Department of Administrative Services
DFCM
Division of Facilities Construction & Management
4110 State Office Building
Salt Lake City, Utah 84114
Phone: (801) 538 - 3018
Fax: (801) 538 - 3267

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
REVIEWED FOR CODE COMPLIANCE
SIGNATURE: Ernie Catt
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 181563
DAVID E. WESEMANN
04-21-2014
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2
4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300
Project #: B13-024

DATE:	ISSUE TYPE:
April 21, 2014	BID SET

CHECKED BY D. WESEMANN
DRAWN BY DLM

PANEL SCHEDULES

EP628
VOLUME 2

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PANEL: "LMPC2"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	500 AMPERE MAIN CB	PENTHOUSE 401	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 3,317 AIC

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	1.9	0.0	PWR: AH-1 ACCESORIES PNTHS 401	1.9	1.9					PWR: AH-2 ACCESORIES PNTHS 401	0.0	1.9	0.0	1	20	2
3	20	1	0.0	1.9	0.0	PWR: AH-3 ACCESORIES PNTHS 401			1.9	1.9			PWR: AH-4 ACCESORIES PNTHS 401	0.0	1.9	0.0	1	20	4
5	20	1	0.1	0.0	0.2	LTG/CO :ELEV. EQUIP. ROOM 403					0.2	0.2	CO/LTG: ELEVATOR PIT	0.2	0.0	0.1	1	20	6
7	20	1	0.1	0.0	0.2	LTG/CO: ELEV EQUIP ROOM 402	0.2	0.0					POWER	0.0	0.0	0.0	1	20	8
9	20	1	0.0	0.0	0.0	PWR: FSD			0.0	1.9			PWR: MECH CTRL POWER	0.0	1.9	0.0	1	20	10
11	20	1	0.0	0.0	0.0	PWR: FSD					0.0	1.9	PWR: MECH CTRL POWER	0.0	1.9	0.0	1	20	12
13	20	1	0.0	1.9	0.0	PWR: MECH CTRL POWER	1.9	1.9					PWR: MECH CTRL POWER	0.0	1.9	0.0	1	20	14
15	20	1	0.0	1.9	0.0	PWR: MECH CTRL POWER			1.9	0.0			PWR: ATC PENTHOUSE 401	0.0	0.0	0.0	1	20	16
17	20	1	0.0	1.9	0.0	PWR: MECH CTRL POWER					1.9	0.0	PWR: ATC PENTHOUSE 401	0.0	0.0	0.0	1	20	18
19	20	1	0.0	0.0	0.0	PWR: ATC PENTHOUSE 401	0.0	0.0					PWR: ATC PENTHOUSE 401	0.0	0.0	0.0	1	20	20
21	20	1	0.0	0.0	0.0	PWR: ATC PENTHOUSE 401			0.0	0.0			PWR: ATC PENTHOUSE 401	0.0	0.0	0.0	1	20	22
23	20	1	0.0	0.0	0.0	PWR: ATC PENTHOUSE 401					0.0	0.0	PWR: ATC PENTHOUSE 401	0.0	0.0	0.0	1	20	24
25	60	3	0.0	16.2	0.0	PWR: (ME7-C) ROOFTOP	5.4	0.0					PWR: ATC PENTHOUSE 401	0.0	0.0	0.0	1	20	26
27	--	--	--	--	--	--			5.4	5.4			PWR: ME7d	0.0	16.2	0.0	3	60	28
29	--	--	--	--	--	--					5.4	5.4	--	--	--	--	--	--	30
31	15	3	0.0	4.1	0.0	PWR: (ME8-C) ROOFTOP	1.4	5.4					--	--	--	--	--	--	32
33	--	--	--	--	--	--			1.4	1.4			PWR: ME8d	0.0	4.1	0.0	3	15	34
35	--	--	--	--	--	--					1.4	1.4	--	--	--	--	--	--	36
37	50	3	0.0	13.5	0.0	PWR: ME9c	4.5	1.4					--	--	--	--	--	--	38
39	--	--	--	--	--	--			4.5	4.5			PWR: ME9d	0.0	13.5	0.0	3	50	40
41	--	--	--	--	--	--					4.5	4.5	--	--	--	--	--	--	42
43	20	3	0.0	5.4	0.0	PWR: FRZR-C	1.8	4.5					--	--	--	--	--	--	44
45	--	--	--	--	--	--			1.8	1.2			PWR: (EC-1) PENTHOUSE 401	0.0	1.2	0.0	1	20	46
47	--	--	--	--	--	--					1.8	1.2	PWR: (EC-2) PENTHOUSE 401	0.0	1.2	0.0	1	20	48
49	20	3	0.0	5.4	0.0	PWR: FRZR-D	1.8	0.0					SPARE	--	--	--	1	20	50
51	--	--	--	--	--	--			1.8	0.0			SPARE	--	--	--	1	20	52
53	--	--	--	--	--	--					1.8	0.0	SPARE	--	--	--	1	20	54
55	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	56
57	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	58
59	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	60
61	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	62
63	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	64
65	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	66
67	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	68
69	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	70
71	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	72
73	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	74
75	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	76
77	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	78
79	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	80
81	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	82
83	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	84
TOTALS:						CONNECTED kVA PER PHASE	**34**		**35**		**32**		CONNECTED TOTAL kVA = **101**						
						CONNECTED AMPS PER PHASE	**286**		**295**		**263**		AVERAGE CONNECTED AMPS PER PHASE = **279**						

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **0.2 kVA @ 125% = 0.2 kVA** - 100% CONNECTED LOAD PLUS 25%

RECEPTACLES: **0.5 kVA @ 100% = 0.5 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50%

ALL OTHER LOADS @ 100% : **100.2 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

DIVERSIFIED TOTAL kVA = **101**

AVERAGE AMPS PER PHASE = **280**

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Unified State Laboratory Module 2

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PANEL SCHEDULES

EP629

VOLUME 2

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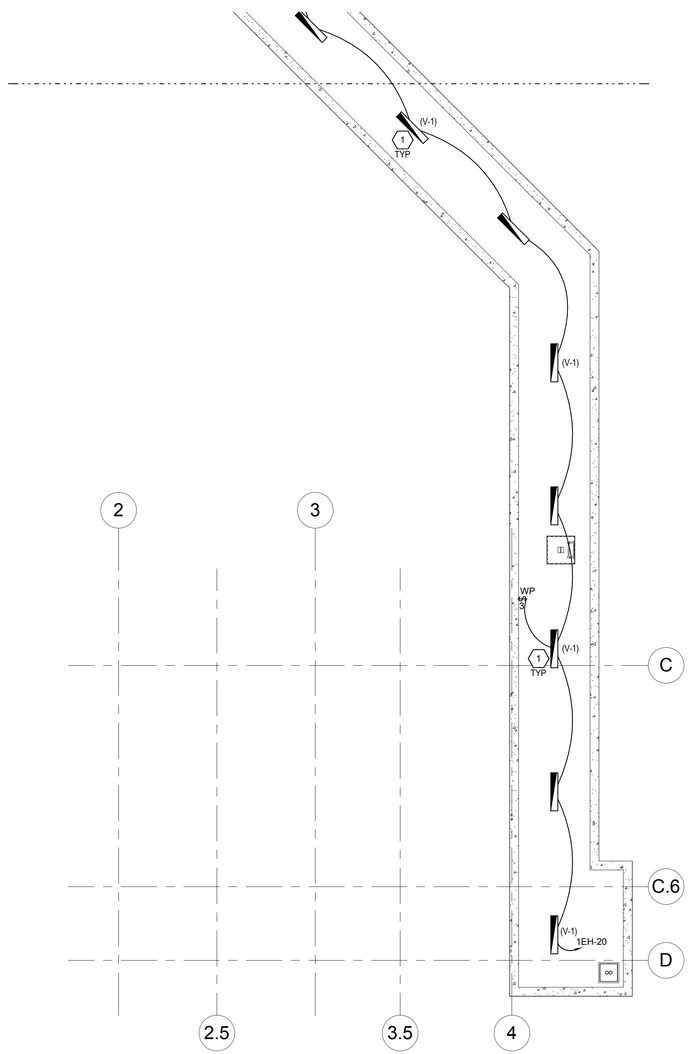
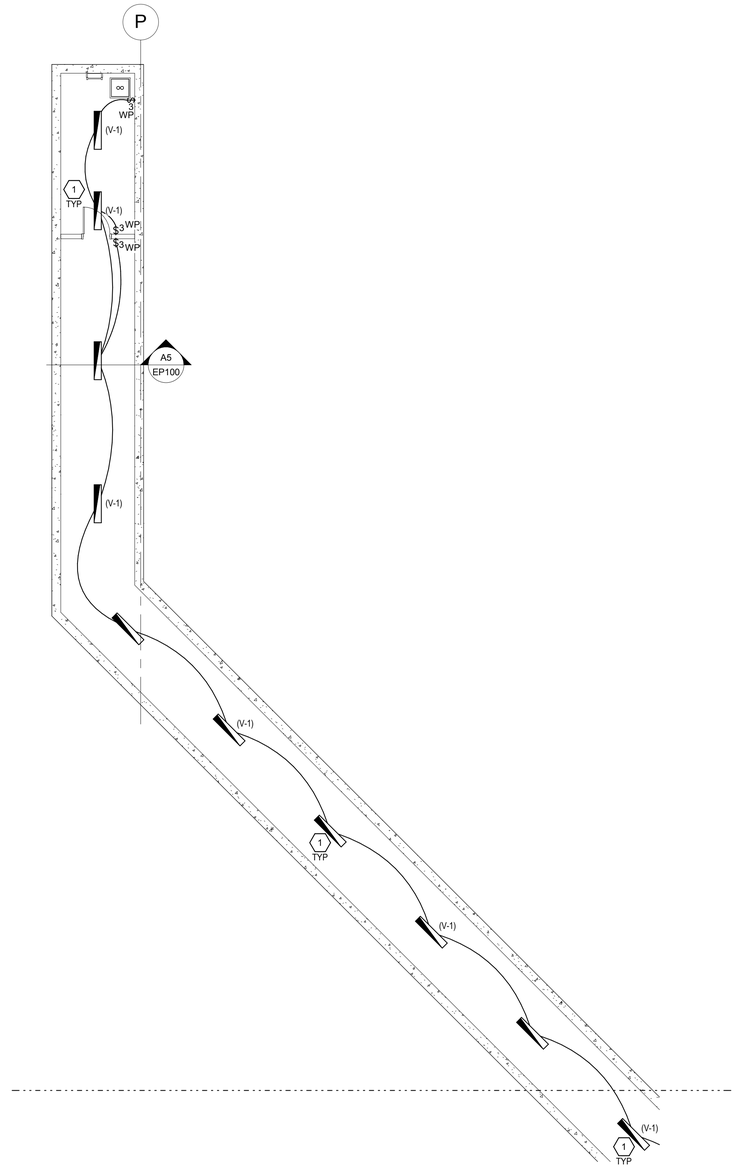


A1 TUNNEL LEVEL LIGHTING PLAN - AREA A

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



A3 TUNNEL LEVEL LIGHTING PLAN - AREA D

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

GENERAL SHEET NOTES

1 PROVIDE UNSWITCHED PORTION OF CIRCUIT TO ALL EXIT SIGNS. ALL OTHER EMERGENCY LIGHTS SHALL BE SWITCHED THROUGH EMERGENCY RELAYS AS INDICATED.

2 COORDINATE ALL LIGHTING IN MEHANICAL, ELECTRICAL AND TECH ROOMS WITH EQUIPMENT TO AVOID DUCTS, PIPES, ETC.

SHEET KEYNOTES

1 COORDINATE EXACT PLACEMENT OF LIGHTING FIXTURES WITH PIPING AND CABLE TRAY IN TUNNEL.

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TUNNEL LEVEL LIGHTING PLAN

EL100

VOLUME 2

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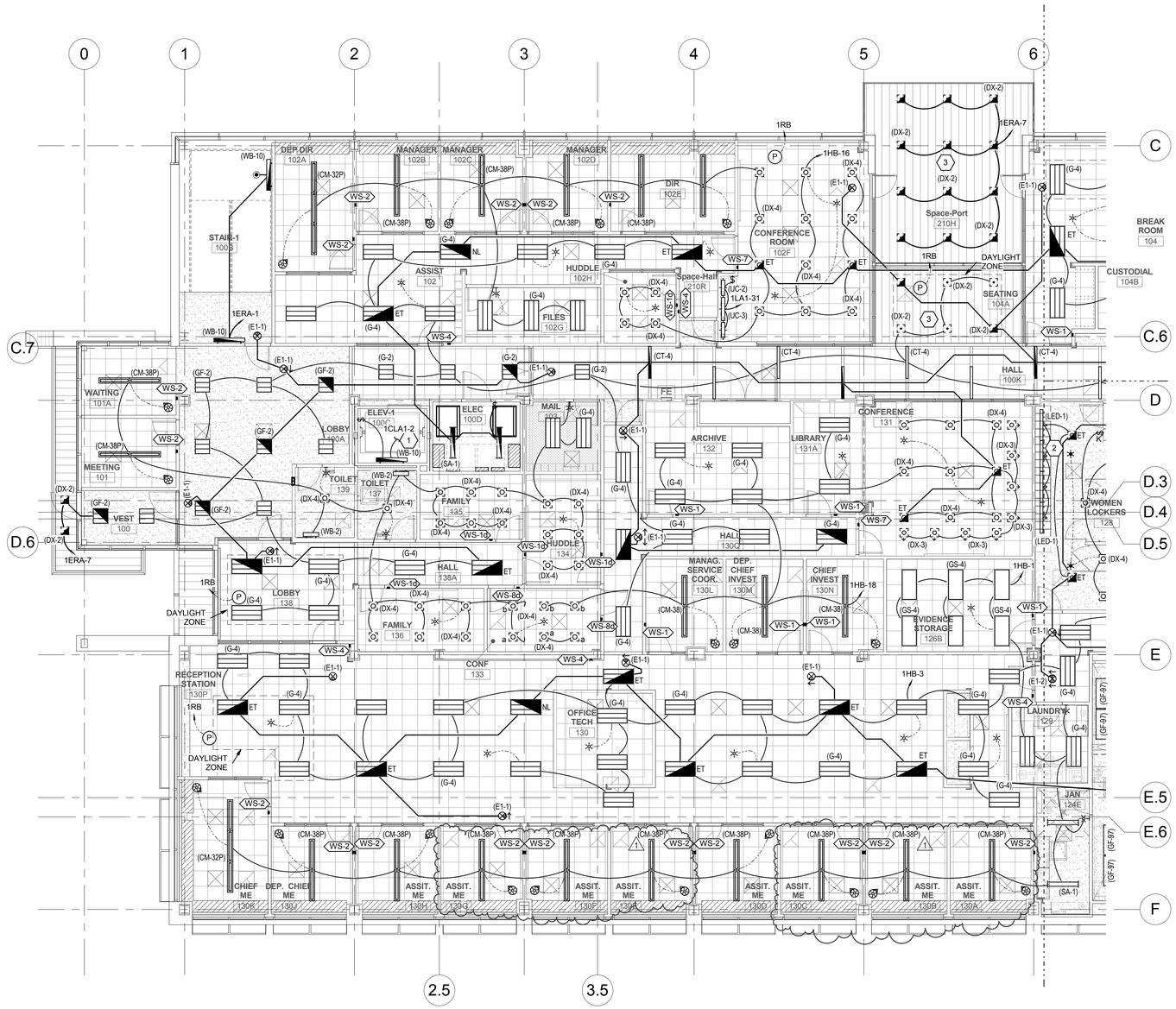


A1 FIRST LEVEL LIGHTING PLAN - AREA A

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

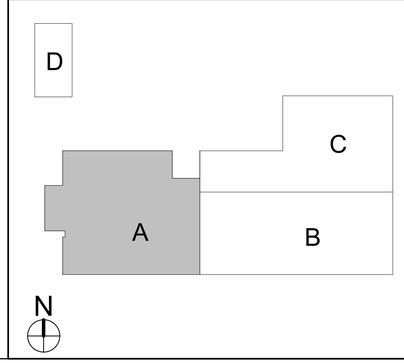
GENERAL SHEET NOTES

1. PROVIDE UNSWITCHED PORTION OF CIRCUIT TO ALL EXIT SIGNS. ALL OTHER EMERGENCY LIGHTS SHALL BE SWITCHED THROUGH EMERGENCY RELAYS AS INDICATED.
2. COORDINATE ALL LIGHTING IN MEHANICAL, ELECTRICAL AND TECH ROOMS WITH EQUIPMENT TO AVOID DUCTS, PIPES, ETC.

SHEET KEYNOTES

1. CIRCUIT ELEVATOR PIT LIGHT TO SAME CIRCUIT AS THE ELEVATOR PIT RECEPTACLE.
2. MOUNT LIGHTS TO TOP OF LOCKERS AS DIRECTED IN THE FIELD.
3. DX-2'S IN THIS LOCATION REQUIRE TRIM KITS COMPATIBLE WITH METAL CHANNEL CEILING.

KEY PLAN



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FIRST LEVEL LIGHTING PLAN - AREA A

EL101a

VOLUME 2

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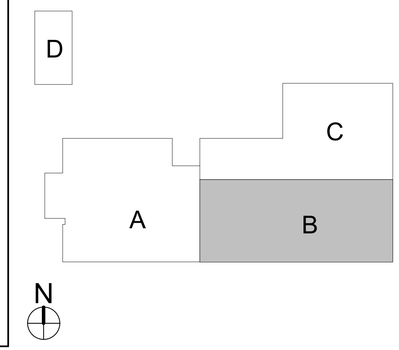
GENERAL SHEET NOTES

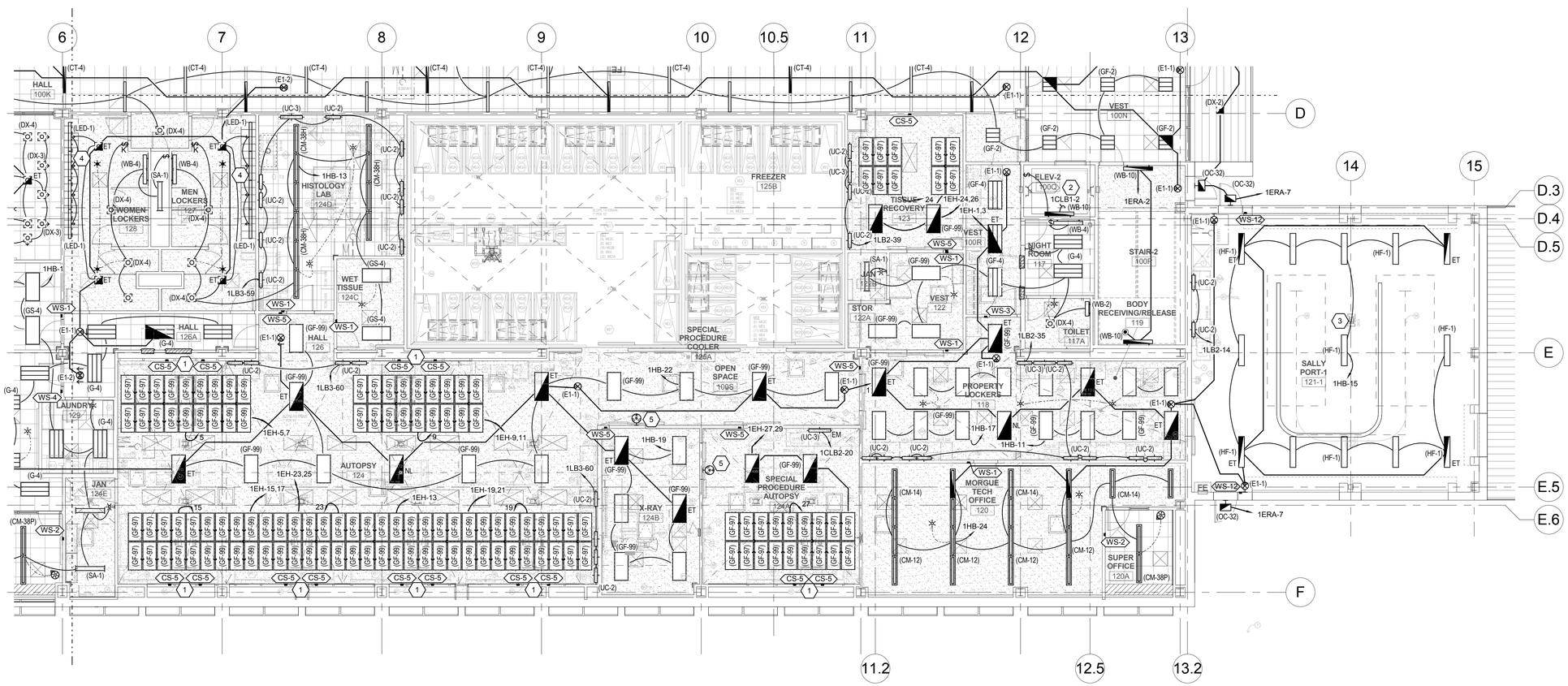
1. PROVIDE UNSWITCHED PORTION OF CIRCUIT TO ALL EXIT SIGNS. ALL OTHER EMERGENCY LIGHTS SHALL BE SWITCHED THROUGH EMERGENCY RELAYS AS INDICATED.
2. COORDINATE ALL LIGHTING IN MEHANICAL, ELECTRICAL AND TECH ROOMS WITH EQUIPMENT TO AVOID DUCTS, PIPES, ETC.

SHEET KEYNOTES

1. PUSH BUTTON STATION TO BE INSTALLED IN HEADBOARD.
2. CIRCUIT ELEVATOR PIT LIGHT TO SAME CIRCUIT AS THE ELEVATOR PIT RECEPTACLE.
3. COORDINATE LIGHTING LOCATIONS IN THIS AREA WITH SUSPENDED EQUIPMENT INCLUDING GARAGE DOORS.
4. MOUNT LIGHTS TO TOP OF LOCKERS AS DIRECTED IN THE FIELD.
5. X-RAY IN USE LIGHTS CONTROLLED TO BE ON WHEN EITHER DENTAL X-RAY OR LARGE X-RAY MACHINES ARE USED.
6. DX-2'S IN THIS LOCATION REQUIRE TRIM KITS COMPATIBLE WITH METAL CHANNEL CEILING.

KEY PLAN





A1 FIRST LEVEL LIGHTING PLAN - AREA B

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

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FIRST LEVEL LIGHTING PLAN - AREA B

EL101b

VOLUME 2

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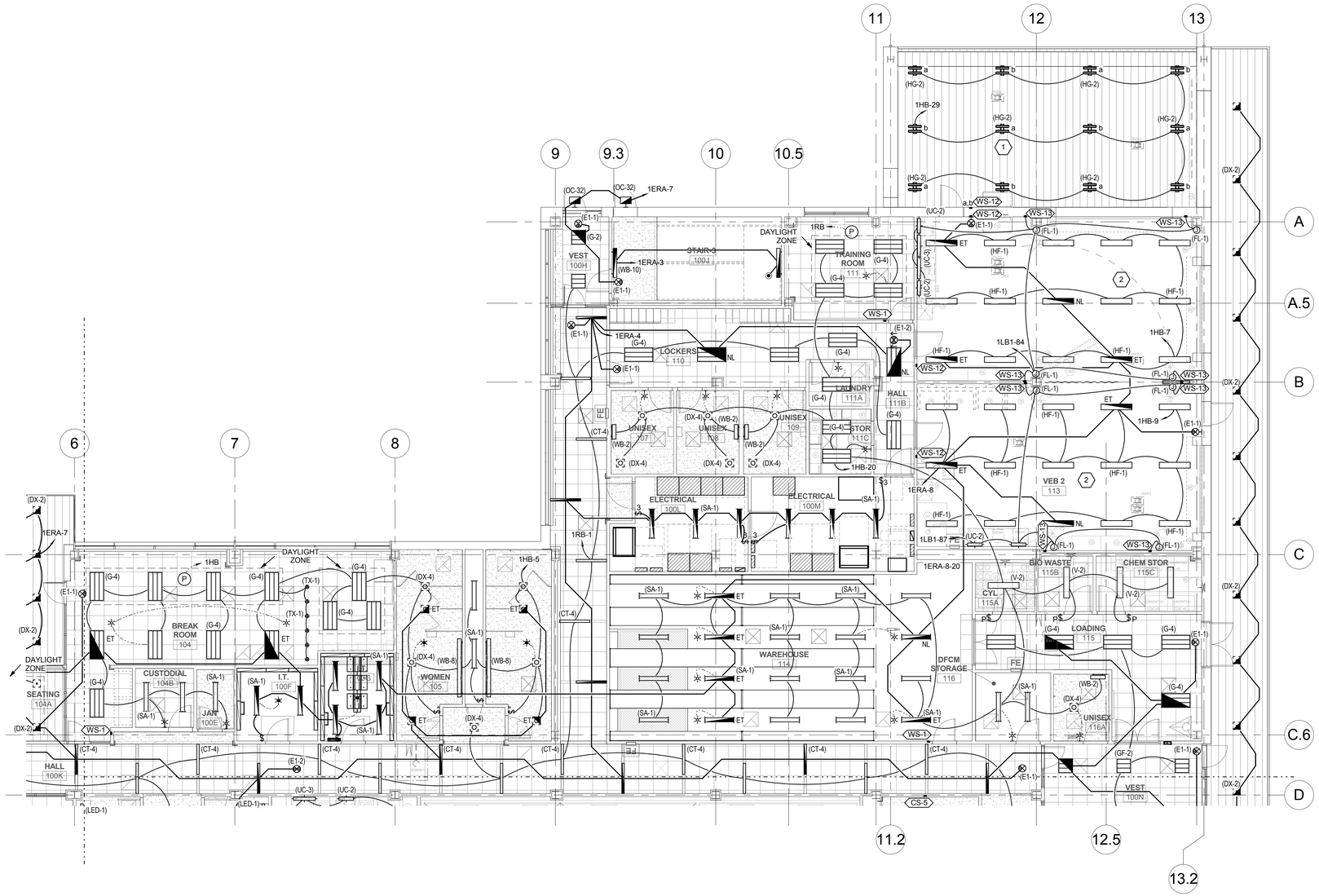

A1 FIRST LEVEL LIGHTING PLAN - AREA C

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

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GENERAL SHEET NOTES

1 PROVIDE UNSWITCHED PORTION OF CIRCUIT TO ALL EXIT SIGNS. ALL OTHER EMERGENCY LIGHTS SHALL BE SWITCHED THROUGH EMERGENCY RELAYS AS INDICATED.

2 COORDINATE ALL LIGHTING IN MEHANICAL, ELECTRICAL AND TECH ROOMS WITH EQUIPMENT TO AVOID DUCTS, PIPES, ETC.

SHEET KEYNOTES

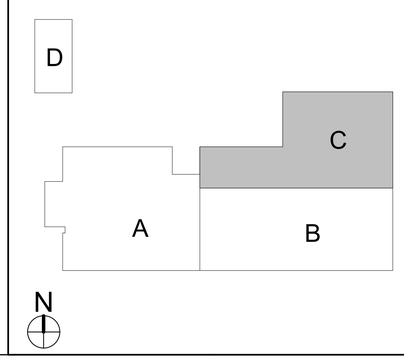
1 CONTRACTOR TO PROVIDE UNISTRUT FOR MOUNTING OF LIGHTS AT TOP OF BEAMS.

2 COORDINATE LIGHTING LOCATIONS IN THIS AREA WITH SUSPENDED EQUIPMENT INCLUDING GARAGE DOORS.

3 MOUNT LIGHTS TO TOP OF LOCKERS AS DIRECTED IN THE FIELD.

4 DX-2'S IN THIS LOCATION REQUIRE TRIM KITS COMPATIBLE WITH METAL CHANNEL CEILING.

KEY PLAN



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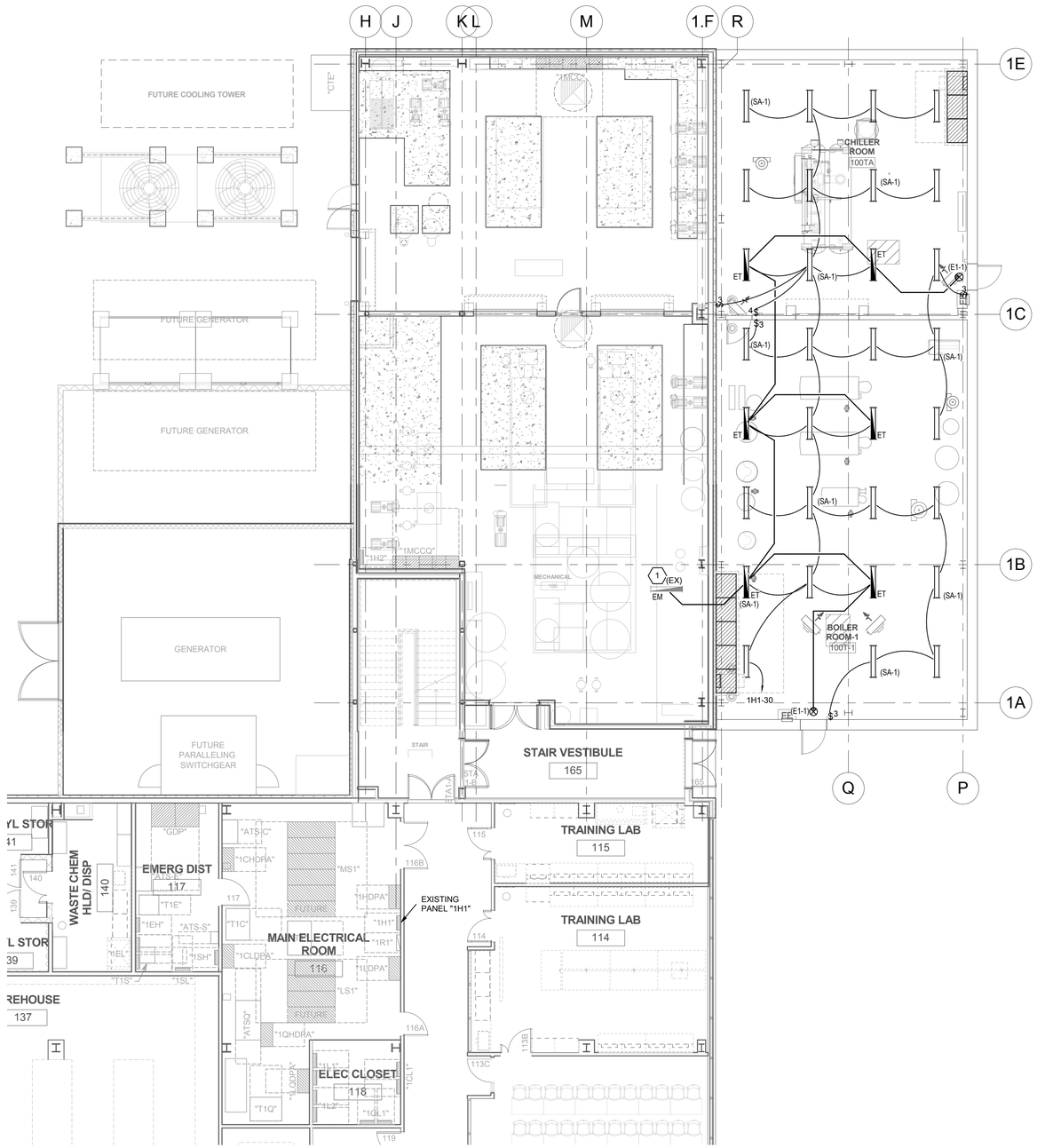
FIRST LEVEL LIGHTING PLAN - AREA C

EL101c

VOLUME 2



A2 FIRST LEVEL LIGHTING PLAN - AREA D

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

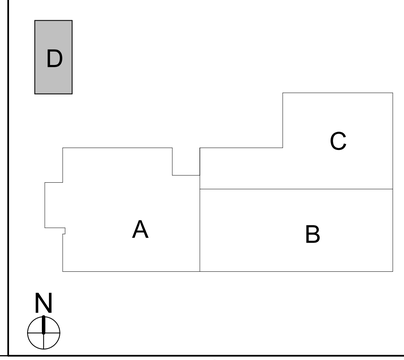
GENERAL SHEET NOTES

1. PROVIDE UNSWITCHED PORTION OF CIRCUIT TO ALL EXIT SIGNS. ALL OTHER EMERGENCY LIGHTS SHALL BE SWITCHED THROUGH EMERGENCY RELAYS AS INDICATED.
2. COORDINATE ALL LIGHTING IN MEHANICAL, ELECTRICAL AND TECH ROOMS WITH EQUIPMENT TO AVOID DUCTS, PIPES, ETC.

SHEET KEYNOTES

1. CONNECT NEW EMERGENCY LIGHTING CIRCUIT TO EXISTING MECHANICAL ROOM EMERGENCY LIGHTING CIRCUIT 1EH-2.

KEY PLAN



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FIRST LEVEL LIGHTING PLAN - AREA D

EL101d

VOLUME 2

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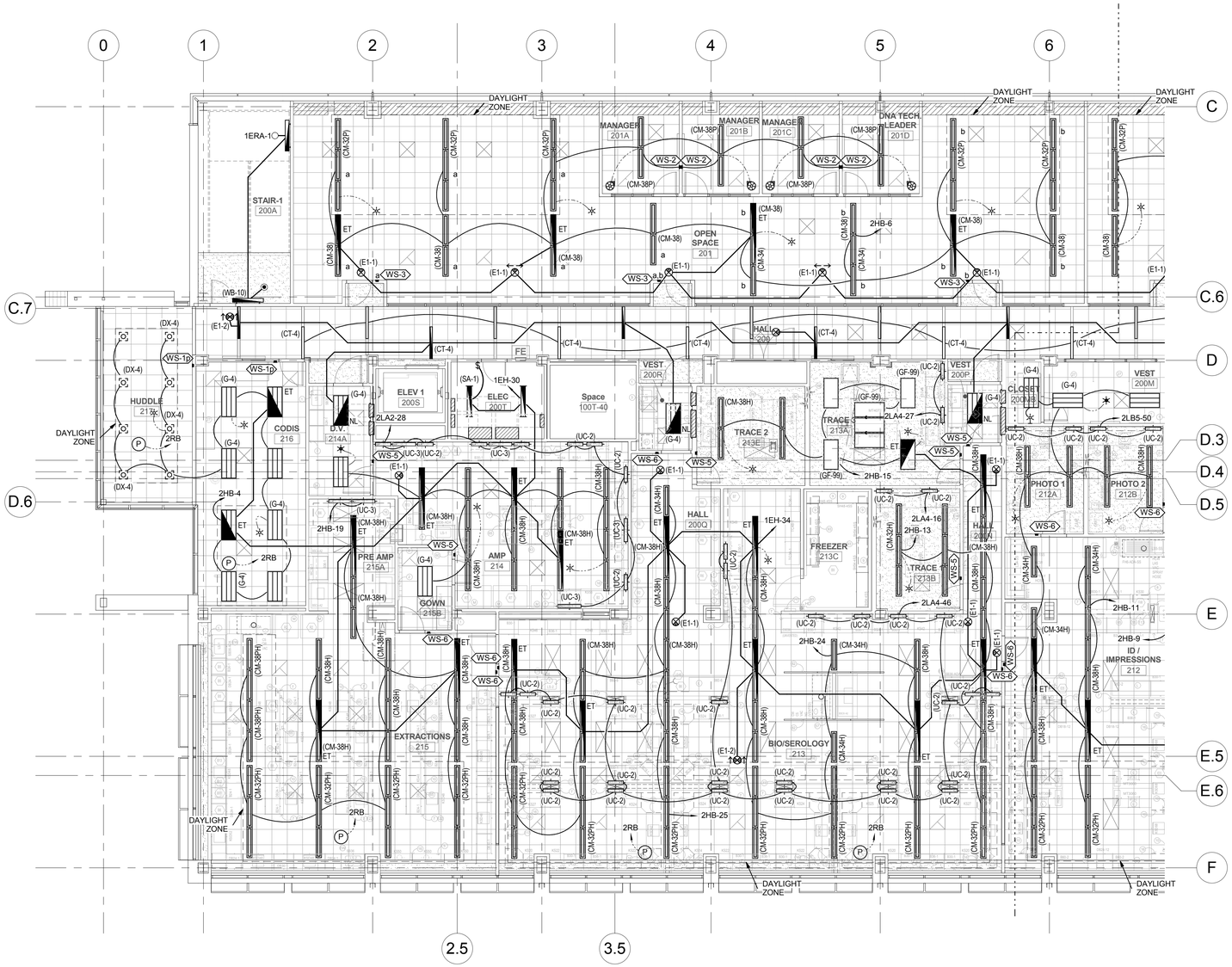

A1 SECOND LEVEL LIGHTING PLAN - AREA A

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

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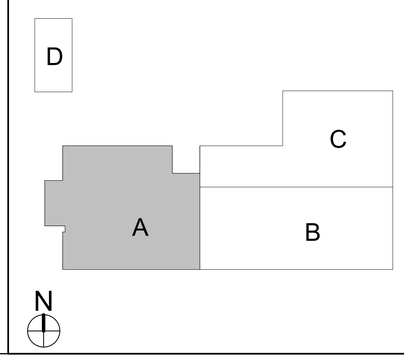
GENERAL SHEET NOTES

1. PROVIDE UNSWITCHED PORTION OF CIRCUIT TO ALL EXIT SIGNS. ALL OTHER EMERGENCY LIGHTS SHALL BE SWITCHED THROUGH EMERGENCY RELAYS AS INDICATED.
2. COORDINATE ALL LIGHTING IN MEHANICAL, ELECTRICAL AND TECH ROOMS WITH EQUIPMENT TO AVOID DUCTS, PIPES, ETC.

SHEET KEYNOTES

KEY PLAN



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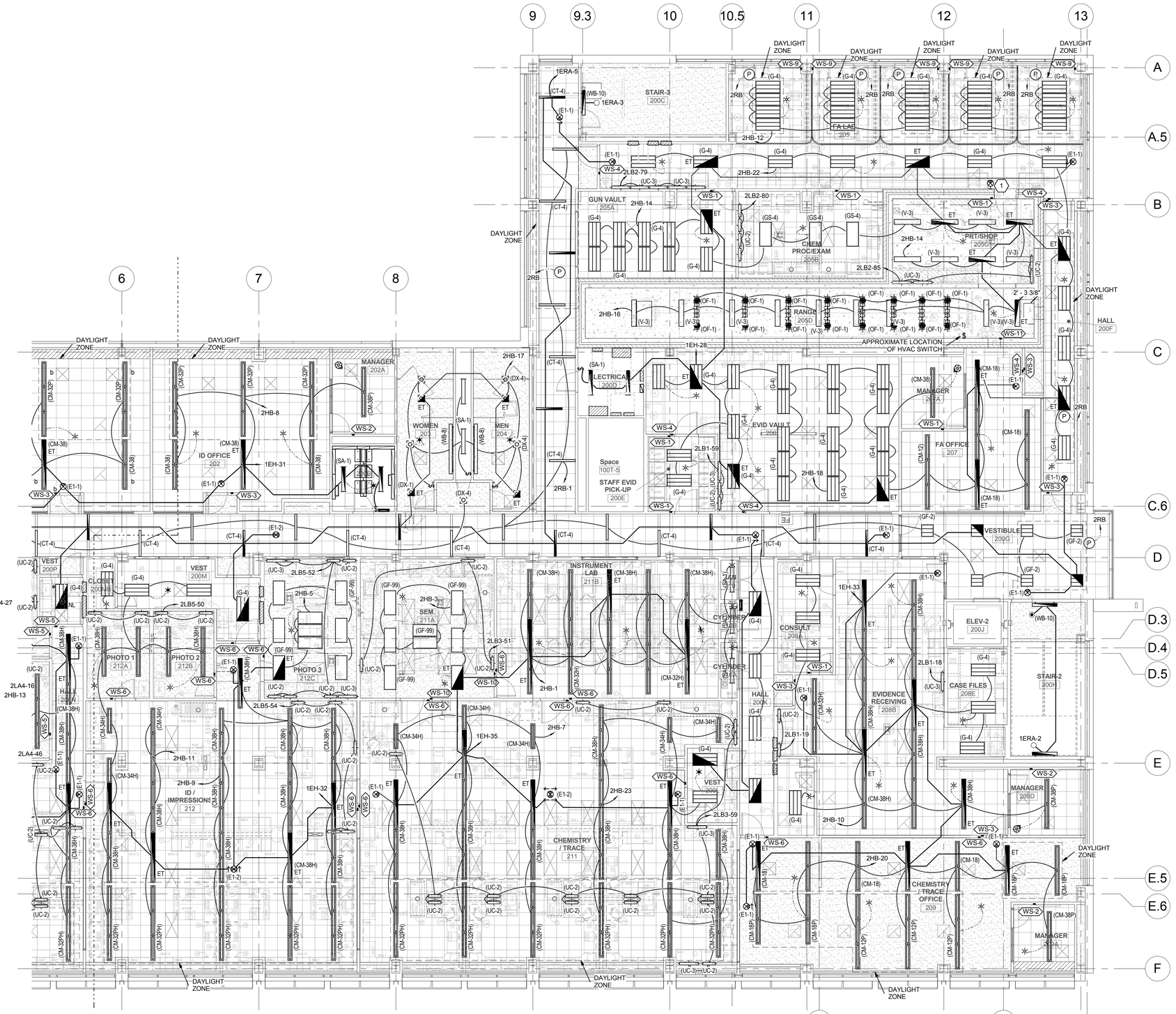
SECOND LEVEL LIGHTING PLAN - AREA A

EL102a

VOLUME 2



A1 SECOND LEVEL LIGHTING PLAN - AREA B

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

GENERAL SHEET NOTES

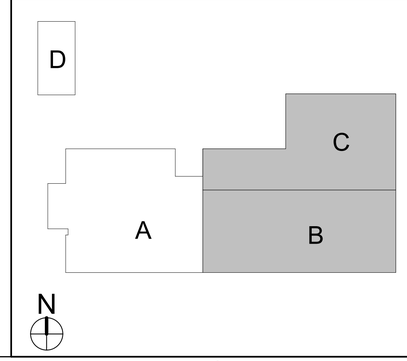
1 PROVIDE UNSWITCHED PORTION OF CIRCUIT TO ALL EXIT SIGNS. ALL OTHER EMERGENCY LIGHTS SHALL BE SWITCHED THROUGH EMERGENCY RELAYS AS INDICATED.

2 COORDINATE ALL LIGHTING IN MEHANICAL, ELECTRICAL AND TECH ROOMS WITH EQUIPMENT TO AVOID DUCTS, PIPES, ETC.

SHEET KEYNOTES

1 RANGE IN USE SIGN TO BE CONTROLLED WHEN HVAC IN RANGE IS TURNED ON.

KEY PLAN



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SECOND LEVEL LIGHTING PLAN - AREA B

EL102b

VOLUME 2

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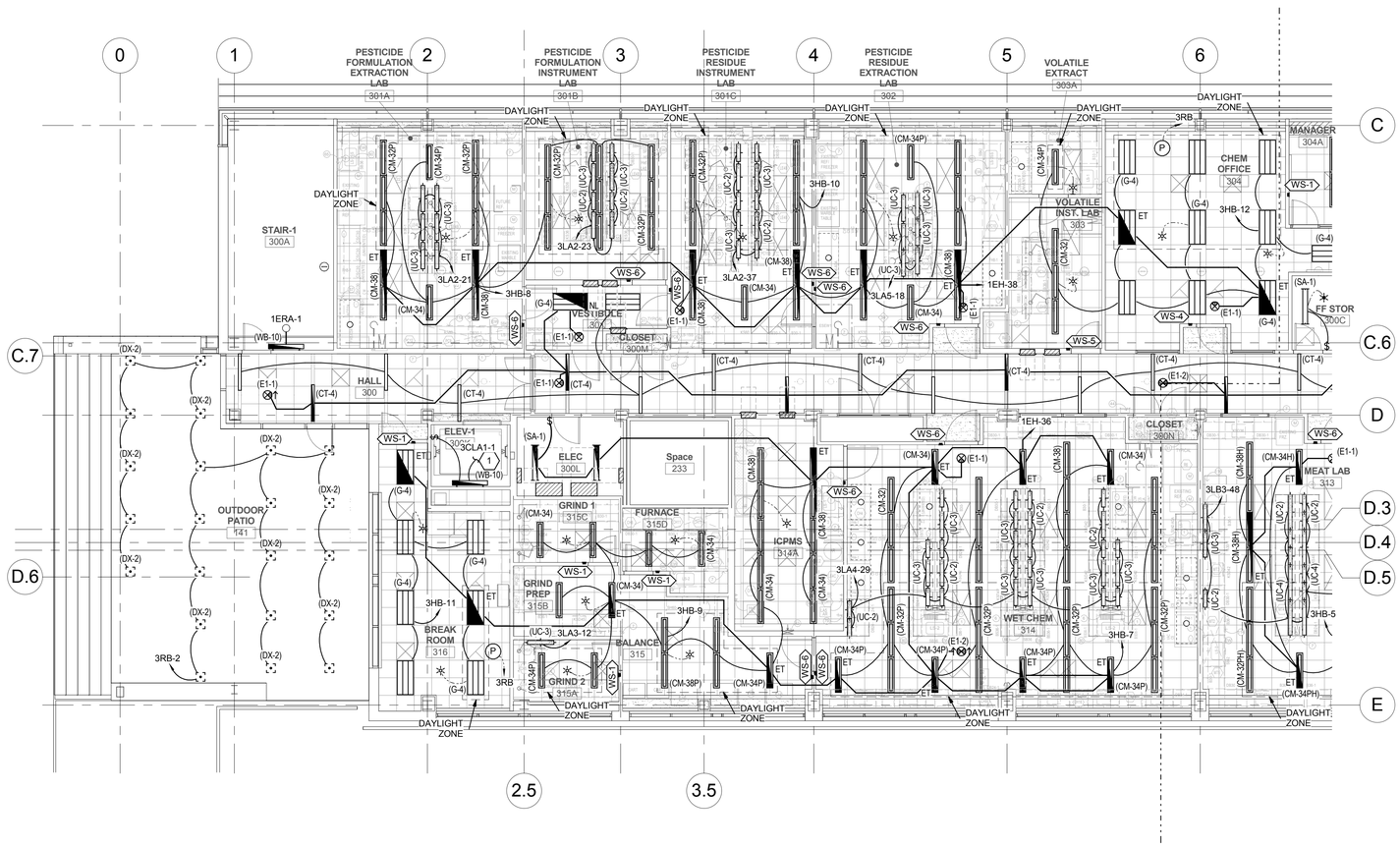


A1 THIRD LEVEL LIGHTING PLAN - AREA A

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

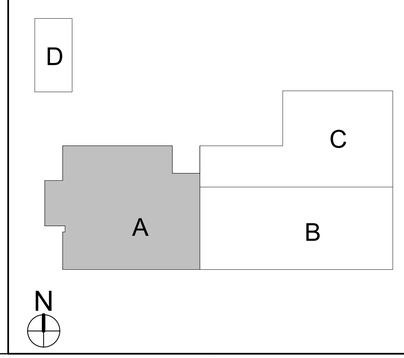
GENERAL SHEET NOTES

1. PROVIDE UNSWITCHED PORTION OF CIRCUIT TO ALL EXIT SIGNS. ALL OTHER EMERGENCY LIGHTS SHALL BE SWITCHED THROUGH EMERGENCY RELAYS AS INDICATED.
2. COORDINATE ALL LIGHTING IN MEHANICAL, ELECTRICAL AND TECH ROOMS WITH EQUIPMENT TO AVOID DUCTS, PIPES, ETC.

SHEET KEYNOTES

1. CIRCUIT ELEVATOR PIT LIGHT TO SAME CIRCUIT AS THE ELEVATOR PIT RECEPTACLE.

KEY PLAN



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Project #:	B13-024

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April 21, 2014	BID SET

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THIRD LEVEL LIGHTING PLAN - AREA A

EL103a

VOLUME 2

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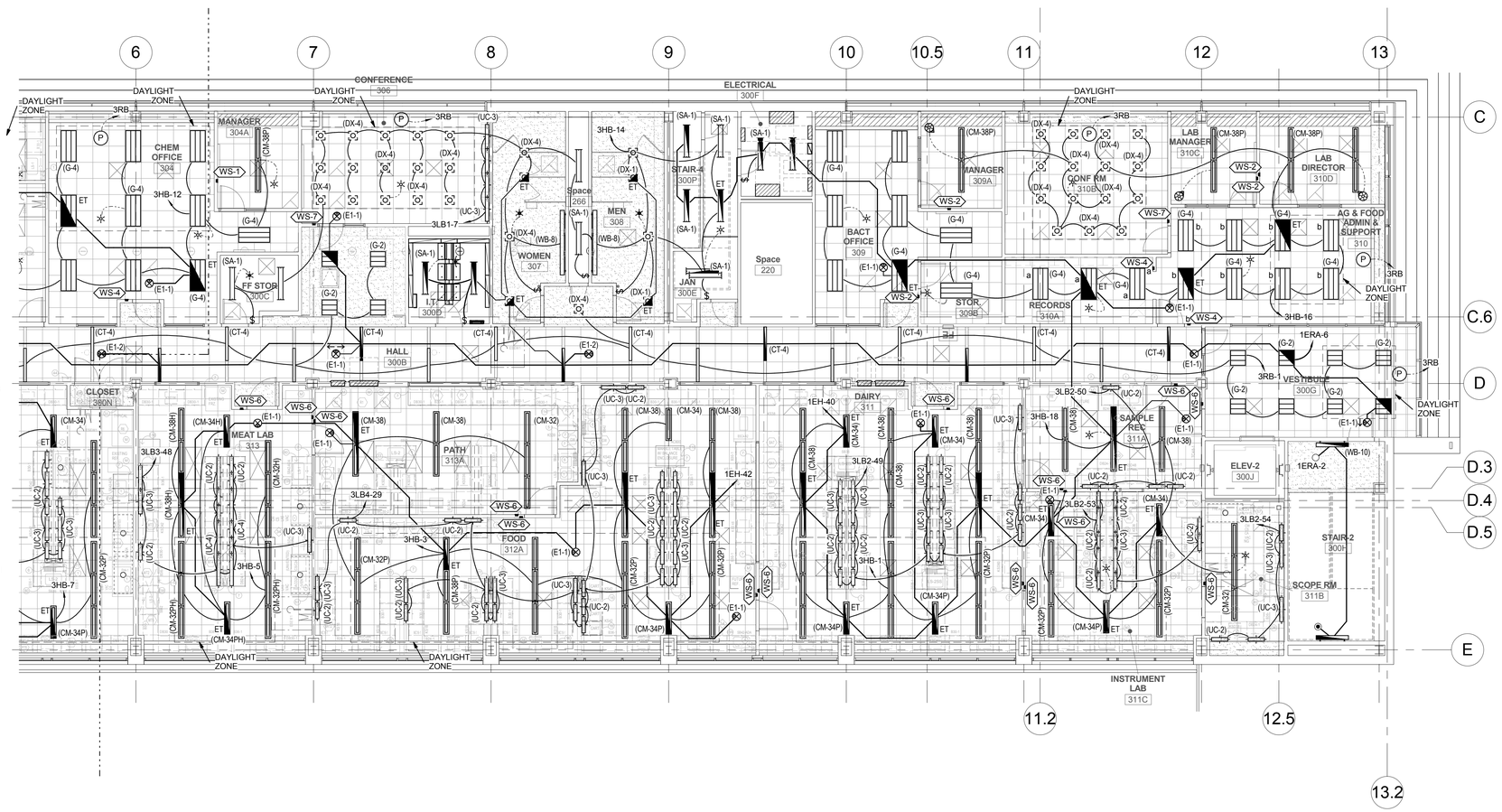


A1 THIRD LEVEL LIGHTING PLAN - AREA B

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

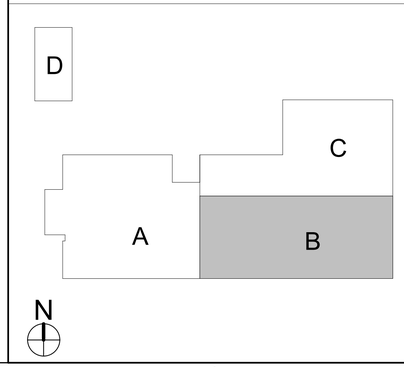
GENERAL SHEET NOTES

1 PROVIDE UNSWITCHED PORTION OF CIRCUIT TO ALL EXIT SIGNS. ALL OTHER EMERGENCY LIGHTS SHALL BE SWITCHED THROUGH EMERGENCY RELAYS AS INDICATED.

2 COORDINATE ALL LIGHTING IN MEHANICAL, ELECTRICAL AND TECH ROOMS WITH EQUIPMENT TO AVOID DUCTS, PIPES, ETC.

SHEET KEYNOTES

KEY PLAN



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DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
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SIGNATURE: Ernie Catt
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 181563
DAVID E. WESEMANN
04-21-2014
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #:	13020300
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THIRD LEVEL LIGHTING PLAN - AREA B

EL103b

VOLUME 2

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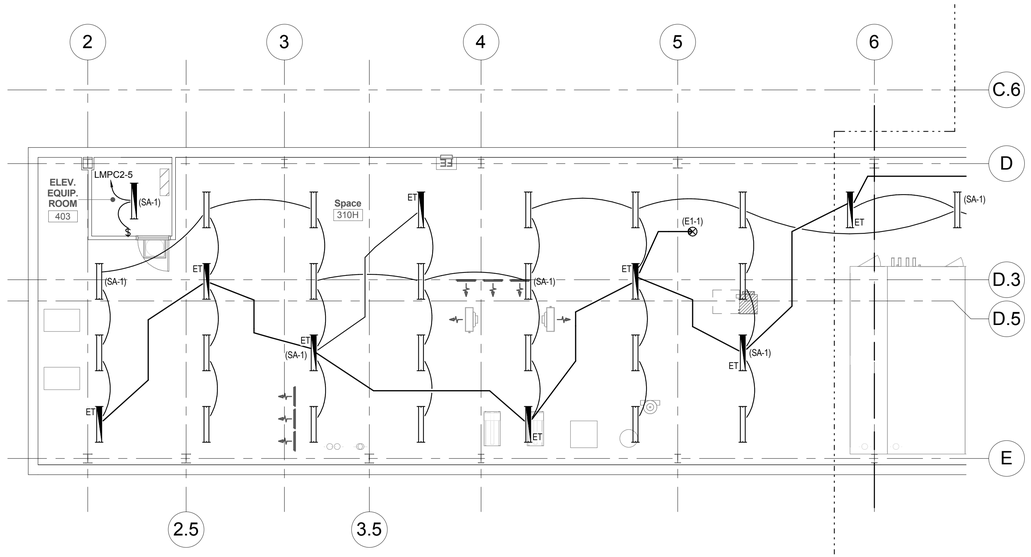
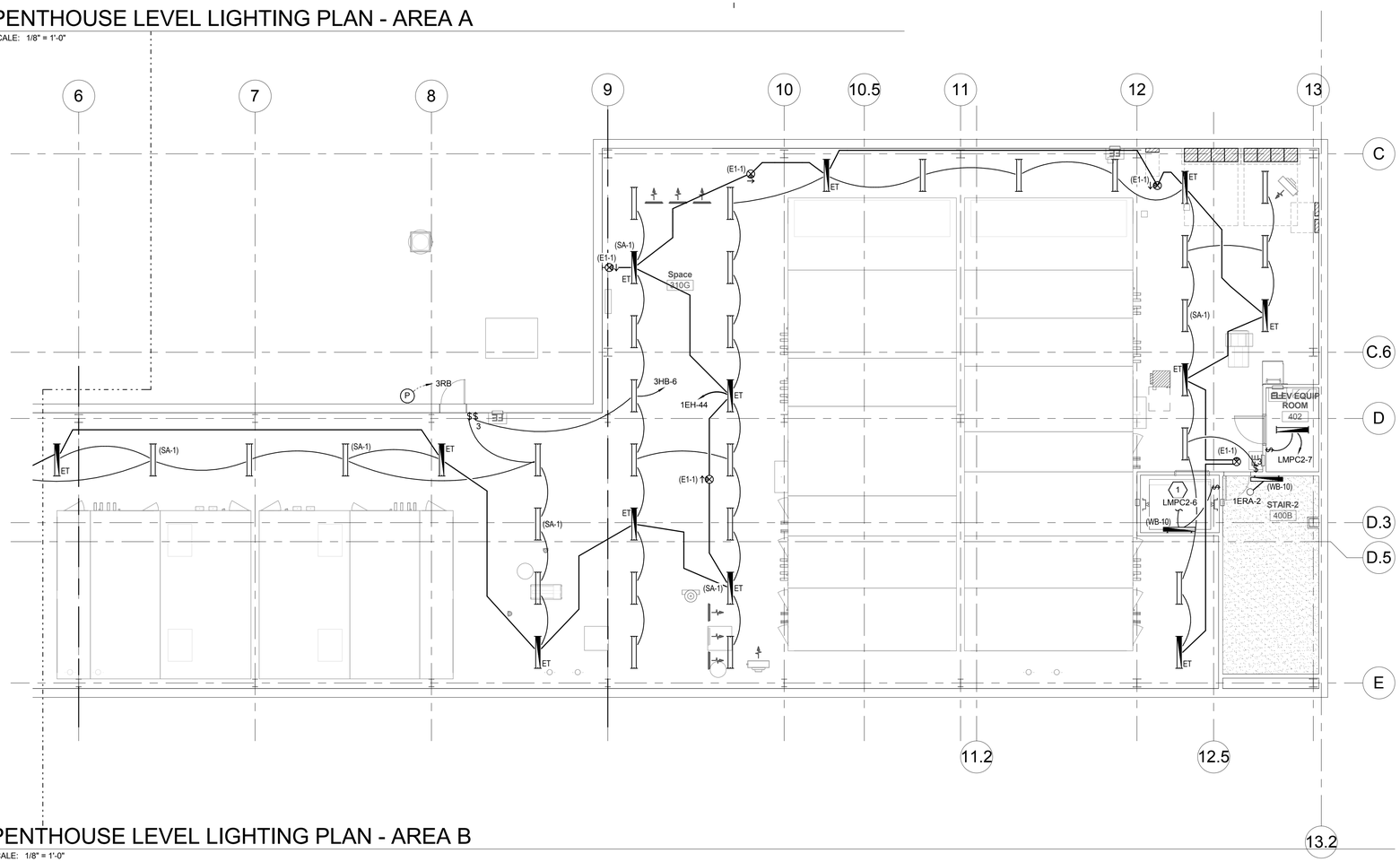


1 PENTHOUSE LEVEL LIGHTING PLAN - AREA A

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



A1 PENTHOUSE LEVEL LIGHTING PLAN - AREA B

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

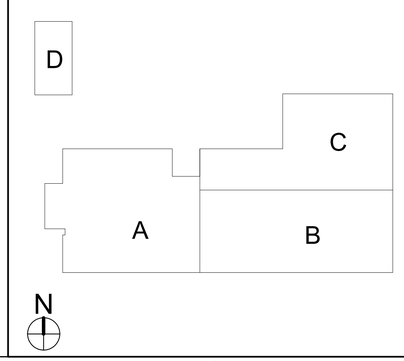
GENERAL SHEET NOTES

1. PROVIDE UNSWITCHED PORTION OF CIRCUIT TO ALL EXIT SIGNS. ALL OTHER EMERGENCY LIGHTS SHALL BE SWITCHED THROUGH EMERGENCY RELAYS AS INDICATED.
2. COORDINATE ALL LIGHTING IN MEHANICAL, ELECTRICAL AND TECH ROOMS WITH EQUIPMENT TO AVOID DUCTS, PIPES, ETC.

SHEET KEYNOTES

1. CIRCUIT ELEVATOR PIT LIGHT TO SAME CIRCUIT AS THE ELEVATOR PIT RECEPTACLE.

KEY PLAN



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PENTHOUSE LEVEL LIGHTING PLAN

EL104

VOLUME 2

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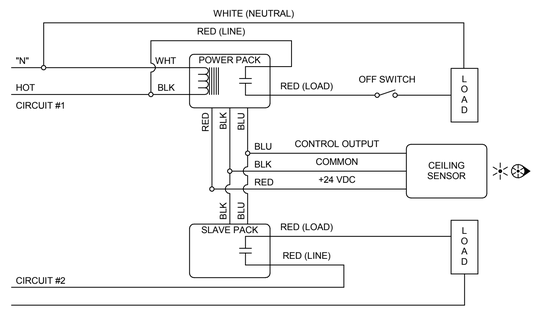
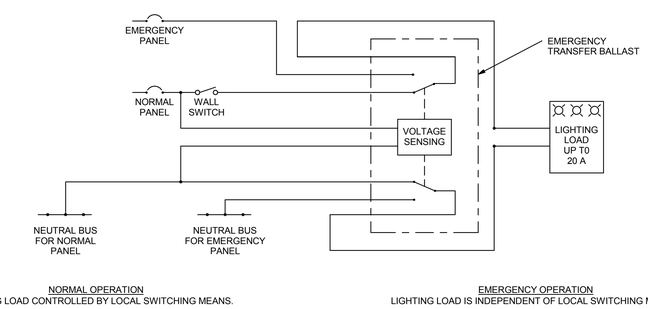


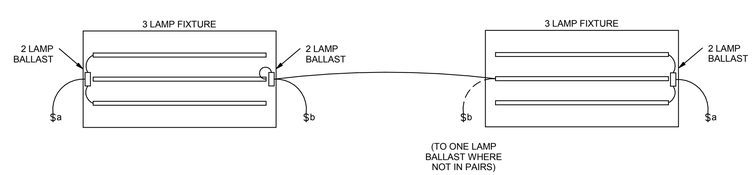
C2 TYPICAL ROOM WITH ONE CEILING SENSOR, CONTROLLING TWO CIRCUITS

SCALE: NTS



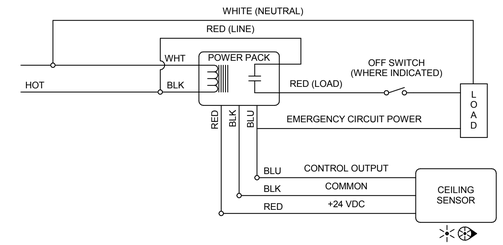
B2 EMERGENCY LIGHTING TRANSFER DEVICE DETAIL

SCALE: NTS



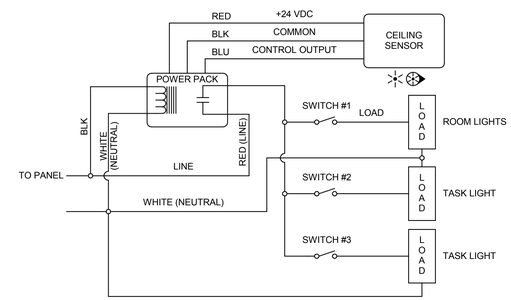
A2 3 BALLAST TANDEM WIRED FOR UNIFORM 3 LEVEL SWITCHING DETAIL, 3 LAMP

SCALE: NTS



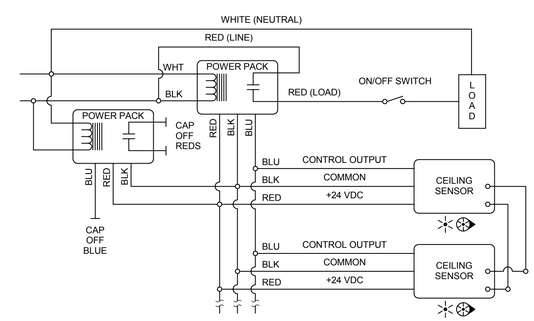
D4 TYPICAL ROOM WITH ONE CEILING SENSOR, WITH OR WITHOUT WALL SWITCH

SCALE: NTS



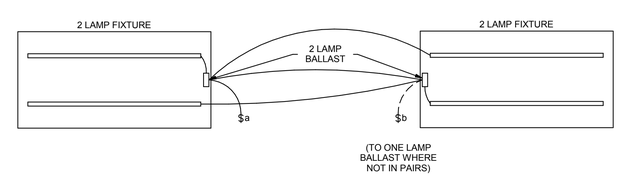
C4 TYPICAL ROOM WITH ONE CEILING SENSOR, ONE CIRCUIT AND MULTIPLE SWITCHED LOADS

SCALE: NTS



B4 TYPICAL ROOM WITH MULTIPLE CEILING SENSORS

SCALE: NTS



A4 2 BALLAST TANDEM WIRE FOR UNIFORM 2 LEVEL SWITCHING DETAIL, 2 LAMP

SCALE: NTS

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LIGHTING DETAILS AND DIAGRAMS

EL501

VOLUME 2

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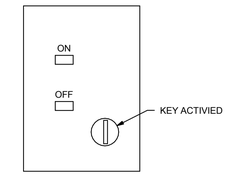
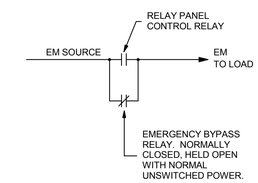


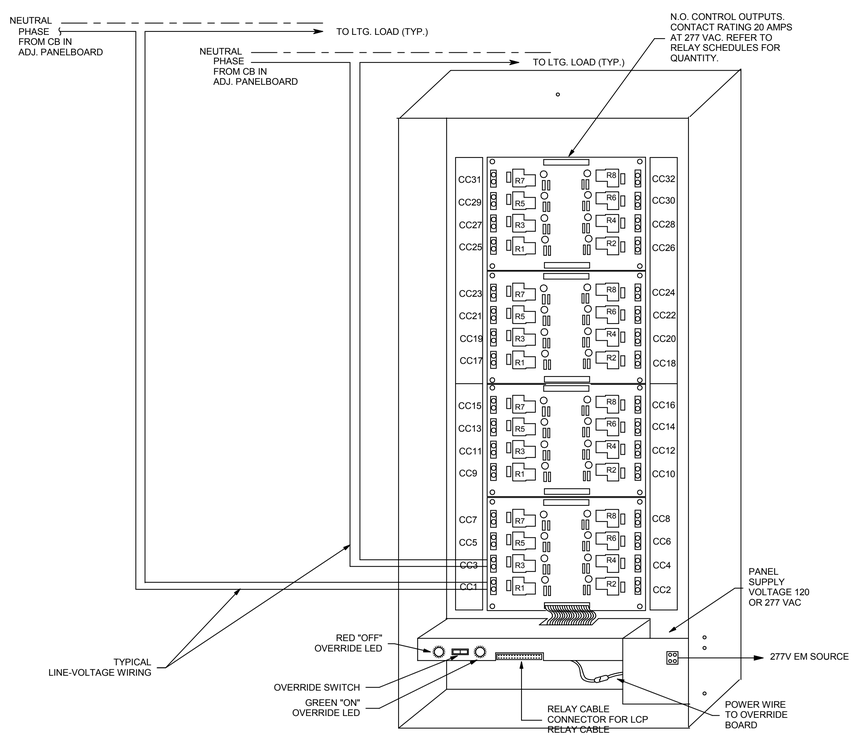
D5 TYPICAL WALL STATION

SCALE: NTS



C5 EMERGENCY RELAY SCHEMATIC

SCALE: NTS

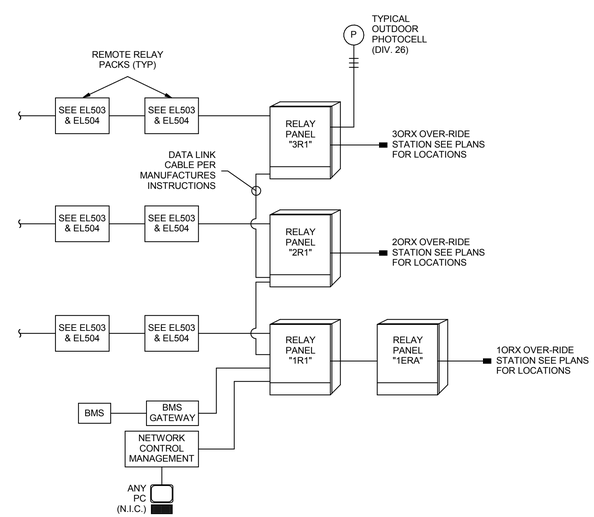


A2 TYPICAL RELAY PANEL WIRING DETAIL

SCALE: NTS

GENERAL NOTES

1. PERIPHERAL DEVICES (PHOTOCELLS, WALL STATIONS, ETC.) ARE SHOWN ONLY AS TYPICAL AND DO NOT REPRESENT ACTUAL QUANTITIES.



A4 LIGHTING CONTROL SCHEMATIC

SCALE: NTS

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LIGHTING DETAILS AND DIAGRAMS

EL502

VOLUME 2

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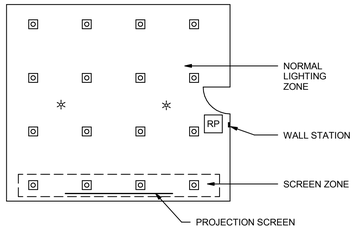
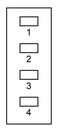


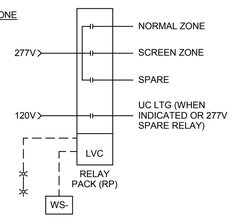


WALL STATION CONTROL MATRIX

BUTTON	NORMAL ZONE	SCREEN ZONE	SWITCH LABEL
1	OFF	X	LECTURE
2	X	X	MEETING
3	X	OFF	PRESENTATION
4	OFF	OFF	OFF

SWITCHING SEQUENCE

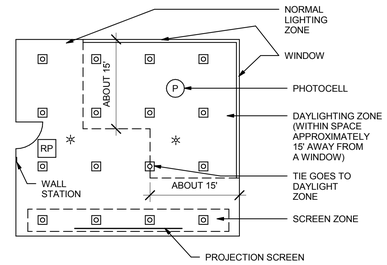
WS-8 - CONFERENCE ROOM W/OUT DAYLIGHT ZONE
- PUSH 1:
  - NORMAL ZONE: ALWAYS OFF.
  - SCREEN ZONE: ALWAYS ON.
- PUSH 2:
  - NORMAL ZONE: ALWAYS ON.
  - SCREEN ZONE: ALWAYS ON.
- PUSH 3:
  - NORMAL ZONE: ALWAYS ON.
  - SCREEN ZONE: ALWAYS OFF.
- PUSH 4:
  - NORMAL ZONE: ALWAYS OFF.
  - SCREEN ZONE: ALWAYS OFF.
- AUTOMATIC OFF:
  -W/VACANCY SENSOR;
  AUTO-ON ALLOWED FOR TIME DELAY OF 1 MINUTE AFTER AUTO-OFF

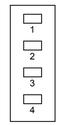


C1 CONFERENCE ROOM W/ NORMAL LIGHTING ZONES

WS-8

SCALE: NTS



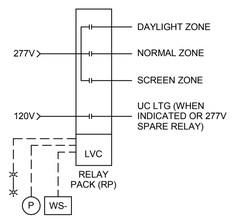


WALL STATION CONTROL MATRIX

BUTTON	DAYLIGHT ZONE	NORMAL ZONE	SCREEN ZONE	SWITCH LABEL
1	OFF	OFF	X	LECTURE
2	X	X	X	MEETING
3	X	X	OFF	PRESENTATION
4	OFF	OFF	OFF	OFF

SWITCHING SEQUENCE

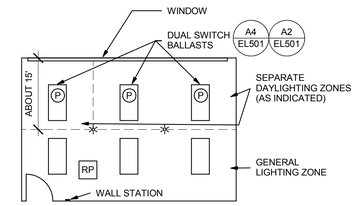
WS-7 - CONFERENCE ROOM W/DAYLIGHT ZONE
- PUSH 1:
  - DAYLIGHT ZONE: ALWAYS OFF.
  - NORMAL ZONE: ALWAYS OFF.
  - SCREEN ZONE: ALWAYS ON.
- PUSH 2:
  - DAYLIGHT ZONE: ALWAYS ON WITH PHOTOCELL SUPERVISION.
  - NORMAL ZONE: ALWAYS ON.
  - SCREEN ZONE: ALWAYS ON.
- PUSH 3:
  - DAYLIGHT ZONE: ALWAYS ON WITH PHOTOCELL SUPERVISION.
  - NORMAL ZONE: ALWAYS ON.
  - SCREEN ZONE: ALWAYS OFF.
- PUSH 4:
  - DAYLIGHT ZONE: ALWAYS OFF.
  - NORMAL ZONE: ALWAYS OFF.
  - SCREEN ZONE: ALWAYS OFF.
- AUTOMATIC OFF: 1W/VACANCY SENSOR
  - AUTO-ON ALLOWED FOR TIME DELAY OF 1 MINUTE AFTER AUTO-OFF



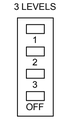
C2 CONFERENCE ROOM LIGHTING ZONES

WS-7

SCALE: NTS



3 LEVELS

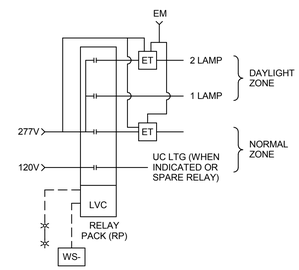


LAB AREA
GENERAL LIGHTING ZONE
- NO DAY LIGHTING.

SWITCHING SEQUENCE
WS-5 - LAB AREA W/OUT DAYLIGHT ZONE
- MANUAL ON/OFF:
- AUTOMATIC OFF - W/VACANCY SENSOR; AUTO-ON ALLOWED FOR TIME DELAY OF 1 MINUTE AFTER AUTO-OFF.

DAYLIGHTING ZONE
- DAYLIGHTING.

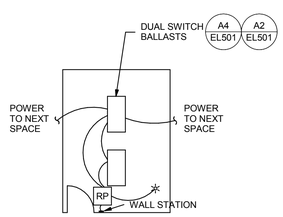
SWITCHING SEQUENCE
- MANUAL ON - ON WITH PHOTOCELL SUPERVISION MULTI-LEVEL CONTROL TO MAINTAIN 100 FC.
- MANUAL OFF: ALWAYS OFF.
- AUTO OFF: RESETS (ALL) WS-X TO OFF W/VACANCY SENSOR; AUTO-ON ALLOWED FOR TIME DELAY OF 1 MINUTE AFTER AUTO-OFF



C3 LAB AREA INTERIOR LIGHTING ZONE

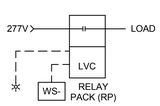
WS-5 WS-6

SCALE: NTS



PRIVATE OFFICE OR OPEN OFFICE
- NO DAY LIGHTING.

SEQUENCE OF OPERATION
- MANUAL ON/OFF.
- AUTOMATIC OFF: W/VACANCY SENSOR; AUTO-ON ALLOWED FOR TIME DELAY OF 1 MINUTE AFTER AUTO-OFF
- AUTOMATIC ON: FIELD SELECTABLE FOR NONE OR 50%.

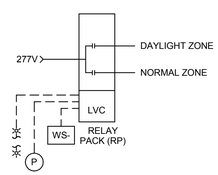


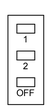
SWITCHING SEQUENCE

WS-1 - TYPICAL OFFICE/ROOM
- PUSH ON/OFF
- AUTO OFF RESETS WS TO OFF

SWITCHING SEQUENCE

WS-1d - TYPICAL ROOM W/DOWNLIGHTS
- PUSH ON/OFF
- DIMMING ARROWS:
  UP ARROW - INCREASES LIGHT OUTPUT
  DOWN ARROW - DECREASES LIGHT OUTPUT.
- AUTOMATIC OFF: W/VACANCY SENSOR:
  AUTO-ON ALLOWED FOR TIME DELAY OF 1 MINUTE AFTER AUTO-OFF





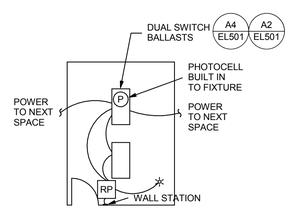
SWITCHING SEQUENCE

WS-1p - TYPICAL ROOM W/DAYLIGHTING
- PUSH 1: ALWAYS DAYLIGHT ZONE ON WITH PHOTOCELL SUPERVISION; MULTI-LEVEL CONTROL TO MAINTAIN 50FC.
- PUSH 2: ALWAYS NORMAL ZONE ON.
- PUSH OFF: ALL ALWAYS OFF.
- AUTOMATIC OFF: W/VACANCY SENSOR;
  AUTO-ON ALLOWED FOR TIME DELAY OF 1 MINUTE AFTER AUTO-OFF.

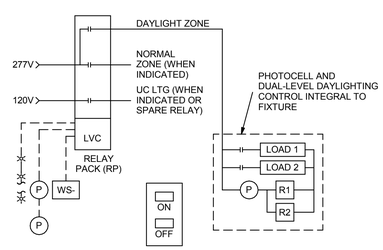
A1 TYPICAL OFFICE/ROOM SWITCHING DETAIL

WS-1 WS-1d WS-1p

SCALE: NTS



PRIVATE OFFICE W/ DAY LIGHTING
SEQUENCE OF OPERATION:
- MANUAL ON: ON WITH PHOTOCELL SUPERVISION.
  - MULTI-LEVEL CONTROL TO MAINTAIN 50FC.
- MANUAL OFF: ALWAYS OFF.
- AUTO OFF: W/VACANCY SENSOR; AUTO-ON ALLOWED FOR TIME DELAY OF 1 MINUTE AFTER AUTO-OFF.
- AUTOMATIC ON: FIELD SELECTABLE FOR NONE OR 50%.



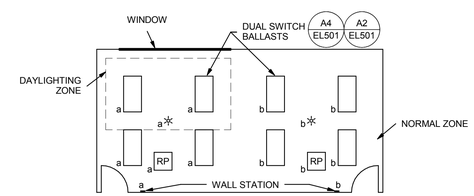
SWITCHING SEQUENCE

WS-2 - TYPICAL OFFICE/ROOM W/DAYLIGHTING
- PUSH ON: ON WITH PHOTOCELL SUPERVISION
- PUSH OFF: ALWAYS OFF
- AUTO OFF: RESETS WS-X TO OFF

A3 TYPICAL OFFICE/ROOM W/DAYLIGHTING SWITCHING DETAIL

WS-2

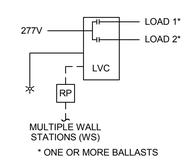
SCALE: NTS



LARGE OPEN OFFICE SPACE
- NO DAY LIGHTING

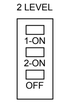
SEQUENCE OF OPERATION:
- MANUAL ON/OFF:
- AUTOMATIC OFF: W/VACANCY SENSOR; AUTO-ON ALLOWED FOR TIME DELAY OF 1 MINUTE AFTER AUTO-OFF.
- AUTOMATIC ON:
  - FIELD SELECTABLE AUTO ON 33% OR 50%

OR
  - NO AUTO ON



* ONE OR MORE BALLASTS

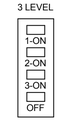
2 LEVEL



SWITCHING SEQUENCE

WS-4 - LARGE 3 LEVEL OPEN OFFICE LIGHTS
- PUSH 1: ALWAYS 1/3 (1) ON.
- PUSH 2: ALWAYS 1/3 (2) ON.
- PUSH 3: ALWAYS 1/3 (3) ON.
- PUSH OFF: ALWAYS OFF.
- AUTO OFF: RESETS WS-4 TO OFF.

3 LEVEL



SWITCHING SEQUENCE

WS-3 - LARGE 2 LEVEL OPEN OFFICE LIGHTS
- PUSH 1: ALWAYS 1/2 (1) ON.
- PUSH 2: ALWAYS 1/2 (2) ON.
- PUSH OFF: ALWAYS OFF.
- AUTO OFF: RESETS WS-3 TO OFF.

A4 LARGE OPEN OFFICE SWITCHING DETAIL

WS-3 WS-4

SCALE: NTS

GENERAL SHEET NOTES

1 CONTROL SYSTEMS AND RELAY PACK USED INTERCHANGEABLY; SYSTEM FUNCTIONALITY MUST BE PROVIDED REGARDLESS OF DRAWING NOMENCLATURE.

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SIGNATURE: Ernie Catt
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 181563
DAVID E. WESEMANN
04-21-2014
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300

Project #: B13-024

DATE:	ISSUE TYPE:
April 21, 2014	BID SET
CHECKED BY	D. WESEMANN
DRAWN BY	DLM

LIGHTING CONTROL DIAGRAMS

EL503

VOLUME 2

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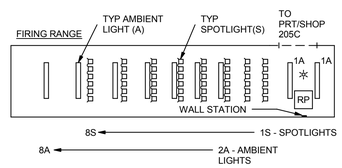
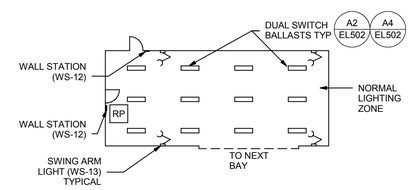
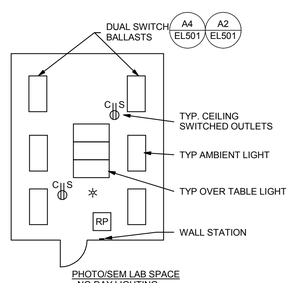
GENERAL SHEET NOTES

1 CONTROL SYSTEMS AND RELAY PACK USED INTERCHANGEABLY; SYSTEM FUNCTIONALITY MUST BE PROVIDED REGARDLESS OF DRAWING NOMENCLATURE.







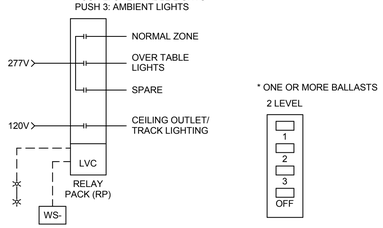
PHOTO/SEM LAB SPACE
- NO DAY LIGHTING

SEQUENCE OF OPERATION:
- MANUAL ON/OFF:
- AUTOMATIC OFF: W/VACANCY SENSOR; AUTO-ON ALLOWED FOR TIME DELAY OF 1 MINUTE AFTER AUTO-OFF.
- AUTOMATIC ON:
  - FIELD SELECTABLE AUTO ON 33% OR 50%

OR

  - NO AUTO ON

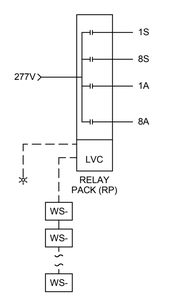
PUSH 1: OUTLETS
PUSH 2: OVER TABLE LIGHTS
PUSH 3: AMBIENT LIGHTS

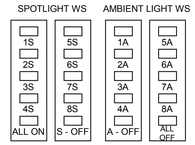


A1 PHOTO/SEM SWITCHING DETAIL

WS-10

SCALE: NTS





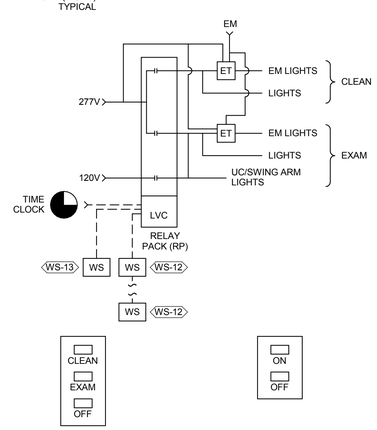
SWITCHING SEQUENCE

WS-11 FIRING RANGE LIGHTS
- PUSH 1S THRU 8S:
  LIGHT OFF - TURN LIGHT ON.
  LIGHT ON - TURN LIGHT OFF.
- PUSH S - OFF: 1S THRU 8S ALWAYS OFF.
- PUSH 1A THRU 8A:
  LIGHT OFF - TURN LIGHT ON.
  LIGHT ON - TURN LIGHT OFF.
- PUSH A - OFF: 1A THRU 8A ALWAYS OFF.
- PUSH ALL ON: 1A THRU 8A AND 1S THRU 8S ALWAYS ON.
- PUSH ALL OFF: 1A THRU 8A AND 1S THRU 8S ALWAYS OFF.
- AUTOMATIC OFF: W/VACANCY SENSOR; AUTO-ON ALLOWED FOR TIME DELAY OF 1 MINUTE AFTER AUTO-OFF.

A2 FIRING RANGE SWITCHING DETAIL

WS-11

SCALE: NTS



SWITCHING SEQUENCE

WS-12 - VEB/SALLYPORT BAY LIGHTS
- PUSH WORK: ALWAYS 1/2 (1) ON
- PUSH EXAM: ALWAYS 1/2 (2) ON.
- PUSH OFF: ALWAYS OFF.
- AUTOMATIC OFF: PRE-SET TIME CLOCK TURNS LIGHTS OFF AFTER HOURS.

SWITCHING SEQUENCE

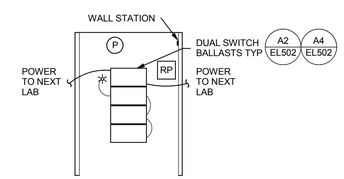
WS-13 - SWING ARM LIGHTS
- PUSH ON: ALWAYS ON.
- PUSH OFF: ALWAYS OFF.
- AUTOMATIC OFF: PRE-SET TIME CLOCK TURNS LIGHTS OFF AFTER HOURS.

GENERAL NOTES:
1. WS-12 WALL STATIONS AT ALL EXTERIOR DOORS.

WS-12
WS-13

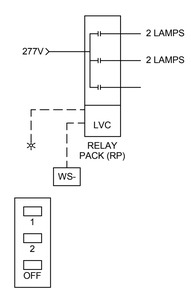
A3 VEB/SALLY PORT LIGHTING AREAS

SCALE: NTS



FIRE ARM LAB
- NO DAY LIGHTING.

SEQUENCE OF OPERATION
- MANUAL ON/OFF.
- AUTOMATIC OFF: W/VACANCY SENSOR.
- AUTOMATIC ON: FIELD SELECTABLE FOR NONE OR 50% IF DUAL SWITCHING IS SPECIFIED.



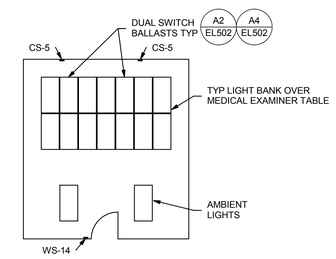
SWITCHING SEQUENCE

WS-9
- PUSH 1: ALWAYS 1/2 (1) ON.
- PUSH 2: ALWAYS 1/2 (2) ON.
- PUSH OFF: ALWAYS OFF.
- AUTO OFF: W/VACANCY SENSOR; AUTO-ON ALLOWED FOR TIME DELAY OF 1 MINUTE AFTER AUTO-OFF

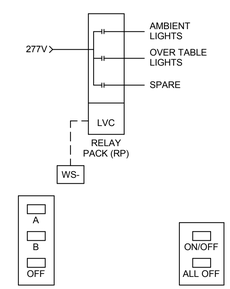
WS-9

A4 FA LABS SWITCHING DETAIL

SCALE: NTS



AUTOPSY AND MEDICAL EXAMINER SPACES



SWITCHING SEQUENCE

CS-5
- PUSH A: ALWAYS 1/2 (A) ON.
- PUSH B: ALWAYS 1/2 (B) ON.
- PUSH OFF: ALWAYS OFF.

SWITCHING SEQUENCE

WS-14
- PUSH ON/OFF: AMBIENT LIGHTS ALWAYS ON OR OFF
- PUSH ALL OFF: ALL LIGHTS (INCLUDING LIGHTS OVER MEDICAL EXAMINER TABLE) ALWAYS OFF.

A5 AUTOPSY AND MEDICAL EXAMINER DETAIL

SCALE: NTS

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04-21-2014
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #:	13020300
Project #:	B13-024
DATE:	ISSUE TYPE:
April 21, 2014	BID SET
CHECKED BY	D. WESEMANN
DRAWN BY	DLM

LIGHTING CONTROL DIAGRAMS

EL504

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RELAY PANEL: 1ERA

LOCATION: ELECTRICAL 100M

CONTROL SCHEDULE

UL 1008 RELAY PANEL

RELAY #	DESCRIPTION	LOCATION	BRANCH CIRCUIT	LOAD (WATTS)	CNTL SWITCH	OCC SENSOR	TIME CLOCK	PHOTOCELL
1	LTG: STAIR-1 100B (1ERA-1)	STAIR 1 100B	**1EH-2**	225			X	
2	LTG: STAIR-2 100P (1ERA-2)	STAIR 2 100P	**1EH-4**	360			X	
3	LTG: STAIR-3 100J (1ERA-3)	STAIR 3 100J	**1EH-6**	135			X	
4	LTG: LEVEL 1 CORRIDOR (1ERA-4)	LEVEL 1 HALL 100	**1EH-8**	2106			X	
5	LTG: LEVEL 2 CORRIDOR (1ERA-5)	LEVEL 2 HALL 200	**1EH-10**	1256			X	
6	LTG: LEVEL 3 CORRIDOR (1ERA-6)	LEVEL 3 HALL 300	**1EH-12**	806			X	
7	LTG: NE EXT LIGHTS (1ERA-7)	NE EXTERIOR OF BLDG	**1EH-14**	530			X	X
8	LTG: VEB/WAREHOUSE (1ERA-8)	LEVEL 1 NORTH EM	**1EH-18**	2325				
9	SPARE	--	--	--	--	--	--	--
10	SPARE	--	--	--	--	--	--	--
11	SPARE	--	--	--	--	--	--	--
12	SPARE	--	--	--	--	--	--	--
13	SPARE	--	--	--	--	--	--	--
14	SPARE	--	--	--	--	--	--	--
15	SPARE	--	--	--	--	--	--	--
16	SPARE	--	--	--	--	--	--	--
17	SPARE	--	--	--	--	--	--	--
18	SPARE	--	--	--	--	--	--	--
19	SPARE	--	--	--	--	--	--	--
20	SPARE	--	--	--	--	--	--	--
21	SPARE	--	--	--	--	--	--	--
22	SPARE	--	--	--	--	--	--	--
23	SPARE	--	--	--	--	--	--	--
24	SPARE	--	--	--	--	--	--	--
25	SPARE	--	--	--	--	--	--	--
26	SPARE	--	--	--	--	--	--	--
27	SPARE	--	--	--	--	--	--	--
28	SPARE	--	--	--	--	--	--	--
29	SPARE	--	--	--	--	--	--	--
30	SPARE	--	--	--	--	--	--	--
31	SPARE	--	--	--	--	--	--	--
32	SPARE	--	--	--	--	--	--	--
33	SPARE	--	--	--	--	--	--	--
34	SPARE	--	--	--	--	--	--	--
35	SPARE	--	--	--	--	--	--	--
36	SPARE	--	--	--	--	--	--	--
37	SPARE	--	--	--	--	--	--	--
38	SPARE	--	--	--	--	--	--	--
39	SPARE	--	--	--	--	--	--	--
40	SPARE	--	--	--	--	--	--	--
41	SPARE	--	--	--	--	--	--	--
42	SPARE	--	--	--	--	--	--	--
43	SPARE	--	--	--	--	--	--	--
44	SPARE	--	--	--	--	--	--	--
45	SPARE	--	--	--	--	--	--	--
46	SPARE	--	--	--	--	--	--	--
47	SPARE	--	--	--	--	--	--	--
48	SPARE	--	--	--	--	--	--	--

Notes:
PANEL REQUIRES PROGRAMMABLE GROUPING OF 28 DISTINCT GROUPS

RELAY PANEL: 2RB

LOCATION: ELECTRICAL 200D

CONTROL SCHEDULE

UL 1008 RELAY PANEL

RELAY #	DESCRIPTION	LOCATION	BRANCH CIRCUIT	LOAD (WATTS)	CNTL SWITCH	OCC SENSOR	TIME CLOCK	PHOTOCELL
1	LTG: LEVEL 2 HALL 200 (2RB-1)	LEVEL 2 HALL 200	**2HB-2**	1039			X	
2	SPARE	--	--	--	--	--	--	--
3	SPARE	--	--	--	--	--	--	--
4	SPARE	--	--	--	--	--	--	--
5	SPARE	--	--	--	--	--	--	--
6	SPARE	--	--	--	--	--	--	--
7	SPARE	--	--	--	--	--	--	--
8	SPARE	--	--	--	--	--	--	--
9	SPARE	--	--	--	--	--	--	--
10	SPARE	--	--	--	--	--	--	--
11	SPARE	--	--	--	--	--	--	--
12	SPARE	--	--	--	--	--	--	--
13	SPACE	--	--	--	--	--	--	--
14	SPACE	--	--	--	--	--	--	--
15	SPACE	--	--	--	--	--	--	--
16	SPACE	--	--	--	--	--	--	--

Notes:

RELAY PANEL: 1RB

LOCATION: ELECTRICAL 100L

CONTROL SCHEDULE

UL 1008 RELAY PANEL

RELAY #	DESCRIPTION	LOCATION	BRANCH CIRCUIT	LOAD (WATTS)	CNTL SWITCH	OCC SENSOR	TIME CLOCK	PHOTOCELL
1	LTG: LEVEL 1 HALL 100K (1RB-1)	LEVEL 1 HALL 100K	**1HB-2**	2948			X	
2	LTG: EXTERIOR CANOPY (1RB-2)	NE LIGHTS	**1HB-4**	0			X	X
3	LTG: NW EXTERIOR LIGHTS (1RB-3)	NORTH AND WEST EXTERIOR OF BLDG	**1HB-6**	360			X	X
4	LTG: DRIVEWAY SITE LIGHTS (1RB-4)	PARKING LOT AND LAB DRIVEWAY	**1HB-8**	1020				X
5	LTG: DRIVEWAY SITE LIGHTS (1RB-5)	PARKING LOT AND LAB DRIVEWAY	**1HB-10**	1360				X
6	LTG: DRIVEWAY SITE LIGHTS (1RB-6)	PARKING LOT AND LAB DRIVEWAY	**1HB-12**	1360				X
7	LTG: BACK PRKNG CANOPY (1RB-7)	PARKING CANOPIES AND VEHICLE...	**1HB-14**	1020			X	X
8	SPARE	--	--	--	--	--	--	--
9	SPARE	--	--	--	--	--	--	--
10	SPARE	--	--	--	--	--	--	--
11	SPARE	--	--	--	--	--	--	--
12	SPARE	--	--	--	--	--	--	--
13	SPACE	--	--	--	--	--	--	--
14	SPACE	--	--	--	--	--	--	--
15	SPACE	--	--	--	--	--	--	--
16	SPACE	--	--	--	--	--	--	--

Notes:

RELAY PANEL: 3RB

LOCATION: ELECTRICAL 300F

CONTROL SCHEDULE

UL 1008 RELAY PANEL

RELAY #	DESCRIPTION	LOCATION	BRANCH CIRCUIT	LOAD (WATTS)	CNTL SWITCH	OCC SENSOR	TIME CLOCK	PHOTOCELL
1	LTG: LEVEL 3 CORRIDOR (3RB-1)	LEVEL 3 HALL 300	**3HB-2**	959			X	
2	LTG: LEVEL 3 BALCONY (3RB-2)	LEVEL 3 BALCONY	**3HB-4**	220			X	X
3	SPARE	--	--	--	--	--	--	--
4	SPARE	--	--	--	--	--	--	--
5	SPARE	--	--	--	--	--	--	--
6	SPARE	--	--	--	--	--	--	--
7	SPARE	--	--	--	--	--	--	--
8	SPARE	--	--	--	--	--	--	--
9	SPARE	--	--	--	--	--	--	--
10	SPARE	--	--	--	--	--	--	--
11	SPARE	--	--	--	--	--	--	--
12	SPARE	--	--	--	--	--	--	--
13	SPACE	--	--	--	--	--	--	--
14	SPACE	--	--	--	--	--	--	--
15	SPACE	--	--	--	--	--	--	--
16	SPACE	--	--	--	--	--	--	--

Notes:

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DATE:	ISSUE TYPE:
April 21, 2014	BID SET

CHECKED BY	D. WESEMANN
DRAWN BY	DLM

RELAY PANEL SCHEDULES

EL505

VOLUME 2

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LIGHTING FIXTURE SCHEDULE

NOTE TO BIDDERS: COMPLY WITH ALL OF THE SPECIFICATIONS.
REFER TO SPECIFICATIONS FOR IMPORTANT TECHNICAL REQUIREMENTS FOR LIGHTING FIXTURES, BALLASTS, AND LAMPS. THE CATALOG NUMBERS LISTED BELOW HAVE BEEN CAREFULLY PREPARED TO ASSIST BIDDERS IN SELECTING PRODUCTS TO ACHIEVE THE DESIGN CONCEPT, HOWEVER, PRIOR TO BIDDING, EACH MANUFACTURER SHALL COMPARE THE CATALOG NUMBERS SHOWN WITH THE DESCRIPTION AND REQUIREMENTS ON THE DRAWINGS, AND SHALL NOTIFY THE ARCHITECT/ENGINEER OF ANY DISCREPANCIES. SPECIFICALLY INCLUDED IN THIS EVALUATION SHALL BE THE VERIFYING OF PROPER MOUNTING KITS OR ACCESSORIES TO FACILITATE INSTALLATION AS SHOWN AT EACH LOCATION ON THE DRAWINGS. NO ALLOWANCE OR REDRESS WILL BE ALLOWED FOR DISCREPANCIES THAT WERE NOT REPORTED TO THE ARCHITECT/ENGINEER IN TIME FOR CORRECTION OR CLARIFICATION BEFORE THE BID. THE REPORTING OF ANY AMBIGUITY IS THE RESPONSIBILITY OF THE BIDDER. PROVIDE UNIT PRICES AND FIXTURE BRAND SELECTED FOR ADD/DELETE CHANGES FOR EACH FIXTURE TYPES SHOWN WITHIN 5 BUISINESS DAYS OF NOTICE TO PROCEED. FAILURE TO COMPLY WITH THIS REQUIREMENT MAY DISQUALIFY THE PRODUCTS AND EMPOWER THE ENGINEER TO DETERMINE FAIR VALUE FOR FIXTURE AND INSTALLATION CHANGES, WITHOUT FURTHER INPUT FROM THE CONTRACTOR OR INSTALLER. SUBMITTAL PACKAGE SHALL INCLUDE LAMP MANUFACTURER AND CATALOG NUMBER ON EACH FIXTURE SHEET. ON ALL PENDANT MOUNTED FIXTURES, PROVIDE A SECOND SET OF PENDANTS, OF A DIFFERENT LENGTH, AS DIRECTED BY THE ARCHITECT/ENGINEER, PROVIDED AND INSTALLED AT NO ADDITIONAL CHARGE. ALL FIXTURES SHALL BE APPROVED BY UL OR ANOTHER ACCEPTABLE TESTING LAB FOR THE PURPOSE INTENDED AND WITH THE LAMP AND BALLAST PROPOSED. CONTRACTOR ALLOWANCE PRICES ARE ACCURATE WHEN THIS JOB WAS SPECIFIED, CONTRACTOR AND ELECTRICAL DISTRIBUTOR SHALL VERIFY THIS ALLOWANCE AND REPORT ANY PROBLEMS TO THE ENGINEER BEFORE THE BID. ALLOWANCE PRICE MAY OR MAY NOT INCLUDE LAMP(S) OR FREIGHT AS NOTED, AND DO NOT INCLUDE ANY TAXES. UNIVERSAL VOLTAGE (120/277) BALLASTS REQUIRED UNLESS NOTED OTHERWISE. DIMENSION SEQUENCE = (LENGTH X WIDTH X DEPTH) IN INCHES.

SYMBOL	MARK	FIXTURE CHARACTERISTICS BODY / AIR / MOUNTING / DOOR LENS/LOUVER/REFLECTOR/OTHER	LAMP	WATTS	VOLTS	MANUFACTURER	CATALOG NUMBER	NOTES
	CM	EXTRUDED ALUMINUM FIXTURES: LENGTHS AND CONFIGURATIONS SHOWN ON THE DRAWINGS; LAMPS FOUR FOOT WHERE POSSIBLE; PROGRAMMED START ELECTRONIC BALLASTS; T8 LAMPS; INTERNAL CONCEALED FASTENERS; CAST ELBOWS AND FITTINGS; COLOR AS NOTED AND/OR APPROVED BY ARCHITECT; ORIENT FIXTURE ACCORDING TO ARCHITECTS/ENGINEER'S INSTRUCTIONS. FIXTURES WITH PHOTOCELS SHALL HAVE UNIFORM SWITCHING INTERNAL TO THE LUMINAIRE.						
	CM-12	12' SUSPENDED LINEAR PENDANT; 70/30 OPTIC; 1 LAMP CROSS SECTION; .71 BF	3F32T8 3100LU 4100K	74W	277V	CORELITE AXIS PINNACLE PEERLESS	J2SM-T8-1-C277-A-C-120-XX-12-5LTVS-DL6 CU-S-12-T8-1-X-0-3-UNV-ERS-1-C-.71BF L8A-1T8-12-XX-AC48GX-UNV-1C-W BRM9-1-32-SPR-70/30-SSH-X-R12-277-GEB10PS-SCT-L/LP-F1/24-C210-ACG	
	CM-12P	12' SUSPENDED LINEAR PENDANT; 70/30 OPTIC; 1 LAMP CROSS SECTION; INTEGRAL PHOTOCELL; 2 BALLASTS; .71BF INTERNAL SWITCHING	3F32T8 3100LU 4100K	72W	277V	CORELITE AXIS PINNACLE PEERLESS	J2SM-T8-1-C277-A-C-120-XX-12-5LTVS-DS-DL6 CU-S-12-T8-1-X-0-3-UNV-ERS-1-C-DSX-.71BF L8A-1T8-12-XX-AC48GX-UNV-1C-W-DSM BRM9-1-32-SPR-70/30-SSH-X-R12-277-GEB10PS-SCT-L/LP-F1/24-C210-ACG-PDT	
	CM-14	4' SUSPENDED LINEAR PENDANT; 70/30 OPTIC; 1 LAMP CROSS SECTION; .71BF	1F32T8 3100LU 4100K	26W	277V	CORELITE AXIS PINNACLE PEERLESS	J2SM-T8-1-C277-A-C-120-XX-4-5LTVS-DL6 CU-S-4-T8-1-X-0-3-UNV-ERS-1-C-.71BF L8A-1T8-4-XX-AC48GX-UNV-1C-W BRM9-1-32-SPR-70/30-SSH-X-R4-277-GEB10PS-SCT-L/LP-F1/24-C210-ACG	
	CM-18	8' SUSPENDED LINEAR PENDANT; 70/30 OPTIC; 1 LAMP CROSS SECTION; .71BF	2F32T8 3100LU 4100K	46W	277V	CORELITE AXIS PINNACLE PEERLESS	J2SM-T8-1-C277-A-C-120-XX-8-5LTVS-DS-DL6 CU-S-8-T8-1-X-0-3-UNV-ERS-1-C-.71BF L8A-1T8-8-XX-AC48GX-UNV-1C-W BRM9-1-32-SPR-70/30-SSH-X-R8-277-GEB10PS-SCT-L/LP-F1/24-C210-ACG	
	CM-18P	8' SUSPENDED LINEAR PENDANT; 70/30 OPTIC; 1 LAMP CROSS SECTION; INTEGRAL PHOTOCELL; 2 BALLASTS; .71BF INTERNAL SWITCHING	2F32T8 3100LU 4100K	52W	277V	CORELITE AXIS PINNACLE PEERLESS	J2SM-T8-1-C277-A-C-120-XX-8-5LTVS-DS-DL6 CU-S-8-T8-1-X-0-3-UNV-ERS-1-C-DSX-.71BF L8A-1T8-8-XX-AC48GX-UNV-1C-W-DSM BRM9-1-32-SPR-70/30-SSH-X-R8-277-GEB10PS-SCT-L/LP-F1/24-C210-ACG-PDT	
	CM-32	12' SUSPENDED LINEAR PENDANT; 70/30 OPTIC; 3 LAMP CROSS SECTION; .71BF	9F32T8 3100LU 4100K	222W	277V	CORELITE AXIS PINNACLE PEERLESS	J2SM-T8-3-C277-A-C-120-XX-12-5LTVS-DL6 CU-S-12-T8-3-X-0-3-UNV-ERS-1-C-.71BF L8A-3T8-12-XX-AC48GX-UNV-1C-W BRM9-3-32-SPR-70/30-SSH-X-R12-277-GEB10PS-SCT-L/LP-F1/24-C210-ACG	
	CM-32H	12' SUSPENDED LINEAR PENDANT; 70/30 OPTIC; 3 LAMP CROSS SECTION; 3 BALLASTS; 1.36BF	9F32T8 2000LU 4100K 90 CRI	303W	277V	CORELITE AXIS PINNACLE PEERLESS	J2SM-T8-3-C277-A-C-120-XX-12-SPECPSEB-DL6 CU-S-12-T8-3-X-0-3-UNV-ERS-1-C-1.36BF L8A-3T8-12-XX-AC48GX-UNV-1C-W-1.36BF BRM9-3-32-SPR-70/30-SSH-X-R12-277-GEB10PS-SCT-L/LP-F1/24-C210-ACG-1.36BF	
	CM-32P	12' SUSPENDED LINEAR PENDANT; 70/30 OPTIC; 3 LAMP CROSS SECTION; INTEGRAL PHOTOCELL; 3 BALLASTS; .71BF; INTERNAL SWITCHING, DUAL SWITCHED BY PHOTOCELL	9F32T8 3100LU 4100K	222W	277V	CORELITE AXIS PINNACLE PEERLESS	J2SM-T8-3-C277-A-C-120-XX-12-5LTVS-DS-DL6 CU-S-12-T8-3-X-0-3-UNV-ERS-1-C-DSX-.71BF L8A-3T8-12-XX-AC48GX-UNV-1C-W-DSM BRM9-3-32-SPR-70/30-SSH-X-R12-277-GEB10PS-SCT-L/LP-F1/24-C210-ACG-PDT	
	CM-32PH	12' SUSPENDED LINEAR PENDANT; 70/30 OPTIC; 3 LAMP CROSS SECTION; INTEGRAL PHOTOCELL; 3 BALLASTS; 1.36BF INTERNAL SWITCHING	9F32T8 2000LU 4100K 90 CRI	303W	277V	CORELITE AXIS PINNACLE PEERLESS	J2SM-T8-3-C277-A-C-120-XX-12-SPECPSEB-DS-DL6 CU-S-12-T8-3-X-0-3-UNV-ERS-1-C-DSX-1.36BF L8A-3T8-12-XX-AC48GX-UNV-1C-W-DSM-1.36BF BRM9-3-32-SPR-70/30-SSH-X-R12-277-GEB10PS-SCT-L/LP-F1/24-C210-ACG-PDT-1.36BF	
	CM-34	4' SUSPENDED LINEAR PENDANT; 70/30 OPTIC; 3 LAMP CROSS SECTION; 2 BALLASTS; .71BF	3F32T8 3100LU 4100K	74W	277V	CORELITE AXIS PINNACLE PEERLESS	J2SM-T8-3-C277-A-C-120-XX-4-5LTVS-DL6 CU-S-4-T8-3-X-0-3-UNV-ERS-1-C-.71BF L8A-3T8-4-XX-AC48GX-UNV-1C-W BRM9-3-32-SPR-70/30-SSH-X-R4-277-GEB10PS-SCT-L/LP-F1/24-C210-ACG	
	CM-34H	4' SUSPENDED LINEAR PENDANT; 70/30 OPTIC; 3 LAMP CROSS SECTION; 2 BALLASTS; 1.36BF	3F32T8 2000LU 4100K 90 CRI	303W	277V	CORELITE AXIS PINNACLE PEERLESS	J2SM-T8-3-C277-A-C-120-XX-4-SPECPSEB-DL6 CU-S-4-T8-3-X-0-3-UNV-ERS-1-C-1.36BF L8A-3T8-4-XX-AC48GX-UNV-1C-W-1.36BF BRM9-3-32-SPR-70/30-SSH-X-R4-277-GEB10PS-SCT-L/LP-F1/24-C210-ACG-1.36BF	
	CM-34P	4' SUSPENDED LINEAR PENDANT; 70/30 OPTIC; 3 LAMP CROSS SECTION; INTEGRAL PHOTOCELL; 2 BALLASTS; .71BF INTERNAL SWITCHING	3F32T8 3100LU 4100K	72W	277V	CORELITE AXIS PINNACLE PEERLESS	J2SM-T8-3-C277-A-C-120-XX-4-5LTVS-DS-DL6 CU-S-4-T8-3-X-0-3-UNV-ERS-1-C-DSX-.71BF L8A-3T8-4-XX-AC48GX-UNV-1C-W-DSM BRM9-3-32-SPR-70/30-SSH-X-R4-277-GEB10PS-SCT-L/LP-F1/24-C210-ACG-PDT	
	CM-34PH	4' SUSPENDED LINEAR PENDANT 70/30 OPTIC; 3 LAMP CROSS SECTION; INTEGRAL PHOTOCELL; 2 BALLASTS; 1.36BF, INTERNAL SWITCHING	3F32T8 3100LU 4100K 90 CRI	153W	277V	CORELITE AXIS PINNACLE PEERLESS	J2SM-T8-3-C277-A-C-120-XX-4-SPECPSEB-DS-DL6 CU-S-4-T8-3-X-0-3-UNV-ERS-1-C-DSX-1.36BF L8A-3T8-4-XX-AC48GX-UNV-1C-W-DSM-1.36BF BRM9-3-32-SPR-70/30-SSH-X-R4-277-GEB10PS-SCT-L/LP-F1/24-C210-ACG-PDT-1.36BF	
	CM-38	8' SUSPENDED LINEAR PENDANT; 70/30 OPTIC; 3 LAMP CROSS SECTION; 2 BALLASTS; .71BF	6F32T8 3100LU 4100K	144W	277V	CORELITE AXIS PINNACLE PEERLESS	J2SM-T8-3-C277-A-C-120-XX-8-5LTVS-DL6 CU-S-8-T8-3-X-0-3-UNV-ERS-1-C-.71BF L8A-2T8-8-XX-AC48GX-UNV-1C-W BRM9-3-32-SPR-70/30-SSH-X-R8-277-GEB10PS-SCT-L/LP-F1/24-C210-ACG	
	CM-38H	8' SUSPENDED LINEAR PENDANT; 70/30 OPTIC; 3 LAMP CROSS SECTION; 3 BALLASTS; 1.36BF	6F32T8 2000LU 4100K 90 CRI	306W	277V	CORELITE AXIS PINNACLE PEERLESS	J2SM-T8-3-C277-A-C-120-XX-8-SPECPSEB-DL6 CU-S-8-T8-3-X-0-3-UNV-ERS-1-C-1.36BF L8A-2T8-8-XX-AC48GX-UNV-1C-W-1.36BF BRM9-3-32-SPR-70/30-SSH-X-R8-277-GEB10PS-SCT-L/LP-F1/24-C210-ACG	
	CM-38P	8' SUSPENDED LINEAR PENDANT; 70/30 OPTIC; 3 LAMP CROSS SECTION; INTEGRAL PHOTOCELL; 2 BALLASTS; .71BF INTERNAL SWITCHING	6F32T8 3100LU 4100K	144W	277V	CORELITE AXIS PINNACLE PEERLESS	J2SM-T8-3-C277-A-C-120-XX-8-5LTVS-DS-DL6 CU-S-8-T8-3-X-0-3-UNV-ERS-1-C-DSX-.71BF L8A-2T8-8-XX-AC48GX-UNV-1C-W-DSM BRM9-3-32-SPR-70/30-SSH-X-R8-277-GEB10PS-SCT-L/LP-F1/24-C210-ACG-PDT	
	CM-38PH	8' SUSPENDED LINEAR PENDANT, INTEGRAL PHOTOCELL 70/30 OPTIC; 3 LAMP CROSS SECTION; INTEGRAL PHOTOCELL; 3 BALLASTS; 1.36BF, INTERNAL SWITCHING	6F32T8 3100LU 4100K 90 CRI	306W	277V	CORELITE AXIS PINNACLE PEERLESS	J2SM-T8-3-C277-A-C-120-XX-8-SPECPSEB-DS-DL6 CU-S-8-T8-3-X-0-3-UNV-ERS-1-C-DSX-1.36BF L8A-2T8-8-XX-AC48GX-UNV-1C-W-DSM-1.36BF BRM9-3-32-SPR-70/30-SSH-X-R8-277-GEB10PS-SCT-L/LP-F1/24-C210-ACG-PDT	
	CT	EXTRUDED ALUMINUM FIXTURES: LENGTHS AND CONFIGURATIONS SHOWN ON THE DRAWINGS; LAMPS FOUR FOOT WHERE POSSIBLE; PROGRAMMED START ELECTRONIC BALLASTS; T8 LAMPS; INTERNAL CONCEALED FASTENERS; CAST ELBOWS AND FITTINGS; COLOR AS NOTED AND/OR APPROVED BY ARCHITECT; ORIENT FIXTURE ACCORDING TO ARCHITECTS/ENGINEER'S INSTRUCTIONS.						
	CT-4	4' LIGHT INSTALL IN RECESSED CEILING SLOT; .73BF	1F32T8 3100LU 4100K	26W	277V	PINNACLE AXIS FOCAL POINT NULITE	E4A-1T8-4-GX-277-1CC-W BBR-S-FL-4-X-T8-1-X-UNV-ERS-1-.73BF FSM4-FL-1T8-1C-277-E-4' RG4-1T8-UNV-PS-N-1C-FR-F-4'	
	DX	DOWNLIGHT; THERMALLY PROTECTED HOUSING; TO ACCOMMODATE MULTIPLE ALUMINUM TRIMS AND REFLECTOR ASSEMBLIES AS LISTED BELOW; MAX 8" DEEP, NON-IC HOUSINGS EXCEPT AS NOTED.						
	DX-1	6" INTERIOR LED DOWNLIGHT 0-10 VDC DIMMING DIMMABLE 1% - 100%	LED 2000 LU 4000K	39W	UNV	LIGHTOLIER PRESCOLITE GOTHAM PORTFOLIO	C6L1520DL-40K-M-CCL-P-VA/C6L20NUNV LF6LED-6LFLED7-40K-CBA EVO 41/22 6AR MD MVOLT LD6A-20-D010TE-ERM6A20-8-40-6LM1-LI-HB26	
	DX-2	2" LED DOWNLIGHT; DIMMING 0-10V; IC RATED CAN SOME LOCATIONS REQUIRE SPECIAL BACKING AND MOUNTING IN METAL CEILING	LED 400 LU 3000K	11W	UNV	LIGHTOLIER WAC INTENSE INTER LUX	C2L04DLFT-30K-25-R-UX10V-C2LDL-CCD-FT-C2LIC HR-2LED-H09D-HICA/HR-2LED-T109-F-W-X IL-DRTR-L1-30-UNV-24/ RTRA306-W WG-P60RDL-XI-830-780-UNV-D010-OA-IC RATED	
	DX-3	6" INTERIOR LED DOWNLIGHT WITH WALL WASH OPTIC 0-10 VDC DIMMING DIMMABLE 1% - 100%	LED 2000 LU 4000K	39W	UNV	LIGHTOLIER PRESCOLITE PORTFOLIO	C6L1520WW-40K-M-CCL-P-VA/C6L20NUNV LF6LED-WW-6LFLED7-40K-WW LD6A-20-D010TE-ERM6A20-8-40-6LM111-LI-HB26	
	DX-4	6" LED SHOWER DOWNLIGHT 0-10 VDC DIMMING DIMMABLE 1% - 100% WET LOCATION	LED 2000 LU 4000K	39W	UNV	LIGHTOLIER PRESCOLITE GOTHAM PORTFOLIO	C6L1520DL-40K-M-CCL-P-VA/C6L20NUNV LF6LED-6LFLED7-40K-CBA EVO 41/22 6AR MD MVOLT LD6A-20-D010TE-ERM6A20-8-40-6LM1-LI-HB26	
	E	EMERGENCY BATTERY FOR INDICTED FLUORESCENT LUMINAIRE. SEPARATE SWITCH LEAD REQUIRED FOR ON/OFF NORMAL OPERATION PROVIDE 1100- 1400 LUMENS UNDER EMERGENCY CONDITIONS FOR FLUORESCENT LAMPS. REMOTE TEST SWITCH, LOCATED AS DIRECTED IN FIELD. FACTORY TO INSTALL BATTERY PACK. PAINT ALL DEVICES TO MATCH BACKGROUND. LED LUMINAIRES PROVIDE 50% OF RATED INITIAL LUMENS UNDER EMERGENCY CONDITIONS				LITHONA	PS-1400EL	
	E1	EXIT SIGN: METAL HOUSING; CEILING MOUNT, SEE DRAWINGS; ARROWS PER PLANS; LED LAMPS; EDGE LIGHTED CLEAR LENS; GREEN LETTERS ON CLEAR BACKGROUND. MUST MEET NFPA ILLUMINATION STANDARDS. UNITS SHOWN ARE CEILING MOUNT MODELS. CONTRACTOR TO PROVIDE WALL MOUNTED OR END MOUNTED MODELS AND ALL CHEVRONS WHERE REQUIRED.						
	E1-1	SINGLE FACE:	LED	4.7W	120/277V	DUAL-LITE MCPHILBEN EELP LITHONIA ISOLITE CHLORIDE LIGHTOLIER	LECSGWA 45VL-1-GC-XX EDG 1 GC W EM LRP W 1 GC XX 120/277 EDGL-S-S-G-BK (BLACK HOUSING) STDLX-X-1-GC-X LEAC1GCX	
	E1-2	DUAL FACE:	LED	4.7W	120/277V	DUAL-LITE MCPHILBEN EELP LITHONIA ISOLITE CHLORIDE LIGHTOLIER	LECDGWA 45VL-2-GM-XX EDG 2 GC W EM LRP W 2 GMR XX 120/277 EDGL-D-S-G-BK (BLACK HOUSING) STDLX-X-2-GC-X LEAC2GC7	
	ET	EMERGENCY TRANSFER DEVICE INSTALLED AT EACH FIXTURE AS INDICATED ON THE FLOOR PLANS BY 'ET'						
	ET	LIGHT FIXTURE EMERGENCY TRANSFER DEVICE			277V	BODINE WATTSTOPER DUAL LITE	GTD20 ELCU-200 ATSD	
	FL	ADJUSTABLE, SWING ARM LED TASK FLOOD LIGHT						
	FL-1	LED DOCK LIGHT, WET LOCATION WALL MOUNTED SWING ARM	LED 5000K	21W	UNV	PHOENIX HUBBELL	DLAW-16LED-25-GL-42-UNV DOK-18-L-U-5K-SP-C6-PC-DSDL40	
	G	INDIRECT TROFFERS: RECESSED FOR LAY-IN GRID; HINGED FLUSH STEEL DOOR WITH LATCH; EARTHQUAKE CLIPS, PROGRAM START ELECTRONIC BALLASTS; LONG COMPACT FLUORESCENT LAMPS; ONE BALLAST PER FIXTURE, 100-10% DIMMING BALLAST WHERE SHOWN.						
	G-2	RECESSED LIGHT 2X2, LAYIN; .73BF	2F17T8 4100K	25W	UNV	FOCAL POINT AXIS PINNACLE LINEAR LIGHTING	FEQ22B2T8S277GWP DAYF22-S-T8-2-W-UNV-ERS-1-X LU22A-2T8-GX-UNV-1C-W GL22-D-2-ET8-UNV-SBL-G-MW-PSB10	
	G-2F	RECESSED LIGHT 2X2, LAYIN; FLANGE KIT; .73BF	2F17T8 4100K	25W	UNV	FOCAL POINT AXIS PINNACLE LINEAR LIGHTING	FEQ22B2T8S277GWPDF DAYF22-S-T8-W-UNV-ERS-1-DF LU22A-2T8-FL-UNV-1C-W GL22-D-2-ET8-UNV-SBL-FLANGE-MW-PSB10	
	G-4	RECESSED LIGHT 2X4 LAYIN; .6BF	2F32T8 3100LU 4100K	44W	UNV	FOCAL POINT AXIS PINNACLE LINEAR LIGHTING	FEQ24B2T8S277GWP DAYF24-S-T8-2-W-UNV-ERS-1-X LU24A-2T8-GX-UNV-1C-W GL24-D-2-ET8-UNV-SBL-G-MW-PSB10	
	G-4F	RECESSED LIGHT 2X4 LAYIN; FLANGE KIT; .71BF	2F32T8 3100LU 4100K	44W	UNV	FOCAL POINT AXIS PINNACLE LINEAR LIGHTING	FEQ24B2T8S277GWPDF DAYF24-S-T8-2-W-UNV-ERS-1-DF LU24A-2T8-FL-UNV-1C-W GL24-D-2-ET8-UNV-SBL-FLANGE-MW-PSB10	
	GF	RECESSED LAB QUALITY LIGHT, GASKET LENS AND DOOR; LONG COMPACT FLUORESCENT LAMPS; PROGRAM START ELECTRONIC BALLASTS; HIGH BALLAST FACTOR BALLASTS AS NOTED, ARRANGED FOR UNIFORM SWITCHING						
	GF-97	2X4 SMOOTH LENS; PRISMATIC OPTIC; FLANGE MOUNT; 2 CIRCUIT ROW MOUNT; 3 BALLASTS; 1.38BF	6F32T8 2000LU 5000K 90CRI	258w	UNV	KENALL NEW STAR LA LIGHTING LITHONIA	CSEF024-632SB/1.38BF/2-277-SF-2H-U-UV--SPECIALRM SSF24-HC-OC-632-3-A-UN FCR720-6-4R-FSW-PA2-M2C-DL-3/2E8R-UNV 2SRH-F-G-6-32-FSF-K12V-MVOLT-1.38BF	
	GF-99	2X4 SMOOTH LENS; PRISMATIC OPTIC; FLANGE MOUNT; 2 CIRCUIT ROW MOUNT; 2 BALLASTS; 1.38BF	4F32T8 2000LU 5000K 90CRI	172w	UNV	KENALL NEW STAR LA LIGHTING LITHONIA	CSEF024-432SB/1.38BF/2-277-SF-2H-U-UV--SPECIALRM SSF24-HC-OC-432-3-A-UN FCR720-4-4R-FSW-PA2-M2C-DL-2/2E8R-UNV 2SRH-F-G-4-32-FSF-K12V-MVOLT-1.38BF	
	GS-4 GF-98	2X4 SMOOTH LENS; PRISMATIC OPTIC; GRID MOUNT; 2 CIRCUIT ROW MOUNT; 2 BALLASTS; 1.38BF	4F32T8 2000LU 5000K 90CRI	242W	UNV	KENALL AXIS LA LIGHTING LITHONIA	HSEGI24-432SB/1.38BF/2-277-SF-2H-U-UV--SPECIALRM SSG24-HC-OC-4-32-3-A-UN GCR720-4-4R-FSW-PA2-M2C-DL-2/E8R-UNV 2SRH-G-4-32-FSF-K12V-MVOLT-IOP	
	HF	FLUOESCENT HIGHBAYS						
	HF-1	SURFACE MOUNT, FLAT LENS; SPRAY DOWN RIGID MOUNT; 3 BALLASTS; 1.36 BF DUAL-LEVEL SWITCHED	6F32T8 3100LU	258W	UNV	LITHONIA LDPI METALUX	FHH24-632T8-2/3 SPEC PSEB-RMK 379-T8-6L-4-UNV1-A-TR 2HBHD-632-A-UNV-AD3/3-1.36BF-U-STEM	
	HG	OUTDOOR VEHICLE LIGHT, VANDAL RESISTANT, DAMP RATED						
	HG-1	SURFACE MOUNT; SPRAY DOWN RIGID MOUNT; .88BF	2F32T8 3100LU	56W	UNV	KENALL COLUMBIA LITHONIA	N1048C232SP1D FNPS4-232PPEP-U-2H-TP-MLID EFS-2-32-MVOLT-GEB10PS	
	HG-2	SURFACE MOUNT;						
	LED	LED LUMINAIRES						
	LED-1	4' LED LOW PROFILE ASYMETRIC COVE LIGHT;	LED 4000LU 4100K	64W	UNV	LITECONTROL	CC-AI-L15-04-HO-40K-CWM-1CWQ-UNV	
	OC	OUTDOOR WALL LIGHT; FULL CUTOFF; WET LABEL						
	OC-32	OUTDOOR WALL PACK; FULL CUTOFF;	LED 4000LU 4000K	35W	UNV	LIGHTOLIER LITHONIA LUMARK	RDNOXX DSXW1 LED 20C 700 40K T3M MVOLT DDBXD XTOR3A	
	OF	FLOODLIGHT						
	OF-1	PIPE MOUNTED LED FLOOD; TWIST LOCK; DMX SET TO FULL; MEDIUM FLOOD OPTICS;	LED 4000K	50W	UNV	ALTMAN	SSCUBE-4K-W	
	OG	INGROUND LINEAR FLOODLIGHT						
	OG-1	48" LONG; ASYMETRIC OPTICS; BRUSHED STAINLESS STEEL	LED	44W	UNV	BEGA DESIGN PLAN PRISMA LIGMAN	7918LED CL4-L-AF-4-GE-0-C--T-S 075138-LED ULI-60335-M-W40-F-54W	
	OJ	RECESSED STEPLIGHT; WET LABEL						
	OJ-1	24X3.5X3.5 LENSED; BRUSHED STAINESS STEEL	LED	7.2W	UNV	SPI LUMUX INSIGHT	ERW11609 35K BSS PW SL100-20-LEDWW-3500K-120/277-SILVER QD-6-35K-CW-27-2-CC-BRUSHED STAINLESS-WL	
	OL	OUTDOOR LANDSCAPE LIGHT						
	OL-1	ADJUSTABLE TREE UPLIGHT; CONDUIT MOUNT; REMOTE POWER SUPPLY 18" STANCHION MOUNTED IN CONCRETE	LED	8.4W	12VAC	BK ECOSENSE	SDS-LED-E22-SP-A9/REM12VAC BUL-S-30-277-IC-SCBA-11	
	SA	GENERAL PURPOSE INDUSTRIAL: WHITE ENAMEL, APERTURED REFLECTOR; PROGRAM START ELECTRONIC BALLASTS; T8 LAMPS; ONE BALLAST PER FIXTURE WHERE POSSIBLE; UNLESS TWO LEVEL SWITCHING IS SHOWN ON THE PLANS; STEM MOUNTED WITH TONG HANGERS.						

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No. 181563
DAVID E. WESEMANN
04-21-2014
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

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DFCM #: 13020300
Project #: B13-024

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LIGHTING FIXTURE SCHEDULE

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SA-1	BACK OF HOUSE FLUORESCENT LIGHT; .6BF	2F32T8 3100LU	40W	UNV	DAYBRITE COLUMBIA LITHONIA METALUX	IA232UNV KL-4-232-U-EPU LA 2 32 MVOLT OPXP DIF-232-UNV-HR81L-U
TX	SPECIAL FIXTURES AS INDICATED. MEET ALL REQUIREMENTS OF SPECIFICATIONS AND FIXTURE SCHEDULE. VISUAL AND FINISH APPROVAL REQUIRED.					
TX-1	DECORATIVE PENDANT; EMPLOYEE BREAKROOM	LED	25W	120V		TO BE SELECTED
UC	UNDER CABINET LIGHT, INTERNAL SWITCH					
UC-2	SURFACE MOUNT; FLAT LENS 2'	LED	18.5	UNV	FAILSAFE HEALTHCARE	UCL240A12125-ED-UNV-RSW HUC5 23 MVOLT LED35 S1 AM
UC-3	SURFACE MOUNT; FLAT LENS 3'	LED	27.7	UNV	FAILSAFE HEALTHCARE	UCL340A12125-ED-UNV-RSW HUC5 35 MVOLT LED35 S1 AM
UC-4	SURFACE MOUNT, FLAT LENS 4'	LED	36.9	UNV	FAILSAFE HEALTHCARE	UCL440A12125-ED-UNV-RSW HUC5 46 MVOLT LED35 S1 AM
V	FLOURESCENT VANDAL RESISTANT					
V-1	SURFACE MOUNT; SPRAY DOWN RIGID MOUNT; .6BF	2F32T8 3100LU	44W	UNV	KENALL COLUMBIA	N1048C232SP1D FNPS4-232PPEP-U-2H-TP-MLID
V-2	1X4 RECESSED FLUORESCENT; CLASS 1 DIV 2; .88BF	2F32T8 3100LU	56W	UNV	DAYBRITE RIG-A-LITE	HAZ232277SPECPSEB RFL-265-14-2-G-U
V-3	2X4 SURFACE MOUNT; SPRAY DOWN; GASKETED; STAINLESS STEEL; .6BF	2F32T8 3100LU	44W	UNV	KENALL NEW STAR DAYBRITE CD LIGHTING	CRDSS24-232-UNV-B-1/3-SPECPSEB-SSD SCS24-HSOS-2321-A-UN-IP65 CRSDD24-232-UNV-C-1/3-SB-SS-WL CSA-24-2-32-U-EBH-12PA-SHP-SFP
WB	WALL MOUNTED LIGHT LOCATED ABOVE WALL ELEMENT (MIRROR/WHITEBOARD, ETC.): AS INDICATED ON DRAWINGS; WITH ACRYLIC INJECTION MOLDED; PROGRAM START ELECTRONIC BALLASTS; T8 LAMPS; ONE BALLAST PER FIXTURE WHERE POSSIBLE, UNLESS TWO LEVEL SWITCHING IS SHOWN ON THE PLANS.					
WB-2	RESTROOM MIRROR LIGHT; 2' FLUORESCENT; UP AND DOWNLIGHT; MUST FIT SPACE AVAILABLE	2F17T8	30W	UNV	LITHONIA COLUMBIA LA LIGHTING METALUX	WP217MVOLT SPECPSEB PR2-1U1D17-EPU BSQ100-2-2R-UCA-PA-2E8R-UNV BIU-217-UNV-ER81-U
WB-4	RESTROOM MIRROR LIGHT; 4' FLUORESCENT; UP AND DOWNLIGHT; MUST FIT SPACE AVAILABLE; .6BF	2F32T8 3100LU	44W	UNV	LITHONIA COLUMBIA LA LIGHTING METALUX	WP232MVOLT SPECPSEB PR4-1U1D32-EPU BSQ100-2-4R-UCA-PA-2E8R-UNV BIU-232-UNV-ER81-U
WB-8	RESTROOM MIRROR LIGHT; 8' FLUORESCENT; UP AND DOWNLIGHT; MUST FIT SPACE AVAILABLE; .6BF	4F32T8 3100LU	88W	UNV	LITHONIA LA LIGHTING METALUX	WP232MVOLT SPECPSEB DUAL BSQ100-2-8RT-UCA-PA-4E8R-UNV (2)BIU-232-UNV-ER81-U
WB-10	BACK OF HOUSE STAIR LIGHT; INTEGRAL OCC SENSOR;	LED 3300LU 4000K	45W	UNV	DAYBRITE NEW STAR LITHONIA KENALL	SF4C3300-40-ULAG-OC VIC4N-L2401-RW-UN-WH-OC WL4 41L D43 LP840 N100 NESPDT7 MLHA5-48-R-MW-PP-50L40K-DCC-DV-FM150
ZX	POLE AND LUMINAIRE 100 MPD, 1.3 GUST FACTOR, COLOR BY ARCHITECT, STRAIGHT STEEL POLE					
ZX-1	RECTANGULAR SHOEBOX; TYPE 3 OPTICS; FLAT LENS; 32.5" POLE SINGLE HEAD	LED 25000 LU 4000K	228W	277V	VISIONAIRE LITHONIA MCGRAW-EDISON	EL2-5-T3-144LC-530-4000K 32.5'SSA POLE DSX2 LED 80C 1000 40K T3M MVOLT SPA DDBXD GLEON-AA-06-LED-E1-T3-SCBA-SSA20D4-4-DM10-SCBA-BC
ZX-2	RECTANGULAR SHOEBOX; TYPE 4 OPTICS; FLAT LENS; 32.5' POLE SINGLE HEAD	LED 25000 LU 4000K	336W	277V	VISIONAIRE LITHONIA MCGRAW-EDISON	EL2-5-T4-288LC-350-4000K 32.5'SSA POLE DSX2 LED 80C 1000 40K T4M MVOLT SPA DDBXD GLEON-AA-06-LED-E1-T4-SCBA-SSA20D4-4-DM10-SCBA-BC

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LIGHTING FIXTURE SCHEDULE (CONT.)

EL602

VOLUME 2

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A1 FIRST LEVEL AUXILIARY PLAN - AREA A

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

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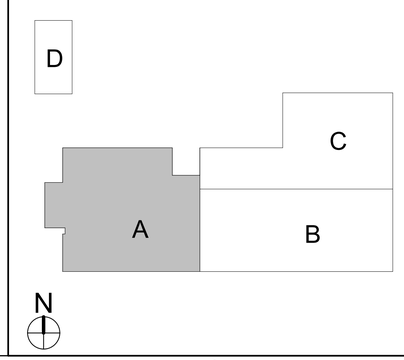
GENERAL SHEET NOTES

1 COORDINATE EXACT JUNCTION BOX LOCATIONS SO THAT THEY ARE EASILY ACCESSIBLE AND ARE NOT BEHIND DOORS, FURNITURE, LOWERED PROJECTION SCREENS, ETC.

SHEET KEYNOTES

1 PROVIDE CARD READER IN ELEVATOR CAB FOR RESTRICTED FLOOR SELECTION. COORDINATE WITH ELEVATOR INSTALLER FOR TRAVELER CABLE REQUIREMENTS.

KEY PLAN



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FIRST LEVEL AUXILIARY PLAN - AREA A

EY101a

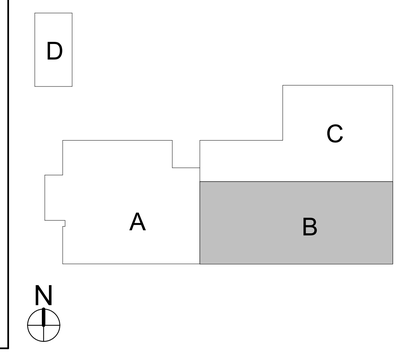
VOLUME 2

GENERAL SHEET NOTES

1 COORDINATE EXACT JUNCTION BOX LOCATIONS SO THAT THEY ARE EASILY ACCESSIBLE AND ARE NOT BEHIND DOORS, FURNITURE, LOWERED PROJECTION SCREENS, ETC.

SHEET KEYNOTES

KEY PLAN



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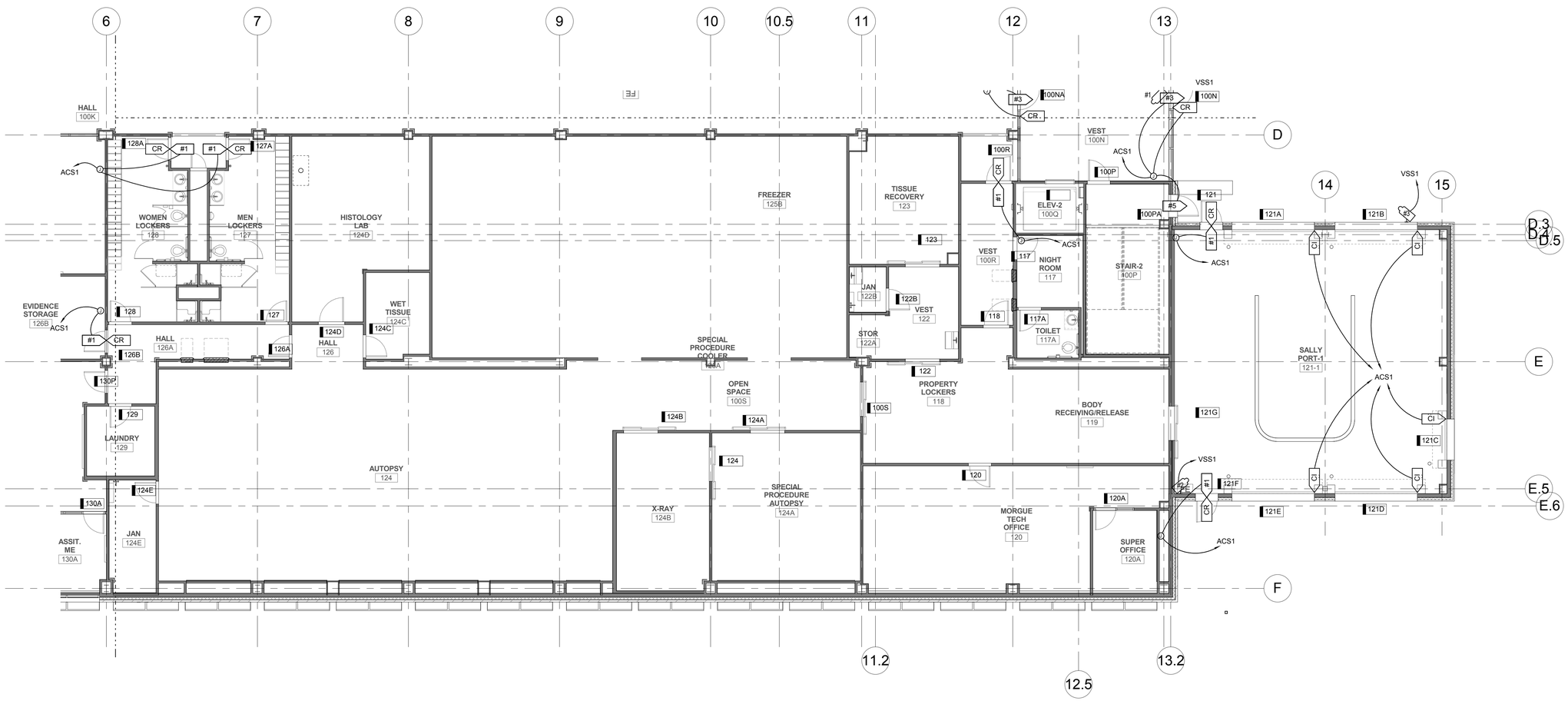

A1 FIRST LEVEL AUXILIARY PLAN - AREA B

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

FIRST LEVEL AUXILIARY PLAN - AREA B

EY101b

VOLUME 2

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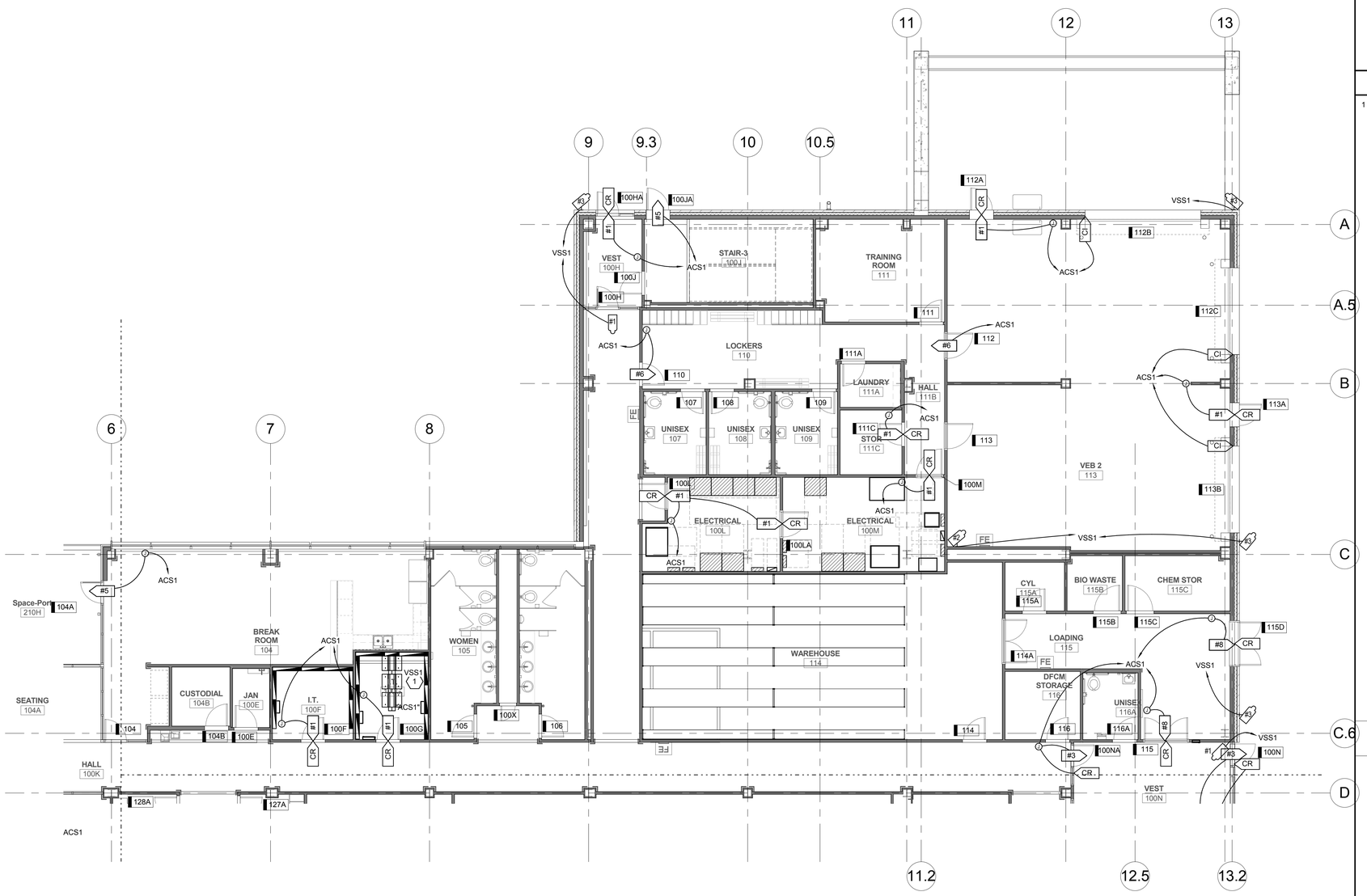


A1 FIRST LEVEL AUXILIARY PLAN - AREA C

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

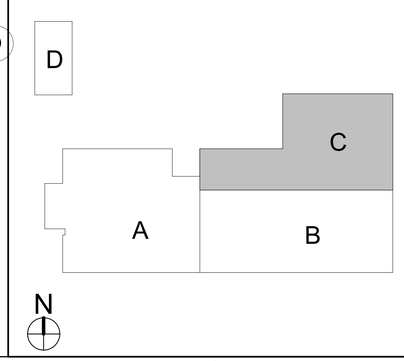
GENERAL SHEET NOTES

1 COORDINATE EXACT JUNCTION BOX LOCATIONS SO THAT THEY ARE EASILY ACCESSIBLE AND ARE NOT BEHIND DOORS, FURNITURE, LOWERED PROJECTION SCREENS, ETC.

SHEET KEYNOTES

1 VIDEO SURVEILLANCE CAMERA TERMINATIONS SHALL BE MADE TO CONNECTIVITY HARDWARE AND SWITCHES INSTALLED IN SPARE SPACE OF LAN DATA RACKS.

KEY PLAN



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FIRST LEVEL AUXILIARY PLAN - AREA C

EY101c

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A1 SECOND LEVEL AUXILIARY PLAN - AREA A

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

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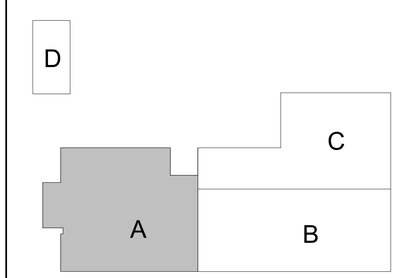
GENERAL SHEET NOTES

1 COORDINATE EXACT JUNCTION BOX LOCATIONS SO THAT THEY ARE EASILY ACCESSIBLE AND ARE NOT BEHIND DOORS, FURNITURE, LOWERED PROJECTION SCREENS, ETC.

SHEET KEYNOTES

KEY PLAN



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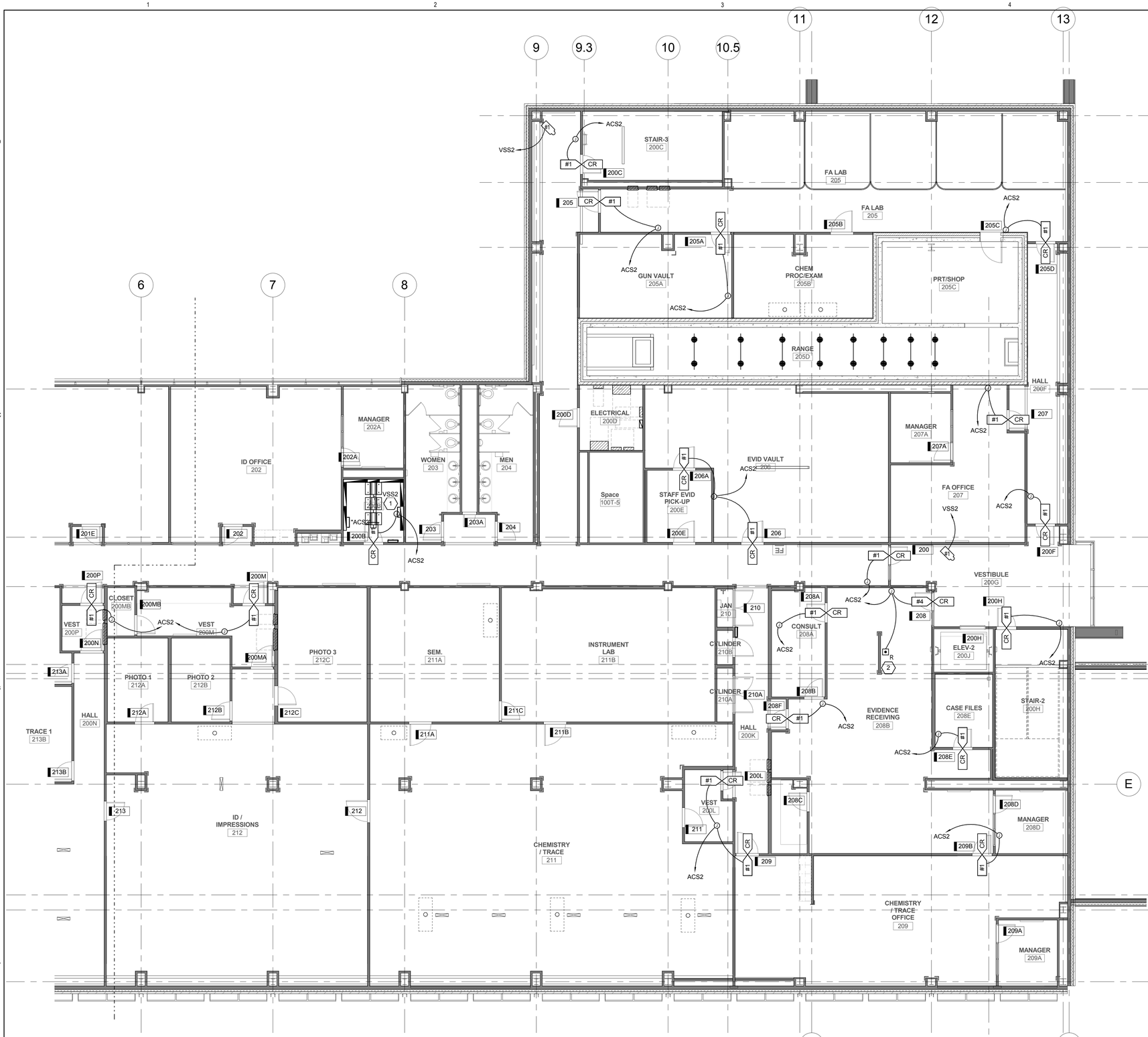
SECOND LEVEL AUXILIARY PLAN - AREA A

EY102a

VOLUME 2



A1 SECOND LEVEL AUXILIARY PLAN - AREA B

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

GENERAL SHEET NOTES

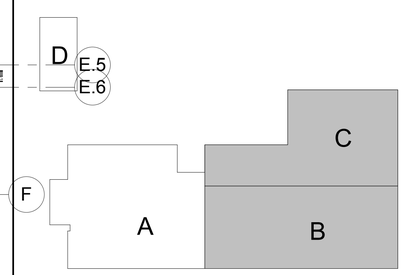
1 COORDINATE EXACT JUNCTION BOX LOCATIONS SO THAT THEY ARE EASILY ACCESSIBLE AND ARE NOT BEHIND DOORS, FURNITURE, LOWERED PROJECTION SCREENS, ETC.

SHEET KEYNOTES

1 VIDEO SURVEILLANCE CAMERA TERMINATIONS SHALL BE MADE TO CONNECTIVITY HARDWARE AND SWITCHES INSTALLED IN SPARE SPACE OF LAN DATA RACKS.

2 PROVIDE LOCKING CONTROL AT THIS RECEIVING LOCATION FOR THE DOOR INTO ROOM 208.

KEY PLAN



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SECOND LEVEL AUXILIARY PLAN - AREA B

EY102b

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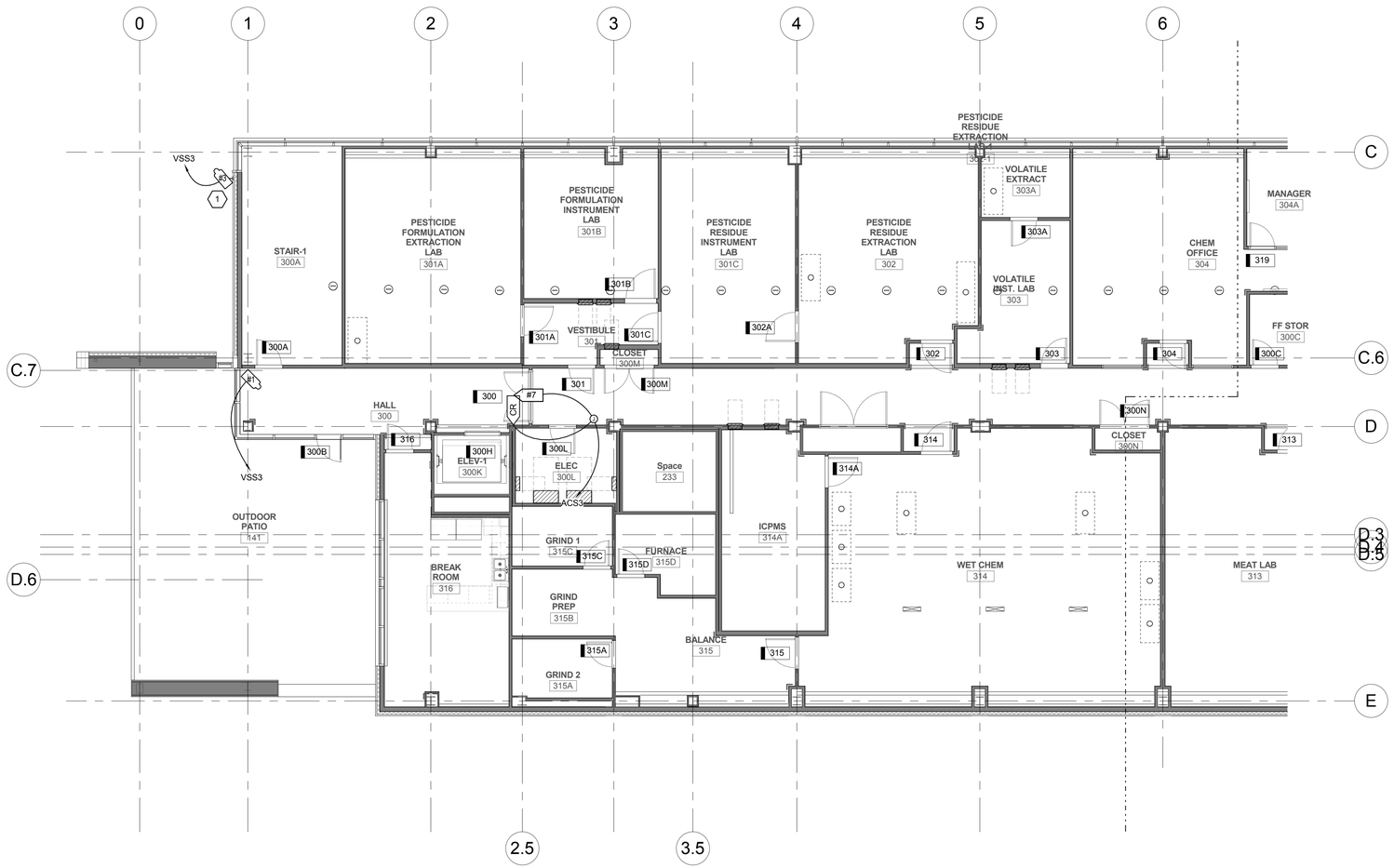


A1 THIRD LEVEL AUXILIARY PLAN - AREA A

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

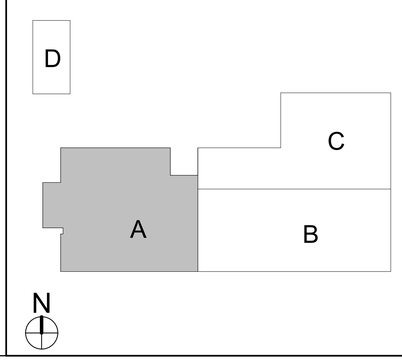
GENERAL SHEET NOTES

1 COORDINATE EXACT JUNCTION BOX LOCATIONS SO THAT THEY ARE EASILY ACCESSIBLE AND ARE NOT BEHIND DOORS, FURNITURE, LOWERED PROJECTION SCREENS, ETC.

SHEET KEYNOTES

1 ROOF TOP CAMERA.

KEY PLAN



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THIRD LEVEL AUXILIARY PLAN - AREA A

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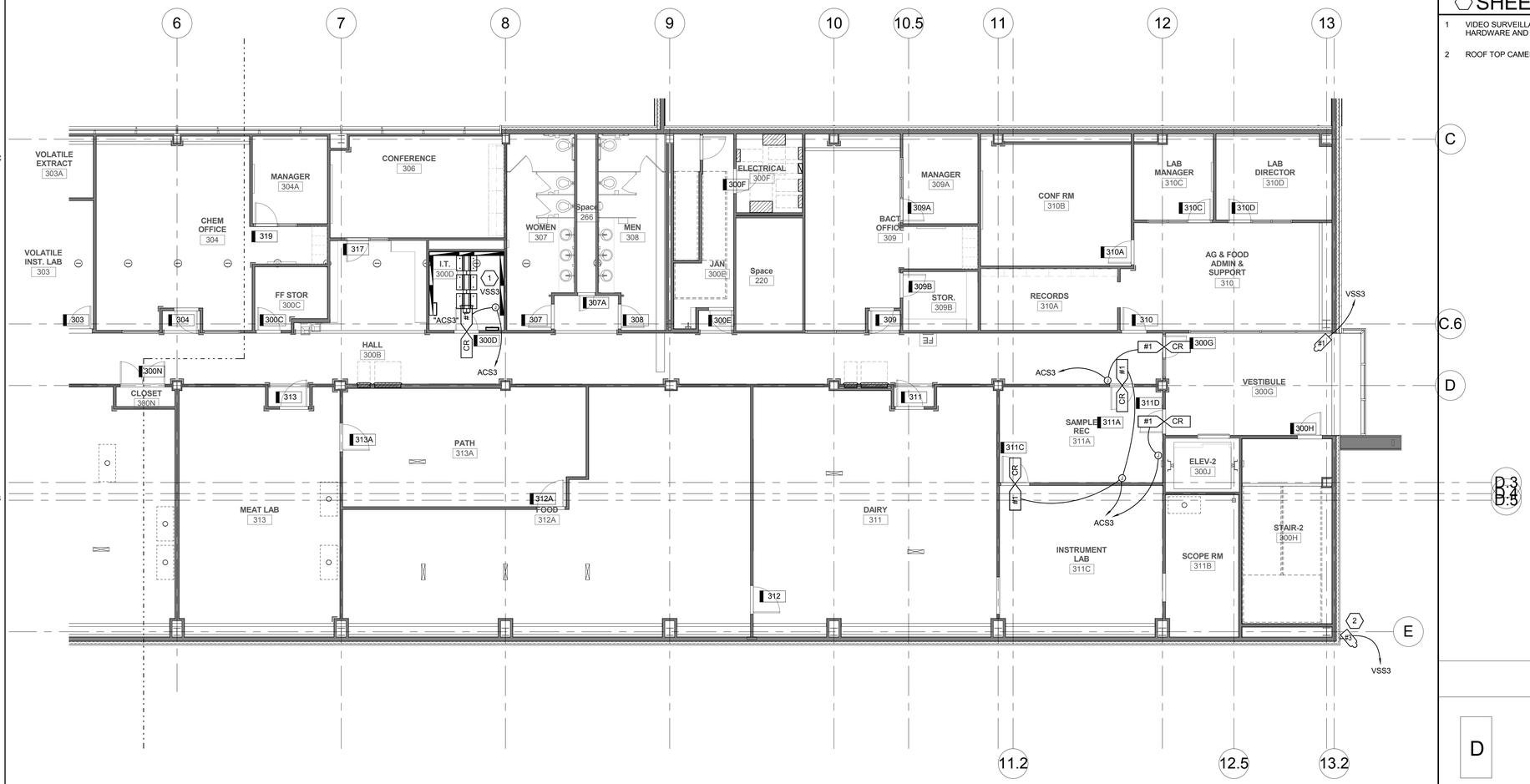


A1 THIRD LEVEL AUXILIARY PLAN - AREA B

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

GENERAL SHEET NOTES

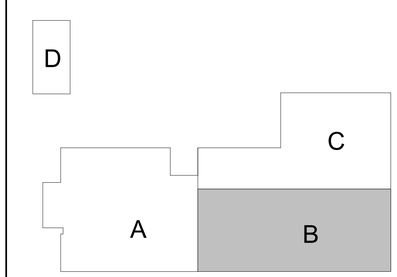
1 COORDINATE EXACT JUNCTION BOX LOCATIONS SO THAT THEY ARE EASILY ACCESSIBLE AND ARE NOT BEHIND DOORS, FURNITURE, LOWERED PROJECTION SCREENS, ETC.

SHEET KEYNOTES

1 VIDEO SURVEILLANCE CAMERA TERMINATIONS SHALL BE MADE TO CONNECTIVITY HARDWARE AND SWITCHES INSTALLED IN SPARE SPACE OF LAN DATA RACKS.

2 ROOF TOP CAMERA.

KEY PLAN



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THIRD LEVEL AUXILIARY PLAN - AREA B

EY103b

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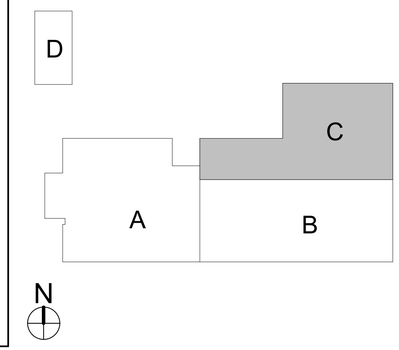
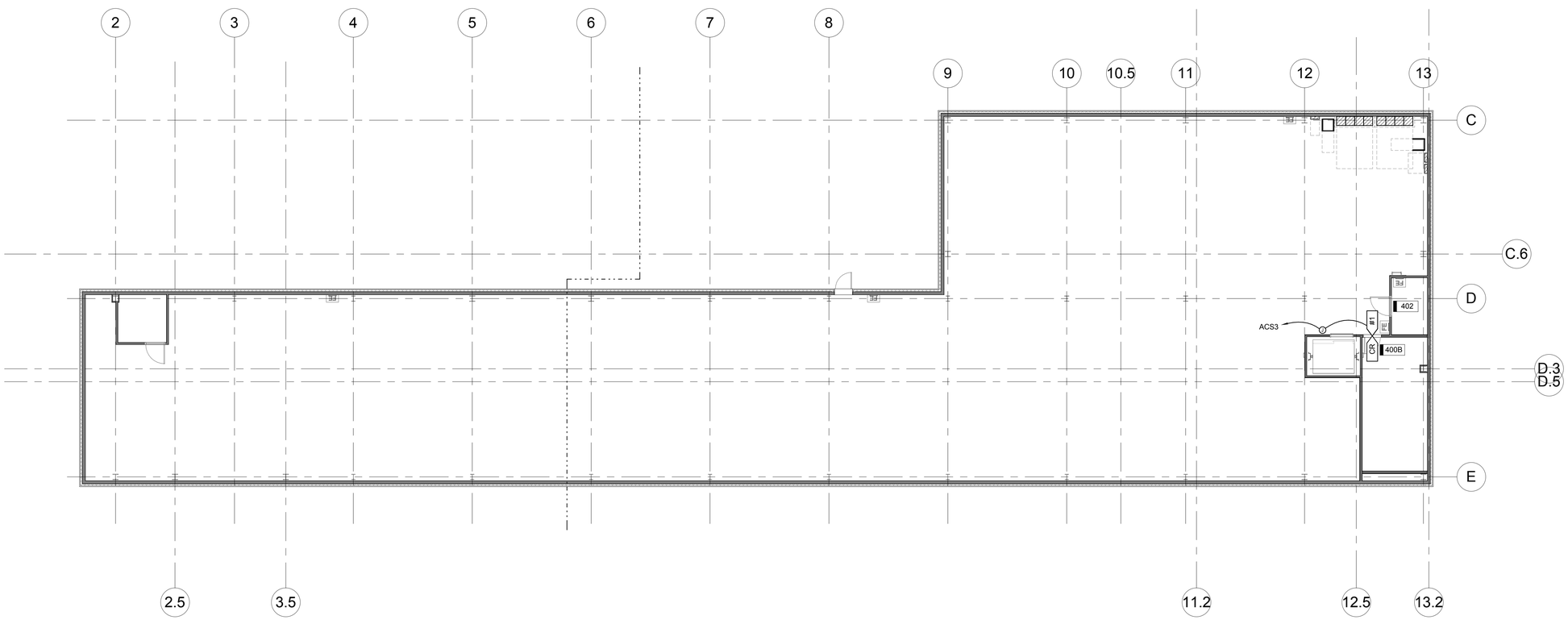
GENERAL SHEET NOTES

1. LOCATIONS OF MECHANICAL EQUIPMENT SHOWN IS APPROXIMATE. FIELD COORDINATE EXACT LOCATIONS OF EQUIPMENT PRIOR TO ROUGH-IN.
2. SEE FIRE ALARM PLANS (FA) FOR ELECTRICAL CONNECTIONS TO FIRE ALARM EQUIPMENT/DEVICES.
3. PROVIDE DRY CONTACT FOR ALL REFRIGERATORS TO TIE INTO BMS SYSTEM.
4. MINIMUM BRANCH CIRCUIT CONDUCTOR SIZE FOR 20A, 120V OR 208V CIRCUITS SHALL BE #10 AWG, UNLESS A LARGER SIZE IS INDICATED OR REQUIRED TO MINIMIZE VOLTAGE DROP.
5. CONTRACTOR TO PROVIDE AT TIME OF OWNER MOVE-IN/OCCUPATION OF BUILDING, (20) NEMA PLUG CONVERSION/REVISIONS TO ACCOMMODATE DIFFERENT EQUIPMENT PLUGS. THIS QUANTITY IS A TOTAL FOR THE BUILDING AND NOT PER DRAWING SHEET.

SHEET KEYNOTES

KEY PLAN





A1 PENTHOUSE LEVEL AUXILIARY PLAN
SCALE: 3/32" = 1'-0"

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PENTHOUSE LEVEL AUXILIARY PLAN

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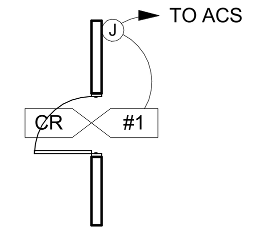
NOTES

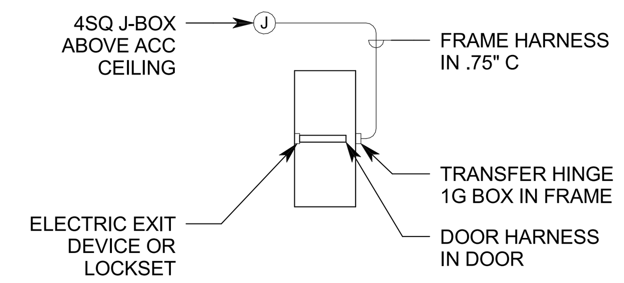
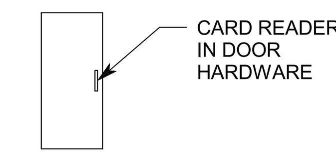
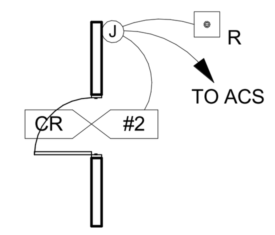
1. PROVIDE RACEWAY AND EQUIPMENT AS INDICATED FOR CARD ACCESS DOOR TYPE INDICATED. REFER TO SECTION 281300 AND SECTION 87100 FOR ADDITIONAL REQUIREMENTS.
2. PROVIDE CONCEALED .75" C TYPICAL FOR LINES SHOWN TO DEVICE BOXES ON PROTECTED SIDE AND UNPROTECTED SIDE ELEVATIONS.
3. LOCATE CARD READER BOX AS INDICATED ON FLOOR PLANS. RACEWAY AND BOXES BY DIV. 26. REFER TO 281300 FOR CARD ACCESS SYSTEM REQUIREMENTS.
4. DOUBLE 4SQ J-BOX ON PROTECTED SIDE OF DOORWAY (SIDE OPPOSITE OF CARD READER) ABOVE ACCESSIBLE CEILING OR IN OTHER ACCESSIBLE LOCATION. PROVIDE COVER FOR J-BOX.
5. ELECTRIC LOCKING HARDWARE (MAG LOCKS, ELECTRIC STRIKES, POWER TRANSFER HINGES, ETC.) BY ASSA ABLOX. REVIEW DOOR HARDWARE SCHEDULE (SECTION 87100) AND FURNISH AND/OR INSTALL AS DIRECTED. CONTACT ENGINEER WITH QUESTIONS OR CONCERNS.

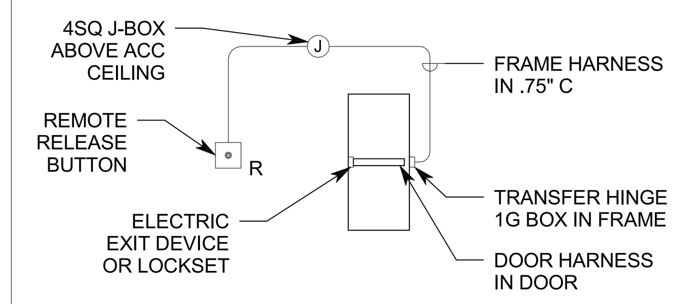
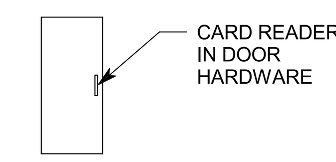
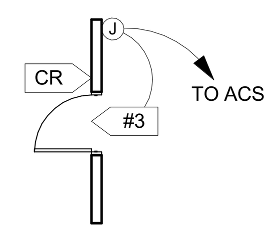
ABBREVIATIONS

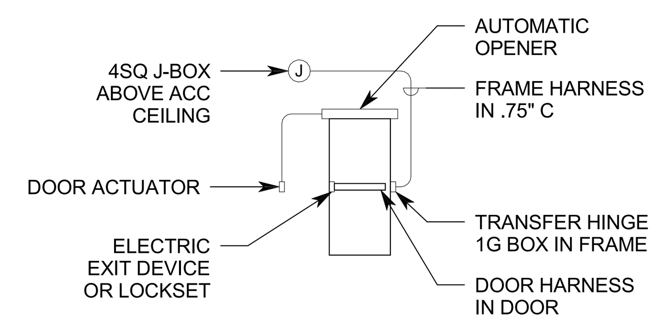
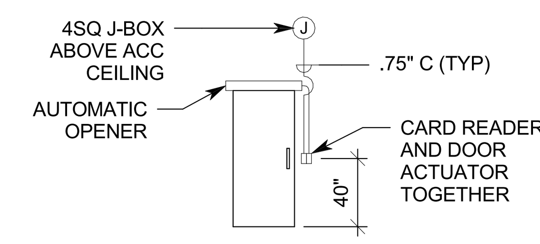
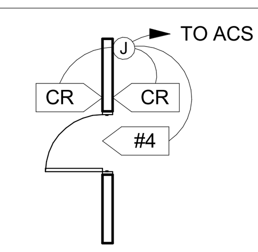
DBL = DOUBLE
DIR = DIRECTION
HDWR = HARDWARE
C = CONDUIT
4SQ = FOUR SQUARE
W/ = WITH
1G = 1 GANG
PWR = POWER
ACC = ACCESSIBLE
TYP = TYPICAL
L/PS = LOCK POWER SUPPLY
CR = CARD READER
CI = DOOR CONTACT INDICATOR
EPT = ELECTRIC POWER TRANSFER
ES = ELECTRIC STRIKE
ED = EXIT DEVICE
ML = ELECTROMAGNETIC LOCK
KS = KEY SWITCH
ACS = ACCESS CONTROL SYSTEM
EL = ELECTRIC LOCKSET
MD = MOTION DETECTOR (REX)
TLC = TIME/SYSTEM LOCK CONTROL
ELC = EMERGENCY LOCK CONTROL
IDS = INTRUSION DETECTION SYSTEM
ADA = AUTO DOOR OPENER
REX = REQUEST TO EXIT
FA = FIRE ALARM SYSTEM
OFP = OBTAIN FROM PLANS
A/R = AS REQUIRED
AED = ACCESS EXIT DEVICE OR LOCKSET (CR ON DOOR - SEE SECTION 87100)
PB = REMOTE PUSH BUTTON (REQUEST TO OPEN)
FH = FRAME HARNESS
DH = DOOR HARNESS

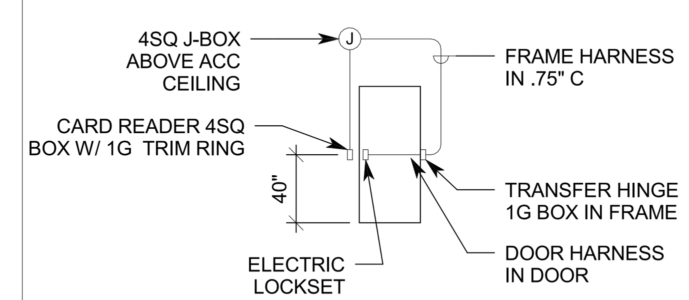
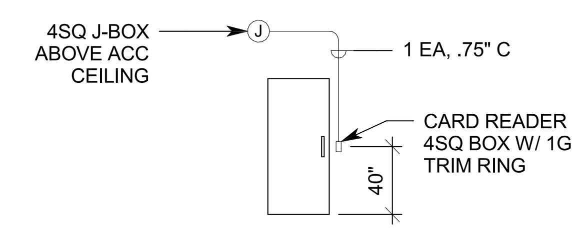
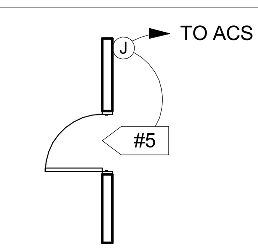
CARD ACCESS DOOR TYPE SCHEDULE

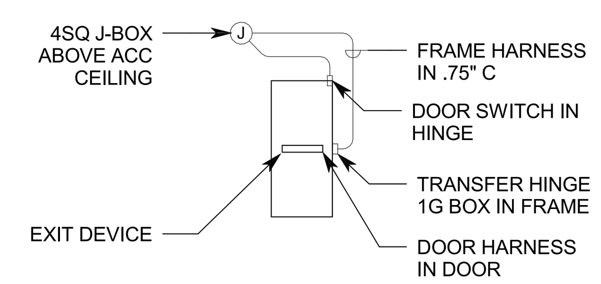
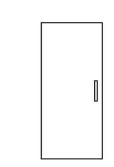
<table>
<tr><th>DOOR TYPE #</th><th>SYMBOL</th><th>DESCRIPTION</th><th>PROTECTED SIDE ELEVATION</th><th>UNPROTECTED SIDE ELEVATION</th><th>LOCK TYPE(S)</th><th>DIVISION OF WORK AND COMMENTS</th></tr>
<tr><td>TYPE 1</td><td> 

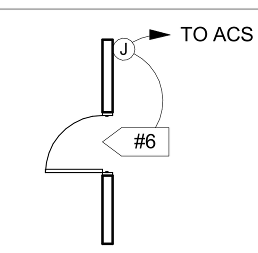
HARDWARE SETS:</td><td>SINGLE DOOR, 1 CARD READER ON DOOR, (FREE EGRESS)</td><td> 
</td><td> 
</td><td>ACCESS EXIT DEVICE OR LOCKSET</td><td>SECURITY CONTRACTOR PROVIDES:
• AED, L/PS, FH, DH
HARDWARE CONTRACTOR PROVIDES:
• EPT
LOCK CONTROLLED BY:
• CR, TLC, FA</td></tr>
<tr><td>TYPE 2</td><td> 

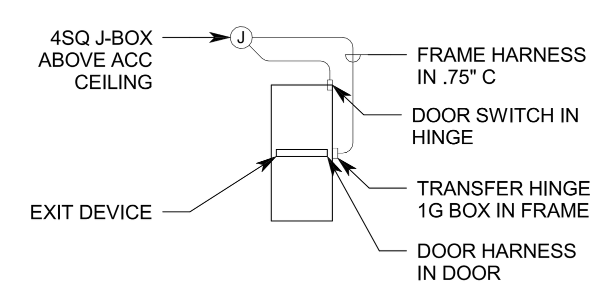
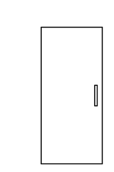
HARDWARE SETS:</td><td>SINGLE DOOR, 1 CARD READER ON DOOR (FREE EGRESS), W/ REMOTE RELEASE BUTTON</td><td> 
</td><td> 
</td><td>ACCESS EXIT DEVICE OR LOCKSET</td><td>SECURITY CONTRACTOR PROVIDES:
• AED, L/PS, FH, DH
HARDWARE CONTRACTOR PROVIDES:
• EPT, PB
LOCK CONTROLLED BY:
• CR</td></tr>
<tr><td>TYPE 3</td><td> 

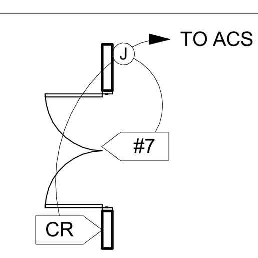
HARDWARE SET:</td><td>SINGLE DOOR, 1 CARD READER ON WALL WITH 2 DOOR ACTUATORS (ADA)</td><td> 
</td><td> 
</td><td>ELECTRIC EXIT DEVICE</td><td>SECURITY CONTRACTOR PROVIDES:
• L/PS, FH, DH, CR
HARDWARE CONTRACTOR PROVIDES:
• ED, EPT, ADA
LOCK CONTROLLED BY:
• CR, TLC</td></tr>
<tr><td>TYPE 4</td><td> 

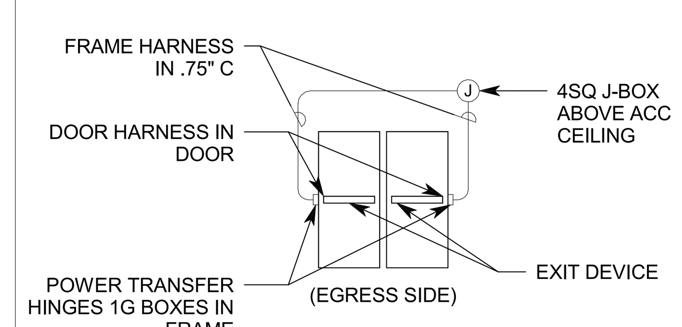
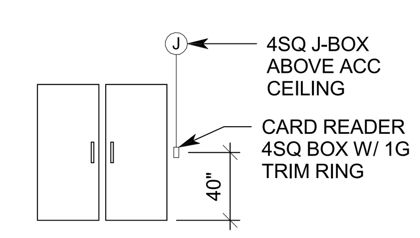
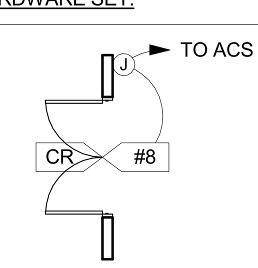
HARDWARE SETS:</td><td>SINGLE DOOR, 2 CARD READERS ON WALL (FREE EGRESS)</td><td> 
</td><td> 
</td><td>ELECTRIC LOCKSET</td><td>SECURITY CONTRACTOR PROVIDES:
• EL, L/PS, FH, DH
HARDWARE CONTRACTOR PROVIDES:
• EPT
LOCK CONTROLLED BY:
• CR</td></tr>
<tr><td>TYPE 5</td><td> 

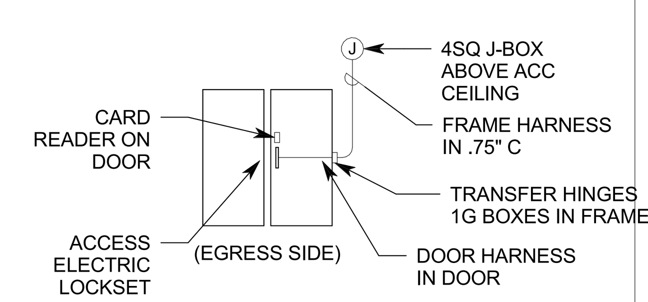
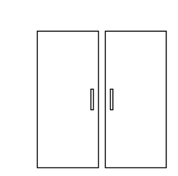
HARDWARE SET:</td><td>SINGLE DOOR, NO CARD READER, (FREE EGRESS - NO ALARM)</td><td> 
</td><td>  </td><td>EXIT DEVICE</td><td>SECURITY CONTRACTOR PROVIDES:
• FH
HARDWARE CONTRACTOR PROVIDES:
• ED, EPT
LOCK CONTROLLED BY:
• N/A

NOTE:
REQUEST TO EXIT IN EXIT DEVICE.</td></tr>
<tr><td>TYPE 6</td><td> 

HARDWARE SET:</td><td>SINGLE DOOR, NO CARD READER (FREE EGRESS - ALARM AT PANEL)</td><td> 
</td><td>  </td><td>EXIT DEVICE</td><td>SECURITY CONTRACTOR PROVIDES:
• FH
HARDWARE CONTRACTOR PROVIDES:
• ED, EPT
LOCK CONTROLLED BY:
• N/A

NOTE:
NO REX AT DOOR.</td></tr>
<tr><td>TYPE 7</td><td> 

HARDWARE SET:</td><td>DOUBLE DOOR, 1 CARD READER ON WALL</td><td> 
</td><td> 
</td><td>EXIT DEVICE</td><td>SECURITY CONTRACTOR PROVIDES:
• ED, L/PS, FH, DH, CR
HARDWARE CONTRACTOR PROVIDES:
• EPT
LOCK CONTROLLED BY:
• CR, TLC</td></tr>
<tr><td>TYPE 8</td><td> 

HARDWARE SETS:</td><td>DOUBLE DOOR, 1 CARD READER ON DOOR (FREE EGRESS)</td><td> 
</td><td>  </td><td>ELECTRIC STRIKE</td><td>SECURITY CONTRACTOR PROVIDES:
• AED, L/PS, FH, DH
HARDWARE CONTRACTOR PROVIDES:
• EPT
LOCK CONTROLLED BY:
• CR</td></tr>
</table>

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SIGNATURE: Enzo Calfa
DATE: 8-05-2014

PROFESSIONAL ENGINEER LICENSED
No. 181563
DAVID E. WESEMANN
04-21-2014
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300
Project #: B13-024

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AUXILIARY DETAILS

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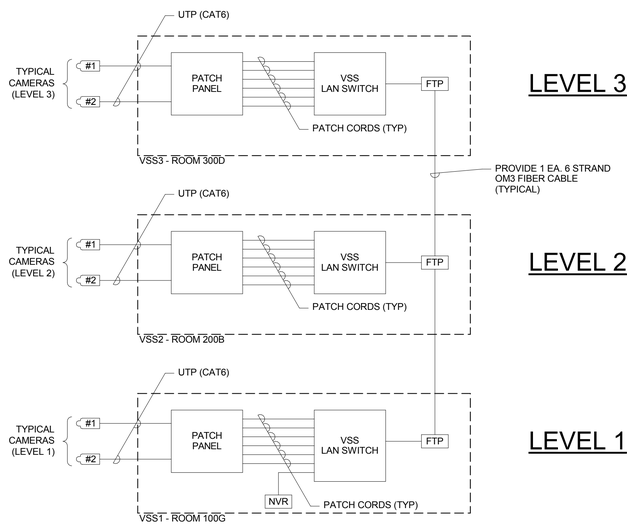
VSS RISER

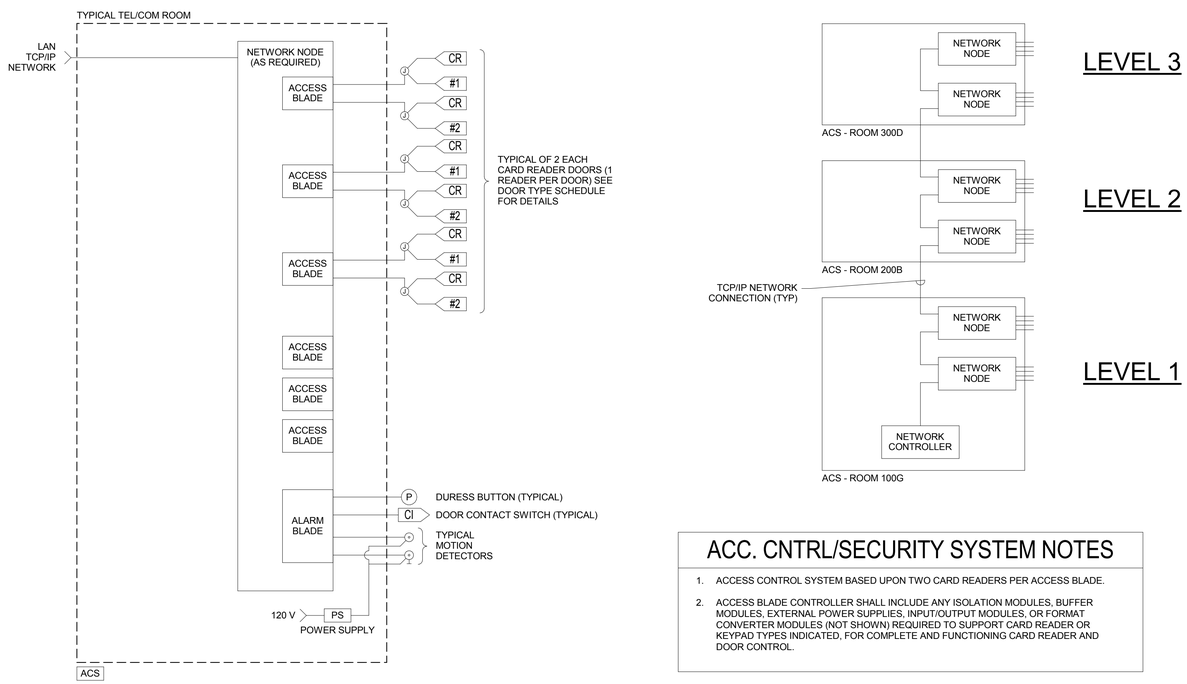


NOTE:

THE VIDEO SURVEILLANCE SYSTEM CONTRACTOR AND/OR THE APPROVED DATA GRADE CABLE INSTALLER SHALL BE RESPONSIBLE FOR INSTALLING, TESTING, AND CERTIFYING ALL UTP, FIBER, AND HARDWARE CONNECTIVITY FOR THE VSS SYSTEM SHOWN HERE.

C1 VIDEO SURVEILLANCE SYSTEM (VSS) RISER DIAGRAM

NO SCALE



ACC. CNTRL/SECURITY SYSTEM NOTES

1. ACCESS CONTROL SYSTEM BASED UPON TWO CARD READERS PER ACCESS BLADE.
2. ACCESS BLADE CONTROLLER SHALL INCLUDE ANY ISOLATION MODULES, BUFFER MODULES, EXTERNAL POWER SUPPLIES, INPUT/OUTPUT MODULES, OR FORMAT CONVERTER MODULES (NOT SHOWN) REQUIRED TO SUPPORT CARD READER OR KEYPAD TYPES INDICATED, FOR COMPLETE AND FUNCTIONING CARD READER AND DOOR CONTROL.

A1 ACCESS CONTROL SYSTEM DIAGRAM

NO SCALE

SECURITY AND VIDEO SYSTEMS EQUIPMENT SCHEDULE

SYMBOL	DESCRIPTION	ROUGH-IN REQUIREMENTS	CABLE TYPES
#1	CARD ACCESS DOOR TYPE #1 OR AS NOTED. SEE SCHEDULE FOR DIFFERENT TYPE REQUIREMENTS.	SEE DOOR TYPE SCHEDULE.	SEE CONTRACTOR SUBMITTALS.
CR	CARD READER	4SQ BOX W/ 1G TRIM, .75" C OR 1" C AS NOTED.	SEE CONTRACTOR SUBMITTALS.
CI	CONTACT INDICATOR (DOOR POSITION SWITCH)	1G BOX INSIDE DOOR FRAME, .75" C	2 CONDUCTOR, 18 AWG (MIN.)
P	DURESS BUTTON.	1G BOX, CASEWORK MOUNTED, .75" C	2 CONDUCTOR, 20 AWG (MIN.)
#1	VIDEO CAMERA / ENCLOSURE WITH LENS. SEE SCHEDULE FOR CAMERA TYPE. - CONDUIT ENTRY FOR DOME TYPE CAMERA - 1G BOX FOR NON-DOME TYPE CAMERA	SEE SPECIFICATIONS, 1" C	1 EACH CAT 6 CABLE (BY STATE DTS)
ACS	ACCESS SYSTEM CONTROLLER AND POWER SUPPLIES	WALL MOUNTED (72" AFF) 4" GUTTER AND STUBS A/R	PER SYSTEM REQUIREMENTS
VSS	VIDEO SURVEILLANCE SYSTEM TERMINATION	RACK MOUNTED PATCH PANEL. USES DATA CABLE MANAGEMENT	CAT 6 COMPLIANT CABLING

VSS CAMERA/ENCLOSURE TYPE SCHEDULE

CAMERA TYPE NUMBER	SYMBOL	DESCRIPTION	INCLUDES
TYPE 1	#1 VSS	INTERIOR CAMERA - FIXED DOME (CEILING MOUNTED)	* JUNCTION BOX ABOVE CEILING WITH 1" CONDUIT TO VSS
TYPE 2	#2 VSS	INTERIOR CAMERA - FIXED DOME (WALL MOUNTED)	* JUNCTION BOX AT +90" ABOVE FINISHED FLOOR OR AS NOTED, WITH 1" CONDUIT BACK TO VSS
TYPE 3	#3 VSS	EXTERIOR CAMERA - FIXED DOME (WALL MOUNTED)	* JUNCTION BOX AT +120" ABOVE GRADE OR AS NOTED, WITH 1" CONDUIT THROUGH EXTERIOR WALL BACK TO VSS

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DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
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DATE: 8-05-2014

No. 181563
DAVID E. WESEMANN
04-21-2014
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STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300

Project #: B13-024

DATE:	ISSUE TYPE:
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AUXILIARY DIAGRAMS

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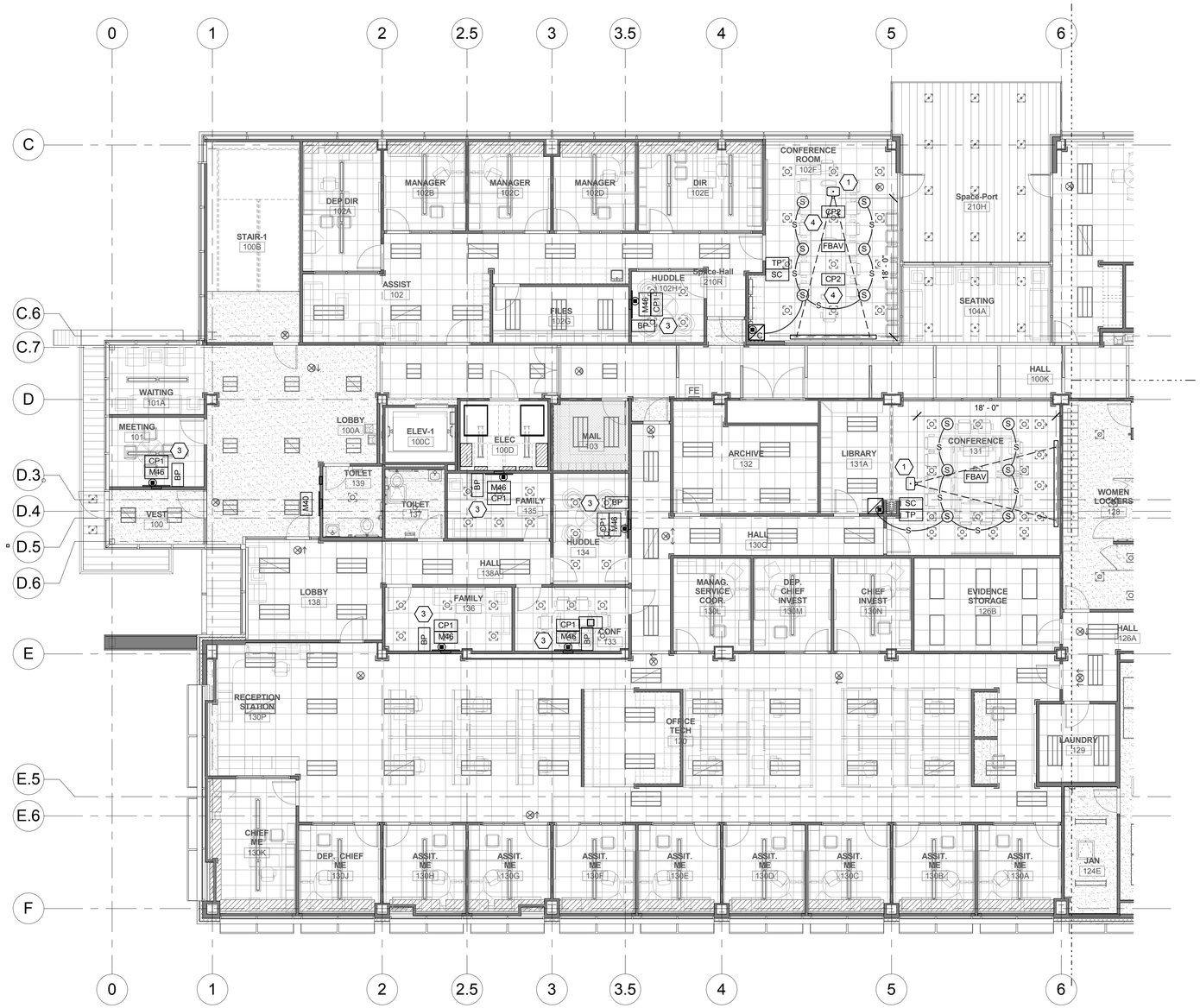


A1 FIRST LEVEL AUDIO VISUAL ROUGH-IN PLAN - AREA A

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

GENERAL SHEET NOTES

1 COORDINATE EXACT JUNCTION BOX LOCATIONS SO THAT THEY ARE EASILY ACCESSIBLE AND ARE NOT BEHIND DOORS, FURNITURE, LOWERED PROJECTION SCREENS, ETC.

SHEET KEYNOTES

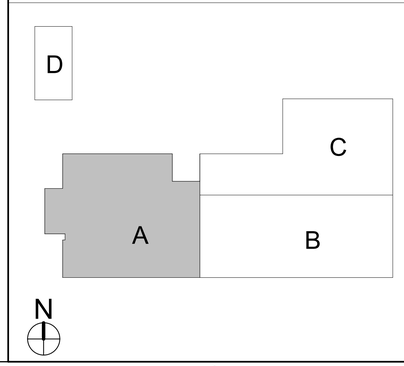
1 INSTALL PROJECTOR ALONG CENTERLINE OF SCREEN IMAGE. COORDIANTE EXACT PROJECTOR LOCATION WITH AV CONTRACTOR PRIOR TO INSTALLATION.

2 INSTALL JUNCTION BOX FOR MONITOR AT +72" AFF TO CENTER OF BOX. COORDINATE EXACT LOCATION WITH ARCHITECT.

3 INSTALL "CP1" JUNCTION BOX DIRECTLY BELOW MONITOR AT OUTLET HEIGHT. INSTALL "BP" JUNCTION BOX AT ELECTRICAL SWITCH HEIGHT WHERE IT DOES NOT INTERFERE WITH MONITOR. COORDINATE WTIH AV INSTALLER.

4 AV INSTALLER TO INSTALL "CP2" FLUSH IN TABLETOP. COORDINATE EXACT LOCATION WITH ARCHITECT.

KEY PLAN



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DATE: 8-05-2014

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Project #:	B13-024

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FIRST LEVEL PLAN AUDIO VISUAL ROUGH-IN PLAN - AREA A

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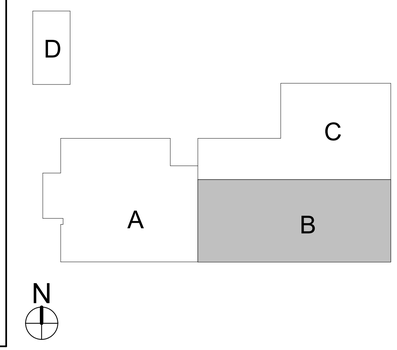
GENERAL SHEET NOTES

1. COORDINATE EXACT JUNCTION BOX LOCATIONS SO THAT THEY ARE EASILY ACCESSIBLE AND ARE NOT BEHIND DOORS, FURNITURE, LOWERED PROJECTION SCREENS, ETC.

SHEET KEYNOTES

1. INSTALL JUNCTION BOX FOR MONITOR AT +72" AFF TO CENTER OF BOX. COORDINATE EXACT LOCATION WITH ARCHITECT.
2. SEE SITE PLAN FOR EXACT LOCATION OF INTERCOM PEDESTAL. STUB CONDUIT TO PEDESTAL.

KEY PLAN



A1 FIRST LEVEL AUDIO VISUAL ROUGH-IN PLAN - AREA B

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

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FIRST LEVEL PLAN AUDIO VISUAL ROUGH-IN PLAN - AREA B

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A1 FIRST LEVEL AUDIO VISUAL ROUGH-IN PLAN - AREA C

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

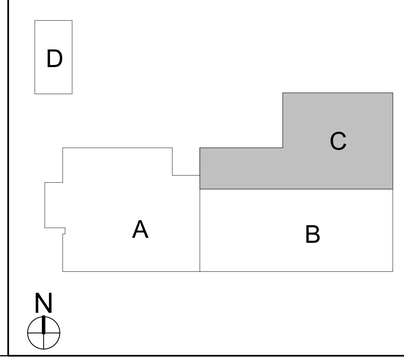
GENERAL SHEET NOTES

1 COORDINATE EXACT JUNCTION BOX LOCATIONS SO THAT THEY ARE EASILY ACCESSIBLE AND ARE NOT BEHIND DOORS, FURNITURE, LOWERED PROJECTION SCREENS, ETC.

SHEET KEYNOTES

1 INSTALL "CP1" JUNCTION BOX DIRECTLY BELOW MONITOR AT OUTLET HEIGHT.

KEY PLAN



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M1WL

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04-21-2014
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FIRST LEVEL PLAN AUDIO VISUAL ROUGH-IN PLAN - AREA C

EJ101c

VOLUME 2

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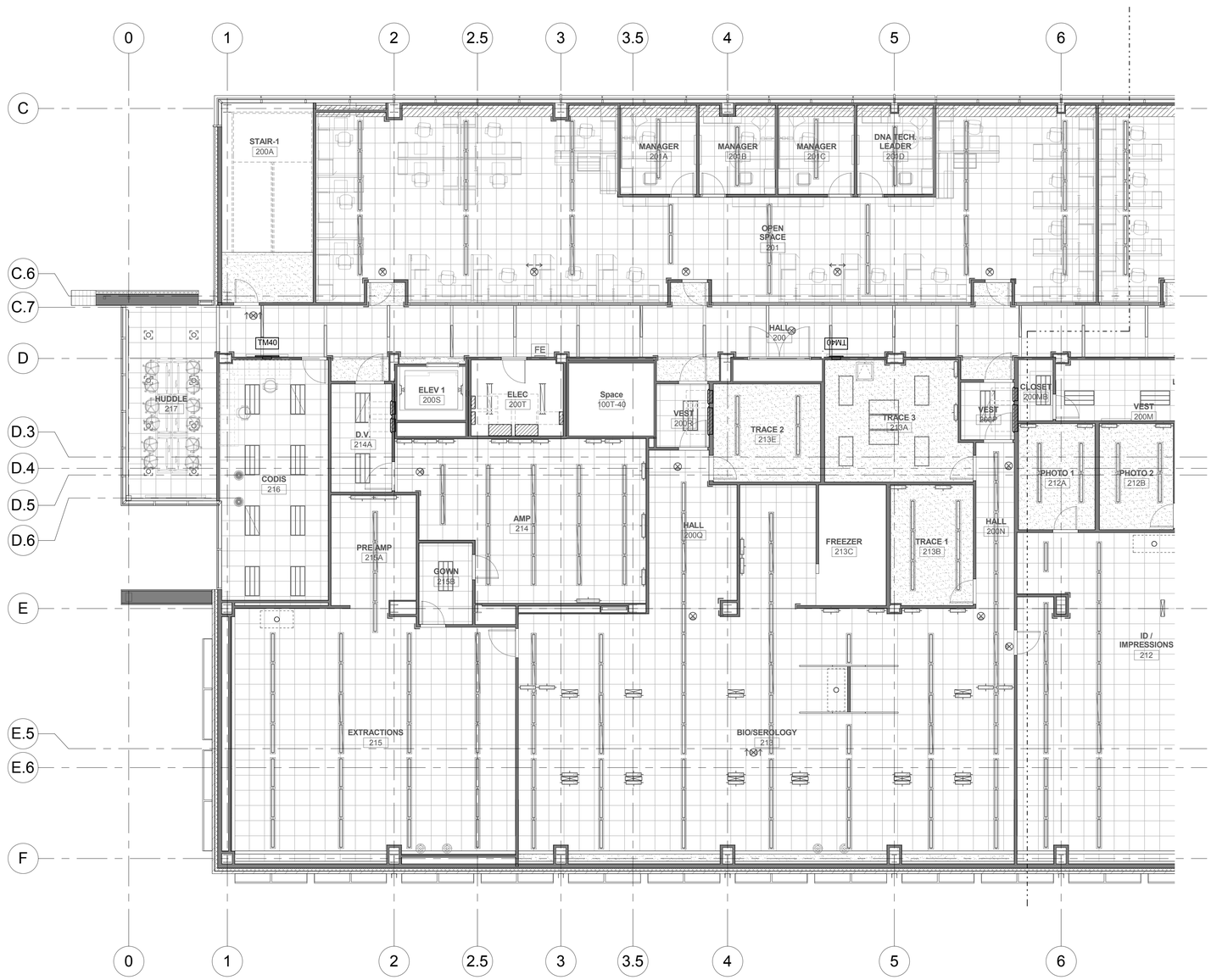


A1 SECOND LEVEL AUDIO VISUAL ROUGH-IN PLAN - AREA A

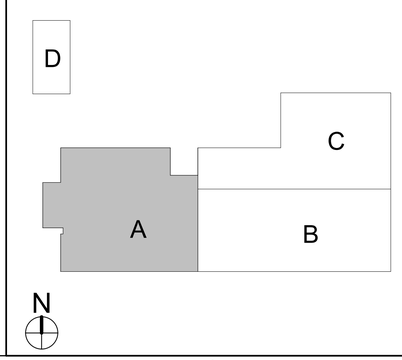
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES

1 COORDINATE EXACT JUNCTION BOX LOCATIONS SO THAT THEY ARE EASILY ACCESSIBLE AND ARE NOT BEHIND DOORS, FURNITURE, LOWERED PROJECTION SCREENS, ETC.

SHEET KEYNOTES

KEY PLAN



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SECOND LEVEL AUDIO VISUAL ROUGH-IN PLAN - AREA A

EJ102a

VOLUME 2

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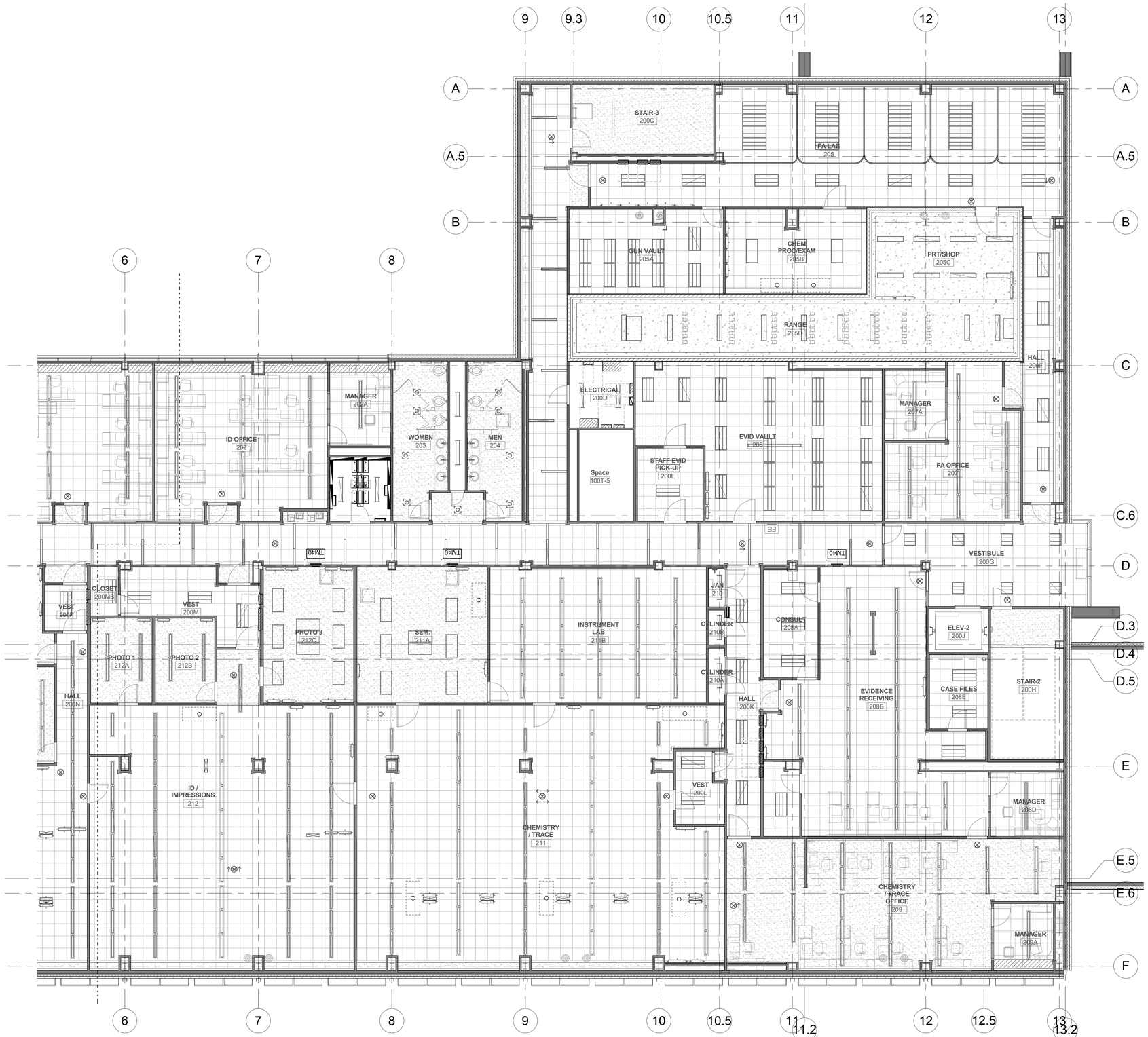


A1 SECOND LEVEL AUDIO VISUAL ROUGH-IN PLAN - AREA B

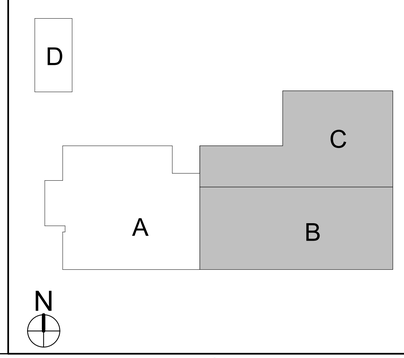
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES

1 COORDINATE EXACT JUNCTION BOX LOCATIONS SO THAT THEY ARE EASILY ACCESSIBLE AND ARE NOT BEHIND DOORS, FURNITURE, LOWERED PROJECTION SCREENS, ETC.

SHEET KEYNOTES

KEY PLAN



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SECOND LEVEL AUDIO VISUAL ROUGH-IN PLAN - AREA B

EJ102b

VOLUME 2

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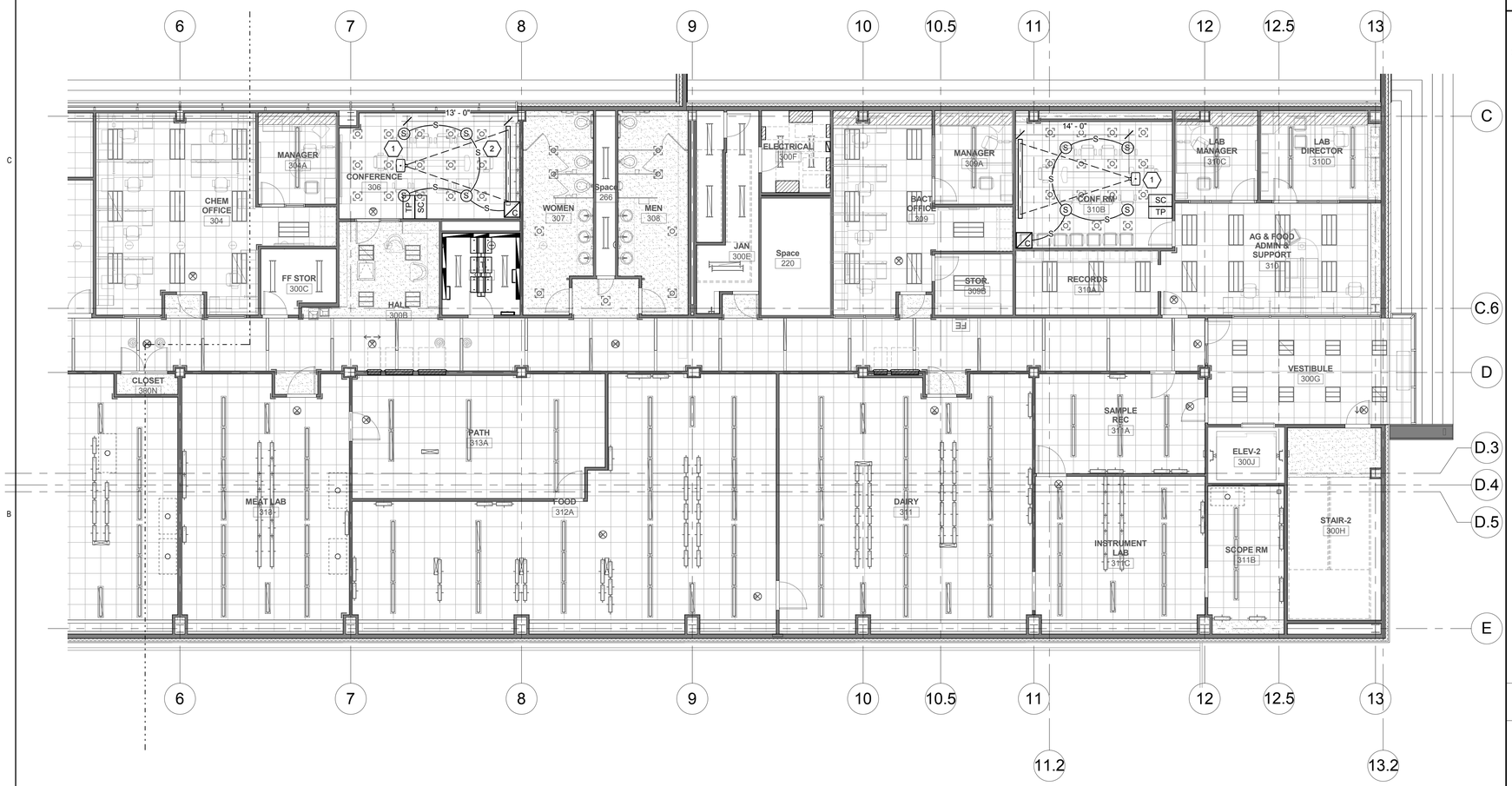


A1 THIRD LEVEL AUDIO VISUAL ROUGH-IN PLAN - AREA B

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

GENERAL SHEET NOTES

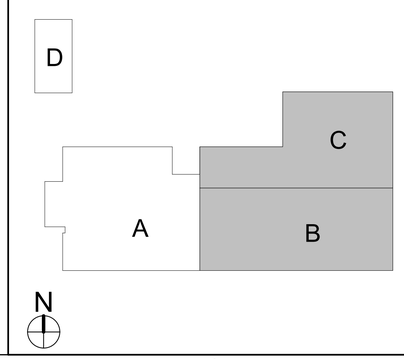
1 COORDINATE EXACT JUNCTION BOX LOCATIONS SO THAT THEY ARE EASILY ACCESSIBLE AND ARE NOT BEHIND DOORS, FURNITURE, LOWERED PROJECTION SCREENS, ETC.

SHEET KEYNOTES

1 INSTALL PROJECTOR ALONG CENTERLINE OF SCREEN IMAGE. COORDIANTE EXACT PROJECTOR LOCATION WITH AV CONTRACTOR PRIOR TO INSTALLATION.

2 INSTALL SCREEN TO BE CLEAR OF CABINETS WHEN LOWERED. COORDINATE WITH MILLWORK DRAWINGS.

KEY PLAN



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THIRD LEVEL AUDIO VISUAL ROUGH-IN PLAN - AREA B

EJ103b

VOLUME 2

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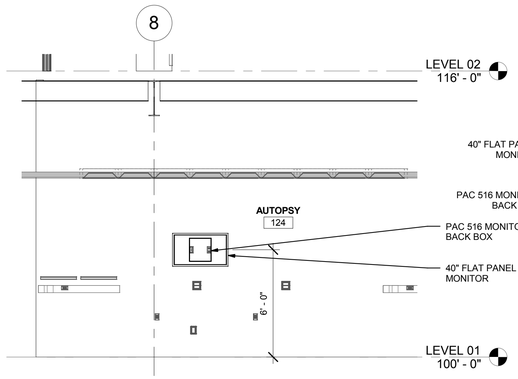
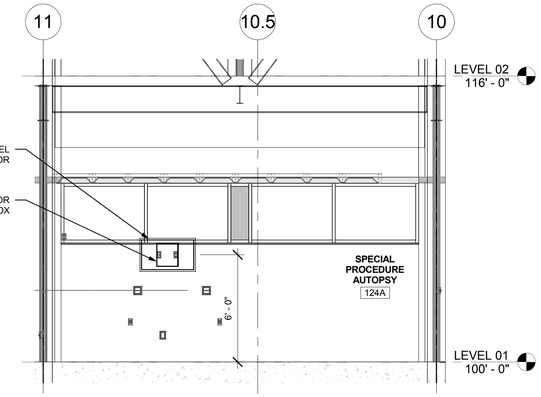


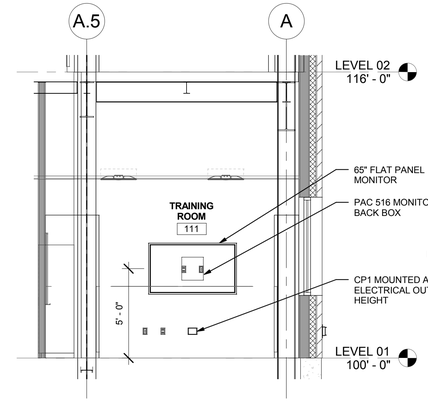
AUTOPSY 124 NE AUDIO VISUAL ROUGH-IN SECTION DETAIL

C1 SCALE: 1/4" = 1'-0"



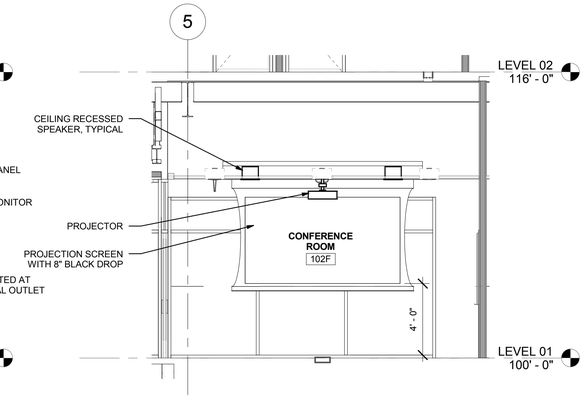
SPECIAL PROCEDURE AUTOPSY 124A AUDIO VISUAL ROUGH-IN SECTION DETAIL

C2 SCALE: 1/4" = 1'-0"



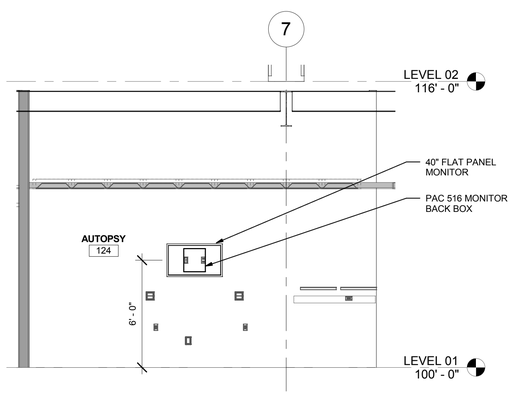
TRAINING ROOM 111 AUDIO VISUAL ROUGH-IN SECTION DETAIL

C3 SCALE: 1/4" = 1'-0"



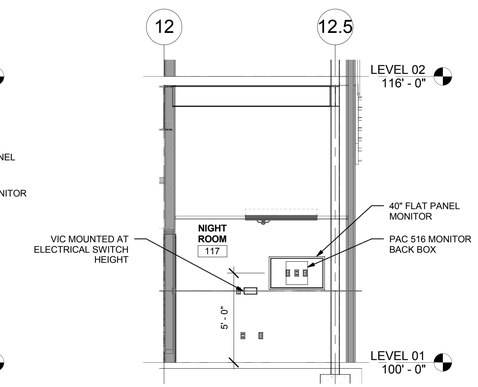
CONFERENCE ROOM 102F AUDIO VISUAL ROUGH-IN SECTION DETAIL

C5 SCALE: 1/4" = 1'-0"



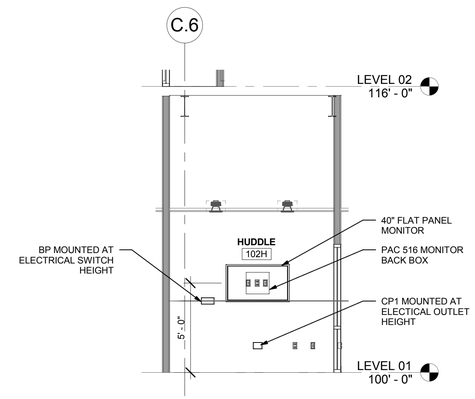
AUTOPSY 124 NW AUDIO VISUAL ROUGH-IN SECTION DETAIL

B1 SCALE: 1/4" = 1'-0"



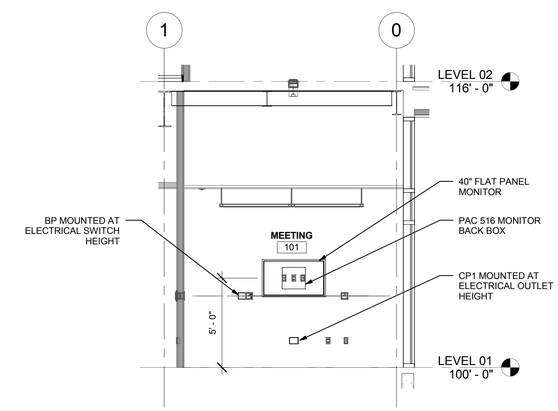
NIGHT ROOM 117 AUDIO VISUAL ROUGH-IN SECTION DETAIL

B2 SCALE: 1/4" = 1'-0"



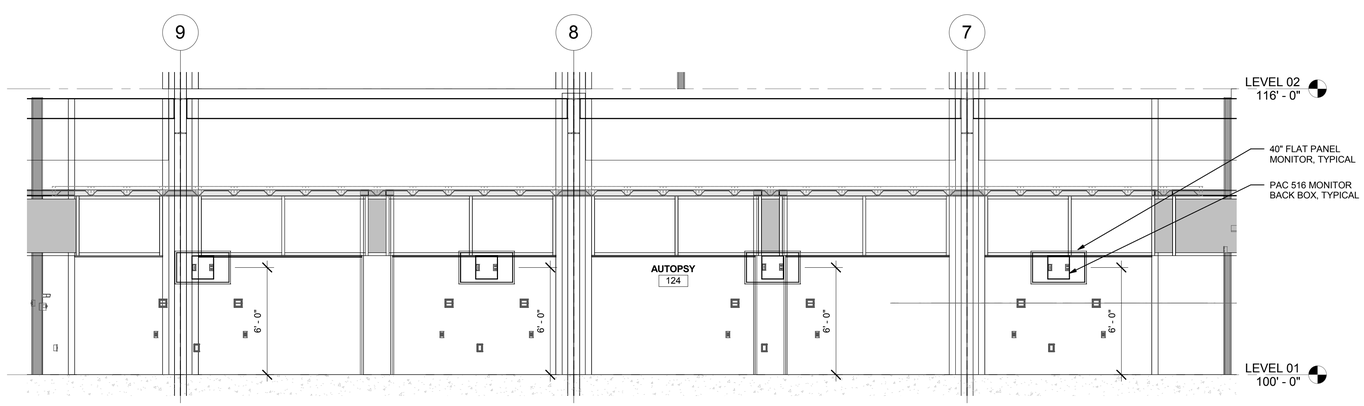
HUDDLE 102H AUDIO VISUAL ROUGH-IN SECTION DETAIL

B3 SCALE: 1/4" = 1'-0"



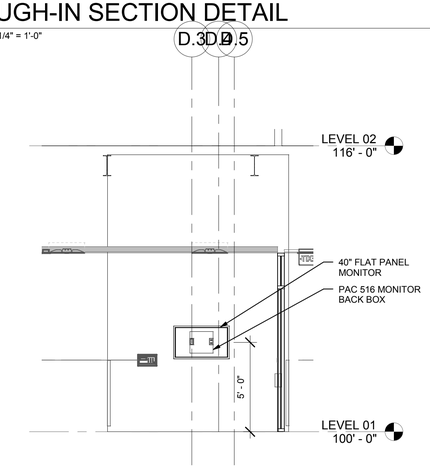
MEETING 101 AUDIO VISUAL ROUGH-IN SECTION DETAIL

B5 SCALE: 1/4" = 1'-0"



AUTOPSY 124 SOUTH AUDIO VISUAL ROUGH-IN SECTION DETAIL

A1 SCALE: 1/4" = 1'-0"



LOBBY 100A AUDIO VISUAL ROUGH-IN SECTION DETAIL

A5 SCALE: 1/4" = 1'-0"

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AUDIO VISUAL ROUGH-IN SECTION DETAILS

EJ301

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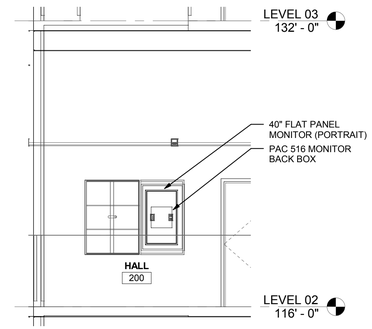
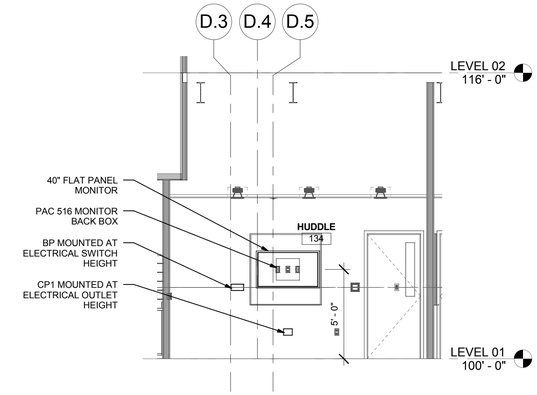


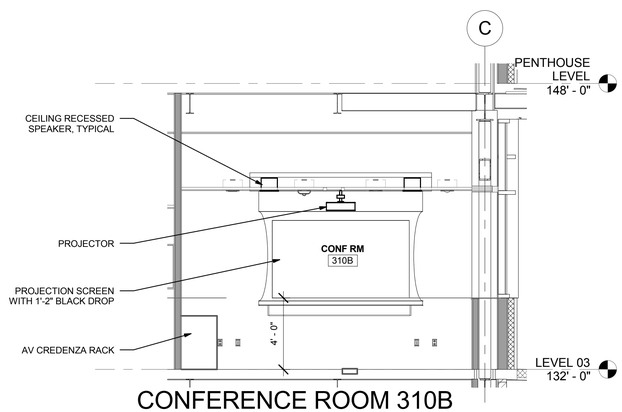
TYPICAL HALL 200 AUDIO VISUAL ROUGH-IN SECTION DETAIL

C3 SCALE: 1/4" = 1'-0"



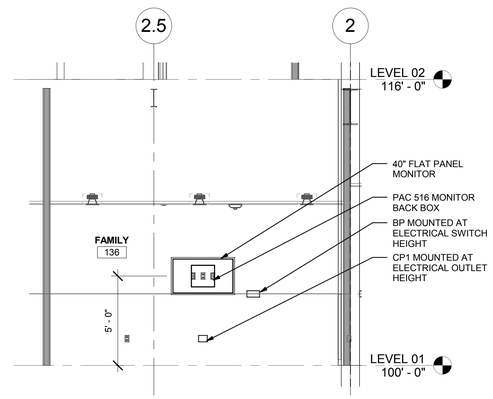
HUDDLE 134 AUDIO VISUAL ROUGH-IN SECTION DETAIL

C5 SCALE: 1/4" = 1'-0"



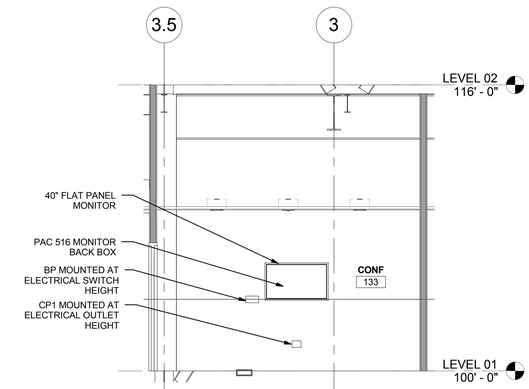
CONFERENCE ROOM 310B AUDIO VISUAL ROUGH-IN SECTION DETAIL

B2 SCALE: 1/4" = 1'-0"



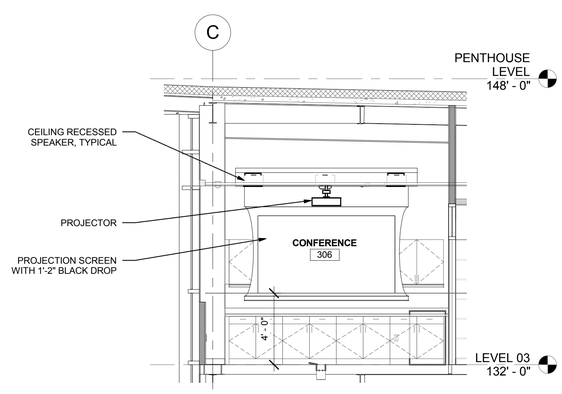
FAMILY 136 AUDIO VISUAL ROUGH-IN SECTION DETAIL

B3 SCALE: 1/4" = 1'-0"



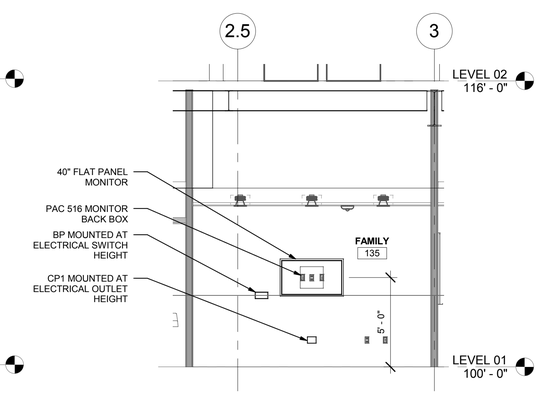
CONF 133 AUDIO VISUAL ROUGH-IN SECTION DETAIL

B5 SCALE: 1/4" = 1'-0"



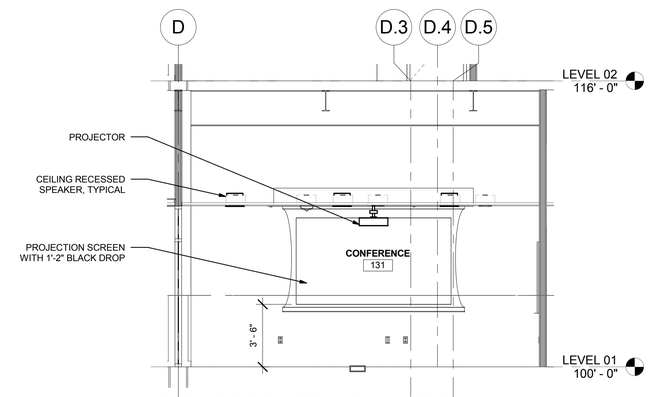
CONFERENCE 306 AUDIO VISUAL ROUGH-IN SECTION DETAIL

A2 SCALE: 1/4" = 1'-0"



FAMILY 135 AUDIO VISUAL ROUGH-IN SECTION DETAIL

A3 SCALE: 1/4" = 1'-0"



CONFERENCE 131 AUDIO VISUAL ROUGH-IN SECTION DETAIL

A5 SCALE: 1/4" = 1'-0"

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AUDIO VISUAL ROUGH-IN SECTION DETAILS

EJ302

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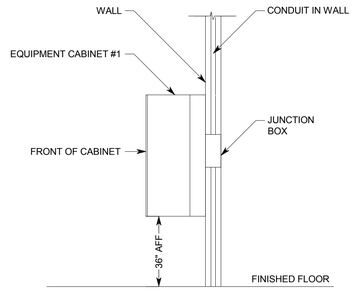
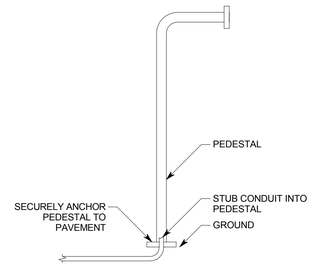


D2 EQUIPMENT CABINET #1 MOUNTING DETAIL

NO SCALE



D3 EXTERIOR INTERCOM STATION PEDESTAL INSTALLATION DETAIL

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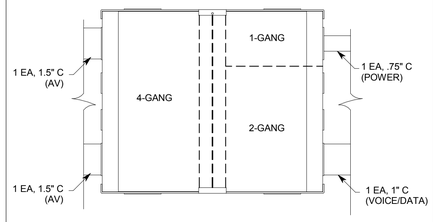
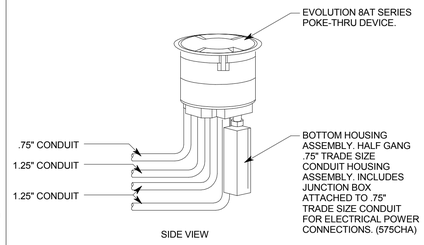
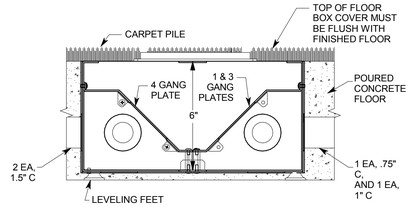


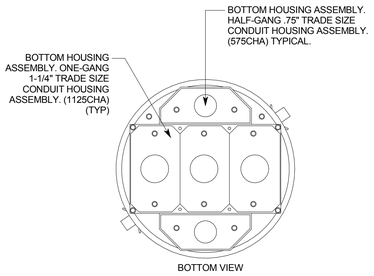
BOTTOM VIEW



SIDE VIEW



SIDE VIEW



BOTTOM VIEW

C4 FLOOR BOX CONDUIT TERMINATION DETAIL

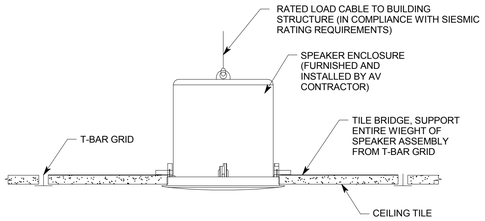
NO SCALE

FBAV

C5 TYPICAL 8" POKE-THRU DETAIL

NO SCALE

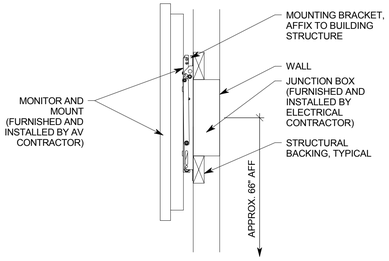
PTAV



C1 LAY-IN CEILING SPEAKER INSTALLATION DETAIL

NO SCALE

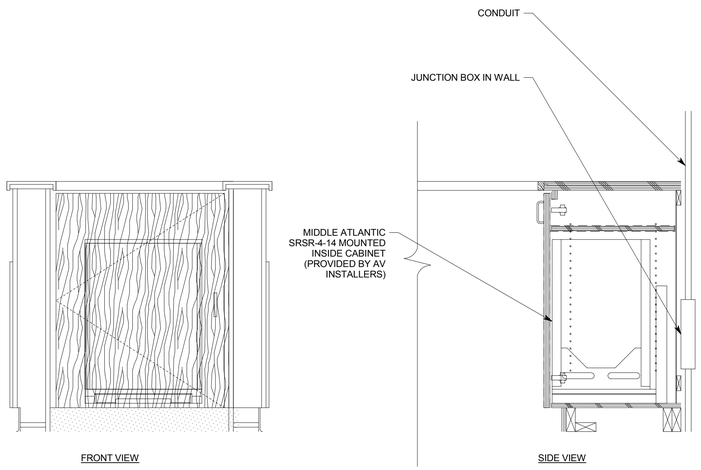
S



C3 FLAT PANEL INSTALLATION DETAIL

NO SCALE

MXX



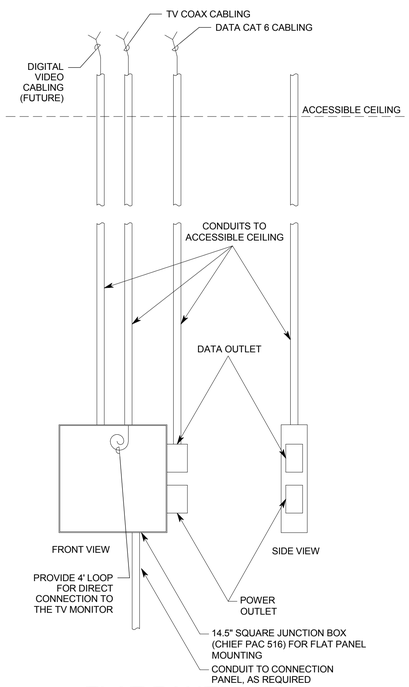
FRONT VIEW

SIDE VIEW

A1 EQUIPMENT CABINET 'C' MOUNTING DETAIL

NO SCALE

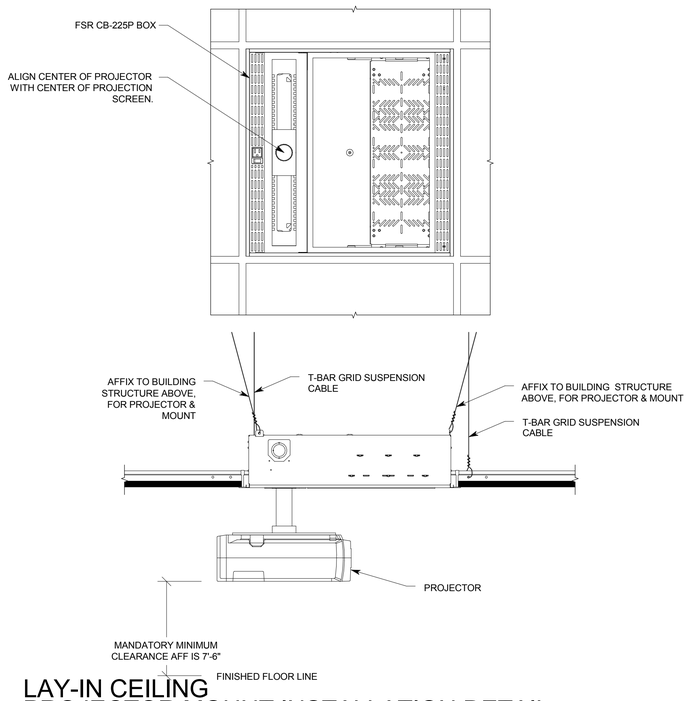
C



A3 FLAT PANEL WIRING DETAIL

NO SCALE

TMXX MXX



A4 LAY-IN CEILING PROJECTOR MOUNT INSTALLATION DETAIL

NO SCALE

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DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
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SIGNATURE: Ernie Catt
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 181563
DAVID E. WESEMANN
04-21-2014
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #: 13020300

Project #: B13-024

DATE:	ISSUE TYPE:
April 21, 2014	BID SET
CHECKED BY	AWA
DRAWN BY	SJT

AUDIO VISUAL DETAILS

EJ501

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UNIFIED STATE LABRATORY MODULE 2 - DISPLAY DEVICE SCHEDULE

ROOM NAME	ROOM #	FLOOR #	CEILING HEIGHT	DISPLAY TYPE	PROJECTED IMAGE HEIGHT	PROJECTED IMAGE WIDTH	MAXIMUM LENGTH OF PROJECTION SCREEN ENCLOSURE	APPROX. PROJECTOR THROW DISTANCE	FLAT PANEL DIAGONAL SIZE	ASPECT RATIO	COMMENTS
LOBBY	100A	1	10'-0"	FP (DS)					40"	16:9	FIXED MOUNT
MEETING 101	101	1	10'-0"	FP					46"	16:9	FIXED MOUNT
CONFERENCE ROOM	102F	1	10'-0"	PS	58"	104"		18'-0"		16:9	
HUDDLE	102H	1	10'-0"	FP					46"	16:9	FIXED MOUNT
TRAINING	111	1	10'-0"	FP					65"	16:9	FIXED MOUNT
SPEC PROC AUTOPSY	124A	1	10'-0"	FP					42"	16:9	SWING-ARM MOUNT
CONFERENCE	131	1	10'-0"	PS	58"	104"		18'-0"		16:9	
CONF	133	1	10'-0"	FP					46"	16:9	FIXED MOUNT
HUDDLE	134	1	10'-0"	FP					46"	16:9	FIXED MOUNT
FAMILY	135	1	10'-0"	FP					46"	16:9	FIXED MOUNT
FAMILY	136	1	10'-0"	FP					46"	16:9	FIXED MOUNT
AUTOPSY	124	1	10'-0"	FP					40"	16:9	SWING-ARM MOUNT
AUTOPSY	124	1	10'-0"	FP					40"	16:9	SWING-ARM MOUNT
AUTOPSY	124	1	10'-0"	FP					40"	16:9	SWING-ARM MOUNT
AUTOPSY	124	1	10'-0"	FP					40"	16:9	SWING-ARM MOUNT
AUTOPSY	124	1	10'-0"	FP					40"	16:9	SWING-ARM MOUNT
AUTOPSY	124	1	10'-0"	FP					40"	16:9	SWING-ARM MOUNT
NIGHT ROOM	117	1	10'-0"	FP					46"	16:9	SWING-ARM MOUNT
HALL	200	2	10'-0"	FP (DS)					42"	16:9	TOUCH MONITOR, FIXED MOUNT
HALL	200	2	10'-0"	FP (DS)					42"	16:9	TOUCH MONITOR, FIXED MOUNT
HALL	200	2	10'-0"	FP (DS)					42"	16:9	TOUCH MONITOR, FIXED MOUNT
CONFERENCE	306	1	10'-0"	PS	52"	92"		13'-0"		16:9	
CONF RM	310B	1	10'-0"	PS	52"	92"		14'-0"		16:9	

PS = PROJECTION SCREEN, FP = FLAT PANEL MONITOR, FP (DS) = FLAT PANEL MONITOR (DIGITAL SIGNAGE)

AUDIO-VIDEO ROUGH-IN SYSTEMS SCHEDULE

SYMBOL	DESCRIPTION	MOUNTING	SPECIAL INSTRUCTIONS
CP1	JUNCTION BOX, 2-GANG, MAXIMUM DEPTH FOR STUD SPACE	FLUSH IN THE WALL AT ELECTRICAL OUTLET HEIGHT, EXCEPT WHERE NOTED ON THE DRAWINGS	
FBAV	FLOOR BOX, FSR FL-500P W/ COVER	FLOOR	SEE 'EP' SHEETS FOR LOCATION. SEE DETAIL. COORDINATE COVER COLOR W/ ARCHITECT.
PTAV	POKE-THRU, WIREMOLD EVOLUTION 8ATCPXX	FLOOR	SEE 'EP' SHEETS FOR LOCATION. SEE DETAIL. COORDINATE COVER COLOR W/ ARCHITECT.
BP	BUTTON CONTROL PANEL, 3-GANG JUNCTION BOX, MAXIMUM DEPTH FOR STUD SPACE	AT ELECTRICAL SWITCH HEIGHT	
SC	PROJECTION SCREEN CONTROL JUNCTION BOX, 4-11/16" BOX W/ 1-GANG MUD RING, MAXIMUM DEPTH FOR STUD SPACE	WALL AT ELECTRICAL SWITCH HEIGHT	
TP	TOUCH PANEL CONTROL, 2-GANG JUNCTION BOX, MAXIMUM DEPTH FOR STUD SPACE	AT ELECTRICAL SWITCH HEIGHT	TOUCH PANEL IS WIDER THAN JUNCTION BOX - PROVIDE 4" CLEAR ON EITHER SIDE OF BOX
VIC P	PEDESTAL MOUNTED INTERCOM PANEL, EPS GNC-1 PEDESTAL	PER SITE PLAN	
VIC M, VIC S	VIDEO INTERCOM STATION, 3-GANG JUNCTION BOX, MAXIMUM DEPTH FOR STUD SPACE	AT ELECTRICAL SWITCH HEIGHT	TOUCH PANEL IS WIDER THAN JUNCTION BOX - PROVIDE 4" CLEAR ON EITHER SIDE OF BOX
	PROJECTION SCREEN, RECESSED, MOTORIZED, MODEL: DA-LITE TENSIONED ADVANTAGE ELECTROL W/ LOW VOLTAGE SWITCH AND 12" OF BLACK DROP	CEILING	SEE DISPLAY DEVICE SCHEDULE AND PLANS FOR LOCATIONS AND SIZE INFORMATION. VERIFY EXACT MOUNTING WITH AV INSTALLER AND ARCHITECT. INSTALL WALL MOUNTED SCREEN ENCLOSURES SO THAT BOTTOM OF ENCLOSURE IS FLUSH IN CEILING.
	PROJECTOR CEILING BOX W/ FAN AND INTEGRATED POLE, FSR CB-225P	ABOVE FINISHED CEILING, COORDINATE EXACT LOCATION WITH AV CONTRACTOR	LOCATE PERPENDICULAR TO CENTER OF PROJECTION SCREEN. VERIFY EXACT MOUNTING WITH AV INSTALLER. SEE DETAIL. SUPPORT FROM BUILDING STRUCTURE.
MXX, TMXX	FLAT PANEL MONITOR, WALL MOUNT, CHIEF PAC 516	WALL AT APPROXIMATELY 66" AFF, REFER TO FLOOR PLANS	VERIFY EXACT MOUNTING WITH ARCHITECT. SEE DETAIL.
	TV OUTLET, F-CONNECTOR MOUNTED ON RG-6 CABLE	INSIDE MONITOR OR EQUIPMENT RACK JUNCTION BOX	
	DOME PTZ CAMERA, 4-11/16" JUNCTION BOX W/ 2-GANG TRIM RING	CEILING	
S	SPEAKER ENCLOSURE & MOUNTING EQUIPMENT	FLUSH IN FINISHED CEILING	FURNISHED AND INSTALLED BY AV INSTALLER
1	EQUIPMENT RACK #1, WALL MOUNTED, 14"x14" JUNCTION BOX	WALL AT +54" AFF	SEE DETAIL
C	EQUIPMENT RACK, CABINET MOUNT	14"x14" JUNCTION BOX AT +18" AFF TO CENTER OF BOX	VERIFY EXACT MOUNTING WITH ARCHITECTURAL DRAWINGS. SEE DETAILS.
	CONDUIT, EMPTY, REFER TO CONDUIT RISER DIAGRAM FOR SIZES AND QUANTITIES	BEHIND FINISHED SURFACES	.75" MINIMUM DIAMETER
S	SPEAKER CABLE	CONCEALED	FURNISHED AND INSTALLED BY AV INSTALLER

DEFINITIONS

NOTE: ALL DEFINITIONS MAY NOT BE USED.

INDICATED: THE TERM "INDICATED" REFERS TO GRAPHIC REPRESENTATIONS, NOTES, OR SCHEDULES ON THE DRAWINGS, OTHER PARAGRAPHS OR SCHEDULES IN THE SPECIFICATIONS, AND SIMILAR REQUIREMENTS IN THE CONTRACT DOCUMENTS. WHERE TERMS SUCH AS "SHOWN", "NOTED", "SCHEDULED", AND "SPECIFIED" ARE USED, IT IS TO HELP THE READER LOCATE THE REFERENCE, NO LIMITATION ON LOCATION IS INTENDED.

DIRECTED: TERMS SUCH AS "DIRECTED", "REQUESTED", AUTHORIZED", "SELECTED", "APPROVED", "REQUIRED", AND "PERMITTED" MEAN "DIRECTED BY THE ENGINEER", "REQUESTED BY THE ENGINEER", AND SIMILAR PHRASES.

APPROVE: THE TERM "APPROVED", WHERE USED IN CONJUNCTION WITH THE ENGINEER'S ACTION ON THE CONTRACTOR'S SUBMITTALS, APPLICATIONS, AND REQUESTS, IS LIMITED TO THE ENGINEER'S DUTIES AND RESPONSIBILITIES AS STATED IN GENERAL AND SUPPLEMENTARY CONDITIONS.

FURNISH: THE TERM "FURNISH" IS USED TO MEAN "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS."

INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS."

PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."

INSTALLER: AN "INSTALLER" IS THE CONTRACTOR OR AN ENTITY ENGAGED BY THE CONTRACTOR, EITHER AS AN EMPLOYEE, SUBCONTRACTOR, OR SUB-SUBCONTRACTOR, FOR PERFORMANCE OF A PARTICULAR CONSTRUCTION ACTIVITY, INCLUDING INSTALLATION, ERECTION, APPLICATION, AND SIMILAR OPERATIONS. INSTALLERS ARE REQUIRED TO BE EXPERIENCED IN THE OPERATIONS THEY ARE ENGAGED TO PERFORM.

TECHNOLOGY SYSTEMS: THE TERM "TECHNOLOGY SYSTEMS" IS USED TO DESCRIBE ALL LOW VOLTAGE SYSTEMS GENERALLY REFERRED TO AS "SPECIAL SYSTEMS". THESE SYSTEMS INCLUDE BUT ARE NOT NECESSARILY LIMITED TO ALL SYSTEMS WHICH UTILIZE VOLTAGES OF LESS THAN 71 VOLTS SUCH AS SOUND SYSTEMS, VIDEO SYSTEMS, TV SYSTEMS, SECURITY SYSTEMS, VOICE AND DATA CABLING SYSTEMS, ETC...

ABBREVIATIONS

NOTE: ALL ABBREVIATIONS MAY NOT BE USED.

"A"	AMP OR AMPS
"ADJ"	ADJACENT
"AFF"	ABOVE FINISHED FLOOR
"AL"	ALUMINUM
"C"	CONDUIT
"CB","C/B"	CIRCUIT BREAKER
"CKT"	CIRCUIT
"CO"	CONVENIENCE OUTLET
"C.O.R."	CONTRACTING OFFICER'S REPRESENTATIVE
"CU"	COPPER
"EA"	EACH
"ELEC"	ELECTRICAL
"EM"	EMERGENCY
"EMT"	ELECTRICAL METALLIC TUBING
"ENT"	ELECTRICAL NONMETALLIC TUBING
"EQUIP"	EQUIPMENT
"EX"	EXISTING
"FA"	FIRE ALARM
"FACP"	FIRE ALARM CONTROL PANEL
"FLA"	FULL LOAD AMPS
"FMC"	FLEXIBLE METAL CONDUIT
"F.O.B."	FREIGHT ON BOARD
"GFI"	GROUND FAULT INTERRUPTER
"GR"	GROUND
"HOA"	HAND-OFF-AUTO
"HP"	HORSE POWER
"IG"	INSULATED GROUND
"IMC"	INTERMEDIATE METAL CONDUIT
"IN/IS"	INSULATED/ISOLATED
"KVA"	KILO VOLT AMPERES
"KW"	KILOWATTS
"LFMC"	LIQUID TIGHT FLEXIBLE METAL CONDUIT
"LFNC"	LIQUID TIGHT FLEXIBLE NONMETALLIC CONDUIT
"MCA"	MINIMUM CIRCUIT AMPS
"MLO"	MAIN LUGS ONLY
"N.C."	NORMALLY CLOSED
"N.I.C."	NOT IN CONTRACT
"N.O."	NORMALLY OPEN
"O.C."	ON CENTER
"OCP"	OVER CURRENT PROTECTION
"QTY"	QUANTITY
"R"	REMOVE
"RMC"	RIGID METAL CONDUIT
"RNC"	RIGID NONMETALLIC CONDUIT
"RR"	REMOVE AND RELOCATE
"TYP"	TYPICAL
"UF"	UNDER FLOOR
"UG"	UNDER GROUND
"W/"	WITH
"WP"	WEATHER PROOF
"XFMR"	TRANSFORMER

AUDIO-VIDEO GENERAL NOTES

1. IF THE ENCLOSURES, BOXES, & CABINETS SPECIFIED ARE NOT PROVIDED FROM THE MANUFACTURER, WITH THE REQUIRED KNOCK OUTS FOR THE SPECIFIED CONDUIT, FIELD CUT ALL REQUIRED KNOCK OUTS TO TERMINATE THE QUANTITY AND SIZES OF THE SPECIFIED CONDUITS.
2. MAINTAIN MAXIMUM SEPARATION BETWEEN AV SYSTEM CONDUIT AND ALL POWER CONDUIT. MINIMUM SEPARATION REQUIREMENT IS 24".
3. INSTALL NYLON PULL STRINGS IN ALL AV SYSTEM CONDUIT.
4. INSTALL ALL CONDUIT IN A CONCEALED FASHION. SURFACE MOUNTED CONDUIT WILL NOT BE ACCEPTED. CONDUITS AND BOXES ABOVE CEILING HEIGHT MAY BE INSTALLED EXPOSED AND PAINTED TO MATCH CEILING.
5. INSTALL ALL EQUIPMENT IN COMPLIANCE WITH THE MANUFACTURERS WRITTEN INSTRUCTIONS, SEISMIC CODES, AND INDUSTRY WIDE ACCEPTED RIGGING PRACTICES. SUPPORT EQUIPMENT WEIGHT FROM STRUCTURE. DURING THE SUBMITTAL PROCESS, PROVIDE SHOP DRAWINGS WHICH DETAIL PROPOSED MOUNTING FOR ALL SUCH EQUIPMENT.
6. COVER ALL JUNCTION BOXES WITH A BLANK NYLON COVER PLATE.
7. COORDINATE SPECIFIC LOCATION OF CONDUIT STUBS W/ ARCHITECTURAL DRAWINGS.
8. CONDUITS AND JUNCTION BOXES SHOWN ON RISER DIAGRAMS ARE TYPICAL FOR EACH DEVICE IN ROOM.
9. ALL CONDUITS FOR AV ROUGH-IN SHALL BE EMT. ROUGH-IN SHALL BE IN COMPLIANCE WITH ANSI/TIA/EIA 569-B, WHICH INCLUDES, BUT IS NOT LIMITED TO, ALL CONDUITS HAVING NO MORE THAN TWO 90 DEGREE BENDS.
10. THE ROUGH-IN LOCATIONS FOR THE PROJECTOR SHOWN ON THE FLOOR PLAN DRAWINGS ARE APPROXIMATE. FOR ACTUAL DISTANCES, COORDINATE WITH AV INSTALLER.
11. ALL CONNECTION PANELS SHALL BE WITHIN 12" OF POWER AND DATA OUTLETS. NOTIFY ENGINEER IF DISCREPANCY IS FOUND.
12. ALL AV CONDUITS SHALL BE INSTALLED USING SHORTEST RUNS POSSIBLE. THERE SHOULD BE NO UNNECESSARY BENDS IN CONDUIT RUNS.

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AUDIO VISUAL SCHEDULES

EJ601

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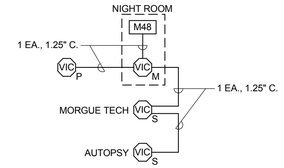
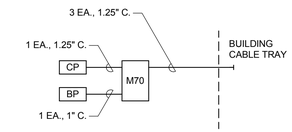


D4 INTERCOM SYSTEM CONDUIT RISER DIAGRAM

NO SCALE



D5 TRAINING ROOM CONDUIT RISER DIAGRAM

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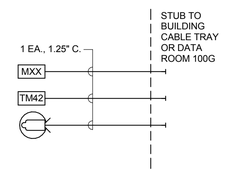
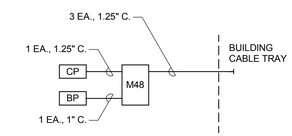


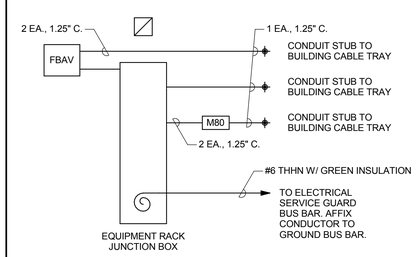
C4 SIGNAGE AND MONITOR CONDUIT RISER DIAGRAM

NO SCALE



C5 HUDDLE/SMALL CONF ROOM CONDUIT RISER DIAGRAM

NO SCALE



B4 AUDIO-VIDEO RACEWAY CONDUIT RISER DIAGRAM

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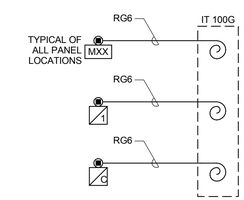
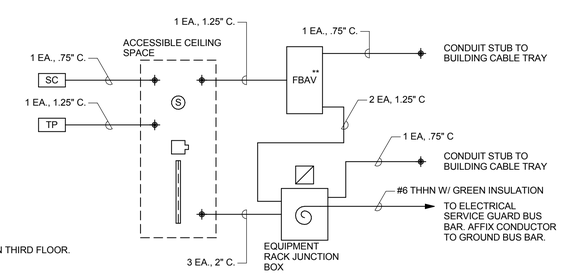


B5 TV DISTRIBUTION RISER DIAGRAM

NO SCALE (ROOM 111)



**NOTE:

1. PTAV ON THIRD FLOOR.

A4 AUDIO-VIDEO RACEWAY CONDUIT RISER DIAGRAM

NO SCALE

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AV ROUGH IN RISER DIAGRAMS

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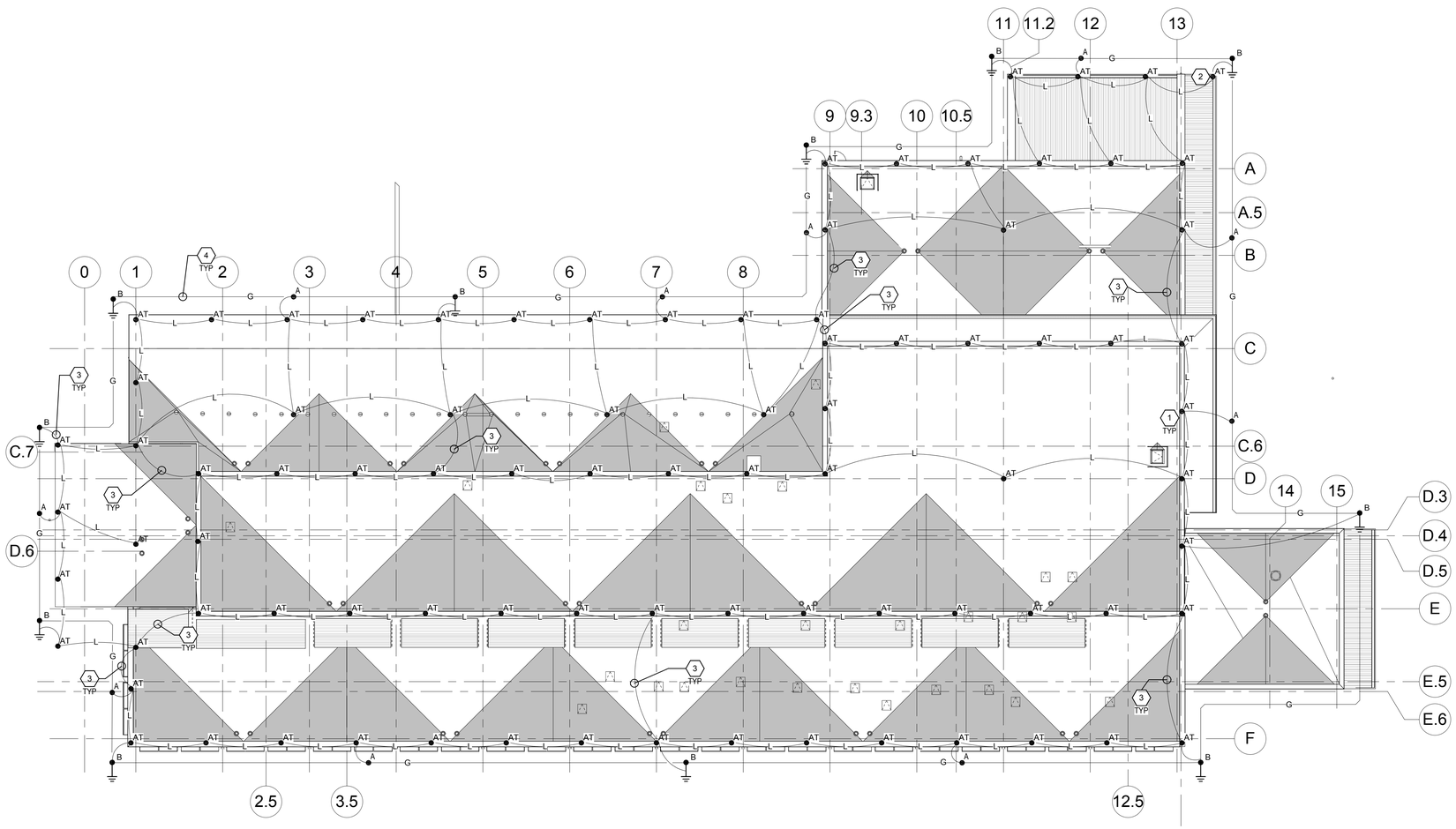
LIGHTNING PROTECTION LEGEND

SYMBOL	DESCRIPTION
—— L ——	CLASS 1 MAIN CONDUCTOR
● AT	AIR TERMINAL DETAIL(S) A,B,C, SHEET EK501

GROUNDING PROTECTION LEGEND

SYMBOL	DESCRIPTION
—— G ——	NO. 4/Ø BARE COPPER COUNTERPOISE, BURIED 36" DEEP.
● A	NO. TAC - 2Q2Q - CADWELD MOLD, DETAIL D3, SHEET EK501
● B	NO. GTC - 182Q - CADWELD MOLD, DETAIL D2, SHEET EK501
⏚	NO. 341Ø - 3/4" X 10' COPPER CLAD GROUND ROD



A1 LIGHTNING PROTECTION PLAN

SCALE: 1/16" = 1'-0"

GENERAL SHEET NOTES

SHEET KEYNOTES

1 AIR TERMINAL TO BE 10" HIGHER THAN SAFETY RAILING. USE APPROPRIATE BRACING FOR AN AIR TERMINAL TALLER THEN 24".

2 AIR TERMINAL TO BE 10" HIGHER THAN WALL. USE APPROPRIATE BRACING FOR AN AIR TERMINAL TALLER THEN 24".

3 PROVIDE TINNED COPPER DOWNLEAD CONDUCTORS. TYPICAL.

4 PROVIDE BURIED COUTERPOISE GROUNDING FOR LIGHTNING PROTECTION SYSTEM, #3/0 CU AT 36" BELOW GRADE.

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LIGHTNING PROTECTION PLAN

EK101

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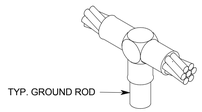
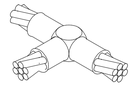


D2 GTC - CADWELD MOLD
SCALE: NTS



D3 TAC - CADWELD MOLD
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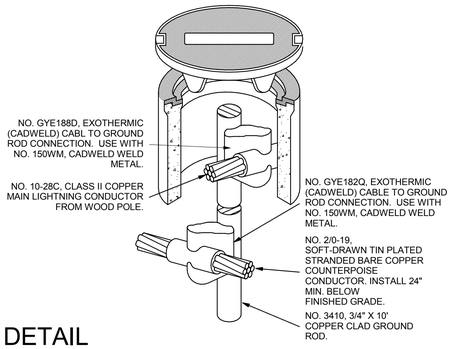

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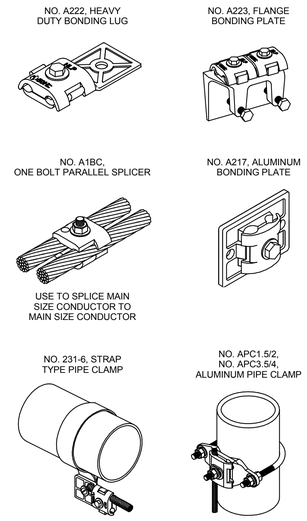

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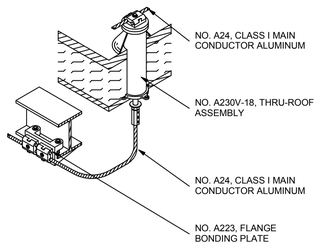

TR THRU-ROOF PENETRATION
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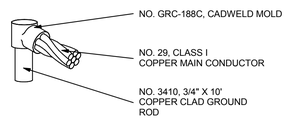

G CADWELD MOLD - GR
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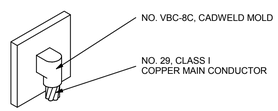
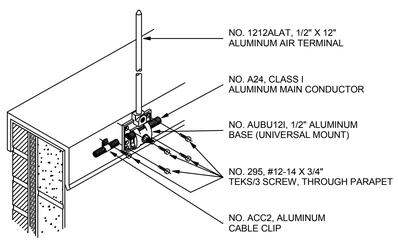
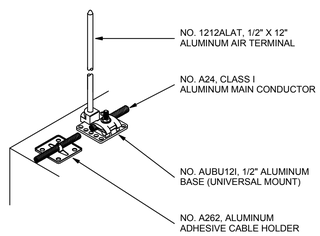


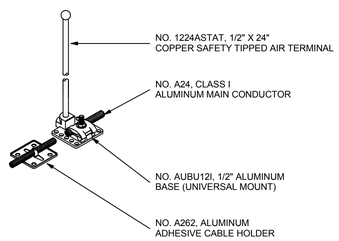
D CADWELD MOLD - VB
SCALE: NTS



A AIR TERMINAL - A
SCALE: NTS



B AIR TERMINAL - B
SCALE: NTS



C AIR TERMINAL - C
SCALE: NTS

GENERAL INSTALLATION NOTES

1 LOCATE AIR TERMINALS AS SHOWN. TAKE CARE TO INSURE THAT ALL POINTS ARE WITHIN 2'-0" (609mm) OF OUTSIDE BUILDING EDGE, OUTSIDE CORNERS, RIDGE ENDS, AND THAT MAX SPACING DOES NOT EXCEED 20'-0" (6,096mm), AND THAT MIN PROJECTION ABOVE OBJECT PROTECTED IS 10" (254mm); POINTS PROJECTING 24" (609mm) MAY BE SPACED @ 25'-0" (7,520mm) MAX.

2 MAINTAIN HORIZONTAL OR DOWNWARD COURSING OF MAIN CONDUCTOR. INSURE THAT ALL BENDS HAVE AT LEAST AN 8" (203mm) RADIUS AND DO NOT EXCEED 90 DEGREES.

3 ATTACH ALL EXPOSED ROOF. DOWN LEAD AND BONDING CABLES AT 3'-0" (914mm) ON CENTER MAX. VERIFY COMPATIBILITY OF ADHESIVE ON MEMBRANE ROOF APPLICATION PRIOR TO INSTALLATION.

4 GROUND ELECTRODES SHALL BE INSTALLED AS SHOWN, BUT IN NO INSTANCE SHALL THEY BE LESS THAN 1'-0" (304mm) BELOW GRADE AND 2'-0" (609mm) FROM FOUNDATION WALL. DRIVEN RODS SHALL PENETRATE THE EARTH AT LEAST 10'-0" (3,048mm).

5 BOND TO WATER SERVICE AND OTHER PIPING SYSTEMS AS SHOWN AND AS REQUIRED BY CODE.

6 MAIN SIZE LIGHTNING CONDUCTOR BONDED TO MAIN GROUND BUS FIELD VERIFY LOCATION 1" CONDUIT FOR ACCESS, INSTALLED BY OTHERS. INTERCONNECT LIGHTNING PROTECTION GROUND TO TELEPHONE AND OTHER BUILDING GROUND SYSTEMS LOCATION FIELD DETERMINED OR AS REQUIRED BY CODE.

7 SYSTEM SHALL BE INSTALLED AS SHOWN TO INSURE PROPER CODE COMPLIANCE AND SYSTEM CERTIFICATION. ANY MAJOR VARIANCE SHALL BE RESUBMITTED FOR APPROVAL.

8 "AS-BUILT" DRAWINGS SHALL BE SUBMITTED IN ACCORDANCE WITH CERTIFICATION PROCEDURES.

9 ALL MATERIALS TO BE UNDERWRITER'S LABORATORIES APPROVED WITH "A" LABELS ON CONDUCTORS @ 10'-0" (3,048mm) INTERVALS AND "B" LABELS ON ALL AIR TERMINALS.

10 COMPLETED INSTALLATION AS SHOWN SHALL BEAR THE APPROPRIATE UL OR L.P.I. CERTIFICATION.

11 INSTALLATION SHALL COMPLY IN ALL RESPECTS TO L.P.I. CODE 175, NFPA 780, & UL96A.

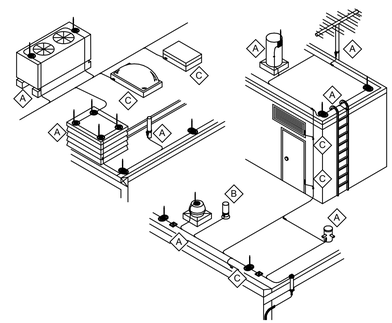
GENERAL BONDING NOTES

A TYPICAL BODIES OF CONDUCTANCE AS NOTED BELOW. USE FULL SIZE CONDUCTOR AND APPROPRIATE FITTING SHOWN FOR CONNECTION.

B (PLUMBING STACK) REQUIRES BONDING WITH MAIN SIZE CABLE ONLY IF WITHIN 6'-0" (1,828mm) OF LIGHTNING PROTECTION SYSTEM.

C TYPICAL BODIES OF INDUCTANCE AS NOTED BELOW. USE SECONDARY SIZE (SMALLER) CONDUCTOR AND APPROPRIATE FITTING SHOWN FOR CONNECTION.

D BONDING CONNECTIONS AND FITTINGS SHOWN ARE TYPICAL EXAMPLES. MAKE ALL CONNECTIONS REQUIRED TO MEET CODES AS NOTED BELOW. ADJUST FITTING TYPE AS REQUIRED TO SUIT FIELD CONDITIONS.



GEN CONSTRUCTION NOTES

1 THIS DRAWING IS INTENDED FOR USE AS A CONSTRUCTION DOCUMENT. FIELD VERIFY ACTUAL CONDITIONS PRIOR TO CONSTRUCTION. CONTACT ELECTRICAL ENGINEER TO CLARIFY ANY DISCREPANCIES.

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Unified State Laboratory Module 2

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DFCM #:	13020300
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LIGHTNING PROTECTION DETAILS

EK501

VOLUME 2

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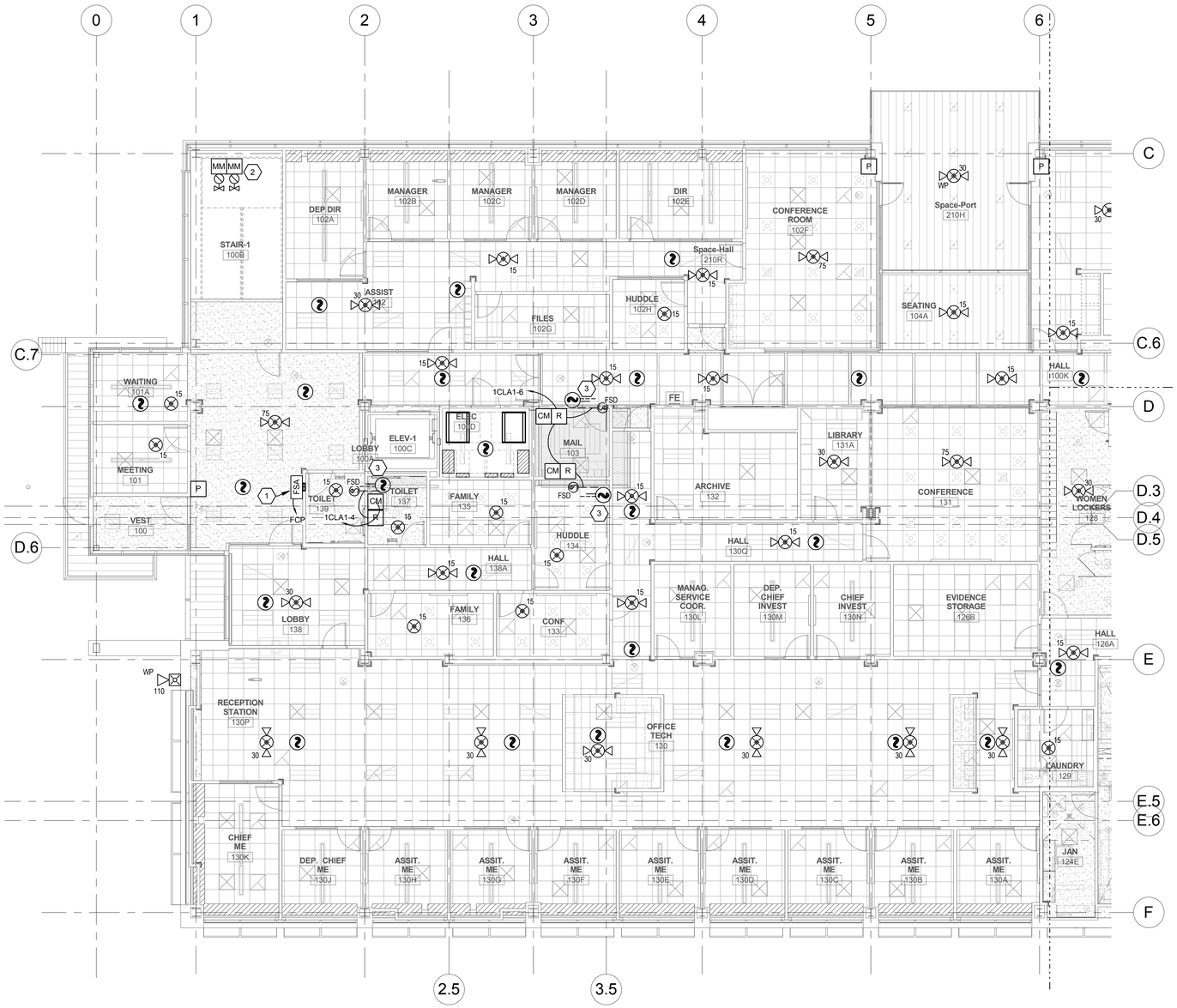

A1 FIRST LEVEL FIRE ALARM PLAN - AREA A

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

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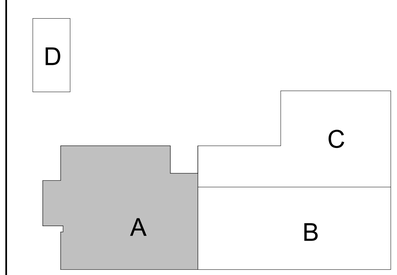
GENERAL SHEET NOTES

1. LOCATIONS OF DUCT SMOKE DETECTORS AND FIRE/SMOKE DAMPERS SHOWN ARE APPROXIMATE. COORDINATE EXACT QUANTITY AND LOCATIONS WITH MECHANICAL DRAWINGS PRIOR TO ROUGH-IN.
2. LOCATIONS OF FLOW, TAMPER AND OTHER FIRE SUPPRESSION MONITORING POINTS SHOWN ARE APPROXIMATE. FIELD VERIFY EXACT QUANTITY AND LOCATIONS WITH SPRINKLER CONTRACTOR PRIOR TO ROUGH-IN.

SHEET KEYNOTES

1. FIRE ALARM ANNUNCIATOR.
2. STANDPIPE ISOLATION VALVES.
3. INSTALL INDICATED DUCT DETECTOR WITHIN 5 FT OF FIRE / SMOKE DAMPER AT APPROXIMATE LOCATION INDICATED PER NFPA 72 REQUIREMENTS.

KEY PLAN



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FIRST LEVEL FIRE ALARM PLAN - AREA A

FA101a

VOLUME 2

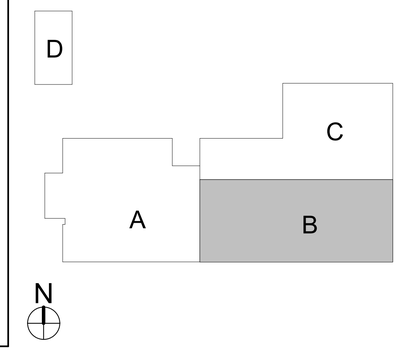
GENERAL SHEET NOTES

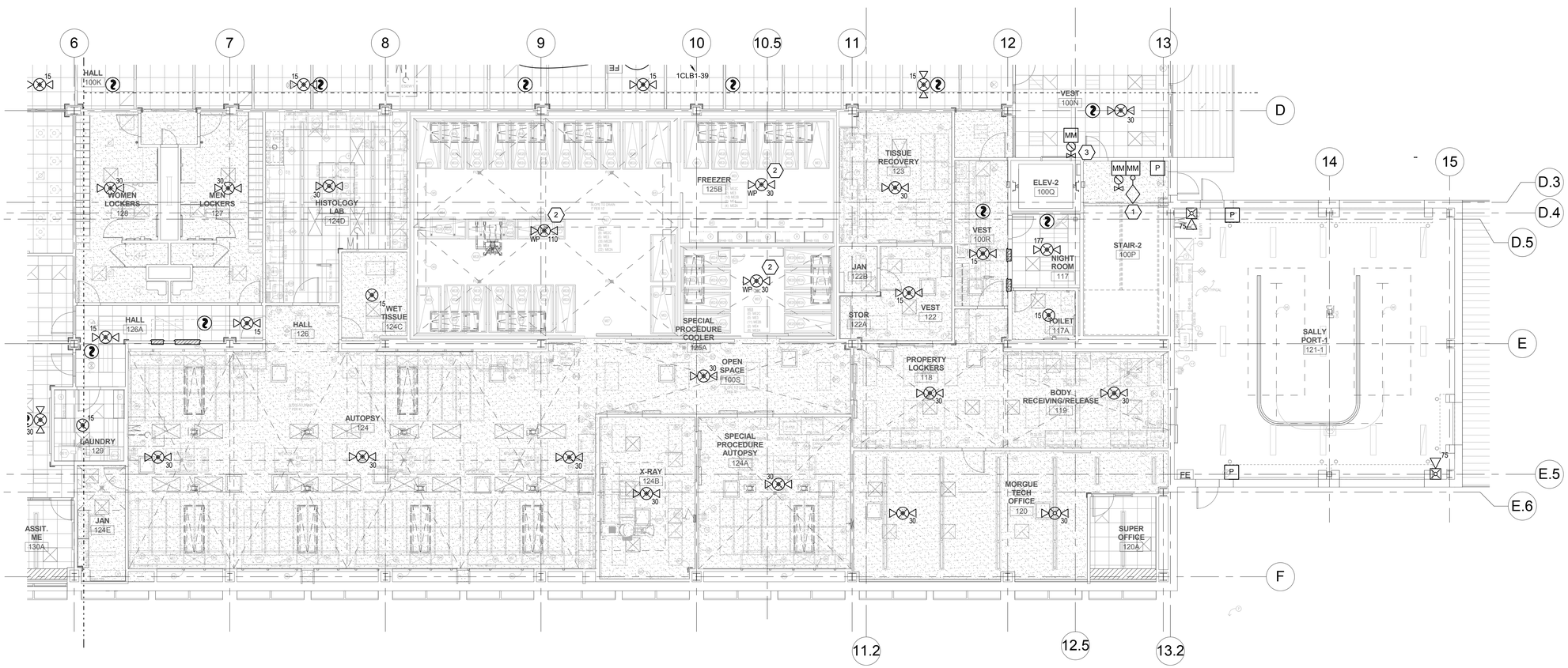
1. LOCATIONS OF DUCT SMOKE DETECTORS AND FIRE/SMOKE DAMPERS SHOWN ARE APPROXIMATE. COORDINATE EXACT QUANTITY AND LOCATIONS WITH MECHANICAL DRAWINGS PRIOR TO ROUGH-IN.
2. LOCATIONS OF FLOW, TAMPER AND OTHER FIRE SUPPRESSION MONITORING POINTS SHOWN ARE APPROXIMATE. FIELD VERIFY EXACT QUANTITY AND LOCATIONS WITH SPRINKLER CONTRACTOR PRIOR TO ROUGH-IN.

SHEET KEYNOTES

1. FLOOR CONTROL ASSEMBLY LOCATION.
2. COORDINATE WITH FREEZER AND COOLER SUPPLIER TO ENSURE THEIR REQUIREMENTS ARE MET.
3. STANDPIPE ISOLATION VALVES.

KEY PLAN





A1 FIRST LEVEL FIRE ALARM PLAN - AREA B

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

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FIRST LEVEL FIRE ALARM PLAN - AREA B

FA101b

VOLUME 2

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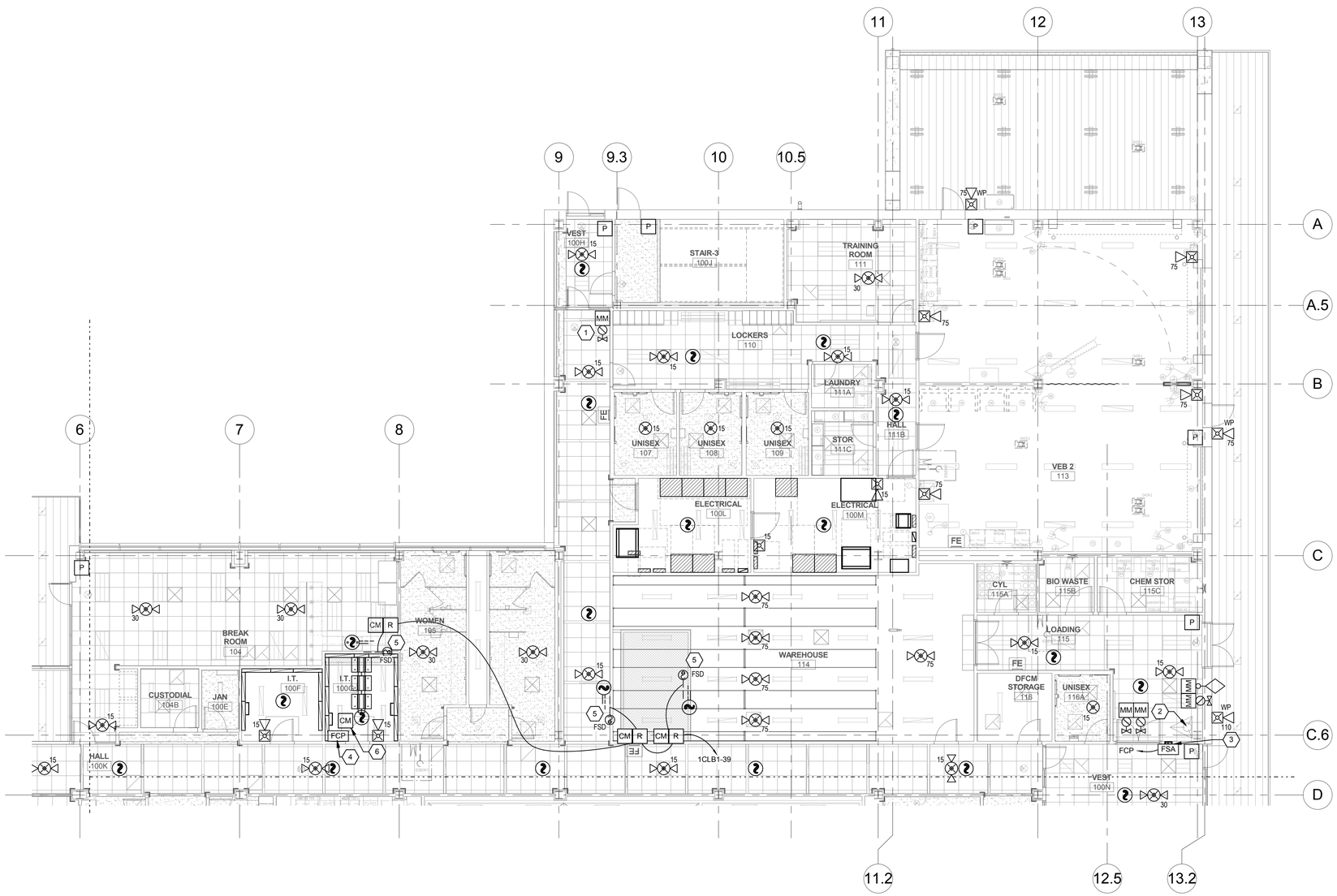


A1 FIRST LEVEL FIRE ALARM PLAN - AREA C

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

GENERAL SHEET NOTES

1 LOCATIONS OF DUCT SMOKE DETECTORS AND FIRE/SMOKE DAMPERS SHOWN ARE APPROXIMATE. COORDINATE EXACT QUANTITY AND LOCATIONS WITH MECHANICAL DRAWINGS PRIOR TO ROUGH-IN.

2 LOCATIONS OF FLOW, TAMPER AND OTHER FIRE SUPPRESSION MONITORING POINTS SHOWN ARE APPROXIMATE. FIELD VERIFY EXACT QUANTITY AND LOCATIONS WITH SPRINKLER CONTRACTOR PRIOR TO ROUGH-IN.

SHEET KEYNOTES

1 STANDPIPE ISOLATION VALVES.

2 FIRE SUPPRESSION RISER LOCATION.

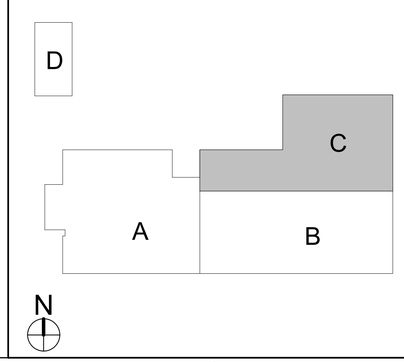
3 FIRE ALARM ANNUNCIATOR.

4 FIRE ALARM CONTROL PANEL.

5 INSTALL INDICATED DUCT DETECTOR WITHIN 5 FT OF FIRE / SMOKE DAMPER AT APPROXIMATE LOCATION INDICATED PER NFPA 72 REQUIREMENTS.

6 CONTROL MODULE/RELAY FOR INTERFACE TO SECURITY SYSTEM.

KEY PLAN



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FIRST LEVEL FIRE ALARM PLAN - AREA C

FA101c

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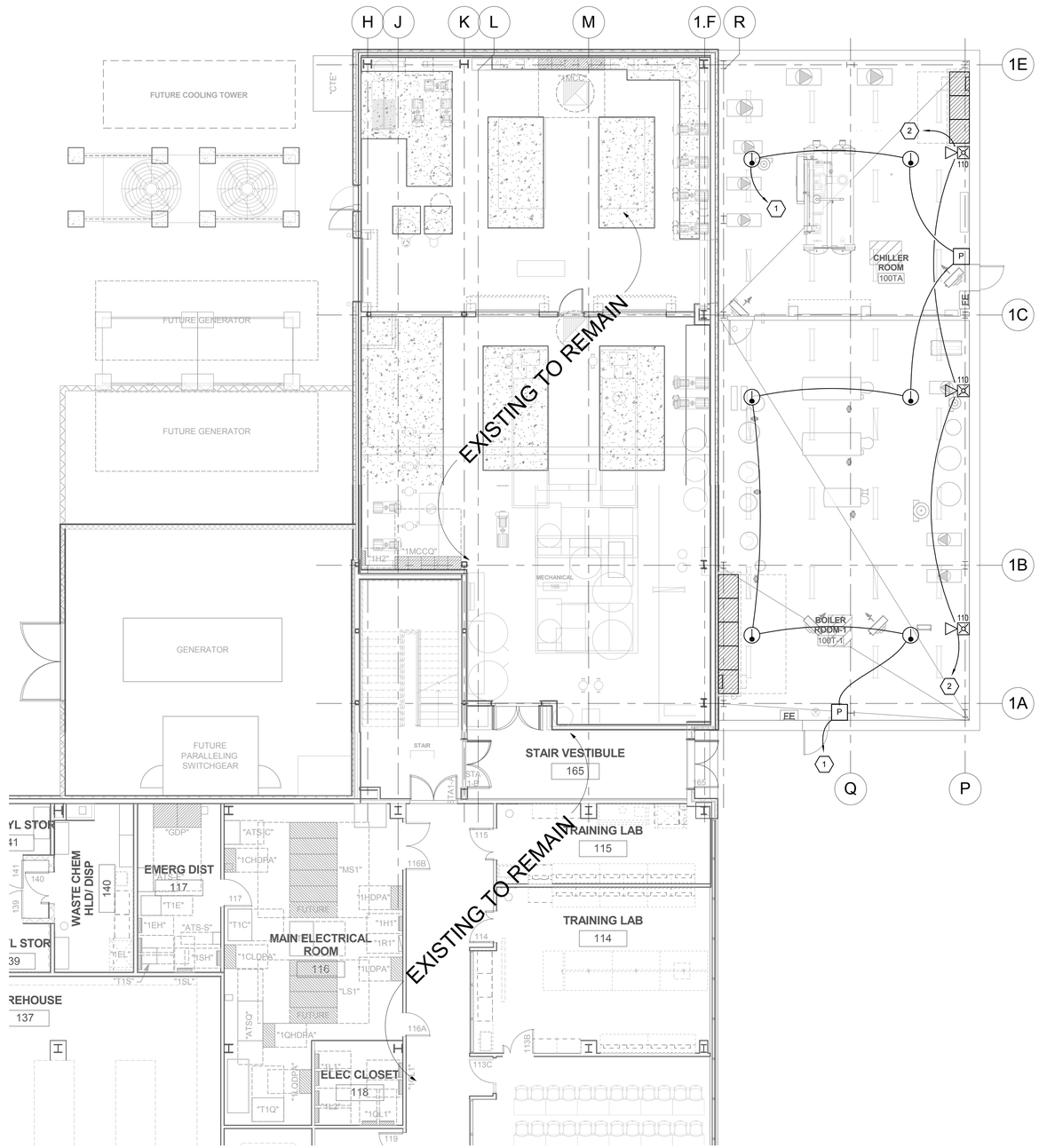


A2 FIRST LEVEL FIRE ALARM PLAN - AREA D

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

GENERAL SHEET NOTES

1 LOCATIONS OF DUCT SMOKE DETECTORS AND FIRE/SMOKE DAMPERS SHOWN ARE APPROXIMATE. COORDINATE EXACT QUANTITY AND LOCATIONS WITH MECHANICAL DRAWINGS PRIOR TO ROUGH-IN.

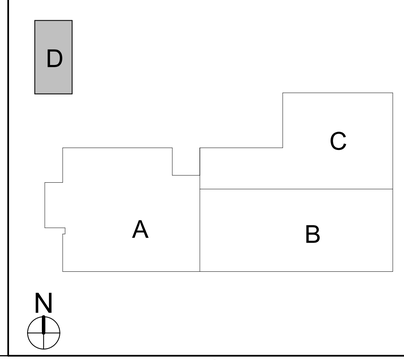
2 LOCATIONS OF FLOW, TAMPER AND OTHER FIRE SUPPRESSION MONITORING POINTS SHOWN ARE APPROXIMATE. FIELD VERIFY EXACT QUANTITY AND LOCATIONS WITH SPRINKLER CONTRACTOR PRIOR TO ROUGH-IN.

SHEET KEYNOTES

1 CONNECT NEW INITIATION DEVICES TO EXISTING SLC CIRCUIT.

2 CONNECT NEW NOTIFICATION DEVICES TO EXISTING NAC CIRCUIT. PROVIDE ADDITIONAL POWER SUPPLY IF NECESSARY.

KEY PLAN



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FIRST LEVEL FIRE ALARM PLAN - AREA D

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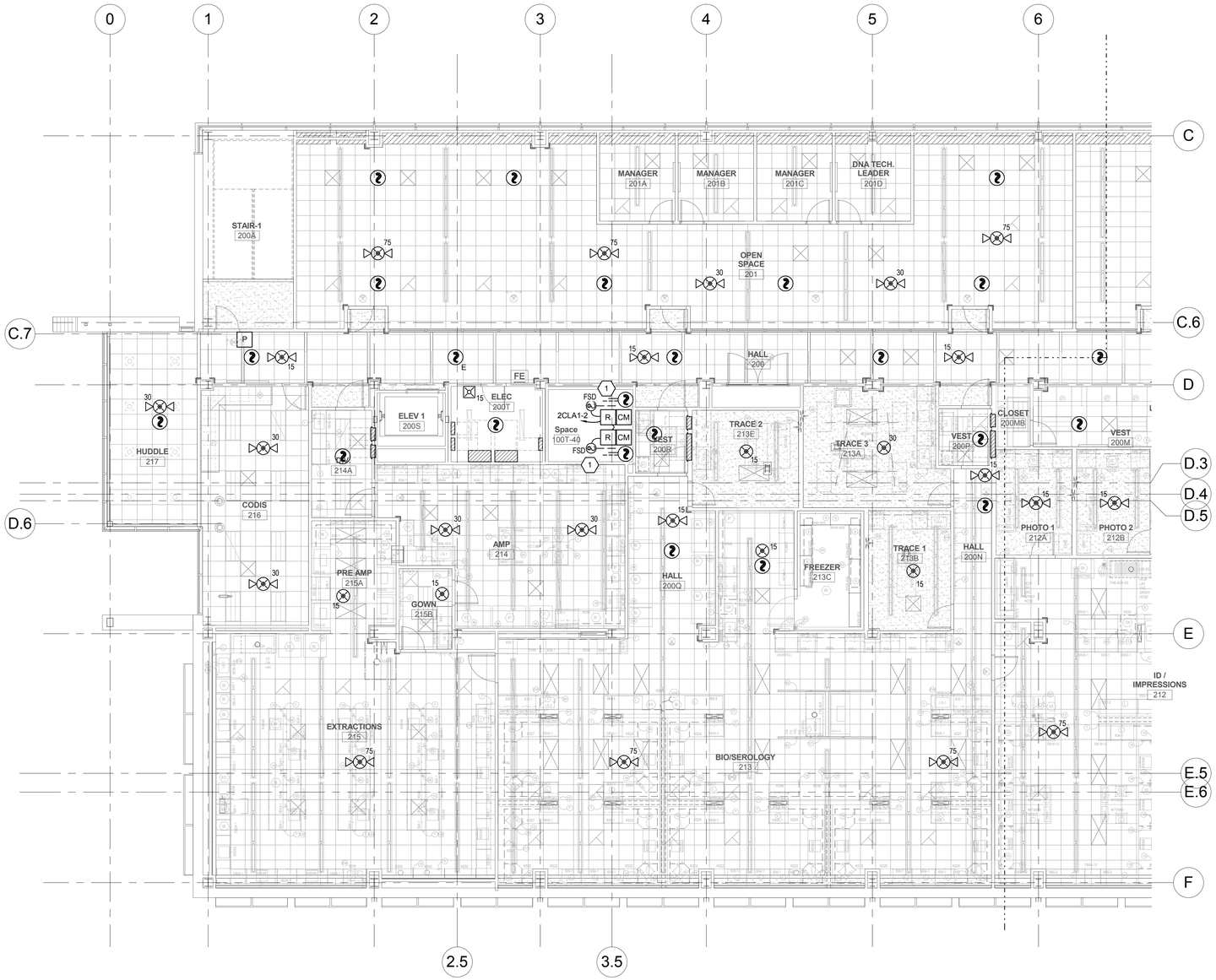

A1 SECOND LEVEL FIRE ALARM PLAN - AREA A

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

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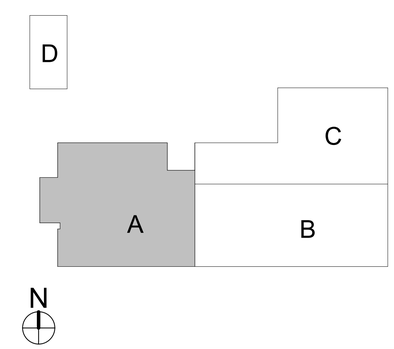
GENERAL SHEET NOTES

1. LOCATIONS OF DUCT SMOKE DETECTORS AND FIRE/SMOKE DAMPERS SHOWN ARE APPROXIMATE. COORDINATE EXACT QUANTITY AND LOCATIONS WITH MECHANICAL DRAWINGS PRIOR TO ROUGH-IN.
2. LOCATIONS OF FLOW, TAMPER AND OTHER FIRE SUPPRESSION MONITORING POINTS SHOWN ARE APPROXIMATE. FIELD VERIFY EXACT QUANTITY AND LOCATIONS WITH SPRINKLER CONTRACTOR PRIOR TO ROUGH-IN.

SHEET KEYNOTES

1. INSTALL INDICATED DUCT DETECTOR WITHIN 5 FT OF FIRE / SMOKE DAMPER AT APPROXIMATE LOCATION INDICATED PER NFPA 72 REQUIREMENTS.

KEY PLAN



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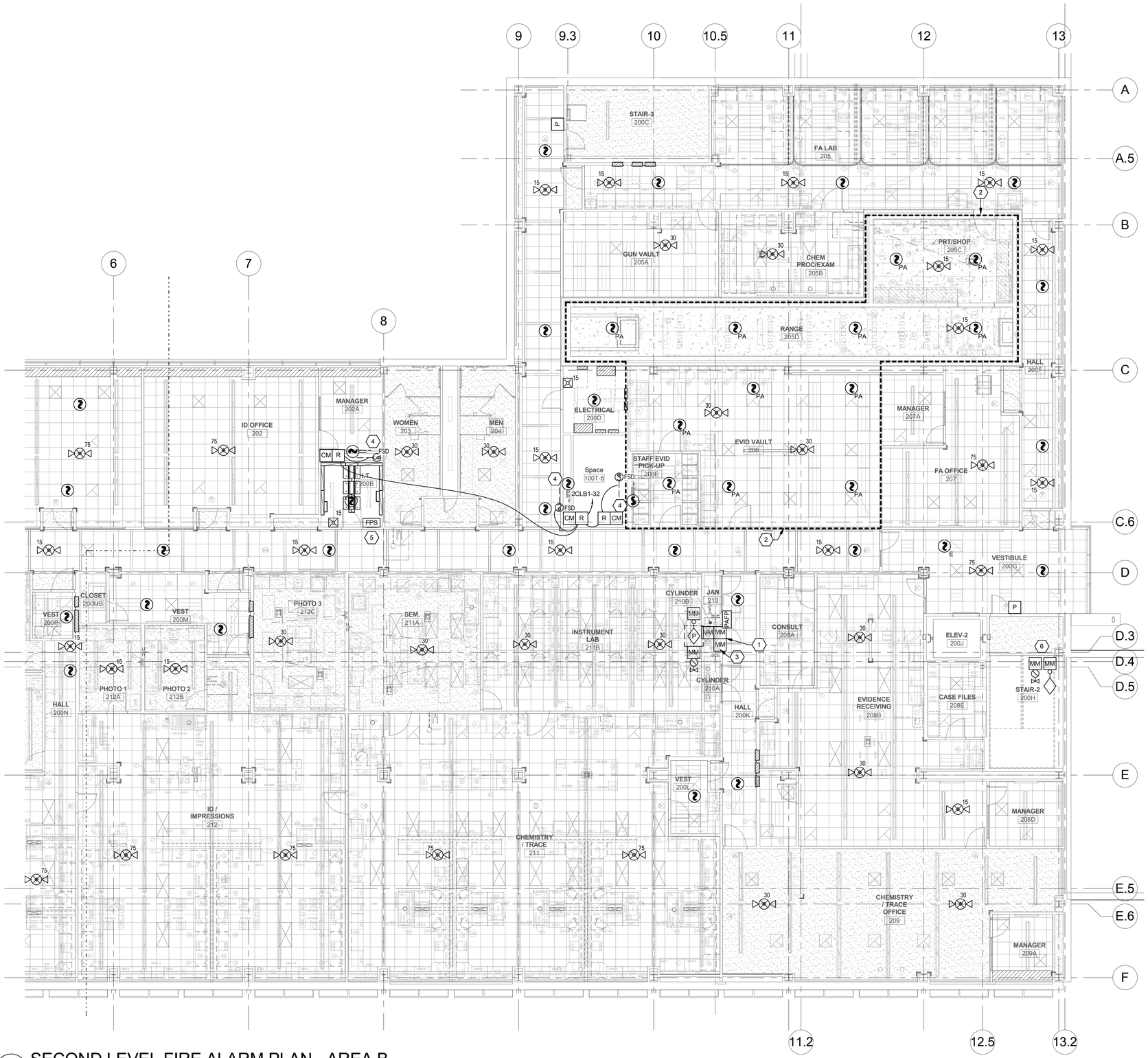
SECOND LEVEL FIRE ALARM PLAN - AREA A

FA102a

VOLUME 2



A1 SECOND LEVEL FIRE ALARM PLAN - AREA B

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

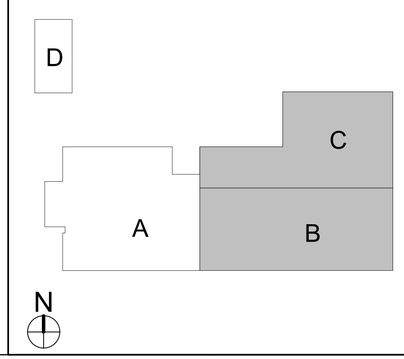
GENERAL SHEET NOTES

1. LOCATIONS OF DUCT SMOKE DETECTORS AND FIRE/SMOKE DAMPERS SHOWN ARE APPROXIMATE. COORDINATE EXACT QUANTITY AND LOCATIONS WITH MECHANICAL DRAWINGS PRIOR TO ROUGH-IN.
2. LOCATIONS OF FLOW, TAMPER AND OTHER FIRE SUPPRESSION MONITORING POINTS SHOWN ARE APPROXIMATE. FIELD VERIFY EXACT QUANTITY AND LOCATIONS WITH SPRINKLER CONTRACTOR PRIOR TO ROUGH-IN.

SHEET KEYNOTES

1. MONITOR MODULES FOR PRE-ACTION FIRE SPRINKLER SYSTEM RELEASING PANEL. PANEL PROVIDED BY FIRE SUPPRESSION CONTRACTOR.
2. PRE-ACTION SYSTEM BOUNDARY. SMOKE DETECTORS, WIRING AND CONDUIT PROVIDED BY FIRE ALARM CONTRACTOR. COORDINATE WITH FIRE SPRINKLER CONTRACTOR FOR CONNECTIONS TO RELEASING PANEL.
3. PRE-ACTION SYSTEM VALVE LOCATION.
4. INSTALL INDICATED DUCT DETECTOR WITHIN 5 FT OF FIRE / SMOKE DAMPER AT APPROXIMATE LOCATION INDICATED PER NFPA 72 REQUIREMENTS.
5. FIRE ALARM POWER SUPPLY/TRANSPONDER.
6. FLOOR CONTROL ASSEMBLY LOCATION.

KEY PLAN



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SECOND LEVEL FIRE ALARM PLAN - AREA B

FA102b

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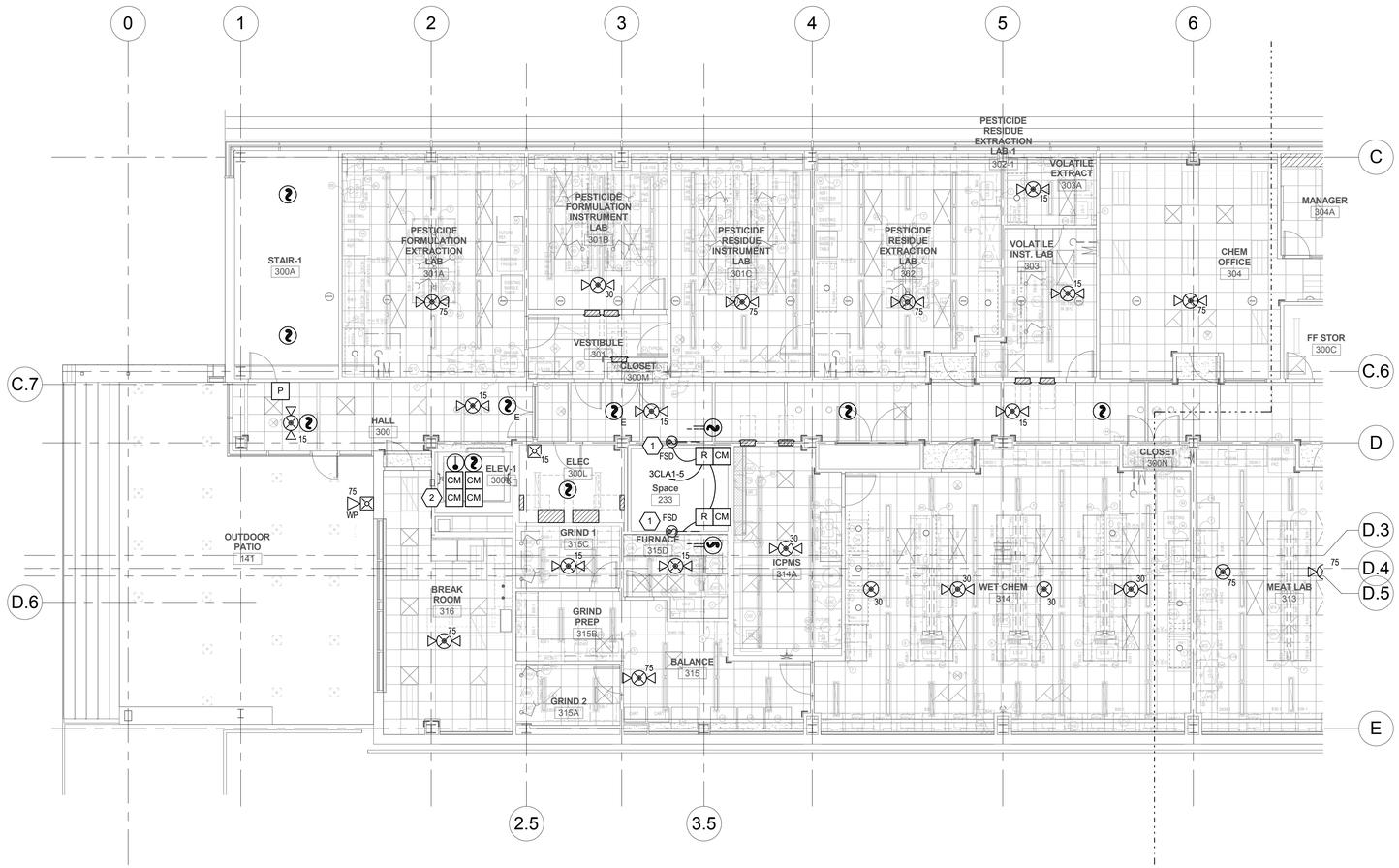


A1 THIRD LEVEL FIRE ALARM PLAN - AREA A

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

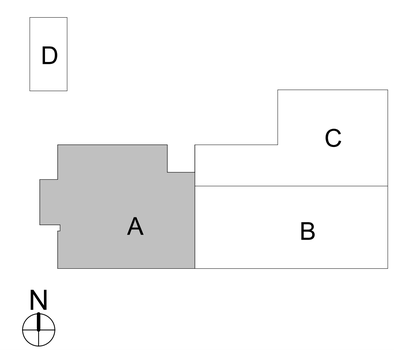
GENERAL SHEET NOTES

1. LOCATIONS OF DUCT SMOKE DETECTORS AND FIRE/SMOKE DAMPERS SHOWN ARE APPROXIMATE. COORDINATE EXACT QUANTITY AND LOCATIONS WITH MECHANICAL DRAWINGS PRIOR TO ROUGH-IN.
2. LOCATIONS OF FLOW, TAMPER AND OTHER FIRE SUPPRESSION MONITORING POINTS SHOWN ARE APPROXIMATE. FIELD VERIFY EXACT QUANTITY AND LOCATIONS WITH SPRINKLER CONTRACTOR PRIOR TO ROUGH-IN.

SHEET KEYNOTES

1. INSTALL INDICATED DUCT DETECTOR WITHIN 5 FT OF FIRE / SMOKE DAMPER AT APPROXIMATE LOCATION INDICATED PER NFPA 72 REQUIREMENTS.
2. CONTROL MODULES FOR ELEVATOR INTERFACE.

KEY PLAN



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THIRD LEVEL FIRE ALARM PLAN - AREA A

FA103a

VOLUME 2

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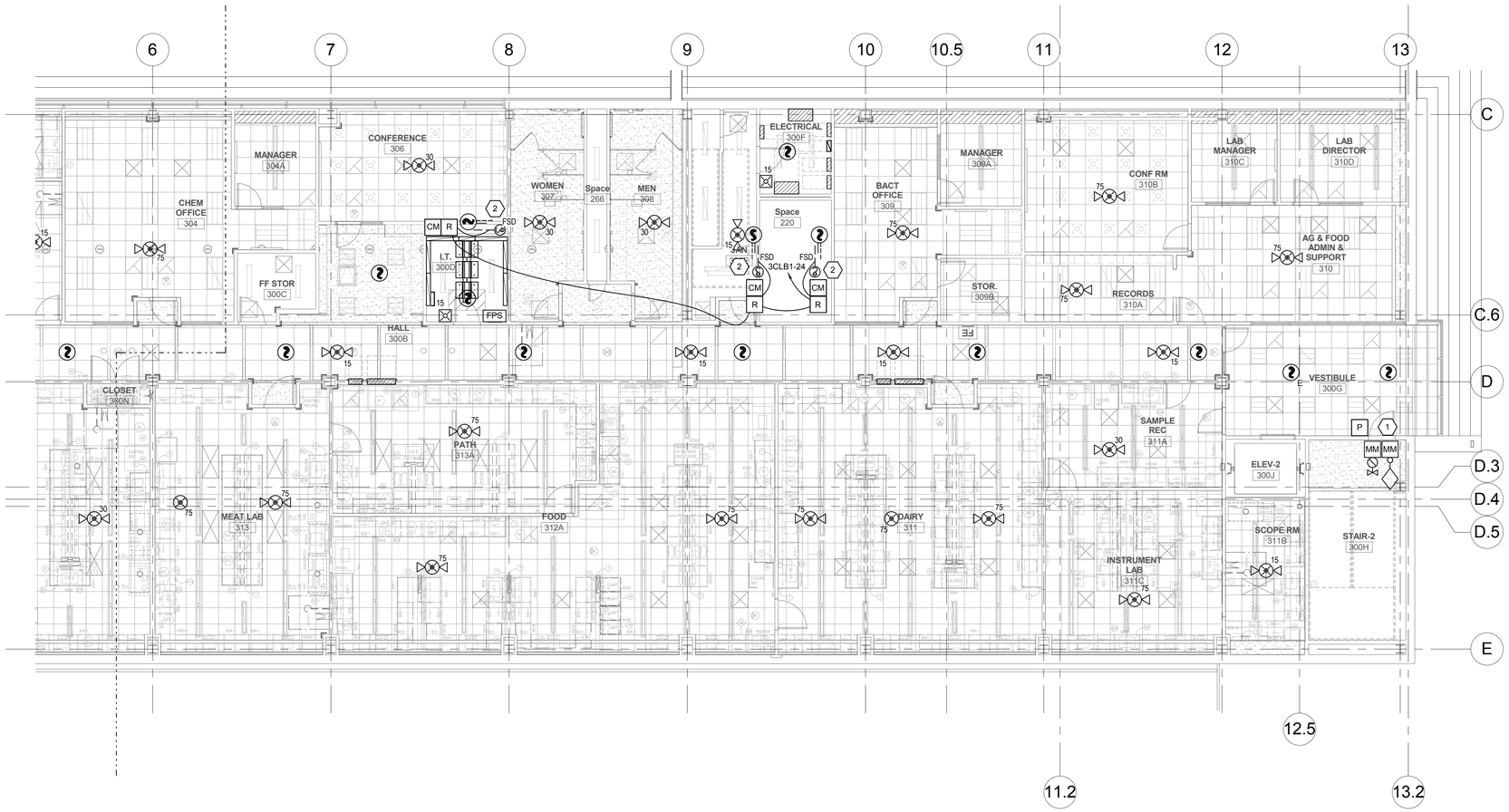


A1 THIRD LEVEL FIRE ALARM PLAN - AREA B

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

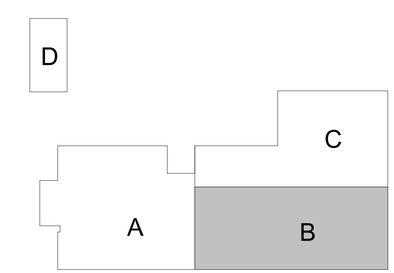
GENERAL SHEET NOTES

1. LOCATIONS OF DUCT SMOKE DETECTORS AND FIRE/SMOKE DAMPERS SHOWN ARE APPROXIMATE. COORDINATE EXACT QUANTITY AND LOCATIONS WITH MECHANICAL DRAWINGS PRIOR TO ROUGH-IN.
2. LOCATIONS OF FLOW, TAMPER AND OTHER FIRE SUPPRESSION MONITORING POINTS SHOWN ARE APPROXIMATE. FIELD VERIFY EXACT QUANTITY AND LOCATIONS WITH SPRINKLER CONTRACTOR PRIOR TO ROUGH-IN.

SHEET KEYNOTES

1. FLOOR CONTROL ASSEMBLY LOCATION.
2. INSTALL INDICATED DUCT DETECTOR WITHIN 5 FT OF FIRE / SMOKE DAMPER AT APPROXIMATE LOCATION INDICATED PER NFPA 72 REQUIREMENTS.

KEY PLAN



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DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
REVIEWED FOR CODE COMPLIANCE
SIGNATURE: Ernie Catt
DATE: 8-05-2014

LICENSED PROFESSIONAL ENGINEER
No. 181563
DAVID E. WESEMANN
04-21-2014
STATE OF UTAH

ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

4451 South 2700 West, Taylorsville, UT 84118

DFCM #:	13020300
Project #:	B13-024
DATE:	ISSUE TYPE:
April 21, 2014	BID SET
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THIRD LEVEL FIRE ALARM PLAN - AREA B

FA103b

VOLUME 2

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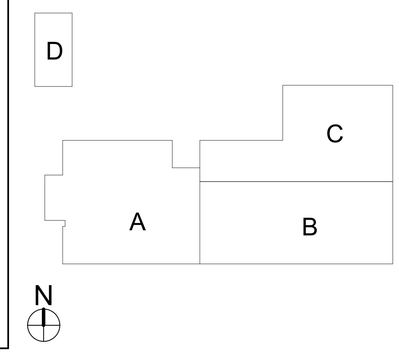
GENERAL SHEET NOTES

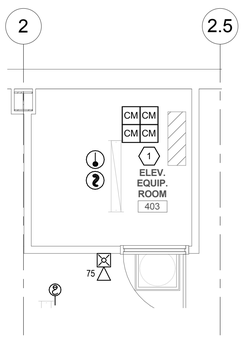
1. LOCATIONS OF DUCT SMOKE DETECTORS AND FIRE/SMOKE DAMPERS SHOWN ARE APPROXIMATE. COORDINATE EXACT QUANTITY AND LOCATIONS WITH MECHANICAL DRAWINGS PRIOR TO ROUGH-IN.
2. LOCATIONS OF FLOW, TAMPER AND OTHER FIRE SUPPRESSION MONITORING POINTS SHOWN ARE APPROXIMATE. FIELD VERIFY EXACT QUANTITY AND LOCATIONS WITH SPRINKLER CONTRACTOR PRIOR TO ROUGH-IN.

SHEET KEYNOTES

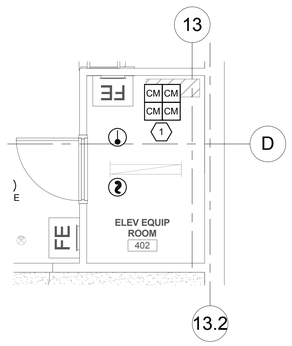
1. CONTROL MODULES FOR ELEVATOR INTERFACE.
2. INSTALL INDICATED DUCT DETECTOR WITHIN 5 FT OF FIRE / SMOKE DAMPER AT APPROXIMATE LOCATION INDICATED PER NFPA 72 REQUIREMENTS.

KEY PLAN

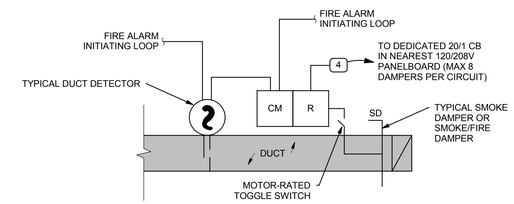




C1 ENLARGED ELEV. EQUIP. 142 FIRE ALARM PLAN
SCALE: 1/4" = 1'-0"



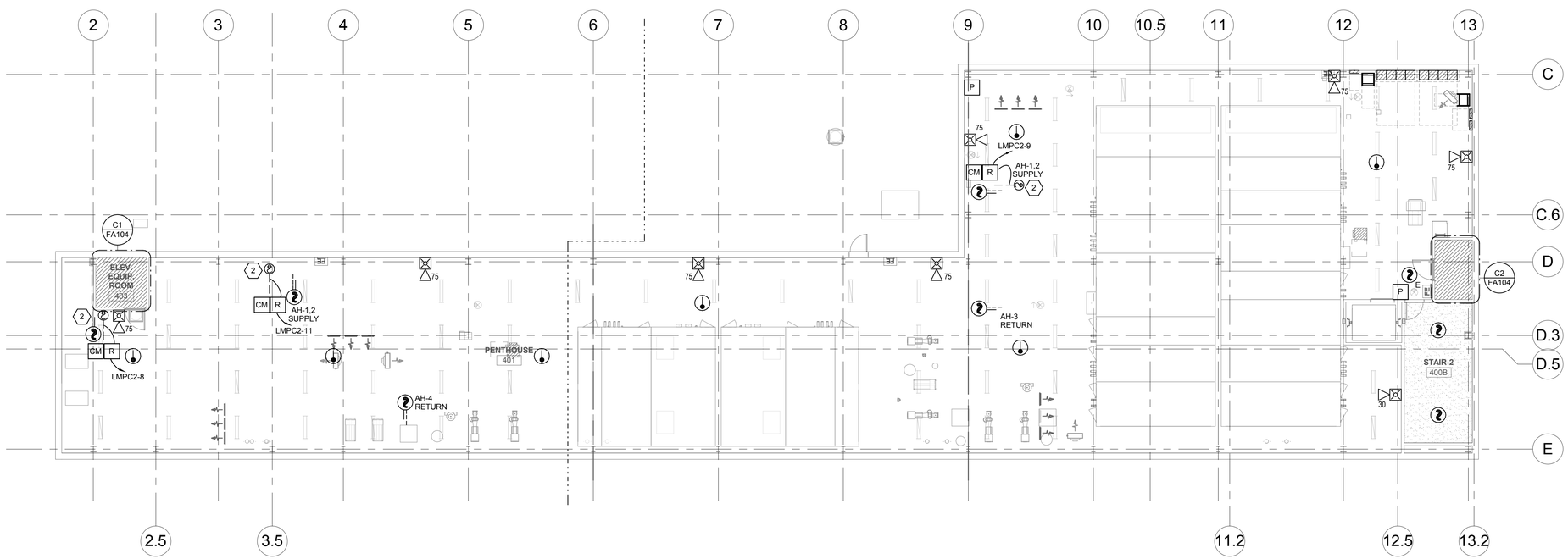
C2 ENLARGED ELEV. EQUIP. 402 FIRE ALARM PLAN
SCALE: 1/4" = 1'-0"



NOTES:

1. FOR EACH SMOKE DAMPER SHOWN ON PLANS, PROVIDE ALL DEVICES AND WIRING PER THIS DETAIL. THESE ARE NOT SHOWN ON PLANS FOR LEGIBILITY PURPOSES.
2. DUCT DETECTOR WITHIN 5' OF EVERY SMOKE DAMPER TO CLOSE DAMPER UPON ACTIVATION PER IMC REQUIREMENTS.
3. VERIFY QUANTITY AND LOCATIONS OF ALL SMOKE DAMPERS WITH THE HVAC INSTALLER.
4. PROVIDE ONE CONTROL MODULE PER SMOKE DAMPER, UNLESS THE REQUIRED CONTROL SEQUENCE ALLOWS GROUPING OF DAMPERS, IN WHICH CASE EACH GROUPING OF DAMPERS MAY SHARE ONE CONTROL MODULE.

C4 TYPICAL SMOKE DAMPER FIRE ALARM DETAIL
SCALE: NTS



A1 PENTHOUSE FIRE ALARM PLAN
SCALE: 3/32" = 1'-0"

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04-21-2014
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DRAWN BY	DLM

PENTHOUSE LEVEL FIRE ALARM PLAN

FA104

VOLUME 2

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NOTIFICATION SCHEDULE

SYMBOL	STROBE SIZE	COVERAGE	AVERAGE CURRENT	MAXIMUM PER CIRCUIT ALONE
15	15 CD	20'x20'	.085A	17
30	30 CD	30'x30'	.135A	11
75	75 CD	40'x40'	.200A	7
110	110 CD	50'x50'	.225A	6

INDICATING LOOP LEGEND

INDICATING LOOP	DESCRIPTION
FI-1	FIRST LEVEL
FI-2	SECOND LEVEL
FI-3	THIRD LEVEL
FI-P	PENTHOUSE LEVEL

ADDRESSABLE LOOP LEGEND

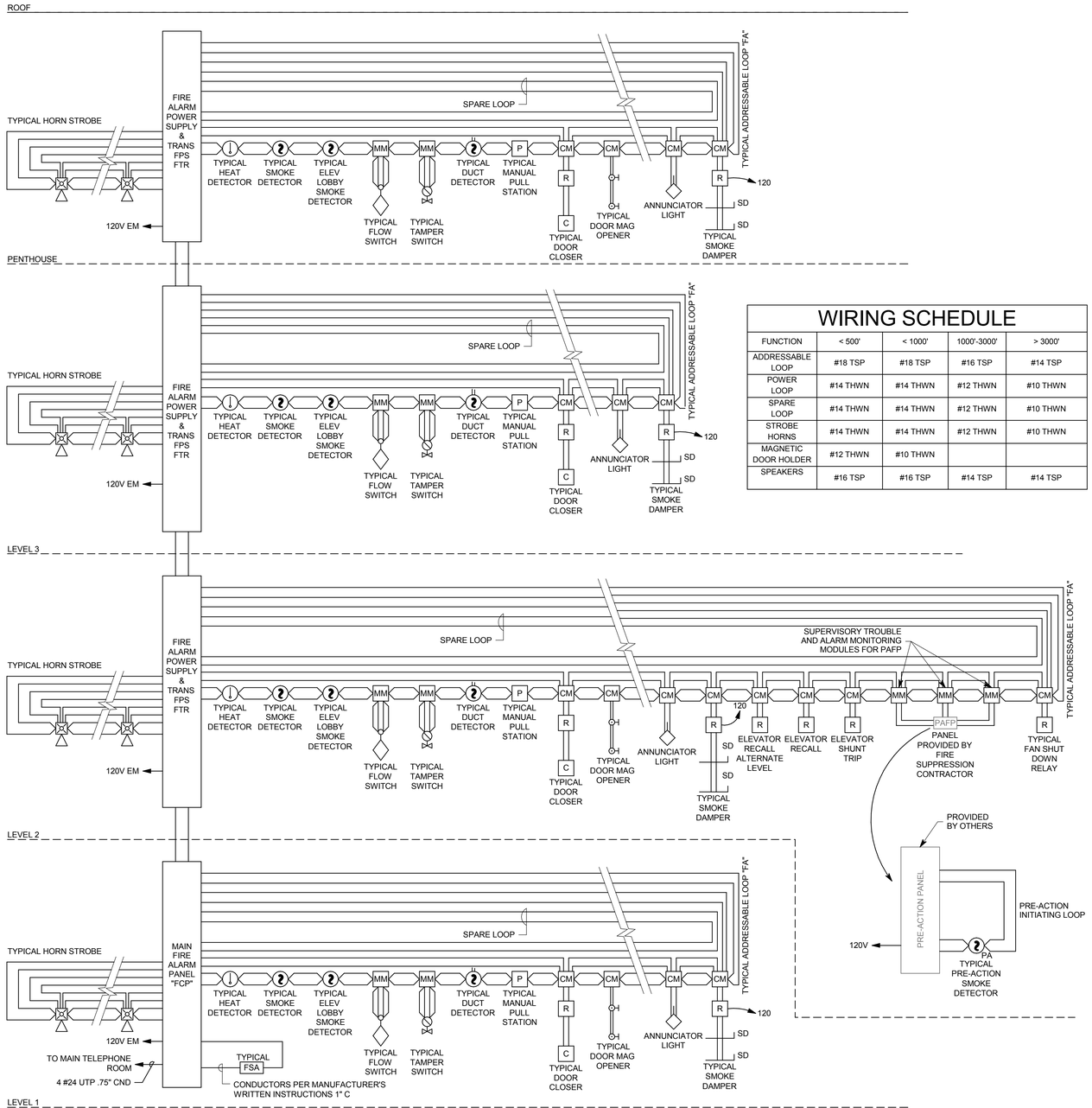
INITIATING LOOP	DESCRIPTION
FI-1	FIRST LEVEL
FI-2	SECOND LEVEL
FI-3	THIRD LEVEL
FI-P	PENTHOUSE LEVEL

GENERAL SHEET NOTES

1. PLANS ARE BASED UPON 99 MONITOR AND CONTROL DEVICES PER ADDRESSABLE LOOP. OTHER CONFIGURATIONS ARE ACCEPTABLE SUBJECT TO CONTRACTOR ALLOWING FOR INCREASED WIRING REQUIREMENTS AND SUBMITTAL DRAWINGS SHOWING NEW WIRING CONFIGURATION. MAXIMUM INITIAL DEVICES PER LOOP SHALL NOT EXCEED 75% MAXIMUM ALLOWABLE.
2. PLANS ARE BASED UPON THE WIRING SCHEDULE SHOWN. WHERE MANUFACTURER'S REQUIREMENTS EXCEED REQUIREMENTS SHOWN, INCLUDE ADDITIONAL ASSOCIATED COSTS AND SUBMITTAL DRAWINGS INDICATING NEW WIRING CONFIGURATION.
3. PLANS ARE BASED UPON 2 AMPS AT 24 VDC, NOT TO EXCEED 75% (1.50 AMPS AVAILABLE), POWER SUPPLY CAPACITY PER NOTIFICATION CIRCUIT. NOTIFICATION DEVICE LOADS ARE BASED UPON NOTIFICATION DEVICE SCHEDULE SHOWN. INCLUDE ADDITIONAL ASSOCIATED COSTS FOR INCREASED WIRING AND POWER SUPPLY CAPACITY IF LOADS OF ACTUAL DEVICES PROVIDED EXCEED CIRCUIT CAPACITY, OR IF LOAD OUTPUT OF ACTUAL POWER SUPPLIES PROVIDED IS SIZED DIFFERENTLY. PROVIDE SUBMITTAL DRAWINGS SHOWING NEW WIRING CONFIGURATION.
4. FLOW AND TAMPER CONFIGURATION BASED UPON FIRE SPRINKLER DESIGN CONCEPT. FIELD VERIFY ACTUAL REQUIREMENTS. INCLUDE ANY ADDITIONAL MONITOR MODULES REQUIRED BY ACTUAL DESIGN REQUIREMENTS.
5. HEAT DETECTORS WHEN INSTALLED IN ELEVATOR SHAFTS OR MECHANICAL ROOMS FOR ELEVATOR SHUT DOWN SHALL HAVE HEAT DETECTOR WITH LOWER RESPONSE TIME INDEX THAN SPRINKLER HEAD.
6. PROVIDE POWER SUPPLY CAPACITY AS REQUIRED FOR DOOR HOLD OPENS SHOWN.
7. BATTERY CAPACITY TO BE ADEQUATE TO OPERATE 15 MINUTES AFTER 24 HOURS PLUS 25% SPARE CAPACITY.
8. VFD REQUIRES TWO RELAYS, ONE FOR SMOKE CONTROL, ONE SPARE.

GENERAL SHEET NOTES

9. RUN SPARE LOOPS IN SAME CONDUIT. DO NOT EXCEED 40% AREA FILL OF CONDUITS.
10. PROVIDE DUCT DETECTORS FOR SUPPLY AND RETURN AIR SYSTEMS OVER 2000 CFM. INSTALL DUCT DETECTORS PER NFPA 72 REQUIREMENTS AND PROVIDE ADDITIONAL DUCT DETECTORS DEPENDING UPON FINAL DUCT ARRANGEMENT.
11. PROVIDE DUCT DETECTOR AT EACH FLOOR, PRIOR TO CONNECTION TO A COMMON RETURN AND PRIOR TO RECIRCULATING OR FRESH AIR INLET IN AIR RETURN SYSTEMS OVER 15,000 CFM CAPACITY AND SERVING MORE THAN ONE STORY.
12. PROVIDE MANUAL PULL STATIONS IN BOILER ROOMS AND KITCHENS.
13. PROVIDE ONE YEAR OFF SITE MONITORING INCLUDING ALL INTERFACE DEVICES AND MONITORING CHARGES. COORDINATE WITH BUILDING OWNER'S OFF SITE MONITORING COMPANY.
14. LOCATE SMOKE DETECTORS MINIMUM 3' FROM AIR SUPPLY AND RETURN LOUVERS.
15. PROVIDE SYNCHRONIZED STROBES THROUGHOUT FACILITY. PROVIDE SYNCHRONIZATION MODULES PER MANUFACTURER'S REQUIREMENTS. INCLUDE ADDITIONAL WIRING, IF REQUIRED.
16. INITIATING AND INDICATING LOOPS SHALL NOT SERVE AN AREA OF GREATER THAN 22,500 SQUARE FEET. PROVIDE ADDITIONAL LOOPS FOR AREAS LARGER THAN THIS.
17. ALL OUTPUT DEVICES ARE DESIGNED ON SYSTEMS WITH 2 AMP POWER SUPPLY.
18. HORN/STROBE BASED ON 120 MILLIAMPS, DOOR HOLDERS BASED ON 70 MILLIAMPS.



WIRING SCHEDULE

FUNCTION	< 500'	< 1000'	1000'-3000'	> 3000'
ADDRESSABLE LOOP	#18 TSP	#18 TSP	#16 TSP	#14 TSP
POWER LOOP	#14 THWN	#14 THWN	#12 THWN	#10 THWN
SPARE LOOP	#14 THWN	#14 THWN	#12 THWN	#10 THWN
STROBE HORNS	#14 THWN	#14 THWN	#12 THWN	#10 THWN
MAGNETIC DOOR HOLDER	#12 THWN	#10 THWN		
SPEAKERS	#16 TSP	#16 TSP	#14 TSP	#14 TSP

FIRE ALARM INPUT/OUTPUT MATRIX

	ZONE	OUTPUT DEVICES: GENERAL ALARM	DOOR HOLDER/CLOSERS	ELEVATOR RECALL MAIN LEVEL	ELEVATOR RECALL ALTERNATE LEVEL	FAN SHUTDOWN	FIRE DAMPER	TROUBLE	SUPERVISORY	ELEVATOR SHUNT TRIP					NOTES
INITIATING DEVICES	1 MAIN FLOW	•	•			•	•								
	2 MAIN TAMPER							•							
	3 MAIN LEVEL FLOW	•	•			•	•								
	4 MAIN LEVEL TAMPER							•							
	5 2ND LEVEL FLOW	•	•			•	•								
	6 2ND LEVEL TAMPER							•							
	7 3RD LEVEL FLOW	•	•			•	•								
	8 3RD LEVEL TAMPER							•							
	9 PENTHOUSE FLOW	•	•			•	•								
	10 PENTHOUSE TAMPER							•							
	11 MAIN LEVEL INITIATING LOOP	•	•			•	•								
	12 MAIN LEVEL ELEVATOR DETECTOR	•	•		•	•	•								
	13 MAIN LEVEL DUCT DETECTOR					•			•						
	14 2ND LEVEL INITIATING LOOP	•	•			•	•								
	15 2ND LEVEL ELEVATOR DETECTOR	•	•	•		•	•								
	16 2ND LEVEL DUCT DETECTOR					•			•						
	17 3RD LEVEL INITIATING LOOP	•	•			•	•								
	18 3RD LEVEL ELEVATOR DETECTOR	•	•	•		•	•								
	19 3RD LEVEL DUCT DETECTOR					•			•						
	20 PENTHOUSE LEVEL INITIATING LOOP	•	•			•	•								
	21 PENTHOUSE LEVEL ELEVATOR DETECTOR	•	•	•		•	•								
	22 PENTHOUSE LEVEL DUCT DETECTOR					•			•						
	23 ELEVATOR SPRINKLER HEAT DETECTORS	•	•	•		•	•								
	24 PRE-ACTION ALARM	•	•	•		•	•			•					
	25 PRE-ACTION TROUBLE							•							
	26 PRE-ACTION SUPERVISORY								•						
	27														
	28														
	29														
	30														

A1 FIRE ALARM RISER

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

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DFCM #: 13020300

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FIRE ALARM RISER

FA601

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UNIFIED STATE LABRATORY MODULE 2 - DISPLAY DEVICE SCHEDULE

ROOM NAME	ROOM #	FLOOR #	CEILING HEIGHT	DISPLAY TYPE	PROJECTED IMAGE HEIGHT	PROJECTED IMAGE WIDTH	MAXIMUM LENGTH OF PROJECTION SCREEN ENCLOSURE	APPROX. PROJECTOR THROW DISTANCE	FLAT PANEL DIAGONAL SIZE	ASPECT RATIO	COMMENTS
LOBBY	100A	1	10'-0"	FP (DS)					40"	16:9	FIXED MOUNT
MEETING 101	101	1	10'-0"	FP					46"	16:9	FIXED MOUNT
CONFERENCE ROOM	102F	1	10'-0"	PS	58"	104"		18'-0"		16:9	
HUDDLE	102H	1	10'-0"	FP					46"	16:9	FIXED MOUNT
TRAINING	111	1	10'-0"	FP					65"	16:9	FIXED MOUNT
SPEC PROC AUTOPSY	124A	1	10'-0"	FP					42"	16:9	SWING-ARM MOUNT
CONFERENCE	131	1	10'-0"	PS	58"	104"		18'-0"		16:9	
CONF	133	1	10'-0"	FP					46"	16:9	FIXED MOUNT
HUDDLE	134	1	10'-0"	FP					46"	16:9	FIXED MOUNT
FAMILY	135	1	10'-0"	FP					46"	16:9	FIXED MOUNT
FAMILY	136	1	10'-0"	FP					46"	16:9	FIXED MOUNT
AUTOPSY	124	1	10'-0"	FP					40"	16:9	SWING-ARM MOUNT
AUTOPSY	124	1	10'-0"	FP					40"	16:9	SWING-ARM MOUNT
AUTOPSY	124	1	10'-0"	FP					40"	16:9	SWING-ARM MOUNT
AUTOPSY	124	1	10'-0"	FP					40"	16:9	SWING-ARM MOUNT
AUTOPSY	124	1	10'-0"	FP					40"	16:9	SWING-ARM MOUNT
AUTOPSY	124	1	10'-0"	FP					40"	16:9	SWING-ARM MOUNT
NIGHT ROOM	117	1	10'-0"	FP					46"	16:9	SWING-ARM MOUNT
HALL	200	2	10'-0"	FP (DS)					42"	16:9	TOUCH MONITOR, FIXED MOUNT
HALL	200	2	10'-0"	FP (DS)					42"	16:9	TOUCH MONITOR, FIXED MOUNT
HALL	200	2	10'-0"	FP (DS)					42"	16:9	TOUCH MONITOR, FIXED MOUNT
CONFERENCE	306	1	10'-0"	PS	52"	92"		13'-0"		16:9	
CONF RM	310B	1	10'-0"	PS	52"	92"		14'-0"		16:9	

PS = PROJECTION SCREEN, FP = FLAT PANEL MONITOR, FP (DS) = FLAT PANEL MONITOR (DIGITAL SIGNAGE)

AV SYSTEMS CABLE SCHEDULE

CABLE TYPE	DESCRIPTION	ACCEPTABLE TYPES	SPECIAL INSTRUCTIONS
L	LINE LEVEL CABLE, 22 AWG, SHIELDED, TWISTED PAIR W/ DRAIN	BELDEN 82761 LIBERTY 22-IP-CMP-EZ-WHY WEST PENN D25454	
S	SPEAKER CABLE, 70 V, 16 AWG, TWISTED PAIR	WEST PENN 25225 LIBERTY 16-2C-TTP	
C	CONTROL CABLE, 1 PAIR 18 AWG, 1 PAIR 22 AWG SHIELDED	CRESTRON CRESNET-NP BELDEN 1502R LIBERTY LLINX-U	
D	DATA CABLE, CATEGORY 6	BELDEN 2400 SERIES WEST PENN 254246	
P	DIGITAL VIDEO CABLE, TWISTED PAIR, SHIELDED	EXTRON XTP DTP 24	
H	HDMI CABLE	BELDEN HD200X LIBERTY E-HDM-M-X	X=LENGTH NEEDED NOTE 22
R	VGA CABLE - MINI, HIGH-RESOLUTION	EXTRON MHR-5 BELDEN 1279R	

AV SYSTEM CABLE INSTALLATION REQUIREMENTS SCHEDULE

ORIGIN	DESTINATION	CABLE TYPE	QUANTITY	SPECIAL INSTRUCTIONS
CP1	MXX	H	1	
		R	1	
		L	2	
BP	MXX	D	1	
		C	1	
		S	1	USE 'S' CABLE FOR POWER
M46 NIGHT ROOM	VIC M	S	1	USE 'S' CABLE FOR POWER
VIC M	VIC S	D	1	
VIC M	VIC P	S	1	
FBAV	ER	P	2	
		S	2	USE 'S' CABLE FOR POWER
TP	ER	D	1	
	ER	P	1	
	ER	C	1	
	SC	C	1	
S	ER	S	1	CIRCUIT TO ALL SPEAKERS, SEE PLANS FOR ROUTING

CABLE INSTALLATION REQUIREMENTS APPLY TO EVERY DEVICE LOCATION SHOWN IN EVERY ROOM. ER = EQUIPMENT RACK

AUDIO-VIDEO SHEET INDEX

SHEET NO	SHEET TITLE
TA001	AUDIO-VIDEO SYSTEM SHEET INDEX AND SCHEDULES
TA002	AUDIO-VIDEO SYSTEM EQUIPMENT LIST
TA501	AUDIO-VIDEO SYSTEM DETAILS
TA601	AUDIO-VIDEO SYSTEM DIAGRAMS

DEFINITIONS

NOTE: ALL DEFINITIONS MAY NOT BE USED.

INDICATED: THE TERM "INDICATED" REFERS TO GRAPHIC REPRESENTATIONS, NOTES, OR SCHEDULES ON THE DRAWINGS, OTHER PARAGRAPHS OR SCHEDULES IN THE SPECIFICATIONS, AND SIMILAR REQUIREMENTS IN THE CONTRACT DOCUMENTS. WHERE TERMS SUCH AS "SHOWN", "NOTED", "SCHEDULED", AND "SPECIFIED" ARE USED, IT IS TO HELP THE READER LOCATE THE REFERENCE, NO LIMITATION ON LOCATION IS INTENDED.

DIRECTED: TERMS SUCH AS "DIRECTED", "REQUESTED", AUTHORIZED", "SELECTED", "APPROVED", "REQUIRED", AND "PERMITTED" MEAN "DIRECTED BY THE ENGINEER", "REQUESTED BY THE ENGINEER", AND SIMILAR PHRASES.

APPROVE: THE TERM "APPROVED", WHERE USED IN CONJUNCTION WITH THE ENGINEER'S ACTION ON THE CONTRACTOR'S SUBMITTALS, APPLICATIONS, AND REQUESTS, IS LIMITED TO THE ENGINEER'S DUTIES AND RESPONSIBILITIES AS STATED IN GENERAL AND SUPPLEMENTARY CONDITIONS.

FURNISH: THE TERM "FURNISH" IS USED TO MEAN "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS."

INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS."

PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."

INSTALLER: AN "INSTALLER" IS THE CONTRACTOR OR AN ENTITY ENGAGED BY THE CONTRACTOR, EITHER AS AN EMPLOYEE, SUBCONTRACTOR, OR SUB-SUBCONTRACTOR, FOR PERFORMANCE OF A PARTICULAR CONSTRUCTION ACTIVITY, INCLUDING INSTALLATION, ERECTION, APPLICATION, AND SIMILAR OPERATIONS. INSTALLERS ARE REQUIRED TO BE EXPERIENCED IN THE OPERATIONS THEY ARE ENGAGED TO PERFORM.

TECHNOLOGY SYSTEMS: THE TERM "TECHNOLOGY SYSTEMS" IS USED TO DESCRIBE ALL LOW VOLTAGE SYSTEMS GENERALLY REFERRED TO AS "SPECIAL SYSTEMS". THESE SYSTEMS INCLUDE BUT ARE NOT NECESSARILY LIMITED TO ALL SYSTEMS WHICH UTILIZE VOLTAGES OF LESS THAN 71 VOLTS SUCH AS SOUND SYSTEMS, VIDEO SYSTEMS, TV SYSTEMS, SECURITY SYSTEMS, VOICE AND DATA CABLING SYSTEMS, ETC...

ABBREVIATIONS

NOTE: ALL ABBREVIATIONS MAY NOT BE USED.

"A"	AMP OR AMPS
"ADJ"	ADJACENT
"AFF"	ABOVE FINISHED FLOOR
"AL"	ALUMINUM
"C"	CONDUIT
"CB","C/B"	CIRCUIT BREAKER
"CKT"	CIRCUIT
"CO"	CONVENIENCE OUTLET
"C.O.R."	CONTRACTING OFFICER'S REPRESENTATIVE
"CU"	COPPER
"EA"	EACH
"ELEC"	ELECTRICAL
"EM"	EMERGENCY
"EMT"	ELECTRICAL METALLIC TUBING
"ENT"	ELECTRICAL NONMETALLIC TUBING
"EQUIP"	EQUIPMENT
"EX"	EXISTING
"FA"	FIRE ALARM
"FACP"	FIRE ALARM CONTROL PANEL
"FLA"	FULL LOAD AMPS
"FMC"	FLEXIBLE METAL CONDUIT
"F.O.B."	FREIGHT ON BOARD
"GFI"	GROUND FAULT INTERRUPTER
"GR"	GROUND
"HOA"	HAND-OFF-AUTO
"HP"	HORSE POWER
"IG"	INSULATED GROUND
"IMC"	INTERMEDIATE METAL CONDUIT
"IN/IS"	INSULATED/ISOLATED
"KVA"	KILO VOLT AMPERES
"KW"	KILOWATTS
"LFMC"	LIQUID TIGHT FLEXIBLE METAL CONDUIT
"LFNC"	LIQUID TIGHT FLEXIBLE NONMETALLIC CONDUIT
"MCA"	MINIMUM CIRCUIT AMPS
"MLO"	MAIN LUGS ONLY
"N.C."	NORMALLY CLOSED
"N.I.C."	NOT IN CONTRACT
"N.O."	NORMALLY OPEN
"O.C."	ON CENTER
"OCP"	OVER CURRENT PROTECTION
"QTY"	QUANTITY
"R"	REMOVE
"RMC"	RIGID METAL CONDUIT
"RNC"	RIGID NONMETALLIC CONDUIT
"RR"	REMOVE AND RELOCATE
"TYP"	TYPICAL
"UF"	UNDER FLOOR
"UG"	UNDER GROUND
"W/"	WITH
"WP"	WEATHER PROOF
"XFMR"	TRANSFORMER

AV SIGNAL ABBREVIATIONS

"AL"	AUDIO, LEFT (LINE LEVEL)
"AR"	AUDIO, RIGHT (LINE LEVEL)
"AA"	ANALOG AUDIO
"F"	OPTICAL FIBER
"V"	VIDEO, COMPOSITE-STANDARD RESOLUTION ANALOG VIDEO
"YC"	S-VIDEO-STANDARD RESOLUTION ANALOG VIDEO
"YUC"	COMPONENT VIDEO-STANDARD RESOLUTION ANALOG VIDEO
"RGBHV"	RED, GREEN, BLUE, HORIZONTAL & VERTICAL SYNC-HIGH RESOLUTION ANALOG VIDEO
"XGA/VGA"	EXTENDED GRAPHICS ARRAY/VIDEO GRAPHICS ARRAY-HIGH RESOLUTION ANALOG VIDEO
"DVI"	DIGITAL VIDEO INTERFACE-HIGH RESOLUTION DIGITAL VIDEO
"HDMI"	HIGH DEFINITION MULTIMEDIA INTERFACE-HIGH RESOLUTION DIGITAL VIDEO
"DP"	DISPLAY PORT-HIGH RESOLUTION DIGITAL VIDEO
"TP"	TWISTED PAIR
"IP"	INTERNET PROTOCOL
"SDI"	SERIAL DIGITAL INTERFACE

SPECIAL PROJECT NOTE

1. THE AUDIO AND VIDEO SYSTEM EQUIPMENT LIST IDENTIFIES EQUIPMENT ITEMS OF SIGNIFICANCE BY MANUFACTURER AND MODEL NUMBER. THE SOLE PURPOSE FOR THIS IS TO ESTABLISH LEVELS OF QUALITY AND INDIVIDUAL COMPONENT CAPABILITY FOR ALL EQUIPMENT ITEMS. IT IS NOT THE INTENT OF THE AUDIO AND VIDEO SYSTEM EQUIPMENT LIST TO PRECLUDE THE INSTALLATION OF EQUIPMENT ITEMS FABRICATED BY MANUFACTURERS OTHER THAN THOSE LISTED, SO FAR AS THEY ARE JUDGED TO BE EQUAL TO THOSE EQUIPMENT ITEMS IDENTIFIED IN THE LIST. IF BIDDERS WISH TO FURNISH AND INSTALL ITEMS OTHER THAN THOSE IDENTIFIED IN THE AUDIO AND VIDEO SYSTEM EQUIPMENT LIST APPROVAL MUST BE OBTAINED DURING THE BIDDING PROCESS. THE BIDDER IS RESPONSIBLE FOR PROVIDING SUFFICIENT EVIDENCE THAT THE SUBSTITUTED EQUIPMENT IS EQUAL TO, OR BETTER THAN, THE LISTED EQUIPMENT. IN ADDITION, THE BIDDER IS RESPONSIBLE TO MAKE ALL CHANGES TO THE DESIGN NECESSITATED BY THE SUBSTITUTED EQUIPMENT WITH NO CHANGE IN PROJECT COST DURING CONSTRUCTION. FINAL DECISIONS REGARDING ALL EQUIPMENT SUBSTITUTION REQUESTS WILL BE MADE BY THE OWNER AND SYSTEM DESIGNER.

GENERAL AUDIO-VIDEO NOTES

1. CONDUCT AN RF FREQUENCY AUDIT OF THE SITE PRIOR TO SELECTION OF WIRELESS RF OPERATING FREQUENCIES. SELECT FREQUENCIES TO ASSURE INTERFERENCE FREE OPERATION. INSTALL ANTENNAS/TRANCEIVERS OUTSIDE OF THE EQUIPMENT RACK, AT AN ARCHITECT APPROVED LOCATION, WHERE THE BEST SYSTEM PERFORMANCE IS ACHIEVED.
2. FILL ALL UNUSED RACK SPACE WITH BLANK/VENT PANELS.
3. INSTALL/SUSPEND ALL EQUIPMENT IN COMPLIANCE WITH THE MANUFACTURERS WRITTEN INSTRUCTIONS, SEISMIC SPECIFICATION SECTION, AND INDUSTRY WIDE ACCEPTED RIGGING PRACTICES. SUPPORT EQUIPMENT WEIGHT FROM STRUCTURE ABOVE CEILINGS. DURING THE SUBMITTAL PROCESS, PROVIDE SHOP DRAWINGS WHICH DETAIL PROPOSED MOUNTING FOR ALL SUCH EQUIPMENT.
4. PROVIDE MANUFACTURER RECOMMENDED POWER SUPPLIES AND/OR TRANSFORMERS FOR ALL SPECIFIED EQUIPMENT.
5. FURNISH AND INSTALL ALL CABLE AND CONNECTORS REQUIRED FOR ALL AUDIO AND VIDEO SYSTEMS TO COMPLETE MANUFACTURER RECOMMENDED CABLE TO EQUIPMENT TERMINATION TO FORM A COMPLETE AND FULLY FUNCTIONAL SYSTEM AS SHOWN. SELECT CONNECTORS WHICH PASS FULL BANDWIDTH CAPABILITY OF SPECIFIED CABLE. PROVIDE CABLE TYPES AS IDENTIFIED IN THE AUDIO/VIDEO CABLE SCHEDULE.
6. PROVIDE PATCH CABLES TO FULLY INTERCONNECT ALL SPECIFIED AND/OR OWNER FURNISHED EQUIPMENT WITH THE SPECIFIED CONNECTION PANELS, SYSTEM INTERFACES, AND MISCELLANEOUS EQUIPMENT.
7. PROVIDE MANUFACTURER RECOMMENDED, AND INDUSTRY STANDARD, SIGNAL LEVELS AND COMMUNICATION PROTOCOLS THROUGHOUT ENTIRE SYSTEM REGARDLESS OF CABLE LENGTHS. PROVIDE ALL REQUIRED DISTRIBUTION AND PROCESSING EQUIPMENT, INCLUDING BUT NOT LIMITED TO SIGNAL DISTRIBUTION AMPLIFIERS, LINE AMPLIFIERS, LINE DRIVERS, EQUALIZING AMPLIFIERS, GROUND/HUM ISOLATORS, MATCHING/ISOLATION TRANSFORMERS, CONTROL BUS DEVICES, COMMUNICATIONS CONVERTERS, ETC..., WHETHER SHOWN IN THE SINGLE LINE DIAGRAMS OR NOT.
8. PROVIDE PRE-MANUFACTURED ADAPTER CABLES WHERE REQUIRED FOR MATING CABLE TO CONNECTORS. THESE WILL INCLUDE, BUT ARE NOT LIMITED TO, ADAPTERS WHICH MATE DVI TO HDMI, STEREO AUDIO TO MONO AUDIO, RGBHV CABLE TO 15 PIN HD CONNECTORS, TWO VIDEO CABLES TO 4 PIN DIN CONNECTORS, AND OTHER SIMILAR TERMINATION AND MATING REQUIREMENTS.
9. PROVIDE RACK MOUNT KITS FOR ALL RACK MOUNTED EQUIPMENT. WHERE MANUFACTURERS DO NOT PROVIDE RACK MOUNT KITS, PROVIDE CUSTOM RACK MOUNT KITS AS SPECIFIED.
10. WHERE ANY CABLE IS INSTALLED IN A FASHION WHERE EXPOSED TO PUBLIC VIEW, INSTALL CABLE INSIDE THE SPECIFIED BRAIDED EXPANDABLE SLEEVING. EXAMPLES OF SUCH LOCATIONS INCLUDE, BUT ARE NOT LIMITED TO EQUIPMENT ITEMS ON TABLES AND CEILING MOUNTED PROJECTORS.
11. PROVIDE PERMANENT, MECHANICALLY PRODUCED LABELS ON ALL CABLES AT CONNECTORS AND TERMINATION POINTS.
12. CONTROL SPECIFIED DEVICES UTILIZING THE MOST SOPHISTICATED COMMUNICATIONS PROTOCOL AVAILABLE ON THE DEVICE TO BE CONTROLLED. ALWAYS USE RS-232 OR ETHERNET WHEN AVAILABLE.
13. COVER JUNCTION BOXES WITH NO SPECIFIED AV DEVICES WITH BLANK NYLON COVER PLATE. COLOR TO MATCH ELECTRICAL DEVICES.
14. CONNECT ALL SPECIFIED AV EQUIPMENT TO 120 VAC VIA A SPECIFIED TRANSIENT VOLTAGE SURGE SUPPRESSOR INCLUDING ALL MONITORS AND PROJECTORS.
15. SET EDID EMULATORS FOR ALL EDID CAPABLE DEVICES TO A RESOLUTION DESIGNATED BY THE OWNER/DESIGNER DURING THE SYSTEM COMMISSIONING PROCESS.
16. SET EDIT FOR ALL DIGITAL VIDEO TRANSMITTERS TO 2-CHANNEL AUDIO.
17. SET ALL PLAYBACK DEVICES (DVD, TUNERS, ETC...) TO RGB COLOR SPACE.
18. PROVIDE THE PLENUM RATED EQUIVALENT CABLE IF CABLE IS INSTALLED IN AN AIR PLENUM.
19. VERY CAREFULLY SUPPORT THE WEIGHT OF ALL HDMI CABLES CONNECTED TO RACK MOUNTED EQUIPMENT USING LOCKIT CABLE LACING BRACKETS AND RACK MOUNTED LACING BARS. PROFESSIONALLY DRESS, LACE, AND STRAIN RELIEF CABLES SO THAT NO WEIGHT FROM INDIVIDUAL HDMI CABLES IS TRANSFERRED TO INDIVIDUAL HDMI CONNECTORS.INSTALL THE SPECIFIED HDMI CABLE LACING BRACKETS ON ALL HDMI CONNECTORS IN COMPLIANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
20. REFER TO EJ SHEETS FOR DEVICE QUANTITIES AND LOCATIONS.

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04-21-2014
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ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

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DFCM #: 13020300

Project #: B13-024

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AUDIO-VIDEO SYSTEM SHEET INDEX AND SCHEDULES

TA001

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AUDIO-VIDEO SYSTEM EQUIPMENT LIST

THE ITEMS INDICATED BELOW SHALL NOT BE CONSTRUED AS A "BILL OF MATERIALS". THIS LIST IDENTIFIES ITEMS OF SIGNIFICANCE USED DURING THE DESIGN OF THE ELECTRONIC SYSTEMS INSTALLATION. WHERE THE ITEMS INDICATED ARE ONE PORTION OF AN ASSEMBLY, THE ENTIRE ASSEMBLY SHALL BE PROVIDED UNLESS SPECIFIED OTHERWISE. PROVIDE ALL MISCELLANEOUS HARDWARE AND SUPPORTS WHICH MAY NOT BE LISTED HERE, FOR A COMPLETE INSTALLATION. COMPARE CATALOG NUMBERS WITH DESCRIPTIONS AND NOTIFY ENGINEER OF DISCREPANCIES PRIOR TO BID. IF CATALOG NUMBERS DO NOT MATCH DESCRIPTIONS, THE DESCRIPTIONS TAKE PRECEDENCE. PROVIDE COMPLETE SUBMITTAL FOR APPROVAL PRIOR TO PURCHASING ANY EQUIPMENT OR CABLE. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

SYMBOL	DESCRIPTION	QTY	ACCEPTABLE TYPE
BP PS	WALL CONTROLLER, BUTTON PANEL W/ VOLUME CONTROL AND POWER SUPPLY, LABEL PER DETAIL, COORDINATE COLOR WITH ARCHITECT	OFP	CRESTRON MPC-M10 WITH PW-2407RU
TP	TOUCH SCREEN CONTROL PANEL, 10", PoE	OFP	CRESTRON TSW-1050
POE	PoE INJECTOR	OFP	CRESTRON PWE-4803RU
DRX	TWISTED PAIR DIGITAL VIDEO RECEIVER, HDMI OUT W/ SCALER AND MOUNTING HARDWARE	OFP	CRESTRON DM-RMC-SCALER-C
DPS	DIGITAL VIDEO PRESENTATION SWITCHER, 7X4 W/ INTEGRATED CONTROL SYSTEM, AUDIO DSP, AND AMPLIFIER	OFP	CRESTRON DMPS-300-C
CP1	CONNECTION PANEL #1, 2-GANG PLATE W/ SPECIFIED MODULES	OFP	CUSTOM, SEE DETAIL
CP2	CONNECTION PANEL #2	OFP	EXTRON CABLE CUBBY 700 W/ CABLES AND RETRACTORS AS DETAILED
CP3	CONNECTION PANEL #3, W/ CONNECTORS AS DETAILED	OFP	CUSTOM, SEE DETAIL
FBAV	FLOOR BOX MOUNTED CONNECTION PANEL	OFP	CUSTOM, SEE DETAIL, W/ CRESTRON DM-TX-201-C
PTAV	POKE-THRU MOUNTED CONNECTION PANEL	OFP	CUSTOM, SEE DETAIL, W/ CRESTRON DM-TX-201-C
TUN	RF TUNER, DIGITAL, W/ HDMI OUTPUT, OWNER FURNISHED	OFCI	
DVD	DVD PLAYER, RACK MOUNTED	OFP	OPPO BDP-103 W/ RACK MOUNT KIT
	PROJECTOR LED/LASER LIGHT SOURCE, W/ LENS, 16:9 ASPECT RATIO, 1920x1080 NATIVE RESOLUTION, 3500 ANSI LUMENS AND SOFTWARE	OFP	PANASONIC PT-RZ370
	PROJECTOR CEILING MOUNT KIT, PROVIDE PIPE, COUPLERS, STEEL, ADAPTORS, UNISTRUT, THREADED ROD, FASTENERS, ANCHORS, AND ANY OTHER REQUIRED COMPONENTS TO SPAN STRUCTURE, AIR DUCTS, EXTEND/ REDUCE SUPPORT SYSTEM FOR APPROPRIATE ELEVATION AS NEEDED FOR INSTALLATION OF THE SPECIFIES DEVICE. SECURE PROJECTORS TO MOUNTS UTILIZING SECURITY SCREWS.	OFP	CHIEF RPAU AND ALL REQUIRED ACCESSORIES
SC	PROJECTION SCREEN WITH LOW VOLTAGE CONTROL INTERFACE, CONTROL SWITCH	OFP	FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR
M65	FLAT PANEL DISPLAY, 65", LCD, 1080P W/ RS-232 CONTROL	OFP	SAMSUNG HG65NB890XFXZA
	WALL MOUNT BRACKET W/MONITOR MATING PLATE, PROVIDE FOR EACH FLAT PANEL	OFP	CHIEF LSMU
M46	FLAT PANEL DISPLAY, 46", LCD, 1080P W/ RS-232 CONTROL	OFP	SAMSUNG HG46NB890XFXZA
	WALL MOUNT BRACKET W/MONITOR MATING PLATE, PROVIDE FOR EACH FLAT PANEL	OFP	CHIEF LSMU
	WALL MOUNT BRACKET, SWING-ARM	OFP	CHIEF TS525TU
M40	FLAT PANEL DISPLAY, 40" DIAGONAL W/ ETHERNET CONTROL AND SIGNAGE SOFTWARE	OFP	SAMSUNG ME40C
	WALL MOUNT BRACKET, FIXED	OFP	CHIEF PSM2243
	WALL MOUNT BRACKET, SWING-ARM	OFP	CHIEF TS525TU
	MONITOR CEILING MOUNT KIT, PROVIDE PIPE, COUPLERS, STEEL, ADAPTORS, UNISTRUT, THREADED ROD, FASTENERS, ANCHORS, AND ANY OTHER REQUIRED COMPONENTS TO SPAN STRUCTURE, AIR DUCTS, EXTEND/REDUCE SUPPORT SYSTEM FOR APPROPRIATE ELEVATION AS NEEDED FOR INSTALLATION OF THE SPECIFIED DEVICE. SECURE MONITORS TO MOUNTS UTILIZING SECURITY SCREWS.	OFP	CHIEF PCSU W/ ALL REQUIRED ACCESSORIES
TM40	FLAT PANEL DISPLAY W/ TOUCH OVERLAY	OFP	SAMSUNG ME40C W/ CY-TM40LBC
	WALL MOUNT BRACKET, FIXED	OFP	CHIEF PSM2243
WVR	WIRELESS VIDEO PRESENTATION SYSTEM	OFP	CRESTRON AIR MEDIA AM-100

A/R = AS REQUIRED, OFP = OBTAIN FROM PLANS
OFCI = OWNER FURNISHED, CONTRACTOR INSTALLED

AUDIO-VIDEO SYSTEM EQUIPMENT LIST (CON'T)

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SYMBOL	DESCRIPTION	QTY	ACCEPTABLE TYPE
S	SPEAKER, 6", CEILING MOUNTED W/ GRILLE	OFP	COMMUNITY D6
ALS	ASSISTED LISTENING SYSTEM, PORTABLE	OFP	LISTEN LS-ADA
	EAR SPEAKER	2	LISTEN LA-164
1	EQUIPMENT RACK #1, WALL MOUNTED, 24RU	OFP	MIDDLE ATLANTIC DWR-24-17, W/FD-24
C	EQUIPMENT RACK #C, CREDENZA MOUNTED W/ INTEGRATED FAN	OFP	MIDDLE ATLANTIC SRSR-4-15 W/ FTA-3
DRAWER	2 RU RACK MOUNT DRAWER	A/R	MIDDLE ATLANTIC D2 IN EACH RACK
	PTZ DOME NETWORK CAMERA, CEILING MOUNTED, 720p, H.264, PoE, W/ MEMORY CARD	OFP	AXIS M5014-V W/ AXIS CAMERA COMPANION SOFTWARE
VIC M	VIDEO INTERCOM MASTER STATION, TOUCH SCREEN	OFP	AIPHONE JM-4MED
VIC S	VIDEO INTERCOM SLAVE STATION, TOUCH SCREEN	OFP	AIPHONE JM-4HD
VIC P	VIDEO INTERCOM DOOR STATION, W/ PTZ CAMERA	OFP	AIPHONE JK-DVF W/ SBX-DVF WEATHERPROOF INSTALLATION
IPS	INTERCOM POWER SUPPLY, 24 VDC, 2 AMP	OFP	AIPHONE PS-2420UL
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR, 8 AMP, FLAT PANEL MONITORS AND PROJECTOR	OFP	TRIPPLITE ISOBAR 6 ULTRA
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR, 20 AMP, RACK MOUNT	OFP	TRIPP LITE IBAR12-20ULTRA
S(X)	SPEAKER CABLE, (X) INDICATES NUMBER, IF MORE THAN ONE	A/R	SEE CABLE SCHEDULE, SHEET TA001
	RF CONNECTION		PREVIOUSLY INSTALLED
	CONNECTORS, SEE NOTE 5	A/R	
	POWER SUPPLIES, MISC. TRANSFORMERS, SIGNAL SENSORS, PROTOCOL CONVERTORS, SEE NOTES 4, 7, 8	A/R	
	PATCH CORDS, SEE NOTE 6	A/R	
	ADAPTER CABLES, SEE NOTE 9	A/R	
	CABLE, SEE AUDIO-VIDEO SYSTEMS CABLE SCHEDULE	A/R	
	HDMI CONNECTOR SUPPORT BRACKETS, NOTE 20	A/R	EXTRON LOCKIT
	NYLON BRAIDED EXPANDABLE SLEEVING	A/R	TECH FLEX FLEXO PET

A/R = AS REQUIRED, OFP = OBTAIN FROM PLANS
OFCI = OWNER FURNISHED, CONTRACTOR INSTALLED

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DFCM #: 13020300

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AUDIO-VIDEO SYSTEM EQUIPMENT LIST

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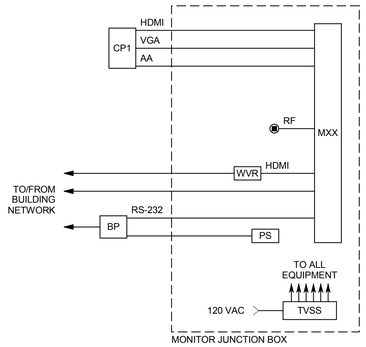
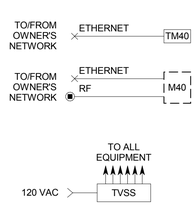


**NOTE:
SEE DISPLAY DEVICE SCHEDULE FOR MONITOR SIZE.

C1 SMALL SYSTEM RISER DIAGRAM

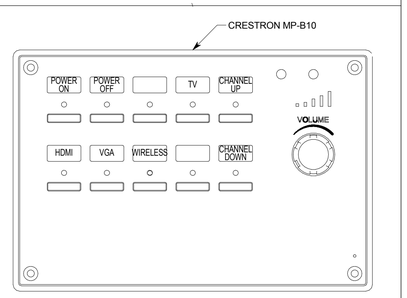
NO SCALE (ROOMS 101, 102H, 133, 134, 135, 136)



NOTE:
RF INPUT IN NIGHT ROOM 117 ONLY.

B1 TYPICAL FLAT PANEL TV RISER DIAGRAM

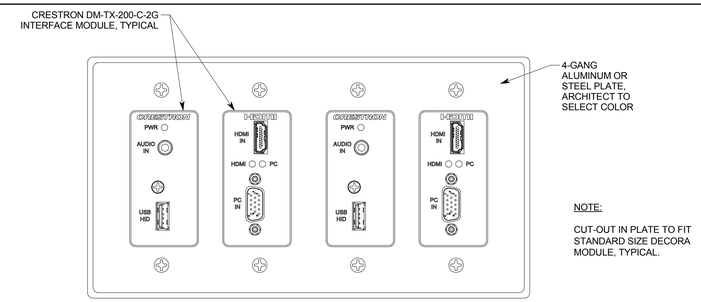
NO SCALE



A1 BUTTON PANEL CONTROLLER DETAIL

NO SCALE

BP



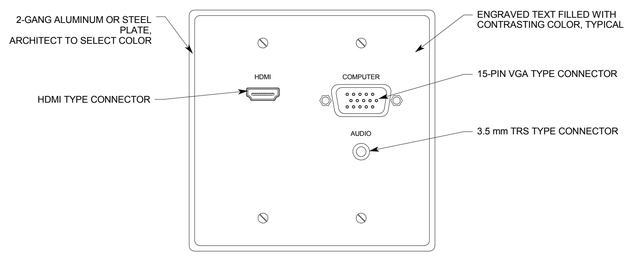
NOTE:

CUT-OUT IN PLATE TO FIT STANDARD SIZE DECORA MODULE, TYPICAL.

D2 FBAV CONNECTION PANEL DETAIL

NO SCALE

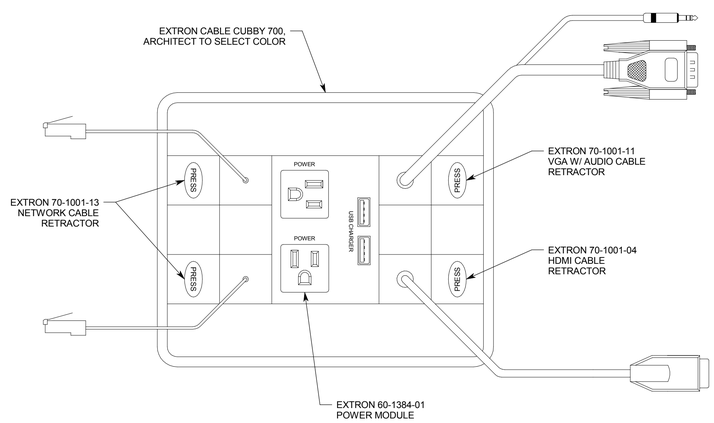
FBAV



C2 CONNECTION PANEL #1 DETAIL

NO SCALE

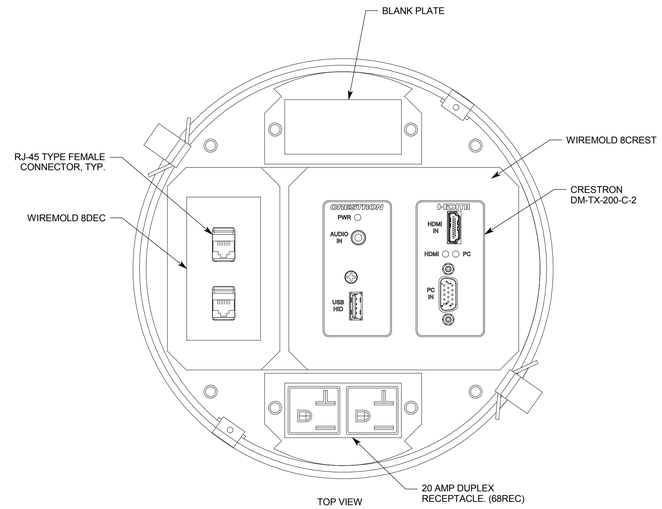
CP1



A2 CONNECTION PANEL #2 DETAIL

NO SCALE

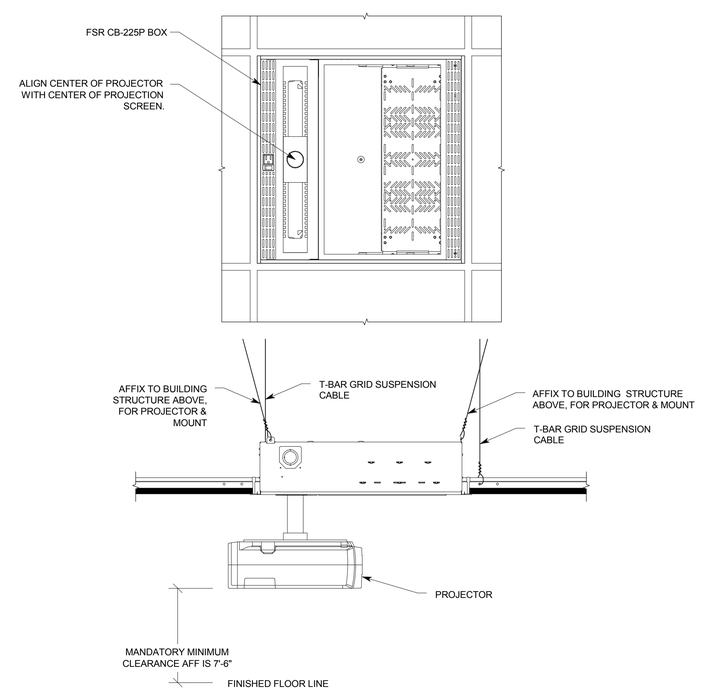
CP2



C4 PTAV CONNECTION PANEL DETAIL

NO SCALE

PTAV



A4 LAY-IN CEILING PROJECTOR MOUNT INSTALLATION DETAIL

NO SCALE

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AUDIO-VIDEO SYSTEM DETAILS

TA501

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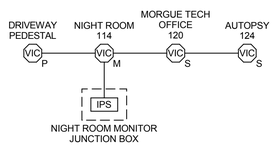
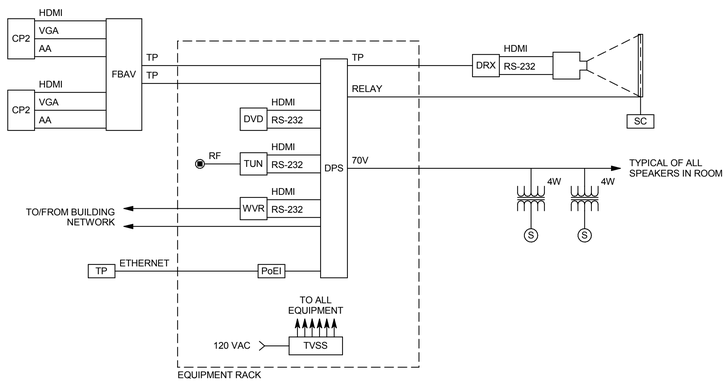
D1 PTZ CAMERA RISER DIAGRAM

NO SCALE



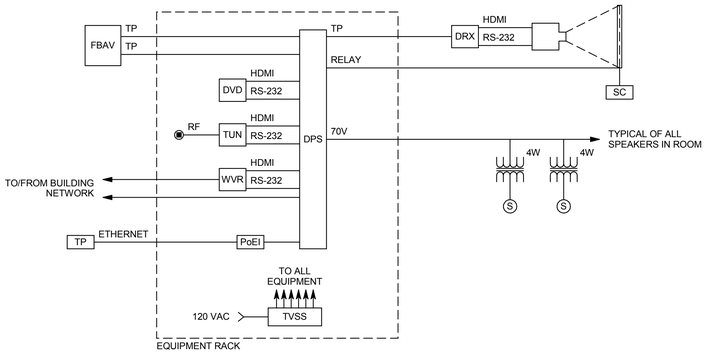
C1 VIDEO INTERCOM RISER DIAGRAM

NO SCALE



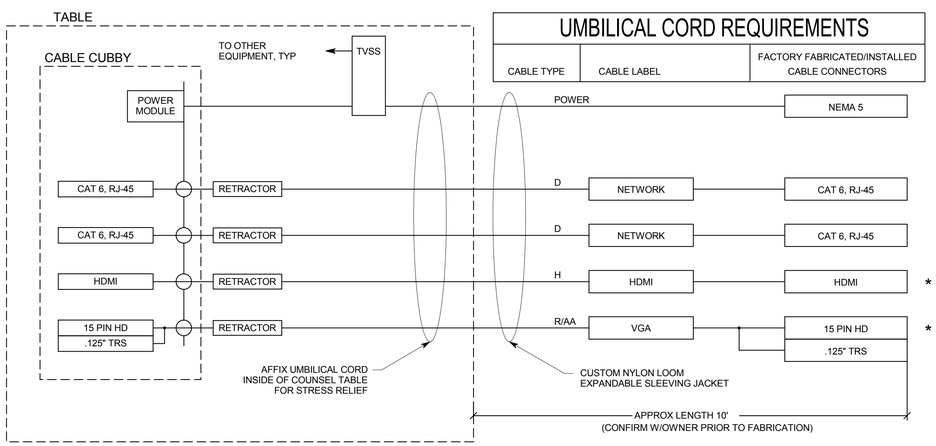
C2 AUDIO/VISUAL SYSTEM RISER DIAGRAM

NO SCALE (ROOM 102F)



C4 AUDIO/VISUAL SYSTEM RISER DIAGRAM

NO SCALE (ROOM 131)



UMBILICAL CORD REQUIREMENTS

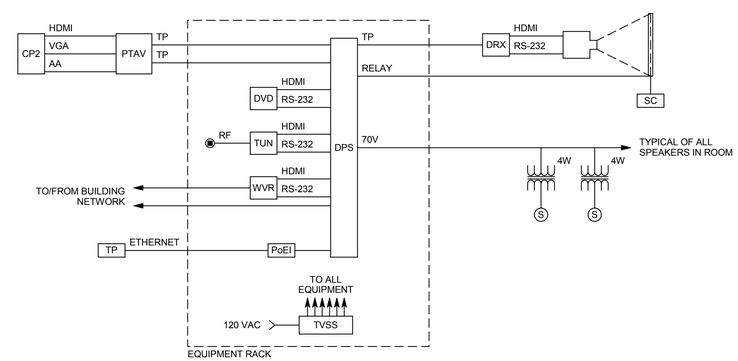
CABLE TYPE	CABLE LABEL	FACTORY FABRICATED/INSTALLED CABLE CONNECTORS

NOTES:

1. PROVIDE UMBILICAL CORDS WITH FACTORY INSTALLED CONNECTORS. DO NOT FABRICATE CONNECTORS ON SITE OR AT SHOP.
2. CONFIRM THE OWNER'S DESIRED UMBILICAL CORD LENGTH PRIOR TO FABRICATION.

A1 CONFERENCE TABLE UMBILICAL CORD DETAIL

NO SCALE



A4 AUDIO/VISUAL SYSTEM RISER DIAGRAM

NO SCALE (ROOMS 306, 310)

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ARCHITECT-ENGINEER STAMP

Unified State Laboratory Module 2

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