

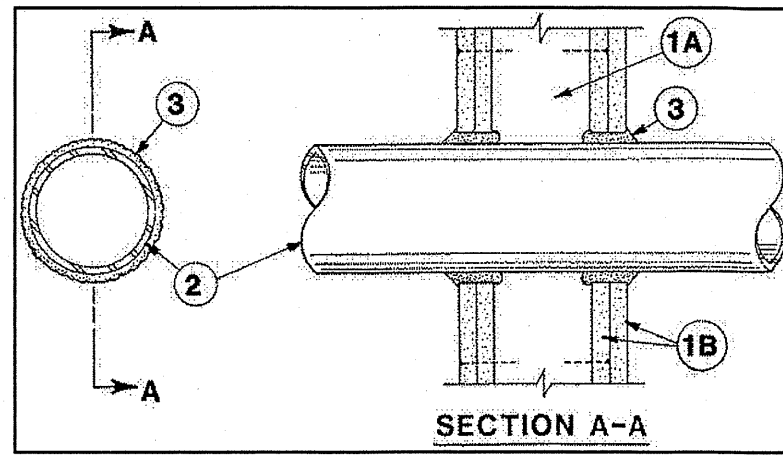
System No. W-L-1001

F Ratings --- 1, 2, 3 and 4 Hr (See Items 2 and 3)

T Ratings --- 0, 1, 2, 3, and 4 Hr (See Item 3)

L Rating At Ambient --- less than 1 CFM/sq ft

L Rating At 400 F --- less than 1 CFM/sq ft



1. Wall Assembly --- The 1, 2, 3 or 4 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or 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 (max 2 hr fire rated assemblies) or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC with nom 2 by 4 in. lumber end plates and cross braces. Steel studs to be min 3-5/8 in. wide by 1-3/8 in. deep channels spaced max 24 in. OC.

B. Gypsum Board --- Nom 1/2 or 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 U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 26 in.

2. Through-Penetrant --- One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit, or tubing and periphery of opening shall be min 0 in. (point contact) to max 2 in. 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 24 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.

B. Iron Pipe --- Nom 24 in. diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in. diam (or smaller) or Class 50 (or heavier) ductile iron pressure pipe.

C. Conduit --- Nom 6 in. diam (or smaller) steel conduit or nom 4 in. diam (or smaller) steel electrical metallic tubing.

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.

F. Through Penetrating Products --- Flexible Metal Piping --- The following types of steel flexible metal gas piping may be used:

1. Nom 2 in. diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

OMEGA FLEX INC

2. Nom 1 in. diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

GASTITE, DIV OF TITELIX

3. Nom 1 in. diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

WARD MFG LLC

Fill, Void or Dainty Materials --- Caulk or Sealant --- Min 5/8, 1-1/4, 1-7/8 and 2-1/2 in. thickness of caulk for 1, 2, 3 and 4 hr rated assemblies, respectively, applied within annulus, flush with both surfaces of wall. Min 1/4 in. diam bead of caulk applied to gypsum board/penetrant interface at point contact location on both sides of wall. The hourly F Rating of the firestop system is dependent upon the hourly fire rating of the wall assembly in which it is installed, as shown in the following table. The hourly T Rating of the firestop system is dependent upon the type or size of the pipe or conduit and the hourly fire rating of the wall assembly in which it is installed, as tabulated below:

Table with columns: Max Pipe or Conduit Diam in, F RATING Hr, T RATING Hr. Rows show ratings for 1, 2, 4, 8, and 12 inch diam pipes.

\*When copper pipe is used, T Rating is 0 hr.

3M COMPANY --- CP 25WB+ or FB-3000 WT.

\*Bearing the UL Classification Mark

DIVISION 16 - ELECTRICAL

PART 1 - GENERAL

1.1 DESCRIPTION OF THE WORK

A. Work under this section includes, but is not necessarily limited to, furnishing and installing the following:

- 1. Electrical service and equipment.
2. Lighting and power distribution system.
3. Provide lighting fixtures selected by owner with lamps to match.

- 4. Wiring devices, boxes, cover plates, etc.
5. Source of power for all items of equipment.
6. Grounding.
7. Other requirements and/or systems where shown.

B. All work shall be complete and items, equipment, etc., shall be electrically connected for proper and correct operation.

C. All work under this contract shall be installed in accordance with the latest edition of the following codes and standards insofar as they apply:

- 1. The 2017 National Electrical Code.
2. The National Electrical Safety Code.
3. Underwriter's Laboratories, Inc., Standards and approved listings.
4. Electrical Testing Laboratories standards.
5. North Carolina Building Code, Latest Edition and Revisions.
6. All local codes and ordinances.

D. The Electrical Contractor shall be licensed in the State of North Carolina and have all local licenses required for the work.

E. Obtain all permits, licenses, inspections, etc., required for the work and pay for the same. Furnish final certificate of inspection and approval from the electrical inspector having jurisdiction prior to acceptance of the work.

F. All work shall be done by skilled mechanics and shall present a neat, trim, workmanlike condition when complete.

1.2 INTENT

A. The intent of these specifications and the accompanying drawings is to convey as reasonably as possible the requirements for a complete job ready for the building to operate. The Electrical Contractor shall take this into consideration and include in his base bid allowance for contingencies as will allow him to provide minor pieces of equipment and labor not specifically indicated but required for the job to operate properly, at no additional cost to the Owner.

B. Locations shown are approximate. The drawings do not give exact details as to elevations and locations of various pipes, fittings, ducts, conduit, etc., and do not show all offsets and other installation details which may be required. Coordinate all locations with architect before any rough-in.

1.3 COORDINATION

A. Coordinate work with other contractors. Notify Architect of apparent conflicts early to expedite construction. If structural damage appears imminent, stop work and notify Architect for a decision before resuming operations.

B. Locations shown are approximate. The drawings do not give exact details as to elevations and locations of various pipes, fittings, ducts, conduit, etc., and do not show all offsets and other installation details which may be required. Coordinate all locations with architect before any rough-in.

C. Shop drawings shall be submitted for panels and service equipment, lighting, wiring devices, and cover plates. These may consist of the manufacturer's standard catalog or tear sheets and shall have the exact items being offered clearly identified.

D. All material shall be new and shall bear the manufacturer's name, trade name, and UL label where such standard has been established for the particular material. Materials shall be the standard products of manufacturer's regularly engaged in the manufacturer of the required type of equipment and the manufacturer's latest approved design.

1. Boxes installed in concealed locations shall be set flush with the finished surfaces.

2. Provide rated boxes in all fire barriers & walls installed per code.

2.2 NOT USED

2.3 CONDUCTORS

A. Conductors shall be color coded, sizes #8 and larger may be color taped on the job. Color coding shall be: Standard Practices.

B. Conductors shall be manufactured by Dodge, Southwire or approved equal. Conductors shall meet the latest requirements of NEMA and IPCEA and shall be UL approved.

C. Metallic sheathed "MC" cable may be used where allowed by N.E.C. Conductors shall be spliced and taped as follows:

- 1. Size #10 and #12, use ideal "Wing Nuts" or T&B "Piggy" connectors. Connectors shall be rated for 150 degrees C for use in recessed lighting fixtures.
2. Size #8 and larger shall be solderless screw and screw-clamping type, smoothly covered and shaped with rubber gum type with final cover vinyl plastic electrical type. In lieu of rubber gum and vinyl plastic type, factory fabricated approved preformed insulating covers may be used. All connectors shall be UL approved.
3. No split-bolt type connectors may be used.

E. All branch wire and connections shall be copper and sized per National Electric Code.

F. All conductors shall be continuous without splice between junction, outlet, device boxes, etc. No splicing will be permitted in panelboard cabinets, safety switches, etc.

G. All wiring in mechanical spaces shall be plenum rated.

H. Provide GFI protection within 6'-0" of any sink.

I. All multi-wire branch circuits shall comply with 2017 NEC, 210.4(B).

J. All wiring at medical facilities shall comply with 2017 NEC, 517.1.

2.4 PANELBOARDS, SAFETY SWITCHES

A. Panelboards shall comply with NEMA Standard PB 1 - Latest Edition and as manufactured by Square D or ILE-Siemens.

B. The contractor shall be responsible for correctly phasing the circuits in the panelboards.

C. Safety switches shall be general duty type, size and rating as required for load service. Safety switches shall be fused or unfused as shown and/or as required. Safety switches serving motor loads shall be horsepower rated for load served.

2.5 NOT USED

2.6 WIRING DEVICES

A. Wiring devices shall be commercial grade by Bryant, Leviton, or approved equal. With matching cover. Color by Architect.

B. Wiring devices installed under a Kitchen Hood shall have stainless steel covers.

C. Wiring devices installed over counters shall comply with ANSI A117.1.

2.7 NOT USED

2.8 CONDUIT

A. PVC conduit will be allowed where N.E.C. approved.
B. All service conduit shall be rigid where exposed below 6'-0" AFF or exposed to the elements or hazardous conditions.

PART 3 - EXECUTION

3.1 CIRCUIT GROUNDING

A. All circuits shall contain an insulated, green, copper grounding conductor, sized in accordance with Table 250-95 of the NEC. Grounding conductors shall be securely attached and grounded to the device or enclosure at the other end.

3.2 GROUNDING TYPE CONVENIENCE OUTLETS AND SWITCHES

A. Outlets and switches shall be solidly grounded to equipment grounding system with a green colored insulated conductor. Electrical connections shall be continuous from equipment ground bus in panelboard to the hex nut on the convenience outlet or switch.

3.3 MOTORS

A. All motors shall be connected to conduit system with short length (minimum length 24" and maximum length 36") of flexible liquidtight conduit.

3.4 NOT USED

3.5 EQUIPMENT LABELING

A. Provide permanent name plates for all panelboards, safety switches, wiring troughs, etc., for identification of equipment controlled, services, etc. Nameplates shall be securely and permanently attached to equipment with stainless steel screws. Nameplates shall include the name of the equipment and where it is fed from.

B. All switch plates, receptacle plates and outlet covers shall be labeled with machine printed vinyl labels identifying the circuit(s) within.

C. All empty conduit runs shall be identified and indicated where they terminate.

D. Provide typewritten directory in each panelboard to clearly identify each circuit, service, etc.

3.6 NOT USED

3.7 NOT USED

3.8 JUNCTION AND/OR PULL BOXES

A. Boxes shall be installed where necessary to avoid excessive runs and/or too many bends between outlets.

3.9 PULL WIRE

A. Leave pull wire in each empty conduit run.

3.10 NOT USED

3.11 GROUNDING

A. All grounding shall be in accordance with Article 250 of the NEC. In addition, the following requirements shall be met:

- 1. Grounding conductors shall be installed so as to permit the shortest and most direct path from equipment to ground. All connections to grounding conductors shall be accessible.
2. Equipment ground continuity shall be maintained through flexible metal conduit.

3. All wiring devices equipped with grounding connection shall be solidly grounded to ground system with grounding conductors.

4. The frame of all lighting fixtures shall be securely grounded to the equipment ground system with grounding conductors.

5. All equipment enclosures, and non-current-carrying metallic parts of electrical equipment, raceway systems, etc., shall be effectively and adequately bonded to ground.

6. All equipment enclosures, and non-current-carrying metallic parts of electrical equipment, raceway systems, etc., shall be effectively and adequately bonded to ground.

3.12 ELECTRICAL WORK IN CONNECTION WITH OTHER WORK

A. PLUMBING WORK: The Electrical Contractor shall furnish and install switches and devices as shown and electrically connect electric water heaters, etc. All other electrical work required will be performed by the PLUMBING CONTRACTOR.

B. HEATING AND AIR CONDITIONING WORK: The Electrical Contractor shall provide all disconnect switches, starters, and associated hardware for the equipment furnished including all line and load side wiring and conduit. Final connections to the equipment will be by the HVAC contractor. All control wiring will be accomplished by the HVAC contractor. Coordinate all work associated with the HVAC contractor.

3.13 CLEAN UP

A. During construction, keep the site clean of debris. Upon completion, and before final inspection, clean up the premises to remove all evidence of work. In addition upon completion of construction leave equipment clean.

3.14 GUARANTEE

A. Guarantee all materials and labor included in the electrical work for a period of one year from date of final acceptance by the Owner. Any part or parts of the work or equipment which prove to be defective during the guarantee period shall be replaced at no additional cost to the Owner.

GENERAL NOTES

1 ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND ALL LOCAL CODES HAVING JURISDICTION.

2 ALL BRANCH CIRCUIT CONDUCTORS TO BE COPPER (SERVICE CONDUCTORS MAY BE ALUMINUM WITH SAME AMPACITY AS COPPER CONDUCTORS. RE-SIZE CONDUCTORS AND CONDUIT PER NEC.)

3 ALL CIRCUITS TO BE 2 #12, 1 #12 GND IN 1/2" EMT CONDUIT AS A MINIMUM. PROVIDE WIRING FOR LARGER CIRCUITS AS REQUIRED BY NEC. RIGID CONDUIT IS REQUIRED WHERE EXPOSED BELOW 6'-0" A.F.F.

4 ALL EMPTY CONDUIT RUNS IN EXCESS OF 10 FEET SHALL BE PROVIDED WITH A FULL WIRE OR FISH TAPE/CORD.

5 CONTRACTOR SHALL VERIFY THAT ALL DOOR SWINGS ARE CORRECT BEFORE INSTALLING LIGHT SWITCH OUTLETS.

6 ALL BRANCH CIRCUIT CONDUCTORS FROM THE PANEL TO THE FIRST OUTLET SHALL BE INCREASED TO THE NEXT LARGER SIZE WHERE THE LENGTH OF THE HOME RUN EXCEEDS 120 FEET ON 120V AND 208V CIRCUITS.

7 THE CORRECT NUMBER OF WIRES MAY NOT BE INDICATED FOR ALL CIRCUITS, ONLY THOSE WHERE CLARIFICATION IS NECESSARY. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL WIRES NECESSARY FOR THE PROPER FUNCTION OF THE SYSTEM WHETHER INDICATED ON DRAWINGS OR NOT.

8 THE CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTLY PHASING THE CIRCUITS IN THE PANELBOARDS.

9 THE ELECTRICAL CONTRACTOR SHALL VERIFY THE TYPE OF CEILING SYSTEM WITH THE GENERAL CONTRACTOR TO INSURE THAT ALL LIGHTING FIXTURES ARE COMPATIBLE WITH THE CEILING SYSTEM BEING INSTALLED. LIGHTING FIXTURES SHOULD NOT BE ORDERED UNTIL TYPE OF CEILING HAS BEEN VERIFIED.

10 ELECTRICAL REQUIREMENTS INDICATED ON DRAWINGS MAY DIFFER FROM ACTUAL EQUIPMENT FURNISHED. IF FURNISHED EQUIPMENT DIFFERS FROM RATINGS ON DRAWINGS CONTRACTOR SHALL NOTIFY ARCHITECT/ENGINEER FOR APPROPRIATE ACTION TO BE TAKEN.

11 IT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO COORDINATE EXACT BREAKER REQUIREMENTS FOR ALL EQUIPMENT PRIOR TO ORDERING PANEL. ADJUST BREAKER AND WIRE SIZES AS REQUIRED.

12 PROVIDE BOXES, JACKS, WIRING AND CONDUIT FROM LOCATIONS SHOWN TO MTP LOCATION. VERIFY EXACT REQUIREMENTS WITH OWNER.

13 ELECTRICAL CONTRACTOR SHALL PROVIDE ALL DISCONNECTS FOR MECHANICAL & PLUMBING EQUIPMENT. DISCONNECTS SHALL BE PER MANUFACTURER'S RECOMMENDATIONS AND FUSED PER NAME PLATE. PROVIDE NEMA 3R ENCLOSURES ON EXTERIOR. COORDINATE FUSE SIZES.

14 THE EC SHALL MEET WITH THE ARCHITECT AND TENANT PRIOR TO INSTALLING OUTLET BOXES TO VERIFY LOCATIONS AND MOUNTING HEIGHTS OF RECEPTACLES AND TELEPHONE OUTLETS.

APPENDIX B

2018 BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS

ELECTRICAL DESIGN (PROVIDE ON THE ELECTRICAL SHEETS IF APPLICABLE) ELECTRICAL SUMMARY

ELECTRICAL SYSTEM AND EQUIPMENT

Method of Compliance

Energy Code: Prescriptive [X] Energy Cost Budget [ ]

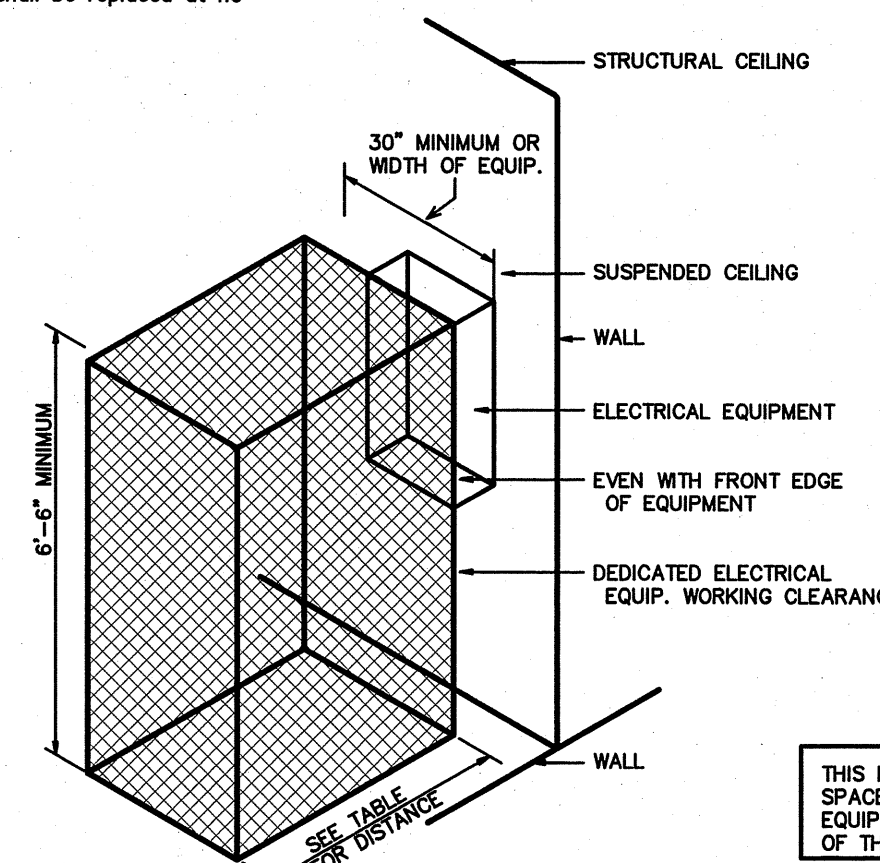
ASHRAE 90.1: Prescriptive [X] Energy Cost Budget [ ]

Lighting Schedule

Lamp type required in fixture number of lamps in fixture ballast type used in fixture number of ballasts in fixture total wattage in fixture total interior wattage specified vs. allowed 5174VA / 9240VA 328VA / 750VA total exterior wattage specified vs. allowed

Additional Prescriptive Compliance

- 506.2.1 More Efficient Mechanical Equipment
506.2.2 Reduced Lighting Power Density
506.2.3 Energy Recovery Ventilation Systems
506.2.4 Higher Efficiency Service Water Heater
506.2.5 On-Site Supply of Renewable Energy
506.2.6 automatic Daylighting Control System



ELECTRICAL EQUIPMENT WORKING CLEARANCE PER ARTICLE 110-26 OF N.E.C.

Table with columns: VOLTAGE TO GROUND NOMINAL, MIN. CLEAR DISTANCE IN FEET, CONDITION: 1, 2, 3.

WHERE THE CONDITIONS ARE AS FOLLOWS:

- 1 EXPOSED LIVE PARTS ON ONE SIDE AND NO LIVE OR GROUNDED PARTS ON THE OTHER SIDE OF THE WORKING SPACE. OR EXPOSED LIVE PARTS ON BOTH SIDES EFFECTIVELY GUARDED BY SUITABLE WOOD OR INSULATED BUSBARS OPERATING AT NOT OVER 300V SHALL NOT BE CONSIDERED LIVE PARTS.
2 EXPOSED LIVE PARTS ON ONE SIDE AND GROUNDED PARTS ON THE OTHER SIDE.
3 EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORK SPACE (NOT GUARDED AS PROVIDED IN CONDITION 1) WITH THE OPERATOR BETWEEN.

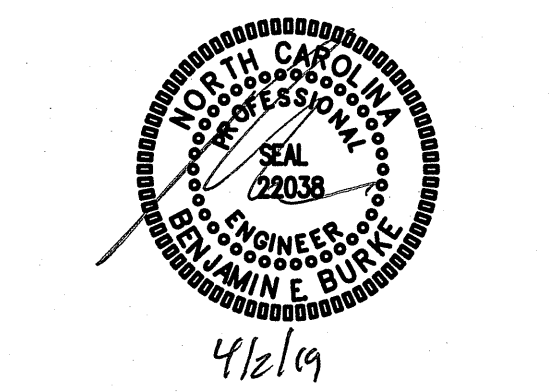
ELECTRICAL LEGEND

- Light fixture: Letter denotes fixture type (REFER TO LIGHTING PLAN AND FIXTURE SCHEDULE). NL = NIGHT LIGHT (NOT SWITCHED/ALWAYS ON)
Duplex Receptacle - 120V; MOUNT 18" TO CENTER AFF UNLESS NOTED OTHERWISE; 'WP' INDICATES WEATHER PROOF; 'GFI' INDICATES GROUND FAULT CURRENT INTERRUPTER PROTECTED; 'U' INDICATES RECEPTACLE WITH (2) USB PORTS.
QUADRAPLEX RECEPTACLE - 120V
FLOOR OR CEILING OUTLET (AS NOTED) - 120V
SPECIAL PURPOSE RECEPTACLE - REFER TO POWER PLAN AND PANEL SCHEDULE
LIGHT SWITCH
SWITCH WITH INTEGRAL PIR/US MOTION SENSOR FOR AUTOMATIC SHUT-OFF WITH UP TO 2 HOUR ADJUSTABLE DELAY.
DIMMABLE LIGHT SWITCH
MOTOR RATED SWITCH
JUNCTION BOX
TELE/DATA OUTLET - PROVIDE JUNCTION BOX WITH CONDUIT BACK TO MTP. PROVIDE (1) TELEPHONE JACK AND (1) CAT 5 DATA JACK
SINGLE-POLE HOMERUN TO PANELBOARD
TWO-POLE OR 3-POLE HOMERUN TO PANELBOARD
EXIT LIGHT
EMERGENCY EGRESS FIXTURE
PHOTOCELL
BRANCH CIRCUIT WIRING
SWITCH LEG
GROUND CONNECTION
DISTRIBUTION PANELBOARD
DISCONNECTING MEANS AS REQUIRED BY CODE

WEEKS TURNER ARCHITECTURE logo and contact information.

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PROJECT TITLE
G&D HAULING
JARCO DRIVE
FUQUAY-VARINA, NORTH CAROLINA

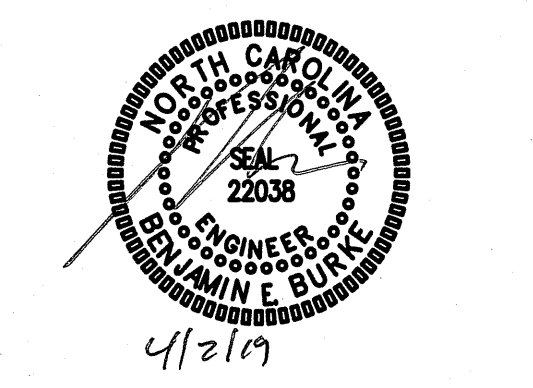
PROJECT NO.
1842
DRAWING TITLE
ELECTRICAL NOTES

PLOT DATE 3/21/19

The original sheet is 24" x 36"; other dimensions indicate if has been altered.
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1 ELECTRICAL CLEARANCES SCALE: NTS

2 DEDICATED SPACE SCALE: NTS



LIGHTING SCHEDULE *										
MARK	MANUFACTURER	CATALOG NO.	VOLT.	LAMPS NO.	LAMP TYPE	BALLAST TYPE	W/FIXTURE	REMARKS		
A	COLUMBIA	LJT24-35LWG-FSA12F-EDU	120	34	LED	-	34	2X4 LED ECONOMY TROFFER W/FROST ACRYLIC LENS (3000L)	**	**
AE	COLUMBIA	LJT24-35LWG-FSA12F-EDU	120	34	LED	-	34	2X4 LED ECONOMY TROFFER W/FROST ACRYLIC LENS (3000L), EMERGENCY BALLAST	**	**
B	LITHONIA	IBL-30L-WD-LP835-WGIBL	UNV	-	LED	-	245	LED HIGH BAY- W/ WIRE GUARD, STRUCTURE MOUNTED W/ CHAINS, COORD. W/ OWNER	**	**
B1	LITHONIA	IBL-30L-WD-LP835-DL1BL-SD125	UNV	-	LED	-	245	LED HIGH BAY- WITH LENS, STRUCTURE MOUNTED W/ CHAINS, COORD. W/ OWNER	**	**
BE	LITHONIA	IBL-30L-WD-LP835-WGIBL-12412	UNV	-	LED	-	245	LED HIGH BAY- WITH WIRE GUARD (EMERGENCY BACK-UP), STRUCTURE MOUNTED...	**	**
C	COLUMBIA	LCL-4-35-ML-E-U	120	-	LED	-	19	LED LENSED STRIP FIXTURE	*	
E	DUAL LITE	PG	120	-	LED	-	17	EMERGENCY EGRESS FIXTURE - DUAL MODE, NORMAL AND EMERGENCY OPERATION	*	
F	HUBBELL	NRG-365-4K-U	120	-	LED	-	20	EXTERIOR LED WALL PACK, COLOR BY ARCH	**	**
U	AMERICAN	3LC-32-DB	120	-	LED	-	17	UNDERCOUNTER LED FIXTURE WITH ROCKER SWITCH	**	**
V	CHOSEN BY OWNER, PROVIDED BY EC		120	-	LED	-	50	VANITY LIGHT FOR RESTROOMS, \$150 ALLOWANCE	**	**
EXIT	MULE	MXBRU	120	-	LED	-	-	EXIT LIGHT, ARCH TO SELECT COLOR/FINISH	**	**
EXIT	MULE	SQRXU	120	-	LED	-	-	COMBINATION EMERGENCY/EXIT LIGHT, ARCH TO SELECT COLOR/FINISH	**	**
EXIT	MULE	SQLED	120	-	LED	-	-	EMERGENCY LIGHT, ARCH TO SELECT COLOR/FINISH	**	**

\*\* OR APPROVED EQUAL. PROVIDE CUT SHEETS FOR OWNER APPROVAL PRIOR TO ORDERING FIXTURES. FOR FLUORESCENT FIXTURES CONTROLLED BY MOTION SENSOR, PROVIDE "PROGRAMMED RAPID START" BALLASTS. CATALOG NUMBERS ARE FOR REFERENCE ONLY, ACTUAL NUMBERS MAY VARY. "EB" DENOTES ELECTRONIC BALLAST. VERIFY FIXTURE HAS INTEGRAL LOCAL DISCONNECTING MEANS PER NEC 410.130 (G).

PROVIDE PHOTOCELL CONTROLS FOR EXTERIOR LIGHTING CIRCUIT.

LOCATE PHOTOCELL AWAY FROM ARTIFICIAL LIGHT. PROVIDE SHIELDING AS REQUIRED.

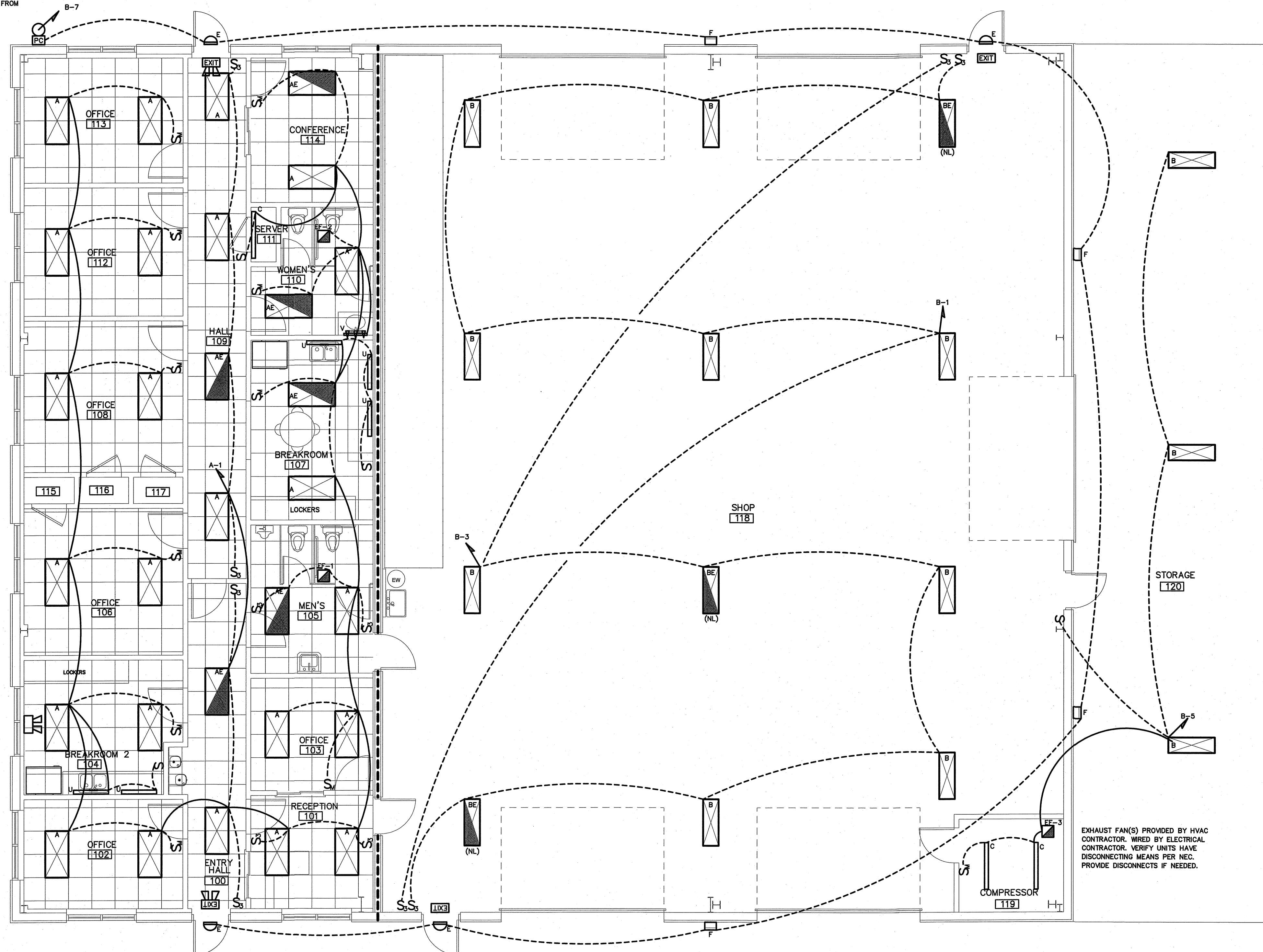
NOTE:  
PROVIDE LABELING ON EACH SWITCH NOTING CIRCUIT SERVED.

AUTOMATIC LIGHTING SHUTOFF IS NOT SHOWN IN THE EGRESS PATH LIGHTING AS ALLOWED PER 905.2.2.2.1 EXCEPTION #3, WHERE AUTOMATIC SHUTOFF WOULD ENDANGER OCCUPANT SAFETY.

TIE ALL EXIT AND EMERGENCY LIGHTS TO NEAREST AVAILABLE UNSWITCHED LIGHTING CIRCUIT IN THE AREA SERVED.

VERIFY HEIGHT/LOCATION OF ALL SWITCHES AND DEVICES PRIOR TO INSTALLATION.

PROVIDE SWITCHED AND UNSWITCHED POWER TO ALL 'A' & 'E' FIXTURES FOR EMERGENCY BALLAST POWER.



1 LIGHTING PLAN  
SCALE: 3/16" = 1'-0"

PROJECT TITLE  
**G&D HAULING**

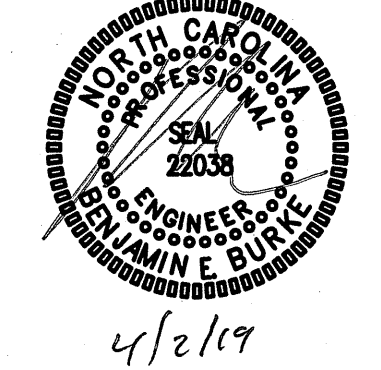
JARCO DRIVE  
FUQUAY-VARINA, NORTH CAROLINA

PROJECT NO.  
**1842**

DRAWING TITLE  
**LIGHTING PLAN**

**E2**

PLOT DATE 3/21/19

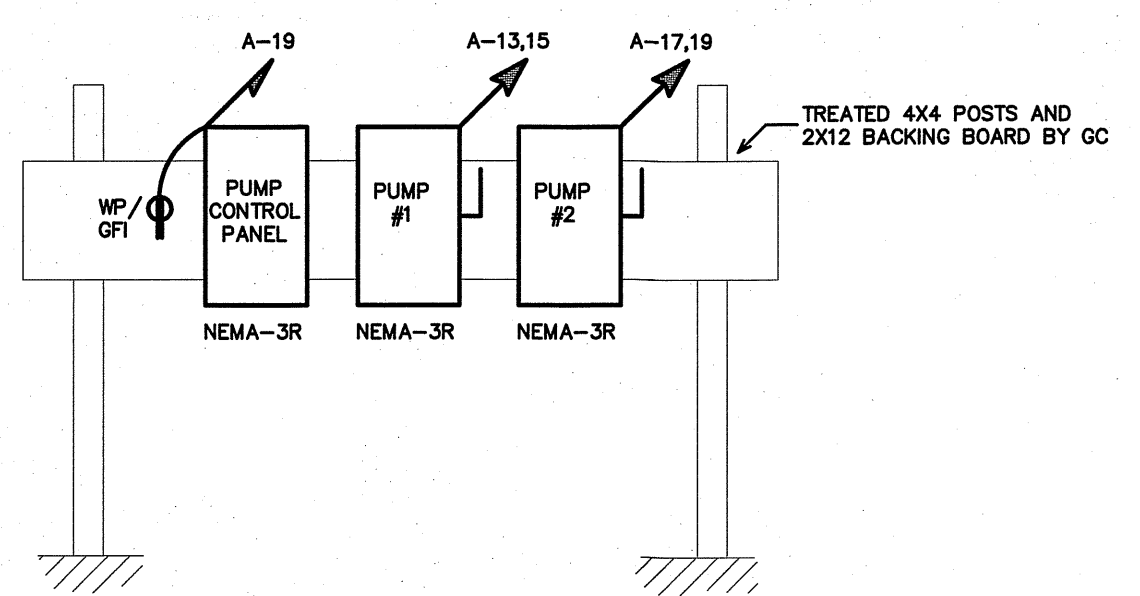
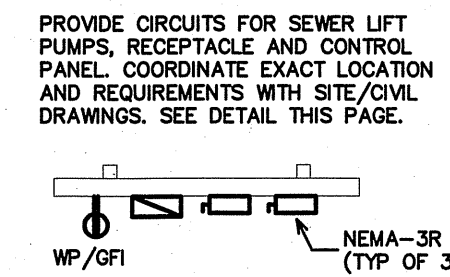
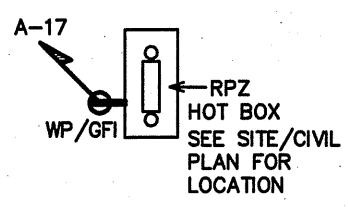
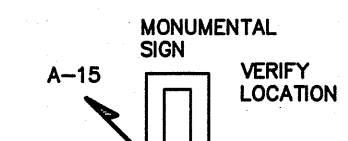
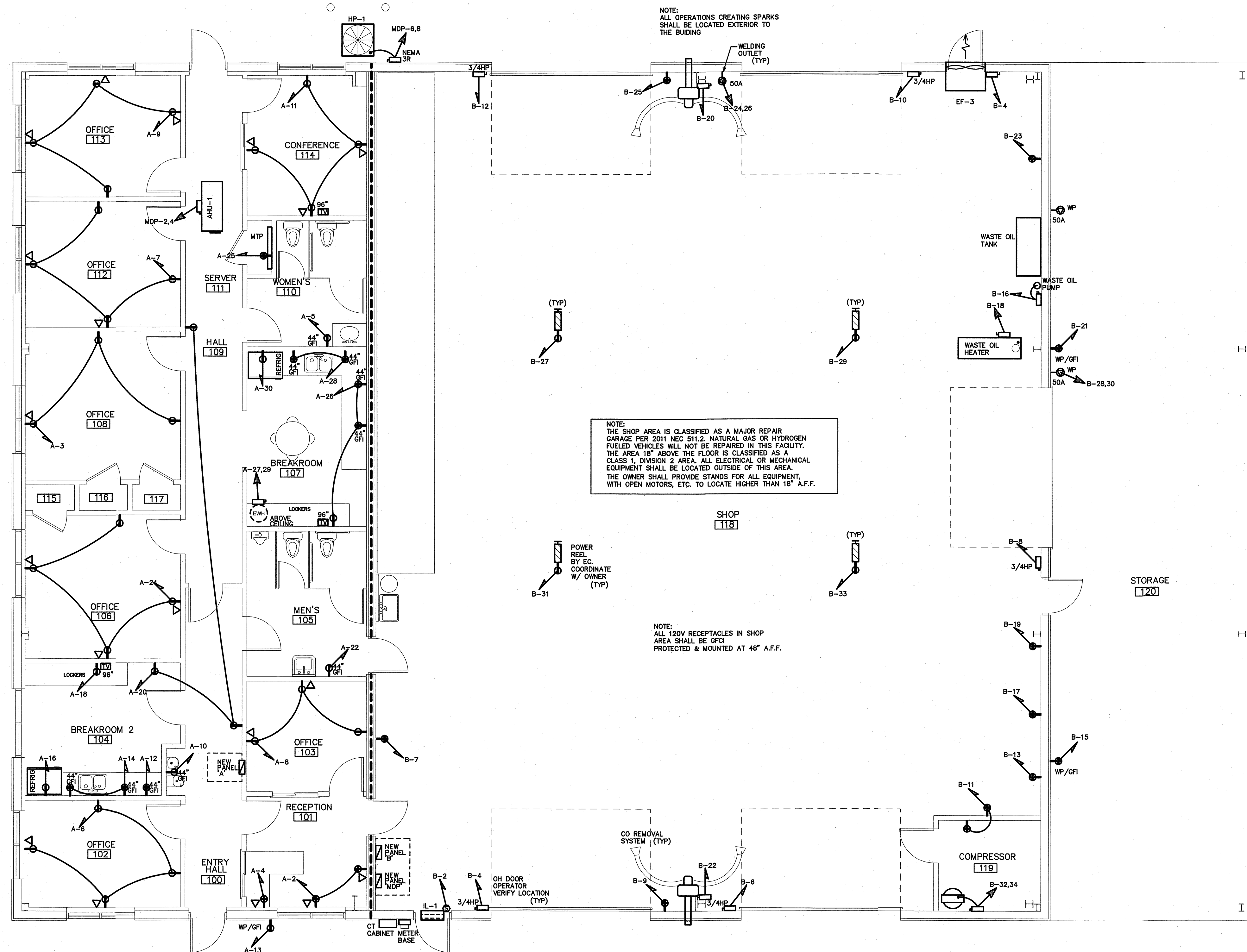


NOTE:  
PROVIDE LABELING ON EACH DISCONNECT &  
RECEPTACLE NOTING CIRCUIT SERVED.

NOTE:  
ALL OPERATIONS CREATING SPARKS  
SHALL BE LOCATED EXTERIOR TO  
THE BUILDING

NOTE:  
THE SHOP AREA IS CLASSIFIED AS A MAJOR REPAIR  
GARAGE PER 2011 NEC 511.2. NATURAL GAS OR HYDROGEN  
FUELED VEHICLES WILL NOT BE REPAIRED IN THIS FACILITY.  
THE AREA 18" ABOVE THE FLOOR IS CLASSIFIED AS A  
CLASS I, DIVISION 2 AREA. ALL ELECTRICAL OR MECHANICAL  
EQUIPMENT SHALL BE LOCATED OUTSIDE OF THIS AREA.  
THE OWNER SHALL PROVIDE STANDS FOR ALL EQUIPMENT,  
WITH OPEN MOTORS, ETC. TO LOCATE HIGHER THAN 18" A.F.F.

NOTE:  
ALL 120V RECEPTACLES IN SHOP  
AREA SHALL BE GFI  
PROTECTED & MOUNTED AT 48" A.F.F.



**1 POWER PLAN**  
SCALE: 3/16" = 1'-0"

**2 SEWER PUMP DETAIL**  
SCALE: NOT TO SCALE

SITE POWER REQUIREMENTS (SEE SITE PLAN)  
1) PROVIDE (4) 20A, 120V CIRCUITS FOR MOTORIZED SLIDING GATES ON SITE. RUN 3/4" CONDUITS AND PROVIDE LOCAL DISCONNECTING MEANS. PROVIDE CONDUIT AS REQUIRED FOR ALL CONTROLS. COORDINATE WITH OWNER PRIOR TO BID.  
2) PROVIDE POWER TO SEWER PUMP TANK. SEE SITE PLAN FOR REQUIREMENTS.

PROJECT TITLE  
**G&D HAULING**

JARCO DRIVE  
FUQUAY-VARINA, NORTH CAROLINA

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**1842**

DRAWING TITLE  
**POWER PLAN**



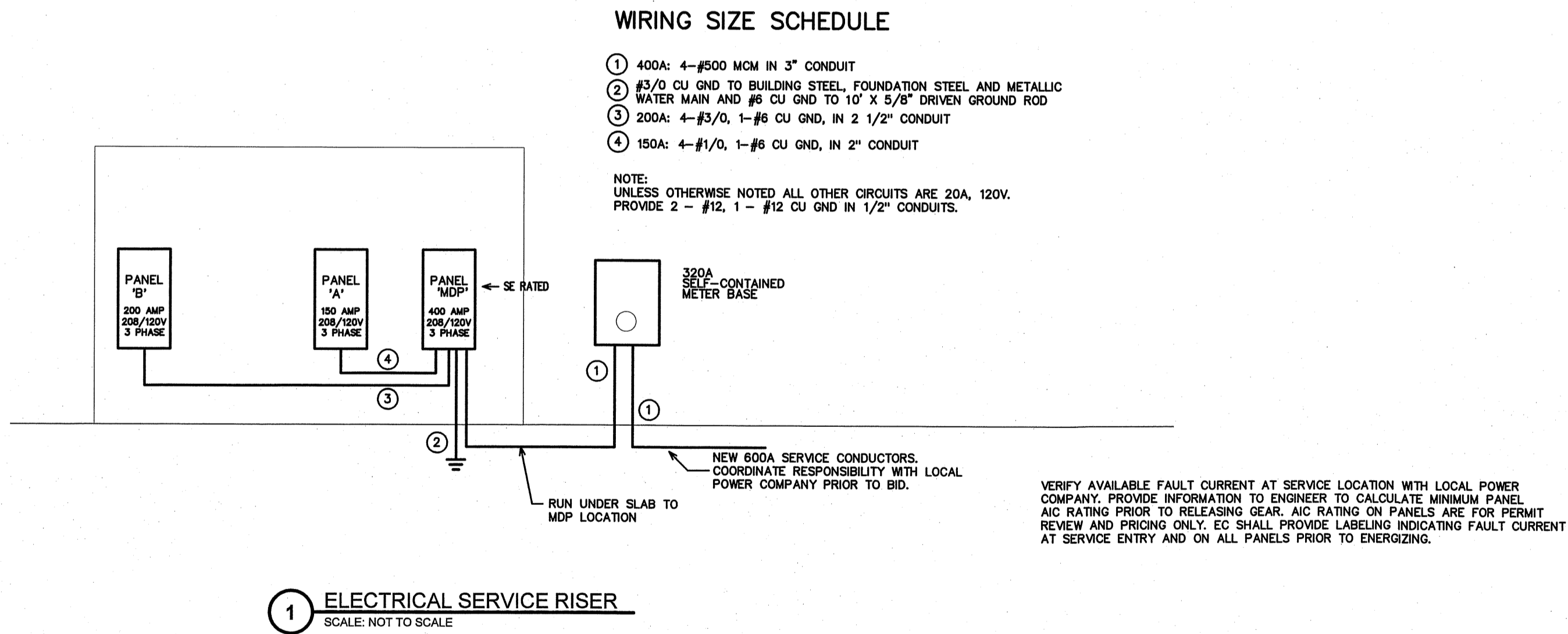
PLOT DATE 3/21/19

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NEW PANEL - 'MDP'		MAKE: CUTLER HAMMER			RATING: 208/120V 3 PHASE 4 WIRE			600A MAIN CIRCUIT BREAKER		
TYPE: PBL3A		MOUNTING: SURFACE			EQUIPMENT GROUND BUS			SERVICE ENTRY RATED		
OR APPROVED EQUAL		MINIMUM AIC: VERIFY			MINIMUM AIC: VERIFY			MINIMUM AIC: VERIFY		
LOAD SERVICE	CKT BRKR	WATTS PER PHASE	CKT NO	NEUTRAL A B C	CKT NO	WATTS PER PHASE	CKT BRKR	LOAD SERVICE		
PANEL - 'A'	150A	8658	3	4	5064	60A	AHU-1	6.0 FLA IFM, 38.2 FLA EH, 52.8 MCA		
PANEL - 'B'	200A	14598	7	8	3312	50A	HP-1	28.4 FLA COMP, 1.2 FLA FAN, 34.2 MCA		
SPACE		13842	9	10						
SPACE		13177	11	12						
SPACE			13	14						
SPACE			15	16						
SPACE			17	18						
SPACE			19	20						
SPACE			21	22						
SPACE			23	24						
SPACE			25	26						
SPACE			27	28						
SPACE			29	30						
SPACE			31	32						
SPACE			33	34						
SPACE			35	36						
SPACE			37	38						
SPACE			39	40						
SPACE			41	42						
NOTES		SUB-TOTALS 'B'			SUB-TOTALS 'A'			TOTAL CONNECTED LOAD		
		20897 22700 20807			400A BUS 8378 5064 3312					
					400A LUGS 20897 22700 20807					
					400A FEED 29273 27784 23919					
		VERIFY SIZE			244A 231A 199A			GRAND TOTAL		
								AMPS/PHASE		
NEC ALLOWABLE DEMAND FACTORS		DIVERSIFIED LOAD SUMMARY								
① DEMAND FACTORS PER NEC 220 ② LARGEST OF: NEC TABLE 220.12 OR CONNECTED LOAD ③ NEC TABLE 220.56 ④ NEC 220.51 ⑤ NEC 220.43A, 200 VA/LINEAR FT ⑥ NON-COINCIDENT LOADS, LARGEST OF THE TWO LOADS IS COUNTED		LOAD TYPE	DEMAND FACTOR	A	B	C	TOTAL DIVERSIFIED LOAD			
		GENERAL LIGHTING	125%	3637	1838	994	6469			
		TRACK LIGHTING	125%							
		GENERAL USE	125%	3333	3333	3333	10000			
		RECEPTACLES	125%	1575	858	834	3267			
		MOTORS AND EQUIPMENT	125%	3960	2828	3960	10546			
		WATER HEATERS	100%	12229	11208	10908	34343			
		KITCHEN EQUIPMENT	100%	2813	2813	5626				
		FIX. ELEC. SPACE HEAT.	100%							
		SHOW WINDOW LIGHTS	125%							
		SIGN	125%	1500		1500				
		MISC	100%	888		888				
		PHASE (TOTAL VA)		24734	28884	24840	78239			
		TOTAL AMPS		206A	224A	205A	212A			
				VOLTS X 1.732						

NEW PANEL - 'A'		MAKE: CUTLER HAMMER			RATING: 208/120V 3 PHASE 4 WIRE			MLO MAIN CIRCUIT BREAKER		
TYPE: PBL1A		MOUNTING: SURFACE			EQUIPMENT GROUND BUS			SERVICE ENTRY RATED		
OR APPROVED EQUAL		MINIMUM AIC: VERIFY			MINIMUM AIC: VERIFY			MINIMUM AIC: VERIFY		
LOAD SERVICE	CKT BRKR	WATTS PER PHASE	CKT NO	NEUTRAL A B C	CKT NO	WATTS PER PHASE	CKT BRKR	LOAD SERVICE		
LTS: OFFICE AREA	20A	1439	2	2	720	20A	REC: RECEPTION (101)			
REC: OFFICE (108)	20A	540	3	4	360	20A	REC: RECEPTION (101)			
REC: WOMEN'S RESTROOM	20A	180	5	6	720	20A	REC: OFFICE (102)			
REC: OFFICE (112)	20A	720	7	8	540	20A	REC: OFFICE (103)			
REC: OFFICE (113)	20A	720	9	10	888	20A	E.W.C.			
REC: CONFERENCE (114)	20A	720	11	12	360	20A	REC: BREAK #2 - COUNTER			
REC: EXTERIOR	20A	180	13	14	720	20A	REC: BREAK #2 - COUNTER			
SIGN: MONUMENTAL	20A	1200	15	16	1800	20A	REC: BREAK #2 - REFRIGERATOR			
RPZ HOT BOX	20A	500	17	18	180	20A	REC: BREAK #2 - TV			
REC: SEWER PUMP CONTROL PANEL	20A	180	19	20	540	20A	REC: HALL			
SPARE	20A		21	22	180	20A	REC: MENS RESTROOM			
SPARE	20A		23	24	720	20A	REC: OFFICE (106)			
MTP	20A	360	25	26	900	20A	REC: BREAK #1 - COUNTER			
E.W.H.	30A	2250	27	28	720	20A	REC: BREAK #1 - COUNTER			
			29	30	1800	20A	REC: BREAK #1 - REFRIGERATOR			
NOTES		SUB-TOTALS 'B'			SUB-TOTALS 'A'			TOTAL CONNECTED LOAD		
		2878 4710 3650			150A BUS 3420 3948 3780					
					150A LUGS 2878 4710 3650					
					150A FEED 6299 8658 7430					
		VERIFY SIZE			52A 72A 62A			GRAND TOTAL		
								AMPS/PHASE		
NEC ALLOWABLE DEMAND FACTORS		DIVERSIFIED LOAD SUMMARY								
① DEMAND FACTORS PER NEC 220 ② LARGEST OF: NEC TABLE 220.12 OR CONNECTED LOAD ③ NEC TABLE 220.56 ④ NEC 220.51 ⑤ NEC 220.43A, 200 VA/LINEAR FT ⑥ NON-COINCIDENT LOADS, LARGEST OF THE TWO LOADS IS COUNTED		LOAD TYPE	DEMAND FACTOR	A	B	C	TOTAL DIVERSIFIED LOAD			
		GENERAL LIGHTING	125%	1799		1799				
		TRACK LIGHTING	125%							
		GENERAL USE	125%	3333	3333	3333	10000			
		RECEPTACLES	125%	765	138	24	927			
		MOTORS AND EQUIPMENT	125%							
		WATER HEATERS	100%	2813	2813	5626				
		KITCHEN EQUIPMENT	100%	1800	1800	3600				
		FIX. ELEC. SPACE HEAT.	100%							
		SHOW WINDOW LIGHTS	125%	1500		1500				
		SIGN	125%	888		888				
		MISC	100%							
		PHASE (TOTAL VA)		5897	10472	7970	24340			
		TOTAL AMPS		49A	87A	66A	88A			
				VOLTS X 1.732			88A			

NEW PANEL - 'B'		MAKE: CUTLER HAMMER			RATING: 208/120V 3 PHASE 4 WIRE			MLO MAIN CIRCUIT BREAKER		
TYPE: PBL1A		MOUNTING: SURFACE			EQUIPMENT GROUND BUS			SERVICE ENTRY RATED		
OR APPROVED EQUAL		MINIMUM AIC: VERIFY			MINIMUM AIC: VERIFY			MINIMUM AIC: VERIFY		
LOAD SERVICE	CKT BRKR	WATTS PER PHASE	CKT NO	NEUTRAL A B C	CKT NO	WATTS PER PHASE	CKT BRKR	LOAD SERVICE		
LTS: SHOP BAY #1	20A	1470	1	2	576	20A	LD-1			
LTS: SHOP BAY #2	20A	1470	3	4	1656	25A	OH DOOR			
LTS: EXTERIOR STORAGE, COMP. RM	20A	795	5	6	1656	25A	OH DOOR			
REC: SHOP BAY	20A	360	7	8	1656	25A	OH DOOR			
REC: SHOP BAY	20A	360	9	10	1656	25A	OH DOOR			
REC: SHOP BAY, COMPRESSOR RM	20A	720	11	12	1656	25A	OH DOOR			
REC: SHOP BAY	20A	360	13	14	1656	25A	EF-3			
REC: EXTERIOR	20A	360	15	16	1656	25A	WASTE OIL PUMP			
REC: SHOP BAY	20A	360	17	18	250	20A	WASTE OIL HEATER			
REC: SHOP BAY	20A	360	19	20	1920	30A	CO EXHAUST FAN			
REC: EXTERIOR	20A	360	21	22	1920	30A	CO EXHAUST FAN			
REC: SHOP BAY	20A	360	23	24	3600	50A	WELDER			
REC: SHOP BAY	20A	360	25	26	3600	50A	WELDER			
REC: SHOP BAY	20A	180	27	28	3600	50A	WELDER			
REC: SHOP BAY	20A	180	29	30	3600	50A	WELDER			
REC: SHOP BAY	20A	180	31	32	2100	20A	AIR COMPRESSOR			
REC: SHOP BAY	20A	180	33	34	2100	20A	AIR COMPRESSOR			
SPARE	20A		35	36		20A	SPARE			
SPARE	20A		37	38		20A	SPARE			
SPARE	20A		39	40		20A	SPARE			
SPARE	20A		41	42		20A	SPARE			
NOTES		SUB-TOTALS 'B'			SUB-TOTALS 'A'			TOTAL CONNECTED LOAD		
		3090 2910 2415			200A BUS 11508 10932 10782					
					200A LUGS 3090 2910 2415					
					200A FEED 14598 13842 13177					
		VERIFY SIZE			121A 115A 110A			GRAND TOTAL		
								AMPS/PHASE		
NEC ALLOWABLE DEMAND FACTORS		DIVERSIFIED LOAD SUMMARY								
① DEMAND FACTORS PER NEC 220 ② LARGEST OF: NEC TABLE 220.12 OR CONNECTED LOAD ③ NEC TABLE 220.56 ④ NEC 220.51 ⑤ NEC 220.43A, 200 VA/LINEAR FT ⑥ NON-COINCIDENT LOADS, LARGEST OF THE TWO LOADS IS COUNTED		LOAD TYPE	DEMAND FACTOR	A	B	C	TOTAL DIVERSIFIED LOAD			
		GENERAL LIGHTING	125%	1838	1838	994	4870			
		TRACK LIGHTING	125%							
		GENERAL USE	125%	1620	1440	1620	4680			
		RECEPTACLES	125%	2828	2828	2970	7322			
		MOTORS AND EQUIPMENT	125%	9408	10488	9108	29022			
		WATER HEATERS	100%							
		KITCHEN EQUIPMENT	100%							
		FIX. ELEC. SPACE HEAT.	100%							
		SHOW WINDOW LIGHTS	125%							
		SIGN	125%							
		MISC	100%							
		PHASE (TOTAL VA)		15492	16392	13790	45674			
		TOTAL AMPS		129A	137A	115A	127A			
				VOLTS X 1.732			127A			



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PROJECT TITLE  
**G&D HAULING**

JARCO DRIVE  
FUQUAY-VARINA, NORTH CAROLINA

PROJECT NO.  
**1842**

DRAWING TITLE  
**PANEL/RISER**

**1:4**

PLOT DATE 3/21/19

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