



**CONSTRUCTION OF ACADEMIC BLOCK FOR THE PNS
LIAQUAT UNIVERSITY OF MEDICAL & HEALTH SCIENCE
JAMSHORO, SINDH**



ACADEMIC BLOCK (COVERED AREA = 8218 SFT)

BILL OF QUANTITIES

APRIL 2024



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**CONSTRUCTION OF ACADEMIC BLOCK FOR THE PNS LIAQUAT UNIVERSITY OF
MEDICAL & HEALTH SCIENCE JAMSHORO, SINDH
(COVERED AREA = 6677 Sft)**

BILL OF QUANTITIES

Rates Based on Composite Schedule of Rate (GENERAL-2012) Sindh

Sr. No.	DESCRIPTION	AMOUNT
1.	CIVIL WORKS	
a	Cost of Schedule Items	10,394,419
b	Add/ Deduct _____ % above/ below on Scheduled Items	
c	Cost of Non-Schedule Items	
	TOTAL OF CIVIL WORKS-A	
2.	ELECTRICAL WORKS	
a	Cost of Schedule Items	1,209,793
b	Add/ Deduct _____ % above/ below on Scheduled Items	
c	Cost of Non-Schedule Items	
	TOTAL OF ELECTRICAL WORKS-B	
	TOTAL (A+B)	
	5% SST	
	GRAND TOTAL WITH SST	

Amount in Words:

Contractor

Client

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BILL OF QUANTITIES

CIVIL WORKS

Rates Based on Composite Schedule of Rate (GENERAL-2012) Sindh

Sr. No.	Item No.	Description	Unit	Qty	Rate	Amount
1	C-1/18(b)	Excavtion in foundation of Building Bridges and other structures including dagbelling dressing,refilling around structure with excavated earth Watering and ramming lead upto 5 ft in Ordinary Soil.	%0Cft	11040.98	3176.25	35,069
2	C-1/19	Cutting hard rock such as granite, ballast, hard lime stone or sand stone etc. with chisels and hammers for small foundations.	%0Cft	10127.56	28672.05	290,378
3	C-18/92	Providing Anti -termmite treatment by spraying /sprinkling /spreading Neptachlar 0.5% Emulsion as an overall pre - construction treatment in slab type construction under the slab and along attached perches or entrances etc, complete as per directions of Engineer Incharge.	P.Sft	25387.99	9.74	247,279
4	C-4/5(i)	Cement concrete plain including placing compacting, finishing and curing, complete (including screening and washing at stone aggregate without for all shuttering.(Mix 1:4:8)	%Cft	1089.37	11288.75	122,977
5	C-4/6 a-i	R.C work in roof slab, beams columns rafts, lintels and other structural members laid in situ or precast laid in position complete in all respects (I) Ratio (1 : 2: 4) 90 Lbs.cement 2 Cft. Sand 4 Cft. Shingle 1/8" to 1/4" gauge .(Foundation, Beams, Slabs, Stairs)	P.Cft	10785.66	337.00	3,634,766
6	C-4/6 a-ii	Reinforced cement concrete in roof slab, beams, columns lintels, girders and other structural members laid in situ or precast laid in position, or prestressed members cast in situ, complete in all respects:- Type B (nominal mix 1: 1.5: 3) Columns	P.Cft	929.67	349.00	324,455
7	C-5/4-I(e)	Pacca brick work in foundation and plinth in cement sand mortar 1:6.	%Cft	8583.12	11948.36	1,025,542
8	C-1/21	Filling, watering and ramming earth in floors with surplus earth from foundation lead upto one chain and lift jupto 5 feet.	%0Cft	7056.18	1512.50	10,672
9	C-5/5-I(d)	Pacca brick work in Ground Floor cement, sand mortar Ratio 1:5	%Cft	7071.66	12902.08	912,392
10	C-5/5-I(c)	Pacca brick work in Ground Floor cement, sand mortar Ratio 1:4	%Cft	1229.06	13227.41	162,573
11	C-9/12(b)	Cement plaster 1:5 upto 12' height:- b) 1/2" thick. Ground Floor	%Sft	19520.19	2241.80	437,604
12	C-9/11(a)	Cement plaster 1:4 upto 12' height:- b) 3/8" thick. Ground Floor	%Sft	18565.19	2197.52	407,974
13	C-9/12(b) +29	Cement plaster 1:5 upto 12' height:- b) 1/2" thick. First Floor	%Sft	5828.84	2382.77	138,888
14	C-9/11(a) +29	Cement plaster 1:4 upto 12' height:- b) 3/8" thick . First Floor	%Sft	5828.84	2338.49	136,307
15	C-9/10(a)	Cement plaster 3/8" thick under soffit or R.C.C. roof slab only upto 12' height ratio 1:3. Ground Floor	%Sft	260.00	2225.12	5,785

Sr. No.	Item No.	Description	Unit	Qty	Rate	Amount
16	C-9/40.A + 40-B	Preparing the surface and painting with plastic emulsion paint of approved make l/c rubbing the surface with sand Paper, filling the voids with chalk / plaster of paris and then painting etc. complete. Three Coats	%Sft	17618.02	2237.95	394,282
17	C-4/5(i)	Cement concrete plain including placing compacting, finishing and curing, complete (including screening and washing at stone aggregate without for all shuttering.(Mix 1:4:8) (Under Floor)	%Cft	3999.38	11288.75	451,479
18	C-8/16-c	Providing and laying 2" thick topping cement concrete (1:2:4) including Surface finishing and dividing into panels (Plinth Protection)	%Sft	1407.00	3275.50	46,086
19	C-8/16-d + C-8/18	Providing and laying 3" thick topping cement concrete (1:2:4) including Surface finishing and dividing into panels: (Roof)	%Sft	6677.00	4638.70	309,726
20	C-7/18	Khuras on roof 2'x2'x6" (600 x 600 x 150 mm)	Each	20.00	358.68	7,174
21	C-10/21	Providing and fixing, approved quality mortice lock.	Each	5.00	1786.13	8,931
22	C-11/5-(c)	Preparing surface and painting of doors and windows any type, (including edges).Three Coats.	%Sft	177.70	2116.41	3,761
23	C-18/84(a)	Supplying & fixing in position Aluminium channels framing for sliding windows & ventilators of Alcop made with 5 mm thick tinted glass glazing (Belgium) & Aluminium fly screen l/c handles stoppers & locking arrangement etc. complete. (a) Deluxe model (White).	P.Sft	785.00	1592.69	1,250,262
24	C-9/34	Extra labour rate for making grooves of 1" x 1/4" or 3/4" x 1/2" plastered surface with true edges both vertically and horizontally with uniform depth and, with groove base smoothly finished etc. complete as per instruction of Engineer Incharge.	P.Rft	3898.50	7.71	30,057.44
TOTAL OF SOR ITEMS						10,394,419

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CIVIL WORKS

Non-Scheduled Items

Sr. No.	Item No.	Description	Unit	Qty	Rate	Amount
1	NSI	Providing and laying sweat earth with new earth excavated from outside including watering ramming compacting in layers up to 12" thick etc completed as directed by engineer Incharge including 15 km carriage etc.	P.Cft	28434.82		
2	NSI	Supplying laying River sand or pit sand of approved quarry and levelling dressing, watering ramming and compacting by manual compactor method etc complete.	P.Cft	2370.31		
3	NSI	Providing and fixing M.S. grill fabricated with MS Square polished Vertical/horizontal Bars of specified size @ 4" c/c ' passed through punched holes in MS Patti of 1-1/4"x1/8" i/c the cost of 1-1/4"x1/8" MS patti for Frame of windows and painting Master, Happy or Equivalent 3 coat complete in all respect as approved and directed by the Engineer Incharge. (ii) 1/2" Square	P.Sft	735.00		
4	NSI	P/F 1-1/2" thick solid flush door comprising of 2.5 mm thick Commercial ply compressed over 2.5 mm thick commercial ply over 1" thick packing wood in style and rails under proper pressure i/c french polish Master, Happy or Equivalent Brand the cost of nails, sliding bolt, tower bolt , handles, glue, sawing charges, Painting charges, sand papering and 3/8" thick matching wooden lipping as approved and directed by the Engineer Incharge.	P.Sft	225.00		
5		Providing and laying hard grade ribbed deformed (minimum yield point 60,000 psi) reinforcement bars of all sizes with & including the cost of straightening, cutting, bending laying in position, making joints, wastage, overlaps, steel chairs, etc. including the cost of binding wire and labor charges for binding of steel reinforcement overlaps other than those shown on drawings, steel chairs, precast chairs, removal of rust from bars placing in position on cement concrete complete in all respect Amreli Steel, Agha Steel, Razaque Steel or equivalent approved by engineer incharge.	P.Kg	45818.06		
6	NSI	Preparing surface and applying Graffiato Weather Coating (Co-polymer emulsion) of approved colour & shade with weather resistant pigment, highly water repellent with Metallic Spatula having top class finish by smoothing with a plastic Spatula, on a base coat (Primer) over well cleaned plastered surface complete in all respect as approved and directed by the Engineer Incharge	P.Sft	12623.73		
7	NSI	Providing and laying fair face Gutka cladding laid in (1:2) cement / red posso mortar having 1/4" thick groove finish i/c cost of 8 SWG wire in shape of 8 placed horizontally and vertically at 36" and 18" c/c respectively i/c cutting charges as per approved drawing , complete in all respect as approved and directed by the Engineer Incharg i. 2-1/4" x 2-1/4" x 9"	P.Sft	1179.15		

Sr. No.	Item No.	Description	Unit	Qty	Rate	Amount
8	NSI	Providing and laying porcelain tiles flooring 24"x24"x3/8" light color laid in white cement and matching pigment over 3/4" thick cement sand mortar (1:2) i/c filling joints in white cement and matching pigment complete in all respect. (Shabbir Tiles or Equivalent)	P.Sft	6213.00		
9	NSI	Providing and laying porcelain tiles for dado size 24"x48"x3/8" light color laid in white cement and matching pigment over 3/4" thick cement sand mortar (1:2) i/c filling joints in white cement and matching pigment complete in all respect. (Shabbir Tiles or Equivalent)	P.Sft	314.33		
10	NSI	Providing and fixing 3/4" thick China Verona full width area above 2 Sft laid in white cement matching pigment 3/4" thick cement sand mortar (1:2) i/c filling joints in white cement & matching pigment, making gola on exposed edges complete in all respect as approved by the Engineer/ Incharge.(Stairs, Podium, Planter and Vanity)	P.Sft	400.00		
11	NSI	Providing and fixing steel Fire Rated Emergency Exit Door ,Door manufactured as per NFPA 252 & UL 10C standards Steel Door (MS) Size: 60" x 98" Double Leaf door, Filled with fire-rated material With Inner Steel Stiffeners for reinforcement.Door Leaf 1.2-1.5mm, Door Frame 1.5- 2.0mm, Accessories: Hinges, Panic Bar On single Leaf, SS Handle, Glass 12x24 ft, and Door closer on single Leaf. complete in all respect as approved & directed by the Engineer/ Incharge. (TECHNO (PVT) LTD or Equivalent)	Each	1.00		
12	NSI	Providing and fixing Steel Sheet (Jisti) hollow press frame of doors, etc. (Chowkhat only) of 16 SWG welded with M.S. flat 6"x1½"x1/8" (150x40x3mm) M.S. hold fast 9"x1"x1/8" (225x25x3mm) welded/ screwed 4" (100mm) long iron hinges including fitting chowkhat with cement sand mortar 1:8 and embedding hold fast in cement concrete 1:2., Single Rebate, 10" wide, including of Master, Happy or Equilant Paint of 3 Coats complete in all respect as per direction of Engineer in-charge.	P.Sft	220.00		
13	NSI	Providing and fixing automatic hydraulic operated door closer imported heavy duty complete in all respect as approved and directed by the Engineer Incharge.	Each	5.00		
14	NSI	Providing and fixing Stainless Steel (24 SWG) Letters of 2 feet Height with CNC laser cutting i/c all hardware required complete in all respect as per drawings and direction of Engineer In-charge. (Drawing Reference Page No. 3D-02)	Each	13.00		
15	NSI	Providing and fixing stainless steel mesh of 16 guage fixed with nails for concrete and bricks joint complete in all respect and as approved and directed by the Engineer Incharge.	P.Sft	1350.00		
TOTAL OF NON-SOR ITEMS						

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BILL OF QUANTITIES

ELECTRICAL WORKS

Rates Based on Composite Schedule of Rate (GENERAL-2012) Sindh

Sr. No.	Item No.	Description	Unit	Qty	Rate	Amount
1		DISTRIBUTION BOARDS				
		(General Description) Supply at site, fabrication, installation, testing and commissioning of Distribution Board (DB) , made of sheet steel 16 SWG, degreased and derusted, with 2 coats of antirust paint, 2 coats of powder coated paint of approved colour, protection classification IP-44, totally enclosed indoor floor mounting cubicle type in free standing design, with hinged door, handle including cost of all auxiliaries, internal wiring, designation lables on MCCBS, grounding bar suitable for system Voltage 440 V, 50 Hz, 3 Phase and neutral bus bars of 99.9% electrolytic copper, including cost of cable terminal blocks wiring from breakers, brass cable glands, all accessories complete in all respects metion in BOQ or not required for performing completely. All incoming and outgoing breakers shall be accessible only by opening the front door having further M.S. sheet cover gaskets shall also be provided where necessary. Panel should be compeltely made in certified factory. ie PEL, Green T & D, Mazcorp engineering or equivalent as per instructions by engineer incharge				
		(General Description) All MCCBs shall be suitable to operate without any derating at 40°C ambient temperature and shall be of one make only. The sides of MDB shall also have louvers at bottom and top on sides of panel for hot air exhaust, wire mesh etc. The back of the panel shall be lockable door instead of bolted and shall conform to single line diagram. item should be of ABB, Schneider or equivalent as per instructions by engineer incharge				
ii)		DISTRIBUTION BOARD DB- LIGHTING & POWER				
		INCOMMING				
a	ELECT SH-X(210)	Providing and fixing circuit breaker 400amp TP setting 250-400amp (XS-400CJ) on prepared board as required.	Per No.	1	39401	39,401
b	ELECT SH-XV(269)	Providing and fixing of current transformer of ration 60/5 amps (round) RLC-30 as required or as per instructed as EI.	Per No.	3	1191	3,573
c	ELECT SH-XVI(285)	Providing and fixing voltmeter size 96/96mm 500 volt as required and as instruction of EI.	Per No.	3	999	2,997
d	ELECT SH-X(203)	Providing and fixing circuit breaker 6,10,15,20,30,40,50 & 63 amps SP(TB-5S) on prepared board as required.	Per No.	3	916	2,748
		OUTGOING				
e	ELECT SH-X(203)	Providing and fixing circuit breaker 6,10,15,20,30,40,50 & 63 amps SP(TB-5S) on prepared board as required.	Per No.	12	916	10,992
f	ELECT SH-X(206)	Providing and fixing circuit breaker 15,20,30,40,50,& 60amps TP(XE-100CS) on prepared board as required.	Per No.	8	5521	44,168
2		WIRING IN CONCEALED CONDUITS				
i)		Distribution board to Switch				
		(General Description) Wiring of light circuit from Distribution Board to switch,with Three nos. single core 2.5 Sqmm PVC insulated 450/750 volts grade stranded copper conductor cables in concealed PVC conduits (conduits partly shared) including PVC conduit, and conduit accessories etc. Cable should be of Newage, Fast cable, Universal cables or equivalent and conduit should be of Dadex, Turkplast, Easyfit or equivalent as per instructions by engineer incharge				
a	ELECT SH-(24)	Providing and laying (main or Sub Main Pvc insulated with 3-7.29 copper conductor in 3/4" dia PVC conduit recessed in the wall or column as required.	Rmtr	100	294.00	29,400
ii)		Switch to light point				

Sr. No.	Item No.	Description	Unit	Qty	Rate	Amount
		(General Description) Wiring from switch to light or fan point with 3 nos. single core 1.5 Sqmm PVC insulated 450/750 Volts grade stranded copper conductor cables in concealed PVC conduit including PVC conduit, Conduit accessories,etc.(conduit partly shared).				
a	ELECT SH-(124)	Wiring of Light and fan point with 3.29 Pvc insulated wire in 20mm (3/4") dia PVC conduit recessed in the wall or column as required.	Per/Point	57	1,130.00	64,410
		Point to point wiring				
b	ELECT SH-(22)	Providing and laying (main or Sub Main Pvc insulated with 3-3.29 copper conductor in 3/4" dia PVC conduit recessed in the wall or column as required.	Rmtr	468	220.00	102,960
iii)		Switch to Switch				
		(General Description) Wiring from switch to switch with 3 nos. single core 2.5 Sqmm PVC insulated 450/750 Volts grade stranded copper conductor cables in concealed PVC conduit including PVC conduit, Conduit accessories,etc.(conduit partly shared).				
a	ELECT SH-(24)	Providing and laying (main or Sub Main Pvc insulated with 3-7.29 copper conductor in 3/4" dia PVC conduit recessed in the wall or column as required.	Rmtr	152	294.00	44,688
iv)		Distribution board to General Purpose (5A/13A) socket				
		(General Description) Wiring of circuit from Distribution Board to 5A/13A ,230Volts with 3 nos. single core 2.5 Sqmm PVC insulated 450/750 Volts graded , 2&3 pin switched socket, stranded copper conductor cables in concealed PVC conduit, including conduit accessories, etc(conduit partly shared)				
a	ELECT SH-(24)	Providing and laying (main or Sub Main Pvc insulated with 3-7.29 copper conductor in 3/4" dia PVC conduit recessed in the wall or column as required.	Rmtr	150	294.00	44,100
v)		Socket to Socket				
		(General Description) Wiring from 5 Amps, 2&3 pin socket to socket with 3 nos. single core 2.5 Sqmm PVC insulated 450/750 Volts grade solid or stanerd copper conductor cables in concealed PVC conduit including PVC conduit,Conduit accessories, etc complete. (conduit partly shared)				
a	ELECT SH-(24)	Providing and laying (main or Sub Main Pvc insulated with 3-7.29 copper conductor in 3/4" dia PVC conduit recessed in the wall or column as required.	Rmtr	24	294.00	7,056
vi)		Distribution board to 3 phase AC socket				
a	ELECT SH-I(40)	Providing and laying (main or Sub Main Pvc insulated with 4-7.44 copper conductor in 1-1/2" dia PVC conduit recessed in the wall or column as required.	Rmtr	200	613.00	122,600
vii)		Wiring for flood lights				
a	ELECT SH-I(25)	Providing and laying (main or Sub Main Pvc) insulated with 3-7.36 copper conductor in 3/4" dia PVC conduit recessed in the wall or column as required.	Rmtr	115	338.00	38,870
3		LT Cables				
i)	ELECT SH-(120)	Providing and Laying (MAIN or SUB MAIN) PVC insulated & PVC sheeted with 4 core Armoured copper conductor 600/1000 volts size 150 mm2	Per Meter	50	11,253.00	562,650
4		MISCELLANEOUS FITTINGS				
i)	ELECT SH(235)	Providing and fixing brass Ceiling fan 56" (good quality)	Per No.	28	3,185.00	89,180
TOTAL OF SOR ITEMS						1,209,793

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BILL OF QUANTITIES

ELECTRICAL WORKS

Non-Scheduled Items

Sr. No.	Item No.	Description	Unit	Qty	Rate	Amount
1		DISTRIBUTION BOARDS				
		(General Description) Supply at site, fabrication, installation, testing and commissioning of Distribution Board (DB) , made of sheet steel 16 SWG, degreased and derusted, with 2 coats of antirust paint, 2 coats of powder coated paint of approved colour, protection classification IP-44, totally enclosed indoor floor mounting cubicle type in free standing design, with hinged door, handle including cost of all auxiliaries, internal wiring, designation lables on MCCBS, grounding bar suitable for system Voltage 440V, 50 Hz, 3 Phase and neutral bus bars of 99.9% electrolytic copper, including cost of cable terminal blocks wiring from breakers, brass cable glands, all accessories complete in all respects metion in BOQ or not required for performing completely. All incoming and outgoing breakers shall be accessible only by opening the front door having further M.S. sheet cover gaskets shall also be provided where necessary. Panel should be compeltely made in certified factory. ie PEL, Green T & D, Mazcorp engineering or equivalent as per instructions by engineer incharge				
		(General Description) All MCCBs shall be suitable to operate without any derating at 40°C ambient temperature and shall be of one make only. The sides of MDB shall also have louvers at bottom and top on sides of panel for hot air exhaust, wire mesh etc. The back of the panel shall be lockable door instead of bolted and shall conform to single line diagram. item should be of ABB, Schneider or equivalent as per instructions by engineer incharge				
	ii)	DISTRIBUTION BOARD DB- LIGHTING & POWER				
		INCOMING				
	NSI	Providing and fixing of Metal Clad, free standing, front access, totally enclosed, frame febreccated from 14/16 SWG, MS sheet with surface treatment Powder Coated Paint RAL 7035, Texture White, Suitable for system voltage 400/230, 50HZ, 3 Phase Copper bus bar, Neutral bus bar, Earting bus bar and internally wired., Mechanical interlocking for MCCBs, 03 No Phase Indication Lights, 220 VAC (R-Y-B) 01 No Digital Ampere Meter,01 No Ampere Selector Switch,03 No CTs 300/5A,under over voltage relay, RCCB, Surge Protection devices (SPD) Wall Mounted DB Panel In door Type (Suitable Size) complete in all respect as approved or directed by engineer incharge.	Job	1		
2		LIGHT FIXTURES				

Sr. No.	Item No.	Description	Unit	Qty	Rate	Amount
		(General Description) Supply, installation, testing and commissioning of following light fittings, ceiling, recessed, wall mounted as per specified fixture. Complete with internal wiring, Grounding terminal, driver complete in all respects. Lights should be of Phillips, ledvance, Sky LED or equivalent.				
i)	NSI	24 Watt (White) LED Light Fixture surface/recessed mounted, IP-22 rated	No.	96		
ii)	NSI	18 Watt (White) LED Light Fixture surface/recessed mounted, IP-22 rated	No.	14		
iii)	NSI	10 Watt Flood lights	No.	6		
3		WIRING ACCESSORIES				
		(General Description) Supply at site, installation, testing and commissioning of the following wiring accessories, complete in all respects. Made of TJ, Legrand or approved equivalent.				
i)	NSI	10 Amps, 250Volts one way, Two gang light control switches including appropriate size concealed Plastic back box.	No.	1		
ii)	NSI	10 Amps, 250Volts one way, Three gang light control switches including appropriate size concealed Plastic back box.	No.	13		
iii)	NSI	10 Amps, 250Volts one way, Four gang light control switches including appropriate size concealed Plastic back box.	No.	1		
iv)	NSI	10 Amps, 250Volts one way, Five gang light control switches including appropriate size concealed Plastic back box.	No.	8		
v)	NSI	13 Amps, 250Volts, 3 pin flat switch socket single outlet including appropriate size Plastic back box.	No.	10		
vi)	NSI	45A TP breaker with appropriate size Plastic cover box.	No.	8		
vii)	NSI	1Gang Cat-6 RJ45 Data Outlet	No.	6		
viii)	NSI	Fan Dimmer 250 watt including appropriate size Plastic back box. with all associated accessories.	No.	28		
ix)	NSI	Appropriate size of plastic body fan box and ceiling fan rod 24" in length	Nos	28		
x)	NSI	MS BAR for hanging Ceiling fan	Nos	28		
4		GROUNDING SYSTEM				
i)		GROUNDING cable				
		Supply at site, installation, testing and commissioning of PVC insulated non armoured copper conductor cable 450/ 750 Volt grade (or otherwise mentioned in cable description) in pre-laid conduits / trenches to be installed as per routes shown on drawings including cost of all necessary materials, connections, identification tags, cables lugs properly crimped at both ends for the following sizes complete in all respects. Actual length of cables to be installed shall be practically measured at site by the Contractor, duly authenticated by the Engineer before placing the order with the manufacturer, however, approximate length of cables are shown herewith. Payments shall be made as per actual length installed. Cable should be of FAST, Newage or universal cables and conduit should be of Solo, popular, easyfit or equivalent as approved by engineer in charge				
a	NSI	Supply and erection of single core PVC insulated, PVC sheathed copper conductor, 450/750 volts grade cable, in pre-laid G.I. pipe/M.S. conduits/PVC pipe/G.I. wire/trenches, etc (rate for cable only):- 50 mm sq (19/0.072")	Rmtr	50		
5		Earthing				

Sr. No.	Item No.	Description	Unit	Qty	Rate	Amount
	NSI	Supply, installation, testing and commissioning of earthing system for protecting Earthing of Rod 19 mm 10 ft long with bare solid Earth conductor 1 x 35sq.mm upto earth connecting point, inspection chamber, marconite concrete, drilling etc, to achieve less than 3 ohms specified Earthing results. complete in all respect as per drawing and specification or as per directed by Engineer.	Each	1		
6		Fire Extinguishers				
	NSI	Supply & installation of Dry Chemical Powder (M.S-Steel): Providing of New Fire Extinguisher Dry Chemical Powder (DCP) with one year warranty and filled with Nitrogen pressure along with Wall hook and discharge pipe. Complete in All respects.as approved or directed by engineer incharge.	Nos.	2		
7		Data System				
i)		Data Cable				
	NSI	Supply, installation, Testing and commissioning of CAT 6 UTP CABLE IN prelaid PVC PIPE Ø 1"; MEASUREMENT IN METERS complete in all respects. Made of Hikvision,D-Link or equivalent approved by engineer incharge	R.Mtr	120		
ii)		Conduit				
	NSI	Supply and erection of PVC pipe for wiring recessed in walls,including inspection boxes, pull boxes, hooks, cutting jharriesand repairing surface, etc., complete with all specials.25 mm i/d	R.Mtr	120		
iii)		Data Cabinet				
	NSI	Supply , installation of wall mounted CCTV Cabinet comprising of Powder Coated M.S frame, front glass & two side openings,with all necessary accessories/ materials, complete in all respects. Made of Bosch/ HP / Dell , Pollo Australia, or equivalent or as approved and directed by Engineer Incharge(i) 12U	Each	1		
iv)		Cable Manager				
	NSI	Supply and installation of Cable Metal Organizer, 19" Rack mounted with high graded epoxy powder coating and slideable top- UL Listed. Made of Schneider/i-Connect UK/3M Corning: Pollo Australia or equivalent as approved and directed by the Engineer Incharge	Each	1		
v)		Patch Panel				
	NSI	Supply and installation of CAT-6 (24 Port Patch Panel with Toolless Support 10-Gigabit). UTP Patch Panel with specified toolless support & Rear Cable Management, UL listed, Loaded with UTP of specified Keystone Jack Toolless Support , Made of Schneider / Norden /3M Corning/D-Link, Pollo Australia or equivalent or as Approved and Directed by Engineer Incharge.	Each	1		
vi)		PDU				
	NSI	Supply & Installation of PDU as approved or directed by engineer incharge.	Each	1		
vii)		08 Port PoE Data Switch				

Sr. No.	Item No.	Description	Unit	Qty	Rate	Amount
	NSI	Supply, Installation and Connection of Smart Managed 8-Port Gigabit PoE Switch, 8 Gigabit PoE Ports, 2 Gigabit fiber optical ports, full duplex, MDI/MDI-X adaptive, Store-and-Forward switching, 8K MAC Address Table, 20Gbps Switching Capacity, 14.88 Mpps Packet Forwarding Rate, 4.1 Mbits Internal Cache, 300m Transmission, PoE watchdog to Auto detect-and-Restart the cameras, 6 KV surge protection, Network topology management, alarm push, network health monitor, Port rate configuration, flow control, and ports enabling, IEEE 802.3at/af standard PoE ports, 100-240 VAC Power Supply. made of Hikvision Model no DS-3E1510P-SI, Huawei, Cisco USA or equivalent as approved or directed by engineer incharge.	Each	1		
viii)		Wifi Router				
	NSI	Supply, Installation and commissioning of TP-Link AC750 Dual-Band Wi-Fi Router High-Speed Wi-Fi—AC750 dual-band is ideal for HD video streaming, high-speed downloading. Far-Reaching Coverage—4× antennas deliver far-reaching Wi-Fi and reliable connections. Multi-Mode 3 in 1—Supports Router, Access Point, and Range Extender to add flexibilities. Parental Controls—Manages when and how connected devices can access the internet. Guest Network—Provides separate access for guests while securing the host network. Smooth HD Streaming—Supports IGMP Proxy/Snooping, Bridge and Tag VLAN to optimize IPTV streaming. IPv6 Supported—Compatible with the IPv6 (the latest Internet Protocol version 6). Compact and Mountable—Designed to conserve space and complement any décor. as per specification as approved or directed by engineer incharge.	Each	2		
8		CIVIL WORKS				
i)		Trench				
	NSI	Labour for excavation and refilling of trench 12" wide, 36" deep 4" sand, bricks and warning tape. Compaction below and above preinstalled PVC pipes if any, ramming watering all necessary material, labour etc, complete in all respect. Actual length of the trench shall be as per site condition and paid accordingly however approximate length of trench is given. as approved and directed by engineer incharge.	R.Mtr	50		
ii)		Manhole For LT Cable Pulling (If Required)				
	NSI	Construction of manholes to facilitate pulling of cables in trench or conduit as shown on drawing, manholes shall be of the size 24" x 24" x 30" deep with 9" thick wall with cement mortar, internal plaster 1:4, 100mm thick RCC cover for manhole, including cost of all accessories / materials, complete in all respects. (Tentative number of manholes have been provided, however payment shall be made as per actual and as per quantity requirement)	Nos.	2		
9		Air Conditioning				

Sr. No.	Item No.	Description	Unit	Qty	Rate	Amount
		(General Description) Providing, shifting, fixing, testing, commissioning, adjusting and balancing of standard (Cool only) DC inverter technology air conditioning units, including indoor evaporating and out door condensing unit, the indoor units wall mounted of capacities as specified below, complete with factory charged refrigerant, piping insulation including condensate copper piping connection, between indoor/outdoor units conduiting and any additional charge of refrigerant accessories, and Drain piping upto nearest drain water line included in these rates making the job complete in all respect. AC should be of Haier,dawlance, gree or equivalent, copper piping should be of muller, trox and insulation of Durkflex or equivalent, Drain pipe should be 3/4" dia pvc pipeof master, turkplast or equivalent as per instructions by engineer incharge				
		(General Description) 1/4 and 1/2 copper piping should be used till 1.5 ton AC and 5/8 and 3/8 piping should be used for 2 ton AC and 3/8 and 1/2 for 4 ton AC between indoor and outdoor unit.				
		(General Description) The AC Unit should maintain approx 11 BTU per cubic feet plus addition of 3000BTU in the total amount for persons and devices				
i)		Copper pipe				
a	NSI	Supply ,installation testing and commissioning of Copper piping 1/2" insulation and control wire including making jharies and repairing of surface with all neccessary item job must be complete in all respect	RFT	160		
b	NSI	Supply ,installation testing and commissioning of Copper piping 3/8" with insulation and control wire including making jharies and repairing of surface with all neccessary item job must be complete in all respect	RFT	160		
ii)		Drain Pipe				
	NSI	Providing, laying, testing and commissioning of 1/2" µ-PVC (Un plasticized Polyvinyl Chloride) Schedule pipe of nominal diameter, Dadex/Popular / Beta or approved equivalent manufacturer, i/c the cost of solvent and specials complete as approved and directed by the Engineer Incharge.	RMTR	50		
iii)		Control Cable				
		Supply and erection of copper conductor cables for serviceconnection, in pre-laid pipe/G.I. wire/trenches, etc. (rate for cable only):- b) PVC insulated, PVC sheathed 3 core flexible cable , 300/500 volt cable: iii) 7/0.74 mm (7/0.029")	Rmtr	50		
iv)		Copper pipe insulation				
		Supply & installation closed cell type Aluminium foil faced XLPE (Cross linked polyethelene) polyolefin pipe insulation tube of density 25 Kg/m ³ of specified thickness & thermal conductivity 0.035 w/m °C and fire retardent of Class "o" rating as specified for refrigerant copper piping as approved by the Engineer Incharge. a) 20 mm thick				
a	NSI	1/2" dia	RFT	160		
b	NSI	3/8" dia	RFT	160		
10		Duct panel				
		Supply at site and installation of duct panel on wall where necessary made of popular, dadex, turkplast or equivalent as approved or directed by engineer incharge.				
a	NSI	16 x 25 mm	Rmtr	50		
b	NSI	25 x 25 mm	Rmtr	50		

Sr. No.	Item No.	Description	Unit	Qty	Rate	Amount
11		<u>CONDUITS, PIPES, DUCT , CABLE TRAYS, FIXING CLAMPS AND FIXING ARRANGEMENTS</u>				
		Supply, installation, testing and commisiioning of following conduits laid under floor for telephone/ data cables , optical fiber cables, Sub main power cables & earth cables including all conduit accessories. The PVC conduits shall be laid under floor including chiseling and cutting of floor for required dimensions, laying of conduit, backfilling of remaining cavity with CC as specified for floor in that area, making good, complete in all respect. conduit made of solo, popular, easyfit or equivalent as approved by engineer incharge.				
i)	NSI	Supply and erection of PVC pipe for wiring recessed in wall including inspection boxes, pull boxes, bends, tees, repairing surface, etc., complete with all specials:made of easyfit, popular or equivalent as approved or directed by engineer incharge. 25 mmi/d	R.Mtr	50		
ii)	NSI	Supply and erection PVC pipe for recessed wiring (main and sub-main) purpose, including bends, specials, etc. in floor, wall or trenches:				
a	NSI	100 mm i/d	R.Mtr	50		
TOTAL OF NON-SOR ITEMS						