TYPICAL CONTROL TOWER PANELBOARD

THIS PANELBOARD IS TYPICAL FOR ARMOR RANGES, AND FOR THE TOWER PANELBOARD OF INFANTRY RANGES WHERE ALL OTHER LOADS ARE SERVED BY THE DOWNRANGE POWER PANELBOARD.

PANELBOARD PB-A SCHEDULE (CONTROL TOWER)

100A MAIN BREAKER, 100A MAIN BUS, 120/240V, 1 PHASE, 3 WIRE, 10 KAIC MINIMUM, SURFACE MOUNT

LOAD SERVED	LOAD (VA) A	LOAD (VA) B	BKR. TRIP	WIRE SIZE	CKT. NO.	PHASE A B	CKT. NO.	WIRE SIZE	BKR. TRIP	LOAD (VA) A	LOAD (VA) B	LOAD SERVED
REC & CLOCK	400		20	12	1		2	12	20	400		RECPTACLES
LIGHTS (EXT. & CONTR. RM)		1210	20	12	3		4	12	20		600	RECPTACLES
HP-1	2000	2000	30	8	5		6	12	20	2000	2000	SDA
OBSTRUCTION LIGHTS	200		20	12	9		10	12	20	600		OBSERVATION DECK LGTS
* WARNING LIGHT		120	20	10	11		12	12	20		400	SPARE
SPARE	400		20	12	13		14					SPACE
SPACE					15		16					SPACE
SPACE					17		18					SPACE
TOTAL	3000	3330								3000	3000	TOTAL
TOTAL CONNECTED VA A: 6000 B: 6330												

CONNECTED: 12,330 VA
CONTINUOUS A: 46A
* PROVIDE GFCI CIRCUIT BREAKER.

DEMAND: 10,930 VA

TYPICAL DOWNRANGE POWER PANEL

THIS PANELBOARD IS TYPICAL FOR INFANTRY RANGES (INCLUDES TOWER POWER PANEL).

PANELBOARD PB-1A SCHEDULE

400A MAIN BREAKER, 400A MAIN BUS, 120/240V, 1 PHASE, 3 WIRE, 10 KAIC MINIMUM, SURFACE MOUNT

LOAD SERVED	LOAD (VA) A	LOAD (VA) B	BKR. TRIP	WIRE SIZE	CKT. NO.	PHASE A B	CKT. NO.	WIRE SIZE	BKR. TRIP	LOAD (VA) A	LOAD (VA) B	LOAD SERVED
LIGHTING CONTACTOR (WHITE FLOODLIGHTS)	4500	4500	50	4	1		2	2	100	6000	6330	PB-A, CONTROL TOWER POWER PANEL
LANE 1	1728	1728	30	4	1		2	4	30	1728	1728	LANE 2
LANE 3	1728	1728	30	4	5		6	4	30	1728	1728	LANE 4
LANE 5	1728	1728	30	4	9		10	4	30	1728	1728	LANE 6
LANE 7	1728	1728	30	4	13		14	4	30	1728	1728	LANE 8
LANE 9	1728	1728	30	4	17		18	4	30	1728	1728	LANE 10
LANE 11	1728	1728	30	4	21		22	4	30	1728	1728	LANE 12
LANE 13	1728	1728	30	4	25		26	4	30	1728	1728	LANE 14
LANE 15	1728	1728	30	4	29		30	4	30	1728	1728	LANE 16
LIGHTING CONTACTOR (RED)	900	900	20	10	33		34		20	1728		SPARE
TOTAL	19224	19224								21522	21822	TOTAL
TOTAL CONNECTED VA A: 40,746 B: 41,046												

CONNECTED: 81,792 VA
CONTINUOUS A: 340.8 A

DEMAND: 52,378 VA

TYPICAL ARMOR TARGET EMPLACEMENT PANELBOARD (120/240 V)

PANELBOARD PB-3A SCHEDULE (AMTC)

225 A. MAINS W/225A. M.C.B., 277/480V., 3 PHASE, 4 WIRE, 10 KAIC MINIMUM, SURFACE MOUNT

LOAD SERVED	LOAD (AMPS) A	LOAD (AMPS) B	LOAD (AMPS) C	BKR. TRIP	WIRE SIZE	CKT. NO.	PHASE A B C	CKT. NO.	WIRE SIZE	BKR. TRIP	LOAD (AMPS) A	LOAD (AMPS) B	LOAD (AMPS) C	LOAD SERVED
AMTC	78.2	78.2	78.2	100	2	1		2	10	30	24	24	24	30 KVA TRANSFORMER (BUS BAR HEATER)
SPACE						7		8						SPACE
SPACE						9		10						SPACE
50 KVA TRANSFORMER (PB-3B)	104.2		104.2	150	2	11		12						SPACE
TOTAL	182.4	78.2	182.4								24	24	24	TOTAL
TOTAL CONNECTED AMPS A: 206.4 B: 102.2 C: 206.4														

LOAD SCHEDULE

RANGE	TARGETS/ LANE	* TARGETS/ RANGE	MAX LOAD/ LANE (A)	RANGE LOAD (A)	WIRE SIZE CHANGE PT (M)	TOTAL VOLTAGE DROP (V)
MODIFIED FIELD FIRE	2	64	4.6	147.2 *	175	8.6
AUTOMATED FIELD FIRE	3	96	4.9	156.8 *	175	9.9
FIRE AND MOVEMENT	7	112	5.9	94.4	150	9.0
AUTOMATED RECORD FIRE	7	112	5.9	94.4	150	9.0
MODIFIED RECORD FIRE	9	144	6.4	102.4	175	9.1
DEFENSE TEST	10	160	6.7	107.2	150	9.7
MODIFIED DEFENSE TEST	12	192	7.2	115.2	175	9.9

* FOR 32 LANES

TYPICAL INFANTRY RANGE DOWNRANGE POWER PANEL

THIS PANELBOARD IS TYPICAL FOR INFANTRY RANGES, WHERE ONLY TARGETS ARE SERVED BY THE DOWNRANGE POWER PANEL.

DOWN RANGE POWER PANEL

225A MAIN BREAKER, 225A MAIN BUS, 120/240V, 1 PHASE, 3 WIRE, 10 KAIC MINIMUM, SURFACE MOUNT

LOAD SERVED	LOAD (VA) A	LOAD (VA) B	BKR. TRIP	WIRE SIZE	CKT. NO.	PHASE A B	CKT. NO.	WIRE SIZE	BKR. TRIP	LOAD (VA) A	LOAD (VA) B	LOAD SERVED
LANE 1	1728	1728	30		1		2		30	1728	1728	LANE 2
LANE 3	1728	1728	30		5		6		30	1728	1728	LANE 4
LANE 5	1728	1728	30		9		10		30	1728	1728	LANE 6
LANE 7	1728	1728	30		13		14		30	1728	1728	LANE 8
LANE 9	1728	1728	30	8	17		18		30	1728	1728	LANE 10
LANE 11	1728	1728	30	10	21		22	10	30	1728	1728	LANE 12
LANE 13	1728	1728	30		25		26		30	1728	1728	LANE 14
LANE 15	1728	1728	30		29		30		30	1728	1728	LANE 16
CONTROL TOWER PANEL	9210		100		33		34		30	1728		SPARE
SPARE		600	20		35		36					
TOTAL	23034	14424								15552	13824	TOTAL
TOTAL CONNECTED VA A: 38,586 B: 28,248												

CONNECTED: 66,834 VA
CONTINUOUS A: 218.3 A

DEMAND: 52,378 VA

TYPICAL MOVING ARMOR TARGET EMPLACEMENT PANELBOARD (277/480 V)

PANELBOARD PB-3B SCHEDULE (AMTC)

225 A. MAINS W/150A. M.C.B., 120/240V., 1 PHASE, 3 WIRE, 10 KAIC MINIMUM, SURFACE MOUNT

LOAD SERVED	LOAD (AMPS) A	LOAD (AMPS) B	BKR. TRIP	WIRE SIZE	CKT. NO.	PHASE A B	CKT. NO.	WIRE SIZE	BKR. TRIP	LOAD (AMPS) A	LOAD (AMPS) B	LOAD SERVED
LIGHTS	2.5		20	12	1		2	12	20	3		AMTC (CONTROL CKT)
RECEPTACLES		5	20	12	3		4		20		1	SPARE
AMTC (CJB)	1	1	20	12	5		6	2	20	16	16	RANGE WARNING SIREN
MSD6, IMT10, SIT27, SIT28	14.4	14.4	20	10	9		10	8	20	17.3	17.3	SIT24, SIT25, SIT26 IMT9, MSD5
SIT21, SIT22, SIT23 IMT8, MSD4, SAT2	25.6	25.6	30	2	13		14	2	30	25.6	25.6	MSD3, IMT6, SAT1 SIT16, SIT17, SIT18
IMT5, IMT7, SIT14 SIT15, SIT19, SIT20	28.3	28.3	30	2	17		18	6	30	28.3	28.3	IMT12, IMT11, SIT32 SIT29, SIT30, SIT31
SAT3, MSD7, SIT35, SIT36 SIT37, SIT41, SIT42	23.1	23.1	30	6	21		22	2	30	25.4	25.4	SAT4, SAT5, SIT38 SIT39, SIT40
IMT13, SAT6	16.8	16.8	30	2	25		26	2	30	17.3	17.3	IMT14, MSD8, SIT41 SIT42, SIT43
SPARE	2	2	20		27		28	12	20	2.1	2.1	DBB
TOTAL	113.7	116.2								135	133	TOTAL
TOTAL CONNECTED AMPS A: 248.6 B: 245												

NOTES:

1. PANEL SCHEDULES ARE TYPICAL, AND SHOULD BE MODIFIED TO BE SITE SPECIFIC.

INFORMAT ONLY

US Army Corps of Engineers

Symbol	Description	Date	Approved	Symbol	Description	Date	Approved

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Ckd by: MLR
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HUNTSVILLE, ALABAMA

FORCE XXI/FORCE MODERNIZATION PROGRAM
STANDARD DESIGN

TYPICAL POWER PANEL SCHEDULE FORMATS

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E-24