



The Pennsylvania State University
Millennium Science Complex
University Park, PA 16802

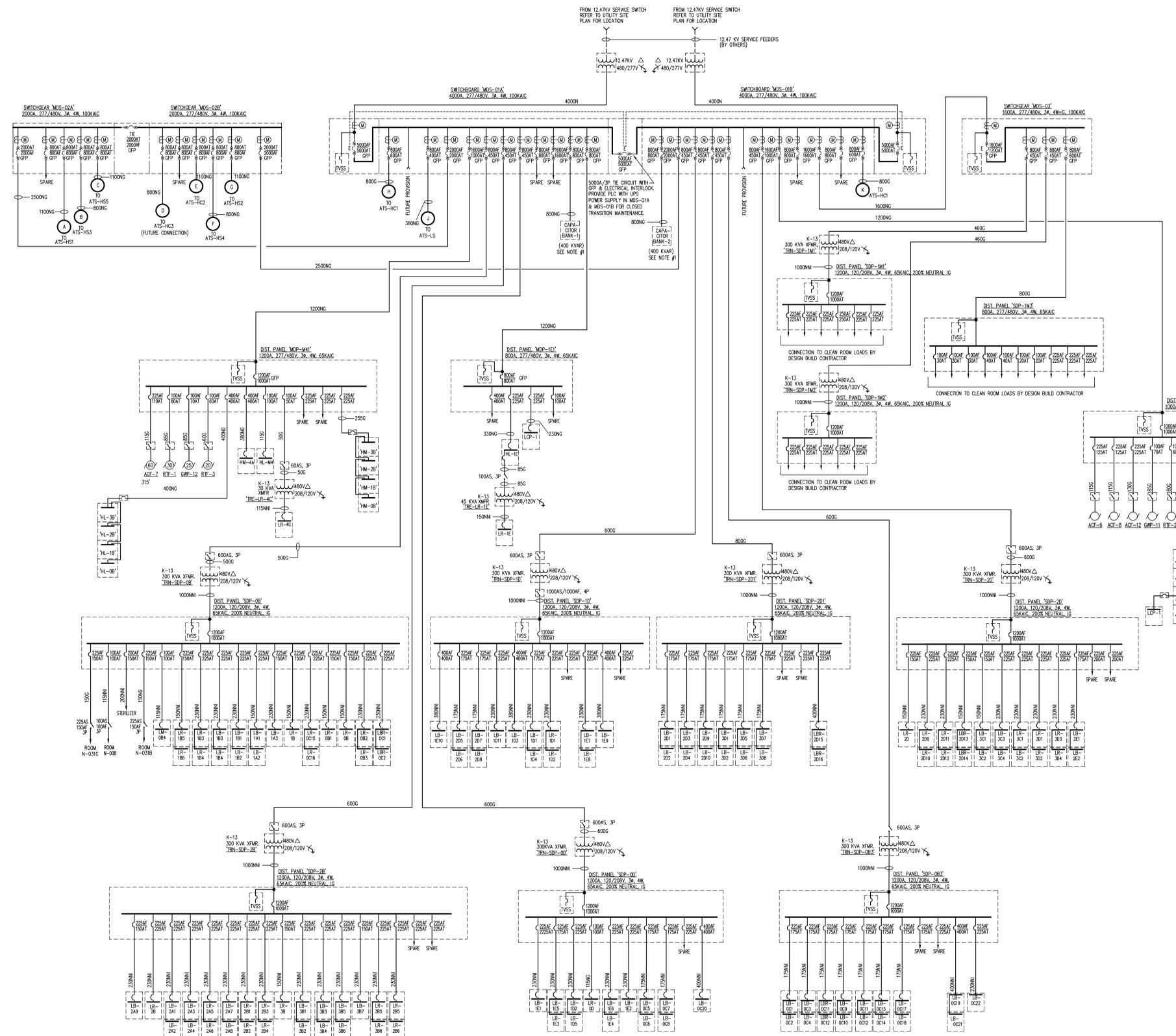
IPD/BIM Thesis Project 2010-2011

BIMception
CM: Thomas Villacampa
L/E: Christopher Stouff
Mech: Alexander Roush
Struct: Stephen Plund

Building Stimulus
CM: Jonathan Brangan
L/E: Michael Lucas
Mech: Sara Pace
Struct: Paul Kuehnell

KGB-Maser
CM: David Maser
L/E: Jason Brogna
Mech: Michael Gilroy
Struct: Steven Kijak

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DRY TYPE TRANSFORMER SCHEDULE

KVA RATING	PRIMARY 480V, 3 PHASE - 3 WIRE		SECONDARY 208Y/120V, 3 PHASE - 4 WIRE		GROUNDING ELECTRODE
	PROTECTION (AMPS)	FEEDER DESIGNATION	PROTECTION (AMPS)	FEEDER DESIGNATION	
3	15	15 G	15	15 NG	1 # 8
6	15	15 G	20	20 NG	1 # 8
9	15	15 G	30	30 NG	1 # 8
15	25	30 G	50	50 NG	1 # 8
30	50	50 G	100	115NG	1 # 6
45	70	85 G	150	150 NG	1 # 6
75	125	130 G	225	230 NG	1 # 2
112.5	175	175 G	400	380 NG	1 # 1/0
150	225	230 G	500	500 NG	1 # 1/0
225	350	380 G	800	800 NG	1 # 2/0
300	450	460 G	1000	1000 NG	1 # 3/0
500	800	700 G	1600	1600 NG	1 # 3/0
750	1200	1200 G	2500	2500 NG	1 # 3/0

- TRANSFORMER SCHEDULE NOTES:**
- PROVIDE CONDUIT SIZED PER N.E.C.
 - CONNECT GROUNDING ELECTRODE TO BUILDING STEEL OR NEAREST APPROVED GROUNDING POINT.
 - ALL TRANSFORMERS SHALL BE MOUNTED ON A 4" HIGH CONCRETE HOUSEKEEPING PAD, U.O.N.
 - ALL TRANSFORMERS SHALL BE RATED FOR 80C TEMPERATURE RISE, U.O.N.
 - ALL TRANSFORMERS SHALL BE EQUIPPED WITH COPPER WINDINGS.
 - PROVIDE FEEDERS AS INDICATED ON SCHEDULE, UNLESS OTHERWISE NOTED ON DRAWINGS.
 - ALL SHIELDED SOLIDATOR TRANSFORMERS SHALL BE K-13 RATED.

- NOTES:**
- THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE DYNAMIC PF CORRECTION BANK AS AN ALTERNATE. ACTUAL SIZE OF THESE UNITS SHALL BE DETERMINED WITHIN 6 MONTHS AFTER BUILDING OCCUPANCY.

FEEDER SCHEDULE

FEEDER DESIGNATION	NO. OF SETS	COPPER CONDUCTORS (75° C) PER SET				
		P PHASE CONDUCTORS	N NEUTRAL CONDUCTOR	NN OVERSIZED NEUTRAL CONDUCTOR	G GROUND CONDUCTOR	I ISOLATED & EQUIPMENT GROUND CONDUCTOR
15	1	3 # 12	1 # 12	1 # 10	1 # 12	2 # 12
20	1	3 # 12	1 # 12	1 # 8	1 # 12	2 # 12
30	1	3 # 10	1 # 10	1 # 8	1 # 10	2 # 10
50	1	3 # 8	1 # 8	1 # 2	1 # 10	2 # 10
60	1	3 # 6	1 # 6	1 # 1	1 # 10	2 # 10
85	1	3 # 4	1 # 4	1 # 4	1 # 8	2 # 8
100	1	3 # 2	1 # 8	1 # 2	1 # 3/0	1 # 8 2 # 8
115	1	3 # 2	1 # 6	1 # 2	1 # 4/0	1 # 6 2 # 6
130	1	3 # 1	1 # 6	1 # 1	1 # 300	1 # 6 2 # 6
150	1	3 # 1/0	1 # 4	1 # 1/0	2 # 1/0	1 # 6 2 # 6
175	1	3 # 2/0	1 # 2	1 # 2/0	2 # 2/0	1 # 6 2 # 6
200	1	3 # 3/0	1 # 2	1 # 2/0	2 # 2/0	1 # 6 2 # 6
230	1	3 # 4/0	1 # 2	1 # 3/0	2 # 3/0	1 # 6 2 # 6
255	1	3 # 250	1 # 1	1 # 4/0	2 # 4/0	1 # 4 2 # 4
300	1	3 # 350	1 # 1/0	1 # 250	2 # 250	1 # 4 2 # 4
380	1	3 # 500	1 # 3/0	1 # 350	2 # 350	1 # 4 2 # 4
400	1	3 # 500	1 # 3/0	1 # 500	2 # 500	1 # 2 2 # 2
420	1	3 # 600	1 # 4/0	1 # 600	2 # 600	1 # 1 2 # 1
460	2	3 # 4/0	1 # 2	1 # 4/0	2 # 4/0	1 # 2 2 # 2
500	2	3 # 250	1 # 1	1 # 250	2 # 250	1 # 2 2 # 2
600	2	3 # 350	1 # 1/0	1 # 350	2 # 350	1 # 1 2 # 1
700	2	3 # 500	1 # 2/0	1 # 500	2 # 500	1 # 1/0 2 # 1/0
800	2	3 # 600	1 # 3/0	1 # 600	2 # 600	1 # 1/0 2 # 1/0
1000	3	3 # 400	1 # 2/0	1 # 400	2 # 400	1 # 2/0 2 # 2/0
1100	3	3 # 500	1 # 2/0	1 # 500	2 # 500	1 # 3/0 2 # 3/0
1200	3	3 # 600	1 # 3/0	1 # 600	2 # 600	1 # 3/0 2 # 3/0
1600	4	3 # 600	1 # 3/0	1 # 600	2 # 600	1 # 4/0 2 # 4/0
2000	5	3 # 600	1 # 3/0	1 # 600	2 # 600	1 # 250 2 # 250
2500	6	3 # 600	1 # 3/0	1 # 600	2 # 600	1 # 350 2 # 350
3000	8	3 # 500	1 # 3/0	1 # 500	2 # 500	1 # 400 2 # 400
3500	9	3 # 600	1 # 3/0	1 # 600	2 # 600	1 # 500 2 # 500
4000	10	3 # 600	1 # 3/0	1 # 600	2 # 600	1 # 500 2 # 500

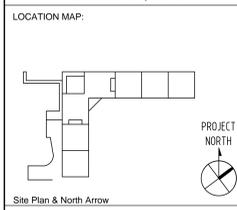
- FEEDER SCHEDULE NOTES:**
- PROVIDE CONDUIT SIZED PER N.E.C.
 - PROVIDE AN INDIVIDUAL CONDUIT FOR EACH SET.
 - ALL FEEDERS SHALL BE EQUIPPED WITH A GROUND CONDUCTOR.

- EXAMPLES:**
- 300 NNG - INDICATES 3#500cmm AND 1#4 GROUND CONDUCTOR.
 - 500 NI - INDICATES 2 SETS OF 4#250cmm AND 2#0 GROUND CONDUCTORS (ONE OF WHICH IS AN ISOLATED GROUND CONDUCTOR) PER SET.
 - 1000 P - INDICATES 3 SETS OF 3#600cmm AND 1#0 PARTIAL NEUTRAL CONDUCTORS PER SET.

NORMAL POWER RISER DIAGRAM
SCALE: N.T.S.

ASSIGNMENT
Technical Report 2: L/E - 100%

DATE
October 27, 2010



SHEET TITLE
**ELECTRICAL
NORMAL POWER
ONE LINE DIAGRAM**

DRAWING SCALE
N.T.S

SHEET NUMBER
E5.0A



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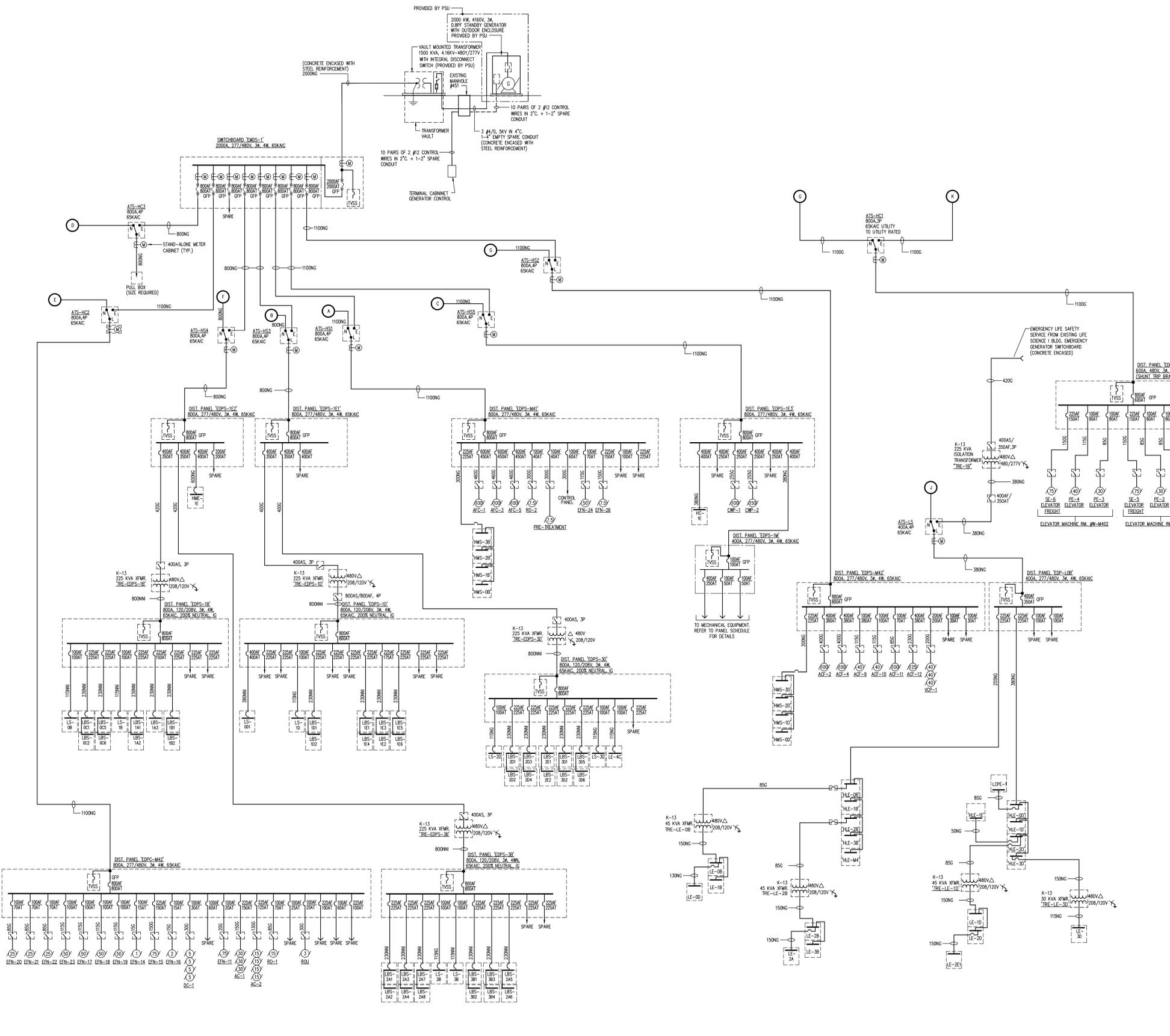
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3	15	15 G	15	15 NC	1 # 8
6	15	15 G	20	20 NC	1 # 8
9	15	15 G	30	30 NC	1 # 8
15	25	30 G	50	50 NC	1 # 8
30	50	50 G	100	115NC	1 # 8
45	70	85 G	150	150 NC	1 # 8
75	125	130 G	225	230 NC	1 # 2
112.5	175	175 G	400	380 NC	1 # 1/0
150	225	230 G	500	500 NC	1 # 1/0
225	350	380 G	800	800 NC	1 # 2/0
300	450	460 G	1000	1000 NC	1 # 3/0
500	800	700 G	1600	1600 NC	1 # 3/0
750	1200	1200 G	2500	2500 NC	1 # 3/0

- TRANSFORMER SCHEDULE NOTES:**
- PROVIDE CONDUIT SIZED PER N.E.C. FEEDERS SHALL BE TYPE _____ MM IN LEV OF TYPE _____ NC
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FEEDER SCHEDULE

FEEDER DESIGNATION	NO. OF SETS	COPPER CONDUCTORS (75° C) PER SET				
		P PHASE CONDUCTORS	N NEUTRAL CONDUCTOR	NN OVERSIZED NEUTRAL CONDUCTOR	G GROUND CONDUCTOR	I ISOLATED & EQUIPMENT GROUND CONDUCTOR
15	1	3 # 12	1 # 12	1 # 10	1 # 12	2 # 12
20	1	3 # 12	1 # 12	1 # 8	1 # 12	2 # 12
30	1	3 # 10	1 # 10	1 # 8	1 # 10	2 # 10
50	1	3 # 8	1 # 8	1 # 2	1 # 10	2 # 10
60	1	3 # 6	1 # 6	1 # 1	1 # 10	2 # 10
85	1	3 # 4	1 # 4	1 # 2/0	1 # 8	2 # 8
100	1	3 # 2	1 # 2	1 # 3/0	1 # 8	2 # 8
115	1	3 # 2	1 # 2	1 # 4/0	1 # 6	2 # 6
130	1	3 # 1	1 # 1	1 # 300	1 # 6	2 # 6
150	1	3 # 1/0	1 # 4	1 # 1/0	1 # 6	2 # 6
175	1	3 # 2/0	1 # 2	1 # 2/0	1 # 6	2 # 6
200	1	3 # 3/0	1 # 2	1 # 2/0	1 # 6	2 # 6
230	1	3 # 4/0	1 # 2	1 # 3/0	1 # 6	2 # 6
255	1	3 # 250	1 # 1	1 # 4/0	1 # 4	2 # 4
300	1	3 # 350	1 # 1/0	1 # 250	1 # 4	2 # 4
380	1	3 # 500	1 # 3/0	1 # 350	1 # 4	2 # 4
400	1	3 # 500	1 # 3/0	1 # 500	1 # 2	2 # 2
420	1	3 # 600	1 # 4/0	1 # 600	1 # 2	2 # 2
460	2	3 # 4/0	1 # 2	1 # 4/0	1 # 2	2 # 2
500	2	3 # 250	1 # 1	1 # 250	1 # 2	2 # 2
600	2	3 # 350	1 # 1/0	1 # 350	1 # 1	2 # 1
700	2	3 # 500	1 # 2/0	1 # 500	1 # 1/0	2 # 1/0
800	2	3 # 600	1 # 3/0	1 # 600	1 # 1/0	2 # 1/0
1000	3	3 # 400	1 # 2/0	1 # 400	1 # 2/0	2 # 2/0
1100	3	3 # 500	1 # 3/0	1 # 500	1 # 3/0	2 # 3/0
1200	3	3 # 600	1 # 3/0	1 # 600	1 # 3/0	2 # 3/0
1600	4	3 # 600	1 # 3/0	1 # 600	1 # 4/0	2 # 4/0
2000	5	3 # 600	1 # 3/0	1 # 600	1 # 250	2 # 250
2500	6	3 # 600	1 # 3/0	1 # 500	1 # 350	2 # 350
3000	8	3 # 500	1 # 3/0	1 # 500	1 # 400	3 # 400
3500	9	3 # 600	1 # 3/0	1 # 600	1 # 500	2 # 500
4000	10	3 # 600	1 # 3/0	1 # 600	1 # 500	2 # 500

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