PLUMBING GENERAL NOTES

I. GENERAL REQUIREMENTS:

1. PLUMBING CONTRACTOR IS TO FURNISH AND PAY FOR ALL LABOR, MATERIAL, EQUIPMENT, PERMITS & FEES REQUIRED FOR THE COMPLETE INSTALLATION OF ALL SYSTEMS IN THIS SECTION OF WORK.
2. ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH NC PLUMBING CODE AND ALL OTHER APPLICABLE CODES. PC IS TO COORDINATE W/ G.C. IN REGARDS TO PROJECT TIMELINE, WORK HOURS, AS WELL AS ANY BONDING OR INSURANCE REQUIREMENTS.
3. ALL PLUMBING FIXTURES AND PLUMBING SYSTEM EQUIPMENT SHALL BE PROVIDED COMPLETE WITH ALL ACCESSORIES, HANGERS, VALVES, STOPS, TAILPIECES, TRAPS, FAUCETS, STRAINERS, ETC REGARDLESS OF PRESENCE ON PLANS. SEE FIXTURE SCHEDULE.
4. ALL EQUIPMENT, MATERIALS AND INSTALLATION SHALL BE GUARANTEED TO BE FREE OF DEFECTS FOR A PERIOD OF ONE (1) YEAR AFTER FINAL ACCEPTANCE OF WORK OR IN ACCORDANCE WITH THE MANUFACTURER'S STANDARD GUARANTEE, IF LONGER. EXISTING EQUIPMENT IS EXCLUDED FROM WARRANTY REQUIREMENT.
5. THESE DRAWINGS ARE DIAGRAMMATIC AND SHOW GENERAL LOCATION AND ARRANGEMENT OF ALL MATERIALS AND EQUIPMENT. THE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS BUILDING CONSTRUCTION AND ALL OTHER WORK WILL PERMIT.
6. DO NO SCALE DRAWINGS FOR MEASUREMENT.
7. INFORMATION GIVEN IN SCHEDULES INCLUDES BOTH DESCRIPTION OF PRODUCT AND MANUFACTURER'S MODEL #. IF CONFLICT IS PRESENT BETWEEN DESCRIPTION AND MODEL #, EQUIPMENT DESCRIPTION SHALL TAKE PRECEDENT. IN CASE OF CONFLICT BETWEEN THE PLANS AND NOTES/SPECIFICATIONS OR CONFLICT BETWEEN INFORMATION PRESENTED ON THE PLANS OR IN THE NOTES/SPECIFICATIONS, THEN THE MOST RESTRICTIVE SHALL TAKE PRECEDENT.
8. BEFORE BID PC IS RESPONSIBLE FOR CLARIFYING W/ G.C. ANY CONFUSION IN REGARDS TO RESPONSIBILITY OF WORK TO BE PERFORMED OR MATERIALS TO BE PROVIDED. THE SUBMITTAL OF THE BID BY THE CONTRACTOR WILL BE HELD AS PROOF THAT THE CONTRACTOR UNDERSTANDS THOROUGHLY AND COMPLETELY THE SCOPE OF THE WORK INVOLVED, AND HAS INCLUDED ON THE BID ALL THE NECESSARY ITEMS TO CARRY OUT THIS SECTION OF WORK.
9. ALL EXISTING EQUIPMENT AND SYSTEMS ARE ASSUMED BY ENGINEER TO BE IN GOOD WORKING ORDER. BEFORE BEGINNING WORK P.C. IS TO ENSURE ANY EQUIPMENT & SYSTEMS TO REMAIN ARE PROPERLY FUNCTIONING. NOTIFY G.C. IMMEDIATELY IF PROBLEMS ARE DISCOVERED.
10. ALL QUESTIONS MUST BE SUBMITTED IN RFI FORMAT TO THE ARCHITECT AND MUST BE ADDRESSED BY THE APPROPRIATE DESIGNER OF RECORD PROIR TO BECOMING A PROPOSED CHANGE ORDER.

II. DIVISION OF WORK:

1. ALL LOW VOLTAGE WIRING RELATED TO PLUMBING EQUIPMENT AND SYSTEMS IS THE RESPONSIBILITY OF THE PLUMBING CONTRACTOR. ALL HIGH VOLTAGE CONNECTIONS TO PLUMBING EQUIPMENT, INCLUDING DISCONNECTS TO BE PROVIDED AND INSTALLED BY E.C.
2. G.C. TO BE RESPONSIBLE FOR PROVIDING AND INSTALLING ANY ACCESS DOORS RELATED TO PLUMBING SYSTEM (W/ EXCEPTION OF CLEANOUT COVERS, BY P.C.). P.C. RESPONSIBLE FOR COMMUNICATING TO G.C. SIZE AND LOCATION OF REQ'D ACCESS DOOR(S).
3. PLUMBING CONTRACTOR IS TO EMPLOY THE SERVICES OF THE G.C. FOR CUTTING AND PATCHING OF WALLS, FLOORS & CEILINGS RELATED TO THE INSTALLATION OF PLUMBING EQUIPMENT & SYSTEMS.
4. G.C. TO BE RESPONSIBLE FOR PROVIDING AND INSTALLING ANY WATER HEATER PLATFORMS, EITHER FLOOR/WALL MOUNTED OR SUSPENDED. P.C. TO COMMUNICATE REQ'S TO G.C.

III. MATERIALS:

1. ALL MATERIALS SHALL BE NEW UNLESS OTHERWISE SHOWN OR SPECIFIED.
2. ALL MATERIALS INSTALLED IN RETURN PLENUM ARE TO BE PLENUM RATED.
3. PIPING MATERIALS AND FITTINGS SHALL BE AS FOLLOWS:
   WASTE & VENT (ABOVE & BELOW SLAB):
   PVC PIPE, PVC SOCKET FITTINGS, AND SOLVENT-CEMENTED FITTINGS.
   DOMESTIC WATER (BELOW SLAB):
   TYPE 'K' COPPER.
   DOMESTIC WATER (ABOVE SLAB):
   TYPE 'L' COPPER WITH SWEATED SOCKET FITTINGS. THREADED FITTINGS MAY BE USED AT VALVES, FIXTURES & SIMILAR.
4. INSULATION IS REQUIRED ON ALL WATER SUPPLY PIPING (COLD & HOT) ABOVE FINISHED FLOOR. INSULATION TO BE EQUAL TO "ARMAFLEX" PIPE INSULATION W/ SEALED OR TAPED SEAMS. CW LINE INSULATION TO BE MIN. ½" THICK. HW LINE INSULATION TO HAVE A MINIMUM R FACTOR OF 6.5 (1") OR IN ACCORDANCE W/ LOCAL CODES WHICHEVER IS GREATER.
5. PROVIDE HANGERS & SUPPORTS APPROVED FOR USE BY 2012 NC PLUMBING CODE.
6. ANY PLUMBING FIXTURES WITH A COMMON SHUT-OFF VALVE (I.E. PRE-RINSE, KITCHEN SINK, MOP SINK) ARE TO INCLUDE A CHECK VALVE ON THE HOT & COLD WATER VALVES TO PREVENT INTERCONNECTION OF HOT & COLD WATER LINES.

IV. COORDINATION:

1. BEFORE BEGINNING WORK INVERT ELEVATIONS SHALL BE ESTABLISHED. PC IS TO ENSURE PROPER SLOPES OF ALL WASTE AND STORM PIPING CAN BE MAINTAINED, CONTACT ENGINEER IMMEDIATELY IF PROBLEM/ISSUE IS DISCOVERED.
2. P.C. TO COORDINATE W/ G.C. AND ARCH PLANS TO ENSURE NECESSARY BACKING/SUPPORTS ARE INSTALLED TO ALLOW INSTALLATION OF PLUMBING FIXTURES.
3. THE PLUMBING CONTRACTOR SHALL COORDINATE CLOSELY WITH ALL OTHER TRADES TO AVOID CONFLICT AND ENSURE OTHER TRADES PROVIDE MEASURES TO ACCOMMODATE PLUMBING WORK (I.E. ACCESS DOORS, SLAB/WALL/ROOF OPENINGS, ELECTRICAL CONNECTIONS, ETC)
4. PIPING SHOULD BE COORDINATED WITH ALL STRUCTURAL FOOTINGS AND FOUNDATIONS. PIPE SHOULD BE OFFSET TO AVOID CONTACT WITH FOOTINGS AND FOUNDATION WALLS. IF PIPING MUST RUN UNDERNEATH A FOOTING OR THROUGH A FOUNDATION WALL, THE PIPE MUST BE INSTALLED WITH A RELIEVING ARCH OR IN A PIPE SLEEVE.
5. P.C. TO REFER TO ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS OF PLUMBING FIXTURES.

V. EXECUTION:

1. P.C. TO FOLLOW MANUFACTURER'S INSTRUCTIONS WHEN INSTALLING PLUMBING EQUIPMENT. ENSURE REQUIRED MAINTENANCE ACCESS AND CLEARANCES ARE MAINTAINED. IF CONFLICT EXISTS BETWEEN THESE PLANS AND MFG INSTRUCTIONS CONTACT ENGINEER.
2. P.C. RESPONSIBLE FOR EXECUTING ALL CODE REQUIRED TESTS AND INSPECTIONS, INCLUDING BUT NOT LIMITED TO, LEAK & PRESSURE TESTING OF GAS, WASTE, VENT & WATER PIPING AND SANITIZING OF WATER PIPING.
3. ENSURE PIPING LOCATED ON EXTERIOR WALLS (OR OTHER WALLS EXPOSED TO FREEZING CONDITIONS) IS INSTALLED ON WARM-SIDE OF WALL INSULATION.
4. ANY NOTCHING, DRILLING, BORING OR OTHER ALTERATION TO BUILDING STRUCTURE SHALL BE PERFORMED IN A CODE APPROVED METHOD AND NOT THREATEN THE INTEGRITY OF THE BUILDING STRUCTURE.
5. SUPPORT ALL PIPING IN ACCORDANCE W/ 2012 NC PLUMBING CODE. ANY SUSPENDED MATERIALS SHALL BE DIRECTLY SUPPORTED BY THE BUILDING STRUCTURE.
6. PROVIDE A U.L. LISTED ASSEMBLY FOR ALL PENETRATIONS THRU FIRE RATED WALLS, FLOORS & CEILINGS.
7. PENETRATIONS OF ALL EXTERIOR WALLS, FLOORS AND CEILINGS SHALL BE SEALED IN AN AIR TIGHT MANNER AND IN ACCORDANCE W/ 2012 NCECC APPENDIX 2 DETAILS.
8. CLEANOUT PLUGS SHALL BE INSTALLED IN ACCORDANCE WITH PLUMBING CODE REQUIREMENTS. PROVIDE CLEANOUTS AS PLANS INDICATED AND AT THE BASE OF ALL WASTE STACKS, AT EVERY FOUR 45 DEGREE TURNS, AT EVERY 100 FEET, AND AT THE BASE OF ALL ROOF LEADERS. CLEANOUTS SHALL BE PLACED IN READILY ACCESSIBLE LOCATIONS.
9. SUPPLY BRANCH LINES SERVING MORE THAN (1) FIXTURE SHALL INCLUDE SHUT-OFF VALVE. LABEL VALVE AND LOCATE AS CLOSE TO RISER/MAIN AS POSSIBLE. (NCPC 606.2.1)
10. VALVES NOT DIRECTLY AT EQUIPMENT SHALL BE LABELED INDICATING THE FIXTURE OR AREA SERVED. (NCPC 606.4)
11. WATER HEATER SHALL BE FILLED WITH WATER AND PURGED AS SOON AS INSTALLED OR IN NO EVENT LATER THAN GAS/ELECTRIC HOOK-UP.
12. COPPER PIPING SHALL BE PROTECTED AGAINST CONTACT WITH MASONRY OR DISSIMILAR METALS. ALL HANGERS, SUPPORTS, ANCHORS, AND CLIPS SHALL BE COPPER OR COPPER PLATED. WHERE COPPER PIPING IS CARRIED ON IRON TRAPEZE HANGERS WITH OTHER PIPING, SATISFACTORY AND PERMANENT ELECTROLYTIC ISOLATION MATERIAL SHALL PROTECT THE COPPER AGAINST CONTACT WITH OTHER METALS.
13. WHERE COPPER PIPING IS SLEEVED THROUGH MASONRY, SLEEVES SHALL BE COPPER OR RED BRASS. WHERE COPPER MUST BE CONCEALED IN A MASONRY PARTITION OR AGAINST MASONRY, CONTACT SHALL BE PREVENTED BY COATING THE COPPER HEAVILY WITH ASPHALTIC ENAMEL AND PROVIDING 15# ASPHALT SATURATED FELT BETWEEN THE PIPE AND MASONRY.
14. ALL PIPE INSULATION SHALL RUN CONTINUOUSLY THROUGH FLOORS, WALLS, AND PARTITIONS. PIPE INSULATION SHALL BE MITERED AT ELBOWS AND TEES TO ENSURE COMPLETE COVERAGE OF PIPING.
15. PROVIDE SHUT OFF VALVES ON THE FIXTURE SUPPLY TO EACH PLUMBING FIXTURE, APPLIANCE, OR MECHANICAL EQUIPMENT.
16. VACUUM BREAKERS SHALL BE PROVIDED FOR ALL FIXTURES TO WHICH HOSES MAY BE ATTACHED. VACUUM BREAKERS SHALL BE PERMANENTLY ATTACHED.
17. THE PLUMBING CONTRACTOR SHALL PROVIDE WATER HAMMER PROTECTION ON ALL WATER DISTRIBUTION PIPING SERVING EQUIPMENT W/ QUICK CLOSING VALVES (ICE MAKERS, DISHWASHERS, FLUSH VALVES, WASHING MACHINES, WATER COOLERS, ETC.) SEE SHOCK ARRESTOR SCHEDULE.
18. ACCESS DOORS TO BE PROVIDED FOR ALL VALVES AND DEVICES REQUIRING ACCESS WHEN LOCATED IN WALLS OR ABOVE INACCESSIBLE CEILING CONSTRUCTION. ACCESS DOORS TO BE RATED WHERE INSTALLED IN RATED ASSEMBLIES.
19. THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL PLUMBING EQUIPMENT FROM FOREIGN MATERIAL DURING CONSTRUCTION (PAINT, SPACKLE, ETC.). UPON COMPLETION OF WORK THE PLUMBING CONTRACTOR SHALL CLEAN, WASH, ETC ALL ITEMS AND EQUIPMENT WITHIN HIS SCOPE OF WORK AND LEAVE ALL ITEMS BRIGHT AND CLEAN.
20. PROVIDE PRESSURE REDUCING VALVE IF INCOMING WATER PRESSURE EXCEEDS 80 PSI.
21. NO INSULATION PERMITTED ON BACKFLOW PREVENTOR ASSEMBLY.

PLUMBING FIXTURE SPECIFICATIONS AND CONNECTION SCHEDULE

MARK	FIXTURE	TYPE	MANUFACTURER	MODEL NO.	MATERIAL	STYLE	FAUCET/VALVE				DRAIN		SUPPLIES AND STOPS	PIPE SIZES				MOUNTING	REMARKS
							MANUFACT. MODEL NO.	SPOUT	HANDLES	CENTERS	TYPE	SIZE		WASTE	VENT	CW	HW		
P-1	WATER CLOSET	FLUSH TANK	AMERICAN STANDARD	2835.128	VITREOUS CHINA	ADA ELONGATED	-	-	-	-	-	-	WATTS Q894AC12	3"	2"	½"	—	FLOOR	PROVIDE OPEN FRONT SEAT WITH NO LID.
P-2	URINAL	WALL HUNG	- -	-	- -	ADA WATERLESS	- -	-	-	-	-	-	-	2"	1½"	-	—	WALL	SELECTION BY OTHERS. WATERLESS URINAL. PROVIDED & INSTALLED BY P.C..
P-3	LAVATORY	DROP IN	- -	-	- -	ADA WALL HUNG	AMER. STD. 6055.202 (W/ MIX VALVE)	CENTER	AUTO	4" 3-HOLE	GRID	1½"	WATTS Q894AB20	2"	1½"	½"	½"	WALL	W/ 1.0 GPM AERATOR. DC PWR. BARRIER FREE. LAV. PROVIDED BY OWNER. INSTALLED BY P.C..
P-4	MOP SINK	FLOOR MOUNT	FIAT	MSB-3624	MOLDED STONE	ONE-PIECE 36x24	FIAT 830-AA (W/ CHECK VALVES)	CENTER	2	8" 2-HOLE	DOME	3"	- -	2"	1½"	½"	½"	FLOOR	W/ WALL BRACKET. W/ MOP HANG. W/ HOSE & HOSE BRACKET. W/ VACUUM BREAKER.
FD	FLOOR DRAIN	FINISHED FLOOR	ZURN	FD-2209	PVC	ADJUSTABLE	-	-	-	-	-	-	-	SEE PLAN	-	-	—	FLOOR	W/ CHROME PLATED GRATE. W/ DEEP SEAL TRAP.
FS	FLOOR SINK	6" DEEP	ZURN	FD-2375	CAST-IRON, PORCELAIN ENAMEL	ANTI-SPLASH	-	-	-	-	-	-	-	SEE PLAN	-	-	—	FLOOR	W/ DOME STRAINER. W/ DEEP SEAL TRAP. W/ HALF GRATE
HD	HUB DRAIN	FUNNEL	ZURN	Z326	CAST-IRON	THREADED	-	-	-	-	-	-	-	SEE PLAN	-	-	—	FLOOR	W/ DEEP SEAL TRAP.
WH-1	WATER HEATER	ELECTRIC	STATE WATER HEATERS	CSB 82 36 SFE	GLASS LINED	UPRIGHT	-	-	-	-	-	-	-	-	-	1"	1"	FLOOR	82 GALLON, 24.0KW, 208V/3Ø. 100GPH @ 100°F RISE. SET TO 140°F. SEE DETAIL.
BFP-1	BACK FLOW PREVENTER	RED. PRESS. ZONE	WATTS	009	CAST BRONZE	HORIZONTAL	-	-	-	-	-	-	-	-	-	1¼"	—	WALL	FOLLOW MFG'S INSTRUCTIONS. PROVIDE REQ'D CLEARANCE. DISCHARGE TO DRAIN W/ AIR GAP.
AAV	AIR ADM. VALVE	THREADED	STUDOR	20301	ABS, PVC	MINI-VENT	-	-	-	-	-	-	-	-	SEE PLN	-	—	PIPE	W/ ACCESS COVER (IF REQ'D).

NOTES:
1. ALL FIXTURE COLORS & FINISHES TO BE APPROVED BY OWNER & ARCHITECT BEFORE PURCHASING.
2. PROVIDE P-TRAP AND SUPPLY LINE SAFETY COVERS FOR ALL ADA SINK AND LAVATORY INSTALLATIONS.
3. WATER CLOSET HANDLES TO BE LOCATED ON "WIDE SIDE" OF STALL FOR ADA FIXTURES.
4. SEE DETAIL SHEET FOR ADDITIONAL ITEMS TO BE PROVIDED/INSTALLED W/ FIXTURES LISTED ABOVE.

SHOCK ARRESTOR SCHEDULE

FIXTURE UNITS	UNIT SIZE (CONN. SIZE)	MFG & MODEL (OR EQUAL)
IND. FIXTURE	SEE FIXTURE SCHEDULE	SIOUX CHIEF "MINI-RESTER"
1-11	A (1/2")	SIOUX CHIEF "HYDRA-RESTER"

NOTES:
1. LOCATED SHOCK ARRESTORS IN ACCESSIBLE LOCATION OR PROVIDE SIOUX CHIEF BRAND ARRESTORS ONLY.
2. SEE PLAN, RISERS, SCHEDULES FOR ARRESTER LOCATIONS. IF LOCATION NOT INDICATED INSTALL IN ACCORDNCE W/ MFG GUIDELINES.

VALVE SCHEDULE

TAG	DESCRIPTION	MFG & MODEL (OR EQUAL)
BV-1	FULL-PORT BALL VALVE	WATTS LFB6081
CV-1	DBL CHECK VALVE	WATTS SD-2-MF (<1/2"), WATTS 9D (1/2"+)
CV-2	BRONZE CHECK VALVE	WATTS CV
PRV-1	PRESS. RED. VALVE	WATTS 223-S (SET TO 40 PSI)
TV-1	IND. TEMP. VALVE	WATTS USG-B

NOTES:
1. SEE PLAN FOR SIZE. VALVE SIZE TO EQUAL LINE SIZE.
2. BALL VALVES TO INCLUDE REMOVABLE HANDLES.
3. IF AVAILABLE, VALVES MAY BE THREADED OR SWEATED CONNECTIONS. USE EXTREME CARE AND LOW TEMP SOLDER TO PROTECT VALVE SEATS IF SWEATED CONNECTIONS ARE USED.

PLUMBING LEGEND

——— - ———	DOMESTIC COLD WATER PIPING
——— - - ———	DOMESTIC HOT WATER PIPING
— — — — — —	VENT PIPING
———————	WASTE (SANITARY SEWER)
—— G ——	GAS PIPING
- - - - - - - - - -	EXISTING PIPING/EQUIPMENT
╳╳╳╳╳╳╳╳	DEMO PIPING/EQUIPMENT
—┤●├—	VALVE
—⋈—	VALVE
—╱—	CHECK VALVE
—○	PIPE UP
—◐	PIPE DOWN
◘	FLOOR DRAIN
◎	CLEANOUT
⊕	CONNECT TO EXISTING POINT
◒	DEMO TO POINT
◧	FLOOR SINK
⟨###⟩	KITCHEN EQUIPMENT TAG

AAV	AIR ADMITTANCE VALVE
ABV	ABOVE
AHJ	AUTHORITY HAVING JURISDICTION
AFF	ABOVE FINISHED FLOOR
BFP	BACK FLOW PREVENTER
BV	BALL OR BALANCING VALVE (SEE SCHED)
CV	CHECK VALVE
CW	COLD WATER
DN	DOWN
E.C.	ELECTRICAL SUB-CONTRACTOR
FCO	FLOOR CLEAN OUT
FD	FLOOR DRAIN
FR	FROM
FS	FLOOR SINK
GBV	GAS BALL VALVE
G.C.	GENERAL CONTRACTOR
GSV	GAS SOLENOID VALVE
HB	HOSE BIBB
HD	HUB DRAIN
HW	HOT WATER
M.C.	MECHANICAL SUB-CONTRACTOR
P.C.	PLUMBING SUB-CONTRACTOR
PRV	PRESSURE REDUCING VALVE
SS	SANITARY SEWER
TV	TEMPERING VALVE
V	VENT
W	WASTE
WF	WALL FAUCET
WH	WATER HEATER
WHD	WALL HYDRANT

Storage Tank Water Heater Sizing Calculator

Developed by the Plan Review Unit of the Environmental Health Services Section
NC Division of Environmental Health

Facility Name:	Café Muertos
Address:	300 W. Hargett St (Hue Building)

EQUIPMENT — **GPH CALCULATED**

Enter the description, and number and size of compartments for each sink below	Description	Number of compartments	Length (inches)	Width (inches)	Depth (inches)	Gallons Per Hour (GPH)
Largest Sink #1	1	3	21	21	14	60
Sink #2						0
Sink #3						0
Bar sink						0
Sinks are calculated at 75% capacity					Total	60

Enter type of prep sink and number of sink compartments for each sink below	Type of prep sink (vegetable, meat, seafood)	Number of compartments	Gallons Per Hour (GPH)
Prep sink #1	Vegetable	1	5
Prep sink #2		1	5
Prep sink#3		1	5
Prep sinks are calculated at 5 gallons per compartment		Total	15

Enter the quantity of equipment below	Quantity	Gallons Per Hour (GPH)
Hand sinks	4	20
Can wash		0
Mop sink		0
Hose reel		0
Clothes washer		0

Enter a description and estimated gallon per hour (GPH) usage for other equipment below	Description	Estimated gallons per hour (GPH) usage	
Other Equipment	Mop Sink	5	5
Other Equipment			0
Other Equipment			0
Other Equipment			0
Hand sinks and mop sinks are calculated at 5 GPH each, can washes at 10 GPH each. Hose reels are calculated at 5 GPH, clothes washers at 15 GPH, other equipment at the usage entered		Total	25

Enter the make, model and Final Rinse Usage in gallons per hour (GPH) for dishmachines	Make	Model	Final Rinse Usage (GPH) Found in "Dishmachine Specs" sheet below or on manufacturer's spec sheet	Gallons Per Hour (GPH)
Dishmachine #1				0
Dishmachine #2				0

Enter the quantity of pre-rinse units	Quantity		Gallons Per Hour (GPH)
Pre-rinse			0
Dishmachines are calculated at 70% of the final rinse usage specified by the manufacturer. Pre-rinses are calculated at 45 GPH		Total	0

Recovery Rate Needed (GPH): 100

Water Heater Input (BTU or kW) Needed:

Gas Water Heater	Electric Water Heater
88 ,000 BTU at 80°F rise	20 kW at 80°F rise
99 ,000 BTU at 90°F rise	22 kW at 90°F rise
110 ,000 BTU at 100°F rise	24 kW at 100°F rise

Andrew Osterlund
ARCHITECT, PLLC
GREEN | URBAN | SMART ARCHITECTURE
19 WEST HARGETT STREET #700
RALEIGH, NORTH CAROLINA 27601
www.aoarchitect.com

MAPLE
ENGINEERING, PLLC
1405 HILLSBOROUGH ST
RALEIGH, NC 27605 LIC.#: P-0990
P:919-341-4247 F:919-890-3797
PLUMBING MECHANICAL ELECTRICAL

PROJECT No.: 1301

CAFE DE LOS MUERTOS

Raleigh, North Carolina

SEALS:

NORTH CAROLINA PROFESSIONAL SEAL 037509 ENGINEER Z CK L. TOMLIN

4/21/13

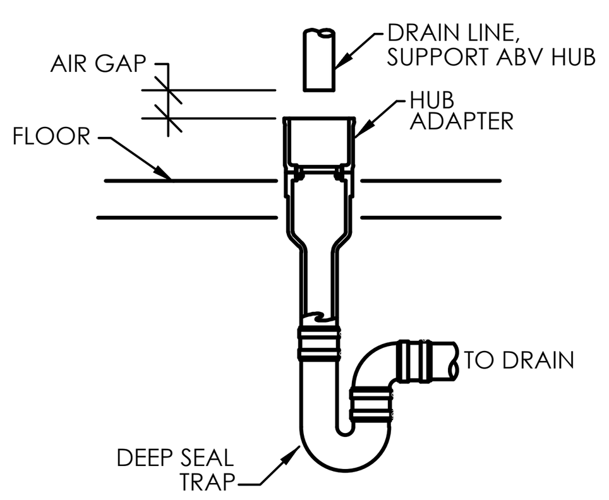
ISSUE: PERMIT SET
DATE: 4/21/13
DRAWN BY: CLR/JMS/RSA

REVISIONS:

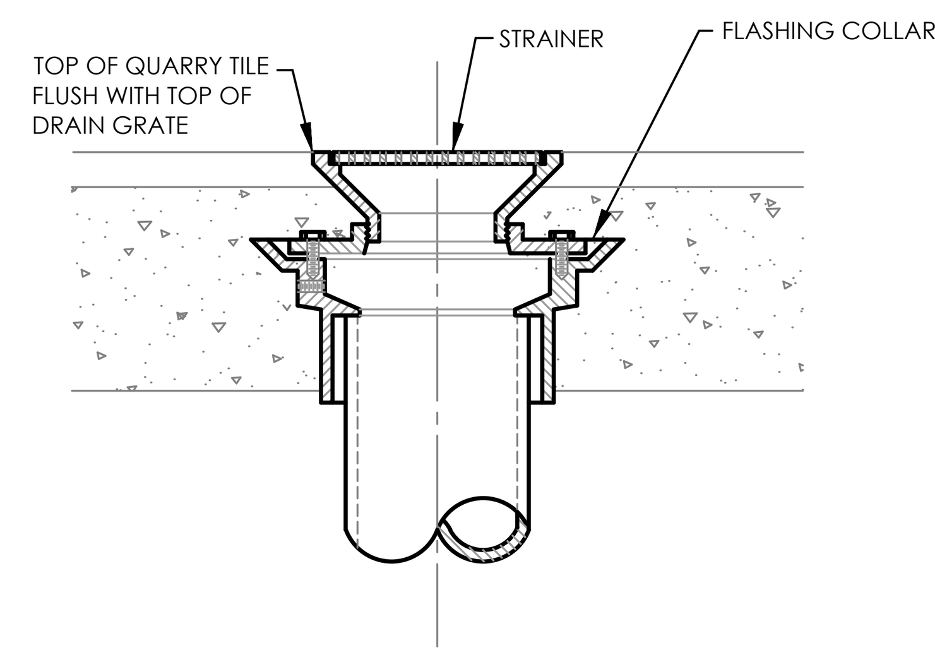
PLUM. SCHEDULES, NOTES & DETAILS

P-01

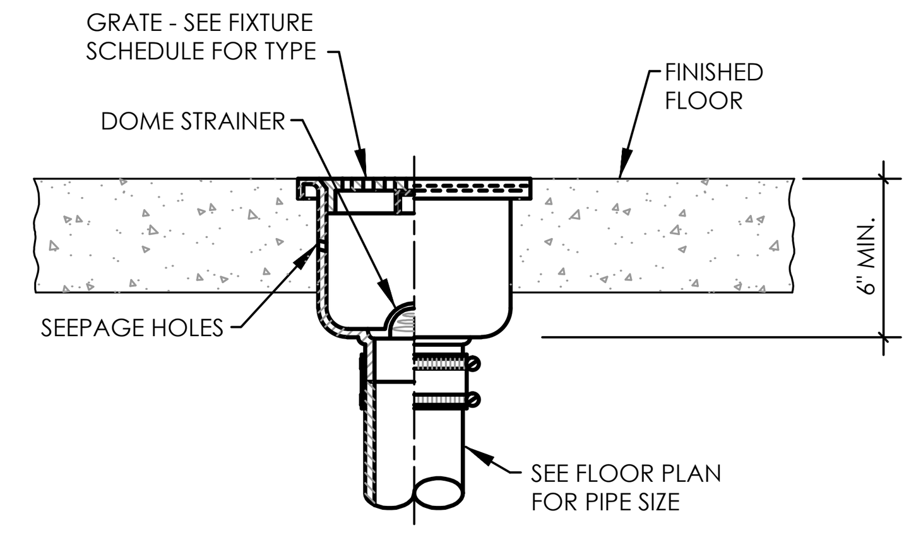
4/21/2013 6:52 PM
AOA-1301-P01.DWG



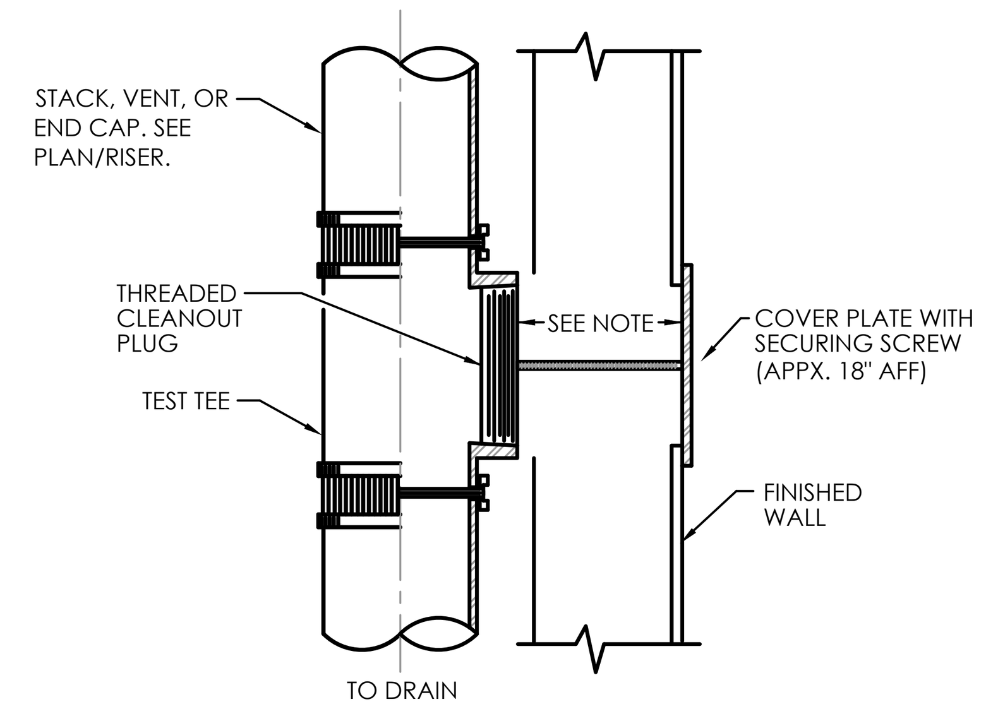
7 HUB DRAIN DETAIL
NO SCALE



6 FLOOR DRAIN DETAIL
NO SCALE

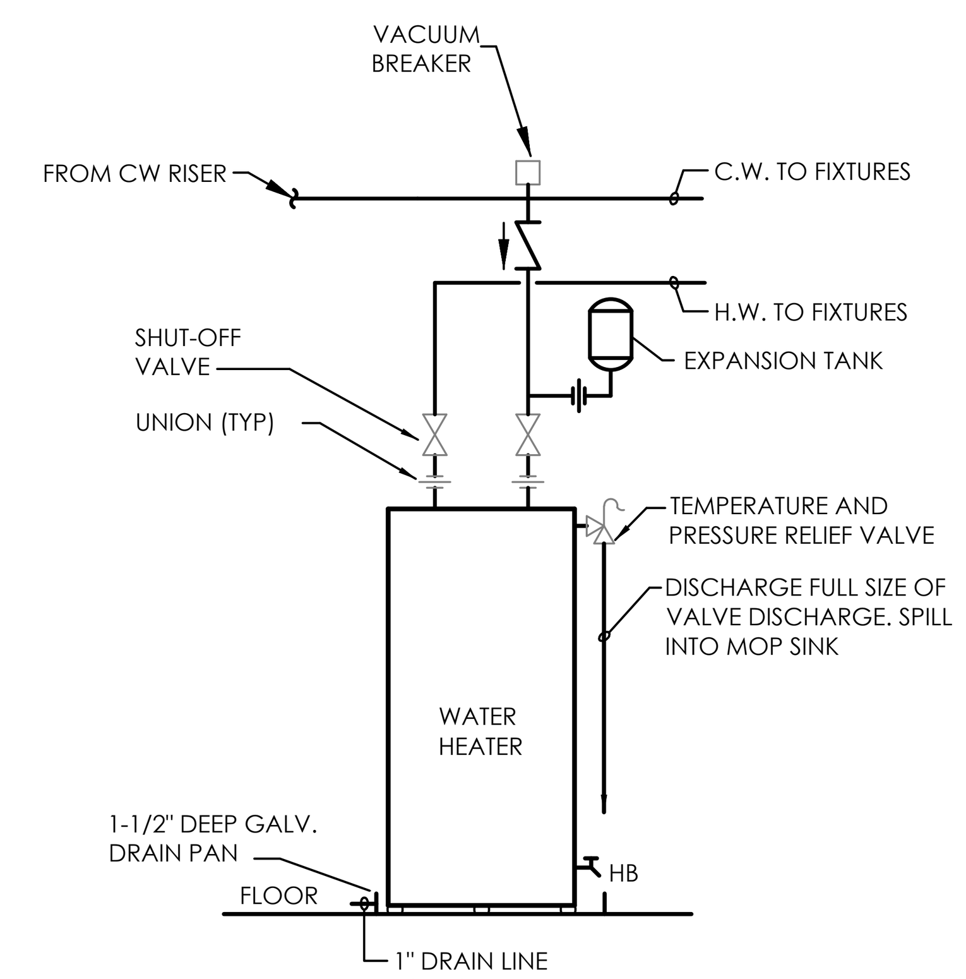


5 FLOOR SINK DETAIL
NO SCALE



NOTE:
EXTEND TEST TEE OPENING IF PLUG IS GREATER THAN 8" FROM FINISHED WALL.

4 WALL CLEANOUT DETAIL
NO SCALE



NOTE:
1. INSTALL WATER HEATER PER MANUFACTURER REQUIREMENTS
2. PROVIDE HEAT TRAP ON CW AND HW LINES PER ENERGY CODE

3 WATER HEATER DETAIL
NO SCALE

EQUIPMENT SCHEDULE

ITEM #	QTY.	EQUIPMENT	HOT WATER SIZE (IN.)	COLD WATER SIZE (IN.)	INDIR. DRAIN SIZE (IN)	DIRECT DRAIN SIZE (IN)	PLUMBING NOTES
E2	1	ESPRESSO MACHINE	-	0.5	0.5	-	W/ CV-1 & SHOCK ARRESTOR.
E3	1	COFFEE MACHINE	-	0.5	-	-	W/ CV-1 & SHOCK ARRESTOR.
E10	1	ICE MAKER	-	0.5	0.5	-	W/ CV-1 & SHOCK ARRESTOR.
E20	1	TEA MAKER	-	0.5	-	-	W/ CV-1 & SHOCK ARRESTOR.
E23	1	ICE BIN	-	-	1.0	-	DRAIN TO HUB DRAIN
P1	1	3 COMPARTMENT SINK	0.5	0.5	1.5	-	DRAIN TO FLOOR SINK.
P2	1	HAND SINK	0.5	0.5	-	1.5	W/ TV-1 SET TO 110°F.
P3	1	HOT WATER DISPENSER	-	0.5	-	-	W/ CV-1 & SHOCK ARRESTOR.
P4	1	COLD WATER RINSE	-	0.5	0.5	-	DRAIN TO HUB DRAIN.
P5	1	1 COMPARTMENT SINK	0.5	0.5	1.5	-	DRAIN TO FLOOR SINK.
P6	1	HAND SINK	0.5	0.5	-	1.5	W/ TV-1 SET TO 110°F.
P11	1	WATER STATION	-	0.5	-	1.5	DRAIN TO FLOOR SINK.

NOTE:
1. SCHEDULE INFO TAKEN FROM KITCHEN SUPPLIER PLANS/INFO. P.C. TO VERIFY BEFORE BEGINNING WORK. P.C. TO VERIFY EXACT SIZE, QTY AND LOCATION OF CONNECTIONS TO ALL EQUIPMENT. PROVIDE ALL NECESSARY REDUCERS, FILTERS AND OTHER ACCESSORIES.

From: Beasley, Timothy <Timothy.Beasley@raleighnc.gov>
Sent: Thursday, February 28, 2013 7:46 AM
To: Zack L. Tomlin, PE
Cc: Godfrey, Damon
Subject: RE: Coffee Shop, Hue Building
Attachments: Untitled attachment 00011.txt; _Certification_.htm

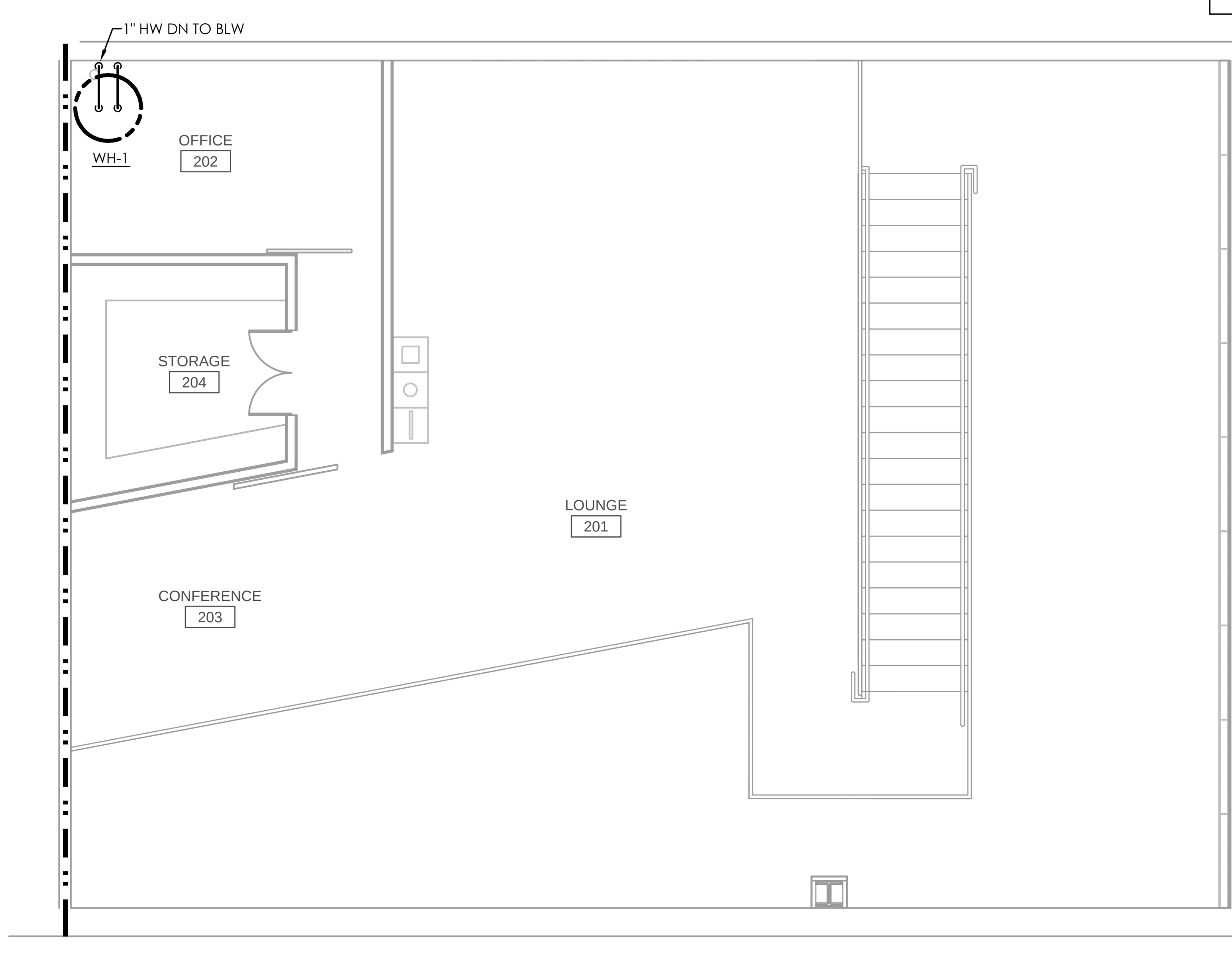
Zack,

The City of Raleigh offers no objection to Café Muertos 300 W. Morgan St operating with the existing community grease interceptor at the Hue Building.

Tim Beasley
Industrial Pretreatment Coordinator
City of Raleigh
Public Utilities Department

4/21/2013 6:52 PM
AOA-1301-P02.DWG

FIRE RATING LEGEND
▬ ▪▪ ▬ 2-HR WALL
*2ND FLR CEIL. IS 2-HR RATED



2 PLUMBING PLAN - 2ND FLOOR
SCALE: 1/4" = 1'-0"

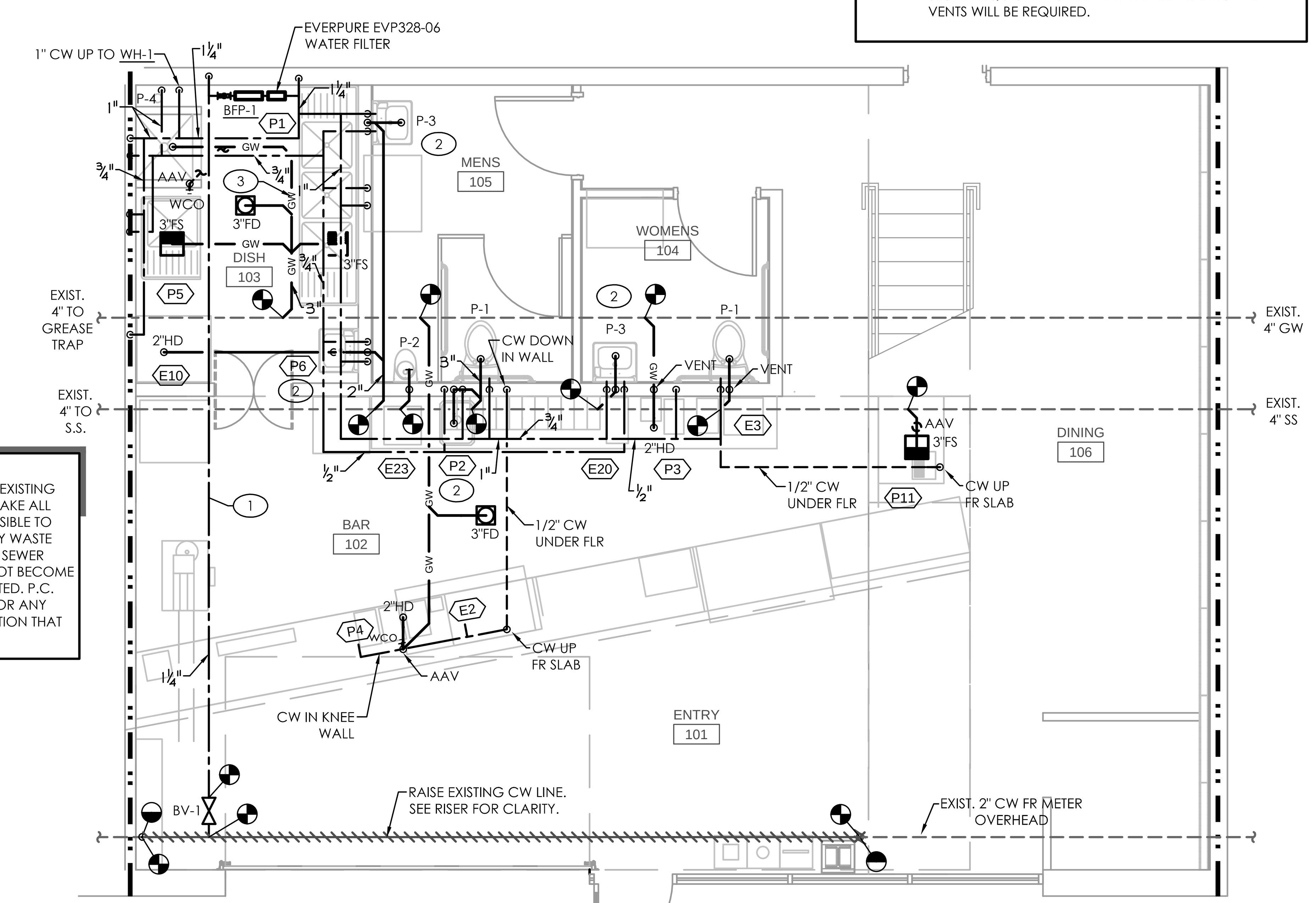
GENERAL NOTES - THIS SHEET

1. ITEMS SHOWN IN FAINT ARE EXISTING TO REMAIN. NEW OR RELOCATED ITEMS ARE SHOWN IN BOLD. SEE LEGEND.
2. P.C. TO FIELD VERIFY EXACT SIZE, INVERT, DIRECTION AND LOCATION OF ALL EXISTING LINES BEFORE BEGINNING WORK.
3. P.C. TO VERIFY THAT NO FIXTURES ARE CONNECTED UPSTREAM OF BACK FLOW PREVENTER (RPZ).

TAGGED NOTES - THIS SHEET

(1) CLEARLY LABEL ALL PORTIONS OF CW LINE UPSTREAM OF BFP "DO NOT TAP".
(2) PROVIDE TEMPERING VALVE, TV-1, UNDER SINK. SET TO 105°F.
(3) PORTION OF BRANCH LINE IS PART OF CIRCUIT VENT SYSTEM, MAXIMUM SLOPE 8%. TURN DOWN AS NECESSARY AFTER MOST DOWNSTREAM FIXTURE. IF SLOPE REQ'S CANNOT BE MAINTAINED ADDITIONAL VENTS WILL BE REQUIRED.

NOTE:
P.C. TO VERIFY EXISTING LINES. P.C. TO TAKE ALL MEASURES POSSIBLE TO ENSURE GREASY WASTE AND SANITARY SEWER SYSTEMS DO NOT BECOME INTERCONNECTED. P.C. RESPONSIBLE FOR ANY INTERCONNECTION THAT OCCURS.



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

Andrew Osterlund
ARCHITECT, PLLC
GREEN | URBAN | SMART ARCHITECTURE
19 WEST HARGETT STREET #700
RALEIGH, NORTH CAROLINA 27601
www.aoarchitect.com

MAPLE
ENGINEERING, PLLC
1405 HILLSBOROUGH ST
RALEIGH, NC 27605 LIC.#: P-0990
P:919-341-4247 F:919-890-3797
PLUMBING MECHANICAL ELECTRICAL

PROJECT No.: 1301

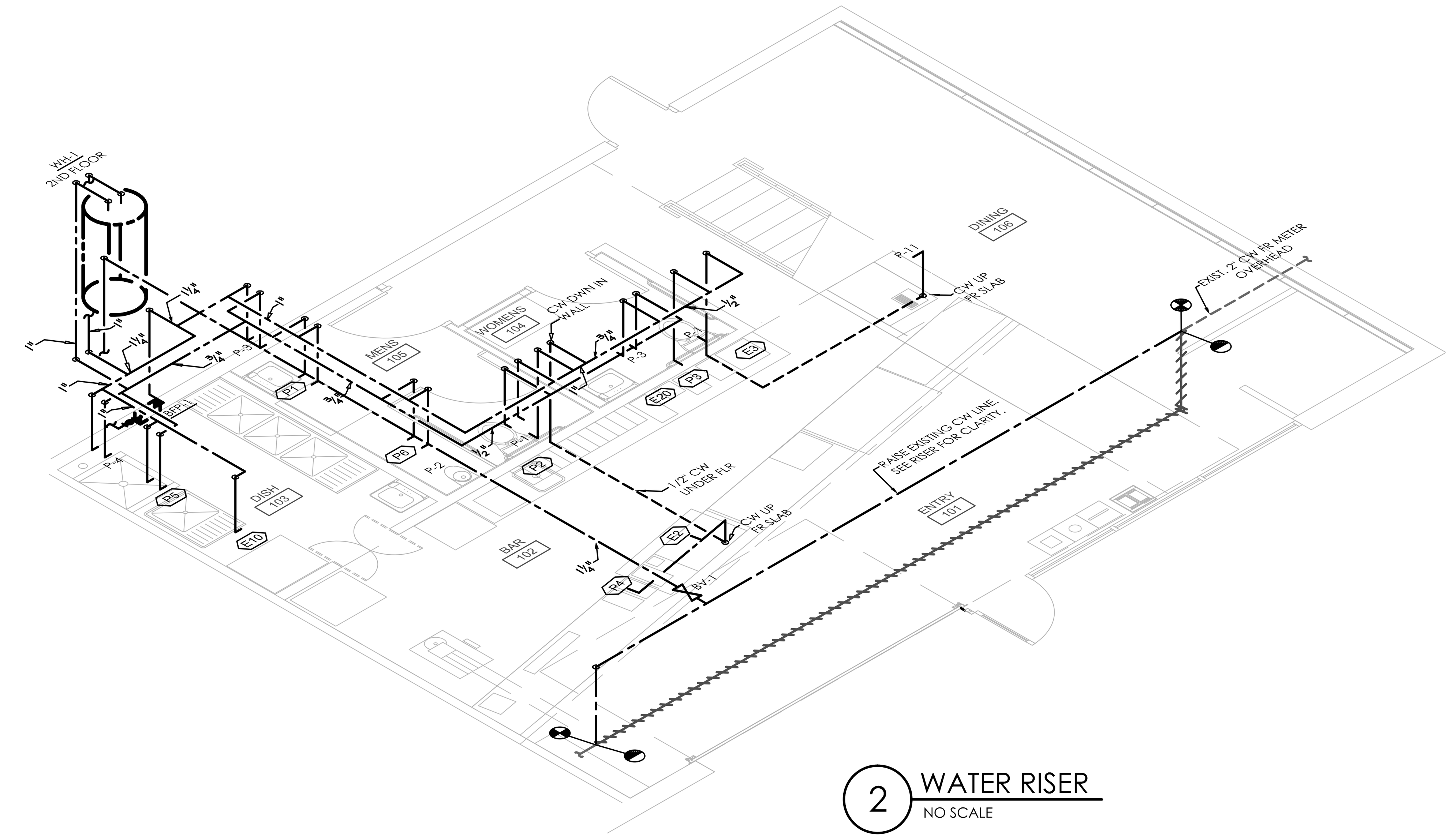
CAFE DE LOS MUERTOS
Raleigh, North Carolina

SEALS:
NORTH CAROLINA PROFESSIONAL SEAL 037509 ENGINEER ZACK L. TOMLIN
4/21/13

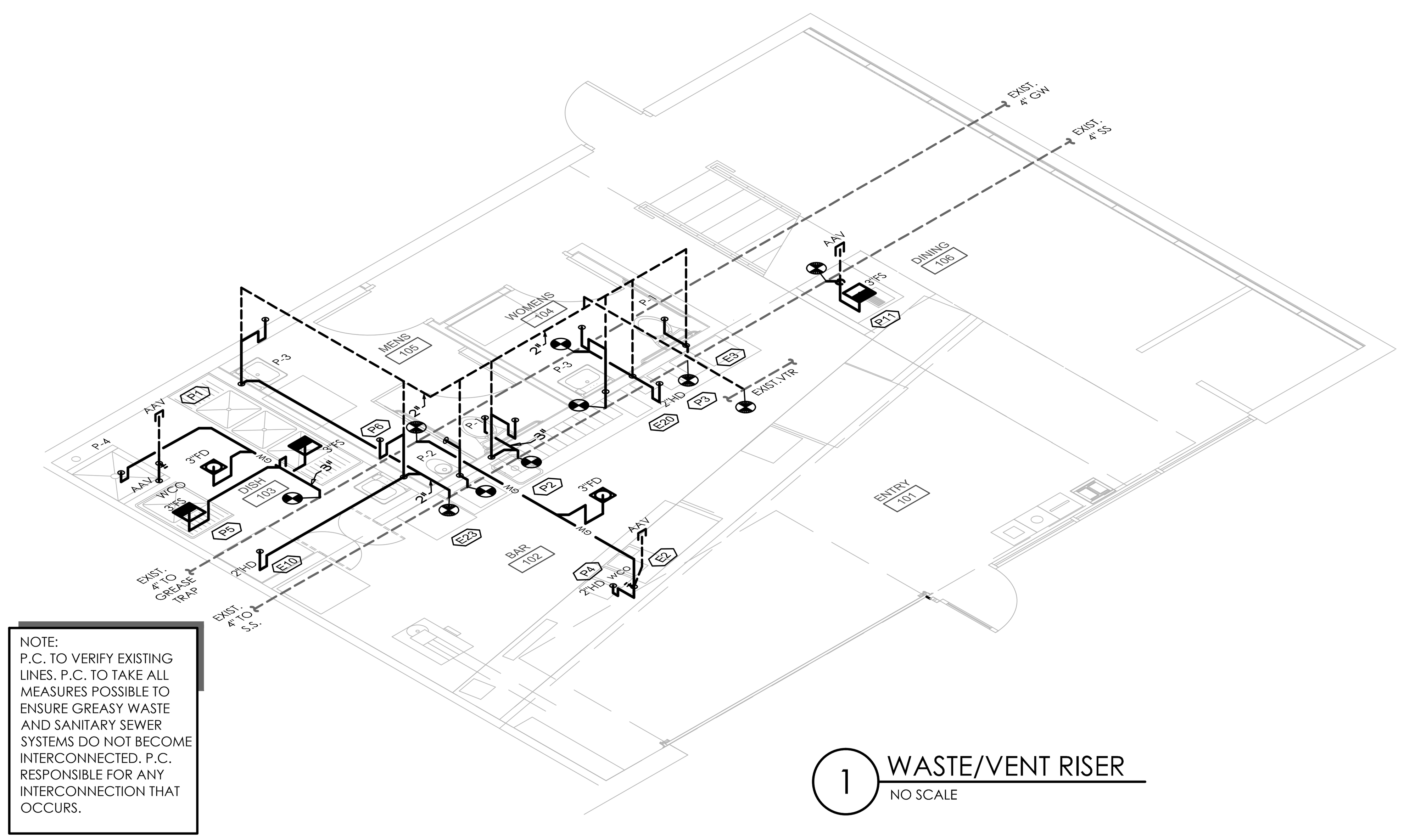
ISSUE: PERMIT SET
DATE: 4/21/13
DRAWN BY: CLR/JMS/RSA
REVISIONS:

PLUMBING
PLAN & DETAILS

P-02



2 WATER RISER
NO SCALE



NOTE:
P.C. TO VERIFY EXISTING LINES. P.C. TO TAKE ALL MEASURES POSSIBLE TO ENSURE GREASY WASTE AND SANITARY SEWER SYSTEMS DO NOT BECOME INTERCONNECTED. P.C. RESPONSIBLE FOR ANY INTERCONNECTION THAT OCCURS.

1 WASTE/VENT RISER
NO SCALE

4/21/2013 6:52 PM
AOA-1301-P03.DWG

Andrew Osterlund
ARCHITECT, PLLC
GREEN | URBAN | SMART ARCHITECTURE
19 WEST HARGETT STREET #700
RALEIGH, NORTH CAROLINA 27601
www.aoarchitect.com

MAPLE
ENGINEERING, PLLC
1405 HILLSBOROUGH ST
RALEIGH, NC 27605 LIC.#: P-0990
P:919-341-4247 F:919-890-3797
PLUMBING MECHANICAL ELECTRICAL

PROJECT No.: 1301

CAFE DE LOS MUERTOS
Raleigh, North Carolina

SEALS:
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 037509 ZACK L. TOMLIN
4/21/13

ISSUE: PERMIT SET
DATE: 4/21/13
DRAWN BY: CLR/JMS/RSA

REVISIONS:

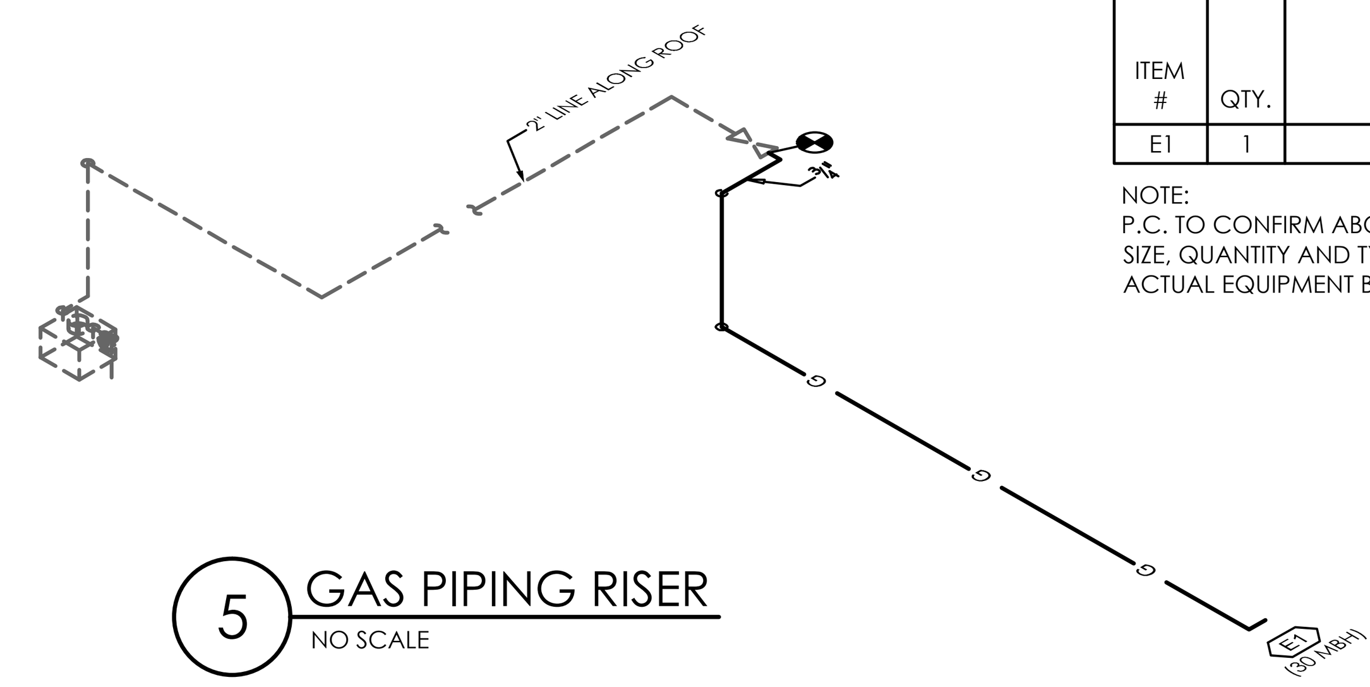
PLUMBING RISERS

P-03

NATURAL GAS CALCULATIONS
TABLE 402.4(2)

PIPE SIZE (IN.)	MAX CAPACITY OF PIPE IN MBH		
	EQUIV. LENGTH = 250 FT		
1/2"	30 MBH		
3/4"	63 MBH		
1"	119 MBH		
1-1/4"	244 MBH		
1-1/2"	366 MBH		
2"	704 MBH		

BASED UPON CHAPTER 4 OF THE 2012 NORTH CAROLINA FUEL GAS CODE, LESS THAN 2.0 PSI INLET PRESSURE, 0.5" WC PRESSURE DROP.

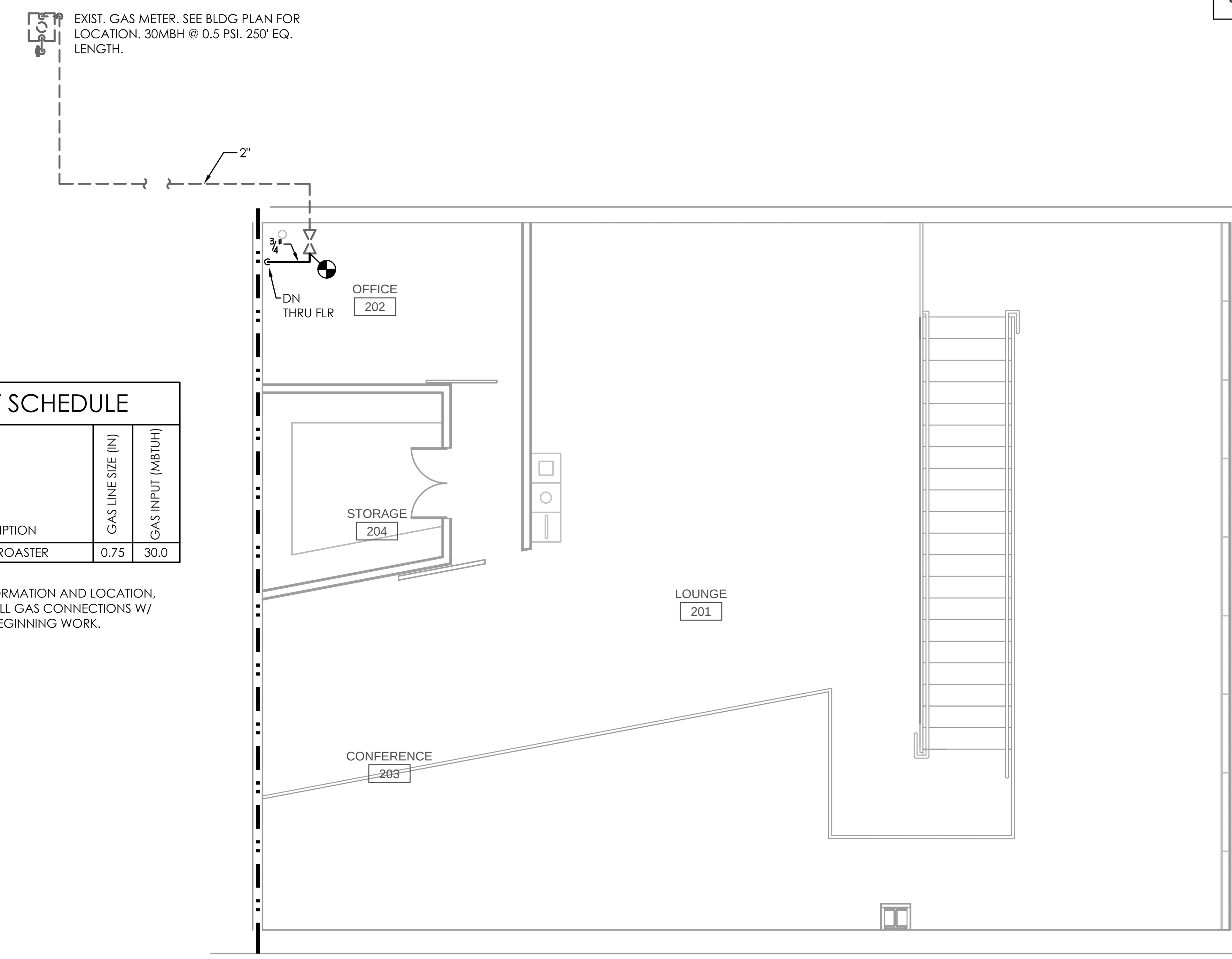


5 GAS PIPING RISER
NO SCALE

EQUIPMENT SCHEDULE

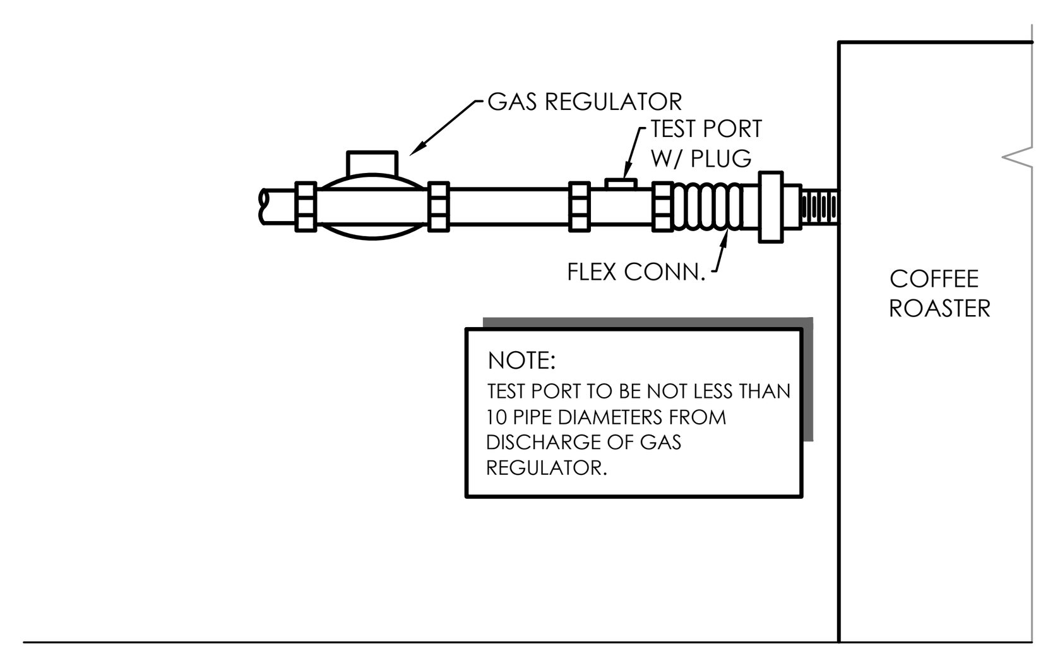
ITEM #	QTY.	DESCRIPTION	GAS LINE SIZE (IN)	GAS INPUT (MBTUH)
E1	1	COFFEE ROASTER	0.75	30.0

NOTE:
P.C. TO CONFIRM ABOVE INFORMATION AND LOCATION, SIZE, QUANTITY AND TYPE OF ALL GAS CONNECTIONS W/ ACTUAL EQUIPMENT BEFORE BEGINNING WORK.



3 GAS PIPING - 2ND FLOOR
SCALE: 1/4" = 1'-0"

FIRE RATING LEGEND
2-HR WALL
*2ND FLR CEIL. IS 2-HR RATED



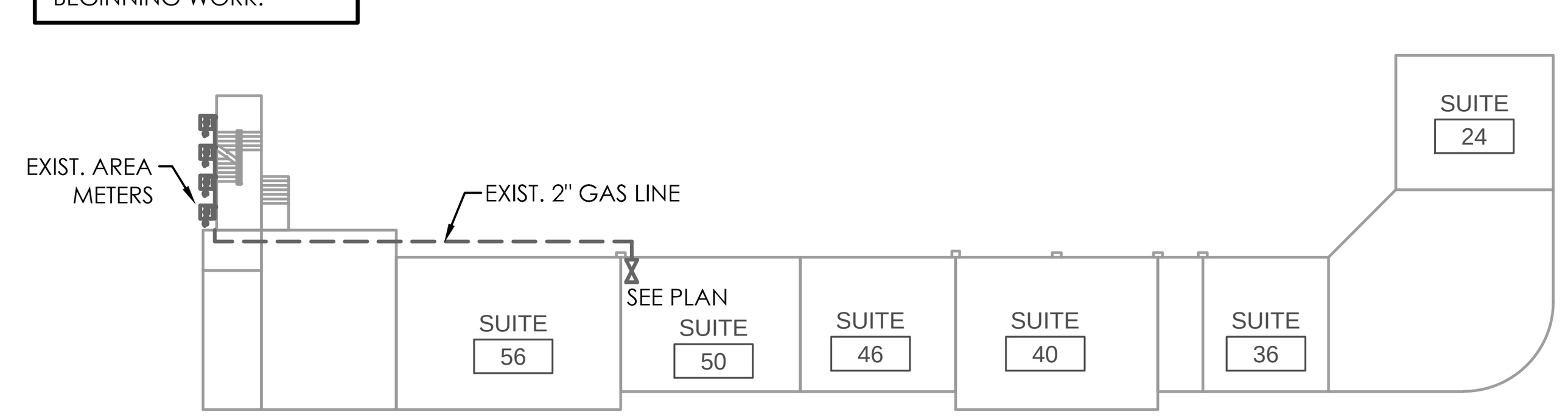
NOTE:
TEST PORT TO BE NOT LESS THAN 10 PIPE DIAMETERS FROM DISCHARGE OF GAS REGULATOR.

4 GAS CONNECTION DETAIL
NO SCALE

GENERAL NOTES - THIS SHEET

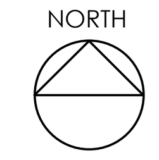
1. P.C. IS TO PROVIDE REGULATOR, FLEX CONNECTION & SHUT-OFF VALVE AT EACH EQUIPMENT CONNECTION. COORDINATE AND VERIFY EXACT SIZE AND LOCATION OF EQUIPMENT GAS CONNECTION(S) BEFORE BEGINNING WORK.
2. PROVIDE LABELING ON GAS PIPING AS REQUIRED BY 2012 NCFGC SEC. 401.5 & 401.7.
3. P.C. IS RESPONSIBLE FOR VENTING REGULATORS TO EXTERIOR AS REQ'D.
4. P.C. TO FIELD VERIFY EXACT, SIZE, LOCATION AND ROUTING OF ALL EXISTING GAS PIPING BEFORE BEGINNING WORK.

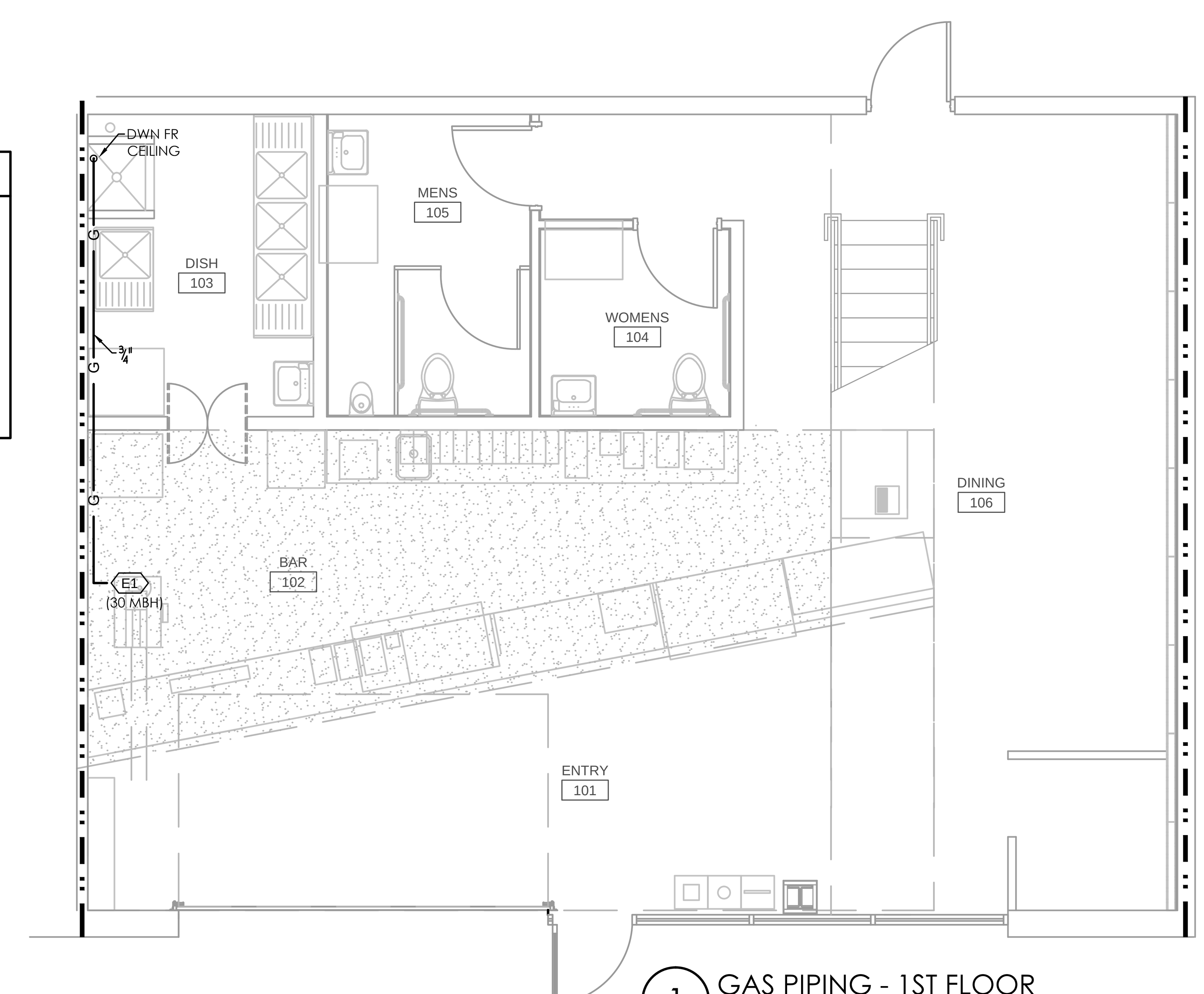
NOTE:
VERIFY EXACT METER LOCATION W/ EXISTING CONDITIONS AND LANDLORD BEFORE BEGINNING WORK.



2 BUILDING PLAN
NO SCALE

NORTH





1 GAS PIPING - 1ST FLOOR
SCALE: 1/4" = 1'-0"

Andrew Osterlund ARCHITECT, PLLC
GREEN | URBAN | SMART ARCHITECTURE
19 WEST HARGETT STREET #700
RALEIGH, NORTH CAROLINA 27601
www.aoarchitect.com

MAPLE ENGINEERING, PLLC
1405 HILLSBOROUGH ST
RALEIGH, NC 27605 LIC.#: P-0990
P:919-341-4247 F:919-890-3797
PLUMBING MECHANICAL ELECTRICAL

PROJECT No.: 1301

CAFE DE LOS MUERTOS
Raleigh, North Carolina

SEALS:
NORTH CAROLINA PROFESSIONAL SEAL 037509 ENGINEER ZACK L. TOMLIN
4/21/13

ISSUE: PERMIT SET
DATE: 4/21/13
DRAWN BY: CLR/JMS/RSA
REVISIONS:

GAS PIPING PLAN & RISER

P-04

4/21/2013 6:52 PM
AOA-1301-P04.DWG

HVAC GENERAL NOTES

I. GENERAL REQUIREMENTS:

1. MECHANICAL CONTRACTOR IS TO FURNISH AND PAY FOR ALL LABOR, MATERIAL, EQUIPMENT, PERMITS & FEES REQUIRED FOR THE COMPLETE INSTALLATION OF ALL SYSTEMS IN THIS SECTION OF WORK.
2. ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH NC MECHANICAL CODES AND ALL OTHER APPLICABLE CODES. MC IS TO COORDINATE W/ G.C. IN REGARDS TO PROJECT TIMELINE, WORK HOURS, AS WELL AS ANY BONDING OR INSURANCE REQUIREMENTS.
3. ALL MECHANICAL EQUIPMENT SHALL BE PROVIDED COMPLETE WITH ALL ACCESSORIES, HANGERS, SUPPORTS, CONTROLS, ETC FOR A FULLY FUNCTIONING SYSTEM REGARDLESS OF PRESENCE ON PLANS.
4. ALL EQUIPMENT, MATERIALS AND INSTALLATION SHALL BE GUARANTEED TO BE FREE OF DEFECTS FOR A PERIOD OF ONE (1) YEAR AFTER FINAL ACCEPTANCE OF WORK OR IN ACCORDANCE WITH THE MANUFACTURER'S STANDARD GUARANTEE, IF LONGER. ALL COMPRESSORS ARE TO INCLUDE FIVE (5) YEAR WARRANTY. EXISTING EQUIPMENT IS EXCLUDED FROM WARRANTY REQUIREMENT.
5. THESE DRAWINGS ARE DIAGRAMMATIC AND SHOW GENERAL LOCATION AND ARRANGEMENT OF ALL MATERIALS AND EQUIPMENT. THE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS BUILDING CONSTRUCTION AND ALL OTHER WORK WILL PERMIT.
6. DO NO SCALE DRAWINGS FOR MEASUREMENT.
7. ALL DUCT DIMENSIONS SHOWN ARE INTERIOR DUCT DIMENSIONS.
8. INFORMATION GIVEN IN SCHEDULES INCLUDES BOTH DESCRIPTION OF PRODUCT AND MANUFACTURER'S MODEL #. IF CONFLICT IS PRESENT BETWEEN DESCRIPTION AND MODEL #, EQUIPMENT DESCRIPTION SHALL TAKE PRECEDENT. IN CASE OF CONFLICT BETWEEN THE PLANS AND NOTES/SPECIFICATIONS OR CONFLICT BETWEEN INFORMATION PRESENTED ON THE PLANS OR IN THE NOTES/SPECIFICATIONS, THEN THE MOST RESTRICTIVE SHALL TAKE PRECEDENT.
9. BEFORE BID MC IS RESPONSIBLE FOR CLARIFYING W/ G.C. ANY CONFUSION IN REGARDS TO RESPONSIBILITY OF WORK TO BE PERFORMED OR MATERIALS TO BE PROVIDED, THE SUBMITTAL OF THE BID BY THE CONTRACTOR WILL BE HELD AS PROOF THAT THE CONTRACTOR UNDERSTANDS THOROUGHLY AND COMPLETELY THE SCOPE OF THE WORK INVOLVED, AND HAS INCLUDED ON THE BID ALL THE NECESSARY ITEMS TO CARRY OUT THIS SECTION OF WORK.
10. M.C. & G.C. SHALL CONSULT OWNER OR OWNER'S REPRESENTATIVE REGARDING DISPOSAL, STORING OR RESALE OF ALL DEMO/REMOVED EQUIPMENT AND MATERIALS.
11. ALL QUESTIONS MUST BE SUBMITTED IN RFI FORMAT TO THE ARCHITECT AND MUST BE ADDRESSED BY THE APPROPRIATE DESIGNER OF RECORD PRIOR TO BECOMING A PROPOSED CHANGE ORDER.
12. UPON COMPLETION OF WORK M.C. IS TO PROVIDE OWNER W/ COMPLETE BOUND SET OF ALL EQUIPMENT OPERATION & MAINTENANCE MANUALS. PACKAGE IS ALSO TO INCLUDE AND WARRANTY & GUARANTEE INFORMATION.
13. M.C. IS TO PROVIDE TRAINING TO OWNER OR OWNER'S REPRESENTATIVE IN REGARDS TO OPERATION, FUNCTION, AND MAINTENANCE OF ALL MECHANICAL EQUIPMENT, CONTROLS, ETC.

II. DIVISION OF WORK:

1. ALL LOW VOLTAGE WIRING RELATED TO MECHANICAL EQUIPMENT AND SYSTEMS IS THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR (ANY LOW VOLTAGE FIRE ALARM WIRING TO BE BY E.C.). ALL HIGH VOLTAGE CONNECTIONS TO MECHANICAL EQUIPMENT, TO BE PROVIDED AND INSTALLED BY E.C. (SEE EQUIPMENT SCHEDULE FOR DISCONNECT RESPONSIBILITY).
2. G.C. TO BE RESPONSIBLE FOR PROVIDING AND INSTALLING ANY ACCESS DOORS (WALL, FLOOR, CEILING) RELATED TO MECHANICAL SYSTEM, M.C. RESPONSIBLE FOR COMMUNICATING TO G.C. SIZE AND LOCATION OF REQ'D ACCESS DOOR(S).
3. MECHANICAL CONTRACTOR IS TO EMPLOY THE SERVICES OF THE G.C. FOR CUTTING AND PATCHING OF WALLS, FLOORS & CEILINGS RELATED TO THE INSTALLATION OF MECHANICAL EQUIPMENT & SYSTEMS.
4. G.C. RESPONSIBLE FOR PAINTING OF ANY EXPOSED DUCT, PIPING, GRILLES, ETC. M.C. RESPONSIBLE FOR CLEANING AND PREPARING ITEMS FOR PAINT, COORDINATE W/ G.C.

III. MATERIALS:

1. ALL MATERIALS SHALL BE NEW UNLESS OTHERWISE SHOWN OR SPECIFIED.
2. ALL MATERIALS INSTALLED IN RETURN PLENUM ARE TO BE PLENUM RATED.
3. PROVIDE HANGERS & SUPPORTS APPROVED FOR USE BY 2012 NC MECHANICAL CODE.
4. ALL MAIN DUCTWORK (SUPPLY, RETURN, EXHAUST, OUTSIDE AIR) SHALL BE GALVANIZED SHEET METAL CONSTRUCTED IN ACCORDANCE WITH SMACNA STANDARDS. RUNOUTS FROM MAIN/BRANCH DUCTS MAY BE FLEXIBLE DUCT CONFORMING TO THE REQUIREMENTS OF UL 181 FOR CLASS 1 FLEXIBLE AIR DUCTS. MAX. LENGTH OF FLEX PER RUNOUT TO BE 6'-0" UNLESS SHOWN OTHERWISE.
5. NO FLEXIBLE DUCT ALLOWED FOR NEGATIVE PRESSURE EXHAUST APPLICATIONS.
6. ALL SUPPLY AND RETURN DUCTWORK AND PLENUMS SHALL BE INSULATED. INSULATION OF DUCTWORK IN UNCONDITIONED SPACE SHALL BE MINIMUM R-5 PER 2012 NCECC. INSULATION OF DUCTWORK OUTSIDE BUILDING THERMAL ENVELOPE (I.E. ROOF, ATTIC, CRAWLSPACE) SPACE SHALL BE MINIMUM R-8 PER 2012 NCECC.
7. CONCEALED SHEET METAL SUPPLY & RETURN DUCT MAY BE EXTERNALLY INSULATED WITH MINERAL FIBER BOARD OR BLANKET OR MAY BE INTERNALLY INSULATED WITH ACOUSTICAL DUCT LINER. EXPOSED SPIRAL DUCTWORK DOES NOT REQUIRE INSULATION UNLESS OTHERWISE NOTED (WHEN INSTALLED IN CONDITIONED SPACE).
8. OUTSIDE AIR DUCTWORK SHALL BE WRAPPED WITH 1" FIBERGLASS DUCT WRAP WITH VAPOR BARRIER.
9. ALL MAIN DUCTWORK (INCLUDING EXHAUST) TO BE SEALED ACCORDING TO 2012 NCECC AND AT A MINIMUM INCLUDE SEALING OF ALL DUCT SEAMS W/ NON-HARDENING MASTIC. SEALING BY TAPE ALONE NOT ALLOWED.
10. CONDENSATE DRAIN PIPING AND FITTINGS SHALL BE SCHEDULE 40 PVC. DRAINS FROM AIR HANDLING UNITS SHALL BE TRAPPED (2" MINIMUM). TRAPS ON INTERIOR OF BUILDINGS TO BE INSULATED.
11. CONDENSATE PUMPS TO BE 115V W/ 24' LIFT.
12. ALL DAMPERS TO INCLUDE SET SCREW OR SIMILAR FEATURE FOR LOCKING IN POSITION.
13. ALL REFRIGERANT LINE MATERIAL AS PER MFG'S REQUIREMENTS. SIZE PER MFG INSTRUCTIONS. LIQUID LINE TO BE INSULATED W/ MIN. 1-1/2" ARMAFLEX W/ TAPED OR SEALED SEAMS.
14. ALL FIRE SEALANTS TO BE U.L. LISTED AND APPROVED FOR USE W/ APPROPRIATE U.L. PENETRATION DETAIL.
15. ALL PROGRAMMABLE THERMOSTATS TO INCLUDE BATTERY BACK-UP AND HAVE CAPABILITY TO SETBACK TO 55°F (HEATING) & 85°F (COOLING). AUTO-CHANGEOVER THERMOSTATS TO HAVE A MIN. 5°F DEADBAND.

IV. COORDINATION:

1. THE MECHANICAL CONTRACTOR SHALL COORDINATE CLOSELY WITH ALL OTHER TRADES TO AVOID CONFLICT AND ENSURE OTHER TRADES PROVIDE MEASURES TO ACCOMMODATE MECHANICAL WORK (I.E. ACCESS DOORS, SLAB/WALL/ROOF OPENINGS, ELECTRICAL CONNECTIONS, ETC).
2. LOCATE CEILING DIFFUSERS IN ACCORDANCE WITH ARCHITECTURAL REFLECTED CEILING PLANS (IF PROVIDED).

V. EXECUTION:

1. M.C. TO FOLLOW MANUFACTURER'S INSTRUCTIONS WHEN INSTALLING MECHANICAL EQUIPMENT. ENSURE REQUIRED MAINTENANCE ACCESS AND CLEARANCES ARE MAINTAINED. IF CONFLICT EXISTS BETWEEN THESE PLANS AND MFG INSTRUCTIONS CONTACT ENGINEER.
2. ALL PENETRATIONS THROUGH EXTERIOR WALLS & ROOF SHALL BE FLASHED & COUNTER-FLASHED IN A WATERPROOF MANNER.
3. SEAL ALL PENETRATIONS OF RATED WALLS, CEILING, FLOORS IN ACCORDANCE W/ APPROPRIATE U.L. PENETRATION DETAIL.
4. INSTALL ALL CONTROL DEVICES, INCLUDING THERMOSTATS AND SWITCHES, 4'-0" ABOVE FINISHED FLOOR.
5. INDEPENDENT CERTIFIED TEST AND BALANCE CONTRACTOR SHALL BALANCE SYSTEM TO AIR QUANTITIES INDICATED ON PLANS AND IN ACCORDANCE W/ 2012 NCECC SEC. 503.2.9. M.C. TO PROVIDE OWNER'S REPRESENTATIVE & ENGINEER WITH COMPLETE BALANCE REPORT. MC RESPONSIBLE FOR PROVIDING ANY DAMPERS, VALVES, PORTS, ETC. NECESSARY FOR A COMPLETE SYSTEM BALANCE.
6. ALL REFRIGERANT PIPING SHALL BE INSTALLED PER MFG'S INSTRUCTIONS IN REGARDS TO SUPPORTS, BENDS, FITTINGS, OIL TRAPS, ETC.
7. PENETRATIONS OF NON-RATED WALLS, PARTITIONS AND FLOOR OF COMBUSTIBLE CONSTRUCTION SHALL BE FIRESTOPPED WITH MATERIALS EQUIVALENT TO TWO INCHES OF WOOD. FIRESTOPPING SHALL COMPLY WITH ASTM E-814.
8. ANY NOTCHING, DRILLING, BORING OR OTHER ALTERATION TO BUILDING STRUCTURE SHALL BE PERFORMED IN A CODE APPROVED METHOD AND NOT THREATEN THE INTEGRITY OF THE BUILDING STRUCTURE.
9. SUPPORT ALL DUCTWORK AND PIPING IN ACCORDANCE W/ 2012 NC MECHANICAL CODE. ANY SUSPENDED MATERIALS SHALL BE DIRECTLY SUPPORTED BY THE BUILDING STRUCTURE.
10. PENETRATIONS OF ALL EXTERIOR WALLS, FLOORS AND CEILINGS SHALL BE SEALED IN AN AIR TIGHT MANNER AND IN ACCORDANCE W/ 2012 NCECC APPENDIX 2 DETAILS. ALL PENETRATIONS OF WALLS, FLOORS & CEILINGS IN RETURN OR EXHAUST PLENUMS SHALL BE SEALED IN AN AIR TIGHT MANNER.
11. DUCT ACCESS DOORS TO BE PROVIDED AT ALL FIRE, RADIATION & SMOKE DAMPERS, SMOKE DETECTORS, CLEANOUTS AND ANY OTHER CODE REQUIRED LOCATIONS.
12. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL MECHANICAL EQUIPMENT FROM FOREIGN MATERIAL DURING CONSTRUCTION (PAINT, SPACKLE, ETC.). UPON COMPLETION OF WORK THE MECHANICAL CONTRACTOR SHALL CLEAN, WASH, ETC ALL ITEMS AND EQUIPMENT WITHIN HIS SCOPE OF WORK AND LEAVE ALL ITEMS BRIGHT AND CLEAN.

SPLIT SYSTEM HEAT PUMP UNIT SCHEDULE

		AIR HANDLING UNIT DATA											HEAT PUMP							
			FAN DATA				COOLING		HEAT	AUX.	ELECTRICAL DATA				GENERAL DATA			ELECTRICAL DATA			
UNIT TAG	AREA SERVED	MANUF. MODEL	FAN CFM	ESP (" OF WG)	MOTOR (HP)	OA (CFM)	TOTAL (MBH)	SENS. (MBH)	TOTAL (MBH)	HEAT (KW@208)	VOLTAGE (V/PH)	MCA (A)	MOCP (A)	UNIT TAG	MANUF. MODEL	TONNAGE	EFF. (SEER)	VOLTAGE (V/PH)	MCA (A)	MOCP (A)	NOTES
AH-1	1ST FLOOR	TRANE GAT2A0C60	2000	0.55"	1.0	275	60.0	48.0	60.0	11.5	208V/3Ø	39.7	50	HP-1	TRANE 4TTR5060	5.0	(15.0)	208V/1Ø	34.0	60	1,2,3,4,5,6,7,8,9,10,11
AH-2	2ND FLOOR	TRANE GAT2A0C60	2000	0.50"	1.0	250	60.0	48.0	60.0	11.5	208V/3Ø	39.7	50	HP-2	TRANE 4TTR5060	5.0	(15.0)	208V/1Ø	34.0	60	1,2,3,4,5,6,7,8,9,10,11

NOTES:

1. COOLING CAPACITIES ARE RATED IN ACCORDANCE WITH ARI STANDARD 210/240 AT 95°F AMBIENT OUTDOOR AIR TEMP., 80°F DRY BULB, 67°F WET BULB ENTERING AIR TEMP., AND AIR QUANTITY LISTED BY MFG. UNITS ABOVE 5 TONS ARE RATED IN ACCORDANCE WITH ARI STANDARD 340.
2. REFRIG. PIPING TO BE SIZED PER TOTAL INSTALL. EQUIV. LENGTH. LONG-LINE APP.TO BE PROVIDED WHENEVER MFG. RECOMM. LENGTHS ARE EXCEEDED, INCL. LIQ. LINE SOLENOID VALVES, ACCUMULATOR, ETC. MAX T.E.L. IS PER MFG.
3. PROVIDE SINGLE POINT ELECTRICAL CONNECTION FOR AIR HANDLING UNIT.
4. PROVIDE 3 SETS OF NEW FILTERS FOR EACH UNIT. PROVIDE ONE AT INSTALLATION, ONE PRIOR TO AIR BALANCE AND ONE AT TURNOVER TO OWNER.
5. OUTDOOR UNITS SHALL HAVE A MINIMUM 15.0 SEER RATING.
6. PROVIDE MANUFACTURER'S 7 DAY PROGRAMMABLE THERMOSTAT W/ MANUAL OVERRIDE.
7. PROVIDE BI-FLOW TXV FOR HEAT PUMP OPERATION.
8. AHU TO USE HORIZONTAL APPLICATION.
9. RUN CONDENSATE TO AREA STORM DRAIN PIPING. PROVIDE CONDENSATE PUMP AS NECESSARY.
10. OUTDOOR THERMOSTAT TO LOCK-OUT ELECTRIC HEAT WHEN TEMPERATURE IS 40°F OR HIGHER. PROVIDE UNIT WITH EMERGENCY HEAT OVERRIDE OPTION.
11. CYCLE PROTECTOR AND TIME DELAY RELAY (IF AVAILABLE).

NOTE:
COORDINATE W/ G.C. AND OWNER REGARDING POSSIBLE RE-USE OF EXISTING HEAT PUMPS ON ROOF AND/OR USE OF EXISTING REFRIGERANT LINES.

FAN SCHEDULE

UNIT NO.	SERVICE	AREA SERVED	CFM	S.P.	RPM	TYPE & ARRANGEMENT	MIN. MOTOR HP & VOLTAGE	MANUFACTURER & MODEL NO.	DRIVE	CONTROL SCHEME	NOTES
EF-1	EXHAUST	MEN'S	150	0.45"	MFG	CEILING, CENTRIFUGAL	83 WATTS 120V/1Ø	GREENHECK SPA-250	DIRECT	A	1,2,3,4
EF-2	EXHAUST	WOMEN'S	75	0.45"	MFG	CEILING, CENTRIFUGAL	113 WATTS 120V/1Ø	GREENHECK SPA-190	DIRECT	A	1,2,3,4

NOTES:

1. SCREEN
2. BACKDRAFT DAMPER
3. COLOR BY ARCHITECT
4. INTEGRAL DISCONNECT SWITCH

CONTROL OPTIONS:

A. CONTROL W/ ROOM LIGHTS

DIFFUSER SCHEDULE

SYMBOL	CFM	NECK SIZE	MODULE SIZE	FRAME TYPE	PATTERN	DAMPER	MATERIAL	SERVICE	FINISH	MANUFACTURER & MODEL NO.	NOTES
A	AS NOTED	N/A	AS NOTED	DUCT MTD.	DBL. DEFL.	YES	STEEL	SUPPLY	NOTE 2	TITUS 300RS	1,2,5
B	AS NOTED	AS NOTED	AS NOTED	SURFACE	EGGCRATE	NO	ALUM.	RETURN	NOTE 2	TITUS 50F (1/2" x 1/2" x 1" GRID)	1,2
C	AS NOTED	N/A	AS NOTED	SURFACE	DBL. DEFL.	YES	STEEL	SUPPLY	NOTE 2	TITUS 300RS	1,2,3,5
D	AS NOTED	AS NOTED	NOTE 4	SURFACE	4-WAY	YES	ALUM.	SUPPLY	NOTE 2	TITUS TDC-AA	1,2,3,4
E	AS NOTED	N/A	AS NOTED	SIDEWALL	DBL. DEFL.	YES	STEEL	SUPPLY	NOTE 2	TITUS 300RS	1,2,3,5

NOTES:

GENERAL - MC RESPONSIBLE FOR VERIFYING QTY, COLOR & FRAME TYPE OF DIFFUSERS/GRILLES BEFORE ORDERING. PROVIDE SQR TO RND TRANSITIONS & PLENUMS AS NECESSARY.

1. DIFFUSER DESIGNATIONS ON PLANS AS FOLLOWS:
   DIFFUSER OR NECK SIZE. → 8x4 / 75 (A) ← DIFFUSER TYPE AS NOTED ABOVE
   AIR QUANTITY
2. FINISH TO MATCH / BE ABLE MATCH CEILING OR WALL OR DOOR.
3. FACTORY INSULATION BACKING ON GRILLES EXPOSED TO NON-CONDITIONED AREAS. ALTERNATELY, FIELD SUPPLY AND INSTALL.
4. NECK SIZE INDICATED ON PLANS. MODULE SIZE DICTATED BY NECK SIZE. SEE MFG INFO.
5. ADJUST BLADES TO PROVIDE 45° HORIZONTAL SPREAD (0° IF ON BOTTOM OF DUCT).

MECHANICAL LEGEND

- 18x14 — RECTANGULAR DUCT
- 6Ø — ROUND METAL DUCT
- 6Ø — FLEX/RIGID ROUND DUCT
- ELBOW WITH TURNING VANES
- VOLUME DAMPER
- SUPPLY TAP WITH VOLUME DAMPER
- SUPPLY TAP
- SUPPLY DIFFUSER/GRILLE OR RISER
- RETURN REGISTER/GRILLE OR RISER
- EXHAUST REGISTER/GRILLE OR RISER
- SIDEWALL DIFFUSER/GRILLE
- CEILING EXHAUST FAN
- T — T-STAT
- SD — DUCT SMOKE DETECTOR
- 3/4" DOOR UNDER CUT
- CONNECT TO EXISTING
- DEMO TO THIS POINT
- EXISTING EQUIP. OR DUCT TO BE REMOVED
- EXISTING EQUIPMENT/DUCTWORK

ENERGY REQUIREMENTS:

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

METHOD OF COMPLIANCE

PRESCRIPTIVE [X] ENERGY COST BUDGET [ ]

THERMAL ZONE	4A
EXTERIOR DESIGN CONDITIONS	
WINTER DRY BULB	14
SUMMER DRY BULB	93
INTERIOR DESIGN CONDITIONS	
WINTER DRY BULB	70
SUMMER DRY BULB	76
RELATIVE HUMIDITY	50%
BUILDING HEATING LOAD (MBH)	75.2
BUILDING COOLING LOAD (MBH)	110.5
MECHANICAL SPACING CONDITIONING SYSTEM	
UNITARY	
DESCRIPTION OF UNIT	(2) 5-TON SS HP
HEATING EFFICIENCY	SEE SCHEDULES
COOLING EFFICIENCY	SEE SCHEDULES
HEAT OUTPUT OF UNIT	SEE SCHEDULES
COOLING OUTPUT OF UNIT	SEE SCHEDULES
BOILER	
TOTAL BOILER OUTPUT	NA
CHILLER	
TOTAL CHILLER OUTPUT	NA
LIST EQUIPMENT EFFICIENCIES	SEE SCHEDULES

DESIGNER'S STATEMENT:
TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE DESIGN OF THIS BUILDING COMPLIES WITH THE MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT REQUIREMENTS OF THE N.C.S. ENERGY CODE.

SIGNED: _____

NAME: ZACK L. TOMLIN, PE

TITLE: MECHANICAL ENGINEER

Andrew Osterlund ARCHITECT, PLLC
GREEN | URBAN | SMART ARCHITECTURE
19 WEST HARGETT STREET #700
RALEIGH, NORTH CAROLINA 27601
www.aoarchitect.com

MAPLE ENGINEERING, PLLC
1405 HILLSBOROUGH ST.
RALEIGH, NC 27605 F # P-0995
P:919.341.4257 F:919.890.3797
PLUMBING MECHANICAL ELECTRICAL

PROJECT No.: 1301

CAFE DE LOS MUERTOS

Raleigh, North Carolina

SEALS:

NORTH CAROLINA PROFESSIONAL SEAL 039705 ENGINEER ZACK L. TOMLIN, IV

4/21/13

ISSUE: PERMIT SET
DATE: 4/21/13
DRAWN BY: CLR/JMS/RSA

REVISIONS:

MECHANICAL SCHEDULES & NOTES

M-01

4/21/2013 6:52 PM
AOA-1301-M01.DWG

Ventilation Calculations

Calc's Based on the 2012 NCMC Chp 4

AH/RTU: **AH-1** Spaces: **1st Floor Dining/2nd Floor**

Occupancy	Area (sqft)	Occ. Density (ppl/1000 sqft)	# People	CFM/Sqft	CFM/Person	Area CFM	People CFM	Total Gross CFM	Vent. Eff*	Req'd CFM
COFFEE	179	50	8.95	0.18	7.5	32	67	99	1.0	99
LOUNGE	255	30	7.65	0.18	7.5	46	57	103	1.0	103
OFFICE	20	5	1	0.06	5	1	5	6	1.0	6
									Total Req'd CFM	209
									Supplied CFM	275

*Ceiling Supply Cool Air (Space will be unoccupied or only partially occupied when in heating)

AH/RTU: **AH-2** Spaces: **Kitchen**

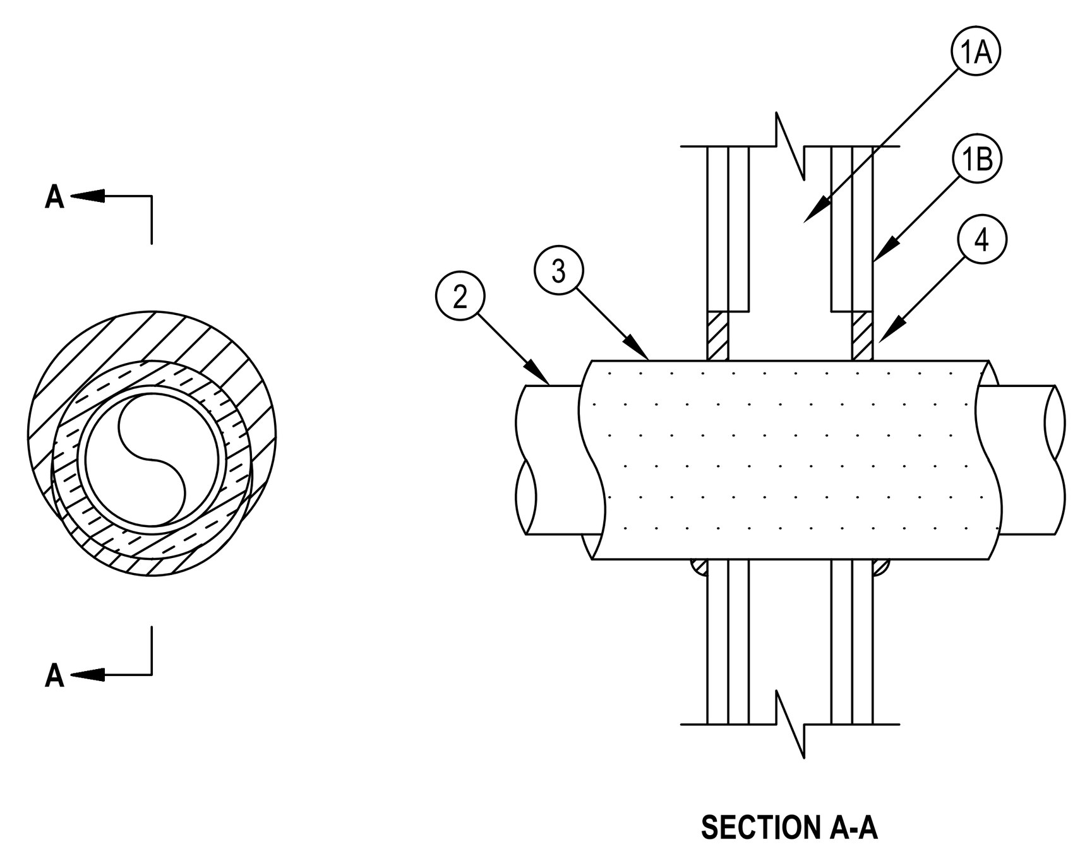
Occupancy	Area (sqft)	Occ. Density (ppl/1000 sqft)	# People	CFM/Sqft	CFM/Person	Area CFM	People CFM	Total Gross CFM	Vent. Eff*	Req'd CFM
BAR	247	15	3.705	0.12	7.5	30	28	57	1.0	57
DISH	35	15	1	0.12	7.5	4	8	12	1.0	12
ENTRY	239	Oper Openings:	12	Sqft	12	/	239	5.0%	>4.0%	0
									Total Req'd CFM	69
									Supplied CFM	70

*Ceiling Supply Cool Air (Space will be unoccupied or only partially occupied when in heating)

WL 5028

System No. W-L-5028

F Ratings - 1 and 2 Hr (See Item 1)
T Ratings - 3/4 Hr
L Rating at Ambient - Less Than 1 CFM/sq ft
L Rating at 400 F - Less Than 1 CFM/sq ft



SECTION A-A

1. Wall Assembly — The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. Studs — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2-1/2 in. wide and spaced max 24 in. OC.
B. Gypsum Board* — 5/8 in. thick, 4 ft wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design. Max diam of opening is 7-1/2 in.
The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

2. Through Penetrants — One metallic pipe or tubing to be centered within the firestop system. Pipe or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes or tubing may be used:

A. Steel Pipe — Nom 4 in. diam (or smaller) Schedule 40 (or heavier) steel pipe.
B. Copper Tubing — Nom 2 in. diam (or smaller) Type L (or heavier) copper tubing.
C. Copper Pipe — Nom 2 in. diam (or smaller) Regular (or heavier) copper pipe.

3. Tube Insulation — Plastics+ — Nom 3/4 in. thick acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing. An annular space of min 0 in. (point contact) to max 1-1/2 in. is required within the firestop system.

See Plastics+ (QMFZ2) category in the Recognized Component Directory for names of manufacturers. Any Recognized Component tube insulation material meeting the above specifications and having a UL 94 Flammability Classification of 94-5VA may be used.
The hour T Rating of the firestop system is dependent on the hourly fire rating of the wall assembly in which it is installed, the size and type of through penetrant and the pipe covering thickness, as shown in the table below:

Wall Assembly Hr Rating	Type +	Through Penetrant Max Diam In.
1	A	4
1	A, B, or C	2
2	A	4
2	A, B, or C	2

+Indicates penetrant type as itemized in Item 2.

4. Fill, Void or Cavity Material* — Sealant — Min 5/8 in. thickness of fill material applied within the annulus, flush with both surfaces of wall. At the point contact location between pipe covering and gypsum wallboard, a min 1/2 in. diam bead of fill material shall be applied at the pipe covering/gypsum wallboard interface on both surfaces of wall.

HILTI CONSTRUCTION CHEMICALS, DIV OF
HILTI INC — FS-ONE Sealant

*Bearing the UL Classification Mark

Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. February 08, 2006

C UL US

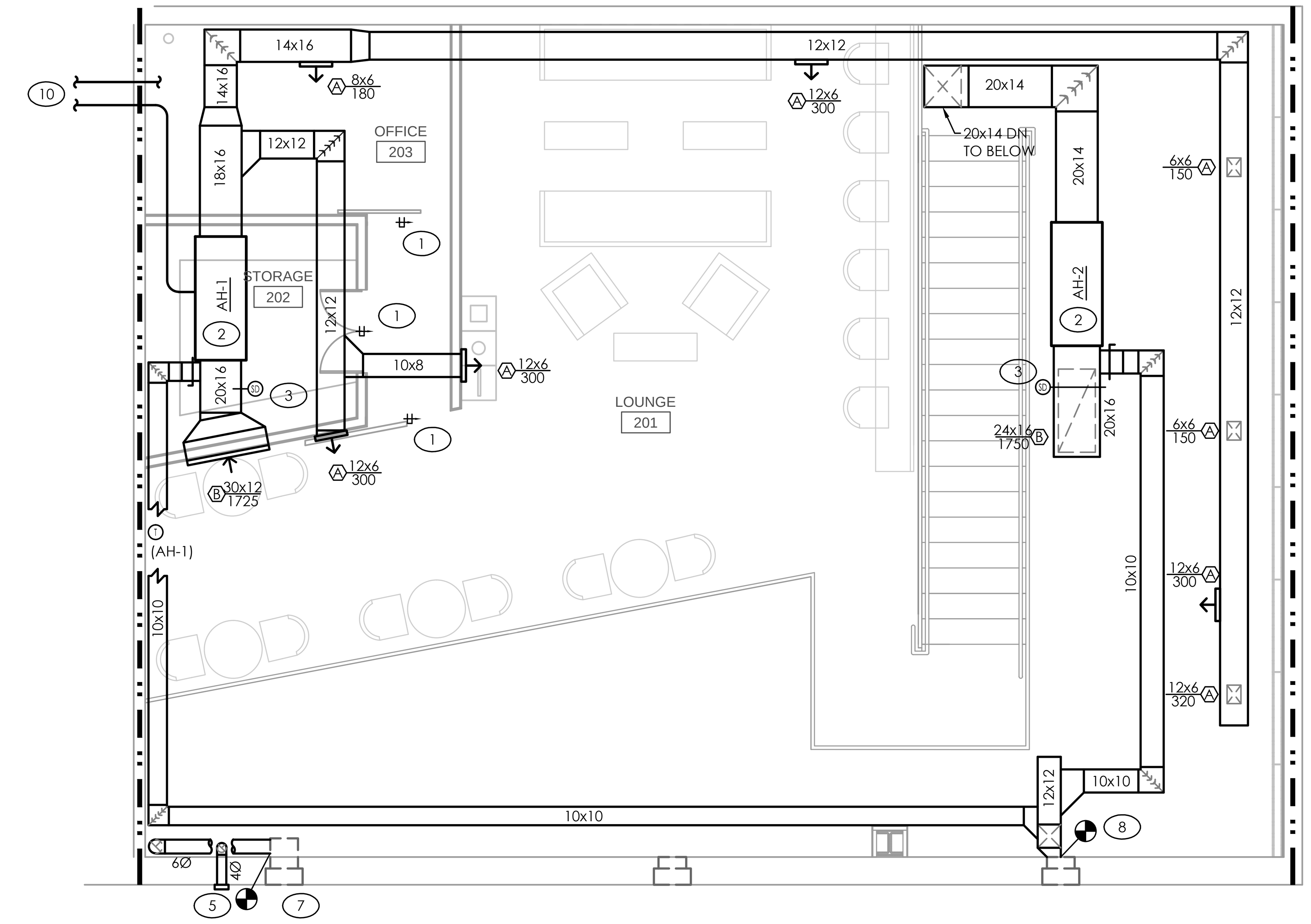
3 LINE SET PENETRATION DETAIL (2 HR, GYPSUM)
NO SCALE

TAGGED NOTES - THIS SHEET

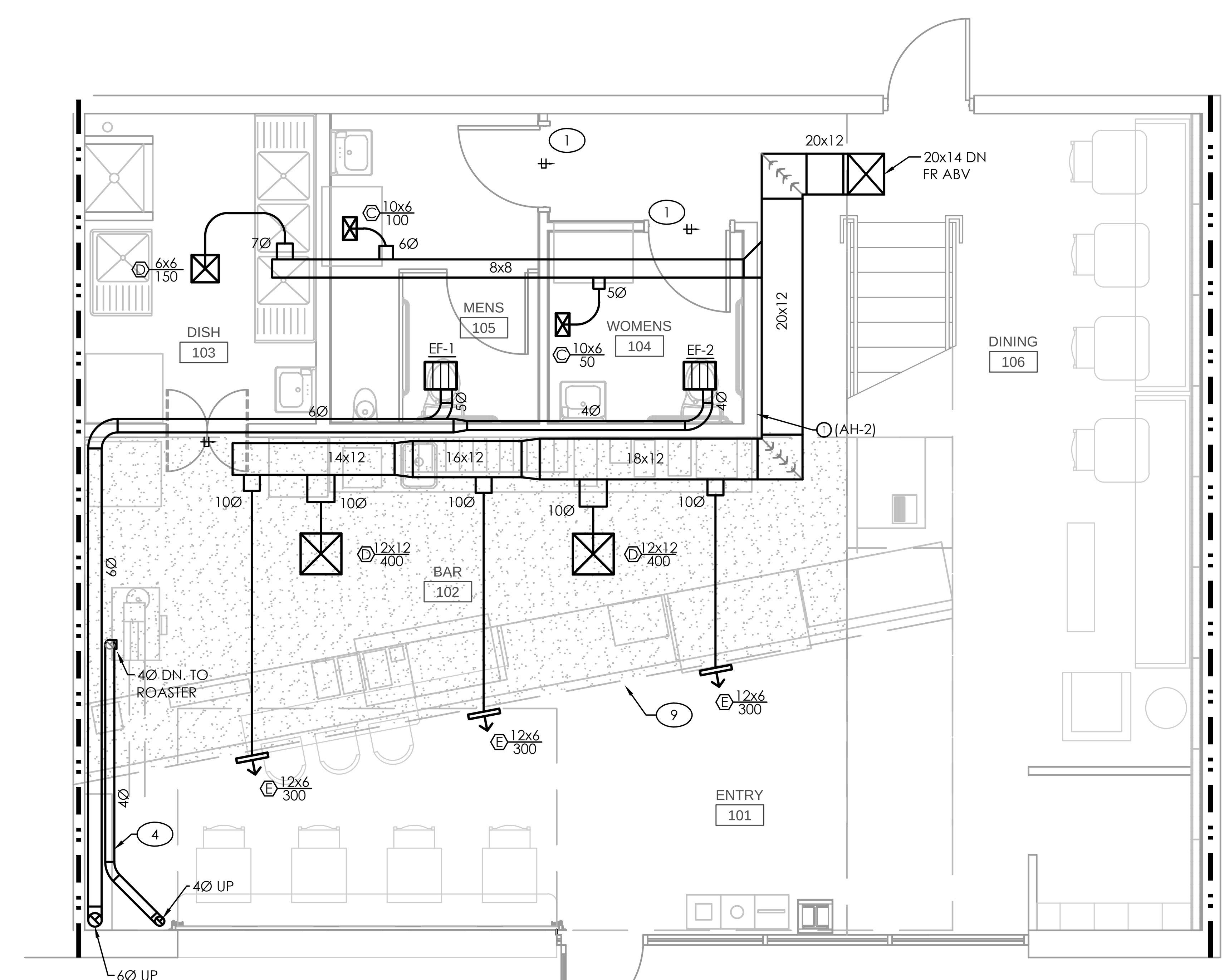
1. ¾" DOOR UNDERCUT.
2. SUSPENDED AIR HANDLER. SEE DETAIL. PUMP CONDENSATE TO AREA STORM DRAIN. PROVIDE BACKWATER VALVE.
3. DUCT MOUNTED SMOKE DETECTOR. SEE DETAIL.
4. 4Ø EXHAUST FLUE FROM SMOKER. COORDINATE EXACT MATERIAL AND INSTALLATION W/ ROASTER MFG. ENSURE REQUIRED CLEARANCES AND SLOPE ARE MAINTAINED.
5. TERMINATION OF 4Ø EXHAUST FLUE FROM SMOKER. INSTALL IN ACCORDANCE W/ MFG'S INSTRUCTIONS AND 2012 NCFGC SEC. 503.8. COORDINATE LOCATION W/ G.C., OWNER AND LANDLORD BEFORE BEGINNING WORK.
6. NOT USED.
7. EXISTING EXHAUST LOUVER. M.C. TO CONFIRM SOURCE OF ANY EXISTING CONNECTED DUCTWORK. RE-WORK EXISTING DUCTWORK AS NECESSARY. M.C. TO ENSURE EXHAUST AND OUTSIDE AIR DUCTS DO NOT CONNECT TO SAME LOUVER.
8. EXISTING OUTSIDE AIR LOUVER. M.C. TO CONFIRM SOURCE OF ANY EXISTING CONNECTED DUCTWORK. RE-WORK EXISTING DUCTWORK AS NECESSARY. M.C. TO ENSURE EXHAUST AND OUTSIDE AIR DUCTS DO NOT CONNECT TO SAME LOUVER.
9. BULKHEAD ABOVE BAR. SEE ARCH. PLANS.
10. REFRIGERANT LINES TO BE ROUTED TO ROOF CHASE IN NORTH WEST CORNER OF ADJACENT SUITE. FIELD VERIFY EXACT LOCATION AND ROUTING. COORDINATE POSSIBLE RE-USE OF EXISTING LINESETS WITH G.C. AND LANDLORD.

GENERAL NOTES - THIS SHEET

1. ITEMS SHOWN IN FAINT & HATCHED ARE TO BE DEMO'D OR RELOCATED. ITEMS SHOWN IN FAINT ARE EXISTING TO REMAIN. NEW OR RELOCATED ITEMS ARE SHOWN IN BOLD. SEE LEGEND.
2. ALL EXPOSED DUCT IN COFFEE SHOP ARE MUST BE INTERNALLY INSULATED. AREA EQUIPMENT PRODUCES STEAM AND HIGH HUMIDITY. CONDENSATION ON DUCTS WILL OCCUR IF NOT INSULATED.
3. UNLESS OTHERWISE NOTED DUCTWORK TO BE ROUTED TIGHT TO STRUCTURE.
4. GYPSUM CEILING IS PRESENT IN DISH ROOM, BATHROOMS, AND OVER COFFEE BAR. EXPOSED CEILING ELSEWHERE. SEE ARCH PLANS.



2 MECHANICAL PLAN - 2ND FLOOR
SCALE: 1/4" = 1'-0"



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

FIRE RATING LEGEND
2-HR WALL
*2ND FLR CEIL. IS 2-HR RATED

Andrew Osterlund ARCHITECT, PLLC
GREEN | URBAN | SMART ARCHITECTURE
19 WEST HARGETT STREET #700
RALEIGH, NORTH CAROLINA 27601
www.aoarchitect.com

MAPLE ENGINEERING, PLLC
1405 HILLSBOROUGH ST
RALEIGH, NC 27605 LIC.#: P-0990
P:919-341-4247 F:919-890-3797
PLUMBING MECHANICAL ELECTRICAL

PROJECT No.: 1301

CAFE DE LOS MUERTOS
Raleigh, North Carolina

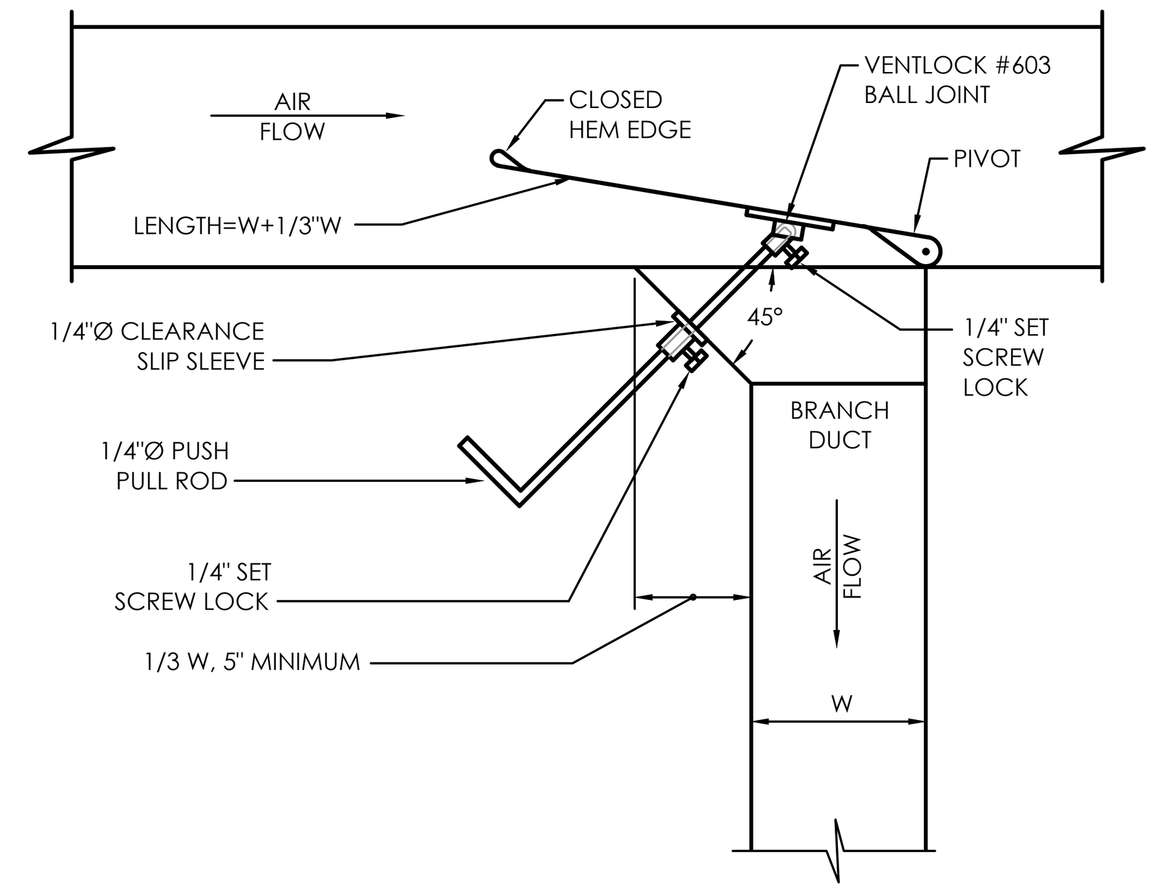
SEALS:
NORTH CAROLINA PROFESSIONAL SEAL 037509 ENGINEER ... L. TOMLIN
[illegible]
4/21/13

ISSUE: PERMIT SET
DATE: 4/21/13
DRAWN BY: CLR/JMS/RSA
REVISIONS:

MECHANICAL PLAN & DETAILS

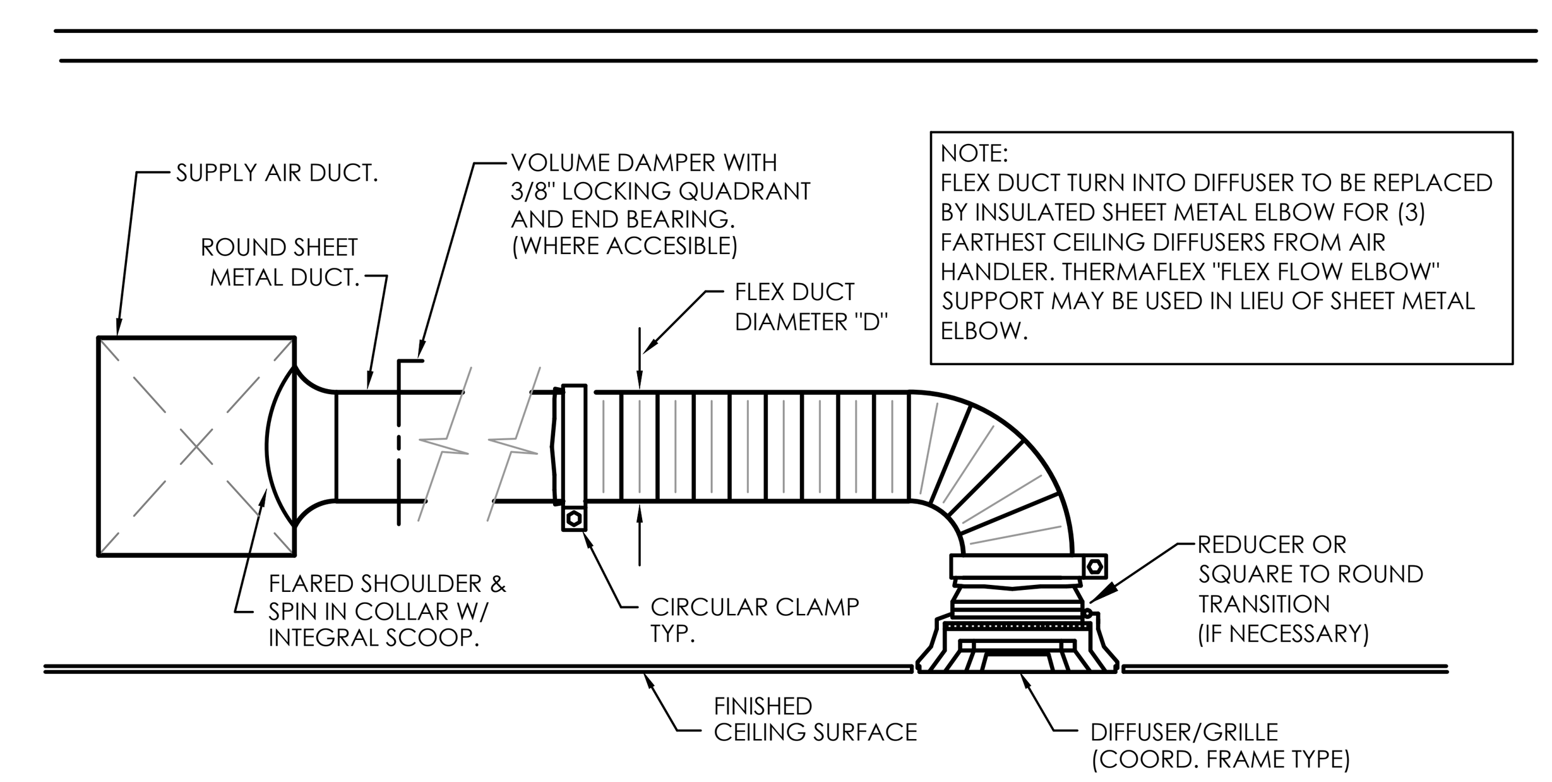
M-02

4/21/2013 6:52 PM
AOA-1301-M02.DWG



NOTES:
1. SEE FLOOR PLANS AND SPECIFICATIONS FOR DUCT INSULATION REQUIREMENTS.
2. TAP OFF TOP/SIDE/BOTTOM OF DUCT AS REQUIRED

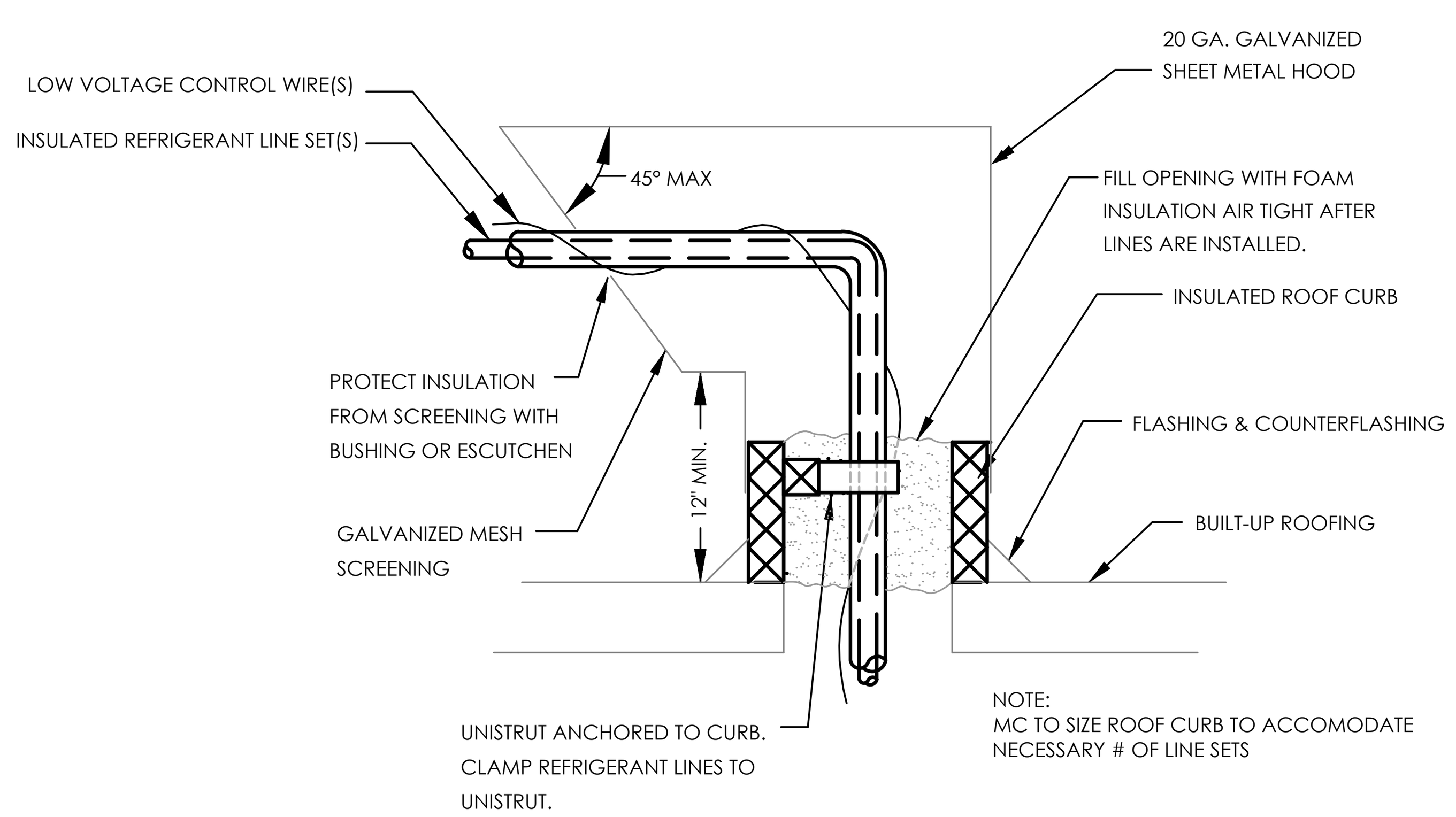
5 BRANCH TAKE-OFF TO MULTIPLE OUTLETS
NO SCALE



NOTE:
FLEX DUCT TURN INTO DIFFUSER TO BE REPLACED BY INSULATED SHEET METAL ELBOW FOR (3) FARTHEST CEILING DIFFUSERS FROM AIR HANDLER. THERMAFLEX "FLEX FLOW ELBOW" SUPPORT MAY BE USED IN LIEU OF SHEET METAL ELBOW.

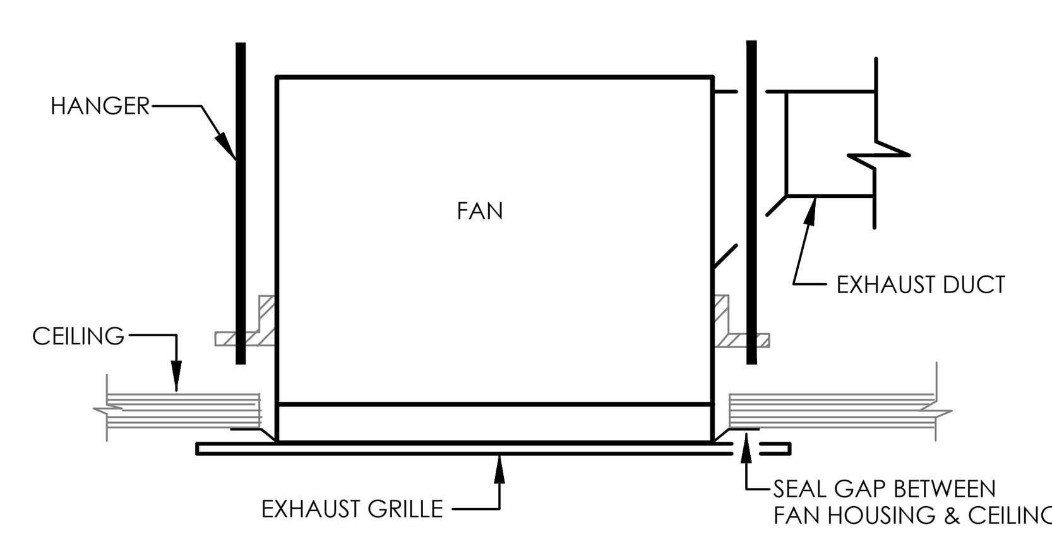
NOTES:
1. PROVIDE INSULATED REGISTER BOOT/PLENUM BOX IF NECESSARY.
2. RETURN APPLICATION IS SIMILAR. ALL ELBOWS IN RETURN APPLICATION TO BE INSULATED SHEET METAL (NO FLEX ELBOWS).

4 DIFFUSER DETAIL
NO SCALE



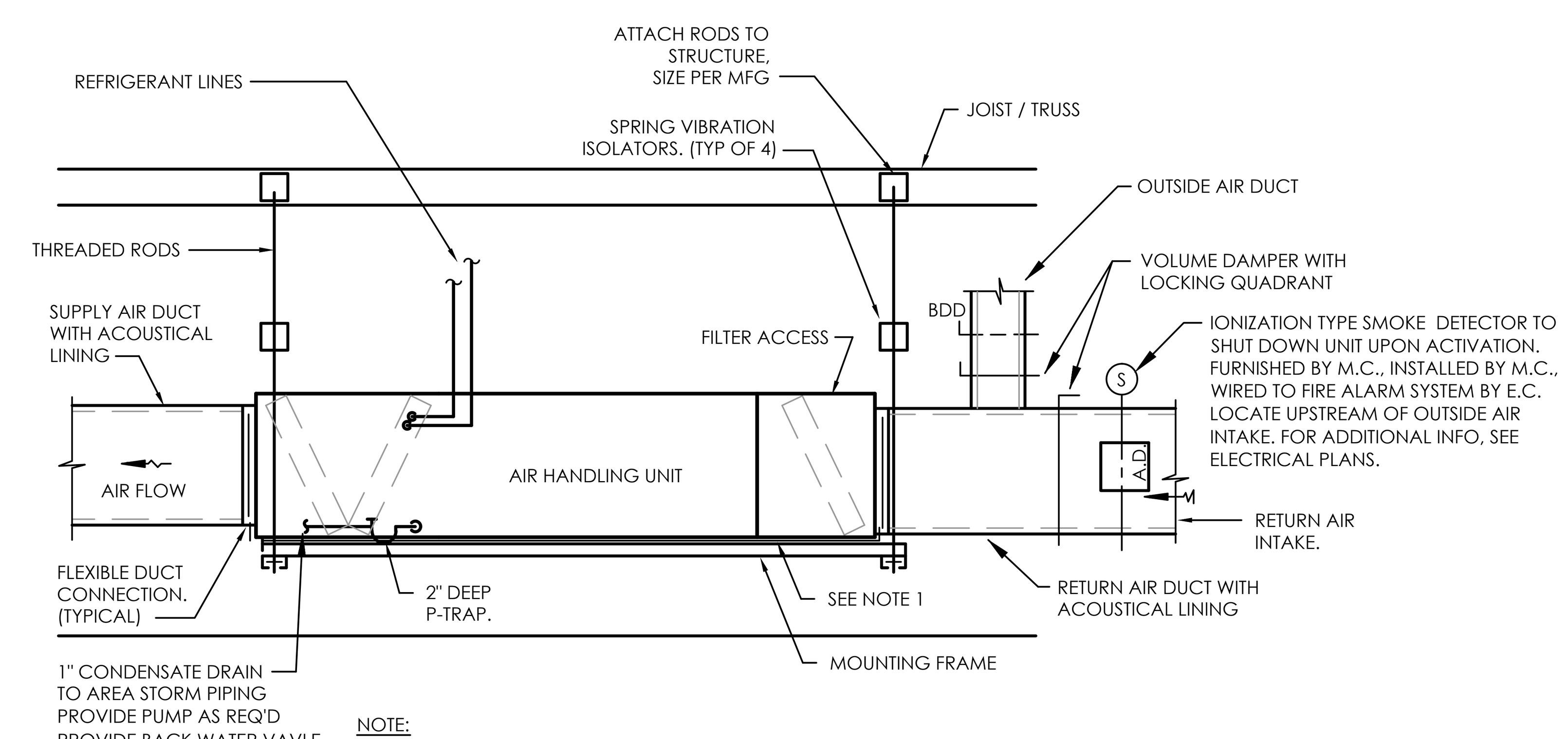
NOTE:
MC TO SIZE ROOF CURB TO ACCOMODATE NECESSARY # OF LINE SETS

3 ROOF PENETRATION DETAIL
NO SCALE



NOTES:
1. IF FAN IS EQUIPPED W/ INTERNAL BDD ENSURE BDD IS NOT TAPED SHUT.
2. ENSURE NO PORTION OF TAPE, SEALING, ETC EXTENDS PAST EDGE OF EXHAUST GRILLE.
3. INSTALLATION IN HARD-CEILING SIMILAR. FAN TO BE FASTENED TO RAFTER/JOIST. SEE MFG INSTRUCTIONS.

2 EXHAUST FAN (CEILING) DETAIL
NO SCALE



NOTE:
1. AUXILIARY DRAIN PAN WITH MICROFLOAT SWITCH. INTERLOCK FLOAT SWITCH WITH AIR HANDLER. INSTALL FLOAT SWITCH IN ONE CORNER OF PAN AND TILT PAN TO THAT CORNER.

1 AIR HANDLING UNIT DETAIL
NO SCALE

4/21/2013 6:52 PM
AOA-1301-M03.DWG

Andrew Osterlund
ARCHITECT, PLLC
GREEN | URBAN | SMART ARCHITECTURE
19 WEST HARGETT STREET #700
RALEIGH, NORTH CAROLINA 27601
www.aoarchitect.com

MAPLE
ENGINEERING, PLLC
1405 HILLSBOROUGH ST
RALEIGH, NC 27605 LIC.#: P-0990
P:919-341-4247 F:919-890-3797
PLUMBING MECHANICAL ELECTRICAL

PROJECT No.: 1301

CAFE DE LOS MUERTOS
Raleigh, North Carolina

SEALS:
NORTH CAROLINA PROFESSIONAL SEAL 037509 ENGINEER ZACK L. TOMLIN
4/21/13

ISSUE: PERMIT SET
DATE: 4/21/13
DRAWN BY: CLR/JMS/RSA
REVISIONS:

MECHANICAL DETAILS

M-03

GENERAL ELECTRICAL NOTES

I. GENERAL REQUIREMENTS:

1. ELECTRICAL CONTRACTOR IS TO FURNISH AND PAY FOR ALL LABOR, MATERIAL, EQUIPMENT, PERMITS & FEES REQUIRED FOR THE COMPLETE INSTALLATION OF ALL SYSTEMS IN THIS SECTION OF WORK.
2. ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH NEC AND ALL OTHER APPLICABLE CODES. EC IS TO COORDINATE W/ G.C. IN REGARDS TO PROJECT TIMELINE, WORK HOURS, AS WELL AS ANY BONDING OR INSURANCE REQUIREMENTS.
3. ALL ELECTRICAL & LIGHTING EQUIPMENT SHALL BE PROVIDED COMPLETE WITH ALL ACCESSORIES, HANGERS, SUPPORTS, CONTROLS, ETC FOR A FULLY FUNCTIONING SYSTEM REGARDLESS OF PRESENCE ON PLANS.
4. ALL EQUIPMENT, MATERIALS AND INSTALLATION SHALL BE GUARANTEED TO BE FREE OF DEFECTS FOR A PERIOD OF ONE (1) YEAR AFTER FINAL ACCEPTANCE OF WORK OR IN ACCORDANCE WITH THE MANUFACTURER'S STANDARD GUARANTEE, IF LONGER. EXISTING EQUIPMENT IS EXCLUDED FROM WARRANTY REQUIREMENT.
5. THESE DRAWINGS ARE DIAGRAMMATIC AND SHOW GENERAL LOCATION AND ARRANGEMENT OF ALL MATERIALS AND EQUIPMENT. THE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS BUILDING CONSTRUCTION AND ALL OTHER WORK WILL PERMIT.
6. DO NO SCALE DRAWINGS FOR MEASUREMENT.
7. INFORMATION GIVEN IN SCHEDULES INCLUDES BOTH DESCRIPTION OF PRODUCT AND MANUFACTURER'S MODEL #. IF CONFLICT IS PRESENT BETWEEN DESCRIPTION AND MODEL #, EQUIPMENT DESCRIPTION SHALL TAKE PRECEDENT. IN CASE OF CONFLICT BETWEEN THE PLANS AND NOTES/SPECIFICATIONS OR CONFLICT BETWEEN INFORMATION PRESENTED ON THE PLANS OR IN THE NOTES/SPECIFICATIONS, THEN THE MOST RESTRICTIVE SHALL TAKE PRECEDENT.
8. BEFORE BID EC IS RESPONSIBLE FOR CLARIFYING W/ G.C. ANY CONFUSION IN REGARDS TO RESPONSIBILITY OF WORK TO BE PERFORMED OR MATERIALS TO BE PROVIDED. THE SUBMITTAL OF THE BID BY THE CONTRACTOR WILL BE HELD AS PROOF THAT THE CONTRACTOR UNDERSTANDS THOROUGHLY AND COMPLETELY THE SCOPE OF THE WORK INVOLVED, AND HAS INCLUDED ON THE BID ALL THE NECESSARY ITEMS TO CARRY OUT THIS SECTION OF WORK.
9. AS SOON AS POSSIBLE (AND NOT MORE THAN 30 DAYS) AFTER CONTRACT IS SIGNED, THE EC SHALL PROVIDE SUBMITTALS OF EQUIPMENT HE/SHE INTENDS TO PURCHASE FOR REVIEW AND COMMENT BY THE ENGINEER. ENGINEER IS TO APPROVE SUBMITTALS BEFORE EQUIPMENT IS ORDERED.
10. ALL EXISTING EQUIPMENT AND SYSTEMS ARE ASSUMED BY ENGINEER TO BE IN GOOD WORKING ORDER. BEFORE BEGINNING WORK E.C. IS TO ENSURE ANY EQUIPMENT & SYSTEMS TO REMAIN ARE PROPERLY FUNCTIONING. NOTIFY G.C. IMMEDIATELY IF PROBLEMS ARE DISCOVERED.
11. ALL QUESTIONS MUST BE SUBMITTED IN RFI FORMAT TO THE ARCHITECT AND MUST BE ADDRESSED BY THE APPROPRIATE DESIGNER OF RECORD PROIR TO BECOMING A PROPOSED CHANGE ORDER.

II. DIVISION OF WORK:

1. ALL LOW VOLTAGE WIRING RELATED TO MECHANICAL EQUIPMENT AND SYSTEMS IS THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR (ANY LOW VOLTAGE FIRE ALARM WIRING TO BE BY E.C.). ALL HIGH VOLTAGE CONNECTIONS TO MECHANICAL EQUIPMENT, TO BE PROVIDED AND INSTALLED BY E.C. (SEE EQUIPMENT SCHEDULE FOR DISCONNECT RESPONSIBILITY).
2. G.C. TO BE RESPONSIBLE FOR PROVIDING AND INSTALLING ANY ACCESS DOORS (WALL, FLOOR, CEILING) RELATED TO ELECTRICAL SYSTEM. E.C. RESPONSIBLE FOR COMMUNICATING TO G.C. SIZE AND LOCATION OF REQ'D ACCESS DOOR(S).
3. ELECTRICAL CONTRACTOR IS TO EMPLOY THE SERVICES OF THE G.C. FOR CUTTING AND PATCHING OF WALLS, FLOORS & CEILINGS RELATED TO THE INSTALLATION OF ELECTRICAL EQUIPMENT & SYSTEMS.
4. G.C. RESPONSIBLE FOR PAINTING OF ANY EXPOSED CONDUIT, WIRE, BOXES ETC. E.C. RESPONSIBLE FOR CLEANING AND PREPARING ITEMS FOR PAINT, COORDINATE W/ G.C.
5. E.C. TO COORDINATE W/ G.C. PRIOR TO BID REGARDING HIRING OF FIRE ALARM, DATA/TELE & SECURITY SUB-CONTRACTORS (IF APPLICABLE).

III. MATERIALS:

1. ALL MATERIAL, DEVICES, APPLIANCES, AND EQUIPMENT SHALL BE NEW UNLESS OTHERWISE NOTED AND SHALL CONFORM TO THE STANDARDS OF THE UNDERWRITER'S LABORATORIES, INC., AND THE NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION.
2. ALL MATERIALS INSTALLED IN RETURN PLENUM ARE TO BE PLENUM RATED.
3. PROVIDE HANGERS & SUPPORTS APPROVED FOR USE BY NEC.
4. ALL FIRE SEALANTS TO BE U.L. LISTED AND APPROVED FOR USE W/ APPROPRIATE U.L. PENETRATION DETAIL.
5. CONDUCTORS SHALL BE COPPER RATED AT NOT LESS THAN 600 VOLTS.MINIMUM SIZE SHALL BE #12 AWG UNLESS OTHERWISE NOTED ON THE DRAWINGS. ALL WIRE #8 AWG AND LARGER SHALL BE STRANDED. ALL CONDUCTORS #10 AND SMALLER MAY BE SOLID OR STRANDED, UNLESS OTHERWISE NOTED. CONDUCTOR INSULATION SHALL BE TYPE THHN UNLESS OTHERWISE NOTED. ALL EXTERIOR CABLE OR OTHER WIRE EXPOSED TO SUNLIGHT SHALL BE RATED FOR EXTERIOR USE & SUNLIGHT RESISTANT.
6. ALL WIRING SHALL BE INSTALLED IN GALVANIZED RIGID CONDUIT, INTERMEDIATE METAL CONDUIT, OR EMT, EXCEPT AS ALLOWED BELOW. EMT SHALL NOT BE USED IN OR UNDER CONCRETE SLABS, OR IN MASONRY WALLS. USE SCHEDULE 40 PVC OUTDOORS WHERE NOT SUBJECT TO PHYSICAL DAMAGE OR BELOW FLOOR SLAB. MINIMUM CONDUIT SIZE TO BE 1/2". TYPE MC AND AC CABLE MAY BE USED WHERE PERMISSIBLE BY NEC. FLEXIBLE CONDUIT SHALL BE USED FOR CONNECTIONS TO VIBRATING EQUIPMENT AND LUMINAIRES, BUT SHALL NOT EXCEED 6' IN LENGTH.
7. METAL CONDUIT COUPLINGS TO BE COMPRESSION TYPE OR THREADED WHEN ACCESSIBLE TO BUILDING OCCUPANTS. METAL COUNDUIT COUPLINGS MAY BE SET-SCREW TYPE WHEN CONCEALED IN BUILDING STRUCTURE OR LOCATED MORE THAN 10' AFF. PLASTIC CONDUIT COUPLINGS TO BE SOCKET GLUED TYPE.
8. FUSES 0 - 600 AMPS SHALL BE UL CLASS "RK-1" LOW PEAK DUAL ELEMENT TIME DELAY WITH 200,000 AMPERE INTERRUPTING RATING AS MANUFACTURED BY BUSSMANN, UNLESS NOTED OTHERWISE.
9. ALL TERMINALS/LUGS SHALL BE 60/75° RATED. ALL TERMINALS, SPLICING CONNECTORS, LUGS, ETC SHALL BE IDENTIFIED FOR USE WITH THE MATERIAL (CU/AL) OF THE CONDUCTOR AND SHALL BE PROPERLY INSTALLED.
10. RECEPTACLES IN COMMERCIAL AREAS SHALL BE 20 AMP COMMERCIAL SPECIFICATION GRADE EQUAL TO HUBBELL SERIES. GROUND FAULT RECEPTACLES SHALL BE EQUAL TO COOPER VGF SERIES.
11. LIGHTING SWITCHES SHALL BE 20 AMP COMMERCIAL SPECIFICATION GRADE EQUAL TO HUBBELL SERIES.
12. ALL EXTERIOR FIXTURES AND DEVICES SHALL BE RATED FOR OPERATION AT 0° F AND SHALL BE DAMP OR WET LABELED AS REQUIRED.

IV. COORDINATION:

1. THE ELECTRICAL CONTRACTOR SHALL COORDINATE CLOSELY WITH ALL OTHER TRADES TO AVOID CONFLICT AND ENSURE OTHER TRADES PROVIDE MEASURES TO ACCOMMODATE ELECTRICAL WORK (I.E. ACCESS DOORS, SLAB/WALL/ROOF OPENINGS, ETC).
2. LOCATE LIGHTS IN ACCORDANCE WITH ARCHITECTURAL REFLECTED CEILING PLANS (IF PROVIDED).
3. E.C. TO COORDINATE ELEVATION OF WALL MOUNTED LIGHTS (INTERIOR & EXTERIOR) W/ ARCHITECT/ARCH PLANS.
4. E.C. TO COORDINATE W/ P.C. & M.C. REGARDING POWER AND FIRE ALARM CONNECTIONS TO MECHANICAL AND PLUMBING EQUIPMENT.
5. E.C. TO VERIFY ALL REQUIREMENTS AND COORDINATE EXACT LOCATION OF INCOMING ELECTRICAL SERVICE WITH LOCAL POWER COMPANY PRIOR TO PROJECT START-UP. NOTIFY ENGINEER OF ANY CHANGES AS MAY BE REQUIRED.
6. E.C. TO VERIFY DEVICE PLATE COLOR AND MATERIAL WITH ARCHITECT PRIOR TO PURCHASE.

V. EXECUTION:

1. E.C. TO FOLLOW MANUFACTURER'S INSTRUCTIONS WHEN INSTALLING ELECTRICAL EQUIPMENT. ENSURE REQUIRED MAINTENANCE ACCESS AND CLEARANCES ARE MAINTAINED. IF CONFLICT EXISTS BETWEEN THESE PLANS AND MFG INSTRUCTIONS CONTACT ENGINEER.
2. A COMPLETE GROUNDING SYSTEM SHALL BE PROVIDED AND INSTALLED IN ACCORDANCE WITH ARTICLE 250 OF THE NEC, AND AS SHOWN ON THE DRAWINGS.
3. PROVIDE A PULLWIRE IN ALL EMPTY CONDUITS.
4. PROVIDE A TYPED DIRECTORY IN ALL PANELBOARDS CLEARLY DESCRIBING THE LOCATION OF AND TYPE OF LOAD BEING SERVED FOR ALL CIRCUITS. PROVIDE ENGRAVED PHENOLIC NAMEPLATES FOR ALL PANELBOARDS AND DISCONNECT SWITCHES, WHITE LETTERS ON BLACK BACKGROUND.
5. PROVIDE LABELING ON SERVICE EQUIPMENT INDICATING AVAILABLE FAULT CURRENT IN ACCORDANCE W/ NEC 110.24.
6. ALL PENETRATIONS THROUGH EXTERIOR WALLS & ROOF SHALL BE FLASHED & COUNTER-FLASHED IN A WATERPROOF MANNER.
7. SEAL ALL PENETRATIONS OF SMOKE PARTITIONS OR FIRE RATED WALLS, CEILING, FLOORS IN ACCORDANCE W/ APPROPRIATE U.L. PENETRATION DETAIL AND NC BUILDING CODE.
8. PENETRATIONS OF NON-RATED WALLS, PARTITIONS AND FLOOR OF COMBUSTIBLE CONSTRUCTION SHALL BE FIRESTOPPED WITH MATERIALS EQUIVALENT TO TWO INCHES OF WOOD. FIRESTOPPING SHALL COMPLY WITH ASTM E-814.
9. ANY NOTCHING, DRILLING, BORING OR OTHER ALTERATION TO BUILDING STRUCTURE SHALL BE PERFORMED IN A CODE APPROVED METHOD AND NOT THREATEN THE INTEGRITY OF THE BUILDING STRUCTURE.
10. SUPPORT ALL CONDUIT AND EQUIPMENT IN ACCORDANCE W/ NEC. ANY SUSPENDED MATERIALS SHALL BE DIRECTLY SUPPORTED BY THE BUILDING STRUCTURE.
11. PENETRATIONS OF ALL EXTERIOR WALLS, FLOORS AND CEILINGS SHALL BE SEALED IN AN AIR TIGHT MANNER AND IN ACCORDANCE W/ 2012 NCECC APPENDIX 2 DETAILS.
12. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL ELECTRICAL EQUIPMENT FROM FOREIGN MATERIAL DURING CONSTRUCTION (PAINT, SPACKLE, ETC.). UPON COMPLETION OF WORK THE ELECTRICAL CONTRACTOR SHALL CLEAN, WASH, ETC ALL ITEMS AND EQUIPMENT WITHIN HIS SCOPE OF WORK AND LEAVE ALL ITEMS BRIGHT AND CLEAN.
13. IN REQUIRED FIRE RATED WALLS AND PARTITIONS, OPENINGS FOR INSTALLATION OF BOXES THAT ARE GREATER THAN 16 SQUARE INCHES SHALL BE PROTECTED AS REQUIRED BY U.L.
14. UNLESS OTHERWISE INDICATED THE ELECTRICAL CONTRACTOR AT HIS/HER DISCRETION MAY COMBINE MULTIPLE CIRCUITS INTO A SINGLE CONDUIT AND DE-RATE WIRE. COMBINING AND DE-RATING IS TO BE DONE IN STRICT ACCORDANCE W/ NEC.
15. DEVICES INCLUDING GFCI PROTECTION MUST HAVE THEIR TESTING MEANS READILY ACCESSIBLE. PROVIDE REMOTE TESTING MEANS OR GFCI BREAKER FOR GFCI RECEPTACLES AND SIMILAR DEVICES WHICH ARE NOT READILY ACCESSIBLE (I.E. BEHIND EQUIPMENT, AT CEILING, ETC). (NEC 210.8).
16. COORDINATE WITH THE CABLE TV AND TELEPHONE UTILITIES FOR SERVICE ENTRANCE AND CABLING REQUIREMENTS PRIOR TO ANY PURCHASING. INSTALLATION MUST COMPLY WITH THEIR RESPECTIVE REGULATIONS AND REQUIREMENTS.
17. ALL EXIT & EMERGENCY LIGHTS ARE TO BE CIRCUITED TO UN-SWITCHED LEG OF LOCAL NORMALLY ON LIGHTING CIRCUIT.
18. RECEPTACLE, LIGHT SWITCHES AND OTHER CONTROL DEVICES ARE TO BE INSTALLED IN ACCORDANCE W/ ANSI A117.1 AND ADA REQ'S CONCERNING HEIGHT AND ACCESSIBILITY. FHA REQ'S TO BE FOLLOWED FOR MULTI-FAMILY AND RESIDENTIAL PROJECTS.

LIGHTING FIXTURE SCHEDULE

MARK	MANUF.	CATALOG NUMBER	LAMP DATA NO.	LAMP DATA TYPE	VOLTS	BALLAST DATA NO.	BALLAST DATA TYPE	INPUT WATTS	MOUNTING	DESCRIPTION
A	PHILLIPS	SM120V	2	31W LED	120V	1	DRIVER	62W MAX	SURFACE	2X4 LED SURFACE MOUNTED
B	BY OWNER	-	-	-	120V	-	-	60W MAX	PENDANT	STAR PENDANT, SELECTION BY OTHERS.
C	GOTHAM	8" EVO CYL	1	25W LED	120V	1	DRIVER	25W	SURFACE	CEILING MOUNTED CAN LIGHT
C1	LITHONIA	DOM6 LED	1	16W LED	120V	1	DRIVER	16W	RECESSED	RECESSED 6" LED DOWNLIGHT
G	BY OWNER	-	-	-	120V	-	-	60W MAX	WALL	TIN WALL SCONCE, SELECTION BY OTHERS.
H	JUNO	GS.7.0	1	4.8 W LED	120V	1	DRIVER	4.8W	RECESSED	4" LED SPOT, CEILING MOUNTED
J	BY OWNER	-	-	-	120V	-	-	10W MAX	SURFACE	ROPE LIGHT MOUNTED IN CURIO BOX. SELECTION BY OTHERS, COORDINATE INSTALL W/ ARCH.
K	BY OWNER	-	-	-	120V	-	-	30W MAX	PENDANT	LENSED DECORATIVE PENDANT, SELECTION BY OTHERS.
L	JUNO	TF25TL	1	13 W LED	120V	1	DRIVER	13W	TRACK	SINGLE CIRCUIT LOW VOLTAGE TRACK W/ LED LENSED HEADS. EXACT HEAD TYPE BY OTHERS.
M	BY OWNER	-	-	-	120V	-	-	30W MAX	PENDANT	DECORATIVE PENDANT, SELECTION BY OTHERS.
	LITHONIA	LHQM	2	5.4 W T-5	120, 277	-	-	3.3	WALL	EXIT-EMERGENCY LIGHT COMBO. (2) ADJ. HEADS. BATTERY BACK-UP. RED ILLUMINATED EXIT SIGN. HOUSING COLOR BY ARCH.
	LITHONIA	ELM2	2	5.4 W	120, 277	-	-	1.2	SEE PLAN	GEN. PURPOSE EMERGENCY LIGHT. (2) ADJ. HEADS. BATTERY BACK-UP.
	LITHONIA	ELAT QWP	2	1.5W LED	120, 277	-	-	-	SEE PLAN	REMOTE EXTERIOR EMERGENCY LIGHT. TWIN HEAD. BATTERY BACK-UP (CAN BE WIRED TO EXIT UNIT). WET LOCATION LISTED.

NOTES:
1. UNLESS OTHERWISE NOTED COLOR & FINISH OF FIXTURE HOUSING, BAFFLE, OR SIMILAR EXPOSED ELEMENTS TO BE BY ARCHITECT.
2. WHERE MASTER SLAVE WIRING CONFIGURATIONS IS INDICATED THE CONTRACTOR SHALL VERIFY THE QUANTITY AND TYPE OF BALLASTS REQUIRED TO PERMIT BI-LEVEL SWITCHING. WHERE BI-LEVEL LIGHTING IS INDICATED INBOARD AND OUTBOARD LAMPS SHALL BE SWITCHED SEPARATELY.
3. EXIT AND EMERGENCY LIGHTING FIXTURES SHALL BE CIRCUITED TO AN UNSWITCHED LEG OF A NORMALLY ON LOCAL LIGHTING CIRCUIT (UNLESS NOTED OTHERWISE),INCLUDE 90 MINUTE BATTERY BACKUP & TESTING MEANS.
4. PROVIDE DISCONNECT FOR LUMINAIRES WITH LINEAR FLUORESCENT LAMPS AND/OR SERVICEABLE BALLASTS PER NEC 410.130(G).
5. FIXTURES WITH A STANDARD FACTORY INSTALLED EMERGENCY OPTION SHOULD USE THAT WHERE "EMC" IS SHOWN.
6. ALL LAMPS OF A SINGLE FIXTURE TYPE INSTALLED IN EACH AREA/ROOM/SPACE ARE TO BE OF SAME TEMPERATURE/COLOR.

LIGHTING SYSTEMS
NCECC SECTION 505 & 506

LIGHTING POWER DENSITY CALCULATION COMPLIANCE

INTERIOR LIGHTING POWER DENSITY CALCULATION PER TABLE 505.5.2. SEE LIGHTING FIXTURE SCHEDULE FOR FIXTURE INFORMATION.

INTERIOR WATTAGE SPECIFIED VS. ALLOWED 2,050 VS. 2,512

EXTERIOR LIGHTING POWER DENSITY CALCULATION PER TABLE 505.6.2. SEE LIGHTING FIXTURE SCHEDULE FOR FIXTURE INFORMATION.

TRADABLE EXTERIOR WATTAGE SPECIFIED VS. ALLOWED EXIST VS. EXIST
NONTRADABLE EXTERIOR WATTAGE SPECIFIED VS. ALLOWED N/A VS. N/A

DESIGNER STATEMENT:

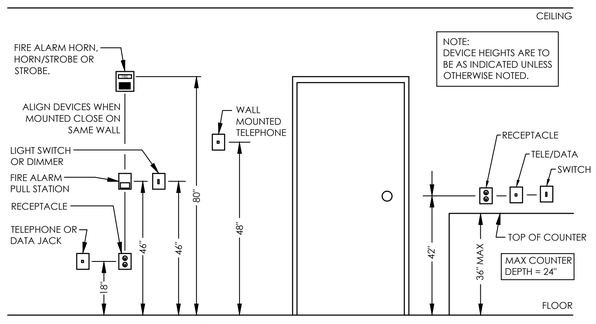
TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE DESIGN OF THIS BUILDING COMPLIES WITH THE LIGHTING SYSTEMS REQUIREMENTS OF THE NORTH CAROLINA ENERGY CONSERVATION CODE, SECTION 505 & 506 AND ANY LOCAL AMENDMENTS THEREOF.

SIGNED:
NAME: JACK L. TOMLIN, PE
TITLE: ELECTRICAL ENGINEER

ADDITIONAL PRESCRIPTIVE COMPLIANCE

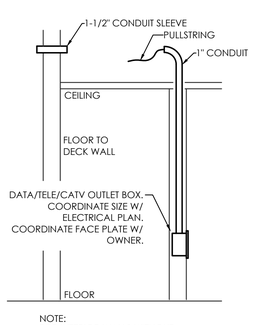
NOT APPLICABLE (RENOVATION PROJECT)		506.2.4 HIGHER EFFICIENCY SERVICE WATER HEATING	
506.2.1 MORE EFFICIENT MECHANICAL EQUIPMENT		506.2.5 ON-SITE SUPPLY OF RENEWABLE ENERGY	
506.2.2 REDUCED LIGHTING POWER DENSITY	X	506.2.6 AUTOMATIC DAYLIGHTING CONTROL SYSTEMS	
506.2.3 ENERGY RECOVERY VENTILATION SYSTEM			

NOTE:
CONFIRM ALL LIGHT SELECTIONS W/ OWNER & ARCHITECT BEFORE BID & PURCHASE.



NOTE:
MOUNTING LOCATIONS OF RECEPTACLES, SWITCHES AND ALL OTHER CONTROL DEVICES SHALL BE IN ACCORDANCE WITH ANSI A117.1 AND ADA REQUIREMENTS (FHA REQ'S FOR MULTI-FAMILY AND RESIDENTIAL PROJECTS)

2 TYPICAL DEVICE MOUNTING HEIGHTS
NO SCALE



NOTE:
FOR INTERIOR WALLS WITHOUT INSULATION. E.C. MAY OMIT CONDUIT & OUTLET BOX. PROVIDE PULL STRING & PLASTER RING.

1 DATA/TELE/CATV OUTLET
NO SCALE

ELECTRICAL SYMBOL LEGEND

	CIRCUIT CONDUCTORS CONCEALED IN FLOOR, WALL OR CEILING.
	ARROWHEAD INDICATES HOMERUN TO PANEL NOTED.
//	INDICATES HOT LEG OF CIRCUIT TO BE CARRIED OVER TO NEXT DEVICE. SEE PLANS FOR CONTROL SCHEME.
J	JUNCTION BOX CEILING MOUNTED.
J	JUNCTION BOX FLOOR MOUNTED.
J	JUNCTION BOX WALL MOUNTED AT HEIGHT INDICATED ON DRAWINGS.
S	SINGLE POLE SWITCH, 20A, 120/277 VOLT, 48" A.F.F. TO CENTER. "3" INDICATES 3-WAY SWITCH. "4" INDICATES 4-WAY SWITCH. "D" INDICATES DIMMER SWITCH OF TYPE TO SUIT LOAD. "K" INDICATES KEY OPERATED SWITCH. "M" INDICATES 120V, 20A MOTOR RATED TOGGLE SWITCH.
SS	INDICATES FLUORESCENT FIXTURES DUAL SWITCHED, INBOARD/OUTBOARD SWITCHED SEPARATELY.
	SINGLE RECEPTACLE, 20 AMP, 120 VOLT, 18" A.F.F. TO CENTER.
	DUPLEX RECEPTACLE, 20 AMP (15 AMP RESIDENTIAL, UON), 120 VOLT, 18" A.F.F. TO CENTER. "GFI" INDICATES GROUND FAULT CIRCUIT INTERRUPTER TYPE. "WP" INDICATES WEATHERPROOF. "ASW" ABOVE SHOW WINDOW. POSITION RECEPTACLE IN ACCORANCE W/ NEC REQ'S.
	QUADRUPLEX RECEPTACLE, AS ABOVE, 18" A.F.F.
	DUPLEX RECEPTACLE, AS ABOVE, SPLIT WIRED, TOP HALF SWITCHED, 18" A.F.F.
	DUPLEX RECEPTACLE, AS ABOVE, MOUNTED 6" ABOVE COUNTER TOP OR 4" ABOVE BACKSPLASH, AS APPROPRIATE, OR AT HEIGHT INDICATED.
	DUPLEX RECEPTACLE, AS ABOVE, MOUNTED 6" ABOVE COUNTER TOP OR 4" ABOVE BACKSPLASH, AS APPROPRIATE, OR AT HEIGHT INDICATED, WITH GFI PROTECTION.
	RECESSED FLUSH FLOOR DUPLEX RECEPTACLE WITH BRASS COVERPLATE. COORDINATE EXACT FINISH WITH ARCHITECT AND OWNER.
	208V RECEPTACLE. SEE PLANS FOR NEMA CONFIGURATION.
	TELEPHONE OUTLET, 18" A.F.F. TO CENTER OR ALIGN MOUNTING HEIGHT WITH ADJACENT DEVICE, UNLESS OTHERWISE NOTED. PROVIDE ¾" CONDUIT TO ACCESSIBLE CEILING. ALIGN MOUNTING HEIGHT WITH ADJACENT DEVICE.
	DATA OUTLET, 18" A.F.F. TO CENTER OR ALIGN MOUNTING HEIGHT WITH ADJACENT DEVICE, UNLESS OTHERWISE NOTED. PROVIDE 1" CONDUIT TO ACCESSIBLE CEILING.
	TELEPHONE/DATA OUTLET, 18" A.F.F. TO CENTER OR ALIGN MOUNTING HEIGHT WITH ADJACENT DEVICE, UNLESS OTHERWISE NOTED. PROVIDE 1" CONDUIT TO ACCESSIBLE CEILING.
30/3/FPN	HEAVY DUTY FUSIBLE/NON-FUSIBLE DISCONNECT SWITCH, NUMBERS INDICATE FRAME SIZE, NUMBER OF POLES AND FUSING. PROVIDE NEMA 1 ENCLOSURE INSIDE. PROVIDE NEMA 3 ENCLOSURE FOR ALL SWITCHES LOCATED OUTSIDE. "FPN" INDICATES FUSE PER EQUIPMENT NAMEPLATE "NF" INDICATES NON-FUSED. "MS" INDICATES MOTOR STARTER OF TYPE TO SUIT LOAD.
	208Y/120V PANEL, SURFACE OR RECESS MOUNTED, SEE SCHEDULE FOR DETAILS.
	480Y/277V PANEL, SURFACE OR RECESS MOUNTED, SEE SCHEDULE FOR DETAILS.
EF	FAN, PROVIDED AND INSTALLED BY MECHANICAL CONTRACTOR, WIRED BY ELECTRICAL CONTRACTOR. PROVIDE DISCONNECTING MEANS AS REQUIRED.
WH	WATER HEATER, PROVIDED AND INSTALLED BY PLUMBING CONTRACTOR, WIRED BY ELECTRICAL CONTRACTOR. PROVIDE DISCONNECTING MEANS AS REQUIRED.
	RECESSED MOUNTED 2x4 FLUORESCENT TROFFER, SEE FIXTURE SCHEDULE FOR DETAILS.
	TRACK LIGHTING FIXTURE, SEE FIXTURE SCHEDULE FOR DETAILS.
	SURFACE MOUNTED FLUORESCENT STRIP, SEE FIXTURE SCHEDULE FOR DETAILS.
	WALL MOUNTED LIGHTING FIXTURE, SEE FIXTURE SCHEDULE FOR DETAILS.
	SURFACE, RECESSED OR GROUND MOUNTED LIGHTING FIXTURE, SEE FIXTURE SCHEDULE FOR DETAILS.
	ELECTRIC UTILITY METER LOCATION.
###	KITCHEN EQUIPMENT TAG.
	DEMO'D LIGHT FIXTURE OR SIMILAR.
	DEMO'D RECEPTACLE OR SIMILAR.

ELECTRICAL ABBREVIATIONS

18"	DIMENSION INDICATES HEIGHT ABOVE FINISHED FLOOR AT WHICH CENTER OF DEVICE IS TO BE MOUNTED.
AFF	ABOVE FINISHED FLOOR.
AFG	ABOVE FINISHED GRADE.
E.C.	ELECTRICAL CONTRACTOR.
FPN	FUSE PER EQUIPMENT NAMEPLATE REQUIREMENTS.
G.C.	GENERAL CONTRACTOR.
M.C.	MECHANICAL CONTRACTOR.
P.C.	PLUMBING CONTRACTOR.
WP	INDICATES DEVICE TO HAVE WEATHERPROOF COVER.
UON	UNLESS OTHERWISE NOTED.
FACP	FIRE ALARM CONTROL PANEL.
SMP	SPRINKLER MONITORING PANEL.
NL	NIGHT LIGHT, LIGHT NOT SWITCHED.

MOTION SENSOR LEGEND

MS	WALL SWITCH MICROPHONIC OCCUPANCY SENSOR EQUAL TO SENSOR SWITCH MODEL WS PDT, TIME DELAYS 10 MINUTES FOR ON/OFF. NOTE: THE CONTRACTOR IS TO PROVIDE AND INSTALL ALL RELAYS, CONTROLS, SWITCHES, ETC FOR A FULLY FUNCTIONING SYSTEM REGARDLESS OF PRESENCE OR ABSENCE ON PLANS.

Andrew Osterlund ARCHITECT, PLLC
GREEN | URBAN | SMART ARCHITECTURE
19 WEST HARGETT STREET #700
RALEIGH, NORTH CAROLINA 27601
www.aoarchitect.com

MAPLE ENGINEERING, PLLC
1405 HILLSBOROUGH ST. RALEIGH, NC 27605 | N.C. F. P-0990
P.919-341-4247 F. 919-890-3797
PLUMBING MECHANICAL ELECTRICAL

PROJECT NO.: 1301

CAFE DE LOS MUERTOS
Raleigh, North Carolina

SEALS:

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 030705 JACK L. TOMLIN JR.
4/21/13

ISSUE: PERMIT SET
DATE: 4/21/13
DRAWN BY: CLR/JMS/RSA

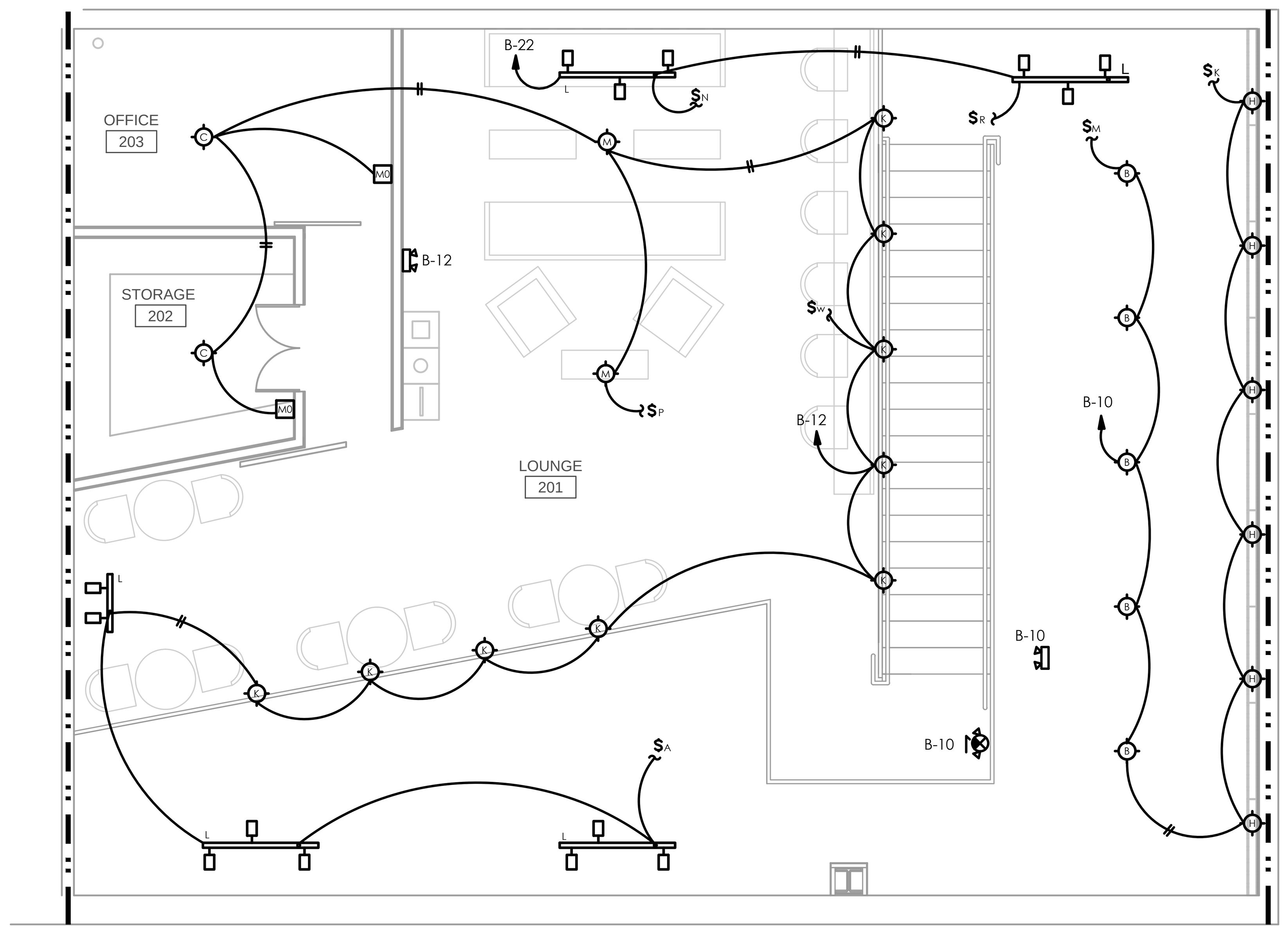
REVISIONS:

ELECTRICAL SCHED, NOTES & DETAILS

E-01

4/21/2013 6:51 PM
AOA-1301-E01.DWG

FIRE RATING LEGEND
▬ ▪▪ ▬ 2-HR WALL
*2ND FLR CEIL. IS 2-HR RATED

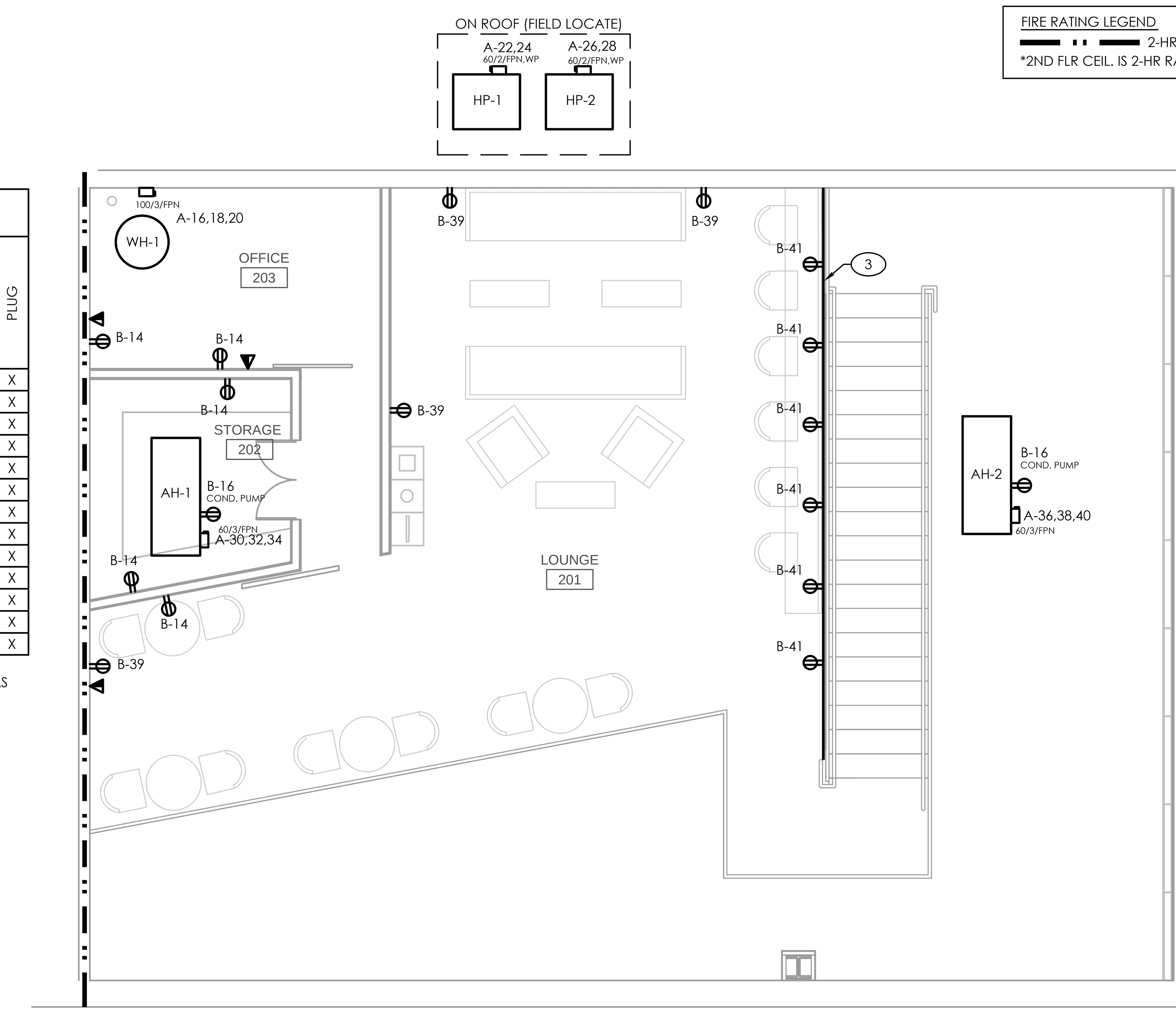


4 LIGHTING PLAN - 2ND FLOOR
SCALE: 1/4" = 1'-0"

EQUIPMENT SCHEDULE

ITEM #	QTY.	DESCRIPTION	VOLT	PHASE	AMPS	DIR. CONN.	PLUG
E1	1	COFFEE ROASTER	120	1	5.0	-	X
E2	1	ESPRESSO MACHINE	208	1	26.9	-	X
E3	1	COFFEE MACHINE	208	1	24.5	-	X
E4	1	GRINDER-ESPRESSO #1	120	1	4.6	-	X
E5	1	GRINDER-ESPRESSO #2	120	1	3.3	-	X
E6	1	GRINDER-ESPRESSO #3	120	1	2.5	-	X
E7	1	GRINDER - COFFEE #1	120	1	9.2	-	X
E8	1	UNDER COUNTER FRIDGE	120	1	5.0	-	X
E9	1	2 DOOR FRIDGE	120	1	5.0	-	X
E10	1	ICE MAKER	120	1	6.5	-	X
E11	1	REFRIGERATED DELI CASE	120	1	15.8	-	X
E13	1	NON-VENTED CONV. OVEN	208	1	30.0	-	X
E20	1	TEA MAKER	120	1	13.8	-	X

NOTE:
E.C. TO VERIFY EXACT QTY, TYPE & LOCATION OF EQUIPMENT CONNECTIONS AS WELL AS NAMEPLATE VALUES BEFORE BEGINNING WORK.



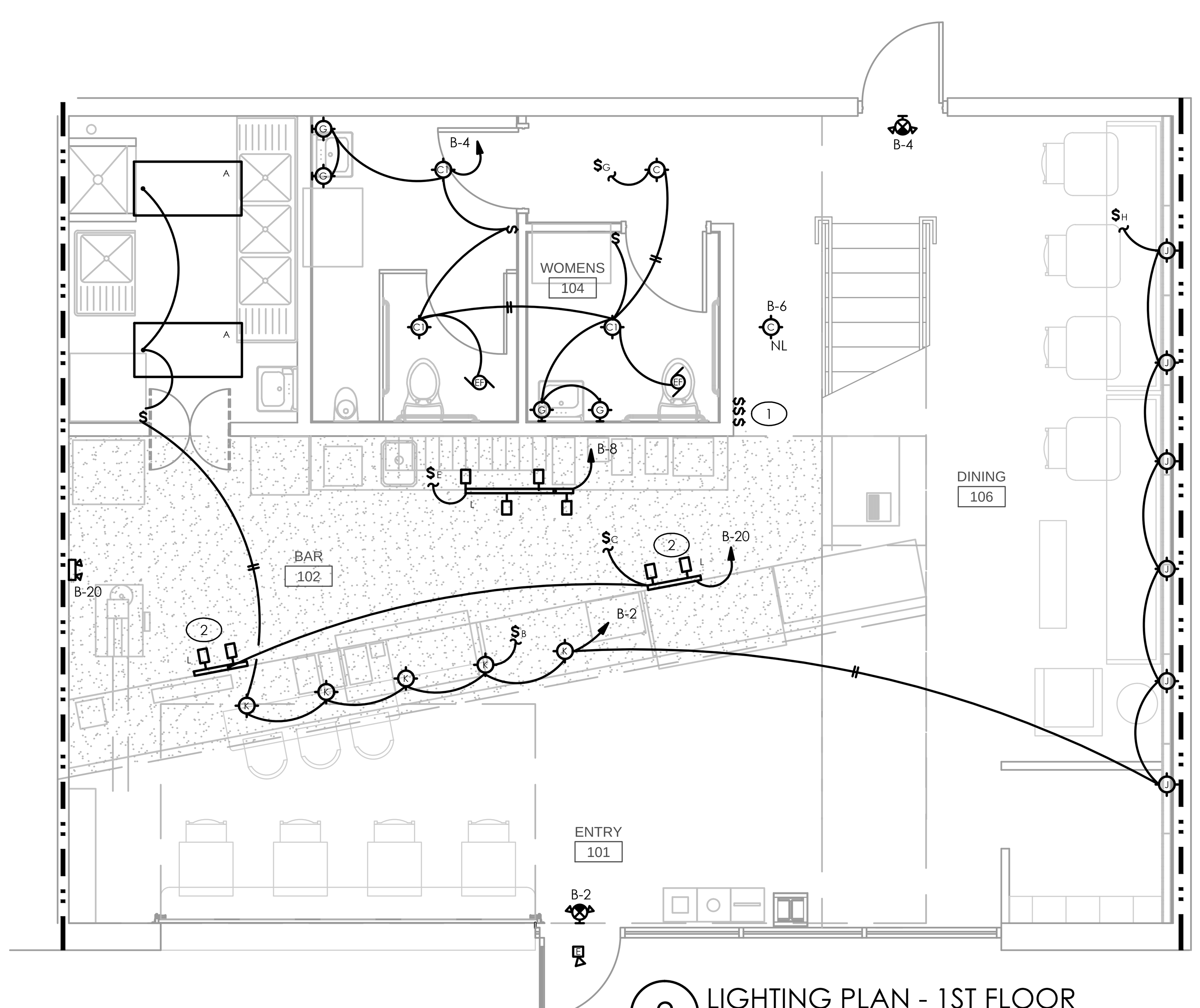
3 POWER PLAN - 2ND FLOOR
SCALE: 1/4" = 1'-0"

TAGGED NOTES - THIS SHEET

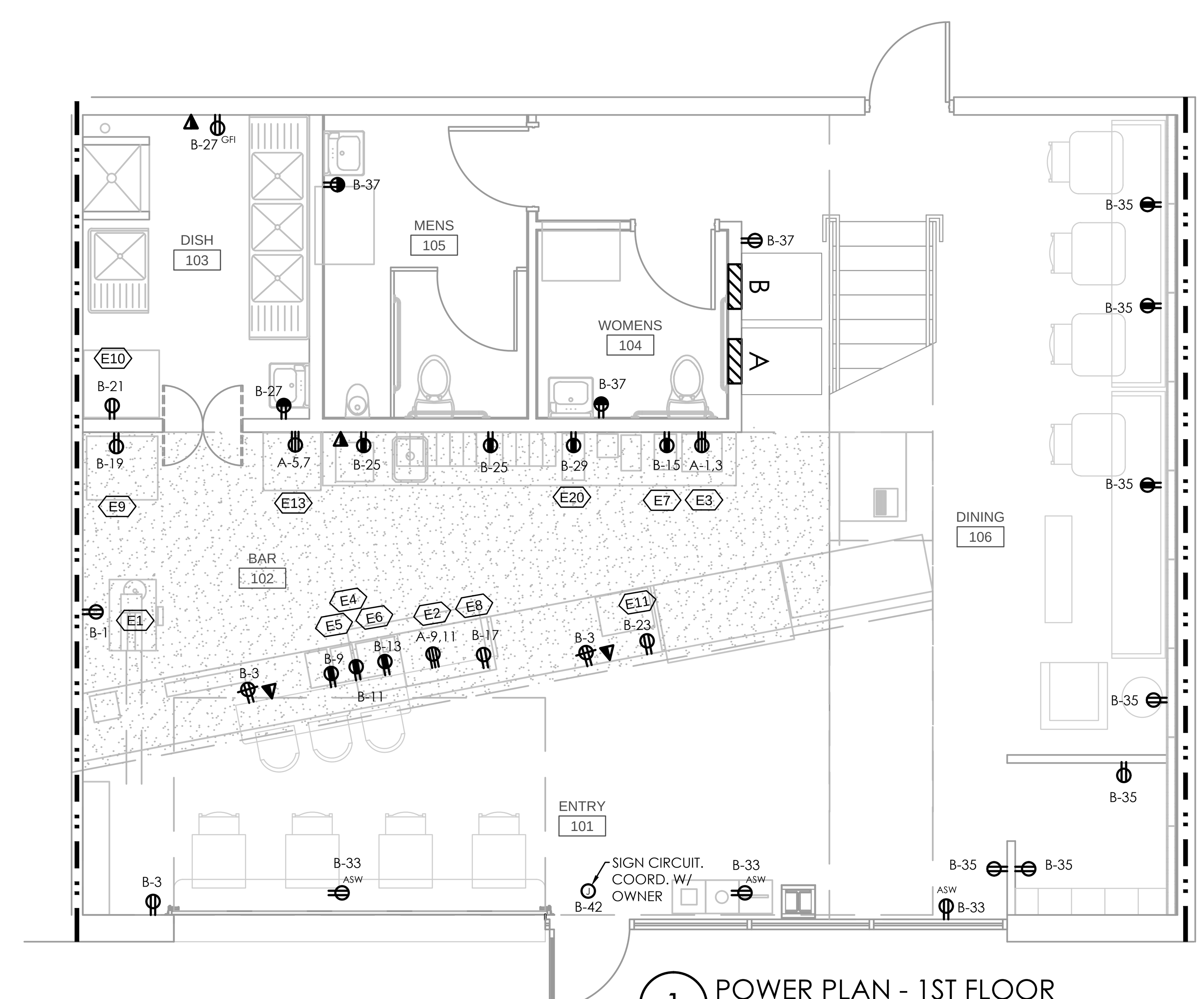
1. PROPOSED SWITCH BANK LOCATION. COORDINATE EXACT LOCATION W/ OWNER.
2. TRACK LIGHT TO BE MOUNTED ON SIDE OF BULKHEAD. COORDINATE W/ ARCH.
3. PLUG MOLD ON TOP OF COUNTER BACK SPLASH. COORDINATE W/ ARCH. COLOR BY ARCH.

GENERAL NOTES - THIS SHEET

1. GYPSUM CEILING IN DISH RM, BATHROOMS AND OVER COFFEE BAR. EXPOSED CEILINGS ELSEWHERE. SEE ARCH PLANS.
2. DO NOT WIRE ANY EXIT OR EMERGENCY LIGHTS TO SAME CIRCUIT AS NIGHT LIGHTS.



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



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

4/21/2013 6:51 PM
AOA-1301-E02.DWG

Andrew Osterlund
ARCHITECT, PLLC
GREEN | URBAN | SMART ARCHITECTURE
19 WEST HARGETT STREET #700
RALEIGH, NORTH CAROLINA 27601
www.aoarchitect.com

MAPLE
ENGINEERING, PLLC
1405 HILLSBOROUGH ST
RALEIGH, NC 27605 LIC.#: P-0990
P:919-341-4247 F:919-890-3797
PLUMBING MECHANICAL ELECTRICAL

PROJECT No.: 1301

CAFE DE LOS MUERTOS
Raleigh, North Carolina

SEALS:
NORTH CAROLINA PROFESSIONAL SEAL 037509 ENGINEER ZACK L. TOMLIN
[illegible]
4/21/13

ISSUE: PERMIT SET
DATE: 4/21/13
DRAWN BY: CLR/JMS/RSA
REVISIONS:

ELECTRICAL PLAN

E-02

HALLWAY												3 PHASE, 4 WIRE
VOLTAGE: 208Y/120V				PANEL: A								FLUSH MOUNTED
AMPS: 400-MLO				LOAD PER PHASE								NEMA 1
-DESCRIPTION-	POLE	WIRE SIZE	BRK SIZE	CKT #	A	B	C	CKT #	BRK SIZE	WIRE SIZE	POLE	-DESCRIPTION-
COFFEE MACHINE	2	10	30	1	2.5 4.4			2	200	3/0	3	PANEL B
				3		2.6 6.8		4				
CONVECTION OVEN	2	8	40	5			3.1 9.3	6				
				7	3.1 0			8	-	-	1	SPACE
ESPRESSO MACHINE	2	8	40	9		4.7 0		10	-	-	1	SPACE
				11			4.7 0	12	-	-	1	SPACE
SPACE	1	-	-	13	0 0			14	-	-	1	SPACE
SPACE	1	-	-	15		0 8.0		16	90	2	3	WH-1
SPACE	1	-	-	17			0 8.0	18				
SPACE	1	-	-	19	0 8.0			20				
SPACE	1	-	-	21		0 3.5		22	60	6	2	HP-1
SPACE	1	-	-	23			0 3.5	24				
SPACE	1	-	-	25	0 3.5			26	60	6	2	HP-2
SPACE	1	-	-	27		0 3.5		28				
SPACE	1	-	-	29			0 3.8	30	50	6	3	AH-1
SPACE	1	-	-	31	0 3.8			32				
SPACE	1	-	-	33		0 3.8		34				
SPACE	1	-	-	35			0 3.8	36	50	6	3	AH-2
SPACE	1	-	-	37	0 3.8			38				
SPACE	1	-	-	39		0 3.8		40				
SPACE	1	-	-	41			0 0	42	-	-	1	SPACE
					29.1	36.7	36.2					
TOTAL CONNECTED kVA:					102.0			DEMAND kVA: 113.9				
PANEL RMS SYM. AMPS: SEE RISER								DEMAND AMPS: 316.1				

1. PANEL SHALL BE EQUAL TO SQUARE D NQ.
2. PROVIDE HACR BREAKERS FOR HVAC EQUIPMENT.

PANEL "A" LOAD SUMMARY

LOAD TYPE (LOADS ON 350 AMP DISC @ METER)		kVA CONN.	DEM. FACT.	kVA DEM.
LIGHTS (2000 SQFT. @ 3 W/SQFT > CONN. LOAD)		6.0	1.25	7.5
TRACK LIGHTS		2.3	1.25	2.9
RECEPTACLES	1st 10 kVA	7.0	1.0	7.0
	REMAINDER	0.0	0.5	0.0
	SHOW-WINDOW (26 FEET @ 125%)	0.6	10.8	6.5
HVAC & R	ELEC HEAT	23.0	1.00	23.0
	LARGEST MOTOR	7.0	1.25	8.8
	REMAINDER	7.4	1.0	7.4
WATER HEATER (ELECTRIC)		24.0	1.25	30.0
KITCHEN EQUIPMENT	# PIECES COOKING EQUIPMENT: 13	29.2	0.65	19.0
COND. PUMP		0.4	1.0	0.4
SIGN CIRCUIT		1.2	1.25	1.5
MISCELLANEOUS		0.0	1.0	0.0
	TOTALS	108.1		113.9
TOTAL AMPS @ 208 V	3 PHASE	316.1		

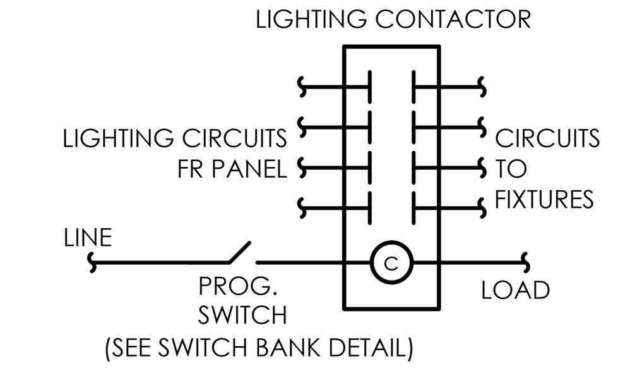
NOTE:
LOAD SUMMARY FOR PANEL "A" INCLUDES LOADS FROM PANEL "B".

	HALLWAY												3 PHASE, 4 WIRE	
	VOLTAGE: 208Y/120V				PANEL: B								FLUSH MOUNTED	
	AMPS: 200-MLO				LOAD PER PHASE								NEMA 1	
	-DESCRIPTION-	POLE	WIRE SIZE	BRK SIZE	CKT #	A	B	C	CKT #	BRK SIZE	WIRE SIZE	POLE	-DESCRIPTION-	
GFI	COFFEE ROASTER	1	12	20	1	0.6 0.3			2	20	12	1	LTS: DINING/ ENTRY/ BAR	C
GFI	REC: BAR COUNTER	1	12	20	3		1.0 0.3		4	20	12	1	LTS: RESTROOMS	C
	SPARE	1	-	20	5			0 0.1	6	20	12	1	LTS: NIGHT LIGHTS	
	SPARE	1	-	20	7	0 0.3			8	20	12	1	LTS: BAR TRACK	C
GFI	GRINDER: ESPRESSO	1	12	20	9		0.5 0.3		10	20	12	1	LTS: OVERHEAD DINING	C
GFI	GRINDER: ESPRESSO	1	12	20	11			0.4 0.8	12	20	12	1	LTS: LOUNGE	C
GFI	GRINDER: ESPRESSO	1	12	20	13	0.3 1.0			14	20	12	1	REC: OFFICE/CONFERENCE	
GFI	GRINDER: COFFEE	1	12	20	15		1.1 0.4		16	20	12	1	COND. PUMP	
GFI	UNDER COUNTER FRIDGE	1	12	20	17			0.6 0	18	-	-	1	SPACE	
GFI	2 DOOR FRIDGE	1	12	20	19	0.6 0.3			20	20	12	1	LTS: TRACK BAR	C
GFI	ICE MAKER	1	12	20	21		0.8 0.6		22	20	12	1	LTS: TRCK OVRHEAD DINING	C
GFI	DELI CASE	1	12	20	23			1.9 0	24	-	-	1	SPACE	
GFI	REC: BAR COUNTER	1	12	20	25	0.4 0			26	-	-	1	SPACE	
GFI	REC: KITCHEN	1	12	20	27		0.4 0		28	-	-	1	SPACE	
GFI	TEA MAKER	1	12	20	29			1.7 0	30	-	-	1	SPACE	
	SPACE	1	-	-	31	0 0			32	-	-	1	SPACE	
	REC: SHOW WINDOW	1	12	20	33		0.6 0		34	-	-	1	SPACE	
	REC: DINING	1	12	20	35			1.4 0	36	-	-	1	SPACE	
	REC: RESTROOM	1	12	20	37	0.6 0			38	-	-	1	SPACE	
	REC: LOUNGE	1	12	20	39		0.8 0		40	-	-	1	SPACE	
	REC: LOUNGE PLUG MOLD	1	12	20	41			1.2 1.2	42	20	12	1	SIGN CIRCUIT	TC
						4.4	6.8	9.3						
	TOTAL CONNECTED kVA:					20.5			DEMAND kVA: 31.1					
	PANEL RMS SYM. AMPS: SEE RISER								DEMAND AMPS: 86.3					

1. PANEL SHALL BE EQUAL TO SQUARE D NQ.
2. PROVIDE SWD/HID RATED BREAKERS FOR LIGHTING CIRCUITS.
3. PROVIDE HACR BREAKERS FOR HVAC EQUIPMENT.
4. GFI - PROVIDE GFCI BREAKER FOR CIRCUIT. GFCI RECEPTACLES MAY BE USED IN LIEU OF GFCI BREAKERS SO LONG AS THE DEVICE(S) CONFORM TO NEC CODE REQUIREMENTS FOR GFCI PROTECTION.
5. C - CIRCUIT THROUGH LIGHTING CONTACTOR. SEE DETAIL.
6. TC - CIRCUIT THROUGH 7-DAY PROGRAMMABLE ASTRONOMICAL TIME CLOCK. COORDINATE EXACT SIGN REQUIREMENTS AND LOCATION W/ OWNER.

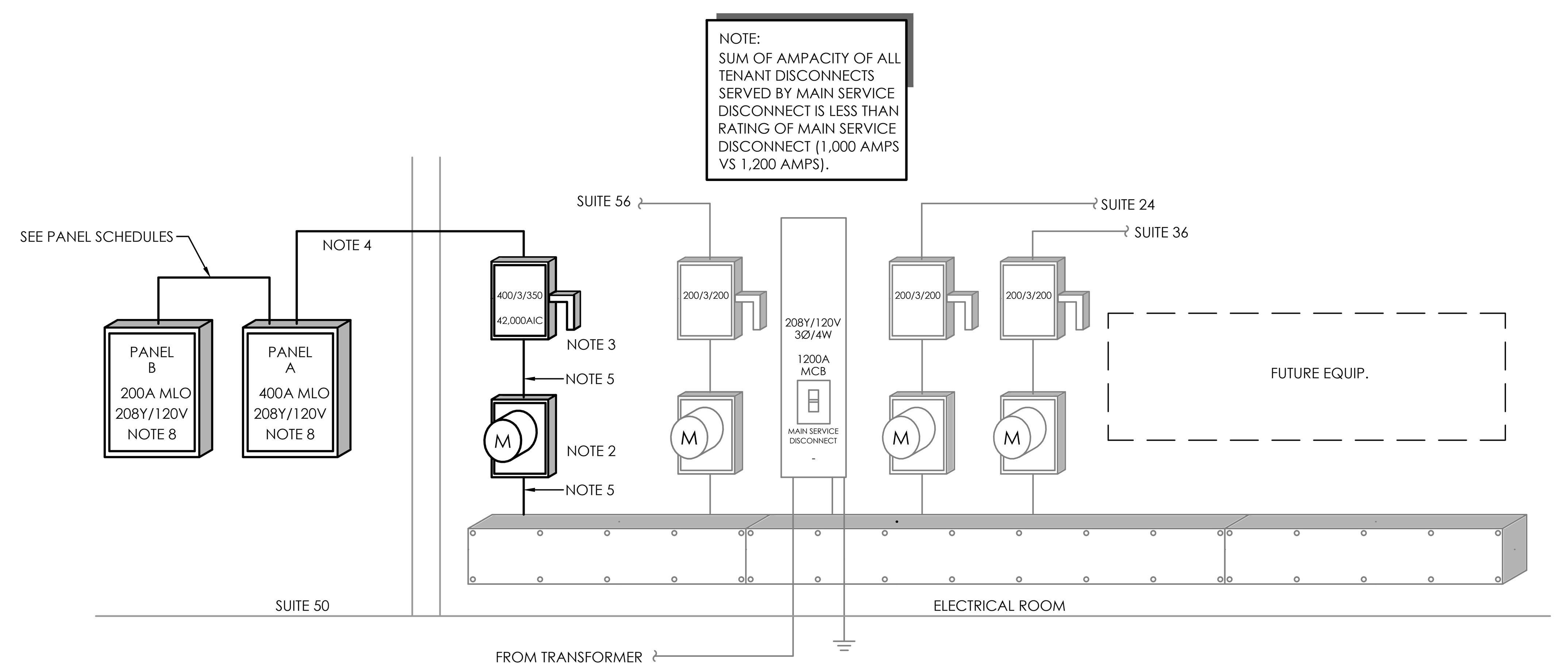
PANEL "B" LOAD SUMMARY

LOAD TYPE (LOADS ON 200 AMP BREAKER IN PANEL "A")		kVA CONN.	DEM. FACT.	kVA DEM.
LIGHTS (2000 SQFT. @ 3 W/SQFT > CONN. LOAD)		6.0	1.25	7.5
TRACK LIGHTS		2.3	1.25	2.9
RECEPTACLES	1st 10 kVA	6.8	1.0	6.8
	REMAINDER	0.0	0.5	0.0
	SHOW-WINDOW (26 FEET @ 125%)	0.6	10.8	6.5
HVAC & R	ELEC HEAT	0.0	1.00	0.0
	LARGEST MOTOR	0.0	1.25	0.0
	REMAINDER	0.0	1.0	0.0
WATER HEATER (ELECTRIC)		0.0	1.0	0.0
KITCHEN EQUIPMENT	# PIECES COOKING EQUIPMENT: 10	8.5	0.65	5.5
COND. PUMP		0.4	1.0	0.4
SIGN CIRCUIT		1.2	1.25	1.5
MISCELLANEOUS		0.0	1.0	0.0
	TOTALS	25.8		31.1
TOTAL AMPS @ 208 V	3 PHASE	86.3		



NOTE:
E.C. TO COORDINATE # OF CIRCUITS CONTROLLED AND NATURE OF LOADS W/ CONTACTOR MFG.

4 LIGHTING CONTACTOR DETAIL
NO SCALE



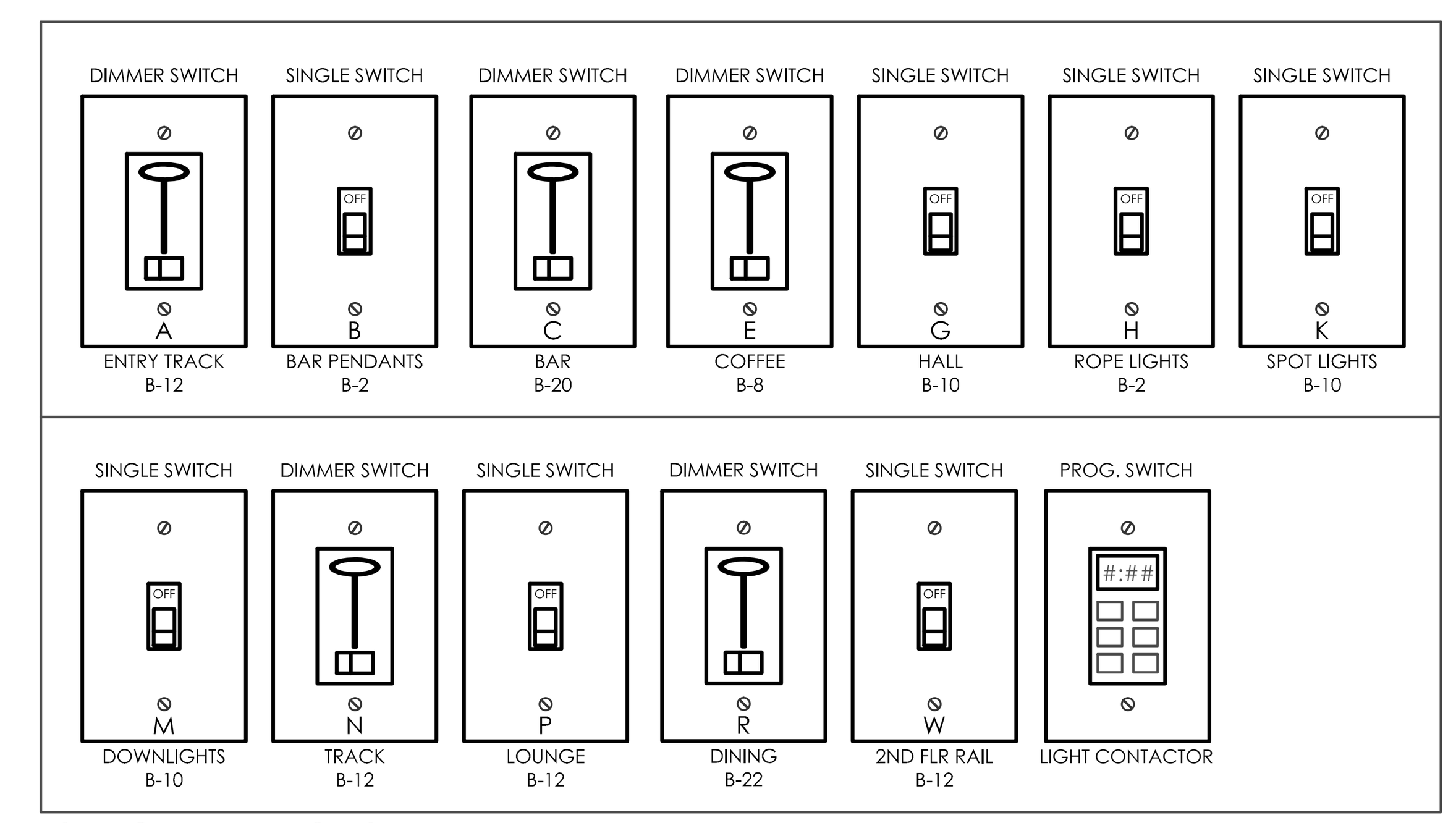
2 ELECTRICAL POWER RISER
NO SCALE

RISER DIAGRAM NOTES:
1. ALL EXISTING ITEMS ARE SHOWN IN FAINT. NEW ITEMS ARE SHOWN IN **BOLD**.
2. 320A METER BASE PER UTILITY REQUIREMENTS. METER BY UTILITY.
3. SERVICE ENTRANCE RATED WEATHERPROOF DISCONNECT SIZED AND FUSED AS INDICATED.
4. (4)#400kcmil CU, #3 CU GND, 3" CONDUIT.
5. (4)#400kcmil CU, 3" CONDUIT.
6. E.C. TO CONFIRM PRESENCE OF GROUNDING/BONDING SYSTEM (NEC 250).
7. PROVIDE PLACARD AT SERVICE ENTRANCE PANELS, DISCONNECTED, AND AT METER BASES. SEE PLACARDS DETAIL.
8. PANEL & BREAKERS ARE TO BE SERIES RATED WITH SERVICE DISCONNECT TO PROVIDE 42,000 AIC RATING.
9. PROVIDE ENGRAVED LABEL AT METER/DISCONNECT INDICATING AVAILABLE FAULT CURRENT PER NEC REQ'S.

SHORT CIRCUIT CALCULATION

MAXIMUM AVAILABLE FAULT CURRENT IS BASED ON A THE TX KVA, IMPEDANCE (%Z), WIRE SIZE & LENGTH SHOWN BELOW. CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY IF TRANSFORMER CHARACTERISTIC INDICATE A HIGHER FAULT CURRENT IS POSSIBLE (HIGHER KVA, LOWER IMPEDANCE, LARGER SECONDARY WIRE, SHORTER SECONDARY LENGTH, ETC).

TX KVA	TX %Z	VOLTAGE	PHASE	# COND. PER Ø	WIRE SIZE	WIRE L. (FEET)	WIRE "C"
750	3.5	208	3	4	500kcmil	150	22185
CURRENT (L TO L)	MULT. (ISC)	TX ISC	f	M	ISC (AMPS)		
2082	28.57	59480	0.8372	0.5443	32375		

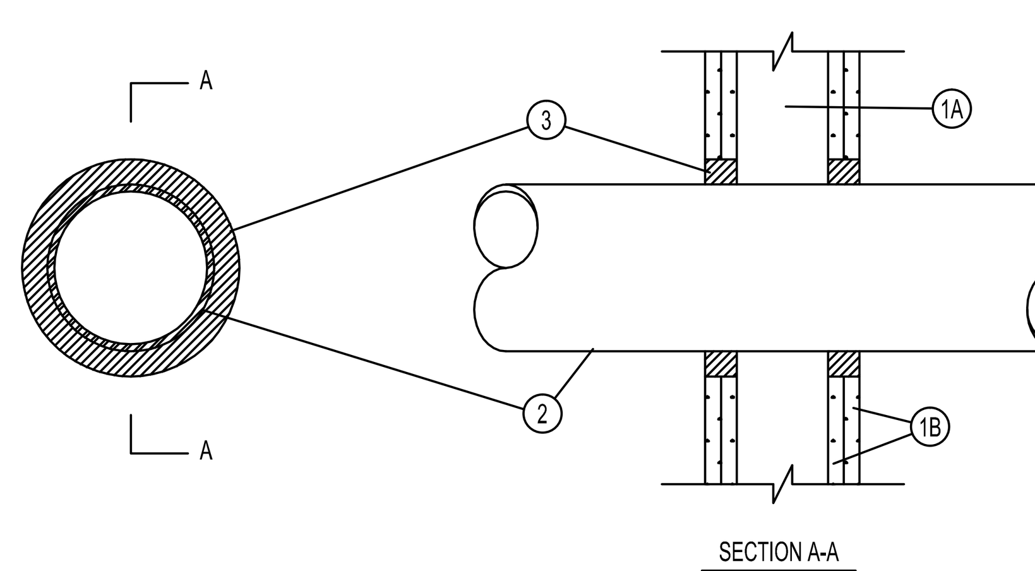


SWITCH BANK NOTES:
1. COORDINATE EXACT SWITCH TYPE W/ OWNER AND FIXTURES & BALLAST(S) BEING CONTROLLED.
2. LABEL SWITCHES W/ DESIGNATION SHOWN (I.E. "A", "AN", "W", ETC) & CIRCUIT #.
3. PROVIDE PLACARD AT EACH SWITCH INDICATING AREA CONTROLLED.
4. DIMMER SWITCH TO INCLUDE ON-OFF SWITCH AT BOTTOM TO ALLOW FOR ONE-TIME ADJUSTMENT OF LIGHT LEVELS.
5. HIGHEST POSITION OF HIGHEST SWITCH TO BE NO GREATER THAN 48" AFF (ANSI A117.1)
6. PROGRAMMABLE TIME SWITCH TO BE WIRED TO LIGHTING CONTACTOR. SEE DETAIL. SWITCH TO BE 7-DAY PROGRAMMABLE W/ HOLIDAY SCHEDULING & DAYLIGHT SAVINGS TIME ADJUSTMENT. SWITCH TO INCLUDE TIME OVERRIDE FEATURE (2-HOUR MAXIMUM).

3 SWITCH BANK DETAIL
NO SCALE

System No. W-L-1054
F Ratings - 1 and 2 Hr (See Items 1 and 3)
T Rating - 0 Hr
L Rating At Ambient - Less Than 1 CFM/Sq Ft
L Rating At 400 F - 4 CFM/Sq Ft

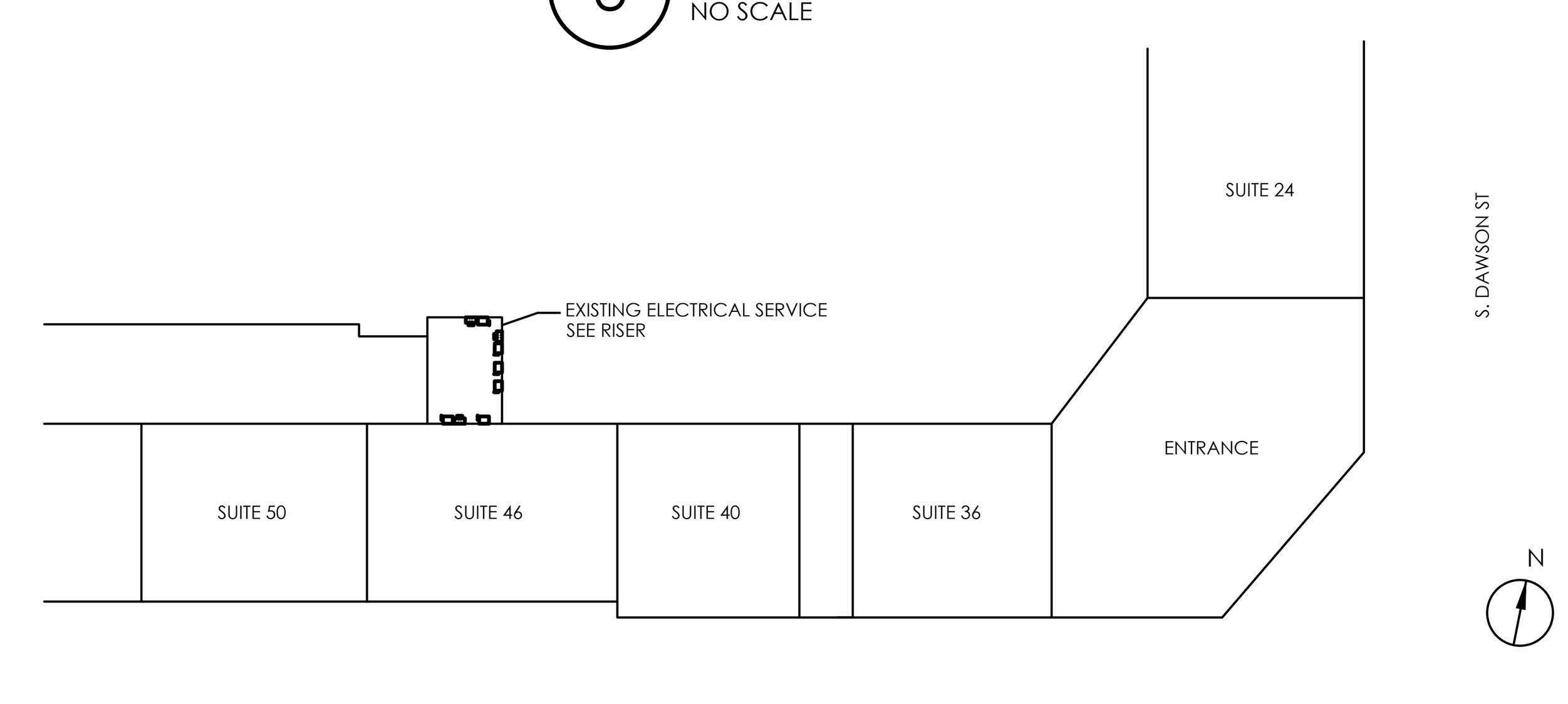
WL 1054



1. Wall Assembly -- The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs -- Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2-1/2 in. wide and spaced max 24 in. OC. When steel studs are used and the diam of opening exceeds the width of stud cavity, the opening shall be framed on all sides using lengths of steel stud installed between the vertical studs and screw-attached to the steel studs at each end. The framed opening in the wall shall be 4 to 6 in. wider and 4 to 6 in. higher than the diam of the penetrating item such that, when the penetrating item is installed in the opening, a 2 to 3 in. clearance is present between the penetrating item and the framing on all four sides.
   B. Gypsum Board* -- 5/8 in. thick, 4 ft wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 32-1/4 in. for steel stud walls. Max diam of opening is 14-1/2 in. for wood stud walls. The F Rating of the firestop system is equal to the fire rating of the wall assembly.
2. Through-Penetrants -- One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space shall be min 0 in. to max 2-1/4 in. Pipe may be installed with continuous point contact. Pipe, conduit or tubing may be installed at an angle not greater than 45 degrees from perpendicular. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. Steel Pipe -- Nom 30 in diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe -- Nom 30 in. diam (or smaller) cast or ductile iron pipe.
   C. Conduit -- Nom 4 in diam (or smaller) steel electrical metallic tubing or 6 in. diam steel conduit.
   D. Copper Tubing -- Nom 6 in. diam (or smaller) Type L (or heavier) copper tubing.
   E. Copper Pipe -- Nom 6 in. diam (or smaller) regular (or heavier) copper pipe.
3. Fill, Void or Cavity Material* -- Sealant -- Min 5/8 in. thickness of fill material applied within the annulus, flush with both surfaces of wall. At the point or continuous contact locations between pipe and wall, a min 1/2 in. diam bead of fill material shall be applied at the pipe wall interface on both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF
   HILTI INC -- FS-One Sealant
*Bearing the UL Classification Mark

HILTI FIRESTOP SYSTEMS
Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. December 4, 2002
CLASSIFIED C UL US

5 PENETRATION DETAIL (2-HR, GYPSUM)
NO SCALE



1 ELECTRICAL SERVICE LOCATION
NO SCALE

4/21/2013 6:52 PM
AOA-1301-E03.DWG

Andrew Osterlund
ARCHITECT, PLLC
GREEN | URBAN | SMART ARCHITECTURE
19 WEST HARGETT STREET #700
RALEIGH, NORTH CAROLINA 27601
www.aoarchitect.com

MAPLE
ENGINEERING, PLLC
1405 HILLSBOROUGH ST
RALEIGH, NC 27605 LIC.#: P-0990
P:919-341-4247 F:919-890-3797
PLUMBING MECHANICAL ELECTRICAL

PROJECT No.: 1301

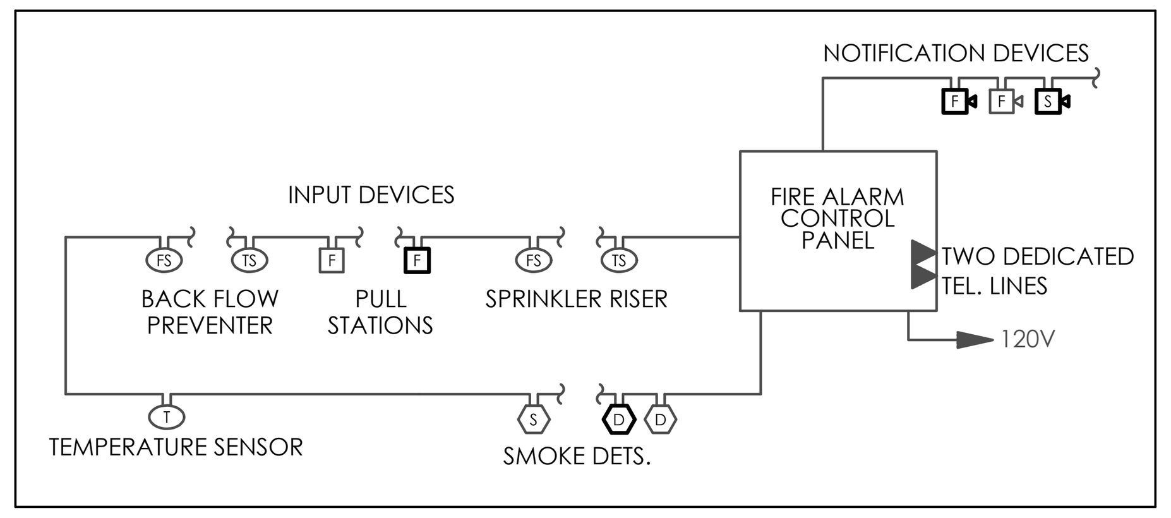
CAFE DE LOS MUERTOS
Raleigh, North Carolina

SEALS:
NORTH CAROLINA PROFESSIONAL SEAL 037509 ENGINEER ZACK L. TOMLIN
4/21/13

ISSUE: PERMIT SET
DATE: 4/21/13
DRAWN BY:CLR/JMS/RSA
REVISIONS:

ELECTRICAL RISER
& PANEL SCHEDULE

E-03



RISER NOTES:

1. FIRE ALARM SYSTEM IS EXISTING. COORDINATE NEW DEVICES WITH EXISTING FA SYSTEM TYPE, MODEL, AND REQUIREMENTS. PROVIDE ALL PROGRAMMING AND FINAL CONNECTION BY A FACTORY TRAINED TECHNICIAN.
2. EXISTING FIRE ALARM DEVICES ARE SHOWN IN FAINT. NEW OR RELOCATED DEVICES ARE SHOWN IN **BOLD**.
3. RISER IS GENERIC IN NATURE. CONTRACTOR TO FIELD VERIFY EXACT LAYOUT AND EQUIPMENT PRESENT.

5 FIRE ALARM RISER DIAGRAM

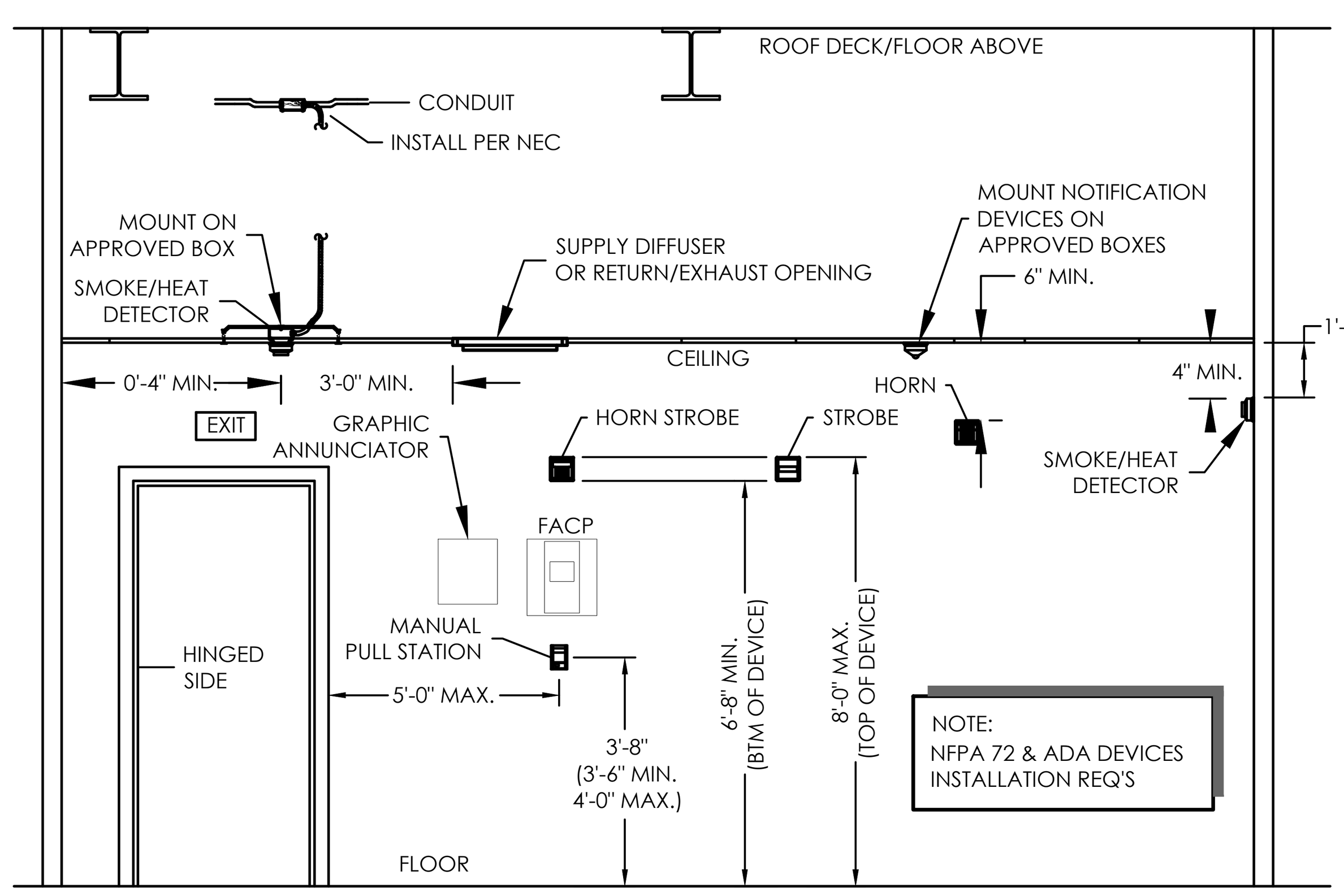
NO SCALE

FIRE ALARM SYSTEM INPUT/OUTPUT MATRIX

SYSTEM INPUTS		SYSTEM OUTPUTS: FACP ANNUNCIATION												NOTIFICATION						REQUIRED FIRE SAFETY CONTROL							
		ACTUATE COMMON ALARM SIGNAL INDICATOR	ACTUATE AUDIBLE ALARM SIGNAL	ACTUATE COMMON SUPERVISORY SIGNAL INDICATOR	ACTUATE AUDIBLE SUPERVISORY SIGNAL	ACTUATE COMMON TROUBLE SIGNAL INDICATOR	ACTUATE AUDIBLE TROUBLE SIGNAL	ACTUATE ZONE OR DEVICE ADDRESS ALARM INDICATOR	ACTUATE GENERAL EVACUATION SIGNAL	DISPLAY CHANGE OF STATUS	TRANSMIT FIRE ALARM SIGNAL TO CENTRAL STATION	TRANSMIT SUPERVISORY SIGNAL TO CENTRAL STATION	TRANSMIT TROUBLE SIGNAL TO CENTRAL STATION	RELEASE MAGNETICALLY HELD DOORS	RECALL ELEVATOR TO RECALL FLOOR	RECALL ELEVATOR TO ALTERNATE RECALL FLOOR	ACTUATE WARNING TO ELEVATOR CABS	DELAYED REMOVAL OF POWER FROM ELEVATOR	CLOSE ALL SMOKE DAMPERS	UNLOCK EXITS AND CONTROL DOORS	SHUT DOWN RESPECTIVE AIR HANDLING EQUIPMENT	ACTUATE FLOOR PRESSURIZATION	ACTUATE STAIRWELL PRESSURIZATION	ACTUATE SMOKE EXHAUST	-	ACTIVATE HOOD EXHAUST, DISABLE HOOD MAKE-UP	
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	
1	FIRE ALARM SYSTEM AC POWER FAILURE			O	O							O															1
2	FIRE ALARM SYSTEM LOW BATTERY					O	O						O														2
3	OPEN CIRCUIT					O	O						O														3
4	GROUND FAULT					O	O						O														4
5	NOTIFICATION APPLIANCE CIRCUIT SHORT					O	O						O														5
6	BUILDING MANUAL PULL STATIONS	O	O					O	O	O	O			O						O							6
7	CORRIDOR SMOKE DETECTORS	O	O					O	O	O	O			O	O				O	O		O	O	O			7
8	AREA SMOKE DETECTORS	O	O					O	O	O	O			O	O				O	O		O	O	O			8
9	HVAC AIR DUCT SMOKE DETECTORS			O	O			O				O									O						9
10	AREA HEAT DETECTORS	O	O					O	O	O	O			O	O				O	O		O	O	O			10
11	HOOD OR ROOM FIRE SUPPRESSION SYSTEM ALARM	O	O					O	O	O	O			O	O				O	O						O	11
12	SPRINKLER TAMPER SWITCH			O	O			O				O															12
13	SPRINKLER WATER FLOW IN BUILDING	O	O					O	O	O	O			O	O				O	O							13
14	SPRINKLER WATER FLOW IN ELEV EQUIP RM OR SHAFT	O	O					O	O	O	O			O	O		O	O	O	O							14
15	ELEV EQUIP RM AREA SMOKE DETECTOR	O	O					O	O	O	O			O	O		O		O	O							15
16	ELEV SHAFT AND ELEV EQUIP RM HEAT DETECTORS	O	O					O	O	O	O			O	O		O	O	O	O							16
17	ELEV LOBBY SMOKE DETECTORS - UPPER FLOORS	O	O					O	O	O	O			O	O				O	O		O	O	O			17
18	ELEV LOBBY SMOKE DETECTOR - RECALL FLOOR	O	O					O	O	O	O			O		O	O		O	O		O	O	O			18
19	ELEV CONTROLLER POWER SHUNT TRIP STATUS			O	O			O				O															19
20	FIRE PUMP POWER FAILURE/PHASE REVERSAL			O	O			O				O															20
21	FIRE PUMP RUNNING	O	O					O	O	O	O			O	O				O	O							21
22	FIRE PUMP SYSTEM NOT IN AUTOMATIC			O	O			O				O															22
23	LEGALLY REQUIRED GENERATOR SYSTEM LOW FUEL			O	O			O				O															23
24	LEGALLY REQUIRED GENERATOR NOT IN AUTOMATIC			O	O			O				O															24
25	AREA OF REFUGE TWO-WAY COMMUNICATIONS STATUS			O	O			O				O															25
26	-																										26
27	-																										27
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	V	W	

4 FIRE ALARM DEVICE MATRIX

NO SCALE



3 FIRE ALARM DEVICE LOCATIONS

NO SCALE

4/21/2013 6:52 PM
AOA-1301-FA01.DWG

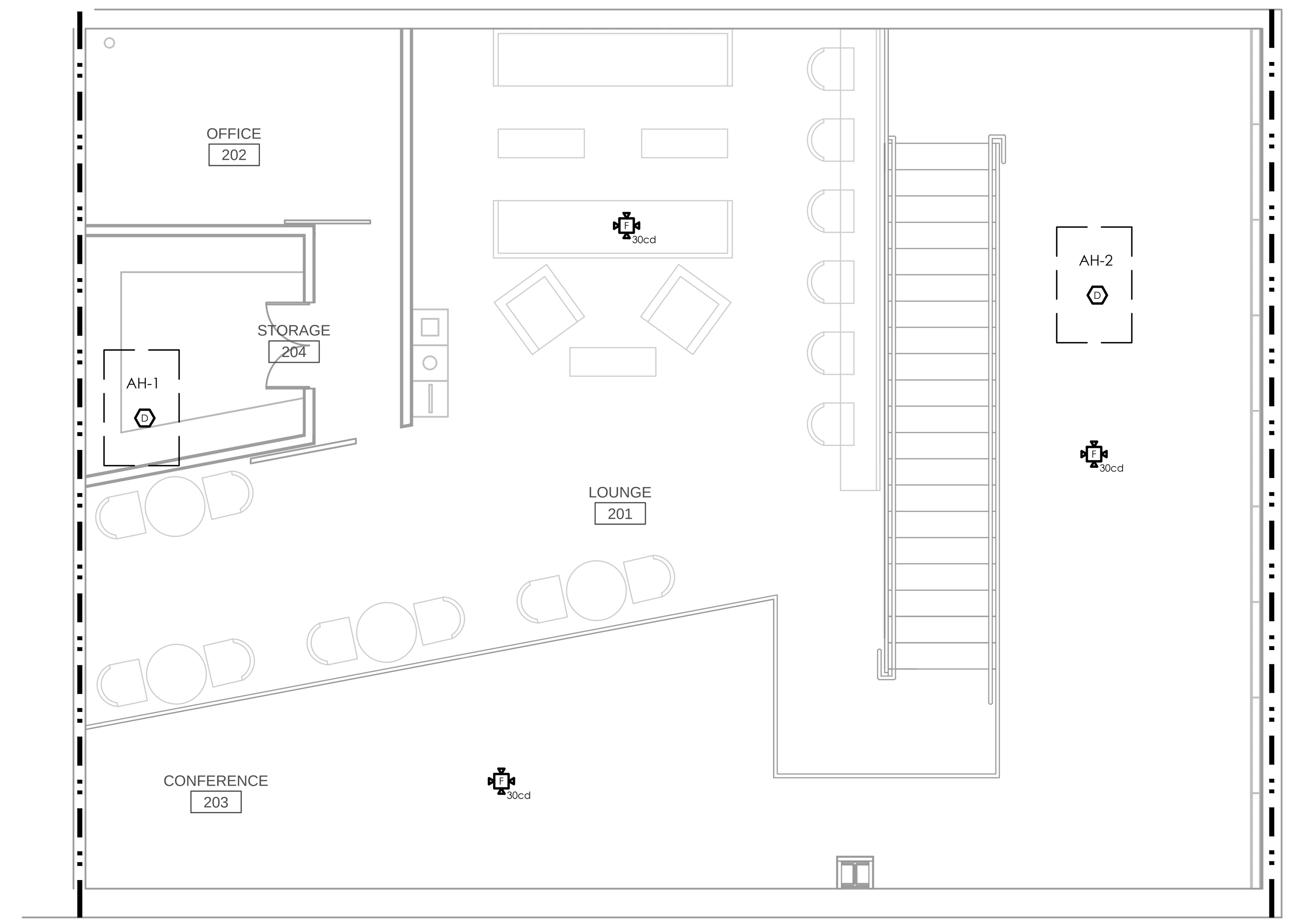
GENERAL FIRE ALARM NOTES

1. EXISTING FIRE ALARM DEVICES ARE SHOWN IN FAINT. NEW OR RELOCATED DEVICES ARE SHOWN IN **BOLD**. SEE LEGEND.
2. THE FIRE ALARM CONTRACTOR IS TO BE HELD TO THE SAME REQUIREMENTS AS THE ELECTRICAL CONTRACTOR. FIRE ALARM CONTRACTOR SHALL REVIEW ELECTRICAL PLANS AND ELECTRICAL "GENERAL NOTES" BEFORE COMPLETING BID.
3. FIRE ALARM CONTRACTOR IS TO VERIFY EXISTING FIRE ALARM SYSTEM HAS BATTERY AND VOLTAGE CAPACITY TO HANDLE ADDITIONAL DEVICES. PROVIDE FIRE ALARM SHOP DRAWINGS IF REQ'D TO LOCAL AHJ.
4. AUDIBLE FIRE ALARM NOTIFICATION APPLIANCES SHALL PROVIDE A SOUND PRESSURE LEVEL OF 15DBA ABOVE THE AVERAGE AMBIENT SOUND PRESSURE LEVEL AT ALL LOCATIONS WITHIN THE OCCUPIABLE SPACE. TYPICAL AVERAGE AMBIENT SOUND PRESSURE LEVELS ARE GIVEN IN NFPA 72 TABLE A-4-3.2.
5. IF THREE OR MORE FIRE ALARM SYSTEM VISUAL NOTIFICATION APPLIANCES ARE LOCATED WITHIN AN OBSERVERS FIELD OF VIEW (135°) AND WITHIN 55'-0" OF THE OBSERVER, THEN THE DEVICES SHALL BE SYNCHRONIZED.
6. FIRE ALARM DEVICES ARE TO BE INSTALLED IN ACCORDANCE WITH NFPA 72 AND 'ADA'.
7. ALL FIRE ALARM WIRING SHALL BE IN CONDUIT OR AS ALLOWED BY NEC OR LOCAL AHJ.
8. ELECTRICAL CONTRACTOR SHALL PROVIDE AN UPDATED FIRE ALARM LAYOUT PLAN AT THE FACP.
9. TESTING OF THE FIRE ALARM SYSTEM SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
10. CONTRACTOR TO ENSURE ALL EXISTING DEVICES ARE FUNCTIONING PROPERLY AND CANDELLA RATING IS AS INDICATED.

FIRE ALARM SYMBOL LEGEND

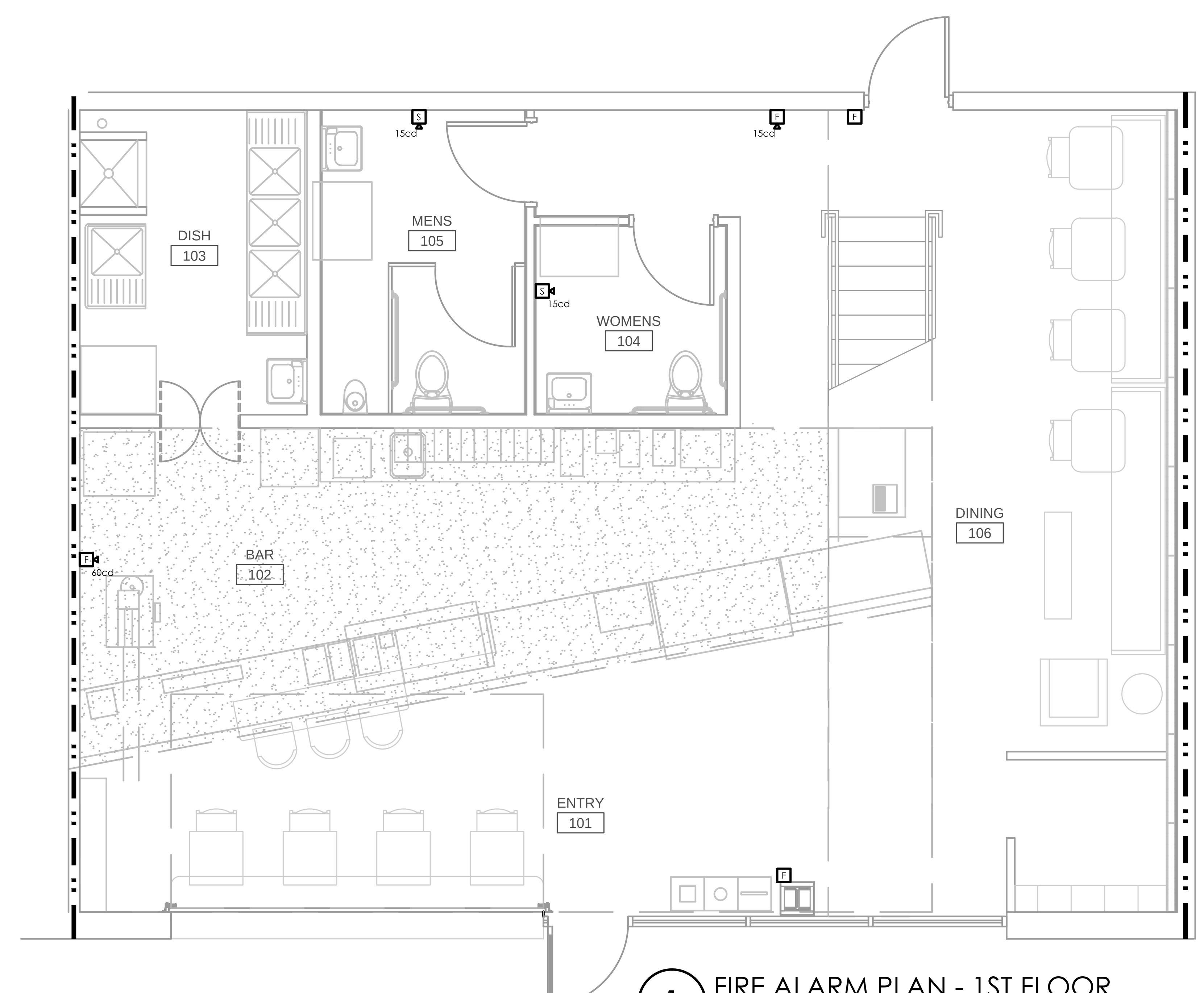
	FIRE ALARM CONTROL PANEL, SEMI-FLUSH MOUNTED.
AN	FIRE ALARM SYSTEM ANNUNCIATOR PANEL, 48" A.F.F.
F	FIRE ALARM SYSTEM MANUAL PULL STATION, 48" A.F.F.
F	FIRE ALARM SYSTEM ALARM INDICATING DEVICE, HORN/STROBE, 80" A.F.F.
S	FIRE ALARM SYSTEM ALARM INDICATING DEVICE, STROBE, 80" A.F.F.
F	FIRE ALARM SYSTEM ALARM INDICATING DEVICE, HORN/STROBE, CEILING.
S	FIRE ALARM SYSTEM ALARM INDICATING DEVICE, STROBE, CEILING.
M	FIRE ALARM SYSTEM ALARM INDICATING DEVICE, MINI-HORN. 80" A.F.F.
H	FIRE ALARM SYSTEM ALARM INDICATING DEVICE, MINI-HORN/STROBE 80" A.F.F.
S	FIRE ALARM SYSTEM CEILING MOUNTED SMOKE DETECTOR, MULTI-MODE TYPE. "R" INDICATES FOR ELEVATOR RECALL FUNCTION AND INTERLOCK WITH ELEVATOR CONTROLLER.
D	FIRE ALARM SYSTEM DUCT SMOKE DETECTOR, PROVIDED AND WIRED BY E.C., INSTALLED BY M.C.
DH	MAGNETIC DOOR HOLDER (SUPPLIED WITH DOOR HARDWARE), CONNECT TO LOCAL SMOKE DETECTOR.
TS	FIRE ALARM SYSTEM TAMPER SWITCH. FIELD COORDINATE EXACT QUANTITY AND LOCATIONS.
FS	FIRE ALARM SYSTEM FLOW SWITCH. FIELD COORDINATE EXACT QUANTITY AND LOCATIONS.
T	FIRE ALARM SYSTEM ROOM TEMPERATURE SUPERVISORY SWITCH. ALARM SHALL INDICATE A DECREASE IN ROOM TEMP TO BELOW 40°F AND ITS RESTORATION TO ABOVE 40°F. FIELD COORDINATE EXACT QUANTITY AND LOCATIONS.
SD	120V MULTI-STATION SMOKE DETECTOR WITH BATTERY BACK-UP. CONNECT TO NEAREST 120V CIRCUIT. FOR UNITS WITH 2 OR MORE SMOKE DETECTORS, DETECTORS MUST BE INTERLOCKED SUCH THAT THEY ALL ALARM AT ONE TIME. "ADA" - UNITS SHALL HAVE 177CD STROBE NOTIFICATION IN SLEEPING AREAS.
A	ANSUL HOOD SYSTEM "ALARM" OUTPUT.
F	NEW OR RELOCATED DEVICE
F	EXISTING DEVICE TO REMAIN
	DEMO'D DEVICE OR DEVICE TO BE RELOCATED.

FIRE RATING LEGEND
2-HR WALL
*2ND FLR CEIL. IS 2-HR RATED



2 FIRE ALARM PLAN - 2ND FLOOR

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



1 FIRE ALARM PLAN - 1ST FLOOR

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

Andrew Osterlund
ARCHITECT, PLLC
GREEN | URBAN | SMART ARCHITECTURE
19 WEST HARGETT STREET #700
RALEIGH, NORTH CAROLINA 27601
www.aoarchitect.com

MAPLE
ENGINEERING, PLLC
1405 HILLSBOROUGH ST
RALEIGH, NC 27605 LIC.#: P-0990
P:919-341-4247 F:919-890-3797
PLUMBING MECHANICAL ELECTRICAL

PROJECT No.: 1301

CAFE DE LOS MUERTOS

Raleigh, North Carolina

SEALS:

NORTH CAROLINA PROFESSIONAL SEAL 037509 ENGINEER ZACK L. TOMLIN
4/21/13

ISSUE: PERMIT SET
DATE: 4/21/13
DRAWN BY: CLR/JMS/RSA

REVISIONS:

FIRE ALARM PLAN

FA-01