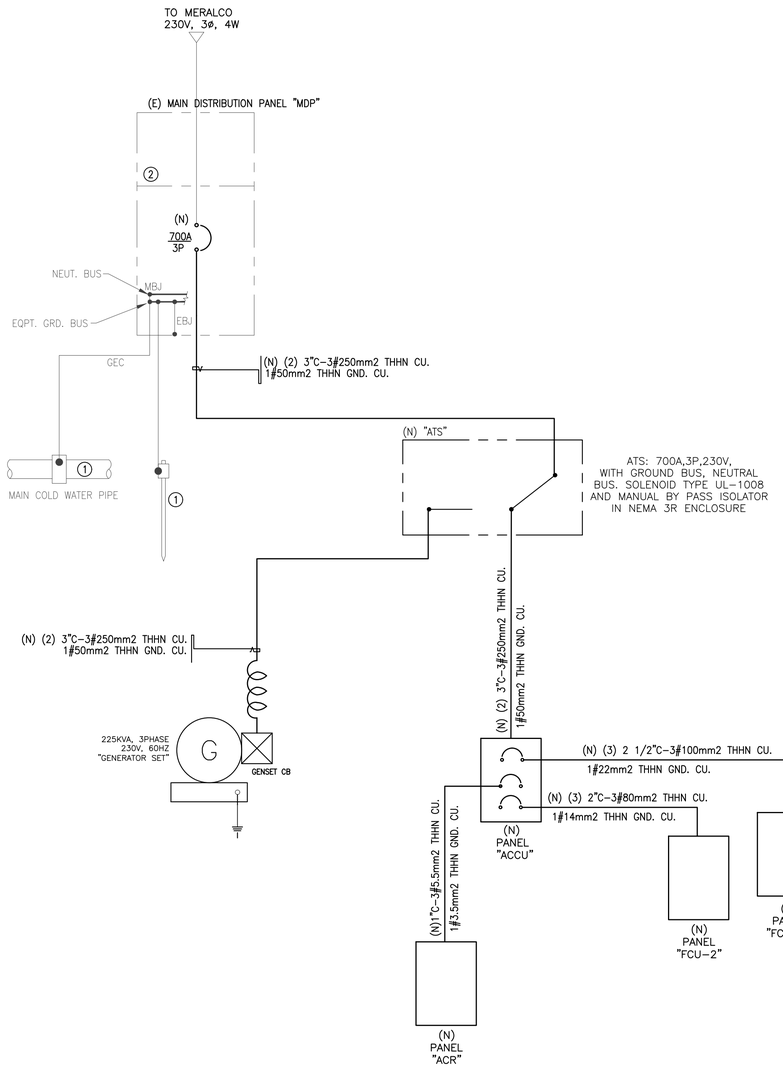


1 E3.0 SINGLE LINE DIAGRAM

NOT TO SCALE

NOTES:

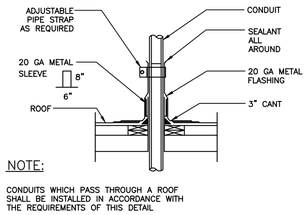
X– DENOTES FOR 3 WIRES SYSTEM INCLUDING GROUND, Y– 4WIRE+G
X–3.5 = 1/2"C (2)–3.5mm2 THHN CU. & 1–3.5mm2 THHN CU. GND
X–5.5 = 1/2"C (2)–5.5mm2 THHN CU. & 1–5.5mm2 THHN CU. GND
X–8.0 = 3/4"C (2)–8.0mm2 THHN CU. & 1–5.5mm2 THHN CU. GND
X–14 = 3/4"C (2)–14mm2 THHN CU. & 1–5.5mm2 THHN CU. GND
X–22 = 1"C (2)–22mm2 THHN CU. & 1–8.0mm2 THHN CU. GND
X–30 = 1 1/4"C (2)–30mm2 THHN CU. & 1–8.0mm2 THHN CU. GND
X–38 = 1 1/2"C (2)–38mm2 THHN CU. & 1–8.0mm2 THHN CU. GND
X–50 = 1 1/2"C (2)–50mm2 THHN CU. & 1–14mm2 THHN CU. GND
X–60 = 2"C (2–60mm2 THHN CU. & 1–14mm2 THHN CU. GND
X–80 = 2"C (2)–80mm2 THHN CU. & 1–14mm2 THHN CU. GND
X–100 = 2"C (2)–100mm2 THHN CU. & 1–22mm2 THHN CU. GND
X–125 = 2 1/2"C (2)–125mm2 THHN CU. & 1–22mm2 THHN CU. GND
X–150 = 2 1/2"C (2)–150mm2 THHN CU. & 1–30mm2 THHN CU. GND
X–175 = 2 1/2"C (2)–175mm2 THHN CU. & 1–30mm2 THHN CU. GND
X–200 = 3"C (2)–200mm2 THHN CU. & 1–50mm2 THHN CU. GND
X–250 = 3"C (2)–250mm2 THHN CU. & 1–50mm2 THHN CU. GND
X–300 = 3 1/2"C (2)–300mm2 THHN CU. & 1–50mm2 THHN CU. GND

GENERAL NOTES:

1. CONTRACTOR TO VERIFY EXISTING GROUNDING SYSTEM. GROUND RESISTANCE SHALL BE 25 OHMS OR LESS MEASURED BY THREE–POINT METHOD.
2. ELECTRICAL CONTRACTOR SHALL FIELD VERIFY THE SIZE/RATING OF ALL ELECTRICAL EQUIPMENTS AND COMPARE WITH THE DRAWINGS. ANY DISCREPANCY FOUND BETWEEN THE DRAWINGS AND ACTUAL INSTALLATION SHOULD BE IMMEDIATELY REPORTED TO THE ENGINEER UNDERSIGNED BEFORE TURNING ON THE SERVICE.
3. CONTRACTOR SHALL FIELD VERIFY EXISTING FEEDER CONDUCTORS' SIZE AND INSULATION RESISTANCE. REPLACE AS NECESSARY.
4. EXISTING SINGLE LINE IS FOR REFERENCE PURPOSES ONLY. CONTRACTOR SHALL VERIFY CONDITION OF THE EXISTING SWITCHBOARD PRIOR TO WORK ON THE GEAR.

SHEET NOTES:

1. CONTRACTOR TO TEST EXISTING GROUNDING SYSTEM. GROUND RESISTANCE SHALL BE 25 OHMS OR LESS MEASURED BY THREE–POINT METHOD.
2. CONTRACTOR SHALL FIELD VISUAL AND INSULATION TEST EXISTING FEEDER CONDUCTORS' SIZE AND INSULATION RESISTANCE. REPLACE AS NECESSARY.
3. FOR FEEDERS AND SUB FEEDERS SIZES, SEE SINGLE LINE DIAGRAM.



NOTE:

CONDUITS WHICH PASS THROUGH A ROOF SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THIS DETAIL.

2 E3.0 CONDUIT FLASHING

NOT TO SCALE

VOLTS: 230V | PHASE: 3 | WIRE: 3 | AIC: 10K

PANEL: "ACR"

MAIN: 30A,3P | BUSSING: 100A | LOCATION: Ground Floor | TYPE: BOLT-ON | ISOLATED GROUND BUS: N/A | MOUNTING: FLUSH

CKT		BKR	LOAD DESCRIPTION	LOAD (VA)	WATTS A	WATTS B	WATTS C	LOAD (VA)	LOAD DESCRIPTION	BKR		CKT
1	X-5.5	30A	AIR CURTAIN 1	200	400			200	AIR CURTAIN 2	20A	X-3.5	2
3		2P	"	200		400		200	"	2P		4
5	X-5.5	30A	AIR CURTAIN 3	200			400	200	AIR CURTAIN 4	20A	X-3.5	6
7		2P	"	200	400			200	"	2P		8
9	X-5.5	30A	AIR CURTAIN 5	200		400		200	AIR CURTAIN 6	20A	X-3.5	10
11		2P	"	200			400	200	"	2P		12
			CONNECTED kVA PER PHASE		0.80	0.80	0.80					

DEMAND FACTOR APPLICATIONS	conn. load (kVA)	demand factor (%)	demand load (kVA)
RECEPTACLE (FIRST 10kVA)	0.0	100%	0.0
RECEPTACLE (OVER 10kVA)	0.0	50%	0.0
CONTINUOUS LOADS	0.0	125%	0.0
NON-CONTINUOUS LOADS	2.4	100%	2.4

USE: 3-5.0mm2 THHN CU &1-3.5mm2 THHN CU GND IN 3/4" dia. PVC

TOTAL CONNECTED LOAD: 2.4 kVA
SPARE CAPACITY: 0.5 kVA
TOTAL DEMAND LOAD: 2.4 kVA
TOTAL SERVICE @85% D.F.: 5.1 Amps

VOLTS: 230V | PHASE: 3 | WIRE: 3 | AIC: 10K

PANEL: "ACCU"

MAIN: 700A,3P | BUSSING: 700A | LOCATION: Ground Floor | TYPE: BOLT-ON | ISOLATED GROUND BUS: N/A | MOUNTING: FLUSH

CKT		BKR	LOAD DESCRIPTION	LOAD (VA)	WATTS A	WATTS B	WATTS C	LOAD (VA)	LOAD DESCRIPTION	BKR		CKT
1		250A	ACCU-Z1-01	18333	43003			24670	FCU-1	225A		2
3	Y-125		"	18333		43003		24670	"		Y-100	4
5		3P	"	18333			37933	19600	"	3P		6
7		300A	ACCU-Z2-01	21667	38167			16500	FCU-2	200A		8
9	Y-175		"	21667		40207		18540	"		Y-80	10
11		3P	"	21667			39407	17740	"	3P		12
13		100A	ACCU-Z3-01	6667	7467			800	ACR	30A		14
15	Y-38		"	6667		7467		800	"		Y-5.5	16
17		3P	"	6667			7467	800	"	3P		18
19			SPACE		0				SPACE			20
21			"			0			"			22
23			"				0		"			24
			CONNECTED kVA PER PHASE		88.64	90.68	84.81					

DEMAND FACTOR APPLICATIONS	conn. load (kVA)	demand factor (%)	demand load (kVA)
RECEPTACLE (FIRST 10kVA)	0.0	100%	0.0
RECEPTACLE (OVER 10kVA)	0.0	50%	0.0
CONTINUOUS LOADS	0.0	125%	0.0
NON-CONTINUOUS LOADS	264.1	100%	264.1

USE: 2 SETS OF 3-250mm2 THHN CU &1-50mm2 THHN CU GND IN 3" dia. PVC

TOTAL CONNECTED LOAD: 264.1 kVA
SPARE CAPACITY: 52.8 kVA
TOTAL DEMAND LOAD: 264.1 kVA
TOTAL SERVICE @70% D.F.: 465.2 Amps

VOLTS: 230V | PHASE: 3 | WIRE: 3 | AIC: 10K

PANEL: "FCU-1"

MAIN: 225A,3P | BUSSING: 225A | LOCATION: Ground Floor | TYPE: BOLT-ON | ISOLATED GROUND BUS: N/A | MOUNTING: FLUSH

CKT		BKR	LOAD DESCRIPTION	LOAD (VA)	WATTS A	WATTS B	WATTS C	LOAD (VA)	LOAD DESCRIPTION	BKR		CKT
1	X-22	60A	FAHU-Z1-01	4261	5693			1432	FCU-Z1-10	20A	X-3.5	2
3		2P	"	4261		5693		1432	"	2P		4
5	X-3.5	20A	FCU-Z1-01	1432			2864	1432	FCU-Z1-11	20A	X-3.5	6
7		2P	"	1432	2864			1432	"	2P		8
9	X-3.5	20A	FCU-Z1-02	1432		2864		1432	FCU-Z1-12	20A	X-3.5	10
11		2P	"	1432			2864	1432	"	2P		12
13	X-3.5	20A	FCU-Z1-03	1432	2238			806	FCU-Z1-13	20A	X-3.5	14
15		2P	"	1432		2238		806	"	2P		16
17	X-3.5	20A	FCU-Z1-04	1432			3469	2037	FCU-Z2-01	30A	X-5.5	18
19		2P	"	1432	3469			2037	"	2P		20
21	X-3.5	20A	FCU-Z1-05	1432		3469		2037	FCU-Z2-02	30A	X-5.5	22
23		2P	"	1432			3469	2037	"	2P		24
25	X-3.5	20A	FCU-Z1-06	1432	3469			2037	FCU-Z2-05	30A	X-5.5	26
27		2P	"	1432		3469		2037	"	2P		28
29	X-3.5	20A	FCU-Z1-07	1432			3469	2037	FCU-Z2-08	30A	X-5.5	30
31		2P	"	1432	3469			2037	"	2P		32
33	X-3.5	20A	FCU-Z1-08	1432		3469		2037	FCU-Z2-07	30A	X-5.5	34
35		2P	"	1432			3469	2037	"	2P		36
37	X-3.5	20A	FCU-Z1-09	1432	3469			2037	FCU-Z2-09	30A	X-5.5	38
39		2P	"	1432		3469		2037	"	2P		40
			CONNECTED kVA PER PHASE		24.67	24.67	19.60					

DEMAND FACTOR APPLICATIONS	conn. load (kVA)	demand factor (%)	demand load (kVA)
RECEPTACLE (FIRST 10kVA)	0.0	100%	0.0
RECEPTACLE (OVER 10kVA)	0.0	50%	0.0
CONTINUOUS LOADS	0.0	125%	0.0
NON-CONTINUOUS LOADS	68.9	100%	68.9

USE: 3-100mm2 THHN CU &1-22mm2 THHN CU GND IN 2 1/2" dia. PVC

TOTAL CONNECTED LOAD: 68.9 kVA
SPARE CAPACITY: 0.0 kVA
TOTAL DEMAND LOAD: 68.9 kVA
TOTAL SERVICE @70% D.F.: 122.8 Amps

VOLTS: 230V | PHASE: 3 | WIRE: 3 | AIC: 10K

PANEL: "FCU-2"

MAIN: 200A,3P | BUSSING: 225A | LOCATION: Ground Floor | TYPE: BOLT-ON | ISOLATED GROUND BUS: N/A | MOUNTING: FLUSH

CKT		BKR	LOAD DESCRIPTION	LOAD (VA)	WATTS A	WATTS B	WATTS C	LOAD (VA)	LOAD DESCRIPTION	BKR		CKT
1	X-5.5	30A	FCU-Z2-03	2037	2843			806	FCU-Z3-05	20A	X-3.5	2
3		2P	"	2037		2843		806	"	2P		4
5	X-5.5	30A	FCU-Z2-04	2037			2843	806	FCU-Z3-06	20A	X-3.5	6
7		2P	"	2037	2843			806	"	2P		8
9	X-5.5	30A	FCU-Z2-06	2037		2843		806	FCU-Z3-07	20A	X-3.5	10
11		2P	"	2037			2843	806	"	2P		12
13	X-5.5	30A	FCU-Z2-10	1790	2596			806	FCU-Z3-08	20A	X-3.5	14
15		2P	"	1790		2596		806	"	2P		16
17	X-5.5	30A	FCU-Z2-11	1790			2596	806	FCU-Z3-09	20A	X-3.5	18
19		2P	"	1790	2596			806	"	2P		20
21	X-8.0	40A	FAHU-Z2-01	2851		4641		1790	FAHU-Z3-01	30A	X-5.5	22
23		2P	"	2851			4641	1790	"	2P		24
25	X-3.5	20A	FCU-Z3-01	806	2406			1600	EXFU -Z1	30A	X-5.5	26
27		2P	"	806		2406		1600	"	2P		28
29	X-3.5	20A	FCU-Z3-02	806			2406	1600	EXFU -Z2	30A	X-5.5	30
31		2P	"	806	2406			1600	"	2P		32
33	X-3.5	20A	FCU-Z3-03	806		2406		1600	EXFU -Z3	30A	X-5.5	34
35		2P	"	806			2406	1600	"	2P		36
37	X-3.5	20A	FCU-Z3-04	806	806				SPARE	20A		38
39		2P	"	806		806			"	2P		40
			CONNECTED kVA PER PHASE		16.50	18.54	17.74					

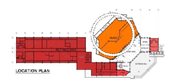
DEMAND FACTOR APPLICATIONS	conn. load (kVA)	demand factor (%)	demand load (kVA)
RECEPTACLE (FIRST 10kVA)	0.0	100%	0.0
RECEPTACLE (OVER 10kVA)	0.0	50%	0.0
CONTINUOUS LOADS	0.0	125%	0.0
NON-CONTINUOUS LOADS	52.8	100%	52.8

USE: 3-80mm2 THHN CU &1-14mm2 THHN CU GND IN 2" dia. RSC

TOTAL CONNECTED LOAD: 52.8 kVA
SPARE CAPACITY: 0.0 kVA
TOTAL DEMAND LOAD: 52.8 kVA
TOTAL SERVICE @80% D.F.: 107.2 Amps

3 E3.0 PANEL SCHEDULES

NOT TO SCALE



KEY PLAN :

NOTES:

PROFESSIONAL ELECTRICAL ENGINEER

PRC NO :
VALID UNTIL :
TIN :
PTR :
DATE :
PLACE :

REFERENCES

DWG. No.	REV.	DESCRIPTION

REVISION

No.	DATE	DESCRIPTION	CHECKED BY
01	15-05-2019	FOR APPROVAL	DOST
01	15-05-2019	FOR APPROVAL	GSCS

COORDINATION

	ARCH'L	CIVIL	ELECT'L	MECH'L	STRUC	SURVEY
DOST						
GSCS						

DESIGN DRAWING

CLIENT :

DOST NAST

PROJECT CONSULTANT :

GSCS Since 2006

PROJECT LOCATION :
NATIONAL ACADEMY OF SCIENCE AND TECHNOLOGY, 2/F PHILIPPINE SCIENCE HERITAGE CENTER, DOST COMPOUND BICUTAN, TAGUIG, METRO MANILA.

PROJECT TITLE :
MECHANICAL AND ELECTRICAL DESIGN FOR THE INSTALLATION OF HVAC AND GENERATOR SET AT THE PHIL SCIENCE HERITAGE CENTER

DRAWING TITLE :
Single Line Diagram & Panel Schedules

SCALE :	PREPARED BY:	P.P.
NTS	CHECKED BY	
	VERIFIED BY	
DATE : 15-05-2019	REFERENCE	TRANSMITTAL NO. EDD-01
CONTRACT No. 2019-55	DRAWING No. E3.0	REVISION No. 00