



Chick-fil-A

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5200 Buffington Road
Atlanta, Georgia
30349-2998

INTERPLAN

INTERPLAN LLC
AR0011595
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ARCHITECTURE
ENGINEERING
PERMITTING

220 E. CENTRAL PKWY, STE 4000
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CHICK-FIL-A
MADISON STREET
1626 Madison St.
Clarksville
TN, 37043

FSR#01673

BUILDING TYPE / SIZE: S04-152

RELEASE:

PRINTED FOR:

BID FOR CONSTRUCTION

REVISION SCHEDULE

NO. DATE DESCRIPTION

7 08/01/22 WATER HEATER

UPDATE

CONSULTANT PROJECT # 2020.0755

DATE March 2022

DRAWN BY DD

CHECKED BY DAK

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BELOW SLAB PLUMBING PLAN

SHEET NUMBER

P1.1

DATE

3/1/2022

DRAWN BY

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DAK

DATE

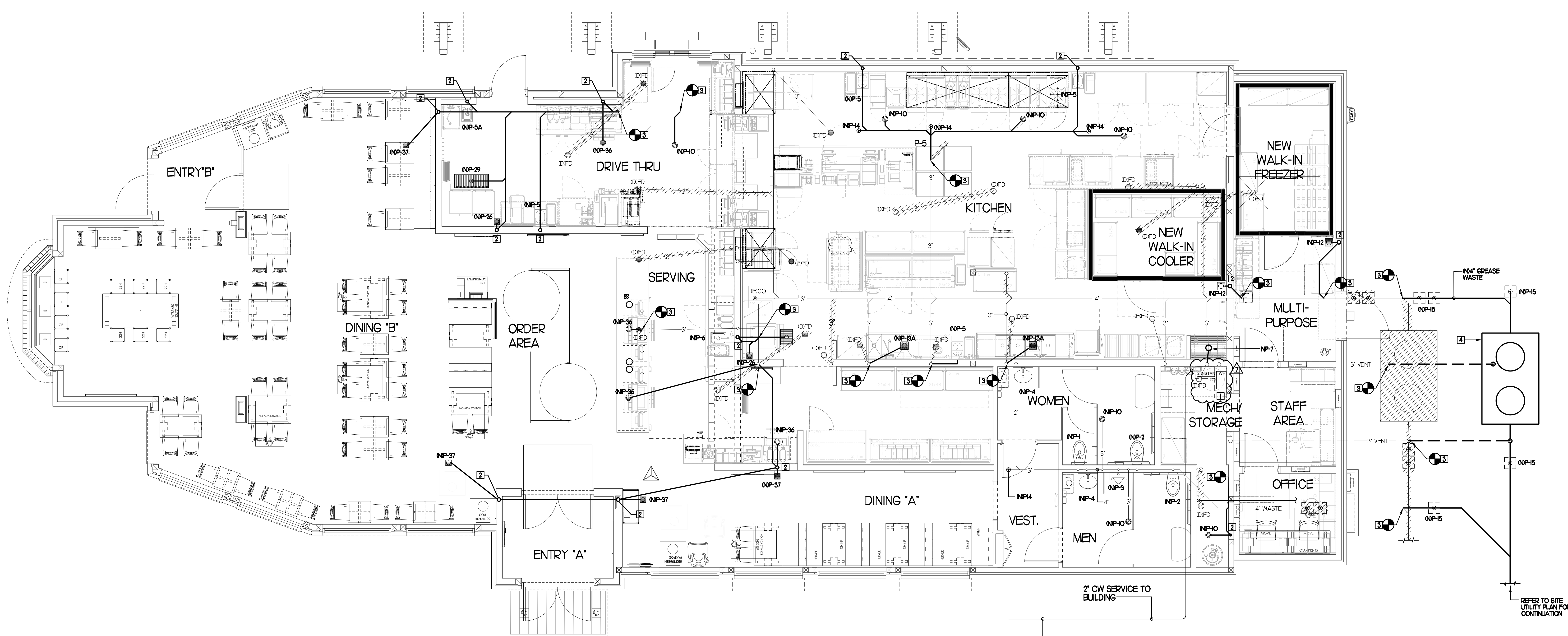
3/1/2022

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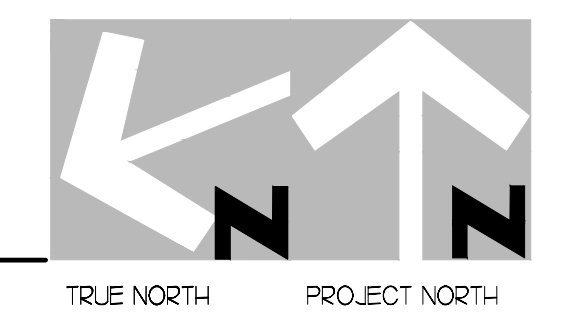
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DAK



1 BELOW SLAB PLUMBING PLAN

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



PLUMBING KEY NOTES

- 1 EXISTING WATER HEATER TO BE REPLACED WITH NEW P-H.
2 PROVIDE NEW 2" VENT IN WALL. MAKE FINAL PLUMBING MODIFICATIONS.
3 CONNECT TO EXISTING WASTE LINE AS INDICATED, VERIFY FLOW DIRECTION AND CONNECTING INVERTS.
4 NEW 1000 GALLON GREASE TRAP. REFER TO SITE UTILITY PLAN SHEET FOR EXACT SIZE, CALCULATION, AND LOCATION.

LEGEND

- EXISTING
NEW
RELOCATED
DEMOLISHED
FLOOR SINK
HAND SINK
FLOOR DRAIN
HUB DRAIN
PIPING TO BE REMOVED
POINT OF DISCONNECTION
POINT OF CONNECTION
KITCHEN EQUIPMENT TAG

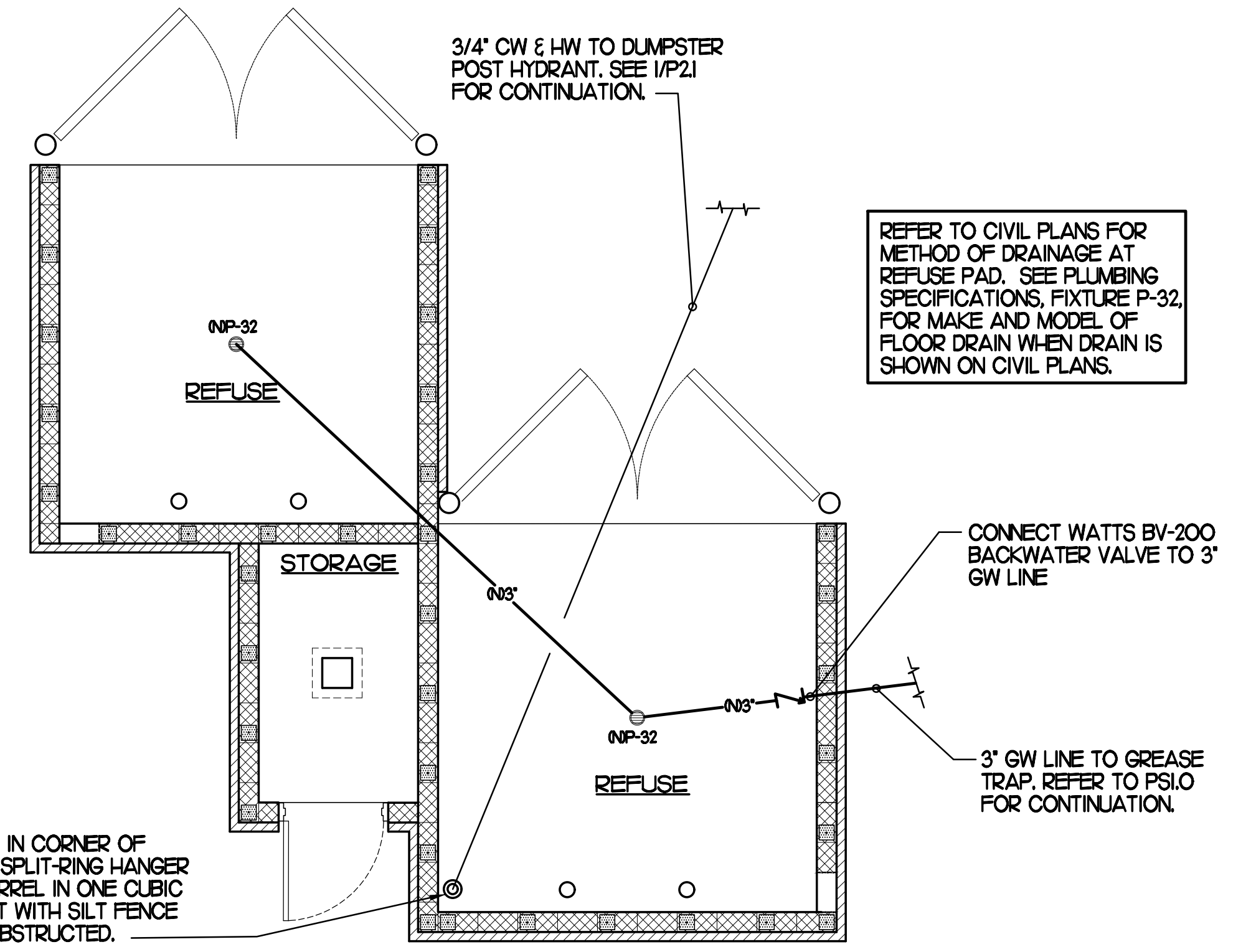
2. SHEET NOTES

- 1 COORDINATE INSTALLATION OF SANITARY PIPING WITH FOOTINGS IN THE FIELD. BELIEVE PENETRATIONS IN FOOTINGS WITH PVC.
2 WHERE REQUIRED BY LOCAL AUTHORITY HAVING JURISDICTION, PROVIDE SAFE-WASTE SYSTEM AS OUTLINED IN STATE AND LOCAL CODE AMENDMENTS.
3 ALL VENT PIPING TO BE 1/2" DIAMETER UNO. SEE VPS1 FOR VENT LAYOUT.

FIELD VERIFY ALL CONDITIONS

NOTE: AS NOTED IN THE SPECIFICATIONS, ALL WIRING LAYOUTS, PIPING LAYOUTS AND DUCT LAYOUTS ARE SCHEMATIC. EXACT LOCATIONS SHALL BE DETERMINED BY THE CONTRACTOR AND STRUCTURE OF THE BUILDING AND SHALL BE VERIFIED AND COORDINATED IN THE FIELD. EACH TRADE CONTRACTOR SHALL VERIFY WITH THE GENERAL CONTRACTOR THAT HE HAS THOROUGHLY REVIEWED AND COORDINATED ALL LOCATIONS AND ROUTINGS WITH ALL OTHER TRADES PRIOR TO FABRICATION OF CONDUITS, DUCTS, OR PIPING, AND START OF INSTALLATION OF SAME INCLUDING SPRINKLER PIPING WHEN PRESENT ON JOB. ANY INSTALLATION OR CONSTRUCTION CONFLICTS WHICH OCCUR IN THE FIELD SHALL BE RESOLVED BY THE TRADE CONTRACTOR TO THE SATISFACTION OF THE OWNER AND ARCHITECT AND AT NO EXPENSE TO THE OWNER, ARCHITECT AND/OR GENERAL CONTRACTOR. THE CONTRACTOR SHALL CONTACT THE ARCHITECT, ENGINEER OR OWNER PRIOR TO BIDDING FOR INTERPRETATIONS AND CLARIFICATIONS OF THE DESIGN AND INCLUDE IN HIS BID ALL COSTS TO MEET THE DESIGN INTENT. CLARIFICATIONS MADE BY THE ARCHITECT, ENGINEER OR OWNER AFTER BIDDING WILL BE FINAL AND SHALL BE IMPLEMENTED AT CONTRACTORS COST. BIDDING CONTRACTORS SHALL HAVE A WORKING KNOWLEDGE OF LOCAL CODES AND ORDINANCES AND SHALL INCLUDE IN THEIR BIDS THE COSTS FOR ALL WORK INSTALLED IN STRICT ACCORDANCE WITH GOVERNING CODES. THE PLANS AND SPECIFICATIONS NOT WITHSTANDING, THE CONTRACTOR SHALL ALERT ARCHITECT, ENGINEER OR OWNER OF ANY APPARENT DISCREPANCIES BETWEEN GOVERNING CODES AND DESIGN INTENT.

MAIN WATER SERVICE TO BUILDING
REFER TO SITE UTILITY PLAN UNDER SEPARATE DIVISION OF THIS CONTRACT FOR CONTINUATION MATERIAL USED FOR WATER SERVICE OUTSIDE BUILDING SHALL BE TYPE K. THIS INCLUDES THE ENTIRE LENGTH OF PIPING TO THE POINT OF CONNECTION IN RIGHT OF WAY. THIS MUST BE COORDINATED WITH THE SITE CONTRACTOR.



3 REFUSE PAD PLUMBING PLAN

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



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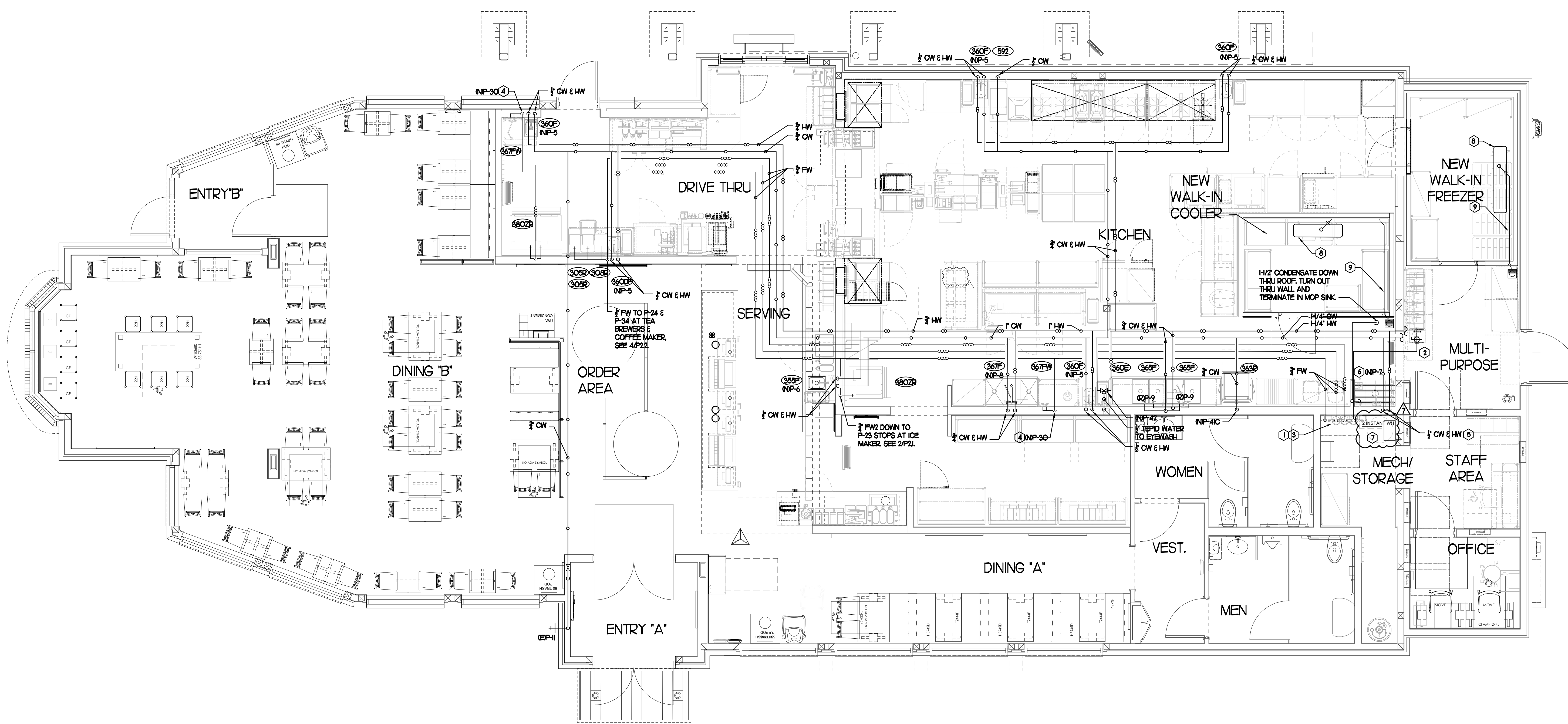
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SHEET WATER PIPING PLAN & DETAILS

SHEET NUMBER

P2.1

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1 WATER PIPING PLAN

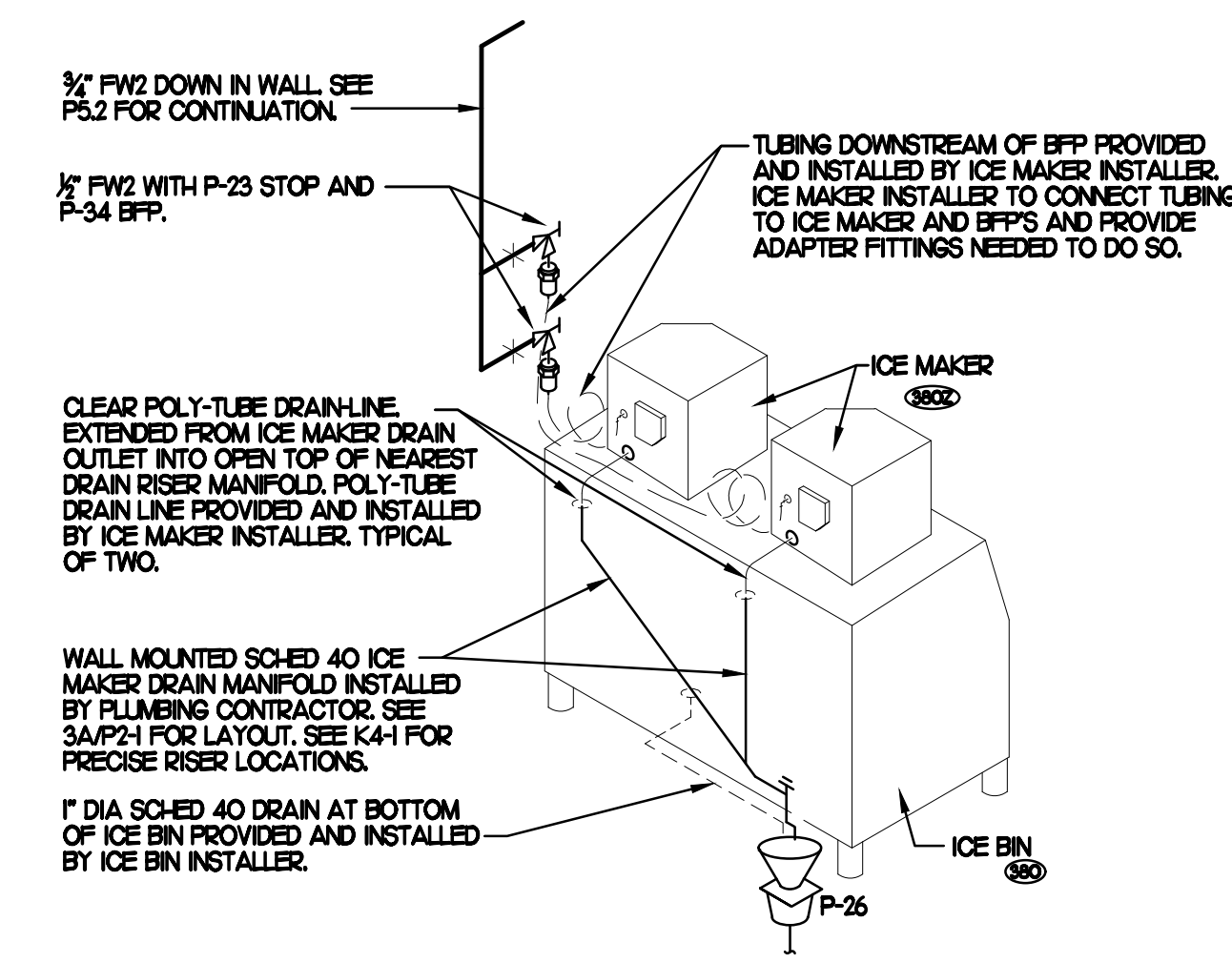
SCALE: 1/4"=1'-0"
TRUE NORTH PROJECT NORTH

KEY NOTES

- 1 PROVIDE NEW WATER FILTERS TO REPLACE EXISTING. VERIFY EXACT LOCATION AND CONNECTIONS PRIOR TO BID & CONSTRUCTION. SEE DETAILS ON SHEET P&L.
2 OWNER PROVIDED. PLUMBER INSTALLED STOP/BYPASS PANEL. SEE K-SHEET ELEVATIONS FOR EXACT LOCATION. PROVIDE EXPOSED 1/2" BALL VALVE AT CONNECTION TO PANEL. CONNECT 1" DIA SCHED 40 PVC TO FACTORY PROVIDED COUPLING MOUNTED ON BACK WALL AND ROUTE EFF DRAIN TIGHT TO WALL TO 12" AFF. EIGHT (8) ASSE 100Z RATED BFFPS. PIPING FROM BFFPS TO CARBONATES SHALL BE BY THE LOCAL SOFT DRINK VENDOR.
3 RUN NEW FW1 AND FW2 FROM EXISTING WATER FILTERS, AND DEMOLISH ALL EXISTING FW AND FW2.
4 3/4" FW DROP TO TWO-HANDLE FAUCET, P-30. MOUNT FAUCET ON WALL. SEE K-SHEETS FOR EXACT LOCATION. PIPE 1/2" FW TO EACH FAUCET INLET WITH 6" SPREAD. PROVIDE BALL VALVE ABOVE CEILING.
5 1/2" HW AND CW DROPS TO MOP SINK FAUCET SET P-7. PROVIDE BALL VALVE FOR EACH ABOVE CEILING WITH P-22 BALL CHECK VALVE IN EACH DROP.
6 INSTALL P-16 3-WAY VALVE WITH BACKFLOW PREVENTER ON P-7 FAUCET SPOUT FOR CONNECTION TO ECOLAB DETERGENT DISPENSER. SEE DETAIL 4/PZ1.
7 EXISTING WATER HEATER TO BE REPLACED WITH NEW, P-9. SEE P7J FOR SPECIFICATION. SEE DETAILS ON P&L FOR PIPING CONNECTIONS TO WATER HEATER.
8 TURN 3/4" CONDENSATE PIPING OUT OF COOLER AND EXTEND OUTLET TO FLOOR SINK. SECURE PIPING TO COOLER WALL WITH BLESSER INSULATED PIPE CLAMPS TO PREVENT GALVANIC CORROSION. SEAL ALL PENETRATIONS IN WALLS WITH PERMA-GUM COORD. TERMINATE ABOVE FUNNEL WITH ELBOW AND AIR GAP.
9 3/4" TYPE L COPPER. PROVIDE 12" OF FALL BEFORE PENETRATING WALL PANEL. COVER WITH 1-1/2" ID. X 3/4" ARMACELL A/P ARMAFLEX OVER HEAT TRACE CABLE.

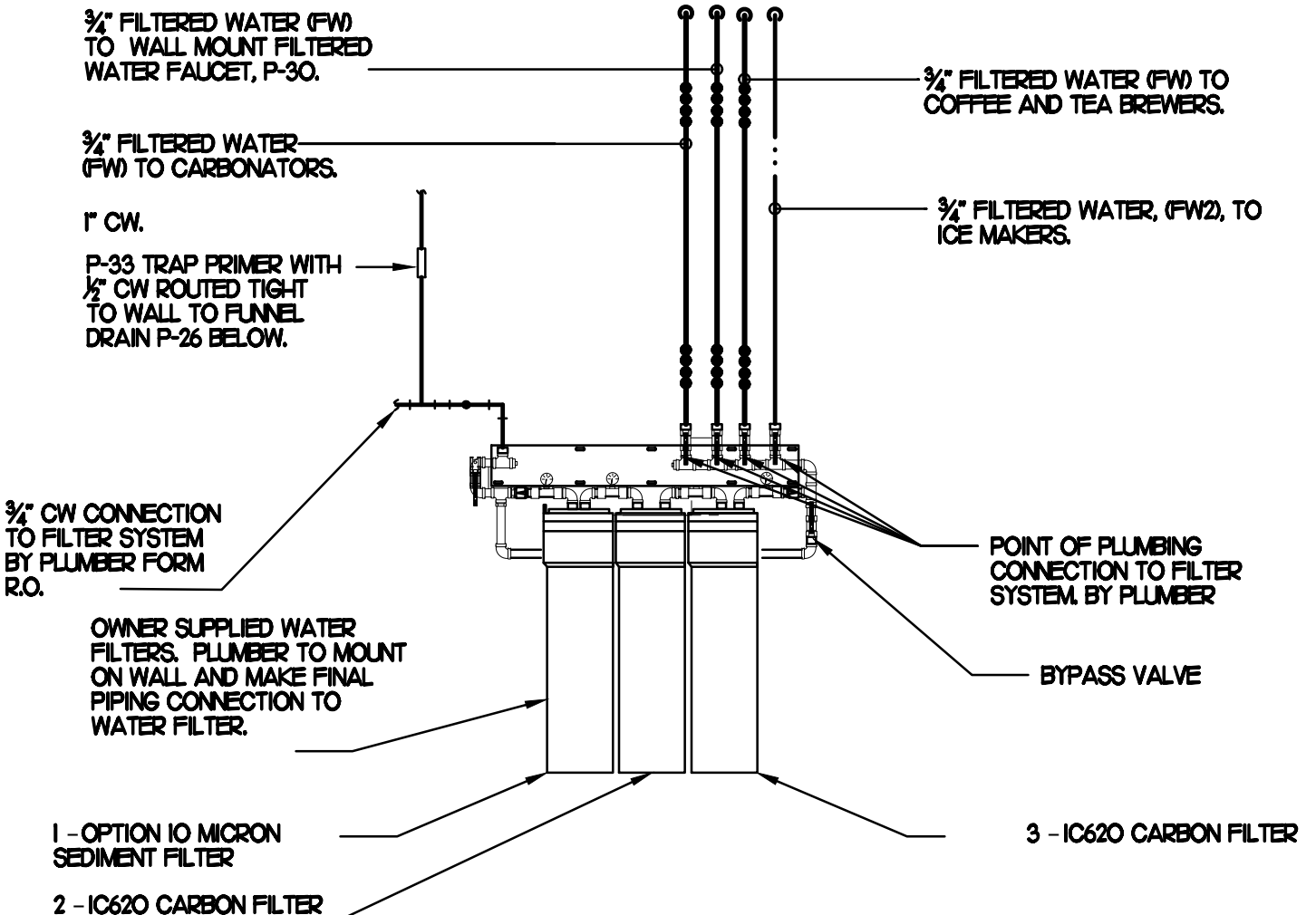
3. SHEET NOTES

- 1 COORDINATE VENT TERMINAL LOCATIONS WITH FRESH AIR HOODS ON ROOFTOP EQUIPMENT SO AS TO MAINTAIN MINIMUM 10'-0" CLEARANCE.
2 HOLD ALL PIPING ABOVE THE CEILING TIGHT TO STRUCTURE. DUCT LOCATIONS TAKE PRIORITY. SEE DRAWING MJI FOR DUCT LAYOUT. COORDINATE CONFLICTS WITH GC.
3 SEE K-SHEET ELEVATIONS FOR KITCHEN EQUIPMENT LOCATIONS.
4 SEE SHEET P-22 FOR BEVERAGE CONDUIT PIPING.
5 SEE RISER DIAGRAM (P&S) FOR VENT PIPING. SEE ROOF PLAN (P&J) FOR VENT THRU ROOF (VTR) LOCATION.
6 COORDINATE ABOVE-CEILING PIPING LOCATIONS AND ROUTING WITH HVAC CONTRACTOR AND M-SHEETS PRIOR TO INSTALLATION. ALL MAIN DUCT TRUNK LOCATIONS SHALL TAKE PRIORITY. PIPING MAY REQUIRE REMOVAL AND REINSTALLATION AT PLUMBING CONTRACTOR'S EXPENSE IF PIPING OBSTRUCTS THE M-SHEET DUCT LAYOUT AS SHOWN OR PREVENTS ACCESS TO GREASE DUCT CLEANOUT OPENINGS.



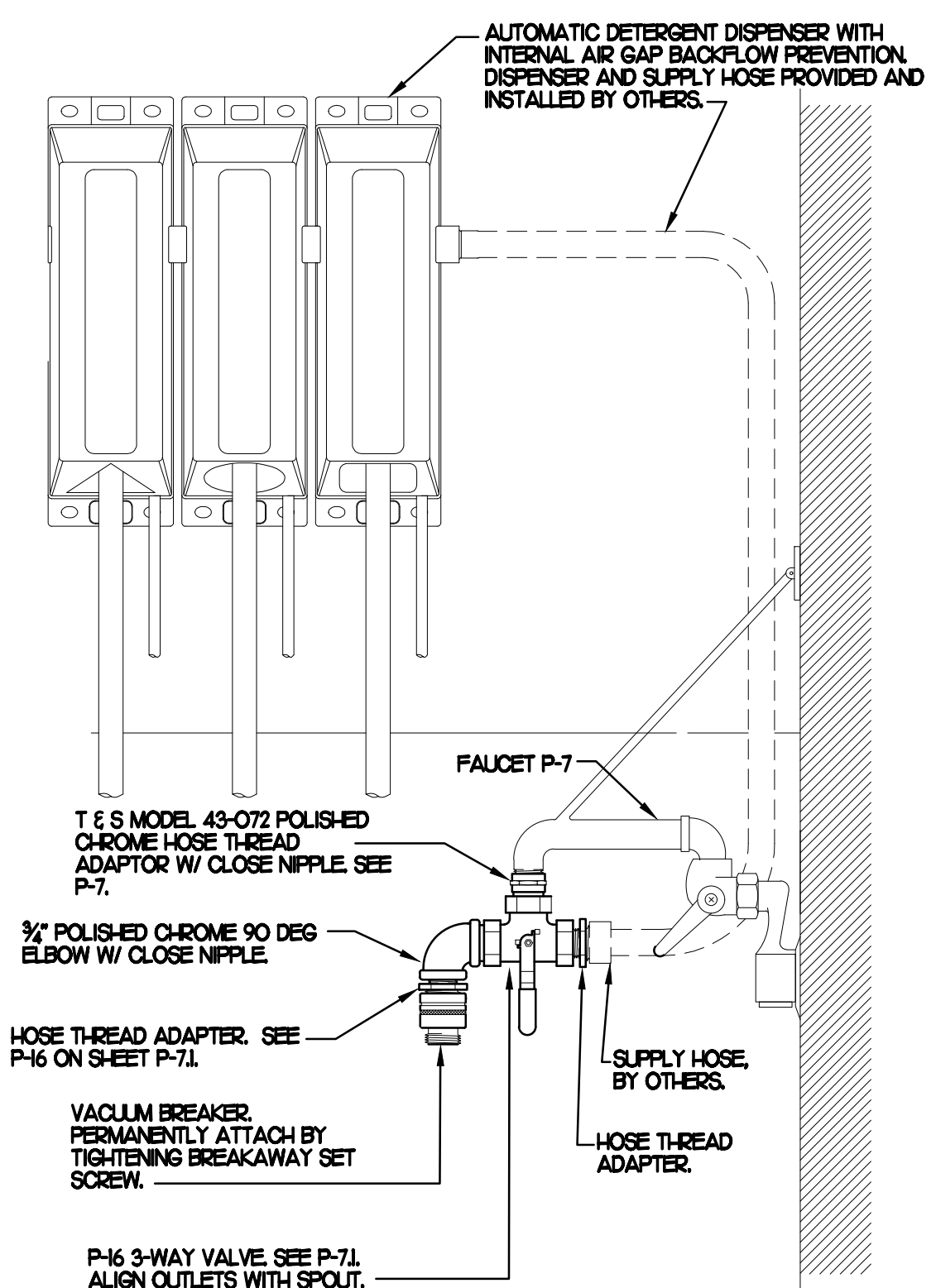
2 ICE MACHINE PIPING

NO SCALE



3 PIPING AT WATER FILTER

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



4 3-WAY VALVE AT MOP SINK

NO SCALE



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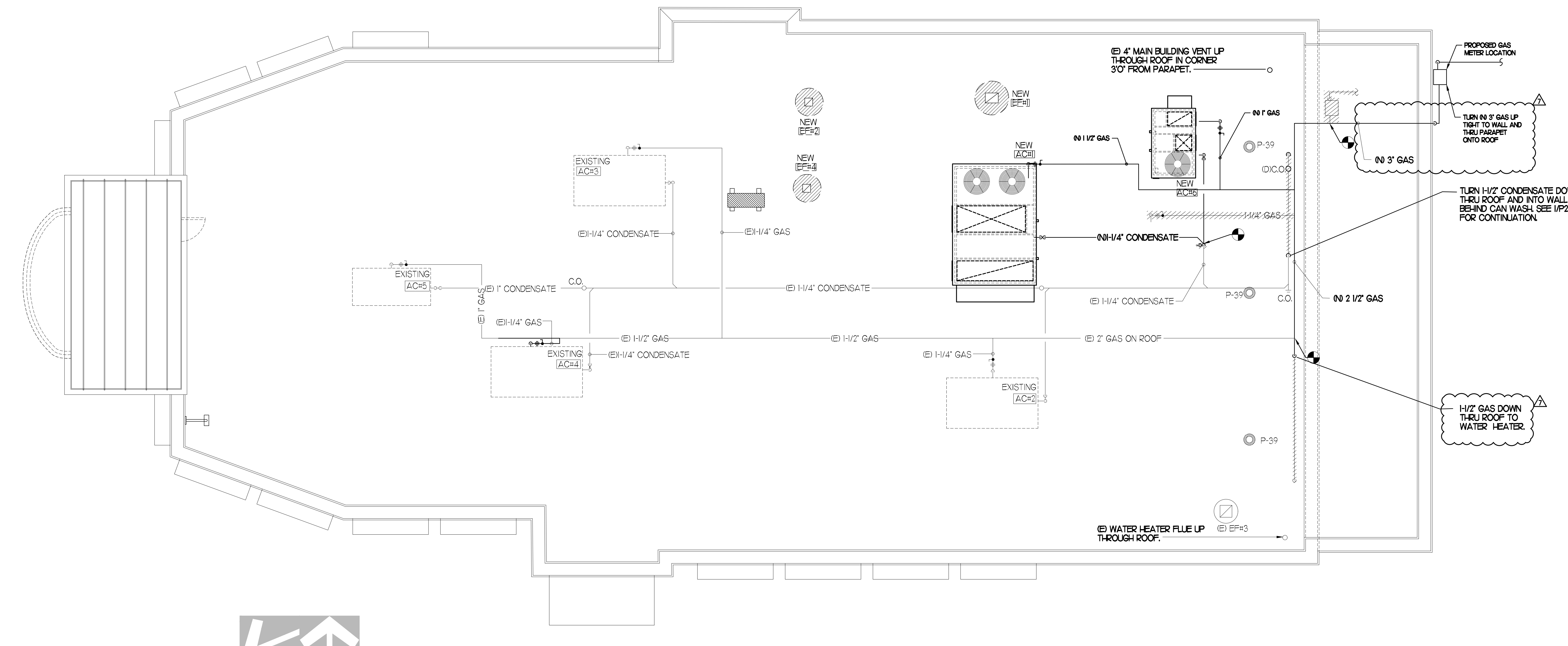
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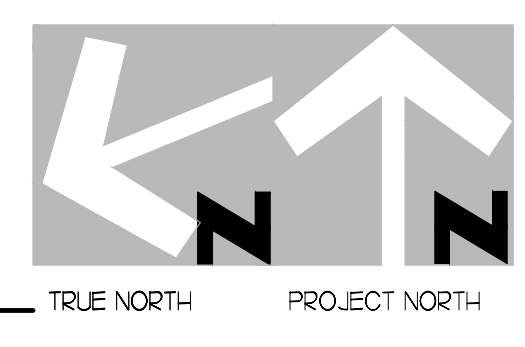
NO.	DATE	DESCRIPTION
7	08/10/22	WATER HEATER UPDATE

CONSULTANT PROJECT # 2020.0755
DATE March 2022
DRAWN BY DD
CHECKED BY DAK
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SHEET
ROOF PIPING PLAN
SHEET NUMBER
P4.1



1 ROOF PIPING PLAN
SCALE: 1/4"=1'-0"



PIPING LEGEND

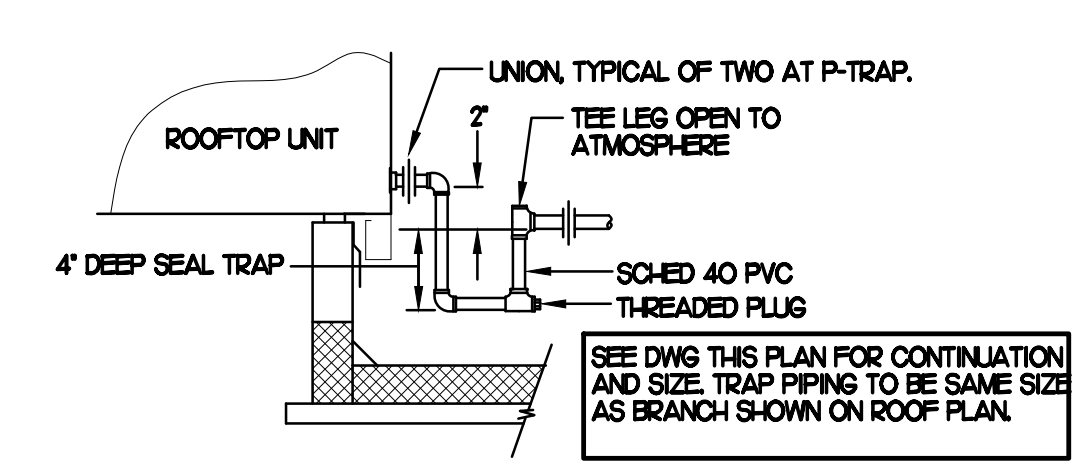
(E)	EXISTING
(N)	NEW
---	NEW PIPING
---	EXISTING PIPING
---	BELOW GRADE (B/G) PIPING

PIPING ON ROOF SHALL NOT BE INSTALLED NEARER THAN 1'-0" FROM INSIDE EDGE OF PARAPET, UNO.

OFFSET PIPING A MINIMUM OF 6" ABOVE TOP EDGE OF FLASHING.

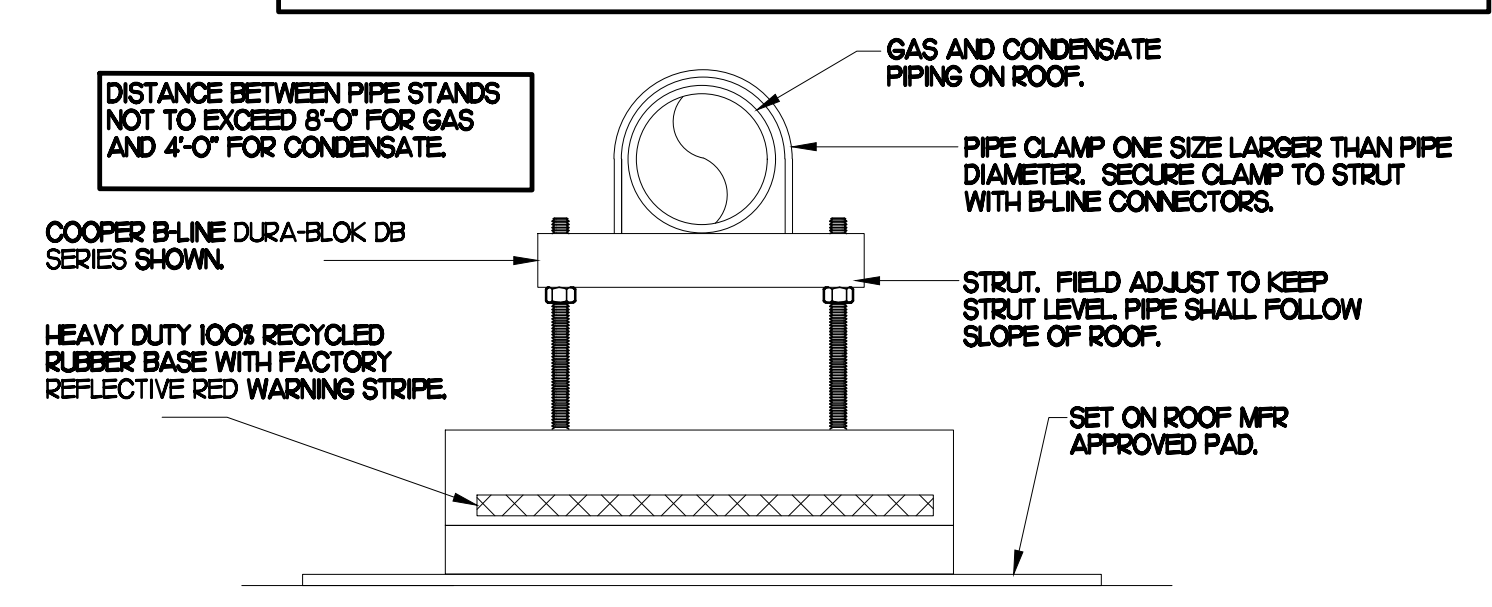
SEE DETAIL 6/A-1-B FOR ROOFTOP PIPE PENETRATIONS.

CONDENSATE PIPING SHALL BE SCHEDULE 40 PVC.



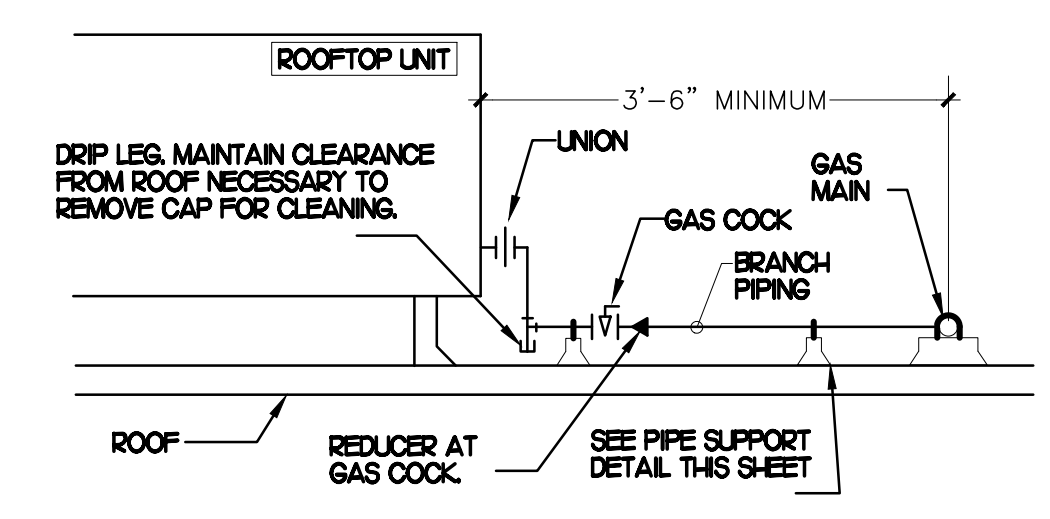
2 CONDENSATE DRAIN PIPING
NO SCALE

- NOTES**
- NON ADJUSTABLE MODEL DB610 PIPE STAND TO BE USED FOR NON-ELEVATED PIPING INSTALLED FLAT ON ROOF DECK.
 - PROVIDE MODEL DBE 10-8 OR DBE 10-12 OR DBE 10-16 AS NEEDED FOR ELEVATING CONDENSATE PIPING TO MAINTAIN PROPER SLOPE AND FOR GAS PIPING CROSSING OVER CONDENSATE PIPING.
 - ENSURE GAS AND CONDENSATE PIPING DO NOT OBSTRUCT ROOFTOP EQUIPMENT ACCESS OPENINGS. REPIPING OF SYSTEMS DUE TO CONFLICTS WITH EQUIPMENT ACCESS OPENINGS SHALL BE DONE AT PLUMBING CONTRACTOR'S EXPENSE.



3 PIPING SUPPORT
NO SCALE

- NOTES**
- INSTALL GAS PIPING SUCH THAT HVAC EQUIPMENT ACCESS PANELS AND/OR DOORS ARE IN NO WAY OBSTRUCTED BY PIPING, VALVES, OR SUPPORTS.
 - TO AVOID CONFLICT WITH AC UNIT ACCESS DOORS, INSTALL GAS PIPING NO CLOSER THAN 3'-6" FROM AC UNIT. (EXCEPT FOR BRANCH LINE CONNECTED TO AC UNIT)
 - ROUTE BRANCH TAKE-OFF DIRECTLY FROM MAIN TO ROOFTOP UNIT AS SHOWN ON PLAN AND DETAILS WITHOUT LATERAL OFFSETS WHICH MAY OBSTRUCT UNIT ACCESS DOORS.



4 GAS PIPING AT RTU
NO SCALE

5 GAS CONNECTION SCHEDULE

EQUIPMENT	GAS LOAD
NEW AC#1	480,000 BTUS
EXISTING AC#2	224,000 BTUS
EXISTING AC#3	180,000 BTUS
EXISTING AC#4	180,000 BTUS
EXISTING AC#5	115,000 BTUS
NEW AC#6	105,000 BTUS
NEW WATER HEATER	398,000 BTUS
TOTAL CONNECTED LOAD	1,682,000 BTUS

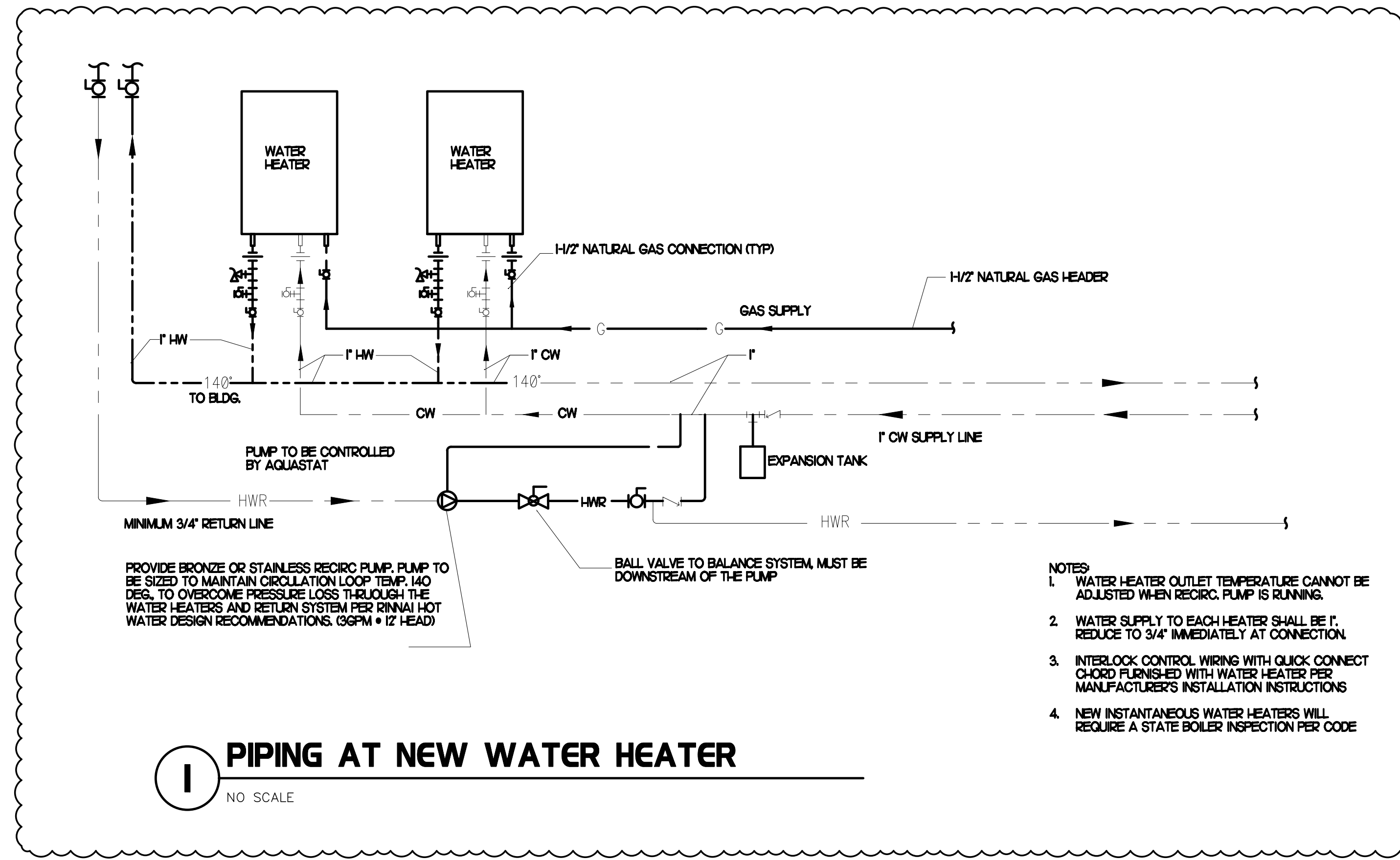
REMARKS:
1. EQUIVALENT TO 16820 CFH @ PRESSURE DROP 0.5 IN. W.C. W/ DEVELOP LENGTH OF 150 FT
2. MINIMUM 7" W.C. DELIVERY PRESSURE

PUMP SYSTEM KEYED NOTES

- PLEASE NOTE ITEMS 1 THRU 6 IN KEYED NOTES ARE INCLUDED WITH PUMP SYSTEM PACKAGE. REMAINING ITEMS SHALL BE PROVIDED BY THE PLUMBING CONTRACTOR.
- ▽ PUMP: GOLDS AQUABOOST II MODEL 2AB22 HM I P250 PACKAGE PUMP, 208V/1PH CIRCUIT REQUIREMENT, 1.5 HP MOTOR, 35 GPM DEMAND AT 48 PSI BOOST. FACTORY SET TO MAINTAIN 60 PSI DISCHARGE PRESSURE.
 - ▽ PUMP CONTROLLER: GOLDS AQUABOOST II ELECTRONIC CONTROLLER, INCLUDED IN ITEM #L MOUNT 10'-0" AFF.
 - ▽ TRANSDUCER: GOLDS AQUABOOST PRESSURE TRANSDUCER, INCLUDED IN ITEM #L. INSTALL IN ONE OF TWO FACTORY FIP TAPS ON SIDE OF PUMP DISCHARGE TEE FITTING.
 - ▽ PUMP DISCHARGE TEE FITTING: INCLUDED IN ITEM #L. CONNECT TO PUMP DISCHARGE, ACCUMULATOR TANK, DISCHARGE PRESSURE GAUGE, PRESSURE TRANSDUCER AND RELIEF VALVE.
 - ▽ PUMP DISCHARGE PRESSURE GAUGE: INCLUDED IN ITEM #L. INSTALL IN ONE OF TWO FACTORY FIP TAPS ON SIDE OF PUMP DISCHARGE TEE FITTING. INSTALL SO THAT GAUGE DIAL FACES OUTWARD. VERIFY 60 PSI PRESSURE READING WHILE PUMP IS RUNNING.
 - ACCUMULATOR TANK: GOLDS VSP BLADDER TANK, DRY-TANK. PRECHARGE FACTORY SET FOR 65 PSI, INCLUDED IN ITEM #L.
 - ▽ WYE STRAINER: SEE ACCESSORY PACKAGE P-39A ON DRAWING P-71. PROVIDED BY PLUMBING CONTRACTOR.
 - ▽ CHECK VALVE: SEE ACCESSORY PACKAGE P-39A ON DRAWING P-71. PROVIDED BY PLUMBING CONTRACTOR.
 - Ⓢ ENCLOSED HANDLE-TYPE NON-FUSED DISCONNECT. 3-POLE, 30 AMP, 250 VAC.
 - Ⓣ

PUMP SYSTEM INSTALLATION NOTES

1. PUMP PACKAGE PROVIDED BY STRATEGIC EQUIPMENT CO. TO CONTACT STRATEGIC FOR WARRANTY SERVICE CALL STRATEGIC AT 1-866-324-4253 EXT 4.
FOR TECH SUPPORT CONTACT SOUTH-EAST PUMP & EQUIPMENT, INC. 5777 STEEPLECHASE BLVD. CLUMMING, GA. 30040. CALL BRYAN GLOVER AT SAVANNAH OFFICE 904-995-2921, CELLS 770-234-2771, 6PM TO 7AM 904-997-8544. ADDITIONAL CONTACT PH 678-990-1888 TRAVIS GLOVER, JR. GOLDS FACTORY TECH SUPPORT 1800 AM TO 500 PM EST/1 905-568-7100
2. BEFORE STARTING THE PUMP, PRIME BY REMOVING THE FILL PLUG TO ALLOW WATER TO FLOW THROUGH THE CASING. FAILURE TO DO THIS MAY DAMAGE THE PUMP.
3. MOUNT PUMP CONTROLLER ON WALL WITH TOP OF CONTROLLER AT 5'-0" AFF.
4. BOLT PUMP SECURELY TO WIRE SHELF.



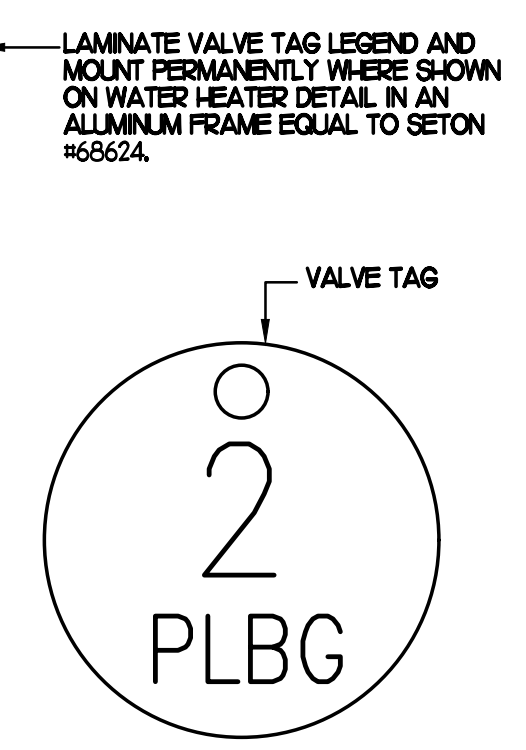
1 PIPING AT NEW WATER HEATER
NO SCALE

- NOTES
1. WATER HEATER OUTLET TEMPERATURE CANNOT BE ADJUSTED WHEN RECIRC. PUMP IS RUNNING.
 2. WATER SUPPLY TO EACH HEATER SHALL BE 1". REDUCE TO 3/4" IMMEDIATELY AT CONNECTION.
 3. INTERLOCK CONTROL WIRING WITH QUICK CONNECT CHORD FURNISHED WITH WATER HEATER PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
 4. NEW INSTANTANEOUS WATER HEATERS WILL REQUIRE A STATE BOILER INSPECTION PER CODE.

WATER HEATER VALVE TAG LEGEND

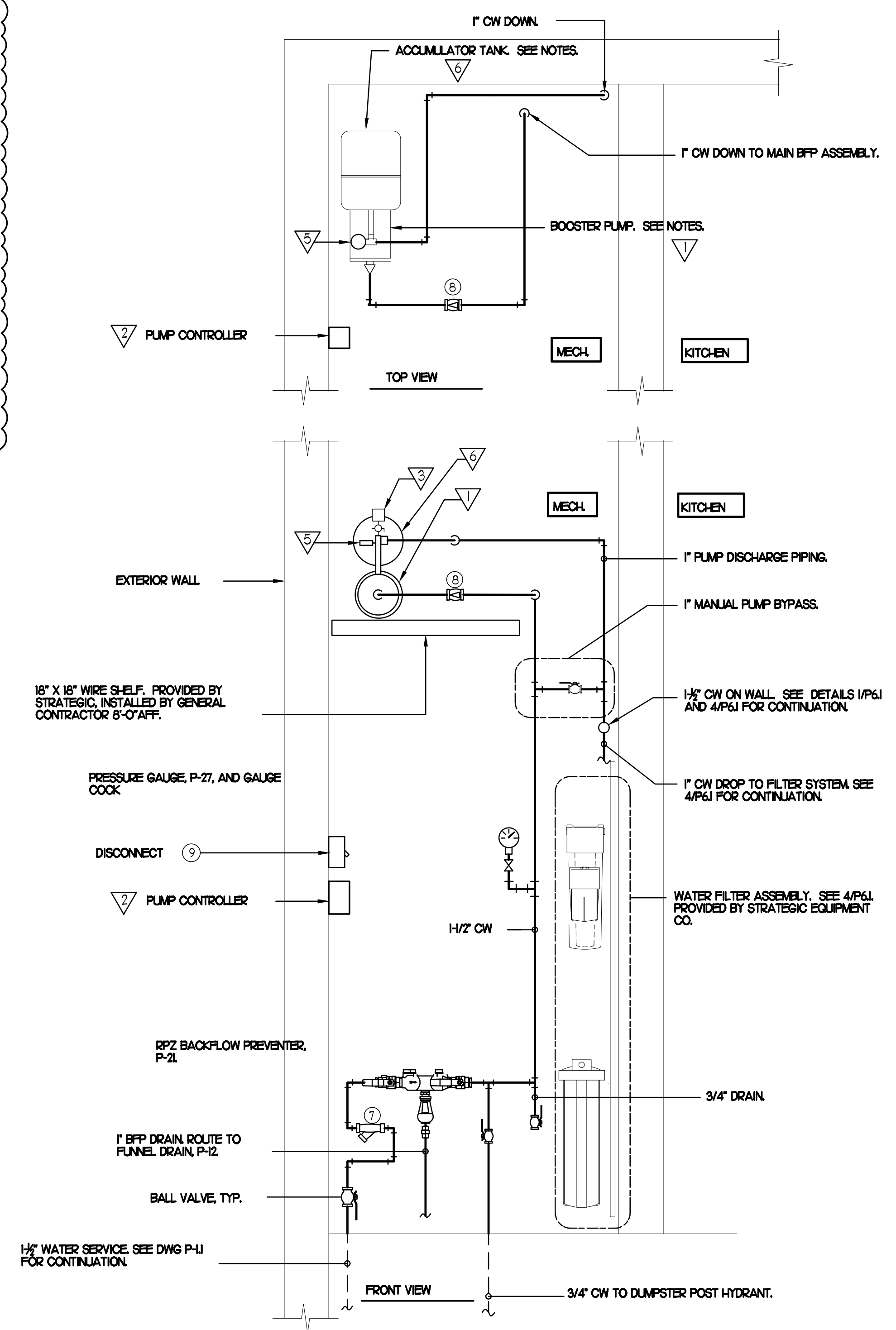
VALVE	NORMALLY OPEN OR NORMALLY CLOSED
① GAS TO WATER HEATER	NORMALLY CLOSED
② WATER HEATER INLET	NORMALLY OPEN
③ WATER HEATER OUTLET	NORMALLY OPEN
④ TEMPERING VALVE COLD - IN	NORMALLY OPEN
⑤ TEMPERING VALVE HOT - IN	NORMALLY OPEN
⑥ TEMPERING VALVE WARM - OUT	NORMALLY OPEN
⑦ KITCHEN COLD WATER	NORMALLY OPEN

NOTE: HANDLE IN-LINE WITH PIPING - VALVE OPEN

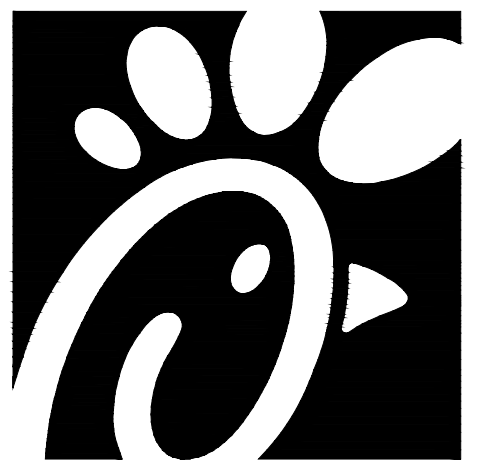


2 VALVE TAGS AND LEGEND
NO SCALE

① VALVE TAG SYMBOL AS SHOWN ON DETAIL 2P21. PROVIDE 1/2" ROUND BRASS VALVE TAG WITH 1/2" HIGH BLACK FILLED LETTERING. EACH TAG SHALL INDICATE VALVE NUMBER AND WILL ALSO HAVE 'PLBG' STAMPED ON THE TAG IN 1/4" HIGH BLACK FILLED LETTERING EQUAL TO SETON #H4506. HANG WITH BRASS JACK CHAIN ON VALVE HANDLE.



3 RELOCATED POTABLE WATER BOOSTER PUMP
NO SCALE



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I. SECTION C1500 - PLUMBING SPECIFICATIONS

PART I - PRODUCTS (C1510)

1.01 GENERAL REQUIREMENTS

A. THE FOLLOWING SPECIFICATIONS ARE THE MINIMUM REQUIREMENT. WHERE FEDERAL, STATE OR LOCAL REQUIREMENTS DIFFER FROM THIS SPECIFICATION, THE MORE RESTRICTIVE OF THE TWO SHALL BE FOLLOWED.

1.02 SCOPE

A. HOT AND COLD POTABLE WATER PIPING ABOVE SLAB SHALL BE TYPE 'L' HARD DRAWN COPPER OR FLOWGUARD GOLD CPVC AS MANUFACTURED BY NIBCO OR CHARLOTTE PIPE & FOUNDRY AND MEETING ASTM D-2846. FILTERED WATER PIPING SHALL BE FLOWGUARD GOLD CPVC. HOT AND COLD PIPING WITHIN WALLS BEHIND KITCHEN HOODS SHALL BE COPPER.

B. POTABLE WATER PIPING BELOW SLAB AND OUTSIDE BELOW GRADE SHALL BE TYPE 'K' SOFT ANNEALED SEAMLESS. NO JOINTS SHALL BE ALLOWED BELOW SLAB. POTABLE WATER PIPING BELOW GRADE SHALL BE SLEEVED FOR ITS ENTIRE LENGTH WITH POLY SLEEVE AS MADE BY IPS WATER-TITE. ALL SLAB PENETRATIONS SHALL BE SLEEVED WITH POLY SLEEVE TO PROTECT PIPING FROM CORROSION BY CONCRETE.

C. COPPER PIPE FITTINGS SHALL BE WROUGHT COPPER SWEEP PATTERN FITTINGS SOLDERED USING 95-5 LEAD-FREE SOLDER MEETING ASTM B-32 OR BRAZED WITH SIL-FOS. SOLDER FLUXES SHALL MEET ASTM B-813 AND SHALL BE LEAD FREE. BRAZING FLUXES SHALL MEET AWS FB3-A OR FB3-C.

D. WATER PIPING DOWNSTREAM OF SOFT DRINK CARBONATORS SHALL BE PROVIDED AND INSTALLED BY LOCAL SOFT DRINK VENDOR.

E. CPVC FITTINGS FOR PIPING SHALL BE SOLVENT WELD TYPE MEETING ASTM D-2846 WITH CEMENTS MEETING ASTM F-493 AND PRIMER MEETING ASTM F-656. CURE TIME MUST COMPLY WITH MANUFACTURERS RECOMMENDATIONS. FOR CPVC PIPING INSTALLATION, WALL STUBS AT FIXTURES AND EQUIPMENT SHALL BE COPPER AND SHALL BE SERIES 630-C. CPVC-TO-COPPER STUB OUT ELBOWS BY SLOUX CHIEF.

F. NIPPLES, ELBOWS, AND OTHER ACCESSORY FITTINGS REQUIRED TO COMPLETE ANY WATER PIPING CONNECTION SHALL BE BRASS OR OF SIMILAR TYPE METAL AS THE FITTING TO WHICH IT IS CONNECTED. GALVANIZED FITTINGS ARE PROHIBITED. (EXCEPTION: GALVANIZED WELDED WATER HEATER NIPPLES IF INTERNALLY PROTECTED WITH TEFLON OR POLYMER CORROSION-RESISTANT COATING.)

G. ALL HVAC CONDENSATE PIPING SHALL BE SCHEDULE 40 PVC DWV AS MANUFACTURED BY CHARLOTTE PIPE AND MEETING ASTM D-1784, D-1785 AND D-2865.

H. U.N.O. ALL SANITARY WASTE, VENT, STORM DRAINAGE PIPING AND FITTINGS INSIDE THE BUILDING, ABOVE AND BELOW GRADE, AND FOR ROOFTOP CONDENSATE, SHALL BE SOLID WALL SCHEDULE 40 PVC DWV AS MANUFACTURED BY CHARLOTTE PIPE AND MEETING ASTM D-2865 AND D-2849. FOAM CORE AND/OR CELLULAR CORE PVC PIPING SHALL NOT BE ALLOWED. PVC PIPING OUTSIDE THE BUILDING, BELOW GRADE, SHALL BE TYPE SDR-35 MEETING ASTM D-3034. U.N.O.

I. DWV PIPE AND FITTINGS WITHIN WALLS BEHIND KITCHEN HOODS SHALL BE SERVICE WEIGHT HUBLESS CAST IRON WITH SLEEVE, SHIELD, AND DRAWBAND JOINTS MEETING ASTM A-888 AND ASTM C-564.

J. PVC-DWV FITTINGS FOR PIPING SHALL BE SOLVENT WELD TYPE INSIDE AND UNDERSLAB MEETING ASTM D-2865, D-3311 AND F-186. CEMENTS SHALL MEET ASTM D-2584 AND PRIMER MEETING ASTM F-656. CURE TIME MUST COMPLY WITH MANUFACTURERS RECOMMENDATIONS. EXTERIOR PIPING JOINTS SHALL BE NEOPRENE PUSH-ON TYPE.

K. PROVIDE 1" THICK PIPE INSULATION FOR ALL ABOVE SLAB HOT AND TEMPERED WATER PIPING. PROVIDE 1/2" THICK INSULATION FOR ALL ABOVE SLAB COLD WATER, FILTERED WATER, CONDENSATE PIPING, AND HORIZONTAL RAIN WATER CONDUCTORS INSIDE THE BUILDING. PIPING INSULATION SHALL BE KNAUF 1000F 25/50 FIBERGLASS PIPE COVERING, WHITE KRAFT PAPER VAPOR BARRIER (02 PERMS) BONDED TO ALUMINUM FOIL AND REINFORCED WITH GLASS FIBERS. MAXIMUM THERMAL CONDUCTIVITY OF 0.23 AT 75F. LONGITUDINAL LAP SHALL BE SELF SEALING. INSULATION FOR WALK-IN COOLER/FREEZER CONDENSATE PIPING SHALL BE ARMAFLEX AP ARMAFLEX WITH MINIMUM 3/2" WALL THICKNESS.

L. PIPE INSULATION AND COVERINGS SHALL HAVE A RATING OF NOT GREATER THAN 25 FLAME SPREAD, NO HIGHER THAN 50 SMOKE DEVELOPED, AND NO MORE THAN 50 FUEL CONTRIBUTED. THE ONLY EXCEPTION SHALL BE ARMAFLEX AP, WHICH SHALL NOT EXCEED 100 SMOKE DEVELOPED.

M. A PVC 25/50 PRE-FORMED COVER SHALL BE PROVIDED AT ALL INSULATED PIPING FITTINGS EQUAL TO PROTO PVC CORP LOSMOKE, 800-875-7788.

N. ALL NATURAL GAS PIPING SHALL BE SCHEDULE 40 BLACK STEEL MEETING ASTM A53 WITH SCREWED OR WELDED FITTINGS AND GASKET TYPE UNIONS AND FLANGES. FOR SCREWED PIPING, PIPING SHALL BE JOINED WITH BLACK 150 POUND MALLEABLE IRON SCREWED FITTINGS AS ALLOWED BY LOCAL AUTHORITY. CONTRACTOR SHALL VERIFY THE NEED FOR WELDED PIPING AS REQUIRED BY THE LOCAL GAS CODE AND/OR APPLICABLE LOCAL ORDINANCES AND AMENDMENTS.

O. EXPOSED SUPPORTS AND ATTACHMENTS SHALL BE STAINLESS STEEL, CHROME OR CHROME PLATED. GALVANIZED ATTACHMENTS WILL NOT BE ACCEPTED.

P. USE MATERIALS SPECIFIED ON THESE PLANS. SUBSTITUTIONS ARE ALLOWED ONLY IF SPECIFIED MATERIALS ARE UNAVAILABLE. PRODUCT SUBSTITUTIONS WILL NOT BE ACCEPTED WITHOUT PRIOR APPROVAL. ALL WATER PIPING, FITTINGS, FIXTURES AND ACCESSORIES SHALL BE CERTIFIED LEAD FREE AS DEFINED IN, AND PER THE INTENT OF, THE "REDUCTION IN LEAD IN DRINKING WATER ACT."

PART II - EXECUTION (C15100)

2.01 TRENCHING (C15100)

A. EXCAVATION, BACKFILLING, AND TRENCH WORK SHALL BE DONE IN ACCORDANCE WITH LATEST O.S.H.A. AND APPLICABLE SAFETY STANDARDS.

B. PROVIDE NECESSARY SHORING AND CLEANING TO KEEP TRENCHES IN GOOD WORKING CONDITION, INCLUDING PUMPING OUT WATER.

C. IN MOSTLY ROCK MATERIAL, TRENCHES SHALL BE EXCAVATED TO 6" BELOW THE ELEVATION OF THE BOTTOM OF THE PIPES. AFTER EXCAVATION, TRENCH SHALL THEN BE FILLED TO THE PROPER ELEVATION WITH CRUSHED LIMESTONE GRAVEL SHALL BE REMOVED FROM UNDER PIPE BELLS SO THE PIPE RESTS FIRMLY ON THE TRENCH BOTTOM.

D. IN MOSTLY EARTH OR SAND MATERIAL, TRENCHES SHALL BE EXCAVATED TO 6" BELOW THE ELEVATION OF THE BOTTOM OF THE PIPES. AFTER EXCAVATION, TRENCH SHALL THEN BE FILLED TO THE PROPER ELEVATION WITH FINE SAND OR GRAVEL. TRENCH BOTTOM SHALL BE REMOVED AT PIPE BELLS SO THE PIPE RESTS FIRMLY ON THE TRENCH BOTTOM.

E. BACKFILLING AND TAMPING SHALL BE CAREFULLY DONE BY HAND SIMULTANEOUSLY ALONG BOTH SIDES OF THE PIPE USING ROCK FREE EARTH, CRUSHED STONE OR SAND UNTIL THE PIPE IS COVERED TO A DEPTH OF AT LEAST 12". BACKFILL SHALL BE ACCOMPLISHED IN SUCCESSIVE 6" LAYERS. THE REST OF THE FILL-UP TO THE TOPSOIL LAYER MAY BE GRAVEL OR ROCK FREE EARTH.

F. ACCEPTABLE SOIL MATERIALS FOR BACKFILL AND FILL SHALL BE FREE OF CLAY, ROCK OR GRAVEL LARGER THAN 2" IN ANY DIMENSION, DEBRIS, WASTE, FROZEN MATERIALS AND OTHER DELETERIOUS MATTER HAVING A PLASTICITY INDEX LESS THAN 30. BACKFILL SHALL BE ACCOMPLISHED IN LAYERS OF NOT MORE THAN 6" AND EACH LAYER SHALL BE COMPACTED. THE LAST 12" OF BACKFILL SHALL BE ROCK FREE TOPSOIL.

G. SURFACE SHALL BE RESTORED TO ITS ORIGINAL CONDITION.

2.02 INSTALLATION (C15100)

A. WATER PIPING IN EXTERIOR WALL SHALL BE INSTALLED ON THE HEATED SIDE OF WALL INSULATION.

B. EXPOSED HOT AND COLD WATER TRIM FITTINGS AND ACCESSORIES IN FINISHED AREAS SHALL BE CHROME FINISHED.

C. ACCEPTABLE METHODS OF PIPE SUPPORT WITHIN WALLS SHALL BE THE SUMNER SYSTEM, POSIFIX, STAKFIX, PIPEFIX, HOLDRITE OR CHANNEL.

D. PROVIDE J.R. SMITH OR APPROVED EQUAL SHOCK ABSORBERS #5005 THRU 5050 SIZE AS RECOMMENDED BY MANUFACTURER INSTALLED ON HOT AND COLD WATER BRANCH LINES CONTAINING SINGLE LEVER FAUCETS, FLUSH VALVES OR EQUIPMENT WITH QUICK CLOSING VALVES BETWEEN THE LAST TWO FIXTURES AS SHOWN ON THE CONTRACT DRAWINGS. SHOCK ABSORBERS SERVICING FIXTURES WITH FLUSH VALVES SHALL BE SECURELY ANCHORED IN THEIR VERTICAL POSITION.

E. SANITARY WASTE LINES SHALL BE UNIFORMLY GRADED TO ELEVATIONS SHOWN. IF NO ELEVATIONS ARE GIVEN, SEWERS SHALL BE PITCHED NOT LESS THAN 1/4" PER FOOT FOR ALL PIPING 2-1/2" IN DIAMETER AND SMALLER AND 1/8" PER FOOT FOR ALL PIPING 3" IN DIAMETER AND LARGER.

F. STORM PIPING SHALL BE SLOPED AT 1/2" PER FT (2%) UNLESS NOTED OTHERWISE ON PLANS.

G. SUPPORT HORIZONTAL PIPING ACCORDING TO LOCAL PLUMBING CODE. HANGER RODS SHALL BE SIZED AS FOLLOWS:

NOMINAL PIPE SIZE (IN)	MINIMUM HANGER DIAMETER (IN)
3/4 TO 1-1/2	3/8
2 TO 2-1/2	3/8
3 TO 6	1/2

H. HANGERS FOR PIPING GREATER THAN 1" SHALL PASS OVER THE INSULATION. PROVIDE SADDLES FOR INSULATED PIPING.

I. INSULATION SHALL BE APPLIED WITH JOINTS TIGHTLY BUTTED. OPEN CRACKS, VOIDS AND DEPRESSIONS SHALL BE FILLED WITH HYDRAULIC SETTING CEMENT. LAPPING MATCHING THE FINISH SHALL BE PASTED NEATLY OVER JOINTS. FITTINGS AND VALVES SHALL BE INSULATED WITH THE SAME TYPE.

J. PROVIDE AND INSTALL A CUT-OFF VALVE, UNION AND FULL SIZE DIRT LEG AT CONNECTION TO EACH GAS-FIRED PIECE OF EQUIPMENT. INSTALL PIPING AT AND AROUND EQUIPMENT SO AS TO NO WAY OBSTRUCT EQUIPMENT ACCESS PANELS AND/OR ACCESS DOORS.

K. COORDINATE ABOVE-CEILING PIPING LOCATIONS AND ROUTING WITH HVAC CONTRACTOR AND M-SHEETS PRIOR TO INSTALLATION. ALL MAIN DUCT TRUNK LOCATIONS SHALL TAKE PRIORITY. PIPING MAY REQUIRE REMOVAL AND REINSTALLATION AT PLUMBING CONTRACTORS EXPENSE IF PIPING OBSTRUCTS THE M-SHEET DUCT LAYOUT AS SHOWN OR PREVENTS ACCESS TO GREASE DUCT CLEANOUT OPENINGS.

L. ALL GAS PIPING ABOVE ROOF SHALL BE CLEANED FREE OF RUST AND PAINTED WITH COAT OF ZINC RUST PRIMER AND ONE COAT OF ALUMINUM BASE PAINT. METER AND GAS RISER SHALL BE PRIMED AND PAINTED TO MATCH BUILDING. APPLY TWO COATS OF ASPHALTUM BASE PAINT TO PIPING BURIED UNDERGROUND.

2.03 TESTING (C15100)

A. POTABLE WATER PIPING SHALL BE PRESSURE TESTED IN ACCORDANCE WITH APPLICABLE CODE REQUIREMENTS AND MANUFACTURERS RECOMMENDATIONS.

B. THE POTABLE WATER SYSTEM SHALL BE FLUSHED OUT PROGRESSIVELY BY OPENING OUTLETS AND FLOWING WATER UNTIL IT RUNS CLEAR. AFTER PIPE CLEANING IS COMPLETED, THE STRAINERS SHALL BE REMOVED, CLEANED, AND REPLACED. THEN THE ENTIRE POTABLE WATER SYSTEM SHALL BE DISINFECTED IN ACCORDANCE WITH THE AUTHORITY HAVING JURISDICTION.

C. THE SANITARY WASTE SYSTEM SHALL BE FLUSHED OUT PROGRESSIVELY WITH FLOWING WATER UNTIL IT RUNS CLEAR.

D. THE ENTIRE SANITARY WASTE SYSTEM AND STORM DRAINAGE SYSTEM SHALL BE PRESSURE TESTED IN ACCORDANCE WITH APPLICABLE CODE REQUIREMENTS AND MANUFACTURERS RECOMMENDATIONS.

E. NATURAL GAS PIPING SHALL BE LEAK TESTED IN ACCORDANCE WITH APPLICABLE CODE REQUIREMENTS AND MANUFACTURERS RECOMMENDATIONS.

PART III - MANUFACTURERS

3.01 PRODUCTS - PIPING SYSTEMS, ETC (C15100)

A. HYDRANTS, CARRIERS, DRAINS, AND SHOCK ABSORBERS: JAY R. SMITH, JONES STEPHENS CORP, WATTS ZURN, OR JOSAM.

B. ALTERNATE FIXTURES: ONLY AS SHOWN ON PLANS. APPROVED JAY R. SMITH (JRS), WATTS (WTS), AND ZURN (ZRN) MODEL NUMBERS LISTED ON FIXTURE SCHEDULE, THIS SHEET.

3.02 PRODUCTS - RESTROOM FIXTURES PORCELAIN & VALVES (C15405)

A. PREFERRED FIXTURES: TOTO. NO EXCEPTION.

B. ALTERNATE FIXTURES: ONLY AS SHOWN ON PLANS.

C. FITTINGS: AS SPECIFIED ON THE PLANS. NO SUBSTITUTIONS ALLOWED.

D. FLUSH VALVES AND LAVATORY FAUCETS: TOTO MANUFACTURING. NO SUBSTITUTIONS ALLOWED.

E. PREFERRED TOILET SEATS: TOTO. ALTERNATE TOILET SEATS: CHURCH, BEMIS, AND BENKE.

F. FLOOR SINKS: ZURN WITH ALUMINUM SEDIMENT BUCKETS. NO SUBSTITUTIONS ALLOWED.

2. PLUMBING FIXTURES

RESTROOM FIXTURES (C15405)

P-1 WATER CLOSET: TOTO MODEL CT700SUNHOI BOWL WITH 128 GPF, TET-4-LNG # 320P ECO-POWER FLUSH VALVE AND SC534 SEAT. NO SUBSTITUTIONS. WHITE, FLOOR MOUNTED, FLUSH VALVE TYPE. VITREOUS CHINA, 1/2" TOP SPLD, ELONGATED BOWL, ELECTRONIC SENSOR OPERATED HANDS-FREE FLUSH VALVE. WHITE OPEN FRONT SEAT WITH CHECK HINGE. CHICK-FIL-A HAS NATIONAL ACCOUNTS WITH TOTO. PLEASE SEE NATIONAL ACCOUNT INFORMATION ON THIS SHEET FOR PRICING OF TOTO FIXTURES.

P-2 WATER CLOSET (ADA) TOTO MODEL CT700SUNHOI BOWL WITH 128 GPF TET432CP ECO-POWER FLUSH VALVE AND SC534 SEAT. NO SUBSTITUTIONS. H.C. ACCESSIBLE, WHITE, FLOOR MOUNTED, 17-1/2" HIGH FLUSH VALVE TYPE. VITREOUS CHINA, 1/2" TOP SPLD, ELONGATED BOWL, ELECTRONIC SENSOR OPERATED HANDS-FREE FLUSH VALVE. WHITE OPEN FRONT SEAT WITH CHECK HINGE. CHICK-FIL-A HAS NATIONAL ACCOUNTS WITH TOTO. PLEASE SEE NATIONAL ACCOUNT INFORMATION ON THIS SHEET FOR PRICING OF TOTO FIXTURES.

P-3 URINAL: TOTO MODEL UT445U URINAL WITH TEU 1UA 12HC Q1/2 GPF SELF SUSTAINED HYDROPOWER SELF-GENERATING ELECTRONIC SENSOR-OPERATED FLUSH VALVE. NO SUBSTITUTIONS. VITREOUS CHINA, 3/4" TOP SPLD, SENSOR OPERATED WITH MANUAL OVERSIDE SLITTON INTERNAL VALVE FILTER PROTECTION. PLEASE SEE NATIONAL ACCOUNT INFORMATION ON THIS SHEET FOR PRICING OF TOTO PRODUCTS.

P-4 LAVATORY FAUCET: BUILT-IN COUNTERTOP LAVATORY PROVIDED BY OWNER. TOTO MODEL TEL 105-D10ET # CP ECO-POWER SENSOR HOT/COLD FAUCET WITH THERMOSTATICALLY CONTROLLED ASSE 1070 MIXING VALVE FAUCET, 0.09 GALLONS PER CYCLE. NO SUBSTITUTIONS. PROVIDE MCGUIRE LF75 SUPPLY WITH STOP, MCGUIRE B5-WC GRID DRAIN WITH OFFSET TAILPIECE, MCGUIRE 8872 POLISHED CHROME P-TRAP. P-TRAP SHALL BE PARALLEL WITH BACK WALL. PROVIDE A TRELORE INC. HAND LAY-GUARD INSULATION KITS MODEL# 10E-Z AND 10E-Z. CHICK-FIL-A HAS NATIONAL ACCOUNTS WITH TOTO. PLEASE SEE NATIONAL ACCOUNT INFORMATION ON THIS SHEET FOR PRICING OF TOTO FIXTURES.

PLUMBING (C15100)

P-5 KITCHEN HAND SINK ROUGH IN SINK AND FAUCET WITH 1.0 GPM AERATOR FURNISHED BY OWNER. CONTRACTOR SHALL INSTALL WALL HUNG, STAINLESS STEEL SINK AND FAUCET SET AND MAKE FINAL CONNECTIONS. PROVIDE MCGUIRE LF75 SUPPLIES WITH STOPS AND A MCGUIRE 8912 POLISHED CHROME P-TRAP. ADJUST FAUCET OUTLET TEMPERATURE TO 110 DEGREES F OR HIGHER AS REQUIRED BY LOCAL JURISDICTION.

P-5A KITCHEN DUMP SINK ROUGH IN SINK BY TMS. FAUCET: TOTO MODEL #TEL35-C10ECP - PROVIDED BY LLC WITH TP2094 NOZZLED CONTRACTOR SHALL INSTALL WALL HUNG, STAINLESS STEEL SINK AND FAUCET SET AND MAKE FINAL CONNECTIONS. MCGUIRE LF75 SUPPLIES WITH STOPS AND A MCGUIRE 8912 POLISHED CHROME P-TRAP PROVIDED BY LLC.

P-6 SERVING COUNTER DROP IN SINK ROUGH IN SINK AND FAUCET WITH 1.0 GPM AERATOR FURNISHED BY OWNER. CONTRACTOR SHALL INSTALL SINK AND FAUCET SET AND MAKE FINAL CONNECTIONS. PROVIDE MCGUIRE 8912 POLISHED CHROME P-TRAP AND MCGUIRE LF75 STOPS WITH 20' CHROME PLATED 3/8" COPPER RISERS. ADJUST FAUCET OUTLET TEMPERATURE TO 110 DEGREES F OR HIGHER AS REQUIRED BY LOCAL JURISDICTION.

P-7 MOP SINK FAUCET: MOP SINK BASIN BUILT BY GENERAL CONTRACTOR. PROVIDE T65 BRASS MODEL B-2345 FAUCET WITH CERAMIC SPRING CHECK VALVE CARTRIDGES. HOSE THREADED SPOUT OUTLET, TOP BRACE, ADJUSTABLE INLET SPREAD FROM 3" TO 8". INCLUDE T65 BRASS MODEL 43-072 HOSE THREAD X 3/4" FEMALE NPT CHROME ADAPTOR. NO SUBSTITUTIONS. SEE ALSO P-16.

P-8 VEGETABLE PREP SINK ROUGH IN SINK AND FAUCET WITH 0.65 GPM SPRAY HEAD FURNISHED BY OWNER. CONTRACTOR SHALL INSTALL SINK AND MAKE FINAL CONNECTIONS. PROVIDE MCGUIRE LF75 STOPS AND BRASSCRAFT 3/4" CHROME PLATED 1/2" COPPER RISERS MODEL 3-36ACC. ASSEMBLE AND MOUNT ONE TWO-HANDLE FAUCET WITH PRE-RINSE SPRAY ARM. INSTALL ADD-ON FAUCET WITH 18" SPOUT AT BASE OF PRE-RINSE RISER. SEE K-SHEET ELEVATIONS. PROVIDE 1/2" SCHED 80 PVC PIPE AND FITTINGS INDIRECT WASTE MANIFOLD FROM SINK BASIN TO FLOOR SINK. P-138, NO P-TRAP REQUIRED. INSTALL CLEANOUT AT TRENCH.

P-9 FOUR COMPARTMENT POT SINK ROUGH IN SINK AND FAUCETS WITH 0.65 GPM SPRAY HEAD FURNISHED BY OWNER. CONTRACTOR SHALL INSTALL SINK ASSEMBLY & MOUNT TWO FAUCETS, AND MAKE FINAL CONNECTIONS. PROVIDE MCGUIRE LF75 STOPS AND BRASSCRAFT 3/4" CHROME PLATED 1/2" COPPER RISERS MODEL 3-36ACC. ASSEMBLE AND MOUNT ONE TWO-HANDLE FAUCET WITH PRE-RINSE SPRAY. INSTALL ADD-ON FAUCET WITH 18" SPOUT AT BASE OF PRE-RINSE RISER. ASSEMBLE AND MOUNT ONE TWO-HANDLE FAUCET WITH DOUBLE JOINT SPOUT ON OPPOSITE SIDE. SEE K-SHEET ELEVATIONS FOR FAUCET LOCATIONS. PROVIDE 1/2" SCHED 80 PVC PIPE AND FITTINGS INDIRECT WASTE MANIFOLD FROM EACH SINK BASIN TO FLOOR SINK. P-138, NO P-TRAPS REQUIRED. PROVIDE CLEANOUT AT EACH END.

P-10 FLOOR DRAIN (3") JONES STEPHENS CORP D53-144 PVC BODY, BRONZE SPLD WITH 6" DIAMETER NICKEL BRONZE STRAINER. ALTI (WTS) 210-H-F-N8, (WTS) FD103-A8-60, (ZRN) FRO8NP35-C.

P-11 WALL HYDRANT (NON-FREEZE): WOODFORD MODEL 67-C AUTOMATIC DRAINING WALL HYDRANT WITH DUAL CHECK BFF, ASSE 1032 APPROVED, WALL CLAMP, POLISHED BRASS FINISH. "C" STYLE INLET, SEE WALL DRAIN NOTES ON P-21 FOR WALL THICKNESS AT WALL HYDRANTS ALTI (WTS) HY-42.

P-12 FLOOR DRAIN (3") J.R. SMITH 3510L03 FUNNEL-CEPTOR 3" INDIRECT WASTE RECEIVER WITH NICKEL BRONZE STRAINER AND FUNNEL. PROVIDE 6" SQUARE F12 STRAINER WITH 4" ROUND FUNNEL AT WALK-IN COOLER. ALTI (WTS) FD103-MF-F-4, (ZRN) 21415-3N-65-4.

FLOOR SINK (POT SINK) ZURN MODEL 2190-KC-1-3N-1-23. CAST IRON INDIRECT WASTE RECEIVER WITH 1/2" SQUARE BODY, FLASHING CLAMP, 8" DEEP, ALUMINUM SEDIMENT BUCKET, AND NO GRATE. NO SUBSTITUTIONS.

FLOOR SINK (VEGETABLE SINK) ZURN MODEL 2190-KC-3N-1-23. CAST IRON INDIRECT WASTE RECEIVER WITH FLASHING CLAMP, 8" SQ. BODY, ALUMINUM SEDIMENT BUCKET, AND NO GRATE. NO SUBSTITUTIONS.

P-14 CLEANOUTS INSIDE BUILDING: J.R. SMITH 4053L CLEANOUT WITH 6-1/2" SQUARE NICKEL BRONZE TOP AND TAPER THREADED BRONZE PLUG. SEE PLAN FOR SIZE. ALTI (WTS) CO-20XP-S, (ZRN) 21400-3N-1-T-81.

P-15 CLEANOUTS OUTSIDE BUILDING: J.R. SMITH 426L SERIES EXTRA HEAVY DUTY CAST IRON CLEANOUT "CO" CAST IN COVER, ABS PLUG, SPEED SET OUTLET. ALTI (WTS) CO-X00HF + CO-38X, (ZRN) 21474-X-N.

P-16 3-WAY DIVERTER VALVE ASSEMBLY: WATTS MODEL LFB 6780 ROUGH BRASS LEAD-FREE DIVERTER BALL VALVE WITH 3/4" FIP INLET AND OUTLETS AND QUARTER TURN LEVER HANDLE. PROVIDE WITH TWO (2) FORGED BRASS 3/4" MIP X 3/4" MALE GARDEN HOSE THREAD ADAPTERS (PLUMBEST MODEL 620-003 OR EQUAL). PROVIDE WITH ONE ASSE LOW APPROVED CHROME PLATED VACUUM BREAKER (WOODFORD MODEL 34-H-04 OR EQUAL). FOR INSTALLATION AT MOP SINK: SEE 4P-21. PROVIDE ALSO TWO 3/4" CLOSE CHROME PLATED BRASS NIPPLE AND 3/4" POLISHED CHROME 90 DEGREE ELBOW.

P-17 VACUUM RELIEF VALVE WATTS MODEL #LFB56M, 3/4" CONNECTION.

P-18 EXPANSION TANK: STATE INDUSTRIES MODEL ETC-SK, ACCEPTANCE 3.05 GALLONS AT 40 PSI PRECHARGE. 3/4" CONNECTION. ALTERNATE MODELS SIZED PER WATER HEATER MANUFACTURER RECOMMENDATIONS ARE ACCEPTABLE.

P-19 (2) INSTANTANEOUS WATER RINNAL WATER HEATERS MODEL RUR981 AND CP991, GAS FIRED 398 MBH INPUT (TOTAL FLOW RATE 7.6 GPM AT 100 DEGREE RISE).

P-20 THERMOMETER: PROVIDE THERMO MODEL 8834-04-04 3" DIAL TYPE THERMOMETER WITH BOTTOM 1/2" NPT CONNECTION, 4" STEM AND 0 DEG F TO 200 DEG F RANGE. LEAD FREE.

P-21 BACKFLOW PREVENTERS: COORDINATE LOCATION WITH CIVIL SITE UTILITY PLAN. BACKFLOW PREVENTER TYPE AND MODEL IS DETERMINED BY CIVIL ENGINEER IF LOCATED OUTSIDE THE BUILDING.

DOUBLE CHECK TYPE: WATTS NO. LF0007MOT 1/2" DUAL CHECK MODULAR TYPE BACKFLOW PREVENTER MEETING ASSE 103 AND ANWMA C510-92. WHERE REQUIRED BY LOCAL AUTHORITY, USE THE RPZ TYPE BFP SHOWN BELOW. ALTI (ZRN) 112-350XL.

REDUCED PRESSURE ZONE (RPZ) TYPE: WATTS NO. LF0009M2 1/2" MODULAR TYPE WITH TEST PORTS AND INTERMEDIATE RELIEF VALVE MEETING ASSE 1035 AND ANWMA C510-89. PROVIDE WATTS NO. 909-AG-C AIR GAP DEVICE. ALTI (ZRN) 112-975XL2.

P-22 MOP SINK CHECK VALVES: T65 BRASS 1/2" MODEL B-CVW-2 BALL CHECK.

P-23 UTILITY CONNECTION (ICE MAKERS): PROVIDE A MCGUIRE MODEL LFH5106SB LEAD-FREE CHROME WHEEL ANGLE STOP, 1/2" FIP INLET AND OUTLET. PROVIDE CHROME WALL ESCUTCHEON. INSTALL WITH BFP P-34. SEE DETAIL 3P-21 FOR PIPING AT ICE MAKERS.

P-24 UTILITY CONNECTION (COFFEE & TEA BREWERS): PROVIDE A MCGUIRE MODEL LFH5106SB LEAD-FREE CHROME WHEEL ANGLE STOP, 1/2" FIP INLET AND OUTLET. PROVIDE CHROME WALL ESCUTCHEON. INSTALL WITH BFP P-34.

P-25 SHOCK ABSORBER: J.R. SMITH FIGURE 5005 THROUGH 5050, SIZE AS RECOMMENDED BY MANUFACTURER. ALTI (WTS) SSA + SSB, (ZRN) 21700-100 + 21700-300.

P-26 FUNNEL DRAIN (3") J.R. SMITH 3510L03 FUNNEL-CEPTOR 3" INDIRECT WASTE RECEIVER WITH NICKEL BRONZE STRAINER AND FUNNEL. PROVIDE 8" ROUND F12 STRAINER WITH 3.25"X 8.25" OBLONG FUNNEL. ALTI (WTS) FD-103P-A8-G-1, (ZRN) 21415-3N-65-CP.

P-26A TRAP SEAL PROTECTOR PREVENT TRAP GUARD MODEL TG33 3" TRAP SEAL INSERT FOR INTERIOR INSTALLATION AND REPLACEMENT ACCESS THROUGH STRAINER. PROVIDE AT P-35 FLOOR DRAINS IN RESTROOMS, P-37 FLOOR DRAINS DINING ROOM, AND P-26 FUNNEL DRAINS IN MECH ROOM. TRAP GUARDS TO BE USED ALONG WITH MECHANICAL TRAP PRIMERS. PROVIDE PROSET MODEL TG33-ZURN WHEN USING ZURN FLOOR FIXTURES.

P-27 WATER PRESSURE GAUGE THERMO MODEL 800B, 2-1/2" ROUND, BOTTOM OUTLET WITH 1/4" NPT CONNECTION AND O TO 100 PSI RANGE.

P-28 BALL VALVE: NIBCO MODEL 4660-T, 3/4", WITH IPS INLET AND OUTLET.

P-29 ICE MACHINE TRENCH DRAIN ZURN STAINLESS DRAINS: TR2-0FA-1X STAINLESS STEEL TRENCH DRAIN, 145" X 1/2", STAINLESS STEEL SEDIMENT CLIP AND STAINLESS STEEL SEPARATED LADDER GRATE 0X0-DRAIN WIDTH 187/367/487 PROVIDED BY LLC. NO SUBSTITUTIONS.

P-30 FILTERED WATER FAUCET (FAUCET PROVIDED BY OWNER): TWO-HANDLE WALL MOUNT FAUCET WITH SWING SPOUT. MOUNT ON WALL AS SHOWN ON K-SHEETS. PIPE FILTERED WATER TO BOTH SIDES OF FAUCET. CONNECT TO SUPPLY PIPING WITH BRASS OR CHROME NIPPLES, GALVANIZED NOT ALLOWED.

P-31 DUMPSTER POST HYDRANT (NON-FREEZE): WOODFORD MODEL 1/2 LEVER TYPE POST HYDRANT, 3/4 HOSE CONNECTION. LOCKABLE LEVER HANDLE. BRASS CASING, BRASS OPERATING ROD, ASSE 1032 APPROVED AND 24" DEPTH OF BURIAL.

P-32 DUMPSTER PAD DRAIN: J.R. SMITH FIGURE NO. 2280C03 3" FLOOR DRAIN WITH 7-1/2" HINGED CAST IRON SLOTTED GRATE AND SEDIMENT BUCKET. PROVIDED AND INSTALLED BY SITE CONTRACTOR. ALTI (ZRN) Z560-3N-1.

P-33 TRAP PRIMER (MECHANICAL TYPE): PRECISION PRODUCTS PR-500. PROVIDE DISTRIBUTION UNIT WHERE SERVING MULTIPLE DRAINS. PROVIDE SCREWDRIVER STOP AT PRIMER INLET. ALTI (WTS) TP-300A-DR.

P-34 DISPENSER BACKFLOW PREVENTER: WATTS MODEL #WLF7R1222 ASSE 1034 BATED WITH 1/2" FIP INLET AND OUTLET. DUAL CHECK TYPE. PROVIDE 1/2" DIA X 2' LONG CHROME NIPPLE AT BFP INLET AND OUTLET. PROVIDE T65 BRASS MODEL B-010 CHROME WALL BRACKET.

P-35 FLOOR DRAIN (3") JONES STEPHENS CORP D50-064 PVC BODY, BRONZE SPLD WITH 6" DIAMETER NICKEL BRONZE STRAINER. SEE DWG PH FOR DRAINS IN RESTROOMS REQUIRING 1/2" TRAP PRIMER CONNECTION. ALTI (WTS) FD103-A6-60, (ZRN) FRO8NP35-C.

P-36 BEVERAGE TOWER INDIRECT RECEIVER (3") JONES STEPHENS CORP D53-144 PVC BODY, BRONZE SPLD WITH 6" DIAMETER NICKEL BRONZE STRAINER. ALTI (WTS) 210-H-F-N8, (WTS) FD103-A8-60, (ZRN) FRO8NP35-C.

P-37 FLOOR DRAIN (3") JONES STEPHENS CORP D50-076 PVC BODY, BRONZE SPLD WITH 6" SQUARE NICKEL BRONZE STRAINER. PROVIDE 1/2" TRAP PRIMER CONNECTION FOR DINING ROOM DRAINS. ALTI (WTS) FD103-MF-7-60, (ZRN) FRO8NP35-C.

P-38 HOT WATER CIRCULATING PUMP: TACO MODEL 006-S07-1FC, 1/2" UNION CONNECTIONS, INTEGRAL FLOW CHECK. ELECTRICIAN TO PROVIDE AND WIRE PLUG AND COORD. 1/40 HP, 3 GPM AT 7 FT TOTAL DYNAMIC HEAD. PROVIDE CONTROL WIRING AND HONEYWELL MODEL LE2063016 110 VAC AQUA-STAT, WITH ADJUSTABLE SETPOINT, MOUNTED DIRECTLY ON PIPE (ALL PROVIDED BY LLC). SET SHUT-OFF TEMPERATURE AT 190 DEG F.

P-39 2" PRESSURE REDUCING VALVE: WATTS NO. #LF223-SB WITH BUILT-IN BYPASS FEATURE. SET NO FLOW CONDITION AT 70 PSI. ALTI (ZRN) SERIES 500XLYSBR.

P-40 WYE STRAINER WITH #100 SCREEN: 2" WATTS LF777SM3, BRONZE WYE STRAINER WITH THREADED CONNECTION AND TAPPED RETAINER CAP. PROVIDE #100 MESH SCREEN. PROVIDE WATTS 1/2" BP-IC BRASS BOLDS DRAIN WITH BRASS STREET DEGREE ELBOW, MALE END SIZED FOR CONNECTION TO WYE STRAINER RETAINER CAP OUTLET TAP.

P-41C DISHWASHER SUPPLY VALVES (CHAMPION) FULL-PORT LEAD-FREE STAINLESS STEEL BALL VALVES PROVIDED BY LLC WITH SPLIT-RING BRACKET, CHROME FITTINGS, PIPE NIPPLES AND ESCUTCHEON AS DETAILED ON 2P-302.

P-42 EMERGENCY THERMOSTATIC MIXING VALVE (EMERGENCY EYEWASH): BRADLEY MODEL S19-2000 PK8 THERMOSTATIC TEMPERING VALVE, ANSI Z358.1 CERTIFIED FOR EMERGENCY FIXTURES, ASSE 1071 COMPLIANT, WITH DIAL THERMOMETER, INLET CHECK STOPS, ADJUSTABLE SETPOINT, ACCURATE WITHIN +/- 3 DEG F, INCLUDES INTEGRAL COLD WATER BYPASS WITH POSITIVE HOT WATER SHUT-OFF WHEN COLD WATER SUPPLY IS LOST. FACTORY SETPOINT OF 85 DEG F. MOUNTING BRACKET INCLUDED. FACTORY ASSEMBLED AND TESTED. ROUGH BRASS FINISH. NO SUBSTITUTIONS. CONTACT CHICK-FIL-A NATIONAL ACCOUNTS AT HAYNES, JONES & CADBURY FOR PRICING AND DELIVERY.

P-43 SUPPLY VALVE (RE-TERMALIZER) FULL-PORT LEAD-FREE STAINLESS STEEL BALL VALVE (PROVIDED BY LLC) WITH SPLIT-RING BRACKET, CHROME FITTINGS, PIPE NIPPLES AND ESCUTCHEON AS DETAILED ON 3P-302.

NATIONAL ACCOUNTS	
I.	TOTO VALVES AND FIXTURES (NO SUBSTITUTIONS). HAINES, JONES & CADBURY LLC. (HJC DISTRIBUTORS). PLEASE CONTACT HJC-CFA CUSTOMER SERVICE REPRESENTATIVE AT (800) 459-7099 OR VIA E-MAIL AT: CF@HJCINC.COM FOR NATIONAL ACCOUNT PRICING AND DELIVERY FOR ALL ITEMS ON PLUMBING FIXTURE SCHEDULE.





Chick-fil-A

Chick-fil-A
5200 Buffington Road
Atlanta, Georgia
30349-2998

INTERPLAN
INTERPLAN LLC
AR0011595
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ARCHITECTURE
ENGINEERING
PERMITTING

220 E. CENTRAL PKWY, STE 4000
ALAMONTE SPRINGS, FL 32701
407.645.5038

SEAL:

THIS DOCUMENT IS NOT
FOR REGULATORY
APPROVAL, PERMITTING,
OR CONSTRUCTION.

CHICK-FIL-A
MADISON STREET
1626 Madison St.
Clarksville
TN, 37043

FSR#01673

BUILDING TYPE / SIZE: S04-152
RELEASE:
PRINTED FOR
BID FOR CONSTRUCTION

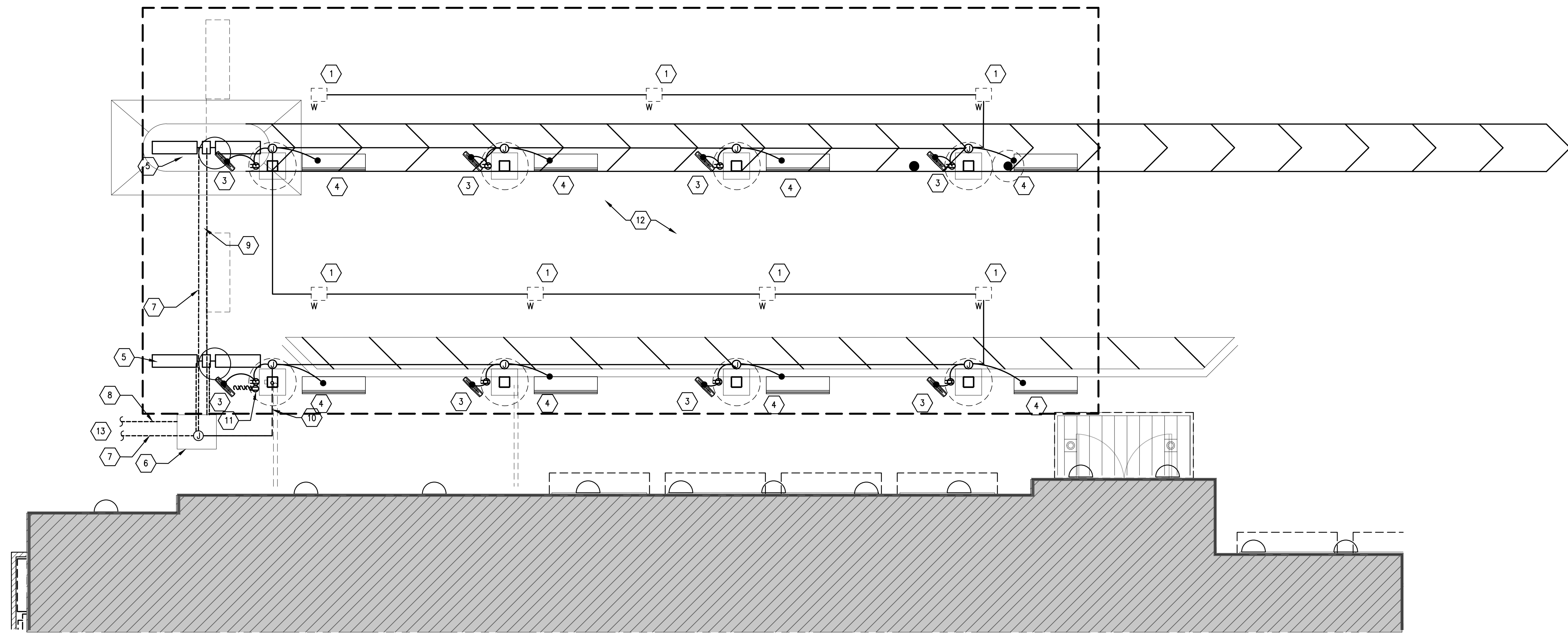
REVISION SCHEDULE table with columns: NO., DATE, DESCRIPTION

CONSULTANT PROJECT # 2020.0755
DATE March 2022
DRAWN BY MI
CHECKED BY SN
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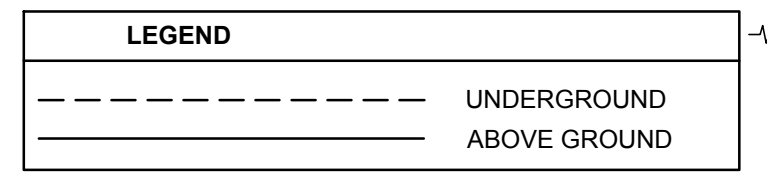
ORDER CANOPY POWER AND LGT
SHEET NUMBER
E1.1A

LIGHTING FIXTURE (LUMINAIRE) SCHEDULE - CHICK-FIL-A table with columns: MARK, MANUFACTURER, CATALOG NUMBER, NO. LAMPS/TYPE, STYL LAMP NO., WATTS, VOLTS, MOUNTING, REMARKS

NOTES:
1. LUMINAIRES UTILIZING DOUBLE-ENDED LAMPS AND CONTAIN BALLASTS THAT CAN BE SERVICED IN PLACE SHALL HAVE A DISCONNECTING MEANS EITHER INTERNAL OF EXTERNAL TO EACH LUMINAIRE PER NEC 410.130(G).



1 ORDER CANOPY POWER AND LIGHTING PLAN
1/4" = 1'-0"

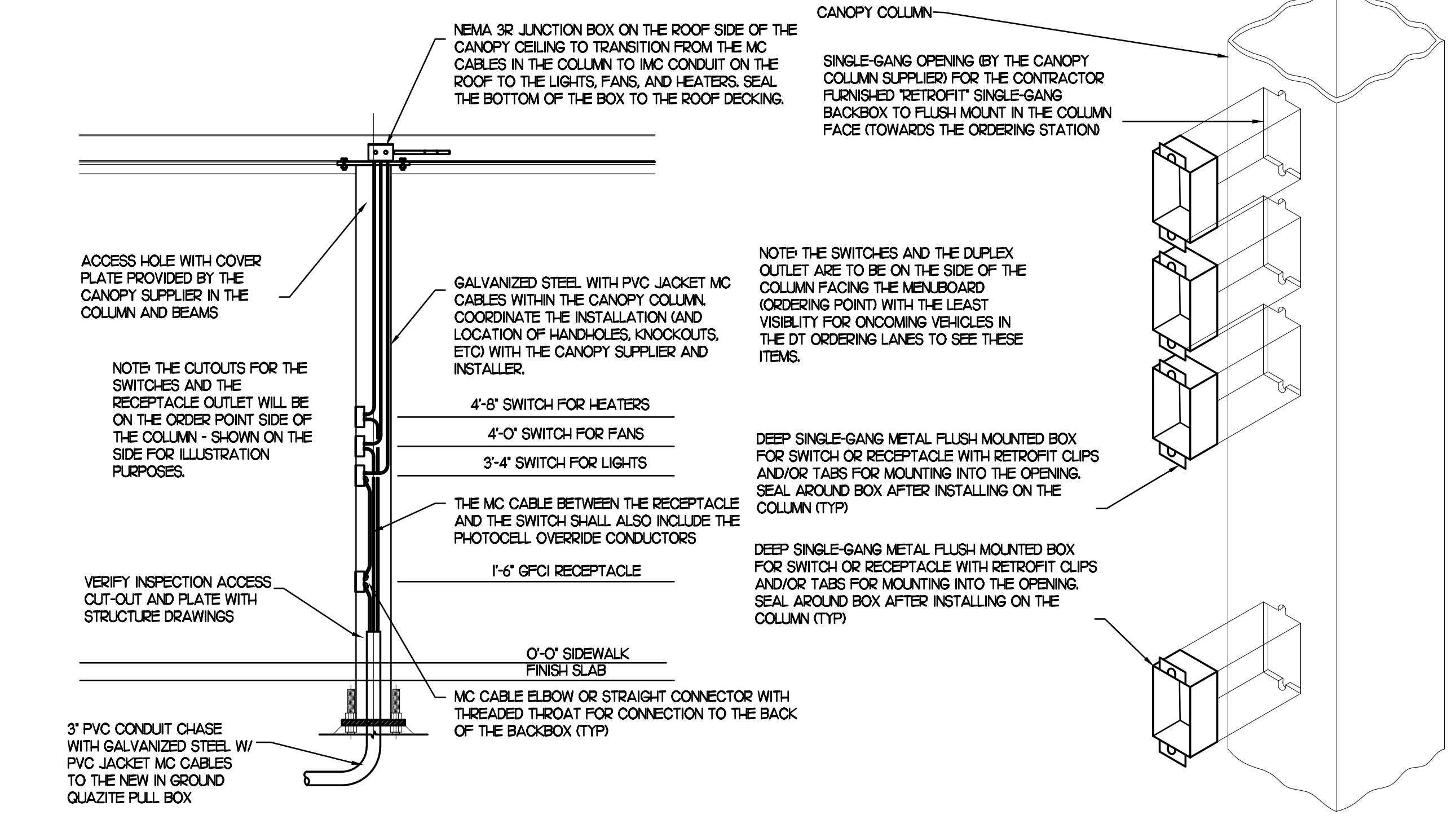


SEQUENCE OF OPERATION
STORE SWITCH IN 'STORE OPEN' POSITION
A. INFRARED HEATERS ARE ENABLED.
B. COOLING FANS ARE ENABLED.
C. MASTER ON/OFF SWITCH FOR IR HEATERS AND COOLING FANS PROVIDE SINGLE POINT OF ON/OFF CONTROL.
STORE SWITCH IN 'STORE CLOSED' POSITION
A. INFRARED HEATERS ARE DISABLED.
B. COOLING FANS ARE DISABLED.
NOTES
1. CONTRACTOR SHALL PURCHASE CONTROL PANEL DIRECT FROM SUNCOAST ENVIRONMENTAL CONTROLS, TELE NO 727-544-6679.
2. COORDINATE WITH GC TO ESTABLISH LOCATION TO MOUNT PANEL IN A CONDITIONED SPACE INSIDE THE BUILDING.
3. INFORM SEC ASAP AS TO WHETHER THE PANEL IS TO BE SURFACE OR FLUSH MOUNTED.
4. PROVIDE LAMINATED LEGEND SHOWING NAMED LOCATIONS OF FAN AND IR HEATERS. MOUNT LEGEND AT PANEL.

IMPORTANT!
PROVIDE 6 AMP CIRCUIT BREAKER IN THE NEW OFA-500 SEC. PANEL. THE FUSE IS LOCATED IN THE UPPER HALF OF THE OFA-500 PANEL IMMEDIATELY TO THE RIGHT OF THE PHOTOCELL CONTROLLER.

KEYED NOTES

- 1. CEILING LIGHT PROVIDED BY CANOPY SUPPLIER AND INSTALLED BY EC.
2. NOT USED.
3. AIR CIRCULATING FAN (WITH INTEGRAL ON-OFF SWITCH) PROVIDED BY OTHERS. PROVIDE A GFCI DUPLEX OUTLET (WITH IN-HOUSE WP COVER PLATE) FLUSH INTO IN-CUT-OUT FOR FAN'S PLUG & CORD. LOCATE CUT-OUT AT TOP OF COLUMN ON DOWNSTREAM SIDE.
4. INFRARED GAS HEATER WITH INTEGRAL ON-OFF SWITCH PROVIDED BY OTHERS.
5. MENUBOARD PROVIDED BY OTHERS.
6. PROVIDE IN-GROUND QUASITE PULLBOX FOR MLOP DATA CABLES WITH POWER NEMA 3R JUNCTION BOX MOUNTED INSIDE THE PULLBOX.
7. 2" UNDERGROUND SCH40 PVC CONDUIT WITH POWER CONDUCTORS, SEE WIRING SCHEMATIC.
8. 2" UNDERGROUND SCH40 PVC CONDUIT FOR OWNERS AUDIO SYSTEM / DETECTOR LOOP CABLES.
9. 1" EMPTY UNDERGROUND SCH40 PVC CONDUIT FOR OWNERS AUDIO SYSTEM / DETECTOR LOOP CABLES.
10. INSTALL UNDERGROUND 3" SCH40 PVC CONDUIT UP INTO THE CANOPY COLUMN WITH TYPE MC CABLE (GALVANIZED STEEL WITH PVC JACKET) RUN WITH-IN FOR THE 120V POWER FOR LIGHTS, 120 VOLT POWER FOR FANS, AND 24 VOLT POWER FOR THE INFRARED GAS HEATERS.
11. PROVIDE ONE DUPLEX GFCI (WITH IN-HOUSE WP COVER PLATE) AND THREE 120V SINGLE-POLE SWITCHES (EACH WITH HUBBELL #RW51550 WP COVER PLATE) MOUNTED ON THE COLUMN IN FLUSH MOUNTED METAL SINGLE GANG BOXES FOR LOCAL ON-OFF CONTROL OF THE FAN, HEATERS, AND CANOPY LIGHTS. SEE WIRING SCHEMATIC DETAIL #1 ON E1.3 AND CANOPY COLUMN DETAIL ON THIS SHEET FOR FURTHER INFORMATION. ALL SURFACE MOUNTED ITEMS AND COVER PLATE TO BE FIELD PAINTED MATTE BLACK. INSTALL BLANK COVERPLATE WHEN HEATERS ARE NOT INSTALLED AND THE THIRD SWITCH IS NOT REQUIRED.
12. ALL CONDUIT AND BOXES SHALL BE CONCEALED FROM NORMAL VIEW, UNDERGROUND, IN COLUMNS, OR ABOVE THE CANOPY (ON THE ROOF). MC CABLE (GALVANIZED STEEL WITH PVC JACKET) TO BE USED INSIDE THE COLUMNS, BUT MUST CONVERT BACK TO IN-C ABOVE THE ROOF. ALL EXPOSED ELECTRICAL BOXES TO BE NEMA 3R CAST-METAL.
13. PROVIDE ONE (1) #8CU EQUIPMENT GROUND TO BE BONDED TO CANOPY STRUCTURE PER MANUFACTURERS RECOMMENDATIONS.



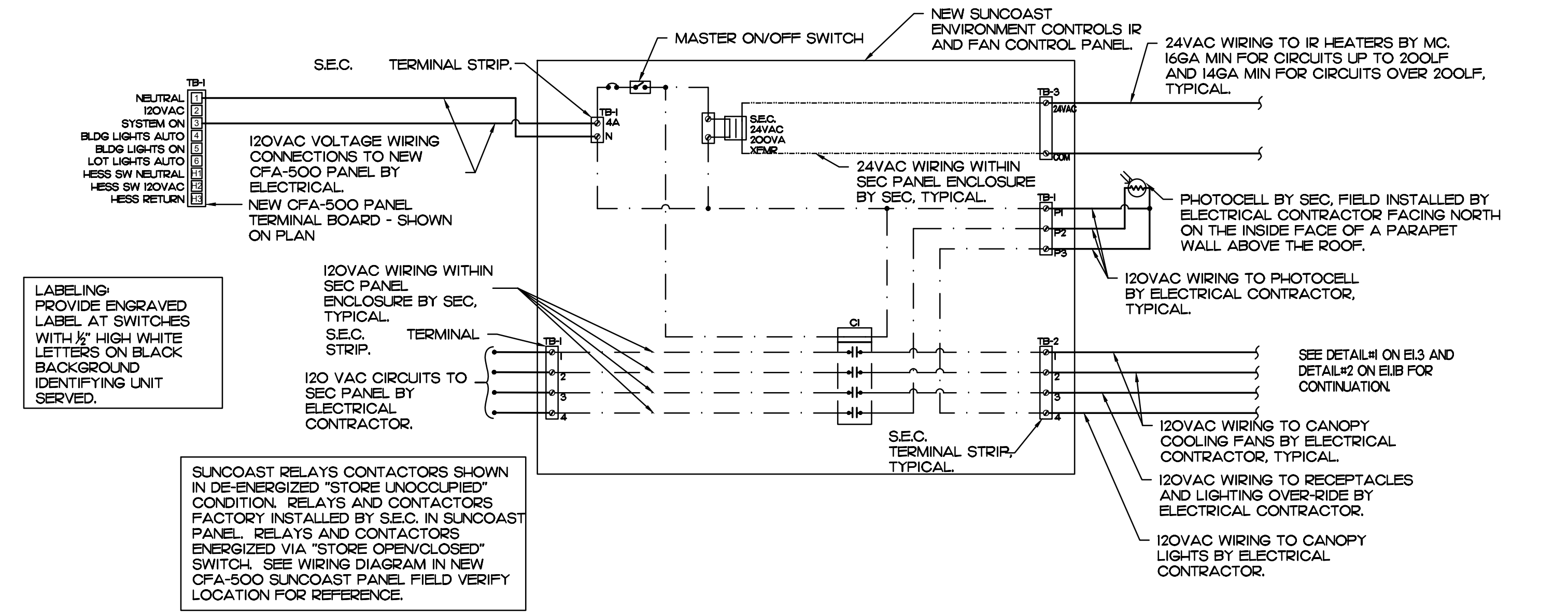
3 SECTION - ORDER CANOPY COLUMN
NOT TO SCALE

4 CANOPY COLUMN ISOMETRIC
NOT TO SCALE

LEGEND table with columns: SEC, MC, EC, and descriptions for SUNCOAST ENVIRONMENTAL CONTROLS, MECHANICAL CONTRACTOR, and ELECTRICAL CONTRACTOR.

NOTES: FOR ALL CONDUITS REFER TO PLANS FOR OTHER CONDUITS, REFER TO VENDOR DRAWINGS FOR CONDUIT AND WIRING REQUIREMENTS FOR LOW VOLTAGE SYSTEMS AND CONTROL WIRING.
MULTIPLE IP4 CIRCUITS MAY OCCUPY THE SAME CONDUIT IN ACCORDANCE WITH THE NEC, MAXIMUM OF THREE AND OF DIFFERENT PHASES.
LOW VOLTAGE AND CONTROL WIRING SHALL BE IN SEPARATE CONDUIT FROM POWER WIRING.

2 SUNCOAST PANEL WIRING DIAGRAM DBL LANE ORDER POINT-INFRARED HEATERS, COOLING FANS
1/4" = 1'-0"



LABELING
PROVIDE ENGRAVED LABEL AT SWITCHES WITH 1/2" HIGH WHITE LETTERS ON BLACK BACKGROUND IDENTIFYING UNIT SERVED.

SUNCOAST RELAYS CONTACTORS SHOWN IN DE-ENERGIZED 'STORE UNOCCUPIED' CONDITION. RELAYS AND CONTACTORS FACTORY INSTALLED BY SEC. IN SUNCOAST PANEL. RELAYS AND CONTACTORS ENERGIZED VIA 'STORE OPEN/CLOSED' SWITCH. SEE WIRING DIAGRAM IN NEW OFA-500 SUNCOAST PANEL FIELD VERIFY LOCATION FOR REFERENCE.

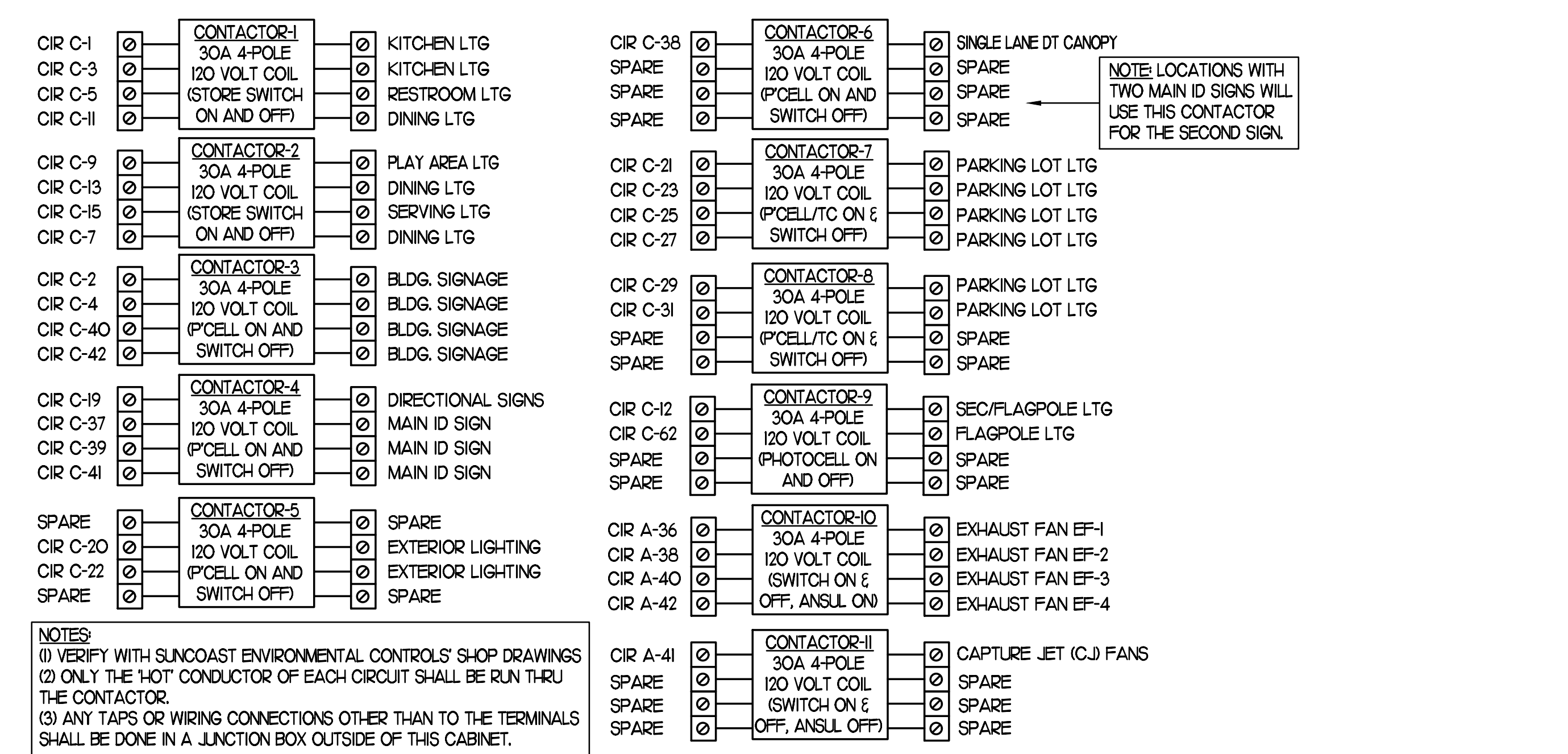
LIGHTING FIXTURE (LUMINAIRE) SCHEDULE - CHICK-FIL-A									
MARK	MANUFACTURER	CATALOG NUMBER	NO. LAMPS/TYPE	STL. LAMP NO.	WATTS	VOLTS	MOUNTING	REMARKS	
A	LITHONIA	2GTL-472L-A12125V-EZ1-LP840	INTEGRAL WITH FIXTURE	-	52.3	120	RECESSED	2'X4' STATIC LED TROFFER RATED 7200 LUMENS, 4000K COLOR TEMP	
AE	LITHONIA	2GTL-472L-A12125V-EZ1-LP840-EL14L	INTEGRAL WITH FIXTURE	-	52.3	120	RECESSED	SAME AS 'A' WITH EMERGENCY BATTERY PACK. SEE PLAN NOTES ABOUT LAMP SWITCHING	
A2	LITHONIA	2RFB-217-MNLT-BSNP	2-F017/835/XP/SS/ECO	22491	34	120	RECESSED	2'X2' STATIC TROFFER, SMOOTH SIDE OF PRISMATIC LENS DOWN.	
A3	LITHONIA	2PM3MGB-2-17-9-LD-MVOLT-GB10IS	2-F017W TB (24")	-	34	120	RECESSED	2'X2' STATIC TROFFER, SMOOTH SIDE OF PRISMATIC LENS DOWN.	
A3E	LITHONIA	2PM3MGB-2-17-9-LD-MVOLT-GB10IS-EL14	2-F017W TB (24")	-	34	120	RECESSED	SAME AS 'A3' WITH EMERGENCY BATTERY PACK. SEE PLAN NOTES ABOUT LAMP SWITCHING	
B1	METALUX	2V73-LD5-UNV-LB40-CD1-SSL-U	INTEGRAL WITH FIXTURE	-	35	120	SURFACE	MOUNT LIGHT TO BTM OF OVERHEAD WIRE SHELVING & PROVIDE CORD & PLUG	
B3	CON-TECH	UF228-P WITH PLUG & CORDSET	1-FP28/835/ECO	20901	31	120	SURFACE	REFER TO SHEET E2.4, KEYNOTE #11, FOR ADDITIONAL INFORMATION.	
D1	LITHONIA	REAL606/MN/1000L/30K/955C-LP6LN	FURNISHED	-	14.2	120	RECESSED	LED DOWNLIGHT WITH WHITE TRIM	
D2	LITHONIA	REAL606/BZA/1000L/30K/955C-LP6LN	FURNISHED	-	14.2	120	RECESSED	LED DOWNLIGHT WITH BRONZE TRIM - USED ONLY IN WOOD OR COLORED CLOS	
D3	LITHONIA	LDN6-30/20-L06AR-LSS-MVOLT	FURNISHED	-	22.6	120	RECESSED		
D3E	LITHONIA	LDN6-30/20-L06AR-LSS-MVOLT-EL	FURNISHED	-	22.6	120	RECESSED		
D	LITHONIA	2RTL4-48L-EZ1-LP830-DGA24	LED	-	48	120	RECESSED	2'X4' VOLUMETRIC RECESSED LIGHTING SYSTEM WITH DRYWALL GRID ADAPTER	
DE	LITHONIA	2RTL4-48L-EZ1-LP830-DGA24	LED	-	48	120	RECESSED	SAME AS 'D' WITH EMERGENCY BATTERY PACK. SEE PLAN NOTES ABOUT LAMP SWITCHING	
F	MEYDA	162165	LED	-	8.5	120	SURFACE	EGG LIGHT ABOVE SERVING COUNTER	
G	LITHONIA	C-132-AL-MVOLT-OS10IS	1-F028/835/XP/SS/ECO	22178	25	120	SURFACE	STRIP FLUORESCENT WITH LOW TEMP BALLAST, MOUNT WITH ANNING ON FRAME	
G1	LITHONIA	C-232-AL-MVOLT-OS10IS-WGCON	2-F028/835/XP/SS/ECO	22178	50	120	WALL	STRIP FLUORESCENT WITH LOW TEMP BALLAST AND WIREGUARD, MTD ABOVE DOOR FRAME	
J	LITHONIA	CA-132-MVOLT-OS10IS	1-F028/835/XP/SS/ECO	22178	25	120	WALL	MOUNT ABOVE DOOR FRAME	
J1	LITHONIA	Z-132-MVOLT-OS10IS	1-F028/835/XP/SS/ECO	22178	32	120	COVE	MOUNT IN MENUBOARD COVE AND PROVIDE TRIM GUARDS ON LAMPS	
J2	LITHONIA	AV-0232-MDR-ASY-MVOLT-OS10IS	2-F028/835/XP/SS/ECO	22178	50	120	RECESSED	1'X4' ASYMMETRIC WITH LIGHT DIRECTED TOWARDS THE CENTER OF THE ROOM	
K2	JUNO / INDY	MS302-WH/HB-28/75621/HB-28 142776	LED	PHILLIPS	28	120	RECESSED	WHITE HOUSING 2 LAMP MULTI-SPOT WITH LED RETROFIT LAMPS, AIM AS DIRECTED	
K4	JUNO / INDY	MS302-BL/HB-28/75621/MS3078L	2-12PAR30S/END/F22/27K	PHILLIPS	24	120	RECESSED	SAME AS K2 WITH BLACK HOUSING - USED ONLY IN WOOD OR COLORED CLOS	
L	LITHONIA	YSL-232-MVOLT-DL-OS10IS	2-F028/835/XP/SS/ECO	22178	50	120	SURFACE	LOW PROFILE DAMP LOCATION FLUORESCENT.	
MS	LEVITON	PS110-10W	N/A	-	4	120	WALL	MOTION SENSOR ON FLUSH BACKBOX, PROVIDE COVERPLATE W/ CENTER THREADED KNOCKOUT	
M	LITHONIA	26TB-G-232-A12V-MVOLT-OS10ISH	2-F028/835/XP/SS/ECO	22178	50	120	RECESSED	SAME AS 'A' EXCEPT WITH TWO LAMPS. SEE PLAN NOTES ABOUT LAMP SWITCHING.	
ME	LITHONIA	26TB-G-232-A12V-MVOLT-OS10ISH-EL	2-F028/835/XP/SS/ECO	22178	50	120	RECESSED	SAME AS 'AE' EXCEPT WITH TWO LAMPS. SEE PLAN NOTES ABOUT LAMP SWITCHING.	
N	MINKA	4531-2678	1-CF19EL/mini-TWIST/2700	29396	19	120	WALL	"COW BELL" LAVATORY WALL SCONCE WITH SHADE POINTED DOWN	
P1	MEYDA	142776	2-CF19EL/mini-TWIST/2700	29396	38	120	PENDANT	PEACH BASKET PENDANT WITH BTM AT 6'-6" AFF ABV TABLE, 7'-6" OTHERWISE	
Q	TROY	KF14856-1	FURNISHED	-	43	120	PENDANT	CUSTOM 48"X12"X12" COCA-COLA BOTTLE PENDANT, BTM AT 6'-3" AFF	
R	LITHONIA	2RTL4-48L-EZ1-LP830	LED	-	48	120	RECESSED	2'X4' VOLUMETRIC RECESSED LIGHTING	
RE	LITHONIA	2RTL4-48L-EZ1-EL14L-LP830	LED	-	48	120	RECESSED	SAME AS R WITH EMERGENCY BATTERY PACK	
S	LITHONIA	RTL2-33L-EZ1-LP830	LED	-	33	120	RECESSED	2'X2' VOLUMETRIC RECESSED LIGHTING	
SE	LITHONIA	RTL2-33L-EZ1-EL14L-LP830	LED	-	33	120	RECESSED	SAME AS S WITH EMERGENCY BATTERY PACK	
U	BESA LIGHTING	BES00298-060	FURNISHED	-	7.5	120	PENDANT	RED FRIT GLASS, BRONZE CABLE & CANOPY, 6'-6" AFF	
CON-TECH	LA-17A-P	N/A					TRACK	PENDANT ADAPTER FOR CON-TECH 'LT SERIES' LIGHTING TRACK	
U1	CON-TECH	LT-4 OR 8-P TRACK, LA9 END FEED, LA2 MINI-CONNECTORS AND LA-17A-P PENDANT ADAPTORS					CEILING	LIGHTING TRACK WITH ACCESSORIES AS NOTED, LENGTH AS NOTED	
V	VISUAL COMFORT	SL2923B2	1-LED8A19/DIM/O/827	78935	8	120	WALL	BOSTON LIBRARY LIGHT WITH RETROFIT LED, MOUNT BACKBOX AT 86" AFF	
YA	LITHONIA	LHOM-S-W-1-R-120	INTEGRAL WITH FIXTURE	-	4	120	WALL	EXIT SIGN WITH BATTERY PACK AND TWO INTEGRAL ADJUSTABLE LAMPHEADS	
XB	CHLORIDE	CAX6	INTEGRAL WITH FIXTURE	-	3	120	CEILING	WHITE THERMOPLASTIC BATTERY PACK UNIT WITH TWO LAMPHEADS	
XC	LITHONIA	AFN-BN-EXT (TWO LAMP UNIT)	INTEGRAL WITH FIXTURE	-	21	120	WALL	EXTERIOR WALL MOUNTED EMERGENCY LIGHTING UNIT, LOCATE NEAR EGRESS DOOR	
OB	LUMIX	SL5635S-PL26-120	1-CFR26W/GX240/827	20767	31	120	SEMI-REC	7 INCH DIAMETER TEMPERED FROSTED LENS WITH STAINLESS STEEL GRID & POLYMER HOUSING	
OC	LITHONIA	TFR-400M-TA-TB-SOWA-IS-LPI	1-M400/PS/U	64321	456	120	PIPE	FLOODLIGHT MTD ON ROOF ON 2" PIPE SUPPORT (BY OTHERS) AND AIMED AT FLAG AFTER DARK	
OD	LITHONIA	DSX0-LED-40C-1000-40K SERIES (DISTRIBUTION TYPES TO BE DETERMINED BY THE REGIONAL TEAM SPECIFIC TO THE SITE.)	FURNISHED	-	138	120	POLE	COORDINATE WITH THE SPECIFIC SITE CONDITIONS FOR DISTRIBUTION TYPE(S) & POLE STYLE & HEIGHT. REFER TO THE ELECTRICAL SITE PLAN FOR FURTHER INFORMATION.	
* OG								REFER TO SHEET ES2.1 (PHOTOMETRIC PLAN) FOR THE SITE SPECIFIC LIGHTING FIXTURE USED IN LIEU OF TYPE OD WHEN REQUIRED.	
OH	LITHONIA	L3LED-T24/40PA-TRM-30K-90CRI	FURNISHED	-	11.2	120	RECESSED	4" OPEN CLEAR DIFFUSER DOWNLIGHT WITH 3000K, 93 CR, 600LUMEN	
OJ	SECURITY LTG	RWSC-72LED-UD-DB-UB-WK-3K (DARK BRONZE)	FURNISHED	-	25	120	WALL	UP/DOWN DECORATIVE EXTERIOR WALL SCONCE, SEE ELEVATIONS FOR MOUNTING HEIGHT	
OK	LITHONIA	TWA-50M-120-LPI	FURNISHED	-	12.9	120	WALL	CENTERLINE OF FIXTURE AT 8'-0" ABV 0'-0" (FINISH FLOOR LINE)	

1. LUMINAIRES UTILIZING DOUBLE-ENDED LAMPS AND CONTAIN BALLASTS THAT CAN BE SERVICED IN PLACE SHALL HAVE A DISCONNECTING MEANS EITHER INTERNAL OR EXTERNAL TO EACH LUMINAIRE PER NEC 410.130(G).

2. THE LIGHTING FIXTURE PACKAGE IS AVAILABLE THROUGH A NATIONAL ACCOUNT PROGRAM. REFER TO SHEET E4.0, SECTION 16500 FOR VENDOR INFORMATION.

3. THE FLUORESCENT BALLAST CATALOG NUMBER INDICATES OSRAM AND ALL LAMP DESIGNATIONS ARE FOR OSRAM/SYLVANIA PER A NATIONAL ACCOUNT AGREEMENT.

4. THE ASTERISK (*) BESIDE THE FIXTURE MARK IN THE ABOVE SCHEDULE INDICATES THE FIXTURE IS A NON-PROTOTYPICAL LIGHT FIXTURE PER THE CFA NATIONAL HERITAGE PROTOTYPE.



2 ELECTRICAL LEGEND

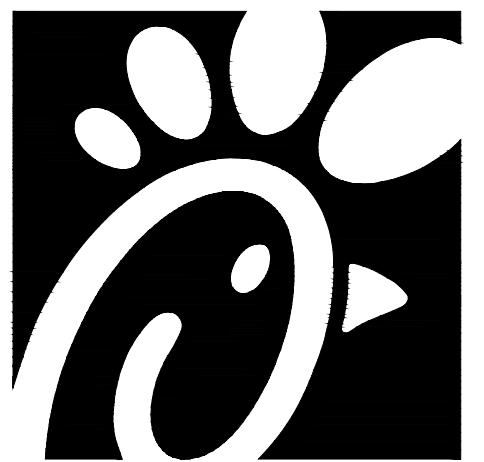
SYMBOL	DESCRIPTION	MTG LIT AFF TO CL	SYMBOL	DESCRIPTION	MTG LIT AFF TO CL
LIGHTING FIXTURES			MISCELLANEOUS SYMBOLS		
☐	SURFACE MTD FLUORESCENT LIGHTING FIXTURE		⊥	GROUND	
⊞	RECESSED FLUORESCENT LIGHTING FIXTURE		Ⓜ	MOTOR	
⊙	SURFACE MTD FLUORESCENT OR HID LIGHTING FIXTURE		Ⓜ	EXHAUST FAN MOTOR	
⊙	RECESSED FLUORESCENT OR HID LIGHTING FIXTURE		Ⓜ	JUNCTION BOX	
Ⓜ	WALL MOUNTED EXIT SIGN. SHADING INDICATES FACES. PROVIDE WITH CELESTON DIRECTIONAL ARROWS WHERE INDICATED ON PLANS PROVIDED WITH BATTERY PACK	AS NOTED	Ⓜ	CONDUIT AND WIRE MARK NUMBER. REFER TO CONDUCTORS AND CONDUIT SCHEDULE FOR SIZE	
Ⓜ	WALL MOUNTED EXIT SIGN. SHADING INDICATES FACES. PROVIDE WITH CELESTON DIRECTIONAL ARROWS WHERE INDICATED ON PLANS PROVIDED WITH BATTERY PACK	6' BELOW CEILING TO TOP	Ⓜ	KITCHEN EQUIPMENT MARK NUMBER. REFER TO KITCHEN EQUIPMENT SCHEDULE FOR REQUIREMENTS	
Ⓜ	CEILING MOUNTED EXIT SIGN. SHADING INDICATES FACES. PROVIDE WITH CELESTON DIRECTIONAL ARROWS WHERE INDICATED ON PLANS PROVIDED WITH BATTERY PACK		Ⓜ	NOTE NUMBER	
Ⓜ	COMBO EXIT WITH TWO LAMP HEADS. SEE LIGHTING FIXTURE SCHEDULE		Ⓜ	HOOD EXTINGUISHING ANSUL PULL STATION	
Ⓜ	WALL MOUNTED EMERGENCY BATTERY PACK LIGHTING FIXTURE	AS NOTED	Ⓜ	SMOKE DETECTORS REMOTE STATUS INDICATOR W/ 1/2" CONDUIT STUB-UP	
Ⓜ	CEILING MOUNTED EMERGENCY BATTERY PACK LIGHTING FIXTURE		Ⓜ	PUSH-BUTTON	
Ⓜ	FLUORESCENT STRIP LIGHTING FIXTURE		Ⓜ	BELL, TYPE AS NOTED ON PLANS	
Ⓜ	WALLWASHER STYLE RECESSED DOWNLIGHT, AIM LIGHT TOWARD WALL		Ⓜ	PHOTO-ELECTRIC CELL	
ABBREVIATIONS					
Ⓜ	RECESSED LIGHTING FIXTURE WITH EMERGENCY BATTERY PACK		AFF	ABOVE FINISHED FLOOR	
Ⓜ	PENDANT LIGHTING FIXTURE	AS NOTED	AFG	ABOVE FINISHED GRADE	
Ⓜ	LIGHTING TRACK WITH TRACK HEADS		AHU	AIR HANDLING UNIT	
WIRING DEVICES					
Ⓜ	120 VOLT DUPLEX RECEPTACLE, 20 AMPS U.O.N.	18"	CL	CENTER-LINE	
Ⓜ	120 VOLT DUPLEX AT SPECIAL MOUNTING HEIGHT, 20 AMPS U.O.N.	44" U.O.N.	EF	EXHAUST FAN	
Ⓜ	120 VOLT QUADRAPLEX RECEPTACLE, 20 AMPS U.O.N.	18" U.O.N.	FLA	FULL LOAD AMPS	
Ⓜ	120 VOLT QUADRAPLEX AT SPECIAL MOUNTING HEIGHT, 20 AMPS U.O.N.	44"	GF/GFI	GROUND FAULT CIRCUIT INTERRUPTER	
Ⓜ	120 VOLT SIMPLEX RECEPTACLE, 20 AMPS U.O.N.	18" U.O.N.	GND/GRD	GROUND	
Ⓜ	SINGLE SPECIAL PURPOSE RECEPTACLE WITH VOLTS, AMPS, AND PHASE AS NOTED. NEMA CONFIGURATION AS REQUIRED BY EQUIPMENT	18" U.O.N.	HT	HEIGHT	
Ⓜ	RECEPTACLE MOUNTED ON CORO DROP, 120 VOLT, 20 AMP, U.O.N. OUTLET BOX FLUSH WITH CEILING		IG	ISOLATED GRD, PROVIDE ORANGE DEVICE WHEN ADJACENT TO WIRING DEVICE	
Ⓜ	SINGLE POLE TOGGLE SWITCH	48"	MOCP	MAXIMUM OVER-CURRENT PROTECTION	
Ⓜ	DOUBLE POLE TOGGLE SWITCH	48"	MLA	MAKE UP AIR UNIT	
Ⓜ	THREE WAY TOGGLE SWITCH	48"	NEC	LOCALLY ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE (NFPA 70)	
Ⓜ	MANUAL MOTOR STARTER SWITCH (W/NEMA 3R)	48"	NL	NIGHT LIGHT (ON 24 HOURS)	
Ⓜ	SWITCH WITH PILOT LIGHT (ON WHEN SWITCH IS ON)	48"	OC	ON CENTER	
Ⓜ	KEY OPERATED SWITCH	48"	POS	POINT OF SALE EQUIPMENT	
Ⓜ	CEILING OCCUPANCY SENSOR		RTU	ROOF TOP UNIT	
Ⓜ	WALL OCCUPANCY SENSOR		TL	TWIST-LOCK TYPE DEVICE	
Ⓜ	MID RING ONLY		TR	TAMPER-RESISTANT	
Ⓜ			UON	UNLESS OTHERWISE NOTED	
Ⓜ			WP	WEATHERPROOF (NEMA 3R)	
TELEPHONE					
Ⓜ	TELEPHONE OUTLET	18" U.O.N.			
Ⓜ	TELEPHONE OUTLET AT SPECIAL MOUNTING HEIGHT	60" U.O.N.			
CONDUIT/RACEWAYS					
Ⓜ	CONDUIT CONCEALED ABOVE CEILING OR IN WALL		NOTE: EACH TELEPHONE OUTLET (FLOOR OR WALL MOUNTED) SHALL BE PROVIDED WITH A 3/4" EMPTY CONDUIT, WITH PULL WIRE TO ACCESSIBLE CEILING SPACE.		
Ⓜ	CIRCUIT HOMERUN TO PANELBOARD WITH MINIMUM 2H2, 1H26, 3/4"C		CCTV / SECURITY SYSTEM		
Ⓜ	CONDUIT TURNING UP		Ⓜ	CLOSED CIRCUIT TELEVISION CAMERA	
Ⓜ	CONDUIT TURNING DOWN		Ⓜ	SECURITY ALARM KEYPAD	
Ⓜ	CONDUIT CONCEALED IN OR BELOW SLAB (OUTSIDE - UNDERGROUND)		Ⓜ	SECURITY ALARM HOLD-UP BUTTON	
Ⓜ	FLEXIBLE LIGHT FIXTURE WHIP, SIX FOOT MAXIMUM LENGTH		Ⓜ	SECURITY SYSTEM KEY NOTE	
Ⓜ	METAL CLAD CABLE ASSEMBLY - ONLY WHERE INDICATED ON DWGS OR SPECS				
NOTES FOR ALL CONDUITS: REFER TO PLANS FOR OTHER CONDUITS. REFER TO VENDOR DRAWINGS FOR CONDUIT AND WIRING REQUIREMENTS FOR LOW VOLTAGE SYSTEMS AND CONTROL WIRING.					
MULTIPLE PH CIRCUITS MAY OCCUPY THE SAME CONDUIT IN ACCORDANCE WITH THE NEC, MAXIMUM OF THREE AND OF DIFFERENT PHASES.					
LOW VOLTAGE AND CONTROL WIRING SHALL BE IN SEPARATE CONDUIT FROM POWER WIRING.					
DISTRIBUTION EQUIPMENT					
Ⓜ	NON-FUSIBLE SAFETY SWITCH. SIZE AND TYPE AS NOTED ON PLANS (AMPS/POLES/ ENCLOSURE OR ON SCHEDULE - NEMA 1 ENCLOSURE UNLESS NOTED WP FOR NEMA 3R ENCLOSURE)	6'-6"			
Ⓜ	FUSIBLE SAFETY SWITCH. SIZE AND TYPE AS NOTED ON PLANS (AMPS/POLES/ ENCLOSURE OR ON SCHEDULE - NEMA 1 ENCLOSURE UNLESS NOTED WP FOR NEMA 3R)	6'-6"			
Ⓜ	FLUSH MOUNTED LIGHTING PANELBOARD	6'-6"			
Ⓜ	SURFACE MOUNTED LIGHTING PANELBOARD	6'-6"			
Ⓜ	TRANSFORMER, PROVIDE SECONDARY GROUNDING PER NEC	6'-6"			
Ⓜ	ENCLOSED CIRCUIT BREAKER. SIZE AND TYPE AS NOTED (AMPS/POLES/ ENCLOSURE NEMA 1 ENCLOSURE IF NOT NOTED, WP-NEMA 3R)	6'-6"			
Ⓜ	6'-6" DISTANCE IS TO TOP MOST DISCONNECTING DEVICE OR HIGHEST POSITION OF OPERATING HANDLE OF DISCONNECTING DEVICE				

3 SIGNAGE COORDINATION NOTE

THE ELECTRICAL SUBCONTRACTOR SHALL INCLUDE THE ELECTRICAL ROUGH-IN AND FINAL CONNECTIONS OF ALL SIGNAGE (BUILDING MOUNTED AND GROUND MOUNTED ON THE SITE) IN HIS SCOPE OF WORK AND UNDER HIS LOCAL CODE PERMITTING PROCESS. PROVIDE A COPY OF THE PERMIT (WHICH SPECIFICALLY INCLUDES THE SIGNAGE) TO THE SIGN VENDOR IN ORDER TO EXPEDITE THE SIGN VENDOR'S PERMIT PROCESS.

THE EXHAUST HOOD SYSTEM AND COOKING APPLIANCES SHALL BE INTERCONNECTED SO THAT OPERATING ANY OF THE COOKING APPLIANCES AUTOMATICALLY ACTIVATES THE HOOD SYSTEM.

CONTRACTOR SHALL PROVIDE SUNCOAST DUCT HEAT SENSOR & CONTROL SYSTEM PACKAGE MODEL #TS2-010 (20VAC) DIGITAL TEMPERATURE SWITCH IN COMPLIANCE WITH THE 507.1J OF FBCM INTERLOCKED WITH THE EXISTING SUNCOAST CONTROL PANEL.



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FSR#01673

REVISION SCHEDULE	NO.	DATE	DESCRIPTION
BUILDING TYPE / SIZE			S04-152
DATE		March 2022	
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BID FOR CONSTRUCTION			
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SHEET			
SCHEDULE AND DETAILS			
SHEET NUMBER			

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BUILDING TYPE / SIZE: S04-152

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CONSULTANT PROJECT # 2020.0755

DATE March 2022

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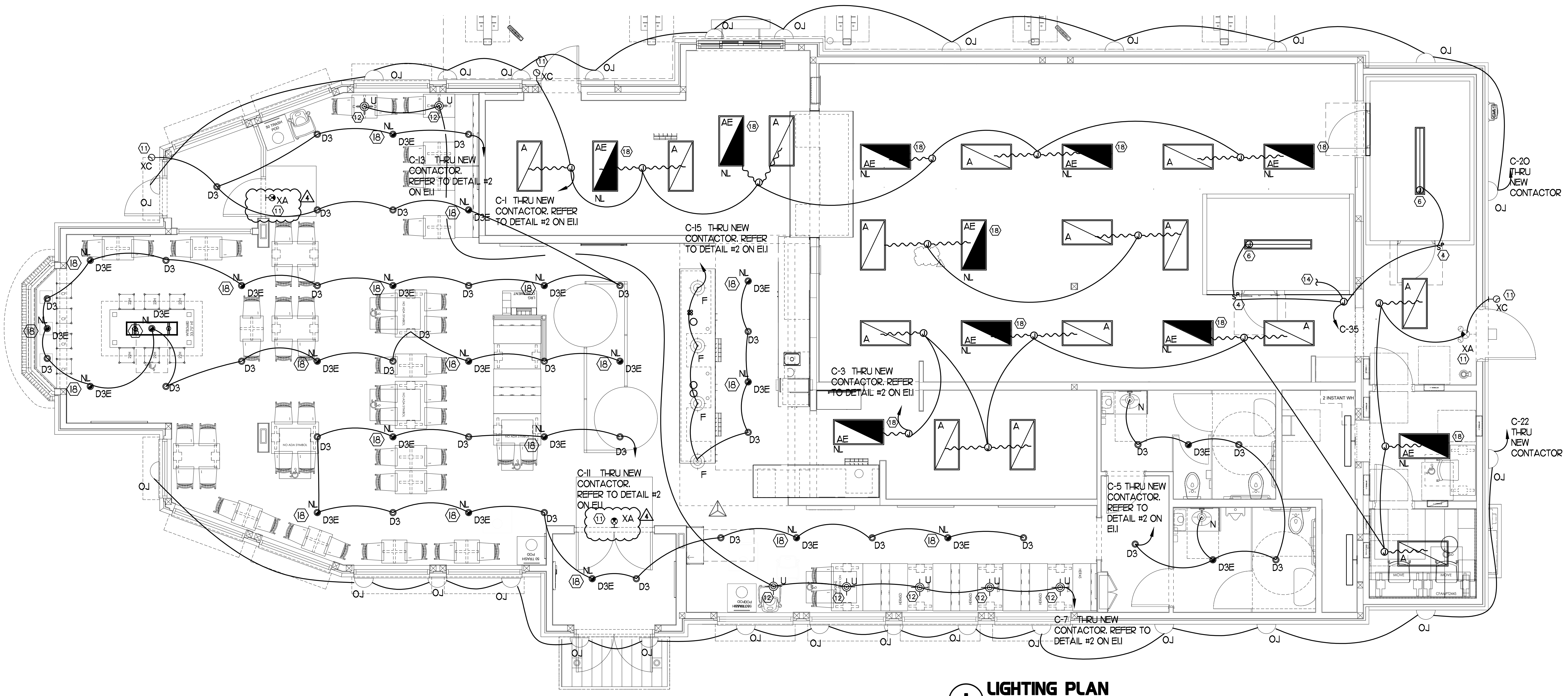
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SHEET LIGHTING PLAN

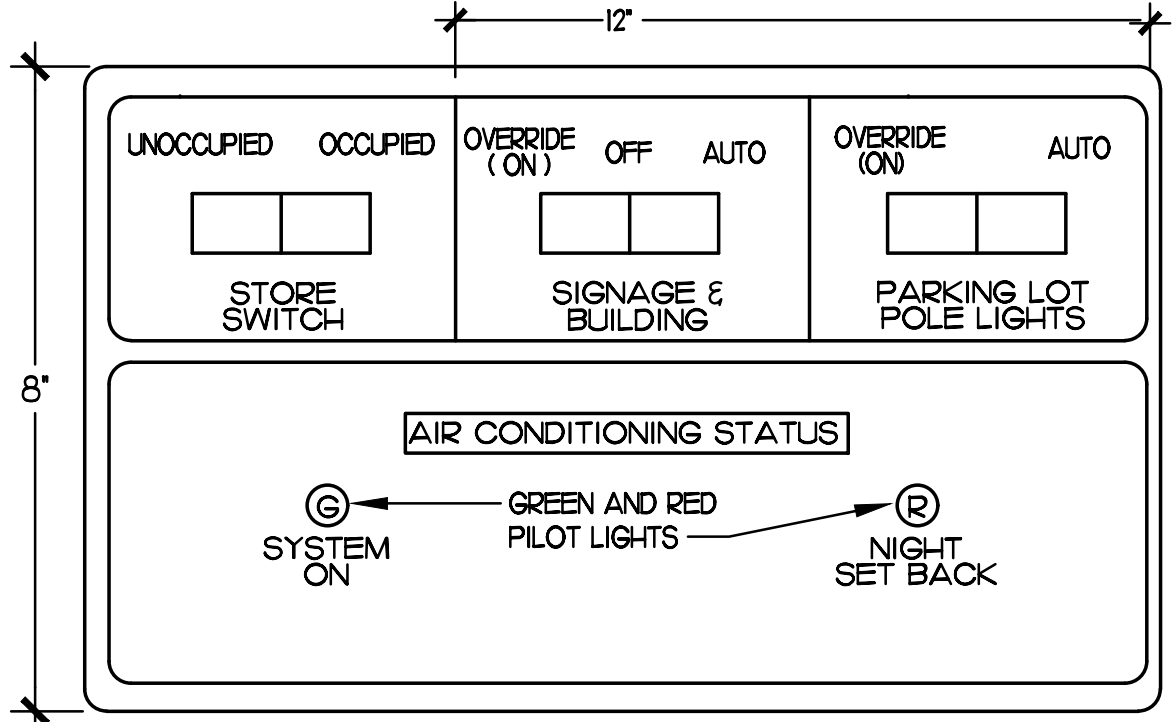
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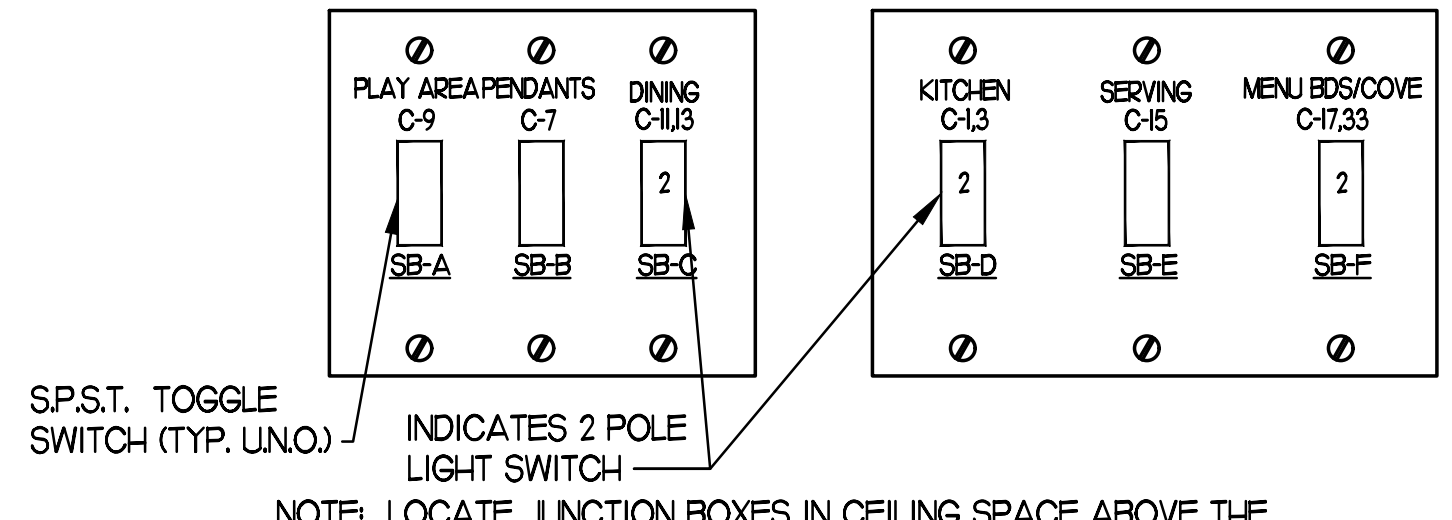
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3 STORE OPEN-CLOSE CONTROL SWITCH UNIT
NO SCALE



4 SWITCH BANK "SB" DETAIL
NO SCALE



1 LIGHTING PLAN

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

2 KEYNOTES (APPLY TO THIS SHEET ONLY)

- CLEAN RELAMP AND RELEASE ANY RELOCATED / EXISTING LIGHT FIXTURES TO LIKE NEW CONDITION, RECONNECT TO EXISTING AREA LIGHTING CIRCUIT AND CONTROL.
- APPROXIMATE LOCATION OF SWITCH BANK "SB". SEE DETAIL #4 THIS SHEET FOR MORE INFORMATION.
- ASSUMED LOCATION OF EXISTING BATTERY BACKUP FIXTURE E.C. SHALL FIELD VERIFY IF FIXTURE EXISTING AND REPORT ANY DISCREPANCIES TO ENGINEER PRIOR TO BID AND PROVIDE NEW AS NEEDED.
- FOR CONTROL OF LIGHTING FIXTURE IN WALK-IN COOLER/FREEZER, FURNISHED WITH EQUIPMENT, INSTALLED BY ELECTRICAL CONTRACTOR.
- NOT USED.
- FOR CONNECTION TO LIGHTING FIXTURES IN THE WALK-IN COOLER AND WALK-IN FREEZER WHICH ARE FURNISHED WITH EQUIPMENT. CONTRACTOR SHALL ROUGH-IN AND CONNECT ALL FIXTURES AS REQUIRED BY THE EQUIPMENT MANUFACTURER. PROVIDE FLUORESCENT LAMPS TYPE AS REQUIRED BY EQUIPMENT MANUFACTURER.
- NOT USED.
- NOT USED.
- NOT USED.
- NOT USED.
- CONNECT FIXTURE TO LOCAL LIGHTING CIRCUIT AHEAD OF ALL SWITCHING AND CONTROLS. THIS FIXTURE SHALL NOT BE SWITCHED.
- REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR LOCATIONS OF PENDANTS, DOWNLIGHTS, ACCENTS LIGHTS, AND WALL WASHER LIGHT FIXTURES.
- NOT USED.
- TO WALK-IN DOOR FRAME HEATER AND INTERIOR LIGHTS. J-BOX TO BE ABOVE THE UNITS AND EXTEND DOWN ALONG THE FRONT AT 9'-6" AFF TO HEATERS AND LIGHT SWITCHES.
- NOT USED.
- NOT USED.
- CONNECT FIXTURE SO THAT FIXTURE AND BATTERY BACKUP ARE NOT SWITCHED. "NL" ADJACENT TO FIXTURE INDICATES THAT FIXTURE SHALL BE ON 24 HOURS.

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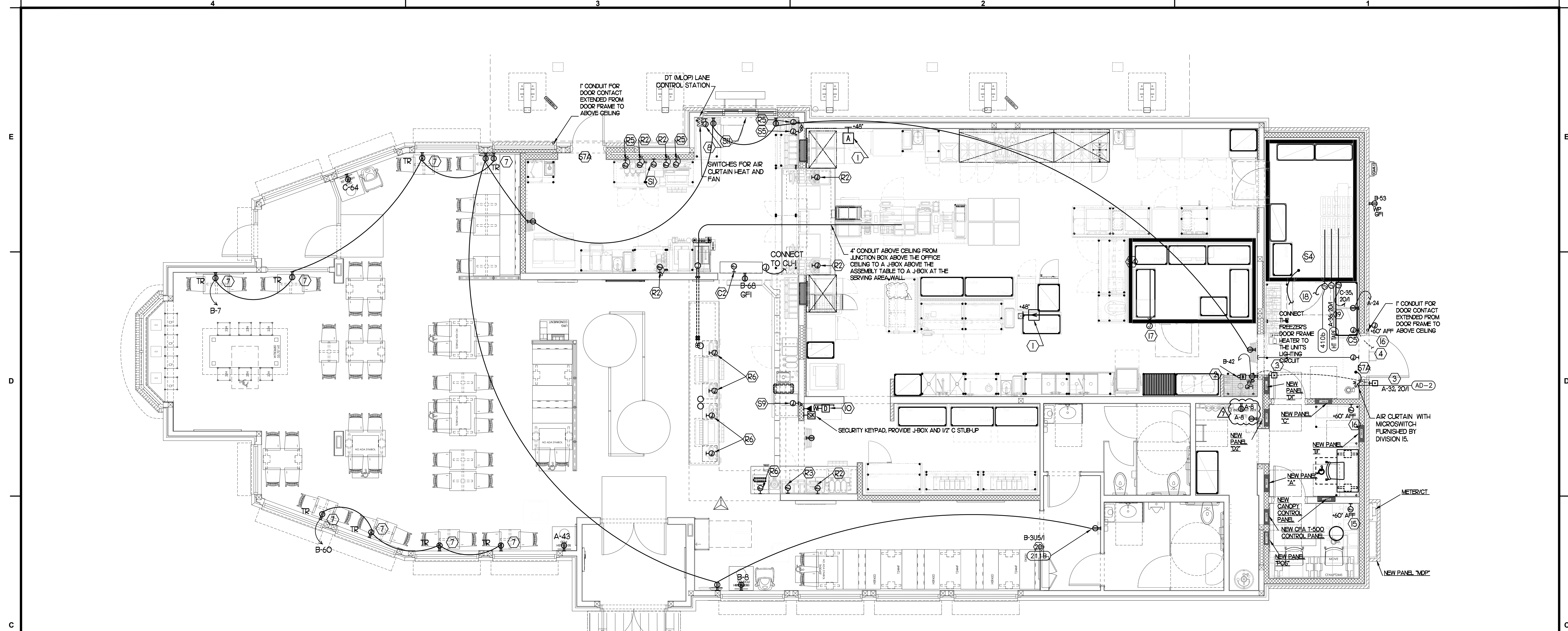
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CONSULTANT PROJECT # 2020.0755
DATE March 2022
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POWER & SYSTEMS PLAN & NOTES

SHEET NUMBER
E2.2

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1 POWER & SYSTEM PLAN
SCALE: 1/4" = 1'-0"

2 KEY NOTES - POWER:

- 1 PROVIDE 2 GANG DEEP BOX (2" MIN) FOR ANSL. PULL STATION. EXTEND 1/2" CONDUIT FROM BOX, STUBBED ABOVE CEILING.
2 PROVIDE EDWARDS #340-4N5 VIBRATING 4" DIAMETER BELL. BELL SHALL BE RATED AT 120 VOLTS.
3 PROVIDE 120 VOLT WEATHER-PROOF DOORBELL PUSH-BUTTON AT DOOR. PUSH-BUTTON SHALL BE FLUSH MOUNTED. PROVIDE DORTRONICS SYSTEMS #W5286-P25 CLEAR ANODIZED ALUMINUM PUSH-BUTTON WITH SINGLE GANG SWITCH-PLATE.
4 ONE 3" ISP SERVICE CONDUIT. EXTEND WITH PULL STRING FROM THE J-BOX TO THE UTILITY SOURCE
5 NOT USED
6 NOT USED
7 NOT USED
8 JUNCTION BOX WITH 3/4" CONDUIT STUB-UP INTO THE CEILING SPACE FOR OWNER'S ALL-IONE INTERCOM FOR THE MLOP ORDERING CONTROL STATION. PROVIDE BLANK PLATE IF BLDG IS SINGLE LANE DRIVE-THRU.
9 NOT USED
10 PROVIDE 2 GANG DEEP BOX (2" MIN) FOR EACH DUCT SMOKE DETECTOR INDICATED ON THE MECHANICAL DRAWINGS. FOR INSTALLATION OF DUCT DETECTOR REMOTE ANNUNCIATORS BY MECHANICAL. THE DUCT SMOKE REMOTE ANNUNCIATORS ARE PROVIDED TO THE ELECTRICIAN WITH THE SUNCOAST ELECTRONICS PACKAGE OF GEAR AND CONTROLS. EXTEND 1/2" CONDUIT FROM EACH BOX AND STUB ABOVE CEILING.
11 NOT USED
12 NOT USED FROM 12 TO 14
13 PROVIDE CO2 CENTRAL CONTROL UNIT MOUNTED AT 60" AFF. ELECTRICAL CONTRACTOR TO PROVIDE SINGLE-GANG J-BOX WITH 1/2" CONDUIT EXTENDED TO ABOVE ACCESSIBLE CEILING SPACE. INSTALL PER MANUFACTURER'S RECOMMENDATIONS AND PER LOCAL CODE. FIELD VERIFY EXACT LOCATION AND ALL REQUIREMENTS PRIOR TO BID AND CONSTRUCTION.
14 PROVIDE CO2 ANNUNCIATOR MOUNTED AT 60" AFF. ELECTRICAL CONTRACTOR TO PROVIDE SINGLE-GANG J-BOX WITH 1/2" CONDUIT EXTENDED TO ABOVE ACCESSIBLE CEILING SPACE. INSTALL PER MANUFACTURER'S RECOMMENDATIONS AND PER LOCAL CODE. FIELD VERIFY EXACT LOCATION AND ALL REQUIREMENTS PRIOR TO BID AND CONSTRUCTION.
15 CONNECT EVAPORATOR UNIT IN COOLER TO COOLER CONDENSING UNIT CONTROLS LOCATED ON ROOF. SEE SHEET E2.3.
16 CONNECT EVAPORATOR UNIT IN FREEZER TO FREEZER CONDENSING UNIT CONTROLS LOCATED ON ROOF. SEE SHEET E2.3.
17 FACTORY PROVIDED JUNCTION BOX FOR WALK-IN FREEZER PRESSURE RELIEF. ELECTRICAL CONTRACTOR TO PROVIDE FIELD WIRING FROM UNSWITCHED LEG OF LIGHTING CIRCUIT SERVING WALK-IN FREEZER FIXTURES TO JUNCTION BOX.
18 PROVIDE DUPLEX NEMA 5-15R CLOCK RECEPTACLE (SEE ELEVATIONS FOR MFG HT) FOR CONNECTION TO FLY SYSTEM EQUIPMENT #21. VERIFY HEIGHT FOR #21. DO NOT CUT THE CORDSET FINISHED WITH THE UNIT, BUT COIL THE CORD ON THE BACK OF THE UNIT PER MANUFACTURER'S DIRECTIONS.

3 KEY NOTES - SECURITY:

- 51 PROVIDE SINGLE GANG JUNCTION BOX AND STAINLESS STEEL COVER PLATE WITH 7/8" HOLE IN CENTER. EXTEND 1" E.C. UP IN WALL TO ABOVE ACCESSIBLE CEILING.
52 PROVIDE 4" W X 4" H X 3" D FLUSH JUNCTION BOX WITHOUT COVERPLATE. EXTEND 2" RIGID CONDUIT UP TO ABOVE ACCESSIBLE OFFICE CEILING AREA. PROVIDE BUSHING ON CONDUIT.
53 PROVIDE 4" W X 4" H X 3" D JUNCTION BOX WITHOUT COVERPLATE. EXTEND 2" RIGID E.C. UP TO ABOVE ACCESSIBLE OFFICE CEILING AREA. PROVIDE SINGLE-GANG J-BOX ADJACENT WITH 2" RIGID E.C. DOWN THROUGH SLAB AND BELOW GRADE TO REMOTE CAMERA LOCATION. USE ONLY LONG SWEEPS, 3 FEET PER 90 DEGREES. SEE ELECTRICAL SITE PLAN FOR CONTINUATION.
54 PROVIDE TWO GANG WEATHER-PROOF JUNCTION BOX AND STAINLESS STEEL PLATE WITH 7/8" HOLE IN CENTER FOR PANIC BUTTON. MOUNT AT APPROXIMATELY 48" AFF. EXTEND 1/2" RIGID CONDUIT OVER TO THE WALL AND THEN UP TO ABOVE ACCESSIBLE CEILING. SEAL PENETRATION AT WIC/WIF CEILING.
55 PROVIDE SINGLE GANG BOX WITHOUT COVER PLATE. EXTEND 1/2" CONDUIT UP IN WALL TO ABOVE ACCESSIBLE CEILING AND TURN TOWARD SERVING AREA SIDE OF WALL.
56 PROVIDE SINGLE GANG JUNCTION BOX ON INSIDE FACE OF PARAPET WALL APPROX. 12" BELOW TOP OF PARAPET WALL. EXTEND 1/2" CONDUIT DOWN TO ABOVE ACCESSIBLE OFFICE CEILING.
57A EXTEND 3/4" RIGID CONDUIT FROM TOP OF STRIKE-SIDE DOOR FRAME CHANNEL TO ABOVE ACCESSIBLE CEILING.
58 EXTEND 1/2" RIGID CONDUIT FROM A POINT 3" WITHIN EITHER HINGE-SIDE DOOR VERTICAL FRAME MULLION TO ABOVE ACCESSIBLE CEILING.
59 PROVIDE SINGLE GANG JUNCTION BOX WITHOUT COVERPLATE. EXTEND 1/2" CONDUIT UP IN WALL TO ABOVE ACCESSIBLE CEILING AND TURN TOWARD SERVING AREA SIDE OF WALL.
60 PROVIDE SINGLE GANG WEATHER-PROOF JUNCTION BOX WITH STAINLESS STEEL COVER PLATE MOUNTED 18" FROM THE CORNER OF THE SERVICE YARD AND JUST BELOW ROOF DECK MOUNTING BRACKETS. ROUTE 1" EMT CONDUIT FROM THE BOX. SURFACE MOUNTED JUST BELOW THE ROOF DECK MOUNTING BRACKETS AND TERMINATE THE CONDUIT AT 612.
61 EXTEND 1/2" RIGID CONDUIT FROM A POINT 3" WITHIN STRIKE-SIDE WINDOW FRAME MULLION TO ABOVE ACCESSIBLE CEILING.
62 PROVIDE SINGLE GANG WEATHER-PROOF JUNCTION BOX WITH STAINLESS STEEL COVER PLATE MOUNTED JUST ABOVE THE STRIKE SIDE OF OUTSIDE DOOR ON INSIDE OF SERVICE YARD. ROUTE 1" EMT CONDUIT SURFACE MOUNTED FROM BOX. JUST BELOW THE ROOF DECK MOUNTING BRACKETS. TERMINATE CONDUIT IN THE ACCESSIBLE CEILING SPACE INSIDE THE BUILDING.
63 NOT USED
64 PROVIDE JUNCTION BOX ON THE LATCH SIDE OF THE ROOF ACCESS HATCH WITH 1/2" C ABOVE THE CLG TO THE OFFICE CEILING SPACE FOR A DOOR CONTACT.

4 GENERAL NOTES:

- 1. ALL SECURITY, POS, MUSIC, COMMUNICATIONS, AND POWER ROUGH-IN SHALL BE INSTALLED DURING THE FRAMING/ROUGH-IN PHASE OF CONSTRUCTION.
2. REFER TO KITCHEN EQUIPMENT SHEETS FOR EQUIPMENT ELECTRICAL ROUGH-IN ELEVATIONS ABOVE FINISHED FLOOR.
3. ALL EMPTY CONDUITS SHALL BE PROVIDED WITH PULL STRING.
4. PROVIDE INSULATED BUSHINGS AT TERMINATION POINTS OF ALL CONDUITS FOR LOW VOLTAGE WIRING.
5. THE ELECTRICAL INSTALLER SHALL COORDINATE THE ROUTING OF ALL CONDUIT IN THE BUILDING WITH OTHER TRADES SPECIFICALLY THE DUCTWORK INSTALLATION TO AVOID CONFLICTS OF SPACE REQUIREMENTS IN WALLS AND CEILING SPACES.

5 KEY NOTES - COMMUNICATIONS:

- 61 PROVIDE DOUBLE-GANG RING (CARLON #SC200RR) WITH STAINLESS STEEL COVER PLATE AND HOLE IN PLATE FOR AUDIO WITH 2" CONDUIT UNDERGROUND TO THE DT DUAL-LANE (MLOP) ORDERING AREA AND A 2" CONDUIT STUBBED UP INTO THE CEILING SPACE.
62 PROVIDE JUNCTION BOX, LESS COVER PLATE, AND EXTEND 3/4" E.C. UP IN WALL TO ABOVE CEILING FOR INSTALLATION OF WIRELESS COMMUNICATION CONTROL UNIT.
63 PROVIDE TWO DOUBLE-GANG RINGS (CARLON #SC200RR) WITH STAINLESS STEEL COVER PLATE AND HOLE IN PLATE FOR AUDIO WITH 2" CONDUIT STUBBED UP INTO THE CEILING SPACE. ONE RING SHALL BE ABOVE THE COUNTER AND ONE BELOW WITH A 2" CONDUIT BETWEEN THE RINGS.
64 PROVIDE SINGLE-GANG JUNCTION BOX WITH A 1" EMPTY CONDUIT STUBBED UP INTO THE ACCESSIBLE CEILING SPACE FOR OWNER'S VOIP PHONE JACK AND CABLES.
65 PROVIDE TWO 6-1/2" W X 4" D J-BOX (ONE FOR TELEPHONE AND ONE FOR ISP) AT 48" AFF AND EXTEND A 2" CONDUIT WITH PULL STRING IN THE WALL FROM EACH J-BOX INTO THE ACCESSIBLE CEILING SPACE. PROVIDE A 35" X 36" X 3/4" PLYWOOD BACKBOARD ON THE WALL ABOVE THE J-BOXES (AT THE CEILING) FOR USE BY THE ISP. PROVIDE A COPPER GROUND BAR AT THE BOTTOM OF THE BACKBOARD WITH #6 AWG INSULATED CU GROUNDING CONDUCTOR IN A 3/4" FROM THE GROUND BAR SHALL HAVE TAPS FOR USE BY THE TELEPHONE AND ISP UTILITY COMPANIES AND FOR THE 16 COMMUNICATIONS GROUNDING CONDUCTOR TO THE GES. PROVIDE A 15 AMP ISOLATED GROUND (IG) ORANGE-FACED DUPLEX RECEPTACLE IN THE WALL BESIDE THE BACKBOARD. CONNECT TO CIRCUIT POS-102 (5A/1P BRANCH BREAKER) AND LABEL THE RECEPTACLE "FOR FIBER TO CABLE MODEM USE ONLY".

6 CO2 DETECTOR NOTES:

- 66 CO2 CENTRAL CONTROL UNIT - PROVIDE SINGLE-GANG BACKBOX AT 60" AFF WITH 3/4" CONDUIT STUBBED ABOVE ACCESSIBLE CEILING SPACE.
67 CO2 ANNUNCIATOR UNIT - PROVIDE SINGLE-GANG BACKBOX AT 60" AFF WITH 3/4" CONDUIT STUBBED ABOVE ACCESSIBLE CEILING SPACE.
68 CO2 SENSOR UNIT - PROVIDE SINGLE-GANG BACKBOX AT 12" AFF WITH 3/4" CONDUIT STUBBED ABOVE ACCESSIBLE CEILING SPACE.
69 CO2 POWER SUPPLY - PROVIDE SINGLE-GANG BACKBOX AT 18" BELOW CEILING WITH 3/4" CONDUIT STUBBED ABOVE ACCESSIBLE CEILING SPACE. PROVIDE A DUPLEX OUTLET, AND CONNECT TO A LOCAL GENERAL OUTLET CIRCUIT. FIELD VERIFY EXACT LOCATION WITH STRONG SYSTEMS 800-500-5566.

7 KEY NOTES - MUSIC:

- 70 PROVIDE JUNCTION BOX WITH STAINLESS STEEL COVER PLATE AND 3/4" HOLE IN PLATE WITH GROMMET ON HOLE IN PLATE. EXTEND 3/4" E.C. UP IN WALL TO ABOVE CEILING FOR MUSIC SYSTEM.
71 PROVIDE JUNCTION BOX WITH STAINLESS STEEL COVER PLATE AND 3/4" HOLE IN PLATE WITH GROMMET ON HOLE IN PLATE. EXTEND 3/4" E.C. UP IN WALL TO PARAPET WALL FOR THE SATELLITE DISH.
72 PROVIDE THREE SINGLE GANG EXTRA DEEP J-BOXES AT 74" AFF WITH 1/2" CONDUIT FROM EACH TO THE CENTER BOX AND A 1" CONDUIT STUBBED INTO THE CEILING SPACE FOR MUSIC SYSTEM VOLUME CONTROLS.
73 PROVIDE A SINGLE GANG EXTRA DEEP JUNCTION BOX AT 74" AFF WITH 1/2" CONDUIT STUBBED INTO THE CEILING SPACE FOR MUSIC SYSTEM VOLUME CONTROLS.

8 KEY NOTES - POS SYSTEM:

- 80 PROVIDE A 'RETROFIT' DOUBLE-GANG RING (CARLON #SC200RR) FOR OWNER'S DEVICE PLATE WITH A 3" EMPTY CONDUIT AT THE OPENING IN THE WALL UP TO THE CEILING SPACE FOR OWNER'S DATA CABLES.
81 PROVIDE JUNCTION BOX FOR TERMINATION OF 1" CONDUIT. PROVIDE 1" CONDUIT EXTENDING FROM CEILING AND TERMINATED AT JUNCTION BOX ON THE SERVING AREA SIDE OF THE WALL. COVER PLATE PROVIDED BY OWNER'S POS SYSTEM VENDOR.
82 PROVIDE A 2" CONDUIT FROM FACE OF WALL AND EXTEND CONDUIT TO JUNCTION BOX IN CEILING SPACE ABOVE SERVING AREA. CONDUIT SHALL TERMINATE FLUSH WITH FACE OF WALL BELOW COUNTER. CUSTOM STAINLESS STEEL COVER PLATE IN WALL WITH GROMMET ON 2" DIAMETER HOLE AT CONDUIT TERMINATION IN WALL.
83 PROVIDE A 'RETROFIT' SINGLE GANG RING (CARLON #SC100RR) FOR OWNER'S DEVICE PLATE WITH A 2" EMPTY CONDUIT AT THE OPENING IN THE WALL UP TO THE CEILING SPACE FOR OWNER'S DATA CABLES.
84 PROVIDE JUNCTION BOX FOR TERMINATION OF 1" CONDUIT. PROVIDE 1" CONDUIT EXTENDING FROM CEILING AND TERMINATED AT JUNCTION BOX ON THE SERVING AREA SIDE OF THE WALL. POS SYSTEM SUPPLIER WILL PROVIDE COVER PLATE ON BOX.
85 PROVIDE SINGLE GANG EXTRA DEEP JUNCTION BOX MOUNTED ON THE MOUNTING PLATE WITHIN THE FRONT SERVING COUNTER COUNTERWORK.
86 PROVIDE SINGLE GANG EXTRA DEEP JUNCTION BOX MOUNTED FLUSH MOUNTED IN THE CEILING FOR POS DATA PLATE (BY OTHERS) FOR THE SALAD PREP AREA POS MONITOR AND PRINTER.



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1 11-21-22 BID COMMENTS

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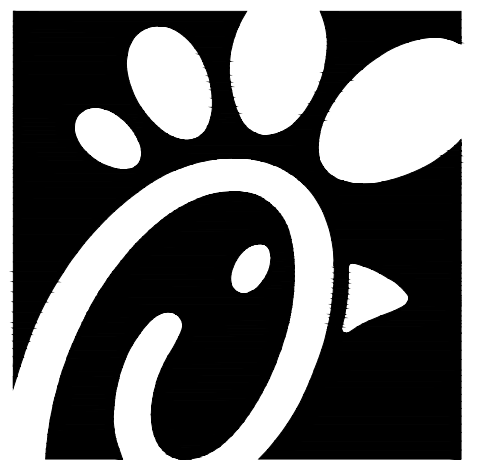
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Chick-fil-A
 5200 Buffington Road
 Atlanta, Georgia
 30349-2998



INTERPLAN LLC
 ARO011595
 CA 8660

ARCHITECTURE
 ENGINEERING
 PERMITTING

220 E. CENTRAL PKWY, STE 4000
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SEAL:

**THIS DOCUMENT IS NOT
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 APPROVAL, PERMITTING,
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CHICK-FIL-A
 MADISON STREET
 1626 Madison St.
 Clarksville
 TN, 37043

FSR#01673

BUILDING TYPE / SIZE: S04-152

DATE: 2020.0755

RELEASED FOR: MARCH 2022

DRAWN BY: MI

CHECKED BY: SN

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SHEET: ELECTRICAL SPECIFICATIONS

SHEET NUMBER

E4.2

CONSULTANT PROJECT # 2020.0755

DATE: March 2022

DRAWN BY: MI

CHECKED BY: SN

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SHEET: ELECTRICAL SPECIFICATIONS

SHEET NUMBER

E4.2

**SECTION C16124
 SUPPORTING DEVICES AND HANGERS**

PART 1 - PRODUCTS

- 1.01 ACCEPTABLE MANUFACTURERS
- A. Supporting devices and hangers shall be manufactured by RACO Fasteners, or approved equivalent.

PART 2 - EXECUTION

- 2.01 INSTALLATION
- A. Secure conduits to within 3' of each outlet box, junction box, cabinet, fitting, etc., and at intervals not to exceed ten feet (10') and in accordance with the National Electric Code. In seismic zones, support conduits 1" and under at 6' intervals.
- B. Install clamps secured to structure for feeder and other conduits routed against the structure. Use drop rods and hangers or racks to support conduits run apart from the structure.
- C. Provide and install suitable angle iron, channel iron or steel metal framing with accessories to support or brace electrical equipment including safety switches, fixtures, panelboards, etc.
- D. Use of chains, perforated iron, baling wire, or tie wire for supporting conduit runs is not permitted.
- E. For support of low voltage wiring not required to be in conduit, bundle cables together in a neat manner using approved nylon tie wraps. Bundled cables shall be supported with "J" hooks on telephone type bridle rings, a minimum of 6 feet on centers. Clearly identify all differing types of cables being run and tag with tape tags regarding telephone, POS System, music/communication, security, etc. for various system utilizing said cable. Identification tape shall be provided at minimum intervals of 25 feet on center and within each building space.
- F. Provide a system of supporting devices and hangers to insure secure support or bracing for conduit, electrical equipment, including safety switches, fixtures, panelboards, outlet boxes, junction boxes, cabinets, etc.

**SECTION C16140
 WIRING DEVICES AND PLATES**

PART 1 - PRODUCTS

- 1.01 WALL SWITCHES
- a. Shall be purchased from the National Accounts Vendor indicated on the plans.
- B. Ratings: 20 amps, 120/277 volts a.c. or as identified on drawings.
- C. Devices: (Cooper/Arrow Hart catalog numbers are listed unless noted otherwise):
 - 1. Single pole toggle switches:
 - 20 AMP device - #AH1221-GY (Kitchen) or #AH1221-B (Dining)
 - 20 AMP Pilot lights illuminated with load on - #AH1221-PL
 - 2. Double pole toggle switches:
 - 20 AMP device - #AH1222-GY (Kitchen) or #AH1222-B (Dining)
- 1.02 RECEPTACLES
- A. Shall be purchased from the National Accounts Vendor indicated on the plans.
- B. Devices: (Cooper/Arrow Hart catalog numbers are listed unless otherwise noted):
 - 1. Specification grade devices (grey device color in Kitchen, brown device color in Dining, and orange for IG type) to be 20 amp, 125 volts, a.c. receptacles:
 - Single (simplex) device: #1877-GY (Kitchen) or #1877-B (Dining)
 - Duplex device: #CR20-GY (Kitchen) or #CR20-B (Dining)
 - Tamper Resistant duplex: #TR8200-B (Vestibules & Play Area)
 - Tamper Resistant USB Charger duplex: #TR7746-B (Dining)
 - GF (ground-fault circuit interrupter) duplex device: #VGF20-GY (Kitchen) or #VGF20-B (Dining)
 - IG (isolated ground) duplex device: #IG5362-RN (orange face)

- 1.03 SPECIAL DEVICES
- A. Manual motor starter switch: SQ, D Class 2510, Type F, for use on motors up to 3/4 horsepower. Provide NEMA 1 enclosure in dry locations; provide NEMA 3R enclosure in wet or exterior locations.

- 1.04 WALL PLATES
- A. Provide Cooper/Arrow Hart, or approved equal, smooth satin stainless steel 302-SS series for switches and receptacles in the Kitchen areas. All other areas shall be brown Nylon plastic.

- B. Provide blank plates on all outlet boxes for future outlets, or outlets without devices. Plate style shall match device plates.

- C. Provide non-metallic weatherproof covers for duplex GF receptacles located outside or in wet locations that feature 'while-in-use' cover equivalent to Arrow Hart #WU-1.

- D. Where devices installed in exposed boxes or conduit fittings; provide properly designed plates and covers equal to Arrow Hart RS-Series exposed work covers.

- E. Install galvanized steel plates on outlet boxes and junction boxes in unfinished areas, above accessible ceilings, and on surface mounted boxes.

PART 2 - EXECUTION

- 2.01 INSTALLATION

- A. Mounting
 - 1. Mount switches and receptacles at height above finished floor as indicated on plans, and legend.
 - 2. Mount switches on strike side of door maximum 8" from door frame. Outlet box for switch shall be located clear of door frame. Coordinate with architectural plans prior to rough-in.
 - 3. Install switches with off position down.
 - 4. Do not use the feed thru feature for the GF Type receptacle, unless required by the plans.
 - 5. Use jumbo sized plates for outlets installed in masonry walls.
 - 6. Each receptacle shall be provided with a #12 green grounding jumper between the ground terminal of the receptacle and the outlet box.
 - 7. The grounding conductor to each receptacle shall be installed such that the removal of the device will not interfere with the continuity of the ground.

- B. Testing
 - 1. Test each switch and verify proper operation with energized circuit.
 - 2. Test each receptacle for proper polarity on energized circuit.
 - 3. Test each GF receptacle with a GF receptacle tester and verify circuit is opened by GF device at milli-ampere ranges established by the manufacturer.

**SECTION C16440
 PANELBOARDS**

PART 1 - PRODUCTS

- 1.01 MANUFACTURER (via Chick-fil-A National Accounts Program)
- A. Siemens (West, Midwest, and Southwest Regions); from Suncoast Environmental Controls (SEC), Scott Dyer (877) 544-6679.
- B. Square-D (Northeast, Atlantic, and Southeast Regions); from Accu-Serv, Bob Harpring (502) 961-0096.

1.02 PANELBOARD FEATURES

- A. Panelboards shall have a minimum symmetrical interrupting rating to meet or exceed the available symmetrical interrupting fault current at the device intended to interrupt current.
- B. Bus bars shall be copper or tin plated aluminum.
- C. Provide factory-installed copper ground bus in each panelboard with lugs or connectors on bar.
- D. Provide electrically isolated, factory installed, neutral bus in each 3 phase, 4 wire or 1 phase 3 wire panelboard.
- E. In addition to the ground bus required by paragraph 1.02D (above), provide factory installed, electrically isolated, copper ground bus in each panelboard serving isolated ground receptacles.
- F. Main lugs and main circuit breaker lugs shall be UL Listed for use with both aluminum and copper conductors.
- G. Provide panelboard doors with chrome-plated locks and catches. All locks shall be keyed alike. Provide two keys for each lock.
- H. Provide thermal-magnetic circuit breakers which are rated for 40 degrees C ambient temperature. Breakers shall be quick-make, quick-break type trip with trip indication shown by handle position other than on or off. Multi-pole breakers shall have a common trip handle. Tandem type circuit breakers shall not be permitted.
- I. Provide typed directory card with clear holder for each panelboard.

PART 2 - EXECUTION

- 2.01 INSTALLATION
- A. Panelboards shall be mounted at height above finished floor such that the height of the top-most breaker in the panel is not more than 6-1/2 feet above finished floor in its highest position per the NEC.

- B. Where multiple panelboards are installed on walls in common areas of buildings, the panelboards shall be installed with the top of all panelboards at the same height.

- C. Provide blank filler plates over all unused spaces in panelboards.

- D. A typed directory card shall indicate devices being served and the space name where the device is located.

- E. Provide minimum of one (1) 3/4" empty spare conduit for every 3 poles of spare breaker or space in the panelboard. Stub conduit to nearest accessible ceiling space. Label conduit as spare at panelboard and termination point.

- F. Non-isolated ground bars shall be grounded to panelboard can and main service entrance ground bus with a code sized grounding conductor installed in the same conduit as the phase and neutral conductors.

- G. Circuits using a common neutral shall be installed in accordance with the National Electrical Code.

- H. Inspect each panelboard for proper installation, physical damage, tightness and installation of overcurrent devices. Verify proper color coding of conductors. Correct or repair all items found in inspection.

- I. Neutral wires, ground wires, and isolated ground wires shall be connected to the appropriate panel bus bar. Do not mix bus wire connections.

**SECTION C16441
 ENCLOSED SWITCHES**

PART 1 - PRODUCTS

- 1.01 MANUFACTURERS

- A. Square D.
- B. General Electric.
- C. Siemens

1.02 ENCLOSED SWITCHES

- A. Nonfusible switch assemblies: NEMA KS 1, General Duty Type for 208 volt load interrupter enclosed knife switch with externally operable handle interlocked to prevent opening front cover with switch in on position. Handle lockable in off position. Provide equipment ground lug in each switch.
- B. Enclosures: NEMA KS 1.
 - 1. Interior dry locations: Type 1.
 - 2. Exterior locations: Type 3R.

**SECTION C16442
 UTILITY SERVICE ENTRANCE AND DISTRIBUTION SYSTEM**

PART 1 - GENERAL

- 1.01 SYSTEM DESCRIPTION
- A. The underground electrical system service characteristics shall be 208Y/120 volts, Three Phase, Four Wire service and shall extend from utility company transformer secondary.

- B. Metering of electrical usage shall be located as required by local electrical utility company. Coordinate requirements with local utility company.

- C. Distribution system originates at secondary of utility transformer and includes service entrance conduit and conductors, distribution equipment, lighting panelboards, utilization equipment, overcurrent devices, disconnecting means, controls, branch and feeder circuits, etc.

PART 2 - PRODUCTS

- 2.01 MATERIALS
- A. Furnish service entrance conduit, cable, and miscellaneous hardware as required by plans and specifications for electrical service entrance and system grounding at main electrical service.

PART 3 - EXECUTION

- 3.01 EXAMINATION AND PREPARATION
- A. Coordinate exact locations of electrical service utility transformer, metering equipment, service lateral, etc. prior to commencement of installation. Contact engineer with conflicts prior to bid.

- B. Ensure pad mounted transformer is not located within roadway or sidewalk.

- C. Coordinate with local electrical utility for all utility company requirements and provide for the following items and any others required by the utility:
 - 1. Concrete pad for utility transformer with required dimensions and details.
 - 2. Primary underground conduit, excavation, and backfill requirements.
 - 3. Pay for all fees associated with establishment of electrical service.
 - 4. Furnish list of loads to the electrical utility company serving the facility.
 - 5. Verify that utility company clearances are provided on all sides of utility equipment.

- D. Ensure proper access to utility equipment is maintained.

- E. Provide pull rope, excavation in accordance with electrical utility company requirements, backfill and concrete envelope for primary in accordance with electrical utility company requirements. Turn conduits up riser pole as required. cap spare conduits 12 inches above grade with plumbers pipe cap.

- F. Provide secondary lugs on utility transformer and perform drilling and installation of lugs in accordance with utility requirements. Type of lugs shall be in accordance with electrical utility company requirements. Connect service conductor to transformer secondary lugs as directed by electrical utility.

**SECTION C16500
 LIGHTING FIXTURES (LUMINAIRES)**

PART 1 - GENERAL

- 1.01 ACCEPTABLE MANUFACTURERS AND VENDORS
- A. Lighting fixtures indicated on lighting fixture schedule are to be purchased from the National Account Vendor for the region of the project (verify region designation with Owner's Representative):
 - 1. Accu-Serv Lighting - Atlantic region, Northeast region and Southeast region. Contact at Accu-Serv: Bob Harpring at 877-707-7378, fax - 502-961-0357, email - bharpring@accu-serv.com
 - 2. Villa Lighting - Midwest region, Southwest region, and West region. Contact at Villa Lighting: Dave Christanell at 800-325-0963, fax- 314-531-8720, email - davec@villalighting.com

- B. Ballasts to be electronic ballast provided with lighting fixture by the manufacturer.

- C. Lamps to be Osram-Sylvania and will typically be provided with the luminaire by the lighting manufacturer.

- 1.02 FIXTURE REQUIREMENTS
- A. Provide regulating, HPF ballasts in all HID lighting fixtures. HID lamp types shall be as indicated on the drawings.

- B. Recessed fluorescent lighting fixture ballasts shall be provided with integral thermal protection.

- C. Provide energy-saving Instant or Rapid Start lamps for all fluorescent fixtures.

- D. All lamps and ballasts shall meet or exceed the requirements of the National Energy Policy Act of 1992 and any other applicable Codes or Criteria.

- E. All components of recessed fixtures shall be accessible without disturbing fixture in or on ceiling.

- F. Energy saving ballasts and energy saving lamps provided shall be compatible for operation together.

- G. Exterior fixtures and poles shall be suitable for exterior use, shall be UL Listed, and shall be a standard design for exterior application.

- H. Exterior poles for fixtures with luminaires installed shall be designed for maximum constant velocity wind load with luminaires installed, applicable to the geographic area.

1.03 CONTROLS

- A. Lighting contactors shall be Square-D, General Electric, Cutler-Hammer or Siemens of types and quantity shown on drawings, except those furnished with the switchgear as part of the National Account Program by Suncoast Environmental Controls (SEC).

- 1.04 EMERGENCY LIGHTING UNITS
- A. Batteries shall supply emergency power for lighting with minimum operating time of 1-1/2 hours.

- B. Emergency lighting shall be automatically operational upon normal utility power failure.

PART 3 - EXECUTION

- 3.01 INSTALLATION
- A. Lighting fixtures shall be structurally supported. Fluorescent fixtures mounted in suspended ceilings shall be supported by and attached to ceiling system as required by NEC Article 410. In addition, fluorescent troffers shall be supported at two opposite corners to building structure.

- B. Recessed fixtures in dropped ceiling areas shall be connected to power source using flexible conduit. Flexible conduit shall contain a separate insulated green No. 12 copper ground wire. Flexible conduit shall be connected to junction box and fixture. Green ground wire shall provide ground continuity between conduit system and fixture. Grounding conductors shall be permanently and mechanically connected between fixture and conduit system so as to be electrically continuous.

- C. Fixtures surface mounted on exposed tee bar ceilings shall use grip clamps on tee bars to support fixtures.

- D. Wire shall be continuous from splice in outlet box of building wiring system to lamp socket or ballast terminals.

- E. Maintain the integrity of enclosures on enclosed and gasketed fixtures. Minimize the number of enclosure penetrations and make such penetrations water and dust tight with appropriate gaskets and fittings.

- F. Concrete bases shall be provided for all exterior ground mounted or pole mounted fixtures.

- G. Install accessories furnished with each fixture.

- H. Wiring from pole bases to pole mounted luminaire shall be No. 12 with fuse protection provided by a 30 amp, 600 volt waterproof fuseholder with Bussman 'Limirtrol' fuse of ampere rating 3 times the load current.

- I. Surface and recessed fixtures on or in plastered or drywall ceilings shall be supported by support channels. Support channels shall span across main support channels and shall not depend upon ceilings for support.

- 3.02 FIELD QUALITY CONTROL
- A. Relamp fixtures that have failed lamps at substantial completion.

**SECTION C16596
 SPECIAL SYSTEMS**

PART 1 - GENERAL

- 1.01 WORK INCLUDED
- A. Furnish and install raceway system for music/communications security, CCTV, POS, and other owner-furnished systems, consisting of empty conduits, junction boxes, outlet boxes, and device plates, etc., as specified and shown on owner selected vendor wiring schematics. Cable, equipment, and installation of the interior system will be provided by the owner's system vendor.

- B. Interior system equipment will be furnished by Owner's Vendor.

- C. Install special backboxes furnished by Owner's Vendor. Coordinate with the Vendor for the installation. Coordinate with the Vendor if backboxes are to be contractor provided in order to provide and install the appropriate item for the Vendor.

PART 2 - PRODUCTS

- 2.01 MATERIALS
- A. Provide 4-11/16" square boxes, with plaster rings. Provide device plates for system outlets as specified in Section 16141. Provide separate conduit to nearest accessible ceiling space from each outlet.

- B. Cable shall be in conduit where installed in walls or inaccessible ceilings.

- C. Minimum conduit size shall be 3/4".

PART 3 - EXECUTION

- 3.01 INSTALLATION

- A. Furnish and install conduits, junction boxes, outlet boxes, and plates.

- B. Provide one #10 equivalent nylon pull wire in each system empty conduit.

- C. Provide a complete raceway system in accordance with interior system vendor requirements. Interior system vendor shall review the drawings. Contractor shall provide for any additional or varying requirements.

- D. Final connections and testing of systems will be provided by the system vendor. Contractor shall contact the owner's vendor and schedule the work so as to complete system installation and testing prior to occupancy of the facility.

- E. Terminate each conduit stub-up or termination with nylon insulated bushing.

**SECTION C16597
 TELEPHONE SERVICE**

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Furnish and install telephone system consisting of empty conduits, junction boxes, outlet boxes, device plates, etc., as specified and shown on owner selected vendor wiring schematics. Cable, equipment, and installation of the interior system will be provided by the owner's system vendor.

- B. Provide underground PVC, Schedule 40, service conduit as required by plans.

- C. Telephone Utility Company will provide service entrance cable.

- D. Interior telephone system will be furnished by owner's vendor.

- E. Special backboxes (unless otherwise noted) and faceplates will be furnished by the owner's vendor.

PART 2 - PRODUCTS

- 2.01 MATERIALS

- A. Provide 4-11/16" square boxes, with plaster rings. Provide device plates for telephone outlets to match those specified in wiring device section. Provide separate conduit to nearest accessible ceiling space from each outlet.

- B. Minimum conduit size shall be 3/4".

- C. Provide lightning arrester for telephone service entrance at main telephone backboard in accordance with UL96A paragraph 11.2 and NFPA 780.

- D. Cable shall be in conduit where installed in walls or above inaccessible ceiling spaces.

PART 3 - EXECUTION

- 3.01 INSTALLATION
- A. Provide one #10 equivalent nylon pull wire in each empty telephone conduit.

- B. Wiring from pole bases to pole mounted luminaire shall be No. 12 with fuse protection provided by a 30 amp, 600 volt waterproof fuseholder with Bussman 'Limirtrol' fuse of ampere rating 3 times the load current.

- C. Coordinate with the local utility for point of service and type of service required. Pay for any utility company charges and fees for establishment of service.

- D. Provide a complete raceway system in accordance with telephone utility company and interior system vendor/interior requirements. Telephone utility company and interior system vendor shall review the drawings. Contractor shall provide for any additional or varying requirements.

- E. Terminate each conduit stub-up or termination with nylon insulated bushings.

- F. Final connections and testing of system will be provided by the system vendor. Contractor shall contact the owner's vendor and schedule the work.

CLOSE OUT DOCUMENT REQUIREMENTS

Provide the following to the building owner upon completion of construction:

UPDATED: 3/8/2022 10:16 am
ISSUED FOR: APPROVAL

(NEW) PANEL A

LOCATION: MULTI PURPOSE VOLTAGE: 208Y/120V TRIM: FLUSH

MAIN: 250A MLD SYSTEM: 3# 4W BUS RATING: 250A

CONN. LOAD: 76.8 KVA FEED: TOP GROUND BUS: YES

CKT	LOAD SERVED	COND	PHASE	NEUT	Ø	BKR	DMD	L1	L2	L3	DMD	BKR	COND	PHASE	NEUT	Ø	LOAD SERVED	CKT	
1	TELEPHONE W/DEPT	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	FLOOR W/DR	2		
3	OFFICE GEN & MUSIC	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	TEA BREWER	4		
5	OFF GEN PRINTERS	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	GENERAL OUTLETS	6		
A 7	DRINK TOWERS	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	WATER HEATER	8		
A 9	GENERAL OUTLETS	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	PANEL TRIP	10		
11	FFFL	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	PLAY AREA REC	12		
B 13	UC REFRIG	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	(N) EPI	14		
B 15	UC REFRIG	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	SECURITY SYSTEM	16		
B 17	JUICE DISPENSER	1/2"	#12	#12	#12	R	1200				20/3	1/2"	#12	#12	#12	COOLER CONDENSER	18		
B 19	JUICE DISPENSER	1/2"	#12	#12	#12	R	1200				20/3	1/2"	#12	#12	#12	TEA BREWER	20		
A 21	CARBONATOR	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	(N) EPI	22		
A 23	SANDWICH SLIDE	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	FUT. EQUIP.	24		
A 25	SANDWICH SLIDE	1/2"	#12	#12	#12	R	1200				35/3	3/4"	#6	#6	#6	FREEZER COMPENSER	26		
A 27	CARBONATOR	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	AND EWP COL	28		
A 29	CARBONATOR	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	#6	#6	#6	30
A 31	CARBONATOR	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	TEA BREWER	32		
A 33	CARBONATOR	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	(N) EPI	34		
35	BOOSTER PUMP	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	FREEZER HEAT TAP	36		
37	-	-	-	-	-	-	-				20/1	1/2"	#12	#12	#12	DROP CORD OUTLET	38		
39	GENERAL OUTLETS	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	DROP CORD OUTLET	40		
41	(N) EPI	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	DROP CORD OUTLET	42		
43	COMPACTOR	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	ICE MAKER	44		
45	UC REFRIG	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	DROP CORD OUTLET	46		
A 47	GENERAL OUTLET	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	DROP CORD OUTLET	48		
A 49	UC REFRIG	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	DROP CORD OUTLET	50		
B 51	MILSHAKE DISPENSER	1/2"	#12	#12	#12	R	1200				15/1	1/2"	#12	#12	#12	ICE MAKER	52		
B 53	ICE CREAM MACHINE	3/4"	#6	#6	#6	R	1200				20/1	1/2"	#12	#12	#12	DRINK STATION	54		
55	-	-	-	-	-	-	-				20/1	1/2"	#12	#12	#12	DRINK STATION	56		
57	-	-	-	-	-	-	-				20/1	1/2"	#12	#12	#12	DRINK STATION	58		
A 59	DRINK STATION	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	JUICE DISPENSER	60		
B 61	HOLDING STATION	1/2"	#12	#12	#12	R	1200				30/2	3/4"	#10	#10	#10	COFFEE MAKER	62		
B 63	HOLDING STATION	1/2"	#12	#12	#12	R	1200				#10	#10	#10	#10	#10	#10	#10	64	
65	RECEPTACLE	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	DROP CORD OUTLET	66		
67	AD-2	3/4"	#6	#6	#6	R	1200				20/1	1/2"	#12	#12	#12	DROP CORD OUTLET	68		
69	-	-	-	-	-	-	-				20/1	1/2"	#12	#12	#12	TOASTER	70		
71	-	-	-	-	-	-	-				#12	#12	#12	#12	#12	#12	#12	72	

INTERRUPT RATING: SERIES RATED PER MANUFACTURER'S LABEL 25797|27495|23397 FROM: (NEW) PANEL MDP

LOADS (N VA)	CONNECTED	DEMAND FACTOR	MINIMUM FEEDER	LOADS	CONNECTED	DEMAND FACTOR	MINIMUM FEEDER	REMAINING CONTINUOUS LOADS	REMAINING NON-CONTINUOUS LOADS	MISC. DEMAND LOADS
LIGHTING	0	1.25	0	NON-SEASONAL MOTORS	11899	1.0	11899	0	0	0
RECEPTS TO 10 KVA	8590	1.0	8590	LARGEST MOTOR	0	0.25	0	0	0	0
SPACE HEATING	0	0.0	0	WATER HEATING	240	1.0	240	0	0	0
AIR CONDITIONING	0	1.0	0	KITCHEN EQUIP.	58280	0.65	35882	0	0	0
TOTAL CONNECTED LOAD	76.8	KVA	213.4	AMPS						
TOTAL DEMAND LOAD	57.1	KVA	158.6	AMPS						
OVERALL DEMAND FACTOR	0.74									

UPDATED: 5/1/2022 8:50 pm
ISSUED FOR: APPROVAL

(NEW) PANEL B

LOCATION: MULTI PURPOSE VOLTAGE: 208Y/120V TRIM: FLUSH

MAIN: 250A MLD SYSTEM: 3# 4W BUS RATING: 250A

CONN. LOAD: 77.6 KVA FEED: TOP GROUND BUS: YES

CKT	LOAD SERVED	COND	PHASE	NEUT	Ø	BKR	DMD	L1	L2	L3	DMD	BKR	COND	PHASE	NEUT	Ø	LOAD SERVED	CKT
1	ICE MAKER	1/2"	#10	#10	#10	R	1200				20/1	1/2"	#12	#12	#12	DAMPSTER	2	
3	-	-	-	-	-	-	-				20/1	1/2"	#12	#12	#12	GENERAL OUTLETS	4	
5	-	-	-	-	-	-	-				20/1	1/2"	#12	#12	#12	FUT EQUIP	6	
7	RECEPTACLE BOOTH	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	COMPACTOR	8	
9	COFFEE MAKER	1/2"	#10	#10	#10	R	1200				20/1	1/2"	#12	#12	#12	SOL. FURN	10	
11	UC REFRIG	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	HOLDING CABINET	12	
B 13	UC REFRIG	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	WASHING DRAINER	14	
B 15	REF WORK TABLE	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	D.T. WINDOW	16	
B 17	SINGLE JUICE DISPENSER	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	THAWING CABINET	18	
B 19	ICE CREAM MACHINE	1/2"	#10	#10	#10	R	1200				20/1	1/2"	#12	#12	#12	REF. BREAD TABLE	20	
21	-	-	-	-	-	-	-				20/1	1/2"	#12	#12	#12	(N) AC-3	22	
23	-	-	-	-	-	-	-				#4	#4	#4	#4	#4	#4	#4	24
25	ROOF RECEPTACLES	1/2"	#12	#12	#12	R	1200				30/2	1/2"	#10	#10	#10	#10	#10	26
27	GENERAL OUTLETS	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	TOASTER	28	
B 29	DROP CORD OUTLET	1/2"	#12	#12	#12	R	1200				#10	#10	#10	#10	#10	#10	#10	30
31	FLY SYSTEM	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	ICE MAKER	32	
A 33	CARBONATOR	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	REF. BREAD TABLE	34	
B 35	LOWAN JACKS BOARD	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	1-500 SHUNT TRIP	36	
(N) AC-5	3/4"	#6	#6	#6	R	1200					20/1	1/2"	#12	#12	#12	REF. BREAD TABLE	38	
39	-	-	-	-	-	-	-				20/1	1/2"	#12	#12	#12	184- PND	40	
41	-	-	-	-	-	-	-				20/1	1/2"	#12	#12	#12	DOOR BELL	42	
B 43	503T- EGG STATION	1/2"	#12	#12	#12	R	1200				20/2	1/2"	#12	#12	#12	503T- EGG STATION	44	
45	-	-	-	-	-	-	-				#12	#12	#12	#12	#12	#12	#12	46
A 47	503T- EGG STATION	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	GENERAL OUTLETS	48	
49	-	-	-	-	-	-	-				20/1	1/2"	#12	#12	#12	BREADING TABLE	50	
B 51	FUT.EQUIP	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	ROOF REC	52	
53	CASH REGISTER	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	FUTURE EQUIPMENT	54	
B 55	THAWING CABINET	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	185- HOLDING CABINET	56	
B 57	DROP CORD OUTLET	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	184- PND	58	
B 59	THAWING CABINET	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	RECEPTACLE BOOTH	60	
B 61	REFRIGERATOR	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	400- SINGLE FREEZER	62	
B 63	DROP CORD OUTLET	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	FUT. EQUIPMENT	64	
B 65	DROP CORD OUTLET	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	GENERAL OUTLET	66	
B 67	DROP CORD OUTLET	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	SINGLE JUICE DISPENSER	68	
B 69	DROP CORD OUTLET	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	FUTURE EQUIPMENT	70	
B 71	DROP CORD OUTLET	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	UC REFRIG	72	

INTERRUPT RATING: SERIES RATED PER MANUFACTURER'S LABEL 25674|27184|24754 FROM: (NEW) PANEL MDP

LOADS (N VA)	CONNECTED	DEMAND FACTOR	MINIMUM FEEDER	LOADS	CONNECTED	DEMAND FACTOR	MINIMUM FEEDER	REMAINING CONTINUOUS LOADS	REMAINING NON-CONTINUOUS LOADS	MISC. DEMAND LOADS
LIGHTING	0	1.25	0	NON-SEASONAL MOTORS	800	1.0	800	0	0	0
RECEPTS TO 10 KVA	7080	1.0	7080	LARGEST MOTOR	0	0.25	0	0	0	0
SPACE HEATING	0	0.0	0	WATER HEATING	0	1.0	0	0	0	0
AIR CONDITIONING	23390	1.0	23390	KITCHEN EQUIP.	47832	0.65	30981	0	0	0
TOTAL CONNECTED LOAD	77.6	KVA	215.6	AMPS						
TOTAL DEMAND LOAD	60.9	KVA	169.3	AMPS						
OVERALL DEMAND FACTOR	0.79									

COMPARISON LOAD SUMMARY

LOAD TYPE	LOAD VALUE	AMPS
TOTAL LOAD WITH ADDED EQUIPMENT (KVA)	529.6	
LOAD BASED ON EXISTING DRAWINGS RECEIVED (KVA)	327.55	
NEW TOTAL INCREASE / DECREASE (KVA)	94.5	
NEW TOTAL INCREASE / DECREASE (AMPS)	262.6	A
EXISTING 1000AMP SERVICE		
PROPOSED NEW 1200A SERVICE		

UPDATED: 5/13/2022 9:17 pm
ISSUED FOR: APPROVAL

(NEW) PANEL C

LOCATION: MULTI PURPOSE VOLTAGE: 208Y/120V TRIM: FLUSH

MAIN: 400A MLD SYSTEM: 3# 4W BUS RATING: 400A

CONN. LOAD: 95.9 KVA FEED: TOP GROUND BUS: YES

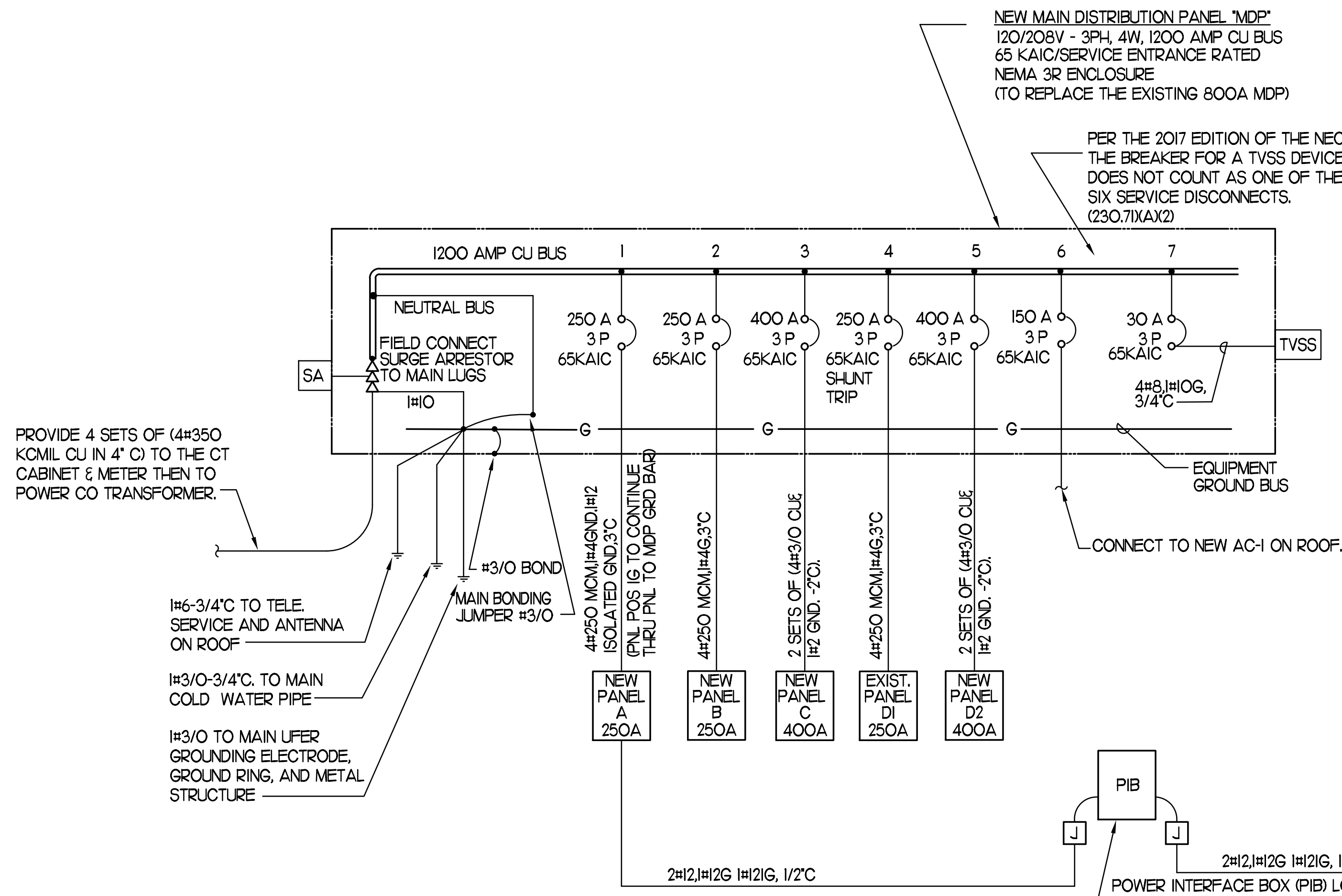
CKT	LOAD SERVED	COND	PHASE	NEUT	Ø	BKR	DMD	L1	L2	L3	DMD	BKR	COND	PHASE	NEUT	Ø	LOAD SERVED	CKT
D 1	KITCHEN LIGHTS	1/2"	#12	#12	#12	R	1200				20/1	1/2"	#12	#12	#12	BUILDING SIGNAGE	2	
D 3	KITCHEN LIGHTS	1/2"	#12	#12	#1													

1 SINGLE LINE DIAGRAM

NOT TO SCALE

3 SINGLE LINE DIAGRAM NOTES

- VERIFY SERVICE LOCATIONS AND CONFORM TO THE REQUIREMENTS OF THE POWER COMPANY AND/OR DEVELOPER. POWER COMPANY AND/OR DEVELOPER SHALL BE CONTACTED PRIOR TO BEGINNING CONSTRUCTION TO ARRANGE AND VERIFY FOR THE INSTALLATION OF THE POWER COMPANY SERVICE, METER AND OTHER ITEMS.
- GROUND ALL EQUIPMENT AND SERVICES IN ACCORDANCE WITH ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE, LOCAL APPLICABLE CODES, AND ALSO AS INDICATED ON DRAWINGS.
- MAKE THE NECESSARY INSPECTIONS OF EXISTING SITE AND SERVICE LOCATIONS AS REQUIRED FOR THIS WORK AND MAKE ALLOWANCE FOR EXISTING CONDITIONS BEFORE SUBMITTING BID. VERIFY WORK REQUIRED WITH POWER COMPANY AND TELEPHONE COMPANY.
- CUT AND PATCH THE CONSTRUCTION WORK AS REQUIRED FOR PROPER INSTALLATION OF THE ELECTRICAL WORK. ALL PATCHING SHALL MATCH THE SURROUNDING WORK TO THE SATISFACTION OF THE ARCHITECT. ALL CONDUIT SHALL BE INSTALLED CONCEALED UNLESS SPECIFICALLY APPROVED BY THE ARCHITECT. COORDINATE SAW CUTTING WITH LANDLORD'S OR OWNER'S REPRESENTATIVE.
- WIRE AND CABLE:
 - CONDUCTORS SHALL BE COPPER, #12 AWG, MINIMUM UNLESS SPECIFICALLY NOTED OTHERWISE.
 - CONDUCTORS #10 AWG AND SMALLER SHALL BE SOLID AND #8 AWG AND LARGER SHALL BE STRANDED. INSULATION SHALL BE 600 VOLT, THHN/THWN.
- PROVIDE ENGRAVED LAMINATED PHENOLIC BLACK-ON-WHITE (UNLESS NOTED OTHERWISE) NAMEPLATES SECURED TO EQUIPMENT WITH ADHESIVE AND SCREWS FOR PANELBOARDS, RELAY CABINETS, TRANSFORMERS, DISTRIBUTION BOARDS, AND MAIN PANELBOARD - IDENTIFYING EQUIPMENT DESIGNATION (CORRESPONDING WITH DESIGNATION USED ON DRAWINGS) AND EQUIPMENT VOLTAGE. LETTERING SHALL BE 1/4" HIGH. PROVIDE LABELS FOR CIRCUIT BREAKERS, FUSIBLE SWITCHES AND STARTERS IN PANELBOARDS AND DISTRIBUTION BOARDS FOR EACH DEVICE IDENTIFYING EQUIPMENT CONTROLLED. LETTERING SHALL BE 1/8" HIGH.
- ALL DEVICES SHALL HAVE AN INTERRUPTING CAPACITY NOT LESS THAN THE POWER COMPANY AVAILABLE FAULT CURRENT, OR AS INDICATED ON THE DRAWINGS.
- 120/208 VOLT BRANCH CIRCUIT PANELBOARD BREAKERS SHALL HAVE A MINIMUM UL SERIES RATING OF 65 KAIC WITH UP-STREAM FEEDER BREAKERS AS NOTED.
- AVAILABLE SPACE FOR MAIN PANELBOARD IS LIMITED. PANELBOARD MUST FIT IN ALLOCATED SPACE. COORDINATE WITH CONSTRUCTION AS REQUIRED.
- ALL WIRING SHALL BE IN CONDUIT, EMT, OR RIGID. FLEXIBLE CONDUIT MAY ONLY BE USE FOR FINAL CONNECTIONS AND WITH GREEN EQUIPMENT GROUNDING CONDUCTOR.



VOLTAGE DROP CALCULATIONS

CIRCUIT	FROM	TO	VOLTS (L-N)	VOLTS (L-L)	PHASE	AMPS	CIRCUIT WIRES	SYSTEM p.f.	WIRE SIZE (AWG or kcmil)	WIRE TYPE (CU, AL)	CONDUIT TYPE (STL, PVC, AL)	ONE-WAY LENGTH (FT.)	INCREMENTAL VOLTAGE DROP (volts)	INCREMENTAL (%)	TOTAL V.D. FROM SOURCE (volts)	TOTAL V.D. AT LOAD (%)
TRANSFORMER	PANEL MDP	PANEL C	208	3	3	992.0	4	0.90	350	CU	PVC	36	0.80	0.4%	0.80	0.4%
PANEL MDP	PANEL C	PANEL C	208	3	3	207.0	1	0.90	250	CU	STL	60	1.53	0.7%	2.33	1.1%
PANEL C	SIGN	SIGN	120	1	1	10.0	1	0.90	12	CU	STL	60	2.19	1.8%	2.19	1.8%

4 SWITCHGEAR AND CONTROL EQUIPMENT NOTES:

- PURCHASE PANELBOARDS, SURGE ARRESTOR, AND TVSS FROM ONE OF THE TWO NATIONAL ACCOUNTS VENDORS (SEE SHEET E4.2 SECTION C16440, PANELBOARDS) PROVIDING SIEMENS OR SQUARE D EQUIPMENT NO SUBSTITUTIONS ALLOWED
- PURCHASE CONTROL PANEL "CFA-1500" OR ANY ADDITION SUB PANELS FROM SUNCOAST ENVIRONMENTAL, INC. (NO SUBSTITUTIONS ALLOWED) ALL EQUIPMENT IN THE CONTROL PANEL SHALL BE INSTALLED, WIRED AND CONNECTED AT THE FACTORY, INCLUDING AUTOMATIC LIGHTING CONTROL SYSTEM, LIGHTING RELAYS, HVAC STARTERS, POWER SUPPLIES, MISCELLANEOUS RELAYS AND CONTROLS, AND THERMOSTATS. CONTACT : SCOTT DYER (877)544-6679. CONTRACTOR SHALL PROVIDE PANEL FEEDERS A, B, C, D, D2 E POS BRANCH CIRCUIT CONDUIT AND WIRE, AND INSTALL ALL EQUIPMENT AS REQUIRED. ALL BREAKERS AND PANELS SHALL BE SIEMENS OR SQUARE D, DEPENDING ON THE CHICK-FILA REGION THE STORE IS LOCATED. SQUARE D EQUIPMENT: CONTACT GRAY BAR. SIEMENS EQUIPMENT: CONTACT SUNCOAST. SCOTT DYER (877)544-6679. TVSS AND SURGE ARRESTOR UNITS SHALL BE MOUNTED DIRECTLY ADJACENT TO THE SIDE OF THE MAIN DISTRIBUTION PANEL IN NEMA 3R ENCLOSURES. CLOSE NIPPLE THE UNITS TO THE SIDE OF THE PANEL. PROVIDE CONNECTION OF TVSS UNIT TO BREAKER IN PANEL. CONNECT SURGE ARRESTOR TO MAIN INCOMING LUGS OF THE PANEL. CONNECT USING MINIMUM LENGTH OF WIRE WITHOUT SHARP BENDS IN THE WIRE AND NOT BE LENGTHENED FROM WIRE LENGTH PROVIDED WITH THE TVSS OR SURGE SUPPRESSOR DEVICE.

LOAD SUMMARY

(NOT ALL ELECTRIC RESTAURANT)

THE FOLLOWING IS BASED ON NEC 2005-220.88 / 2008-220.88 / 2011-220.88/2014-220.88/2017-220.88

LIGHTING	25383
RECEPTS TO 10 KVA	10000
RECEPTS REMAINING	5330
SPACE HEATING	0
AIR CONDITIONING	99412
NON-SEASONAL MOTORS	14459
WATER HEATER	240
KITCHEN EQUIPMENT	358273
CONTINUOUS LOADS	0
NON-CONTINUOUS LOADS	0
TOTAL CONNECTED KVA	513.1 KVA

IF TOTAL IS 0-200 KVA, THEN TOTAL LOAD 100%
 IF TOTAL IS 201-325 KVA, THEN LOAD OVER 200 AT 50% + 200
 IF TOTAL LOAD IS 326-800 KVA, THEN LOAD OVER 325 AT 45% + 262.5
 IF TOTAL LOAD IS OVER 800 KVA, THEN LOAD OVER 800 AT 20% + 476.3

DMERSIFIED AMPS AT 208 VOLT 963.6 AMPS

NOTE! AS NOTED IN THE SPECIFICATIONS, ALL WIRING LAYOUTS, PIPING LAYOUTS AND DUCT LAYOUTS ARE SCHEMATIC. EXACT LOCATIONS SHALL BE DETERMINED BY THE CONSTRUCTION AND STRUCTURE OF THE BUILDING AND SHALL BE VERIFIED AND COORDINATED IN THE FIELD. EACH TRADE CONTRACTOR SHALL VERIFY WITH THE GENERAL CONTRACTOR THAT HE HAS THOROUGHLY REVIEWED AND COORDINATED ALL LOCATIONS AND ROUTINGS WITH ALL OTHER TRADES PRIOR TO FABRICATION OF CONDUITS, DUCTS, OR PIPING, AND START OF INSTALLATION OF SAME (INCLUDING SPRINKLER PIPING WHEN PRESENT ON JOB). ANY INSTALLATION OR CONSTRUCTION CONFLICTS WHICH OCCUR IN THE FIELD SHALL BE RESOLVED BY THE TRADE CONTRACTOR TO THE SATISFACTION OF THE OWNER AND ARCHITECT AND AT NO EXPENSE TO THE OWNER, ARCHITECT AND/OR GENERAL CONTRACTOR.

THE CONTRACTOR SHALL CONTACT THE ARCHITECT, ENGINEER OR OWNER PRIOR TO BIDDING FOR INTERPRETATIONS AND CLARIFICATIONS OF THE DESIGN AND INCLUDE IN HIS BID ALL COSTS TO MEET THE DESIGN INTENT. CLARIFICATIONS MADE BY THE ARCHITECT, ENGINEER OR OWNER AFTER BIDDING WILL BE FINAL AND SHALL BE IMPLEMENTED AT CONTRACTORS COST.

BIDDING CONTRACTORS SHALL HAVE A WORKING KNOWLEDGE OF LOCAL CODES AND ORDINANCES AND SHALL INCLUDE IN THEIR BIDS THE COSTS FOR ALL WORK INSTALLED IN STRICT ACCORDANCE WITH GOVERNING CODES, THE PLANS AND SPECIFICATIONS NOT WITHSTANDING. THE CONTRACTOR SHALL ALERT ARCHITECT, ENGINEER OR OWNER OF ANY APPARENT DISCREPANCIES BETWEEN GOVERNING CODES AND DESIGN INTENT.

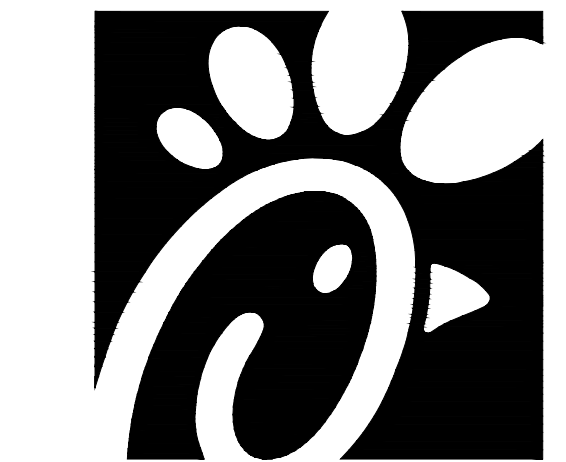
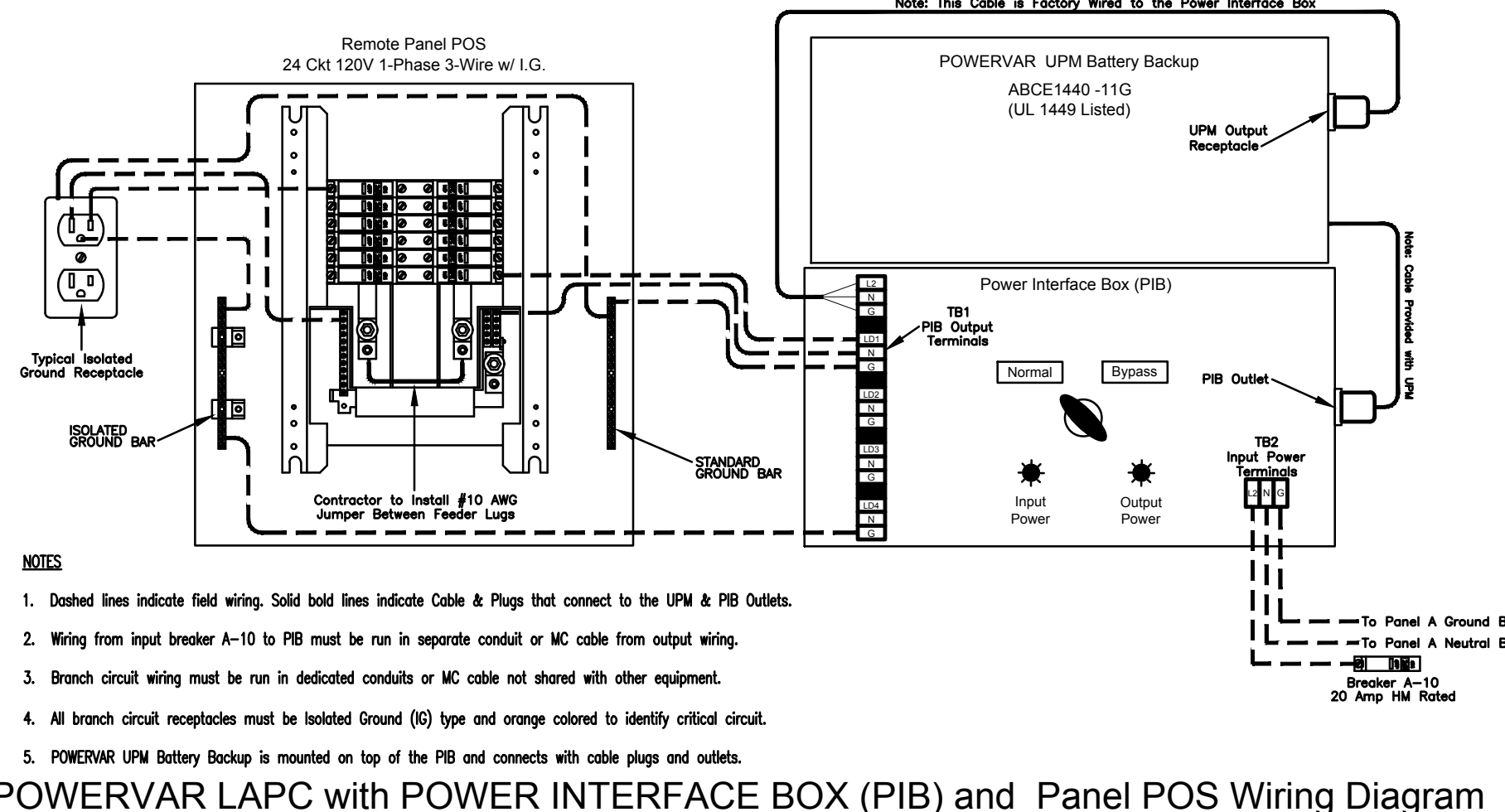
PER INFORMATION RECEIVED FROM THE FIELD AT TIME OF DESIGN, ALL EXISTING PANELS ARE SQUARE SIEMENS

PROVIDE A JUMPER ON THE LUGS OF PANEL POS SO THAT BOTH PHASE BARS ARE TIED TO THE ONE 120V PHASE CONDUCTOR FROM THE PIB

2 CONDUIT AND CONDUCTORS SCHEDULE (Based on 2005, 2008, 2011, 2014 and 2017 NEC)

Mark No.	OCP Device (Amp)	Conductors Total Ampacity 600 C 75d C	Phase & Neutral		Min Eq Grd	No. Sets	Raceway Size (nominal inches)			With Isolated Ground					
			Qty	Size			EMT	IMC	RIGID	PVC	EMT	IMC	PVC		
1	20	20	2	12	THHN	1	12	One	0.75	0.75	0.75	0.75	0.75	0.75	
2	20	20	3	12	THHN	1	12	One	0.75	0.75	0.75	0.75	0.75	0.75	
3	20	20	4	12	THHN	1	12	One	0.75	0.75	0.75	0.75	0.75	0.75	
4	25	30	2	10	THHN	1	10	One	0.75	0.75	0.75	0.75	0.75	0.75	
5	25	30	3	10	THHN	1	10	One	0.75	0.75	0.75	0.75	0.75	0.75	
6	25	30	4	10	THHN	1	10	One	0.75	0.75	0.75	0.75	0.75	0.75	
7	30	30	2	10	THHN	1	10	One	0.75	0.75	0.75	0.75	0.75	0.75	
8	30	30	3	10	THHN	1	10	One	0.75	0.75	0.75	0.75	0.75	0.75	
9	30	30	4	10	THHN	1	10	One	0.75	0.75	0.75	0.75	0.75	0.75	
10	40	40	2	8	THHN	1	10	One	0.75	0.75	0.75	0.75	0.75	0.75	
11	40	40	3	8	THHN	1	10	One	0.75	0.75	0.75	0.75	0.75	0.75	
12	40	40	4	8	THHN	1	10	One	0.75	0.75	0.75	0.75	0.75	0.75	
13	50	55	2	6	THHN	1	10	One	0.75	0.75	0.75	0.75	0.75	0.75	
14	50	55	3	6	THHN	1	10	One	0.75	0.75	0.75	0.75	1.00	1.00	1.00
15	50	55	4	6	THHN	1	10	One	1.00	1.00	1.00	1.00	1.00	1.00	1.00
16	60	70	2	4	THW	1	8	One	1.00	1.00	1.00	1.00	1.25	1.00	1.25
17	60	70	3	4	THW	1	8	One	1.25	1.00	1.25	1.25	1.25	1.25	1.25
18	60	70	4	4	THW	1	8	One	1.25	1.25	1.25	1.25	1.25	1.25	1.25
19	70	70	2	4	THW	1	8	One	1.00	1.00	1.00	1.00	1.25	1.00	1.25
20	70	70	3	4	THW	1	8	One	1.25	1.00	1.25	1.25	1.25	1.25	1.25
21	70	70	4	4	THW	1	8	One	1.25	1.25	1.25	1.25	1.25	1.25	1.25
22	80	85	3	3	THW	1	8	One	1.25	1.25	1.25	1.25	1.25	1.25	1.25
23	80	85	4	3	THW	1	8	One	1.25	1.25	1.25	1.25	1.50	1.25	1.50
24	90	95	3	2	THW	1	8	One	1.25	1.25	1.25	1.25	1.50	1.25	1.50
25	90	95	4	2	THW	1	8	One	1.50	1.25	1.50	1.50	1.50	1.50	1.50
26	100	110	3	1	THW	1	6	One	1.50	1.50	1.50	1.50	2.00	2.00	2.00
27	100	110	4	1	THW	1	6	One	2.00	2.00	2.00	2.00	2.00	2.00	2.00
28	110	115	3	2	THW	1	6	One	1.25	1.25	1.25	1.25	1.50	1.25	1.50
29	110	115	4	2	THW	1	6	One	1.50	1.25	1.50	1.50	1.50	1.50	1.50
30	125	130	3	1	THW	1	6	One	1.50	1.50	1.50	1.50	2.00	2.00	2.00
31	125	130	4	1	THW	1	6	One	2.00	2.00	2.00	2.00	2.00	2.00	2.00
32	150	150	3	1/0	THW	1	6	One	2.00	1.50	2.00	2.00	2.00	2.00	2.00
33	150	150	4	1/0	THW	1	6	One	2.00	2.00	2.00	2.00	2.00	2.00	2.00
34	175	175	3	2/0	THW	1	6	One	2.00	2.00	2.00	2.00	2.00	2.00	2.00
35	175	175	4	2/0	THW	1	6	One	2.00	2.00	2.00	2.00	2.50	2.50	2.50
36	200	200	3	3/0	THW	1	6	One	2.00	2.00	2.00	2.00	2.50	2.50	2.50
37	200	200	4	3/0	THW	1	6	One	2.50	2.50	2.50	2.50	2.50	2.50	2.50
38	225	230	3	4/0	THW	1	4	One	2.50	2.00	2.50	2.50	2.50	2.50	2.50
39	225	230	4	4/0	THW	1	4	One	2.50	2.50	2.50	2.50	2.50	3.00	3.00
40	250	255	4	250	THW	1	4	One	2.50	3.00	3.00	3.00	3.00	3.00	3.00
41A	300	285	4	300	THW	1	4	One	3.00	3.00	3.00	3.00	3.00	3.00	3.00
41B	300	310	4	350	THW	1	4	One	3.00	3.00	3.00	3.00	3.00	3.00	3.00
42A	350	335	4	400	THW	1	4	One	3.00	3.50	3.50	3.50	3.50	3.50	3.50
42B	350	380	4	500	THW	1	4	One	3.50	3.50	3.50	3.50	3.50	3.50	3.50
43A	400	380	4	500	THW	1	3	One	3.50	3.50	3.50	3.50	3.50	3.50	3.50
43B	400	400	4	3/0	THW	2	3	Two	2.50	2.50	2.50	2.50	2.50	2.50	2.50
44A	600	570	4	300	THW	2	1	Two	3.00	3.00	3.00	3.00	3.00	3.00	3.00
44B	600	620	4	350	THW	2	1	Two	3.00	3.00	3.00	3.00	3.00	3.00	3.50
45A	800	760	4	500	THW	2	1/0	Two	3.50	3.50	3.50	3.50	3.50	3.50	3.50
45B	800	820	4	600	THW	2	1/0	Two	4.00	4.00	4.00	4.00	4.00	4.00	4.00
46	1000	1005	4	400	THW	3	2/0	Three	3.50	3.50	3.50	3.50	3.50	3.50	3.50
47	1200	1240	4	350	THW	4	3/0	Four	3.50	3.50	3.50	3.50	3.50	3.50	4.00
48	1600	1675	4	400	THW	5	4/0	Five	4.00	4.00	4.00	4.00	4.00	4.00	4.00

Notes:
 Conductors are rated at 600 volt or below and are to be copper.
 NEC Table 310.16 (310.15B)(16) in 2014) is used for the basis of the conductor ampacities, which is not more than three current-carrying conductors in a raceway at an ambient temperature of 30 deg C with 80 deg C-rated conductors and connectors per 110.14-C-1 for up to 100 amp rated and up to #1 AWG conductors for equipment terminations and 75 deg C rated conductors and termination connectors for larger than 100 amp or above #1 AWG conductors.
 NEC Tables 4, 5, and Appendix C is used for the basis of the conduit sizes, Table C1 for EMT, Table C4 for IMC, Table C8 for Rigid, and Table C10 for PVC (Sch 40).
 All Branch Feeders and Branch Circuits shall include a Green Equipment Grounding Conductor.
 Omit Grounding conductor on Service Entrance Feeders.
 Omit Neutral conductor on all Delta primary transformer feeders or 3 phase loads not requiring a neutral.
 The above conductors are not calculated for Voltage Drop. Any circuits that exceed 100 feet shall be calculated by the installer to have less than a three percent voltage drop on feeders and five percent on branch circuits per the NEC.



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 PERMITTING

220 E. CENTRAL PKWY, STE 4000
 ALTAMONTE SPRINGS, FL

SECTION C16100
ELECTRICAL GENERAL PROVISIONS

PART 1 - GENERAL

1.01 WORK INCLUDED
A. Provide all materials, labor and equipment required to furnish and install a complete electrical system as indicated on drawings and as specified herein.

1.02 REGULATORY REQUIREMENTS

A. Equipment furnished shall be UL listed where such label is available. Installation shall conform to UL standards where applicable.
B. Electrical work shall be installed in accordance with drawings and specifications, NEC and NFPA codes in effect at project location, state and local electrical and building codes and special codes having jurisdiction over specific portions within complete installation.
C. all references shall be made to National electrical code NFPA 70 (2017 Edition)

1.03 SUBMITTALS

A. Submit list of materials and equipment prior to manufacture, order or installation and within twenty days after award of contract for approval. Include each item of material and equipment whether or not shop drawings are also required. List shall include name of manufacturer, catalog number and other complete identification as well as dimensions and detailed data. Submittals shall include for the following:
1. Lighting Fixtures
2. Panelboards/Breakers
3. Wiring Devices and Device Plates
4. Enclosed Switches

B. Certified shop drawings and submittals shall bear stamp of approval of contractor as evidence that drawings have been checked. Drawings submitted without this stamp of approval will not be considered and will be returned for proper resubmission.

C. If submittals show variances or substitutions from requirements of contract, contractor shall make specific mention of such variation in his letter of transmittal in order that, if acceptable, suitable action may be taken for proper adjustment. Otherwise contractor shall not be relieved of responsibility for executing work in accordance with contract even though such submittals have been approved.

1.04 SITE VISIT

A. Visit job site prior to bid date to determine actual conditions under which work shall be done, to familiarize oneself with project and to verify total scope of work required. Failure to do so shall not constitute a reason for an extra charge.

SECTION C16101
BASIC MATERIALS AND METHODS

PART 1 - GENERAL

1.01 COORDINATION

A. Obtain and review shop drawings, product data, and manufacturer's instructions for equipment furnished under other sections to determine connection locations and requirements.
B. Sequence rough-in of electrical connections to coordinate with installation and start-up of equipment furnished under other sections.

PART 2 - PRODUCTS

2.01 SUBSTITUTIONS

A. Where specifications list one or more manufacturers and do not include "or approved equal", furnish materials made by one of manufacturers listed. Where "or approved equal" is included, contractor may substitute equal products by another manufacturer subject to approval by engineer and owner.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Make electrical connections to utilization equipment in accordance with equipment manufacturer's instructions.
B. Drawings are diagrammatic and shall not be scaled for exact sizes or locations, they are not intended to disclose absolute or unconditional knowledge of actual field conditions.
C. Protect work and materials from damage by weather, entrance of water and dirt, cap conduit during installation. Avoid damage to materials and equipment in place.
D. Satisfactorily repair or remove and replace damaged work with new materials. Deliver equipment and materials to job site in original, unopened, labeled containers. Store ferrous materials to prevent rusting. Store finished materials and equipment to prevent staining and discoloring.
E. Trenches shall be excavated 6" below elevation of bottom of conduit.
F. Failure to route conduit through building without interfering with other equipment and construction shall not constitute a reason for an extra charge. Equipment, conduit and fixtures shall fit into available spaces in building and shall not be introduced into building at such times and manner as to cause damage to structure. Equipment requiring service shall be readily accessible.

3.02 TESTING AND EQUIPMENT SERVICING

A. Make test to ensure that entire system is in proper operating condition, and that adjustments and apparatus setting of circuit breakers, fuses, control equipment and apparatus have been made. Correct defects discovered during tests.

3.03 REMOVAL OF DEBRIS

A. Remove surplus materials and debris caused by, or incidental to, electrical work. Remove such debris at frequent intervals. Keep job clean during construction.

3.04 IDENTIFICATION OF EQUIPMENT

A. Identify electrical distribution equipment, disconnects, and contactors with black laminated plastic name-plates, attached with two screws, engraved with 1/4" high, white letters.

3.05 TEMPORARY LIGHTING AND POWER IN AREAS OF CONSTRUCTION

A. Provide, maintain and remove after construction is completed, temporary lighting adequate for workman safety and temporary power for all trades including any 3 phase power required.

B. Provide and maintain barricade lighting where required to adequately protect owner against liability for damage to public or personnel. All lamps used in barricade shall be 60 watt red, installed in weatherproof socket with wire guard. All wiring shall be approved for weatherproof installation.

3.06 GUARANTEE-WARRANTY
A. Guarantee work to be free from defects of materials and workmanship for a period of one year from date of final acceptance of building. Repair and replace defective work and other work damaged thereby which becomes defective during term of guarantee-warranty. Furnish owner with three written copies of guarantee-warranty.

SECTION C16120
RACEWAYS AND CONDUIT SYSTEMS

PART 1 - PRODUCTS

1.01 ACCEPTABLE MANUFACTURERS

A. Rigid IMC, and EMT conduit shall be hot-dipped, galvanized, or electro-galvanized steel by Allied, Republic, Triangle, Wheatland, or approved equal.
B. PVC conduit shall be Carlon, schedule 40, 90 degrees C. rated, unless otherwise noted.
C. MC cable shall be manufactured by AFC Cable Systems or approved equal. Type "AC-90" is not allowed. All MC Cables shall have a green equipment ground conductor and an isolated ground (green + yellow stripe) conductor for isolated ground circuits (POS System), fitting used for connecting MC cable to boxes, cabinets, or other equipment shall be listed and identified for such use.

D. Associated couplings, connectors and fittings shall be steel as manufactured by Raco or equivalent. Catalog numbers used below are those of Raco.

E. Erickson Couplings, Series 1502, shall be used where neither length of conduit can be rotated.

F. Insulated bushings shall be series 1402.

G. EMT box connectors shall be compression fittings.

H. Conduit, connectors, couplings and fittings shall be UL listed and labeled.

1.02 ELECTRICAL METALLIC TUBING (EMT)
A. Use Electrical Metallic Tubing (EMT) where drawings call for conduit to be:
1. Concealed in walls.
2. Installed above suspended ceilings.
3. Installed exposed, above 6 feet.

1.03 INTERMEDIATE METAL CONDUIT (IMC)
A. Use Intermediate Metal Conduit (IMC) where drawings call for conduit to be:
1. Installed for panelboard feeders.
2. Installed in wet locations (interior and exterior).
3. Installed exposed below 6 feet.

1.04 POLYVINYL CHLORIDE (PVC) RACEWAY
A. Use PVC raceway for:
1. Underground service entrance conduits for telephone and power.
2. Exterior branch circuits installed underground.
3. Interior branch circuit conduits installed in or under concrete slab on ground floor.

1.05 RIGID STEEL CONDUIT (RSC)
A. Use Rigid Steel Conduit for:
1. Install underground for power Service Entrance elbows penetrating floor slab.
2. Exposed to physical damage.

1.06 FLEXIBLE METAL CONDUIT
A. Provide flexible metal conduit for termination at equipment subject to motion and vibration.

B. Length shall not exceed 6 feet in accessible ceiling areas.

C. Shall not be concealed in walls.

D. Where exposed to continuous or intermittent moisture, conduit shall be UL Type EF liquidtight or type as indicated.

E. For connection to ceiling mounted lighting fixtures from outlet boxes.

1.07 MC (METAL-CLAD) CABLE
A. MC Cable may be used, concealed above ceiling and in walls, when allowed by local codes and article 330 of the national electrical code for the connection of the Point Of Sales (POS) system equipment only.

PART 2 - EXECUTION

2.01 INSTALLATION
A. Minimum size of conduits shall be 1/2" inch.

B. Run concealed conduits in direct line with long sweep bends or offsets. Run exposed conduits parallel to and at right angles to building lines. Group multiple conduit runs in banks.

C. Cap ends of conduits to prevent entrance of water and other foreign material during construction.

D. Provide No. 12 AWG copper pull wires or nylon cord in all empty conduits. Steel wire not acceptable as pull wire.

E. Where IMC enters a cabinet, junction box, or pull box conductors shall be protected by an insulated bushing. Locknuts shall be installed on conduit outside and inside enclosure.

F. In areas where enclosed and gasketed fixtures and weatherproof devices are specified, where Rigid Conduit enters a sheet metal enclosure, junction box and outlet box, and not terminated in a threaded hub, a steel, or malleable iron nylon insulated hub, complete with recessed sealing "O" ring or sealing locknut shall be used.

G. Provide seal-off fitting in all conduits entering a cold temperature area such as freezers and dry refrigerators.

H. In concrete slabs, block up conduit from forms and securely fasten in place. all conduits in slabs shall have a minimum of 4" inches concrete coverage above.

I. Failure to route conduit through building without interfering with other equipment, and construction shall not constitute a reason for an extra charge. Equipment, conduit, and fixtures shall fit into available spaces in building and shall not be introduced into building at such times and manner as to cause damage to structure or equipment. Equipment requiring servicing shall be readily accessible.

2.02 EMT (ELECTRICAL METALLIC TUBING) RACEWAY
A. Do not use Electrical Metallic Tubing in under concrete or cinder fill or where conduit system is in contact with dissimilar metals or in wet locations.

2.03 PVC RACEWAY
A. Use threaded fittings for all connectors and adapters.

B. Provide 1/4-inch nylon pull rope in all primary power and incoming telephone service entrance conduits.

C. PVC conduit shall convert to galvanized rigid metal per detail on drawings.

2.04 FLEXIBLE METAL CONDUIT
A. Where fittings for liquid tight flexible conduit are brought into an enclosure with a knock-out, a gasket assembly, consisting of one piece "O" ring, with Buna-N sealing material, series 3400, shall be installed on outside of box. Fittings shall be made of either steel or malleable iron only, and shall have insulated throats or insulated bushings.

B. In dry locations, where final connections to motors and other equipment may be made with Flexible Metal Conduit, fittings shall be of steel or malleable iron only with insulated throats or insulated bushings, and shall be of wedge and screw type having an angular wedge fitting between convolutions of conduit.

C. In-ground cast metal box: inside flanged, recessed cover box for flush mounting.
1. Material: galvanized cast iron.
2. Cover: nonskid cover with neoprene gasket and stainless steel cover screws.
3. Cover legend: electric.

D. Manufacturers: National, Appleton, General Electric, RACO, Oz-Gedney or Steel City.

PART 3 - EXECUTION

3.01 INSTALLATION
A. Install electrical boxes as shown on drawings, and as required for splices, taps, wire pulling, equipment connections and compliance with regulatory requirements.

B. Install pull boxes and junction boxes above accessible ceilings.

C. Inaccessible ceiling areas: Install outlet and junction boxes no more than 6 inches from ceiling access panel or from removable recessed light fixture.

D. Use flush mounting outlet boxes in finished areas.

E. Use stamped steel bridges to fasten flush mounting outlet box between studs.

F. Install flush mounted box without damaging wall insulation or reducing its effectiveness.

G. Use adjustable steel channel fasteners for hung ceiling outlet box.

H. Do not fasten boxes to ceiling support wires.

I. Support boxes independently of conduit, except cast box that is connected to two Rigid Metal Conduits both supported within 12 inches of box.

J. Use gang box where more than one device is mounted together. Do not use sectional box.

E. Use Ideal wing nuts, Scotchlok Type Y, R, G, or B, or approved equivalent connectors for fixture connections at outlet boxes.

F. Make feeder taps and joints with OZ Type T, PT, PM or PTS, or approved equivalent clamp connectors as manufactured by Kupler, or with approved compression sleeves. Wrap connectors with No. 10 Electro-Seal or approved equivalent plastic filler and vinyl tape.

G. Leave a minimum of 8" slack wire in every outlet box.

H. Provide color coded wire and with a different color for each phase and neutral and ground as follows: Phase A, B, C: Black, Red and Blue respectively; Neutral: White, Isolated Ground: Green with Yellow Stripes. Approved color tape is acceptable for feeders using larger than #6 conductors.

I. All conductors shall be continuous from origin to panel or equipment termination without splices where possible. Where splices and taps are necessary or are required, they shall be made in splice boxes with suitable connectors.

J. Tighten all electrical connectors and terminals, including screws and bolts, in accordance with manufacturer's published torque tightening values. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL486A and UL486B.

K. Use gang box with plaster ring for single device outlets.

L. Use cast outlet box in exterior locations and wet locations.

3.02 OUTLET BOXES
A. Select boxes according to intended use and type of outlet. Ceiling outlet boxes shall be 4" octagon and 1-1/2" deep. Use 2-1/8" deep octagon boxes or 4" square boxes required. All ceiling outlet boxes shall have a fixture stud of no bolt self-locking type installed if required to hang the fixture specified at the outlet.

3.03 JUNCTION BOXES
A. Junction boxes shall be sized according to number of conductors in box or type of service to be provided. Minimum junction box size 4-11/16" square and 2-1/8" deep. Provide screw covers for junction boxes.

B. Use code gauge steel with screw covers for pull boxes with prime coat and provide with screw cover. Size pull boxes according to the NEC.

C. Provide pull box every 100 feet of conduit run or where excessive number of bends necessitates a box for ease of wire installation.

SECTION C16122
OUTLET AND JUNCTION BOXES

PART 1 - GENERAL

1.01 PROJECT CONDITIONS
A. Verify field measurements are as shown on drawings.

B. Verify locations of floor boxes and outlets in work areas prior to rough-in.

PART 2 - PRODUCTS

2.01 OUTLET BOXES
A. Sheet metal outlet boxes: galvanized steel.

B. Cast boxes: type FS, cast fer alloy. Provide gasketed cover by box manufacturer.

C. Manufacturers: National, Appleton, General Electric, RACO, OR Steel City.

D. Provide boxes for fixtures with fixture studs in center.

E. Outlet boxes for lighting, switches and receptacles in interior areas with exposed conduit shall be pressed steel and in exterior areas with exposed conduit shall be cast metal with threaded hubs, "FS" type. Use galvanized steel for concealed boxes. Boxes shall be 1-1/2" deep minimum.

2.02 PULL AND JUNCTION BOXES
A. Sheet metal boxes: galvanized steel.

B. Surface-mounted cast metal box: type 4, flat-flanged, surface-mounted junction box.
1. Material: galvanized cast iron.
2. Cover: furnish with ground flange, neoprene gasket, and stainless steel cover screws.

C. In-ground cast metal box: inside flanged, recessed cover box for flush mounting.
1. Material: galvanized cast iron.
2. Cover: nonskid cover with neoprene gasket and stainless steel cover screws.
3. Cover legend: electric.

D. Manufacturers: National, Appleton, General Electric, RACO, Oz-Gedney or Steel City.

PART 3 - EXECUTION

3.01 INSTALLATION
A. Install electrical boxes as shown on drawings, and as required for splices, taps, wire pulling, equipment connections and compliance with regulatory requirements.

B. Install pull boxes and junction boxes above accessible ceilings.

C. Inaccessible ceiling areas: Install outlet and junction boxes no more than 6 inches from ceiling access panel or from removable recessed light fixture.

D. Use flush mounting outlet boxes in finished areas.

E. Use stamped steel bridges to fasten flush mounting outlet box between studs.

F. Install flush mounted box without damaging wall insulation or reducing its effectiveness.

G. Use adjustable steel channel fasteners for hung ceiling outlet box.

H. Do not fasten boxes to ceiling support wires.

I. Support boxes independently of conduit, except cast box that is connected to two Rigid Metal Conduits both supported within 12 inches of box.

J. Use gang box where more than one device is mounted together. Do not use sectional box.

K. Use gang box with plaster ring for single device outlets.

L. Use cast outlet box in exterior locations and wet locations.

3.02 OUTLET BOXES
A. Select boxes according to intended use and type of outlet. Ceiling outlet boxes shall be 4" octagon and 1-1/2" deep. Use 2-1/8" deep octagon boxes or 4" square boxes required. All ceiling outlet boxes shall have a fixture stud of no bolt self-locking type installed if required to hang the fixture specified at the outlet.

3.03 JUNCTION BOXES
A. Junction boxes shall be sized according to number of conductors in box or type of service to be provided. Minimum junction box size 4-11/16" square and 2-1/8" deep. Provide screw covers for junction boxes.

B. Use code gauge steel with screw covers for pull boxes with prime coat and provide with screw cover. Size pull boxes according to the NEC.

C. Provide pull box every 100 feet of conduit run or where excessive number of bends necessitates a box for ease of wire installation.

SECTION C16123
GROUNDING AND BONDING

PART 1 - PRODUCTS

1.01 ROD ELECTRODES
A. Material: copper-clad steel.

B. Diameter: 3/4 inch.

C. Length: 10 feet.

1.02 MECHANICAL CONNECTORS
A. Material: bronze.

1.03 GROUNDING CONDUCTOR (WIRE)
A. Material: stranded copper, sized to meet NFPA 70, Article 250 requirements.

PART 2 - EXECUTION

2.01 INSTALLATION
A. Install rod electrodes at locations indicated. Install additional rod electrodes as required to achieve resistance to ground of less than 25 ohms.

B. Provide grounding electrode conductor and connect to reinforcing steel in foundation footing.

C. Provide bonding to meet regulatory requirements.

D. Bond together each metallic raceway, pipe, duct and other metal objects.

E. Provide isolated grounding conductor for circuits supplying all isolated ground outlets. Installation shall be green with yellow stripe. Size per NEC Table 250.66. This isolated grounding conductor shall run in addition to equipment grounding conductor and along with the branch circuit conductors.

2.02 GROUNDING
A. Ground electrical system in accordance with NEC Article 250 and local authorities having jurisdiction.

B. Install a #3/0 bare copper wire bond across the water meter attached to ground clamps on water line on each side of meter. Arrangements shall be made to do this work at the time the water meter is installed.

C. From the point of entrance of the water main into the building and on the meter side of the main inside water valve and union install a stranded copper cable #3/0 in 1-1/4" conduit to the main distribution panel. Connect the cable to the equipment ground bus.

D. Install a green equipment grounding conductor in each raceway, sized per NEC Table 250-122. Terminate on equipment ground bus within panelboard serving load.

E. Install #6 awg copper grounding conductor from ground bar in main telephone box to grounded neutral bus in main distribution panel.

F. All separate grounding electrode conductors shall be bonded together to limit potential differences between them and between their associated wiring systems. This includes the power system, telephone system, etc.

2.03 FIELD QUALITY CONTROL
A. Inspect grounding and bonding system conductors and connections for tightness and proper installation.



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CONSULTANT PROJECT # 2020.0755
DATE March 2022
DRAWN BY MI

CHECKED BY SN
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SHEET ELECTRICAL SPECIFICATIONS

SHEET NUMBER E4.1