PANELBOARD SCHEDULE

VOLTAGE: 480Y/277V,3PH,4W
SIZE/TYPE BUS: 100A
SIZE/TYPE MAIN: 100A/3P C/B

PANEL TAG: LP-B1
PANEL LOCATION: BASEMENT
PANEL MOUNTING: SURFACE

MIN. C/B AIC: 10K
OPTIONS: PROVIDE FEED THROUGH LUGS FOR PANELBOARD LP-B1

DESCRIPTION	LOCATION	LOAD (WATTS)	C/B SIZE	POS. NO.	A	B	C	POS. NO.	C/B SIZE	LOAD (WATTS)	LOCATION	DESCRIPTION
LTG	2,6,8,10	1755	20A/1P	1	*			2	20A/1P	1742	2,92A,12,12A,12E	LTG
LTG	90,1,3	1730	20A/1P	3		*		4	20A/1P	1288	9,Hallway	LTG
LTG	15,17,19	1587	20A/1P	5			*	6	20A/1P	1794	16b,14,22,24	LTG
0		0	20A/1P	7	*			8	20A/1P	0		
		0	20A/1P	9		*		10	20A/1P	0		
		0	20A/1P	11			*	12	20A/1P	0		
		0	20A/1P	13	*			14	20A/1P	0		
		0	20A/1P	15		*		16	20A/1P	0		
		0	20A/1P	17			*	18	20A/1P	0		
		0	20A/1P	19	*			20	20A/1P	0		
		0	20A/1P	21		*		22	20A/1P	0		
		0	20A/1P	23			*	24	20A/1P	0		
		0	20A/1P	25	*			26	20A/1P	0		
		0	20A/1P	27		*		28	20A/1P	0		
		0	20A/1P	29			*	30	20A/1P	0		
		0	20A/1P	31	*			32	20A/1P	0		
		0	20A/1P	33		*		34	20A/1P	0		
		0	20A/1P	35			*	36	20A/1P	0		
		0	20A/1P	37	*			38	20A/1P	0		
		0	20A/1P	39		*		40	20A/1P	0		
		0	20A/1P	41			*	42	20A/1P	0		

CONNECTED LOAD (KW) - A	3.50	TOTAL DESIGN LOAD (KW)	15.46
CONNECTED LOAD (KW) - B	3.02	POWER FACTOR	0.90
CONNECTED LOAD (KW) - C	3.38	TOTAL DESIGN LOAD (AMPS)	21

ELECTRICAL DESIGN

Since the lighting design was redesigned, the electrical system must be redesigned to correspond to the new loads. A coordination study was also done to insure proper protection from fault currents.

Refer to EP-XXX series sheets for circuit and control information.

LPB2	208Y/120	225	125	SURFACE	42	22,000	20	1	12	–	27
							30	3	–	1	

Original Panelboard

PANELBOARD SCHEDULE

VOLTAGE: 480Y/277V,3PH,4W	PANEL TAG: LP-F1	MIN. C/B AIC: 10K
SIZE/TYPE BUS: 100A	PANEL LOCATION: FIRST FLOOR	OPTIONS: PROVIDE FEED THROUGH LUGS
SIZE/TYPE MAIN: 100A/3P C/B	PANEL MOUNTING: SURFACE	FOR PANELBOARD LP-F1

DESCRIPTION	LOCATION	LOAD (WATTS)	C/B SIZE	POS. NO.	A	B	C	POS. NO.	C/B SIZE	LOAD (WATTS)	LOCATION	DESCRIPTION
LTG	)2,102A,190,190	1759	20A/1P	1	*			2	20A/1P	1866	101,193,103C	LTG
LTG	103B,103,107,10	1859	20A/1P	3		*		4	20A/1P	2000	113,113A,119,121	LTG
LTG	108 114 116	1872	20A/1P	5			*	6	20A/1P	1872	112	LTG
LTG	104	585	20A/1P	7	*			8	20A/1P	0		SPARE
LTG	104	585	20A/1P	9		*		10	20A/1P	0		SPARE
LTG	104 192 190	692	20A/1P	11			*	12	20A/1P	0		SPARE
0		0	20A/1P	13	*			14	20A/1P	0		
		0	20A/1P	15		*		16	20A/1P	0		
		0	20A/1P	17			*	18	20A/1P	0		
		0	20A/1P	19	*			20	20A/1P	0		
		0	20A/1P	21		*		22	20A/1P	0		
		0	20A/1P	23			*	24	20A/1P	0		
		0	20A/1P	25	*			26	20A/1P	0		
		0	20A/1P	27		*		28	20A/1P	0		
		0	20A/1P	29			*	30	20A/1P	0		
		0	20A/1P	31	*			32	20A/1P	0		
		0	20A/1P	33		*		34	20A/1P	0		
		0	20A/1P	35			*	36	20A/1P	0		
		0	20A/1P	37	*			38	20A/1P	0		
		0	20A/1P	39		*		40	20A/1P	0		
		0	20A/1P	41			*	42	20A/1P	0		

CONNECTED LOAD (KW) - A	4.21	TOTAL DESIGN LOAD (KW)	20.45
CONNECTED LOAD (KW) - B	4.44	POWER FACTOR	0.90
CONNECTED LOAD (KW) - C	4.44	TOTAL DESIGN LOAD (AMPS)	27

■ ELECTRICAL DESIGN

Original Panelboard

LP1	208Y/120	225	125	SURFACE	42	22,000	20	1	20	–	20
							20	2	2	–	

PANELBOARD SCHEDULE

VOLTAGE: 480Y/277V,3PH,4W
SIZE/TYPE BUS: 100A
SIZE/TYPE MAIN: 100A/3P C/B

PANEL TAG: LP-F2
PANEL LOCATION: SECOND FLOOR
PANEL MOUNTING: SURFACE

MIN. C/B AIC: 10K
OPTIONS: PROVIDE FEED THROUGH LUGS FOR PANELBOARD LP-F2

DESCRIPTION	LOCATION	LOAD (WATTS)	C/B SIZE	POS. NO.	A	B	C	POS. NO.	C/B SIZE	LOAD (WATTS)	LOCATION	DESCRIPTION
LTG	A1	750	20A/1P	1	*			2	20A/1P	750	B1	LTG
LTG	A2	750	20A/1P	3		*		4	20A/1P	750	B2	LTG
LTG	A3	750	20A/1P	5			*	6	20A/1P	750	B3	LTG
LTG	LOBBY	820	20A/1P	7	*			8	20A/1P	792	LOUNGE	LTG
LTG	HALLWAY	756	20A/1P	9		*		10	20A/1P	762	RESTROOM	LTG
LTG	CRIT A	703	20A/1P	11			*	12	20A/1P	797	CRIT B	LTG
0		0	20A/1P	13	*			14	20A/1P	0		
		0	20A/1P	15		*		16	20A/1P	0		
		0	20A/1P	17			*	18	20A/1P	0		
		0	20A/1P	19	*			20	20A/1P	0		
		0	20A/1P	21		*		22	20A/1P	0		
		0	20A/1P	23			*	24	20A/1P	0		
		0	20A/1P	25	*			26	20A/1P	0		
		0	20A/1P	27		*		28	20A/1P	0		
		0	20A/1P	29			*	30	20A/1P	0		
		0	20A/1P	31	*			32	20A/1P	0		
		0	20A/1P	33		*		34	20A/1P	0		
		0	20A/1P	35			*	36	20A/1P	0		
		0	20A/1P	37	*			38	20A/1P	0		
		0	20A/1P	39		*		40	20A/1P	0		
		0	20A/1P	41			*	42	20A/1P	0		

CONNECTED LOAD (KW) - A	3.11	TOTAL DESIGN LOAD (KW)	10.59
CONNECTED LOAD (KW) - B	3.02	POWER FACTOR	0.90
CONNECTED LOAD (KW) - C	3.00	TOTAL DESIGN LOAD (AMPS)	14

■ ELECTRICAL DESIGN

Original Panelboard

LP2	208Y/120	225	125	SURFACE	24	22,000	20	1	4	–	20
							50	3	–	1	

PANELBOARD SCHEDULE

VOLTAGE: 480Y/277V,3PH,4W
SIZE/TYPE BUS: 100A
SIZE/TYPE MAIN: 100A/3P C/B

PANEL TAG: LP-F3
PANEL LOCATION: THIRD FLOOR
PANEL MOUNTING: SURFACE

MIN. C/B AIC: 10K
OPTIONS: PROVIDE FEED THROUGH LUGS FOR PANELBOARD LP-F3

DESCRIPTION	LOCATION	LOAD (WATTS)	C/B SIZE	POS. NO.	A	B	C	POS. NO.	C/B SIZE	LOAD (WATTS)	LOCATION	DESCRIPTION
LTG	A1	750	20A/1P	1	*			2	20A/1P	750	B1	LTG
LTG	A2	750	20A/1P	3		*		4	20A/1P	750	B2	LTG
LTG	A3	750	20A/1P	5			*	6	20A/1P	750	B3	LTG
LTG	LOBBY	820	20A/1P	7	*			8	20A/1P	792	LOUNGE	LTG
LTG	HALLWAY	756	20A/1P	9		*		10	20A/1P	762	RESTROOM	LTG
LTG	CRIT A	703	20A/1P	11			*	12	20A/1P	797	CRIT B	LTG
0		0	20A/1P	13	*			14	20A/1P	0		
		0	20A/1P	15		*		16	20A/1P	0		
		0	20A/1P	17			*	18	20A/1P	0		
		0	20A/1P	19	*			20	20A/1P	0		
		0	20A/1P	21		*		22	20A/1P	0		
		0	20A/1P	23			*	24	20A/1P	0		
		0	20A/1P	25	*			26	20A/1P	0		
		0	20A/1P	27		*		28	20A/1P	0		
		0	20A/1P	29			*	30	20A/1P	0		
		0	20A/1P	31	*			32	20A/1P	0		
		0	20A/1P	33		*		34	20A/1P	0		
		0	20A/1P	35			*	36	20A/1P	0		
		0	20A/1P	37	*			38	20A/1P	0		
		0	20A/1P	39		*		40	20A/1P	0		
		0	20A/1P	41			*	42	20A/1P	0		

CONNECTED LOAD (KW) - A	3.11	TOTAL DESIGN LOAD (KW)	10.59
CONNECTED LOAD (KW) - B	3.02	POWER FACTOR	0.90
CONNECTED LOAD (KW) - C	3.00	TOTAL DESIGN LOAD (AMPS)	14

■ ELECTRICAL DESIGN

Original Panelboard

LP3	208Y/120	225	125	SURFACE	24	22,000	20	1	5	–	17
							20	2	1		
							50	3	–	1	

PANELBOARD SCHEDULE

VOLTAGE: 480Y/277V,3PH,4W
SIZE/TYPE BUS: 100A
SIZE/TYPE MAIN: 100A/3P C/B

PANEL TAG: LP-F4
PANEL LOCATION: FOURTH FLOOR
PANEL MOUNTING: SURFACE

MIN. C/B AIC: 10K
OPTIONS: PROVIDE FEED THROUGH LUGS FOR PANELBOARD LP-F4

DESCRIPTION	LOCATION	LOAD (WATTS)	C/B SIZE	POS. NO.	A	B	C	POS. NO.	C/B SIZE	LOAD (WATTS)	LOCATION	DESCRIPTION
LTG	A1	750	20A/1P	1	*			2	20A/1P	750	B1	LTG
LTG	A2	750	20A/1P	3		*		4	20A/1P	750	B2	LTG
LTG	A3	750	20A/1P	5			*	6	20A/1P	750	B3	LTG
LTG	LOBBY	820	20A/1P	7	*			8	20A/1P	792	LOUNGE	LTG
LTG	HALLWAY	756	20A/1P	9		*		10	20A/1P	762	RESTROOM	LTG
LTG	CRIT A	703	20A/1P	11			*	12	20A/1P	797	CRIT B	LTG
0		0	20A/1P	13	*			14	20A/1P	0		
		0	20A/1P	15		*		16	20A/1P	0		
		0	20A/1P	17			*	18	20A/1P	0		
		0	20A/1P	19	*			20	20A/1P	0		
		0	20A/1P	21		*		22	20A/1P	0		
		0	20A/1P	23			*	24	20A/1P	0		
		0	20A/1P	25	*			26	20A/1P	0		
		0	20A/1P	27		*		28	20A/1P	0		
		0	20A/1P	29			*	30	20A/1P	0		
		0	20A/1P	31	*			32	20A/1P	0		
		0	20A/1P	33		*		34	20A/1P	0		
		0	20A/1P	35			*	36	20A/1P	0		
		0	20A/1P	37	*			38	20A/1P	0		
		0	20A/1P	39		*		40	20A/1P	0		
		0	20A/1P	41			*	42	20A/1P	0		

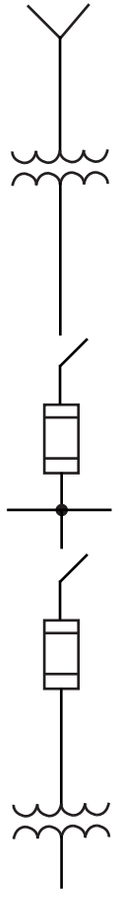
CONNECTED LOAD (KW) - A	3.11	TOTAL DESIGN LOAD (KW)	10.59
CONNECTED LOAD (KW) - B	3.02	POWER FACTOR	0.90
CONNECTED LOAD (KW) - C	3.00	TOTAL DESIGN LOAD (AMPS)	14

■ ELECTRICAL DESIGN

Original Panelboard

LP4	208Y/120	225	125	SURFACE	24	22,000	20	1	7	–	17
							50	3	–	1	

SHORT CIRCUIT CALCULATION



ASSUME INFINITE
AVAILABLE UTILITY

1000 KVA
TRANSFORMER
480V, 3PH
3.5%Z

I (F.I.) = 1230A

100' - 500 KCMIL

1600A

400A

20' - 2/0

225 KVA
TRANSFORMER
208V, 3PH
1.2%Z

$$I = \frac{1000 * 1000}{480 * 1.73} = 1203A$$

$$\frac{100}{3.5} = 28.57$$

I (SC) = 1203 * 28.57 = 34370A

$$F = \frac{1.732 * 100 * 34370}{26706 * 4 * 480} = 0.11$$

$$M = \frac{1}{1 + 0.11} = 0.8959$$

I SC RMS = 34370 * 0.8959 = 30794.84A

$$F = \frac{1.732 * 20 * 30794}{2 * 11424 * 4 * 480} = 0.1$$

$$M = \frac{1}{1 + 0.1} = 0.91$$

I SC RMS = 34370 * 0.91 = 28067.2A

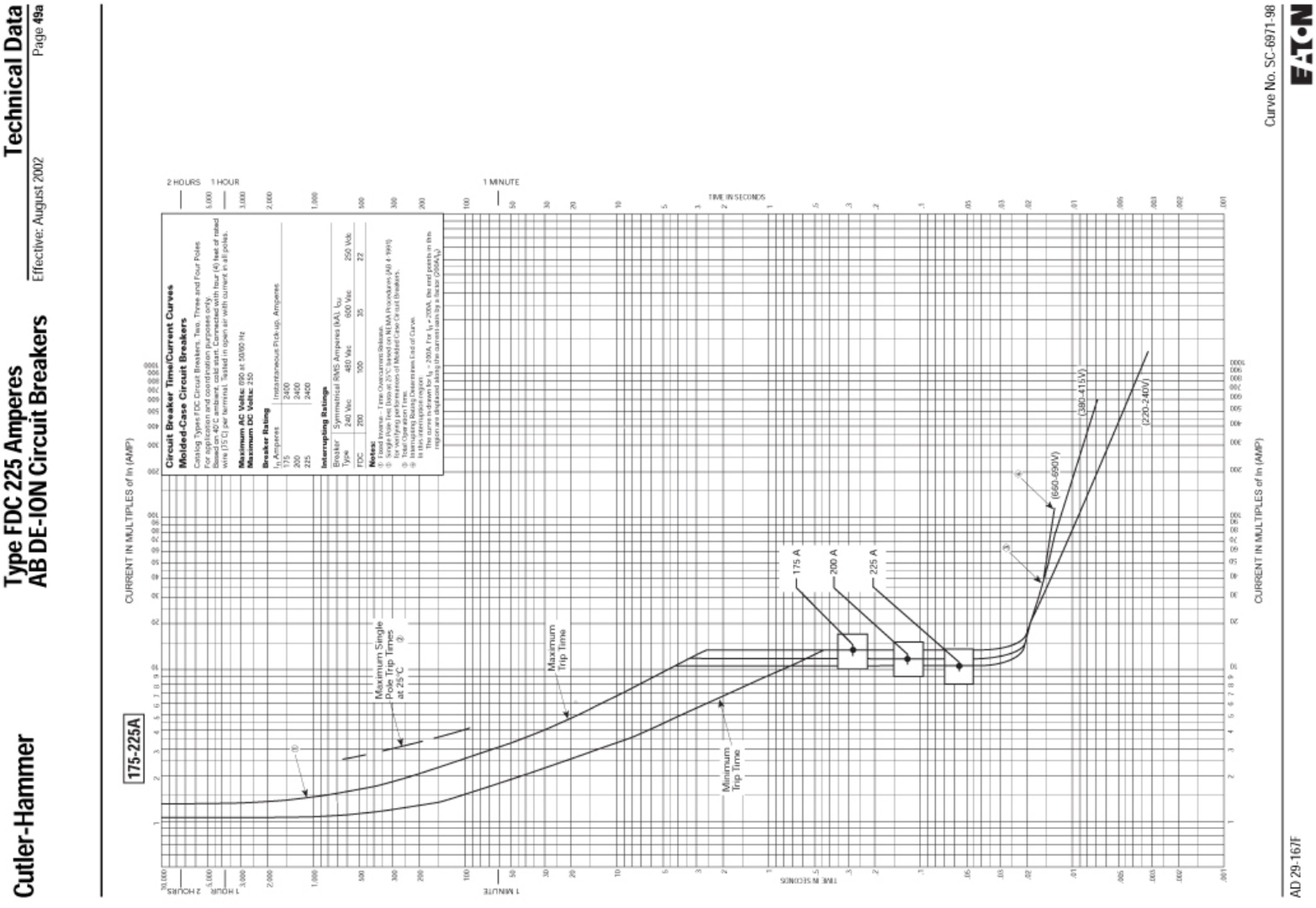
$$F = \frac{1.732 * 480 * 1.2 * 28067.2}{100000 * 225} = 1.25$$

$$M = \frac{1}{1 + 1.25} = 0.45$$

$$I\ SC\ RMS = \frac{28067.2 * 0.45 * 480}{208} = 28857.5A$$

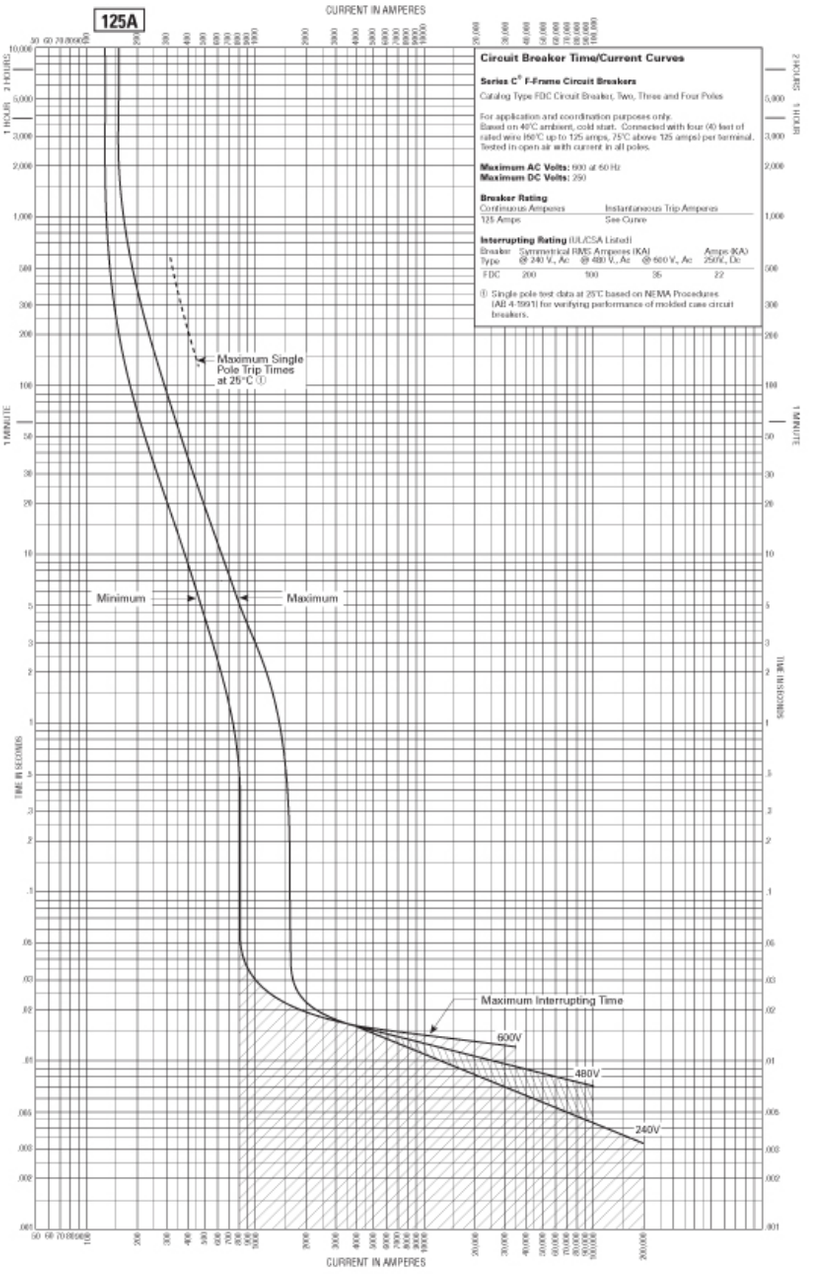
■ ELECTRICAL DESIGN

CIRCUIT BREAKER COORDINATION



AB DE-ION Circuit Breakers

Type FDC 125 Amperes



EATON

CIRCUIT BREAKER COORDINATION

Application Data
29-167F

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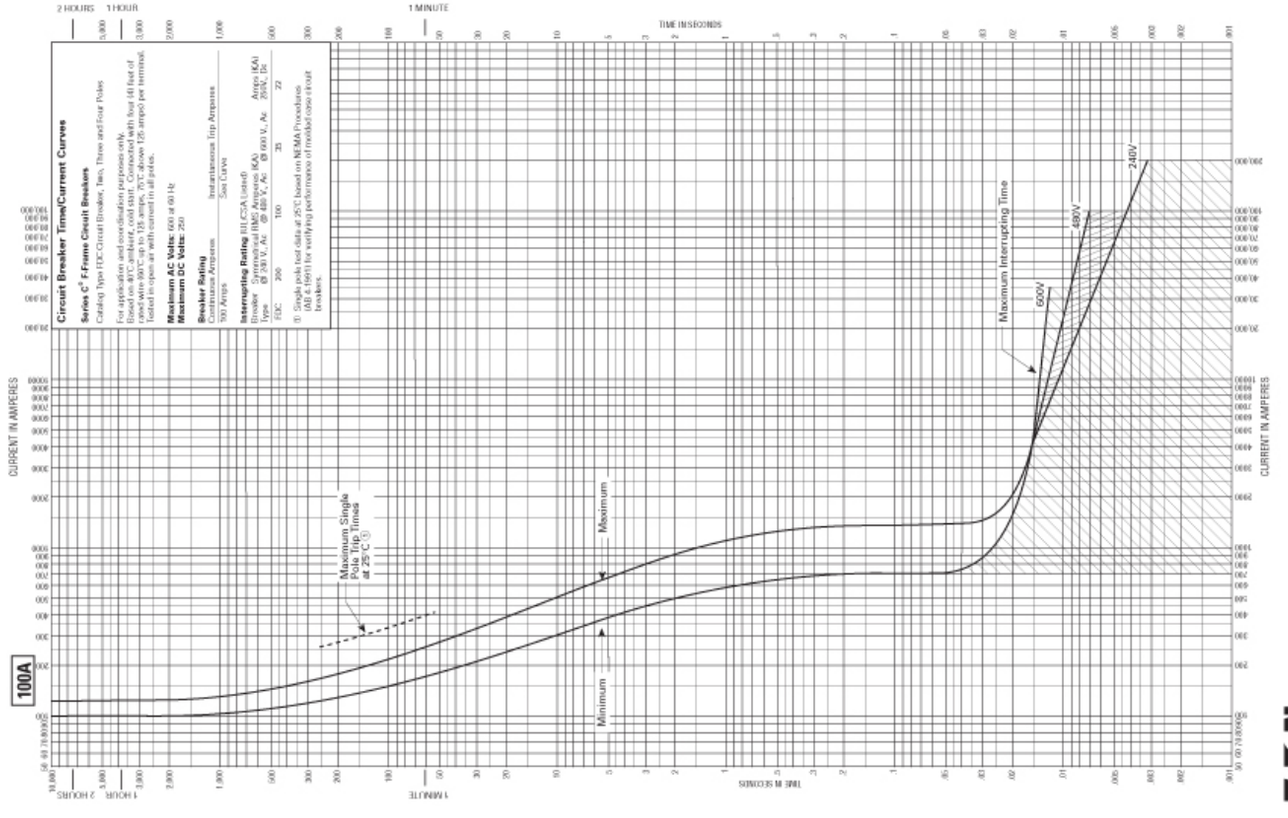
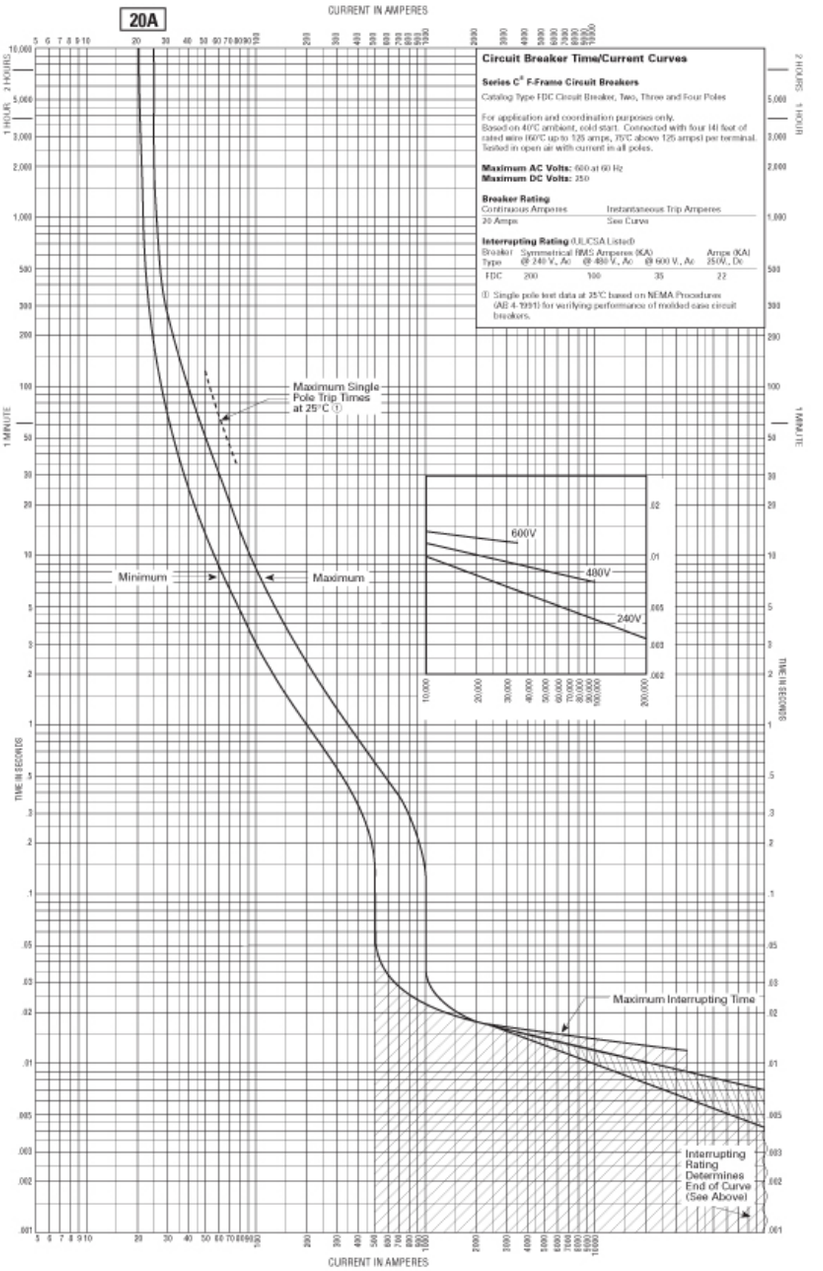
AB DE-ION Circuit Breakers

Type FDC 100 Amperes



Type FDC 20 Amperes

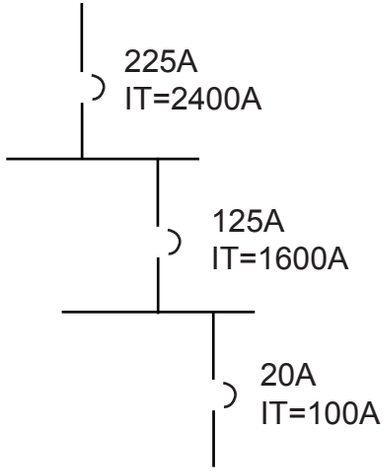


October 1997

ELECTRICAL DESIGN

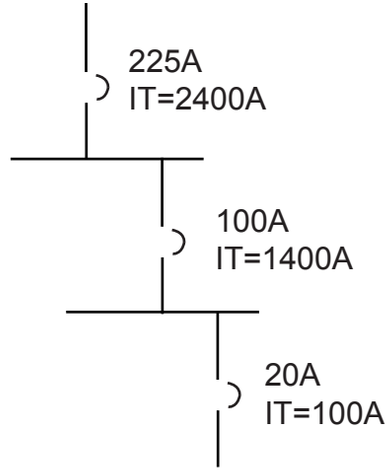
CIRCUIT BREAKER COORDINATION

225A circuit breaker has a instantaneous trip rating of 2400A
125A circuit breaker has a instantaneous trip rating of 1600A
100A circuit breaker has a instantaneous trip rating of 1400A
20A circuit breaker has a instantaneous trip rating of 100A



Any fault on the loadside of the 20A circuit breaker greater than 1600A will open both the 20A and 125A.

Any fault on the loadside of the 20A circuit breaker greater than 2400A will open the 20A,125A and 225A breakers.



Any fault on the loadside of the 20A circuit breaker greater than 1400A will open both the 20A and 125A.

Any fault on the loadside of the 20A circuit breaker greater than 2400A will open the 20A,125A and 225A breakers.

PANELBOARD SCHEDULE

VOLTAGE: 480Y/277V,3PH,4W
SIZE/TYPE BUS: 100A
SIZE/TYPE MAIN: 100A/3P C/B

PANEL TAG: LP-B1
PANEL LOCATION: BASEMENT
PANEL MOUNTING: SURFACE

MIN. C/B AIC: 10K
OPTIONS: PROVIDE FEED THROUGH LUGS FOR PANELBOARD LP-B1

DESCRIPTION	LOCATION	LOAD (WATTS)	C/B SIZE	POS. NO.	A	B	C	POS. NO.	C/B SIZE	LOAD (WATTS)	LOCATION	DESCRIPTION
LTG	2,6,8,10	1755	20A/1P	1	*			2	20A/1P	1742	2,92A,12,12A,12E	LTG
LTG	90,1,3	1730	20A/1P	3		*		4	20A/1P	1288	9,Hallway	LTG
LTG	15,17,19	1587	20A/1P	5			*	6	20A/1P	1794	16b,14,22,24	LTG
0		0	20A/1P	7	*			8	20A/1P	0		
		0	20A/1P	9		*		10	20A/1P	0		
		0	20A/1P	11			*	12	20A/1P	0		
		0	20A/1P	13	*			14	20A/1P	0		
		0	20A/1P	15		*		16	20A/1P	0		
		0	20A/1P	17			*	18	20A/1P	0		
		0	20A/1P	19	*			20	20A/1P	0		
		0	20A/1P	21		*		22	20A/1P	0		
		0	20A/1P	23			*	24	20A/1P	0		
		0	20A/1P	25	*			26	20A/1P	0		
		0	20A/1P	27		*		28	20A/1P	0		
		0	20A/1P	29			*	30	20A/1P	0		
		0	20A/1P	31	*			32	20A/1P	0		
		0	20A/1P	33		*		34	20A/1P	0		
		0	20A/1P	35			*	36	20A/1P	0		
		0	20A/1P	37	*			38	20A/1P	0		
		0	20A/1P	39		*		40	20A/1P	0		
		0	20A/1P	41			*	42	20A/1P	0		

CONNECTED LOAD (KW) - A	3.50	TOTAL DESIGN LOAD (KW)	15.46
CONNECTED LOAD (KW) - B	3.02	POWER FACTOR	0.90
CONNECTED LOAD (KW) - C	3.38	TOTAL DESIGN LOAD (AMPS)	21

ELECTRICAL DESIGN

208Y/120V vs 480Y/277V Electrical Systems

The original electrical system was a 208Y/120V system due to track type fixture installations in the studios. The reason for the track in these large rooms are for the purpose of flexibility and various fit-outs for the Architecture School / Sculpture Department.

PANELBOARD SCHEDULE

VOLTAGE: 208Y/120V,3PH,4W
SIZE/TYPE BUS: 100A
SIZE/TYPE MAIN: 100A/3P C/B

PANEL TAG: LP-B1
PANEL LOCATION: BASEMENT
PANEL MOUNTING: SURFACE

MIN. C/B AIC: 10K
OPTIONS: PROVIDE FEED THROUGH LUGS FOR PANELBOARD LP-B1

DESCRIPTION	LOCATION	LOAD (WATTS)	C/B SIZE	POS. NO.	A	B	C	POS. NO.	C/B SIZE	LOAD (WATTS)	LOCATION	DESCRIPTION
LTG	2,6,8,10	1755	20A/1P	1	*			2	20A/1P	1742	2,92A,12,12A,12E	LTG
LTG	90,1,3	1730	20A/1P	3		*		4	20A/1P	1288	9,Hallway	LTG
LTG	15,17,19	1587	20A/1P	5			*	6	20A/1P	1794	16b,14,22,24	LTG
0		0	20A/1P	7	*			8	20A/1P	0		
		0	20A/1P	9		*		10	20A/1P	0		
		0	20A/1P	11			*	12	20A/1P	0		
		0	20A/1P	13	*			14	20A/1P	0		
		0	20A/1P	15		*		16	20A/1P	0		
		0	20A/1P	17			*	18	20A/1P	0		
		0	20A/1P	19	*			20	20A/1P	0		
		0	20A/1P	21		*		22	20A/1P	0		
		0	20A/1P	23			*	24	20A/1P	0		
		0	20A/1P	25	*			26	20A/1P	0		
		0	20A/1P	27		*		28	20A/1P	0		
		0	20A/1P	29			*	30	20A/1P	0		
		0	20A/1P	31	*			32	20A/1P	0		
		0	20A/1P	33		*		34	20A/1P	0		
		0	20A/1P	35			*	36	20A/1P	0		
		0	20A/1P	37	*			38	20A/1P	0		
		0	20A/1P	39		*		40	20A/1P	0		
		0	20A/1P	41			*	42	20A/1P	0		

CONNECTED LOAD (KW) - A	3.50	TOTAL DESIGN LOAD (KW)	15.46
CONNECTED LOAD (KW) - B	3.02	POWER FACTOR	0.90
CONNECTED LOAD (KW) - C	3.38	TOTAL DESIGN LOAD (AMPS)	48

PANELBOARD SCHEDULE

VOLTAGE: 480Y/277V,3PH,4W
SIZE/TYPE BUS: 100A
SIZE/TYPE MAIN: 100A/3P C/B

PANEL TAG: LP-F1
PANEL LOCATION: FIRST FLOOR
PANEL MOUNTING: SURFACE

MIN. C/B AIC: 10K
OPTIONS: PROVIDE FEED THROUGH LUGS FOR PANELBOARD LP-F1

DESCRIPTION	LOCATION	LOAD (WATTS)	C/B SIZE	POS. NO.	A	B	C	POS. NO.	C/B SIZE	LOAD (WATTS)	LOCATION	DESCRIPTION
LTG	)2,102A,190,190	1759	20A/1P	1	*			2	20A/1P	1866	101,193,103C	LTG
LTG	103B,103,107,10	1859	20A/1P	3		*		4	20A/1P	2000	113,113A,119,121	LTG
LTG	108 114 116	1872	20A/1P	5			*	6	20A/1P	1872	112	LTG
LTG	104	585	20A/1P	7	*			8	20A/1P	0		SPARE
LTG	104	585	20A/1P	9		*		10	20A/1P	0		SPARE
LTG	104 192 190	692	20A/1P	11			*	12	20A/1P	0		SPARE
0		0	20A/1P	13	*			14	20A/1P	0		
		0	20A/1P	15		*		16	20A/1P	0		
		0	20A/1P	17			*	18	20A/1P	0		
		0	20A/1P	19	*			20	20A/1P	0		
		0	20A/1P	21		*		22	20A/1P	0		
		0	20A/1P	23			*	24	20A/1P	0		
		0	20A/1P	25	*			26	20A/1P	0		
		0	20A/1P	27		*		28	20A/1P	0		
		0	20A/1P	29			*	30	20A/1P	0		
		0	20A/1P	31	*			32	20A/1P	0		
		0	20A/1P	33		*		34	20A/1P	0		
		0	20A/1P	35			*	36	20A/1P	0		
		0	20A/1P	37	*			38	20A/1P	0		
		0	20A/1P	39		*		40	20A/1P	0		
		0	20A/1P	41			*	42	20A/1P	0		

CONNECTED LOAD (KW) - A	4.21	TOTAL DESIGN LOAD (KW)	20.45
CONNECTED LOAD (KW) - B	4.44	POWER FACTOR	0.90
CONNECTED LOAD (KW) - C	4.44	TOTAL DESIGN LOAD (AMPS)	27

■ ELECTRICAL DESIGN

PANELBOARD SCHEDULE

VOLTAGE: 208Y/120V,3PH,4W
SIZE/TYPE BUS: 100A
SIZE/TYPE MAIN: 100A/3P C/B

PANEL TAG: LP-F1
PANEL LOCATION: FIRST FLOOR
PANEL MOUNTING: SURFACE

MIN. C/B AIC: 10K
OPTIONS: PROVIDE FEED THROUGH LUGS FOR PANELBOARD 1L1B

DESCRIPTION	LOCATION	LOAD (WATTS)	C/B SIZE	POS. NO.	A	B	C	POS. NO.	C/B SIZE	LOAD (WATTS)	LOCATION	DESCRIPTION
LTG	02,102A,190,190	1759	20A/1P	1	*			2	20A/1P	1866	101,193,103C	LTG
LTG	103B,103,107,10	1859	20A/1P	3		*		4	20A/1P	1859	113,113A,119,121	LTG
LTG	108 114 116	1872	20A/1P	5			*	6	20A/1P	1872	112	LTG
LTG	104	785	20A/1P	7	*			8	20A/1P	0		SPARE
LTG	104	585	20A/1P	9		*		10	20A/1P	0		SPARE
LTG	104 192 190	692	20A/1P	11			*	12	20A/1P	0		SPARE
0		0	20A/1P	13	*			14	20A/1P	0		
		0	20A/1P	15		*		16	20A/1P	0		
		0	20A/1P	17			*	18	20A/1P	0		
		0	20A/1P	19	*			20	20A/1P	0		
		0	20A/1P	21		*		22	20A/1P	0		
		0	20A/1P	23			*	24	20A/1P	0		
		0	20A/1P	25	*			26	20A/1P	0		
		0	20A/1P	27		*		28	20A/1P	0		
		0	20A/1P	29			*	30	20A/1P	0		
		0	20A/1P	31	*			32	20A/1P	0		
		0	20A/1P	33		*		34	20A/1P	0		
		0	20A/1P	35			*	36	20A/1P	0		
		0	20A/1P	37	*			38	20A/1P	0		
		0	20A/1P	39		*		40	20A/1P	0		
		0	20A/1P	41			*	42	20A/1P	0		

CONNECTED LOAD (KW) - A	4.41	TOTAL DESIGN LOAD (KW)	20.55
CONNECTED LOAD (KW) - B	4.30	POWER FACTOR	0.90
CONNECTED LOAD (KW) - C	4.44	TOTAL DESIGN LOAD (AMPS)	63

PANELBOARD SCHEDULE

VOLTAGE: 480Y/277V,3PH,4W
SIZE/TYPE BUS: 100A
SIZE/TYPE MAIN: 100A/3P C/B

PANEL TAG: LP-F2
PANEL LOCATION: SECOND FLOOR
PANEL MOUNTING: SURFACE

MIN. C/B AIC: 10K
OPTIONS: PROVIDE FEED THROUGH LUGS FOR PANELBOARD LP-F2

DESCRIPTION	LOCATION	LOAD (WATTS)	C/B SIZE	POS. NO.	A	B	C	POS. NO.	C/B SIZE	LOAD (WATTS)	LOCATION	DESCRIPTION
LTG	A1	750	20A/1P	1	*			2	20A/1P	750	B1	LTG
LTG	A2	750	20A/1P	3		*		4	20A/1P	750	B2	LTG
LTG	A3	750	20A/1P	5			*	6	20A/1P	750	B3	LTG
LTG	LOBBY	820	20A/1P	7	*			8	20A/1P	792	LOUNGE	LTG
LTG	HALLWAY	756	20A/1P	9		*		10	20A/1P	762	RESTROOM	LTG
LTG	CRIT A	703	20A/1P	11			*	12	20A/1P	797	CRIT B	LTG
0		0	20A/1P	13	*			14	20A/1P	0		
		0	20A/1P	15		*		16	20A/1P	0		
		0	20A/1P	17			*	18	20A/1P	0		
		0	20A/1P	19	*			20	20A/1P	0		
		0	20A/1P	21		*		22	20A/1P	0		
		0	20A/1P	23			*	24	20A/1P	0		
		0	20A/1P	25	*			26	20A/1P	0		
		0	20A/1P	27		*		28	20A/1P	0		
		0	20A/1P	29			*	30	20A/1P	0		
		0	20A/1P	31	*			32	20A/1P	0		
		0	20A/1P	33		*		34	20A/1P	0		
		0	20A/1P	35			*	36	20A/1P	0		
		0	20A/1P	37	*			38	20A/1P	0		
		0	20A/1P	39		*		40	20A/1P	0		
		0	20A/1P	41			*	42	20A/1P	0		

CONNECTED LOAD (KW) - A	3.11	TOTAL DESIGN LOAD (KW)	10.59
CONNECTED LOAD (KW) - B	3.02	POWER FACTOR	0.90
CONNECTED LOAD (KW) - C	3.00	TOTAL DESIGN LOAD (AMPS)	14

■ ELECTRICAL DESIGN

PANELBOARD SCHEDULE

VOLTAGE: 208Y/120V,3PH,4W
SIZE/TYPE BUS: 100A
SIZE/TYPE MAIN: 100A/3P C/B

PANEL TAG: LP-F2
PANEL LOCATION: SECOND FLOOR
PANEL MOUNTING: SURFACE

MIN. C/B AIC: 10K
OPTIONS: PROVIDE FEED THROUGH LUGS FOR PANELBOARD LP-F2

DESCRIPTION	LOCATION	LOAD (WATTS)	C/B SIZE	POS. NO.	A	B	C	POS. NO.	C/B SIZE	LOAD (WATTS)	LOCATION	DESCRIPTION
LTG	A1	750	20A/1P	1	*			2	20A/1P	750	B1	LTG
LTG	A2	750	20A/1P	3		*		4	20A/1P	750	B2	LTG
LTG	A3	750	20A/1P	5			*	6	20A/1P	750	B3	LTG
LTG	LOBBY	820	20A/1P	7	*			8	20A/1P	792	LOUNGE	LTG
LTG	HALLWAY	756	20A/1P	9		*		10	20A/1P	762	RESTROOM	LTG
LTG	CRIT A	703	20A/1P	11			*	12	20A/1P	797	CRIT B	LTG
0		0	20A/1P	13	*			14	20A/1P	0		
		0	20A/1P	15		*		16	20A/1P	0		
		0	20A/1P	17			*	18	20A/1P	0		
		0	20A/1P	19	*			20	20A/1P	0		
		0	20A/1P	21		*		22	20A/1P	0		
		0	20A/1P	23			*	24	20A/1P	0		
		0	20A/1P	25	*			26	20A/1P	0		
		0	20A/1P	27		*		28	20A/1P	0		
		0	20A/1P	29			*	30	20A/1P	0		
		0	20A/1P	31	*			32	20A/1P	0		
		0	20A/1P	33		*		34	20A/1P	0		
		0	20A/1P	35			*	36	20A/1P	0		
		0	20A/1P	37	*			38	20A/1P	0		
		0	20A/1P	39		*		40	20A/1P	0		
		0	20A/1P	41			*	42	20A/1P	0		

CONNECTED LOAD (KW) - A	3.11	TOTAL DESIGN LOAD (KW)	10.59
CONNECTED LOAD (KW) - B	3.02	POWER FACTOR	0.90
CONNECTED LOAD (KW) - C	3.00	TOTAL DESIGN LOAD (AMPS)	33

ELECTRICAL DESIGN

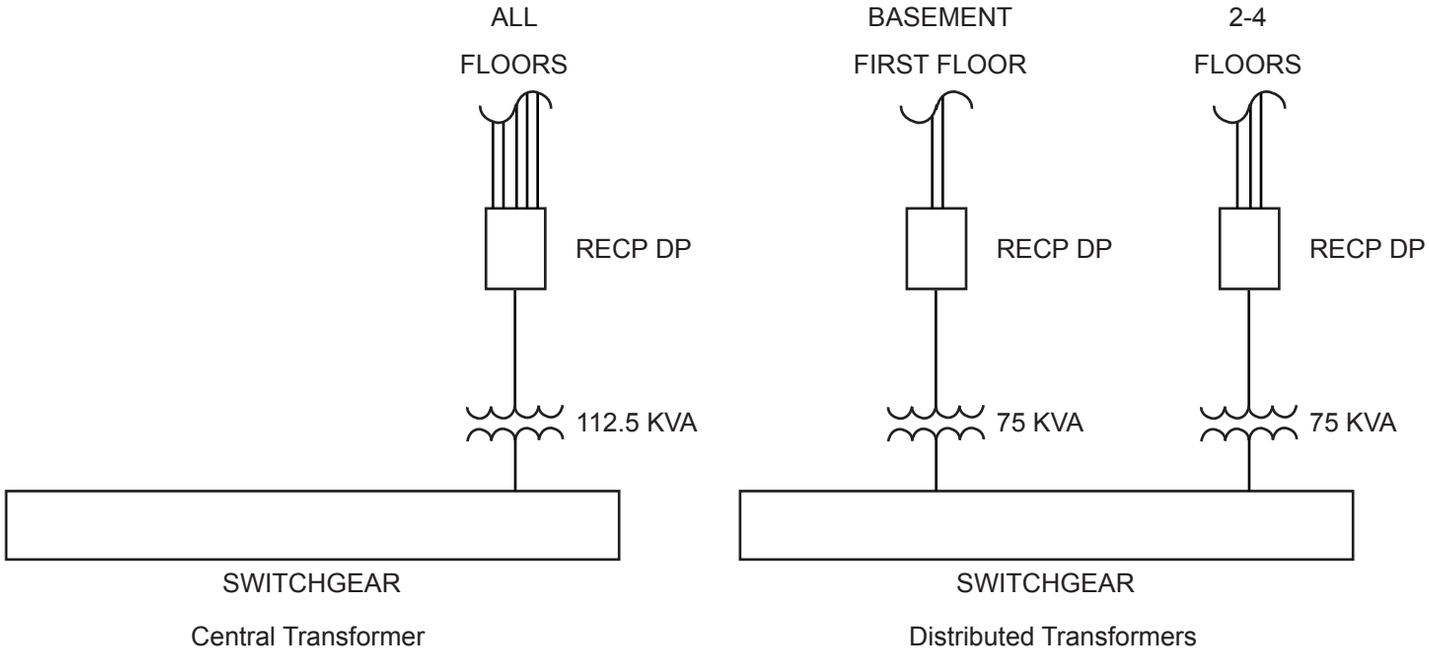
208Y/120V vs 480Y/277V Electrical Systems

Comparing the 480Y/277V to the 208Y/120V panelboard schedules, the 120V system uses approximately 2x the design loads as the 277V system. The 120V system can service the same amount of load with the same amount of breakers as the 277V system. The maximum load for a circuit on a 120V system using a 20A breaker is 1920W. The 277V system is double the allowable amount on a circuit. If the 120V system was used in this building, the loads will be near the allowable maximum load. This can be adjusted by distributing the load to additional circuits. Distributing the load will increase the amount of branch circuits and breakers to 2x the amount used in a 277V system. This will increase initial and maintenance costs. Another issue that needs to be addressed with a 120V system is the need for a step down transformer. The Voltage must be adjusted from 480Y/277V at the switchgear to 208Y/120V to the panels. Including an additional transformer can pose several problems; such as equipment space, maintenance and cost.

ELECTRICAL DESIGN

Central Transformer vs Distributed Transformers.

The receptacle panels in the Yale Sculpture Building are powered by a central transformer in the basement of the main building. Implementing several distributed transformers may decrease initial cost and provide better power to the units.



Analyzing the single line diagram for each configuration, it is obvious that having distributed transformers will cost more. A distributed system will need an additional receptacle distribution panel, feeders and fault current protection. There will be extra runs of feeders for the second transformer. Locating the second transformer on the second floor level will decrease Voltage drop and branch circuit runs. Although, the extra equipment will need ample room for placement and maintenance. The transformer can be mounted in the ceiling but that will pose a severe problem with maintenance.