Building/Site : Natinal Bioenergy Research and Innovation Center (MMSU)
Date

ACU EQUIPMENT INSPECTION FORM

Location	Fermentation Area		Bioprocessing Area		Bioprocessing Value added		Bio Separation Lab		Biotech	
Outdoor unit	ACU1	ACU2	ACU3	ACU4	ACU5	ACU6	ACU7	ACU8	ACU9	ACU10
Brand	KOLIN	KOLIN	KOLIN	KOLIN	KOLIN	KOLIN	KOLIN	KOLIN	KOLIN	KOLIN
Rated Cooling Load, kJ/h	37980	37980	37980	37980	37980	37980	37980	37980	37980	37980
Rated Power, W	3770	3770	3770	3770	3770	3770	3770	3770	3770	3770
Rated Ampere	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2
Actual Ampere	15	15	15	15	15	9	16	15	16.99	17.04
Indoor Actual tdb	25.3		25		27.9		25		25.5	
Actual RH	46		46		48		48		48	
Remarks	Ok	Ok	Ok	Ok	ok	not ok	Ok	Ok	Ok	Ok

Location	Small Conference		Dir meeting	Director	Tissue Lab	Front	Small Lab	Electrical/staff		
Outdoor unit	ACU11	ACU12	ACU13	ACU14	ACU15	ACU16	ACU17	ACU18		
Brand	KOLIN	EVEREST	KOLIN	KOLIN	KOLIN	KOLIN	KOLIN	KOLIN		
Rated Cooling Load, kJ/h	37980		12661	12661	37980	37980	37980	37980		
Rated Power, W	3770	4500	1096	1096	3770	3770	3770	3770		
Rated Ampere	17.2	22	4.76	4.76	17.2	17.2	17.2	17.2		
Actual Ampere	17.4	15.74	4.54	4.6	15.7	15.6	15.5	17.5		
Indoor Actual tdb	25.8		23.7	24	23.7	20	22	23.4		
Actual RH	58		54.6	55	54	49.9	48.6	50.2		
Remarks	ok	ok	ok	ok	ok	ok	ok	ok		

Summary of Findings

1. There were 18 ACU installed
2. One unit has a brand of Everest of low quality as per experience of the university
3. One unit (ACU 6) needs further evaluation of the contractor
4. Cladding (post) must be closed at the roof level
5. Electrical wires (outdoor units must be fixed)
6. Server and EE/CCTV rooms must be installed with AC (at least 1/2 HP window type aircon but to conceal/ imbed drain and wires)
7. Generally, ACU works are 99% completed
8. New Aircon installation must be coordinated to the building contrator (until the building warranty).

Prepared by:

NATHANIEL ERICSON R. MATEO
TWG and End-User

Inventory and Assessment Form (ACU)

College/Unit: Administration Building
Date/Time: July 07 2020 1:52 pm to 4:30 pm
Outdoor Air Condition (tdb,twb.RH): 34.5 and 28.5

	Description (Type, Model, Brand, Refrigerant, etc.)	Location	Cooling Load	Input Power,	Rated Amp, A	Actual Amp, A	Indoor Air: 1. LFC, 2. RFC, 3. Center, 4. LBC, 5. RBC			Remarks
			(Btu/hr o Kj/h)				tdb, °C	twb, °C	RH	
	BRAND: HYUNDAI									
ACU1	MODEL: HAC - DC18C						LFC: 26	LFC: 18		The actual and rated are accurate. We observed that the ac unit is in good condition. The condesed water in discharged is flowing well. A = 58.1418sq meter
	TYPE: Wall Mounted SPLIT TYPE						RFC: 27	RFC: 20.5		
	POWER SOURCE:230V -60 HZ.						C: 21	C: 18	81.53%	
	CAPACITY: 18000 BTU/HR	BAC Building	18000 BTU/HR	1552 W.	6.75A.	7.89 A.	LBC: 26	LBC: 24.5		
	CURRENT: 6.75A						RBC: 27	RBC: 19.5		
	POWR INPUT:1552W.									
	EXCESSIVE OPERATING PRESSURE: 4.2 Mpa, 1.5 Mp									
	REFRIGERANT: r410a									
ACU2	MODEL: HAC - DC18C BRAND: HYUNDAI									Like in the first ac unit.The actual and rated are accurate. We observed that the ac unit is in good condition. The condesed water in discharged is flowing well. A = 58.1418sq meteer
	TYPE: Wall Mounted SPLIT TYPE						LFC: 26	LFC: 16		
	POWER SOURCE:230V -60 HZ.						RFC: 26	RFC: 18		
	CAPACITY: 18000 BTU/HR	BAC Building	18000 BTU/HR	1552 W.	6.75A.	7.67 A.	C: 26	C: 18.5	48%	
	CURRENT: 6.75A						LBC: 24.5	LBC: 17		
	POWR INPUT:1552W.						RBC: 24.5	RBC: 17		
	EXCESSIVE OPERATING PRESSURE: 4.2 Mpa, 1.5 Mp									
	REFRIGERANT: r410a									
ACU3	MODEL: HAC-DC10C BRAND: HYUNDAI									The actual reading is less than the rated ampere. And we observed that the condensed water in the discharge is few
	TYPE: Wall Mounted SPLIT TYPE									
	OUTSIDE RESISTANCE CLASS: IP24									
	POWER SOURCE:230V-60Hz,1 Ph						C: 21.5	C: 15	49.49%	

	DISCHARGE: 4.2 Mpa	BAC Building	9000 BTU/HR	753 W.	3.27 A.	2.73 A.				amount. A = 15.71 Sq meter
	SUCTION:1.5 Mpa									
	REFRIGERANT: R410A / 550g									
ACU4	MODEL:38KUS055FS/42KTD055FS						LFC: 27	LFC: 20		The ac unit is not always used,they only use in few conference meeting. A = 58.1418sq meter
	TYPE: Ceiling Cassette(Non- Inverter)						RFC: 26	RFC: 19.5		
	CURRENT: 15.8 A.						C: 27	C: 20	52.40%	
	FREQUENCY: 50 HZ.	CONFERRENCE ROOM	55000 KJ/HR	1540 W.	15.8 A.	14.11 A	LBC: 26.5	LBC: 19		
	POWER SUPPLY: 220 V- 240 V,1 Ph						RBC: 26.5	RBC: 19.5		
	CAPACITY: 55000 KJ/HR. - 5.5 hp									
	BRAND: CARRIER AIRCON									
	REFRIGERANT: R410A									
ACU5	MODEL:38KUS055FS/42KTD055FS						LFC: 27	LFC: 20		Acu4 and Acu5 are near to each other.The ac unit is not always used,they only use in few conference meeting. The actual is lower than the rated ampere. A = 58.1418sq meter
	TYPE: Ceiling Cassette(Non- Inverter)						RFC: 26	RFC: 19.5		
	CURRENT: 15.8 A.						C: 27	C: 20	52.40%	
	FREQUENCY: 50 HZ.	CONFERRENCE ROOM	55000 KJ	1540 W.	15.8 A	12.78 A	LBC: 26.5	LBC: 19		
	POWER SUPPLY: 220 V- 240 V,1 Ph						RBC: 26.5	RBC: 19.5		
	CAPACITY: 55000 KJ/HR. - 5.5 hp									
	BRAND: CARRIER AIRCON									
	REFRIGERANT: R410A									
ACU6	MODEL: HAC-DC12C BRAND: HYUNDAI									Beacause the area of the room is small the distribution of cooling air is easily to spread in the room. A =15.71 Sq meter
	TYPE: Wall mounted Split Type									
	CURRENT: 4.76A.									
	FREQUENCY: 60 HZ.	CONFERRENCE ROOM	12000 KJ	1096 W	4.76 A	5.21 A	C: 25	C:15.5	35.46%	

	POWER SUPPLY: 230V,1 Ph									
	CAPACITY:12000 BTU/HR									
	OUTSIDE RESISTANCE CLASS:IP 24									
	REFRIGERANT: R410A/700g									
ACU7	MODEL: HCAC -36CASI BRAND: HYUNDAI						LFC: 27	LFC: 18		The room is reaching the desired temp. even the canteen is crowded sometimes. A = 58.14 Sq meter
	TYPE: Ceiling mounted Casset Type						RFC: 26	RFC: 16		
	COOLING CAPACITY: 37 000 BTU/HR						C: 25	C: 18	43.73%	
	COOLING AREA: 30- 38 Sqm.	CANTEEN	12000 KJ	2982 W	ot specifie	5.10 A	LBC: 25	LBC: 18.5		
	POWER SUPPLY: 4.0 HP						RBC: 25	RBC: 18.5		
	EER: 12.42									
ACU8	MODEL: HAC-DC12C BRAND: HYUNDAI									Beacause the area of the room is small the distribution of cooling air is easily to spread in the room. A = 15.71
	TYPE: Wall mounted Split Type									
	CURRENT: 4.76A.	CANTEEN								
	FREQUENCY: 60 HZ.		12000 KJ	1096 W	4.76 A	5.50 A	C: 26	C:15	28.77%	
	POWER SUPPLY: 230V,1 Ph									
	CAPACITY:12000 BTU/HR									
	OUTSIDE RESISTANCE CLASS:IP 24									
	REFRIGERANT: R410A/700g									
ACU9	MODEL: HAC-DC12C BRAND: HYUNDAI									The area of the room is. Because of the orientation of the room in the afternoon is directly to the sunlight its affect the cooling process in the room.meter. A = 15.71
	TYPE: Wall mounted Split Type									
	CURRENT: 4.76A.									
	FREQUENCY: 60 HZ.	CANTEEN	12000 KJ	1096 W	4.76 A	6.33 A	C:27	C:20	52.40%	
	POWER SUPPLY: 230V,1 Ph									
	CAPACITY:12000 BTU/HR									
	OUTSIDE RESISTANCE CLASS:IP 24									
	REFRIGERANT: R410A/700g									
NI RELATION										The building has 3 circuit breakers but not yet having a installed ac units. So maybe they will install ac unit soon.The area

										is 67.23 m² and a volume is 60.85 cubic meter.

Outdoor Air Condition (tdb,twb.RH): 33.5 and 28

ADMIN SECOND FLOOR										
ACU1	BRAND: PANASONIC AIR CONDITIONER									TS = 18 according to people occupants the temperature is slightly hot, A = 122.753 Sq meter
	MODEL:CU-S28RKV TYPE: SPLIT TYPE						LFC: 30	LFC: 22.5		
	PHASE:1						RFC: 30	RFC: 22.5		
	VOLTAGE: 220 V.	HUMAN RESOURCES MANAGEMENT	5.15/18540 KJ	1540 W.	12.6A.	9.7 A.	C: 28	C: 22	52.37%	
	FREQUENCY:60 HZ.						LBC: 29.5	LBC: 23		
	MAX. INPUT: 3260W/14.6 A.						RBC: 29	RBC: 22.5		
	CAPACITY:7800 W.									
	CURRENT:12.6 A.									
ACU2	BRAND: PANASONIC AIR CONDITIONER						LFC: 29.5	LFC: 22.5		TS = 18 according to people occupants the temperature is slightly hot A = 122.753 Sq meter
	MODEL:CU-S28RKV TYPE: SPLIT TYPE						RFC: 30	RFC: 22.5		
	PHASE:1						C: 28	C: 22	55.13%	
	VOLTAGE: 220 V.	HUMAN RESOURCES MANAGEMENT	5.15/18540 KJ	1540 W.	12.6 A.	10.89	LBC: 29.5	LBC: 23		
	FREQUENCY:60 HZ.						RBC: 29	RBC: 22.5		
	MAX. INPUT: 3260W/14.6 A.									
	CAPACITY:7800 W.									
	CURRENT:12.6 A.									
ACU3	BRAND: PANASONIC						LFC: 29	LFC: 24		Ts = 16, The area is 94.835 sq

	MODEL: CU-S28RKV POWER INPUT: 2700 W.						RFC: 29.5	RFC: 22.5		meter, We think the ac unit is in good condition
	PHASE:1 REFRIGERANT: R410A , 1.65 KG.						C: 28	C: 20		
	VOLTAGE;220 V. TYPE: SPLIT TYPE	PPGSD	5.15/18540 KJ	1540 W.	12.6 A.	12. 78	LBC: 26	LBC: 21	63.41%	
	FREQUENCY:60 HZ.						RBC: 27.5	RBC: 22		
	MAX. INPUT:3260W/14.6A.									
	COOLING CAPACITY: 7800 W.									
	CURRENT:12.6 A.									
ACU4	BRAND: PANASONIC						LFC: 29	LFC: 24		Ts 15 The area is 94.835 sq meter We think the ac unit is in good condition
	MODEL: CU-S28RKV POWER INPUT: 2700 W.						RFC: 29.5	RFC: 22.5		
	PHASE:1 REFRIGERANT: R410A , 1.65 KG.						C: 28	C: 20	63.41%	
	VOLTAGE;220 V. TTYPE: SPLIT TYPE	PPGSD	5.15/18540 KJ	1540 W.	12.6 A.	13.46	LBC: 26	LBC: 21		
	FREQUENCY:60 HZ.						RBC: 27.5	RBC: 22		
	MAX. INPUT:3260W/14.6A.									
	COOLING CAPACITY: 7800 W.									
	CURRENT:12.6 A.									
AUC5	BRAND: PANASONIC						LFC: 29	LFC: 24		Ts = 25, The area is 94.835 sq meter the aircon is not in good condition
	MODEL:CW-SC241EPH POWER INPUT: 2660 W.						RFC: 29.5	RFC: 22.5		
	PHASE: SINGLE EER: 9.6						C: 28	C: 20		
	VOLTS: 230V REFRIGERANT: R22 , 950 GRAMS	PPGSD	25500 KJ/HR	2660 W	11.7 A	6.76 A	LBC: 26	LBC: 21	63.41%	
	FREQUENCY: 60 HZ.						RBC: 27.5	RBC: 22		
	CAPACITY: 25 500 KJ/HR									
	CURRENT:11.7 A.									
ACU6	BRAND: PANASONIC						LFC: 27	LFC: 19		Ts 14, The area is 94. 735 sq meter and the volume is 670.02 cubic meter
	MODEL: CU-S28RKV POWER INPUT: 2700 W.						RFC: 22	RFC: 19		
	PHASE:1 REFRIGERANT: R410A , 1.65 KG.						C: 28.5	C: 21.5	52.82%	
	VOLTAGE;220 V. TYPE:SPLIT TYPE	PLANNING OFFICE	5.15/18540 KJ	1540 W.	12.6 A.	12.74	LBC: 28	LBC: 21		
	FREQUENCY:60 HZ.						RBC: 22	RBC: 19		
	MAX. INPUT:3260W/14.6A.									
	COOLING CAPACITY: 7800 W.									

	CURRENT:12.6 A.									
ACU7	BRAND: PANASONIC						LFC: 27	LFC: 19		Ts = 16, The area is 94. 735 sq meter and the volume is 670.02 cubic meter
	MODEL: CU-S28RKV POWER INPUT: 2700 W.						RFC: 22	RFC: 19		
	PHASE:1 REFRIGERANT: R410A , 1.65 KG.						C: 28.5	C: 21.5	53.82%	
	VOLTAGE;220 V. TYPE:SPLIT TYPE	PLANNING OFFICE	5.15/18540 KJ	1540 W.	12.6 A.	11.7	LBC: 28	LBC: 21		
	FREQUENCY:60 HZ.						RBC: 22	RBC: 19		
	MAX. INPUT:3260W/14.6A.									
	COOLING CAPACITY: 7800 W.									
	CURRENT:12.6 A.									

CONDUCTED BY:
GROUP 1
ERNESTO GANOT JR
JHON MARK GATAB
DANIEL JADE MERCADO
MARK BRY.

Inventory And Summary (AC Units)

College/Unit: COLLEGE OF INDUSTRIAL TECHNOLOGY

Date/Time: July 21,2020 1:25 P.M.

Outdoor Air Condition:

	Description (Type, Model, Brand,	Location	Cooling Load	t Power, W	ated Amp,	ctual Amp,	Indoor Air: 1. LFC, 2.			Remarks
	BRAND:AUX		(Btu/hr o Kj/h)				tdb, °C	twb, °C	RH	
	INDOOR MODEL:ASW-18A2/FADI									
	OUTDOOR MODEL:AS-18A2/FADI									
AC 1	VOLTAGE:2230 V.									
	REFRIGERANT:R410A ,1100G.	READING CENTER								
			13636 KJ/HR.	1700 W.	8.0 A.					NO ACCESS
	Description (Type, Model, Brand,	Location	Cooling Load	t Power, W	ated Amp,	ctual Amp,	. LFC, 2. RFC, 3. Center, 4			Remarks
	BRAND:AUX		(Btu/hr o Kj/h)				tdb, °C	twb, °C	RH	
	INDOOR MODEL:ASW-18A2/FADI									
	OUTDOOR MODEL:AS-18A2/FADI									
AC 2	VOLTAGE:2230 V.									
	REFRIGERANT:R410A ,1100G.	INTERNET CAFE								
			13636 KJ/HR.	1700 W.	8.0 A.					NO ACCESS
	Description (Type, Model, Brand,	Location	Cooling Load	t Power, W	ated Amp,	ctual Amp,	. LFC, 2. RFC, 3. Center, 4			Remarks
	BRAND:AUX		(Btu/hr o Kj/h)				tdb, °C	twb, °C	RH	
	INDOOR MODEL:ASW-18A2/FADI									
	OUTDOOR MODEL:AS-18A2/FADI									L=5 X 7 AND H= 3.5. THE AC UNIT IS NEWLY

AC 3	VOLTAGE:2230 V.	AACUUP ROOM	13636 KJ/HR.	1700 W.	8.0 A.					INSTALLED AND THE ACTUAL AMPERE CANNOT BE GATHERED BECAUSE IT IS SECOND FLOOR AREA
	REFRIGERANT:R410A ,1100G.									
								TS:9		
	Description (Type, Model, Brand, Refrigerant, etc.)	Location	Cooling Load	Input Power,	Rated Amp, A	Actual Amp, A	Indoor Air: 1. LFC, 2. RFC, 3. Center, 4. LRC, 5.			Remarks
	BRAND:AUX	RESEARCH EXTENSION	(Btu/hr o Kj/h)				tdb, °C	twb, °C	RH	
	INDOOR MODEL:ASW-18A2/FADI									
	OUTDOOR MODEL:AS-18A2/FADI		13636 KJ/HR.	1700 W.	8.0 A.					L=5 X 7 AND H= 3.5. THE AC UNIT IS NEWLY INSTALLED AND THE ACTUAL AMPERE CANNOT BE GATHERED BECAUSE IT IS SECOND FLOOR AREA
AC 4	VOLTAGE:2230 V.									
	REFRIGERANT:R410A ,1100G.									
								TS:10		
	Description (Type, Model, Brand, Refrigerant, etc.)	Location	Cooling Load	Input Power, Watts	Rated Amp, A	Actual Amp, A	Indoor Air: 1. LFC, 2. RFC, 3. Center, 4. LRC, 5. RRC			Remarks
	BRAND:AUX	GIIDANCE OFFICE	(Btu/hr o Kj/h)				tdb, °C	twb, °C	RH	
	INDOOR MODEL:ASW-18A2/FADI									
	OUTDOOR MODEL:AS-18A2/FADI		13636 KJ/HR.	1700 W.	8.0 A.					NO ACCESS
AC 5	VOLTAGE:2230 V.									
	REFRIGERANT:R410A ,1100G.									

	Description (Type, Model, Brand,	Location	Cooling Load	it Power, W	ated Amp,	ctual Amp,	. LFC, 2. RFC, 3. Center, 4			Remarks
	BRAND:EVEREST TYPE: WINDOW TYPE		(Btu/hr o Kj/h)				tdb, °C	twb, °C	RH	
	EER:10.4 MODEL:ETMCSW107-S8									
	FREQ.: 60 HZ.									
AC 6	VOLTAGE:230 V.									
	REFRIGERANT: R22 , 1.75 K G.	ACADEMIC BUILDING	3400 KJ/HR	2500 W.	10.1 A.					NO ACCESS

CONDUCTED BY: GROUP 1
MERCADO, DANIEL JADE J.
MEDRANO, BRYAN V.
GANOT,JR. ERNESTO R.
GATAB, JOHN MARK B.