N

ELECTRICAL SITE PLAN

SCALE: 1" = 30' (APPROX.)

POWER LEGEND

- DUPLEX RECEPTACLE, INSTALL AT 18" AFF UNO
  +48 = INSTALL AT 48" AFF
  +60 = INSTALL AT 60" AFF
  ++ = INSTALL AT 6" BELOW CEILING
  TV = INSTALL AT 72" AFF, UNO
  * = INSTALL 6" ABOVE COUNTER OR DESK
  REF = DEDICATED FOR REFRIGERATOR
  M/W = DEDICATED FOR MICROWAVE
- DUPLEX RECEPTACLE, GFI
  WP = WEATHERPROOF
- CEILING DUPLEX RECEPTACLE
- DOUBLE DUPLEX RECEPTACLES
- DOUBLE DUPLEX GFI RECEPTACLES
- CEILING DOUBLE DUPLEX RECEPTACLES
- SINGLE RECEPTACLE
- SPECIAL RECEPTACLE AS NOTED
- POWER FLOOR OUTLET
- POWER/TELECOM FLOOR BOX
- JUNCTION BOX
- DISCONNECT SWITCH
- STARTER/DISCONNECT SWITCH
- STARTER OR CONTACTOR
- VARIABLE FREQUENCY/SPEED DRIVE
- MANUAL MOTOR STARTER WITH THERMAL OVERLOAD PROTECTION
- PANELBOARD
- ELECTRIC MOTOR
- UTILITY METER
- HOMERUN
- CIRCUIT CONTINUATION
- CONDUIT CONCEALED IN WALL OR CEILING
- CONDUIT UNDERGROUND OR IN FLOOR
- DRIVEN GROUND ROD
- GROUND INSPECTION WELL
- CIRCUIT BREAKER
- FUSE
- SWITCH
- KEYNOTE SYMBOL
- INTERCEPT LOCATION
- CONCRETE-FILLED PIPE BOLLARD
- DRAWOUT CIRCUIT BREAKER
- LIGHTING PROTECTION AIR TERMINAL
- LIGHTNING PROTECTION CONDUCTOR
- REVISION SYMBOL
- EMERGENCY PUSH BUTTON

LIGHTING LEGEND

- 2'X4' LIGHT FIXTURE
  UPPERCASE LETTER = FIXTURE TYPE
  LOWERCASE LETTER = SWITCH CIRCUIT
- 2'X2' LIGHT FIXTURE
- WALL-MOUNTED LINEAR FIXTURE
- SURFACE-MOUNTED STRIP FIXTURE
- TRACK LIGHTING
- STRIP OR TAP LIGHTING
- RECESSED CAN LIGHT
- HANGING PENDANT FIXTURE
- SURFACE-MOUNTED CIRCULAR FIXTURE
- WALL-MOUNTED SCONCE OR WALL-PACK
- EMERGENCY LIGHT, WALL-MOUNTED
- EMERGENCY LIGHT, CEILING-MOUNTED
- EXIT SIGN, WALL/CEILING-MOUNTED, CHEVRON DIRECTION INDICATED BY ARROWS
- EXIT SIGN AND EMERGENCY LIGHT, WALL/CEILING-MOUNTED
- OCCUPANCY SENSOR, WALL/CEILING-MOUNTED, DUAL TECHNOLOGY TYPE, UNO
- PHOTOCELL
- LIGHT SWITCH
  3 = 3-WAY
  4 = 4-WAY
  D = 0-10V DIMMER, UNO
- COMBINATION WALL-SWITCH/OCCUPANCY SENSOR
- CHANDELIER
- CEILING FAN

SYSTEMS LEGEND

- TELECOM OUTLET, INSTALL AT 18", UNO
- TELECOM FLOOR OUTLET
- TV OUTLET, INSTALL AT 72" AFF, UNO
- SPEAKER
- CAMERA
- ANTENNA

ABBREVIATIONS

A	AMPERE
AC	ABOVE COUNTER
AFC	AVAILABLE FAULT CURRENT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AH	AIR HANDLER
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
AWG	AMERICAN WIRE GAUGE
BFG	BELOW FINISHED GRADE
BJ	BONDING JUMPER
BKR	BREAKER
BLDG	BUILDING
C	CONDUIT
CKT	CIRCUIT
CLG	CEILING
CONC	CONCRETE
COORD	COORDINATE
CPT	CONTROL POWER TRANSFORMER
CRI	COLOR RENDITION INDEX
CTRL	CONTROL
Cu	COPPER
CU	CONDENSING UNIT
DEF	DIESEL EXHAUST FUEL
DISC	DISCONNECT
DISP	DISPENSER
DGR	DRIVEN GROUND ROD
EA	EACH
EBJ	EQUIPMENT BONDING JUMPER
EF	EXHAUST FAN
EGC	EQUIPMENT GROUNDING CONDUCTOR
EJ	EXPANSION JOINT
EM	EMERGENCY
ENCL	ENCLOSURE, ENCLOSED
ETR	EXISTING TO REMAIN
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EX	EXISTING
EXIST	EXISTING
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FMP	FUEL MONITORING PANEL
G, GND	GROUND
GEC	GROUNDING ELECTRODE CONDUCTOR
GFI	GROUND FAULT INTERRUPT
GWB	GYPSUM WALL BOARD
HD	HEAVY DUTY
HOA	HAND-OFF-AUTO
I.S.	INTRINSICALLY SAFE
JB	JUNCTION BOX
K	KELVIN
KVA	KILO-VOLT AMPERE
KW	KILO-WATT
LED	LIGHT EMITTING DIODE
LFMC	LIQUIDTIGHT FLEXIBLE METAL CONDUIT
LTG	LIGHTING
LTS	LIGHTS
MBJ	MAIN BONDING JUMPER
MCB	MAIN CIRCUIT BREAKER
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MTD	MOUNTED
N	NEUTRAL
NEC	NATIONAL ELECTRICAL CODE
NF	NON-FUSED
NL	NIGHT LIGHT
NS	NOT SWITCHED
NTS	NOT TO SCALE
OAE	OR APPROVED EQUAL
OE	OR EQUAL
OEM	ORIGINAL EQUIPMENT MANUFACTURER
OH	OVERHEAD
OL	OVERLOAD
P	POLE
PB	PULL BOX
PC	PHOTOCELL
PP	PUSH PLATE
PH, Ø	PHASE
PNL	PANEL
PRI	PRIMARY
REC	RECEPTACLE
RECEPT	RECEPTACLE
REF	REFRIGERATOR
RGS	RIGID GALVANIZED STEEL
RTU	ROOFTOP UNIT
SBJ	SYSTEM BONDING JUMPER
SEC	SECONDARY
SPD	SURGE PROTECTIVE DEVICE
STP	SUBMERSIBLE TURBINE PUMP
SW	SWITCH
TC	TIMECLOCK
THD	TOTAL HARMONIC DISTORTION
TYP	TYPICAL
UG	UNDERGROUND
UNO	UNLESS NOTED OTHERWISE
V	VOLT
VA	VOLT-AMPERE
VAC	VOLTS ALTERNATING CURRENT
W	WIRE OR WATT
W/	WITH
WAP	WIRELESS ACCESS POINT
WP	WEATHERPROOF
WW	WIREWAY
XFMR	TRANSFORMER
XP	EXPLOSION PROOF
~	APPROXIMATELY
Δ	DELTA
§	SECTION
>	GREATER THAN
≥	GREATER THAN OR EQUAL TO
<	LESS THAN
≤	LESS THAN OR EQUAL TO

NOTE: NOT ALL SYMBOLS AND ABBREVIATIONS ARE USED

GENERAL NOTES

1. DIESEL CANOPY AND ASSOCIATED TANKS, DISPENSERS, AND LIGHTING WERE DESIGNED BY OTHERS. REFER TO DIESEL DRAWINGS FOR DETAILS.
2. GENERATOR, ATS, AND OTHER MODIFICATIONS ASSOCIATED WITH THE GENERATOR AND DEISEL ITEMS WERE INCLUDED IN A PREVIOUS DRAWING PACKAGE. SUCH ITEMS (THOSE SPECIFIED AS "NEW" IN THE PREVIOUS DESIGN PACKAGE) ARE LABELED AS "EXISTING" IN THIS SET OF DRAWINGS.

ELECTRICAL SHEET INDEX

FOR REVIEW

COBURN AND ASSOCIATES, INC
MECHANICAL • ELECTRICAL • CONSULTING ENGINEERS
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PH 386-454-3748 CELL 352-538-0163
CERTIFICATE OF AUTHORIZATION 3687

DRAWN APPROVED

CA JOB NO. 2205

DATE OF ISSUE 10/05/2022

REVISIONS

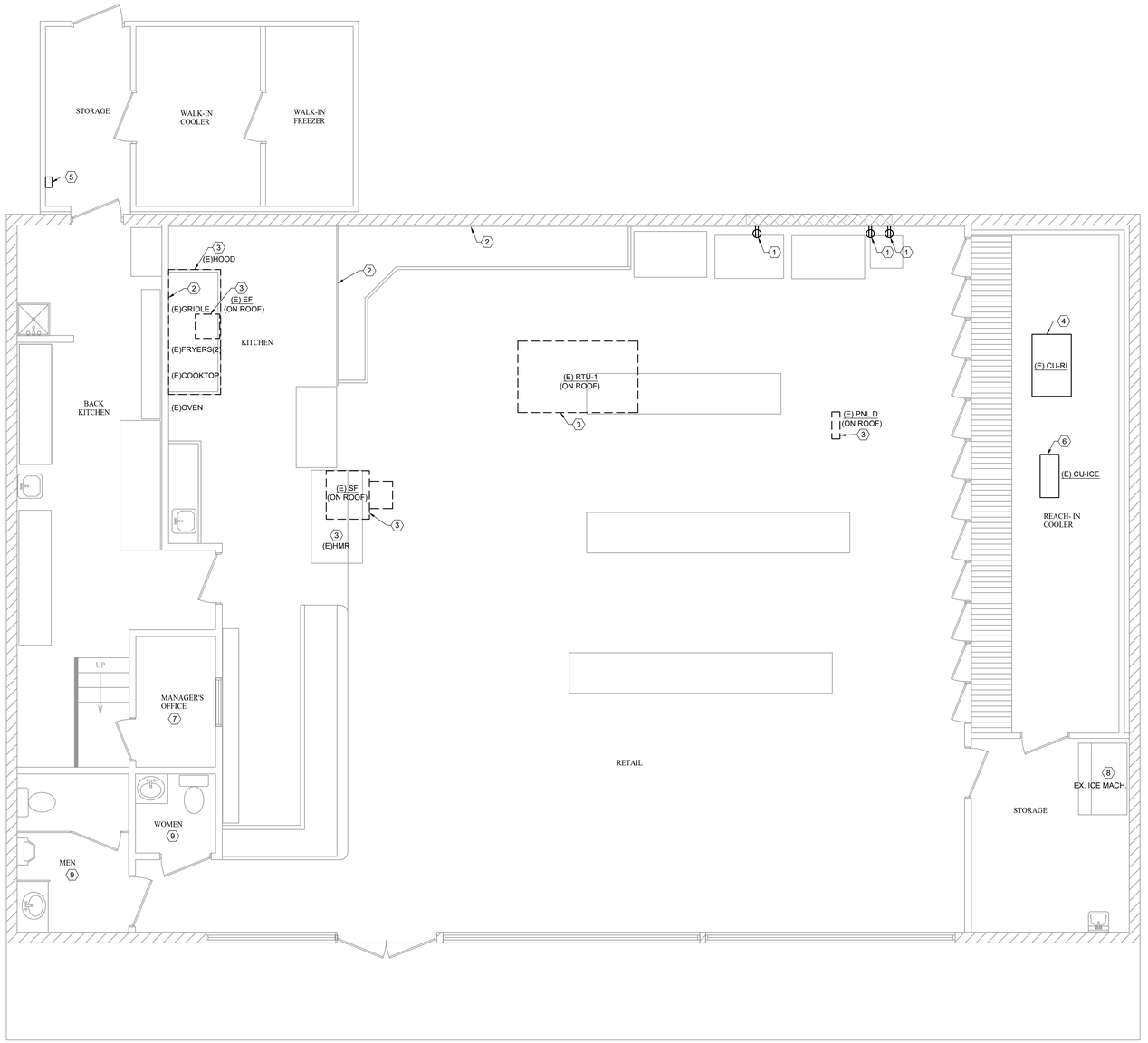
PROJECT TITLE AND LOCATION

RENOVATIONS FOR
SUNSTOP STORE #303
1166 E DUVAL ST
LAKE CITY, FL 32055

SHEET TITLE

ELECTRICAL SITE PLAN, LEGEND, AND ABBREVIATIONS

E100



ELECTRICAL DEMOLITION PLAN

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

FOR REVIEW

SHEET NOTES

A. NOT USED THIS SHEET.

SHEET KEYNOTES

1. DEMO RECEPTACLES AND ASSOCIATED BRANCH CIRCUITING FOR WALL DEMOLITION.
2. DEMO EXISTING CIRCUITS ALONG WALL AS REQ'D TO ACCOMODATE NEW CIRCUITS.
3. DEMO ITEM AND ASSOCIATED CIRCUIT/FEEDER BACK TO SOURCE..
4. DEMO EXISTING BRANCH CIRCUIT TO CONDENSING UNIT. RELOCATE UNIT TO NEW CURB.
5. DEMO EXISTING TRANSFORMER.
6. DISCONNECT EXISTING UNIT AND DEMO ABOVE ROOF CIRCUITING. RELOCATE UNIT TO NEW CURB.
7. DEMO ELECTRICAL DEVICES ON EXISTING OFFICE WALLS AS REQUIRED FOR NEW OFFICE. PRESERVE RECEPTACLE HOMERUN AND LIGHTING CIRCUIT.
8. DEMO EXISTING FEED TO ICE MACHINE. RELOCATE MACHINE.
9. DEMO EXISTING POWER AND LIGHTING THIS ROOM.

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RENOVATIONS FOR
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1166 E DUVAL ST
LAKE CITY, FL 32055

SHEET TITLE

ELECTRICAL DEMO PLAN

E200

INTERIOR LIGHTING COMPLIANCE

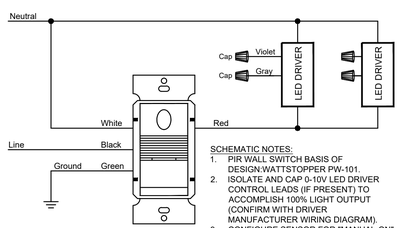
PER 2020 FBC - ENERGY CONSERVATION, 7TH EDITION - TABLE C405.3.7(2) SPACE-BY-SPACE METHOD

SPACE	CLASSIFICATION	AREA	ALLOW. W/SQFT	ALLOW. WATTS	INSTALLED	CONTROL
RETAIL & CASHIER	SALES AREA	1,898	1.22	2,316	1,680	LC VIA TC
KITCHEN	FOOD PREP AREA	217	1.06	230	120	PIR CLG OS
BACK KITCHEN	FOOD PREP AREA	252	1.06	267	210	PIR CLG OS
MENS	RESTROOM (OTHERWISE)	60	0.85	51	45	PIR WALL SW
WOMENS	RESTROOM (OTHERWISE)	43	0.85	37	45	PIR WALL SW
MANAGER OFFICE	OFFICE (ENCLOSED)	41	0.93	38	30	PIR WALL SW
REACH-IN COOLER	STORAGE ROOM	280	EX	EX	EX	EX
STORAGE	STORAGE ROOM	117	EX	EX	EX	EX
STORAGE	STORAGE ROOM	60	EX	EX	EX	EX
WALK-IN COOLER	STORAGE ROOM	149	EX	EX	EX	EX
BEER CAVE	SALES AREA	88	1.22	107	100	PIR CLG OS
				3,046	1,630	

LIGHTING FIXTURE SCHEDULE

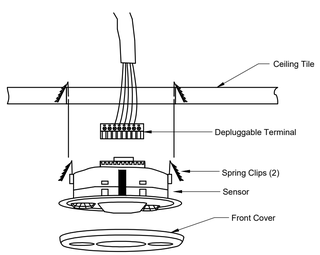
MARK	WATTS	LUMENS	CCT	DESCRIPTION
A	30	3,000	4000K	EXISTING 2 X 2 FLAT PANEL LED LIGHT FIXTURE.
B	30	3,000	4000K	2X2 LED FLAT PANEL FIXTURE TO MATCH EXISTING. 30W, 4000K CCT, 3000 LUMENS. **LSI #SFP22 LED 30 UE DIM 40 U**
C	15	1,000	3500K	2' LED VANITY LIGHT. EXTRUDED ALUMINUM HOUSING. FROSTED ACRYLIC LENS. 0-10V 1% DIMMING. UL DAMP LISTED. **DAY-BRITE #TAB2L-ASY-120-SWH-DIM**
D		3,355	4000K	4' LED STRIP LIGHT. 22 GA STEEL HOUSING. LED LIGHT ENGINE. 0-10V DIMMING. UL DAMP LISTED. **BEGHELLI #SLLED-4-HT-LO-WT40-120-277-SM**
F	50	5,673	4000K	4' FULLY ENCLOSED AND GASKETED INDUSTRIAL FIXTURE. 100% UV STABILIZED POLYCARBONATE HOUSING. FROSTED, UV STABILIZED POLYCARBONATE DIFFUSER. UL DAMP LISTED. FOR LOW TEMP APPLICATION. **BEGHELLI #BS100LED-4-HT-LO-WT40-120-277V-SM**
G			4000K	4' LED STRIP LIGHT. UL WET LOCATION LISTED UNDER COVERED CEILING.
J	65	8,248	4000K	EXTERIOR LED FULL CUTOFF WALL SCONCE. DIE-CAST HOUSING. 70 CRI MIN. UL WET LISTED. TYPE 3 DISTRIBUTION. **SIGNIFY STONCO #LPW32-70-NW-G3-3-UNV-BZ**
X	3	-	-	LED EXIT SIGN. WHITE THERMOPLASTIC HOUSING. RED LETTERS. SINGLE FACE. FIELD-SELECTABLE CHEVRONS. PROVIDE WALL OR CEILING MOUNTING SUPPORTS AS NECESSARY. AC OPERATION WITH Ni-Cad BATTERY. UL DAMP LISTED. **BEGHELLI #VA4-R-SA-AT**
Y	3	-	-	TWINHEAD LED EMERGENCY LIGHT FIXTURE. WHITE THERMOPLASTIC HOUSING. FULLY ADJUSTABLE HEADS. Ni-Cad BATTERY. UL DAMP LISTED. **BEGHELLI #PEH-T20-AT**
Z	4	-	-	LED COMBINATION EXIT AND EMERGENCY LIGHT FIXTURE. WHITE THERMOPLASTIC HOUSING. RED LETTERS. SINGLE OR DOUBLE FACE. FIELD ADJUSTABLE CHEVRONS UNIVERSALLY MOUNTED. TWO FULLY ADJUSTABLE HEADS. LEAD-ACID BATTERY. TEST SWITCH. UL DAMP LISTED. **BEGHELLI #XCLED-R-U-W-AT**

LIGHTING FIXTURE SCHEDULE NOTES:
FIXTURES SHALL HAVE 80 CRI (MIN.), UNLESS HIGHER CRI IS NOTED.

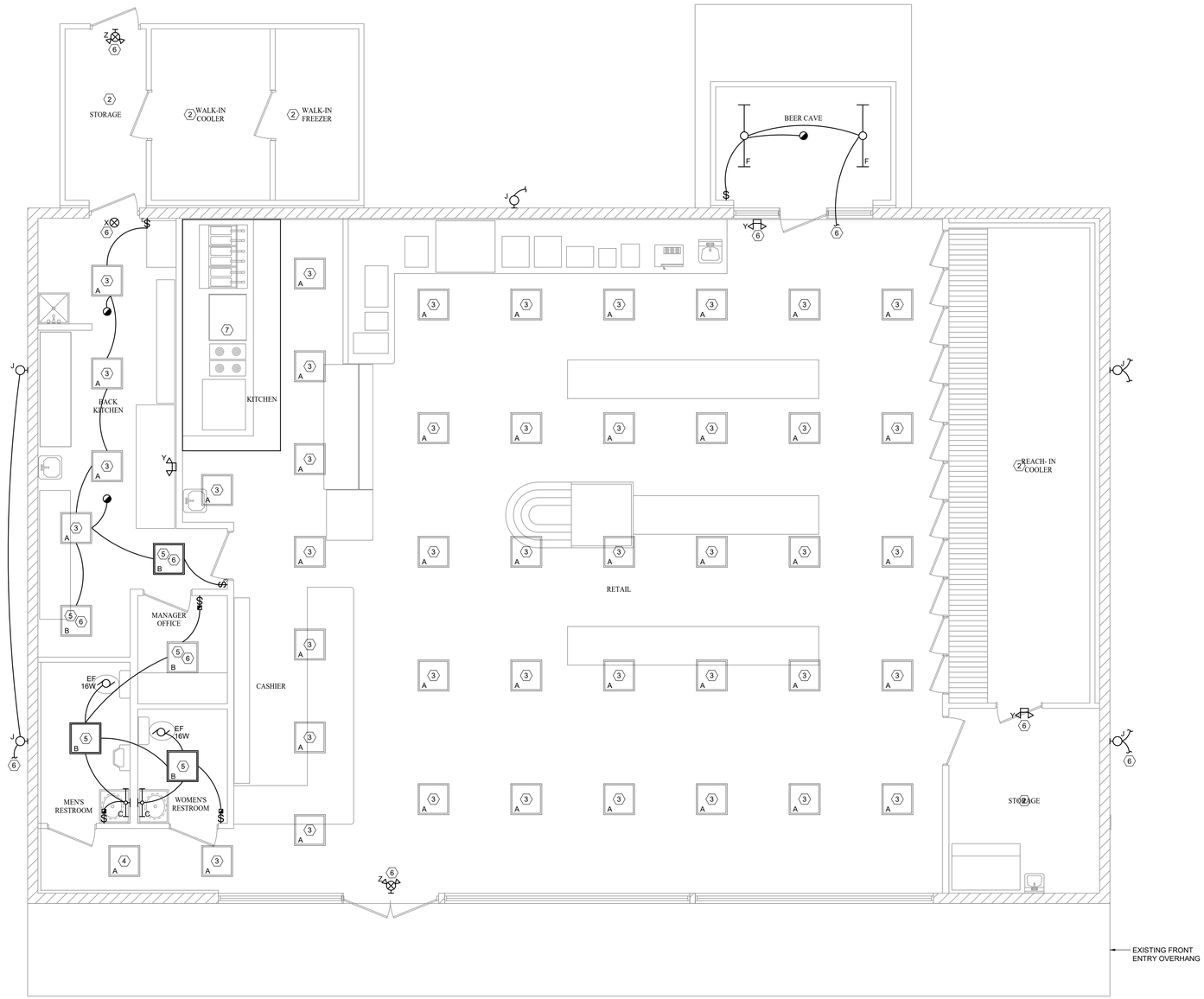


SCHEMATIC NOTES:
1. PIR WALL SWITCH BASIS OF DESIGN:WATTSTOPPER PW-101.
2. ISOLATE AND CAP 0-10V LED DRIVER CONTROL LEADS (IF PRESENT) TO ACCOMPLISH 100% LIGHT OUTPUT (CONFIRM WITH DRIVER MANUFACTURER WIRING DIAGRAM).
3. CONFIGURE SENSOR FOR "MANUAL-ON", "AUTO-OFF" OPERATION. SET "AUTO-OFF" TIME DELAY SETTING FOR 15 MINUTES.

TYPICAL PIR WALL SWITCH SCHEMATIC



TYPICAL CEILING SENSOR MOUNTING



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

SHEET NOTES

A. NL, EXIT, AND EM FIXTURES SHALL BE CONNECTED TO NON-SWITCHED CIRCUIT CONDUCTOR DIRECTLY FROM BREAKER.

SHEET KEYNOTES

1. MANUAL ONLY LIGHTING CONTROL. FOR SAFETY, TO COMPLY WITH NEC 110.26(D).
2. EXISTING LIGHTING TO REMAIN THIS ROOM.
3. EXISTING LIGHT FIXTURE IN NEW CEILING.
4. EXISTING LIGHT FIXTURE, RELOCATED.
5. NEW FIXTURE.
6. CONNECT TO EXISTING LIGHTING CIRCUIT.
7. HOOD LIGHTING PROVIDED WITH HOOD.

FOR REVIEW

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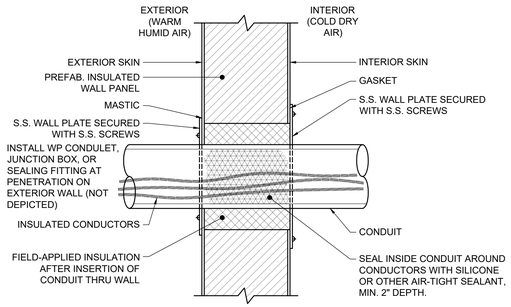
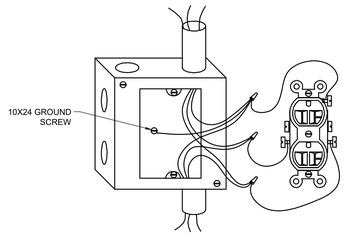
PROJECT TITLE AND LOCATION
RENOVATIONS FOR
SUNSTOP STORE #303
1166 E DUVAL ST
LAKE CITY, FL 32055

SHEET TITLE
ELECTRICAL LIGHTING PLAN

E300

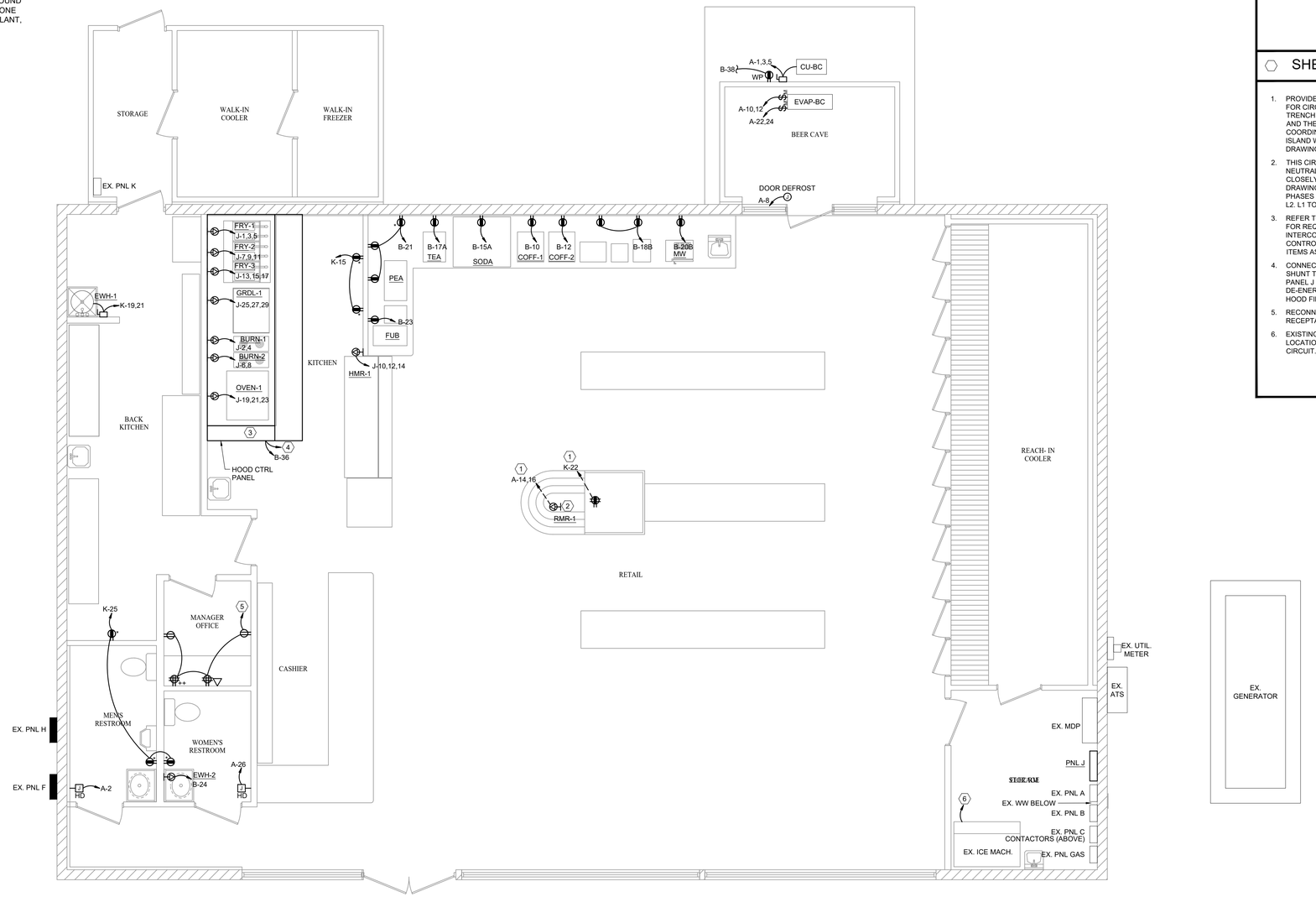


CONDUIT PENETRATION THRU COOLER/ FREEZER WALL DETAIL



1. NEUTRAL CONDUCTORS SHALL BE CONNECTED INDEPENDENTLY OF THE DEVICE AND PIGTAILED TO THE DEVICE.
2. HOT CONDUCTORS SHALL BE CONNECTED INDEPENDENTLY OF THE DEVICE AND PIGTAILED TO THE DEVICE.
3. UNUSED SCREW TERMINALS ON DEVICE SHALL BE TIGHTENED PRIOR TO INSTALLATION INTO OUTLET BOX.
4. INSTALL SEPARATE GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR. CONDUCTOR SHALL BE CONNECTED TO CIRCUIT EQUIPMENT GROUNDING CONDUCTOR AND BONDED TO OUTLET BOX.

TYPICAL OUTLET WIRING DETAIL



ELECTRICAL POWER AND SYSTEMS PLAN

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

SHEET NOTES

A. NOT USED THIS SHEET.

SHEET KEYNOTES

1. PROVIDE CONDUITS UNDERFLOOR FOR CIRCUITS AT ISLAND. ROUTE IN TRENCH WITH DRAIN PIPE TO WALL AND THEN HOMERUNS TO PANELS. COORDINATE STUB UP LOCATIONS AT ISLAND WITH EQUIPMENT SHOP DRAWINGS.
2. THIS CIRCUIT SHALL INCLUDE NEUTRAL CONDUCTOR. COORDINATE CLOSELY WITH EQUIPMENT SHOP DRAWINGS TO ENSURE CORRECT PHASES ARE CONNECTED TO L1 AND L2. L1 TO N SHALL BE 120V.
3. REFER TO HOOD SHOP DRAWINGS FOR REQUIRED POWER AND CONTROL INTERCONNECTIONS. PROVIDE CONTROL CONNECTIONS TO ROOF ITEMS AS REQUIRED.
4. CONNECT HOOD CONTROL PANEL TO SHUNT TRIP BREAKER FOR PANEL J. PANEL J SHALL AUTOMATICALLY DE-ENERGIZE UPON ACTIVATION OF HOOD FIRE EXTINGUISHING SYSTEM.
5. RECONNECT TO EXISTING OFFICE RECEPTACLES CIRCUIT.
6. EXISTING ICE MACHINE IN NEW LOCATION. RE-FEED FROM SAME CIRCUIT.

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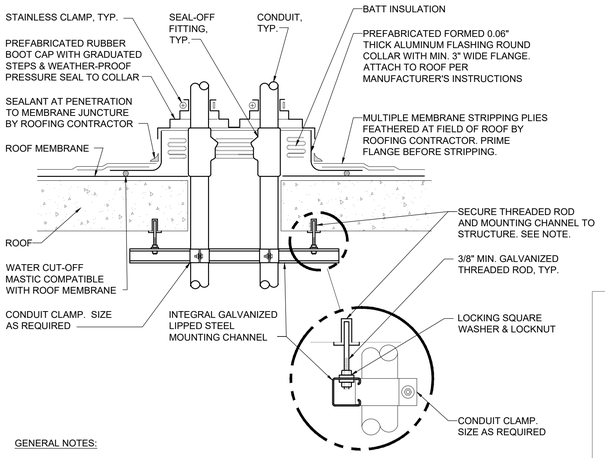
PROJECT TITLE AND LOCATION
RENOVATIONS FOR
SUNSTOP STORE #303
1166 E DUVAL ST
LAKE CITY, FL 32055

SHEET TITLE
ELECTRICAL POWER AND SYSTEMS PLAN

FOR REVIEW

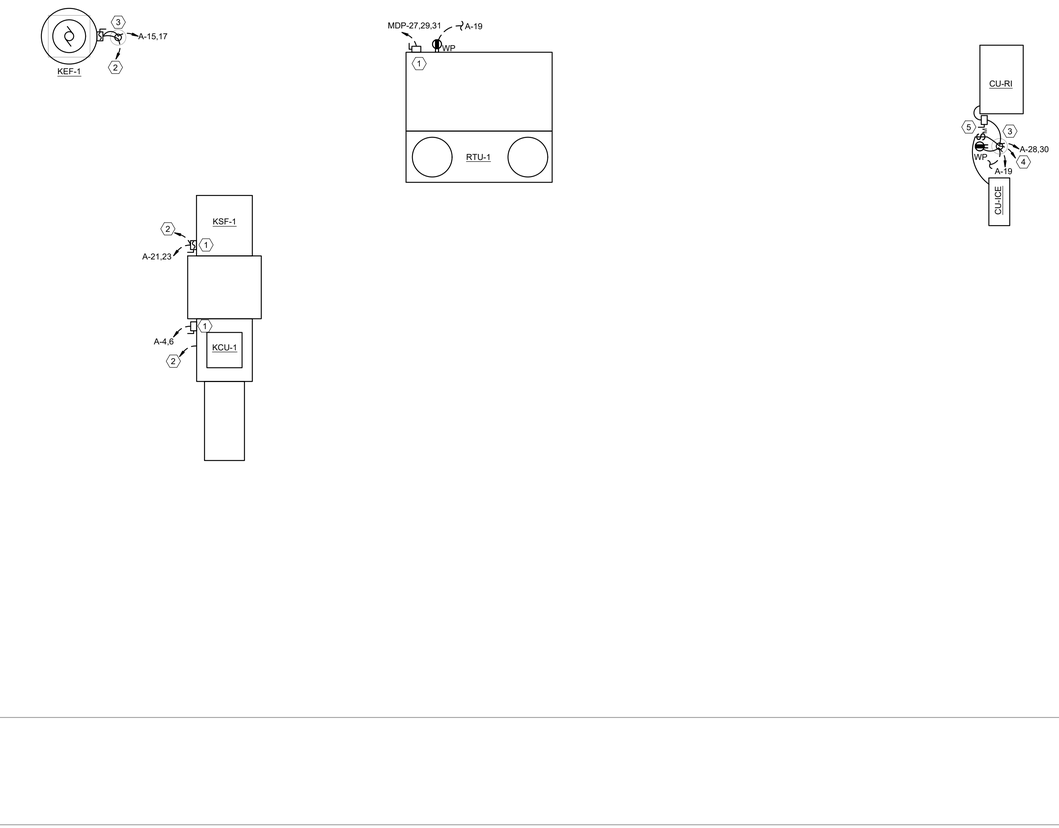
E301



GENERAL NOTES:

1. MAINTAIN A MINIMUM CLEARANCE OF 12" ON ALL SIDES OF ROOF PENETRATION FROM WALLS, CURBS, AND OTHER PROJECTIONS TO FACILITATE PROPER FLASHING.
2. FLANGES OF ADJACENT FLASHINGS SHALL NOT BE CUT OR OVERLAPPED.
3. VERIFY ROOF & STRUCTURAL SYSTEM. ANCHORING METHOD OF THREADED ROD TO ROOF STRUCTURE SHALL BE SUITABLE FOR THE ROOF STRUCTURE ENCOUNTERED.
4. COORDINATE FLASHING INSTALLATION WITH ROOFING CONTRACTOR TO ENSURE PROPER METHODS & MATERIALS ARE USED TO MAINTAIN ROOF WARRANTY.

CONDUIT ROOF PENETRATION DETAIL



ELECTRICAL POWER ROOF PLAN

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

FOR REVIEW

SHEET NOTES

A. ALL ROOF PENETRATIONS AND SUPPORT STRUCTURE FOR ELECTRICAL ITEMS SHALL BE COORDINATED WITH ROOF CONTRACTOR.

SHEET KEYNOTES

1. HOMERUNS SHALL BE ROUTED THRU MANUFACTURER-PROVIDED CONNECTION PROVISIONS LOCATED AT THE BOTTOM OF THE EQUIPMENT, (PER THE SHOP DRAWINGS) AND ROUTED CONCEALED WITHIN THE CURB TO BELOW THE ROOF.
2. PROVIDE CONTROL CABLING TO HOOD CONTROL CABINET PER HOOD EQUIPMENT SHOP DRAWINGS.
3. PROVIDE CONDUIT ROOF PENETRATION PER DETAIL.
4. RE-CONNECT TO EXISTING CIRCUIT, HOWEVER, RE-ROUTE THRU NEW ROOF PENETRATION.
5. PROVIDE CHANNEL STRUT SUPPORT STRUCTURE FOR MOUNTING OF LOCAL DISCONNECT SWITCHES AND MAINTENANCE RECEPTACLE. COORDINATE WITH NEW ROOF CURBS FOR EXISTING CU-RI AND CU-ICE.

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PROJECT TITLE AND LOCATION

RENOVATIONS FOR
SUNSTOP STORE #303
1166 E DUVAL ST
LAKE CITY, FL 32055

SHEET TITLE

ELECTRICAL POWER ROOF PLAN

E302

PROVIDE SIGNS ON NOTED EQUIPMENT. SIGNS SHALL BE LAMINATED BLACK PHENOLIC RESIN WITH SOLID WHITE CORE WITH ENGRAVED LETTERING MINIMUM OF 3/8 INCH HEIGHT.

SIGNS ON INTERIOR ITEMS MAY BE ATTACHED USING ADHESIVE. SIGNS ON EXTERIOR ITEMS SHALL BE ATTACHED USING WEATHERPROOF/UV RESISTANT ADHESIVE.

EXAMPLES ARE DEPICTED BELOW.

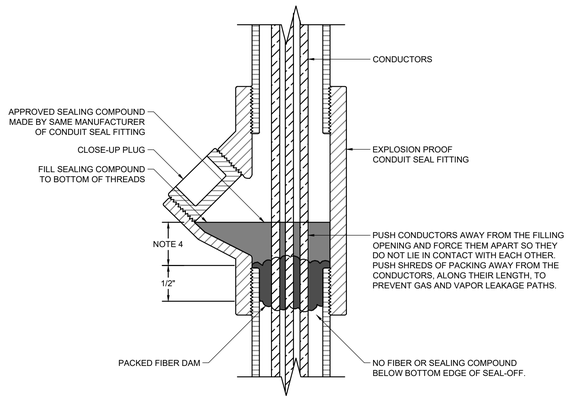
VOLTAGE	120/240 3PH HIGH LEG DELTA
PHASE A	BLACK
PHASE B	ORANGE (HIGH LEG)
PHASE C	BLUE
NEUTRAL	WHITE
GROUND	GREEN
OTHER UNIDENTIFIED SYSTEMS EXIST ON PREMISES	

PROVIDE ON INSIDE FRONT COVER OF 120/240V HLD PANEL(S)

PANEL PA
208Y/120 VOLTS, 3-PHASE, 4-WIRE
SERVED FROM
PANEL MDP, CKTS 2,4,6
ELEC ROOM #123

PROVIDE ON FRONT COVER OF EACH PANEL, WITH APPLICABLE INFORMATION ON LABEL INCLUDING PANEL NAME, VOLTAGE, PHASE, WIRE, AND FEEDER SOURCE.

EXAMPLE NAMEPLATE DETAILS

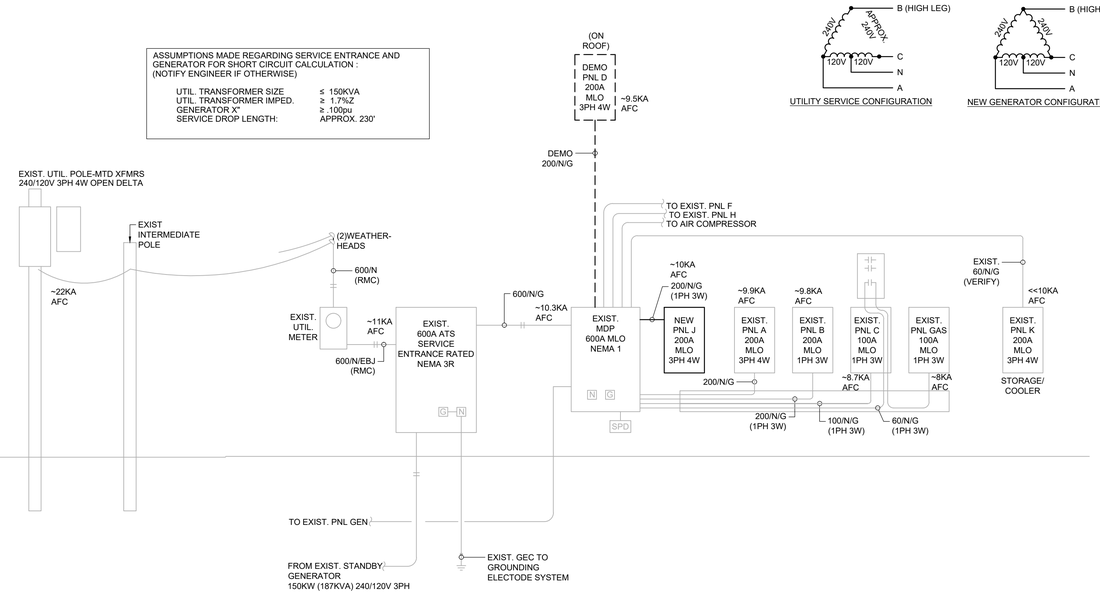


NOTES:
1. EXPLOSION PROOF CONDUIT SEAL-OFFS SHALL BE PROVIDED IN ACCORDANCE WITH NEC ARTICLES 500, 501, AND 514 (CLASS 1, DIVISIONS 1 & 2).
2. CONDUIT SEAL SHALL BE FILLED WITH A UL LISTED COMPOUND SUITABLE FOR USE IN HAZARDOUS (CLASSIFIED) AREAS.
3. CONDUIT FILL SHALL NOT EXCEED 25% OF SEAL-OFF.
4. THE THICKNESS OF THE SEALING COMPOUND SHALL BE MINIMUM THE TRADE SIZE OF THE SEALING FITTING, BUT NOT LESS THAN 5/8".

EXPLOSION PROOF CONDUIT SEAL-OFF DETAIL

ASSUMPTIONS MADE REGARDING SERVICE ENTRANCE AND GENERATOR FOR SHORT CIRCUIT CALCULATION :
(NOTIFY ENGINEER IF OTHERWISE)

UTIL. TRANSFORMER SIZE	≤ 150KVA
UTIL. TRANSFORMER IMPED.	≥ 1.7%Z
GENERATOR X"	≥ 100pu
SERVICE DROP LENGTH:	APPROX. 230'



UTILITY SERVICE CONFIGURATION

NEW GENERATOR CONFIGURATION

POWER RISER DIAGRAM

SHEET NOTES

A. ITEMS NOTED AS EXISTING ARE EXISTING OR ARE BEING PROVIDED UNDER SEPARATE, PREVIOUSLY SUBMITTED DRAWING PACKAGE WITH GENERATOR.

SHEET KEYNOTES

1. DEMO MAIN DISCONNECT SWITCH, METER SOCKET, WEATHER HEAD, AND ASSOCIATED NIPPLES AND FEEDERS.
2. DEMO FEEDER UP TO INTERCEPT LOCATION.
3. DEMO FEEDER.
4. PROVIDE GENERATOR REMOTE STOP BUTTON ADJACENT TO METER. CONNECT TO GENERTOR CONTROLLER (REMOTE SHUT OFF) .
5. GENERATOR SHALL BE CONSIDERED A SEPARATELY DERIVED SYSTEM. PROVIDE SYSTEM BONDING JUMPER BETWEEN GENERATOR NEUTRAL AND GENERATOR FRAME/GROUND.
6. PROVIDE MAIN BONDING JUMPER BETWEEN INCOMING SERVICE (NORMAL) NEUTRAL AND GROUND BAR WITHIN ENCLOSURE. DO NOT BOND GENERATOR (EMER) NEUTRAL OR LOAD NEUTRAL TO GROUND AT ATS.
7. 3-PHASE 4-WIRE ATS WITH SWITCHED NEUTRAL (4-POLE). SERVICE ENTRANCE BREAKER (ON INCOMING NORMAL SIDE) SHALL HAVE 600A TRIP.
8. HOMERUN CIRCUITS (WITH COMMON RACEWAY AND EQUIPMENT GROUND CONDUCTOR) TO PANEL FOR BATTERY CHARGER, JACKET WATER HEATER, AND MISC. POWER OUTLET.
9. GENERATOR CONTROLLER IN ENCLOSURE.
10. BOND ATS NORM. NEUTRAL TO EXISTING AND NEW GROUNDING ELECTRODES (METALLIC COLD WATER PIPING).
11. NOT USED.
12. CONFIRM EXISTING OR PROVIDE NEW.
13. PROVIDE LABEL, SEE DETAILS.
14. PROVIDE CT METER SOCKET AND CT CABINET IN ACCORDANCE WITH UTILITY REQUIREMENTS.

COBURN AND ASSOCIATES, INC
MECHANICAL • ELECTRICAL • CONSULTING ENGINEERS
P.O. BOX 577 HIGH SPRINGS, FLORIDA
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CERTIFICATE OF AUTHORIZATION 3687

C.A. JOB NO. 2205 | DRAWN | APPROVED
DATE OF ISSUE 10/05/2022
REVISIONS

PROJECT TITLE AND LOCATION
RENOVATIONS FOR
SUNSTOP STORE #303
1166 E DUVAL ST
LAKE CITY, FL 32055

SHEET TITLE
ELECTRICAL RISER DIAGRAM

FOR REVIEW

E400

EXISTING 3-PHASE PANEL SCHEDULE — MDP

MLO (A) 600 | VOLTAGE 240/120 ▲ | PHASE WIRE 3PH 4W | INTERRUPT 42kAIC | ENCL TYPE 1
MTG SPACE 63" MIN. | MOUNTING SURFACE | BRAND/MODEL EATON PRL | LOCATION EXTERIOR WALL | FED FROM ATS
REMARKS: CAUTION: 3PH HIGH LEG PANEL; COORD. PHASE CONNECTION OF 2-POLE BREAKERS TO AVOID HIGH LEG 250A MAX BRANCH BREAKERS

	DESCRIPTION	LOAD TYPE	BKR A/P	CKT NO.	PHASE VA A	PHASE VA B (HIGH LEG)	PHASE VA C	CKT NO.	BKR A/P	LOAD TYPE	DESCRIPTION
1 3	~~EX. PNL D (RDDR)~~ **PNL J**	S	**200/3 ST**	1	31,093 0			2	~~60/3~~	G	SPD (200KA)
	---	S	---	3		28,493 0		4	---	---	---
	---	S	---	5			28,493 0	6	---	---	---
	EX. PNL A	V	200/1	7	18,120 0			8			
	---	V	---	9		14,915 0		10			
	---	V	---	11			10,287 2,640	12	60/2	V	PNL F (DSL PANEL)
	EX. PNL K	V	60/3	13	7,674 4,340			14	---	V	---
	---	S	---	15		3,952 0		16			
	---	V	---	17			8,100 2,560	18	100/2	V	EX. PNL C
				19	0 2,740			20	---	V	---
				21		0 0		22			
	EX. PNL B	V	200/1	23			17,072 1,000	24	50/2	V	PNL GEN
	---	V	---	25	14,318 1,730			26	---	V	---
1 4	SPACE **RTU**	V	**110/3 L**	27		9,384 0		28			
	---	V	---	29			9,384 3,159	30	40/2	M	AIR COMPRESSOR (PBR DIESEL DWGS)
	---	V	---	31	9,384 3,159			32	---	M	---
				33		0 0		34			
	EX. PNL G/S	V	60/2	35			3,140 1,744	36	60/2	V	PNL H
	---	V	---	37	2,740 2,090			38	---	V	---
				39		0 0		40			
				41			0 0	42			
					0 0						
						0 0					
							0 0				
					0 0						
						0 0					
							0 0				
					97,387	56,743	87,578				

	CONNECTED	NEC FEEDER
VA LIGHTING	10,497	13,121
VA RECEPTACLE	11,700	10,859
VA MOTOR	35,726	47,819
VA GENERAL	29,272	29,272
VA W/ MULTIPLIER	150,514	97,834 65% KITCH EQUIP
	VA	AMPS
TOTAL CONNECTED	241,709	581
TOTAL NEC FEEDER	193,887	466

LOAD TYPE: L = LIGHTING; R = RECEPTACLE; M = MOTOR; G = GENERAL; S = SPECIAL; V = VARIED; * = NON CONCURRENT

EXISTING 3-PHASE PANEL SCHEDULE — A

MLO (A) 200 | VOLTAGE 240/120 ▲ | PHASE WIRE 3PH 4W | INTERRUPT 10kAIC | ENCL TYPE 1
POLES 30 | MOUNTING SURFACE | BRAND/TYPE CUTLER HAMMER | LOCATION ELEC RM | FED FROM **MDP**
REMARKS: CAT, NO. CHEESE COVER; CH TYPE LOAD CENTER, TAN BREAKERS; CAUTION: 3PH HIGH LEG PANEL

	DESCRIPTION		BKR A/P	CKT NO.	PHASE VA C	PHASE VA A	PHASE VA B (HIGH LEG)	CKT NO.	BKR A/P		DESCRIPTION
	~~EX. FRYER~~ **CU-BC**	S	40/3	1	3,467 1,000			2	~~50/3~~ **20/1**	G	~~EX. FRYER~~ **HAND DRYER** 1
	---	S	---	3		3,467 3,072		4	--- **50/2**	M	**KCU-1** 1
	---	S	---	5			3,457 3,072	6	--- ---	M	--- ---
	EX. ICE	S	20/2	7	1,440 500			8	~~60/3~~ **20/1**	G	~~SPARE~~ **BEER DOOR DEFR** 1
	---	S	---	9		1,440 480		10	--- **20/2**	S	--- **EVAP-BC (FAN)** 1
	SPACE (HIGH LEG)			11			0 480	12	--- ---	S	---
	LXSIIING LOAD EXISTING LOAD	R	20/1 20/1	13	360 1,440			14	30/2 **20/2**	S	LX. OWN **RMR-1** 1
5	LX. CUK FAN/LX CUK LIG **KEF-1**	M	(2)20/1 **30/2**	15		2,040 1,200		16	--- ---	S	--- ---
	SPARE ---	M	20/2 ---	17			2,040 0	18			SPACE (HIGH LEG)
1	--- **ROOF RECS**	R	--- **20/1**	19	360 1,360			20	50/2 **(2)20/1**	V	LX. DILI MOI CASE (R)CKTS 15A&B 5
1	LX. WARMER **KSF-1**	M	20/1 **15/2**	21		1,056 1,800		22	--- **20/2**	S	--- **EVAP-BC (DEFR)** 1
	---	M	---	23			1,056 1,800	24	20/2 ---	S	LX. WARMER ---
	LX. COMPSR LIK EXISTING LOAD	R	20/1 20/1	25	360 0			26	--- **20/1**	G	~~SPARE~~ ***HAND DRYER** 1
	LX. FLOOD LI LAS1 EXISTING LOAD	V	20/1 20/1	27		565 3,000		28	50/2 **40/2**	S	LX. GRILL **CU-RI (ROOF)** 2
	SPACE (HIGH LEG)			29			0 3,000	30	---	S	---
	VA TOTAL EACH PHASE				10,287	18,120	14,915				

	CONNECTED	NEC FEEDER
VA LIGHTING	785	981
VA RECEPTACLE	1,260	1,260
VA MOTOR	13,296	14,832
VA GENERAL	1,500	1,500
VA W/ MULTIPLIER	26,480	17,212 65%
	VA	AMPS
TOTAL CONNECTED	43,321	104
TOTAL NEC FEEDER	35,785	86

NEC Feeder calc: Lighting per NEC 215.2 & 220.12, Receptacle per NEC 220.14 & 220.44, Motor per NEC 430.24.
LOAD TYPE: L = LIGHTING; R = RECEPTACLE; M = MOTOR; G = GENERAL; S = SPECIAL; V = VARIED; * = NON CONCURRENT

EXISTING 1-PHASE PANEL SCHEDULE — B

MLO (A) 200 | VOLTAGE 120/240 | PHASE WIRE 1PH 3W | INTERRUPT 10kAIC | ENCL TYPE 1
POLES 42 | MOUNTING SURFACE | BRAND/TYPE CUTLER HAMMER | LOCATION ELEC RM | FED FROM **MDP**
REMARKS: CH TYPE LOAD CENTER, TAN BREAKERS

DESCRIPTION	LOAD TYPE	BKR A/P	CKT NO.	PHASE VA A	PHASE VA C	CKT NO.	BKR A/P	LOAD TYPE	DESCRIPTION
EX. SIGN/AIR PUMP	M	10/1	1	1,200 1,200		2	20/2	G	EXISTING LOAD
EXISTING LOAD EXISTING LOAD	R	20/1 20/1	3		360 1,200	4	---	G	---
EX. FLOOR BOX EXISTING LOAD	R	20/1 20/1	5	360 360		6	20/1 20/1	R	EXISTING LOAD EXISTING LOAD
EXISTING LOAD	R	20/1	7		360 1,380	8	20/1 20/1	V	EX. LIGHTS EXISTING LOAD
EXISTING LOAD EXISTING LOAD	R	20/1 20/1	9	360 1,800		10	~~40/2~~ **20/1**	S	~~EX. SS COFFEE~~ **COFF-1** 1
EXISTING LOAD EXISTING LOAD	R	20/1 20/1	11		360 1,800	12	--- **20/1**	S	--- **COFF-2** 1
LXISIIING LOAD	R	10/1	13	360 360		14	20/1 20/1	R	LXISIING LOAD EXISTING LOAD
LX. HIC **SODA** EXISTING LOAD	V	20/1 20/1	15		912 360	16	20/1 20/1	R	LXISIING LOAD EXISTING LOAD
LX. SSTCHI **TEA** EXISTING LOAD	V	20/1 20/1	17	1,836 540		18	20/1 20/1	R	LXISIING LOAD ~~EX.SIC~~ **SS REC**
EXISTING LOAD EXISTING LOAD	R	20/1 20/1	19		360 1,380	20	20/1 20/1	V	LXISIING LOAD ~~EX.RIC~~ **MW**
LX. HYDR **RECS & PEA**	V	40/2 **20/1**	21	1,032 360		22	20/1	R	LXISIING LOAD
--- **FUB**	S	--- **20/1**	23		1,440 3,500	24	20/2/1 **30/1**	S	LX. CHG/EX. INSARS FAN **EWH-2** 1
LX. MONITOR	R	20/1	25	180 360		26	20/1	R	LX. DILI RECEPT EXISTING LOAD
LXISIING LOAD	R	20/1	27		180 2,400	28	50/2	S	LX. FRIP CASL
LXISIING LOAD	R	20/1	29	180 2,400		30	---	S	---
EXISTING LOAD	R	20/1	31		180 0	32	20/1 20/1		EXISTING LOAD EXISTING LOAD
EXISTING LOAD EXISTING LOAD	R	20/1 20/1	33	360 0		34	20/1 20/1		EXISTING LOAD EXISTING LOAD
EXISTING LOAD	R	20/1	35		180 360	36	~~30/3~~ **15/1**	G	~~SPARE~~ **HOOD CTRL** 1
EX. WALK LIGHT	L	20/1	37	200 360		38	20/1	R	EXTERIOR RECS
EXISTING LOAD EXISTING LOAD	R	20/1 20/1	39		360 0	40	20/1 20/1		EXISTING LOAD EXISTING LOAD
EX. SPRINKLER SYSTEM EX. ICE CREAM FREEZER	V	20/1 20/1	41	510 0		42	20/1		EXISTING LOAD
				14,318	17,072				

	CONNECTED	NEC FEEDER
VA LIGHTING	1,400	1,750
VA RECEPTACLE	2,920	2,920
VA MOTOR	1,200	1,500
VA GENERAL	2,770	2,770
VA W/ MULTIPLIER	18,100	11,765 65%
	VA	AMPS
TOTAL CONNECTED	31,390	131
TOTAL NEC FEEDER	25,705	107

LOAD TYPE: L = LIGHTING; R = RECEPTACLE; M = MOTOR; G = GENERAL; S = SPECIAL; V = VARIED; * = NON CONCURRENT

NEW 3-PHASE PANEL SCHEDULE — J

MLO (A) 200 | VOLTAGE 240/120 ▲ | PHASE WIRE 3PH 4W | INTERRUPT 22kAIC | ENCL TYPE 1
POLES 30 | MOUNTING SURFACE | B.O.D. EATON PRL | LOCATION ELEC RM | FED FROM MDP
REMARKS: SHUNT-TRIPPED PANEL FOR HEATING ITEMS UNDER HOOD

DESCRIPTION	LOAD TYPE	BKR A/P	CKT NO.	PHASE VA A	PHASE VA B (HIGH LEG)	PHASE VA C	CKT NO.	BKR A/P	LOAD TYPE	DESCRIPTION
FRY-1	S	45/3	1	4,800 2,600			2	30/2	S	BURN-1
---	S	---	3		4,800 2,600		4	---	S	---
---	S	---	5			4,800 2,600	6	30/2	S	BURN-2
FRY-2	S	45/3	7	4,800 2,600			8	---	S	---
---	S	---	9		4,800 2,926		10	30/3	S	HMR-1
---	S	---	11			4,800 2,926	12	---	S	---
FRY-3	S	45/3	13	4,800 2,926			14	---	S	---
---	S	---	15		4,800 0		16			SPACE
---	S	---	17			4,800 0	18			SPACE
OVEN-1	S	45/3	19	4,567 0			20			SPACE
---	S	---	21		4,567 0		22			SPACE
---	S	---	23			4,567 0	24			SPACE
GRDL-1	S	40/3	25	4,000 0			26			SPACE
---	S	---	27		4,000 0		28			SPACE
---	S	---	29			4,000 0	30			SPACE
VA TOTAL EACH PHASE				31,093	28,493	28,493				

	CONNECTED	NEC FEEDER
VA LIGHTING	0	0
VA RECEPTACLE	0	0
VA MOTOR	0	0
VA GENERAL	0	0
VA W/ MULTIPLIER	88,078	57,250 65% KITCHEN
	VA	AMPS
TOTAL CONNECTED	88,078	212
TOTAL NEC FEEDER	57,250	138

NEC Feeder calc: Lighting per NEC 215.2 & 220.12, Receptacle per NEC 220.14 & 220.44, Motor per NEC 430.24.
LOAD TYPE: L = LIGHTING; R = RECEPTACLE; M = MOTOR; G = GENERAL; S = SPECIAL; V = VARIED; * = NON CONCURRENT

FEEDER SCHEDULE

NAME	PHASE (AWG)	N (AWG)	G (AWG)	EBJ (AWG)	CONDUIT (3PH 4W)	CONDUIT (3PH 3W)	CONDUIT (1PH 2W)	AMPACITY
20	12	12	12	-	3/4"	3/4"	3/4"	20
30	10	10	10	-	3/4"	3/4"	3/4"	30
50	8	8	10	8	3/4"	3/4"	3/4"	50
60	6	6	10	8	1"	3/4"	3/4"	65
70	4	4	8	8	1-1/4"	1"	1"	85
80	4	4	8	8	1-1/4"	1"	1"	85
90	3	3	8	8	1-1/4"	1-1/4"	1"	100
100	3	3	8	8	1-1/4"	1-1/4"	1"	100
125	1	1	6	6	1-1/2"	1-1/2"	-	130
150	1/0	1/0	6	6	2"	1-1/2"	-	150
175	2/0	2/0	6	4	2"	2"	-	175
200	3/0	3/0	6	4	2"	2"	-	200
225	4/0	4/0	4	2	2-1/2"	2"	-	230
250	250	250	4	2	3"	2-1/2"	-	255
300	350	350	4	1/0	3"	3"	-	310
380	500	500	3	1/0	3-1/2"	3"	-	380
400	(2) 3/0	(2) 3/0	(2) 3	(2) 1/0	(2) 2"	(2) 2"	-	400
400*	600	600	3	1/0	4"	3-1/2"	-	420
500	(2) 250	(2) 250	(2) 2	(2) 1/0	(2) 3"	(2) 2-1/2"	-	510
600	(2) 350	(2) 350	(2) 1	(2) 2/0	(2) 3"	(2) 3"	-	620
800*	(2) 600	(2) 600	(2) 1/0	(2) 3/0	(2) 4"	(2) 3-1/2"	-	840
800	(3) 300	(3) 300	(3) 1/0	(3) 2/0	(3) 3"	(3) 2-1/2"	-	855
1000	(3) 400	(3) 400	(3) 2/0	(3) 3/0	(3) 3"	(3) 3"	-	1005
1200	(4) 350	(4) 350	(4) 3/0	(4) 4/0	(4) 3"	(4) 3"	-	1240
1200*	(3) 600	(3) 600	(3) 3/0	(3) 250	(3) 4"	(3) 3-1/2"	-	1260
1600	(5) 400	(5) 400	(5) 4/0	(5) 250	(5) 3"	(5) 3"	-	1675
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-

SIZES NOTED ABOVE ARE MINIMUM VALUES (AWG OR KCMIL).

ASSUMPTIONS FOR ITEMS ABOVE:
- AMPACITY BASED ON CU THHN/THWN-2 CONDUCTORS
- CONDUIT SIZES BASED ON PVC SCHED 40, EMT, IMC, OR RMC
- AMPACITY BASED ON TERMINATIONS & EQUIP RATED 75 DEGREE C
- CONTRACTOR IS AWARE OF CIRCUIT/FEEDER VOLTAGE

EXAMPLES:
60/G
3PH 3W FEEDER WITH EQUIPMENT GROUNDING CONDUCTOR: 3-#6AWG PHASE CONDUCTORS, NO NEUTRAL, AND 1-#10AWG EQUIPMENT GROUNDING CONDUCTOR IN A 3/4"" CONDUIT

100/N/EBJ
3PH 4W FEEDER WITH EQUIPMENT BONDING JUMPER: 3-#3AWG PHASE CONDUCTORS, 1-#3AWG NEUTRAL CONDUCTOR; AND 1-#8AWG EQUIPMENT BONDING JUMPER IN A 1-1/4"" CONDUIT"

20/G (1PH)
1PH 2W FEEDER WITH EQUIPMENT GROUNDING CONDUCTOR: 2-#12AWG PHASE CONDUCTORS (OR ONE PHASE AND ONE NEUTRAL IF 120V OR 277V), AND 1-#12AWG EQUIPMENT GROUNDING CONDUCTOR IN 3/4" CONDUIT.

20/G (1PH 3W) OR 20/N/G (1PH)
1PH 3W FEEDER WITH EQUIPMENT GROUNDING CONDUCTOR: 2-#12AWG PHASE CONDUCTORS, 1-#12AWG NEUTRAL CONDUCTORS, AND 1-#12AWG EQUIPMENT GROUNDING CONDUCTOR IN 3/4" CONDUIT.

NEW EQUIPMENT SCHEDULE

MARK	DESCRIPTION	VOLTS/PH	FLA	BKR	FEEDER	DISCONNECTING MEANS	NOTES
EWH-1	ELECT WATER HEAER (6KW)	240/1	25	35	50/G (1PH)	60A, 2P, NF, GD, NEMA 1	
EWH-2	TANKLESS WATER HEAER (3.5KW)	120/1	29	30	30/G (1PH)	PROVIDE CORD, PLUG, AND RECEP (NEMA L6-30)	
KSF-1	HOOD EXHAUST FAN (3HP)	240/1	17	30	30/G (1PH)	FACTORY-PROVIDED UNIT-MTD VFD/DISC	VFD CONVERTS 240/1 TO 208/3
KSF-1	HOOD SUPPLY FAN (1HP)	240/1	8.8	15	20/G (1PH)	FACTORY-PROVIDED UNIT-MTD VFD/DISC	VFD CONVERTS 240/1 TO 208/3
KCU-1	HOOD SUPPLY CONDENSER	240/1	25.6	50	50/G (1PH)	FACTORY-PROVIDED UNIT-MTD DISC	
RTU-1	STRAIGHT COOL, ELEC HEAT RTU	240/3	0	110	110/G	FACTORY-PROVIDED UNIT-MTD DISC	
FRY-1	ELEC FRYER - WELL 1 (14.4KW)	240/3	35	45	50/G	PROVIDE CORD, PLUG, AND RECEP (NEMA 15-50)	HENNY PENNY #OEA323
FRY-2	ELEC FRYER - WELL 1 (14.4KW)	240/3	35	45	50/G	PROVIDE CORD, PLUG, AND RECEP (NEMA 15-50)	SEE FRY-1
FRY-3	ELEC FRYER - WELL 1 (14.4KW)	240/3	35	45	50/G	PROVIDE CORD, PLUG, AND RECEP (NEMA 15-50)	SEE FRY-1
GRDL-1	ELEC GRIDLE (12KW)	240/3	29	40	50/G	PROVIDE CORD, PLUG, AND RECEP (NEMA 15-50)	GARLAND? #E24-36G
OVEN-1	COMBI OVEN SMOKER (13.7KW)	240/3	33	45	50/G	PROVIDE CORD, PLUG, AND RECEP (NEMA 15-50)	HENNY PENNY #PE-615
BURN-1	ELEC HOT PLATE BURNERS (5.2KW)	240/1	21.7	30	30/G (1PH)	PROVIDE CORD, PLUG, AND RECEP (NEMA L6-30)	TOASTMASTER #TMHPF
BURN-2	ELEC HOT PLATE BURNERS (5.2KW)	240/1	21.7	30	30/G (1PH)	PROVIDE CORD, PLUG, AND RECEP (NEMA L6-30)	TOASTMASTER #TMHPF
HMR-1	7-WELL HEATED MERCHANDIZER	240/3	21.1	30	30/N/G	PROVIDE CORD, PLUG, AND RECEP (NEMA L22-30)	?HENNY PENNY #HMR-107
FUB	FROZEN DRINK MACHINE	120/1	12	20	20/G (1PH)	CORD INCLUDED WITH MACHINE	?FUB BUNN
PEA	HEATED PEANUT DISPLAY (670W)	120/1	5.6	20	20/G (1PH)	CORD INCLUDED WITH MACHINE	?WISCO 791
TEA	TEA MAKER AND DISPENSER	120/1	13.8	20	20/G (1PH)	CORD INCLUDED WITH MACHINE	TEAZZERS SMARTBREW
SODA	SODA AND ICE DISPENSER	120/1	6.1	20	20/G (1PH)	CORD INCLUDED WITH MACHINE	LANCER 12H
COFF-1	COFFEE DISPENSER	120/1	15	20	20/G (1PH)	CORD INCLUDED WITH MACHINE	BUNN SURE IMMERSION ?312 44400.0200
COFF-2	COFFEE DISPENSER	120/1	15	20	20/G (1PH)	CORD INCLUDED WITH MACHINE	BUNN SURE IMMERSION ?312 44400.0200
MW	MICROWAVE	120/1	10	20	20/G (1PH)	CORD INCLUDED WITH MACHINE	
RMR-1	REFRIGERATED MERCHANDIZER	240/1	11.8, 10	20	30/N/G (1PH, 3W)	PROVIDE CORD, PLUG, AND RECEP (NEMA L14-30)	HUSSMAN TYS-4X-4E-S, NO EVAP PAN, 240V
EVAP-BC	BEER CAVE EVAPORATOR	240/1	4	20	20/G (1PH)	20A, AC, 2P, GENERAL USE SW, WP	
	FAN COIL DEFROST	240/1	15	20	20/G (1PH)	20A, AC, 2P, GENERAL USE SW, WP	
CU-BC	BEER CAVE CONDENSING UNIT	240/1	25	40	40/G	60A, 3P, NF, GD, NEMA 3R	

EQUIPMENT SCHEDULE NOTES:
BREAKER, FEEDER, STARTER, AND DISCONNECT SWITCH CHARACTERISTICS INDICATED ABOVE ARE BASIS OF DESIGN VALUES. SIZES AND RATINGS OF ELECTRICAL EQUIPMENT SHALL BE ADJUSTED AS REQUIRED TO ACCOMMODATE MANUFACTURER M.C.A. (MINIMUM CIRCUIT AMPACITY) AND M.O.C.P. (MAXIMUM OVERCURRENT PROTECTION) RATINGS AS NOTED ON EQUIPMENT NAMEPLATES. FEEDERS SIZES SHALL NOT DECREASE.

EXISTING 3-PHASE PANEL SCHEDULE — K

MLO (A) 200 | VOLTAGE 240/120 ▲ | PHASE WIRE 3PH 4W | INTERRUPT 10kAIC | ENCL TYPE 1
POLES 30 | MOUNTING SURFACE | BRAND/TYPE SIEMENS LC | LOCATION ELEC RM | FED FROM **MDP**
REMARKS: FED WITH 60A FEEDER; CAUTION: 3PH HIGH LEG PANEL

DESCRIPTION	LOAD TYPE	BKR A/P	CKT NO.	PHASE VA C	PHASE VA A	PHASE VA B (HIGH LEG)	CKT NO.	BKR A/P	LOAD TYPE	DESCRIPTION
COOLER	S	20/3	1	1,664 2,288			2	30/3	S	FREEZER
---	S	---	3		1,664 2,288		4	---	S	---
---	S	---	5			1,664 2,288	6	---	S	---
LIGHTS	L	20/1	7	308 0			8	30/2		~~SPARE~~ **SPARE**
THERMOSTAT	G	20/1	9		2 0		10	---		---
SPACE (HIGH LEG)			11			0 0	12			SPACE
DIGITAL MENU BOARD DELI	G	20/1	13	300 0			14	30/2		FOOD WARMER **SPARE**
RECS - KITCH 1	R	**20/1**	15		360 0		16	---		---
SPACE (HIGH LEG)			17			0 0	18			SPACE (HIGH LEG)
EWH-1 1	S	**35/2**	19	3,000 0			20			SPACE
---	S	---	21		3,000 360		22	**20/1**	R	**ISLAND** 1
SPACE (HIGH LEG)			23			0 0	24			SPACE (HIGH LEG)
RECS - RR 1	R	**20/1**	25	540 0			26			SPACE
SPACE			27		0 0		28			SPACE
SPACE (HIGH LEG)			29			0 0	30			SPACE (HIGH LEG)
VA TOTAL EACH PHASE				8,100	7,674	3,952				

	CONNECTED	NEC FEEDER
VA LIGHTING	308	385
VA RECEPTACLE	1,260	1,260
VA MOTOR	0	0
VA GENERAL	302	302
VA W/ MULTIPLIER	17,856	22,320
	VA	AMPS
TOTAL CONNECTED	19,726	47
TOTAL NEC FEEDER	24,267	58

NEC Feeder calc: Lighting per NEC 215.2 & 220.12, Receptacle per NEC 220.14 & 220.44, Motor per NEC 430.24.
LOAD TYPE: L = LIGHTING; R = RECEPTACLE; M = MOTOR; G = GENERAL; S = SPECIAL; V = VARIED; * = NON CONCURRENT

SHEET NOTES

A. CONTRACTOR SHALL MAINTAIN CONSISTENT IDENTIFICATION OF HIGH LEG IN EACH PANEL.
B. IF AVAILABLE AND CORRECTLY SIZED, EXISTING BREAKERS MAY BE RE-LOCATED AND RE-USED IN LIEU OF PROVIDING NEW BREAKERS IN EXISTING PANELS.

SHEET KEYNOTES

1. PROVIDE NEW BREAKER IN EXISTING PANEL.
2. VERIFY MOCP OF EXISTING LOAD. PROVIDE NEW BREAKER WITH TRIP VALUE AS REQUIRED TO MATCH EXISTING MOCP OF LOAD.
3. PROVIDE SHUNT TRIP ACCESSORY ON FEEDER BREAKER AND INTERLOCK WITH KITCHEN HOOD.
4. PROVIDE LOCK-OFF MEANS ON BREAKER.
5. RELOCATE PIGGYBACK BREAKER AND EXISTING COOLER FAN AND LTG CIRCUITS FROM 15A&B TO 20A&B

FOR REVIEW

COBURN AND ASSOCIATES, INC
MECHANICAL • ELECTRICAL • CONSULTING ENGINEERS
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CERTIFICATE OF AUTHORIZATION 3687

APPROVED
DRAWN
CA JOB NO. 2205
DATE OF ISSUE 10/05/2022
REVISIONS

PROJECT TITLE AND LOCATION
RENOVATIONS FOR
SUNSTOP STORE #303
1166 E DUVAL ST
LAKE CITY, FL 32055

SHEET TITLE
ELECTRICAL SCHEDULES

E500

ELECTRICAL SPECIFICATIONS GENERAL

A. All work shall be performed or installed in strict accordance with the following (each contractor and subcontractor shall be responsible for compliance):
   1. NFPA 70 National Electrical Code (2017 Edition)
   2. Florida Building Code (2020, 7th Edition)
   3. NFPA 72 National Fire Alarm and Signaling Code (2016 Edition)
   4. NFPA 101 Life Safety Code (2018)
   5. NFPA 110 Emergency and Standby Power Systems (2016)
   6. NFPA 780 Lightning Protection (2017)
   7. OSHA Regulations
   8. All other applicable rules, regulations, and codes of local, state, and federal governments having lawful jurisdiction.
B. Furnish all labor, materials, fixtures, equipment, tools and service necessary for installation, testing, and adjusting of all electrical system. Electrical systems shall be furnished and installed in compliance with the Drawings, Specifications, and any Addenda thereto.
C. All equipment and materials provided shall meet or exceed specification requirements, be new and unused (unless furnished by the owner), listed under an UL category, and shall be a product of a manufacturer regularly engaged in producing such equipment and materials for at least five years.
D. Drawings and Specification shall be understood to cover, according to their intent and meaning, complete electrical systems. Work shown on the drawings yet not specified, and work specified yet not shown on the drawings shall be performed as though mentioned in both.
E. Minor items and accessories reasonably inferred as necessary for the complete and proper operation of any system shall be provided by contractor or subcontractor for such system whether or not they are specifically called for.
F. The Electrical Contractor shall include in his bid the cost of furnishing, installing, maintaining, and removing all material and equipment required to provide temporary lights and power to perform the work of all trades during construction and until work is completed. Adequate lighting and receptacle outlets for operation of hand tools shall be provided throughout the project - including shanties, trailers, field offices, and temporary toilet enclosures - and shall be extended as construction progresses.
G. Prior to bidding, the Electrical Contractor shall coordinate with the electric power company to ascertain, in detail, the division of work, and the extent of performance by the Power Company.
   9.
H. Each panelboard, switchboard, disconnect, pullbox larger than 4"x4", transformer, contactor, separately enclosed breaker, separately enclosed starter, transfer switch, and time clock shall be labeled with the same designation shown on the drawings.
I. Labels shall be laminated plastic engraved, with letter size no less than 3/8 inch in height. Exterior labels shall be UV resistant and weatherproof.
J. Furnish all equipment and personnel and conduct all tests required to secure approval of the installation.
K. Safety Tests
   1. All systems shall test free from short circuits and grounds, shall be free from mechanical and electrical defects, and shall show an insulation resistance between phase conductors and ground of not less than that specified by the cable manufacturer.
   2. All systems shall show proper neutral connections.
   3. Key-operated interlock mechanisms shall be demonstrated to perform as intended.
M. Upon completion of each part of the electrical system, the contractor shall demonstrate to the Engineer that each item on that system is installed with proper covers, safeties, controls, etc., and that all are in proper working order.
N. A set of "red-lined" electrical drawings shall be carefully maintained at the job site. Actual conditions are to be put legibly on the drawings in red on a daily basis so the drawings will continuously show locations and routings of cable trays, conduits, pull boxes, circuit numbers, and other information required by the Owner and Engineer.
O. Shop drawings and product data shall be submitted on all equipment, fixtures, etc. Shop drawings shall be labeled in the same designation as individual piece of equipment for which they are being submitted; the proper designation shall be the designation used on the various equipment schedules and or in other Sections of this Specification, i.e. Fixture A, Panel B, MDP, etc. Each submittal package shall be combined into a single PDF file and emailed (or otherwise electronically transmitted) to Engineer.
P. Job condition shall be determined prior to bidding in the following manner:
   1. Site visit to determine:
      a. Existing conditions
      b. How and where materials will be delivered and stored
      c. Special problems encountered during construction
   2. Examine all Contract Drawings and Specifications to determine:
      a. Type of construction to be used
      b. Nature and extent of work of other trades
S. General
   1. Contract Drawings show the intended arrangements and sizes of principal apparatus and devices to be provided under this Contract. Drawings shall be followed as closely as actual building construction will permit.
   2. Dimensions of work as indicated on Plans are not guaranteed to be as-built dimensions.
   3. Measurements shall not be scaled from Drawings and used as definite dimensions for layout or fitting of work in place.
   4. Layout of equipment, as shown on the plan, shall be checked and exact location determined by dimension of equipment approved by the Architect.
   5. Consult the Drawings for all dimensions, locations of partitions, sizes of structural members, foundations etc.
   6. Do not make final layouts until shop or equipment drawings are approved and job conditions verified.
T. Coordination:
   1. Work shall be coordinated between all Contractors, Subcontractors, Installers, Suppliers, Trades, etc. to:
      a. Insure a neatly fitted installation
      b. Eliminate interferences
      c. Maintain maximum headroom and clearances
   2. Any interference which develops or is foreseen and cannot be resolved by the affected trades, shall be handled as follows:
      a. Cease installation of the portion of the work which is in conflict.
      b. Continue work on items which are not in conflict.
      c. Notify the Architect immediately.
      d. Architect's decision shall be final as to any relocation, rerouting, removal, or change.
      e. No additional compensation will be allowed for removal, relocation, repairs or changes required by interferences.
U. Clear away all debris, surplus materials, etc. resulting from work. Maintain job and equipment in clean, first-class condition.
V. Clean all panel boards, switches, boxes, etc., and leave them in a ready-to-use condition.
W. All panelboard and junction box covers shall be secured with proper screws or bolts.
X. Where factory finish is provided on equipment, each marred or damaged surface shall be touched-up or refinished in accordance with manufacturer recommendations.
Y. In addition to provisions and stipulation set forth in other Sections of these Specifications, provide various types of protection as follows:
   1. Protect finished floors from chips and cutting oil by use of metal chip receiving pan and oil-proof floor cover.
   2. Protect surfaces and items from over-spray and drops due to painting and finishing work associated with electrical work.
   3. Protect grills, diffusers, parts, openings, and vents as necessary to prevent intrusion of smoke, dust, and debris into devices, equipment, and systems. Ensure protection of heat-generating equipment does not cause equipment to overheat.
   4. Stored equipment shall be covered to exclude dust and moisture, shall be protected from weather, shall be protected from entry of foreign materials, and shall be protected from theft and vandalism.
Z. Concrete housekeeping pad or pads shall be provided for floor-mounted equipment, U.N.O. Concrete shall be cast no less than 4" thick, shall be rated no less than 3000 PSI, and shall be cast with 1/2" chamfered top perimeter edges. Housekeeping pad vertical surfaces, chamfers, and a stripe 6" wide around the top perimeter of the pad shall be painted safety yellow.
AA. Contractor shall be responsible for photographing the following items, or ensuring that the items are safely observable - with covers removed or easily removable - during substantial inspection: incoming feeder terminations at main disconnecting means, main bonding jumper, grounding electrode connection(s) at each system (main and separately derived), transfer switch terminations, transformer terminations, system bonding jumper(s) as applicable, isolated neutral at downstream equipment, panels, switchboards, switchgear, motor control centers, starters, disconnects, and pull-boxes.
AB. Each penetration of a rated assembly by a pipe, tube, wire, conduit, or cable tray shall be protected by a UL listed fire-stop system (tested per ANSI/UL 1479 or ASTM E814) with a rating no less than the rating of the assembly, and in no case less than 1-hour.
AC. Self-illuminated exit signs, emergency lighting fixtures, and emergency lighting drivers shall be connected to unswitched conductors. Such conductors shall be connected directly to the branch circuit breaker (bypassing all control devices, switches, contactors, timeclocks, photocells, etc.). Contractor shall provide additional conductor with switched lighting circuit conductor as necessary to meet this requirement.

DEMOLITION

A. Demolition of each noted item shall include complete removal of associated dedicated circuiting back to source.
B. Demolition of circuiting shall include complete removal of cables, conductors, raceway, conduit, tubing, conduit bodies, fittings, boxes, labeling, splices, taps, mounting hardware, hangers, anchors, and supporting means. Empty raceway concealed below concrete floors, within concrete, or within existing-to-remain walls may be abandoned in place. Exposed conduit at floor stub-ups, at wall stub-outs, and at cast-ceiling stub-outs shall be cut off and shall be ground below surface; the affected surface shall be repaired to be flush with adjacent surfaces and shall be refinished to match adjacent surfaces.
C. For each branch circuit removed:
   1. The associated circuit schedule and source labeling shall be updated to identify existing breaker as "SPARE".
   2. The associated existing branch breaker shall be opened (switched to the "OFF" position).
D. An appropriately sized cover or plug shall be provided to close each opening - in raceways, boxes, and enclosures - caused by work under this project.
E. Surface openings resulting from demolition shall be sealed, patched, repaired, and finished to match existing adjacent surfaces.
F. Each existing-to-remain item damaged by demolition work shall be replaced or repaired to previous condition.
G. Dedicated support accessories - such as concrete pads, tank saddles, support piers, equipment curbs, pole bases, posts, stanchions, trunions, anchors, guy wires, suspension means, and other support accessories - shall be removed if the item supported is removed.
H. Each surface exposed by the removal of a surface-mounted item shall be cleaned and repainted to match adjacent surfaces.
I. Landscaping, sod, sidewalk, asphalt and grading damaged by demolition work shall be repaired to match surrounding area.
J. Disposal of demolished items shall be in accordance with all applicable regulations.
K. Fluids shall be removed from demolished items prior to transport.

EXCAVATION AND BACKFILL

A. Contractor shall coordinate with the General Contractor to determine the extent of his responsibility to perform the excavation and backfilling related to the electrical scope of work.
B. Contractor shall be responsible for contacting the appropriate "CALL BEFORE YOU DIG" authority prior to commencing excavation activities.

ROUGH-IN

A. Contractor shall rough-in for all equipment, fixtures, etc., in building whether or not such equipment is furnished by this Contractor or under other divisions of Specifications or by Owner.
B. Determine in advance the location and size of all openings and chases necessary for proper installation of all work and have openings and chases provided during construction.
C. Install all inserts for hangers and supports of electrical work as general construction progresses.
D. Rough-in openings in masonry, brick, or stud walls shall be cut, not broken or chiseled.
E. Openings shall not be larger than the coverplate or box which will fit over it.
F. A sleeves shall be required at each location where exposed conduit is to pass through a concrete wall, concrete floor slab, or masonry wall. Sleeves installed below grade or where subject to high water conditions shall be installed water tight.

BASIC MATERIALS & METHODS CONDUIT

A. Rigid metal conduit (RMC) shall be steel, hot dip galvanized, minimum trade size shall be 3/4".
B. Electrical Metallic Tubing (EMT) shall be steel, electro or hot dip galvanized. EMT fittings shall be compression type, concrete-tight.
C. Flexible Metallic Tubing shall be galvanized steel (aluminum not acceptable). Sealtite type UA or EF shall be used for all motor connections.
D. Rigid Non-metallic conduit shall be listed for use as electrical raceways. PVC shall be high density Type I Schedule 40, unless noted otherwise.
E. Connectors shall have insulated throats.
F. All fittings and connectors shall be steel or malleable iron. Pot-metal not acceptable.
G. Power conductors shall be installed in conduit.
H. Fittings or symmetrical bends shall be required wherever right angle turns are made in exposed work.
I. Bends and offsets shall be avoided wherever possible, but where necessary, they shall be made with an approved conduit bending tool or machine.
J. All conduit joints shall be cut square, reamed smooth and drawn up tight.
K. Conduit shall be installed in horizontal and vertical runs in such a manner as to ensure against trouble from the collection of trapped condensation and shall be arranged so as to be devoid of traps.
L. Special care shall be used to ensure that aboveground conduit runs are parallel or perpendicular to walls, structural members, building lines, or intersections of vertical planes and ceiling.
M. During construction, all conduit work shall be protected to prevent introduction of water, dust, or debris into conduits, fittings or boxes.
N. Previously plugged or capped conduit shall be entirely free of damage, accumulation, debris, and residue prior to use, or the conduit shall be replaced.
O. All conduits in floors or below grade shall be swabbed free of debris and moisture before wires are pulled.
P. Conduit noted as "SPARE", "EMPTY", or "FOR FUTURE USE" shall be provided with pullstring and readily removable caps or duct seal (no glue). Such conduit shall be labeled on both ends of run.
Q. Conduit shall be properly supported per NEC and as specified herein.
R. Expansion fittings or other approved devices shall be used to provide for expansion and contraction where conduits cross building expansion joints and as recommended by manufacturer for long runs.
S. Each conduit passing from conditioned to non-conditioned space (such as from interior to exterior) or between two conditioned spaces with temperature differences greater than 15°F (such as from conditioned building to refrigeration unit) shall be sealed internally with duct seal or similar at the the penetration.
T. A flexible grounding strap shall bridge expansion joints and shall be bonded to conduit.
U. Conduit, boxes, devices, lights, and other electrical items shall be located to eliminate interference with moveable or serviceable items, such as eyebolts, cranes, equipment access doors, lifts, rollup doors, valves, or other items that may require clearance.
V. Conduit above slab shall be run concealed in the walls or ceilings unless specifically noted to be exposed. Noted exceptions include electrical and mechanical rooms.
W. Conduit under ground shall be buried no less than 24 inches below finished grade for non-service entrance, and no less than 30 inches below finished grade for service entrance (unless utility requires greater depth).
X. Conduit installed for incoming utilities (such as service entrance power, telephone, data, cable TV, etc.) shall comply with the appropriate utility requirements. Contractor shall coordinate with utility inspection of installation prior to backfill.
Y. Conduit bushings shall be provided at the termination point of all conduit runs, if not otherwise terminated at enclosures with connectors.
Z. Underground raceway shall be thoroughly photographed by the contractor prior to backfill or concrete pour. The photos shall be taken in sufficient quantity and in such a manner to enable the Engineer and Owner to accurately discern the raceway routing, burial depth, type of bends (coated RMC, for example) and if applicable, duct bank layout and reinforcing steel.
AA. Routing with conduits less than 2" trade size is intentionally not typically depicted on drawings, but shall be provided. Routing for conduit 2" trade size and larger is typically depicted to show intended routing. Exact routing of conduit shall be determined in the field for ease of installation provided that the following criteria is met:
   1. All conduit, home runs, and circuits are made to the panel specified on the drawings, unless specifically noted to be routed via a control device (such as a switch, contactor, or time clock).
   2. Conduit runs shall comply with NEC.
   3. Conduits shall not conflict with other trades.
   4. Conduits shall not encroach on spaces dedicated for clearance or accessibility.
   5. Routing shall not render covers or doors inaccessible or non-removeable.
AB. Final connection to motors, etc., shall be made via one of the following methods (method must also be appropriate for the environment installed):
   1. Flexible metal conduit with stranded conductors
   2. Liquid-tight flexible metal conduit with stranded conductors
   3. Armored flexible conduit which shall be waterproof for any locations outside, in kitchens, or any inside area subject to water, heavy moisture, condensation, etc.
AC. SPECIFIC CONDUIT TO BE USED
   1. All conduit and fittings shall be in new, unused condition, shall be free from rust, dirt, moisture, kinks, flats, cuts, or other distortions of shape.
   2. Concealed and exposed conduit in building, above slab shall be EMT with compression fittings. IMC and RMC also permitted.
   3. Straight conduit embedded in concrete shall be PVC with waterproof joints or PVC-coated RMC.
   4. Exposed conduit outside building, above grade shall be RMC with threaded waterproof fittings.
   5. Underground straight conduit shall be PVC with waterproof joints.
   6. Underground bends, penetrations through slabs-on-grade, and stub-ups from final bends up to equipment shall be PVC-coated RMC with radius of bend no less than 8x trade size of conduit.

SUPPORTS AND HANGERS

A. Conduit shall be supported on structural building members such as columns, beams, purlins, block, studs, or joists.
B. Conduit shall be supported on galvanized or aluminum brackets, clamps, or straps.
C. Conduit hangers shall be attached to building steel by beam clamps.
D. Hangers and supports shall be attached to wooden stud walls with wood screws.
E. Hangers and supports shall be attached to masonry with expansion type anchors (shield).
F. Supports shall be channel type supports such as manufactured by Uni-Strut, Globe, Kindorf, or equal.
G. Supporting means shall not be attached to roof decking.

BOXES

A. Pullboxes in air-conditioned spaces shall be code gauge and size, galvanized steel with screw-type or hinged-type cover.
B. Exterior pullboxes above grade shall be code gauge and size, galvanized steel with enamel finish and with screw-type or hinged-type cover. Boxes shall be rainproof and rated for the environment, but not less than NEMA 3R.
C. Exterior pullboxes underground and associated covers shall be no less than code size, shall be ANSI-Tier-rated as noted on drawings, and shall be fiberglass-reinforced-concrete polymer. Covers shall be gasketed, with logo on top - such as ELECTRIC, TELECOM, or other applicable logo.
D. Device boxes in stud walls (3-1/2" thickness or greater) shall be galvanized steel, no less than 2-1/2" deep.
E. Device boxes in furred and stud walls less than 3-1/2" thick shall be galvanized steel, 1 1/2 inch deep.
F. Wall boxes in four inch block shall be galvanized steel 2-1/2" deep. And In walls larger than four inch block, galvanized steel 3-1/2" deep.
G. Boxes may be ganged as required for multiple devices.
H. Through-wall boxes are prohibited.
I. Lighting outlet boxes and specified junction boxes shall be galvanized steel, 4" octagon with cover. Ratings shall not be less than N.E.C.
J. Floor boxes shall be standard depth-cast steel, flush-mounted cover with brass. Furnish with threaded brass receptacle covers, unless noted otherwise.
K. Telephone/data boxes shall be standard gauge galvanized steel, 4" square.
L. All wiring devices shall be installed in metallic boxes. Provide outlet boxes, receptacle boxes, junction boxes, and ceiling boxes at locations noted on the drawings and at locations required by the NEC.
M. Provide pull boxes as shown on the Drawings, as required by code, and as needed for ease of construction. Pull boxes shall remain accessible.
N. Outlets shall be installed in the locations shown on the drawings.
O. Contractor shall study the general building plans in relation to the space surrounding each outlet, in order that his work may fit with all other work required by these Specifications.
P. All steel supports for outlet boxes shall be furnished and installed.
Q. Outlet boxes for use with exposed steel conduit shall be cast steel. Cast metal fittings shall be cast steel. Cast metal fittings shall be Crouse-Hinds, Square D, Bryant, or equal.
R. All openings in electrical equipment, enclosures, cabinet, outlet and junction boxes shall be by means of welded bosses, standard knockouts, or shall be sawed, drilled, or punched with tools specially made for the purpose. The use of a cutting torch is prohibited.
S. All conduit connections to electrical boxes shall be made with locknuts and nonmetallic bushings.
T. Locknuts shall be drawn down tight to make ground connection between the conduit and box.
U. All boxes shall be labeled to indicate circuit (and/or feeder name). Boxes larger than 4x4 shall be provided with painted or adhesive labels. Boxes 4x4 and smaller may be legibly labeled via permanent marker. Refer to wiring devices specs regarding cover plate labeling.

WIRE AND CABLES

A. All wire used throughout work shall be soft drawn copper of not less than 98% conductivity. Aluminum is not acceptable.
B. Wire and cable shall be new; and manufacturer's name permanently marked on the outer covering at regular intervals.
C. Conductors AWG No. 8 or smaller may be solid or stranded; larger sizes shall be stranded. Stranded conductors shall be used for final connections to vibrating equipment (such as motors).
D. All conductors for general wiring shall be insulated with THHN/THWN-2 insulation.
E. Conductors shall have solid-colored insulation with specific colors as noted on the details (based on voltage and phase), and shall be in compliance with the N.E.C.
F. Grounding conductors, if insulated, shall have green solid-colored insulation.
G. All wiring shall be installed in conduit.
H. Conductors shall be sized according to the N.E.C., yet not smaller than shown on the drawings.
I. Minimum conductor size for 20A receptacle and lighting circuits shall be No. 12 AWG. Where one-way circuit distance from panelboard to furthest circuit load exceeds 65 feet, use No. 10 AWG minimum; over 100 feet, use No. 8 AWG.
J. All wiring shall be fully polarized throughout using white (or gray depending on voltage) wires for neutral and making all switching connections in colored hot wires.
K. No conductors shall be drawn into conduits until all work which may cause damage is completed; only approved cable lubricants shall be used.
L. As far as practical, all feeder cables shall be continuous from feeder source to load termination without using splices at intermediate pull boxes.
M. All cable terminals, taps, and splices shall be made with solderless, pressure type connectors; connectors shall be Type QA-B or Q2A as manufactured by Burndy, Okonite, McJunkin or equal.
N. The minimum free length of conductor at each box for the connection of a fixture, switch or receptacle shall be 8".
O. Each branch circuit requiring a neutral connection shall be provided with a dedicated neutral conductor, even if multiple branch circuits share the same raceway. No shared neutrals permitted.
P. Boxes for light switches or other lighting control devices shall be provided with a neutral conductor from each branch circuit brought to devices in the box.

PANELBOARDS

A. The panelboards shall be of dead-front construction with code gauge galvanized steel box, and door-in-door hinged front finished in gray lacquer.
B. Doors shall be provided with a plate tumbler lock with flush handle and typed directory card and holders.
C. Panels rated 225 amp or less shall be Square D, type NQ, or equal, unless noted otherwise.
D. Panel rated 400 to 800 amp shall be Square D, "I-Line" or equal, unless noted otherwise.
E. Panels greater than 800 amps are considered to be Distribution Switchboards.
F. Furnish and install electrical system as described on Drawings, panel schedules and electrical riser diagram.
G. Panels shall be surface mounted or recessed (flush) as specified on the panel schedule.
H. All panelboards shall be circuit breaker type unless noted otherwise.
I. Voltage, phase, wires, poles/breaker space as specified on schedules and riser.
J. Solid neutral.
K. Panels rated at 10,000 AIC shall have stab-in breakers.
L. Panels rated greater than 10,000 AIC shall have bolt-on breakers.
M. Breakers size and quantity as shown on Schedules.
N. Breakers listed as "spare" shall be furnished and installed.
O. Panel listed with "space" shall be provided with extra space for future breakers.
   1. Each "space" shall be on one single pole. For I-Line (or similar) panels, each "space" shall be understood to be the mounting space required to accommodate one 20A single-pole breaker.
P. Panels rated 225 amps or less shall be provided as full 42 space panels unless specifically noted otherwise.
Q. Unless otherwise indicated on Drawings, install all panels with the top of the trim 6'-3" above finished floor.
R. Install panelboards in location shown on the Drawings.
S. Panelboards shall be mounted with screws, bolts, or anchors as required.
T. Panels shall not be supported by conduit alone.
U. Panelboards shall be internally and externally clean and shall be free from dust, debris, and non-intentional markings. Panelboards shall be vacuumed and wiped down (internally and externally) prior to substantial inspection.
V. Neutral and equipment grounding terminals shall be electrically isolated, unless specifically noted otherwise.
W. Panelboard cover shall be provided with engraved phenolic plastic identification and wiring color code nameplates. Refer to detail on drawings.
X. Mount a typewritten directory behind glass or plastic on the inside of each panel door, showing panel information, circuit number, and complete description of all outlets on each circuit. Handwritten edits are not acceptable. Directory shall be installed prior to substantial inspection

CIRCUIT BREAKERS

J. Breakers shall be of the size specified on the Panel Schedules.
K. Breakers rated at 10,000 AIC shall be plug-on.
L. Breakers rated greater than 10,000 AIC shall be bolt-on.
M. Breakers shall have visual trip indicators.
N. Breaker sizes shall be verified against equipment it serves.
O. Current-limiting breakers shall be used where shown on panel schedules.
P. On three-phase panels, breakers shall alternate consecutivelybetween busses to provide a balanced load.
Q. Breaker types listed below are for Square D equipment and are listed for reference only.
R. For Type NQ Panels, the main breaker shall be equal to the Square D numbers as listed below:
   1. 10,000 AIC - Q1B, Q2, KA, LA
   2. 22,000 AIC - Q1B-VH, Q2-H, KA, LA
   3. 42,000 AIC - KH, LA
   4. 65,000 AIC - KH, LH
J. For type NQ Panels, the branch breakers shall be equal to Square D models:
   1. 10,000 AIC - QO, QOH, Q1-H
   2. 22,000 AIC - QO-VH, Q1-VH
   3. 42,000 AIC - Q1H
   4. 65,000 AIC - QH
K. For I-Line panels, the main breaker shall be 65,000 AIC rated, and equal to Square D Models FA, FH, KA, LA, LH, MA, MH.
L. For I-Line panels, the branch breakers shall be rated at 65,000 AIC and equal to Square D Models FA, FH, FY, IF, Q2, Q2-H, Q2H, KA, KH, IK, Q4, LA, LH, MA, MH, ME.
M. Breakers listed as current limiting breakers shall be equal to Square D - I - Limiterm, in IF or IK frame sizes.
N. Furnish and install all circuits breakers as described on the panel schedules and drawings.
O. Contractor shall be responsible for confirming brand, breaker type, mounting type, kits, accessories, and compatibility of new breakers to be installed in existing panelboards. Existing panelboard information and characteristics shall be field-verified.
P. Unconnected, spare, and future breakers shall be switched to and remain in the "OFF" (open) position.

FUSES

A. General duty fuses shall be equal to Bussman 250 volt, "Tron JJN" Fuses.
B. Motor circuit fuses and compressor fuses shall be equal to Bussman 250V, "Fusetron FRN" dual element fuses.
C. Current-limiting fuses shall be equal to Bussman KTN-R fast acting fuses.

DISCONNECTS

A. Ampere-rated for general disconnects.
B. Horsepower-rated for motor disconnects.
C. Meet Federal Spec. W-S-865c for Heavy Duty Switches.
D. UL Listed.
E. Grey baked enamel finish.
F. Quick-break operating mechanism.
G. Visible handle.
H. Meets NEMA KSI-1975 for Type HD.
I. Indoor disconnects shall be NEMA 1, unless noted otherwise.
J. Outdoor disconnects shall be NEMA 3R, unless noted otherwise.
K. Supply and install a disconnecting means for each motor where required by N.E.C. or if shown on drawings.
L. Locate disconnect as shown or as near as possible to motor within N.E.C compliance.
M. Disconnects furnished as an integral part of any piece of equipment shall be acceptable in lieu of a safety switch.
N. Switches shall be fused where shown on drawings.
O. Motor-rated switches shall be acceptable as disconnects for motors of 1/3 HP or less.
P. Disconnect switches shall be provided with machine-produced labels (on front cover) to indicate circuit source, circuit number, and load served.

STARTERS

A. Provide magnetic or manual starters and associated equipment as required for each motor.
B. Each starter shall have properly sized thermal overload protection for the motor it serves, based on nameplate FLA markings.
C. Overloads shall be manual reset type.
D. Supply and install magnetic motor starters with appropriate control buttons or switches for each piece of equipment unless other specifications call for starter to be furnished with equipment.
E. Contractor shall coordinate with both general contractor and mechanical contractor to assure that a starter has been provided for all equipment.
F. Where both a disconnect switch and motor starter are required in the same location, a combination starter shall be acceptable in lieu of individual components.

WIRING DEVICES

A. Model or part number listed below are for reference and establishing quality.
B. In so far as practical, all wiring devices shall be of the same manufacturer.
C. All catalog numbers listed are Hubbell unless noted.
D. Acceptable manufacturers shall be Hubbell, Pass and Seymour, Leviton, or Arrow-Hart.
E. Contractor shall be responsible for confirming device color and cover plate color with owner and architect.
F. General Purpose Receptacles and single appliance type receptacles.
   1. General purpose receptacles shall be specification grade, 120 volt AC, 20 amp, NEMA 5-20R, grounding type, capable of accepting 15A and 20A plugs.
   2. Catalog numbers shall be:
      a. Single receptacle: 5361
      b. Duplex receptacle: 5362
G. Special purpose receptacle
   1. Special purpose receptacles shall be installed as required and as shown to match equipment and appliance cord.
   2. Refer to plan and/or equipment schedule for NEMA configuration.
H. Switches
   1. General light switches shall be specification grade, 125-277 volt, 20 amp, heavy duty.
   2. Catalog numbers shall be: SPST 1221 DPST 1222 3-Way 1223 4-Way 1224
   3. Motor rated switches shall be used for any switches controlling singles phase motors.
   4. Motor rated switches shall be 120-277 volt and rated in accordance with the voltage and amperage of the motor.
I. Cover plates
   1. In finished areas with flush boxes: All cover plates shall be thermoplastic smooth nylon for finished areas. Thermoset or residential grade materials not acceptable.
   2. In areas with exposed raceway and surface-mounted boxes: cover plates shall be galvanized steel.
   3. Exterior receptacles shall be provided with metallic, gasketed, weatherproof while-in-use covers.
   4. Contractor shall provide adhesive label on each cover plate to indicate source panel and circuit number. Also, circuit number shall be written on back side of cover plate.
   5. Catalog numbers:
      a. Switches: Single gang--P1, Two gang------P2, Three gang---P3
      b. Single Receptacle 93091
      c. Duplex Receptacle Single gang P8, Two gang P82
      d. Special purpose outlets: Single gang P7882, Duplex 7423
      e. Weatherproof covers: Switches 7420 Receptacles 5205W0

GROUNDING AND GROUND FAULT PROTECTION

A. All equipment and circuits shall be grounded and bonded in accordance with the National Electrical Code, Article 250.
B. Provide ground fault protection for all circuits noted on the drawings as GFI, all receptacles indicated on the drawings via GFI receptacle symbol, all restroom/bathroom receptacles, all receptacles in exterior locations, and for all locations required by N.E.C. Standard receptacles shall be considered ground fault protected if in series with the GFI protection provided in an upstream GFI receptacle or GFI breaker.
C. Provide ground fault protection on all temporary construction circuits as required by OSHA or the National Electrical Code.
D. Service-entrance neutral and separately-derived neutrals shall each be bonded to the grounding electrode system once and as located on the electrical riser diagram.
E. Grounding electrode conductors shall be sized per N.E.C., yet no smaller than shown on drawings.
F. All conduits shall contain a continuous "green" solid-colored equipment grounding conductor, sized in accordance with Table 250.122 of the N.E.C.
G. All metallic raceway shall be bonded to the equipment grounding conductor.
H. Provide driven ground rod(s) as close as possible to the service entrance location, sized and separated as shown on the drawings and in accordance with N.E.C.
I. Nearest metallic cold water supply pipe, concrete encased steel, building steel, and other electrodes per N.E.C. shall be bonded together to create the grounding electrode system.
J. Mechanical Equipment
   1. All mechanical equipment motors shall have grounded cases.
   2. All equipment shall have its metallic enclosure, frame, etc. bonded to the circuit equipment grounding conductor.

DATA/TELEPHONE

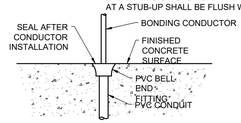
A. Provide conduit system for Telephone/Data including fish wires, boxes and blank plates.
B. Conduit, cabling, and outlets shall be provided as shown on the drawings and the telephone riser.
C. Consult the local utility representative prior to bidding for any special requirements. All electrical work required by the telephone company shall be furnished and performed by the Electrical Contractor.

DIMMERS

A. LED 0-10V, unless otherwise required to be compatible with controlled fixture(s).
B. Dimmers shall not rely on equipment grounding conductor as a return current path for control power, provide a neutral for this purpose.
C. Dimmers shall be fully compatible with the drivers they control.

SURGE PROTECTION DEVICE (SPD)

A. Provide TYPE 2 on panels as shown.
B. Provide SPD with integral audible and visible alarm features to indicate loss of protection.
C. MOV TYPE meeting UL-1449, 3rd edition, TYPE 2 listing.
   1. 120KA Surge Current Rating (L-L and L-G)
   2. 20KA Nominal Discharge Current.
   3. 200KA SCCR (Short Circuit Current Rating)
   4. 150V MCOV (Maximum Continuous Operating Voltage) for 120/240V and 208Y/120V systems, 320V MCOV for 480Y/277V systems.

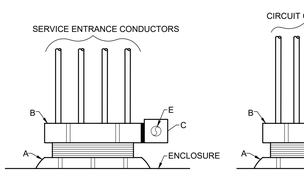


THROUGH CONCRETE

SURFACE MOUNTED

DETAIL NOTES:
1. ALL GEC, SBJ, ETC. RUN SEPARATELY SHALL BE PROTECTED BY A CONDUIT SYSTEM.
2. ALL SYSTEM GROUNDING OR BONDING CONDUCTORS SHALL GENERALLY BE ENCLOSED BY A RGS CONDUIT. PROVIDE GROUND BUSHING ON EACH END AND BOND CONDUCTORS TO RACEWAY SYSTEM.
3. SYSTEM BONDING CONDUCTORS THAT PENETRATE CONCRETE SLABS SHALL BE ENCLOSED BY A PVC CONDUIT. PROVIDE BELL END FITTING ON EACH END AND SEAL. CONDUITS TERMINATING AT A STUB-UP SHALL BE FLUSH WITH FLOOR.

TYPICAL GEC OR BJ IN CONDUIT SYSTEM

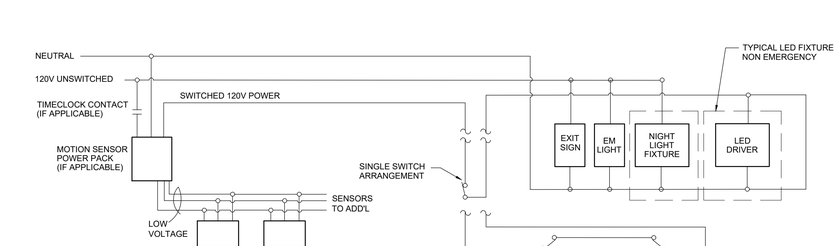


FOR SERVICE ENTRANCE CONDUITS

FOR FEEDER AND/OR BRANCH CIRCUITS

DETAIL NOTES:
A. LOCK-NUT ASSEMBLY
B. METAL GROUNDING BUSHING
C. COPPER GROUND LUG
D. COPPER GROUND CONDUCTOR. REMOVE INSULATION AT BUSHING, RUN THROUGH BUSHING LUG, AND BOND TO RACEWAY SYSTEM. DO NOT SPLICE OR TAP.
E. CONTINUOUS COPPER GROUND CONDUCTOR FROM GROUND BUS THROUGH EACH BUSHING. DO NOT SPLICE OR TAP.

TYPICAL GROUND BUSHING INSTALLATION DETAIL



GENERIC LIGHTING WIRING DIAGRAM

FOR REVIEW

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PROJECT TITLE AND LOCATION

RENOVATIONS FOR
SUNSTOP STORE #303
1166 E DUVAL ST
LAKE CITY, FL 32055

SHEET TITLE
ELECTRICAL SPECIFICATIONS

E600

HVAC GENERAL NOTES

1. CONNECTION TO EQUIPMENT SHALL BE VERIFIED WITH MANUFACTURER'S CERTIFIED DRAWINGS. TRANSITIONS TO ALL EQUIPMENT SHALL BE VERIFIED AND PROVIDED FOR EQUIPMENT FURNISHED.
2. DIMENSIONS SHALL BE FIELD-VERIFIED AND COORDINATED PRIOR TO PROCUREMENT OR FABRICATION. COORDINATE ALL WORK WITH OTHER TRADES INVOLVED. FIELD MODIFICATIONS SUCH AS OFFSETS IN PIPING OR DUCTWORK (INCLUDING DIVIDED DUCTWORK) NEEDED DUE TO OBSTRUCTIONS OR INTERFERENCES SHALL BE PROVIDED AT NO ADDITIONAL COST. FOR RENOVATION PROJECTS, COORDINATE NEW WORK WITH EXISTING ELEMENTS SUCH AS THE BUILDING STRUCTURE, ARCHITECTURAL FEATURES, SPRINKLER PIPING, LIGHTS, PLUMBING, AND ELECTRICAL CONDUIT.
3. DUCTWORK CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE SMACNA HVAC DUCTWORK CONSTRUCTION STANDARD.
4. INSTALL ALL FIRE DAMPERS, SMOKE DAMPERS, AND COMBINATION FIRE/SMOKE DAMPERS IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. PROVIDE ACCESS DOORS TO ALLOW COMPLETE INSPECTION AND MAINTENANCE OF ALL DEVICES.
5. PROVIDE 1.5R ELBOWS IN DUCTWORK AS INDICATED ON DRAWING. IF 1.5R ELBOWS DO NOT FIT, PROVIDE 1.0R ELBOWS. IF 1.0R ELBOWS DO NOT FIT, PROVIDE 90 DEGREE RECTANGULAR DUCT ELBOWS WITH TURNING VANES.
6. COORDINATE DIFFUSER, GRILLE, AND REGISTER LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLANS AND EQUIPMENT OF ALL TRADES.
7. LOCATE THERMOSTATS, TEMPERATURE SENSORS, HUMIDISTATS, AND HUMIDITY SENSORS AT 48" ABOVE FINISHED FLOOR UNLESS NOTED OTHERWISE. COORDINATE LOCATIONS WITH OTHER EQUIPMENT, FURNITURE, AND DOOR SWINGS.
8. ALL EQUIPMENT, DUCTWORK, ETC., SHALL BE SUPPORTED AS DETAILED AND/OR SPECIFIED. PROVIDE ADDITIONAL SUPPORTS AS REQUIRED TO PROVIDE A VIBRATION-FREE, RIGID INSTALLATION.
9. ALL DUCTWORK SIZES SHOWN ARE INSIDE CLEAR DIMENSIONS.
10. DAMPERS AND INSIDES OF DUCTWORK VISIBLE THROUGH GRILLES, REGISTERS, AND DIFFUSERS SHALL BE PAINTED FLAT BLACK.
11. REFER TO TYPICAL DETAILS FOR PIPING AND INSTALLATION OF EQUIPMENT.
12. PROPER DRAINAGE SHALL BE PROVIDED TO SUIT EQUIPMENT FURNISHED.
13. ACCESS PANELS IN DUCTWORK AND CEILINGS SHALL BE PROVIDED WHERE REQUIRED FOR OPERATION, BALANCING, OR MAINTENANCE OF ALL MECHANICAL EQUIPMENT.
14. ALL DUCTWORK AND PIPING IS SHOWN SCHEMATICALLY. PROVIDE ALL TRANSITIONS, TURNING VANES, ELBOWS, FITTINGS, ETC., TO ALLOW SMOOTH FLOW. ALL SPLIT DUCTWORK FITTINGS SHALL TRANSITION TO FULL SIZE OF THE SUM OF BOTH BRANCHES, UPSTREAM OF SPLIT.
15. COORDINATE SIZE REQUIREMENTS OF ALL CONCRETE HOUSEKEEPING PADS UNDER ALL FLOOR MOUNTED EQUIPMENT. REFER TO DETAILS AND SPECIFICATIONS FOR PAD REQUIREMENTS.
16. VERIFY FINISH WITH ARCHITECT PRIOR TO PURCHASE GRILLES, REGISTERS, DIFFUSERS, LOUVERS AND OTHER AIR DISTRIBUTION DEVICES.
17. PROVIDE FLEXIBLE DUCTWORK CONNECTIONS ON ALL DUCTWORK CONNECTING TO FANS, AIR HANDLING UNITS, AND FAN COIL UNITS.
18. PROVIDE TRANSITIONS AT DIFFUSER NECKS AS REQUIRED TO MATCH SIZES OF FLEX DUCTWORK TO BE CONNECTED.
19. SLEEVE AND SEAL ALL PIPING PENETRATIONS THROUGH BUILDING PARTITIONS.
20. MAINTAIN CLEARANCE OF A MINIMUM OF 6" BETWEEN DUCTWORK, PIPING, EQUIPMENT, ETC., AND ALL FIRE RATED AND FIRE/SMOKE RATED PARTITIONS, TO ALLOW FOR INSPECTIONS OF RATED WALLS.
21. LOCATE ALL OUTSIDE AIR INTAKES A MINIMUM OF 10'-0" CLEAR FROM ALL PLUMBING VENTS AND EXHAUST AIR DISCHARGE LOCATIONS. LOWEST POINTS OF EACH OUTSIDE AIR ON ROOF SHALL BE A MINIMUM OF 24" ABOVE ROOF.
22. DUCTWORK RUNOUTS TO DIFFUSERS SHALL MATCH THE SIZE OF THE DIFFUSER NECK.
23. UNLESS OTHERWISE NOTED, ALL EQUIPMENT AND VALVE DRAINS SHALL BE INDEPENDENTLY PIPED FULL SIZE TO THE NEAREST PLUMBING DRAIN.
24. INTERRUPTIONS TO EXISTING SERVICES SHALL BE SCHEDULED FOR TIMES OTHER THAN NORMAL OPERATING HOURS (SUCH AS NIGHTS AND WEEKENDS). SUCH INTERRUPTIONS TO SERVICES SHALL NOT BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF THE OWNER'S REPRESENTATIVE AND PROPER COORDINATION WITH OTHER TRADES. PRE-WORK SHALL BE PERFORMED TO MAKE THE SHUTDOWN PERIOD AS BRIEF AS POSSIBLE.
25. ALL EQUIPMENT, DUCTWORK, ETC., TO BE REMOVED SHALL REMAIN PROPERTY OF THE OWNER OR DISPOSED OF LEGALLY, AS DIRECTED BY THE OWNER.
26. WATER PRESSURE DROP THROUGH COIL CONTROL VALVES SHALL NOT EXCEED 5 PSI.
27. PROVIDE MANUAL AIR VENTS AT ALL HIGH POINTS IN CHILLED WATER AND HOT WATER PIPING.
28. PIPING, DUCTWORK, LEAK PROTECTION APPARATUS, OR OTHER EQUIPMENT FOREIGN TO ELECTRICAL SWITCHBOARDS, PANELBOARDS, DISTRIBUTION BOARDS, OR MOTOR CONTROL CENTERS SHALL NOT BE INSTALLED WITHIN THE REQUIRED SPACE FOR WORKING CLEARANCES OR DEDICATED SPACES OF THE ELECTRICAL EQUIPMENT, EXTENDING IN FRONT OF AND FROM FLOOR TO STRUCTURAL CEILING WITH A WIDTH AND DEPTH OF THE ELECTRICAL EQUIPMENT IN ACCORDANCE WITH NEC-110.26.
29. ALL ROOFTOP MECHANICAL EQUIPMENT SHALL MAINTAIN A MINIMUM DISTANCE OF 10'-0" FROM ROOF EDGE. WHERE REQUIRED, A 42" GUARDRAIL OR STRUCTURALLY DESIGN TIE-OFF POINT FOR FALL PROTECTION CAN BE PROVIDED IN ACCORDANCE WITH FLORIDA MECHANICAL CODE SECTION 304.11.

APPLICABLE CODES & STANDARDS

FLORIDA BUILDING CODE – MECHANICAL 2020 EDITION
FLORIDA BUILDING CODE – PLUMBING 2020 EDITION
FLORIDA BUILDING CODE – ENERGY CONSERVATION 2020 EDITION
FLORIDA ADMINISTRATIVE CODE – 69A-3.012
NFPA-13, STANDARD FOR INSTALLATION OF SPRINKLER SYSTEMS – 2016 EDITION
NFPA-70, NATIONAL ELECTRICAL CODE – 2017 EDITION
NFPA-72, NATION AL FIRE ALARM CODE – 2016 EDITION
NFPA-90A, STANDARD FOR THE INSTALLATION OF AIR CONDITIONING AND VENTILATION SYSTEMS – 2018 EDITION
NFPA-90B, STANDARD FOR THE INSTALLATION OF WARM AIR HEATING AND AIR CONDITIONING SYSTEMS – 2018 EDITION

HVAC SYMBOL LEGEND

SYMBOL	DESCRIPTION
	-CEILING DIFFUSER, ROUND NECK (CEILING DIFFUSERS ARE 4-WAY THROW UNO)
	-CEILING RETURN
	-CEILING EXHAUST
	-CEILING DIFFUSER, RECT. OR SQUARE NECK (DIFFUSERS ARE 4-WAY THROW UNO)
	-SUPPLY REGISTER OR GRILLE (VERTICAL MOUNT, SIDEWALL)
	-RETURN/EXHAUST REGISTER OR GRILLE (VERTICAL MOUNT, SIDEWALL)
XX	-REVISION REFERENCE
T / M-T	-DETAIL REFERENCE: TOP – DETAIL#, BOTTOM – DRAWING# SHOWN ON
T	-THERMOSTAT/TEMPERATURE SENSOR
H	-HUMIDISTAT/HUMIDITY SENSOR
	-DUCT SMOKE DETECTOR
M	-MOTORIZED CONTROL DAMPER
T	-TEMPERATURE SENSOR
SP	-STATIC PRESSURE SENSOR
BD	-BACKDRAFT DAMPER
XX	-SHEET NOTE CALLOUT
	-CEILING MOUNTED ACCESS DOOR
	-DEMO TO
	-CONNECT TO
CWS	-CONDENSER WATER SUPPLY
CWR	-CONDENSER WATER RETURN
CHWS	-CHILLED WATER SUPPLY
CHWR	-CHILLED WATER RETURN
CD	-CONDENSATE
HWS	-HOT WATER SUPPLY
HWR	-HOT WATER RETURN
RL	-REFRIGERANT LIQUID
RS	-REFRIGERANT SUCTION

SYMBOL	DESCRIPTION
M	-MOTOR OPERATED CONTROL DAMPER (MOD)
	-MANUAL BALANCING DAMPER
	-DOOR GRILLE
UC	-UNDERCUT DOOR
	-ACCESS DOORS, VERTICAL OR HORIZONTAL
	-FLEXIBLE CONNECTION
	-NEW DUCTWORK, FIRST DIMENSION IS SIDE SHOWN
DOWN / UP W/IN FLOOR	-DUCT ELBOW, POSITIVE PRESSURE (SUPPLY)
	-DUCT ELBOW, EXHAUST
	-DUCT ELBOW, NEGATIVE PRESSURE, RETURN
	-DUCT ELBOW UP THROUGH ROOF OR SLAB ABOVE
	-RECTANGULAR DUCT SECTION UP, POSITIVE PRESSURE, SUPPLY OR OUTSIDE AIR
	-RECT DUCT SECTION UP, NEGATIVE PRESSURE, RETURN
	-RECTANGULAR DUCT SECTION UP, EXHAUST
	-ROUND DUCT SECTION UP
	-FLOW DIRECTION
	-ISOLATION VALVE
	-UNION
	-STRAINER
	-CONTROL VALVE
S	-SOLENOID VALVE
	-CHECK VALVE
	-SLOPE DIRECTION (DOWN)
	-FLEX CONNECTION
	-O.S.&Y. GATE VALVE
	-THREE-WAY CONTROL VALVE
	-THERMOMETER

SYMBOL	DESCRIPTION
	-ELECTRIC DUCT HEATER (W/PANEL CLEARANCE)
UP / DN	-CHANGE OF ELEVATION
	-FLEXIBLE DUCT
	-TRANSITION, CONCENTRIC
	-TRANSITION, ECCENTRIC
	-TRANSITION, SQUARE TO ROUND
	-SQUARE THROAT ELBOW W/TURNING VANES
	-RADIUS ELBOW
	-RECTANGULAR/ROUND BRANCH TAKE-OFF OR ROUND/ROUND BRANCH TAKE-OFF
	-SQUARE THROAT TEE
	-RADIUS TEE
	-RECTANGLE-TO-ROUND TAKE-OFF
	-STANDARD BRANCH TAKE-OFF
	-SPIN-IN TAKE-OFF
	-ELBOW, TURNED DOWN
	-ELBOW, TURNED UP
	-TEE, OUTLET DOWN
	-TEE, OUTLET UP
D / D	-45° PIPE RISE (R) / DROP (D)
	-CONCENTRIC REDUCER

NOTE: SOME SYMBOLS SHOWN ON THIS LEGEND MAY NOT PERTAIN TO THIS PROJECT

HVAC ABBREVIATIONS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
AFF	-ABOVE FINISHED FLOOR	MBH	-THOUSAND BTUs PER HOUR
AFR	-ABOVE FINISHED ROOF	MCA	-MINIMUM CIRCUIT AMPS
AHU	-AIR HANDLING UNIT	MOCP	-MAXIMUM OVER CURRENT PROTECTION
AP	-ACCESS PANEL	NC	-NORMALLY CLOSED
BOP	-BOTTOM OF PIPE	NO	-NORMALLY OPEN
BHP	-BRAKE HORSEPOWER	NTS	-NOT TO SCALE
BTU	-BRITISH THERMAL UNIT	OA	-OUTSIDE AIR
$\mathcal{L}$	-CENTER LINE	OAL	-OUTSIDE AIR LOUVER
$\bar{s}$	-CFM (CUBIC FEET PER MINUTE)	PRV	-PRESSURE REDUCING VALVE
CD	-CEILING DIFFUSER	PRS	-PRESSURE REDUCING STATION
CT	-COOLING TOWER	PSI	-POUNDS PER SQUARE INCH
CV	-CONSTANT AIR VOLUME	PSIG	-PSI GAUGE
CFM	-CUBIC FEET PER MINUTE	PTAC	-PACKAGED TERMINAL AIR CONDITIONER
CU	-CONDENSING UNIT	PVC	-POLYVINYL CHLORIDE PIPE
DDC	-DIRECT DIGITAL CONTROLS	RA	-RETURN AIR
DN	-DOWN	RHC	-REHEAT COIL
EAT	-ENTERING AIR TEMPERATURE	RPM	-REVOLUTIONS PER MINUTE
ESP	-EXTERNAL STATIC PRESSURE	RTU	-ROOFTOP AIR HANDLING UNIT
EWT	-ENTERING WATER TEMPERATURE	SA	-SUPPLY AIR
FCU	-FAN COIL UNIT	SP	-STATIC PRESSURE
FD	-FIRE DAMPER	TSP	-TOTAL STATIC PRESSURE
FF	-FINAL FILTERS	UNO	-UNLESS NOTED OTHERWISE
FLA	-FULL LOAD AMPS	V/PH	-VOLTS/PHASE
FPM	-FEET PER MINUTE	VAV	-VARIABLE AIR VOLUME
GD	-GRAVITY DAMPER	VFD	-VARIABLE FREQUENCY DRIVE
KW	-KILOWATT	VRF	-VARIABLE REFRIGERANT FLOW
LAT	-LEAVING AIR TEMPERATURE	ΔP	-CHANGE IN PRESSURE
LWT	-LEAVING WATER TEMPERATURE	ΔT	-CHANGE IN TEMPERATURE

MECHANICAL EQUIPMENT TAGS

DIFFUSER/GRILLE TAG: A / 300 CFM / CFM

AHU-1-1: AHU FLOOR LOCATION – AHU NUMBER – AIR HANDLING UNIT

VAV-1-1: TERMINAL UNIT TYPE (VAV – VARIABLE VOLUME, CAV – CONSTANT VOLUME) – AHU NUMBER – TERMINAL UNIT NUMBER

SHEET INDEX

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CERTIFICATE OF AUTHORIZATION 3687

CA JOB NO. 2205
DRAWN
APPROVED
DATE OF ISSUE 10/05/2022
REVISIONS 1

PROJECT TITLE AND LOCATION
RENOVATIONS FOR
SUNSTOP STORE #303
1166 E DUVAL ST
LAKE CITY, FL 32055

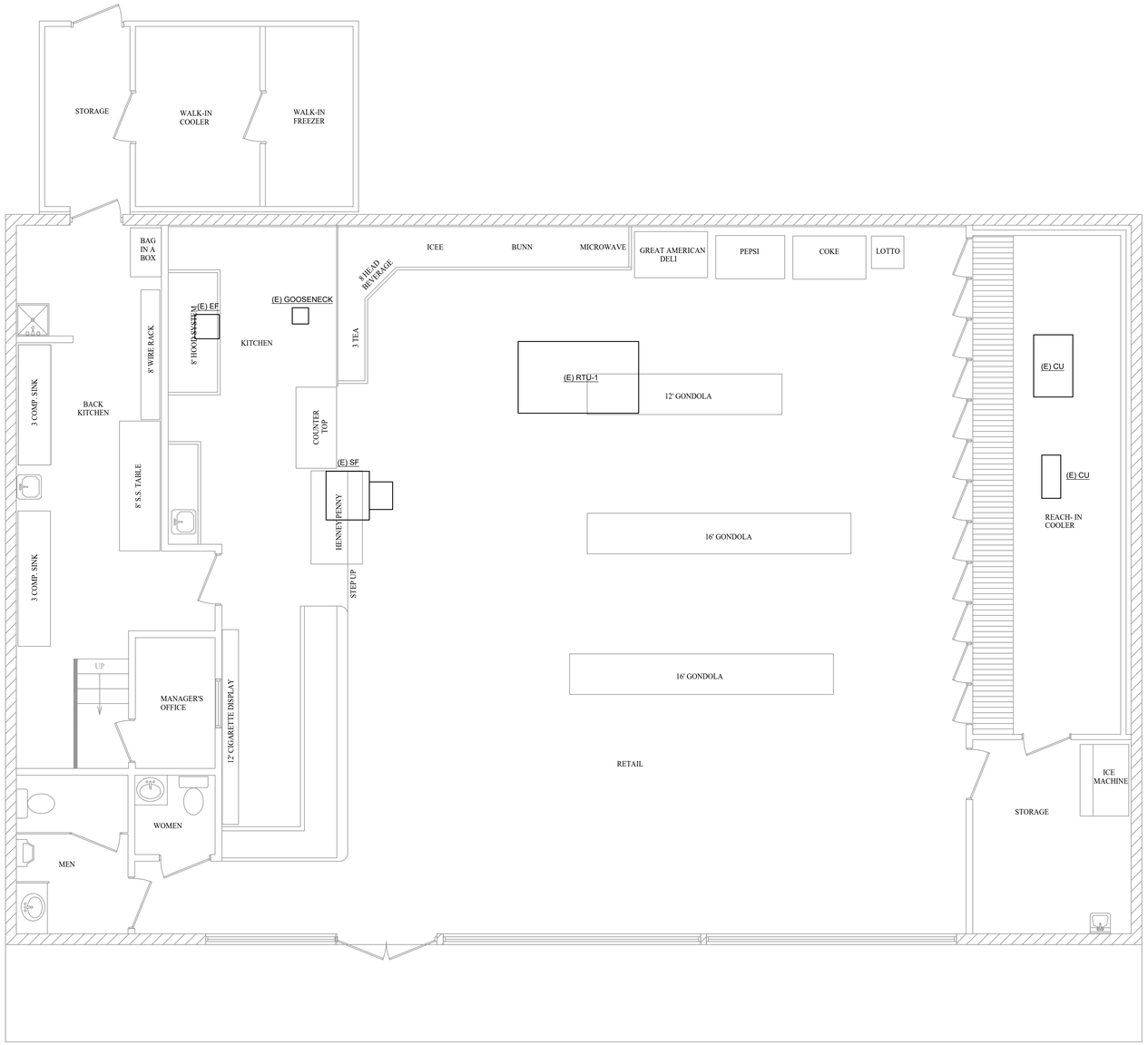
SHEET TITLE
GENERAL NOTES, LEGEND, AND SHEET INDEX - HVAC

FOR REVIEW

M001

DRAWING NOTES:

1. EQUIPMENT SHOWN IS LOCATED ON ROOF.
2. CONTRACTOR SHALL DEMOLISH ALL EXISTING ROOFTOP EQUIPMENT, DUCTWORK, PIPING, AND ACCESSORIES.
3. EXISTING ROOF PENETRATIONS WILL BE UTILIZED FOR NEW HVAC SYSTEM. REFER TO NEW WORK DRAWINGS FOR ADDITIONAL INFORMATION.



HVAC DEMOLITION FLOOR PLAN

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

FOR REVIEW

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RENOVATIONS FOR
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LAKE CITY, FL 32055

SHEET TITLE

HVAC DEMOLITION FLOOR PLAN

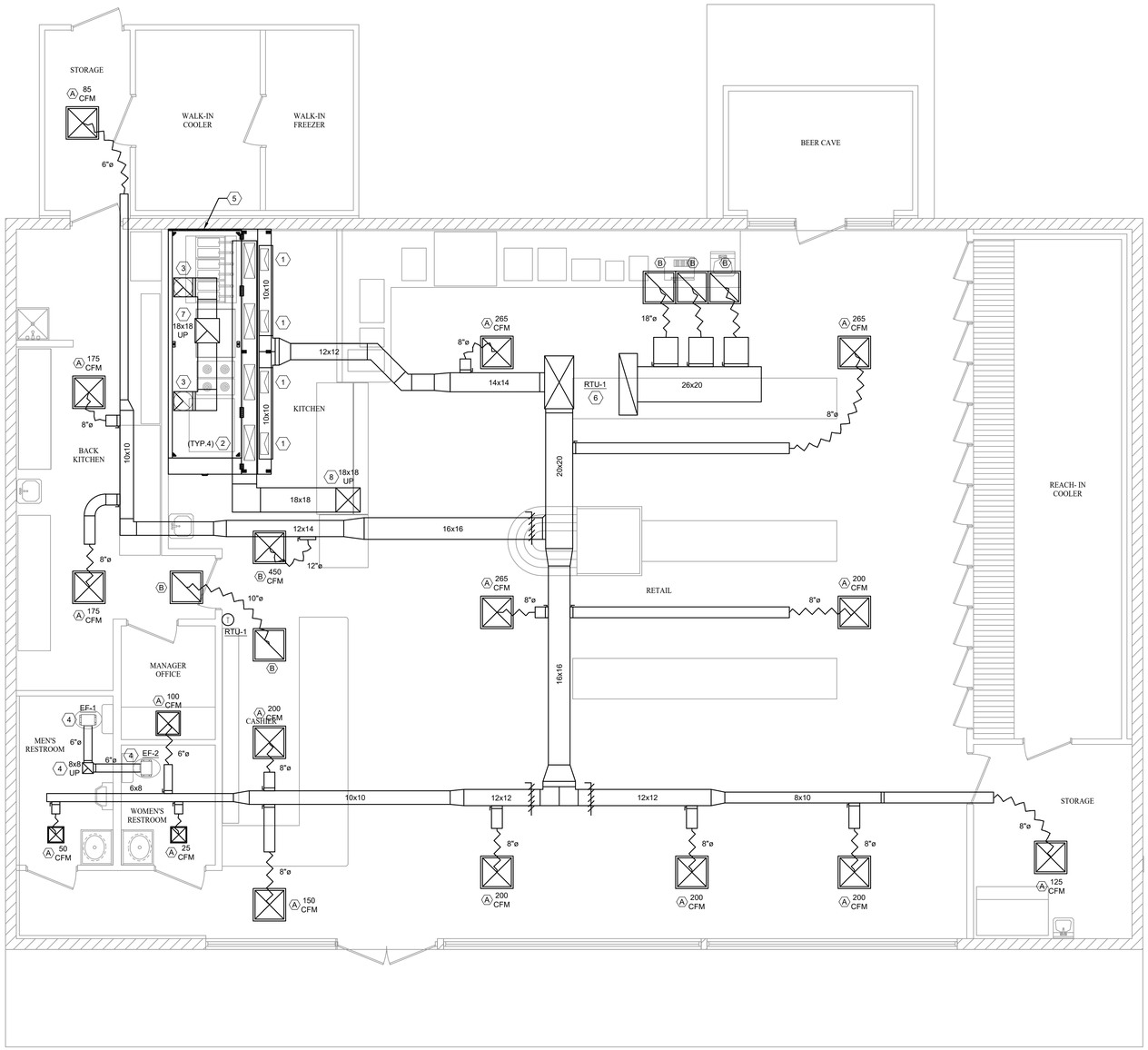
M101

DRAWING NOTES:

1. HOOD EXHAUST FAN AND MAKEUP AIR UNIT SHALL BE INTERLOCKED WITH NEW KITCHEN HOOD.

KEY NOTES:

1. REFER TO HOOD MANUFACTURERS DATA FOR SUPPLY AIR CONNECTION SIZE AND AIRFLOW REQUIREMENTS.
2. REFER TO HOOD MANUFACTURERS DATA FOR MAKE UP AIR CONNECTION SIZE AND AIRFLOW REQUIREMENTS.
3. REFER TO HOOD MANUFACTURERS DATA FOR GREASE EXHAUST AIR CONNECTION SIZE AND AIRFLOW REQUIREMENTS. SLOPE DUCTWORK BACK TO HOOD PER FMC REQUIREMENTS.
4. PROVIDE NEW CEILING MOUNTED EXHAUST FANS. INTERLOCK EXHAUST FAN WITH LIGHT SWITCH. EXHAUST DUCTWORK SHALL BE ROUTED TO NEW GRAVITY RELIEF VENT EQUIVALENT TO GREENHECK GRSR WITH NEW CURB.
5. REFER TO CAPTIVEAIRE DRAWINGS FOR HOOD SPECIFICATIONS.
6. PROVIDE FULL SIZE INLET AND DISCHARGE FROM NEW ROOFTOP UNIT. COORDINATE EXACT SIZE WITH FINAL EQUIPMENT SUBMITTALS.
7. EXHAUST DUCTWORK UP TO NEW HOOD EXHAUST FAN ON ROOF.
8. MAKEUP AIR DUCTWORK UP TO NEW MAKE UP AIR UNIT ON ROOF.



HVAC FLOOR PLAN

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

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COBURN AND ASSOCIATES, INC
MECHANICAL • ELECTRICAL • CONSULTING ENGINEERS
P.O. BOX 577 HIGH SPRINGS, FLORIDA
PH 386-454-3748 CELL 352-538-0163
CERTIFICATE OF AUTHORIZATION 3687

CA JOB NO. 2205
DRAWN
APPROVED
DATE OF ISSUE 10/05/2022
REVISIONS

PROJECT TITLE AND LOCATION

RENOVATIONS FOR
SUNSTOP STORE #303
1166 E DUVAL ST
LAKE CITY, FL 32055

SHEET TITLE

HVAC FLOOR PLAN

M201

DRAWING NOTES:

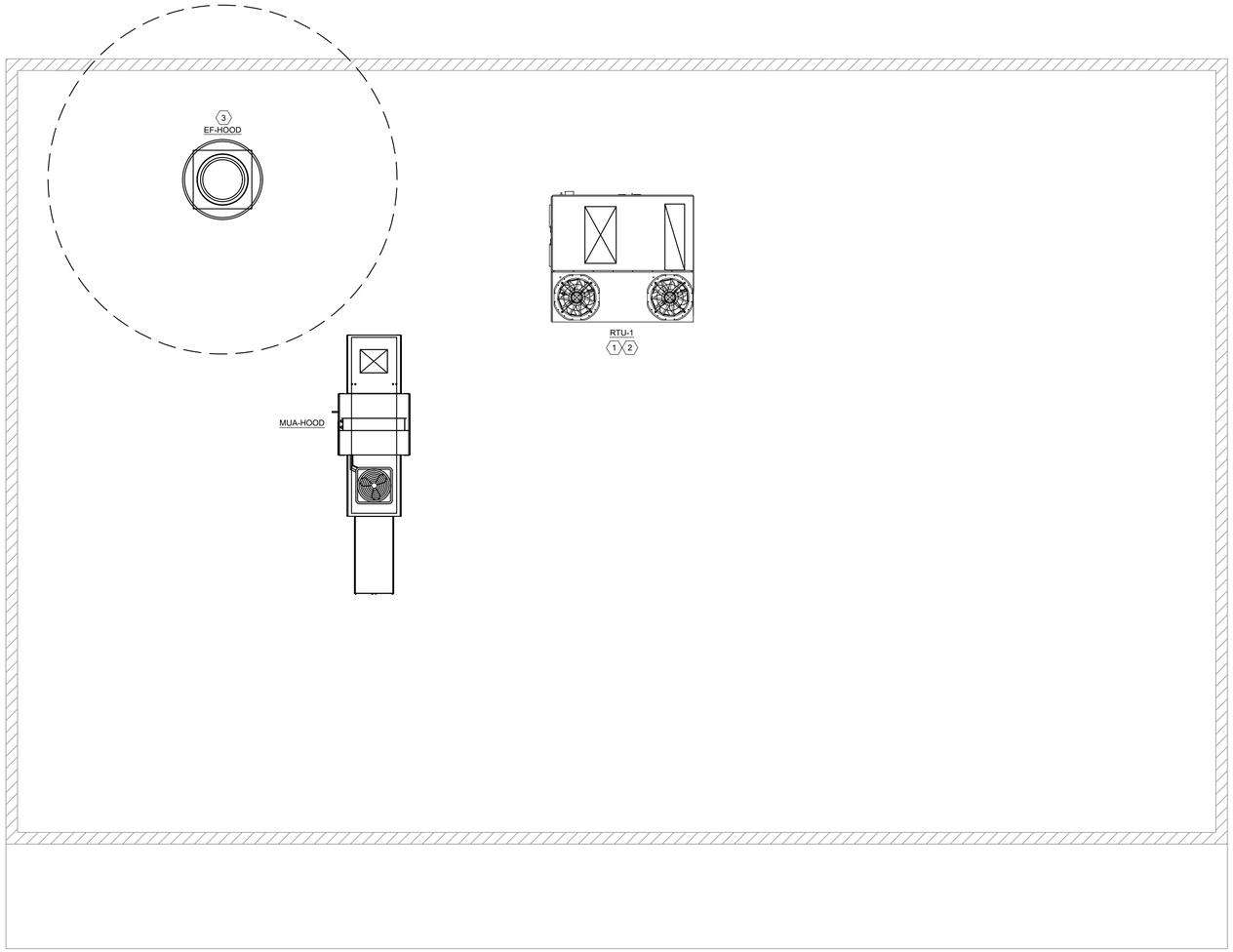
1. ALL NEW ROOFTOP EQUIPMENT SHALL BE LOCATED, AT A MINIMUM, 10'-0" FROM EDGE OFF ROOF. EQUIPMENT LOCATED CLOSER THAN 10'-0" FROM THE ROOF EDGE SHALL BE PROVIDED WITH A 42" GUARD RAIL OR A STRUCTURAL TIE OFF POINT FOR FALL PROTECTION.
2. NEW ROOFTOP EQUIPMENT SHALL UTILIZE EXISTING ROOF PENETRATIONS. NEW ROOF CURBS SHALL BE PROVIDED FOR ALL NEW EQUIPMENT.

KEY NOTES:

(1) ROUTE NEW 1-//2" CONDENSATE DRAIN TO EXISTING ROOF DRAIN.

(2) MOTORIZED OUTDOOR AIR DAMPER SHALL BE BALANCED TO 800 CFM. DAMPER SHALL OPEN UPON UNIT STARTUP AND SHALL CLOSE ON UNIT SHUTDOWN.

(3) EXHAUST FAN DISCHARGE SHALL BE LOCATED, AT A MINIMUM, 10'-0" FROM OUTDOOR AIR INTAKE.



HVAC ROOF PLAN

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

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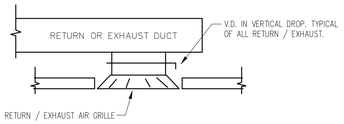
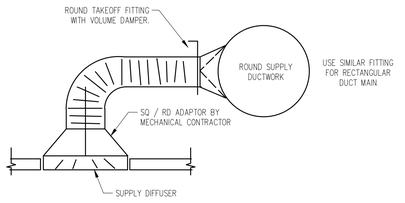
HVAC ROOF PLAN

M301

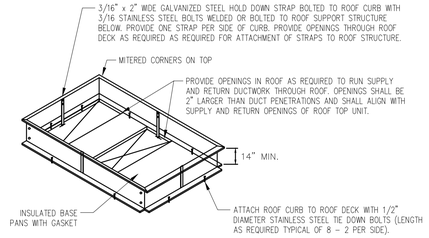


RET./ EXH. DROP DETAIL NTS 7



FINAL BRANCH CONNECTION TO DIFFUSER

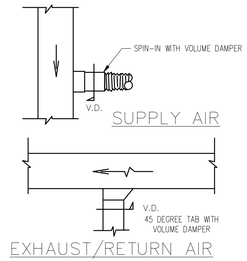
CONNECTION TO DIFFUSER NTS 5



NOTES:

1. REFER TO MANUFACTURERS SUBMITTAL DATA FOR DIMENSIONS.
2. ROOF CURB SHALL BE INSTALLED PER MANUFACTURERS REQUIREMENTS.
3. ALL CURBS SHALL BE INSULATED DOUBLE WALL.
4. REFER TO ARCHITECTURAL DRAWINGS FOR FLASHING.
5. CONSTRUCTION SHALL BE GALVANIZED STEEL WITH STAINLESS STEEL BOLTS / NUTS.

ROOF MOUNTING CURB DETAIL NTS 3

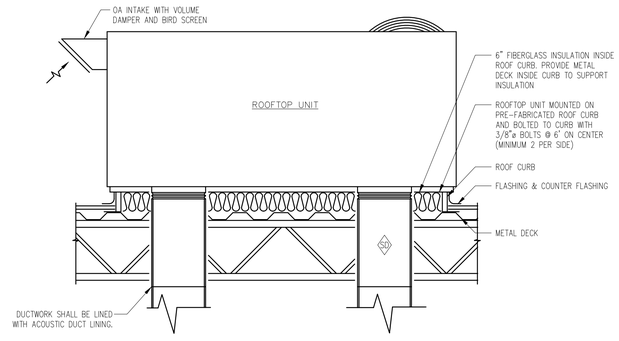


AIR DUCT DETAILS NTS 1

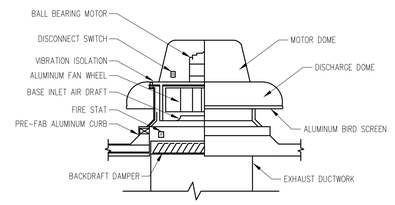
NOTES:

1. DUCT TRTANSITION FROM ROOFTOP UNIT TO DUCTWORK SIZES SHOWN ON MECHANICAL FLOOR PLAN SHALL BE MADE BETWEEN RTU AND TOP OF ROOF WITHIN CURB.
2. SIZE OF OPENING IN ROOF DECK SHALL BE AS SMALL AS POSSIBLE. COORDINATE WITH STRUCTURAL DRAWINGS. OPENING SHALL BE 6" LARGER THAN DUCT SIZE SHOWN ON PLAN.
3. INSTALL PER MANUFACTURER'S RECOMMENDATION AND INSTALLATION MANUAL.
4. PAINT LINER WITH TWO COATS OF ANTI-MICROBIAL PAINT. (SIMILAR TO "PROTER-CEPT" PAIN BY PORTER PAINTS.
5. ROOF SHALL BE CUT ONLY TO ALLOW FOR DUCTWORK PENETRATION. SEAL SPACE BETWEEN DUCTWORK AND CUT-OUT WITH FIBERGLASS INSULATION WITH 24 GAUGE SHEET METAL TRIM.

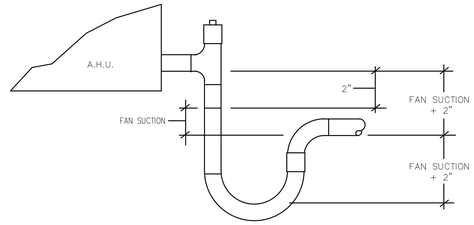
UNIT AND CURB CONNECTIONS SHALL MEET MINIMUM WIND LOAD REQUIREMENTS OUTLINED BY THE FLORIDA BUILDING CODE. PROVIDE DELEGATED STRUCTURAL ENGINEERING DESIGN.



TYPICAL ROOF MOUNTING DETAIL NTS 6



ROOF MOUNTED EXHAUST FAN NTS 4



AHU CONDENSATE DRAIN DETAIL NTS 2

PACKAGED UNIT SCHEDULE - ELECTRIC COOLING/ELECTRIC HEAT PUMP

MARK	SYSTEM TYPE	MANUFACTURER	MODEL	LxWxH/WT	NOMINAL TONNAGE	COOLING CAPACITY				RATING CONDITIONS		AIR FLOW	INDOOR FAN					ELECTRIC HEATER				ELECTRICAL				COMMENTS
						TOTAL	SENSIBLE	EER	IEER	AMB	EAT-DB/WB	CONFIG	CFM	EXT. SP	DRIVE	HP	VOLTS/ø	KW	STAGE	VOLTS/ø	AMPS	MCA	BRKR	VOLTS/ø	
RTU-1	COOLING	RUPP AIR	RARTU3-E_302-20	99x89x68 / 2350	12.5	153,600	102,000	12.5	21.3	95	80/67	DOWN	3950	1.25	D	7.5	240/3ø	19	1	240/3ø	72.2	100	110	240/3	1,2,3,4,5,6,7,8,9,10

REMARKS:
1. 14" ROOF CURB
2. COMP TIME DELAY KIT
3. LOW AMBIENT CONTROL
4. MOTORIZED FRESH AIR DAMP
5. ELECTRIC HEAT STRIP
6. DUCT SMOKE DETECTOR SHOTDOWN
7. INTEGRAL CONVENIENCE OUTLET
8. SINGLE POINT ELECTRICAL CONNECTION.
9. OUTDOOR AIR HOOD WITH INSECT SCREEN
10. PROVIDE HOT GAS REHEAT

AIR DISTRIBUTION SCHEDULE

MARK	TYPE	NECK	FACE SIZE	DESCRIPTION
A	000-60 61-110 111-240 241-420 421-550	6ø 8ø 10ø 12ø	12x12 24x24 24x24 24x24 24x24	SUPPLY DIFFUSER BASIS OF DESIGN: TITUS TMS COLOR: WHITE / PAINT TO MATCH MATERIAL: ALUMINUM MOUNTING: 24x24 LAY-IN OPPOSED BLADE DAMPERS: NO
B	000-90 91-110 111-220 221-350 351-530 531-730 731-1500	6ø 8ø 8ø 10ø 12ø 14ø 18ø	12x12 24x24 24x24 24x24 24x24 24x24 24x24	RETURN/EXHAUST GRILLE BASIS OF DESIGN: TITUS 50F COLOR: PAINT TO MATCH MATERIAL: ALUMINUM MOUNTING: CEILING MOUNTED OPPOSED BLADE DAMPERS: NO

FMC TABLE 403.3.1.1 - OUTSIDE AIR REQUIREMENTS

AIR HANDLER NUMBER – RTU-1		SPACE REQUIREMENTS		OCCUPANCY REQUIREMENTS				TOTAL O/A CFM
ROOM NAME	AREA (SQ. FT.)	CFM/SQFT	CFM	PEOPLE/SQFT	PEOPLE	CFM/PERSON	CFM	
BACK KITCHEN	253	0.06	15	5/1000	2	5	10	25
CASHIER	279	0.06	17	5/1000	2	5	10	27
KITCHEN	195	0.12	23	20/1000	4	7.5	30	53/136E
MANAGER OFFICE	41	0.06	3	5/1000	1	5	5	8
MENS RESTROOM	62	70E/T	70E	--/1000	--	--	--	70E
WOMENS RESTROOM	43	70E/T	70E	--/1000	--	--	--	70E
RETAIL NORTH	804	0.12	97	15/1000	12	7.5	90	187
RETAIL SOUTH	836	0.12	100	15/1000	13	7.5	98	198
STORAGE 1	61	0.12	7	--/1000	--	--	--	7
STORAGE 2	117	0.12	14	--/1000	--	--	--	14
TOTAL								519/276E

EXHAUST FAN SCHEDULE

MARK	MFGR.	MODEL	TYPE	WATTS	HP	RPM	CFM	EXT. SP	VOLT/ø	COMMENTS
EF-1	GREENHECK	SP-A90	CEILING	16	--	900	70	0.2	120/1	INTERLOCK W/ LIGHT SWITCH
EF-2	GREENHECK	SP-A90	CEILING	16	--	900	70	0.2	120/1	INTERLOCK W/ LIGHT SWITCH

FURNISH ALL FANS WITH INTEGRAL DISCONNECT, THERMALLY PROTECTED MOTOR, BACKDRAFT DAMPER AND ROOF CURB

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SHEET TITLE
MECHANICAL DETAILS & SCHEDULES

M401

HVAC SPECIFICATIONS

A. It is the intent of these specifications to define the work and materials typically installed by a Mechanical Contractor. However, it is not intended to define a subcontract between the Mechanical Contractor and the General Contractor. The General Contractor is responsible for the entire project and any questions regarding scope of work shall be directed to the General Contractor.
B. Work shall include all labor, materials, fixtures, equipment, tools and service necessary for installation, testing and adjusting of all mechanical systems shall be furnished and installed in compliance with the Drawings, Specifications, and any Addenda thereto.
C. Drawings and Specifications shall be understood to cover, according to their intent and meaning, complete mechanical systems. Work shown and not specified, or work specified and not shown shall be performed as though mentioned in both.
D. Minor items and accessories reasonably inferred as necessary for the complete and proper operation of any system shall be provided by contractor or subcontractor for such system whether or not they are specifically called for.
E. Before submitting a bid, the Mechanical Contractor is to coordinate with the General Contractor to ascertain, in detail, the division of work, and the extent of performance other subs and the General Contractor.
F. All work shall be performed or installed in strict accordance with Florida Building Code 2020 - Mechanical, NFPA 101, NFPA 90A and local ordinances.
G. Fees for permits, inspections, patent use, royalties, etc. shall be paid by the contractor.
H. All systems shall be tested for proper operation, rotation air supply, water supply, pressures, flows, balance, vibration, and appropriate interlocks as required by these specifications or manufacturers' recommendations.
I. All work shall be installed in accordance with the appropriate codes and satisfy the local inspector having jurisdiction.
J. Upon completion of each part of the mechanical system, the contractor shall demonstrate to the Engineer that each item on that system is installed with proper covers, safeties, controls, etc., and that all are in proper working order.
K. A set of "red-lined" mechanical drawings shall be carefully maintained at the job site. Actual conditions are to be put on the drawings in red on a daily basis so the drawings will continuously show locations and routings of piping, ducts, grilles, equipment, valves, and any equipment specified on the drawings or in these specifications.
L. Equipment and materials shall be new and meet or exceed specification / schedule requirements.
   1. All products shall be current model for which replacement parts are available.
M. Acceptable manufacturers are listed, additional manufacturers may request approval for their products up to 10 days in advance of bid. Engineer may require supplemental information prior to accepting or rejecting the alternate.
N. All work shall be performed in compliance with OSHA regulations.
O. Shop drawings and product data shall be submitted on all equipment, fixtures, etc
   1. Submittals shall include all equipment to be installed by the subcontractor and all submittals must be made at same time.
   2. Each package must have the General Contractors review stamp prior to submittal.
   3. The Engineer will review one submittal and one resubmittal; subsequent resubmittals may require a review charge to be paid by subcontractor.
   4. Shop drawings shall be labeled in the same designation as the drawings
P. Job conditions shall be determined prior to bidding in the following manner:
   1. Site visit to determine:
      a. Existing conditions.
      b. How and where materials will be delivered and stored.
      c. Special problems encountered during construction.
   2. Examine all Contract Drawings and Specifications to determine:
      a. Type of construction to be used.
      b. How construction or work will affect the work of this Section.
      c. Nature and extent of work of other trades.
Q. Failure to determine existing conditions or nature of construction will not be considered as a basis for granting additional compensation.
R. Installation:
   1. Contract Drawings show the arrangements and sizes of principal apparatus and devices to be provided under this Contract and connection thereto. These shall be followed as closely as actual building construction will permit.
   2. Dimensions of work as indicated on Plans are not guaranteed to be as-built d dimensions.
   3. No measurements shall be scaled from Drawings and used as definite dimensions for layout or fitting work in place.
   4. Layout of equipment, as shown on the plans, shall be checked and exact location determined by dimension if equipment approved by the Architect.
   5. Consult the Drawings for all dimensions, locations of partitions, sizes of structural member, foundations, etc.
   6. Do not make final layouts until shop or equipment drawings are approved and job conditions verified.
   7. Mechanical reference symbols are given on the mechanical legend on the drawings.
S. Rough-in:
   1. Work included:
      a. Contractor shall rough-in for all equipment, fixtures, etc., in building whether or not such equipment is furnished by this Contractor or by Owner.
   2. Method:
      a. Determine in advance the location and size of all openings and chases necessary for proper installation of all work and have openings and chases provided during construction.
      b. Install all inserts for hangers and supports of mechanical work and equipment work as general construction progresses.
      c. Rough-in openings in masonry or stud walls shall be cut, not broken or chiseled.
      d. Sleeves shall be required at all points where piping passes through concrete walls, slabs or masonry walls; sleeves installed below grade or where subject to high water conditions shall be installed watertight.
T. Coordination:
   1. Work shall be coordinated between all Contractors, Subcontractors, Installers, Suppliers, Trades, etc., to:
      a. Insure a neatly fitted installation.
      b. Determine the nature and extent of the work of others.
      c. Eliminate interferences.
      d. Maintain maximum headroom and clearances.
   2. Any interference which develops or is foreseen and cannot be resolved by the affected trades, etc. shall be handled as follows:
      a. Cease installation of that portion of the work which is in conflict as no additional compensation will be allowed for any relocation, etc.
      b. Continue work only on other portions of the work which are not in conflict.
      c. Notify the Architect immediately.
      d. Architect's decision shall be final as to any relocation, rerouting, removal, etc.
      e. No additional compensation will be allowed for removal, relocation, repairs or changes required by interferences.
U. Clear away all debris, surplus materials, etc., resulting from work on operations, leaving job and equipment in clean first-class condition.
V. Clean all rotating equipment, ducts, piping, etc., and leave them in a ready-to-use condition.
W. Where factory finish is provided on equipment, all marred or damaged surfaces shall be touched-up or refinished hereunder as approved.
X. Thoroughly clean all items of equipment, leaving them in first-class condition.
Y. Wipe clean or wash if necessary air surfaces of all coils, fan housings, fan wheels, fan motors, air unit plenums, and all air filters.
Z. All pumps, motors, fans and other rotating equiment shall be stored at Site with openings, bearing, etc., covered to exclude dust and moisture; all stockpiled conduit shall be placed on dunnage, and protected from weather, from entry of foreign materials.

BALANCING OF AIR SYSTEMS

A. Balance and adjust each air distribution system shown on the Drawings.
B. Perform work in accordance with procedures and standards described in SMACNA Balancing and Adjustment Manual."
C. Fuse sizes and thermal overload heaters shall be checked against each motor nameplate.
D. The amperage shall be read at each electrical motor to determine the load imposed on it.
E. Adjustment and Balance:
   1. Adjust variable type pulleys, volume dampers, control dampers, etc. to provide correct volumes to main trunk lines.
   2. Check and adjust outside air quantities as required.
   3. Adjust air extractors and manual balancing dampers to supply correct air volume to each main branch duct from main trunk lines.
   4. Adjust manual balancing dampers to supply correct volume to each individual branch duct.
   5. Use terminal registers only for minimal adjustment of air flows, i.e. less than 5 % of air volume.
   6. Adjust grilles and diffusers for proper air flow patterns.
   7. Air conditioning units shall be placed in operation and both wet and dry bulb temperature taken at one-hour intervals to determine the amount of cooling being accomplished and to indicate adjustments needed.
   8. After spaces have been brought down to design temperatures and equipment is functioning properly, air shall be rebalanced if necessary by means of calibrated thermometers placed in each room and in open spaces,not over 20' apart. There shall be no deviation in temperature of more than 3 F throughout the space cooled.
   9. A thorough check shall be made, with an anemometer, of air motion in the occupied space. Any air motion exceeding 50 fpm shall be remedied.

HVAC SYSTEMS

A. Split System or packaged heating and cooling units with reverse cycle and heat strip where specified.
B. Acceptable Manufacturers
   1. Trane
   2. Carrier
   3. Lennox
C. BLOWER COIL SECTION
   1. Airflow as indicated on drawings.
   2. Fan shall be direct - drive, forward-curved, double inlet, statically and dynamically balanced.
   3. Fan motor shall be resiliently mounted and shall be easily removable for service.
   4. Fan motor shall be permanent -split-capacitor type with integal overload protection, high - efficency, Florida Energy Code Minimum.
   5. Cooling coil shall have aluminum fins machanically bonded to copper tubing. Coil shall have factory installed refrigerant metering devices.
D. CONDENSING SECTION
   1. Outdoor unit shall be designed for use with Refrigerant 134a and contain sufficient charges (R134a) for complete system. Brass service valves with refrigerant line fittings and service ports shall be located on exterior of unit.
   2. Outdoor coil shall be constructed with aluminum fins mechanically bonded to non-ferrous tubing. Factory installed coil refrigerant metering device shall be mounted on unit liquid service valve. Metering device internal components shall be removable for cleaning or replacement.
   3. Outdoor unit fan shall be propeller type, direct driven, and arranged for vertical air discharge. Fan motor shall be factory lubricated, inherently protected and resiliently mounted.
   4. Compressor shall be of the welded-hermetic type with internal vibration isolation and shall be covered with a shield to muffle operating sound. Compressor motor shall have both thermal and current -sensitive overload device. Compressor shall be equipped with a crank-case heater and have internal high-pressure protection.
   5. Controls shall be factory wired and located in a readily accessible location. Controls and protective devices shall include a liquid line low pressure switch, suction line accumulator and pressure relief device. Control wiring terminal board shall be designed to match indoor unit terminal board and accessory thermostat terminals for standardized point-to-point connection.
E. Refer to Mechanical Equipment Schedule for Model Numbers.

EXHAUST FANS

A. All exhaust fans mounted in the ceiling inside the building and ducted to the outside.
B. Meet the specification for air delivery at static pressure as specified on the Equipment schedule.
C. Meet the noise criteria (if specified on Schedule).
D. Be of the manufacture and model number specified in the Equipment Schedule or equal.
E. Shall be UL listed.
F. Acceptable Manufacturers
   1. Breidert
   2. Cairnes
   3. Greenheck
G. General
   1. Acoustically insulated steel housing
   2. Baked enamel finish on housing
   3. Adjustable mounting brackets
   4. Automatic backdraft damper at the discharge duct
   5. Lifetime lubricated motor
   6. Terminal box on housing with cord, plug and receptacle inside the housing.
   7. Fan motor and wheel shall be removable without removing entire fan housing.

DUCTWORK

A. RECTANGULAR SUPPLY DUCTWORK SHALL INSULATED LOW PRESSURE SHEET METAL
B. EXPOSED ROUND DUCT SHALL BE GALVANIZED DOUBLE WALL WITH 1" INSULATION BETWEEN THE WALLS.
C. GENERAL EXHAUST DUCTWORK SHALL BE GALVANIZED SHEETMETAL WITH NO INSULATION.
D. RETURN DUCTWORK SHALL BE INSULATED LOW PRESSURE GALVANIZED SHEET METAL.
E. FLEXIBLE DUCTWORK IS ALLOWED ONLY WHERE SHOWN AND SHALL NOT EXCEED 12' FEET IN LENGTH. FLEXIBLE DUCT SHALL MEET UL 181 CLASS 1.
J. FLEXIBLE DUCTWORK WHERE INSTALLED SHALL BE ATTACHED USING SPIN-IN TAKE-OFFS WITH LOCKING QUADRANT DAMPERS.
F. LOW - PRESSURE SHEETMETAL DUCTWORK
   1. Except as otherwise specified or detailed on the drawings, all ductwork shall be constructed in accordance with the Sheet Metal and Air Conditioning Contractor's National Association (SMACNA)
   2. Duct systems shall be complete, including all duct fittings, turning vanes, transverse reinforcing hangers, suppoorts, etc., as detailed on the Drawings or in the standards.
   3. Provide and install balancing dampers or adjustable splitters at all branch ducts, and where required for balancing the system.
   4. Each damper shall be adjustable with an approved guadrant or regulator. Dampers to be opposed blade type for ducts over 12" in any dimension, for ducts 12" single blade is acceptable except for outdoor air intakes which shall be low-leakage opposed blade.
   5. Dimensions shown are net inside dimensions (including insulation).
   6. Galvanized sheetmetal duct shall conform to the following thicknesses

a. Largest dimension	Gauge
0-30 inches	24
30-54 inches	22
55-84 inches	20
over 84 inches	18

   7. All joints shall be sealed with tape and coated with mastic.
   8. Ductwork shall be seal class - 2" w.c. unless otherwise noted.
G. Plenums shall be constructed and tested in accordance with SMACNA STANDARDS.
H. FLEXIBLE CONNECTIONS
   1. Provide between duct system and air moving equipment
   2. Connection shall be made with not less than 4" wide flexible collar using "Ventglas" 30-ounce neoprene coated glass fabric.
I. Where construction methods for various items are not indicated on the Drawings or specified herein, all such work shall be fabricated and installed in strict accordance with the recommended methods, metal gauges, hanging procedures, access door and accessory installation, etc., as outlined, the latest edition of SMACNA'S Duct Manual and Sheet Metal Construction for Ventilating and Air Conditioning System.
J. Leakage:
   1. Contractor shall make necessary repair and shall make duct system ready for a leakage test.
   2. Test shall be performed by Test and Balance Contractor.
   3. Leakage shall not exceed 1 % leakage for high pressure duct and 5% for low pressure duct construction.

DUCT INSULATION

A. Acceptable Manufacturers
   1. Johns-Manville
   2. Certainteed
   3. Knauf
B. Duct Wrap:
   1. 2" inch thick fiberglass - R6 INSTALLED
   2. Flamespread 25 per ASTM E-84
   3. Smoke developed 50 per ASTM E-84
   4. Factory applied vapor barrier - heavy duty 4 mil vinyl film, class 1, meeting NFPA 90A and 90B, UL rated
   5. Product:
      a. Johns-Manville "Microlite"
C. Accessories:
   1. Insulation tape, mastic, adhesives, etc., shall have the same flamespread and smoke rating as the insulation to which they are applied and meet manufacturer's recommendations.
D. Ductwrap
   1. Overlap seams of ductwrap, secure with 4" wide open weave glass fabric and two coats of vapor retarder mastic.
   2. Underside of ductwork greater than 24" wide shall also be secured with mechanical fasteners with tape.
   3. Pressure tape is not acceptable.
E. Provide rigid insulation on supply and return ducts inside mechanical rooms or on any exposed ductwork.

DUCT HANGERS AND SUPPORTS

A. All ductwork for air supply, return, fresh air or exhaust shall be supported by duct hangers, clamps, clips or supports.
B. Acceptable Manufacturers
   Duct hangers may be a manufactured item or field fabricated as required.
C. Galvanized steel straps
   1. Minimum 16 gauge and one inch wide
D. Trapeze hangers
   1. Ducts 20 inches to 40 inches largest dimension.
      a. Minimum 1 inch x 1 inch x 1/4 inch steel angles.
      b. Minimum 1/4 inch threaded rod
   2. Ducts above 40 inches largest dimension and plenums
      a. Minimum 1-1/2 inch x 1-1/2 inch x 1/4 inch steel angles.
      b. Minimum 3/8 inch threaded rod.
E. Supports
   1. All ductwork shall be supported from structural building members, i.e. block, beams,columns, purlins, joists, etc.
   2. Ductwork shall not be supported from ceiling tile or grids, conduit, mechanical equipment, piping or non-structural steel.
   3. Ductwork hangers shall be attached to building steel by bolts, screws, clamps or welding.

F. Hanger Bands
   1. Horizontal concealed ductwork up to 20 inches largest dimension shall be supported by one (1) inch x 16 gauge galvanized steel straps at a maximum spacing of 10 ft. and at each elbow or branch takeoff.
   2. Bands and spacing shall be at a maximum spacing of 10 feet on horizontal runs and at each elbow or branch takeoff.
      a. No nails shall be driven through any ductwork and into floor joists, trusses, etc.
   3. Vertical ductwork, all sizes, shall be supported by bands bolted or screwed to walls, studs, etc.
   4. Hanger bands shall be bent over one (1) inch from end and turned under corners of rectangular duct.
   5. Duct hanger bands shall be fastened with sheet metal screws at six (6) inch intervals up sides and into bottom.
      a. Sheet metal screws shall be 3/4 inch so as not to penetrate duct liner completely.
G. Trapeze Hangers
   1. Horizontal ductwork larger than 20 inches largest dimension and all exposed ductwork shall be supported by trapeze type hangers.
   2. Trapeze hangers shall be at a maximum spacing of 10 feet and at each elbow or branch takeoff.
   3. Hanger rods shall be secured to bottom bracing angles with nuts and locknuts.

DUCT ACCESSORIES

A. Air distribution system shall be furnished complete with duct accessories necessary to allow complete air balancing and adjusting of flow and volume.
B. All square duct corners and "T" connections shall be fitted with turning vanes.
C. All branch duct takeoffs shall be fitted with nonadjustable air turning vanes AND manual volume control dampers, OR adjustable volume extractors which are adjustable from outside the duct.
D. Each grille and diffuser shall be fitted with a manual volume control register at the face of the grille and adjustable from the face of the grille without requiring removal of the grille.
E. Acceptable Manufacturers
   1. Barber Colman
   2. Titus
   3. Price
   4. MetalAire
F. Air turning vanes:
   1. Multiple radius vanes
   2. Steel construction
   3. Electrocoated white finish
   4. Maximum pressure loss = 20 % of velocity head
   5. Model number - equal to Barber Colman Models AOOA and AOOF
G. Volume Extractors:
   1. Gang operated parallel blade
   2. Fully adjustable from wide open to full closed
   3. Supply with supporting foot as required for branch takeoffs not in the same plane as trunk lines.

VOLUME DAMPERS

A. All return air and fresh air dampers shall be parallel blade pivot dampers with motorized control where noted.
B. All balancing dampers shall have manual control dampers with positive position locking.
C. Acceptable Manufacturers
   1. Prefco Manufacturing Co.
   2. Titus
   3. Ruskin
D. Parallel Blade Pivot Dampers:
   1. Low leakage non-degradable
   2. Friction free metal to metal seals incorporated into the blade and frame shapes
   3. Galvanized steel frame, 16 gauge
   4. Galvanized steel blades, 22 gauge with double-wrapped center and edge forming
   5. Maximum leakage - 11 CFM per sq. ft. @ 1 inch S.P.
   6. The static pressure loss shall not exceed 0.7" W.G. @ 2000 FPM and 50% modulation
   7. Model Number
      a. Equal to Prefco Model 5150
   8. Classified 1-1/2 hour rating, UL Listed.
   9. Fire dampers shall have thermal link.
   10. Model:
      a. Dampers shall be equal to a Prefco "Low Profile B" or approved equal.
D. Dampers - mounted horizontally in ceiling:
   1. UL Listed ceiling damper
   2. Round or square as required
   3. 2 hour rated
   4. Single or dual blade depending on duct size
   5. Model Number
      a. Prefco Model 5650, 5600, or 5660
         1. Fusible link rated at 165 Degrees F. release temperature.

DUCT ACCESS PANELS AND TEST HOLES

A. Provide an access panel at each return air and/or fresh air damper which will allow for inspection and cleaning of dampers.
   1. Where return and fresh air dampers are located adjacent, one access door is sufficient, providing each damper is accessible.
B. Provide an access panel at each fire damper for resetting and maintenance of each fire and smoke damper.
C. Provide test holes for measurement of air flow, on each branch duct and main trunk line or plenum.
D. Acceptable Manufacturers
   1. Penn Ventilator Co.
   2. Ruskin
E. Access Doors:
   1. Insulated hinged duct access door
   2. Standard gauge galvanized steel
   3. Continuous piano hinge
   4. Gasketed at door frame surface and at frame to duct surface
   5. Positive acting cam latch handle
   6. Doors shall be of sufficient size to allow access to both sides of dampers
   7. If duct width is greater than 36 inches, provide access doors on each side of duct for access to entire dampers.
   8. Exception:
      a. Where access door must be installed in such a position that hinged opening is not possible, provide door that is completely removable.
      b. Removable door shall have cam-locks on both sides
      c. Where noted on drawings fire damper may be accessed through return air grille.
   9. Model Numbers:
      a. Hinged doors shall be equal to Penn Ventilator Model DAD
      b. Non-hinged removable door shall be equal to Penn Ventilator Model DAD-RP.
F. Test Holes
   1. Provide a capped access hole in each trunk line or branch duct for insertion of air-flow line or branch duct pitot for flow measurement.

GRILLES & DIFFUSERS

A. Aluminum fixed blade with air pattern and neck sizes as shown on grille and diffuser schedule.
   1. Provide all supply diffusers with opposed blade dampers.

DISPOSABLE FILTERS

A. Provide 1" pleated with perforated metal back, unless otherwise noted.
B. MERV-8

CONTROL SYSTEM

PART 1 - GENERAL

DESCRIPTION

A. GENERAL
   1. Furnish and install all electrical controls and components for all mechanical systems as listed below.
B. SPLIT SYSTEM / PACKAGED ROOFTOP
   1. Provide Heat - Cool - Off. Fan-On-Auto, thermostat, electronic, fully programmable with 4 functions per day, seven day/week programmable, t'stat shall have auxiliary contacts for O.A damper control.
   2. Thermostat shall have internal CO2 sensor and dedicated contacts to control O.A. damper.
   3. Thermostat shall have wireless capability.

PART 2 - SEQUENCE OF OPERATION

A. SPLIT SYSTEM / PACKAGED ROOFTOP
   1. Occupied Mode-
      a. Air Handler shall run continuously
      b. Compressor shall cycle to maintain space temperature (heating or cooling)
      c. Outside air damper shall open to minimum set point cfm as noted on dwgs.
   2. Unoccupied Mode-
      a. Air Handler shall cycle with conpressor
      b. Compressor shall cycle to maintain space temperature (heating or cooling)

FIRE STATS

A. Provide fire stats on each unit as required by code.
   1. Firestat shall shut down all unit components including fans, compressors.

FOR REVIEW

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CA JOB NO	DRAWN	APPROVED
2205		

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PROJECT TITLE AND LOCATION

RENOVATIONS FOR
SUNSTOP STORE #303
1166 E DUVAL ST
LAKE CITY, FL 32055

SHEET TITLE

MECHANICAL SPECIFICATIONS

M501

PLUMBING GENERAL NOTES

1. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH 2020 FLORIDA BUILDING CODE, 2020 FLORIDA ENERGY CONVERSATION CODE, AND 2020 FLORIDA BUILDING CODE.
2. PLUMBING CONTRACTOR SHALL VERIFY LOCATION, SIZE, AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
3. DRAWINGS ARE DIAGRAMMATIC. DO NOT SCALE DRAWINGS. EXACT DIMENSION LAYOUTS ARE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND THE PLUMBING SUB-CONTRACTOR.
4. CONTRACTOR SHALL VISIT THE JOB SITE AND THOROUGHLY FAMILIARIZE THEMSELVES WITH ALL EXISTING CONDITIONS.
5. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES TO AVOID INTERFERENCE WITH THE PROGRESS OF CONSTRUCTION.
6. ALL REQUIRED INSURANCE SHALL BE CARRIED BY THE CONTRACTOR FOR THE PROTECTION AGAINST PUBLIC LIABILITY OR PROPERTY DAMAGE FOR THE DURATION OF THE WORK.
7. ALL EXCAVATION AND BACKFILL AS REQUIRED FOR THIS PROJECT SHALL BE PROVIDED AS PART OF THIS CONTRACT.
8. ALL WORK SHALL BE PERFORMED BY A LICENSED PLUMBING CONTRACTOR IN A FIRST CLASS WORKMANLIKE MANNER. THE COMPLETED SYSTEM SHALL BE FULLY OPERABLE AND ACCEPTANCE BY THE OWNER MUST BE A CONDITION OF THE CONTRACT.
9. ANY SLAB CUTS AND REPAIRS SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR TO DETERMINE IF IT SHOULD BE INCLUDED IN THE PLUMBING CONTRACTORS BID.
10. ALL MATERIALS SHALL BE NEW. ALL WATER SUPPLIES, VENT, WASTE, AND CONDENSATE LINES SHALL BE CONCEALED IN CEILING, WALLS, OR UNDER FLOOR SLAB UNLESS SPECIFICALLY NOTED OTHERWISE. SOME LINES MAY BE GRAPHICALLY DEPICTED OUTSIDE THE WALLS FOR CLARITY ONLY. THESE LINES ARE INTENDED TO BE CONCEALED UNLESS SPECIFICALLY NOTED OTHERWISE.
11. ALL SHUTOFF VALVES SHALL BE ¼ TURN BALL VALVES.
12. ALL FIXTURES MUST BE PROVIDED WITH READILY ACCESSIBLE STOPS. STOPS SHALL BE CHROMED BRASS WITH CHROMED BRASS TUBING AND COMPRESSION FITTINGS. PVC SUPPLIES ARE NOT ACCEPTABLE.
13. ALL PLUMBING FIXTURES SHALL HAVE AIR CHAMBERS UNLESS SYSTEM WATER HAMMER ARRESTORS ARE SHOWN. ALL FLOOR DRAINS SHALL HAVE TRAP PRIMERS.
14. PROVIDE CLEANOUTS FLUSH WITH GRADE OR SLAB WITH APPROPRIATE COVERS. COVERS SHALL BE BRONZE TOP WITH SCORED SURFACES AND LABELED "C.O".
15. PENETRATIONS OF FIRE RATED WALLS SHALL BE MADE PER THE UL OR GYP RATING SYSTEM AS SPECIFIED BY THE ARCHITECT.
16. ALL PLUMBING FIXTURES AND TRIM SHALL BE PER THE FIXTURE SCHEDULE. SUPPLY OWNER WITH SUBMITTALS FOR HIS/HER REVIEW. IF THERE ARE SUBSTITUTIONS OR THE OWNER WISHES TO MAKE A CHANGE, ANY COST ADJUSTMENTS WILL BE BASED ON THE FIXTURE SCHEDULE.
17. IF DISSIMILAR METALS ARE TO BE JOINED, APPROVED INSULATION UNIONS SHALL BE USED.
18. PROVIDE WATER HEATER(S) AS SHOWN ON THE DRAWINGS AND PLUMBING SCHEDULES. WATER HEATERS SHALL BE INSTALLED WITH HEAT TRAPS, THERMOSTATIC RELIEF VALVE, AND A DRAIN PROPERLY PIPED TO THE OUTSIDE OR TO THE EMERGENCY OVERFLOW PLAN. PLUMBING CONTRACTOR SHALL PROVIDE A COMPLETE CONDENSATE SYSTEM INCLUDING A 2" DEEP EMERGENCY DRAIN PAN AS SHOWN ON THE DRAWINGS.
19. WALL PENETRATIONS OF SUPPLY PIPING SHALL BE MADE WITH COPPER PIPING OR SLEEVED CPVC WITH CAULKING.
20. FOR NEW BUILDING PROJECTS, COORDINATE UTILITY SERVICE LOCATIONS WITH CIVIL DRAWINGS.
21. PROVIDE ACCESS PANELS FOR ALL VALVES CONCEALED IN WALLS OR ABOVE NON-ACCESSIBLE CEILINGS.
22. REFER TO ARCHITECTURAL DRAWINGS FOR FIXTURE LOCATIONS AND MOUNTING HEIGHTS.
23. MOUNT HOSE BIBBS 24" ABOVE FINISHED GRADE UNLESS OTHERWISE NOTED.
24. COORDINATE EXACT FLOOR DRAIN LOCATIONS WITH ARCHITECTURAL DRAWINGS. SET FLOOR DRAINS BELOW FINISHED FLOOR TO ALLOW FOR FLOOR SLOPING TO THE DRAIN.
25. COORDINATE PIPING WITH ALL ELECTRICAL EQUIPMENT INCLUDING BUT NOT LIMITED TO ELECTRICAL PANELS AND TRANSFORMERS. DO NOT ROUTE ANY PIPING OVER ANY ELECTRICAL EQUIPMENT UNDER ANY CIRCUMSTANCES. PLUMBING PIPING SHALL NOT RUN THROUGH DEDICATED ELECTRICAL OR TELECOM ROOMS UNDER ANY CIRCUMSTANCE. ANY PIPING RUN OVER ELECTRICAL EQUIPMENT OR THROUGH ELECTRICAL / TELECOM ROOMS SHALL BE RE-ROUTED AT NO ADDITIONAL COST.
26. ALL DOMESTIC WATER PIPING SYSTEMS SHALL BE TESTED FOR ABSOLUTE TIGHTNESS BY SUBJECTING THE SYSTEM TO HYDROSTATIC PRESSURE OF 150 PSI GAUGE OR 50 PSI OVER WORKING PRESSURE, WHICHEVER IS GREATER. TESTING SHALL BE COMPLETED FOR NOT LESS THAN EIGHT (8) HOURS.
27. SOIL, VENT PIPES, AND CONDENSATE DRAINS SHALL BE TESTED BY TEMPORARILY PLUGGING ALL OUTLETS AND FILLING THE SYSTEM WITH WATER TO THE LEVEL OF THE HIGHEST VENT STACK. THE SYSTEM MUST BE INSPECTED AND ALL LEAKS REPAIRED.

PLUMBING SYMBOL LEGEND

SYMBOL	DESCRIPTION
CD	– ABOVE GROUND CONDENSATE DRAIN
CD	– BELOW GROUND CONDENSATE DRAIN
	– DOMESTIC COLD WATER
	– DOMESTIC HOT WATER
	– DOMESTIC HOT WATER RECIRCULATING
GW	– GREASE WATER
S	– ABOVE GROUND SANITARY
S	– BELOW GROUND SANITARY
	– SANITARY VENT
ST	– ABOVE GROUND STORM WATER LEADER
U/G	– BELOW GROUND
STO	– STORM WATER OVERFLOW
M	– WATER METER
	– WALL HYDRANT
	– HOSE BIBB
CO	– CLEAN OUT PLUG
WCO C	– WALL CLEANOUT
EWCO	– EXTERIOR WALL CLEAN OUT
FCO	– FLOOR CLEAN OUT
FD FD	– FLOOR DRAIN
FS	– FLOOR SINK
	– ROOF DRAIN
	– WATER CLOSET
	– TRAP (LAV OR SINK)
	– SHUT-OFF VALVE IN VALVE BOX
	– SHUTOFF VALVE
	– BALL VALVE
	– CALIBRATED BALANCING VALVE
	– CHECK VALVE (SWING)
S	– SOLENOID OPERATED VALVE
	– RELIEF OR SAFETY VALVE
	– GAS COCK
	– GAS PRESSURE REGULATOR
	– SHUTOFF VALVE ON RISER
	– GAS COCK ON RISER
	– CONNECTION, TOP
	– CONNECTION, BOTTOM
	– ELBOW, TURNED DOWN
	– ELBOW, TURNED UP
	– TEE, TURNED UP
	– TEE, TURNED DOWN
	– CAP
	– DIRECTION OF FLOW
	– ELECTRIC WATER HEATER
	– CEILING MOUNTED ACCESS DOOR
XX	– REVISION REFERENCE
1 / P-1	– DETAIL REFERENCE: TOP – DETAIL#; BOTTOM – DRAWING# SHOWN ON
XX	– SHEET NOTE CALLOUT
	– DEMO TO
	– CONNECT TO

NOTE: SOME SYMBOLS SHOWN ON THIS LEGEND MAY NOT PERTAIN TO THIS PROJECT

PLUMBING ABBREVIATIONS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
AFF	–ABOVE FINISHED FLOOR	LAV	–LAVATORY
AFG	–ABOVE FINAL GRADE	LBS	–POUNDS
B/S	–BELOW SLAB	MH	–MANHOLE
CB	–CATCH BASIN	NIC	–NOT IN CONTRACT
CD	–CONDENSATE DRAIN	NC	–NORMALLY CLOSED
CFH	–CUBIC FEET PER HOUR	NO	–NORMALLY OPEN
CO	–CLEANOUT	NP	–NON-POTABLE WATER
CONT	–CONTINUATION	NTS	–NOT TO SCALE
CW	–DOMESTIC COLD WATER	OD	–OUTSIDE DIAMETER
DN	–DOWN	PRV	–PRESSURE REDUCING VALVE
DS	–DOWNSPOUT	PSI	–POUNDS PER SQUARE INCH
DWG	–DRAWING	PVC	–POLYVINYL CHLORIDE PIPE
EXIST	–EXISTING	RD	–ROOF DRAIN
ECO	–EXTERIOR CLEAN OUT	RPBP	–REDUCED PRESSURE BACKFLOW PREVENTOR
°F	–DEGREE FAHRENHEIT	SAN	–SANITARY
FCO	–FLOOR CLEANOUT	SD	–STORM DRAIN
FD	–FLOOR DRAIN	SF	–SQUARE FEET
FS	–FLOOR SINK	SH	–SHEET
G	–GAS	SOV	–SHUTOFF VALVE
GPH	–GALLONS PER HOUR	ST	–STORM WATER LEADER
GPM	–GALLONS PER MINUTE	STO	–OVERFLOW STORM WATER
GW	–GREASE WASTE	T	–FLUSH VALVE TOILET
HB	–HOSE BIBB	T.P.	–TRAP PRIMER
HC	–ADA ACCESSIBLE	U/G	–UNDERGROUND
HD	–HUB DRAIN	V	–VENT
HW	–DOMESTIC HOT WATER	VTR	–VENT THRU ROOF
HWR	–DOMESTIC HOT WATER RETURN (RECIRC)	VTW	–VENT THRU WALL
IE	–INVERT ELEVATION	WC	–TANK TYPE WATER CLOSET
IW	–INDIRECT WASTE	WCO	–WALL CLEANOUT
JAN	–JANITOR SINK (SEE SPEC)	WTR	–WATER
KW	–KILOWATT	WHA	–WATER HAMMER ARRESTOR

SHEET INDEX

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CA JOB NO. 2205
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REVISIONS
DRAWN
APPROVED

PROJECT TITLE AND LOCATION
RENOVATIONS FOR
SUNSTOP STORE #303
1166 E DUVAL ST
LAKE CITY, FL 32055

SHEET TITLE
GENERAL NOTES, LEGEND, & SHEET INDEX - PLUMBING

FOR REVIEW

P001

DRAWING NOTES:

1. EXISTING ROOF DRAINS AND ASSOCIATED STORM PIPING SYSTEM IS EXISTING TO REMAIN.
2. HOSE BIBBS ARE EXISTING TO REMAIN. CAP EXISTING PIPE DURING DEMOLITION AND EXTEND EXISTING 3/4" BRANCH PIPING TO NEW DOMESTIC COLD WATER MAIN.

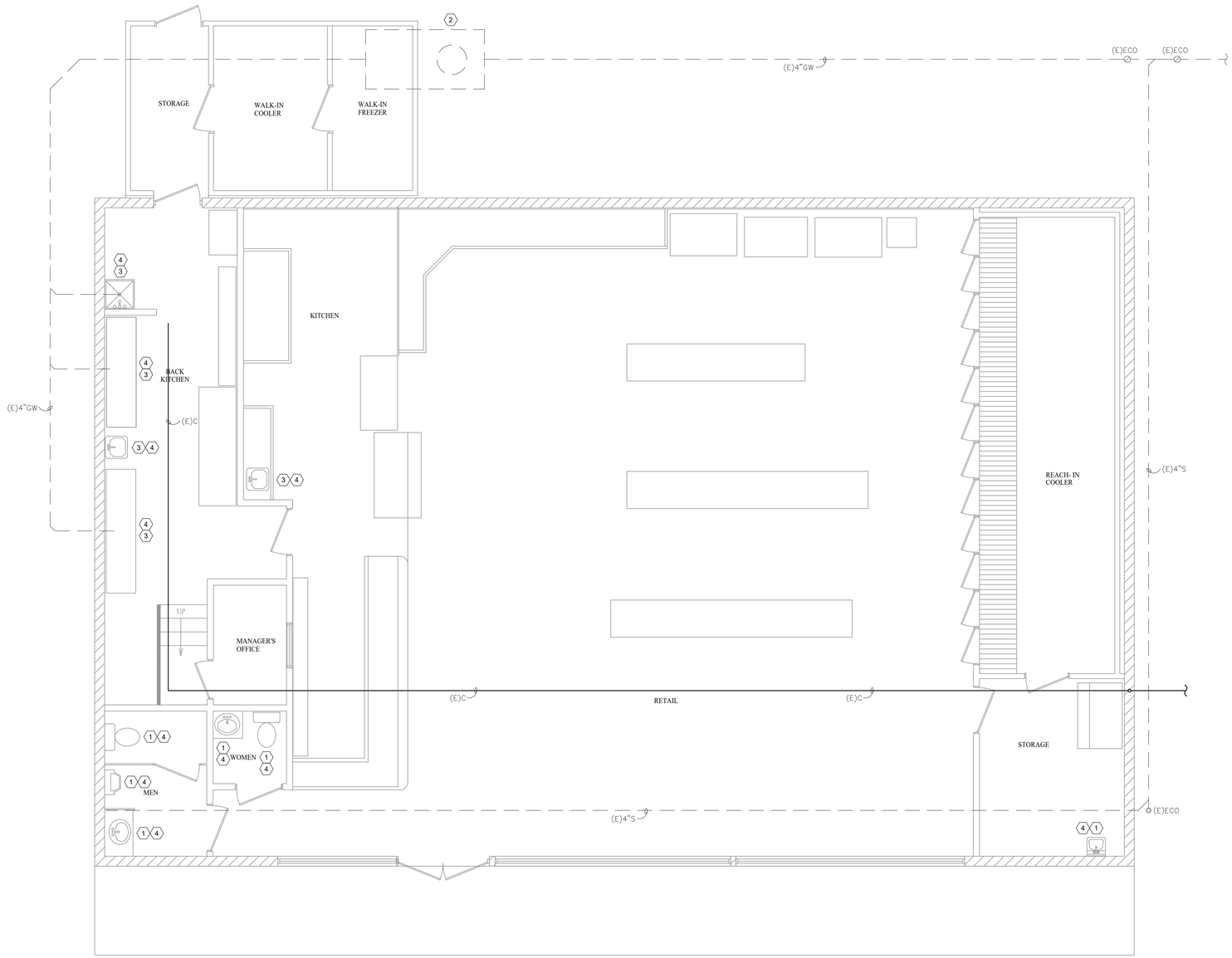
KEY NOTES:

(1) DEMOLISH EXISTING UNDERGROUND SANITARY BRANCH PIPING. UNDERGROUND SANITARY MAIN SHOWN ON PLAN IS EXISTING TO REMAIN.

(2) EXISTING UNDERGROUND GREASE TRAP TO REMAIN.

(3) DEMOLISH EXISTING P-TRAP. PREPARE EXISTING SANITARY PIPING FOR NEW FIXTURE CONNECTION.

(4) DEMOLISH EXISTING DOMESTIC COLD AND HOT WATER BRANCH PIPING TO FIXTURE.



PLUMBING DEMOLITION PLAN

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

FOR REVIEW

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PROJECT TITLE AND LOCATION

RENOVATIONS FOR
SUNSTOP STORE #303
1166 E DUVAL ST
LAKE CITY, FL 32055

SHEET TITLE

PLUMBING DEMOLITION PLAN

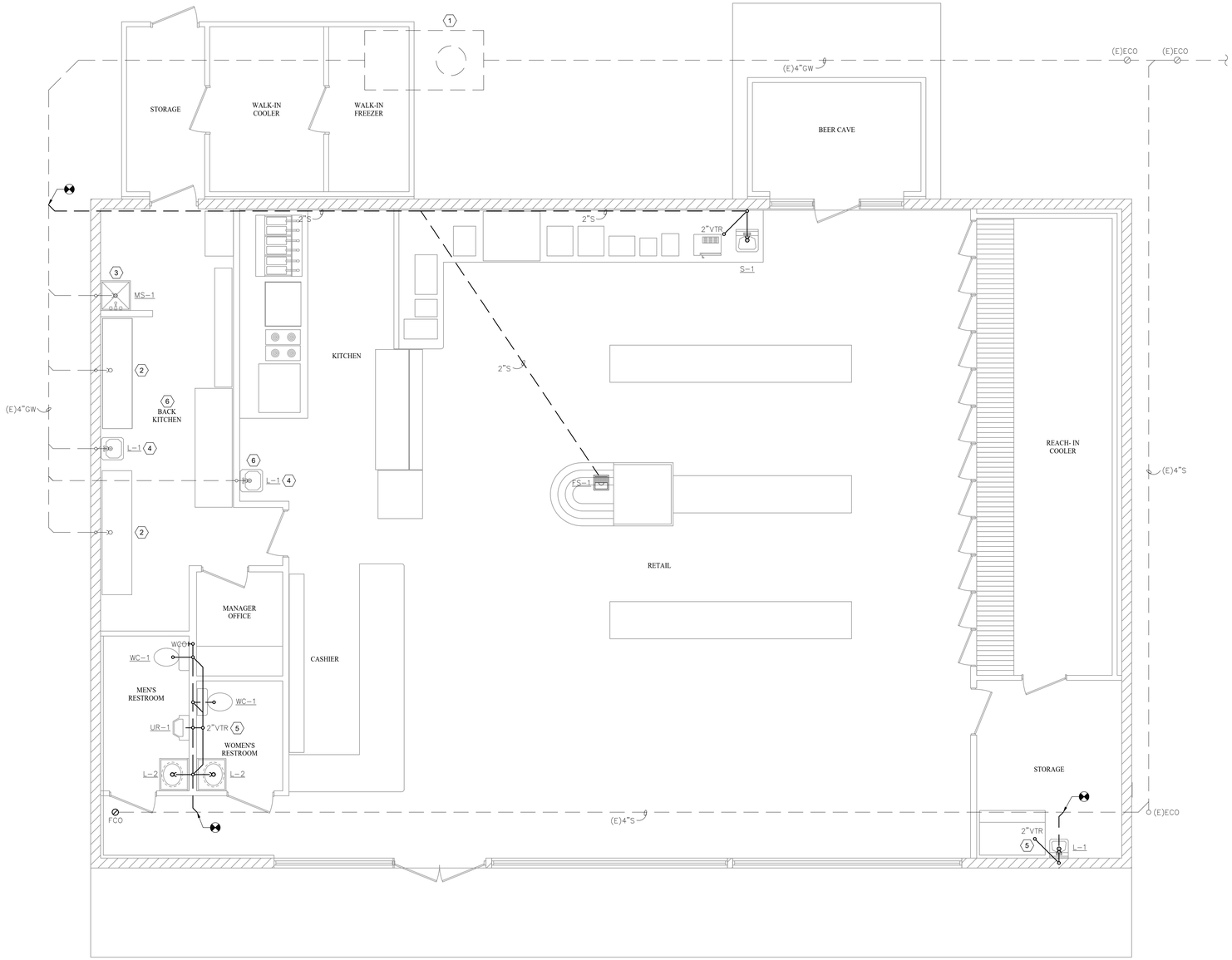
P101

DRAWING NOTES:

1. EXISTING ROOF DRAINS AND ASSOCIATED STORM PIPING SYSTEM IS EXISTING TO REMAIN.
2. ALL EXISTING FLOOR DRAINS AND FLOOR SINKS LOCATED WITHIN EXISTING KITCHEN AREA SHALL REMAIN.

KEY NOTES:

1. EXISTING UNDERGROUND GREASE TRAP TO REMAIN.
2. CONNECT EXISTING SANITARY PIPING TO NEW 3-COMPARTMENT SINK.
3. CONNECT EXISTING SANITARY PIPING TO NEW MOP SINK.
4. CONNECT EXISTING SANITARY PIPING TO NEW LAV.
5. CONNECT NEW VENT PIPING TO EXISTING VENT THRU ROOF PENETRATION. FIELD CONFIRM EXACT LOCATION OF EXISTING VENT.
6. VENT PIPING AND VTR FOR EXISTING FIXTURES SHALL BE REUSED FOR NEW KITCHEN AND BACK OF HOUSE PLUMBING FIXTURES.



GRAVITY PIPING FLOOR PLAN

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

FOR REVIEW

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PROJECT TITLE AND LOCATION

RENOVATIONS FOR
SUNSTOP STORE #303
1166 E DUVAL ST
LAKE CITY, FL 32055

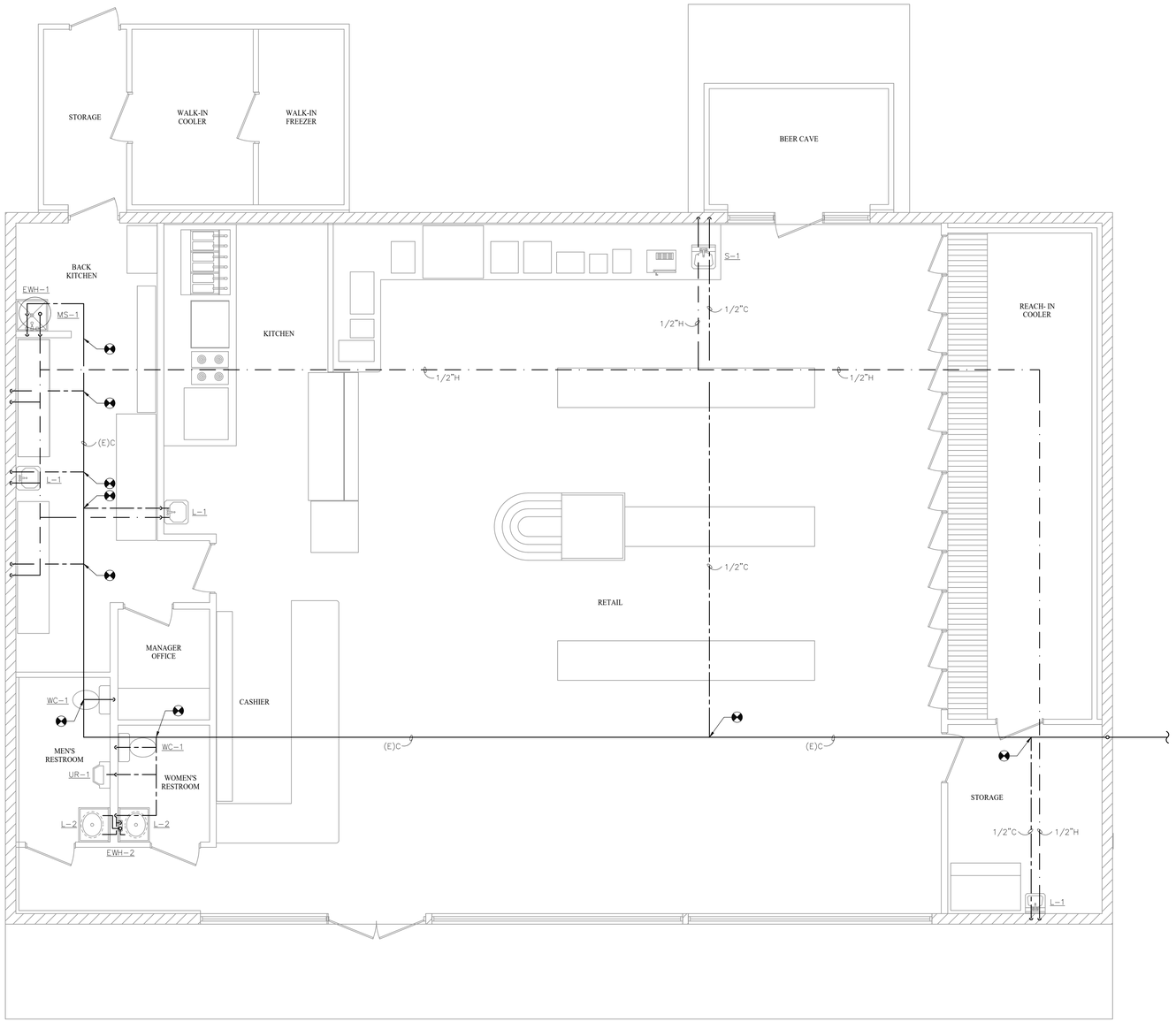
SHEET TITLE

GRAVITY PIPING FLOOR PLAN

P201

DRAWING NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION OF EXISTING DOMESTIC COLD WATER MAIN. EXTEND NEW BRANCH PIPING FROM EXISTING MAIN TO EACH FIXTURE.
2. ALL EXISTING HOSE BIBBS ARE EXISTING TO REMAIN.



PRESSURE PIPING FLOOR PLAN

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

FOR REVIEW

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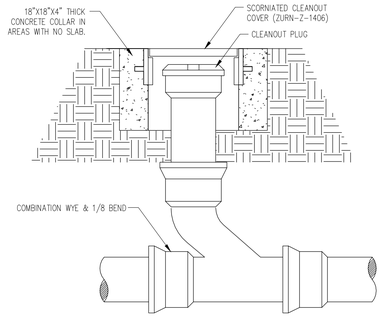
SUNSTOP STORE #303
1166 E DUVAL ST
LAKE CITY, FL 32055

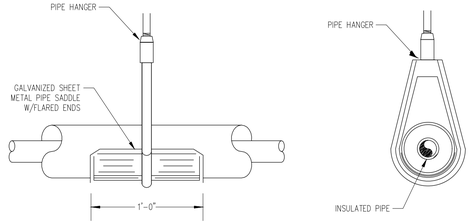
SHEET TITLE

PRESSURE PIPING FLOOR PLAN

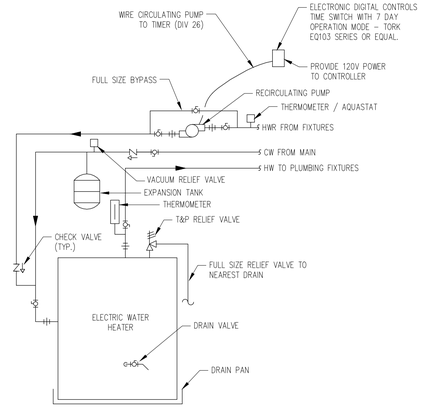
P301



EXTERIOR CLEANOUT NTS 7

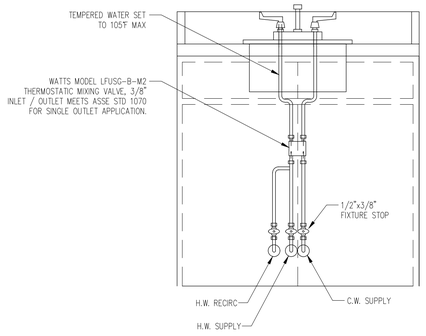


INSULATED PIPE HANGER DETAIL NTS 4



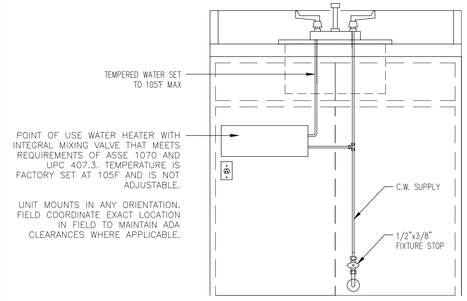
WATER HEATER PIPING DETAIL NTS 1

NOTE: IF MOUNTED UNDER ADA LAVATORY, PROVIDED INSULATION ON HOT WATER AND COLD WATER PIPING.

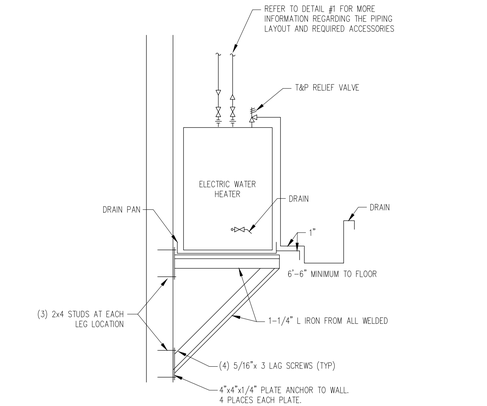


UNDER LAV MIXING VALVE DETAIL NTS 8

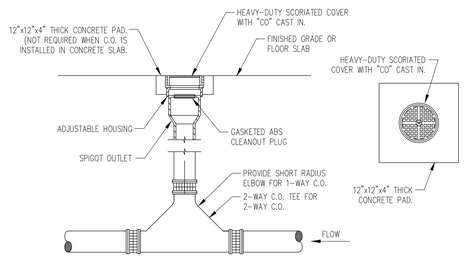
NOTE: IF MOUNTED UNDER ADA LAVATORY PROVIDE INSULATION ON TEMPERED AND COLD WATER LINES.



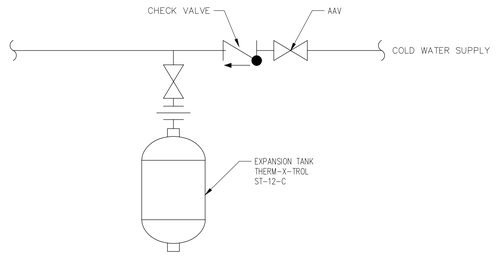
UNDERLAV WATER HEATER DETAIL NTS 5



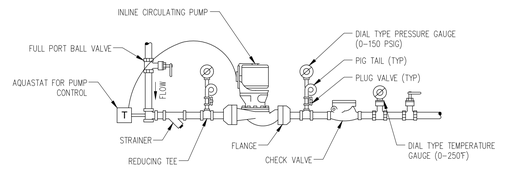
SUSPENDED EWH DETAIL NTS 2



CLEANOUT DETAIL NTS 9



EXPANSION TANK DETAIL NTS 6



INLINE RECIRCULATING PUMP NTS 3

FOR REVIEW

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PROJECT TITLE AND LOCATION

RENOVATIONS FOR
SUNSTOP STORE #303
1166 E DUVAL ST
LAKE CITY, FL 32055

SHEET TITLE
PLUMBING DETAILS

P401

PLUMBING FIXTURE SCHEDULE

MARK	FIXTURE	MANUFACTURER	MODEL NUMBER	TYPE	MATERIAL	WASTE	VENT	CW	HW	REMARKS
WC-1	WATER CLOSET	KOHLER	HIGHLINE K-3979	FLUSH TANK FLOOR MOUNT	VITREOUS CHINA	4"	2"	3/4"	–	FLOOR MOUNTED FLUSH TANK ADA HEIGHT 1.6 GALLONS PER FLUSHING CYCLE HIGH EFFICIENCY, VITREOUS CHINA ELONGATED BOWL. MAINLINE OPEN FRONT SEAT MODEL ML 1055000 WITH CHECK HINGE
UR-1	URINAL	TOTO	UT105UG	WALL MOUNT	VITREOUS CHINA	2"	1"	3/4"	–	WALL MOUNTED, ADA COMPLIANT, HIGH-EFFICIENCY WASHOUT URINAL. PROVIDE 3/4" TOP SPUT INLETFLUSH VALVE: ECO POWER TEUTUA12#CP – 0.125 GALLONS PER FLUSH. FURNISH WITH MAINLINE MLOTORTOX 1/2NOMX3/8 ANGLE QUARTER TURN STOP VALVE: FURNISH ADA LOCATIONS WITH MAINLINE ML102EZ WHITE LAV-GUARD SUPPLY COVER FOR TUBULAR P-TRAP AND AND STOP AND SUPPLIES
L-1	LAVATORY	KOHLER	K2007	WALL MOUNTED	VITREOUS CHINA	1-1/2"	1-1/2	1/2"	1/2"	HOLE WITH ZURN Z86100-XL-CP4 METERING FAUCET WITH MAINLINE ML760 CHROM PLATED 17GA BRASS TAILPIECE WITH OPEN GRID STRAINER.
L-2	LAVATORY	KOHLER	K2210	UNDERMOUNT	VITREOUS CHINA	1-1/2"	1-1/2	1/2"	1/2"	HOLE WITH ZURN Z86100-XL-CP4 METERING FAUCET WITH MAINLINE ML760 CHROM PLATED 17GA BRASS TAILPIECE WITH OPEN GRID STRAINER.
S-1	SINGLE COMPARTMENT SINK	ELKAY	ELUHAD111645	UNDERMOUNT	STAINLESS STEEL	1-1/2"	2"	1/2"	1/2"	SINGLE COMPARTMENT UNDERMOUNT TYPE 304 18 STAINLESS STEEL 18" x 14" x 4". LUSTROUS SATIN FINISH, REAR CENTER DRAIN PLACEMENT.
MS-1	MOP SINK	FIAT	TSB-3010	FLOOR MOUNT	TERRAZO	3"	2"	3/4"	3/4"	FURNISH WITH T&S BRASS B-0665-BSTR, WALL MOUNT SERVICE SINK WITH BUILT IN STOPS AND VACUUM BREAKER. FURNISH WITH ZURN JP1996-MH-581790009 MOP HANGER
WB-1	ICE MAKER	OATLEY	39156	WALL	POLYSTYRENE	–	–	1/2"	–	1/2" HIGH IMPACT POLYSTYRENE, 4 SUPPORT BRACKETS, SNAP-ON FACEPLATE FRAME, ACCOMMODATES UP TO 1" DRYWALL WITH 1/4 TURN BRASS BALL VALVE.

DRAINAGE SPECIALTIES SCHEDULES

MARK	FIXTURE	MANUFACTURER	MODEL NO.	TYPE	MATERIAL	STYLE	SIZE	REMARKS
FD-1	FLOOR DRAIN	ZURN	Z415-BZ1	NO HUB OR NEO-LOCK	CAST IRON / NICKEL BRONZE TOP	POLISHED ROUND TOP	PER DWGS	COATED CAST IRON BODY WITH BOTTOM OUTLET, COMBINATION INVERTIBLE MEMBRANE CLAMP AND ADJUSTABLE TYPE "B" NICKEL BRONZE STRAINER, 5" ROUND TOP, TAPPED FOR TRAP PRIMER CONNECTION, VANDAL PROOF.
FD-2	FLOOR DRAIN	ZURN	Z415-E	NO HUB OR NEO-LOCK	CAST IRON / NICKEL BRONZE TOP	POLISHED ROUND TOP	PER DWGS	COATED CAST IRON BODY WITH BOTTOM OUTLET, COMBINATION INVERTIBLE MEMBRANE CLAMP AND ADJUSTABLE TYPE "B" NICKEL BRONZE STRAINER, 5" ROUND TOP WITH FUNNEL, TAPPED FOR TRAP PRIMER CONNECTION, VANDAL PROOF.
FS-1	FLOOR SINK	ZURN	Z1902	NO HUB OR NEO-LOCK	CAST IRON / NICKEL BRONZE TOP	SQUARE TOP	PER DWGS	12"X12"X10" DEEP, CAST IRON BODY WITH WHITE ACID RESISTING PORCELAIN ENAMEL INTERIOR, ALUMINUM ANTI-SPLASH INTERIOR BOTTOM DOME STRAINER.

ELECTRIC WATER HEATER SCHEDULE

MARK	MAKE & MODEL NO.	KW PER ELEMENT	NUMBER OF ELEMENTS	VOLTS/PH	TOTAL KW	RECOVERY (GPH) @ 70F	STORAGE (GAL.)	DIMENSIONS (D"xH") / LBS
EWH-1	AO SMITH DEL 50	6.0	2	208/1	12*	34	50	26.5"x36" / 175

*NON-SIMULTANEOUS OPERATION, ONLY (1) ELEMENT SHALL OPERATE AT A TIME.

INSTANTANEOUS WATER HEATER SCHEDULE

MARK	MAKE & MODEL NO.	KW PER ELEMENT	NUMBER OF ELEMENTS	VOLTS/PH	TOTAL KW	ACTIVATION GPM	DIMENSIONS (L"xW"xH")
EWH-2	EEMAX AM004120T	3.5	1	120/1	3.5	0.3	5.25"x3"x9.75"

PIPING SCHEDULE

SYSTEM	SIZE	TYPE	CONNECTION	INSULATION	THICKNESS	COMMENTS
DOMESTIC COLD WATER	ALL	CPVC	GLUED	NONE	--	SCH 40 ASTM D2846
DOMESTIC HOT WATER	ALL	CPVC	GLUED	FIBERGLASS	1" MIN R4	SCH 40 ASTM D2846
SANITARY/VENT	ALL	DVW	GLUED	NONE	--	SCH. 40 ASTM D 1784 60T

FOR REVIEW

COBURN AND ASSOCIATES, INC
MECHANICAL • ELECTRICAL • CONSULTING ENGINEERS
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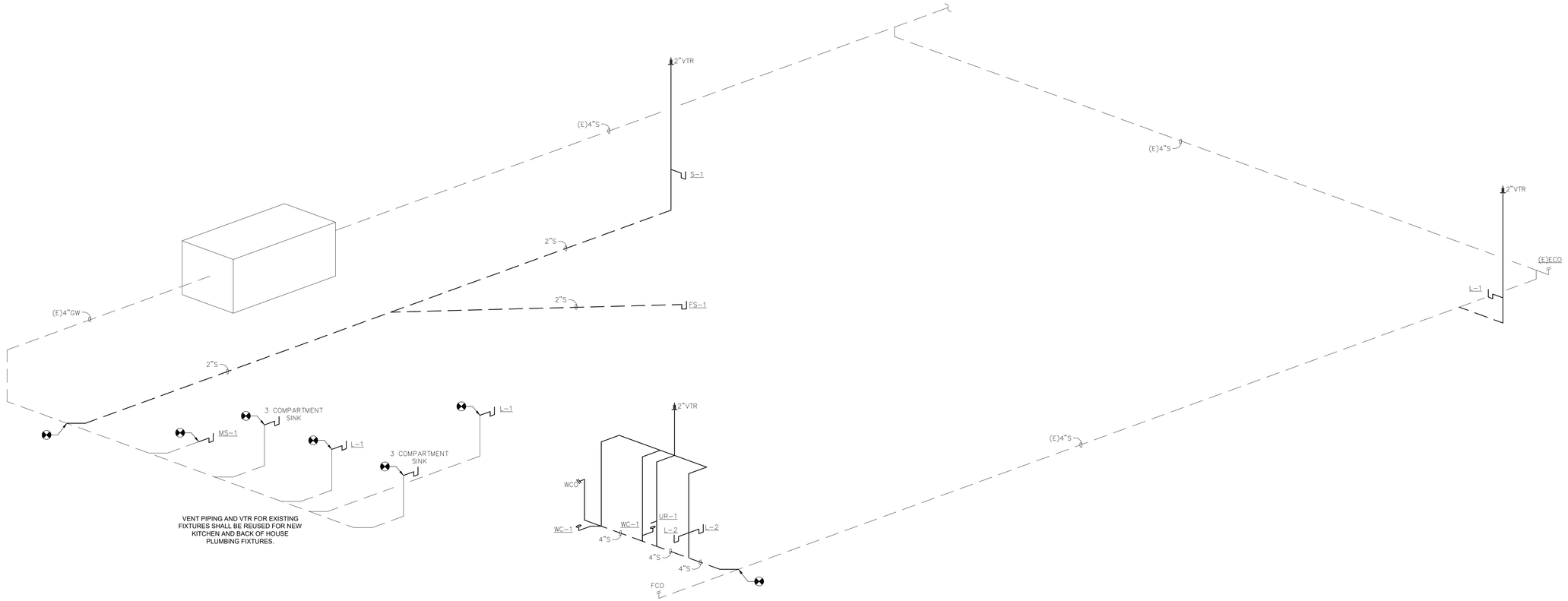
APPROVED
DRAWN
CA JOB NO. 2205
DATE OF ISSUE 10/05/2022
REVISIONS

PROJECT TITLE AND LOCATION
RENOVATIONS FOR
SUNSTOP STORE #303
1166 E DUVAL ST
LAKE CITY, FL 32055

SHEET TITLE
PLUMBING SCHEDULES & RISER DIAGRAMS

P501



GRAVITY PIPING RISER DIAGRAM

SCALE: NTS

FOR REVIEW

COBURN AND ASSOCIATES, INC
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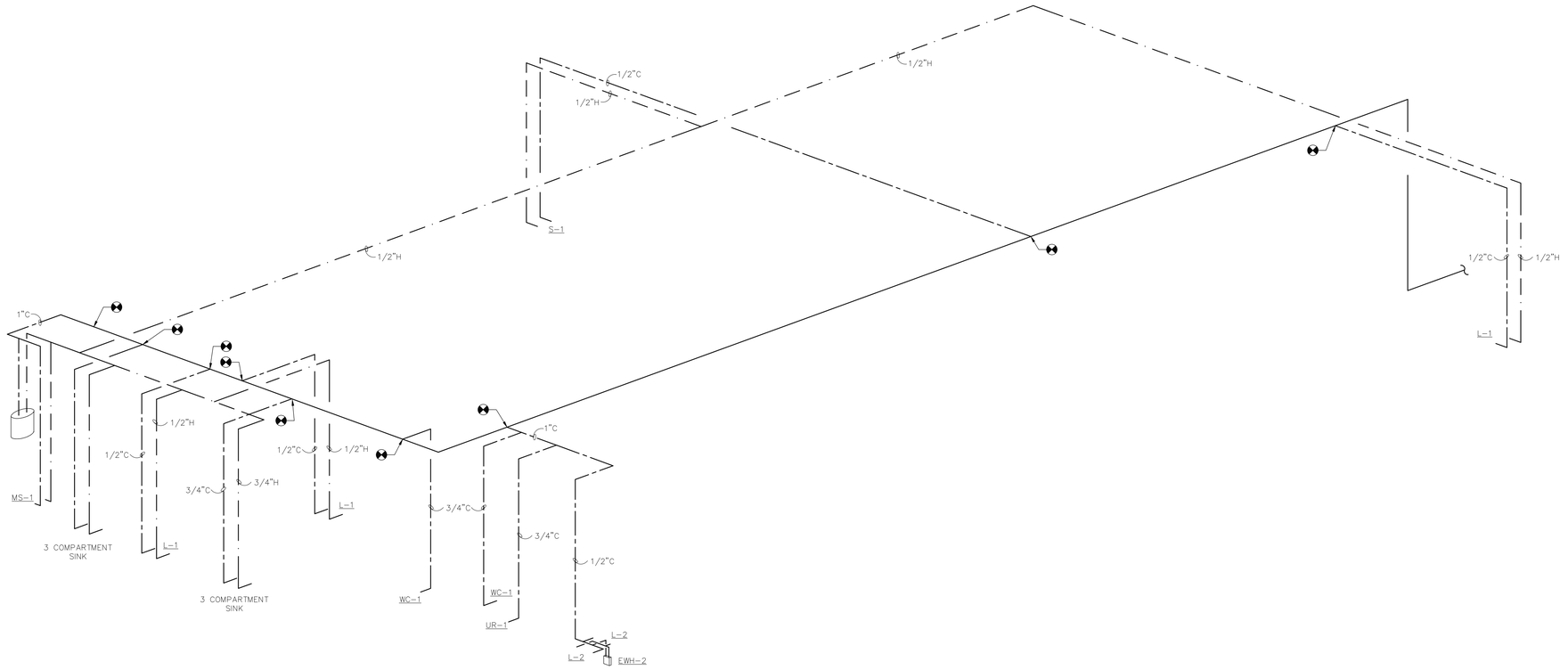
LAKE CITY, FL 32055

SHEET TITLE

GRAVITY PIPING RISER DIAGRAM

P601



PRESSURE PIPING RISER DIAGRAM

SCALE: NTS

FOR REVIEW

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PROJECT TITLE AND LOCATION

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1166 E DUVAL ST
LAKE CITY, FL 32055

SHEET TITLE

PRESSURE PIPING RISER DIAGRAM

P602

PLUMBING SPECIFICATIONS

A. It is the intent of these specifications to define the work and materials typically installed by a Plumbing Contractor. However, it is not intended to define a subcontract between the Plumbing Contractor and General. The General Contractor is responsible for the entire project and any questions regarding scope of work shall be directed to the General Contractor.
B. Work shall include all labor, materials, fixtures, equipment, tools and service necessary for installation, testing and adjusting of all mechanical systems shall be furnished and installed in compliance with the Drawings, Specifications, and any Addenda thereto.
C. Drawings and Specifications shall be understood to cover, according to their intent and meaning, complete mechanical systems. Work shown and not specified, or work specified and not shown shall be performed as though mentioned in both.
D. Minor items and accessories reasonably inferred as necessary for the complete and proper operation of any system shall be provided by contractor or subcontractor for such system whether or not they are specifically called for.
E. Before submitting a bid, the Plumbing Contractor is to coordinate with the utility company to ascertain, in detail, the division of work, and the extent of performance by the Utility Company shall be furnished and performed by the Plumbing Contractor.
1. If well and septic, contractor shall coordinate with General Contractor and review civil drawings to coordinate his scope of work.
F. All work shall be performed or installed in strict accordance with Standard Plumbing Code all applicable rules, regulations and codes of local state and Federal Governments having lawful jurisdiction, and each contractor and subcontractor shall be responsible for such compliance.
G. Fees for permits, inspections, patent use, royalties, etc. shall be paid by the contractor.
1. Furnish all equipment and personnel and conduct all tests required to secure approval of the installation.
2. Any repairs or changes required to secure the approval of the installation shall be done at no additional expense to the Owner.
H. All work shall be installed in accordance with the appropriate codes and satisfy the local inspector having jurisdiction.
1. Furnish all equipment and personnel and conduct all tests required to secure approval of the installation.
2. Any repairs or changes required to secure the approval of the installation shall be done at no additional expense to the Owner.
I. Upon completion of each part of the mechanical system, the contractor shall demonstrate to the Engineer that each item on that system is installed with proper covers, safeties, controls, etc., and that all are in proper working order.
J. A set of "red-lined" mechanical drawings shall be carefully maintained at the job site. Actual conditions are to be put on the drawings in red on a daily basis so the drawings will continuously show locations and routings of piping, ducts, grilles, equipment, valves, and any equipment specified on the drawings or in these specifications.
K. Equipment and materials shall be new and meet or exceed specification requirements.
1. All product shall be current model for which replacement parts are available.
L. Acceptable manufacturers are listed, additional manufacturers may request approval for their products up to 10 days in advance of bid. Engineer may require supplemental information prior to accepting or requesting an alternate.
M. All work shall be performed in compliance with OSHA regulations.
N. Shop drawings and product data shall be submitted on all equipment, fixtures, etc.
1. Summitals shall include all equipment to be installed by the subcontractor and all submittals must be made at same time.
2. Each package must have the General Contractors review stamp prior to submittal.
3. The Engineer will review one submittal and one resubmittal; subsequent resubmittals may require a review charge to be paid by subcontractor.
4. Shop drawings shall be labeled in the same designation as the drawings.
O. Job conditions shall be inspected to determine prior to bidding in the following manner:
1. Site visit to determine:
a. Existing conditions.
b. How and where materials will be delivered and stored.
c. Special problems encountered during construction.
2. Examine all Contract Drawings and Specifications to determine:
a. Type of construction to be used.
b. How construction or work will affect the work of this Section.
c. Nature and extent of work of other trades.
P. Failure to determine existing conditions or nature of construction will not be considered as a basis for granting additional compensation.
Q. Installation
1. Contract Drawings show the arrangements and sizes of principal apparatus and devices to be provided under this Contract and connection thereto. These shall be followed as closely as actual building construction will permit.
2. Dimensions of work as indicated on Plans are not guaranteed to be as-built d dimensions.
3. No measurements shall be scaled from Drawings and used as definite dimensions for layout or fitting work in place.
4. Layout of equipment, as shown on the plans, shall be checked and exact location determined by dimension if equipment approved by the Architect.
5. Consult the Drawings for all dimensions, locations of partitions, sizes of structural member, foundations, etc.
6. Do not make final layouts until shop or equipment drawings are approved and job conditions verified.
R. Excavation and Backfill:
1. Plumbing Contractor shall coordinate with General Contactor to determine the extent or has work regarding excauation and backfill.
S. Rough-in:
1. Contractor shall rough-in for all equipment, fixtures, etc., in building whether or not such equipment is furnished by this Contractor or by Owner.
2. Determine in advance the location and size of all openings and chases necessary for proper installation of all work and have openings and chases provided during construction.
3. Install all inserts for hangers and supports of mechanical work and equipment work as general construction progresses.
4. Rough-in openings in masonry or stud walls shall be cut, not broken or chiseled.
5. Sleeves shall be required at all points where piping passes through concrete walls, slabs or masonry walls; sleeves installed below grade or where subject to high water conditions shall be installed watertight.
T. Coordination:
1. Work shall be coordinated between all Contractors, Subcontractors, Installers, Suppliers, Trades, etc., to:
a. Insure a neatly fitted installation.
b. Determine the nature and extent of the work of others.
c. Eliminate interferences.
d. Maintain maximum headroom and clearances.
2. Any interference which develops or is foreseen and cannot be resolved by the affected trades, etc. shall be handled as follows:
a. Cease installation of that portion of the work which is in conflict as no additional compensation will be allowed for any relocation, etc.
b. Continue work only on other portions of the work which are not in conflict.
c. Notify the Architect immediately.
d. Architect's decision shall be final as to any relocation, rerouting, removal, etc.
e. No additional compensation will be allowed for removal, relocation, repairs or changes required by interferences.
U. Clear away all debris, surplus materials, etc., resulting from work on operations, leaving job and equipment in clean first-class condition.
V. Where factory finish is provided on equipment, all marred or damaged surfaces shall be touched-up or refinished hereunder as approved.
W. All plumbing fixures shall be thoroughly cleaned of all plaster, stickers, rust stains, and other foreign matter, and be left ready for use.
X. Surfaces of all floor drains, cleanouts and other equipment shall be cleaned and left in first-class condition.

CHLORINATION OF DOMESTIC WATER LINES

A. Disinfection of all water piping which shall carry potable water or any other piping connected thereto which is not separated by a backflow preventor.
B. Disinfection shall be chlorine, either in the form of hypochlorite solution or in the form of compressed gas applied through an approved cholorinator.
C. After completion of all tests, replacement, and repairs, all water supply systems shall be thoroughy flushed with water to remove sediment and/or debris.
D. Begin disinfection only after flushing system.
E. The system shall be filled with a solution containing 50 parts per million available chlorine and allowed to stand for twenty-four hours, or as required by local authorities, whichever is greater.
F. During Chlorination all valves and equipment shall be operated to insure that chlorine reaches all parts of the system.
G. Following disinfection all treated water shall be flushed from the system through its extremities until the quality of water delivered is comparable with the quality of the public water supply and satisfactory to the public health authority having jurisdiction.
H. Disinfection and flushing shall be repeated if samples taken daily over a period of three days show that water quality is not being maintained.
I. Samples shall be taken only from taps located and installed in such a manner that they will not contribute any contamination.
J. Samples shall not be drawn from hydrants or through unsterilized hose.
K. If disinfection and flushing has been repeated three times and water quality cannot be maintained, the Architect shall have the authority to require disassembly of piping as he shall deem necessary to determine the cause of contamination.
1. Any disassembly, cleaning or repair shall be at no additional expense to the Owner.
2. Disinfection, flushing and testing shall be repeated upon reassembly of the piping.

PIPE AND FITTINGS

A. Refer to "PIPING SCHEDULE" on drawings.
B. Any manufacturer engaged in the production of pipe, fittings and associated materials and who test, inspect and certify that said materials meet or exceed the ASTM designation for that material shall be acceptable.
C. Inspection for Underground Piping:
1. Examine areas to receive underground piping for:
a. Complete excavation to elevations and slopes indicated.
b. Obstructions which would interfere with drainage system installation.
2. Begin work only when conditions are satisfactory.
D. Inspection for above-Ground Piping:
1. Examine areas to receive piping for:
a. Obstructions.
b. Work to be done prior to other construction.
c. Work of other trades in other areas.
2. Begin work only when conditions are corrected satisfactorily.

E. Installation of Underground Piping
1. Excavation:
a. Excavate trenches of sufficient width for proper installation of pipe.
b. Sheet and brace trenches as necessary to protect workmen and adjacent structures.
c. Comply with current OSHA standards.
2. Final grading of trench:
a. Perform final grading of trench bottoms by hand tools; carry machine excavation only to such depth that soil bearing for pipes will not be disturbed.
b. Grade bottom of trenches evenly to insure uniform bearing for all piping.
c. Cut holes as necessary for joint making.
d. Keep trenches free from water while construction is in progress.
e. Use surveyor's level to establish elevations and grades.
f. Machine excavation shall be held a sufficient distance from foundations and footings.
g. Provide and maintain barricades and temporary bridges around excavations as required for safety.
h. Water lines may be benched above sanitary lines in same trench if they are 18 inches or more above the sanitary line.
i. Minimum bury depth for water piping shall be 24 inches.
j. Grade horizontal drainage 1/4 inch per foot minimum.
k. Install same type material specified for the inside building to 8 feet outside building.
3. Backfill:
a. Backfill for all sewer lines shall be placed in accordance with manufacturer's printed instructions.
b. Backfill trenches only after piping has been inspected.
c. The backfill below paved areas and walks shall be brought to within 6 inches of finished grade; the remaining six inches shall be backfilled with clean topsoil.
d. The backfill below sodded or seeded areas shall be brought to within 6 inches of finished grade; the remaining six inches shall be backfilled with clean topsoil.
e. Provide and place any additional fill material from off the site as may be required for backfill.
F. Installation of above-Ground Piping:
1. Pipe supports.
a. Support piping as specified in Section 15094 for permanent installation.
b. Pipe shall be adequately supported during construction with blocking or slings to prevent injury to personnel or damage to equipment or materials.
2. Exposed piping.
a. Run exposed piping true and level.
b. Run vertical exposed piping plumb.
c. Run exposed piping with as few elbows and bends as possible.
d. Group piping wherever practical at common elevations.
e. Install concealed pipes close to building's structure to keep furring to a minimum.
f. Slope water piping 1 inch in 40 feet and arrange to drain at low points.
g. On closed systems, equip low points with 3/4 inch drain valves and hose nipples.

PLASTIC PIPE AND FITTINGS

A. Domestic Water Supply - All
1. CPVC PER ASTM D2846
2. Joints
a. GLUED PER MANUFACTURERS RECOMMENDATIONS
3. Fittings
a. CPVC
B. Vent piping (Above grade).
1. Piping shall be PVC
2. Polyvinyl Chloride (PVC) - ASTM D-1784-60T
a. Schedule 40
b. Type 1, Grade 1
c. Pipe shall bear NSF seal and ASTM designation
3. Joints
a. Bonded joints using adhesive per manufacturer's recommendations
4. Fittings
a. PVC - ASTM D-2665-69.
b. ABS - ASTM D-2661-69.
C. Sanitary piping EXCEPT LAB FIXTURE (P8) DRAINS
1. PVC
a. Schedule 40
b. Type 1, Grade 1.
c. Pipe shall bear ASTM designation and NSF seal
2. Joints
a. Bonded joints using adhesive per manufacturer's recommendations
3. Fittings
a. PVC - ASTM D-2665-69
D. LAB FIXTURE (P8) DRAINS AND LAB DRAINAGE
1. POLYETHYLENE PIPING MEETING ASTEM F714
a. Schedule 40
b. INCLUDES ALL PIPING AND FITTINGS INCLUDING TRAPS
c. Pipe shall bear ASTM designation and NSF seal

TRAPS

A. General
1. All fixtures shall be trapped according to the Florida Building Code - Plumbing
2. All traps shall be the same size as the pipe in which they are installed or as sized on the Drawings.
3. All traps above grade shall have a clean-out plug in the bottom of the trap.
4. All traps above grade shall be PVC except for P-8 which shall be POLYETHYLENE
5. All traps below grade shall be PVC or POLYETHYLENE WHERE NOTED
6. No trap below grade shall be less than 2 inches.
7. No fixture shall be double trapped.

SHOCK ABSORBERS

A. Furnish and install shock absorbers on all domestic water piping as shown on the drawings, and/or specified in this section.
B. Acceptable Manufactures
1. Wade
2. Josam
C. Description
1. Heavy duty casing
2. Minimum burst pressure - 4500 psig.
3. Nested bellows with built in stop.
4. Operating temperature 100 to 300 degrees F.
5. Permanently sealed charge of non-combustible gas.
6. All stainless steel.
7. Designed and built in accordance with plumbing and drawing standard PDI-WH201.
D. Model Numbers (Zurn numbers used for reference only)
1. SS-1, MODEL 1250 - A - 1/2"
2. SS-2, MODEL 1250 - B - 3/4"
3. SS-3, MODEL 1250 - C - 1"
4. SS-4, MODEL 1250 - D - 1"
5. SS-5, MODEL 1250 - E - 1"
6. SS-6, MODEL 1250 - F - 1"

PIPE HANGERS AND SUPPORTS

A. All piping shall be supported by pipe hangers, clamps, clips or supports as specified in this Section.
B. All clevis type hangers shall have a minimum of 1 1/2 inches of vertical adjustment by using turnbuckles and/or threaded rods.
C. All adjustments shall be positively secured by a locknut or setscrew.
D. Hangers shall support the pipe size for which they are manufactured.
E. Acceptable Manufactures
1. Grinell
2. Fee and Mason
F. All clamps, hangers, clevis, etc. shall be steel.
G. Pipe hangers in direct contact with copper shall be copper or lead plated, or of an approved dielectric material.
H. Installation:
1. All piping shall be supported from structural building members, i.e. block, beams, columns, purlines, floor joists, etc.
2. Piping shall not be supported from ceiling tile or grids, conduit, mechanical equipment, ductwork or non-structural steel.
3. Perforated strapping may be used only for piping 3/4 in. or smaller and only when concealed in walls or ceilings.
4. Hangers for piping run flush along the walls shall be stamped steel straps similar to conduit straps for pipe sizes two (2) inches and smaller.
5. Hangers for piping run flush along the walls shall be steel wall brackets with steel clevis type hangers and threaded rod supports for pipe over two (2) inches.
6. Hangers for piping not run along walls shall be clevis type hangers with threaded rod supports for all piping over 3/4 inches.
I. Spacing:
1. Vertical runs of piping not over 15 feet long shall be supported by hangers placed not over one foot from elbows or connecting horizontal run.
2. Hangers shall be placed so as to prevent sag and permit proper drainage.
3. Hangers shall not be placed at more than the maximum distances shown on the Table below

Pipe Size	Max. Span - Ft.
1/2 and 3/4	6
1 and 1-1/4	8
1-1/2, 2, 2-1/2	10
3 and 4	12
5 and 6	14
8 and larger	16

4. Concentrations of valves and fittings will require closer spacing.
J. Hanger Attachments:
1. Pipe hangers shall be attached to structural steel by heavy steel clamps.
a. Clamps shall be bolted to steel or welded.
2. Pipe hangers or clamps shall be attached to walls by means of expansion bolts (shields).

UNIONS

A. Size
1. All unions shall be the same size as the line in which they are installed unless noted otherwise.
B. Location
1. Unions shall be located between the shut-off valve and each of the following:
a. Inlet and outlet to all water heaters
b. Lavoratories and sinks
c. Water coolers
d. Water closets and toilets
e. Inlet and outlet of cooling coil
f. Inlet and outlet of pumps
2. Where final fixture connection is made by compression-type fitting, unions shall not be required.
a. This exception does not apply to water heater.
C. Acceptable Manufacturers
1. Crane
2. Jenkins
3. Vogt
4. Stockman
D. Unions for 2-1/2 inches and smaller copper
1. Brass ground joints, brass body
2. 150# rated
3. Sweat to threaded to match the system in which they are installed
E. Install in locations where wrenches can be used on each half of the union with enough clearance for at least 180 degrees of rotation on a 6" pipe wrench.

VALVES, COCKS AND FAUCETS

A. Hot, cold, and/or tempered water
1. Shutoff valves above grade
a. Bronze Gate Valve
2. Shutoff valves below grade
a. Bronze Gate Valve
(1) Install in fiberglass box with cover
3. Drain valves
a. Bronze Gate Valves
B. Acceptable Manufacturers
1. Crane
2. Vogt
3. Sterling
4. Nibco
C. Bronze gate valves:
1. 3 inch and smaller
a. Rising stem, wedge disc gate, bronze body
b. 200 psi, water, oil, gas
c. Stuffing, box and brass gland, screw-in bonnet
d. Threaded ends
e. Model equal to Nibco T-111
D. Bronze Globe Valve
1. 3 inch and smaller
a. Rising stem, bronze only
b. 150 psi, water oil gas
c. Stuffing box, brass gland, screw-in bonnet
d. Threaded ends
E. Hose Bibbs
1. 3/4" Female thread inlet
2. 3/4" Male thread hose outlet
3. Rough chrome plated
4. Loose-key type
5. Provide with vacuum breaker
6. Model
a. Equal to Chicago No. 3877-E27, Nibco 763-LS or equal
7. Provide with vacuum breaker.
F. Check Valve
1. Swing check valve
2. Screwed ends and cap
3. Bronze ground disc
4. 200 lb WOG
5. NIBCO T413 or equal
G. Wall Hydrant WH
1. Fully recessed with "key" operated cover.
2. 3/4" felmale inlet
3. 3/4" male threaded hose outlet
4. Rough chrome plated
5. Vacuum breaker.

PRESSURE - TEMPERATURE RELIEF VALVE

A. Supply a pressure relief valve on each hot water heater and hot water booster heater tank.
B. Valve size, pressure, and temperature rating shall be as specified by the tank manufacturer, except that in no case shall the valve be smaller than 3/4 inches inlet and outlet.
C. Valve shall have a handle for manual operation and testing.
D. Valve shall be cast brass or bronze.
E. Pipe the outlet of the pressure-temperature relief valve to outside of building and terminate 2" above grade or per local code.

INSULATION

A. Provide piping insulation on all piping designated on the "Piping Schedule" shown on drawings and per Florida Energy Code. Min R4 per inch.
B. Acceptable Manufacturers
1. Johns-Manville
2. Certainteed
C. Fiberglass Insulation
1. Rigid lightweight heavy density fiberglass with jacket.
2. Temperature applications to 650 F.
3. Insulation, jacket, and adhesive shall be tested under procedure ASTM E-84, NFPA 255, and UL 723, not exceeding
a. Flame spread - 25.
b. Smoke developed - 50.
4. Equal to Johns-Manville Micro-Lok 650 AP-T.
D. Closed Cell Rubber Insulation
1. Closed cell, elastomeric tubular pipe insulation.
2. Tested under procedure ASTM E-84, NFPA 255, and UL 723 not exceeding
a. Flame spread - 30.
b. Smoke density - 100.
3. Adhesive
a. Air drying contact cement
b. Equal to Johns-Manville "Aerotube Elastomeric Pipe Insulation."
E. Install insulation only after pipe has been thoroughly inspected and tested and accepted by the Architect, Engineer and State or local inspectors.

installing any insulation.
G. Installation of Fiberglass Insulation:
1. All insulation shall be continuous through wall and ceiling openings.
2. Vapor barrier jackets shall be used on piping except domestic hot water.
3. Hangers, supports, anchors, etc., that are secured directly to cold surfaces must be adequately insulated and vapor sealed to prevent condensation.
4. Metal shields shall be applied between hangers or supports and the pipe insulation.
5. Shields shall be formed to fit the insulation and shall extend up to the centerline of the pipe and a minimum of 9 inches long.
6. Shields shall be 16 gauge aluminum.
7. Fittings shall be covered equivalent density insulation and covered with preformed PVC insulation fitting covers.
a. Wrap fittings with insulation.
b. Pop the preformed cover in place, tape or tack.
H. Installation of Closed-Cell Rubber:
1. Make all cuts neatly with a razor blade or sharp knife.
2. All longitudinal cuts shall be sealed with adhesive.
3. All butt joints shall be made neatly and sealed with adhesive.
4. Tape shall not be allowed on joints or seams.
5. Insulation shall be applied in a relaxed state, not stretched or crushed.
6. Fittings shall be insulated by fabricating tees, elbows or crosses as required from the tube insulation as described in manufacturer's literature.
7. Valves shall be insulated up to the packing nut.
8. All insulation on exposed piping shall receive two (2) coats of paint, the same color as the wall against which it is mounted.
9. Joints shall be sealed with adhesive as recommended by the manufacturer.

FLOOR AND SHOWER DRAINS

A. Acceptable Manufacturerers
1. Wade
2. Josam
3. Zurn
B. Floor Drains:
1. Cast Iron floor drain with integral clamping collar.
2. Seepage openings.
3. Heavy duty grate, with vandalproof screws.
4. Square top, polished brass.
5. Adjustable top.
6. 4-inch outlet unless otherwise noted on Drawings.
7. Model - equal to Wade, Series W - 1390.
C. Installation
1. Floor drains shall be installed in the locations show on Plans.
2. Care shall be taken that rim of floor drain is not higher than finished floor in order to prevent "Puddling" of water around the drain.
3. Floor drain top shall be flush with finished floor.
4. Hub drains shall extend 1 inch above finished floor per details.

CLEANOUTS AND ACCESS COVERS

B. Acceptable Manufacturers
1. Wade
2. Josam
3. Zurn
C. Floor Cleanouts:
1. Same size as drain pipe through 4 inches.
2. Adjustable housing to match finished floor.
3. Heavy duty top.
4. Nickel brass secured cover.
5. Ferrule as required to match soil pipe.
6. Cast iron.
7. Cover shall be marked "C.O."
8. Model Number:
a. Synthetic floor covering:
(1) Wade W-7030-D Series or equal
b. Finished slab - no covering:
(1) Equal to Wade W-7030 Series
c. Terrazzo finish:
(1) Wade W-7010-U Series, or equal.
D. Concealed Cleanouts:
1. Cleanouts in crawl space or in unfinished mechanical rooms.
2. Cast iron cleanout tee on T-wall with ferrule fitting and neoprene seal raised plug head.
3. Same size as drain pipe through 4 inches.
4. Position cleaout plug for easy access by electric eel.
5. Model Number:
a. Cleanout ferrule.
(1) Wade W-8530-B Series or equal.
E. Exposed Wall Cleanouts
1. Same size as pipe.
2. Polished chrome cleanout cover over wall opening.

1. Any cleanout which presents a tripping hazard due to improper installation shall be removed and reinstalled.

DOMESTIC WATER HEATERS - ELECTRIC

A. Water heaters shall be UL listed, ASME constructed,and meet ASHRAE 90-80 energy efficiency standards.
B. Acceptable Manufacturers
1. A.O. Smith
2. Lochinvar
3. Teledyne Laars
C. Electric Water Heaters
1. Glass lining fused to steel tank
2. Screw-in type, direct immersion
3. Working pressure - 150 PSI
4. Fully automatic thermostat controls with high temperature limit safety shutoff
5. Screw-in anode corrosion protection
6. Three-year warranty
7. 3/4" inlet, outlet, and relief opening
8. Outer jacket of baked enamel finish

D. Model and Capacity
1. REFER TO ELECTRIC WATER HEATER SCHEDULE.

E. Install per manufacturer's recommendations
F. Mount units on wall shelf where noted
F. Provide thermostatic relief valve on each unit

PLUMBING FIXTURES

A. Furnish and install plumbing fixtures per Plumbing Fixture Schedule
1. Manufacturers and Model Numbers establish quality; equivalent fixtures by other manufacturers are acceptable.

ELECTRIC WATER COOLERS (EWC)

A. Acceptable Manufacturers
1. Oasis
2. Halsey Taylor
3. Elkay
B. Dual Height
1. Semi-recessed
2. Stainless steel top, sides and front
3. 14 inches from wall to front
4. Self-closing pushbutton valve with optional "soft touch" handle (Part No. 023754.001, wrist blade).
5. Automatic pressure regulating valve
6. Mounting height - 31" floor to top of basin
7. Water delivery:
a. 14 GPH of 50 degrees F water
8. Model and Manufacturer:
a. Equal to Oasis Model P8ACSL
9. Accessories:
a. Furnish with 1-1/4" ground joint tubular, 17 gauge, chrome-plated P-trap, deep flange with brass nuts; less cleanout, Sterling 50190 or Dearborn 207-D-F-BN.
b. Furnish with supply assembly equal to Kohler 7666 with loosekey stop and flexible 3/8" tube risers.
C. Unit shall be installed on wall using bracket supplied by the manufacturer.
D. Unit shall be blocked and supported per manufacturer recommendations.
E. Unit shall be installed per ANSI Standard 117.1-1980, Section 4.15.

FOR REVIEW

COBURN AND ASSOCIATES, INC
MECHANICAL • ELECTRICAL • CONSULTING ENGINEERS
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CERTIFICATE OF AUTHORIZATION 3687

CA-JOB NO. 2205 | DRAWN | APPROVED | DATE OF ISSUE 10/05/2022 | REVISIONS

PROJECT TITLE AND LOCATION
RENOVATIONS FOR
SUNSTOP STORE #303
1166 E DUVAL ST
LAKE CITY, FL 32055

SHEET TITLE
PLUMBING SPECIFICATIONS

P701