SCOTT'S CREEK WWTP

9708 OLD BROWNSVILLE ROAD
LAKELAND, TENNESSEE 38002

CONSULTANTS

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CONSTRUCTION DOCUMENTS
12/19/2016

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NOT TO SCALE

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APPLICABLE CODES

MEMPHIS/SHELBY COUNTY CONSTRUCTION CODE ENFORCEMENT:

2009 INTERNATIONAL BUILDING CODE
2009 INTERNATIONAL BUILDING CODE
2008 NATIONAL ELECTRIC CODE
2009 ICC/ANSI A117.1 ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES
2009 INTERNATIONAL GAS CODE LOCAL AMENDMENTS
2009 INTERNATIONAL PLUMBING CODE LOCAL AMENDMENTS
2009 INTERNATIONAL ENERGY CONSERVATION CODE

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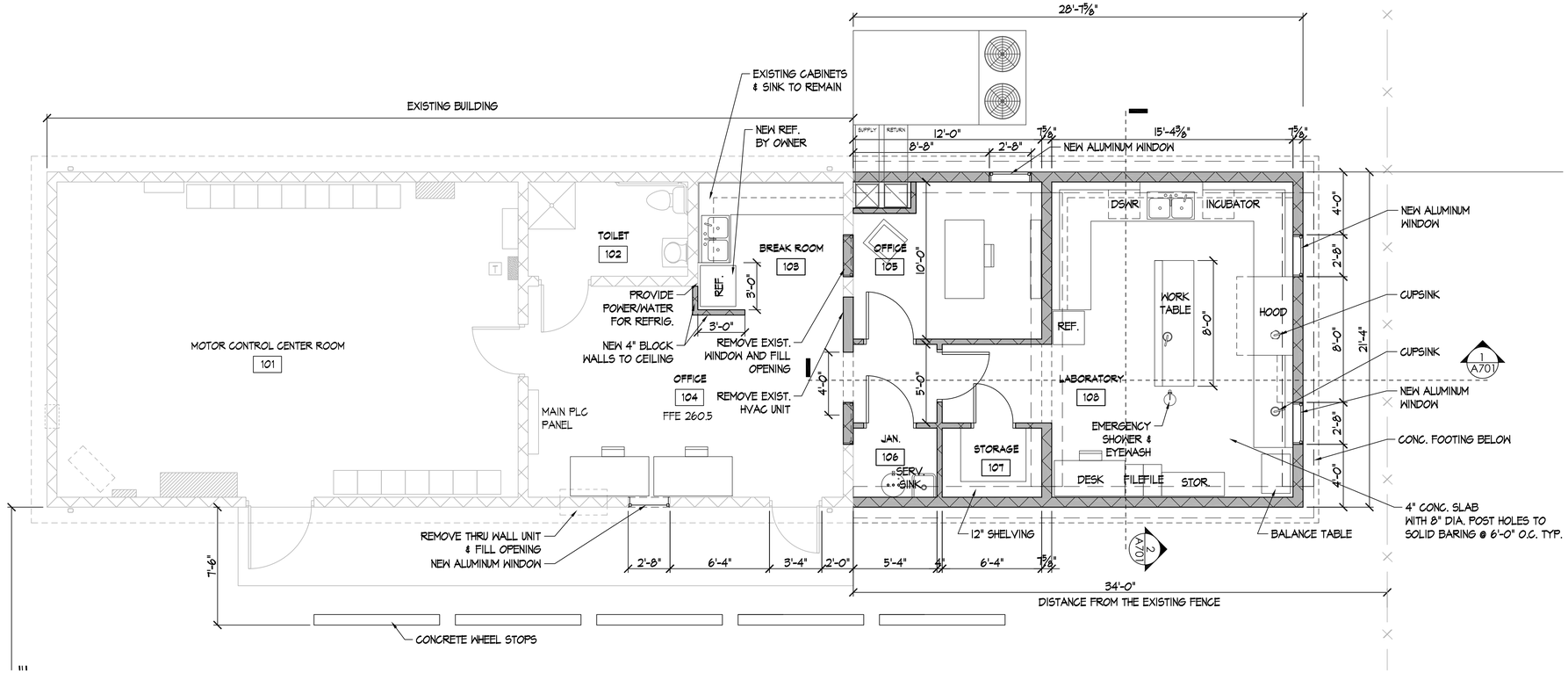
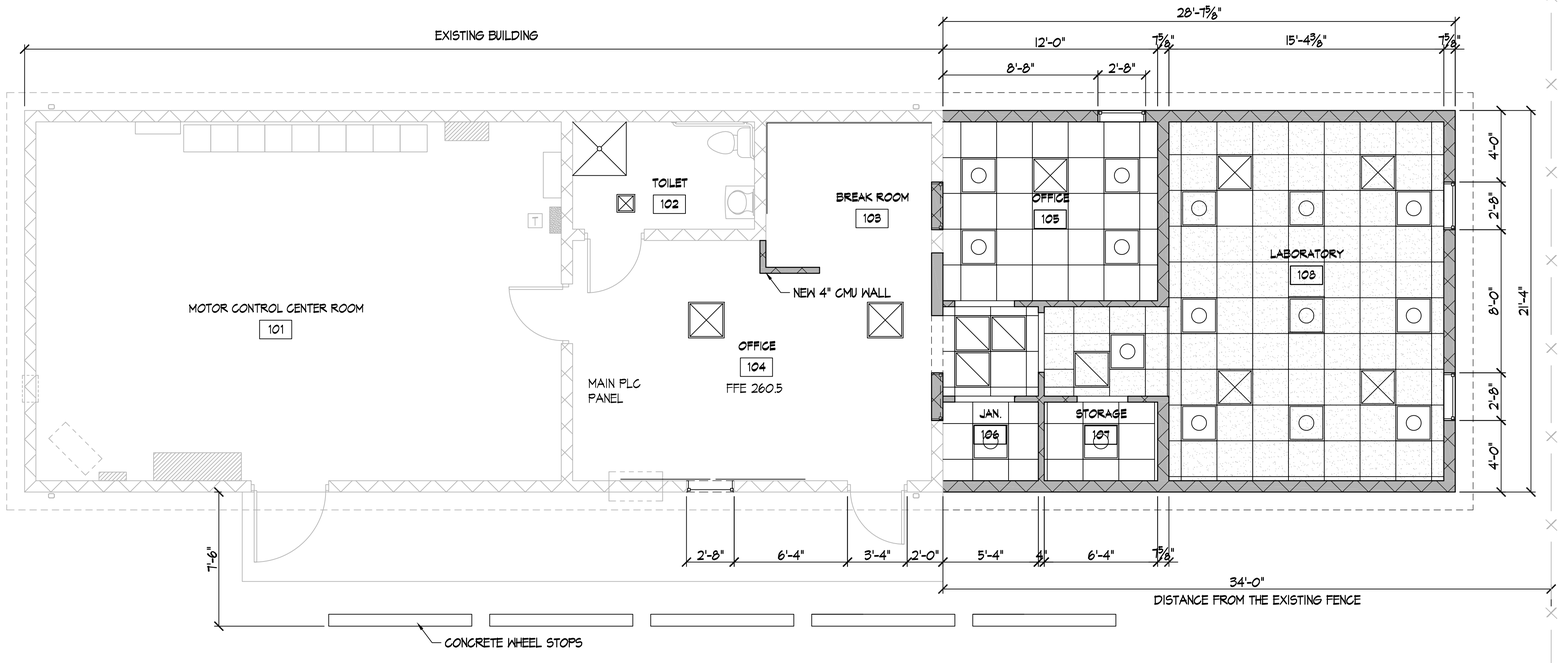
INDEX & CODE DATA

T101



1 OFFICE / LABORATORY & MOTOR CONTROL BUILDING - FLOOR PLAN
SCALE 1/4" = 1'-0"



2 REFLECTED CEILING PLAN
SCALE 1/4" = 1'-0"

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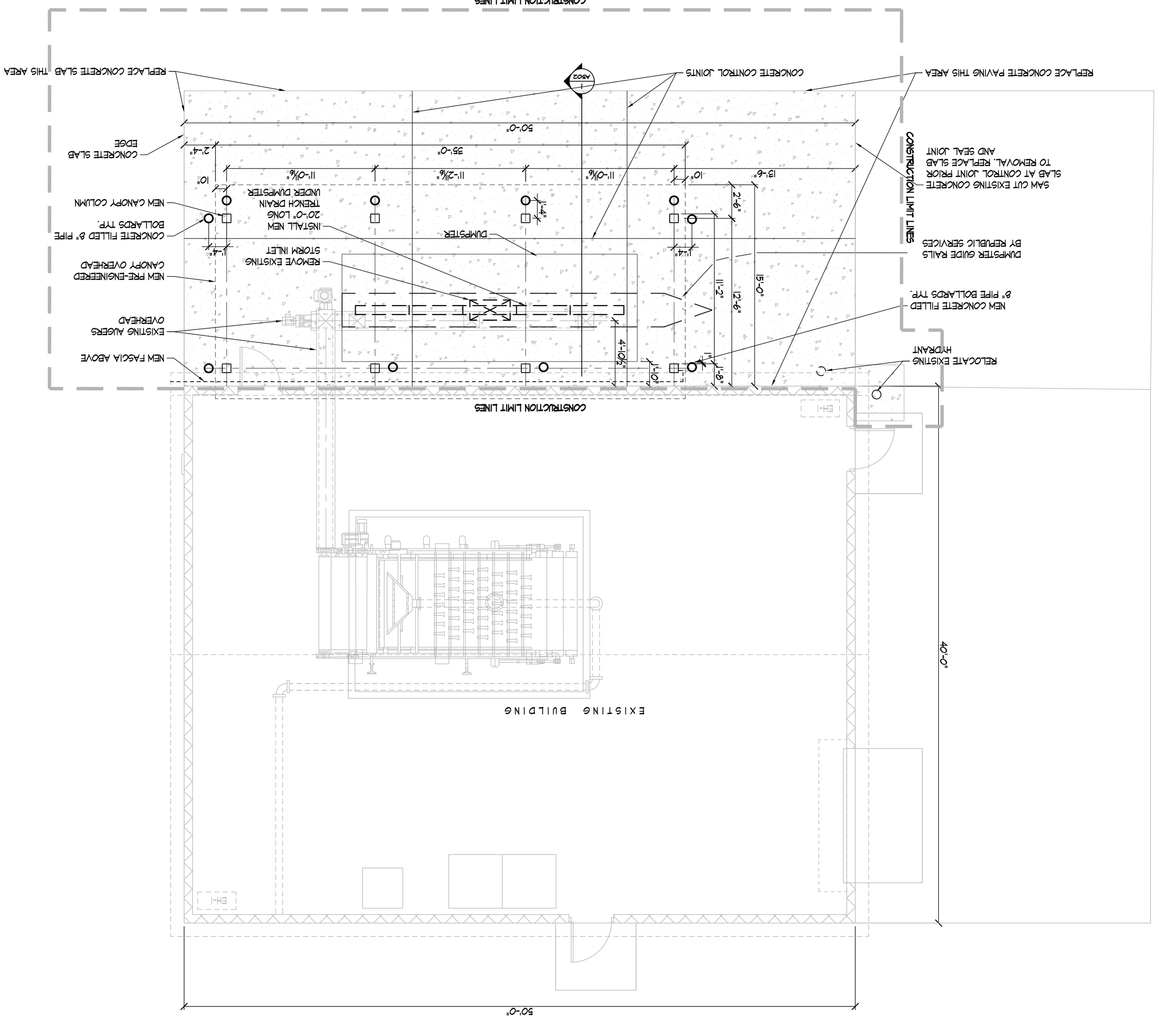
OFFICE / LAB BUILDING - FLOOR PLAN

A101



SLUDGE PRESS BUILDING - FLOOR PLAN
1
SCALE 1/4" = 1'-0"

SLUDGE PRESS BUILDING CONSTRUCTION NOTES:

1. PROTECT EXISTING BUILDING AND AUGERS (CONVEYORS) AT ALL TIMES. ANY DAMAGE TO EXISTING FACILITIES OR EQUIPMENT TO BE REPAIRED AT THE CONTRACTORS EXPENSE.
2. TRENCH DRAIN SHALL BE HUBBLE POWER SYSTEMS POLYCAST 600 SERIES PRE-SLOPED TRENCH DRAIN SYSTEM (FIVE TOUNGE & GROVED 6-1/4" X 48" NOMINAL SECTIONS) WITH DUCTILE IRON SLOTTED GRATE. PROVIDE INSTALLATION CHAIRS, END CAPS, GRATE LOCKING DEVICES, AND ALL ACCESSORIES, ETC AS REQUIRED FOR COMPLETE INSTALLATION AND TIE IN INTO EXISTING DRAINAGE SYSTEM WHERE INLET IS TO BE REMOVED.
3. SLOPE ONLY AREA WITHIN 24" OF DUMPSTER INTO TRENCH DRAIN. TRENCH DRAIN IS FOR DUMPSTER OVERFLOW OR SPILLAGE ONLY.
4. SLOPE ALL CONCRETE PAVING AWAY FROM BUILDING, TRENCH DRAIN AND DUMPSTER. ALL STORM DRAINAGE TO FLOW AWAY FROM DUMPSTER AREA.
5. ALL CONCRETE PAVING TO BE 8" THICK WITH 10" THICKEN EDGE FOR 18", FROM EACH EDGE THEN SLOPE TO 8" THICK WITHIN 18". ALL CONCRETE TO BE FIBER REINFORCED. SAW CUT CONTROL JOINTS AT 17'-0" MAX. EACH DIRECTION TO 1/3 OF SLAB THICKNESS WITHIN 8 HOURS OF SLAB PLACEMENT. JOINTS TO BE SEALED WITH LOW MODULUS SILICONE SEALANT.
6. PROVIDE 8" CONCRETE FILLED PIPE BOLLARDS AS SHOWN TO PROTECT ALUMINUM COLUMNS. BOLLARDS ADJACENT TO DUMPSTER TO PROJECT 1" BEYOND THE FACE OF COLUMN TO PROTECT AGAINST DAMAGE BY DUMPSTER.
7. RELOCATE EXISTING WATER HYDRANT AROUND TO THE FRONT OF THE BUILDING AS SHOWN. REMOVE AND REPLACE ANY CONCRETE PAVING AS REQUIRED.
8. NEW DUMPSTER GUIDE AND STOP RAILS TO BE PROVIDED AND INSTALLED BY REPUBLIC SERVICES. COST NOT INCLUDED IN THIS CONTRACT.
9. PROTECT ASPHALT PAVING AREAS DURING CONSTRUCTION AND REPAIR ASPHALT AS REQUIRED AFTER CONSTRUCTION AND REMOVING AND REPLACING CONCRETE PAVING.
10. NEW ALUMINUM CANOPY SHALL BE PRE-ENGINEERED, PRE-FABRICATED ALUMINUM CANOPY SIMILAR TO THAT PROVIDED BY MITCHELL METALS, 1761 MCCODA DRIVE, SUITE A, SMYRNA, GA 30080. CANOPY SHALL USE PERIMETER EXTRUDED GUTTER AND EXTRUDED DECKING. ALLOW DECKING TO SIT FLUSH TO THE TOP OF THE BEAM. BEAMS ARE TO BE NOTCHED TO RECEIVE THE GUTTER TO THE EXTRUDED CAP AND PAN SHALL INTERLOCK TO EXTRUDED DECKING SHALL A ROLL-LOCK DESIGN WHERE MAKE A RIGID STRUCTURE. CANOPY SHALL DRAIN FROM THE DECKING TO THE PERIMETER GUTTER, INTO THE DRAIN BEAM AND DISCHARGE AT THE BOTTOM OF THE COLUMN EXCEPT WHERE SHOWN TO DRAIN ONTO EXISTING BUILDING ROOF THEN INTO NEW BOX GUTTER (THEREFORE NOT DRAINING RAIN WATER INTO TRENCH DRAIN). FINISH OF ALL ALUMINUM TO BE FACTORY BAKED ENAMEL IN COLOR AS SELECTED. SUBMIT SHOP DRAWINGS FOR APPROVAL. GENERAL CONTRACTOR SHALL POUR THE REQUIRED FOOTER SIZE AROUND THE STYROFOAM BLOCKOUTS PROVIDED BY THE CANOPY MANUFACTURER.

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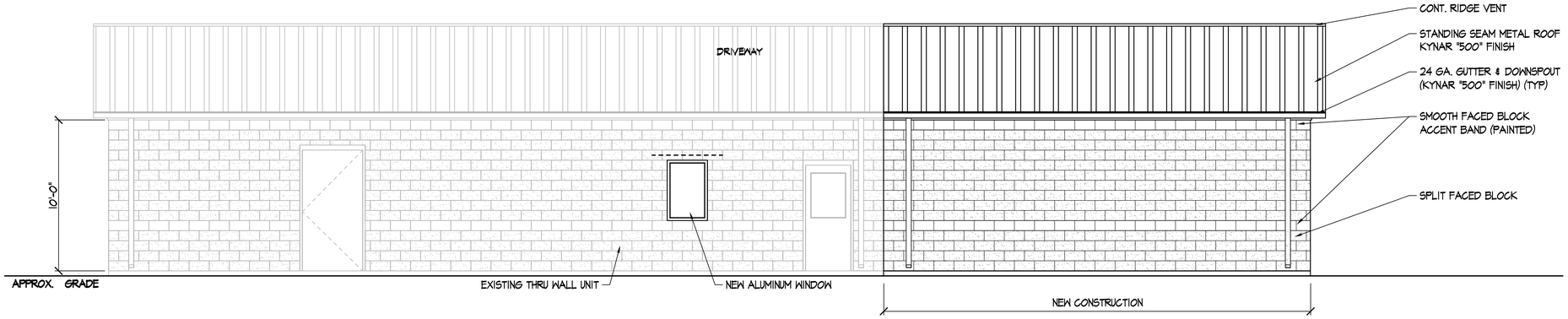
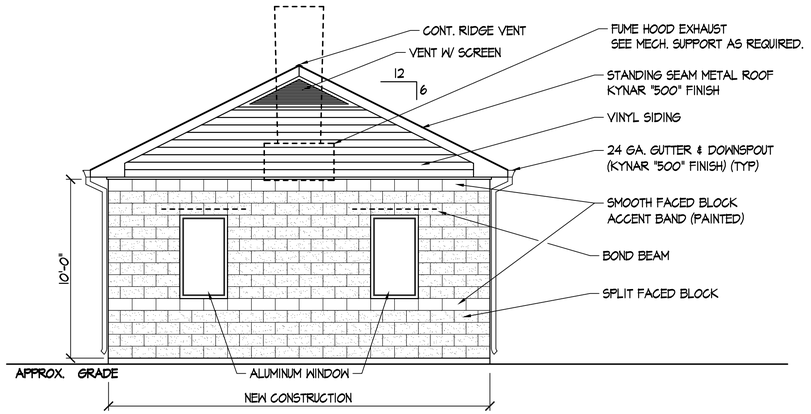
SLUDGE PRESS BUILDING - FLOOR PLAN

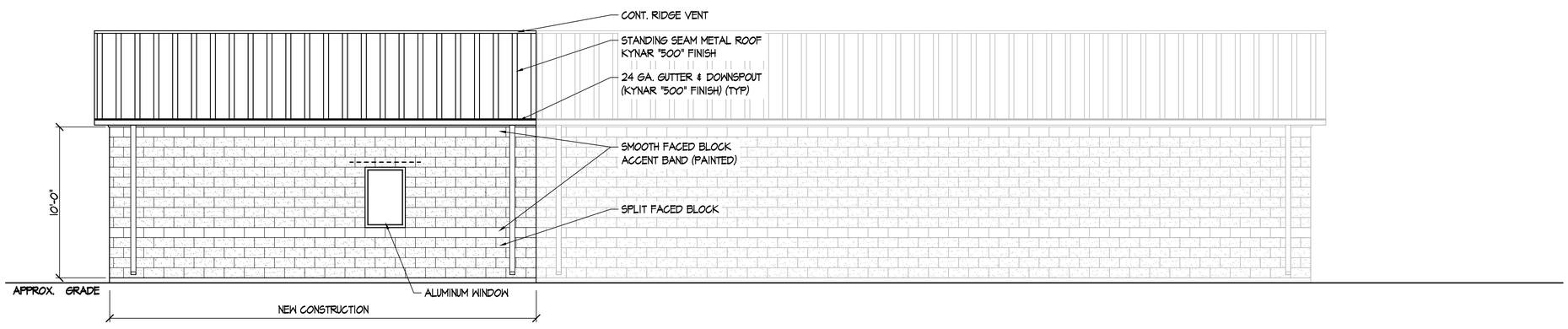
A102



1 OFFICE / LABORATORY BUILDING - ELEVATION 'A'
SCALE 1/4" = 1'-0"



2 OFFICE / LABORATORY BUILDING - ELEVATION 'B'
SCALE 1/4" = 1'-0"



3 OFFICE / LABORATORY BUILDING - ELEVATION 'C'
SCALE 1/4" = 1'-0"

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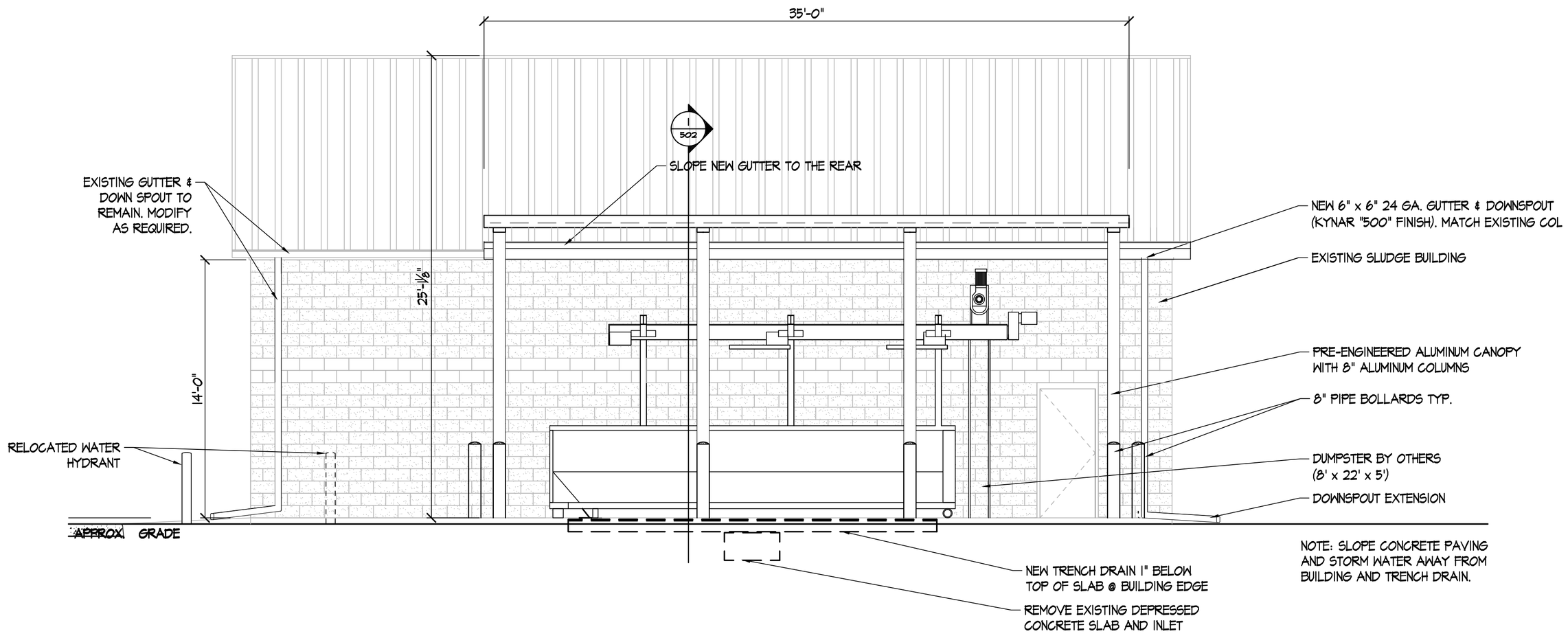
OFFICE / LAB BUILDING - ELEVATIONS

A301



1 SLUDGE PRESS BUILDING - ELEVATION "A"
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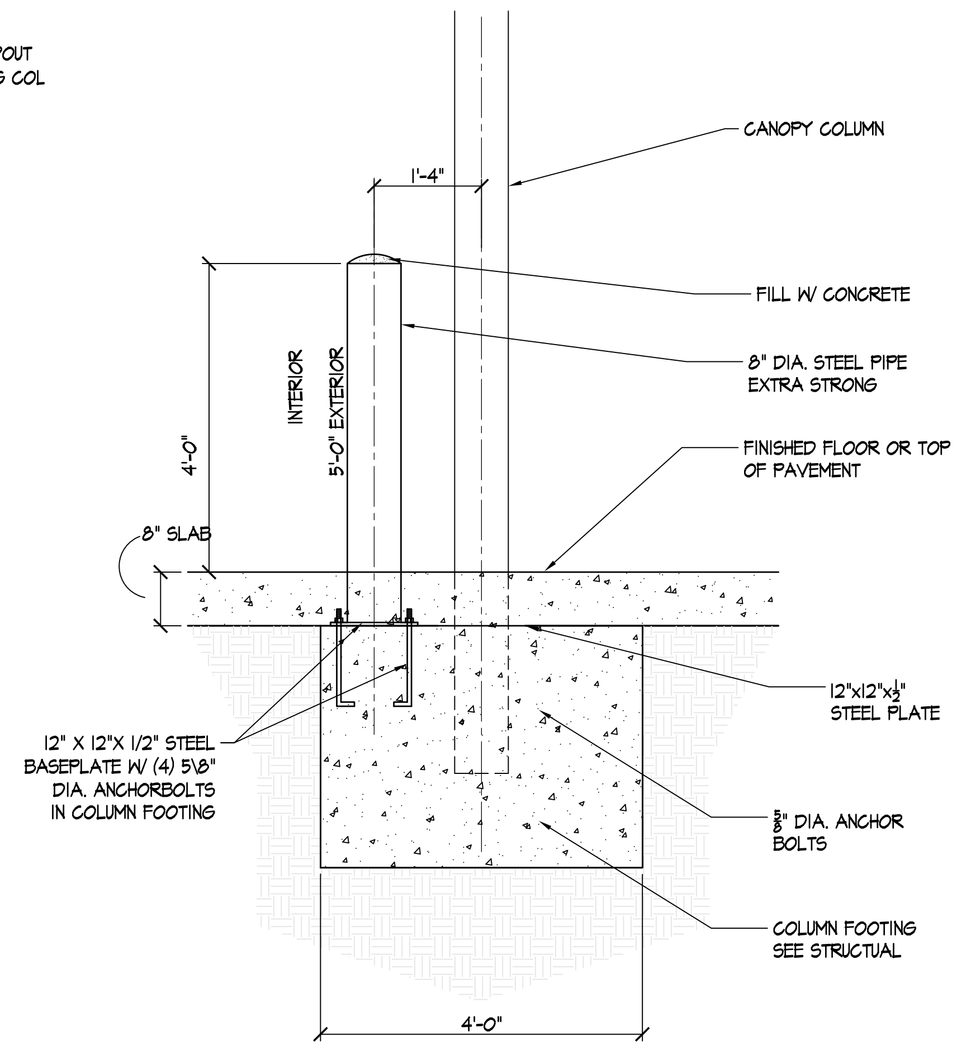
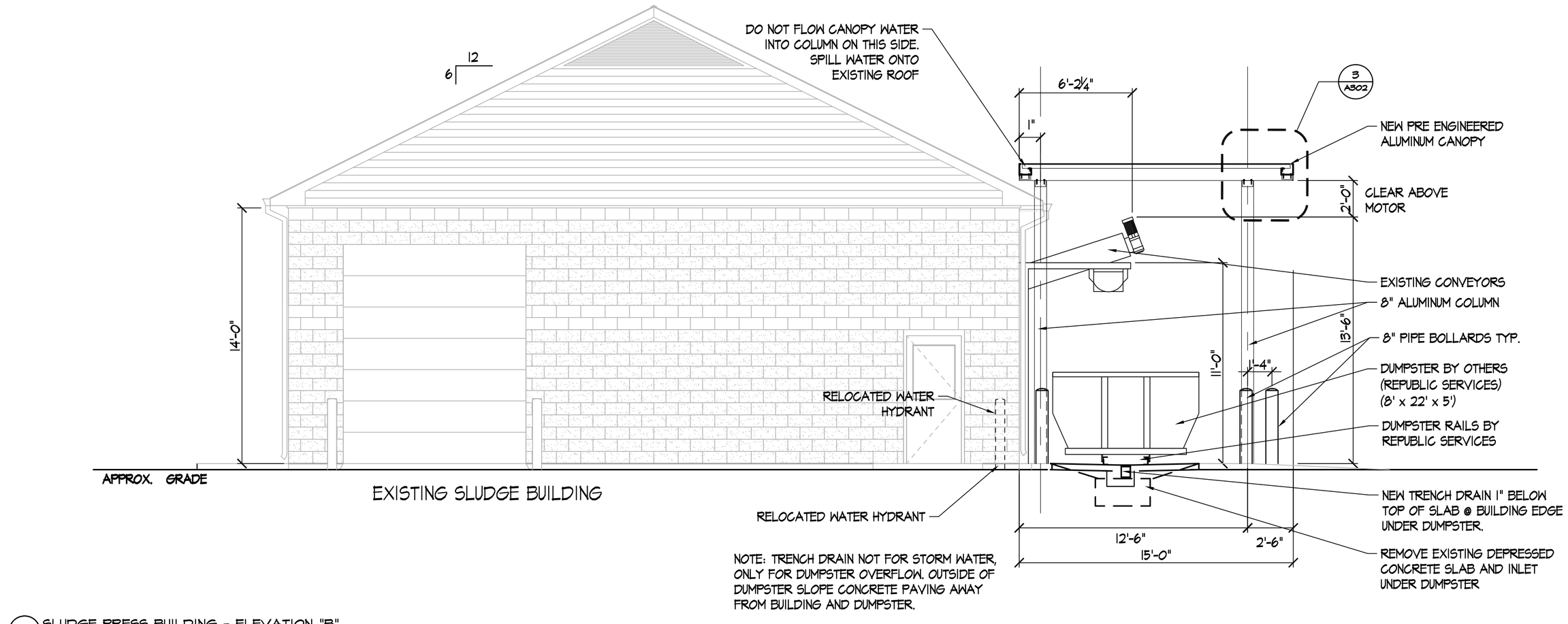
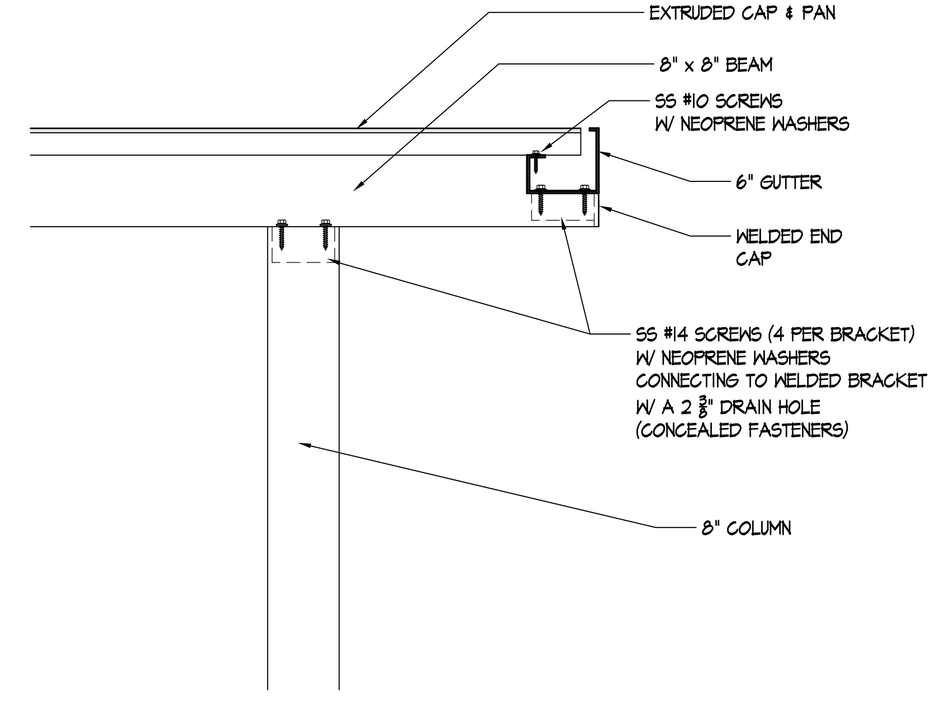


4 BOLLARD DETAIL
SCALE 3/4" = 1'-0"



2 SLUDGE PRESS BUILDING - ELEVATION "B"
SCALE 1/4" = 1'-0"



3 DETAIL @ PRE-ENGINEERED ALUMINUM CANOPY ROOF
SCALE 1" = 1'-0"

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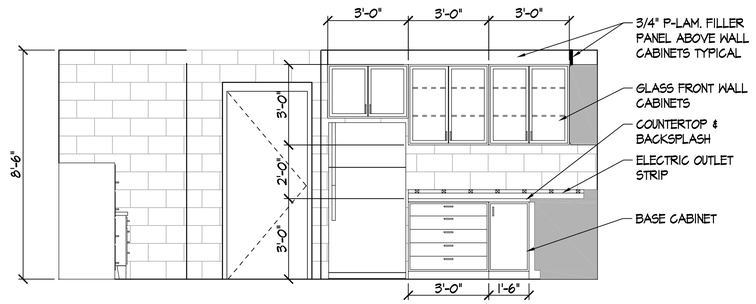
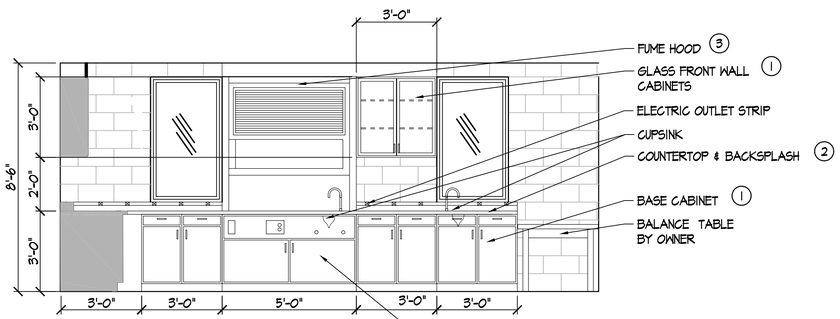
SLUDGE PRESS BUILDING - ELEVATIONS

A302



1 INT. ELEVATION - LABORATORY 108 WEST WALL
SCALE: 3/8" = 1'-0"



2 INT. ELEVATION - LABORATORY 108 EAST WALL
SCALE: 3/8" = 1'-0"

BUILDING CONSTRUCTION SPECIFICATIONS:

1. MATCH EXISTING MATERIALS, FINISHES AND DETAILS UNLESS INDICATED OTHERWISE ON CURRENT SHEETS.

2. (SEE ROOM FINISH SCHEDULE)

3. DOORS & FRAMES:
   1. FRAMES SHALL BE 3'-4"x7'-4" HOLLOW METAL WITH 4" HEAD TO FIT MASONRY OPENINGS.
   2. DOORS SHALL BE 3'-0"x6'-8" HOLLOW METAL INSULATED DOORS WITH HARDWARE TO MATCH EXISTING. PAINT DOORS TO MATCH EXISTING.
   3. FILL CMU CORE ADJACENT TO BOTH DOOR JAMBS W/ #5 REBAR VERT. AND 2500 PSI GROUT TO RECEIVE ANCHORS.
   4. PROVIDE 8" CMU BOND BEAM HEADER WITH (2) # 5'S.

4. WINDOWS:
   1. NEW WINDOWS TO BE 1" TEMPERED INSULATED GLAZED ALUMINUM WINDOWS TO MATCH EXISTING REMOVED.
   2. FILL CMU CORE ADJACENT TO BOTH DOOR JAMBS W/ #5 REBAR VERT. AND 2500 PSI GROUT TO RECEIVE ANCHORS.
   3. PROVIDE 8" CMU BOND BEAM HEADER WITH (2) # 5'S. EACH WINDOW.

5. PROVIDE SEALED CONTROL JOINT @ MASONRY BUTT JOINT. SAW CUT PRE FORMED GASKET INTO EXISTING MASONRY PRIOR TO INSTALLATION OF NEW MASONRY WALL. CAULK BOTH SIDES AND PAINT.

LABORATORY SPECIFICATIONS:

1. LAB BASE AND WALL CABINETS:
   a. EQUAL TO MERILLAT OR KRAFTMADE MANUFACTURED KITCHEN TYPE CABINETS. SEE DRAWINGS FOR SIZES AND CONFIGURATION.
   b. FINISH: PLASTIC LAMINATE COVERED INSIDE AND OUT. COLOR TO BE WHITE OR COLOR AS SELECTED FROM STANDARD COLORS AVAILABLE.
   c. BASE CABINETS: 36" TALL AND 24" DEEP TYPICAL. INSTALL 6" OUT FROM CONCRETE BLOCK WALL TO FACILITATE PLUMBING AND ELECTRICAL BETWEEN WALL AND CABINETS.
   d. WALL CABINETS: 12" DEEP AND 36" TALL.
   e. DOORS: PLASTIC LAMINATE COVERED FLUSH SLAB PANELS WITH CONCEALED HINGES AND STAINLESS STEEL WIRE PULLS AS SELECTED. WALL CABINET DOORS TO HAVE CLEAR GLASS PANELS.
   f. DRAWERS: FULL METAL RAILS WITH SOFT CLOSE. PLASTIC LAMINATE COVERED.
   g. END PANELS: PROVIDE END PANELS AT EXPOSED CABINET ENDS.

2. LAB COUNTERTOPS:
   a. 1" THICK EPOXY RESIN MONOLITHIC, SMOOTH, NON GLARE FINISH.
   b. 1" OVERHANG WITH 1/8" CONTINUOUS DRIP GROOVE ON ALL EXPOSED EDGES.
   c. MINIMIZE JOINTS.
   d. COLOR: BLACK.
   e. BACKSPLASH: 4" HIGH X 6" DEEP BACKSPLASH WITH 120V AC ELECTRICAL WHITE PLUG MOLD IN FACE OF BACKSPLASH WITH OUTLETS AT 12" OC. PROVIDE ONE 220V AC OUTLET ON EACH RUN OF OUTLETS EACH WALL. CAULK BACKSPLASH AT WALL.
   f. PROVIDE DRAIN BOARD IN COUNTERTOP ON RIGHT SIDE OF TWO COMPARTMENT SINK.
   g. CUP SINKS SHALL BE PROVIDED WHERE SHOWN AND SHALL BE INTEGRAL TO THE TOP. PROVIDE SINGLE LEVER COLD WATER ONLY GOOSE NECK WATER FAUCET AND DRAIN AT EACH SINK. SEE DRAWINGS FOR LOCATION.

3. LAB FUME HOOD: EQUAL LABCONCO 5' PROTECTOR XSTREAM LABORATORY HOOD #9110510002 (CAT#1538-37)
   a. VERTICAL RIDING SASH WITH BY-PASS AIRFLOW DESIGN
   b. TEMPERED SAFETY GLASS PANELS
   c. INTERIOR LIGHTING AND DUPLEX ELECTRICAL RECEPTACLE
   d. POWDER COATED STAINLESS STEEL
   e. PROVIDE DUCTWORK AND EXHAUST BLOWER TO OUTSIDE
   f. ECO-FOIL ENERGY SAVING AIR FOIL TO BE PROVIDED
   g. FUME HOOD TOP TO BE 60" X 31" TO FIT HOOD WITH 1/4" DISHED TOP TO CONTAIN SPILLS. MATERIAL AND FINISH TO BE SAME AS OTHER COUNTERTOPS BUT PROVIDED BY HOOD MANUFACTURER.
   h. CABINET UNDER FUME HOOD AND TOP BY HOOD MANUFACTURER MATCHING OTHER CABINETS.

4. PLUMBING:
   a. PROVIDE JUST 18" X 36" TWO COMPARTMENT DEEP UNDER-MOUNT 18 GA. STAINLESS STEEL SINK (JDX-1842-A) WITH DELTA MATEO (9183-DST) IN ARCTIC STAINLESS SINGLE HANDLE HOT AND COLD WATER GOOSE NECK WITH SPRAY IN THE NECK. PROVIDE ADDITIONAL AUXILIARY SINGLE LEVER COLD WATER ONLY GOOSE NECK FAUET IN STAINLESS STEEL AT TWO COMPARTMENT SINK WITH NEEDLE VALVE.
   b. DEIONIZED WATER PURIFICATION SYSTEM: PROVIDE FOR ALL LAB WATER OUTLETS INCLUDING DISHWASHER AND 2 COMPARTMENT SINK. SEE PLUMBING FOR REQUIREMENTS. SURFACE MOUNT WATER PIPING ON WALL, THRU BACKSPLASH TO RUN BEHIND CABINETS.
   c. EMERGENCY EYE WASH: EQUAL TO GUARDIAN G1825 EMERGENCY PEDESTAL MOUNT EYEWASH W/ STAINLESS STEEL BOWL, STAINLESS STEEL DUST COVER AND THERMOSTATIC MIXING VALVE. SEE PLUMBING.

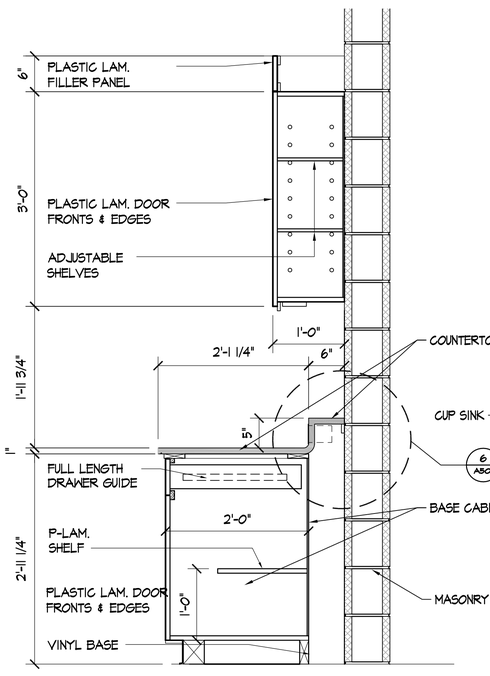
5. HVAC:
   a. FUME HOOD EXHAUST AND DUCTWORK. SEE MECHANICAL.
   b. AAON ALL ELECTRIC AC UNIT WITH DUCT WORK TO OFFICE AND LAB. SEE MECHANICAL.

6. ELECTRICAL:
   a. ALL LIGHTING TO BE LED.
   b. PROVIDE LED UNDER-CABINET LIGHTING.
   c. PROVIDE 110 OUTLETS IN BACKSPLASH AT 12" OC.
   d. PROVIDE 220 OUTLETS ONE PER RUN OF OUTLETS PER WALL.
   e. NOTE- FUME HOOD LIGHTING AND SWITCH IS WITHIN HOOD. PROVIDE POWER.
   f. SEE ELECTRICAL FOR DETAILS.

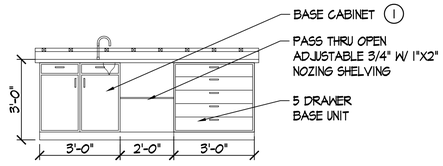
7. EQUIPMENT: BY OWNER
   a. DISHWASHER
   b. UNDER-COUNTER INCUBATOR: 24" WIDE EQUAL TO NOR-LAKE, THOMAS SCIENTIFIC OR FISHER SCIENTIFIC
   c. DESK
   d. FILE CABINET
   e. STORAGE
   f. BALANCE TABLE

ROOM FINISH SCHEDULE

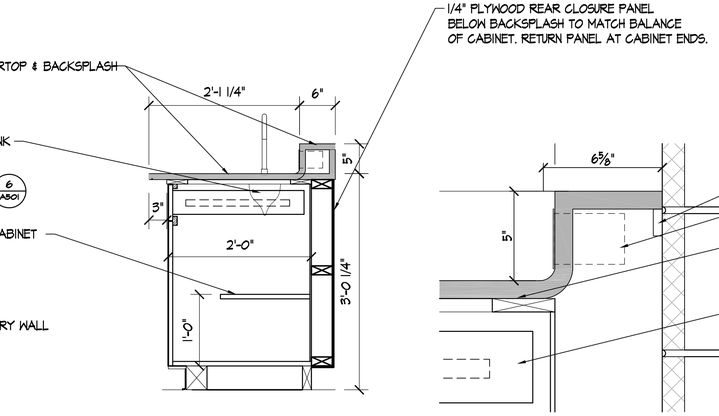
ROOM NO.	ROOM NAME	FLOOR	BASE	WAINSCOT	WALLS	CEILING	CEILING HEIGHT	REMARKS
101	MOTOR CONTROL ROOM	EXISTING	N/A	NONE	N/A		-	
102	TOILET	EXISTING	N/A	NONE	N/A		-	
103	BREAK ROOM	EXISTING	N/A	NONE	N/A		-	
104	OFFICE	EXISTING	N/A	NONE	N/A		-	
105	OFFICE	VINYL COMP. TILE	RUBBER	NONE	EPOXY PAINT	2' x 2' ACOUSTICAL	8'-6"	
106	JANITOR'S ROOM	VINYL COMP. TILE	RUBBER	NONE	EPOXY PAINT	2' x 2' ACOUSTICAL	8'-6"	
107	STORAGE ROOM	VINYL COMP. TILE	RUBBER	NONE	EPOXY PAINT	2' x 2' ACOUSTICAL	8'-6"	
108	LABORATORY	VINYL COMP. TILE	RUBBER	NONE	EPOXY PAINT	2' x 2' ACOUSTICAL	8'-6"	



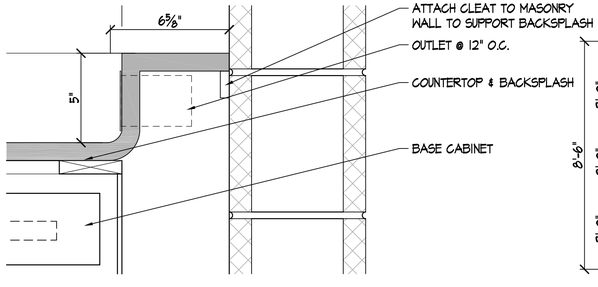
3 TYPICAL BASE CABINET
SCALE: 1" = 1'-0"



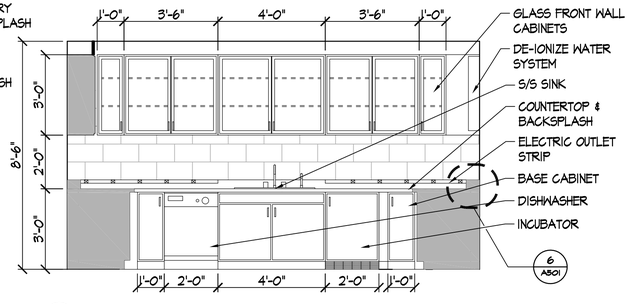
4 INT. ELEVATION - LABORATORY ISLAND
SCALE: 3/8" = 1'-0"



5 ISLAND BASE CABINET
SCALE: 1" = 1'-0"



6 DETAIL @ BACKSPLASH
SCALE: 3" = 1'-0"



7 INT. ELEVATION - LABORATORY 108 NORTH WALL
SCALE: 3/8" = 1'-0"

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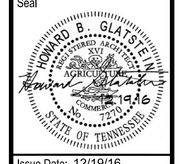

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OFFICE / LAB BUILDING - INTERIOR ELEVATIONS

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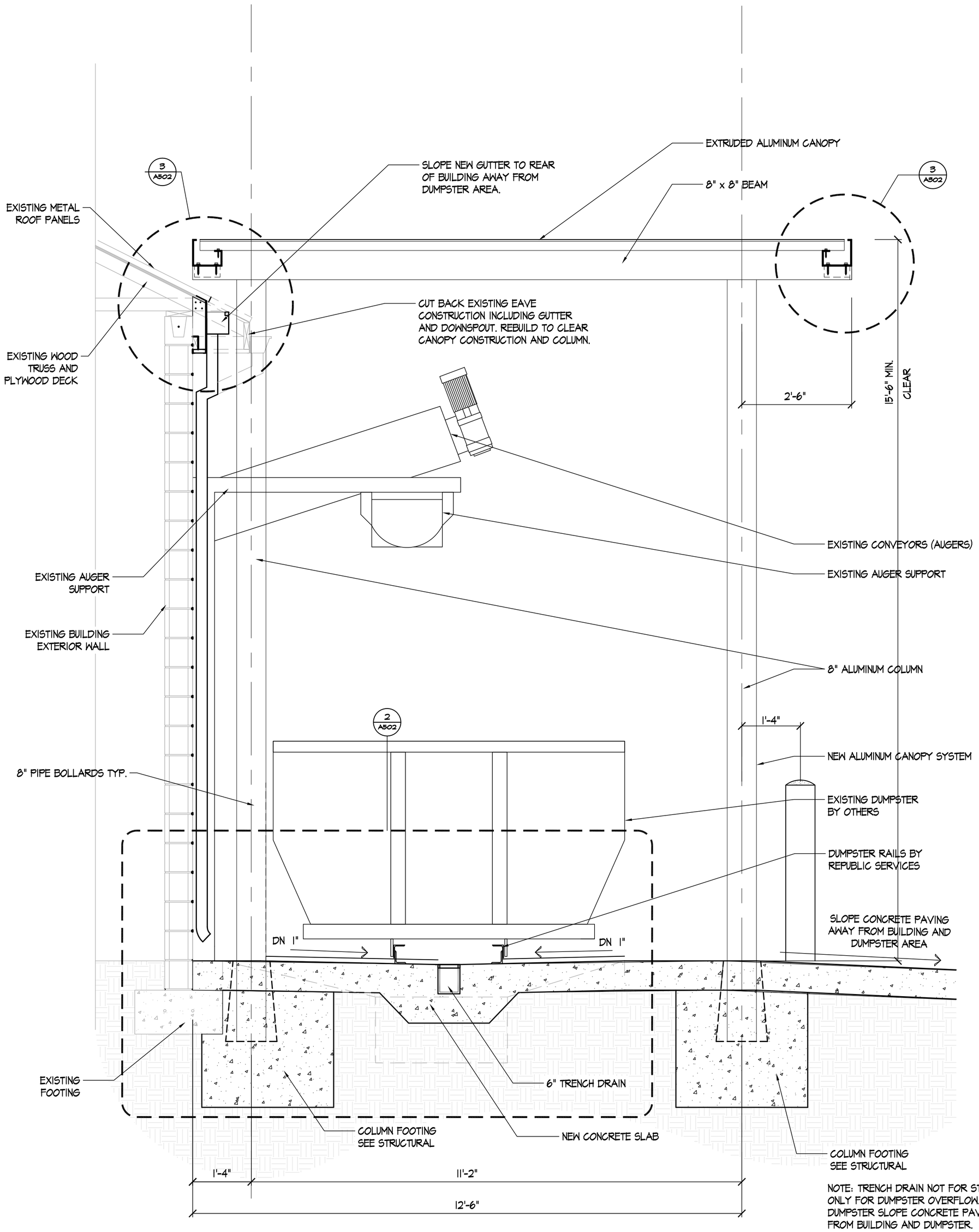
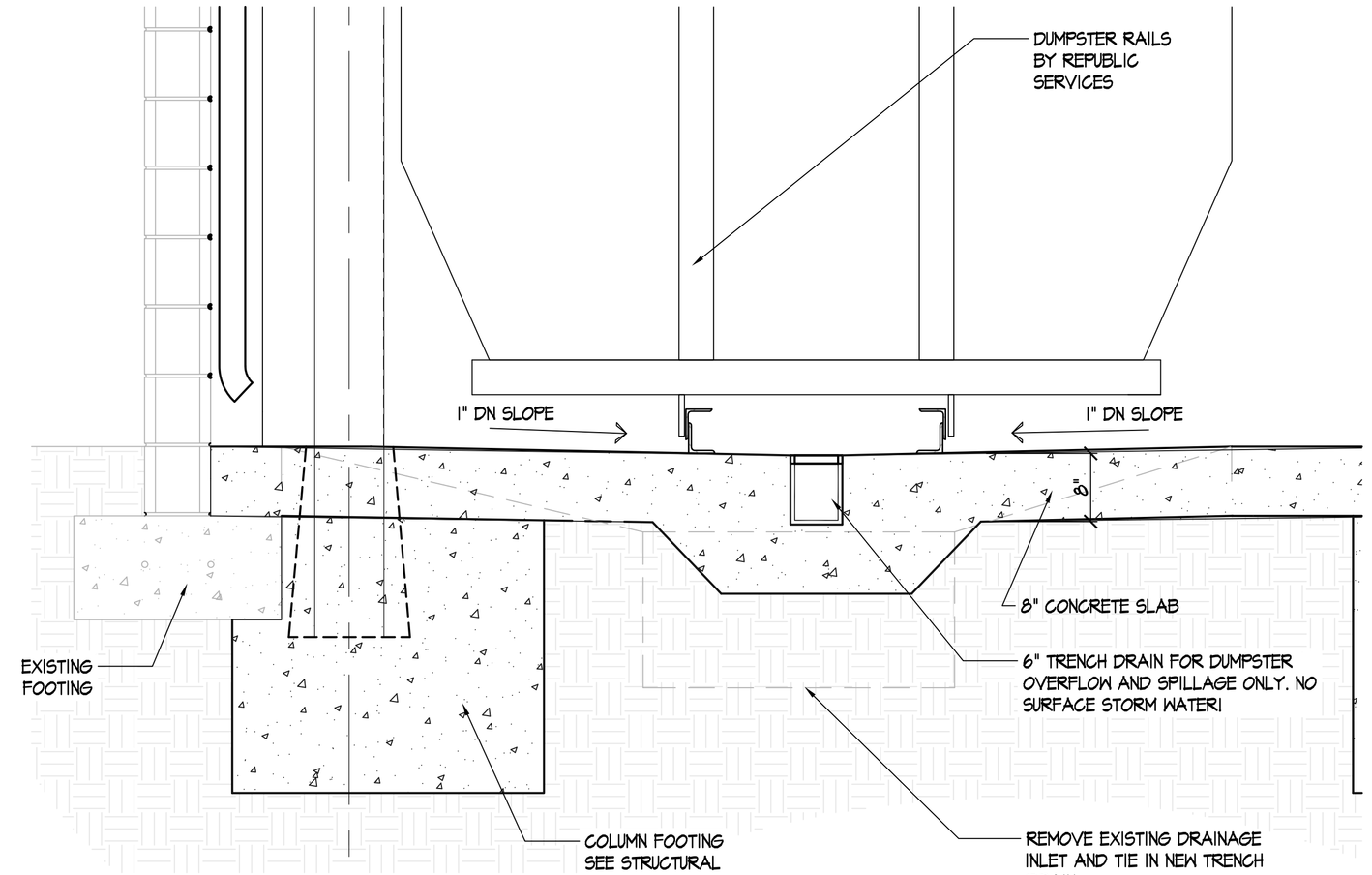
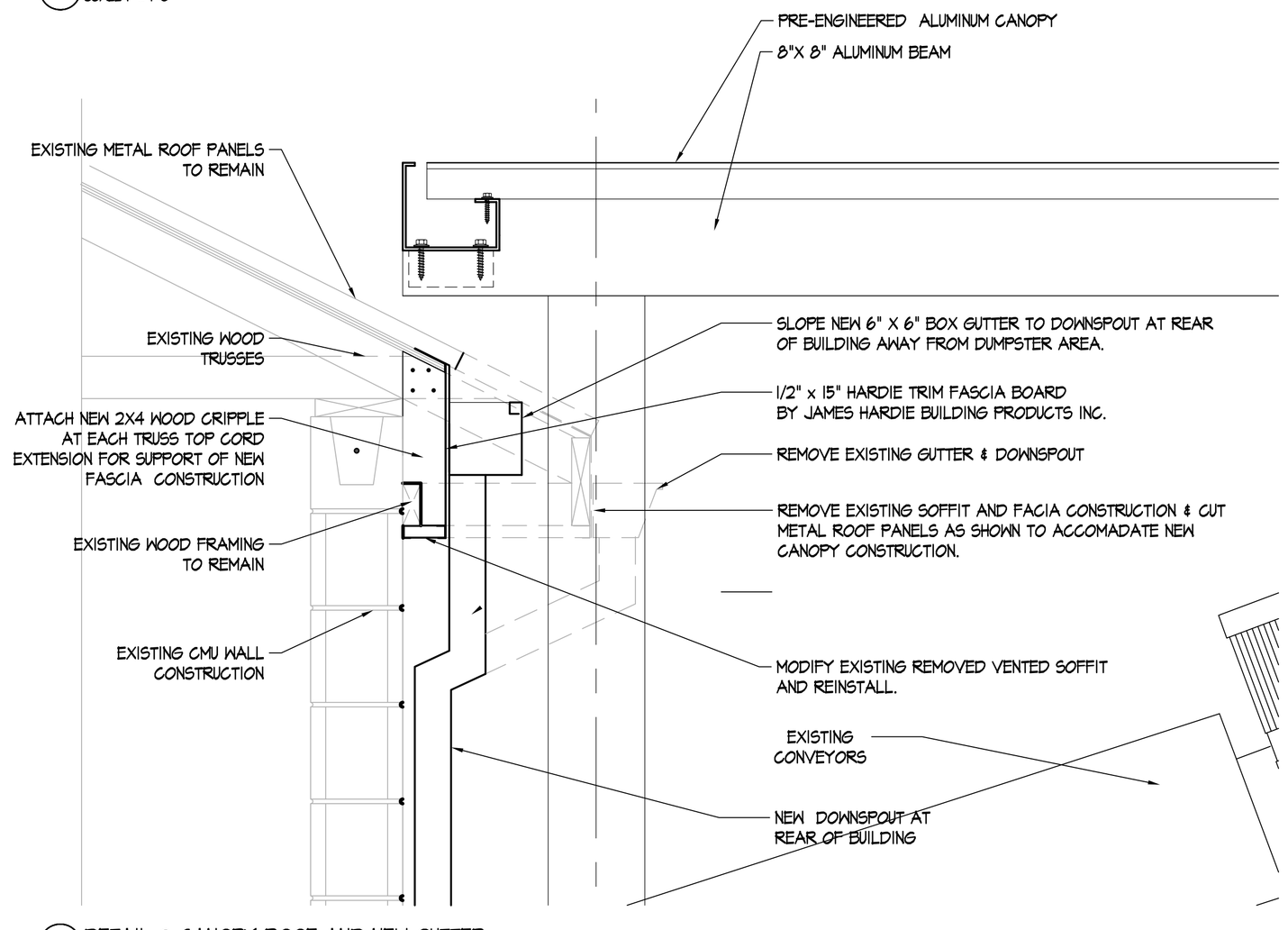


1 SECTION THROUGH SLUDGE DUMPSTER AREA
SCALE 3/4" = 1'-0"



2 DETAIL @ TRENCH DRAIN
SCALE 1" = 1'-0"



3 DETAIL @ CANOPY ROOF AND NEW GUTTER
SCALE 1-1/2" = 1'-0"

NOTE: TRENCH DRAIN NOT FOR STORM WATER, ONLY FOR DUMPSTER OVERFLOW. OUTSIDE OF DUMPSTER SLOPE CONCRETE PAVING AWAY FROM BUILDING AND DUMPSTER.

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Rev.	Date	Revision Description

Seal
HOWARD B. GLASTEIN — REGISTERED ARCHITECT — No. 12210 — STATE OF TENNESSEE — 12/19/16

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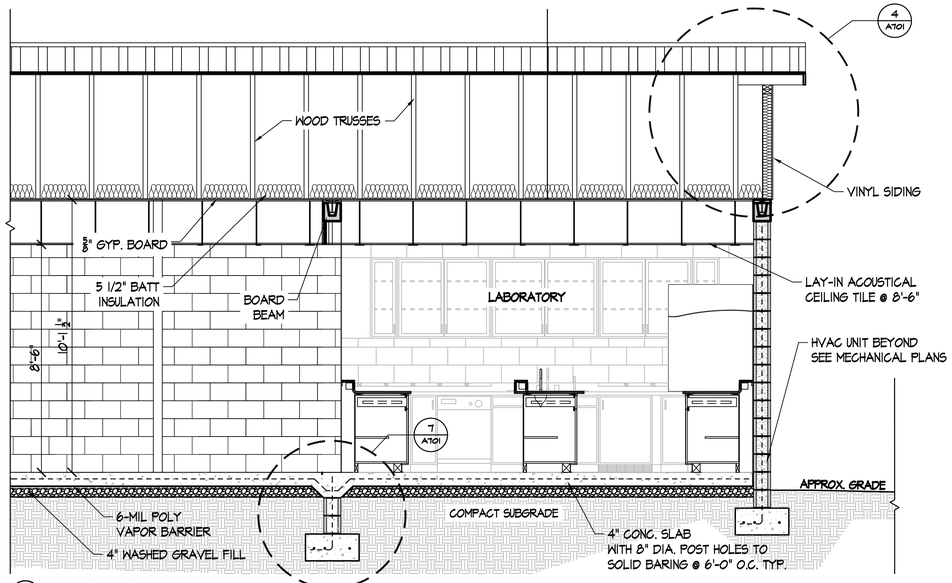
Project No: R10022
Drawn By:
Checked By:
Sheet Title: **SLUDGE PRESS BUILDING - ELEVATIONS**

A502



1 TYP. SECTION
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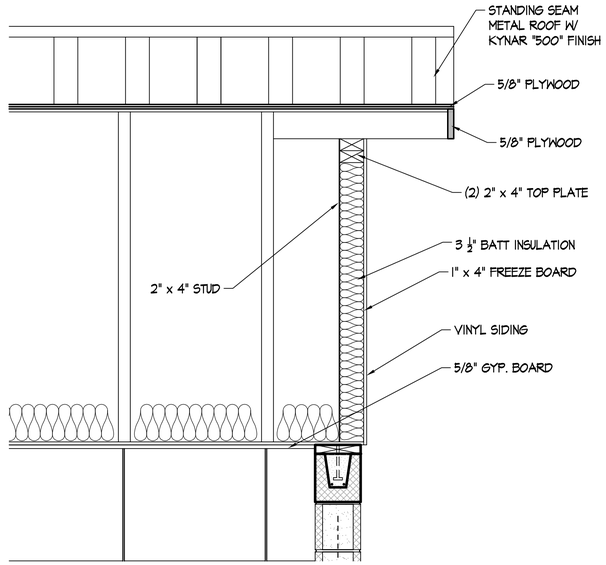

4 TYP. SECTION
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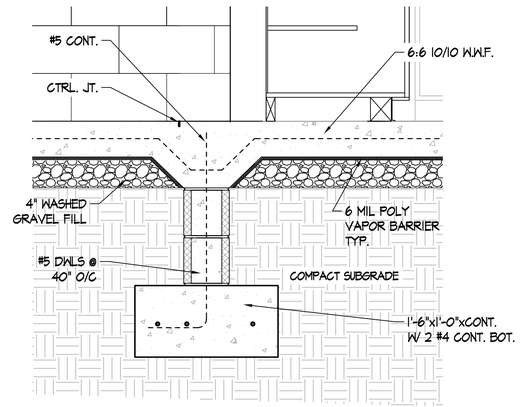

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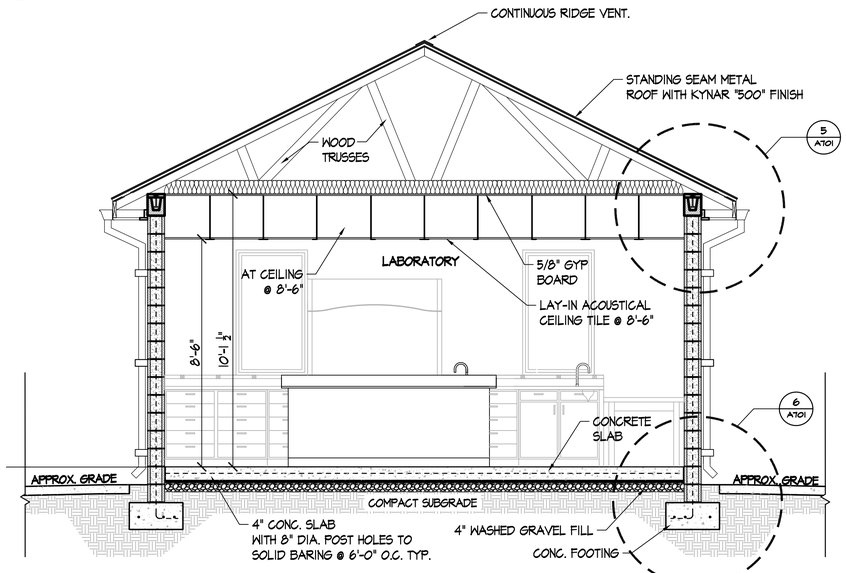

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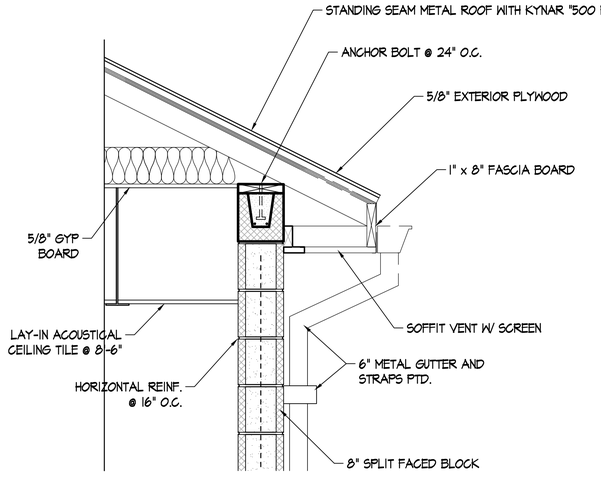

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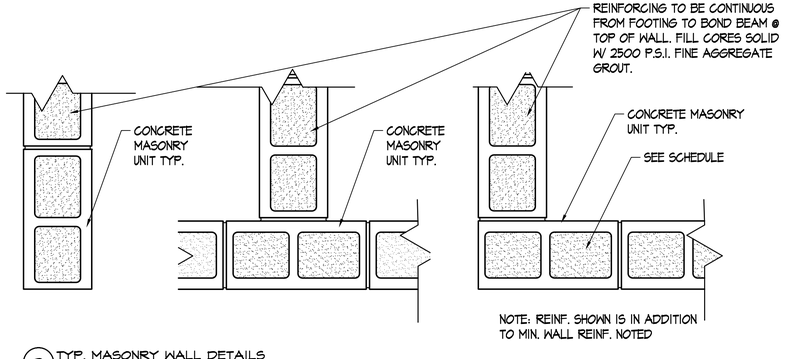
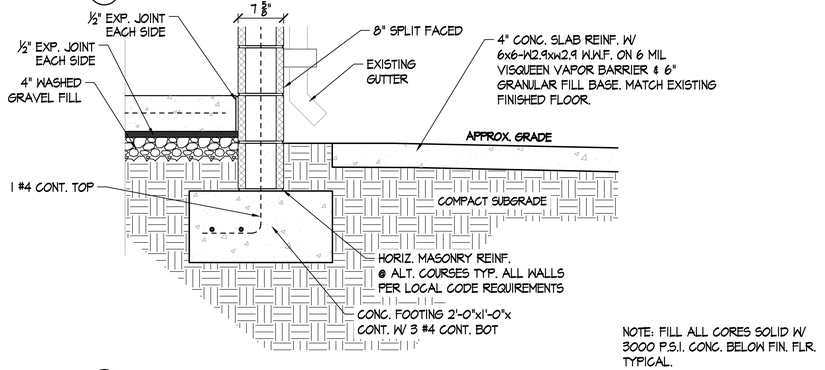


3 TYP. MASONRY WALL DETAILS
SCALE: 1 1/2" = 1'-0"



NOTE: FILL ALL CORES SOLID W/ 3000 P.S.I. CONC. BELOW FIN. FLR. TYPICAL.

6 TYP. FOOTING SECTION
SCALE: 1" = 1'-0"

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Rev.	Date	Revision Description

Seal
HOWARD B. GLATSTEIN
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
STATE OF TENNESSEE

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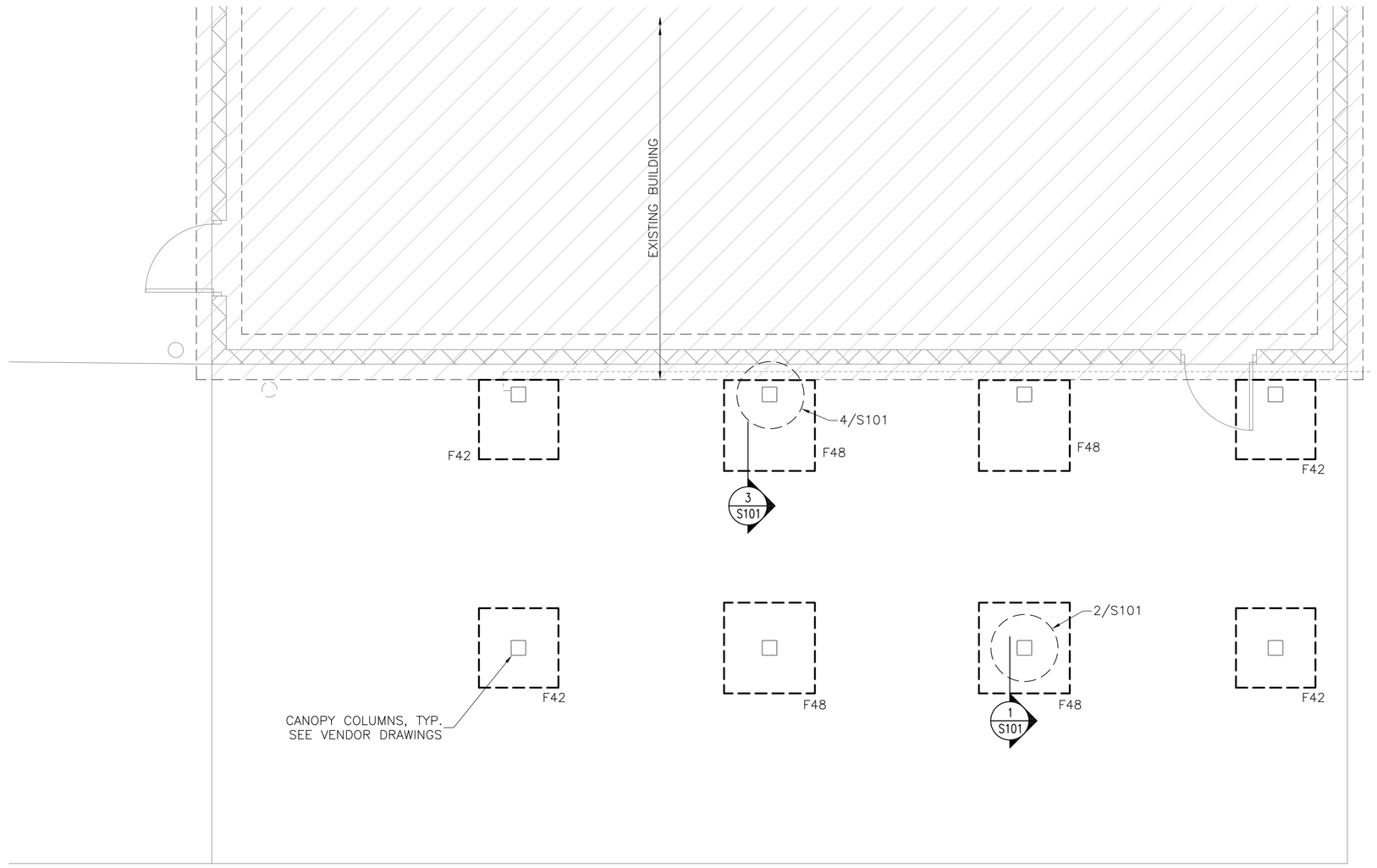
Checked By:
Sheet Title:
OFFICE / LAB BUILDING - DETAILS

A701



CANOPY FOUNDATION PLAN

SCALE 1/4" = 1'-0"

PLAN NOTES:

1. SEE SHEET S101 FOR GENERAL NOTES AND SCHEDULES.
2. ALL FOOTINGS ARE CENTERED ON THE CANOPY COLUMNS, U.N.
3. CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS SHOWN, AND NOTIFY A/E OF ANY DISCREPANCIES PRIORTO CONSTRUCTION.
4. FOOTINGS ARE SIZED BASED ON ASSUMED COLUMN REACTIONS. FINAL REACTIONS TO BE PROVIDED BY THE CANOPY VENDOR AND FOOTINGS VERIFIED PRIOR TO START OF CONSTRUCTION.
5. FOOTINGS SHALL BEAR ON SUBGRADE WITH ALLOWABLE BEARING OF 2000 PSF. TO BE FIELD VERIFIED BY CONTRACTOR HIRED GEOTECHNICAL ENGINEER PRIOR TO START OF CONSTRUCTION.
6. FOOTING CONCRETE = 3000 PSI NORMAL WEIGHT.
7. CANOPY COLUMN ANCHORAGE SHALL BE DESIGNED BY A TENNESSEE REGISTERED PROFESSIONAL ENGINEER HIRED BY THE CANOPY VENDOR. ANCHORAGE DESIGN SUBMITTAL SHALL INCLUDE CALCULATIONS FOR THE FAILURE ANALYSIS OF THE FOOTING CONCRETE IN WHICH THE COLUMN IS EMBEDDED. SUBMITTAL WITHOUT THESE CALCULATIONS WILL BE REJECTED.
8. FILL ANCHORAGE POCKET WITH HIGH STRENGTH FLOWABLE EPOXY GROUT AFTER COLUMN IS SET. SEE VENDOR DRAWINGS.

FOOTING SCHEDULE

MARK	SIZE	DEPTH	TOTAL REINFORCEMENT FOR EACH FOOTING			
			NO.	SIZE	LENGTH	REMARKS
F42	3'-6"x3'-6"	1'-10"	8	#5	3'-0"	1/2 EA. WAY BOTT.
F48	4'-0"x4'-0"	1'-10"	8	#5	3'-6"	1/2 EA. WAY BOTT.

NOTES:

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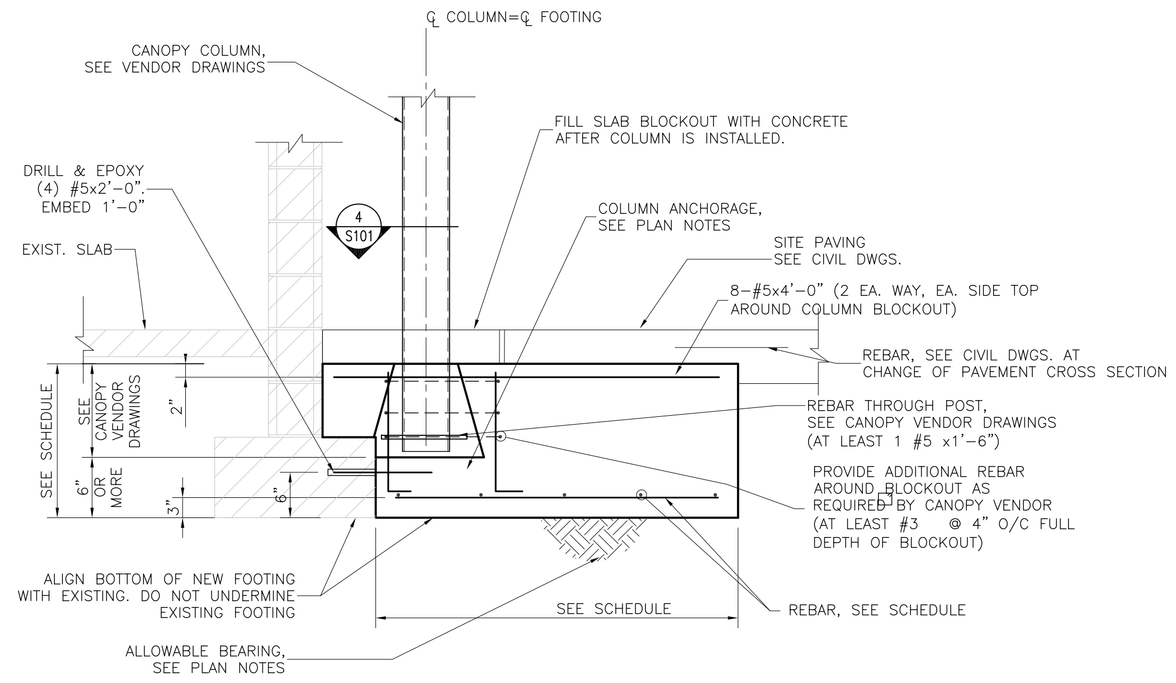
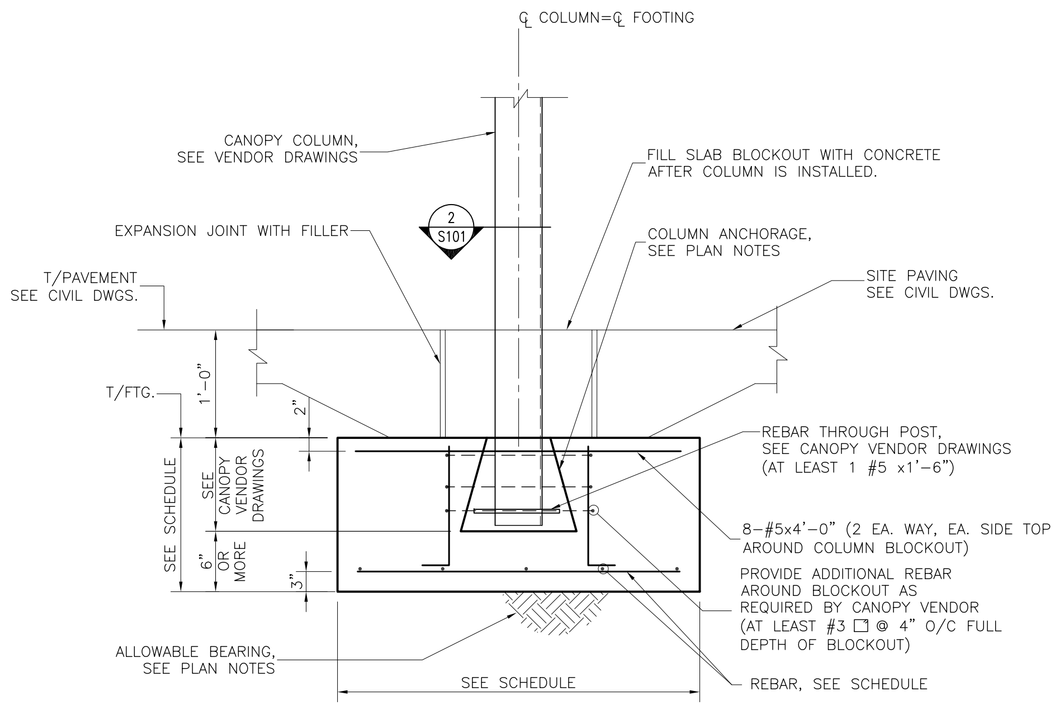
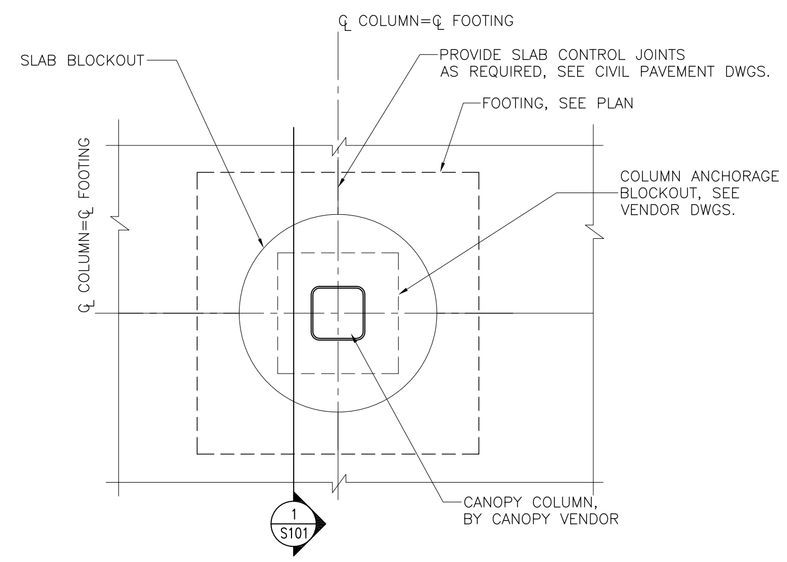
901/754-4411
sarfraz_k@bellsouth.net



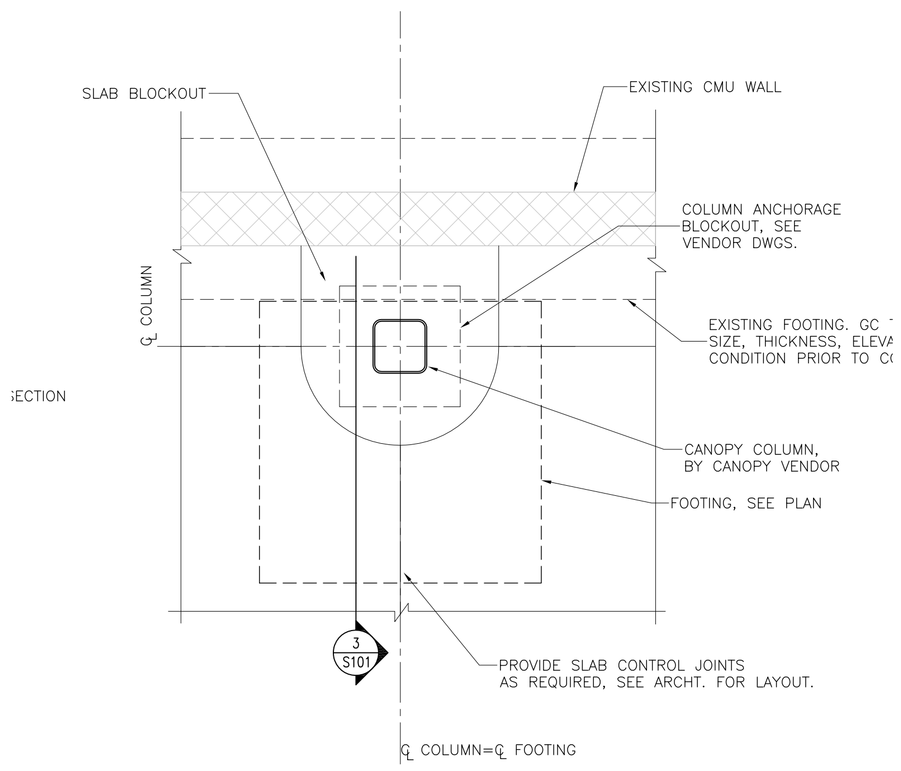
3 TYPICAL COLUMN FOOTING AT EXISTING BUILDING



1 TYPICAL COLUMN FOOTING AT CANOPY



2 PLAN VIEW



4 PLAN VIEW

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Rev.	Date	Revision Description

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SARFRAZ K. KATHAWALA
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NO. 100624
STATE OF TENNESSEE

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Drawn By: RWC
Checked By: SK

Sheet Title:
CANOPY FOUNDATION PLAN

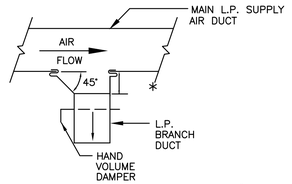
S101

HVAC CODE COMPLIANCE NOTES

1. EVERY APPLIANCE SHALL BE LOCATED WITH RESPECT TO BUILDING CONSTRUCTION AND OTHER EQUIPMENT SO AS TO PERMIT ACCESS AND SERVICE PER IMC 303.
2. EQUIPMENT AND APPLIANCES SHALL BE INSTALLED AS REQUIRED BY THE TERMS OF THEIR APPROVAL, IN ACCORDANCE WITH THE CONDITIONS OF THE LISTING, THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND THIS CODE. MANUFACTURER'S INSTALLATION INSTRUCTIONS SHALL BE AVAILABLE ON THE JOB SITE AT THE TIME OF INSPECTION. PER IMC 304.1.
3. PERMITS SHALL BE APPLIED FOR BY A LICENSED MECHANICAL, GAS OR FIRE PROTECTION CONTRACTOR PER IMC 105.1.1.

CONSTRUCTION NOTES

1. EXISTING DUCTWORK, GRILLES, DIFFUSERS, T'STATS & EQUIPMENT ARE BASED ON FIELD OBSERVATION. THIS CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS PRIOR TO PROCEEDING WITH ANY WORK. WHERE DISCREPANCIES OCCUR BETWEEN THESE DOCUMENTS AND EXISTING CONDITIONS, THE DISCREPANCY SHALL BE REPORTED TO THE OWNER AND/OR ENGINEER FOR EXPEDITING AND RESOLUTION.
2. ALL WORK SHALL BE PERFORMED IN A CLEAN AND WORKMANLIKE MANNER.
3. CONTRACTOR SHALL PERFORM A PRE-CONSTRUCTION AUDIT OF HVAC EQUIPMENT TO REMAIN IN THIS BUILDING AND SUBMIT A REPORT OF THE CURRENT CONDITION OF THE EQUIPMENT & CONTROLS & LIST EQUIPMENT NEEDED FOR REPAIR OR REPLACEMENT. PRE-CONSTRUCTION AUDIT SHALL BE SUBMITTED IN REPORT FORMAT TO ARCHITECT & ENGINEER PRIOR TO START OF ANY WORK. DAMAGED EQUIPMENT & CONTROLS NOT LISTED IN REPORT SHALL BE THE CONTRACTORS RESPONSIBILITY TO REPAIR OR REPLACE AT THE END OF THE PROJECT. REPAIRS IF NEEDED, SHALL BE ADDED TO THIS CONTRACT WITH BUILDING OWNER.
4. CLEAN THE JOB SITE DAILY AND REMOVE FROM THE PREMISES ANY DIRT AND DEBRIS CAUSED BY THE PERFORMANCE OF THE WORK INCLUDED IN THIS CONTRACT.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFEKEEPING OF HIS OWN PROPERTY ON THE JOB SITE. OWNER ASSUMES NO RESPONSIBILITY FOR PROTECTION OF PROPERTIES AGAINST FIRE, THEFT, AND ENVIRONMENTAL CONDITIONS.
6. CLEAN ALL HVAC EQUIPMENT INCLUDING, BUT NOT LIMITED TO REUSED DUCTWORK.
7. TURN ON, CYCLE AND USE ALL MECHANICAL SYSTEMS BEING REUSED AND REPORT ALL FINDINGS AND DEFICIENCIES.
8. ALL WORK SHALL BE PERFORMED IN A CLEAN AND WORKMANLIKE MANNER.
9. CLEAN THE JOB SITE DAILY AND REMOVE FROM THE PREMISES ANY DIRT AND DEBRIS CAUSED BY THE PERFORMANCE OF THE WORK INCLUDED IN THIS CONTRACT.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFEKEEPING OF HIS OWN PROPERTY ON THE JOB SITE. OWNER ASSUMES NO RESPONSIBILITY FOR PROTECTION OF PROPERTIES AGAINST FIRE, THEFT, AND ENVIRONMENTAL CONDITIONS.
11. CLEAN ALL HVAC EQUIPMENT.



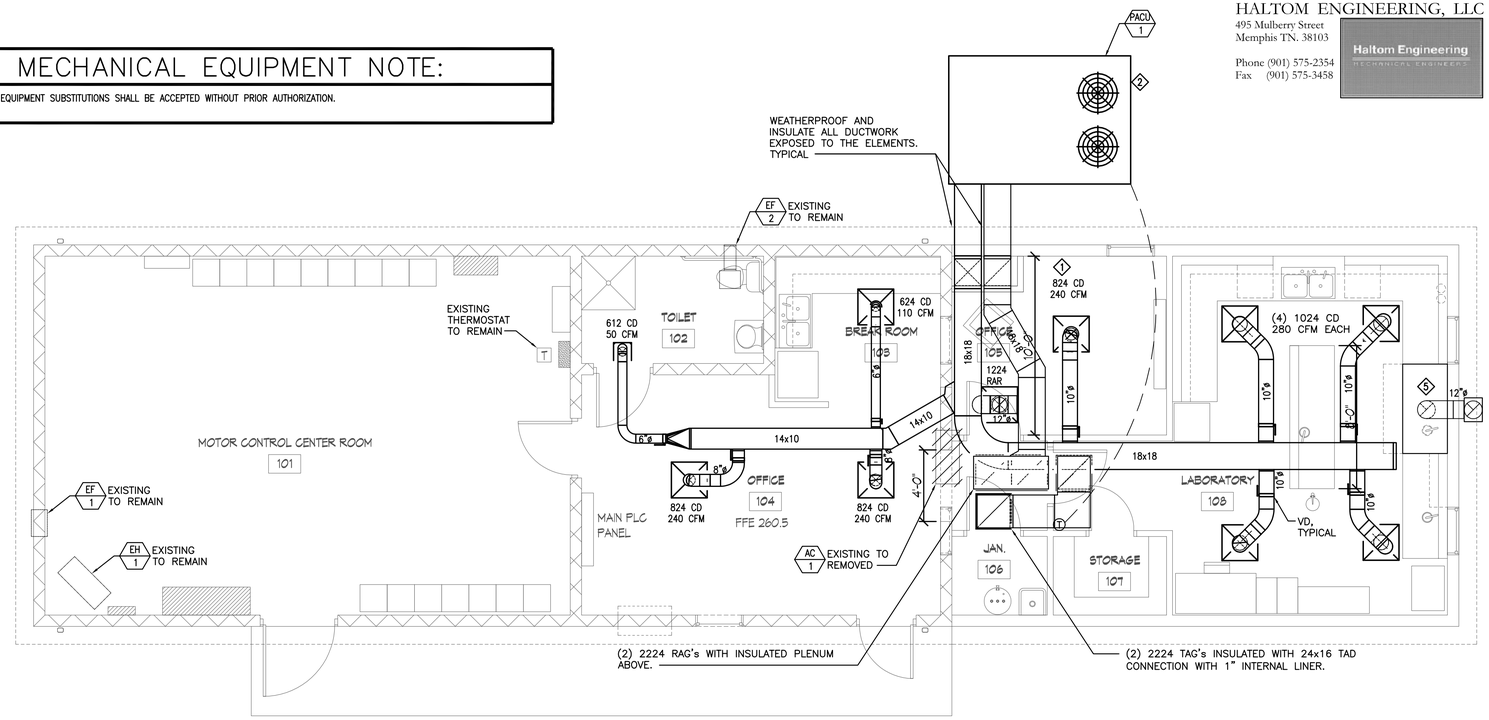
*–EQUALS WIDTH OF BRANCH DUCT UP TO 12". 12" FOR ALL BRANCH DUCTS LARGER THAN 12".

TYPICAL LOW PRESSURE BRANCH DUCT TAKE-OFF

NO SCALE

MECHANICAL EQUIPMENT NOTE:

1. NO EQUIPMENT SUBSTITUTIONS SHALL BE ACCEPTED WITHOUT PRIOR AUTHORIZATION.



1 OFFICE / LABORATORY & MOTOR CONTROL BUILDING – FLOOR PLAN – MECHANICAL
SCALE 1/4" = 1'-0"

PACKAGED AIR HANDLER UNIT SCHEDULE

PAHU

MARK	MANUFACTURER & MODEL	CFM	MIN. OA CFM	ESP (IN.WG) SA/RA	EVAPORATOR COOLING SECTION							ELECTRIC HEATING SECTION							ELECTRICAL DATA											WEIGHT (LBS)	NOTES
					AMBIENT °F	TOTAL COOLING MBH	SENSIBLE COOLING MBH	EAT DB (°F)	EAT WB (°F)	LAT DB (°F)	LAT WB (°F)	AMBIENT °F	KW	MBH	EAT (°F)	LAT (°F)	CFM	HEATER QUANTITY	FLA	SA FAN		EA FAN		CONDENSER FAN (2)		COMPRESSOR (2)		V-ø-HZ	MCA	MOCP		
																			FLA	HP	FLA	HP	FLA	HP	RLA					
PAHU-1	AAON RN-009-3-0-13A : B ...	2000	900	1.25/0.6	98.0	102.41	66.7	85.35	70.44	53.49	53.4	10.0	30.0	102.4	42.5	95.1	1,800	3	36.1	3.4	2.0	2.1	1.0	2.8	0.33	2.8	460-3-60	49	50	1905	SEE BELOW

NOTES:

1) PROVIDE AIR DUCT SMOKE DETECTOR EQUAL TO SYSTEM SENSOR MODEL DH400ACDCIHT. PROVIDE OUTDOOR INSTALLATION KIT AND ALARM BOX.
2) ROOF TOP UNIT WITH: TWO COMPRESSOR GROUND-MOUNTED RTU WITH SA & EXH A FANS, MODULATING HOT GAS REHEAT FOR HUMIDITY CONTROL AND DEHUMIDIFICATION AND ,MODULATING ELECTRIC HEAT FOR HEATING TEMPERATURE CONTROL. FACTORY ASSEMBLED, PIPED, WIRED AND TESTED AS A SINGLE PACKAGE.
3) CONDENSER FANS SHALL CONTROL HEAD PRESSURE BY FAN MODULATION WITH MULTI/VARIABLE SPEED ECM OR VFD DRIVEN FAN CONDENSER FAN MOTORS
4) REFRIGERATION CIRCUITS SHALL INCLUDE A LIQUID LINE SIGHT GLASS
5) PROVIDE: UNIT MOUNTED DISCONNECT SWITCH, FACTORY MOUNTED AND WIRED CONVENIENCE OUTLET AND PHASE AND BROWNOUT PROTECTION
6) PROVIDE SA FANS & EXHA FANS SHALL HAVE VFDS, PROVIDE ENTHALPY CONTROLLED ECONOMIZER, PROVIDE 2 INCH, 30% MERV 8 PLEATED FILTERS
7) PROVIDE DOUBLE-WALL FOAM COMPOSITE (R13) CONSTRUCTION AND STAINLESS STEEL DRAIN PANS, PROVIDE CONDENSATE OVERFLOW CUTOFF SWITCH IN UNIT DRAIN PAN.
8) CONTROLS - ELECTRONIC SEQUENCING OF COMPRESSORS, ENTHALPY ECONOMIZER WITH SPACE PRESSURIZATION CONTROL OF EXHAUST FAN, MODULATING ELECTRIC HEAT, AND MODULATING HOT GAS REHEAT.. CONTROLLER SHALL INCLUDE THE CAPABILITY OF TWO MINIMUM OUTSIDE AIR DAMPER POSITIONS; ONE POSITION FOR NORMAL OPERATION AND ONE POSITION FOR LAB EXHAUST FAN OPERATION.
9) PROVIDE 36" HIGH FACTORY ASSEMBLED RIGID/SEISMIC CURB WITH CUTOUTS FOR SUPPLY AND RETURN.
10) VENDOR SHALL START THE EQUIPMENT AND CORRECT ANY WARRANTY ITEMS FOUND AT START-UP. ALL PERIPHERAL EQUIPMENT EFFECTING THE EQUIPMENT (NATURAL GAS, CONTROLS ETC.) MUST BE INSTALLED AND FUNCTIONING BEFORE THE REQUEST FOR START-UP.
11) 2 YEAR PARTS ONLY (NOT EXPENDABLES)---FROM DATE OF SHIPMENT5 YEAR COMPRESSORS (PARTS ONLY)---FROM DATE OF SHIPMENT25 YEAR STAINLESS STEEL HEAT EXCHANGER WARRANTY---FROM DATE OF SHIPMENT PARTS WARRANTY IS FOR DEFECTS ONLY, AND DOES NOT COVER EXPENDABLES (FILTERS, BELTS, ETC)

LEGEND & ABBREVIATIONS

NOTES:

1. SUBMIT FINISH / FRAMESTYLE OF ALL DEVICES TO THE ARCHITECT FOR APPROVAL. PROVIDE FRAME TYPE TO MATCH CEILING TYPE, i.e., LAY-IN OR HARD CEILING.
2. FINAL LOCATION OF AIR DISTRIBUTION DEVICES SHALL MATCH THE ARCHITECT'S REFLECTED CEILING PLAN.

SUPPLY DUCTWORK UP
RETURN DUCTWORK UP
EXHAUST DUCTWORK UP
VD MANUAL BALANCING DAMPER
T THERMOSTAT LOCATED AT 48" AFF
CONNECT NEW TO EXISTING

DN	DOWN	R.A.	RETURN AIR
E.A.	EXHAUST AIR	S.A.	SUPPLY AIR
EF	EXHAUST FAN	TYP.	TYPICAL
OSA	OUTSIDE AIR	VD	MANUAL BALANCING DAMPER

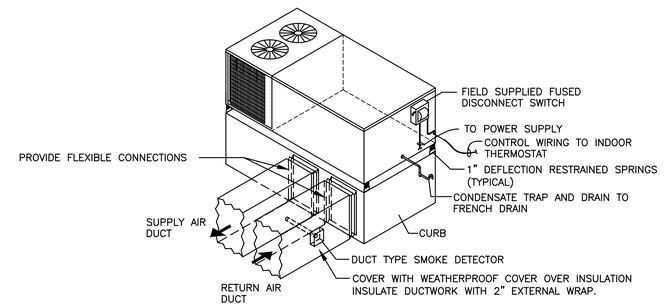
KEYNOTES (THIS SHEET):

1. 18x18 SUPPLY AIR AND RETURN AIR DUCTWORK INTO CHASE, RISE TO ATTIC, AND ROUTE BETWEEN 2x8 TRUSSES THAT ARE 24" ON-CENTER.
2. PACU-1 ON CONCRETE PAD THAT EXTENDS 6" BEYOND EQUIPMENT EDGE IN ALL DIRECTIONS. ROUTE DUCTWORK FROM CURB DUCT CONNECTIONS TO VERTICAL SHAFT. SLEEVE AND CAULK PENETRATION. INSULATE DUCTWORK EXTERNALLY WITH 3" THICK 1-1/2-POUND DENSITY WITH WATERPROOF COVERING.
3. (2) 2224 RAG'S WITH INSULATED PLENUM ABOVE.
4. (2) 2224 TAG'S INSULATED WITH 24X16 TAD CONNECTION WITH 1" INTERNAL LINER.
5. CONNECT 12" ROUND PVC DUCT (OR WELDED STAINLESS STEEL) TO EXHAUST HOOD OUTLET. HOOD PROVIDED IS LISTED AS EQUAL TOE LABCONCO XSTREAM WITH ECO ENERGY SAVING AIR FOIL, 5' HOOD. PROVIDE A LABCONCO INTELLI-SENSE MULTI-SPEED FIBERGLASS DIRECT DRIVE BLOWER MOUNTED TO EXTERIOR OF BUILD AT GABLE, DISCHARGE STACK VERTICAL TO 10-FEET ABOVE ROOF LINE WITH NOZZLE REDUCING TO PRODUCE 2,500 FPM AT MAX CFM (ABOUT 3-1/2' ROUND OUTLET). FAN SHALL BE 1-HP, 230-VOLT SINGLE PHASE, ECM MOTOR, FIBERGLASS CONSTRUCTION, WITH POWDER COATED STEEL BASE AND WEATHER COVER FOR ROOF MOUNTING ON A CURB. PROVIDE LABCONCO SPEED CONTROL BOX FOR MOUNTING ON TOP OF THE FUME HOOD. FAN SHALL BE LABCONCO MANUFACTURER NUMBER 7181810 RATED FOR 175 CFM MINIMUM TO 1050 CFM MAXIMUM AT 300 RPM TO 1800 RPM WHICH WEIGHS 90 POUNDS. THE MECHANICAL CONTRACTOR SHALL INSTALL ALL CONTROLS IN CONDUIT OF ANY VOLTAGE REQUIRED FOR INTERLOCKING THIS HOOD SYSTEM TO THE PRESSURE CONTROL AND OUTSIDE AIR CONTROL FOR PACU-1.

AIR DISTRIBUTION SCHEDULE

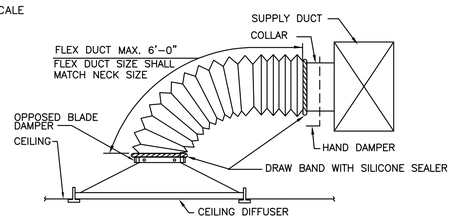
TYPE	MFR. & MODEL	REMARKS
CD	NAILOR UNI	SQUARE PLAQUE, STEEL CONSTRUCTION, 360° RADIAL HORIZONTAL AIR PATTERN, SURFACE MOUNT OR LAY-IN T-BAR FRAME (TYPE L), 12x12 OR 24x24 DFA FRAME FOR SURFACE MOUNTING, AND 4675 BUTTERFLY DAMPER.
RAG	NAILOR 4360A	FLUSH PERFORATED ALUMINUM FACE, STEEL BACK PAN CONSTRUCTION WITH MAXIMUM SQUARE NECK FOR PLENUM RETURN OR ROUND NECK FOR DUCT CONNECTION AS SHOWN ON PLANS AND FRAME FOR LAY-IN CEILING OR SURFACE MOUNTING WITH 12x12 OR 24x24 DFA (TYPE S) MOUNTING FRAME.
TAG	NAILOR 4360A	FLUSH PERFORATED ALUMINUM FACE, STEEL BACK PAN CONSTRUCTION WITH MAXIMUM SQUARE NECK FOR PLENUM RETURN OR ROUND NECK FOR DUCT CONNECTION AS SHOWN ON PLANS AND FRAME FOR LAY-IN CEILING OR SURFACE MOUNTING WITH 12x12 OR 24x24 DFA (TYPE S) MOUNTING FRAME.

NOTES:
1. ALL DEVICES ARE TO MATCH CEILING FRAME TYPE WHERE INSTALLED. CONTRACTOR IS TO CONFIRM CEILING TYPES BEFORE ORDERING AIR DISTRIBUTION DEVICES.
2. COLOR AND FINISH OF ALL AIR DISTRIBUTION SHALL MATCH ADJACENT SURFACE, OR AS DIRECTED BY THE ARCHITECT.



AHU ON GRADE DETAIL WITH HORIZONTAL SUPPLY AND RETURN DUCTS

NO SCALE



TYPICAL DIFFUSER CONNECTION

NOT TO SCALE (SIDE OF DUCT CONNECTION)

THESE DRAWINGS ARE DIAGRAMMATIC. COORDINATION WITH ALL TRADES, EXISTING CONDITIONS, AND ARCHITECTURAL DOCUMENTS INCLUDING REFLECTED CEILING PLANS, IS REQUIRED. NOT ALL OFFSETS AND ADJUSTMENTS ARE INDICATED.

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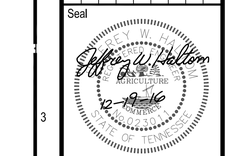

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Drawn By: JL
Checked By: JH

Sheet Title:

FLOOR PLAN DETAILS AND SCHEDULES - MECHANICAL

M101

MECHANICAL SPECIFICATIONS

1. SCOPE OF WORK

   A. THE CONTRACTOR IS RESPONSIBLE FOR ALL WORK, MATERIALS, AND LABOR TO SATISFY A COMPLETE WORKING SYSTEM WHETHER SPECIFIED OR IMPLIED.

   B. ALL WORK IS TO BE PERFORMED IN STRICT COMPLIANCE WITH THE INTERNATIONAL MECHANICAL CODE 2009, ALL LOCAL CODES AND ALL OTHER REGULATIONS GOVERNING WORK OF THIS NATURE.

   C. THE CONTRACTOR SHALL, BEFORE SUBMITTING ANY PROPOSAL, EXAMINE THE PROPOSED SITE AND SHALL DETERMINE FOR HIMSELF THE CONDITIONS THAT MAY EFFECT THE WORK. NO ALLOWANCE SHALL BE MADE IF THE CONTRACTOR FAILS TO MAKE SUCH EXAMINATIONS.

2. PERMITS

   A. THE CONTRACTOR SHALL SECURE ALL PERMITS OR APPLICATIONS AND PAY ANY AND ALL FEES.

3. SHOP DRAWINGS

   A. SUBMIT MATERIAL LIST AND SHOP DRAWINGS FOR MAJOR EQUIPMENT TO THE ENGINEER FOR APPROVAL. THE CONTRACTOR SHALL SUBMIT FIVE SETS OF SHOP DRAWINGS AND THEY SHALL BE CLEARLY LABELED.

4. PROJECT RECORD DOCUMENTS

   A. PROVIDE RECORD DRAWINGS INDICATING FINAL PLUMBING AND HVAC SYSTEMS. CONTRACTOR SHALL PROVIDE RECORD DRAWING IN AUTOCAD RELEASE 2010 FORMAT AND (1) SET OF HARD COPY. SHEET LAYOUT SHALL MATCH CONTRACT DOCUMENTS.

5. SEISMIC DESIGN

   A. MECHANICAL AND PLUMBING SYSTEMS SHALL BE BRACED IN ACCORDANCE WITH THE REQUIREMENTS OF LOCAL CODE REQUIREMENTS IN ADDITION TO BRACING INDICATED ON THE DOCUMENTS.

6. DUCTWORK

   A. THE DUCTWORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE "SMACNA" APPLICABLE MANUALS. ALL DUCTWORK SHALL BE THE LOW VELOCITY TYPE, UNLESS SPECIFIED OTHERWISE.

   B. ALL BRANCH DUCTS TO HAVE VOLUME DAMPERS.

   C. SMOOTH TURN RADIUS DUCTWORK OR TURNING VANES SHALL BE USED THROUGHOUT WHERE FLOW EXCEEDS 150 CFM.

   D. ALL DUCT JOINTS TO BE SEALED IN ACCORDANCE WITH "SMACNA" STANDARDS AND ACCEPTED GOOD PRACTICE.

   E. ALL DUCT DIMENSIONS SHOWN ARE NET INSIDE VALUES. DIMENSIONS MAY BE CHANGED SO LONG AS THE NET FREE FACE AREA IS MAINTAINED.

   F. ALL SUPPLY AND RETURN DUCTWORK SHALL BE INSULATED WITH 2" FIBERGLASS INSULATING BLANKET WITH ALUMINUM FOIL FACING.

7. DRAINAGE PIPING (CONDENSATE)

   A. SHALL BE SCHEDULE 40 PVC PIPE WITH SOLVENT JOINTS. PITCH HORIZONTAL LINES 1" IN 10'-0". PROVIDE 1/2" TUBULAR CLOSED CELL INSULATION EQUAL TO HALSTEAD WITH "K" VALUE OF 0.255 AT 75°F.

8. ELECTRICAL

   A. CONTRACTOR TO COORDINATE WITH ELECTRICAL CONTRACTOR FOR LOCATION OF WIRING FOR EACH HVAC UNIT.

9. PACKAGE AIR HANDLING UNIT

   A. SHALL BE EQUAL TO UNIT SPECIFIED. NOT UNIT SUBSTITUTIONS SHALL BE ALLOWED WITHOUT PRIOR AUTHORIZATION.

10. EXHAUST FANS

    A. SHALL BE EQUAL TO UNIT SPECIFIED. NOT UNIT SUBSTITUTIONS SHALL BE ALLOWED WITHOUT PRIOR AUTHORIZATION.

11. MISCELLANEOUS

    A. COORDINATE INSTALLATION OF ALL ROOF FLASHING AT ROOF PENETRATION.

    B. DO NOT SCALE THIS DRAWING FOR EXACT DIMENSIONS. VERIFY ALL FIGURES, CONDITIONS, AND DIMENSIONS AT THE JOB SITE.

    C. THE MECHANICAL PLANS ARE INTENDED TO BE DIAGRAMMATIC AND ARE BASED ON ONE MANUFACTURE'S EQUIPMENT. THEY ARE NOT INTENDED TO SHOW EVERY ITEM IN ITS EXACT LOCATION, THE EXACT DIMENSIONS, OR ALL THE DETAILS OF THE EQUIPMENT. THE CONTRACTOR SHALL VERIFY THE ACTUAL DIMENSIONS OF THE EQUIPMENT PROPOSED TO ENSURE THAT THE EQUIPMENT WILL FIT IN THE AVAILABLE SPACE.

12. TESTING AND BALANCING

    A. THE HVAC SYSTEM SHALL BE TESTED AND BALANCED BY AN INDEPENDENT AGENCY, NEBB OR AABC AGENCIES. A TYPE WRITTEN REPORT SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW.

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SCOTT'S CREEK WWTP
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LAKELAND, TN 38002

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Sheet Title:

SPECIFICATIONS - MECHANICAL

M102

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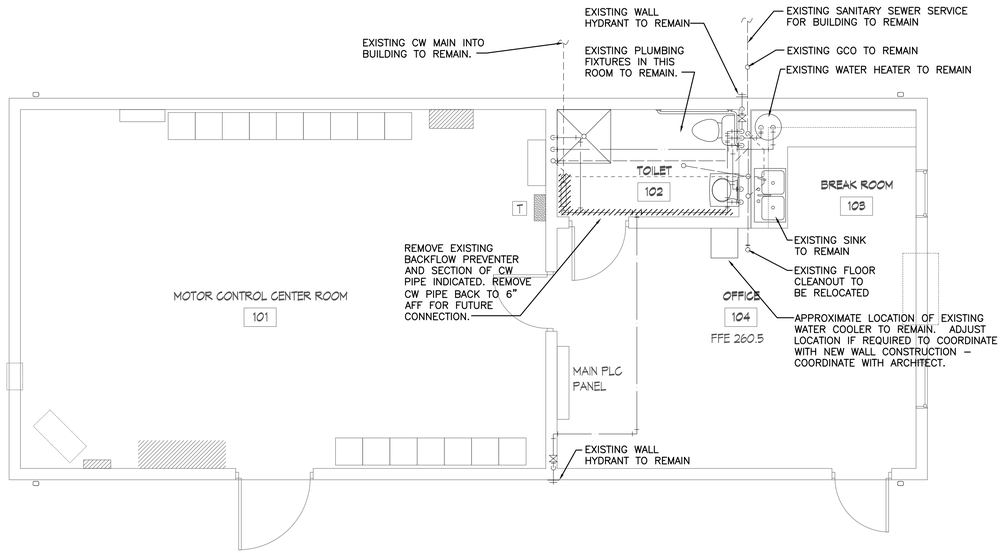

1 OFFICE / LABORATORY & MOTOR CONTROL BUILDING – DEMO FLOOR PLAN – PLUMBING
SCALE 1/4" = 1'-0"

DEMOLITION NOTES

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS (INCLUDING EXISTING PIPE ROUTING) PRIOR TO PROCEEDING WITH ANY WORK. DRAWINGS ARE BASED UPON ORIGINAL CONSTRUCTION DOCUMENTS.
2. VERIFY ALL SANITARY PIPING IS CLEAN OF ANY DEBRIS. FLUSH EXISTING PLUMBING PIPING AND VERIFY NO LEAKS ARE PRESENT IN ANY PIPING (INCLUDING DOMESTIC WATER) TO REMAIN. REPAIR ALL PIPE LEAKS AND INSULATION.
3. COORDINATE ROOF WORK WITH OWNER AND OWNER'S ROOF WARRANTY COMPANY PRIOR TO ANY WORK ON THE ROOF. ROOF WORK SHALL NOT VIOLATE WARRANTY. WARRANTY SHALL REMAIN EFFECTIVE AFTER WORK IS COMPLETE.

THESE DRAWINGS ARE DIAGRAMMATIC. COORDINATION WITH ALL TRADES, EXISTING CONDITIONS, AND ARCHITECTURAL DOCUMENTS INCLUDING REFLECTED CEILING PLANS, IS REQUIRED. NOT ALL OFFSETS AND ADJUSTMENTS ARE INDICATED.

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DEMOLITION FLOOR PLAN - PLUMBING

P101

HALTOM ENGINEERING, LLC
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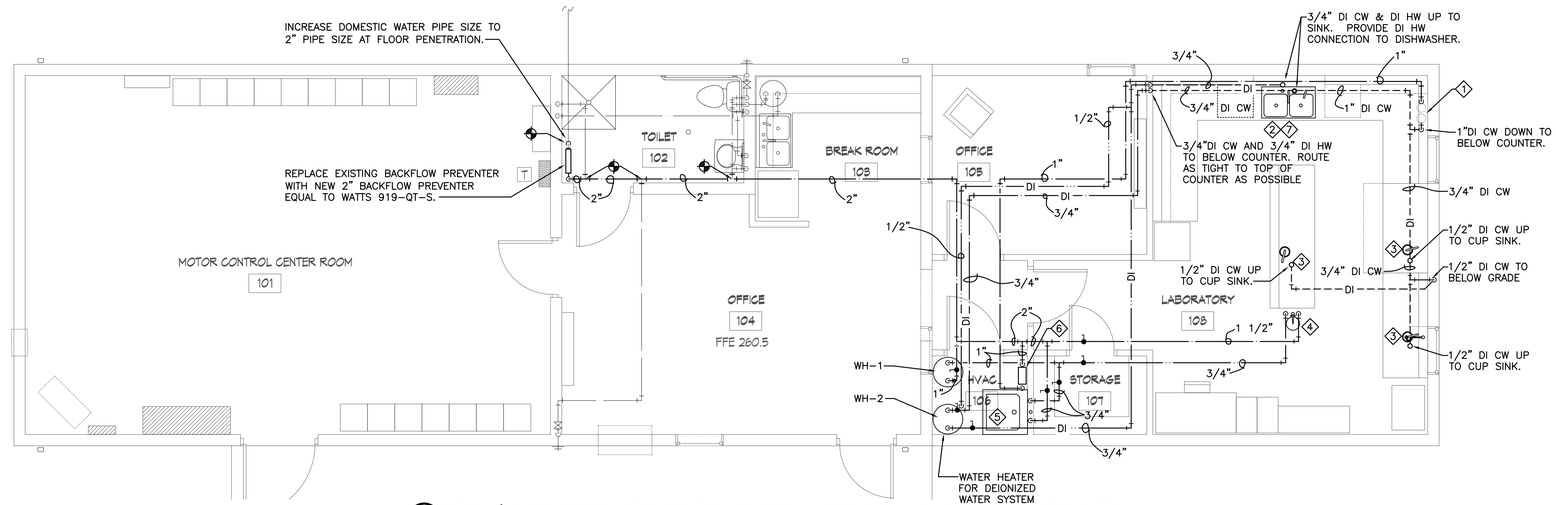
Haltom Engineering
MECHANICAL ENGINEERS

CONSTRUCTION NOTES

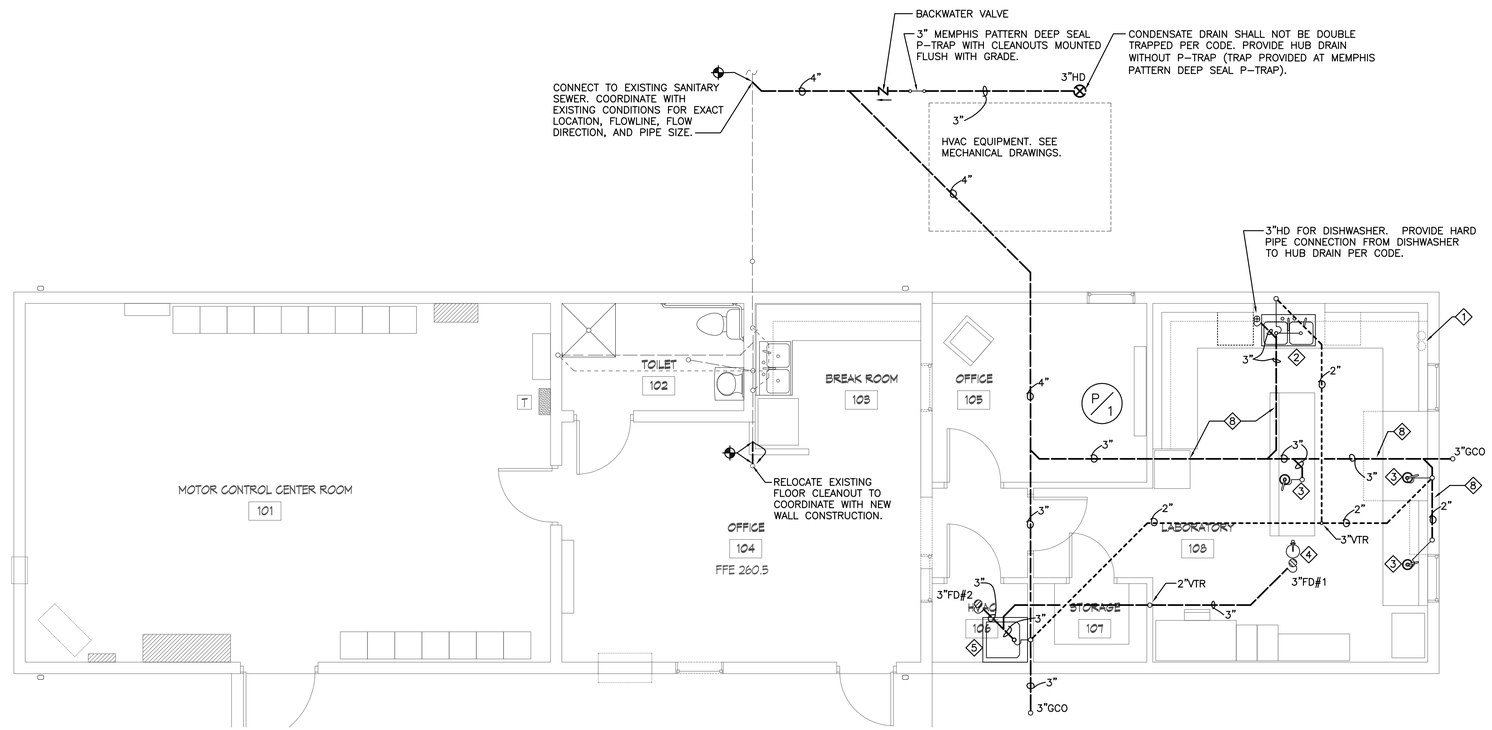
1. COORDINATE PIPING WITH ALL OTHER TRADES (HVAC, ELECTRICAL, ETC.) AND EXISTING CONDITIONS.
2. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS (INCLUDING EXISTING PIPE ROUTING) PRIOR TO PROCEEDING WITH ANY WORK. DRAWINGS ARE BASED UPON ORIGINAL CONSTRUCTION DOCUMENTS. NOTIFY ARCHITECT AND ENGINEER OF ANY DISCREPANCIES.
3. VERIFY ALL SANITARY PIPING IS CLEAN OF ANY DEBRIS. FLUSH EXISTING PLUMBING PIPING AND VERIFY NO LEAKS ARE PRESENT IN ANY PIPING (INCLUDING DOMESTIC WATER) TO REMAIN. REPAIR ALL PIPE LEAKS AND INSULATION.
4. COORDINATE ROOF WORK WITH OWNER AND OWNER'S ROOF WARRANTY COMPANY PRIOR TO ANY WORK ON THE ROOF. ROOF WORK SHALL NOT VIOLATE WARRANTY. WARRANTY SHALL REMAIN EFFECTIVE AFTER WORK IS COMPLETE.
5. COORDINATE CONDENSATE DRAIN LOCATION WITH HVAC EQUIPMENT AND CONTRACTOR.

KEYNOTES (THIS SHEET):

1. PROVIDE A WATER DEIONIZATION UNIT THAT IS CAPABLE OF PRODUCING TYPE 2 REAGENT WATER. VERIFY THE REQUIREMENTS FOR RESISTIVITY, PH TOTAL ORGANIC CARBON, SODIUM, CHLORIDE, SILICA, HETEROTROPHIC BACTERIA COUNT, ENDOTOXIN, AND ALL OTHER FACTORS OF CONCERN WITH THE OWNER BEFORE PURCHASING. UNIT SHALL BE CAPABLE OF PRODUCING A FLOW RATE OF 5 GPM. PIPING SHALL BE TESTED AND APPROVED FOR CONVEYING POTABLE WATER BY THE NATION SANITATION FOUNDATION, SCHEDULE 80, FLAME RETARDANT NATURAL VIRGIN, UNPIGMENTED POLY PROPYLENE WITH SOCKET THERMOS SEAL FUSION FITTINGS. PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH THE PIPING MANUFACTURER'S INSTRUCTIONS. ALL PIPING COMPONENTS SHALL BE THE PRODUCTS OF A SINGLE MANUFACTURER. VALVES SHALL BE FULL PORT BALL VALVE TYPE AND SHALL BE MANUFACTURED OF THE SAME VIRGIN UNPIGMENTED MOLDING COMPOUNDS AS THE FITTINGS TO ASSURE COMPATIBILITY, HAVE VITON SEALS, AND PTFE SEATS.
2. TWO COMPARTMENT SINK. SEE ARCHITECTURAL DRAWINGS FOR SCHEDULE. PROVIDE ALL ACCESSORIES REQUIRED FOR A COMPLETE INSTALLATION INCLUDING FAUCET, DRAIN, P-TRAP, CONTINUOUS WASTE, AND SUPPLY STOPS.
3. CUP SINK. SEE ARCHITECTURAL DRAWINGS FOR SCHEDULE. PROVIDE ALL ACCESSORIES REQUIRED FOR A COMPLETE INSTALLATION INCLUDING FAUCET, DRAIN, P-TRAP, AND SUPPLY STOPS.
4. EYEWASH. SEE ARCHITECTURAL DRAWINGS FOR SCHEDULE. PROVIDE ALL ACCESSORIES REQUIRED FOR A COMPLETE INSTALLATION INCLUDING THERMOSTATIC MIXING VALVE.
5. JANITOR SINK. SEE ARCHITECTURAL DRAWINGS FOR SCHEDULE. PROVIDE ALL ACCESSORIES REQUIRED FOR A COMPLETE INSTALLATION INCLUDING FAUCET, P-TRAP, SUPPLY STOPS, MOP HANGER, WALL GUARDS, HOSE AND BRACKET.
6. 1" REDUCED PRESSURE BACKFLOW PREVENTER EQUAL TO WATTS 919-QT-S. PIPE FULL LINE SIZE DRAIN PIPED TO SPILL INTO JANITOR SINK WITH AIR GAP. SEE DETAIL ON SHEET P201. COORDINATE BACKFLOW PREVENTER LOCATION WITH ARCHITECT.
7. PROVIDE SIGN NEAR SINK READING "NON-POTABLE WATER - NOT SUITABLE FOR CULINARY PURPOSES".
8. DEIONIZED WATER PIPING SHALL BE CPVC OR AS RECOMMENDED FOR TYPE 2 DEIONIZED WATER. SANITARY SEWER PIPING SHALL BE PVC OR AS RECOMMENDED FOR TYPE 2 DEIONIZED WATER. SEE SPECIFICATIONS ON SHEET P202.



1 OFFICE / LABORATORY & MOTOR CONTROL BUILDING - FLOOR PLAN - PLUMBING - DOMESTIC WATER
SCALE 1/4" = 1'-0"



1 OFFICE / LABORATORY & MOTOR CONTROL BUILDING - FLOOR PLAN - PLUMBING - DWV
SCALE 1/4" = 1'-0"

THESE DRAWINGS ARE DIAGRAMMATIC. COORDINATION WITH ALL TRADES, EXISTING CONDITIONS, AND ARCHITECTURAL DOCUMENTS INCLUDING REFLECTED CEILING PLANS, IS REQUIRED. NOT ALL OFFSETS AND ADJUSTMENTS ARE INDICATED.

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JEFFREY W. HALTOM
REGISTERED PROFESSIONAL ENGINEER
12-19-16
STATE OF TENNESSEE

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FLOOR PLANS - PLUMBING

P102

ELECTRIC WATER HEATER SCHEDULE

MARK	STORAGE (GAL.)	RECOVERY 80°F RISE	ELECTRICAL		CIRCULATOR							REMARKS	MFG.	MODEL
			KW	VOLTS/PH	MARK	GPM	HEAD	MFG.	MODEL	ELECTRICAL HP	ELECTRICAL VOLTS/PH			
WH-1	50	23	4.5	208/1	–	–	–	–	–	–	–	PROVIDE WITH ASME T&P RELIEF VALVE; NON-SIMULTANEOUS OPERATION	A.O. SMITH	DEN-52
WH-2	50	23	4.5	208/1	CP-2	5	5 FT.	GRUNDFOS	UP15-29 SF	1/25	120/1	PROVIDE WITH ASME T&P RELIEF VALVE; NON-SIMULTANEOUS OPERATION; SEE NOTES 1, 2, AND 3	HUBBELL	D-50

NOTES

1. PROVIDE ISOLATION VALVE SET 519755 WITH CIRCULATOR PUMP.
2. PROVIDE TIMER CONTROL WITH CIRCULATOR PUMP.
3. WATER HEATER AND CIRCULATOR PUMP SHALL HAVE STAINLESS STEEL CONSTRUCTION SUITABLE FOR DEIONIZED WATER SYSTEM.

DRAIN AND CLEANOUT SCHEDULE

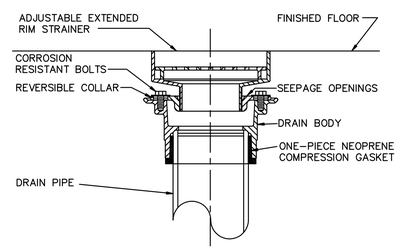
MARK	MANUFACTURE & MODEL NO.					DESCRIPTION	FINISH
	WADE	J.R. SMITH	JOSAM	ZURN	WATTS		
WCO	W-8460-R	4530	58790	Z 1446	CO-460-RD	CLEANOUT TEE W/BRASS PLUG AND ROUND STAINLESS STEEL SECURED ACCESS COVER.	STAINLESS STEEL
FCO	W-8130-AF	4020	58360	ZP 9776	CO-200-R-34B	CAST IRON FLOOR CLEANOUT W/ADJUSTABLE BRASS TOP, BRASS PLUG & ROUND SECURED SCORIATED COVER.	NICKEL BRASS
GCO	W-8130-AF	4020	58360	ZP 9776	CO-200-R-34B	SAME AS FCO EXCEPT FINISH. SET IN 12"x12"x6" DEEP CONC.PAD.	BRASS
CO	W-8550-X	4420 W/RAISED HEAD PLUG	58490-20	Z-1440-BP-A	CO-380	CAST IRON CLEANOUT FERRULE WITH TAPERED RAISED HEAD BRASS PLUG.	CAST IRON
FD#1	W-1100-STD6	2010-A	30000A	ZB-415-B6	FD-100-A6	CAST IRON FLOOR DRAIN W/FLANGE, INTEGRAL REVERSIBLE CLAMPING COLLAR, SEEPAGE OPENINGS & ADJUSTABLE 6" DIAMETER STRAINER. PROVIDE 1/2" TRAP PRIMER CONNECTION WHERE REQUIRED.	SATIN BRONZE
FD#2	W-1100-ER7	2010-F37	30000 7E1	ZB-415-I7	FD-100-ER7	CAST IRON FLOOR DRAIN W/ FLANGE, INTEGRAL REVERSIBLE CLAMPING COLLAR, SEEPAGE OPENINGS, & ADJUSTABLE 7" DIAMETER STRAINER WITH EXTENDED RIM.	SATIN BRONZE

GENERAL NOTES

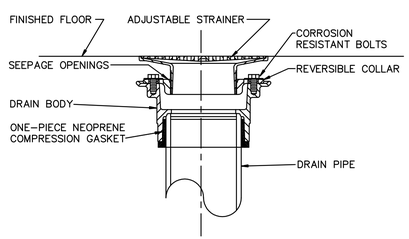
1. UNLESS NOTED OTHERWISE, RUN CW AND HW PIPING FULL SIZE THROUGH LENGTH OF CHASE, AND MAKE CONNECTIONS TO FIXTURES AS INDICATED IN THE PLUMBING FIXTURE SCHEDULE. PROVIDE RIGID SUPPORT AND BLOCKING IN CHASE FOR HEADER AND BRANCH PIPING, AND FOR VALVE TO PREVENT ANY MOVEMENT.
2. PROVIDE CLEANOUTS ON SANITARY DWV PIPING AND CONDENSATE DRAIN PIPING AS INDICATED ON THE DRAWINGS, AND AS REQUIRED BY LOCAL AND STATE CODES. INSTALL CLEANOUTS IN ACCESSIBLE LOCATIONS. COORDINATE TOP OF COTG ELEVATION WITH TOP OF FINISHED GRADE.
3. NON-FREEZE WALL HYDRANT WITH INTEGRAL VACUUM BREAKER, 3/4" HOSE CONNECTION AND BOX WITH KEY. INSTALL WALL HYDRANT 18" ABOVE OUTSIDE GRADE.
4. EACH PLUMBING VENT SHALL TERMINATE NOT LESS THAN 10 FEET FROM, OR AT LEAST 3 FEET ABOVE ANY WINDOW, DOOR, OPENING, AIR INTAKE, OR VENT SHAFT.
5. UNLESS NOTED OTHERWISE, SLOPE ALL SANITARY DWV AND CONDENSATE DRAIN PIPING 3" PIPE SIZE AND LARGER A MINIMUM OF 1/8" PER FOOT OF RUN, AND 2" PIPE SIZE AND SMALLER A MINIMUM 1/4" PER FOOT OF RUN. SLOPE VENT PIPING DOWN AND BACK TO FIXTURES.
6. THESE DRAWINGS ARE DIAGRAMMATIC AND SHOW GENERAL PLUMBING LAYOUTS AND PIPE ROUTING. THE CONTRACTOR SHALL PREPARE DETAILED SHOP DRAWINGS AND CONFIRM SPACE ALLOCATIONS.
7. FIELD VERIFY EXACT LOCATIONS AND SIZES OF EXISTING SERVICES SHOWN ON DRAWINGS PRIOR TO PRICING, FABRICATION, OR CONSTRUCTION. FIELD LOCATE ALL OTHER EXISTING SERVICES IN THE AREA OF THIS PROJECT BEFORE CONSTRUCTION.
8. PROVIDE ALL NECESSARY VALVES, TRAPS, FLOW CONTROLS, FILTERS, BACKFLOW PREVENTERS, FAUCETS, STOPS, TAILPIECES, VACUUM BREAKERS, IF NOT FURNISHED ON, OR WITH NEW EQUIPMENT.
9. PROVIDE HAND SHUTOFF VALVES ON ALL HOT AND COLD WATER LINES AT STUB-IN, AND AS SHOWN ON PLANS.
10. PROVIDE APPROVED CHROME PLATED TYPE VACUUM BREAKERS WHERE REQUIRED BY LOCAL CODES, AND AS INDICATED ON PLANS FOR WORK.
11. VERIFY ALL FLOW LINES PRIOR TO ROUGHING IN.
12. FURNISH ACCESS PANELS TO BE INSTALLED BY GENERAL CONTRACTOR AS REQUIRED FOR PLUMBING INSTALLATIONS. ALL VALVES SHALL BE ACCESSIBLE.
13. PROVIDE DIELECTRIC UNIONS WHERE CONNECTIONS ARE MADE BETWEEN DISSIMILAR PIPE MATERIALS.

PLUMBING LEGEND

SYMBOL	DESCRIPTION
	SOIL OR WASTE BELOW FLOOR OR GRADE (S OR W)
	SOIL OR WASTE ABOVE FLOOR OR GRADE (S OR W)
	VENT (V)
	DOMESTIC COLD WATER (CW)
DI	COLD DEIONIZED WATER (DI CW)
W	UNDERGROUND DOMESTIC WATER SERVICE
	DOMESTIC HOT WATER 120° (HW)
DI	HOT DEIONIZED WATER 120° (DI HW)
	DOMESTIC HOT WATER RETURN 120° (HWR)
DI	HOT DEIONIZED WATER RETURN 120° (DI HWR)
D	CONDENSATE DRAIN BELOW FLOOR OR GRADE (COND)
D	CONDENSATE DRAIN ABOVE FLOOR OR GRADE (COND)
	BALL VALVE
	CHECK VALVE
	UNION
FD	FLOOR DRAIN (X" FD#X)
HD	HUB DRAIN
CO	CLEANOUT
WCO	WALL CLEANOUT
GCO	GRADE CLEANOUT
FCO	FLOOR CLEANOUT
VTR	VENT THRU ROOF
	PLUMBING FIXTURES (P-X)
NFWH	NON-FREEZE WALL HYDRANT
P/X	PLUMBING RISER DIAGRAM NUMBER



EQUIPMENT FLOOR DRAIN DETAIL
NO SCALE



FLOOR DRAIN DETAIL
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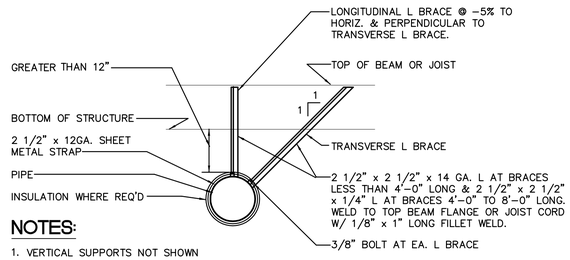
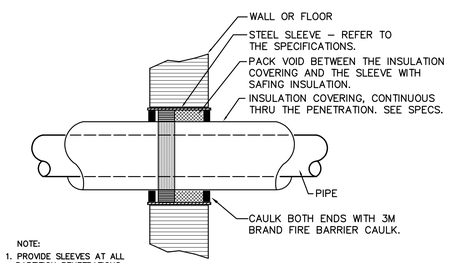


NOTES:

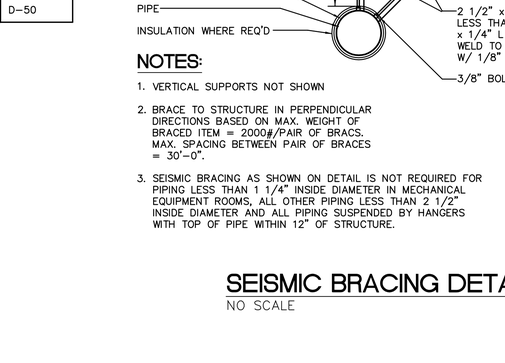
1. VERTICAL SUPPORTS NOT SHOWN
2. BRACE TO STRUCTURE IN PERPENDICULAR DIRECTIONS BASED ON MAX. WEIGHT OF BRACED ITEM = 2000#/PAIR OF BRACS. MAX. SPACING BETWEEN PAIR OF BRACES = 30'-0".
3. SEISMIC BRACING AS SHOWN ON DETAIL IS NOT REQUIRED FOR PIPING LESS THAN 1 1/4" INSIDE DIAMETER IN MECHANICAL EQUIPMENT ROOMS, ALL OTHER PIPING LESS THAN 2 1/2" INSIDE DIAMETER AND ALL PIPING SUSPENDED BY HANGERS WITH TOP OF PIPE WITHIN 12" OF STRUCTURE.

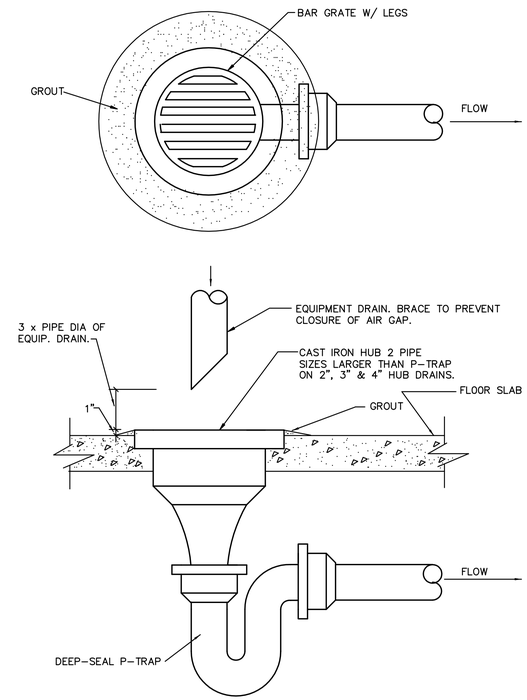
SEISMIC BRACING DETAIL
NO SCALE



NOTE:
1. PROVIDE SLEEVES AT ALL PARTITION PENETRATIONS, WHETHER OR NOT THE PARTITION IS RATED.
2. EXTEND SLEEVES THRU FLOORS 2" ABOVE THE FLOOR.

PIPE PENETRATION DETAIL
NO SCALE





HUB DRAIN (H.D.) DETAIL
NO SCALE

NON-POTABLE WATER RPBP#3 PIPING SCHEMATIC
NO SCALE

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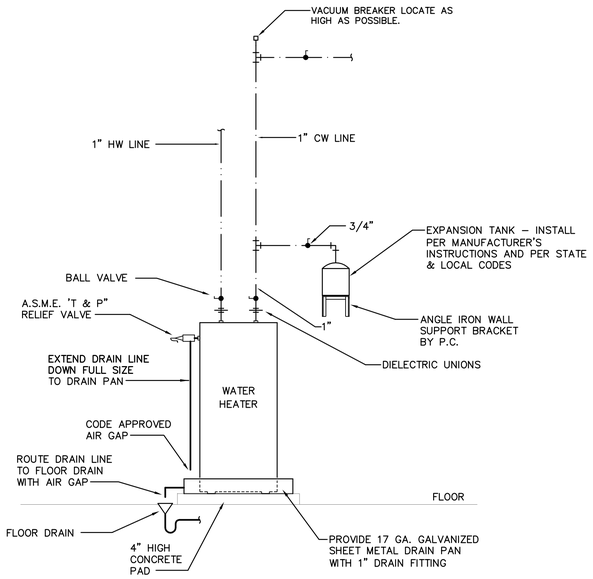
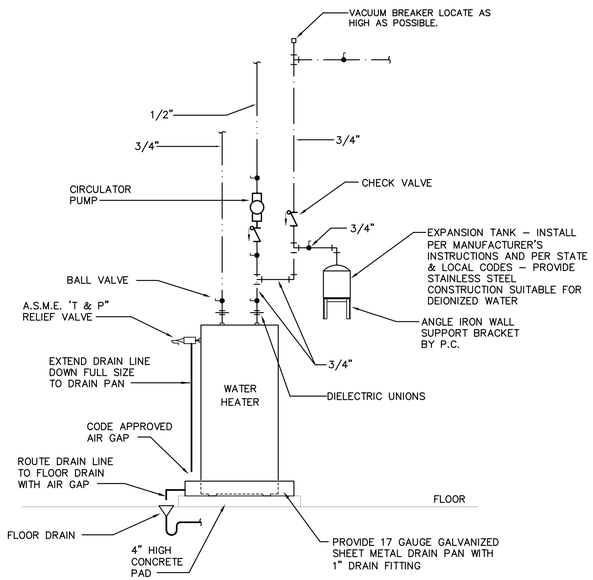
SCHEDULES, LEGEND, NOTES, AND DETAILS - PLUMBING

P201



WH-1 PIPING SCHEMATIC

NO SCALE

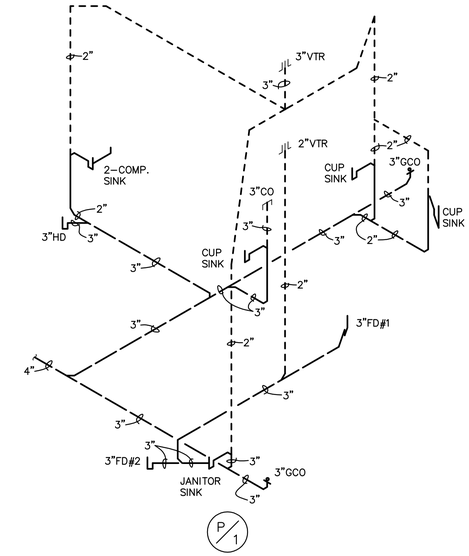


WH-2 PIPING SCHEMATIC

NO SCALE

PLUMBING SPECIFICATIONS

1. LICENSED PLUMBING CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS REQUIRED BY LOCAL CODE.
2. WATER SUPPLY SYSTEM AND SEWER SYSTEM SHALL BE PERMITTED AND INSPECTED BY LOCAL AUTHORITIES PRIOR TO BUILDING OCCUPANCY AND PROJECT CLOSEOUT.
3. THE WORK UNDER PLUMBING SECTION SHALL INCLUDE ALL LABOR, SERVICES, MATERIALS, EQUIPMENT, AND PERFORMANCE OF ALL WORK REQUIRED FOR THE INSTALLATION OF ALL PLUMBING WORK, AS SHOWN ON THE DRAWINGS AND HEREIN SPECIFIED.
4. SHOULD THERE BE ANY DISCREPANCIES OR A QUESTION OF INTENT, REFER THE MATTER TO THE ENGINEER OR ARCHITECT FOR A DECISION BEFORE ORDERING ANY EQUIPMENT OR MATERIALS, OR BEFORE STARTING ANY RELATED WORK.
5. WHERE WORK CONNECT TO THAT OF ANOTHER TRADE OR TO PIPING OR EQUIPMENT IN PLACE, FIELD MEASUREMENTS SHALL BE MADE TO MAKE CONNECTING WORK COME TRUE AND LINE UP WITH THE ITEM BEING CONNECTED.
6. WHERE WORK OF OTHER TRADES CONNECTS TO EQUIPMENT WHICH IS A PART OF THIS TRADE PROVIDE PROPER CONNECTION(S) TO SUCH EQUIPMENT.
7. MINOR ITEMS AND ACCESSORIES OR DEVICES REASONABLY INFERRED AS NECESSARY TO THE COMPLETE AND PROPER INSTALLATION AND OPERATION OF ANY SYSTEM SHALL BE PROVIDED BY THE CONTRACTOR FOR SUCH SYSTEM, WHETHER OR NOT THEY ARE SPECIFICALLY CALLED FOR BY THE SPECIFICATIONS OR DRAWINGS.
8. CAREFULLY CHECK AND COORDINATE THE LOCATION AND LEVEL OF ALL PIPES, DUCTS, ETC. RUN PRELIMINARY LEVELS AND CHECK WITH ALL OTHER CONTRACTORS SO THAT CONFLICTS IN ALL LOCATIONS MAY BE AVOIDED.
9. ALL WORK SHALL BE EXECUTED AND INSPECTED IN ACCORDANCE WITH THE REQUIREMENTS OF ALL FEDERAL, STATE, AND LOCAL CODES, LAWS, ORDINANCES, RULES, AND REGULATIONS, AND OSHA REQUIREMENTS APPLICABLE TO THE PARTICULAR CLASS OF WORK. ALL PERMITS AND FEES FOR PLUMBING WORK SHALL BE PAID BY PLUMBING CONTRACTOR AND SHALL BE INCLUDED IN HIS BID.
10. THIS CONTRACTOR SHALL COORDINATE HIS WORK WITH THAT OF OTHER CONTRACTORS ON THE JOB IN ORDER THAT THERE BE NO DELAY IN THE PROPER INSTALLATION AND COMPLETION OF SEVERAL PARTS OF THE WORK. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF HIS WORK WITH THE ARCHITECTURAL, STRUCTURAL, ELECTRICAL, AND ALL OTHER TRADES ON THE JOB, AND SHALL FIT HIS WORK TO AVOID INTERFERENCE. ANY RELOCATIONS OF DUCTWORK, EQUIPMENT, PIPING, VALVES, ETC., REQUIRED BECAUSE OF AN INTERFERENCE SHALL BE MADE AT THIS CONTRACTOR'S EXPENSE WITHOUT ADDITIONAL COST TO THE OWNER.
11. ALL EQUIPMENT AND MATERIALS SHALL BE AS SPECIFIED OR "APPROVED EQUAL" BY THE ENGINEER.
12. SUBMIT MATERIAL LIST AND SHOP DRAWINGS FOR MAJOR EQUIPMENT TO THE ENGINEER FOR APPROVAL. THE CONTRACTOR SHALL SUBMIT FIVE SETS OF SHOP DRAWINGS AND THEY SHALL BE CLEARLY LABELED.
13. PROVIDE RECORD DRAWINGS INDICATING FINAL PLUMBING SYSTEMS. INDICATE EXACT LOCATION OF EXTERIOR LINES, CLEANOUTS, ETC. CONTRACTOR SHALL PROVIDE RECORD DRAWINGS IN AUTOCAD RELEASE 2004 FORMAT AND (1) SET OF HARD COPY. SHEET LAYOUT SHALL MATCH CONTRACT DOCUMENTS.
14. INSTALL ALL EQUIPMENT, DEVICES, AND ACCESSORIES, ETC. IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION GUIDELINES AND RECOMMENDATIONS.
15. MATERIALS, EQUIPMENT AND INSTALLATION SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR FROM DATE OF ACCEPTANCE, DEFECTS WHICH APPEAR DURING THAT PERIOD SHALL BE CORRECTED AT THIS CONTRACTOR'S EXPENSE.
16. ALL PIPE, TUBE, AND FITTINGS SHALL COMPLY WITH LATEST ISSUED CODE AND STANDARDS, UNLESS INDICATED OTHERWISE BY LOCAL CODES.
17. WELDING PROCEDURES, WELDERS, AND OPERATORS SHOULD BE CERTIFIED IN ACCORDANCE WITH ASME B 31.1, OR ASME B 31.9, AS APPLICABLE, FOR SHOP AND PROJECT SITE WELDING OF PIPE WORK.
18. CERTIFY WELDING OF PIPING WORK USING STANDARD PROCEDURE SPECIFICATIONS BY, AND WELDERS TESTED UNDER SUPERVISION OF, NATIONAL CERTIFIED PIPE WELDING BUREAU (NCPWB).
19. PIPE HANGERS AND SUPPORTS
    A. HANGERS: CARBON STEEL, ADJUSTABLE SWIVEL, SPLIT RING UP TO 1–1/2 INCH PIPE; CARBON STEEL, ADJUSTABLE, CLEVIS FOR 2 TO 4 INCH PIPE.
    B. WALL SUPPORT: CAST IRON HOOK UP TO 3 INCH PIPE; WELDED STEEL BRACKET AND WROUGHT STEEL CLAMP 4 INCH PIPE AND OVER.
    C. COPPER PIPE SUPPORT: CARBON STEEL RING, ADJUSTABLE, COPPER PLATED.
    D. PROVIDE 18 GAGE GALVANIZED STEEL SHIELD OVER INSULATION IN 180 DEGREE SEGMENTS, MINIMUM 12 INCHES LONG AT PIPE SUPPORT.
20. FLASHING
    A. METAL FLASHING: 26 GAGE GALVANIZED STEEL.
    B. FLASH VENT PIPES PROJECTING 6 INCHES MINIMUM ABOVE FINISHED ROOF SURFACE AS REQUIRED BY THE ROOFING SUPPLIER.
    C. ALL FLASHING SHALL BE IN ACCORDANCE WITH THE ROOFING MANUFACTURER'S RECOMMENDATIONS.
21. COPPER TUBE AND FITTINGS
    A. COPPER TUBE: ASTM B 88 TYPE (WALL THICKNESS), AS INDICATED, FOR EACH SERVICE; HARD–DRAWN OR SOFT–DRAWN TEMPER, AS INDICATED, EXCEPT AS OTHERWISE INDICATED.
    B. CAST COPPER SOLDER JOINT FITTINGS: ANSI B16.18.
    C. WROUGHT COPPER SOLDER JOINT FITTINGS: ANSI B16.22.
22. BRASS PIPE FITTINGS
    A. RED BRASS PIPE: ASTM B 43 IN REGULAR WEIGHT.
    B. CAST BRONZE THREADED FITTINGS: ANSI B16.15, CLASS 150, OR 250, AS REQUIRED.
    C. CAST BRONZE THREADLESS FITTINGS: ASTM B 61.
23. CPVC PIPING
    A. CPVC PIPE: ASTM F 441/F 441M, SCHEDULE 40 AND SCHEDULE 80.
        1. CPVC SOCKET FITTINGS: ASTM F 438 FOR SCHEDULE 40 AND ASTM F 439 FOR SCHEDULE 80.
        2. CPVC THREADED FITTINGS: ASTM F 437, SCHEDULE 80.
    B. CPVC PIPING SYSTEM: ASTM D 2846/D 2846M, SDR 11, PIPE AND SOCKET FITTINGS.
    C. CPVC TUBING SYSTEM: ASTM D 2846/D 2846M, SDR 11, TUBE AND SOCKET FITTINGS.
24. PLASTIC PIPES AND PIPE FITTINGS
    A. POLYVINYL CHLORIDE PIPE (PVC): ASTM D 1785
    B. POLYVINYL CHLORIDE SEWER PIPE (PVC): ASTM D 2729
    C. POLYVINYL CHLORIDE DRAIN, WASTE, AND VENT PIPE (PVC–DWV): ASTM D 2665
    D. POLYVINYL CHLORIDE TYPE PSM SEWER PIPE: ASTM D 3034
    E. PVC FITTINGS:
        1. SCHEDULE 40 SOCKET: ASTM D 2466
        2. SCHEDULE 80 SOCKET: ASTM D 2467
        3. SCHEDULE 80 THREADED: ASTM D 2464
        4. DWV SOCKET: ASTM D 2665
        5. SEWER SOCKET: ASTM D 2729
        6. SOLVENT CEMENT: ASTM D 2564
        7. SOLVENT CEMENT (TO JOINT PVC TO ABS): ASTM D 3138
25. INSULATION
    A. MANUFACTURERS
       INSULATION PRODUCTS SHALL BE TYPE AS MANUFACTURED BY KNAUF FIBER GLASS, OWENS–CORNING FIBERGLAS, AND SCHULLER.
    B. INSULATED WATER PIPING INSIDE BUILDING
       PIPING SHALL BE INSULATED WITH FIBERGLASS HEAVY DENSITY INSULATION HAVING A THERMAL CONDUCTANCE IN THE RANGE OF 0.23 AT A MEAN TEMPERATURE OF 75°F. PROVIDE INSULATION WITH A FACTORY APPLIED FIRE RETARDANT, ALL SERVICE JACKET (ASJ). BUTT STRIPS SHALL BE OF SAME MATERIAL AS ALL SERVICE JACKETS AND EMPLOY THE SAME ADHESIVE AS IS USED ON THE JACKET LAP SEAL. ALL VALVES AND FITTINGS SHALL BE INSULATED WITH THE SAME THICKNESS INSULATION AS SPECIFIED FOR PIPING SYSTEMS. INSULATION SHALL BE APPLIED TO THE FOLLOWING PIPING SYSTEM WITH THICKNESS AS INDICATED.
    C. PIPING SYSTEM, PIPE SIZE, THICKNESS
       DOMESTIC COLD WATER, STORM DRAINAGE AND CONDENSATE PIPE, ALL SIZES, 1/2"
       DOMESTIC HOT WATER, 2" AND SMALLER, 1"
    D. FURNISH AND INSTALL ZESTON 2000 OR PROTO PVC INSULATED FITTING COVERS ON ALL PIPE FITTINGS, FLANGES, VALVES, AND PIPE TERMINATIONS. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
    E. PIPE INSULATION SHALL RUN CONTINUOUS THROUGH NON–RATED WALLS AND PARTITIONS, EXCEPT WHERE PIPE PASSES THROUGH FIRE RATED WALLS. PENETRATION OF FIRE RATED WALLS SHALL BE ACCOMPLISHED BY MEANS OF FIRE RATED PIPE PENETRATIONS, AS DETAILED BY U.L.
26. SANITARY SEWER AND CONDENSATE PIPE SHALL BE DWV SCHEDULE 40 PVC. PVC SHALL BE WRAPPED WITH CODE APPROVED INSULATION IN RETURN AIR PLENUMS.
27. INSULATE ALL ABOVE GRADE DOMESTIC WATER PIPE AND COLD CONDENSATE DRAIN PIPES.
28. DOMESTIC WATER PIPING BELOW GRADE SHALL BE TYPE "K" SOFT DRAWN COPPER PIPE WRAPPED WITH VINYL TAPE. NO JOINTS BELOW FLOOR SLAB.
29. DOMESTIC WATER PIPING ABOVE GRADE SHALL BE HARD DRAWN TYPE "L" COPPER WITH WROUGHT SWEAT SOLDER JOINTS. (LEAD FREE SOLDER)
30. DEIONIZED WATER PIPING SHALL BE CPVC.
31. VALVES SHALL BE FULL PORT BALL VALVES. NIBCO, OR EQUAL.



RISER DIAGRAMS

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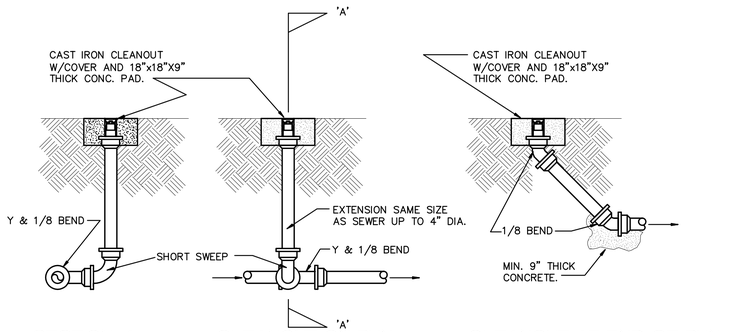
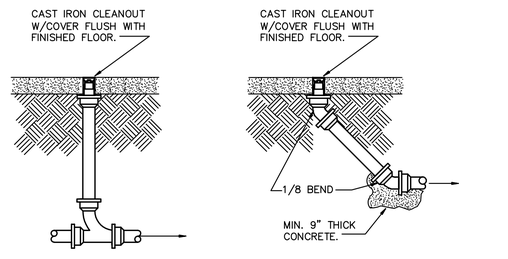


SECTION 'A' CLEANOUT ON RUN CLEANOUT AT END OF RUN

GRADE CLEANOUT DETAILS

NO SCALE



CLEANOUT ON RUN CLEANOUT AT END OF RUN

FLOOR CLEANOUT DETAILS

NO SCALE

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Rev.	Date	Revision Description

Seal
JEFFREY W. HALTOM REGISTERED LANDSCAPE ARCHITECT 1039 STATE OF TENNESSEE
12-19-16

Issue Date: 12/19/16
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DETAILS AND SPECIFICATIONS - PLUMBING

P202

LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER	CATALOG NUMBER	LAMPS			MTG. TYPE	MTG. HT.	REC. DEPTH	DESCRIPTION
			LAMP/FIX	WATTS	TYPE				
A	COOPER	ENW-24-2-LD2-34-40 CA125-120-EDC1	LOT	45	LED	LI	C	4.43"	2'x2' LED LIGHT FIXTURE WITH CLEAR ACRYLIC WIPE DOWN OUTER LENS, ELECTRONIC DIMMING DRIVER, 4000K COLOR TEMPERATURE, AND 3400 LUMEN OUTPUT. LED LAMP AND DRIVER SHALL BE GUARANTEED BY AT LEAST A 5 YEAR WARRANTY AND SHALL BE LM79 AND LM80 TESTED.
	–	–							
	–	–							
B	COOPER	22GZ-LD4-34-UNV-L840-CD1	LOT	34	LED	LI	C	3.25"	2'x2' LED DIRECT/INDIRECT LIGHT FIXTURE WITH STEEL HOUSING, ELECTRONIC DIMMING DRIVER, 4000K COLOR TEMPERATURE, AND 3,603 LUMEN OUTPUT. LED LAMP AND DRIVER SHALL BE GUARANTEED BY AT LEAST A 5 YEAR WARRANTY AND SHALL BE LM79 AND LM80 TESTED.
	–	–							
	–	–							
B1	COOPER	22GR-LD4-32-F1-UNV-L840-CD1	LOT	33	LED	LI	C	3.25"	2'x2' LED PRISMATIC LIGHT FIXTURE WITH STEEL HOUSING, ELECTRONIC DIMMING DRIVER, 4000K COLOR TEMPERATURE, AND 3,212 LUMEN OUTPUT. LED LAMP AND DRIVER SHALL BE GUARANTEED BY AT LEAST A 5 YEAR WARRANTY AND SHALL BE LM79 AND LM80 TESTED.
	–	–							
	–	–							
U	KENALL	MAUCLED-1-MW-20L40K 48-120-CS-SW	LOT	20	LED	S	–	–	4' LONG UNDERCABINET LIGHT FIXTURE WITH ROCKER SWITCH. LED LAMP AND DRIVER SHALL BE GUARANTEED BY AT LEAST A 5 YEAR WARRANTY AND SHALL BE LM79 AND LM80 TESTED.
	–	–							
	–	–							
XL	EXITRONIX	ILX-R-AC-WH	FURNISHED WITH UNIT			W	AD	–	LED EXIT SIGN WITH RED LETTERS, SINGLE FACE, ARROWS AS SHOWN ON DRAWINGS, AND THERMOPLASTIC HOUSING.

ABBREVIATIONS: LI–LAY–IN C–CEILING LG–LENS GASKETING GMF–INTERNAL SLOW BLOW FUSE FL–FLUORESCENT MH–METAL HALIDE HO–HIGH OUTPUT
AFF–ABOVE FINISH FLOOR P–PENDENT FC–FROM CEILING R–RECESSED AM–ABOVE MIRROR W–WALL AD–ABOVE DOOR
S–SURFACE DTT–DOUBLE TWIN TUBE FLUORESCENT CA–CANOPY TC–TOP OF METAL CANOPY AW–ABOVE WINDOW

LIGHTING FIXTURE SCHEDULE GENERAL NOTES:

1. EACH LIGHT FIXTURE SHALL BE EQUIPPED WITH LAMPS. FURNISH AND INSTALL LAMPS AS SHOWN IN SCHEDULE AND IN SPECIFICATIONS.
2. FIXTURE OUTLET BOX LOCATIONS SHOWN ON THE DRAWINGS ARE DIAGRAMMATIC AND APPROXIMATE IN LOCATION. EXACT POSITION OF THE OUTLET BOX SHALL DEPEND ON THE FIXTURE AND THE MOUNTING DETAIL.
3. MOUNTING AND SUPPORT DETAILS FOR LIGHTING FIXTURES SHALL BE SUBMITTED TO AND APPROVED BY THE ENGINEER BEFORE THE FIXTURES ARE INSTALLED. NO COMBUSTIBLE MATERIALS SHALL BE USED.
4. WET LOCATION FIXTURES SHALL BE MOUNTED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION SO AS TO ENSURE THE PREVENTION OF MOISTURE FROM ENTERING THE FIXTURE. IN ADDITION, EACH CONDUIT ENTRY WILL BE SEALED BY USE OF AN APPROVED SWEDGE FITTING WITH A NEOPRENE SEAL, AS MANUFACTURED BY JOHN REMKE COMPANY OR APPROVED EQUAL.
5. OUTLET BOXES SERVING WET LOCATION FIXTURE SHALL BE CODE SIZE, WITH A WATERTIGHT SOLID CAST TOP. CONDUIT ENTRIES SHALL BE THREADED.

GENERAL NOTES:

1. VERIFY ALL DOOR SWINGS WITH ARCHITECTURAL BEFORE ROUGHING IN LIGHT SWITCHES TO ENSURE PROPER SWITCH LOCATION. VERIFY ALL CASEWORK DETAILS TO ENSURE THAT ALL OUTLETS ABOVE CASEWORK ARE AT THE PROPER HEIGHT.
2. SERVICE TO THE BUILDING IS EXISTING 277/480 VOLTS, 3PHASE, 4WIRE, WYE.
3. ALL CONDUIT SHALL BE RUN CONCEALED UNLESS SPECIFICALLY SHOWN EXPOSED.
4. THE CONTRACTOR SHALL CHECK ALL LIGHTING FIXTURES FOR EXACT TYPE MOUNTING AND SPACE REQUIRED BEFORE ROUGHING IN.
5. THE CONTRACTOR SHALL WORK CLOSELY WITH THE GENERAL CONTRACTOR AND VERIFY EXACT TYPE OF EQUIPMENT TO BE INSTALLED AND THE DIMENSIONS WHICH MAY AFFECT THE EXACT PLACEMENT OF ELECTRICAL WORK.
6. VERIFY THE EXACT LOCATION OF ALL MOTORS AND EQUIPMENT BEFORE ROUGHING IN. LIKEWISE APPRAISE ALL TRADES OF THE LOCATIONS OF ELECTRICAL WORK THAT AFFECTS WALL THICKNESS, PLUMBING, MECHANICAL, ETC.
7. NEW ADDITION SHALL BE MADE TO TIE INTO EXISTING IN A UNIFORM MANNER. SIMILAR ITEMS IN NEW BUILDING SHALL BE CHECKED AGAINST EXISTING BUILDING AS FOR TYPE MOUNTING, MOUNTING HEIGHTS, ETC. ANY ITEMS SHOWN IN NEW ADDITION AT VARIANCE FROM ABOVE SHALL BE REFERRED TO ARCHITECT FOR DECISION PRIOR TO ROUGHING IN.
8. NOTE THAT THIS IS AN OPERATING FACILITY AND THUS ANY WORK THAT MAY CAUSE A DISTURBANCE OR INTERRUPTION IN THE NORMAL OPERATION OF THE FACILITY MUST BE CAREFULLY COORDINATED WITH THE ARCHITECT AND OWNER AND SPECIAL STEPS SHALL BE TAKEN TO MINIMIZE SUCH OCCURRENCES. ALL DISTURBANCES OR INTERRUPTIONS SHALL BE APPROVED BY THE OWNER PRIOR TO THE OCCURRENCE.
9. ALL BRANCH CIRCUITS AND FEEDERS SHALL HAVE AN INSULATED GROUND WIRE PULLED IN THE CONDUIT WITH CURRENT CONDUCTOR UNLESS SPECIFICALLY NOTED OTHERWISE ON THE PLANS. THE GROUNDING CONDUCTOR SHALL BE SIZED ACCORDING TO TABLE 250–122 OF THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE UNLESS INDICATED TO BE LARGER IN THE SPECIFICATIONS OR PLANS.
10. DO ALL WORK IN COMPLIANCE WITH ALL APPLICABLE CODES, LAWS AND ORDINANCES, THE NATIONAL ELECTRICAL CODE (HEREINAFTER REFERRED TO AS "CODE" OR "NEC"), THE AMERICANS WITH DISABILITIES ACT, AND THE REGULATIONS OF THE LOCAL AUTHORITIES HAVING JURISDICTION AND, WHERE APPLICABLE, UTILITY COMPANIES. OBTAIN AND PAY FOR ANY AND ALL REQUIRED PERMITS, INSPECTIONS, CERTIFICATES OF INSPECTIONS AND APPROVAL, AND THE LIKE, AND DELIVER SUCH CERTIFICATES TO THE OWNER.
11. ALL CONDUCTORS SHALL BE COPPER.
12. MINIMUM CONDUCTOR SIZE SHALL BE #12.
13. ALL CONDUIT INSTALLED INDOORS SHALL BE EMT, OTHERWISE SHALL BE IMC.
14. SWITCH AND RECEPTACLE COVER PLATES SHALL BE STAINLESS STEEL.
15. ALL DEVICES SHALL BE GRAY.
16. ALL FUSES SHALL BE DUAL ELEMENT, TIME DELAY, RATED 100,000 AIC.
17. ALL DISCONNECT SWITCHES SHALL BE HEAVY DUTY TYPE.
18. ALL NEW CIRCUIT BREAKERS INSTALLED IN EXISTING PANELBOARDS SHALL MATCH EXISTING ELECTRICALLY & MECHANICALLY.
19. ALL CONDUCTORS SHALL BE THHN TYPE INSULATION.
20. THE EXTENT OF DEMOLITION IS NOT SHOWN HERE, CONTRACTOR IS RESPONSIBLE FOR DEMOLITION AS REQUIRED BY NEW WORK.
21. ALL ELECTRICAL CONDUIT, WIRING, DEVICES, FIXTURES, ETC. REQUIRED TO BE REMOVED TO ALLOW FOR NEW CONSTRUCTION, ABANDONED AS A RESULT OF NEW CONSTRUCTION, OR CURRENTLY NOT IN SERVICE SHALL BE REMOVED AS PART OF THIS CONTRACT. EXPOSED CONDUITS & CONDUITS IN ACCESSIBLE AREAS SHALL BE REMOVED COMPLETELY, CONDUITS CONCEALED IN FLOORS, WALLS & ABOVE NON–ACCESSIBLE CEILINGS MAY BE CAPPED AND ABANDONED AFTER REMOVAL OF ALL CONDUCTORS.
22. EXISTING ELECTRICAL EQUIPMENT AND CIRCUITRY NOT BEING REMOVED OR REWORKED UNDER THIS CONTRACT, BUT LOCATED SO AS TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT, SHALL REMAIN IN SERVICE. SUCH CIRCUITS, EQUIPMENT, ETC., SHALL BE EXTENDED, RELOCATED OR REMOVED & REINSTALLED AS REQUIRED TO ACCOMMODATE NEW CONSTRUCTION.
23. DUE TO THE DEMOLITION OF CEILINGS. CONTRACTOR SHALL RELOCATE AND/OR SUPPORT EXISTING ITEMS AT OR ABOVE CEILING THAT WILL REMAIN IN SERVICE.
24. CONTRACTOR SHALL CONDUCT SITE VISIT BEFORE BID AND PRICING TO VERIFY EXISTING CONDITIONS. INCLUDE COST IN BID FOR ALL WORK REQUIRED TO SATISFY CONTRACT DOCUMENTS. NO EXTRA COMPENSATION SHALL BE APPROVED SHOULD ADDITIONAL WORK BE REQUIRED DUE TO FAILURE BY CONTRACTOR TO CONDUCT DUE DILIGENCE.

GRAPHICAL ELECTRICAL SYMBOLS

GENERAL SYMBOLS

J	JUNCTION BOX.
J	WALL MOUNTED JUNCTION BOX.
J	WALL MOUNTED JUNCTION BOX WITH FLEXIBLE CONNECTION TO EQUIPMENT.
	MOTOR
AC	AIR CONDITIONING UNIT.
F	CEILING EXHAUST FAN – FRACTIONAL.
	MAGNETIC MOTOR STARTER.
$T	MANUAL MOTOR STARTER WITH THERMAL PROTECTION.
	SAFETY SWITCH, NON–FUSED.
	SAFETY SWITCH, FUSED.
	LIGHTING PANEL AND/OR RECEPTACLE PANEL.
	POWER PANEL.
TR	TRANSFORMER.
	GROUND.

GENERAL ABBREVIATIONS

H	MOUNTING HEIGHT ABOVE FINISHED FLOOR.
AF	ABOVE FINISHED FLOOR.
WP	WEATHER PROOF – NEMA 3R
RT	RAIN TIGHT – NEMA 4.
EP	EXPLOSION PROOF.
TP	TAMPER PROOF.
A	MOUNT ABOVE COUNTER.
BC	MOUNT BELOW COUNTER.
F	FLUSH MOUNTED.
SLD	SEE SINGLE LINE DIAGRAM.
GFI	GROUND FAULT INTERRUPTING.
C	CONDUIT.
GC	FLEXIBLE CONDUIT.
SFC	SEALTITE FLEXIBLE CONDUIT.
EMT	ELECTRICAL METALLIC TUBING.
IMC	INTERMEDIATE METALLIC CONDUIT.
RG	RIGID CONDUIT.
PVC	NONMETALLIC RIGID CONDUIT.
EX	EXISTING.
XR	EXISTING TO BE REMOVED
RL	EXISTING TO BE REMOVED AND RELOCATED.
RQ	EXISTING TO BE REMOVED. EXTEND CIRCUIT CONDUCTORS AS REQUIRED AND INSTALL FINISHED BLANK COVER.
RR	EXISTING TO BE REMOVED AND REPLACED WITH NEW.
RL'D	RELOCATED POSITION.

BRANCH CIRCUIT SYMBOLS

	BRANCH CIRCUIT	HOMERUN TO 20A, 1POLE CIRCUIT BREAKER IN PANELBOARD OR DEVICE NOTED. WIRE SIZE IS 2#12&1#12GRD–3/4"C.
	BRANCH CIRCUIT	CONCEALED IN CEILING OR WALL.
	BRANCH CIRCUIT	CONCEALED IN FLOOR.
EX	BRANCH CIRCUIT	EXISTING CONDUIT BARS DENOTE NEW CONDUCTORS.
	BRANCH CIRCUIT	EXPOSED.
	BRANCH CIRCUIT	RISER UP.
	BRANCH CIRCUIT	RISER DOWN.

BRANCH CIRCUIT NOTES

	BRANCH CIRCUIT	3#12&1#12GRD–3/4"C
	BRANCH CIRCUIT	4#12&1#12GRD–3/4"C
10	BRANCH CIRCUIT	2#10&1#10GRD–3/4"C
10	BRANCH CIRCUIT	3#10&1#10GRD–3/4"C

SIZE CONDUIT PER NEC FOR GREATER NUMBER OF CONDUCTORS OR AS NOTED. THE NUMBER IN THE CIRCUIT INDICATES AWG WIRE SIZE AND THE HASHMARKS INDICATE THE NUMBER OF WIRES REQUIRED. EQUIPMENT GROUND CONDUCTOR SHALL BE SIZED IN ACCORDANCE WITH NEC TABLE 250–122. THE NUMBER OF HASH MARKS DO NOT INCLUDE EQUIPMENT GROUNDING CONDUCTOR.

LIGHTING FIXTURE & CONTROL SYMBOLS

1 A	CEILING OUTLET	FIXTURE TYPE "A" CIRCUIT #1.
	CEILING OUTLET	EXISTING.
	CEILING OUTLET	FLUORESCENT FIXTURE, SINGLE OR CONTINUOUS, LENGTHS AS SHOWN.
	CEILING OUTLET	FLUORESCENT STRIP.
	WALL OUTLET	BRACKET TYPE FIXTURE.
	WALL OUTLET	FLUORESCENT BRACKET TYPE FIXTURE.
$	SWITCH OUTLET	A.C. TYPE, SINGLE POLE, 20A, 125/277V.
$3	SWITCH OUTLET	A.C. TYPE, THREE WAY, 20A, 125/277V.
$TS	SWITCH OUTLET	TIME SWITCH, WALL MOUNTED. WATT STOPPER #TS–400.
$OS/OS1	SWITCH OUTLET	180° DUAL TECH SENSOR LIGHTING MOTION DETECTOR, WALL MOUNTED. WATT STOPPER #DW–100.
$A	SWITCH OUTLET	DIGITAL SWITCH. SUBSCRIPTS CORRESPOND TO DETAIL.
D	SWITCH OUTLET	DIMMER, 600, 1000, OR 1500 WATT INCANDESCENT WITH SUPER TOROIDAL RFI FILTERING UNLESS NOTED OTHERWISE.
PP	SWITCH OUTLET	LIGHTING MOTION DETECTOR POWER PACK. INSTALL ABOVE ACCESSIBLE CEILING. WATT STOPPER #B277–P.
M	SWITCH OUTLET	360° DUAL TECH SENSOR LIGHTING MOTION DETECTOR, CEILING MOUNTED. WATT STOPPER #DT–300.

SWITCH OUTLET NOTES

"a" "b" ETC.	FIXTURE CORRESPONDS TO A SWITCH DENOTED WITH THE SAME LOWER CASE LETTER.

EXIT LIGHT SYMBOLS

XL	CEILING MOUNTED, SINGLE FACE, NO ARROW.
XL	CEILING MOUNTED, DOUBLE FACE, LEFT OR RIGHT ARROWS.
XL	CEILING MOUNTED, SINGLE FACE, LEFT OR RIGHT ARROW.
XL	CEILING MOUNTED, SINGLE FACE, LEFT AND RIGHT ARROWS.
XL	CEILING MOUNTED, DOUBLE FACE, LEFT AND RIGHT ARROWS.
XL	WALL MOUNTED, SINGLE FACE, NO ARROW.
XL	WALL MOUNTED, SINGLE FACE, LEFT AND OR RIGHT ARROW(S).

RECEPTACLE OUTLET SYMBOLS

	WALL OUTLET	DUPLEX RECEPTACLE, 20A, 125V, 3WIRE, NEMA 5–20R.
	WALL OUTLET	DOUBLE DUPLEX RECEPTACLE, 20A, 125V, 3WIRE, NEMA 5–20R, SINGLE PLATE.
	WALL OUTLET	EXISTING.
	WALL OUTLET	DUPLEX RECEPTACLE, 20A, 125V, NEMA 5–20R, GFCI, UL LISTED WEATHER–RESISTANT, WITH IN USE HEAVY DUTY WEATHERPROOF COVER. HUBBELL CATALOG # FOR ONE GANG BOX IS MM420G (MM420C FOR CLEAR) OR FOR TWO GANG BOX IS MM2420G (MM2420C FOR CLEAR). WHEN FLUSH MOUNTED, USE COVERPLATE BY SIGMA ELECTRIC CATALOG #3400868.
	WALL OUTLET	SINGLE RECEPTACLE, 20A, 250V, 3WIRE, NEMA 6–20R.
	FLOOR OUTLET	TWO COMPARTMENT FLUSH MOUNTED FLOOR BOX WITH DOUBLE DUPLEX RECEPTACLE, 20A, 125V, 3WIRE, NEMA 5–20R AND DATA OUTLET MOUNTING PLATE, COVER TO BE SELECTED BY ARCHITECT. WIREMOLD RFB2
	WALL OUTLET	STEEL SURFACE RACEWAY WIREMOLD G3000 SERIES WITH NEMA 5–20R DUPLEX RECEPTACLES ARRANGED 24" APART ON CENTER. PROVIDE GFCI OUTLET WHERE SHOWN ON DRAWINGS.

RECEPTACLE OUTLET NOTES

"G"	GROUND FAULT INTERRUPTER.
"GA"	GROUND FAULT INTERRUPTER, MOUNTED ABOVE COUNTER.
"A"	MOUNTED ABOVE COUNTER.
"BC"	MOUNTED BELOW COUNTER.

VOICE/DATA OUTLET & CONDUIT SYMBOLS

	VOICE/DATA OUTLET	WALL MOUNTED, WITH 3/4" CONDUIT HOMERUN TO NEAREST TELEPHONE CABINET OR BACKBOARD UNLESS NOTED OTHERWISE.
W	VOICE/DATA OUTLET	WALL MOUNTED TELEPHONE, 54"AFF.
	VOICE/DATA OUTLET	TELEPHONE BACKBOARD – 3/4" PLYWOOD PAINTED WITH TWO COATS OF FIRE RETARDANT PAINT, 48"x96" HIGH, UNLESS SHOWN OTHERWISE.
T	VOICE/DATA CONDUIT	WITH PULL CORD, 3/4" UNLESS SHOWN OTHERWISE.
T	VOICE/DATA CONDUIT	CONDUIT WITH PULL CORD, HOMERUN TO NEAREST TERMINAL BOARD OR CABINET, 1 1/4" UNLESS NOTED OTHERWISE.

VOICE/DATA OUTLET NOTES

"A"	MOUNTED ABOVE COUNTER.
"BC"	MOUNTED BELOW COUNTER.

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Seal

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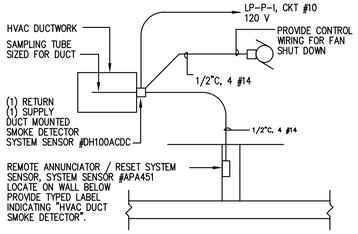
GENERAL NOTES, SYMBOLS, & LEGENDS

E100



FOR TENANTS WITH MORE THAN ONE UNIT, ALL REMOTE ANNUNCIATORS AND RESET SWITCHS SHALL BE GROUPED TOGETHER IN ONE LOCATION. THE LOCATION OF THE ANNUCIATORS SHALL BE DETERMINED BY LOCAL A.H.J..

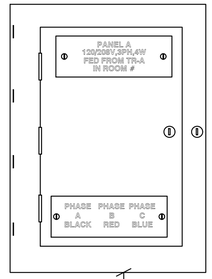
NOTE: PROVIDE DETECTOR, HOUSING, TYPE, REMOTE STATION, AND ALL ACCESSORIES. DETECTOR SHALL BE INSTALLED UNDER DIVISION 15. CONNECT DETECTOR AS SHOWN.

ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL DUCT DETECTOR WITH MINIMUM TWO SETS OF AUXILIARY CONTACTS

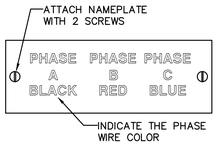
ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL CONTROL WIRING FROM DUCT DETECTOR TO AC UNIT

TIE ALL SMOKE DUCT DETECTORS TOGETHER FOR WHITE BOXES WITH MORE THAN ONE ROOF TOP UNITS. ALL UNITS IN A WHITE BOX SHALL BE SHUT DOWN IN CASE ANY OF SMOKE DUCT DETECTOR IN ANY ONE ROOF TOP UNIT GOES TO ALARM. WHERE THERE IS MORE THAN ON SMOKE DUCT DETECTORS IN ONE TENANT SPACE. ALL SMOKE DUCT DETECTORS SHALL BE MONITORED AT ONE LOCATION. USE A MULTI POINT ANNUNCIATOR TO MONITOR ALL SMOKE DUCT DETECTORS IN LIEU OF SYSTEM SENSOR #APA451(SINGLE MONITORING POINT ANNUNCIATOR)

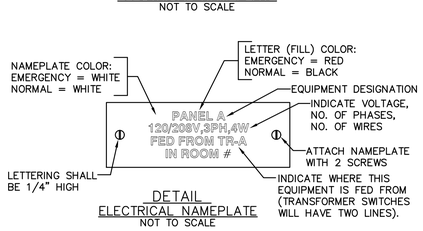
DETAIL
TYPICAL DUCT DETECTOR
NOT TO SCALE



DETAIL
120/208V PANELBOARD INSTALLATION & NAMEPLATE DETAIL
NOT TO SCALE



DETAIL
120/208V PANELBOARD ELECTRICAL NAMEPLATE
NOT TO SCALE



DETAIL
ELECTRICAL NAMEPLATE
NOT TO SCALE

TYPICAL FEEDER DESIGNATION

#_ & 1#_GRD – _C (_A/_P)

- NUMBER OF CIRCUIT CONDUCTORS
- SIZE OF CIRCUIT CONDUCTORS "AWG UNLESS NOTED kCMIL"
- PROTECTIVE DEVICE TO WHICH THE CIRCUIT IS CONNECTED
- SIZE OF CONDUIT
- SIZE OF GROUNDING CONDUCTOR

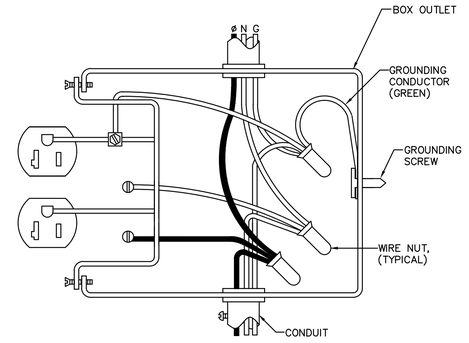
NOTE:

1. CONDUCTOR INSULATION TO BE 600V UNLESS OTHERWISE INDICATED.

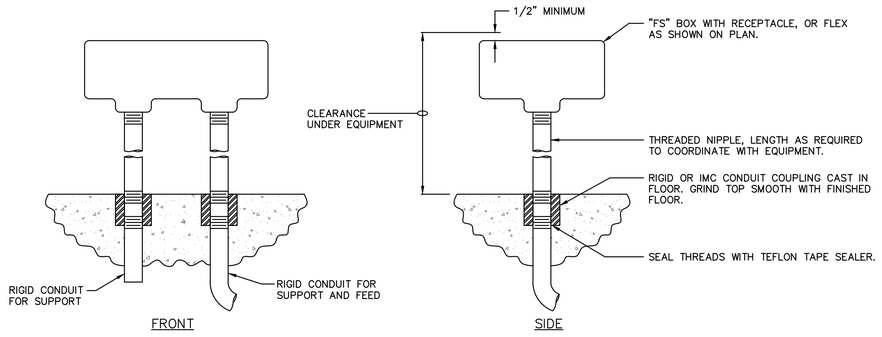
TYPICAL LUMINAIRE, DEVICE AND CIRCUIT DESIGNATIONS

a (R) 1	LUMINAIRE TYPE 'R', CIRCUIT NO. 1, CONTROLLED BY SWITCH "a"
2 [A] b	FLUORESCENT LUMINAIRE TYPE 'A', CIRCUIT NO. 2, CONTROLLED BY SWITCH "b"
2	WALL OUTLET WITH RECEPTACLE NOTED, CONNECT TO CIRCUIT NO. 2
1 J	EQUIPMENT CONNECTION – CONNECT TO CIRCUIT NO. 1

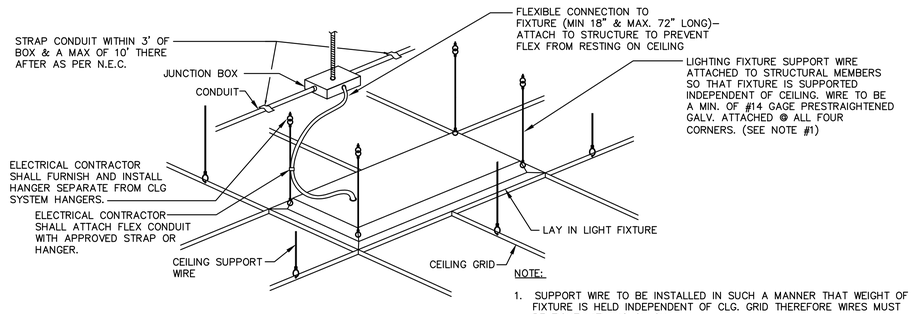
DETAIL
WIRING DESIGNATION
NOT TO SCALE



DETAIL
RECEPTACLE INSTALLATION
NOT TO SCALE



DETAIL
FLOOR OUTLETS IN KITCHEN & DISPLAY AREAS
NOT TO SCALE



NOTE:

1. SUPPORT WIRE TO BE INSTALLED IN SUCH A MANNER THAT WEIGHT OF FIXTURE IS HELD INDEPENDENT OF CLG. GRID THEREFORE WIRES MUST BE TIGHT WITH NO SLACK.
2. FLEXIBLE CONNECTION FROM FIXTURE TO JUNCTION BOX MUST BE MIN. 18" & MAX. 72" LONG.

DETAIL
LAY–IN FIXTURE SUPPORT DETAIL
NOT TO SCALE

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LAKELAND, TN 38002

Rev.	Date	Revision Description

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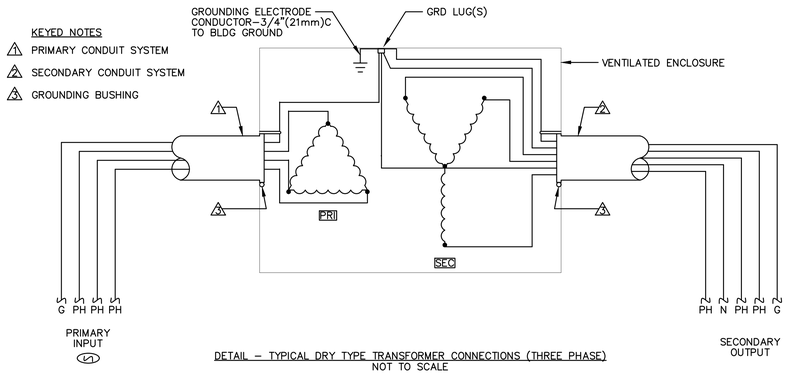
DETAILS

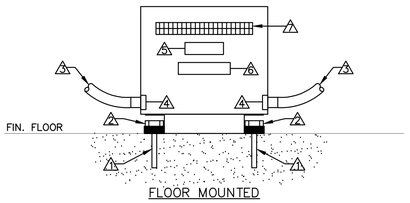
E101



DETAIL – TYPICAL DRY TYPE TRANSFORMER CONNECTIONS (THREE PHASE)
NOT TO SCALE

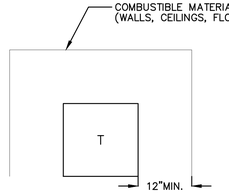
DRY-TYPE TRANSFORMER NOTES:

1. DRY-TYPE TRANSFORMERS SHALL CONSIST OF BUT NOT BE LIMITED TO THE FOLLOWING:
   a. VENTILATED ENCLOSURE
   b. PRIMARY SECTION
   c. SECONDARY SECTION
2. INSTALLATION SHALL COMPLY WITH THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AND THE NATIONAL ELECTRICAL SAFETY CODE (NESC).
3. ALL CONDUCTIVE PARTS OF EQUIPMENT, ENCLOSURES, FRAMES, ETC., SHALL BE GROUNDED.
4. ALL CLEARANCES SHALL BE MAINTAINED PER NESC AND NEC. ALL PARTS, DEVICES, EQUIPMENT, ETC. WHICH REQUIRE MAINTENANCE, ADJUSTMENT, OPERATION OR EXAMINATION DURING NORMAL NETWORK OPERATION SHALL BE ARRANGED SO AS TO BE ACCESSIBLE BY THE PROVISION OF ADEQUATE WORKING SPACES, WORKING FACILITIES AND CLEARANCES. UNLESS NOTED OTHERWISE ALL CLEARANCES ARE MEASURED FROM SURFACE TO SURFACE.
5. ALL DIMENSIONS INDICATED IN THESE DOCUMENTS ARE FOR REFERENCE AND COORDINATION PURPOSES ONLY. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL DIMENSIONS IN THE FIELD.
6. TRANSFORMERS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND APPLICABLE DETAILS, ACCESSIBLE WITH MECHANICAL PROTECTION, VENTILATED ENCLOSURES AND WITHIN A SPACE TO PROVIDE VENTILATION TO DISPOSE OF THE TRANSFORMER FULL LOAD LOSSES. EACH TRANSFORMER SHALL CONTAIN A NAMEPLATE IN ACCORDANCE WITH NEC SECTION 450-II AND THE CONTRACTOR SHALL INSURE THAT ALL SPECIAL PRECAUTIONS ARE MET SUCH AS PROPER CLEARANCES FOR VENTILATION, OVERCURRENT PROTECTION, ETC.
7. TRANSFORMERS UTILIZED FOR NON-LINEAR LOADS SHALL BE UL LISTED FOR THAT PURPOSE AND "K" RATED WITH THE FOLLOWING FEATURES:
   ELECTROSTATIC SHIELDING
   DOUBLE SIZE NEUTRAL TERMINALS
   ADDITIONAL COIL CAPACITY
   REDUCED CORE FLUX
   115°C TEMPERATURE RISE



FLOOR MOUNTED

DETAIL – TYPICAL INDOOR INSTALLATION OF DRY TYPE TRANSFORMERS
NOT TO SCALE



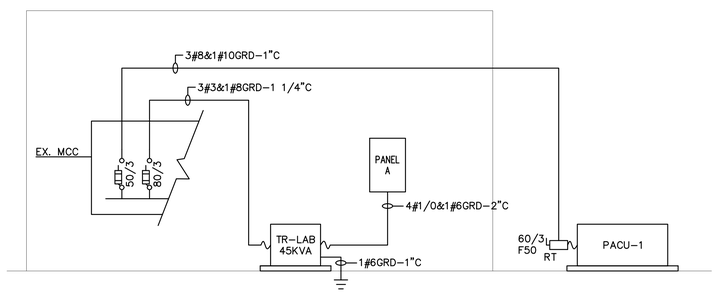
INDOOR – 112.5 KVA OR LESS

DETAIL – TYPICAL MINIMUM INSTALLATION CLEARANCE
NOT TO SCALE

KEYED NOTES
1 FLOOR ANCHOR SYSTEM
2 VIBRATION ISOLATORS – TYP. FOR FOUR
3 FLEXIBLE CONNECTION
4 GROUND BUSSING TERMINATIONS
5 NAMEPLATE
6 TRANSFORMER IDENTIFICATION PLATE
7 VENTED COVER

INSTALLATION NOTES:

1. SIZE ALL SUPPORTS, ANCHOR SYSTEMS, BOLTS, ETC., AS REQUIRED FOR A SECURE INSTALLATION IN ACCORDANCE WITH THE SPECIFICATIONS.



SINGLE LINE DIAGRAM
POWER
NOT TO SCALE

NOTES:

1. PROVIDE NEW FUSE IN AVAILABLE MCC SPACE FOR NEW FEEDER. PROVIDE MCC BUCKET AND OVERCURRENT DEVICE PER ORIGINAL MANUFACTURER RECOMMENDATIONS FOR MCC MODEL. FIELD VERIFY REQUIRED DEVICES AND FITTINGS FOR NEW OVERCURRENT DEVICES.

PANEL LOAD SUMMARY

Panel: PANEL LAB

Equipment	LIGHT	RCPT	O/M	CB SIZE	CIRCUIT #	PHASE A	PHASE B	PHASE C	CIRCUIT #	CB SIZE	LIGHT	RCPT	O/M	Equipment
OFFICE 104 RECEPTACLE		800		20/1	1	1300			2	20/2		600		250V RECEPTACLE
BREAK ROOM 103 FRIDGE		200		20/1	3		700		4			600		
OFFICE 106 RECEPTACLE		1000		20/1	5			1600	6	20/2		600		250V RECEPTACLE
JAN./STORAGE RECEPTACLE		400		20/1	7	900			8			600		
LAB 108 FRIDGE		200		20/1	9		700		10	20/2		600		250V RECEPTACLE
LAB 108 RECEPTACLE		800		20/1	11			1300	12			600		
DISHWASHER		200		20/1	13	400			14	20/1		200		OUTDOOR RECEPTACLE
INCUBATOR		200		20/1	15		787		16	20/1	587			LAB/OFFICE/JAN/STOR LTG.
FUME HOOD			100	20/1	17			2020	18	20/1			1920	HOOD EXHAUST FAN
WORK TABLE PLUGMOLD		600		20/1	19	700			20	20/1			100	FIRE/SMOKE DAMPER
WORK TABLE PLUGMOLD		400		20/1	21		2650		22	30/2			2250	EWH-1
WORK TABLE PLUGMOLD		400		20/1	23			2650	24				2250	
WORK TABLE PLUGMOLD		400		20/1	25	2650			26	30/2			2250	EWH-2
WORK TABLE PLUGMOLD		400		20/1	27		2650		28				2250	
WORK TABLE PLUGMOLD		600		20/1	29			600	30	20/1				SPARE
SPARE				20/1	31	0			32	20/1				SPARE
SPARE				20/1	33		0		34	20/1				SPARE
SPARE				20/1	35			0	36	20/1				SPARE
SPARE				20/1	37	0			38	20/1				SPARE
SPARE				20/1	39		0		40	20/1				SPARE
SPARE				20/1	41			0	42	20/1				SPARE
Sub-Total	0	6600	100			5960	7487	8070			687	3200	11020	Sub-Total

	TOTAL CONNECTED LOAD PER PHASE(VA)			DEMAND LOAD (VA)			
LOAD TYPE	Phase A	Phase B	Phase C	DEMAND FACTOR	Phase A	Phase B	Phase C
LIGHTING	0.00	587.00	0.00	1.00	0.00	587.00	0.00
RECEPTACLES	3600.00	2400.00	3800.00	*	3600.00	2400.00	3800.00
MOTORS/OTHER	2360.00	4500.00	4270.00	1.00	2360.00	4500.00	4270.00
TOTAL	5960.00	7487.00	8070.00		5960.00	7487.00	8070.00

TOTAL CONNECTED LIGHTING LOAD	0.59	KVA
TOTAL CONNECTED RECEPTACLE LOAD	9.80	KVA
TOTAL CONNECTED MOTOR/OTHER LOAD	11.12	KVA
TOTAL CONNECTED LOAD	21.51	KVA

* Diversified per NEC Table 220.13.

WIRE SIZE CALCULATIONS			ENCLOSURE	NEMA 1
LARGEST PHASE DEMAND	8.07	KVA	MOUNTING	SURFACE
NO. OF PHASES	3.00		MAIN TYPE	MB
DEMAND LOAD	24.21	KVA	SIZE	150A
SPARE CAPACITY @25%	6.05	KVA	FEED THRU	NO
TOTAL DESIGN LOAD	30.26	KVA	FEED	BOTTOM
SUPPLY VOLTAGE	208.00	V	BUS RATING	225A
			SERVICE RATED	NO
MINIMUM CCT AMPS	84.00	AMPS	MIN FULL EQUIP.NAC RATING	10
			TYPE	NQOD
			MANUFACTURER	SQUARE D
			OTHER	
VOLTS	120/ 208		V 3 Phase, 4 Wire & Grd Bus Bar	

PANEL LOAD SUMMARY

Panel: EX. PANEL L

Equipment	LIGHT	RCPT	O/M	CB SIZE	CIRCUIT #	PHASE A	PHASE B	PHASE C	CIRCUIT #	CB SIZE	LIGHT	RCPT	O/M	Equipment
SITE LIGHTING				20/1	1	0			2	20/1				SITE LIGHTING
SITE LIGHTING				20/1	3		0		4	20/1				SITE LIGHTING
SITE LIGHTING				20/1	5			0	6	20/1				SITE LIGHTING
SITE LIGHTING				20/1	7	0			8	20/1				SITE LIGHTING
EXISTING CIRCUIT				20/1	9		0		10	20/1				EXISTING CIRCUIT
EXISTING CIRCUIT				20/1	11			0	12	20/1				EXISTING CIRCUIT
GEN. BLOCK HEATER				20/2	13	0			14	20/2				GEN. BLOCK HEATER
GEN. BLOCK HEATER					15		0		16					GEN. BLOCK HEATER
					17			0	18					
					19	0			20					
					21		0		22					
					23			0	24					
					25	0			26					
					27		0		28					
					29			0	30					
Sub-Total	0	0	0			0	0	0			0	0	0	Sub-Total

	TOTAL CONNECTED LOAD PER PHASE(VA)			DEMAND LOAD (VA)			
LOAD TYPE	Phase A	Phase B	Phase C	DEMAND FACTOR	Phase A	Phase B	Phase C
LIGHTING	0.00	0.00	0.00	1.00	0.00	0.00	0.00
RECEPTACLES	0.00	0.00	0.00	*	0.00	0.00	0.00
MOTORS/OTHER	0.00	0.00	0.00	1.00	0.00	0.00	0.00
TOTAL	0.00	0.00	0.00		0.00	0.00	0.00

TOTAL CONNECTED LIGHTING LOAD	0.00	KVA
TOTAL CONNECTED RECEPTACLE LOAD	0.00	KVA
TOTAL CONNECTED MOTOR/OTHER LOAD	0.00	KVA
TOTAL CONNECTED LOAD	0.00	KVA

* Diversified per NEC Table 220.13.

WIRE SIZE CALCULATIONS			ENCLOSURE	NEMA 1
LARGEST PHASE DEMAND	0.00	KVA	MOUNTING	SURFACE
NO. OF PHASES	3.00		MAIN TYPE	ML
DEMAND LOAD	0.00	KVA	SIZE	60A
SPARE CAPACITY @25%	0.00	KVA	FEED THRU	NO
TOTAL DESIGN LOAD	0.00	KVA	FEED	
SUPPLY VOLTAGE	480.00	V	BUS RATING	
			SERVICE RATED	NO
MINIMUM CCT AMPS	0.00	AMPS	MIN FULL EQUIP.NAC RATING	22
			TYPE	
			MANUFACTURER	SQUARE D
			OTHER	
VOLTS	277/ 480		V 3 Phase, 4 Wire & Grd Bus Bar	

PANEL LOAD SUMMARY

Panel: EX. PANEL R

Equipment	LIGHT	RCPT	O/M	CB SIZE	CIRCUIT #	PHASE A	PHASE B	PHASE C	CIRCUIT #	CB SIZE	LIGHT	RCPT	O/M	Equipment
OFFICE LIGHTS				20/1	1	0			2	20/1				RECEPTACLES
MCC ROOM LIGHTS				20/1	3		0		4	20/1				RECEPTACLES
RECEPTACLES				20/1	5			0	6	20/1				RECEPTACLES
CONTROL PANEL OFFICE				20/1	7	0			8	20/1				RECEPTACLES
SPARE				20/2	9		0		10	20/1				EWC-1
					11			0	12	20/2				UNIT HEATER
EFI MCC EXHAUST FAN				20/1	13	0			14					
CONTROL PANEL OFFICE				20/1	15		0		16	20/1				EXISTING CIRCUIT
SPARE				20/2	17			0	18	20/1				EXHAUST FAN #1 D.T.
					19	0			20	20/1				CONT. PANEL DSW ATDRNG BLDG.
GATE CONTROL				20/1	21		0		22	20/2				GEN. PANEL
EXISTING CIRCUIT				20/1	23			0	24					
					25	0			26	20/2				WATER HEATER
					27		0		28					
					29			0	30					
Sub-Total	0	0	0			0	0	0			0	0	0	Sub-Total

	TOTAL CONNECTED LOAD PER PHASE(VA)			DEMAND LOAD (VA)			
LOAD TYPE	Phase A	Phase B	Phase C	DEMAND FACTOR	Phase A	Phase B	Phase C
LIGHTING	0.00	0.00	0.00	1.00	0.00	0.00	0.00
RECEPTACLES	0.00	0.00	0.00	*	0.00	0.00	0.00
MOTORS/OTHER	0.00	0.00	0.00	1.00	0.00	0.00	0.00
TOTAL	0.00	0.00	0.00		0.00	0.00	0.00

TOTAL CONNECTED LIGHTING LOAD	0.00	KVA
TOTAL CONNECTED RECEPTACLE LOAD	0.00	KVA
TOTAL CONNECTED MOTOR/OTHER LOAD	0.00	KVA
TOTAL CONNECTED LOAD	0.00	KVA

* Diversified per NEC Table 220.13.

WIRE SIZE CALCULATIONS			ENCLOSURE	NEMA 1
LARGEST PHASE DEMAND	0.00	KVA	MOUNTING	SURFACE
NO. OF PHASES	3.00		MAIN TYPE	MB
DEMAND LOAD	0.00	KVA	SIZE	100A
SPARE CAPACITY @25%	0.00	KVA	FEED THRU	NO
TOTAL DESIGN LOAD	0.00	KVA	FEED	
SUPPLY VOLTAGE	208.00	V	BUS RATING	
			SERVICE RATED	NO
MINIMUM CCT AMPS	0.00	AMPS	MIN FULL EQUIP.NAC RATING	10
			TYPE	
			MANUFACTURER	SQUARE D
			OTHER	TVSS
VOLTS	120/ 208		V 3 Phase, 4 Wire & Grd Bus Bar	

GENERAL NOTES:

1. ITEMS SHOWN HERE SHADED ARE EXISTING TO REMAIN.
2. PROVIDE NEW UPDATED, TYPEWRITTEN PANEL SCHEDULES FOR ALL EXISTING PANELS MODIFIED BY DEMOLITION AND NEW WORK.

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LAKELAND, TN 38002

Rev.	Date	Revision Description

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Issue Date: 12/9/16
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Drawn By: GW
Checked By: JK

Sheet Title:
PANELBOARD SCHEDULES & SINGLE LINE DIAGRAM

E102

GENERAL DEMOLITION NOTES;

1. THE EXTENT OF DEMOLITION IS NOT SHOWN HERE, CONTRACTOR IS RESPONSIBLE FOR DEMOLITION AS REQUIRED BY NEW WORK. COORDINATE DEMOLITION WITH ARCHITECTURAL.

2. ALL ELECTRICAL CONDUIT, WIRING, DEVICES, FIXTURES, ETC. REQUIRED TO BE REMOVED TO ALLOW FOR NEW CONSTRUCTION, ABANDONED AS A RESULT OF NEW CONSTRUCTION, OR CURRENTLY NOT IN SERVICE SHALL BE REMOVED AS PART OF THIS CONTRACT. EXPOSED CONDUITS & CONDUITS IN ACCESSIBLE AREAS SHALL BE REMOVED COMPLETELY, CONDUITS CONCEALED IN FLOORS, WALLS & ABOVE NON-ACCESSIBLE CEILINGS MAY BE CAPPED AND ABANDONED AFTER REMOVAL OF ALL CONDUCTORS.

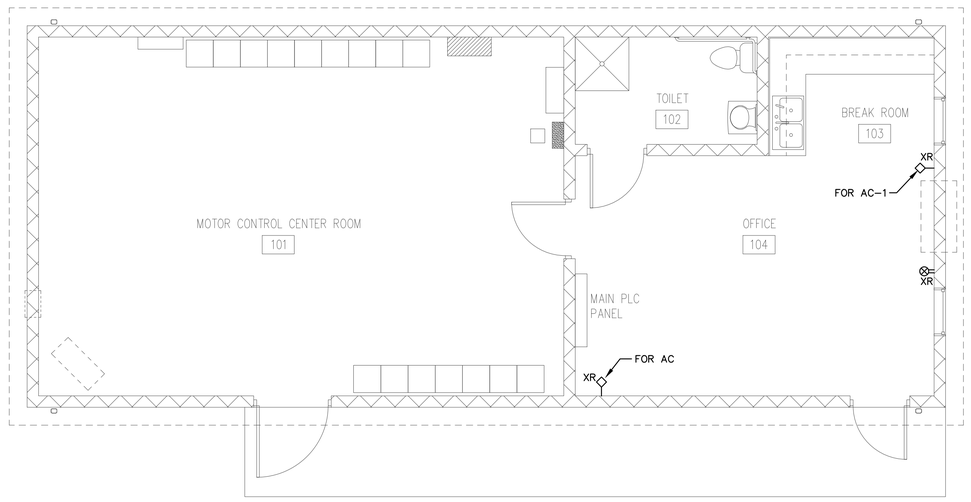
3. EXISTING ELECTRICAL EQUIPMENT AND CIRCUITRY NOT BEING REMOVED OR REWORKED UNDER THIS CONTRACT, BUT LOCATED SO AS TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT, SHALL REMAIN IN SERVICE. SUCH CIRCUITS EQUIPMENT, ETC., SHALL BE EXTENDED, RELOCATED OR REMOVED & REINSTALLED AS REQUIRED TO ACCOMMODATE NEW CONSTRUCTION.

4. DUE TO THE DEMOLITION OF CEILINGS. CONTRACTOR SHALL RELOCATE AND/OR SUPPORT EXISTING ITEMS AT OR ABOVE CEILING THAT WILL REMAIN IN SERVICE.

5. WHERE NEW HVAC AND PLUMBING WORK REQUIRES RELOCATION OF EXISTING ELECTRICAL WORK SUCH RELOCATION SHALL BE PROVIDED.

6. ALL ACTIVE DEVICES, WIRING, AND FEEDERS SHALL REMAIN IN SERVICE.

7. PROVIDE UPDATED SCHEDULES FOR PANELS MODIFIED BY DEMOLITION.



1 DEMOLITION PLAN - ELECTRICAL
SCALE: 1/4" = 1'-0"

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DEMOLITION PLAN - ELECTRICAL

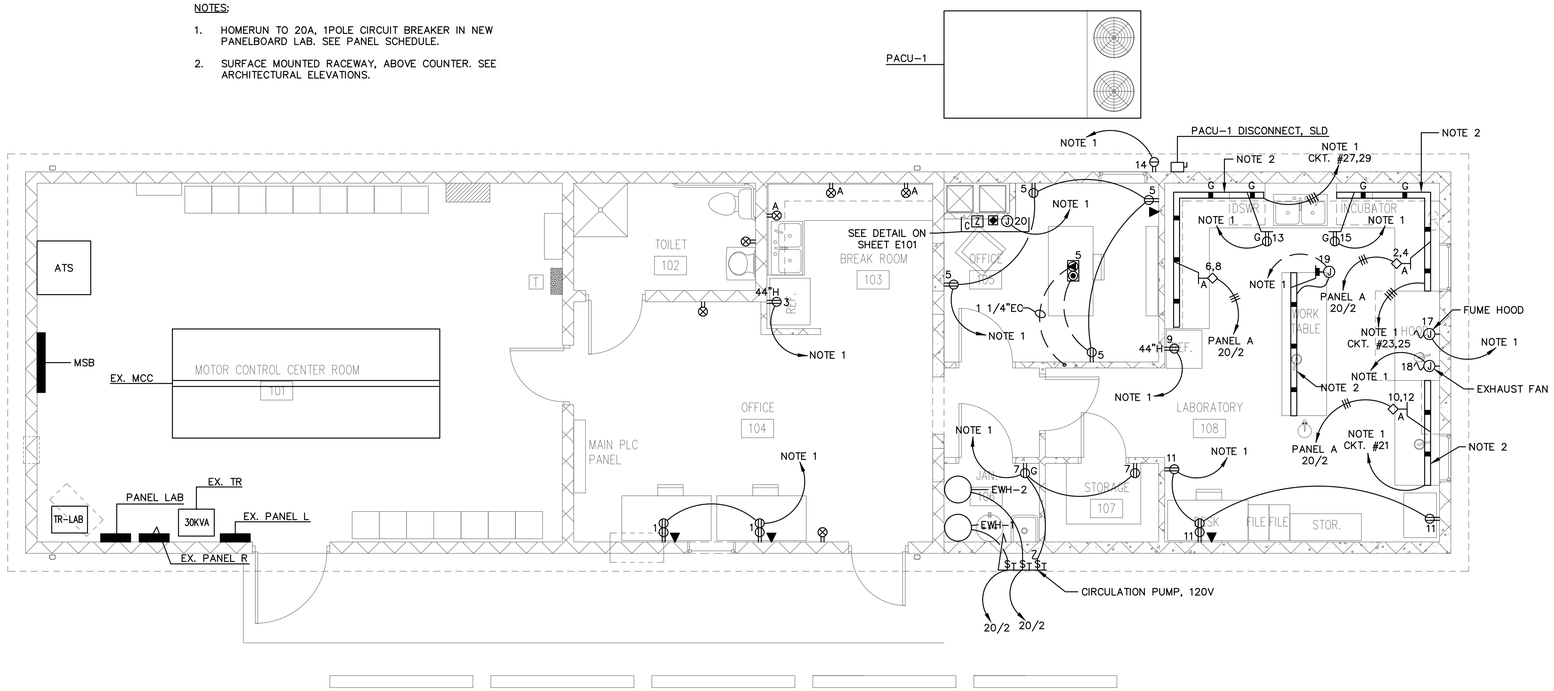
E200

GENERAL NOTES:

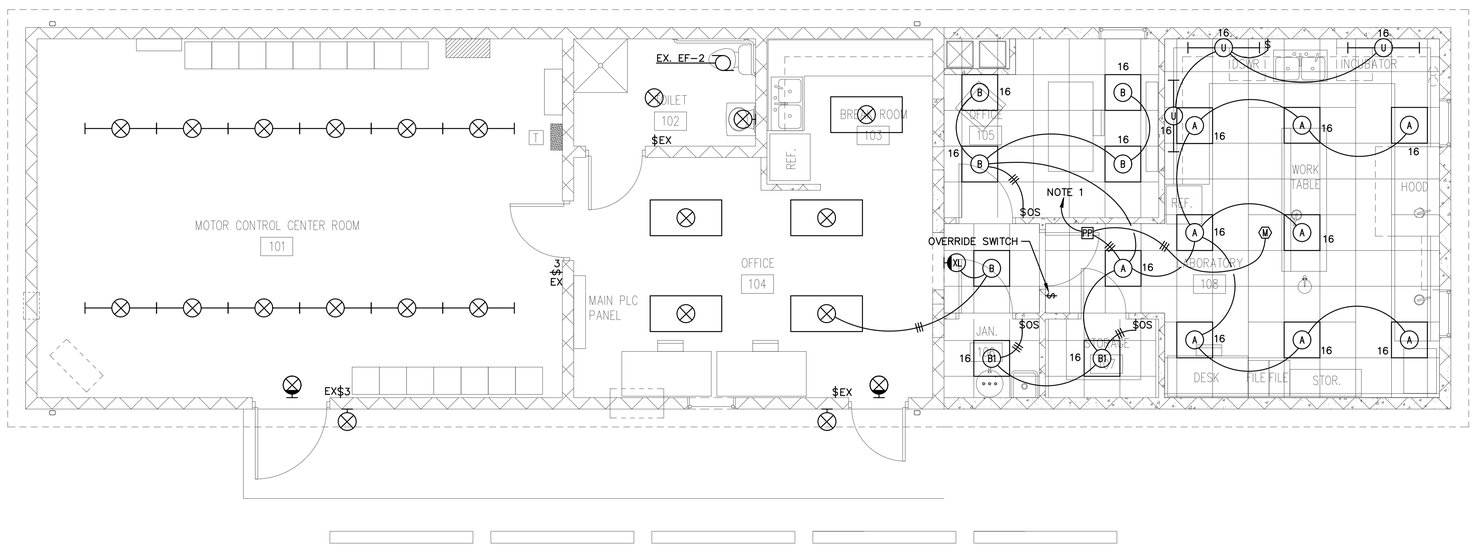
1. ALL HOMERUNS SHOWN HERE SHALL BE TO PANELBOARD LAB, UNLESS NOTED OTHERWISE.

NOTES:

1. HOMERUN TO 20A, 1POLE CIRCUIT BREAKER IN NEW PANELBOARD LAB. SEE PANEL SCHEDULE.
2. SURFACE MOUNTED RACEWAY, ABOVE COUNTER. SEE ARCHITECTURAL ELEVATIONS.



2 FLOOR PLAN - POWER & AUXILIARY
SCALE: 1/4" = 1'-0"



1 FLOOR PLAN - LIGHTING
SCALE: 1/4" = 1'-0"

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Sheet Title:
FLOOR PLAN - LIGHTING, POWER, & AUXILIARY

E300