

Tajuk Projek

: KERJA MEMBAIKPULIH, MENAIKTARAF SERTA KERJA -KERJA YANG BERKAITAN DI BANGUNAN BLOK A UNTUK UNIVERSITI TEKNOLOGI MARA DI UITM KAMPUS JALAN OTHMAN, PETALING JAYA, SELANGOR DARUL

EHSAN

Keterangan : 3.1 - KERJA MEKANIKAL

The price entered in this schedule shall be for the supplying, testing and commissioning of the complete air conditioning system and other ancillary equipment in accordance with the requirement of the specifications and drawing together with twelve (12) month @ six (6) times free maintanance and guarantee as specified.

BIL	KETERANGAN	UNIT	HARGA (RM)
1	NEW AIR-CONDITIONING WORKS - VARIABLE REFRIGERANT FLOW SYSTEM (VRF) - Semua ringkasan tawaran hendaklah dibaca bersama-sama lukisan dan spesifikasi tambahan yang disediakan.		
1.1	To install Air Cooled Variable Refrigerant Flow system (VRF) (R410A Inverter) with fully DC inverter compressor and fuzzy logic control c/w distribution panel, all cabling and wiring works between the distribution panel and the indoor and the outdoor unit, vibration isolator, refrigerant charge, refrigerant piping system of various size for the whole installation system run in PVC trunking, brackets, insulation for both pipings as per specification and thermal insulation run inside metal trunking condensation drain pipe to nearest drain or floor trap, all refrigerant pipe connection shall pass through N2 during brazing and all other necessary works for :-		
	1st Floor		
	i. Condenser Unit (CU-A1-01) 371,900 Btu/hr @ 38 Hp (1 nos)	L/S	
	ii. Indoor unit - Concealed Ducted Cap: 99,000 Btu/hr (3 unit)	L/S	
	iii. Indoor unit - Ceiling Cassette Cap: 39,700 Btu/hr (2 Unit)	L/S	
	2nd Floor		
	i. Condenser Unit (CU-A2-01) 256,600 Btu/hr @ 26 Hp (1 nos)	L/S	
	ii. Condenser Unit (CU-A2-02) 195,500 Btu/hr @ 20 Hp (1 nos)	L/S	
	iii. Indoor unit - Ceiling Cassette Cap: 31,900 Btu/hr (14 Unit)	L/S	
	3rd Floor		
	i. Condenser Unit (CU-A3-01) 256,600 Btu/hr @ 26 Hp (1 nos)	L/S	
	ii. Condenser Unit (CU-A3-02) 195,500 Btu/hr @ 20 Hp (1 nos)	L/S	
	iii. Indoor unit - Ceiling Cassette Cap: 31,900 Btu/hr (14 Unit)	L/S	
	4th Floor		
	i. Condenser Unit (CU-A4-01) 256,600 Btu/hr @ 26 Hp (1 nos)	L/S	
	ii. Condenser Unit (CU-A4-02) 195,500 Btu/hr @ 20 Hp (1 nos)	L/S	



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	iii. Indoor unit - Ceiling Cassette Cap: 31,900 Btu/hr (14 Unit)	L/S	
1.2	To supply, deliver and install PU jacketing from outdoor unit to wall of building (refrigerant pipe that was exposed to weather) - Please refer drawing	L/S	
1.3	To supply & install fabric duct system 850mm half-round shape with (PMS 20-years warranty) material 100% polyester certified to European standard EN 13501-1 & contained Myhijau Mark with fabric thickness of 0.30mm, perforation, zippers, full special printing (whole section) required by architect & etc. to complete the system as drawing specified.	L/S	
	*Note: Static pressure on the inlet fabric ducting not more than 200Pa *Notes: Contractor is required to submit MyHijau mark certificate on the tender drawing for verification purposes. *Note: Fabric Duct material is from endless fibre material with minimum 0.3 mm thickness		
1.4	To supply & install mounting material complete with aluminium profile connector straight, aluminium profile hanger, tensioner in profile, plastic-coated wire hangers, crossbar, textile band special & etc to complete the system as drawing specified. - 3 lot	L/S	
1.5	To supply, install, testing and commissioning of the followings Electrical boards complete with cable termination, Labelling/Schematic/Number for all wirings and all other necessary accessories and associated works as per Specification and/or Tender Drawings		
1.5.1	New 250A TPN Wall Mounted Sub Switch Board For VRV System (Outdoor)(SSB-VRV LEVEL 1) c/w :- i. Incoming cable terminating box ii. 0 - 600v Voltmeter and Selector switch iii. Ammeter with M.D indicator c/w C.T's iv. Indicating light (Red, Yellow and Blue) v. Earth Leakage Relay (ELR) vii. Busbar and all internal wiring vii. The following MCCBs as incoming / outgoing viii. Current Transformer ix. Rubber Mat 1/4 " iix. Calibration all relay	L/S	
	Main Cabling and Sub Main Cabling		



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1.6	To supply, lay and install the following power cable complete with continuous protection conductor, cable lug and gland, cable bracket and support, cable trunking, riser, tray, conduit inclusive of earth wire and termination at both end and all other necessary accessories as per Specification and/or Drawings (The actual cable length must be measured on site by the Contractor)		
1.6.1	From New 600A Main Sub Switch Board(MSSB) Level 1 Block A (Electrical Room) using 4 x 1C x 120mm2 XLPE/PVC Cu. Cable + 1 x 1c x 70mm2 PVC Cu. Cable E.C.C laid in Hot Dipped Galvanised Trunking/ Cable Tray complete with necessary accessories to: a) New 250A Sub Switch Board (SSB) VRV System Level 1 (Mechanical Room)	L/S	
1.6.2	To supply and install wiring power supply form outdoor control panel to Sub Switch Board (SSB) VRV System Level 1. All the wiring size depend on specificatios was laid in Hot Dipped Galvanised Trunking/ Cable Tray complete with necessary accessories. To complete all electrical works inclusive of all necessary equipment to run the system.		
	i. Condenser Unit (CU-A1-01) - using 1 x 4C x 25mm2 PVC/SWA/PVC Cu. Cable + E.C.C	L/S	
	ii. Condenser Unit (CU-A2-01) - using 1 x 4C x 25mm2 PVC/SWA/PVC Cu. Cable + E.C.C	L/S	
	iii. Condenser Unit (CU-A2-02) - using 1 x 4C x 16mm2 PVC/SWA/PVC Cu. Cable + E.C.C	L/S	
	iv.Condenser Unit (CU-A3-01) - using 1 x 4C x 25mm2 PVC/SWA/PVC Cu. Cable + E.C.C	L/S	
	v. Condenser Unit (CU-A3-02) - using 1 x 4C x 16mm2 PVC/SWA/PVC Cu. Cable + E.C.C	L/S	
	vi. Condenser Unit (CU-A4-01) - using 1 x 4C x 25mm2 PVC/SWA/PVC Cu. Cable + E.C.C	L/S	
	vii. Condenser Unit (CU-A4-02) - using 1 x 4C x 16mm2 PVC/SWA/PVC Cu. Cable + E.C.C	L/S	
1.6.3	To supply and install air conditioning individual wired remote control, wiring power supply from various indoor unit to DB-4 air-conditioning (FCU), control & communication wire connected form various indoor units to outdoor controller card. All the wiring shoud be follow with suitable size (depend on standard requirement) in G.I. conduit/ G.I. PVC coated flexible conduit/ Hot Dipped Galvanised trunking c/w other accessoriess. To complete all electrical works inclusive of all necessary equipment to run the system.		
	i. FCU (Ceiling Cassette) - 32 nos	L/S	
	ii. FCU (Concealed Ducted) - 3 nos	L/S	



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BIL	KETERANGAN	UNIT	HARGA (RM)
2	NEW AIR-CONDITIONING WORKS - SPLIT UNIT AIR-CONDITINING SYSTEM - Semua ringkasan tawaran hendaklah dibaca bersama-sama lukisan dan spesifikasi tambahan yang disediakan.		
2.1	To supply and install complete set of Inverter Air-Cooled Split Unit c/w indoor and outdoor unit, R32 refrigerant gas, insulated refrigerant pipe in 2"x3" PVC trunking, uPVC drain pipe discharge to nearest drain. To complete the insulation, painting, labeling, control wiring (3x4mm2 pvc) include earthing in G.I. conduit / G.I. PVC coated flexible conduit / Hot Dipped Galvanised trunking, wired remote controller and accessories etc. ** The brackets air conditioning unit must be install from ceiling/roof/wall structure.		
	i. Wall Mounted Type: - Bilik Pensyarah 1 Cap: Range 12,000 - 12,300 Btu/hr (1 Unit)	L/S	
	ii. Wall Mounted Type: - Bilik Pensyarah 2 Cap: Range 12,000 - 12,300 Btu/hr (1 Unit)	L/S	
	iii. Wall Mounted Type: - Bilik Pensyarah 3 Cap: Range 9,000 - 9,700 Btu/hr (1 Unit)	L/S	
	iv. Wall Mounted Type: - Bilik Pensyarah 4 Cap: Range 9,000 - 9,700 Btu/hr (1 Unit)	L/S	
	v. Wall Mounted Type: - Bilik Pensyarah 5 Cap: Range 9,000 - 9,700 Btu/hr (1 Unit)	L/S	
	vi. Wall Mounted Type: - Bilik Pensyarah 6 Cap: Range 9,000 - 9,700 Btu/hr (1 Unit)	L/S	
	vii. Wall Mounted Type: - Bilik Pensyarah 7 Cap: Range 9,000 - 9,700 Btu/hr (1 Unit)	L/S	
	viii. Wall Mounted Type: - Bilik PEM Grafik Cap: Range 12,000 - 12,300 Btu/hr (1 Unit)	L/S	
	ix. Wall Mounted Type: - Bilik Exe Officer Cap: Range 18,000 - 18,500 Btu/hr (1 Unit)	L/S	
	x. Ceiling Cassette Type: - Bilik Mesyuarat Cap: Range 12,000 - 12,300 Btu/hr (2 Unit)	L/S	
	xi. Wall Mounted Type: - Bilik Server (Duty & Standby) Cap: Range 9,000 - 9,700 Btu/hr (2 Unit)	L/S	
	xii. Wall Mounted Type: - Bilik Pegawai Cap: Range 9,000 - 9,700 Btu/hr (1 Unit)	L/S	

Dicetak oleh : Dijana oleh Sistem Tarikh cetak: 30/04/2025 10:54:03

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BIL	KETERANGAN	UNIT	HARGA (RM)
2.2	To supply and install 20A Indicator Switch c/w wiring from indoor unit and new DB Air Cond (Office) using 3x4mm2 include ecc run in G.l. conduit / G.l. PVC coated flexible conduit / Hot Dipped Galvanised trunking other accessoriess. All electrical works inclusive of all necessary equipment to run the system. The power supply should be taken fromnew DB and must be getting approval from UiTM Supervision Officer (S.O.).		
	i. Wall Mounted - 12 nos	L/S	
	ii. Ceiling Cassette - 2 nos	L/S	
2.3	To supply and install Air Conditioning Identity Sticker for indoor & outdoor (VRF & Split System) include wired remote control and/or switch control. Font size 14 should be use for the sticker taging.	L/S	
	** Indoor unit:- i) Name of Contractor :		
2.4	Existing Air-Conditioning System		
2.4.1	To dismantle existings split air conditioning system (indoor, outdoor, copper pipe & wiring) c/w all related accessories:- 17 set	L/S	
2.4.2	To dismantle existings centralised air conditioning system (chiller, AHUs, pump, chilled water pipe, drain pipe, cooling tower, make-up tank & wiring) c/w all related accessories.	L/S	
2.4.3	To dismantle existing ductwork c/w diffuser, damper, insulation and all related accessories for all space/room at Blok A	L/S	
3	NEW FIRE PROTECTION WORKS - Semua ringkasan tawaran hendaklah dibaca bersama-sama lukisan dan spesifikasi tambahan yang disediakan.		
3.1	Hose Reel System		



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BIL	KETERANGAN	UNIT	HARGA (RM)
3.1.1	To supply & install Ø50mm G.I class B to BS 1387 hose reel pipe tapping from Block B to all floors Block A Hose Reel location c/w fittings, gate valves, supports and all necessary accessories as per specification, drawings and local authorities' requirement.	L/S	
3.1.2	To supply & install Ø25mm G.I class B to BS 1387 hose reel pipe for hose reel drums tapping off c/w fittings, gate valves, supports and all necessary accessories as per specification, drawings and local authorities' requirement.	L/S	
3.1.3	To supply & install hose reel drums set swing type c/w Ø25mm 30m length flexible rubber hoses, jet spray nozzles, fittings, gate valves, supports bracket and all necessary accessories as per specification, drawings and local authorities' requirement.	L/S	
3.1.4	To supply & install Ø25mm air release valves located at the end of riser pipe c/w fittings and all necessary accessories as per specification, drawings and local authorities' requirement.	L/S	
3.2	Fire Alarm Panel & Portable Fire Extinguishers		
3.2.1	To supply and Install one (1) nos conventional type fire alarm panel accordance with BS 5839: Part 1 at Ground Floor Block A c/w mimic diagram, backup battery and power unit with charger and all necessary accessories as per specification, drawings and local authorities' requirement.	L/S	
3.2.2	To supply & install manual call points (break glasses) and alarm bell accordance with BS 5839 Part 2 c/w fault isolators and all necessary accessories as per specification, drawings and local authorities' requirement.	L/S	
3.2.3	To supply & install 1 nos smoke detectors (Bilik Server) accordance with BS 5839 Part 1 c/w bases and all necessary accessories as per specification, drawings and local authorities' requirement.	L/S	
3.2.4	To supply & install wiring using 2 x 2.5mm pvc wire (alarm bell) and 2 x 1.5mm pvc wire (break glasses & smoke detectors) in G.I conduit from addressable sub fire alarm panel to all devices, equipments and control panels c/w all necessary accessories as per specification, drawings and local authorities' requirement.	L/S	
3.2.5	To supply and install 9.0 kg portable fire extinguishers ABC Dry Powder Type c/w brackets, approved Bomba inspection stickers and all necessary accessories as per specification, drawings and local authorities' requirement for the following floors:-		
	i. Fisrt Floor	L/S	
	ii. Second Floor	L/S	
	iii. Third Floor	L/S	
	iv. Fourth Floor	L/S	

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BIL	KETERANGAN	UNIT	HARGA (RM)
3.2.6	To supply and install 2.0 kg portable fire extinguishers Carbon Dioxide Type c/w brackets, approved Bomba inspection stickers and all necessary accessories as per specification, drawings and local authorities' requirement for the following floors:-		
	i. Fisrt Floor	L/S	
	ii. Second Floor	L/S	
	iii. Third Floor	L/S	
	iv. Fourth Floor	L/S	
3.3	Existing Fire Protection System		
3.3.1	To check, service and repair (if necessary) existing hose reel pump (duty & standby). The contractor need to do technical report condition before and after check as per specification and local authorities.	L/S	
3.3.2	To check, service and repair (if necessary) existing hose reel tank c/w change new float ball and gate valve, repainting existing pipe around tank and repainting HR tank as per specification and local authorities.	L/S	
4	NEW PLUMBING WORKS (COLD WATER & SANITARY) - Semua ringkasan tawaran hendaklah dibaca bersama-sama lukisan dan spesifikasi tambahan yang disediakan.		
4.1	Cold Water Plumbing System		
4.1.1	To dismantle all existing piping at the toilet at level first to fourth floor c/w bends, elbows, tees, valve and all related accessories	L/S	
4.1.2	To check, service and repair (if necessary) existing domestic water storage tank and existing incoming pipe c/w change new float ball and gate valve and all related accessories.	L/S	
4.1.3	To supply and install HDPE PN 12.5 50mm Dia. distribution droper riser pipes c/w valves, fitting, support and all other accessories tapping from existing domestic water storage tank.	L/S	
4.1.4	To supply and install HDPE PN 12.5 40mm Dia. incoming riser pipes c/w stopcock, valves, fitting, support and all other accessories tapping from existing incoming G.I pipe outside building.	L/S	
4.1.5	To supply and install HDPE PN 12.5 distribution pipes tapping from riser to all tap, basin, water closet c/w bends, elbows, tees, hanger, valves, stopcock and all accessories.		
	i. Fisrt Floor - New Toilet Male & Female	L/S	
	ii. Second Floor - New Toilet Male & Female	L/S	



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BIL	KETERANGAN	UNIT	HARGA (RM)
	iii. Third Floor - New Toilet Male & Female	L/S	
	iv. Fourth Floor - New Toilet Male & Female	L/S	
4.2	Sanitary Plumbing System		
4.2.1	To dismantle all existing sanitary upvc piping at the toilet at level first to fourth floor until to existing Inspection chamber c/w bends, elbows, tees, and all related accessories	L/S	
4.2.2	To check, service and repair (if necessary) existing nearest inspection chamber and to make sure connecting sanitary piping inspection chamber to inspection chamber until sewerage treatment plant was functionable.	L/S	
4.2.3	To supply and install 2 nos new gully trap with 100mm dia uPVC underground pipe (Brown) discharge to existing inspection chamber c/w water column/ S trap, steel or chrome brass, and all related accessories.	L/S	
4.2.4	Supply and install uPVC underground pipe (Brown) to connect all sanitary ware to gully trap & inspection chamber with various size of pipe c/w excavation works, tee joint, y joint bends, rodding eyes, support/hangers, joint sleeves through walls/floors, pipe connection and all other accessories discharge to gully traps and manholes:- (Please refer Sanitary Plumbing drawing)		
	i. Fisrt Floor - New Toilet Male & Female	L/S	
4.2.5	Supply and install uPVC aboveground pipe to connect all sanitary ware with various size of pipe c/w tee joint, y joint bends, rodding eyes, support/hangers, joint sleeves through walls/floors, pipe connection and all other accessories discharge to inspection chamber:- (Please refer Sanitary Plumbing drawing)		
	i. Second Floor - New Toilet Male & Female	L/S	
	ii. Third Floor - New Toilet Male & Female	L/S	
	iii. Fourth Floor - New Toilet Male & Female	L/S	
5	MISCELLANEOUS		
5.1	Concrete masonary works, excavation and filling up to accommodate run of pipes from building to external equipments and services. Concrete plinth and foundations for all equipment installed.	L/S	
6	TESTING AND COMMISSIONING		
6.1	Complete testing and commissioning of the above witnessed by UiTM Superintendent Officer (S.O.).	L/S	

Dicetak oleh : Dijana oleh Sistem

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BIL	KETERANGAN	UNIT	HARGA (RM)
7	OTHERS (Please Notify)		
7.1	Any scope of work if important and not include inside this schedule summary or drawing, thefore must be included inside this summary such as below:-		
	i)	L/S	
	ii)	L/S	
	iii)	L/S	
	All of material must be follows the existing sizing and needs informed to Superintendent Officer (S.O.) if haven change before doing the works.		
		JUMLAH (RM)	

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