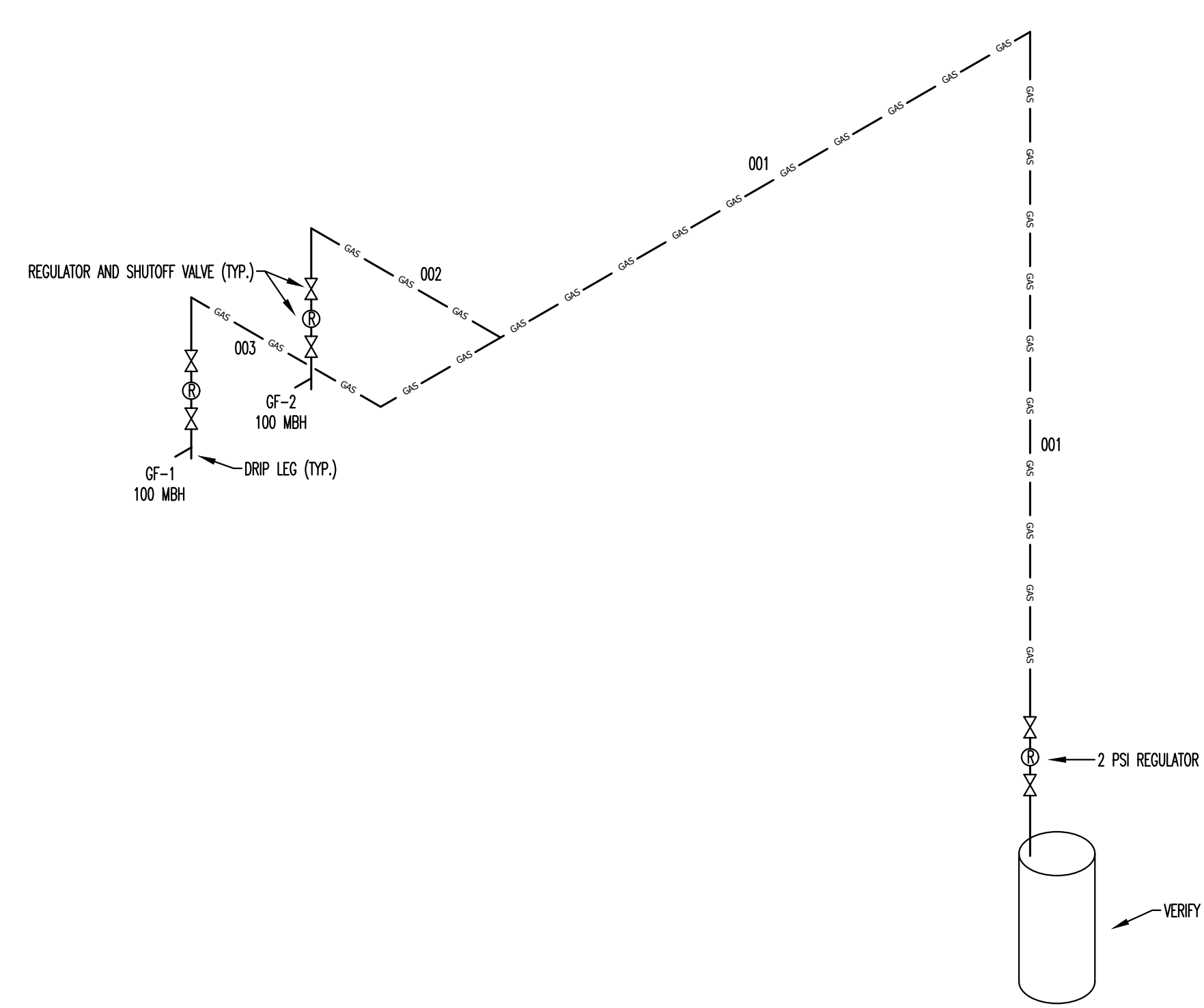


GAS LINE SIZING VERIFICATION TABLE				
PER 2018 NC FUEL GAS CODE TABLE 402.4(27)				
SECTION	GAS LOAD MBTU/H	LINE SIZE INCHES	CAPACITY CFH	PRESSURE PSI
001	200.0	3/4	1950.0	2
002	100.0	3/4	1950.0	2
003	100.0	3/4	1950.0	2

BASED ON 70' OF DEVELOPED LENGTH



GAS LINE SIZING VERIFICATION TABLE				
PER 2018 NC FUEL GAS CODE TABLE 402.4(27)				
SECTION	GAS LOAD MBTU/H	LINE SIZE INCHES	CAPACITY CFH	PRESSURE PSI
001	200.0	3/4	1950.0	2
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003	100.0	3/4	1950.0	2

BASED ON 70' OF DEVELOPED LENGTH

- GENERAL GAS LINE PIPING NOTES
1. THE GAS PIPING CONTRACTOR (GPC) SHALL PROVIDE ALL MATERIALS AND LABOR AS REQUIRED FOR A COMPLETE AND OPERATING SYSTEM AS DESCRIBED BY THESE PLANS AND SPECIFICATIONS.
  2. THE GPC SHALL INSTALL ALL MATERIALS AND EQUIPMENT IN ACCORDANCE WITH THE 2018 NORTH CAROLINA FUEL GAS CODE AND ANY APPLICABLE LOCAL CODES. WHERE A CONFLICT EXISTS BETWEEN THE ABOVE REQUIREMENTS, THE MORE STRINGENT SHALL BE USED. THE CONTRACTOR SHALL OBTAIN CLARIFICATION FROM THE ENGINEER IN THE EVENT ANY PART OF THESE PLANS CONFLICTS WITH THE ABOVE REQUIREMENTS.
  3. THE GPC SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS CONTRACT.
  4. DO NOT SCALE THESE DRAWINGS-REFER TO ARCHITECTURAL SHEETS FOR DIMENSIONS.
  5. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS. CONTRACTOR SHALL CONTACT THE ENGINEER TO RESOLVE ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THESE PLANS.
  6. THE CONTRACTOR SHALL COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION.
  7. THE CONTRACTOR SHALL INSTALL HIGH PRESSURE REGULATORS AT EACH PIECE OF EQUIPMENT AS NECESSARY.
  8. INSTALL A DRIP LEG IN GAS LINE AT EACH POINT WHERE CONDENSATE COULD COLLECT. ALL DRIP LEGS SHALL BE READILY ACCESSIBLE FOR CLEANING OR EMPTYING.
  9. PIPING SHALL BE SCHEDULE 40 STEEL OR WROUGHT IRON AND COMPLY WITH ANSI/ASME B36.10, ASTM A 53, OR ASTM A 106.
  10. ALL PIPES AND FITTINGS SHALL BE NEW, FREE OF DEFECTS, AND RATED FOR THE APPLICATION.
  11. ALL PIPING SHALL BE INSTALLED SO AS NOT TO BE SUBJECT TO PHYSICAL DAMAGE.
  12. PVC VENT PIPING SHALL NOT BE INSTALLED INDOORS.
  13. THE TYPE OF PIPING JOINT USED SHALL BE SUITABLE FOR THE PRESSURE-TEMPERATURE CONDITIONS AND SHALL BE SELECTED CONSIDERING JOINT TIGHTNESS AND MECHANICAL STRENGTH UNDER THE SERVICE CONDITIONS.
  14. PIPE JOINTS SHALL BE THREADED, FLANGED, BRAZED, OR WELDED.
  15. FLEXIBILITY SHALL BE PROVIDED BY THE USE OF BENDS, LOOPS, OFFSETS, OR COUPLINGS OF THE SLIP TYPE. PROVISIONS SHALL BE MADE TO RESORB THERMAL CHANGES BY THE USE OF EXPANSION JOINTS OF THE BELLOWS TYPE OR BY THE USE OF 'BALL' OR 'SWIVEL' JOINTS. DO NOT USE EXPANSION JOINTS OF THE SLIP TYPE INSIDE THE BUILDING. PIPE ALIGNMENT GUIDES SHALL BE USED WITH EXPANSION JOINTS PER THE MFG.
  16. ALL GAS PIPING SHALL BE LABELED TO INDICATE THE PRESSURE.
  17. PIPE HANGERS AND SUPPORTS SHALL CONFORM TO ANSI/ASSP-58.
  18. BENDS SHALL BE MADE ONLY WITH BENDING TOOLS AND PROCEDURES INTENDED FOR THAT PURPOSE. DO NOT BEND PIPE THROUGH AN ARC OF MORE THAN 90°. ALL BENDS SHALL BE SMOOTH AND FREE OF CRACKS, BUCKLING, OR OTHER EVIDENCE OF DAMAGE.
  19. INSTALL GAS SHUTOFF VALVES UPSTREAM OF EACH GAS REGULATOR. VALVES SHALL BE READILY ACCESSIBLE AND NOT SUBJECT TO PHYSICAL DAMAGE.
  20. WHERE A SEDIMENT TRAP IS NOT INCORPORATED AS PART OF THE APPLIANCE, A SEDIMENT TRAP SHALL BE INSTALLED DOWNSTREAM OF THE APPLIANCE SHUTOFF VALVE AS CLOSE TO THE INLET OF THE APPLIANCE AS PRACTICAL.
  21. PRIOR TO ACCEPTANCE BY THE OWNER, ALL GAS PIPING INSTALLATIONS SHALL BE INSPECTED AND PRESSURE TESTED IN ACCORDANCE WITH SECTION 406 OF THE NC FUEL GAS CODE.

**Kilian Engineering, Inc.**  
 www.kilianengineering.com  
 PO Box 3301, Henderson, NC 27536  
 (704) 252-4388 / 8178 CORPORATE LICENSE C2277

DESIGN FOR:  
**CAROLINA DIESEL TRUCK ADDITION**  
 62 PROGRESS DRIVE  
 FLOUQUA, VIRGINIA, NC

REVISION:

ISSUED:

DRAWN BY: DBAS  
 CHECKED BY: MIN/JAH  
 GAS PLAN AND RISER

SHEET NO.  
**NG1**

PROJECT NO: 22354















EXISTING PANEL A									
CKT	LOAD	BKR	LOAD KVA	PH	LOAD KVA	BKR	LOAD	CKT	
1			0.00	A	0.00			2	
3	PAINTS WASHER	80/2	0.00	B	0.00	40/1	AIR COMPRESSOR	4	
5			0.00	C	0.00			6	
7	ENGINE EXHAUST FAN	20/3	0.00	A	0.00	30/2	EN WELDER	10	
9			0.00	B	0.00			12	
11			0.00	C	0.00	20/1	AIR DRYER	14	
13	FRAG-PACK LYS	20/1	0.00	A	0.00	20/2	LIFT #3	16	
15	REPT	20/1	0.00	B	0.00			18	
17	VOLVER	30/2	0.00	A	0.00	20/2	LIFT #4	20	
19			0.00	B	0.00			22	
21	CEILING FAN	20/2	0.00	C	0.00	20/2	LIFT #5	24	
23			0.00	A	0.00			26	
25	ALIGNMENT RACK PC	20/1	0.00	A	0.00	20/2	LIFT #6	28	
27	ALIGNMENT RACK	30/2	0.00	B	0.00			30	
29			0.00	C	0.00	20/2	LIFT #1	32	
31	ROLL-ON RACK	20/2	0.00	A	0.00			34	
33			0.00	B	0.00	20/2	LIFT #2	36	
35	SPACE		0.00	C	0.00			38	
37			0.00	A	0.00			40	
39	PANEL B	200/3	0.00	B	28.94	200/3	PANEL D	42	
41			0.00	C	28.94			44	
43			11.90	A	0.00			46	
45	PANEL D	200/3	11.50	B	0.00	200/3	PANEL C	48	
47			10.50	C	0.00			50	
49			13.00	A	0.00		SPACE	52	
51	PANEL E	200/3	13.40	B	0.00		SPACE	54	
53			12.90	C	0.00		SPACE		
			KVA	PH	AMPS				
			53.8	A	449				
			53.8	B	449				
			52.3	C	436				
VOLTAGE/PHASE			208Y/120V, 3P, 4W						
BUS RATING			600A						
MAIN CIRCUIT BREAKER RATING			600A						
AIC RATING			EXISTING TO REMAIN						
SERVICE ENTRANCE RATED			EXISTING TO REMAIN						
ENCLOSURE			EXISTING TO REMAIN						
MOUNTING			EXISTING TO REMAIN						

○ - DENOTES ADDITIONAL CIRCUIT/BREAKER HATCHED AREAS INDICATE CIRCUITS/BREAKERS ARE EXISTING TO REMAIN

EXISTING PANEL D									
CKT	LOAD	BKR	LOAD KVA	PH	LOAD KVA	BKR	LOAD	CKT	
1			2.92	A	4.57	45/2	WHD-1	2	
3	HP-1	35/3	2.52	B	4.87	45/2		4	
5			2.52	C	1.97	20/2		6	
7	SHOP WINDOW RECEPTS	20/1	0.72	A	1.97	20/2	HP-1	8	
9	SHOP WINDOW RECEPTS	20/1	0.72	B	1.43	20/1	FIRST FLOOR LIGHTS	10	
11	W-1	20/1	1.88	C	1.12	20/1	SECOND FLOOR LIGHTS	12	
13	SALES COUNTER	20/1	0.50	A	0.25	20/1	EXHIBIT LIGHTING	14	
15	W-2 CALL STATION	20/1	0.18	B	0.90	20/1	SALES RECEPT	16	
17	OFFICE RECEPT	20/1	0.72	C	0.90	20/1	SALES RECEPT	18	
19	OFFICE RECEPT	20/1	0.72	A	0.50	20/1	SALES RECEPT	20	
21	RECEIPT	20/2	0.72	B	0.72	20/1	SECOND FLOOR RECEPT	22	
23	RECEIPT	20/1	0.50	C	0.72	20/1	SECOND FLOOR RECEPT	24	
25	OUTDOOR RECEPT	20/1	0.54	A	0.54	20/1	FLOOR RECEPTS	26	
27	UPSTAIRS OFFICE RECEPT	20/1	0.72	B	0.90	20/1	SALES COUNTER RECEPTS	28	
29	UPSTAIRS OFFICE RECEPT	20/1	0.72	C	1.26	20/1	CONFERENCE RECEPT	30	
31	IT STORAGE RECEPT	20/1	0.36	A	0.18	20/1	SALES COUNTER PRINTER RECEPT	32	
33	SPACE		0.00	B	0.00		SPACE	34	
35	SPACE		0.00	C	0.00		SPACE	36	
37	SPACE		0.00	A	0.00		SPACE	38	
39	SPACE		0.00	B	0.00		SPACE	40	
41	SPACE		0.00	C	0.00		SPACE	42	
			KVA	PH	AMPS				
			13.41	A	112				
			13.55	B	113				
			12.31	C	103				
VOLTAGE/PHASE			208Y/120V, 3P, 4W						
BUS RATING			200A						
MAIN CIRCUIT BREAKER RATING			EXISTING TO REMAIN						
AIC RATING			EXISTING TO REMAIN						
SERVICE ENTRANCE RATED			EXISTING TO REMAIN						
ENCLOSURE			EXISTING TO REMAIN						
MOUNTING			EXISTING TO REMAIN						

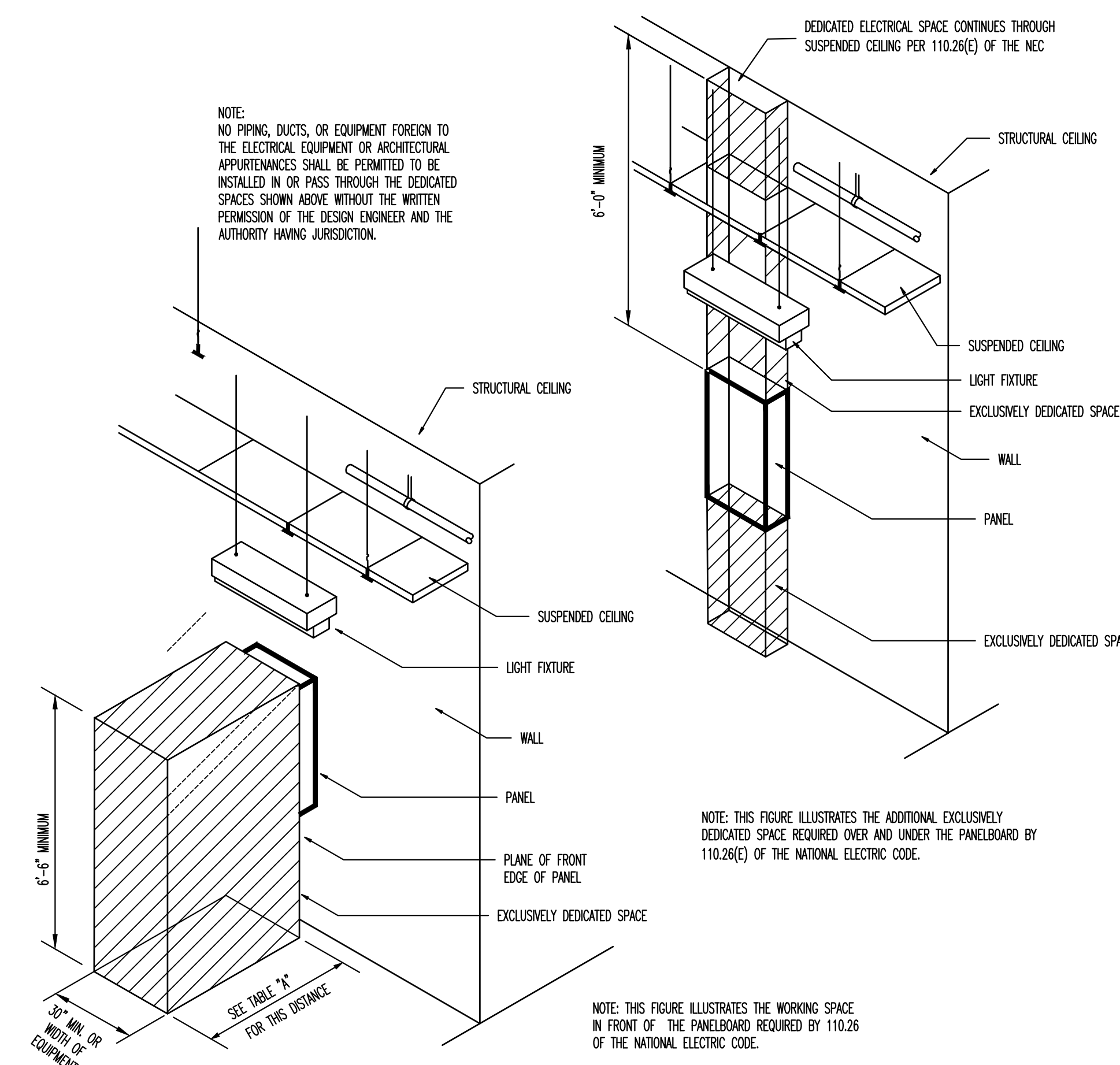
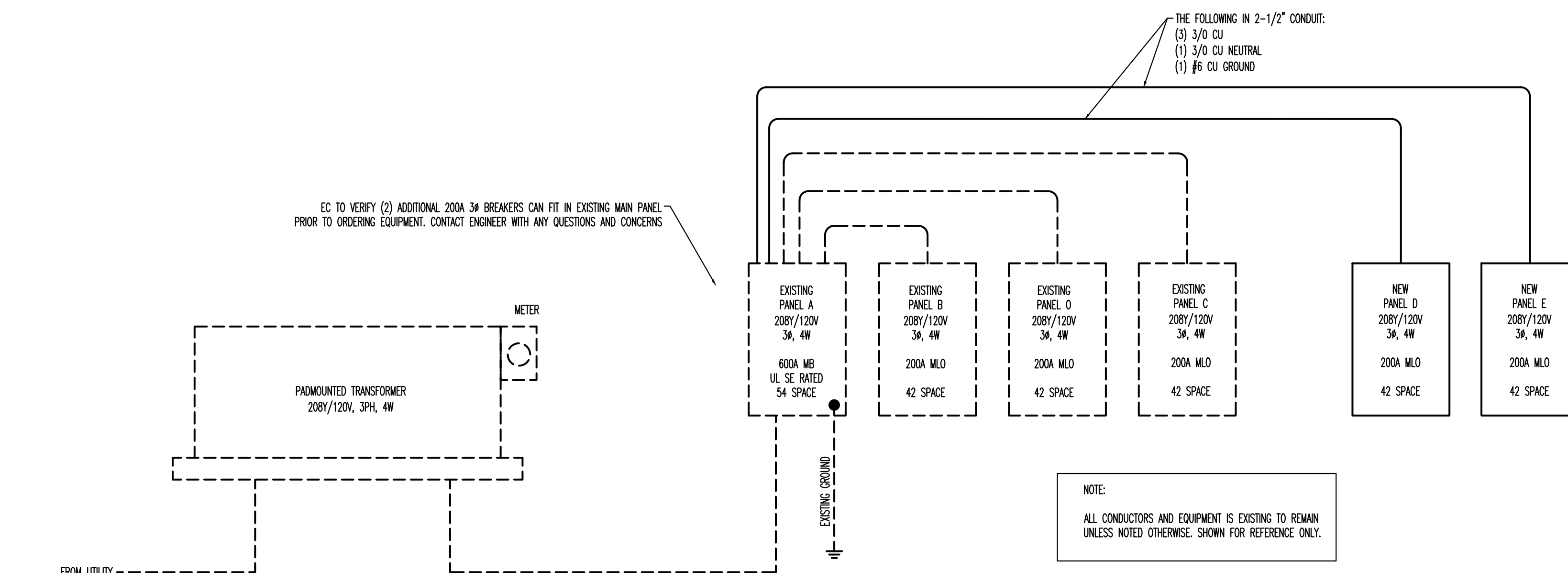
○ - DENOTES ADDITIONAL CIRCUIT/BREAKER HATCHED AREAS INDICATE CIRCUITS/BREAKERS ARE EXISTING TO REMAIN

NEW PANEL D									
CKT	LOAD	BKR	LOAD KVA	PH	LOAD KVA	BKR	LOAD	CKT	
1	NEW SHIP LIGHTING	20/1	0.93	A	2.50			2	
3	NEW SHIP LIGHTING	20/1	0.93	B	2.50		LIFT	4	
5	NEW SHIP LIGHTING	20/1	1.20	C	2.50		LIFT	6	
7			2.50	A	2.50	30/2		8	
9	LIFT	30/2	2.50	B	2.50		LIFT	10	
11	SHOP RECEPTACLES	20/1	1.44	C	2.50		LIFT	12	
13			3.12	A	0.36	20/1	SERVICE RECEPT	14	
15	LIFT	40/2	3.12	B	0.00			16	
17	SHOP RECEPTACLES	20/1	1.44	C	1.44	20/1	SHOP RECEPTACLES	18	
19	SPACE		0.00	A	0.00		SPACE	20	
21	SPACE		0.00	B	0.00		SPACE	22	
23	SPACE		0.00	C	0.00		SPACE	24	
25	SPACE		0.00	A	0.00		SPACE	26	
27	SPACE		0.00	B	0.00		SPACE	28	
29	SPACE		0.00	C	0.00		SPACE	30	
31	SPACE		0.00	A	0.00		SPACE	32	
33	SPACE		0.00	B	0.00		SPACE	34	
35	SPACE		0.00	C	0.00		SPACE	36	
37	SPACE		0.00	A	0.00		SPACE	38	
39	SPACE		0.00	B	0.00		SPACE	40	
41	SPACE		0.00	C	0.00		SPACE	42	
			KVA	PH	AMPS				
			11.9	A	99				
			13.5	B	96				
			10.5	C	88				
VOLTAGE/PHASE			208Y/120V, 3P, 4W						
BUS RATING			200A						
MAIN CIRCUIT BREAKER RATING			MLO						
AIC RATING			10K - EC TO VERIFY						
SERVICE ENTRANCE RATED			NO						
ENCLOSURE			NEMA 1						
MOUNTING			SURFACE						

NEW PANEL E									
CKT	LOAD	BKR	LOAD KVA	PH	LOAD KVA	BKR	LOAD	CKT	
1			3.03	A	1.32	15/1	GF-1	2	
3	AC-1	50/2	3.03	B	4.16	50/2	COMPRESSOR	4	
5			3.03	C	4.16		COMPRESSOR	6	
7	AC-2	50/2	3.03	A	4.16	50/2	COMPRESSOR	8	
9			2.08	B	4.16		COMPRESSOR	10	
11	HVLS FAN	30/2	2.08	C	1.32	15/1	GF-2	12	
13	WATER HEATER	20/1	1.50	A	0.00		SPACE	14	
15	SPACE		0.00	B	0.00		SPACE	16	
17	EF-2	20/1	1.18	C	1.18	20/1	EF-3	18	
19	SPACE		0.00	A	0.00		SPACE	20	
21	SPACE		0.00	B	0.00		SPACE	22	
23	SPACE		0.00	C	0.00		SPACE	24	
25	SPACE		0.00	A	0.00		SPACE	26	
27	SPACE		0.00	B	0.00		SPACE	28	
29	SPACE		0.00	C	0.00		SPACE	30	
31	SPACE		0.00	A	0.00		SPACE	32	
33	SPACE		0.00	B	0.00		SPACE	34	
35	SPACE		0.00	C	0.00		SPACE	36	
37	SPACE		0.00	A	0.00		SPACE	38	
39	SPACE		0.00	B	0.00		SPACE	40	
41	SPACE		0.00	C	0.00		SPACE	42	
			KVA	PH	AMPS				
			13.0	A	109				
			13.4	B	112				
			12.9	C	108				
VOLTAGE/PHASE			208Y/120V, 3P, 4W						
BUS RATING			200A						
MAIN CIRCUIT BREAKER RATING			MLO						
AIC RATING			10K - EC TO VERIFY						
SERVICE ENTRANCE RATED			NO						
ENCLOSURE			NEMA 1						
MOUNTING			SURFACE						

NEC ELECTRIC DEMAND SUMMARY 208Y/120V, 3P, 4W							
EQUIPMENT	DEMAND FACTOR	KVA			LOAD KVA	NEC REFERENCE	NOTES/CALCULATIONS
		A	B	C			
EXISTING LOADS	125%	28.94	28.94	28.94	86.82	220.87	PER 12 MLD UTILITY BILLS
LIGHTING	125%	1.95	1.95	1.95	5.85	220.12	3900 SF X 1.5 VA/SF
RECEPTACLES < 10 KVA	100%	2.04	2.04	2.04	6.12	220.44	
HVAC	100%	7.38	5.11	6.43	18.92	--	BASED ON MCA
WATER HEATER	125%	1.88	0.00	0.00	1.88	422.13	STORAGE TANK (120 GAL @ 125%)
EQUIPMENT	SEE CODE	15.82	16.86	10.20	42.88	430.24	125% OF LARGEST MOTOR, 100% OF REMAINING
DEMAND KVA PER PHASE		58.01	54.90	49.56			
DEMAND AMPS PER PHASE		483	457	413			

THE CALCULATED LIGHTING LOAD EXCEEDS THE CONNECTED LIGHTING LOAD.



NOTE: WHERE THE CONDITIONS ARE AS FOLLOWS:

- CONDITION 1 - EXPOSED LIVE PARTS ON ONE SIDE OF THE WORKING SPACE AND NO LIVE OR GROUNDED PARTS ON THE OTHER SIDE OF THE WORKING SPACE, OR EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORKING SPACE THAT ARE EFFECTIVELY GUARDED BY INSULATING MATERIALS.
- CONDITION 2 - EXPOSED LIVE PARTS ON ONE SIDE OF THE WORKING SPACE AND GROUNDED PARTS ON THE OTHER SIDE OF THE WORKING SPACE. CONCRETE, BRICK, OR TILE WALLS SHALL BE CONSIDERED AS GROUNDED.
- CONDITION 3 - EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORKING SPACE.

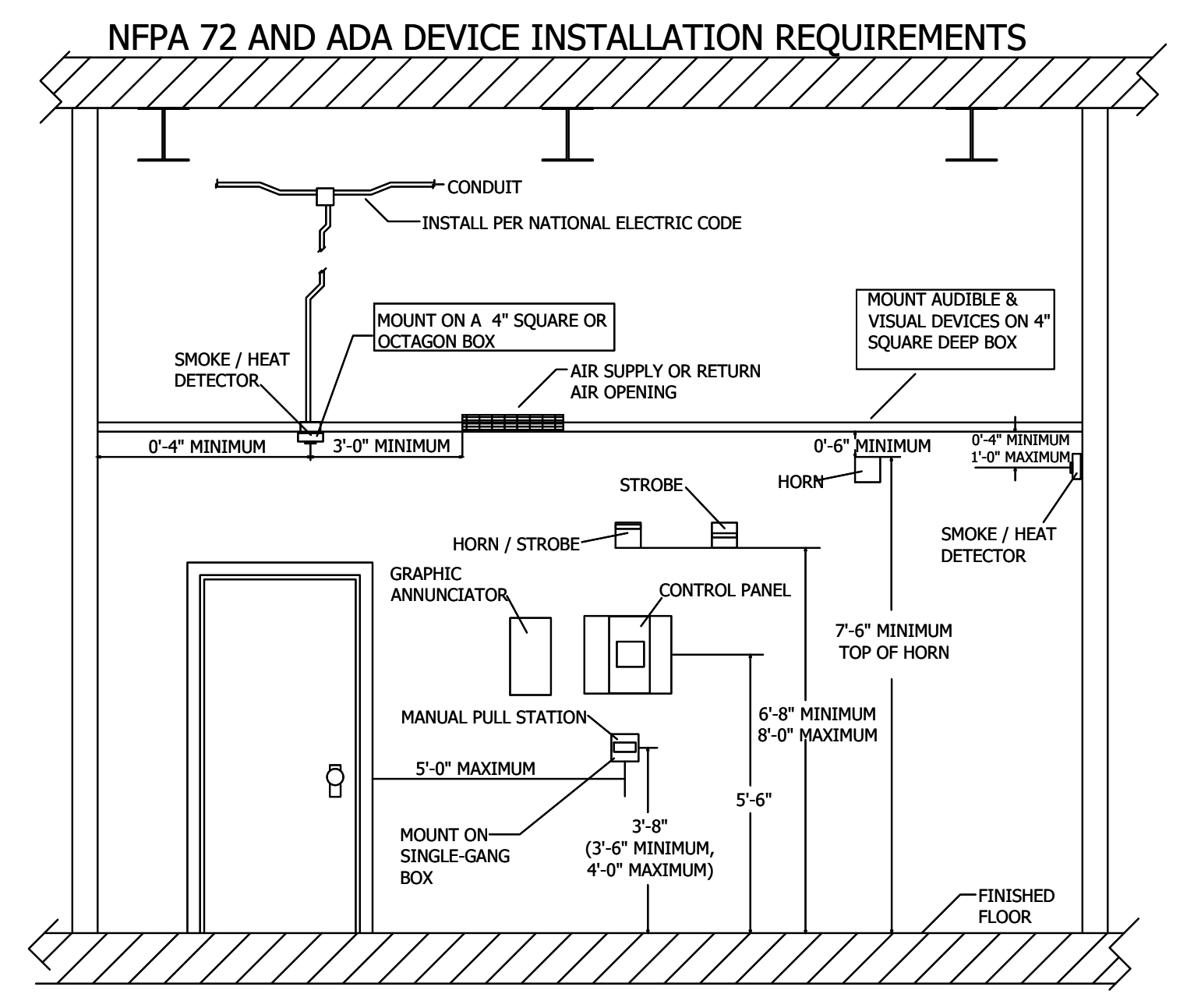
VOLTAGE TO GROUND, NOMINAL	TABLE 110.26(A)(1) WORKING SPACE		
	MINIMUM CLEAR DISTANCE (FEET)	2	3
0-150	3	3	3
151-600	3	3-1/2	4

REQUIRED CLEARANCES-NO SCALE

PANEL SCHEDULES AND POWER RISER: NO SCALE 1



**WIRE REQUIREMENTS**  
 NAC CIRCUITS – 16/2, SOLID, FPLP WIRE  
 DATA CIRCUITS – 18/2, SOLID, FPLP WIRE



**NFPA 170 SYMBOL GUIDE**

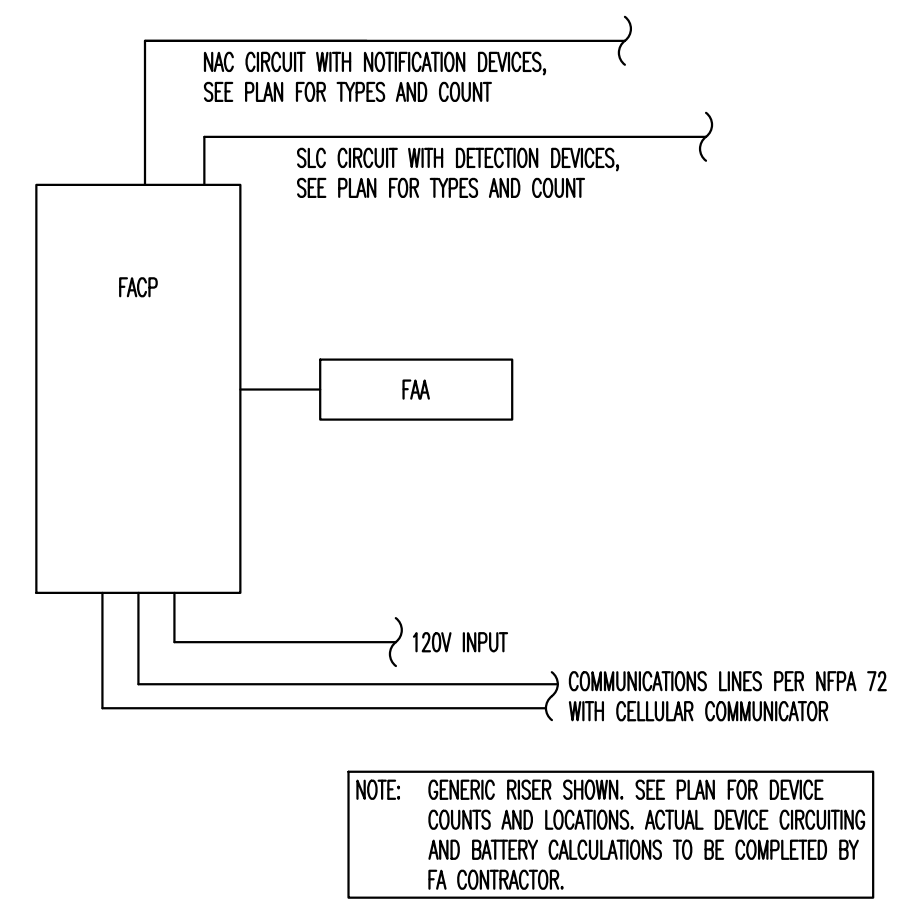
SYMBOL	DESCRIPTION
[FACP]	FIRE ALARM CONTROL PANEL
[FAA]	FIRE ALARM ANNUNCIATOR
[WFS]	WATER FLOW SWITCH
[VSS]	VALVE SUPERVISORY SWITCH (TAMPER SWITCH)
[HDS]	HEAT DETECTOR/SENSOR (RATE OF RISE)
[F]	PULL STATION / FIRE ALARM
[SD]	SMOKE DETECTOR/SENSOR (DEFAULT PHOTOELECTRIC TYPE)
[SS]	SMOKE ALARM (SINGLE STATION/RESIDENCE)
[SDS]	DUCT SMOKE DETECTOR (NFPA 72, SECTION 17.7.5.5)
[A]	AUDIBLE ONLY APPLIANCE (WALL MOUNTED) (BELL, LOUISIANE SPRINKLERS)
[V]	VISUAL ONLY APPLIANCE (WALL MOUNTED)
[A/V]	AUDIBLE/VISUAL APPLIANCE (WALL MOUNTED)
[C]	VISUAL ONLY APPLIANCE (CEILING MOUNTED)
[A/C]	AUDIBLE ONLY APPLIANCE (CEILING MOUNTED)
[A/V/C]	AUDIBLE/VISUAL APPLIANCE (CEILING MOUNTED)
[R]	END OF LINE RESISTOR

- FIRE ALARM GENERAL NOTES**
- THE FOLLOWING ABBREVIATIONS SHALL APPLY TO NOTES AND PLANS:  
 PC – PLUMBING CONTRACTOR, EC – ELECTRICAL CONTRACTOR,  
 MC – MECHANICAL CONTRACTOR, GC – GENERAL CONTRACTOR,  
 FASC – FIRE ALARM SYSTEM CONTRACTOR.
  - "PROVIDE" MEANS TO FURNISH AND INSTALL.
  - THE FIRE ALARM SYSTEM CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR, ETC., AS NECESSARY FOR A COMPLETE AND OPERATIONAL FIRE ALARM SYSTEM.
  - THESE DRAWINGS ARE DIAGRAMMATIC AND DO NOT SHOW ALL MINOR DETAILS AND EXACT LOCATIONS. THE FASC SHALL ALLOW FOR ADJUSTMENTS TO ACCOMMODATE INTERFERENCES BOTH PLANNED AND UNPLANNED AND SHALL INCLUDE SUCH CONTINGENCIES IN THEIR BID.
  - THE SUCCESSFUL FIRE ALARM BIDDER SHALL PROVIDE CONSTRUCTION DOCUMENTS TO THE AUTHORITY HAVING JURISDICTION FOR APPROVAL INCLUDING ALARM CONTROLS AND TROUBLE SIGNALING EQUIPMENT, ANNUNCIATION, POWER CONNECTIONS, BATTERY CALCULATIONS, VOLTAGE DROP CALCULATIONS, CONDUCTOR TYPES AND SIZES, LOCATIONS OF INITIATING AND NOTIFICATION APPLIANCES, AND MANUFACTURERS, MODEL NUMBERS, AND LISTING INFORMATION FOR ALL EQUIPMENT, DEVICES AND MATERIALS.
  - ALL WORK SHALL BE IN ACCORDANCE WITH NFPA 72 AND APPLICABLE SECTIONS OF NFPA 70 AND 13.
  - CONDUIT, CONDUCTORS, BOXES, AND HANGERS SHALL BE THE SAME AS THOSE SPECIFIED IN THE ELECTRICAL SYSTEM.
  - ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL BEAR UL LABEL OR EQUIVALENT WHERE APPLICABLE.
  - THE FIRE ALARM SYSTEM SHALL BE OF THE ADDRESSABLE TYPE WITH EACH INITIATING DEVICE REPORTING INDIVIDUALLY TO THE FIRE ALARM CONTROL PANEL. ONLY THE MANUFACTURER OR AN AUTHORIZED DISTRIBUTOR WHO STOCKS SPARE COMPONENTS FOR THE ENTIRE SYSTEM SHALL CONNECT, PROGRAM, OR TEST THE ADDRESSABLE FIRE ALARM SYSTEM. ALL TECHNICIANS PERFORMING SUCH WORK SHALL BE TRAINED AND INDIVIDUALLY CERTIFIED BY THE MANUFACTURER FOR THE MODEL OF SYSTEM BEING INSTALLED. COPIES OF THEIR CERTIFICATION SHALL BE AVAILABLE UPON REQUEST. THE MANUFACTURER OR AUTHORIZED DISTRIBUTOR SHALL STORE THE COMPLETE PROGRAMMING FOR THE ADDRESSABLE SYSTEM ON A COMPUTER DISK OR DISKETTE OR OTHER MEDIA AND ARCHIVE APPROPRIATELY. A COPY OF THE PROGRAM SHALL BE MADE AVAILABLE TO THE OWNER WHEN THE SYSTEM IS COMMISSIONED. THE MANUFACTURER OR AUTHORIZED DISTRIBUTOR SHALL MAINTAIN SOFTWARE VERSION RECORDS ON THE SYSTEM INSTALLED AND PROVIDE FREE UPGRADES IF THE MANUFACTURER RELEASES A NEW VERSION OF THE SOFTWARE DURING THE WARRANTY PERIOD. PROVIDE A SYSTEM FUNCTION MATRIX THAT GIVES THE FIRE ALARM CONTROL PANEL RESPONSE FOR EACH INITIATING DEVICE.
  - THE SYSTEM SHALL BE NOMINAL 24VDC, NON-CODED, AND SUPERVISED (INCLUDING CONTROL CIRCUITS). ALL EQUIPMENT SUPPLIED MUST BE LISTED FOR ITS PARTICULAR USE AND INSTALLED IN ACCORDANCE WITH ANY INSTRUCTIONS APPLICABLE TO ITS LISTING.
  - THE SYSTEM SHALL BE ELECTRICALLY SUPERVISED FOR OPEN OR GROUND FAULT CONDITIONS IN DETECTION, ALARM, AND CONTROL CIRCUITS. THE REMOVAL OF ANY DETECTION DEVICE, ALARM APPLIANCE, PLUG-IN RELAY, SYSTEM MODULE, OR STANDBY BATTERY CONNECTION SHALL ALSO ACTIVATE A TROUBLE SIGNAL. THE FIRE ALARM SIGNAL SHALL OVERRIDE TROUBLE SIGNALS, BUT THE FIRE-ALARM TROUBLE SIGNAL SHALL REAPPEAR WHEN THE PANEL IS RESET.
  - PROVIDE EACH SIGNALING LINE CIRCUIT WITH A MINIMUM OF 20 PERCENT SPARE ADDRESSES FOR FUTURE USE.
  - THE CONNECTIONS BETWEEN INDIVIDUAL ADDRESSABLE MODULES AND THEIR CONTACT TYPE INITIATING DEVICES MUST BE SUPERVISED.
  - THE FIRE ALARM CONTROL PANEL (FACP) POWER SUPPLY MUST HAVE A CONTINUOUS RATING ADEQUATE TO POWER ALL DEVICES AND FUNCTIONS IN FULL ALARM CONTINUOUSLY. BATTERIES MUST MEET THE APPROPRIATE NFPA CAPACITY REQUIREMENTS. THE FACP SHALL INCLUDE AN ALARM SILENCE SWITCH AND SHALL BE EQUIPPED WITH THE SUBSEQUENT ALARM RESOUND FEATURE. THE ALARM SILENCING AND RESET FEATURE SHALL NOT REVERSE AIR HANDLING UNITS SHUTDOWN. A SUPERVISED "HAC SYSTEM SHUTDOWN" SWITCH MUST BE PROVIDED IN THE FACP WITH ITS "NORMAL" POSITION INDICATED.
  - ALL CONNECTIONS MADE AT THE FACP MUST BE BY THE MANUFACTURER'S AUTHORIZED FACTORY TRAINED PERSONNEL (NOT THE ELECTRICAL CONTRACTOR).
  - PERMANENT WIRE MARKERS SHALL BE USED TO IDENTIFY ALL CONNECTIONS AND TERMINATIONS FOR EACH CIRCUIT. ALL FIRE ALARM JUNCTION BOXES SHALL BE SPRAYED RED AND LABELED "FIRE ALARM." TERMINAL BLOCKS SHALL BE PROVIDED IN ALL JUNCTION BOXES WHERE CONNECTIONS ARE MADE. IDENTIFICATION AT SPLICES SHALL INDICATE WHICH CONDUCTOR LEADS TO THE FACP.
  - THE FOLLOWING COLOR SCHEME SHALL BE USED FOR SYSTEM CONDUCTORS:  
 17.1. INITIATING CIRCUITS (OTHER THAN SMOKE) RED & WHITE  
 17.2. INITIATING CIRCUITS (SMOKE DETECTION) VIOLET & GRAY  
 17.3. NOTIFICATION APPLIANCE CIRCUITS BLUE & BLACK  
 17.4. AIR HANDLING SHUT DOWN CIRCUITS YELLOW  
 17.5. DOOR CONTROL CIRCUITS ORANGE  
 17.6. ELEVATOR CIRCUITS BROWN
  - LOW VOLTAGE WIRING SHALL NOT BE INSTALLED IN ANY RACEWAY CONTAINING POWER OR LINE VOLTAGE CONTROL WIRING. WITHIN THE FACP, ANY AC CONTROL WIRING SHALL BE PROPERLY SEPARATED FROM OTHER CIRCUITS AND THE ENCLOSURE SHALL BE LABELED TO ALERT SERVICE PERSONNEL TO THE HAZARD.
  - DEVICES SHALL BE INSTALLED AS INDICATED ON THE PLANS AND AS DETAILED. WHENEVER POSSIBLE, DEVICES SHOULD BE CENTERED ON SPACES OR LOCATED ABOVE OTHER OUTLETS. SMOKE DETECTORS SHALL NOT BE LOCATED WITHIN THREE (3) FEET OF AN HVAC SUPPLY OR RETURN. INSTALL WALL MOUNTED SMOKE DETECTORS A MAXIMUM OF TWELVE (12) INCHES FROM CEILING.
  - PROVIDE A PERMANENT MARKER ON EACH DEVICE INSTALLED INDICATING THE DEVICE NUMBER AND ADDRESSABLE LOOP NUMBER. PROVIDE THE SAME INFORMATION INSIDE THE BOX FOR EACH DEVICE.
  - ALL HVAC EQUIPMENT SHALL SHUTDOWN UPON ACTIVATION OF ANY FIRE ALARM DEVICE.
  - WATER FLOW SWITCHES, VALVE TAMPER SWITCHES, AND PRESSURE SWITCHES SHALL BE PROVIDED AND INSTALLED BY THE SPRINKLER CONTRACTOR, CONNECTED BY THE ELECTRICAL CONTRACTOR, AND SUPERVISED BY THE FACP.
  - TESTING SHALL INCLUDE ALL TESTS REQUIRED FOR THE ELECTRICAL SYSTEMS IN ADDITION TO TESTING AND CERTIFICATION BY THE FIRE ALARM SYSTEM SUPPLIER. PROVIDE INSTRUCTION MANUALS TO OWNER PERSONNEL.
  - FASC SHALL VERIFY THAT ALL VISIBLE NOTIFICATION DEVICES ARE SYNCHRONIZED PER NFPA 72.
  - VERIFY DECIBEL LEVELS ARE MINIMUM 60 DBA AND MAXIMUM 120 DBA THROUGHOUT THE ZONE; ADJUST DEVICES AS NECESSARY. MAINTAIN MINIMUM 100 DBA IN EQUIPMENT AND MECHANICAL ROOMS.
  - DEVICES MUST MEET SURVIVABILITY REQUIREMENTS OF THE NFPA AS APPLICABLE.
  - THE AUDIBLE ALARM NOTIFICATION APPLIANCES SHALL PROVIDE A SOUND PRESSURE LEVEL OF 15 DECIBELS (dBA) ABOVE THE AVERAGE AMBIENT SOUND LEVEL OR 5 dBA ABOVE THE MAXIMUM SOUND LEVEL HAVING A DURATION OF AT LEAST 60 SECONDS, WHICHEVER IS GREATER, IN EVERY OCCUPABLE SPACE WITHIN THE BUILDING.
  - IN ACCORDANCE WITH SECTION F510 OF THE NC FIRE PREVENTION

FIRE ALARM DETAILS - NOT TO SCALE 1

FIRE ALARM SCHEDULES 2

FIRE ALARM NOTES 3



FIRE ALARM RISER - NOT TO SCALE 4

**FIRE ALARM SYSTEM INPUT/OUTPUT MATRIX**

SYSTEM INPUTS	SYSTEM OUTPUTS																								
	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																									
2 FIRE ALARM SYSTEM LOW BATTERY																									
3 OPEN CIRCUIT																									
4 GROUND FAULT																									
5 NOTIFICATION APPLIANCE CIRCUIT SHORT																									
6 BUILDING MANUAL PULL STATION																									
7 CORRIDOR SMOKE DETECTORS																									
8 AREA SMOKE DETECTORS																									
9 HVAC AIR DUCT SMOKE DETECTORS																									
10 AREA HEAT DETECTORS																									
11 HOOD OR ROOM FIRE SUPPRESSION SYSTEM ALARM																									
12 SPRINKLER TAMPER SWITCH																									
13 SPRINKLER WATER FLOW IN BUILDING																									
14 SPRINKLER WATER FLOW IN ELEV EQUIP RM OR SHAFT																									
15 ELEV EQUIP RM AREA SMOKE DETECTOR																									
16 ELEV SHAFT AND ELEV EQUIP RM HEAT DETECTORS																									
17 ELEV LOBBY SMOKE DETECTORS - UPPER FLOORS																									
18 ELEV LOBBY SMOKE DETECTOR - REGALL FLOOR																									
19 ELEV CONTROLLER POWER SHUNT TRIP STATUS																									
20 FIRE PUMP POWER FAILURE/PHASE REVERSAL																									
21 FIRE PUMP RUNNING																									
22 FIRE PUMP SYSTEM NOT IN AUTOMATIC																									
23 LEGALLY REQUIRED GENERATOR SYSTEM LOW FUEL																									
24 LEGALLY REQUIRED GENERATOR NOT IN AUTOMATIC																									
25 AREA OF REFUGE TWO-WAY COMMUNICATIONS STATUS																									
26 -																									
27 -																									

FIRE ALARM MATRIX 5

REVISION:

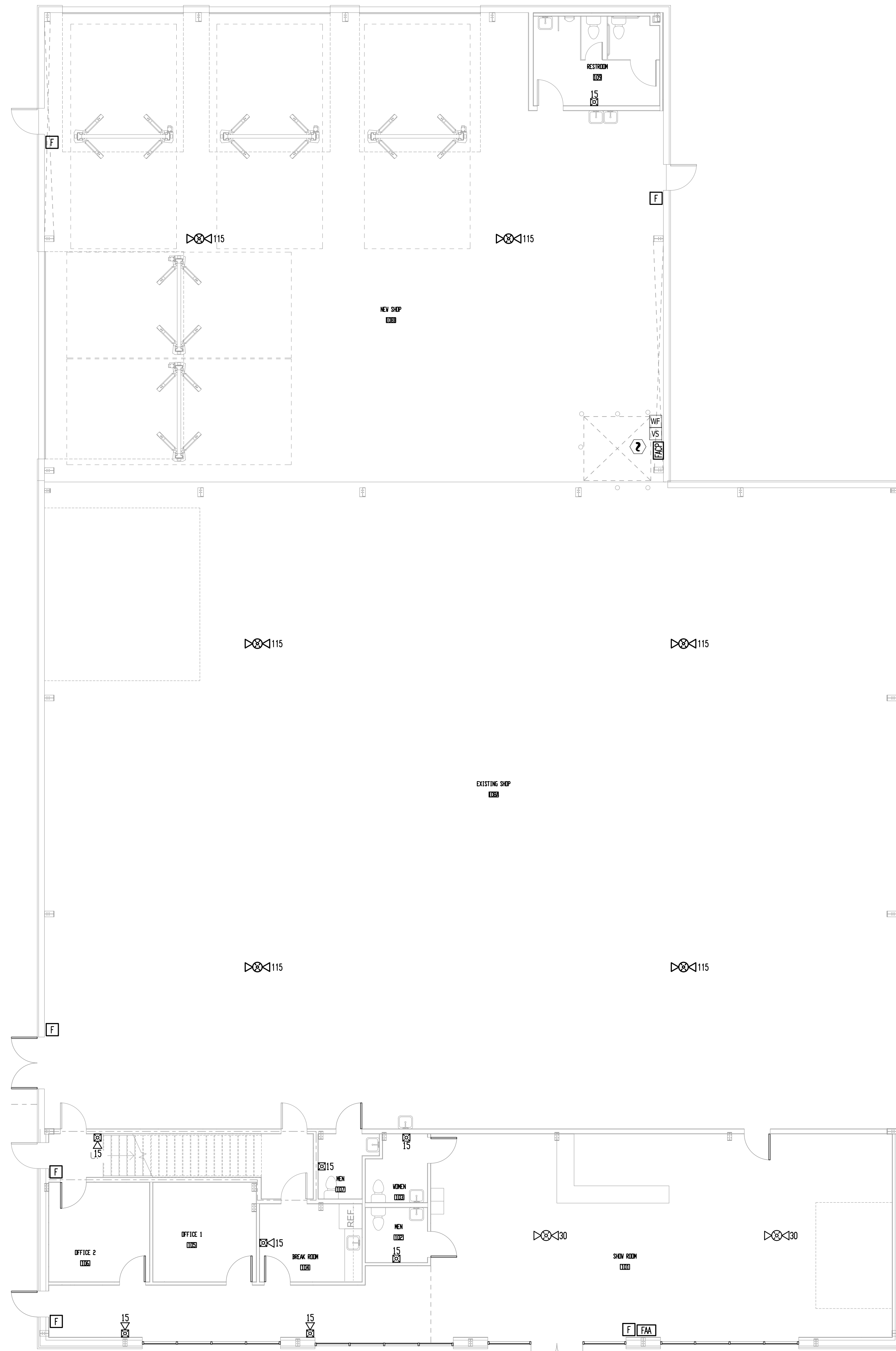
ISSUED:

DRAWN BY: DBS  
 CHECKED BY: MM/JJH  
 FIRE ALARM NOTES AND MATRIX

SHEET NO. **FA1**

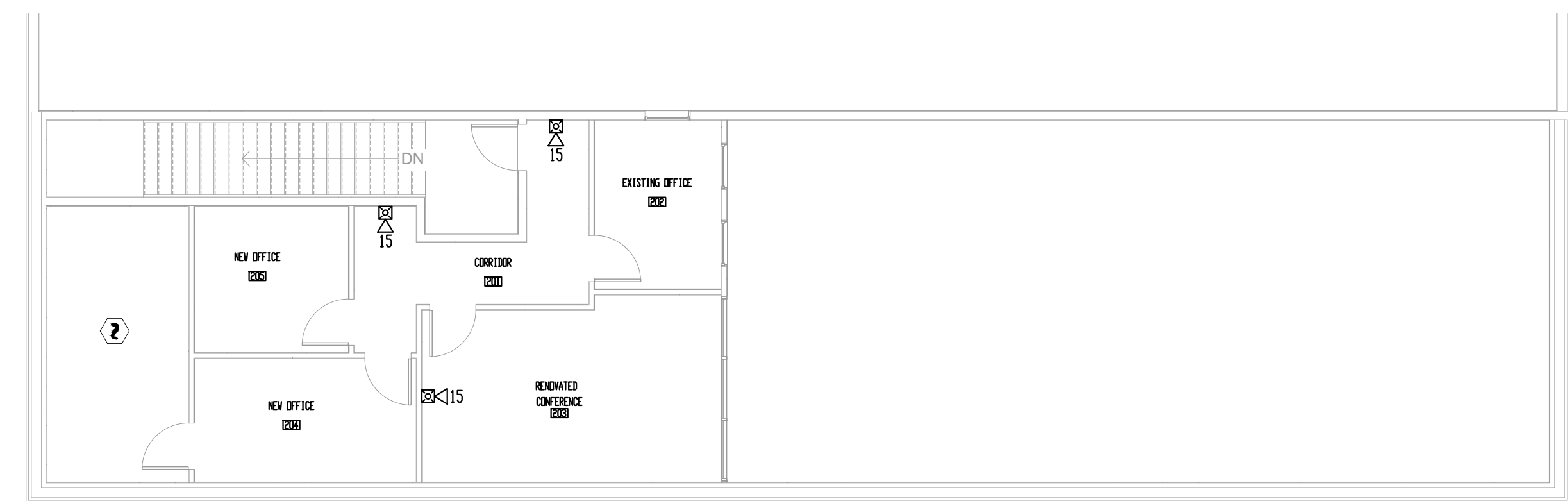
PROJECT NO: 22354





VERIFY EXACT LOCATION OF RPS FOR SPRINKLER SYSTEM ON SITE WITH SPRINKLER CONTRACTOR

FIRST FLOOR FIRE ALARM PLAN: SCALE - 1/8" = 1'0" 1



SECOND FLOOR FIRE ALARM PLAN: SCALE - 1/8" = 1'0" 2



DESIGN FOR:  
**CAROLINA DIESEL TRUCK ADDITION**  
 62 PROGRESS DRIVE  
 FLOQUA, VAHANA, NC

REVISION:


ISSUED:


DRAWN BY: DBAS  
 CHECKED BY: MIN/JAH  
 FIRE ALARM PLAN

SHEET NO.  
**FA2**