



TERMS OF REFERENCE

Provision of Air-Conditioning and Exhaust Fan Services for the ASEAN Secretariat (ASEC) Building and the SG Residence

Contract Period: 1 January 2022 – 31 December 2023

I. Background

The Association of Southeast Asian Nations (ASEAN) Secretariat is the nerve center of ASEAN, a regional inter-governmental organization founded in 1967, to promote peace and stability, sustained economic growth, shared prosperity and social progress. It comprises the ten countries of Southeast Asia.

The entry into force of the ASEAN Charter on 15 December 2008 has provided new impetus to ASEAN's integration efforts by establishing a legal and institutional framework needed to achieve the ASEAN Community by 2015. This includes the newly approved organizational structure of the ASEAN Secretariat (ASEC) that is aligned with the requirements of the ASEAN Charter and the three Blueprints of the ASEAN Political-Security Community (APSC), the ASEAN Economic Community (AEC), and the ASEAN Socio-Cultural Community (ASCC). ASEC provides the necessary functions required to effectively support the community building process under the ASEAN Charter and the Blueprints.

ASEC employs about 400 international and national staff. It is hosted by the Government of Indonesia under a host country agreement signed by the Indonesian Minister for External Affairs in 1979. The Annual Operational Budget (AOB) contributed by the 10 ASEAN Member States (AMS) is around US\$ 15 million to cover the operational expenses of ASEC. ASEC is also supported by a larger number of partnership Trust and Project Funds to implement ASEAN programs towards ASEAN Community 2015 and beyond.

To support ASEAN programs implementation, one of the areas that needs to be maintained is ASEC building one of which is to maintain will have to ensure the operations of mechanical and ASEAN Secretariat building. Currently, the ASEAN Secretariat (ASEC) is housed at two buildings:

1. The Heritage Building since 1981. The Building has 9 stories with approximately 11,000 sqm in total areas.
2. The New Building since 2019. The Building has 16 stories with approximately 44,000 Sqm in total areas. It is located adjacent to the Heritage Building.

II. Objective

1. To maintain central air conditioning and exhaust fan system at new building
2. Routine cleaning of split Air-Conditionings at the ASEAN Secretariat, SG Residence and server room
3. To maintain water treatment of cooling tower

III. Expected Deliverables

Daily operation and monitoring central air conditioning and exhaust fan system

IV. Scope of Work

The Company shall provide service, repair and assured maintenance of central air-conditioning units, split and cassette air-conditioning units, and exhaust fans for ASEC Building and SG Residence as per the following:

1. Central Air-Conditioning at the ASEAN Secretariat New Building, 2 units Chiller Trane 250 TR, 1-unit Chiller 150 TR, mini chiller 25 TR and 36 units AHU
2. Warm-up minimum 1 time/month the Central Air-conditioning at the ASEAN Secretariat Heritage Building, 3 units' chiller Mcquay 250 TR and 9 units AHU
3. Routine cleaning of split Air-Conditionings at the ASEAN Secretariat, SG Residence and server room
4. Water treatment of cooling tower water at new building
5. Cleaning cooling tower at heritage building minimum 2 times/year
6. Monitor and cleaning exhaust fan system at new and heritage building
7. Upon issuance of the maintenance contract, the successful vendor agrees to provide optimum services to ASEC which include but not limited to the following:

a) Daily

- Switch on and off chiller unit (start on 06.30 am)
- Switch on and off pump cooling tower (start on 06.30 am)
- Switch on and off Air Handling Unit (start on 06.30 am)
- Check and monitoring Building Automation System
- Check and monitoring Inverter
- Check and monitoring water condition at cooling tower
- Check and monitoring room temperature

b) Weekly

- Service and cleaning filter AHU
- Check condition all AHU unit

c) Monthly

- Check the chiller unit
- Check cooling tower
- Check all pump CWP and CHWP
- Check grease

d) Quarterly

- Maintenance of Split AC the Secretary-General's (SG) Residence
- Maintenance of Split AC the old ASEC premise
- Maintain and replace the filter of AHU at New ASEC premise

e) Yearly

Scaling the chiller (evaporator and condenser) for new ASEC premises
Circulation of cooling tower with chemical for 6 (six) month (if needed)

8. The Contractor shall provide a monthly written update to the Administration and General Affairs Division ("AGAD") on the progress of the services performed at the ASEC Premise and the SG's Residence.
9. The Contractor shall provide Services of central air-conditioning system which shall be executed monthly at the ASEC Premise in accordance to the terms and conditions of this Agreement with the following details:
 - a. Contractor shall maintain and provide the Services for the ASEC's Central Air-Conditioning Unit;
 - b. Any service or repair carried out by the Contractor shall be accompanied with a Work Order duly signed by both Parties;
 - c. The labor cost for any repair or troubleshooting by the Contractor shall be free of charge except for the labor cost of repairing water pipe, duct water machine movement / repositioning;
 - d. For any repairs required during the Services, excluding the Trane Central Chillers, the Contractor shall submit a quotation to ASEC covering the repair cost as well as the cost of spare parts required for the Service. Furthermore, the Contractor may only proceed with the additional works after receiving the official written approval from ASEC;
 - e. Monthly servicing including putting in Freon gas, cleaning filters, cleaning Exhaust-fan, change the filters once a year at the beginning of the Agreement; and
10. The Contractor shall perform the Service of routine maintenance per – three months' basis ("quarterly") for split and cassette air-conditioners at the SG's Residence and old ASEC premise inclusive of putting Freon gas, cleaning of filters and cleaning Exhaust-fan, and changing filters at the beginning of the Agreement
11. Vendor shall use original oil TRANE 315 and element Oil/Refrigerant Filter 3.65 OD x 12.90 Include O-Ring for servicing the chillers
12. In addition, should a malfunction of any of the equipment occur, vendor and the ASEAN Secretariat shall make a special visit to diagnose and correct the fault;
13. Vendor must repair, service, maintain and supply ORIGINAL spare parts (or equivalent) for any damage or malfunction on centrifugal chiller unit
14. Other duties as advised by the Head of Administration and General Affairs Division

The technical data of equipment as below:

1. Chiller

CHILLER 1	
Brand	Trane
Tipe	RTHDD1G1G1V
Daya	250 TR
Lokasi	Ruang chiller
CHILLER 2	
Brand	Trane
Tipe	RTHDD1G1G1V
Daya	250 TR
Lokasi	Ruang chiller
CHILLER 3	
Brand	Trane
Tipe	RTHDB1C1D1V
Daya	150 TR
Lokasi	Ruang chiller
CHILLER 4	
Brand	Trane
Tipe	RTHDB1C1D1V
Daya	25 TR
Lokasi	Lantai 1 South

2. Chiller Pump

NO	NAMA	BRAND	TYPE / MODEL	NO. SERI	DAYA	LOKASI
6	POMPA CHWP CHILLER					
	- POMPA CHWP CHILLER 1	ELEKTRIM ELECTRIC MOTOR	EM_160 M4	145001	380 V 22.3 /12.8 A	R. CHILLER
	- POMPA CHWP CHILLER 2	ELEKTRIM ELECTRIC MOTOR	EM_160 M4	1450042	380 V 22.3 /12.8 A	R. CHILLER
	- POMPA CHWP CHILLER 3	ELEKTRIM ELECTRIC MOTOR	EMA 132 M4	40291	380/660V 15.59/8.98A	R. CHILLER
7	POMPA CWP CHILLER					
	- POMPA CWP CHILLER 1	ELEKTRIM ELECTRIC MOTOR	EM_160 M2	145004	380/660 22.3/12.8A	R. CHILLER
	- POMPA CWP CHILLER 2	ELEKTRIM ELECTRIC MOTOR	EM_160 M2	1450005	380/660 22.3/12.8A	R. CHILLER
	- POMPA CWP CHILLER 3	ELEKTRIM ELECTRIC MOTOR	EMA 132 M4	40293	380/660 15.59/8.98A	R. CHILLER

3. AHU

NO	NAMA	BRAND	TYPE / MODEL	NO. SERI	DAYA	LOKASI
AHU TOWER NORTH						
1	AHU GROUND FLOOR	TRANE	CLCPeuro 012	1M08118-03517	380V / 3 ph / 50 Hz	GF TOWER NORTH
2	AHU no 1	TRANE	CLCPeuro 10	1M08118-03518	380V / 3 ph / 50 Hz	LANTAI 1 NORTH
3	AHU no 2	TRANE	CLCPeuro 30	1M08118-03519	380V / 3 ph / 50 Hz	LANTAI 2 NORTH
4	AHU no 3	TRANE	CLCPeuro 012	1M08118-03520	380V / 3 ph / 50 Hz	LANTAI 3 NORTH
5	AHU no 4	TRANE	CLCPeuro 010	1M08118-03521	380V / 3 ph / 50 Hz	LANTAI 4 NORTH
6	AHU no 5	TRANE	CLCPeuro 010	1M08118-03522	380V / 3 ph / 50 Hz	LANTAI 5 NORTH
7	AHU no 6	TRANE	CLCPeuro 010	1M08118-03529	380V / 3 ph / 50 Hz	LANTAI 6 NORTH
8	AHU no 7	TRANE	CLCPeuro 010	1M08118-03530	380V / 3 ph / 50 Hz	LANTAI 7 NORTH
9	AHU no 8	TRANE	CLCPeuro 010	1M08118-03531	380V / 3 ph / 50 Hz	LANTAI 8 NORTH
10	AHU no 9	TRANE	CLCPeuro 010	1M08118-03523	380V / 3 ph / 50 Hz	LANTAI 9 NORTH
11	AHU no 10	TRANE	CLCPeuro 010	1M08118-03524	380V / 3 ph / 50 Hz	LANTAI 10 NORTH
12	AHU no 11	TRANE	CLCPeuro 010	1M08118-03525	380V / 3 ph / 50 Hz	LANTAI 11 NORTH
13	AHU no 12	TRANE	CLCPeuro 010	1M08118-03526	380V / 3 ph / 50 Hz	LANTAI 12 NORTH
14	AHU no 13	TRANE	CLCPeuro 010	1M08118-03527	380V / 3 ph / 50 Hz	LANTAI 13 NORTH
15	AHU no 14	TRANE	CLCPeuro 010	1M08118-03528	380V / 3 ph / 50 Hz	LANTAI 14 NORTH
16	AHU no 15	TRANE	CLCPeuro 08	1M08118-03532	380V / 3 ph / 50 Hz	LANTAI 15 NORTH
AHU MINI CHILLER						
1	AHU MINI CHILLER	TRANE	CLCPeuro 04	1M08118-03549	380V / 3 ph / 50 Hz	L 1 NORTH
2	AHU MINI CHILLER	TRANE	CLCPeuro 04	1M08118-03550	380V / 3 ph / 50 Hz	L 1 NORTH
3	AHU MINI CHILLER	TRANE	CLCPeuro 04	1M08118-03551	380V / 3 ph / 50 Hz	L 1 NORTH
4	AHU MINI CHILLER	TRANE	CLCPeuro 04	1M08118-03552	380V / 3 ph / 50 Hz	L 1 NORTH
AHU TOWER SOUTH						
1	AHU GF 1	TRANE	CLCPeuro 11	1M08118-03533	380V / 3 ph / 50 Hz	LG TOWER SOUTH
2	AHU no 1	TRANE	CLCPeuro 06	1M08118-03534	380V / 3 ph / 50 Hz	LANTAI 1 SOUTH
3	AHU no 2	TRANE	CLCPeuro 032	1M08118-03535	380V / 3 ph / 50 Hz	LANTAI 2 SOUTH
4	AHU no 3	TRANE	CLCPeuro 012	1M08118-03536	380V / 3 ph / 50 Hz	LANTAI 3 SOUTH
5	AHU no 4	TRANE	CLCPeuro 011	1M08118-03537	380V / 3 ph / 50 Hz	LANTAI 4 SOUTH
6	AHU no 5	TRANE	CLCPeuro 011	1M08118-03538	380V / 3 ph / 50 Hz	LANTAI 5 SOUTH
7	AHU no 6	TRANE	CLCPeuro 011	1M08118-03545	380V / 3 ph / 50 Hz	LANTAI 6 SOUTH
8	AHU no 7	TRANE	CLCPeuro 011	1M08118-03546	380V / 3 ph / 50 Hz	LANTAI 7 SOUTH
9	AHU no 8	TRANE	CLCPeuro 011	1M08118-03547	380V / 3 ph / 50 Hz	LANTAI 8 SOUTH
10	AHU no 9	TRANE	CLCPeuro 011	1M08118-03539	380V / 3 ph / 50 Hz	LANTAI 9 SOUTH
11	AHU no 10	TRANE	CLCPeuro 011	1M08118-03540	380V / 3 ph / 50 Hz	LANTAI 10 SOUTH
12	AHU no 11	TRANE	CLCPeuro 011	1M08118-03541	380V / 3 ph / 50 Hz	LANTAI 11 SOUTH
13	AHU no 12	TRANE	CLCPeuro 011	1M08118-03542	380V / 3 ph / 50 Hz	LANTAI 12 SOUTH
14	AHU no 13	TRANE	CLCPeuro 011	1M08118-03543	380V / 3 ph / 50 Hz	LANTAI 13 SOUTH
15	AHU no 14	TRANE	CLCPeuro 011	1M08118-03544	380V / 3 ph / 50 Hz	LANTAI 14 SOUTH
16	AHU no 15	TRANE	CLCPeuro 010	1M08118-03548	380V / 3 ph / 50 Hz	LANTAI 15 SOUTH

4. AC Split

NO		UNIT	MODEL	MERK	CAP (PK)	LOKASI
1	HERITAGE BUILDING	AC SPLIT	CU-PC12NKP	PANASONIC	1,5	ground pabx / BAS
2		AC SPLIT	CU-YN12TKJ	PANASONIC	1,5	ground pabx / BAS
3		AC SPLIT	CU-YN18TKP	PANASONIC	2	ground ups
4		AC SPLIT	CU-PN18SKP	PANASONIC	2	ground ups
5		AC SPLIT	CU-PC96KJ	PANASONIC	1	ground library
6		AC SPLIT	CU-PC96KJ	PANASONIC	1	ground library
7		AC SPLIT	RM25JV145	DAIKIN	1	R. Pos Security depan
8		AC SPLIT	QSUC096QNA0	LG	1	R. Driver
9		AC SPLIT	FTV25BXV14	DAIKIN	1	Ground R. GIZ
10		AC SPLIT	FTV25BXV14	DAIKIN	1	Ground R. GIZ
11		AC SPLIT	FTV25BXV14	DAIKIN	1	Ground R. GIZ
12		AC SPLIT	FTV25BXV14	DAIKIN	1	Ground R. GIZ
13		AC SPLIT	FTV50BXV14	DAIKIN	2	Ground R. AWC
14		AC SPLIT	FTV25BXV14	DAIKIN	1	Ground Admin Protocol
15		AC SPLIT	FTV25BXV14	DAIKIN	1	Ground Admin Protocol
16		AC SPLIT	FTV25BXV14	DAIKIN	1	Ground Admin Protocol
17		AC SPLIT	FTV50BXV14	DAIKIN	2	LG R. Statistik LG
18		AC SPLIT	FTV50BXV14	DAIKIN	2	LG R. Statistik LG
19		AC SPLIT	FTV25BXV14	DAIKIN	1	LG R. Statistik LG
20		AC SPLIT	FTV50BXV14	DAIKIN	2	Mezzanine bougenville
21		AC SPLIT	FTV50BXV14	DAIKIN	2	Mezzanine bougenville
22		AC SPLIT	FTV50BXV14	DAIKIN	2	Mezzanine Angsana
23		AC SPLIT	FTV50BXV14	DAIKIN	2	Mezzanine Angsana
24		AC SPLIT	FTV50BXV14	DAIKIN	2	Mezzanine JAIF
25		AC SPLIT	FTV25BXV14	DAIKIN	1	Mezzanine JAIF
26		AC SPLIT	FTV25BXV14	DAIKIN	1	Mezzanine JAIF
27		AC SPLIT	FTV25BXV14	DAIKIN	1	Mezzanine JAIF
28		AC SPLIT	FTV25BXV14	DAIKIN	1	Mezzanine ASEC BISNIS
29		AC SPLIT	FTV25BXV14	DAIKIN	1	Mezzanine CB PROJECT
30		AC SPLIT	CSPN18RKP	PANASONIC	2	Mezzanine VCR
31		AC SPLIT	CSPN18RKP	PANASONIC	2	Mezzanine LOTUS
32		AC SPLIT	CSPN18RKP	PANASONIC	2	Mezzanine LOTUS
33		AC SPLIT	FTV25BXV14	DAIKIN	1	Mezzanine Galeri Heritage
34		AC SPLIT	FTV50BXV14	DAIKIN	2	Mezzanine Galeri Heritage
35		AC SPLIT	FTV50BXV14	DAIKIN	2	Lantai 1 EU Raise
36		AC SPLIT	FTV50BXV14	DAIKIN	2	Lantai 1 EU Raise
37		AC SPLIT	FTV50BXV14	DAIKIN	2	Lantai 1 Batik Room
38		AC SPLIT	FTV50BXV14	DAIKIN	2	Lantai 1 AANZFTA / EU
39		AC SPLIT	FTV25BXV14	DAIKIN	1	Lantai 1 AANZFTA / EU
40		AC SPLIT	FTV25BXV14	DAIKIN	1	Lantai 1 AANZFTA / EU
41		AC SPLIT	FTV50BXV14	DAIKIN	2	Lantai 1 LILY ROOM
42		AC SPLIT	CU-PC12DKH	PANASONIC	1,5	Lantai 2 USAID
43		AC SPLIT	FTV50BXV14	DAIKIN	1	Lantai 2 USAID
44		AC SPLIT	FTV50BXV14	DAIKIN	1	Lantai 2 ASEAN AUSTRALIAN
45		AC SPLIT	FTV25BXV14	DAIKIN	1	Lantai 2 ASEAN AUSTRALIAN
46		AC SPLIT	FTV25BXV14	DAIKIN	1	Lantai 3 R. AHU
47		AC SPLIT	FTV25BXV14	DAIKIN	1	Lantai 3 R. AHU
48		AC SPLIT	FTV25BXV14	DAIKIN	1	Lantai 3 R. AHU
49		AC SPLIT	AS18TULXHEA	SAMSUNG	2	lantai 7 server
50		AC SPLIT	CU-PC518HKP	PANASONIC	2	lantai 7 server
51		AC SPLIT	CU-P518KKF	PANASONIC	2	lantai 7 server
52		AC SPLIT	CU-518KKF	PANASONIC	2	lantai 7 server
53		AC SPLIT	CU-PN18KKF	PANASONIC	2	lantai 7 server
54		AC SPLIT	CU-PN9SKF	PANASONIC	1	lantai 8 lift
55		AC SPLIT	CU-PN18RKP	PANASONIC	2	lantai 8 lift
56		AC SPLIT	CU-PN18SKP	PANASONIC	2	lantai 8 lift

NO		UNIT	MODEL	MERK	CAP (PK)	LOKASI
1	NEW BUILDING	AC SPLIT DUCT	RNQ18MV14	DAIKIN	2	Basement 1 R. CAP BANK
2		AC SPLIT DUCT	RNQ18MV14	DAIKIN	2	Basement 1 R. CAP BANK
3		AC SPLIT	FTV25BXV14	DAIKIN	1	Basement R. Collection
4		AC SPLIT DUCT	RNQ42MY14	DAIKIN	5	Basement 1 R. Maintenance
5		FCU		TRANE		Basement 1 R. Maintenance
6		AC SPLIT	FTV50BXV14	DAIKIN	2	Lantai LG R.CCTV
7		AC SPLIT	FTV50BXV15	DAIKIN	2	Lantai LG R.CCTV
8		AC SPLIT	RV50BXV14	DAIKIN	2	Lantai 1 Gift Shop
9		AC PRECISION	TDAR0611A	SCHANEIDER	7,5	Lantai 6 Ruang Server
10		AC PRECISION	TDAR0611A	SCHANEIDER	7,5	Lantai 6 Ruang Server
11		AC SPLIT	CU-PN18RKP	PANASONIC	2	Lantai 6 Ruang Server
12		AC SPLIT	FTV50BXV14	DAIKIN	2	Lantai 6 Ruang Server
13		AC SPLIT DUCT	RNQ13MV14	DAIKIN	1,5	Lantai 6 Ruang UPS
14		AC SPLIT	CU-PC96KJ	PANASONIC	1	Ruang Statistik L.15 South
15		AC SPLIT	RV60BXV14	DAIKIN	2,5	Roof Top North
16		AC SPLIT	RV60BXV14	DAIKIN	2,5	Roof Top North
17		AC SPLIT	RV60BXV14	DAIKIN	2,5	Roof Top North
18		AC SPLIT	RV60BXV14	DAIKIN	2,5	Roof Top North
19		AC SPLIT	RV60BXV14	DAIKIN	2,5	Roof Top South
20		AC SPLIT	RV60BXV14	DAIKIN	2,5	Roof Top South
21		AC SPLIT	RV60BXV14	DAIKIN	2,5	Roof Top South
22		AC SPLIT	RV60BXV14	DAIKIN	2,5	Roof Top South

NO		UNIT	MODEL	MERK	CAP (PK)	LOKASI
1	SG RESIDENCE	AC CASSETTE	RN60CXV1A4	DAIKIN	2,5	Living Room L1
2		AC CASSETTE	RN60CXV1A4	DAIKIN	2,5	Living Room L1
3		AC CASSETTE	RN60CXV1A4	DAIKIN	2,5	Formal Dinning room L1
4		AC CASSETTE	RN60CXV1A4	DAIKIN	2,5	Formal Dinning room L1
5		AC CASSETTE	RN60CXV1A4	DAIKIN	2,5	Family Dinning Room L1
6		AC CASSETTE	RN60CXV1A4	DAIKIN	2,5	Family Dinning Room L1
7		AC SPLIT	RV50BXV14	DAIKIN	2	R. Fitnes L1
8		AC SPLIT		PANASONIC	1,5	Small Meeting L1
9		AC SPLIT	RV50BXV14	DAIKIN	2	Guest room L1
10		AC SPLIT		MITSHIBISHI	1	R.TV Guest room L1
11		AC SPLIT		PANASONIC	0,5	ruang Security L1
12		AC SPLIT	FTKC70TVM4	DAIKIN	3	Family Room L.2
13		AC SPLIT	FTKC70TVM4	DAIKIN	3	SG Room L2
14		AC SPLIT	RV15BXV14	DAIKIN	0,5	SG Working Room L2
15		AC SPLIT		PANASONIC	1,5	Room 3
16		AC SPLIT	RV25BXV14	DAIKIN	1	kamar baju L2
17		AC SPLIT	FTKC35TVM4	DAIKIN	1,5	Room 1
18		AC SPLIT	RV50BXV14	DAIKIN	2	Room 2

5. Water Treatment Cooling Tower

COOLING TOWER 1	
Brand	Ocean Cooling Tower
Tipe	CNTB250H
No seri	6038
Kapasitas	250
Motor Power	22KWx2
Flow Rate	1860LPM
Voltage	380/350Hz
Lokasi	Roof Top Chiller Room
COOLING TOWER 2	
Brand	Ocean Cooling Tower
Tipe	CNTB500H
No seri	6037
Kapasitas	500
Motor Power	15KWx5
Flow Rate	3720LPM
Voltage	380/350Hz
Lokasi	Roof Top Chiller Room
COOLING TOWER 3	
Brand	Ocean Cooling Tower
Tipe	CNTB500H
No seri	6036
Kapasitas	500
Motor Power	15KWx5
Flow Rate	3720LPM
Voltage	380/350Hz
Lokasi	Roof Top Chiller Room

Chemical needed per month as below:

1	Chemical Treatment Cooling Tower		
	Scale & Corrosion Inhibitor	80	kg
	Oxidizing Microbiocides, 120kg	120	kg
	Non Oxidizing Microbiocides, 30kg	30	kg
	Akalinity Builder, 60kg	60	kg
2	Chemical Treatment Chilled Water		
	Corrosion inhibitor, 100kg	100	kg
	Cooler Biocides, 60kg	60	kg

Material Data Sheet of chemical:

PRODUCT IDENTIFICATION	
Trade Name	: NGAWAGE ALB 01
Product Type	: pH Adjustment
Chemical Name	: Alkalinity Builder
Manufacturer	: PT. Global Water Kimiatama
Date	: 30 Januari 2021
PHYSICAL DATA	
Appearance	: Light Brown
pH	: > 12
SG 25 °C	: 1.4 - 1.6
Solubility	: Completely miscible
HAZARDOUS INGREDIENT	
Proprietary Information	: N/A
Principal Component	: N/A
FIRE AND EXPLOSION HAZARD DATA	
Flash Point	: N/A
Flamability Classification	: N/A
Autoignition Temperature	: N/A
Decomposition Temperature	: N/A
Fire Fighting	: Dry Chemical, Carbon Dioxide, Water Spray, Fog or Foam
SPILL OR LEAK PROCEDURES	
Step to be taken in case	
Material is released or spilled	: Wash down with water
Waste Disposal	: Neutralized with Alkali Chemical and follow all local regulations for waste disposal
SPECIAL PRECAUTION	
Ventilation	: Have adquate ventilation
Eye and skin Protection	: Avoid eye or skin contact
HEALTH HAZARD INFORMATION	
Effects of Over Exposure	: Can cause eye and skin irritation
FIRST AID :	
SKIN	: Wash with plenty of water
EYES	: Irrigate with water for 15 minutes & Get Medical attention Immd
Ingestion	: Do not induce vommiting & get mediactal attention Immediately
Exposure	: N/A

PRODUCT IDENTIFICATION	
Trade Name	: NGAWAGE CHWT 01
Product Type	: Corrosion Inhibitor
Chemical Name	: Anti Karat
Manufacturer	: PT. Global Water Kimiatama
Date	: 30 Januari 2021
PHYSICAL DATA	
Appearance	: Light Brown
pH	: 10 - 12
SG 25 °C	: 1.10 - 1.15
Solubility	: Completely miscible
HAZARDOUS INGREDIENT	
Proprietary Information	: N/A
Principal Component	: N/A
FIRE AND EXPLOSION HAZARD DATA	
Flash Point	: N/A
Flamability Classification	: N/A
Autoignition Temperature	: N/A
Decomposition Temperature	: N/A
Fire Fighting	: Dry Chemical, Carbon Dioxide, Water Spray, Fog or Foam
SPILL OR LEAK PROCEDURES	
Step to be taken in case	
Material is released or spilled	: Wash down with water
Waste Disposal	: Neutralized with Alkali Chemical and follow all local regulations for waste disposal
SPECIAL PRECAUTION	
Ventilation	: Have adquate ventilation
Eye and skin Protection	: Avoid eye or skin contact
HEALTH HAZARD INFORMATION	
Effects of Over Exposure	: Can cause eye and skin irritation
FIRST AID :	
SKIN	: Wash with plenty of water
EYES	: Irrigate with water for 15 minutes & Get Medical attention Immd
Ingestion	: Do not induce vommiting & get mediactal attention Immediately
Exposure	: N/A

PRODUCT IDENTIFICATION	
Trade Name	: NGAWAGE CWT 01
Product Type	: Scale & Corrosion Inhibitor
Chemical Name	: Anti Scalant
Manufacturer	: PT. Global Water Kimiatama
Date	: 30 Januari 2021
PHYSICAL DATA	
Appearance	: Clear, light amber liquid
pH	: 10 - 14
SG 25 °C	: 1.10 - 1.15
Solubility	: Completely miscible
HAZARDOUS INGREDIENT	
Proprietary Information	: N/A
Principal Component	: N/A
FIRE AND EXPLOSION HAZARD DATA	
Flash Point	: N/A
Flamability Classification	: N/A
Autoignition Temperature	: N/A
Decomposition Temperature	: N/A
Fire Fighting	: Dry Chemical, Carbon Dioxide, Water Spray, Fog or Foam
SPILL OR LEAK PROCEDURES	
Step to be taken in case	
Material is released or spilled	: Wash down with water
Waste Disposal	: Neutralized with Alkali Chemical and follow all local regulations for waste disposal
SPECIAL PRECAUTION	
Ventilation	: Have adequate ventilation
Eye and skin Protection	: Avoid eye or skin contact
HEALTH HAZARD INFORMATION	
Effects of Over Exposure	: Can cause eye and skin irritation
FIRST AID :	
SKIN	: Wash with plenty of water
EYES	: Irrigate with water for 15 minutes & Get Medical attention Immd
Ingestion	: Do not induce vommiting & get mediactal attention Immediately
Exposure	: N/A

PRODUCT IDENTIFICATION	
Trade Name	: NGAWAGE MB 01
Product Type	: Oxydizing Biocides Control
Chemical Name	: Anti Lumut Open Circuit
Manufacturer	: PT. Global Water Kimiatama
Date	: 30 Januari 2021
PHYSICAL DATA	
Appearance	: Light Brown
pH	: > 7
SG 25 °C	: 1.2 - 1.3
Solubility	: Completely miscible
HAZARDOUS INGREDIENT	
Proprietary Information	: N/A
Principal Component	: N/A
FIRE AND EXPLOSION HAZARD DATA	
Flash Point	: N/A
Flamability Classification	: N/A
Autoignition Temperature	: N/A
Decomposition Temperature	: N/A
Fire Fighting	: Dry Chemical, Carbon Dioxide, Water Spray, Fog or Foam
SPILL OR LEAK PROCEDURES	
Step to be taken in case	
Material is released or spilled	: Wash down with water
Waste Disposal	: Neutralized with Alkali Chemical and follow all local regulations for waste disposal
SPECIAL PRECAUTION	
Ventilation	: Have adequate ventilation
Eye and skin Protection	: Avoid eye or skin contact
HEALTH HAZARD INFORMATION	
Effects of Over Exposure	: Can cause eye and skin irritation
FIRST AID :	
SKIN	: Wash with plenty of water
EYES	: Irrigate with water for 15 minutes & Get Medical attention Immd
Ingestion	: Do not induce vommiting & get mediactal attention Immediately
Exposure	: N/A

PRODUCT IDENTIFICATION	
Trade Name	: NGAWAGE MB 02
Product Type	: NON - Oxydizing Biocides Control
Chemical Name	: Anti Lumut Open Circuit
Manufacturer	: PT. Global Water Kimiatama
Date	: 30 Januari 2021
PHYSICAL DATA	
Appearance	: Light Brown
pH	: > 7
SG 25 °C	: 1.2 - 1.3
Solubility	: Completely miscible
HAZARDOUS INGREDIENT	
Proprietary Information	: N/A
Principal Component	: N/A
FIRE AND EXPLOSION HAZARD DATA	
Flash Point	: N/A
Flamability Classification	: N/A
Autoignition Temperature	: N/A
Decomposition Temperature	: N/A
Fire Fighting	: Dry Chemical, Carbon Dioxide, Water Spray, Fog or Foam
SPILL OR LEAK PROCEDURES	
Step to be taken in case	
Material is released or spilled	: Wash down with water
Waste Disposal	: Neutralized with Alkali Chemical and follow all local regulations for waste disposal
SPECIAL PRECAUTION	
Ventilation	: Have adquate ventilation
Eye and skin Protection	: Avoid eye or skin contact
HEALTH HAZARD INFORMATION	
Effects of Over Exposure	: Can cause eye and skin irritation
FIRST AID :	
SKIN	: Wash with plenty of water
EYES	: Irrigate with water for 15 minutes & Get Medical attention Immd
Ingestion	: Do not induce vommiting & get mediactal attention Immediately
Exposure	: N/A

PRODUCT IDENTIFICATION	
Trade Name	: NGAWAGE MB 03
Product Type	: Biocides Control
Chemical Name	: Anti Lumut Close Circuit
Manufacturer	: PT. Global Water Kimiatama
Date	: 30 Januari 2021
PHYSICAL DATA	
Appearance	: Light Brown
pH	: > 7
SG 25 °C	: 1.2 - 1.3
Solubility	: Completely miscible
HAZARDOUS INGREDIENT	
Proprietary Information	: N/A
Principal Component	: N/A
FIRE AND EXPLOSION HAZARD DATA	
Flash Point	: N/A
Flamability Classification	: N/A
Autoignition Temperature	: N/A
Decomposition Temperature	: N/A
Fire Fighting	: Dry Chemical, Carbon Dioxide, Water Spray, Fog or Foam
SPILL OR LEAK PROCEDURES	
Step to be taken in case	
Material is released or spilled	: Wash down with water
Waste Disposal	: Neutralized with Alkali Chemical and follow all local regulations for waste disposal
SPECIAL PRECAUTION	
Ventilation	: Have adquate ventilation
Eye and skin Protection	: Avoid eye or skin contact
HEALTH HAZARD INFORMATION	
Effects of Over Exposure	: Can cause eye and skin irritation
FIRST AID :	
SKIN	: Wash with plenty of water
EYES	: Irrigate with water for 15 minutes & Get Medical attention Immd
Ingestion	: Do not induce vommiting & get mediactal attention Immediately
Exposure	: N/A

Output of Chemical water have standard from Trane product as below:

<u>Item</u>	<u>Trane Basic Guideline</u>
pH	7.5 – 8.5
Total Dissolved Solids (TDS)	1500 ppm max
Chlorides	100 ppm max
Sulfates	35 ppm max
Total Suspended Solids (TSS)	10 ppm max
Total Hardness	400 ppm max
Iron	1 ppm max

6. Exhaust Fan and Fan

NO	UNIT	MODEL	MERK	LOKASI
1	SUPPLY FAN	ADF800/400T/8C/2.5 ALU-4 D4H	NIKOTRA	Basement 2
2	SUPPLY FAN	ADF800/400T/8C/2.5 ALU-4 D4H	NIKOTRA	Basement 2
3	SUPPLY FAN	ADF800/400T/8C/2.5 ALU-4 D4H	NIKOTRA	Basement 2
4	SUPPLY FAN	ADF800/400T/8C/2.5 ALU-4 D4H	NIKOTRA	Basement 2
5	EXHAUST FAN	ADF800/400T/8C/5 ALU-5.5 D4H	NIKOTRA	Basement 2
6	EXHAUST FAN	ADF800/400T/8C/5 ALU-5.5 D4H	NIKOTRA	Basement 2
7	EXHAUST FAN	ADF800/400T/8C/5 ALU-5.5 D4H	NIKOTRA	Basement 2
8	EXHAUST FAN	ADF800/400T/8C/5 ALU-5.5 D4H	NIKOTRA	Basement 2
9	EXHAUST FAN	ME -100LA-4	CONEXA	Basement 2
10	EXHAUST FAN	FV-35GS4(300mm)	PANASONIC	Basement 2 R. STP
11	EXHAUST FAN	FV-35GS4(300mm)	PANASONIC	Basement 2 R. STP
12	EXHAUST FAN	ADF710/230/12B/17.5 ALU-3 D4H	NIKOTRA	Basement 1
13	EXHAUST FAN	ADF710/230/12B/17.5 ALU-3 D4H	NIKOTRA	Basement 1
14	EXHAUST FAN	ADF710/230/12B/17.5 ALU-3 D4H	NIKOTRA	Basement 1
15	EXHAUST FAN	ADF710/230/12B/17.5 ALU-3 D4H	NIKOTRA	Basement 1
16	SUPPLY FAN	ADF800/400T/8C/2.5 ALU-4 D4H	NIKOTRA	Basement 1
17	SUPPLY FAN	ADF800/400T/8C/2.5 ALU-4 D4H	NIKOTRA	Basement 1
18	SUPPLY FAN	ADF800/400T/8C/2.5 ALU-4 D4H	NIKOTRA	Basement 1
19	SUPPLY FAN	ADF800/400T/8C/2.5 ALU-4 D4H	NIKOTRA	Basement 1
20	EXHAUST FAN	ADC 400-E4	NIKOTRA	Basement 1
21	EXHAUST FAN	ADC 400-E4	NIKOTRA	Basement 1
22	EXHAUST FAN	ADFC800/400T/4C/12.5 ALU-4D4	CONEXA	Basement 1 R. Genset
23	EXHAUST FAN	ADFC800/400T/4C/12.5 ALU-4D4	CONEXA	Basement 1 R. Genset
24	EXHAUST FAN	AF-800 D6	CONEXA	Basement 1 R. Elektrikal
25	EXHAUST FAN	AF-800 D6	CONEXA	Basement 1 R. Elektrikal
26	EXHAUST FAN	AF-800 D6	CONEXA	Basement 1 R. Elektrikal
27	SUPPLY FAN	AF-500 E4	CONEXA	Basement 1 R. Panel
28	SUPPLY FAN	AF-500 E4	CONEXA	Basement 1 R. Panel
29	EXHAUST FAN	AF-800 D6	CONEXA	Lantai Ground 1 R. Pompa GWT
30	EXHAUST FAN	AF-800 D6	CONEXA	Lantai Ground 1 R. Pompa GWT
31	EXHAUST FAN	AF-800 D6	CONEXA	Lantai Ground 1 R. Chiller
32	EXHAUST FAN	AF-800 D6	CONEXA	Lantai Ground 1 R. Chiller
33	EXHAUST FAN	AF-800 D6	CONEXA	Lantai Ground 1 R. Chiller
34	EXHAUST FAN		CONEXA	LG R. Kitchen
35	SUPPLY FAN		CONEXA	LG R. Kitchen
36	EXHAUST FAN	AF-250 E4	CONEXA	LG R. Panel North
37	EXHAUST FAN	AF-250 E4	CONEXA	LG R. Panel South
38	SUPPLY FAN	FCS800 R CWS270-11 D6	CONEXA	Lantai 1
39	EXHAUST FAN	FCS800 R CWS270-11 D6	CONEXA	Lantai 1
40	EXHAUST FAN	AF-250 E4	CONEXA	Lantai 1 R. Panel North
41	EXHAUST FAN	AF-250 E4	CONEXA	Lantai 1 R. Panel South
42	EXHAUST FAN	AF-250 E4	CONEXA	Lantai 2 R. Panel North
43	EXHAUST FAN	AF-250 E4	CONEXA	Lantai 2 R. Panel South
44	PRESSURIZED FAN	ADC800/400/8C/6 ALU-4D4	CONEXA	Lantai 3
45	PRESSURIZED FAN	ADC800/400/8C/6 ALU-4D4	CONEXA	Lantai 3
46	EXHAUST FAN	AF-250 E4	CONEXA	Lantai 3 R. Panel North
47	EXHAUST FAN	AF-250 E4	CONEXA	Lantai 3 R. Panel South
48	EXHAUST FAN	AF-250 E4	CONEXA	Lantai 4 R. Panel North
49	EXHAUST FAN	AF-250 E4	CONEXA	Lantai 4 R. Panel South
50	EXHAUST FAN	AF-250 E4	CONEXA	Lantai 5 R. Panel North
51	EXHAUST FAN	AF-250 E4	CONEXA	Lantai 5 R. Panel South
52	EXHAUST FAN	AF-250 E4	CONEXA	Lantai 6 R. Panel North
53	EXHAUST FAN	AF-250 E4	CONEXA	Lantai 6 R. Panel South
54	EXHAUST FAN	AF-250 E4	CONEXA	Lantai 7 R. Panel North
55	EXHAUST FAN	AF-250 E4	CONEXA	Lantai 7 R. Panel South
56	EXHAUST FAN	AF-250 E4	CONEXA	Lantai 8 R. Panel North
57	EXHAUST FAN	AF-250 E4	CONEXA	Lantai 8 R. Panel South
58	EXHAUST FAN	AF-250 E4	CONEXA	Lantai 9 R. Panel North
59	EXHAUST FAN	AF-250 E4	CONEXA	Lantai 9 R. Panel South
60	EXHAUST FAN	AF-250 E4	CONEXA	Lantai 10 R. Panel North
61	EXHAUST FAN	AF-250 E4	CONEXA	Lantai 10 R. Panel South
62	EXHAUST FAN	AF-250 E4	CONEXA	Lantai 11 R. Panel North
63	EXHAUST FAN	AF-250 E4	CONEXA	Lantai 11 R. Panel South
64	EXHAUST FAN	AF-250 E4	CONEXA	Lantai 12 R. Panel North
65	EXHAUST FAN	AF-250 E4	CONEXA	Lantai 12 R. Panel South
66	EXHAUST FAN	AF-250 E4	CONEXA	Lantai 13 R. Panel North
67	EXHAUST FAN	AF-250 E4	CONEXA	Lantai 13 R. Panel South
68	EXHAUST FAN	AF-250 E4	CONEXA	Lantai 14 R. Panel North
69	EXHAUST FAN	AF-250 E4	CONEXA	Lantai 14 R. Panel South
70	EXHAUST FAN	AF-250 E4	CONEXA	Lantai 15 R. Panel North
71	EXHAUST FAN	AF-250 E4	CONEXA	Lantai 15 R. Panel South
72	PRESSURIZED FAN	ADF900/400T/4C/20 ALU 11 D4H	NIKOTRA	Roof Top North
73	PRESSURIZED FAN	ADF900/400T/4C/20 ALU 11 D4H	NIKOTRA	Roof Top South
74	PRESSURIZED FAN	ADC900/400T/8C/12.5 ALU 11 D4	NIKOTRA	Roof Top North
75	PRESSURIZED FAN	ADC900/400T/8C/12.5 ALU 11 D4	NIKOTRA	Roof Top South
76	EXHAUST SMOKE FAN T1	ADF900/400T/4C/20 ALU 11 D4H	NIKOTRA	Roof Top North
77	EXHAUST SMOKE FAN T2	ADF900/400T/4C/20 ALU 11 D4H	NIKOTRA	Roof Top South
78	EXHAUST TOILET T1	ADC800/250M/12AL/12.5 ALU-3 D4	NIKOTRA	Roof Top North
79	EXHAUST TOILET T1	ADC800/250M/12AL/12.5 ALU-3 D4	NIKOTRA	Roof Top South
80	EXHAUST TOILET T2	ADC800/250M/12AL/17.5 ALU-4 D4	NIKOTRA	Roof Top North
81	EXHAUST TOILET T2	ADC800/250M/12AL/17.5 ALU-4 D4	NIKOTRA	Roof Top South

V. Contractor Requirement

Vendors are required to:

- a) Be an authorized dealer or experience with Mcquay and TRANE Products or having at least 5 (five) years' experience in handling Mcquay and TRANE chiller, air-conditioners and exhaust fan services; **(please provide evidence)**;
- b) Delivery work schedule
- c) Provide work method, equipment and facility
- d) Provide at least 3 (three) references from existing clients;
- e) Vendor must provide and station five (5) personnel at ASEC with the following qualification/experience **(CV must be provided)**:
 - **A team leader**
At least 7 years' experience in Mcquay/Trane chiller with at least 3 years' exposure in HVAC (Heating, Ventilation and Air Conditioning) and ducting + 1-year experience on operating air conditioner system using BAS (Building Automation System)
 - **Two assistant leader**
At least 5 years' experience in Mcquay/Trane chiller with at least 2 years' exposure in HVAC (Heating, Ventilation and Air Conditioning) and ducting
 - **Two technician**
At least 2 years' experience in Mcquay/Trane chiller with at least 1 year's exposure in HVAC (Heating, Ventilation and Air Conditioning) and ducting.