



TERMS OF REFERENCE

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

Contract Period: Up to 2 (two) year (1 January 2024 – 31 December 2024 and possible to extend another 12 months upon satisfactory)

I. Background

The Association of Southeast Asian Nations (ASEAN) Secretariat was set up in February 1976 by the Foreign Ministers of ASEAN. The ASEAN Secretariat (ASEC) moved to the current premises at Jalan Sisingamangaraja 70A, Jakarta in 1981. Over the past 30 years, the Secretariat has expanded tremendously, both in the number of staff and scope of its mandates. With the handover of another new building from the Government of Indonesia in August 2019, the Secretariat is housed in two buildings in the same compound:

- The Heritage Building has 9 stories with a total floor area of approximately 11,000 sqm.
- The New Building has two towers of 16 stories each and two-level basements with the total floor area of approximately 44,000sqm.

Apart from those buildings at ASEC compound, ASEC also given one more property to be used as the residence for ASEAN Secretary General on jalan Imam Bonjol no 49, Menteng, Central Jakarta. ASEC Compound and SG residence further identified as ASEC premises.

Office buildings and residence at ASEC premises are equipped with Air Conditioning (AC) system and exhaust fans to ensure thermal comfort and health of the occupants. This project is to appoint experienced and professional contractor to operate and maintain AC equipment, for the period of one year with possible extension for another year upon satisfactory service.

II. Objective

1. To maintain central air conditioning and exhaust fan system at ASEAN Secretariat (heritage and new building)
2. Periodic maintenance of split Air-Conditionings at the ASEAN Secretariat, SG residence and server room
3. To maintain water treatment of cooling tower at Heritage Building and New Building

III. Expected Deliverables

Fully functioning air conditioning and exhaust fan system without failure within tolerable limit during the contract period in accordance to following clauses.

IV. Scope of Work

A. New Building

The Company shall provide service and ensure operation and maintenance of central air-conditioning units, split and cassette air-conditioning units, and exhaust fans for new building 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. Routine maintenance of split Air-Conditionings at the new building and server room
3. Water treatment of cooling tower water
4. Clean cooling tower minimum 2 times/year
5. Monitor and clean exhaust fan system at new building
6. Upon issuance of the maintenance contract, the successful contractor agrees to provide optimum services to ASEC which include but not limited to the following:
 - a) Daily
 - Switch on and off chiller unit (start at 06.30 am)
 - Switch on and off cooling tower pump (start at 06.30 am)
 - Switch on and off Air Handling Unit/AHU(start at 06.30 am)
 - Check and monitor Building Automation System
 - Check and monitor Inverter
 - Check and monitor water condition at cooling tower
 - Check and monitoring room temperature
 - b) Weekly
 - Service and clean AHU filter
 - Check condition all AHU unit
 - Provide a weekly report to the head of AGAD
 - c) Monthly
 - Check the chiller unit
 - Check cooling tower
 - Check all CWP and CHWP pump
 - Check grease
 - Add refrigerant gas when required
 - Clean and maintain exhaust fans

- d) Quarterly
 - Maintenance of Split AC
 - Maintain and replace AHU filter
 - e) Yearly
 - Scaling the chiller (evaporator and condenser) for 1 time/year
 - Circulation of cooling tower with chemical every 6 (six) months
 - Replace filter at the beginning of contract period
7. The Contractor shall provide a monthly written report to the Administration and General Affairs Division ("AGAD") on the progress of the services performed at the new building, which include but not limited to: daily operation hours log, operator schedule, routine maintenance work report, finding, and recommendation.
 8. The Contractor shall provide maintenance services of central air-conditioning system 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 to ensure that the AC system is running properly without failure.
 - 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.
 - d. In the event of equipment trouble that requires repair, the Contractor shall submit as assessment report and quotation to ASEC covering the repair cost as well as the cost of spare parts required for the Service. The report and quotation must be submitted no later than 24 hours from the time of equipment trouble. Furthermore, the Contractor may only proceed with the additional works after receiving the official written approval from ASEC;
 - e. Contractor shall use original oil TRANE 315 and element Oil/Refrigerant Filter 3.65 OD x 12.90 Include O-Ring for servicing the chillers.
 - f. Contractor must repair, service, maintain and supply ORIGINAL spare parts (or equivalent) for any damage or malfunction on centrifugal chiller unit
 9. Contractor to do other duties as advised by the Head of Administration and General Affairs Division related to the building maintenance and equipment upkeep at ASEC New Building

B. Heritage Building

The Company shall provide service and ensure operation and maintenance of central air-conditioning units, split and cassette air-conditioning units, and exhaust fans for heritage building as per the following:

1. Central Air-Conditioning at the ASEAN Secretariat New Building, 3 units Chiller McQuay 250 TR, and 7 units AHU
2. Routine maintenance of split Air-Conditionings at the heritage building and server room

3. Water treatment of cooling tower water at heritage building
4. Clean cooling tower minimum 2 times/year
5. Monitor and clean exhaust fan system at heritage building
6. Upon issuance of the maintenance contract, the successful contractor agrees to provide optimum services to ASEC which include but not limited to the following:
 - a) Daily
 - Switch on and off 1 unit chiller unit (CWP & CHWP) as requested by ASEAN
 - Switch on and off 2 units pump cooling tower as requested by ASEAN
 - Switch on and off 7 units Air Handling Unit (AHU) as requested by ASEAN
 - Check and monitor Building Automation System
 - Check and monitor Inverter of AHU
 - Check and monitor water condition at cooling tower
 - Check and monitor room temperature
 - b) Weekly
 - Service and cleaning filter AHU
 - Check condition all AHU unit
 - Provide a weekly report to the head of AGAD
 - c) Monthly
 - Check the chiller unit
 - Check cooling tower
 - Check all pump CWP and CHWP
 - Check grease
 - Add refrigerant gas when required
 - Clean and maintain exhaust fans
 - d) Yearly
 - Scaling the chiller (evaporator and condenser), 1 times a year
 - Circulation of cooling tower with chemical every 6 (six) months
 - Replace filter at the beginning of contract period
7. 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 heritage building, which include but not limited to: daily operation hours log, operator schedule, routine maintenance work report, finding, and recommendation.
8. The contractor shall provide maintenance services of central air-conditioning system at the ASEC Premise in accordance with 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 to ensure that the AC system is running properly without failure.
 - 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.
 - d. In the event of equipment trouble that requires repair, the contractor shall submit as assessment report and quotation to ASEC covering the repair cost as well as the cost of spare parts required for the Service. The report and quotation must be submitted no later than 24 hours from the time of equipment trouble. Furthermore, the Contractor may only proceed with the additional works after receiving the official written approval from ASEC
 - e. Contractor must use original oil EMKARATE - RL 32H, made in USA (Refrigerant DUPONT, USA) or grease TOP 1 or equivalent for servicing the chillers.
 - f. Contractor must repair, service, maintain and supply ORIGINAL spare parts (or equivalent) for any damage or malfunction on centrifugal chiller unit model WSC-063.
9. Contractor to do other duties as advised by the Head of Administration and General Affairs Division related to the building maintenance and equipment upkeep at ASEC Heritage Building

C. SG Residence

The Company shall provide service and assured maintenance of AC split and cassette air-conditioning units at SG Residence as per following:

- 1. Service of routine maintenance per – three months' basis ("quarterly") for split and cassette air-conditioners at the SG's Residence. servicing including but not limited to putting in Freon gas, cleaning filters, cleaning Exhaust-fan, change the filters once a year at the beginning of the Agreement.

The technical data of equipment as below:

1. Chiller at New Building

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 at Heritage Building

CHILLER	MERK	CAPACITY	MODEL	SERIAL	AMPERE	VOLTAGE	PHASE	FREQUENSI
CH.1	MCQUAY	250TR	WSC063-DAAA	STNU020500184	265	380	3	50
CH.2	MCQUAY	250TR	WSC063-DAAA	STNU020500212	265	380	3	50
CH.3	MCQUAY	250TR	WSC063-DAAA	STNU020500213	265	380	3	50

3. Chiller Pump at new building

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

4. Chiller Pump at Heritage Building

CHILLER	MERK	CAPACITY	MODEL	SERIAL	AMPERE	VOLTAGE	PHASE	FREKUENSI
CH.1	MCQUAY	250TR	WSC063-DAAA	STNU020500184	265	380	3	50
CH.2	MCQUAY	250TR	WSC063-DAAA	STNU020500212	265	380	3	50
CH.3	MCQUAY	250TR	WSC063-DAAA	STNU020500213	265	380	3	50

5. AHU at Heritage building

No	AHU	LANTAI	MERK	MODEL	KAPASITAS	AMPERE	VOLTAGE	FREKUENSI	PHASE
1	1	LG	ITU AIR CONDITIONER	CS 217 SH/FF/FC/DS/TI/6BRH/IOHP	7.5 KW	14.2 AMPERE	380 VOLT	50 HZ	3
2	2	LG	ITU AIR CONDITIONER	CS 217 SH/FF/FC/DS/TI/6BRH/ISHP	7.5 KW	14.2 AMPERE	380 VOLT	50 HZ	3
3	3	LG	ITU AIR CONDITIONER	CS 217 SH/FF/FC/DS/TI/6BRH/IOHP	7.5 KW	14.2 AMPERE	380 VOLT	50 HZ	3
4	4	MEZANNINE	ITU AIR CONDITIONER	CS 156 DS/SH/FC/TI/12AG/CR4	4 KW	7.5 AMPERE	380 VOLT	50 HZ	3
5	5	MEZANNINE			5.5 KW	10.5 AMPERE	380 VOLT	50 HZ	3
6	6	MEZANNINE			5.5 KW	10.5 AMPERE	380 VOLT	50 HZ	3
7	9	L.1	ITU AIR CONDITIONER	CS 217 DS/SH/FC/T/12A4/BRH	5.5 KW	10.5 AMPERE	380 VOLT	50 HZ	3

6. AHU at New Building

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

7. 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	AS18TULXXEA	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-518HKF	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	SCHNEIDER	7,5	Lantai 6 Ruang Server
10		AC PRECISION	TDAR0611A	SCHNEIDER	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

8. Cooling Tower New Building

NO	MERK	MODEL	KW	AMPERE	VOLTAGE	FREQUENSI	PHASE
CT1	OCEAN COOLING TOWER	CNTB500H	5X1.5	2,9	380	50	3
CT2	OCEAN COOLING TOWER	CNTB500H	5X1.5	2,9	380	50	3
CT3	OCEAN COOLING TOWER	CNTB250H	2X2.2	4,2	380	50	3

9. Cooling Tower Heritage Building

	MOTOR	MODEL	KW	AMPERE	VOLTAGE	FREQUENSI	PHASE
CT1	SU ZHULIANG CHI MOTOR	AEVH-NV	7,5	15,9	380	50	3
CT2	SU ZHULIANG CHI MOTOR	AEVH-NV	7,5	15,9	380	50	3
CT3	SU ZHULIANG CHI MOTOR	AEVH-NV	7,5	15,9	380	50	3

Estimation 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 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 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 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 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

10. 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. Term of Payment

Term of payment for the service will monthly basis after the issuance of written approval by ASEAN on the monthly report.

VI. Contractor Requirement

Contractors are required to:

- a) Be an authorized dealer for TRANE and Mcquay in handling chiller, air-conditioners and exhaust fan services or experience with Mcquay and TRANE Products and having at least 5 (five) years' experience in handling Mcquay and TRANE chiller, air-conditioners, and exhaust fan services; Experience in providing maintenance service with International Organization/ Agency will be advantage. **(Please provide evidence);**
- b) Delivery detail work of schedule for 1 year maintenance
- c) Provide work method, equipment, and facilities of company.
- d) Provide at least 3 (three) references from existing clients by submitting complete contact and/or reference letter.
- e) Contractor must provide and station seven (7) personnel at ASEC with the following qualification/experience **(CV must be provided):**
 - **A team leader**
At least 7-year experience in McQuay/Trane chiller with at least 3-year exposure in HVAC (Heating, Ventilation and Air Conditioning) and ducting + 1-year experience on operating air conditioner system using BAS (Building Automation System) – submit CV
 - **Two team leader assistants**
At least 5-year experience in McQuay/Trane chiller with at least 2-year exposure in HVAC (Heating, Ventilation and Air Conditioning) and ducting – submit CV
 - **Four technicians**
At least 2 years' experience in McQuay/Trane chiller with at least 1 year exposure in HVAC (Heating, Ventilation and Air Conditioning) and ducting – submit the CV