

Alamance Consulting Engineers
 961-F Burlington Ave.
 Gibsonville, N.C. 27249
 Phone: (336) 449-4558
 www.ace-nc.net
 N.C. Firm License Number C-2071

GROOMS EQUIPMENT
 3254 Boywood Rd.
 Graham, NC 27253

GROOMS EQUIPMENT TRAINING BUILDING
 Graham, North Carolina

DRAWING NAME:
ELECTRICAL PLAN



DRAWN: JNK
 CHECKED: SJB
 DATE: 8/24/22
 SCALE: AS NOTED
 JOB NO: 22052
 SHEET

E-2

ELECTRICAL NOTES:

- BREAKERS SHALL HAVE "AIC" RATING GREATER THAN THE FAULT CURRENT. ELECTRICAL CONTRACTOR IS TO CONTACT POWER COMPANY FOR AVAILABLE FAULT CURRENT. SERIES RATING IS PERMISSIBLE. ALL PANELS ARE TO BE MARKED WITH AVAILABLE FAULT CURRENT VALUES IN ACCORDANCE WITH NEC ARTICLE 110.24.
- FUSES IN SERVICE DISCONNECTS SHALL BE CURRENT LIMITING TYPE.
- COORDINATE ALL HVAC WIRING WITH MECHANICAL CONTRACTOR.
- EMERGENCY LIGHTING AND EXIT SIGNS TO BE CONNECTED AHEAD OF ANY SWITCHING.
- WIRE TO BE COPPER TYPE THHN (EXTERIOR) AND COPPER TYPE THHN (INTERIOR) OR APPROVED EQUAL UNLESS NOTED OTHERWISE.
- COORDINATE LOCATION OF ALL DEVICES AND MOUNTING HEIGHTS OF RECEPTACLES WITH OWNER.
- ALL ELECTRICAL COMPONENTS ARE TO BE UL LISTED.
- EQUIPMENT GROUND CONDUCTOR TO BE PROVIDED IN ACCORDANCE WITH NEC SECTION 250.
- ALL INTERIOR WIRING TO BE RUN IN EMT OR MC CABLE EXCEPT WHERE PROHIBITED BY THE NATIONAL ELECTRIC CODE.
- EXHAUST FANS ARE TO BE FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR. FANS TO BE WIRED BY ELECTRICAL CONTRACTOR.
- ALL EXTERIOR LIGHTING TO BE WIRED THROUGH A LIGHTING CONTACTOR AND CONTROLLED BY A PHOTOCELL AND TIMECLOCK.
- THE CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL CONDUIT AND EQUIPMENT WITH ALL OTHER TRADES PRIOR TO BEGINNING INSTALLATION TO AVOID CONFLICTS AND INTERFERENCE WITH OTHER TRADES.
- FINAL UTILITY CONNECTIONS (GAS, ELECTRIC, WATER, ETC.) TO EQUIPMENT SHALL BE MADE BY THE CONTRACTOR INSTALLING THE EQUIPMENT REQUIRING THE UTILITIES.
- ELECTRICAL DRAWINGS ARE DIAGRAMMATIC. THERE IS NO INTENT TO INDICATE ALL FITTINGS REQUIRED. GENERALLY, CONDUIT SHALL BE INSTALLED PARALLEL OR PERPENDICULAR TO AND PLUMB WITH WALL CONSTRUCTION.
- REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONED LOCATIONS OF WALL AND PARTITIONS AND FOR PARTITION THICKNESS AND CONSTRUCTION MATERIALS.
- ELECTRICAL POWER REQUIREMENTS FOR HVAC EQUIPMENT ARE BASED ON MANUFACTURER'S PUBLISHED DATA. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH GENERAL CONTRACTOR AND/OR MECHANICAL CONTRACTOR TO CONFIRM ELECTRICAL REQUIREMENTS HAVE NOT CHANGED DUE TO EQUIPMENT SUBSTITUTIONS OR OTHER CHANGES PRIOR TO PROVIDING FINAL BID AND PRIOR TO PURCHASING PANELS, CIRCUIT WIRING AND CIRCUIT BREAKERS SERVING HVAC EQUIPMENT.
- ALL RECEPTACLES 18" A.F.F. TO BOTTOM OF BOX UNLESS OTHERWISE NOTED.
- ALL NEW AND/OR ALTERED WIRING IS REQUIRED TO BE PERMITTED AND INSPECTED FOR COMPLIANCE WITH CURRENT NEC
- ALL PRE-WIRED EQUIPMENT SHALL BE LISTED BY STATE OF NC APPROVED 3RD PARTY AGENCY, [NEC 90.7; 110.3(B)].
- ALL WIRING, INCLUDING LOW VOLTAGE, DATA, PHONE, FIRE ALARM, SECURITY, HVAC CONTROLS, AND POWER SHALL BE PERMITTED AND INSPECTED PER NC GENERAL STATUTES.
- CLEARANCE REQUIRED AT ELECTRICAL EQUIPMENT, (NEC 110.26).
- SERVICE EQUIPMENT SHALL BE LEGIBLY MARKED IN THE FIELD WITH THE MAXIMUM AVAILABLE FAULT CURRENT. THE FIELD MARKING(S) SHALL INCLUDE THE DATE THE FAULT CURRENT CALCULATION WAS PERFORMED AND BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED. NEC 110.24(A)
- ALL ELECTRICAL TO BE INSTALLED IN ACCORDANCE WITH LATEST ADOPTED NEC.

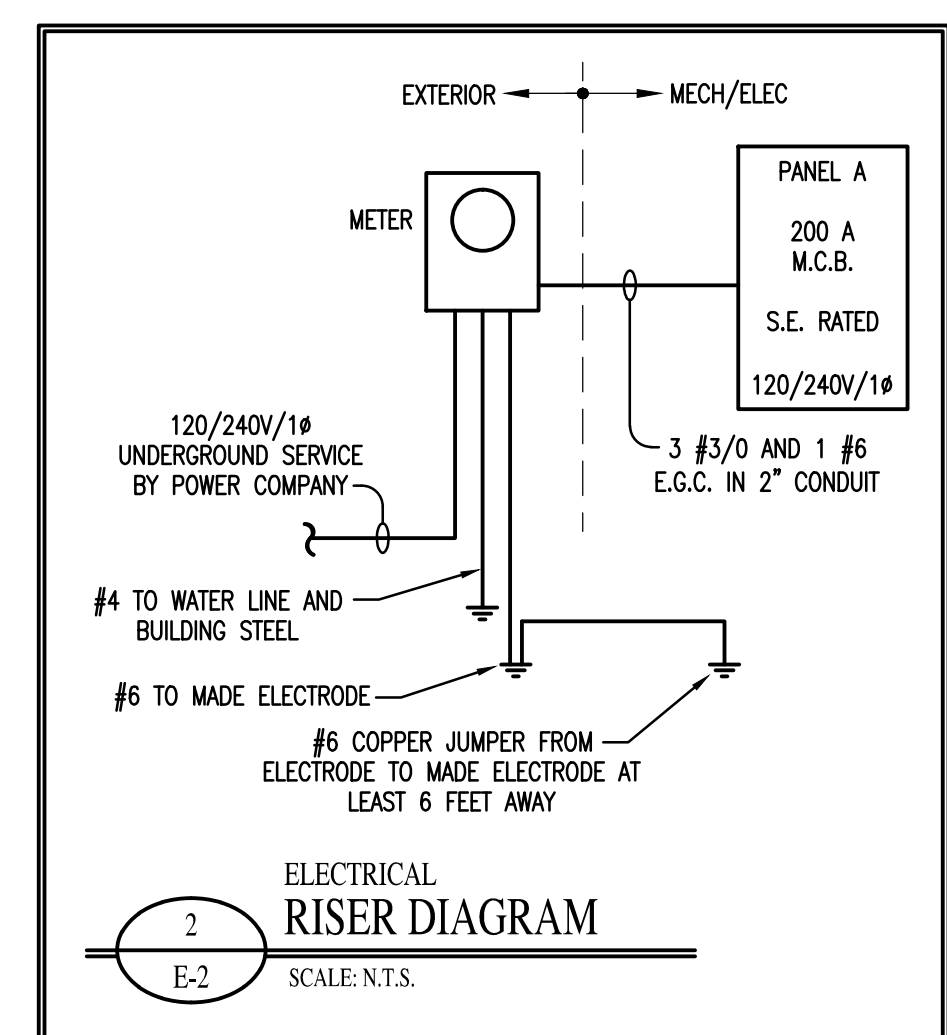
OVERCURRENT PROTECTION	FEEDER TABLE			
	TYPE			
	COPPER		ALUMINUM	
WIRE*	CONDUIT*	WIRE*	CONDUIT*	
15	#14	1/2"	#12	1/2"
20	#12	1/2"	#10	1/2"
25	#10	1/2"	#10	1/2"
30	#10	1/2"	#8	3/4"
35	#8	1/2"	#8	3/4"
40	#8	3/4"	#8	3/4"
45	#8	3/4"	#6	1"
50	#8	3/4"	#6	1"
55	#6	1"	#4	1-1/4"
60	#6	1"	#4	1-1/4"
70	#4	1-1/4"	#3	1-1/4"
80	#4	1-1/4"	#2	1-1/4"
90	#3	1-1/4"	#2	1-1/4"
100	#3	1-1/4"	#1	1-1/2"
110	#2	1-1/4"	#1/0	2"
125	#1	1-1/2"	#2/0	2"
150	#1/0	2"	#3/0	2"
175	#2/0	2"	#4/0	2-1/2"
200	#3/0	2"	#250	2-1/2"
225	#4/0	2"-1/2"	#300	2"-1/2"

*UNLESS OTHERWISE NOTED

ELECTRICAL LEGEND	
SYMBOL	DESCRIPTION
	120V DUPLEX RECEPTACLE
	120V DUPLEX RECEPTACLE GROUND FAULT INTERRUPTER
	120V DUPLEX RECEPTACLE GROUND FAULT INTERRUPTER, WEATHER PROOF
	240V RECEPTACLE
	FLOOR MOUNTED 120V QUAD RECEPTACLE
	UNFUSED DISCONNECT
	TELE/DATA OUTLET
	TV CABLE OUTLET
	JUNCTION BOX
	ELECTRICAL PANEL
	DENOTES RECEPTACLES TO BE MOUNTED ABOVE COUNTER AT 42" AFF

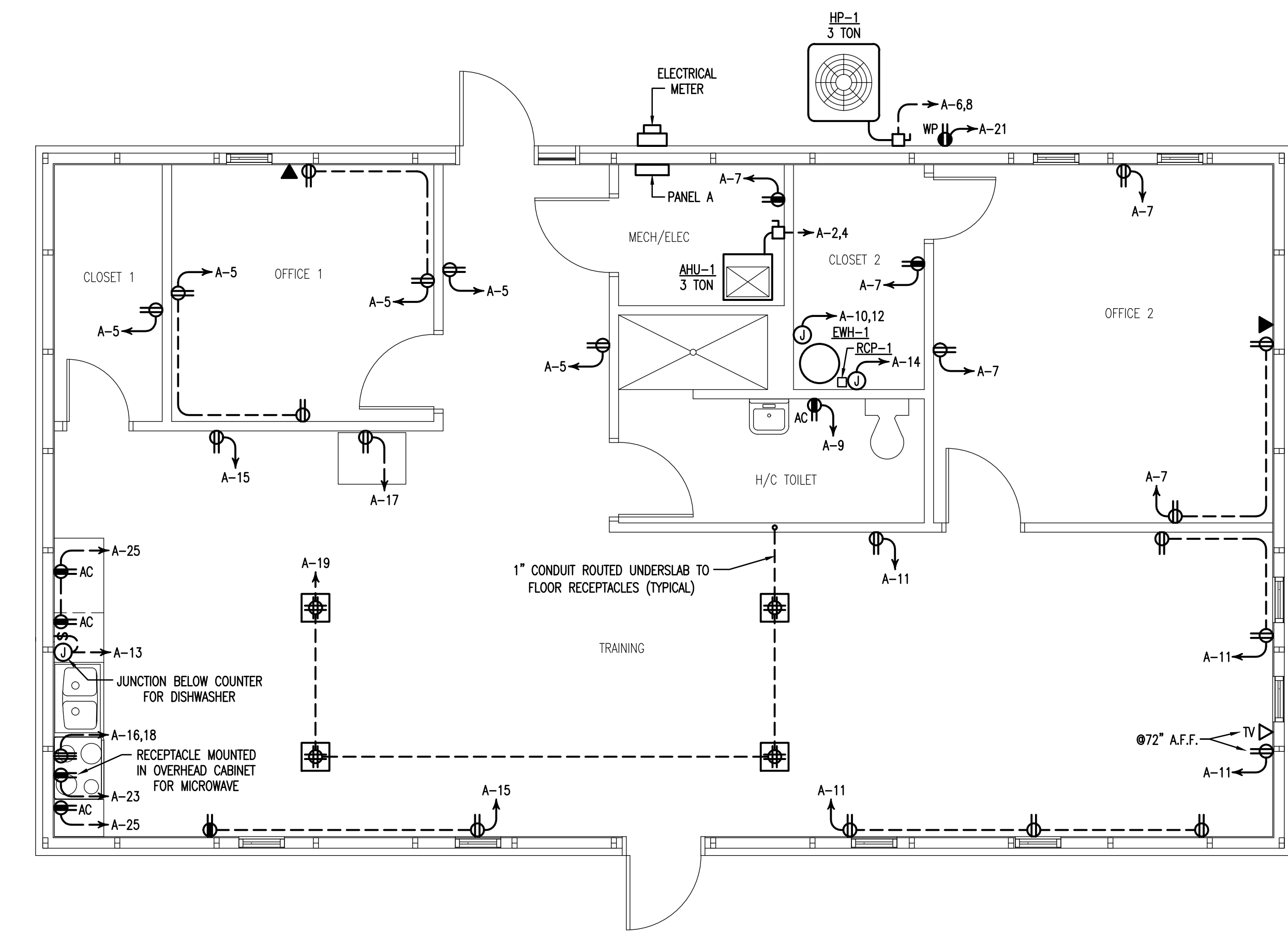
PANEL A - LOAD CALCULATION SUMMARY			
ITEM	TOTAL VA	(X) D.F.	VA
LIGHTING	1,583	125 (%)	1,979
EXTERIOR LIGHTING	0	125 (%)	0
RECEPTS. (FIRST 10 KVA)	9,330	100 (%)	9,330
RECEPTS. (REMAINING KVA @50%)	0	50 (%)	0
HVAC	14,700	100 (%)	14,700
SHOW WINDOWS	0	125 (%)	0
WATER HEATER	4,500	125 (%)	5,625
SIGN	0	125 (%)	0
MOTORS	0	125 (%)	0
EQUIPMENT	8,000	100 (%)	8,000
KITCHEN EQUIPMENT	0	70 (%)	0
TOTAL	38,113		39,634
TOTAL AMPS = VA/240 =			165

NOTES:
 * RECEPTACLES ARE CALCULATED PER NEC TABLE 220.44
 * HVAC NAME PLATE RATING INCLUDES 125% DIVERSITY FACTOR

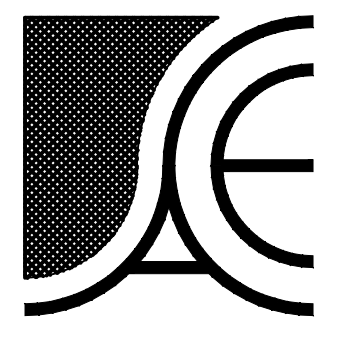


PANELBOARD SCHEDULE									
PANEL: A		VOLTS: 240V/120		MOUNT: SURFACE		AG: (SEE NOTE 1)		LOC: MECH/ELECT	
MAIN: MCB		AMPS: 200		PH/WIRE: 1/3		S.E. RATED			
CIR.	AMPS/ POLES	DESCRIPTION OF LOAD	LOAD VA	LOAD BY PHASE, VA	LOAD VA	DESCRIPTION OF LOAD	AMPS/ POLES	CIR.	
1	20/1	LIGHTING	980	6,260	5,280	AIR HANDLER (AHU-1)	45/2	2	
3	20/1	LIGHTING	603		5,883			4	
5	20/1	RECEPTS. - CLS. 1/OFF. 1	1,260	3,330	2,070	HEAT PUMP (HP-1)	30/2	6	
7	20/1	RECEPTS. - MECH/OFF. 2	1,080		3,150			8	
9	20/1	RECEPT. - TOILET	180	2,430	2,250	WTR. HTR. (EWH-1) (LO)	30/2	10	
11	20/1	RECEPTS. - TRAINING	1,260		3,510			12	
13	20/1	DISHWASHER	1,500	1,800	100	REC. PUMP (RCP) (LO)	20/1	14	
15	20/1	RECEPTS. - TRAINING	540		4,540	RANGE	50/2	16	
17	20/1	RECEPT. - REFRIG	500	4,500	4,000			18	
19	20/1	RECEPTS. - TRAIN. FLR.	1,440		1,440			20	
21	20/1	RECEPT. - EXTERIOR	180	180				22	
23	20/1	RECEPT. - MICROWAVE	750		750			24	
25	20/1	RECEPTS. - COUNTER	540	540				26	
27					0			28	
29					0			30	
31					0			32	
33					0			34	
35					0			36	
37					0			38	
39					0			40	
41					0			42	
CONNECTED VA PER PHASE			18,840	19,273					
TOTAL AMPERES PER PHASE			157	161					

(LO) - DENOTES BREAKER LOCK-OUT



1 ELECTRICAL PLAN
 E-2 SCALE: 1/4" = 1'-0"



Alamance Consulting Engineers

961-F Burlington Ave.
Gibsonville, N.C. 27249
Phone: (336) 449-4558
www.ace-nc.net
N.C. Firm License Number C-2071

GROOMS EQUIPMENT
3254 Boywood Rd.
Graham, NC 27253

GROOMS EQUIPMENT TRAINING BUILDING
Graham, North Carolina

COMcheck Software Version 4.1.5.3
Interior Lighting Compliance Certificate

Project Information
Energy Code: 90.1 (2013) Standard
Project Title: Grooms Equipment
Project Type: New Construction

Construction Site: Graham, NC
Owner/Agent: ACE
Designer/Contractor: ACE

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts (B X C)
1-Closet 1 (Common Space Types:Storage <50 sq.ft.)	45	1.24	56
2-Office 1 (Common Space Types:Office - Enclosed)	109	1.11	121
3-Mech / Elec (Common Space Types:Storage <50 sq.ft.)	38	1.24	47
4-Closet 2 (Common Space Types:Storage <50 sq.ft.)	48	1.24	60
5-H/C Toilet (Common Space Types:Restrooms)	81	0.98	79
6-Office 2 (Common Space Types:Office - Enclosed)	197	1.11	219
7-Training Rm. (Common Space Types:Classroom/Lecture/Training)	765	1.24	949
Total Allowed Watts =			1530

Proposed Interior Lighting Power

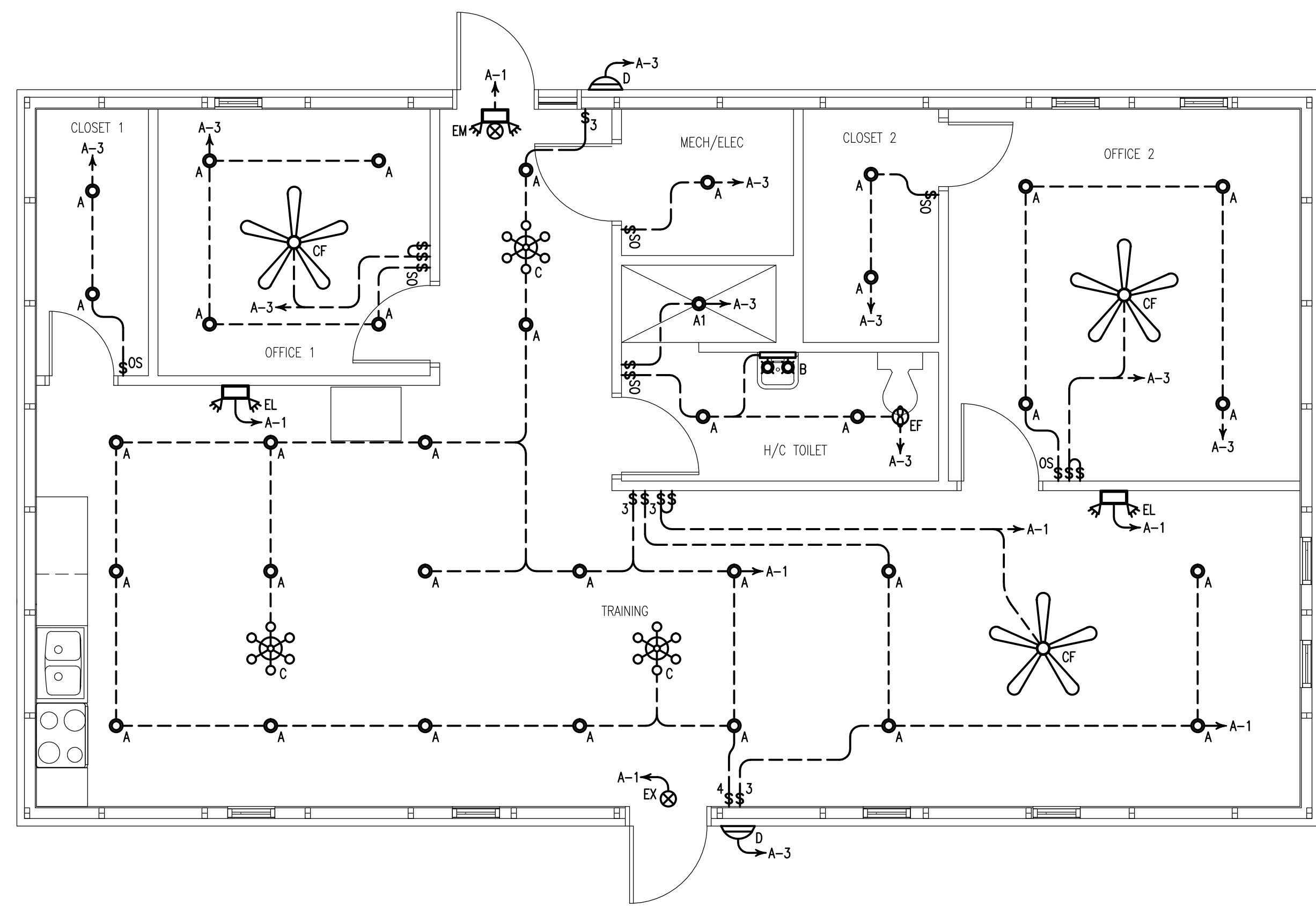
A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
1-Closet 1 (Common Space Types:Storage <50 sq.ft.) LED 1: A: Can Light: LED PAR 20W:	1	2	20	40
2-Office 1 (Common Space Types:Office - Enclosed) LED 2: A: Can Light: LED PAR 20W: LED 10: CF: Ceiling Fan: LED Other Fixture Unit 103W:	1	4	20	80
3-Mech / Elec (Common Space Types:Storage <50 sq.ft.) LED 3: A: Can Light: LED PAR 20W:	1	1	20	20
4-Closet 2 (Common Space Types:Storage <50 sq.ft.) LED 4: A: Can Light: LED PAR 20W:	1	2	20	40
5-H/C Toilet (Common Space Types:Restrooms) LED 5: A: Can Light: LED PAR 20W: LED 6: A1: Can Light: LED PAR 20W: LED 7: B: Vanity Light: LED PAR 20W:	1	2	20	40
6-Office 2 (Common Space Types:Office - Enclosed) LED 8: A: Can Light: LED PAR 20W: LED 9: CF: Ceiling Fan: LED Other Fixture Unit 95W:	1	4	20	80
7-Training Rm. (Common Space Types:Classroom/Lecture/Training) Incandescent 3: C: Chandelier: Incandescent 300W: LED 11: CF: Ceiling Fan: LED Other Fixture Unit 103W: LED 1: A: Can Light: LED PAR 20W:	6	3	150	450
Total Proposed Watts =				1470

Interior Lighting PASSES: Design 4% better than code

Interior Lighting Compliance Statement
Compliance Statement: The proposed interior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 90.1 (2013) Standard requirements in COMcheck Version 4.1.5.3 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

LIGHTING LEGEND

MARK	SYMBOL	DESCRIPTION
A	○	RECESSED MOUNTED LED CAN LIGHT, 20W
A1	○	RECESSED MOUNTED LED CAN LIGHT, WET LOCATION RATED, 20W
B	□	WALL MOUNTED LED VANITY LIGHT, 20W
C	⊙	LED CHANDELIER, 150W MAX.
CF	⊙	52" CEILING FAN W/LED LIGHT KIT, 100W MAX.
D	⌒	DECORATIVE EXTERIOR LED EMERGENCY LIGHT, W/HIGH-TEMPERATURE NICKEL-CADMIUM BATTERY, LITHONIA #AFF-OEL
EF	⊙	BATHROOM EXHAUST FAN, SEE EXHAUST FAN SCHEDULE FOR SPECIFICATIONS
EM	⊙	LED EMERGENCY/EXIT LIGHT WITH BATTERY BACK-UP
EL	⊙	LED EMERGENCY LIGHT WITH BATTERY BACK-UP
EX	⊙	LED EXIT SIGN WITH BATTERY BACK-UP
--	⊙	SINGLE POLE WALL SWITCH
--	⊙	LINE VOLTAGE WALL MOUNTED PIR OCCUPANCY SENSOR WITH MANUAL OVERRIDE. (30 MIN. MAX. OVERRIDE)
--	⊙	SINGLE POLE WALL SWITCHES (CEILING FAN) 1 SWITCH - FAN 1 SWITCH - LIGHT KIT



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

DRAWING NAME:
LIGHTING PLAN



DRAWN: JNK
CHECKED: SJB
DATE: 8/24/22
SCALE: AS NOTED
JOB NO: 22052
SHEET

E-1