PANELBOARD 'HA'

AVO#: 19468 | DATE: 01/01/02 | PROJECT: ADDISON ATHLETIC CENTER | LOCATION: ADDISON, TX

NOTES	DESCRIPTION	POLES & AMPS	LOAD VA LTG	LOAD VA RECEPT	LOAD VA OTHER	CKT	PH	CKT	LOAD VA LTG	LOAD VA RECEPT	LOAD VA OTHER	POLES & AMPS	DESCRIPTION	NOTES
LOCK-ON	NIGHT/EMER LIGHTING	1- 20				1	A	2	1680			1- 20	RESTROOM LTG	
	MECHANICAL RM LTG	1- 20	500			3	B	4	3600			1- 20	ENTRY/PICNIC LTG	
	POOL EQUIP. LTG	1- 20	1400			5	C	6	2400			1- 20	STAFF AREA/HALLWAY LTG	
	LOUNGE/HALL LTG	1- 20	2380		200	7	A	8	2520			1- 20	EXERCISE LTG	
	SPARE	1- 20				9	B	10	2520			1- 20	EXERCISE LTG	
	STAIR LIGHTS	1- 20	780			11	C	12				1- 20	SPARE	
	SPARE	1- 20				13	A	14				1- 20	SPARE	
	SPARE	1- 20				15	B	16				1- 20	SPARE	
	SPARE	1- 20				17	C	18				1- 20	SPARE	
	SPARE	1- 20				19	A	20				1- 20	SPARE	
	SPARE	1- 20				21	B	22				1- 20	SPARE	
	SPACE	1- 20				23	C	24				1- 20	SPACE	
	SPACE	1- 20				25	A	26				1- 20	SPACE	
	SPACE	1- 20				27	B	28				1- 20	SPACE	
	BOLLARD LIGHTS	1- 20	500			29	C	30	1125			1- 20	WALL LIGHT	
	DOWNLIGHTS	1- 20	625			31	A	32	1100			1- 20	TREE UPLIGHT	
	POLE LIGHT	1- 20	1320			33	B	34	1510			1- 20	DOWNLIGHTS	
	WALL LIGHT	1- 20	1625			35	C	36	400			1- 20	BOLLARD LIGHT	
	WALL LIGHT	1- 20	750			37	A	38	1570			1- 20	PARKING LIGHTING	
	POLE LIGHT	1- 20	880			39	B	40	500			1- 20	PAVILION	
	SPARE	1- 20				41	C	42	154			1- 20	TREE UPLIGHT	

LOAD SUMMARY	CONN KVA	CONN AMPS	N.E.C. DIVERSITY	DIV. KVA	DIV. AMPS
1. LIGHTING	29.8	35.9	1.25	37.3	44.9
2. RECEPTACLES			#220-13		
3. MOTORS			1.00		
4			1.00		
5. WATER HEATING			1.00		
6. OTHER			1.00		
TOTALS	29.8	35.9	1.00	37.3	44.9

NOTES: (CONDUCTORS ARE NOTE #1 U.N.O.)
1. 2#10, #10 G.- 3/4" C.
2. 3#6, #6 G. 1" C.
3.
4.
5.

POLES	42	BUSS	COPPER	PANEL AMPS (DIV.)	45
SIZE	100 AMP	BRKR TYPE	BOLT-IN	CONNECTED LOAD PER PHASE (KVA):	
MAINS	MLO	MOUNTING	SURFACE		
VOLTS/PHASE	277/480VOLTS			PHASE A	10.8
PHASE/WIRE	3 PHASE / 4 WIRE			PHASE B	10.8
A.I.C.	65KAIC			PHASE C	8.4

PANELBOARD 'LV2D'

AVO#: 19468 | DATE: 01/01/02 | PROJECT: ADDISON ATHLETIC CENTER | LOCATION: ADDISON, TX

NOTES	DESCRIPTION	POLES & AMPS	LOAD VA LTG	LOAD VA RECEPT	LOAD VA OTHER	CKT	PH	CKT	LOAD VA LTG	LOAD VA RECEPT	LOAD VA OTHER	POLES & AMPS	DESCRIPTION	NOTES
LOCK-ON	RESTROOM RECEPT	1- 20		180		1	A	2		1200		1- 20	VENDING MACHINE	
	IRRIGATION CONTRL	1- 20		180		3	B	4		1200		1- 20	VENDING MACHINE	
	RECEPTACLES	1- 20		540		5	C	6		1600		1- 20	COUNTER RECEPT	
	RECEPTACLES	1- 20		720		7	A	8		180		1- 20	FUTURE FAN	
	IRRIGATION CONTRL	1- 20		180		9	B	10		720		1- 20	MECHANICAL RM RECEPT	
	RECEPTACLES	1- 20		800		11	C	12		720		1- 20	MECHANICAL RM RECEPT	
	RECEPTACLES	1- 20		800		13	A	14		360		1- 20	MECHANICAL RM RECEPT	
	RECEPTACLES	1- 20		720		15	B	16		1600		1- 20	EXERCISE EQUIP. RECEPT	
	EXERCISE EQUIP. RECEPT	1- 20		1600		17	C	18		1600		1- 20	EXERCISE EQUIP. RECEPT	
	EXERCISE EQUIP. RECEPT	1- 20		1600		19	A	20		1600		1- 20	EXERCISE EQUIP. RECEPT	
	EXERCISE EQUIP. RECEPT	1- 20		1600		21	B	22		1600		1- 20	EXERCISE EQUIP. RECEPT	
	EXERCISE EQUIP. RECEPT	1- 20		1600		23	C	24		1600		1- 20	HAND DRYER	
	PAVILION RECEPTACLES	1- 20		720		25	A	26		1600		1- 20	HAND DRYER	
	RECEPTACLES	1- 20		180		27	B	28		360		1- 20	TV	
	TV	1- 20		360		29	C	30		1200		1- 20	EXERCISE EQUIP. RECEPT	
	EXERCISE EQUIP. RECEPT	1- 20		1200		31	A	32		1200		1- 20	EXERCISE EQUIP. RECEPT	
	EXERCISE EQUIP. RECEPT	1- 20		1200		33	B	34		1200		1- 20	EXERCISE EQUIP. RECEPT	
	EXERCISE EQUIP. RECEPT	1- 20		1200		35	C	36		1200		1- 20	EXERCISE EQUIP. RECEPT	
	EXERCISE EQUIP. RECEPT	1- 20		1200		37	A	38		1200		1- 20	EXERCISE EQUIP. RECEPT	
	EXERCISE EQUIP. RECEPT	1- 20		1200		39	B	40		1200		1- 20	EXERCISE EQUIP. RECEPT	
	EXERCISE EQUIP. RECEPT	1- 20		1200		41	C	42		1600		1- 20	EXERCISE EQUIP. RECEPT	
	EXERCISE EQUIP. RECEPT	1- 20		1600		43	A	44		1600		1- 20	EXERCISE EQUIP. RECEPT	
	EXERCISE EQUIP. RECEPT	1- 20		1600		45	B	46		1600		1- 20	EXERCISE EQUIP. RECEPT	
	EXERCISE EQUIP. RECEPT	1- 20		1600		47	C	48		1600		1- 20	EXERCISE EQUIP. RECEPT	
	EXERCISE EQUIP. RECEPT	1- 20		1600		49	A	50			1000	1- 20	REFRIGERATOR	
	COFFEE MAKER	1- 20			1200	51	B	52		540		1- 20	RECEPTACLES	
	RECEPTACLES	1- 20		360		53	C	54		540		1- 20	TV	
	TV	1- 20		540		55	A	56		1200		1- 20	EXERCISE EQUIP. RECEPT	
	EXERCISE EQUIP. RECEPT	1- 20		1200		57	B	58		1200		1- 20	EXERCISE EQUIP. RECEPT	
	EXERCISE EQUIP. RECEPT	1- 20		1200		59	C	60		1200		1- 20	EXERCISE EQUIP. RECEPT	
	EXERCISE EQUIP. RECEPT	1- 20		1200		61	A	62		1200		1- 20	EXERCISE EQUIP. RECEPT	
	EXERCISE EQUIP. RECEPT	1- 20		1200		63	B	64		1200		1- 20	EXERCISE EQUIP. RECEPT	
	EXERCISE EQUIP. RECEPT	1- 20		1200		65	C	66		1200		1- 20	EXERCISE EQUIP. RECEPT	
	EXERCISE EQUIP. RECEPT	1- 20		1200		67	A	68		1600		1- 20	EXERCISE EQUIP. RECEPT	
	EXERCISE EQUIP. RECEPT	1- 20		1200		69	B	70		1600		1- 20	EXERCISE EQUIP. RECEPT	
	EXERCISE EQUIP. RECEPT	1- 20		1200		71	C	72		1600		1- 20	EXERCISE EQUIP. RECEPT	
	EXERCISE EQUIP. RECEPT	1- 20		1200		73	A	74		1600		1- 20	EXERCISE EQUIP. RECEPT	
	EXERCISE EQUIP. RECEPT	1- 20		1200		75	B	76			1180	1- 20	EF-3	
	EXERCISE EQUIP. RECEPT	1- 20		1200		77	C	78	90			1- 20	STEP LIGHTS	
	EXERCISE EQUIP. RECEPT	1- 20		1200		79	A	80		360		1- 20	TV	
	RECEPTACLES	1- 20		720		81	B	82		540		1- 20	RECEPTACLES	
	COUNTER RECEPT	1- 20		720		83	C	84			50	1- 20	WATER HEATER PUMP	

LOAD SUMMARY	CONN KVA	CONN AMPS	N.E.C. DIVERSITY	DIV. KVA	DIV. AMPS
1. LIGHTING	0.1	0.3	1.25		
2. RECEPTACLES	87.2	242.3	#220-13	79.5	220.9
3. MOTORS	3.4	9.5	1.00		
4			1.00		
5. WATER HEATING			1.00		
6. OTHER			1.00		
TOTALS	90.8	252.1	1.00	79.5	220.9

NOTES: (CONDUCTORS ARE NOTE #1 U.N.O.)
1. 2#12, #12 G.- 1/2" C.
2. 2#10, #10 G. - 3/4" C.
3.
4.
5.

POLES	126	BUSS	COPPER	PANEL AMPS (DIV.)	382
SIZE	400 AMP	BRKR TYPE	BOLT-IN	CONNECTED LOAD PER PHASE (KVA):	
MAINS	400 AMP MCB	MOUNTING	SURFACE		
VOLTS/PHASE	120/208VOLTS			PHASE A	30.9
PHASE/WIRE	3 PHASE / 4 WIRE			PHASE B	29.3
A.I.C.	10KAIC			PHASE C	30.6

THIRD SECTION NOT SHOWN
NO ACTIVE BREAKERS
(12 SPARE AND 30 SPACES)

PANELBOARD 'H'

AVO#: 19468 | DATE: 01/01/02 | PROJECT: ADDISON ATHLETIC CENTER | LOCATION: ADDISON, TX

NOTES	DESCRIPTION	POLES & AMPS	LOAD VA LTG	LOAD VA EL. HEAT	LOAD VA OTHER	CKT	PH	CKT	LOAD VA LTG	LOAD VA EL. HEAT	LOAD VA OTHER	POLES & AMPS	DESCRIPTION	NOTES
		3			5817	1	A	2			5817	3		2
2	AC-1				5817	3	B	4			5817		AC-2	2
		30			5817	5	C	6			5817	30		
		3			5817	7	A	8			5817	3		
2	AC-3				5817	9	B	10			5817		AC-4	2
		30			5817	11	C	12			5817	30		
		3			5817	13	A	14				1- 20	SPARE	
2	AC-5				5817	15	B	16				1- 20	SPARE	
		30			5817	17	C	18		4800		3		
	SPARE	1- 20				19	A	20		4800			AC-2 DUCT HTR	
	SPARE	1- 20				21	B	22		4800		20		
		3		4800		23	C	24		4800		3		
	AC-1 DUCT HTR			4800		25	A	26		4800			AC-4 DUCT HTR	
		20		4800		27	B	28		4800		20		
		3		4800		29	C	30			11250	3		
	AC-3 DUCT HTR			4800		31	A	32			11250		WATER HEATER	3
		20		4800		33	B	34			11250	50		
		3		4800		35	C	36		4155		2	VAV-1 ELEC. HT	
	AC-5 DUCT HTR			4800		37	A	38		4155		20		
		20		4800		39	B	40		4155		2	VAV-2 ELEC. HT	
	SPARE	1- 20				41	C	42		4155		20		

LOAD SUMMARY	CONN KVA	CONN AMPS	N.E.C. DIVERSITY	DIV. KVA	DIV. AMPS
1. LIGHTING			1.25		
2. ELECTRIC HEAT	88.6	106.6	1.00	88.6	106.6
3. MOTORS	87.3	105.0	1.00	87.3	105.0
4. OTHER			1.00		
5. WATER HEATERS	33.8	40.6	1.00	33.8	40.6
6			1.00		
TOTALS	122.4	147.3	1.00	122.4	147.3

NOTES: (CONDUCTORS ARE NOTE #1 U.N.O.)
1. 3#12, #12 G.- 1/2" C.
2. 3#10, #10 G. 3/4" C.
3. 3#8, #10 G. 3/4" C.
4.
5.

POLES	42	BUSS	COPPER	PANEL AMPS (DIV.)	147
SIZE	200 AMP	BRKR TYPE	BOLT-IN	CONNECTED LOAD PER PHASE (KVA):	
MAINS	MLO	MOUNTING	SURFACE		
VOLTS/PHASE	277/480VOLTS			PHASE A	68.5
PHASE/WIRE	3 PHASE / 4 WIRE			PHASE B	68.5
A.I.C.	65KAIC			PHASE C	72.6

PANELBOARD 'PL'

AVO#: 19468 | DATE: 01/01/02 | PROJECT: ADDISON ATHLETIC CENTER | LOCATION: ADDISON, TX

NOTES	DESCRIPTION	POLES & AMPS	LOAD VA LTG	LOAD VA RECEPT	LOAD VA OTHER	CKT	PH	CKT	LOAD VA LTG	LOAD VA RECEPT	LOAD VA OTHER	POLES & AMPS	DESCRIPTION	NOTES
	POOL LIGHTS	1- 20	1500			1	A	2	1700			1- 20	POOL EQUIP RM LTG	
	POOL LIGHTS	1- 20	1500			3	C	4		540		1- 20	RECEPTACLE	
	PP9 - PUMP 75HP	1- 20			1590	5	A	6			1180	1- 20	EF-4	
	PP9 - PUMP 75HP	1- 20			1590	7	C	8				1- 20	SPARE	
	CHEMICAL CONTROLLER	1- 20		180		9	A	10				1- 20	SPARE	
	WATER CONTROLLER	1- 20		180		11	C	12				1- 20	SPARE	
	SPARE	1- 20				13	A	14				1- 20	SPARE	
	SPARE	1- 20				15	C	16				1- 20	SPARE	
	SPARE	1- 20				17	A	18				1- 20	SPARE	

LOAD SUMMARY	CONN KVA	CONN AMPS	N.E.C. DIVERSITY	DIV. KVA	DIV. AMPS
1. LIGHTING	4.7	22.6	1.25	5.9	28.2
2. RECEPTACLES	0.9	4.3	#220-13	0.9	4.3
3. MOTORS	4.4	21.0	1.00	4.4	21.0
4			1.00		
5. WATER HEATING			1.00		
6. OTHER			1.00		
TOTALS	10.0	47.9	1.00	11.1	53.5

NOTES: (CONDUCTORS ARE NOTE #1 U.N.O.)
1. 2#10, #10 G. - 3/4" C.
2.
3.
4.
5.

POLES	18	BUSS	COPPER	PANEL AMPS (DIV.)	13
SIZE	100 AMP	BRKR TYPE	BOLT-IN	CONNECTED LOAD PER PHASE (KVA):	
MAINS	MCB	MOUNTING	SURFACE		
VOLTS/PHASE	120/208VOLTS			PHASE A	4.8
PHASE/WIRE	1 PHASE / 3 WIRE				
A.I.C.	10KAIC			PHASE C	2.2

Motor Control Center 'MCC'

DESIGNATION & DESCRIPTION	CIRCUIT NO.	SERVES	HP OR KVA	FULL LOAD AMPS	CIRCUIT FRAME POLES/TRIP	STARTER SIZE	STARTER TYPE	WIRE & CONDUIT
	1	PP1-RECIRC. PUMP	20HP	27	60/3/50	2	FVNR	3#8, #10G. -3/4" C.
'MCC'	2	PP2-VORTEX PUMP	10HP	14	30/3/30	1	FVNR	3#10, #10G. -3/4" C.
	3	PP3-WTR FALL PUMP	15HP	21	60/3/40	2	FVNR	3#8, #10G. -3/4" C.
277/480V	4	PP4-HYDROTHERAPY PUMP	3HP	4.8	30/3/15	0	FVNR	3#12, #12 G. - 1/2" C.
3 PH, 4 W	5	PP5-WTR FEATURE PUMP	15HP	21	60/3/40	2	FVNR	3#8, #10G. -3/4" C.
	6	PP6-RECIRC. PUMP	7.5HP	11	30/3/30	1	FVNR	3#10, #10 G. -3/4" C.
	7	PP7-AIR BLOWER	3HP	4.8	30/3/15	0	FVNR	3#12, #12 G. - 1/2" C.
400 A	8	SPARE						
MLO	9	SPARE						
	10	PP10-BYPASS PUMP	5HP	7.6	30/3/15	0	FVNR	3#12, #12 G. - 1/2" C.
	11	TRANSF. T-PL	15KVA	31.3	60/2/40	--	--	3#8, #10G. -3/4" C.
	12							
	13							
	14							
65KAIC		TOTAL:	171	AMPS				

1. VERIFY HP PRIOR TO ORDER; PROVIDE EACH WITH H-O-A SWITCHES AND AMMETERS, AND REMOTE EQUIP. WITH PILOT LIGHTS
2. STARTER TYPES:
   1. FULL VOLTAGE, NON-REVERSING
   2. REDUCED VOLTAGE, WYE DELTA (FURNISHED WITH EQUIPMENT)
   3. REDUCED VOLTAGE, WYE DELTA
3. PROVIDE TWO SETS OF AUXILARY CONTACTS: 1-N.C. AND 1-N.O.

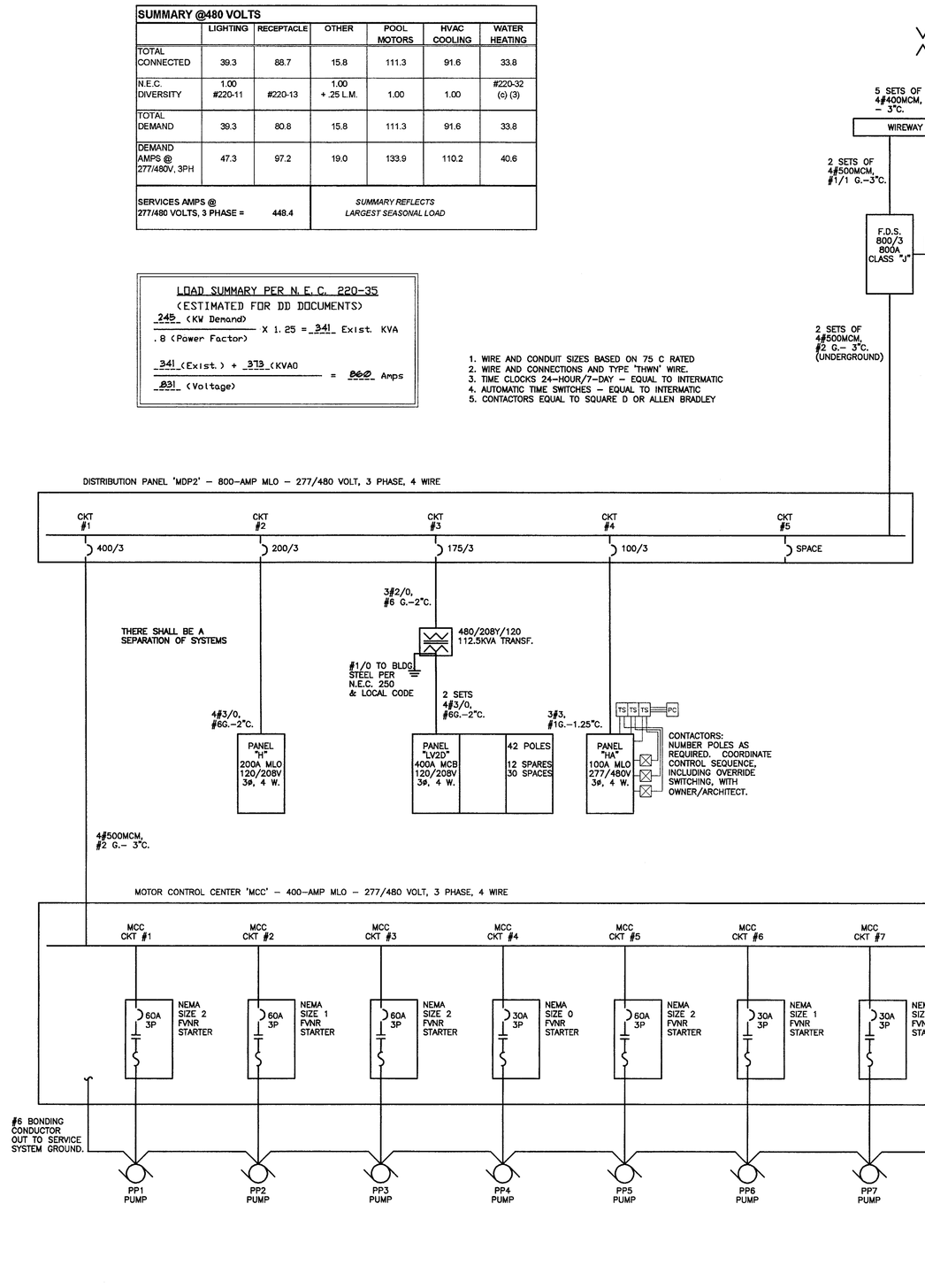
SUMMARY @480 VOLTS	LIGHTING	RECEPTACLE	OTHER	POOL MOTORS	HVAC COOLING	WATER HEATING
TOTAL CONNECTED	39.3	88.7	15.8	111.3	91.6	33.8
N.E.C. DIVERSITY	1.00 #220-11	#220-13	1.00 + 25 L.M.	1.00	1.00	#220-32 (c) (3)
TOTAL DEMAND	39.3	80.8	15.8	111.3	91.6	33.8
DEMAND AMPS @ 277/480V, 3PH	47.3	97.2	19.0	133.9	110.2	40.6
SERVICES AMPS @ 277/480 VOLTS, 3 PHASE =	448.4		SUMMARY REFLECTS LARGEST SEASONAL LOAD			

LOAD SUMMARY PER N.E.C. 220-35
(ESTIMATED FOR DD DOCUMENTS)

249 (KW Demand) X 1.25 = 341 Exist. KVA
.8 (Power Factor)

341 (Exist.) + 373 (KVAO = 860 Amps
831 (Voltage)

1. WIRE AND CONDUIT SIZES BASED ON 75 C RATED
2. WIRE AND CONNECTIONS AND TYPE 'THWN' WIRE.
3. TIME CLOCKS 24-HOUR/7-DAY -- EQUAL TO INTERMATIC
4. AUTOMATIC TIME SWITCHES -- EQUAL TO INTERMATIC
5. CONTACTORS EQUAL TO SQUARE D OR ALLEN BRADLEY



1 electrical one line diagram
NO SCALE

AVAILABLE FAULT CURRENT ESTIMATE:	Addison Athletic Center Addison, Texas
Assumed Power Co. Transformer Size =	1500 KVA
Assumed Transformer Impedance =	3.0 %
(Verify with power company prior to ordering equipment)	
Transformer Full Load Amps =	1804.2 Amps
Transformer Let-thru S.C. Current =	F.L. Amps / Impedance
	60141 Short Circuit Amps (@ xfmr)

Main Distribution @ Gutter:

f = (√3)*(15 feet)*(60141 SCA) / 5 (Cond./PH)*(20565 'C')*(480 Volts L-L) = 0.032

M = 1 / (1 + f) = 0.969

Panel S.C. Current = SCA @ xfmr * M = 58295 A

Estimated A.F.C. at 800-amp F.D.S. = 58295 SCA (@ S.E.)
Fuse RMS let-thru (class "L" Time Delay) = 30000 SCA (@ S.E.)

Panel 'MDP2':

f = (√3)*(100 feet)*(30000 SCA) / 2 (Cond./PH)*(22185 'C')*(480 Volts L-L) = 0.244

M = 1 / (1 + f) = 0.804

Estimated A.F.C. at Panel = **24116** SCA

Panel 'MCC':

f = (√3)*(50 feet)*(24116 SCA) / 1 (Cond./PH)*(22185 'C')*(480 Volts L-L) = 0.196

M = 1 / (1 + f) = 0.836

Estimated A.F.C. at Panel = **20162** SCA

Panel 'H':

f = (√3)*(15 feet)*(20162 SCA) / 1 (Cond./PH)*(22185 'C')*(480 Volts L-L) = 0.049

M = 1 / (1 + f) = 0.953

Estimated A.F.C. at Panel = **28593** SCA

Panel 'HA':

f = (√3)*(15 feet)*(28593 SCA) / 1 (Cond./PH)*(4760 'C')*(480 Volts L-L) = 0.325

M = 1 / (1 + f) = 0.755

Estimated A.F.C. at Panel = **22639** SCA

ISSUE DATE
FEB. 20, 2002

REVISIONS

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ADDISON, TEXAS

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0012

SHEET NAME
ELECTRICAL PANELS

SHEET NUMBER
E103