



June 2, 2025

Lauren Plouff  
Broaddus & Associates  
2330 Bloomdale Rd  
McKinney, TX 75071

Subject: Collin County Healthcare Facility, Parking Garage, and Medical Examiners  
Revised Request for Change (PCO) No. 015; RFI #86 HC Fire Pump Confirmation

Dear Lauren:

Please find the attached revised PCO No. 015. This proposal is submitted for a deduct of Forty-Five Thousand One Hundred and Nine Dollars (\$-45,109.00), reflective of the following items:

- **Per RFI #86 response.**
- **Healthcare Facility**
  - **Credit for the removal of the fire pump.**
  - **Credit for 1,809' of (4) #300AL and labor.**
  - **Credit for wire, termination, materials and labor for fire pump controller and fire pump.**
  - **Credit for fire pump terminations at Transformer T2 was given back in previously submitted PCO #032 ASI #3 Medium Voltage Scope of Work.**
- ***This PCO will be a deduct to our contract in the amount of \$-45,109.***

**We have proceeded with this change.** Please sign the attached request for change recap indicating approval of this change.

Sincerely,

Jim Terhune  
Sr. Project Manager

CC: Bryan Smith , PGAL

☐ Collin County

☐ PGAL - Dallas (Addison)

☐ Project Manager

☐ Accounting

**Project:**

224057- Collin County Medical Campus  
2300 Bloomdale Rd  
McKinney, TX 75071

**Owner :**

Collin County  
2300 Bloomdale Rd; Suite 3160  
McKinney, TX 75071

**From:**

The Christman Company

**Issue No. 015 - RFI #86 HC Fire Pump Confirmation**

**Amount**

**Item: I RFI #86 HC Fire Pump Confirmation**

Phase	Description	Abbreviation	Amount
26 -	Fire Protection	SUBS	-34,545.00
28 -	Electrical	SUBS	-10,564.00
<b>Subtotal Item I</b>			<b>-45,109.00</b>

0.00

**Request for Change Total:**

**\$-45,109.00**

**Qualifications:**

1. This Issue is ☐ Original ☒ Revised ☐ Budget Only ☐ Firm Quotation.
2. Contract time will be ☐ Increased by ☐ Decreased by ( ) work days; ☒ Other: None
3. The Christman Company ☒ has ☐ has not proceeded with the work, and this Issue must be accepted within ( ) work days.
4. Funded by ☒ Contract change ☐ Allowance ☐ Contingency ☐ Other: \_\_\_\_\_

**Owner and/or Architect Action:**

- ☐ Approved ☐ Proceed as described above (cost and schedule changes to be finalized under a revised Issue)
- ☐ Rejected ☐ Other: \_\_\_\_\_

**Authorization:**

The Owner and/or Architect hereby direct The Christman Company to proceed with the performance of the work as described above and/or in any additional documents referenced herein. It is understood that the amount of this Request for Change, if noted as "Budget Only" under Qualification I., will be revised as necessary upon determination of final costs and included in the next Owner Change Order accordingly. If noted as "Firm Quotation" under Qualification I., the amount of this Request will be included in the next Owner Change Order. In addition, all costs included herein may be included in the next payment application as if they had been included in an Owner Change Order or Construction Change Directive.

**Authorized By Owner:**

Collin County  
2300 Bloomdale Rd; Suite 3160  
McKinney, TX 75071

**Accepted By Architect**

PGAL - Dallas (Addison)  
14135 Midway Road, Suite G-200  
Addison TX 75001

**Submitted By Contractor:**

The Christman Company

**By:** \_\_\_\_\_

**By:** \_\_\_\_\_

**By:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Date:** \_\_\_\_\_

*Lauren Chaves*

Your fire pump partner for 25 years.

**Date:** 8-5-2024  
**Quote No.:** P0259-11912

**Job:** Collin Co. Healthcare, Parking &  
 Medical Exam (Healthcare)  
 Healthcare

**Customer:** FireTron Life Safety Solutions (DFW)  
 Clymer, Pam  
 2155 Chenault Suite 405  
 Carrollton, TX 75006

**Prepared By:**

Lupe Godinez

Quote Rev. No.	F.O.B.	Sales Taxes	Shipping Terms
01a	Origin	Not Included	Allowed (Included)
Description			Price
1	Pump: 5AEF11G, Peerless Pumps Series AEF, HSC, 125#/250#, 6-in/5-in (1000 GPM @ 145 PSI)		\$19,440
2	Driver: 125 HP, 3600 RPM, 460v/3Ph/60Hz, ODP, High Eff Electric Motor		Included
3	FP controller: Tornatech GPW+GPU, Full Svc - Wye Delta Closed, with Automatic Transfer Switch		Included
4	Set of Suction and Discharge Pressure Gauges, 1/4" NPT		Included
5	Casing Relief Valve: Cla-Val 3/4" 55L, 20-300 psig		Included
6	Air Release Valve, 1/2" NPT, Float Type		Included
7	Steel Base w/ UL-Listed Flex Coupling and Guard		Included
8	Hose Test Header: 6"x4-way, Valves/Caps/Chains, Standard		Included
9	Jockey Pump Vertical 2 HP & Controller w/ Minimum Run Timer		Included
10	Eccentric Reducer 8x6 125 Lb Flange		Included
11	Concentric Reducer 6x5 250 Lb. ANSI Flg.		Included
12	Coupling - KTR Rotex UL Coupling		Included
13	Includes startup acceptance testing/report (one trip only)		Included
14	Warranty-Standard (earlier of 18 months from shipment or 12 months after startup)		Included
15			Included
16	Price includes discount authorized by Joe Stefan for special circumstances.		
17			
18			

#### Other Information

**Maximum Suction Pressure (MSP): 141.4 PSI (do not use this pump if actual suction pressure will exceed the MSP)**

Price valid for 30 days. Unloading and installation by others. Lead time: 9 weeks.

Jockey Pump: Grundfos CR 3-12, 2HP, 460V/3Ph/60Hz

Please submit all orders to [orders@mechantek.com](mailto:orders@mechantek.com).  
 Subject to Murphy Technical Inc. Standard Terms & Conditions.

Mechantek Corporation ■ 106 Decker Ct., Suite 225, Irving, TX 75062 ■ 817.430.2400 ■ [sales@mechantek.com](mailto:sales@mechantek.com)



4/2/2025

The Christman Company

Attn: Mr. Jim Terhune

Re: Collin County Medical Campus  
Request for Proposal – RFI#86  
GME Proposal X911 Credit Healthcare Fire Pump  
GME Project #GME-24-009

Dear Mr. Terhune,

George-McKenna Electrical Contractors has reviewed the above-referenced revision and has found changes to our scope. We are pleased to provide a revised price to you in the deductive amount of **\$ -10,564.00 (-Ten Thousand Five Hundred Sixty Four- Dollars and 00/100)** for the changes shown and work described below.

Scope: See attached

Drawings: See Attached

We acknowledge receipt of:

Pricing is firm for 10 days from date of this letter. We recognize this revision is not issued to proceed, but price only. We will proceed with receipt of your written approval by Change Order or Contract.

If additional information is required, please do not hesitate to contact me.

Very Truly Yours,

George-McKenna Electrical Contractors, LLC.

Cary Ratliff Project Manager

Page Two  
Request for Proposal – RFI#86  
GME Proposal X911 Credit Healthcare Fire Pump  
GME Project #GME-24-009



**Scope:**

1. No credit on 4" pvc from HC to generator yard has been roughed in.
2. Credit for 1809' of (4) #300AL and labor.
3. Credit for wire, termination, materials and labor for fire pump controller.
4. Credit for wire, termination, materials and labor for fire pump.
5. Credit for fire pump terminations at Transformer T2 has already been given back.

**Clarifications:**

1. Permits or inspection fees are not included if required.
2. Material may have extended lead time. EST provided once order is placed.

**Exclusions:**

**General Conditions:**

- 1) Any applicable sales taxes are included in our submission.
- 2) This contractor shall not be held liable for errors or omissions in designs by others, nor inadequacies of materials and equipment specified or supplied by others.
- 3) Equipment and materials supplied by the contractor are warranted only to the extent that the same are warranted by the manufacturer (unless otherwise required by specification).
- 4) This contractor shall not be liable for indirect loss or damage.
- 5) Unless included in this proposal, all bonding and/or special insurance requirements are supplied at additional cost.
- 6) ***We do not include any cutting, patching or painting of concrete, wall surfaces or ceiling surfaces. Our work is bid with the assumption that our work will be scheduled to be installed in accordance with the manufacturers recommended installation procedures and NEC code requirements. All back boxes must be installed prior to wall surfaces for new wall construction and wall surfaces must be removed for installation of electrical systems in existing walls.***
- 7) All material is guaranteed to be as specified (unless noted otherwise). All work to be completed in a workman like manner according to standard practices. Any alteration or deviation from the above specifications involving extra work will be executed and signed for on a daily basis, computed utilizing NECA labor and material units and will become an extra charge over and above the estimate.
- 8) George-McKenna Electrical Contractors, Inc. bids this project with the assumption that there is no asbestos or lead contamination on the project site, and will not be responsible for the removal, protection from, or disposal of same. If asbestos or lead contamination is found, our personnel will stop work until removal of asbestos or lead from the project site has been completed by others.
- 9) ***Our proposal is valid for 10 days. After 10 days we reserve the right to adjust our proposal for material and/or labor increases or avoidance.***



# GEORGE McKENNA LLC

## ELECTRICAL CONTRACTORS

CONSTRUCTION • SERVICE • SECURITY • DATA & PHONE CABLING

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### PROPOSAL REQUEST SUMMARY

Project:	Collin County Medical Campus	GME Project No.	GME 24-009
Description of Work:	Credit Healthcare Fire Pump		
Submitted by:	Cary Ratliff	Date:	1-Apr-25
		Proposal Request No.	X- 911

LABOR				BURDEN	TOTAL
<b>JOB EXPENSE</b>					
Project Manager	0.00	@	\$70.00 =	\$0.00	
Project Engineer	0.00		\$55.00 =	\$0.00	
Superintendent	0.00	@	\$60.00 =	\$0.00	
	<b>0.00</b>			<b>\$0.00</b>	<b>\$0.00</b>
<b>DIRECT FIELD</b>					
Foreman	0.00	@	\$47.50 =	\$0.00	
Electrician	-95.97	@	\$43.50 =	-\$4,174.70	
Estimating	0.00	@	\$55.00 =	\$0.00	
Material Handling	0.00	@	\$0.00 =	\$0.00	
Clean-Up	0.00	@	\$0.00 =	\$0.00	
	<b>-95.97</b>			<b>-\$4,174.70</b>	<b>-\$1,878.61</b>
					<b>-\$6,053.31</b>

**LABOR COST** **-\$6,053.31**

MATERIALS/EQUIPMENT		Sales Tax		
		Estimated	8.25%	Cost
Material	See Attached BOM	-\$3,965.43	\$0.00	-\$3,965.43
QUOTES			\$0.00	\$0.00
			\$0.00	\$0.00
			\$0.00	\$0.00
		<b>-\$3,965.43</b>	<b>\$0.00</b>	<b>-\$3,965.43</b>

**MATERIALS/EQUIPMENT COSTS** **-\$3,965.43**

JOB EXPENSE				Cost
Direct Job Expense (SMALL TOOLS)				-\$242.13
Indirect Job Expense	3.0%	Yes		-\$181.60
Other Job Expense (2% Labor)				-\$121.07
				<b>-\$544.80</b>

**JOB EXPENSE COST** **-\$544.80**

<b>PRIME COST</b>		<b>-\$10,563.54</b>
OVERHEAD @	0%	\$0.00
<b>SUB-TOTAL</b>		<b>-\$10,563.54</b>
PROFIT @	0%	\$0.00
<b>SUB-TOTAL</b>		<b>-\$10,563.54</b>
Bond Premium @	0.0%	\$0.00
<b>TOTAL ESTIMATED AMOUNT</b>		<b>-\$10,563.54</b>
<b>QUOTED AMOUNT</b>		<b>(\$10,564)</b>

### Scope of Work:

#### Credit Healthcare Fire Pump

See attached scope for detailed description of work.

Proposal is firm for 10 days only!!!

Job ID: GME-24-009CO  
Project: Collin County HC Facilities - Change Orders

CO: CO-0011: Credit Healthcare Fire Pump wire and terms

Takeoff

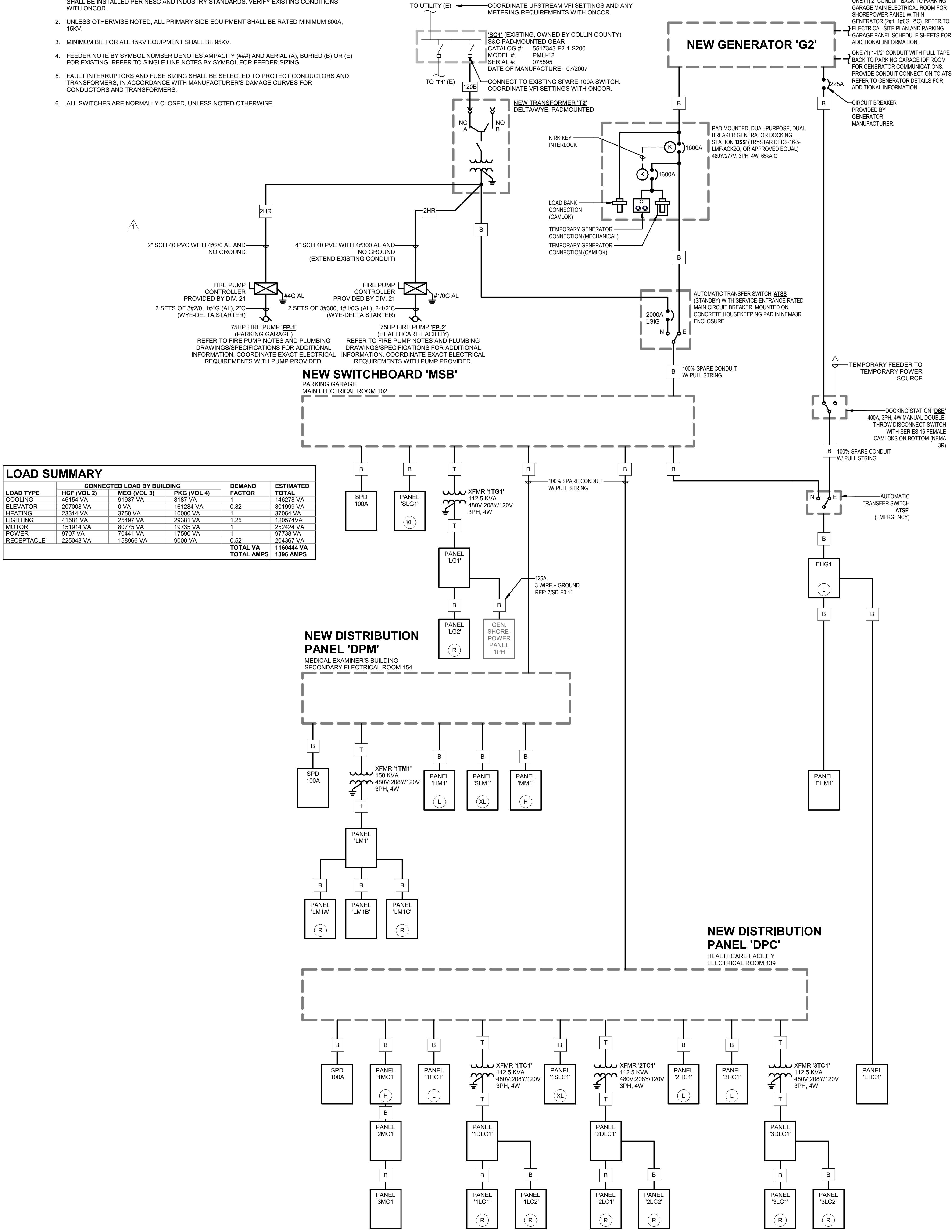
Phase: FEEDERS UNDERGROUND

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
	-590.00				4" PVC --> 4#300 FIRE PUMP FEED HC				
80079	-1,815.00	FT	M	300	XHHW ALUM	1.4490	-2,629.94	0.0340	-61.71
	0.00				FIREPUMP CONTROLLER				
100579	-6.00	EA	M	300	WIRE TERMINATION LBR	0.0000	0.00	0.6500	-3.90
100574	-1.00	EA	M	1/0	WIRE TERMINATION LBR	0.0000	0.00	0.4500	-0.45
50028	-3.00	FT	M	4	FLEXIBLE ALUM CONDUIT	10.5400	-31.62	0.5580	-1.67
50050	-1.00	EA	M	4	FLEX COND STRAIGHT CONN	180.8710	-180.87	0.8700	-0.87
50039	-1.00	EA	M	4	FLEX COND ANGLE CONN	266.8338	-266.83	1.0500	-1.05
161792	-1.00	EA	M	4	EMT 1-HOLE STEEL STRAP	6.5589	-6.56	0.0625	-0.06
161274	-24.00	EA	M	#8 x 1"	SHEET METAL SCREW	0.0659	-1.58	0.0300	-0.72
40251	-1.00	EA	M	4	PLASTIC BUSHING	1.8323	-1.83	0.6700	-0.67
	0.00				FIRE PUMP				
100579	-6.00	EA	M	300	WIRE TERMINATION LBR	0.0000	0.00	0.6500	-3.90
100574	-2.00	EA	M	1/0	WIRE TERMINATION LBR	0.0000	0.00	0.4500	-0.90
50025	-6.00	FT	M	2 1/2	FLEXIBLE ALUM CONDUIT	5.0320	-30.19	0.2808	-1.68
80079	-30.00	FT	M	300	XHHW ALUM	1.4490	-43.47	0.0340	-1.02
80092	-10.00	FT	M	1/0	XHHW COMPACT ALUM	0.4821	-4.82	0.0248	-0.25
161789	-2.00	EA	M	2 1/2	EMT 1-HOLE STEEL STRAP	3.3894	-6.78	0.0560	-0.11
50047	-4.00	EA	M	2 1/2	FLEX COND STRAIGHT CONN	30.3866	-121.55	0.5000	-2.00
40248	-4.00	EA	M	2 1/2	PLASTIC BUSHING	1.4285	-5.71	0.4200	-1.68
161274	-24.00	EA	M	#8 x 1"	SHEET METAL SCREW	0.0659	-1.58	0.0300	-0.72
10172	-10.00	FT	M	4	PVC SCH 40	5.3900	-53.90	0.1750	-1.75
20224	-1.00	EA	M	4	PVC SCH 40 90-DEG-ELBOW	28.4407	-28.44	1.2500	-1.25
31421	-2.00	EA	M	4	PVC COUPLING	4.8735	-9.75	1.0000	-2.00
220066	-1.00	EA	M	200/3	F/HD/600V N-1 SAFETY-SW	540.0000	-540.00	7.6000	-7.60
Phase Totals:							-3,965.43		-95.97



MEDIUM VOLTAGE GENERAL NOTES

1. MEDIUM VOLTAGE SYSTEM IS 14.40KV. COMPONENTS, CLEARANCES, AND ALL OTHER DETAILS SHALL BE INSTALLED PER NESC AND INDUSTRY STANDARDS. VERIFY EXISTING CONDITIONS WITH ONCOR.
2. UNLESS OTHERWISE NOTED, ALL PRIMARY SIDE EQUIPMENT SHALL BE RATED MINIMUM 800A, 15KV.
3. MINIMUM BIL FOR ALL 15KV EQUIPMENT SHALL BE 95KV.
4. FEEDER NOTE BY SYMBOL NUMBER DENOTES AMPACITY (###) AND AERIAL (A), BURIED (B) OR (E) FOR EXISTING. REFER TO SINGLE LINE NOTES BY SYMBOL FOR FEEDER SIZING.
5. FAULT INTERRUPTORS AND FUSE SIZING SHALL BE SELECTED TO PROTECT CONDUCTORS AND TRANSFORMERS, IN ACCORDANCE WITH MANUFACTURER'S DAMAGE CURVES FOR CONDUCTORS AND TRANSFORMERS.
6. ALL SWITCHES ARE NORMALLY CLOSED, UNLESS NOTED OTHERWISE.



FEEDER & BREAKER SCHEDULE  
3-PHASE 4-WIRE COPPER & ALUMINUM

CIRCUIT AMPACITY	CIRCUIT BREAKER	CONDUCTOR SETS, QTY & SIZE	EQUIP. GROUND	CONDUIT
NEC TABLE 310.15(B)(16)	NEC 240.4(B)	NEC TABLE 310.15(B)(16)	NEC TABLE 250.122	
FOR FEEDERS UP TO 90 A, PROVIDE COPPER				
20 A	20 A, 3P	1 SET OF 4 #12	#12 G	3/4"
30 A	25 A, 3P	1 SET OF 4 #10	#10 G	3/4"
30 A	30 A, 3P	1 SET OF 4 #10	#10 G	3/4"
40 A	35 A or 40 A, 3P	1 SET OF 4 #8	#10 G	1"
55 A	45 A or 50 A, 3P	1 SET OF 4 #6	#10 G	1"
70 A	60 A, 3P	1 SET OF 4 #4	#10 G	1-1/4"
70 A	70 A, 3P	1 SET OF 4 #4	#8 G	1-1/4"
85 A	80 A or 90 A, 3P	1 SET OF 4 #3	#8 G	1-1/4"
FOR FEEDERS 100 A AND ABOVE, PROVIDE ALUMINUM				
100 A	100 A, 3P	1 SET OF 4 #10	#8 G	1-1/2"
110 A	110 A, 3P	1 SET OF 4 #10	#4 G	2"
135 A	125 A, 3P	1 SET OF 4 #20	#4 G	2"
155 A	150 A, 3P	1 SET OF 4 #30	#4 G	2"
180 A	175 A, 3P	1 SET OF 4 #40	#4 G	2-1/2"
205 A	200 A, 3P	1 SET OF 4 #250	#4 G	2-1/2"
230 A	225 A, 3P	1 SET OF 4 #300	#2 G	2-1/2"
250 A	250 A, 3P	1 SET OF 4 #350	#2 G	2-1/2"
310 A	300 A, 3P	1 SET OF 4 #500	#2 G	3"
375 A	350 A, 3P	1 SET OF 4 #700	#1 G	3-1/2"
410 A	400 A, 3P	2 SETS OF 4 #250	#1 G	2-1/2"
460 A	450 A, 3P	2 SETS OF 4 #300	#10 G	2-1/2"
500 A	500 A, 3P	2 SETS OF 4 #350	#10 G	2-1/2"
620 A	600 A, 3P	2 SETS OF 4 #500	#20 G	3"
750 A	700 A, 3P	3 SETS OF 4 #350	#30 G	3"
810 A	800 A, 3P	3 SETS OF 4 #400	#30 G	3"
1,000 A	1,000 A, 3P	4 SETS OF 4 #350	#40 G	3"
1,240 A	1,200 A, 3P	4 SETS OF 4 #500	#250 G	3"
1,700 A	1,600 A, 3P	5 SETS OF 4 #600	#350 G	3-1/2"
2,040 A	2,000 A, 3P	6 SETS OF 4 #600	#400 G	3-1/2"
2,625 A	2,500 A, 3P	7 SETS OF 4 #700	#600 G	4"
3,000 A	3,000 A, 3P	8 SETS OF 4 #700	#600 G	4"
4,125 A	4,000 A, 3P	11 SETS OF 4 #700	#700 G	4"

NEC 250.66  
GROUNDING  
ELECTRODE  
CONDUCTOR

- GEC FOR SERVICES, SEPARATELY DERIVED SYSTEMS (ALUMINUM CONDUCTORS, CU GEC).
- LARGEST CONDUCTOR OR EQUIVALENT AREA OF PARALLEL CONDUCTORS (ALUM.)
- | 1/0 OR LESS | #8 G  |
|-------------|-------|
| 20 - 30     | #8 G  |
| 40 - 250    | #4 G  |
| 251 - 500   | #2 G  |
| 501 - 900   | #10 G |
| 901 - 1,750 | #20 G |
| 1,751+      | #30 G |
5. WHERE S SYMBOL IS SHOWN, PROVIDE SERVICE FEEDER WITH AMPACITY EQUAL TO OR GREATER THAN THAT OF THE SERVICE DISCONNECT, WITH NO EQUIPMENT GROUND CONDUCTOR.
6. WHERE 2HR SYMBOL IS SHOWN, NORMAL AND EMERGENCY FEEDERS SERVING FIRE PUMP AND FIRE SERVICE ELEVATOR SHALL BE ENCASED IN CONCRETE PROVIDING 2-HOUR FIRE RATING. A 2-HOUR RATING SHALL BE MAINTAINED FROM THE ROOM CONTAINING THE FEEDER'S SOURCE BREAKER OR DISCONNECT TO THE ROOM CONTAINING THE ATS. THE ELEVATOR FEEDER IS NOT REQUIRED TO BE ENCASED IN CONCRETE INSIDE THE ELEVATOR HOISTWAY OR PENTHOUSE. FIRE PUMP FEEDERS SHALL COMPLY WITH NEC 695.

ENERGY MONITORING SCHEDULE  
PER IEEE C405.12

- WHERE # SYMBOL IS SHOWN, PROVIDE POWER METERING CONTACT.
- | SYMBOL | DESCRIPTION   |
|--------|---|
| M      | MAIN POWER METER  |
| H      | TOTAL HVAC SYSTEMS - HEATING, COOLING AND VENTILATION, INCLUDING BUT NOT LIMITED TO FANS, PUMPS, BOILERS, CHILLERS AND WATER HEATING. ENERGY USED BY 120V EQUIPMENT, OR BY 208Y/120V EQUIPMENT THAT IS LOCATED IN A BUILDING WHERE THE MAIN SERVICE IS 480Y/277V. POWER, IS PERMITTED TO BE EXCLUDED FROM THE TOTAL HVAC SYSTEM ENERGY USE. |
| L      | INTERIOR LIGHTING - LIGHTING SYSTEMS LOCATED WITHIN THE BUILDING.   |
| XL     | EXTERIOR LIGHTING - LIGHTING SYSTEMS LOCATED ON THE BUILDING SITE BUT NOT WITHIN THE BUILDING.  |
| R      | PLUG LOADS - DEVICES, APPLIANCES AND EQUIPMENT CONNECTED TO CONVENIENCE RECEPTACLE OUTLETS.   |
| P      | PROCESS LOADS - ANY SINGLE LOAD THAT IS NOT INCLUDED IN HVAC, LIGHTING, OR PLUG LOAD CATEGORY AND THAT EXCEEDS 5% OF THE PEAK CONNECTED LOAD OF THE WHOLE BUILDING, INCLUDING BUT NOT LIMITED TO DATA CENTERS, MANUFACTURING EQUIPMENT, AND COMMERCIAL KITCHENS.  |

GENERATOR SCHEDULE

1. CONTRACTOR SHALL INSTALL CONCRETE PAD IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS. COORDINATE WITH STRUCTURAL PACKAGE.
2. PROVIDE VIBRATION ISOLATION SUPPORT SYSTEM AS RECOMMENDED BY SOUND ATTENUATION CONSULTANT.
3. VERIFY DEMAND LOADS WITH ELECTRICAL PANEL SCHEDULES AS SHOWN ON THE BUILDING CONSTRUCTION DESIGN DRAWINGS.
4. IN EACH PADMOUNTED TRANSFORMER, PROVIDE A & B SWITCHING INCLUDING LOAD BREAK, GANG OPERATED SWITCH THAT IS EXTERNALLY OPERABLE FROM THE HIGH-VOLTAGE COMPARTMENT THROUGH USE OF A HOT-STICK.
5. ELECTRICAL CONTRACTOR SHALL FIELD VERIFY PRIMARY VOLTAGE AND UTILITY CONFIGURATION (WYE OR DELTA) PRIOR TO SUBMITTING EQUIPMENT. DOCUMENT IN-FIELD DISCOVERY (VOLTAGE/CONFIGURATION) OF EXISTING CONDITIONS AS A PART OF TRANSFORMER SUBMITTAL.

MEDIUM VOLTAGE TRANSFORMER SCHEDULE

XFMR NAME	SYMBOL DESCRIPTION	PRIMARY	SECONDARY	SIZE	IMPEDANCE (%Z)
T2	TRANSFORMER SERVING NEMA HEALTHCARE FACILITY, PARKING GARAGE, AND MEDICAL EXAMINER BUILDING (DELTA WYE, MINIMUM OF TWELVE (12) SECONDARY SIDE LUG CONNECTIONS)	14400V	480Y/277V	2000KVA	5.8%

MEDIUM VOLTAGE FEEDER SCHEDULE

NOTE NUMBER	NOTE
120B	IN EXISTING CONDUIT, PROVIDE 3#4 AWG, 15KV, CU, TAPE SHIELD, EPR JACKET, MV-90, 133% MV CABLE, 120 AMPACITY, #30 GND. ELECTRICAL CONTRACTOR SHALL FIELD VERIFY WHAT HAS ALREADY BEEN INSTALLED IN EXISTING SWITCHGEAR. CONTRACTOR SHALL MATCH EXISTING MATERIAL (CJUAL), WIRE TYPE (MV-90/MV-105), NEUTRAL (CONCENTRIC/TAPE SHIELD, AND INSULATING TYPE. COORDINATE IN-FIELD DISCOVERIES THAT DEViate FROM WHAT IS IN CONTRACT DOCUMENTS WITH ENGINEER PRIOR TO ORDERING FEEDER.
315B	PROVIDE (2) 6" CONDUIT, ONE SPARE AND ONE CONDUIT WITH 3 #40 AWG, 15KV, CU, TAPE SHIELD, EPR JACKET, MV-105, 133% MV CABLE, 315 AMPACITY, #30 GND
475A	PROVIDE 3 #286.8 KC/MIL (TPARTIDGES), 2607 ASCR AERIAL CONDUCTORS, 475 AMPACITY

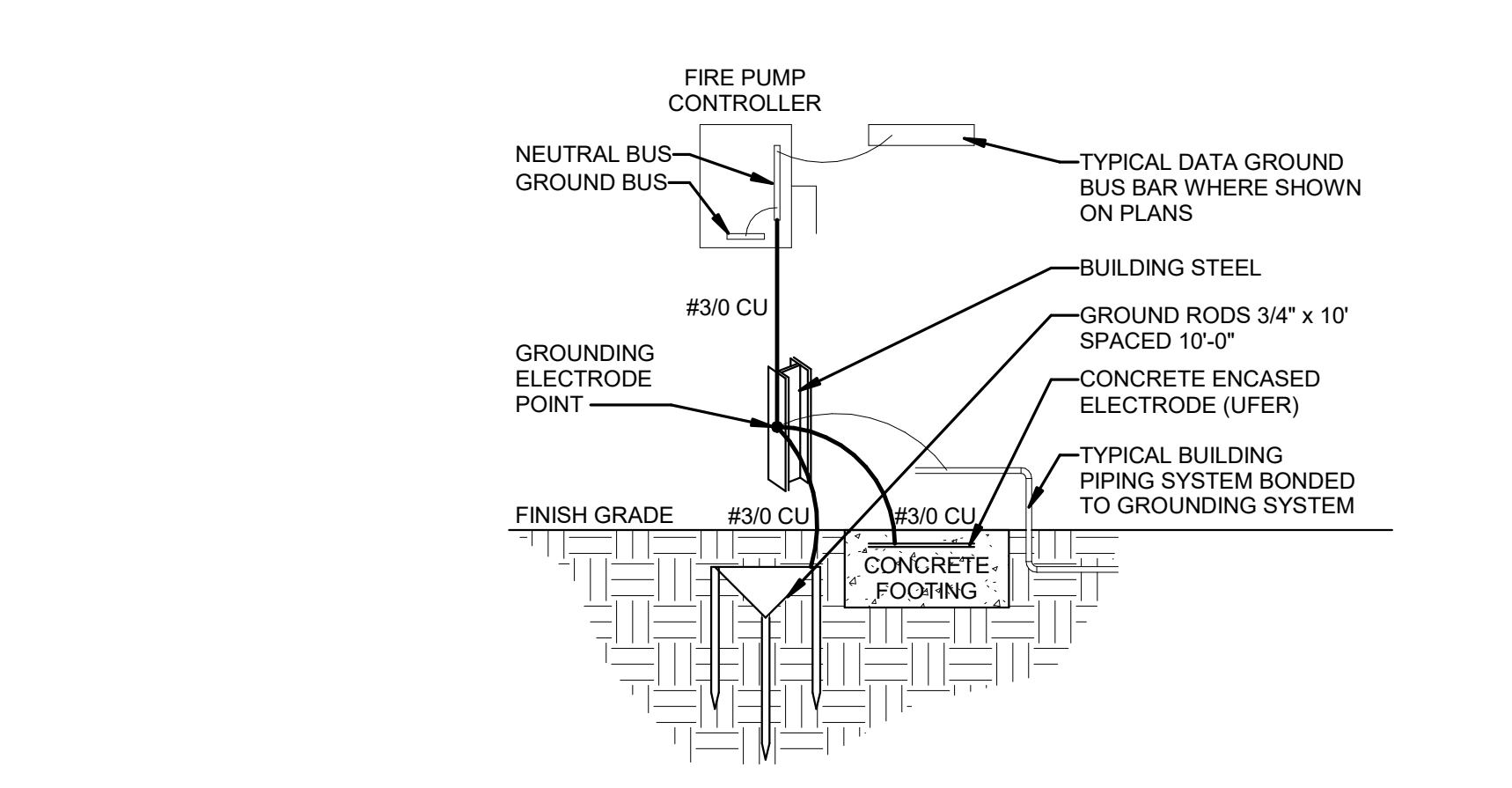
1. MAIN SWITCHBOARD SHALL BE EQUIPPED WITH A SOLID STATE POWER QUALITY METER.
2. PROVIDE 4-INCH HIGH CONCRETE PAD 3-INCHES WIDER THAN SWITCHGEAR ON SIDES AND FRONT. PROVIDE CONCRETE PAD FOR ALL FLOOR-MOUNTED ELECTRICAL EQUIPMENT INCLUDING TRANSFER SWITCHES AND DRY-TYPE TRANSFORMERS.
3. CONTRACTOR SHALL PERFORM ARC FLASH STUDY USING DATA FOR THE SUPPLIED MANUFACTURER'S EQUIPMENT, AND PROVIDE AND INSTALL ARC FLASH LABELS LABELS ON ALL ELECTRICAL EQUIPMENT. LABELS SHALL INDICATE ARC FLASH PROTECTION REQUIREMENTS AND SHOCK PROTECTION REQUIREMENTS AND OTHER INFORMATION AS REQUIRED BY OSHA AND NFPA 70E. SERVICE EQUIPMENT SHALL BE MARKED WITH THE MAXIMUM AVAILABLE FAULT CURRENT IN ACCORDANCE WITH NEC.
4. CONTRACTOR SHALL ADJUST ALL BREAKER SETTINGS ON SITE TO MATCH SETTINGS SHOWN IN MANUFACTURERS ARC FLASH STUDY.
5. CONTRACTOR SHALL PROVIDE AND PERFORM COMPLETE OVERCURRENT PROTECTION COORDINATION STUDY IN ACCORDANCE WITH NEC REQUIREMENTS PRIOR TO PURCHASE OF EQUIPMENT AND PROVIDE STUDY WITH SWITCHBOARD AND PANELBOARD SUBMITTALS. SUBMIT COORDINATION STUDY TO CITY INSPECTOR UPON REQUEST, AND INCLUDE COORDINATION STUDY WITH SUBMITTALS.
6. PROVIDE SERVICE ENTRANCE RATED LISTED CONNECTION SURGE PROTECTIVE DEVICE (SPD/ TVSS) WITH SURGE RATING AS RECOMMENDED BY MANUFACTURER FOR THE SERVICE SIZE SHOWN. DEVICE SHALL INCLUDE INTEGRAL DISCONNECT/FUSE MOUNTED TO SIDE OF SWITCHBOARD OR PANEL ENCLOSURE, CONNECTED TO BUS USING MANUFACTURER'S CABLE. CONDUCTORS SHALL BE ROUTED SO AS TO AVOID SHARP BENDS AND MINIMIZE LEAD LENGTHS.
7. BREAKERS SERVING DRY-TYPE TRANSFORMERS LOCATED REMOTELY FROM THE BREAKER SERVING THE TRANSFORMER SHALL BE PROVIDED WITH A PERMANENT LOCKING CLASP WITH NEC 110.25 AND 450.14. CONTRACTOR SHALL ALSO PROVIDE SIGNAGE ON TRANSFORMER INDICATING LOCATION OF REMOTE DISCONNECTING MEANS.
8. PER NEC 210.8(B), GFCI PROTECTION SHALL BE PROVIDED FOR ALL 20A TO 50A SINGLE PHASE RECEPTACLES RATED UP TO 150V TO GROUND AND 20A TO 100A THREE PHASE RECEPTACLES RATED UP TO 150V TO GROUND LOCATED IN INDOOR WET LOCATIONS, BATHROOMS, KITCHENS, AND WHERE WITHIN 6 FT OF ANY SINK, OR LOCATED OUTDOORS, ON ROOFTOPS, OR IN VEHICLE GARAGES AND SERVICE BAYS.
9. INSTALL WALL-MOUNTED GROUND BAR ON INSULATED STANDOFFS LOCATED IN EACH IT ROOM. VERIFY EXACT LOCATION WITH IT PERSONNEL. GROUNDING CONDUCTOR SHALL BE CONTINUOUS AND UN-CUT ACROSS GROUND BAR, OR CONNECTIONS SHALL BE MADE BY EXOTHERMIC WELD.
10. ALL OVERCURRENT DEVICES RATED 1200A OR LARGER SHALL HAVE ARC ENERGY REDUCTION CAPABILITY AS REQUIRED BY NEC. INSTALL BREAKERS WITH ZONE-SELECTIVE INTERLOCKING OR AN ENERGY REDUCING MAINTENANCE SWITCH WITH LOCAL STATUS INDICATOR.
11. SURGE PROTECTION SHALL BE INSTALLED ON ALL EMERGENCY BRANCH PANELS IN ACCORDANCE WITH NEC 700.8.
12. CONTRACTOR SHALL INSTALL ENGRAVED TAGS ON ALL ELEVATOR DISCONNECTS INDICATING ELEVATOR NUMBER AND THE PANEL AND CIRCUIT FEEDING THE DISCONNECT. LETTERING SHALL BE AT LEAST 1.5" IN HEIGHT.
13. ELECTRICAL CONTRACTOR SHALL INSTALL CONDUIT AND WIRING FROM ATS TO ELEVATOR CONTROLLERS FOR ELEVATORS ON GENERATOR POWER. ATS SHALL PROVIDE "PENDING TRANSFER" SIGNAL TO ELEVATOR CONTROLLERS TO ALLOW CONTROLLERS TO STOP ELEVATORS AT A SPECIFIED FLOOR BEFORE POWER TRANSFER OCCURS.

- FIRE PUMP NOTES**
1. FIRE PUMP INSTALLATION SHALL BE IN ACCORDANCE WITH NEC 695.
2. FIRE PUMP DISCONNECTING MEANS SHALL BE SUPERVISED IN THE CLOSED POSITION BY THE FIRE ALARM PANEL, OR IT SHALL BE LOCKABLE IN THE "ON" POSITION. ONLY A SINGLE DISCONNECTING MEANS SHALL EXIST BETWEEN THE FIRE PUMP AND THE UTILITY TRANSFORMER.
3. UTILITY AND GENERATOR FEEDERS TO FIRE PUMP MUST BE BURIED OR ENCASED IN CONCRETE WITH A MINIMUM 2" THICKNESS, OR PROTECTED BY A 2-HOUR FIRE RATED ASSEMBLY. THIS PROTECTION IS NOT REQUIRED WHERE THE FEEDER IS LOCATED INSIDE THE ROOM WITH THE PUMP CONTROLLER.
4. WHERE FIRE PUMP FEEDER IS BURIED OUTSIDE OF BUILDING, INSTALL FEEDER A MINIMUM OF 48" BELOW GRADE. INSTALL WARNING TAPE 12" BELOW GRADE DIRECTLY ABOVE CONDUIT.
5. VOLTAGE DROP MUST BE NO MORE THAN 15% AT LOCKED ROTOR CURRENT, AND NO MORE THAN 5% AT 115% OF FULL LOAD.

**AVAILABLE FAULT CURRENT CALCULATION**  
(INFINITE FAULT CURRENT ON PRIMARY)

AFC =  $\frac{2000 \text{ KVA} \times 1000}{480V \times \sqrt{3} \times 2.5}$

MAXIMUM 3Φ AFC = 48134 A



- FIRE PUMP SERVICE ENTRANCE GROUNDING DETAIL NOTES:**
1. AT THE CONTRACTOR'S OPTION, ANY ONE OF THE THREE ALLOWED ELECTRODE SYSTEMS SHOWN MAY BE USED AS THE MAIN GROUNDING ELECTRODE POINT (BUILDING STEEL, GROUND RODS OR "UFER") WITH ALL OTHER ELECTRODES BONDED TO IT. THE EXAMPLE SHOWN USES BUILDING STEEL AS THE MAIN ELECTRODE POINT.
2. THE GROUNDING ELECTRODE CONDUCTOR (GEC) SHALL BE SIZED IN ACCORDANCE WITH NEC TABLE 250.66. REFER TO FEEDER SCHEDULE.

AUTOMATIC TRANSFER SWITCH SCHEDULE

1. ALL ATS'S SHALL BE MOTOR OPERATED WITH CENTER OFF FEATURE FOR LOAD SHEDDING.
2. STANDBY TRANSFER SWITCH, WHERE PROVIDED, SHALL MONITOR GENERATOR LOAD TO PERFORM LOAD SHED FUNCTION.
3. TRANSFER SWITCHES SHALL INTERFACE WITH ELEVATOR CONTROLLERS, WHERE PROVIDED. ATS'S SHALL SEND "PENDING TRANSFER" SIGNAL AND "EMERGENCY MODE" SIGNAL TO ELEVATOR CONTROLLERS.
4. INSTALLATION SHALL BE IN ACCORDANCE WITH ARTICLES 700, 701, AND 702 OF THE NATIONAL ELECTRIC CODE.

NAME	BRANCH	AMPS	POLES	WCR	PRIORITY	NOTES
ATSE	EMERGENCY	225 A	4	65k	1	LIFE SAFETY LOADS ONLY
ATSS	STANDBY	200 A W/CB	4	65k	2	STANDBY LOADS ONLY, PROVIDE WITH SERVICE-RATED LSIG CIRCUIT BREAKER.

GENERATOR SCHEDULE

1. CONTRACTOR SHALL INSTALL CONCRETE PAD IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS. COORDINATE WITH STRUCTURAL PACKAGE.
2. PROVIDE VIBRATION ISOLATION SUPPORT SYSTEM AS RECOMMENDED BY SOUND ATTENUATION CONSULTANT.
3. VERIFY DEMAND LOADS WITH ELECTRICAL PANEL SCHEDULES AS SHOWN ON THE BUILDING CONSTRUCTION DESIGN DRAWINGS.
4. IN EACH PADMOUNTED TRANSFORMER, PROVIDE A & B SWITCHING INCLUDING LOAD BREAK, GANG OPERATED SWITCH THAT IS EXTERNALLY OPERABLE FROM THE HIGH-VOLTAGE COMPARTMENT THROUGH USE OF A HOT-STICK.
5. ELECTRICAL CONTRACTOR SHALL FIELD VERIFY PRIMARY VOLTAGE AND UTILITY CONFIGURATION (WYE OR DELTA) PRIOR TO SUBMITTING EQUIPMENT. DOCUMENT IN-FIELD DISCOVERY (VOLTAGE/CONFIGURATION) OF EXISTING CONDITIONS AS A PART OF TRANSFORMER SUBMITTAL.

KVA/KW STARTING KVA	VOLTAGE, PHASE, WIRE, POWER FACTOR	ENCLOSURE	FUEL	CAPACITY	GEN. CLASSIFICATION	TANK CLASSIFICATION
1250KW/1562.5KVA/ 5500 STARTING KVA	480Y/277V, 3PH, 0.8PF	WEATHERPROOF, SOUND ATTENUATING	DIESEL	8 HOURS	UL 2200; NFPA 110; LEVEL 1	UL 142

MEDIUM VOLTAGE TRANSFORMER SCHEDULE

- SCHEDULE NOTES:
1. ALL TRANSFORMER RATINGS SHALL BE IN COMPLIANCE WITH IEEE C57.12.91
2. PROVIDE SECONDARY BUSSING & LUG SPACE TO ACCOMMODATE THE FEEDER CONDUCTOR SIZE AND NUMBER OF SETS AS INDICATED ON THE BUILDING CONSTRUCTION DESIGN DRAWINGS (PROVIDE A MINIMUM OF 12 SECONDARY SIDE LUG CONNECTIONS).
3. VERIFY DEMAND LOADS WITH ELECTRICAL PANEL SCHEDULES AS SHOWN ON THE BUILDING CONSTRUCTION DESIGN DRAWINGS.
4. IN EACH PADMOUNTED TRANSFORMER, PROVIDE A & B SWITCHING INCLUDING LOAD BREAK, GANG OPERATED SWITCH THAT IS EXTERNALLY OPERABLE FROM THE HIGH-VOLTAGE COMPARTMENT THROUGH USE OF A HOT-STICK.
5. ELECTRICAL CONTRACTOR SHALL FIELD VERIFY PRIMARY VOLTAGE AND UTILITY CONFIGURATION (WYE OR DELTA) PRIOR TO SUBMITTING EQUIPMENT. DOCUMENT IN-FIELD DISCOVERY (VOLTAGE/CONFIGURATION) OF EXISTING CONDITIONS AS A PART OF TRANSFORMER SUBMITTAL.

XFMR NAME	SYMBOL DESCRIPTION	PRIMARY	SECONDARY	SIZE	IMPEDANCE (%Z)
T2	TRANSFORMER SERVING NEMA HEALTHCARE FACILITY, PARKING GARAGE, AND MEDICAL EXAMINER BUILDING (DELTA WYE, MINIMUM OF TWELVE (12) SECONDARY SIDE LUG CONNECTIONS)	14400V	480Y/277V	2000KVA	5.8%

MEDIUM VOLTAGE FEEDER SCHEDULE

NOTE NUMBER	NOTE
120B	IN EXISTING CONDUIT, PROVIDE 3#4 AWG, 15KV, CU, TAPE SHIELD, EPR JACKET, MV-90, 133% MV CABLE, 120 AMPACITY, #30 GND. ELECTRICAL CONTRACTOR SHALL FIELD VERIFY WHAT HAS ALREADY BEEN INSTALLED IN EXISTING SWITCHGEAR. CONTRACTOR SHALL MATCH EXISTING MATERIAL (CJUAL), WIRE TYPE (MV-90/MV-105), NEUTRAL (CONCENTRIC/TAPE SHIELD, AND INSULATING TYPE. COORDINATE IN-FIELD DISCOVERIES THAT DEViate FROM WHAT IS IN CONTRACT DOCUMENTS WITH ENGINEER PRIOR TO ORDERING FEEDER.
315B	PROVIDE (2) 6" CONDUIT, ONE SPARE AND ONE CONDUIT WITH 3 #40 AWG, 15KV, CU, TAPE SHIELD, EPR JACKET, MV-105, 133% MV CABLE, 315 AMPACITY, #30 GND
475A	PROVIDE 3 #286.8 KC/MIL (TPARTIDGES), 2607 ASCR AERIAL CONDUCTORS, 475 AMPACITY

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102703  
PROFESSIONAL ENGINEER  
01/05/2024

**DRAWING HISTORY**

NO.	DATE	DESCRIPTION
1	10/16/2023	ISSUE FOR PERMIT
1	12/15/2023	REVISION 1
1	01/22/2024	ISSUE FOR BID

**KEY PLAN**

**PROJECT NAME**  
COLLIN COUNTY HEALTHCARE, PARKING GARAGE, & MEDICAL EXAM. FACILITIES

**PROJECT LOCATION**  
2310, 2320, & 2330 Bloomdale Rd, McKinney, TX 75071

**PROJECT NUMBER**  
1006549.00

**SHEET TITLE**  
SINGLE LINE DIAGRAM

**VOLUME 1**  
SITE DEVELOPMENT  
SHEET NUMBER

**SD-E5.01**