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MAR 21 2019
1736 E SUNSHINE ST, SUITE 41[illegible]
SPRINGFIELD, MO

ALL PANELBOARDS, TRANSFORMERS, TRANSFER SWITCH KIT AND DISCONNECTS WILL BE SUPPLIED BY THE OWNER (O'REILLY). ELECTRICAL GEAR SHALL BE DIRECT ORDERED AND/OR RELEASED FROM THE LISTED ELECTRICAL EQUIPMENT DISTRIBUTOR. SEE 'ELECTRIC SERVICE RESPONSIBILITIES' FOR ADDITIONAL CLARIFICATION:

GRAYBAR ELECTRIC CO. INC.
11885 LACKLAND ROAD
ST. LOUIS, MO. 63146

GRAYBAR OREILLY TEAM
EMAIL: oreilly@graybar.com
TOLL FREE: (314) 573-2080

MP PANELBOARD SCHEDULE

MAINS:	400A MAIN LUGS ONLY	VOLTAGE:	208
TYPE:	SQUARE D, NQOD	PHASE:	3 Ph, 4W
MOUNTING:	SURFACE	WIDTH:	20 INCHES
SCCR:	22K AIC	SPACE(S):	42

ACCESSORIES
1. EQUIPMENT GROUND BAR
2. ISOLATED GROUND BAR
3. * 'SQ. D' #Q01PA - WITH LOCKABLE CLIPS
4. FEED THRU LUGS

CKT	CKT BRK	WIRE	LOAD DESCRIPTION	(KVA)	A(KVA)	B(KVA)	C(KVA)	(KVA)	LOAD DESCRIPTION	WIRE	CKT BRK	CKT
1	20A/1P	#12s	LIGHTING/EX FAN	0.50	4.43			3.93	RTU-1 7.5 TON	#8s	50A/3P	2
3	20A/1P	#12s	LIGHTING	1.00		4.93		3.93				4
5	20A/1P	#10s	LIGHTING	1.03			4.96	3.93				6
7	20A/1P	#12s	LIGHTING	1.18	3.96			2.78	RTU-2 5 TON	#8s	45A/3P	8
9	20A/1P	#12s	LIGHTING	0.81		3.59		2.78				10
11	20A/1P	#12s	LIGHTING	1.12			3.90	2.78				12
13	20A/1P	#12s	LIGHTING	0.59	4.52			3.93	RTU-3 7.5 TON	#8s	50A/3P	14
15			SPACE			3.93		3.93				16
17			SPACE				3.93	3.93				18
19			SPACE		0.00				SPACE			20
21	20A/1P	#12s	HOT BOX	0.50		0.50			SPACE			22
23	20A/1P	#12s	BUILDING LIGHTING	0.49			0.49		SPACE			24
25	20A/1P	#12s	SITE LIGHTING	0.26	0.26				SPACE			26
27			SPACE			0.00			SPACE			28
29	20A/1P	#10s	SITE SIGN	1.30			1.30		SPACE			30
31	20A/1P	#10s	SITE SIGN	1.30	1.30				SPACE			32
33	*20A/1P	#12s	LED SIGN BLDG	1.20		1.20			SPACE			34
35	20A/3P	#12s	GRIDPOINT 1204	0.03			0.03		SPACE			36
37				0.03	0.03				SPACE			38
39				0.03		0.03			SPACE			40
41	20A/1P	#12s	XFMR J-BOX	0.60			1.20	0.60	LCP	#12s	20A/1P	42

TOTAL PHASE A (KVA)	TOTAL PHASE B (KVA)	TOTAL PHASE C (KVA)	TOTAL CONNECTED (KVA)	TOTAL AMPS
14.50	14.18	15.81	44.49	124

PLP PANELBOARD SCHEDULE

MAINS:	400A MAIN LUGS ONLY	VOLTAGE:	208
TYPE:	SQUARE D, NQOD	PHASE:	3 Ph, 4W
MOUNTING:	SURFACE	WIDTH:	20 INCHES
SCCR:	22K AIC	SPACE(S):	42

ACCESSORIES
1. EQUIPMENT GROUND BAR
2. ISOLATED GROUND BAR
3. *** GFI BREAKER CKT. #16 & #23
4. ** 'SQ. D' #Q01PAF CT. #33

CKT	CKT BRK	WIRE	LOAD DESCRIPTION	(KVA)	A(KVA)	B(KVA)	C(KVA)	(KVA)	LOAD DESCRIPTION	WIRE	CKT BRK	CKT
1	20A/1P	#10s	LATHE	1.70	2.20			0.50	CHECK IN RCPT	#12s	20A/1P	2
3	20A/1P	#10s	CUTOFF SAW	1.73		1.91		0.18	BATTERY RACK RCPT	#10s	20A/1P	4
5	20A/1P	#12s	CRIMPER	1.77			1.95	0.18	BATTERY RACK RCPT	#10s	20A/1P	6
7	20A/1P	#12s	RECEPTACLES	0.54	0.90			0.36	BREAK AREA RCPTS	#12s	20A/1P	8
9	20A/1P	#12s	STARTER/ALT TESTER	1.68		1.68			SPARE		20A/1P	10
11	20A/1P	#12s	STARTER/ALT TESTER	1.68			2.22	0.54	RTU RECEPTACLES	#12s	20A/1P	12
13	20A/1P	#12s	STARTER/ALT TESTER	1.64	2.00			0.36	RECEPTACLES	#12s	20A/1P	14
15	20A/1P	#12s	RECEPTACLES	0.36		2.11		1.75	COKE MACHINE	#12s	***20A/1P	16
17	20A/1P	#12s	ISO GRND RCPTS	0.72			1.08	0.36	ISO GRND RCPTS	#12s	20A/1P	18
19	20A/1P	#12s	RECEPTACLES	0.36	0.72			0.36	ISO GRND RCPTS	#12s	20A/1P	20
21	30A/1P	#10s	BATTERY BACKUP IG	3.00		3.36		0.36	ISO GRND RCPTS	#12s	20A/1P	22
23	***20A/1P	#12s	WATER COOLER	0.90			1.26	0.36	ISO GRND RCPTS	#12s	20A/1P	24
25	20A/1P	#12s	RECEPTACLES	1.00	1.36			0.36	ISO GRND RCPTS	#12s	20A/1P	26
27	20A/1P	#12s	SECURITY	0.50		0.86		0.36	ISO GRND RCPTS	#12s	20A/1P	28
29			SPACE				0.36	0.36	ISO GRND RCPTS	#12s	20A/1P	30
31			SPACE		0.36			0.36	ISO GRND RCPTS	#12s	20A/1P	32
33	**20A/1P	#12s	TANK WATER HTR	1.65		2.01		0.36	ISO GRND RCPTS	#12s	20A/1P	34
35	20A/1P	#12s	ISO GRND RCPTS	0.36			0.72	0.36	ISO GRND RCPTS	#12s	20A/1P	36
37			SPACE		0.50			0.50	PRINTER RCPT	#12s	20A/1P	38
39			SPACE			0.72		0.72	PHONE EQUIP RCPTS	#12s	15A/1P	40
41			SPACE				0.90	0.90	RECEPTACLES	#12s	20A/1P	42

TOTAL PHASE A (KVA)	TOTAL PHASE B (KVA)	TOTAL PHASE C (KVA)	TOTAL CONNECTED (KVA)	TOTAL AMPS
8.04	12.65	8.49	29.18	81

E TRANSFER SWITCH SCHEDULE

POSITION	CIRCUIT BREAKER	LOAD DESCRIPTION	(KVA)	BREAKER
A	20A/1P	OFFICE COMPUTER	0.36	PLP-36
B	20A/1P	COUNTER RECEPTACLES	0.36	PLP-34
C	20A/1P	PRINTER	0.50	PLP-38
D	20A/1P	TELEPHONE EQUIPMENT RECEPTACLE	0.72	PLP-40
E	20A/1P	LIGHTING OFFICE/BATHROOMS	[illegible]	MP-1
F	20A/1P	LIGHTING HARD PARTS(DIMMED TO [illegible] ON)	[illegible]	MP-3
G	20A/1P	LIGHTING HARD PARTS(DIMMED TO 40% [illegible])	[illegible]	MP-5
H	20A/1P	LIGHTING SECURITY(DIMMED TO 40% [illegible])	[illegible]	MP-13
I	20A/1P	INSTALLER([illegible] GRD RECEPTACLE)	[illegible]	PLP-17
J	20A/1P	INSTALL [illegible] RECEPTACLE)	0.36	PLP-19
GENERATOR (6,000 WATTS) RATED: MAX KVA=6.0 [illegible]			4.65	TOTAL

DOT-HATCH REPRESENTS CIRCUITS THAT ARE ASSOCIATED WITH OPTIONAL STANDBY GENERATOR CONTROL.

NOTE:
ALL BRANCH CIRCUITS SHALL HAVE AN EQUIPMENT GROUNDING CONDUCTOR ROUTED WITH THE CIRCUIT CONDUCTORS. THIS MEANS ALL CONDUITS MUST HAVE A GREEN WIRE INSTALLED IN THEM AND SIZED IN ACCORDANCE WITH TABLE 250.122 OF THE N.E.C.

EQUIPMENT LABELS CHART

SEE ELECTRICAL SERVICE DIAGRAM.

EQUIPMENT	SERVICE DISCONNECT	OPTIONAL STANDBY SOURCE	GENERATOR POWER INLET	SERIES RATING	AVAILABLE FAULT CURRENT
DISCONNECT	X	X			
GENERATOR POWER INLET			X		
MP					
PLP					
E					
CT CABINET					

GENERATOR POWER INLET LABEL

PERMANENT LABEL SHALL BE 2 x 3 IN SIZE AND SHALL BE BLUE LETTERING ON A CONTRASTING BACKGROUND. LABEL TO BE PLACED 6 INCHES ABOVE GENERATOR RECEPTACLE.

WARNING:
FOR CONNECTION OF A NONSEPARATELY DERIVED (FLOATING NEUTRAL) SYSTEM ONLY
(MAX. 6,000 WATT GENERATOR)

EXAMPLE OF LABELING ABOVE.

OPTIONAL STANDBY SOURCE LABEL

PERMANENT LABEL SHALL BE 2 x 3 IN SIZE AND SHALL BE BLUE LETTERING ON A CONTRASTING BACKGROUND. LABEL TO BE PLACED ON DISCONNECT DOOR.

CAUTION
TWO SOURCES OF SUPPLY
STANDBY POWER SOURCE: PORTABLE 6kw GENERATOR
LOCATION: OVERHEAD DOOR.

EXAMPLE OF OPTIONAL STANDBY SOURCE LABELING ABOVE.

SERVICE DISCONNECT LABEL

THE SERVICE DISCONNECTING MEANS SHALL BE PROPERLY MARKED "SERVICE DISCONNECT". REFER TO SPEC SECTION 26 00 20 FOR FURTHER IDENTIFICATION PLATE REQUIREMENTS.

ELECTRIC SERVICE RESPONSIBILITIES

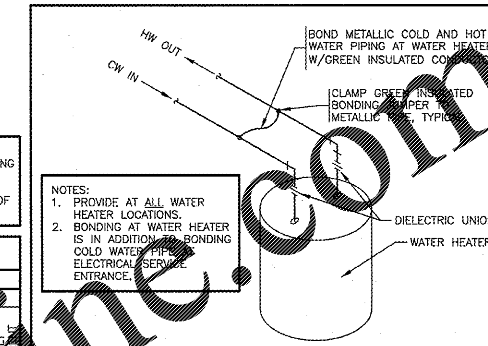
SEE SITE PLAN FOR UTILITY COMPANY CONTACT.

ITEM NO.	DESCRIPTION (IF APPLICABLE)	FURNISHED BY: UTILITY CO.	FURNISHED BY: CONTRACTOR	INSTALLED BY: UTILITY CO.	INSTALLED BY: CONTRACTOR
1	SERVICE LATERAL		X		X
2	SERVICE LATERAL RACEWAY		X		X
3	METER BASE		X		X
4	METER	X		X	
5	CT CABINET		X		X
6	OH SERVICE RISER @ BUILDING				
7	TRANSFORMER POLE	X		X	
8	SERVICE RISER @ POLE		X		X
9	TRANSFORMER PAD				
10	PAD MOUNT TRANSFORMER				

WIRING & LABELING OF EXIT & EMERGENCY LIGHT CIRCUITS

1. SEE DETAIL 1/E1 FOR WIRING OF EXIT & EMERGENCY LIGHTS ON THESE CIRCUITS.
2. ALL EXIT & EMERGENCY LIGHTING CIRCUITS SHALL BE LABELED BY THE CONTRACTOR ON THE "PANEL DIRECTORY". (SPEC: NFPA 70 408.4 & 700.12.)

METALLIC WATER PIPE BONDING (4/E3)



NOTES:
1. PROVIDE AT ALL WATER HEATER LOCATIONS.
2. BONDING AT WATER HEATER IS IN ADDITION TO BONDING COLD WATER PIPE AT ELECTRICAL SERVICE ENTRANCE.

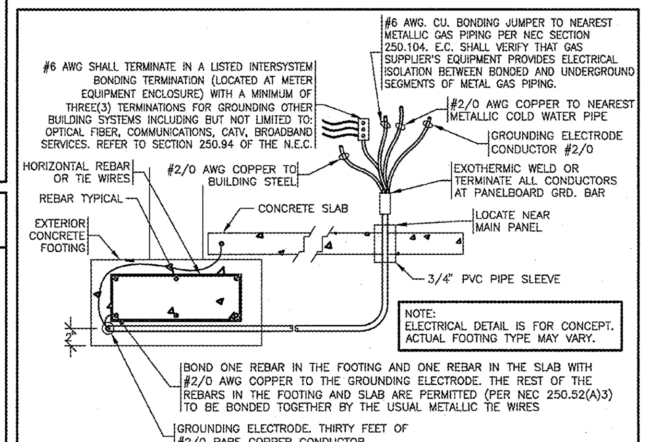
N.T.S.

NOTE:
1. BOND ALL NONCURRENT CARRYING METAL PARTS OF SERVICE EQUIPMENT (INCLUDING METER ENCLOSURE) TO GROUNDING ELECTRODE AS REQUIRED. PER NEC 250-92.
2. THE GROUNDED NEUTRAL CONDUCTOR SHALL BE RUN TO AND BONDED TO EACH SERVICE DISCONNECTING MEANS ENCLOSURE IN ACCORDANCE WITH NEC 250-24c.
3. BONDING OF OTHER ENCLOSURES SHALL BE IN ACCORDANCE WITH NEC 250-96.

SERVICE EQUIPMENT GROUNDING & BONDING SHALL BE IN ACCORDANCE WITH: *NEC 250-24 *NEC 250-28 *NEC 250-53 *NEC 250-66 *NEC 250-90 *NEC 250-92 *NEC 250-130

BONDING REQUIREMENTS (3/E3)

N.T.S.



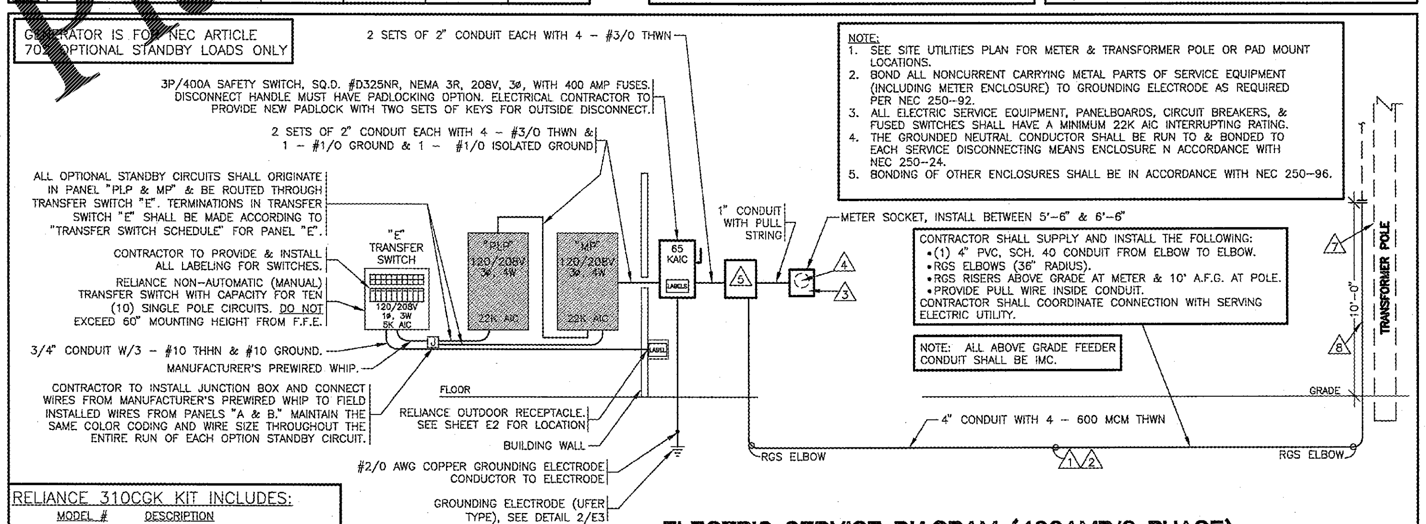
NOTE:
ELECTRICAL DETAIL IS FOR CONCEPT. ACTUAL FOOTING TYPE MAY VARY.

NOTE:
GROUNDING ELECTRODE TEST MEASURE AND RECORD GROUND RESISTANCE FROM SYSTEM NEUTRAL CONNECTION AT SERVICE ENTRANCE TO CONVENIENT GROUND REFERENCE POINT USING SUITABLE GROUND TESTING EQUIPMENT. MAXIMUM ACCEPTABLE RESISTANCE: 10 OHMS. WHEN RESISTANCE EXCEEDS 10 OHMS; DRIVE AND BOND (#6 COPPER MINIMUM) ANOTHER GROUND ROD, ONE GROUND ROD LENGTH AWAY (MINIMUM 6'-0") AND REPEAT TEST. CONTINUE THIS PROCESS UNTIL RESISTANCE IS BELOW 10 OHMS.

GROUNDING ELECTRODE (UFER TYPE) & BONDING JUMPER(S) DETAIL (2/E3)

N.T.S.

GENERATOR IS FOR NEC ARTICLE 702 OPTIONAL STANDBY LOADS ONLY



RELIANCE 310CGK KIT INCLUDES:

MODEL #	DESCRIPTION
310C	TRANSFER SWITCH "E"
PC3010	10' LONG POWER CORD
PB30	OUTDOOR RECEPTACLE

NOTE:
1. SEE SITE UTILITIES PLAN FOR METER & TRANSFORMER POLE OR PAD MOUNT LOCATIONS.
2. BOND ALL NONCURRENT CARRYING METAL PARTS OF SERVICE EQUIPMENT (INCLUDING METER ENCLOSURE) TO GROUNDING ELECTRODE AS REQUIRED PER NEC 250-92.
3. ALL ELECTRIC SERVICE EQUIPMENT, PANELBOARDS, CIRCUIT BREAKERS, & FUSED SWITCHES SHALL HAVE A MINIMUM 22K AIC INTERRUPTING RATING.
4. THE GROUNDED NEUTRAL CONDUCTOR SHALL BE RUN TO & BONDED TO EACH SERVICE DISCONNECTING MEANS ENCLOSURE N ACCORDANCE WITH NEC 250-24.
5. BONDING OF OTHER ENCLOSURES SHALL BE IN ACCORDANCE WITH NEC 250-96.

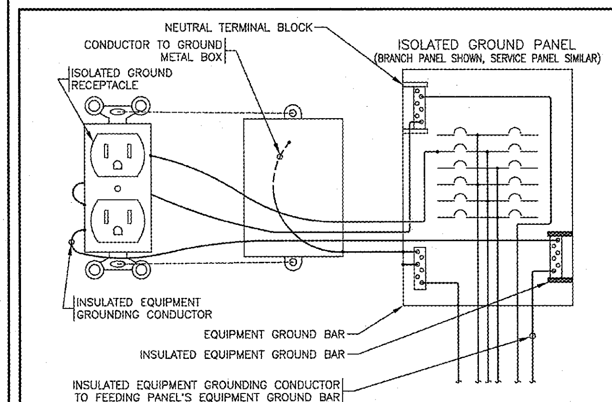
CONTRACTOR SHALL SUPPLY AND INSTALL THE FOLLOWING:
- (1) 4" PVC, SCH. 40 CONDUIT FROM ELBOW TO ELBOW.
- RGS ELBOWS (36" RADIUS).
- RGS RISERS ABOVE GRADE AT METER & 10' A.F.G. AT POLE.
- PROVIDE PULL WIRE INSIDE CONDUIT.

CONTRACTOR SHALL COORDINATE CONNECTION WITH SERVING ELECTRIC UTILITY.

NOTE: ALL ABOVE GRADE FEEDER CONDUIT SHALL BE IMC.

ELECTRIC SERVICE DIAGRAM (400AMP/3-PHASE)

N.T.S.



TYPICAL ISOLATED GROUND RECEPTACLE (1/E3)

N.T.S.

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NORTH CAROLINA STATE CERTIFICATE OF AUTHORITY FOR ENGINEERING #C-3858

NORTH CAROLINA PROFESSIONAL SEAL PE 030587 ENGINEER CAMERON K. COLLINS 3.21.19

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PROJECT:
NEW O'REILLY AUTO PARTS STORE
N. MAIN STREET
WALNUT COVE, NC

ELECTRICAL DETAILS

O'Reilly AUTO PARTS
CORPORATE OFFICES
233 SOUTH PATTERSON
SPRINGFIELD, MISSOURI 65802
(417) 862-2674 TELEPHONE

COMM #	4300
DATE:	3-22-19
REVISION DATE:	

E3

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