

<b>TICEL BIO PARK II</b>	
<b>INTERNATIONAL COMPETITIVE TECHNO COMMERCIAL TENDER VOLUME 4 BILL OF QUANTITIES</b>	
<b>SUPPLYING, INSTALLING, TESTING AND COMMISSIONING OF INTEGRATED BUILDING MANAGEMENT SYSTEM WORKS IN CONSTRUCTION OF LABORATORY COMPLEX– TICEL BIO PARK – II AT TARAMANI, CHENNAI-113 (3 BASEMENTS +G+12 UPPER FLOORS)</b>	
<b>DUE DATE FOR SUBMISSION: ON OR BEFORE 03/02/ 2012 at 16.00 Hours</b>	
<b>TO BE SUBMITTED TO:</b>	<b>M/s. TICEL Bio Park Ltd First Floor CSIR Road, Taramani, Chennai - 600 113. Telephone No.: +91 44 22542061/62 Fax No: 91-44-2254 2055 E-Mail:ticel@vsnl.net</b>
<b>ENGINEERING CONSULTANT:</b>	<b>M/s.TAAMAASEK ENGINEERING CONSORTIUM Architects &amp; Engineers No 5.1<sup>ST</sup> Floor ,Bishop wallers Avenue West , Off TTK Salai, Mylapore , Chennai- 600 004 Tel No: 044-2467 1139/ 57 Fax No: 044-2467 2237. E-Mail: <a href="mailto:info@taamaesek.com">info@taamaesek.com</a></b>
<b>OWNERS ENGINEERS:</b>	<b>M/s.SPECTRAL SERVICES CONSULTANTS PVT LTD, No.51, R.K.Mutt Road, Mylapore, Chennai - 600 004. TEL : +91 44 2461 3006 , FAX : +91 44 2461 7956</b>
<b>TENDER SUBMITTED BY:</b>	<b>M/s. _____ Address _____ _____ _____</b>
<b><u>JANUARY 2012</u></b>	

<b>SUMMARY- BILL QUANTITIES FOR INTEGRATED BUILDING MANAGEMENT SYSTEM-TICEL BIO PARK - II</b>			
<b>SECTION</b>	<b>DESCRIPTION</b>	<b>TOTAL Rs.</b>	
		<b>SUPPLY (INR)</b>	<b>ERECTION (INR)</b>
I	INTERGRATED BUILDING MANAGEMENT SYSTEM AND BUILDING MANAGEMENT SYSTEM		
II	FIRE ALARM SYSTEM		
III	PUBLIC ADDRESS SYSTEM		
IV	IP BASED CLOSED CIRCUIT TELEVISION SYSTEM		
V	ACCESS CONTROL SYSTEM & BARRIERS		
VI	NETWORKING SYSTEM FOR CCTV		
VII	COMMUNICATION SYSTEM FOR VOICE		
	<b>TOTAL Rs.(A)</b>		
VIII	INTERGRATED BUILDING MANAGEMENT SYSTEM AND BUILDING MANAGEMENT SYSTEM FOR BTCIF AT FIRST FLOOR		
IX	FIRE ALARM AND ACCESS CONTROL SYSTEM FOR BTCIF AT FIRST FLOOR		
	<b>TOTAL Rs.(B)</b>		
	<b>GRAND TOTAL (A+B)</b>		
	<b>OPERATION AND MAINTANANCE CONTRACT</b>		
X	OPERATING CONTRACT FOR 6 YEARS INCLUDING DURING TWO YEARS DEFECTS LIABILITY PERIOD ( CONSIDERED FOREVALUATION PURPOSE)		
XI	COMPREHENSIVE MAINTENANCE CONTRACT FEE FOR SIX YEARS INCLUDING TWO YEARS DEFECTIVE LIABILITY PERIOD ( FOREVALUATION PURPOSE )		
	<b>TOTAL VALUE OF O&amp;M (C)</b>		
	<b>GRAND TOTAL(A+B+C)</b>		

Sl. No.	DESCRIPTION	Qty	Unit	SUPPLY (INR)		INSTALLATION (INR)	
				Rate	Amount	Rate	Amount
<b>I. INTEGRATED BUILDING MANAGEMENT AND BUILDING MANAGEMENT SYSTEM</b>							
A	<b>Central Work Station system</b>						
1	Operator Workstation with latest intel micriprocessor, latest, 4 GB RAM, 2 TB HDD, 3.0Ghz or above, Wirless keyboard, optical mouse, windows Operating system Software SQL with MS Office Software latest & Licenced Anti-Virus Software for 6 years LED Monitor - 21 inch , DVD Writer, with A4 Size Laser Jet Printer	2	Set				
B	<b>Software &amp; Network Controller</b>						
2	BMS System Software : Graphical Software meeting the requirements in the Given I/O Summary and technical specifications including configuration and facility to create / provide the graphic mapping for all I/O Summary points , animate the Graphics, Navigation between pages, display of logs, changing the time zones, popup alarms, configurable password protection for Building Mgmt System as per Specifications. Software shall be able to communicate with Lonworks, Bacnet, Modbus devices simultaneously, open protocal, with unlimited point capacity	1	Nos				
3	Network controller: Providing, installing, testing and commissioning of Web Based Network Supervisory Controller unit for connecting all controllers to it and transferring data to PC platform.& Soft Integration with VFD & Chiller.	1	Lot				
4.a	Network Controller Access: Mulitple Operator Aceess with Max support for User Access Level with passwords with various configuravle previlages for monitoring and control of DDC Controlers - Open protocal						
5	3 rd Party Interface by using Gateway Controller:						
5.a	Chiller microprocessor panel ( 125 pts )	1	Lot				
5.b	BTU meters ( 250 pts * 3 )	3	Lot				
5.c	Energy meters ( 250 pts * 6 )	6	Lot				
5.d	VAV Integration ( 750 pts )	1	Lot				

Sl. No.	DESCRIPTION	Qty	Unit	SUPPLY (INR)		INSTALLATION (INR)	
				Rate	Amount	Rate	Amount
5.e	LIFT integration ( 120 pts )	1	Lot				
5.f	DG Integration ( 45 pts )	1	Lot				
5.g	FAS Intrgration ( 1000 pts )	1	Lot				
5.h	HSD level sensor integration (10 points)	1	Lot				
5.i	Fire pump monitoring (20 points)	1					
6	<b>TENANT BILLING SOFTWARE FOR HVAC &amp; EB</b>						
	Supply, Installation, Testing and Commissioning of Building Management System of Tenant energy billing software and associated Hardware / software for calculating HVAC energy consumption based on BTU and EB Billing for the occupants with system latest configurations.	1	Lot				
7	<b>Portable operator terminal</b>	1	Nos				
8	<b>DDC CONTROLLERS</b>						
	Automation stations / DDC Controller with I/O module etc., The controllers shall be microprocessor based standalone and net workable type with real time clock and historical database of min 1 MB. The DDC's shall be capable of peer to peer communication without help of system interface controller or PC. with locable mounting cabinets duly powder coated connector strip, internal wiring and space to house controller & relays, connector strip current transformer, MCB, internal wiring. (Contractor shall confirm his I/O provision w.r.t requirement on basis of data point) on BACnet /IP						
8.1	DDC Controller with MS enclosures for 3 AHU in 1 DDC	34	Nos				
8.2	DDC Controller with MS enclosures for 1 LL AHU & 1 Corridor Area AHU's in 1 DDC	13	Nos				
8.3	DDC Controller with MS enclosures for 1 Corridor Area AHU's in 1 DDC	13	Nos				
8.4	DDC Controller with MS enclosures for 1 HRW at LAB Floor	26	Nos				

Sl. No.	DESCRIPTION	Qty	Unit	SUPPLY (INR)		INSTALLATION (INR)	
				Rate	Amount	Rate	Amount
8.5	DDC Controller with MS enclosures for Common Area AHU's ( GF & BASEMENT )	6	Nos				
8.6	DDC Controller with MS enclosures for LL AHU & Smoke lobby Ex fan ( BASEMENT )	3	Nos				
8.7	DDC Controller with MS enclosures for Kitchen,Electrical, lobby smoke,Pump room,STP,LT panel room EXHAUST FAN	2	Nos				
8.8	DDC Controller with MS enclosures for PLANT Room & Ventilation fans	1	Nos				
8.9	DDC Controller with MS enclosures for BASEMENT Axail FANS	3	Nos				
8.10	DDC Controller with MS enclosures for & Façade Ventillation	1	Nos				
9	<b>Field Devices</b>						
9.1	Outside Air Temperature & RH Sensor	1	Nos				
9.2	Outside CO2 sensor	1	Nos				
9.3	Temperature & RH Sensor	65	Nos				
9.4	Temperature Sensor	100	Nos				
9.5	DP Sensor for electronic Filter / VFD Control	58	Nos				
9.6	DP Switch for Filter status for common area AHU & HRU	74	Nos				
9.7	Duct CO2 sensor for HRW	26	Nos				
9.8	Immersion Temp Sensor	RO	Nos				
9.9	Ultrasonic level water detection sensor- max 5mt as per specification	2	Nos				
9.10	Ultrasonic , Flame proof type HSD tank level sensor - max 5 mts	Qro	Nos				
9.11	Water Mass flow meter(transmitter) of 100 / 150 mm dia with electronic output of 4 to 20 milli amps with local indication and suitable fixing accessories	2	Nos				
10	<b>Ultrasonic BTU meters with 2 nos Temp. Sensors , Calculator</b>						

Sl. No.	DESCRIPTION	Qty	Unit	SUPPLY (INR)		INSTALLATION (INR)	
				Rate	Amount	Rate	Amount
10.1	125 mm Dia BTU Meter	RO	Nos				
10.2	50 mm Dia	93	Nos				
10.3	32 mm dia	0	Nos				
10.4	25 mm dia	1	Nos				
10.5	BTU Meter Integration - with Modbus Integration Tool for connecting 200 BTU Meters	1	Nos				
11	<b>VAV INTEGRATION CONTROLLERS AND CABLING</b>						
11.1	Supply , Installation, Testing and Commissioning of VAV INTEGRATION CONTROLLER ( VAV Supply with HVAC Vendor ) suitable for VAV's to transfer the VAV parameters thro BACnet to BMS vendor. ( 100 VAV )	3	Eac				
11.2	Supply , Installation, Testing and Commissioning 2 core 1.5 sq.mm PVC multistrand Cable in suitable PVC Conduit with PVC accessories on wall / ceiling for VAV integrations	3000	Mtrs				
12	<b>Cable &amp; Conduits</b>						
12.1	Signal cable for analog input & outputs : 2 Core X 1.0 mm PVC sheathed shielded copper cable ( unarmored)	6500	RMT				
12.2	Signal cable for digital input & outputs : 2 Core X 1.0 mm PVC sheathed un shielded copper cable ( unarmoured)	7000	RMT				
12.3	Signal cable for digital input & outputs : 3 Core X 1.0 mm PVC sheathed shielded copper cable ( unarmoured)	3400	RMT				
12.4	Signal cable for digital input & outputs : 4 Core X 1.0 mm PVC sheathed shielded copper cable ( unarmoured)	2700	RMT				
12.5	Communication cable 2 core X 1.5 sq.mm PVC cable as per specification	8000	RMT				
12.6	<b>Heavy duty PVC Conduit with Accessories</b>						
a	25mm	8000	RMT				
b	20mm	3600	RMT				

Sl. No.	DESCRIPTION	Qty	Unit	SUPPLY (INR)		INSTALLATION (INR)	
				Rate	Amount	Rate	Amount
13	<b>Testing and Commissioning</b>						
13.1	Towards the charges for Testing and commissioning of BMS system including the graphis , programming as per technical specification.	1	Job				
13.2	Towards the charges for documentation of IBMS system with Operator mannual , Drawing in suitable size ( floor wise, system wise )colour wit necessary lamination etc	5	Sets				
	<b>TOTAL</b>						
<b>II. FIRE ALARM SYSTEM</b>							
<b>Supply,Installation,Testing and Commissioning of following Fire alarm system Equipment</b>							
14	<b>Fire ALARM SYSTEM.</b> Analogue addressable micro Process - controlled Fire Alarm Control Panels, capable of being IP networked to the central monitoring System, to monitor and integrated the following quantity of accossries like detectors, MCP's/hooters/control modules, Fault Isolation Modules, hooters, response indicators, fire/fault indicators, audio-visual signals, central processing units, complete with LCD display, zone indicating LEDs as per the detailed specification: complete with Battery backup with charger for each panel. Each loop should provided with minimum 125 detectors /devices. ( panel should be expandable upto 20 loops for existing phase )						
	20 LOOP PANEL with 7 loop card for 3 basement , GF , 2nd to 12th floors	1	Set				
15	Supply, Installation, testing and commissioning of Repeater Panel	1	Nos				
	<b>MULTI SENSOR</b>						
16	Supply, Installation, testing and commissioning of Addressable analogue MUTISENSOR type detectors with dual chamber, solid state design, indicating LED, mounting base etc. as per detailed specification. ( <b>For below Ceiling / True Ceiling</b> )	619	Nos				
	<b>MULTI SENSOR</b>						

Sl. No.	DESCRIPTION	Qty	Unit	SUPPLY (INR)		INSTALLATION (INR)	
				Rate	Amount	Rate	Amount
17	Supply, Installation, testing and commissioning of Supply, Installation, testing and commissioning of Addressable analogue MUTISENSOR type detectors dual chamber, solid state design, indicating LED, mounting base etc. as per detailed specification. <b>(For above Ceiling ).</b>	63	Nos				
	<b>RESPONSE INDICATOR</b>						
18	Supply, Installation, testing and commissioning of <b>Response Indicator</b> with Twin LED type For Above Ceiling MULTI SENSOR Detector	63	Nos				
	<b>FAULT ISOLATION MODULE :</b>						
19	Fault isolation module to electrically isolate different sections of detector loops.	35	Nos				
	<b>MANUAL CALL POINT</b>						
20	Supply, Installation, testing and commissioning of Analogue addressable double action type Manual pull / call points with breakable glass	54	Nos				
	<b>ELECTRONIC HOOTERS</b>						
21	Hooter with relay module and storb light with minimum 85 db audible and control relay module, power supply units etc	54	Nos				
	<b>CONTROL MODULE</b>						
22	Addressable control module to trip the AHU,s, Access door, triggering the DVR etc	125	Nos				
23	Addressable monitor module for floors	26	Nos				
24	Addressable monitor module along with door contact for Fire doors	170	Nos				

Sl. No.	DESCRIPTION	Qty	Unit	SUPPLY (INR)		INSTALLATION (INR)	
				Rate	Amount	Rate	Amount
	<b>Duct Detector</b>						
25	Duct Detector (Addressable): Supply, Installation, Testing and Commissioning of Intelligent Addressable Duct Detectors as per technical specification with mounting accessories complete as required.	50	Nos				
	<b>MIMIC PANEL</b>						
26	Supply, fixing, testing and commissioning of 30 zone mimic panel as per the specification. The mimic panel shall have respective floor layout printed in the Acrylic sheet with suitable colour & LED indication as required by engineers incharge. The size of the mimic panel shall be A3 with suitable Powder coated base box. Also, the rate shall be inclusive of all power supply units, driver card, control MCB etc. The panel should be connected from Main fire alarm panel through bus cables. For 3 basement , 13 floors etc	1	each				
27	Supply, fixing, testing and commissioning of LCD Mimic Panel with inbuilt buzzer for Panic fire doors alone as per the specification . The panel should be part of fire alarm loop and monitoring should be captured thr' monitor module.						
	Suitable for 170 Doors	1	Nos				
	<b>CABLES</b>						
28	Supply,wiring,testing and commissioning of 2Cx1.5sq.mm twisted FRLS type,armoured insulated copper cable with clamps and accessories.(Red color)	4,600	Mtrs				
29	Supply,wiring,testing and commissioning of 2Cx1.5sq.mm twisted FRLS type,Shielded Unarmoured insulated copper cable in the existing Conduit.( Red color)	7,000	Mtrs				
30	Supply and laying 25 mm dia heavy duty PVC Conduit on wall and celing with suitable PVC accessories for FAS cabling.	6,750	Mtrs				

Sl. No.	DESCRIPTION	Qty	Unit	SUPPLY (INR)		INSTALLATION (INR)	
				Rate	Amount	Rate	Amount
31	Supply,wiring,testing and commissioning of Multi protocol Gateway module(BacNet) for 1000 Pts to integrate the Fire Alarm System to BMS.	1	Nos				
32	Supply , Installation Testing Commissioning of LHS cable for the Electrical cable Tray from the Substation to Main Building. The cable has to be laid along with the Electrical Tray as per technical specification. The rate shall be inclusive of interface module where ever necessary.	500	Mtrs				
<b>TOTAL</b>							
<b>III. PUBLIC ADDRESS SYSTEM</b>							
	<b>Supply, erection, testing and commissioning of the following items:</b>						
33	Supply, Installation, Testing and Commssioining of 6 Watt Ceiling Mounted Metal Speakers with line matching transformers & selectable tap setting as specified in the Tender Specifications for common area.	76	Nos				
34	Supply, Installation, Testing and Commssioining of 6 Watt Wall Mounted metal Speakers with line matching transformers & selectable tap setting as specified in the Tender Specifications for 3 basements	205	Nos				
35	Supply, Installation, Testing and Commssioining of 15 Watt Horn metal Speakers with line matching transformers and selectable tap setting as specified in the Tender Specifications for utility area	41	Nos				
36	Supply, Installation, Testing and Commssioining of 25 Watt weather proof Speakers with line matching transformers and selectable tap setting as specified in the Tender Specifications for car calling at Peripheral. The rate shall be inclusive 2 mt, 4" dia GI Pole with antocorrosive finish with all necessary civil works and founadtion etc.	6	Nos				

Sl. No.	DESCRIPTION	Qty	Unit	SUPPLY (INR)		INSTALLATION (INR)	
				Rate	Amount	Rate	Amount
37	Supply, Installation, Testing and Commissioning of 20 Zone Call Station, Stem Type Microphone, 2 mm thick CRCA Sheet Powder Coated Rack, Dual Tone Control for Speech & Music, integration facility with Fire Alarm System, tone generator & Speech Processor with relays for activating tone & pre-recorded fire alarm messages, facility to integrate with the base builder P.A System as specified in the Tender Specifications . The rate inclusive of Perianity module, selector switch etc.	1	No				
38	Supply, Installation, Testing and Commissioning of Rack Mounted minimum 480 W Power Amplifier as specified in the Tender Specifications	6	Nos				
39	Supply, Installation, Testing and Commissioning of Rack Mounted minimum 240 W Power Amplifier as specified in the Tender Specifications	qro	Nos				
40	Supply, Installation, Testing and Commissioning Pleana Voice Alarm Controoler with router	1	Set				
41	Supply, Installation, Testing and Commissioning of Wireless Mic	1	Nos				
42	Supply, Installation, Testing and Commissioning of Gooseneck Mic	1	Nos				
43	Supply, Installation, Testing and Commissioning of auto dialer for Fire Alarm System.	1	Nos				
44	Supplying, installing, testing and commissioning of 1 No. each of AM/FM Tuner with World space receiver , DVD player with overriding facility, Music Source Selector, with assignable priority on each channel to accept Music, Telephone, Microphone, Recorded message from Voice recorder etc., with in-built compressor and limiter. - License for World space reciver also need to be included for 6 years	1	Nos				

Sl. No.	DESCRIPTION	Qty	Unit	SUPPLY (INR)		INSTALLATION (INR)	
				Rate	Amount	Rate	Amount
45	Supply, Installation, Testing and Commissioning of Microprocesser	1	Nos				
46	Supply, Installation, Testing and Commissioning of 48 U Floor mount Rack to mount the Amplifiers.	1	Nos				
<b>Emergency Voice Communication system:</b>							
47	Supply, intallation, testing and Commissioning of Emergency voice communication instument for staircase (two way) with press to talk specility. The instrument should made out of Stainless steel place as per the specifiction	Qro	Nos				
48	Supply, intallation, testing and Commissioning of the minimum 18 ZONE Emergency voice communication system Control panel with necessary zone selector switch with monitoring speaker as per the detailed specification.	Qro	Nos				
49	Supply, Installation, Testing and Commissioning of Supply & Laying of 2 core 1.5 Sqmm armoured copper FRLS cable as specified in the Tender Specifications for EVC power	Qro	Mtr				
50	Supply, Installation, Testing and Commissioning of Supply & Laying of 4 core 1.5 Sqmm armoured copper FRLS cable as specified in the Tender Specifications for EVC	Qro	Mtr				
51	Supply and laying of 2 Core 1.5 Sq.mm shielded Cable in the existing PVC Conduit	6520	Mtr				
52	Supply and laying of 2 Core 1.5 Sq.mm shielded armoured Cable with clamp and accessories.	600	Mtr				
53	Supply and Laying of 20 mm. dia PVC Heavy duty Conduit with proper supportsand clamps and other accessories.	6000	Mtr				
<b>TOTAL</b>							

**IV. IP BASED CLOSED CIRCUIT TELEVISION SYSTEM**

Sl. No.	DESCRIPTION	Qty	Unit	SUPPLY (INR)		INSTALLATION (INR)	
				Rate	Amount	Rate	Amount
	<b>Supply, erection, testing and commissioning of the following items:</b>						
54	Supply, installation, testing, and commissioning of IP based 1/3 " CCD Dome camera, min 550 TVL resolution, and minimum lux level 0.5 lux, inclusive of POE, OSD menu button for programming, and all accessories complete.	41	Nos				
55	Supply, installation, testing, and commissioning of IP Based IR Dome Camera ( Min 30 mts ) with minimum 550 TVL resolution, with sensitivity of 0.3 lux at f 1.2 , inbuilt motion detection system inclusive of POE, OSD menu button for programming, and all accessories complete.	6	Nos				
56	Supply, installation, testing and commissioning of IP PTZ 4.8" Dome, Day/Night, Optical 36x, Digital 8x, 550TVL, F1.2, 0.1 lux (B/W), 0.01 lux (Digital Slow Shutter), Line Lock Sync., Multi-protocol, 8-Alarm-in / 8-out inclusive of POE .	4	Nos				
57	Supply, installation, testing and commissioning of Camera Server-latest , 4 Mb cache and 3.0 G hz or higher. suitable to connect max. 150 cameras with 5 User Licence. The rate shall inclusive of necessary camera Analytic softwre etc. The storage capacity should be minimum 90 days . It shall be 24 X 7 continuous recording with out any break.	1	Nos				
58	46 " LED Monitor - Desk / wall mounted	4	Nos				
59	Supply and Installtion of 1.2 Mtr height wall mounted GI bracket suitable to install PTZ camera inclusive of all necessary civil work.	4	Nos				
60	Supply and laying of Cat 6 copper cable	650	Mtrs				

Sl. No.	DESCRIPTION	Qty	Unit	SUPPLY (INR)		INSTALLATION (INR)	
				Rate	Amount	Rate	Amount
61	Supply and laying heavy duty PVC conduits with all necessary accessories as per site condition	600	Mtrs				
	<b>TOTAL</b>						
<b>V. ACCESS CONTROL SYSTEM &amp; BARRIERS</b>							
A	<b>Supply, installation, testing and commissioning of Access control system</b>						
	<b>1 DOOR CONTROLLERS</b>						
62	Supply, Installation, Testing and Commissioning of 1 Door controller ( 2 Reader ) Networkable type, 32 bit processor, 55000 card holder capacity and 45000 event memory with battery back up to power the EM Lock, Card Reader etc., as specified in the Tender Specifications for ( Basements + Exit Boom Barriers )	6	Nos				
	<b>2 DOOR CONTROLLERS</b>						
63	Supply, Installation, Testing and Commissioning of 2 Door controller ( 4 Reader ) Networkable type, 32 bit processor, 55000 card holder capacity and 45000 event memory with battery back up to power the EM Lock, Card Reader etc., as specified in the Tender Specifications for ( GF Lift Lobby +Entry Boom Barriers+tripod )	2	Nos				
	<b>4 DOOR CONTROLLERS</b>						
64	Supply, Installation, Testing and Commissioning of 4Door controller ( 8 Reader) Networkable type, 32 bit processor, 55000 card holder capacity and 45000 event memory with battery back up to power the EM Lock, Card Reader etc., as specified in the Tender Specifications for service corridor entry at typical floors.	12	Nos				
65	<b>READERS</b>						
a	Supply, Installation, Testing and Commissioning of Long Range Smart Card Readers for outdoor boom barriers as specified in the Tender Specifications	4	Nos				

Sl. No.	DESCRIPTION	Qty	Unit	SUPPLY (INR)		INSTALLATION (INR)	
				Rate	Amount	Rate	Amount
b	Supply, Installation, Testing and Commissioning of Smart Card Readers for outdoor boom barriers as specified in the Tender Specifications	64	Nos				
c	Supply, Installation, Testing and Commissioning of Bio metric Readers for Flap / Boom barriers as specified in the Tender Specifications	QRO	Nos				
d	Supply and installation of exit push button for service corridor	48	Nos				
e	Supply and commissioning of Electromagnetic Locks for Access Control System with necessary hardware as specified for centralized security monitoring.	48	Nos				
f	Supply and commissioning of Magnetic Contact for Access Control System with necessary hardware as specified for centralized security monitoring.	48	Nos				
g	Supply and commissioning of Door Contacts for all Fire Doors for monitoring door status with necessary hardware as specified for centralized security monitoring.	170	Nos				
	<b>CARDS</b>						
66	Supply, Installation, Testing and Commissioning of Smart Cards as specified in the Tender Specifications	1000	Nos				
	<b>SOFTWARE</b>						
67	Supply, Installation, Testing and Commissioning of Access Management Software as per technical specification.	1	Set				
	<b>FLAP BARRIER &amp; TRIPOD</b>						

Sl. No.	DESCRIPTION	Qty	Unit	SUPPLY (INR)		INSTALLATION (INR)	
				Rate	Amount	Rate	Amount
68	Supply, Installation, Testing and Commissioning of 2 lane ( 1 IN + 1 OUT ) Slim type Flap Barrier with Stainless steel housing as specified in the Tender Specifications	4	Nos				
69	Supply, Installation, Testing and Commissioning of 3 + 1 ( 2 IN + 1 OUT + 1 Handicap ) slim type Flap Barrier with Stainless steel housing as specified in the Tender Specifications at main entrance	1	Nos				
70	2 lane out door type, stainless steel housing Tripod ( 500 mm walk way) with dummy boxes , control units and accessories located at security/circulation entrance as per the drawing configuration and specification and suitable for mounting/ housing the access controllers/ readers as per requirement.	1	Nos				
	<b>BOOM BARRIER</b>						
71	Supply, Installation, Testing and Commissioning of 2.5 Mtr motorized Retractable Boom Barrier integrated to the access control for operation for 4 wheeler movement as specified in the Tender Specifications	4	Nos				
	<b>DOOR METEL DETECTOR</b>						
72	Supply, Installation, Testing and Commissioning of Door metal detector pulse induction Technology 8 Pairs of Transmittters and receivers , water proof/ weather proof, 8 zones, all zones individually adjustable as per spec provided	2	Nos				
	<b>CABLES</b>						
73	Supply, Installation, Testing and Commissioning of 8 core x 1.0 sq mm multi strand, shielded ATC, PVC Sheathed Cable to connect Card Readers to controller in 1" FRLS PVC Conduit as specified in the Tender Specifications	2200	Mtrs				

Sl. No.	DESCRIPTION	Qty	Unit	SUPPLY (INR)		INSTALLATION (INR)	
				Rate	Amount	Rate	Amount
74	Supply, Installation, Testing and Commissioning of 4 core x 1.0 Sq mm multi strand, ATC, PVC Sheathed Cable to connect access controllers in 1" FRLS PVC Conduit as specified in the Tender Specifications	1200	Mtrs				
75	Supply, Installation, Testing and Commissioning of 2 core x 1.0 Sq mm multi strand, ATC, PVC Sheathed Cable to connect access controllers in 1" FRLS PVC Conduit as specified in the Tender Specifications for power supply	1350	Mtrs				
76	Supply, Installation, Testing and Commissioning of 8 core x 1 Sq mm ATC, multi strand armoured PVC sheathed Cable to connect Boom Barrier card readers to controller inas specified in the Tender Specifications	1000	Mtrs				
<b>SYSTEM</b>							
77	Operator Workstation with latest intel micriprocessor, latest, 4 GB RAM, 1 TB HDD, 2.8 Ghz, Wirless keyboard, mouse, windows Operating system Software SQL with MS Office Software latest & Licenced Anti-Virus Software LED Monitor - 21 inch , DVD Writer, with A4 Size Laser Jet Printer	2	Nos				
<b>VISITOR PASS MANAGEMENT</b>							
78	Visitors management software as per technical specification and system PC Operator Workstation with latest intel micriprocessor, latest, 4 GB RAM, 1 TB HDD,3Ghz or above, Wirless keyboard, mouse, windows Operating system Software SQL with MS Office Software latest & Licenced Anti-Virus Software TFT Monitor - 21 inch , DVD Writer, with A4 Size Laser Jet Printer- Also, the PC shall be supplied with Web Camera.	2	Nos				
<b>UNDER VEICHLE SCAN SYSTEM</b>							

Sl. No.	DESCRIPTION	Qty	Unit	SUPPLY (INR)		INSTALLATION (INR)	
				Rate	Amount	Rate	Amount
79	Supply and providing of Under vechile boom detection system with necessary under floor camaras, monitors, connection wire, controll equipment etc. The rate shall inclusive of fixing the day/night camaras as per the manufacture supply .The equipment shall be located at nearest security Gate at entry side. The equipment should be provided along with speed hump at entry point.	Nos	QRO				
	<b>TOTAL</b>						

**VI. NETWORKING SYSTEM FOR CCTV**

A	<b>Copper Components</b>						
80	Supply and Laying of CAT6 Cable in the suitable heavy duty PVC Conduits on wall / ceiling with necessary PVC accessories	3075	Mtrs				
81	Supply, Installation, Testing and commissioing of CAT6 I/O point	112	Nos				
82	Supply, Installation, Testing and commissioing of Single Port Face Plate on wall with necessary fixing accessories	112	Nos				
83	Supply, Installation, Testing and commissioing of Mounting Box on wall with necessary fixing accessories	112	Nos				
84	Supply, Installation, Testing and commissioing of CA6 Patch Chords - 5M	112	Nos				
85	Supply, Installation, Testing and commissioing of CA6 Patch Chords - 2M	112	Nos				
86	24 Port CAT6 patch Panel - loaded	6	Nos				
87	IO Patch Panel	RO	Nos				

Sl. No.	DESCRIPTION	Qty	Unit	SUPPLY (INR)		INSTALLATION (INR)	
				Rate	Amount	Rate	Amount
B	<b>Fiber Components</b>						
88	50 / 125 µm (core/cladding) diameter, 500MHz Bandwidth, graded-index, low metal content, multimode fiber optic, complying with ITU-T G.651 and ISO/IEC 793-2 Type A1b or A1a, respectively	1250	Mtrs				
89	12 Port LIU with 12 SC Ports Panel	6	Nos				
90	SC Multimode Connector / coupler	72	Nos				
91	SC-LC Multimode Fiber Patch Chords (50/125uM) 2 m	12	Nos				
C	<b>Active</b>						
92	Supply, installation and testing of 24 port L3 10/100/1000 Base-T Fully managed switch, with 4Nos Dual-personality port either 10/100/1000 Base-T or SFP, 2 slot for future expansion provision with 10G connectivity and Redundant power supply. Switch Should be life time warranty till the customer own	1	Nos				
93	Supply, installation and testing of 24 port L2 10/100/1000 Base-T Fully managed switch, with 20Nos autosensing 10/100/1000Base-T port and 4Nos Dual-personality port either 10/100/1000 Base-T or SFP, Switch Should be life time warranty till the customer own	5	Nos				
94	Supply, installation and testing of MM Mini-Gig transceiver.	6	Set				
D	<b>Rack</b>						
95	15U Wall Mountable Rack with 6x5A Power Manager, 2 Horizontal Cable Manager Front Glass door with Lock	10	Nos				

Sl. No.	DESCRIPTION	Qty	Unit	SUPPLY (INR)		INSTALLATION (INR)	
				Rate	Amount	Rate	Amount
100	Networkable server 8TB	1	Nos				
	<b>TOTAL</b>						
<b>VII. COMMUNICATION SYSTEM FOR VOICE</b>							
A	<b>EPABX SYSTEM</b>						
101	Supply, installation, testing and commissioning of EPABX system of 50 lines (Expandable upto 500lines) with inbuilt voice guidance, auto attendant, call metering software with one no. operator console. Ready equipped with the features as per specifications. The rate shall include all allied and implied items for complete commissioning of the system. The incoming PSTN line shall be for 10 Nos. The rate shall also include the line side and outgoing side MDFs with suitable protections.	1	Nos				
	<b>TAG BLOCK</b>						
102	Supply, installation, testing and commissioning of following pairs of telephone tag block of recessed type enclosed in suitable MS box. The rate shall include all accessories and connected civil works for fixing the same as per specification.						
102.1	5 Pair	20	Nos				
102.2	20 Pair	1	Nos				
102.3	50 Pair	1	Nos				
	<b>TELEPHONE CABLE DISTRIBUTION</b>						
103	Supply and laying of 0.5mm dia. tinned flexible copper telephone wire complete with all accessories, wiring terminations, connected civil works, including supply of suitable dia heavy duty PVC conduit pipe, 16 GI fish wire & accessories, etc.						

Sl. No.	DESCRIPTION	Qty	Unit	SUPPLY (INR)		INSTALLATION (INR)	
				Rate	Amount	Rate	Amount
103.1	2 pair cable	2500	mts				
103.2	5 pair cable	1500	mts				
103.3	20 pair cable	75	mts				
103.4	50 pair cable	20	mts				
	<b>TELEPHONE JACK</b>						
104	Supply and Installation of Telephone jack, in single face plate in suitable PVC box on wall with necessary accessories	50	each				
105	IP Phone as per specification	20	each				
106	Analogue Phone for specification	5	each				
107	Supply and Installation of 1 KVA online UPS with 2 hr back up for EPABX system with necessary Electrical wiring for EPABX	1	each				
	<b>TOTAL</b>						
<b>VIII. BUILDING MANAGEMENT ASYSTEM FOR BTCIF AT FIRST FLOOR</b>							
108	<b>Network controller:</b> Providing, installing, testing and commissioning of Web Based Network Supervisory Controller unit for connecting all controllers to it and transferring data to PC platform.& Soft Integration with VFD & Chiller.	QRO	Lot				
109	<b>DDC CONTROLLERS</b>						

Sl. No.	DESCRIPTION	Qty	Unit	SUPPLY (INR)		INSTALLATION (INR)	
				Rate	Amount	Rate	Amount
	<b>Automation stations / DDC Controller</b> with I/O module etc., The controllers shall be microprocessor based standalone and net workable type with real time clock and historical database of min 1 MB. The DDC's shall be capable of peer to peer communication without help of system interface controller or PC. with locable mounting cabinets duly powder coated connector strip, internal wiring and space to house controller & relays, connector strip current transformer, MCB, internal wiring. (Contractor shall confirm his I/O provision w.r.t requirement on basis of data point) on BACnet /IP						
a	DDC Controller with MS enclosures for 1 LAB AHU	16	Nos				
110	<b>Field Devices</b>						
110.1	Differential pressure switch across the AHU fan	16	Nos				
110.2	Return air duct temperature and RH sensor	16	Nos				
110.3	Thyristor control for heater bank	16	Nos				
110.4	Room Temperature and RH sensor for room monitoring	16	Nos				
110.5	Static pressure sensor	16	Nos				
110.6	Differential pressure switch for air of suitable range (across filter G4)	16	Nos				
110.7	Differential pressure switch for air of suitable range (across filter F7)	16	Nos				
110.8	Differential pressure sensor for HEPA filter monitoring -EAU-1	16	Nos				
110.9	Stand Alone Type Room mounted display unit for Temp/ RH. duly mounted inside MS box with SS cover	QRO	Nos				

Sl. No.	DESCRIPTION	Qty	Unit	SUPPLY (INR)		INSTALLATION (INR)	
				Rate	Amount	Rate	Amount
111	<b>Ultrasonic BTU meters with 2 nos Temp. Sensors , Calculator etc of the following sizes</b>						
111.1	125 mm Dia BTU Meter	1	Nos				
112	<b>VAV INTEGRATION CONTROLLERS AND CABLING</b>						
112.1	Supply , Installation, Testing and Commissioning of VAV INTEGRATION CONTROLLER ( VAV Supply with HVAC Vendor ) suitable for VAV's to transfer the VAV parameters thro BACnet to BMS vendor. ( 70 VAV )	1	Lot				
112.2	Supply , Installation, Testing and Commissioning 2 core 1.5 sq.mm PVC multistrand Cable in suitable PVC Conduit with PVC accessories on wall / ceiling for VAV integrations	2500	Mtrs				
113	<b>Cable &amp; Conduits</b>						
113.1A	Signal cable for analog input & outputs : 2 Core X 1.0 mm PVC sheathed shielded copper cable ( unarmored)	3350	RMT				
113.1B	Signal cable for analog input & outputs : 2 Core X 1.0 mm PVC sheathed shielded copper cable ( armored)	QRO	RMT				
113.2A	Signal cable for digital input & outputs : 2 Core X 1.0 mm PVC sheathed un shielded copper cable ( unarmoured)	3350	RMT				
113.2B	Signal cable for digital input & outputs : 2 Core X 1.0 mm PVC sheathed un shielded copper cable ( armored)	QRO	RMT				
113.3A	Signal cable for digital input & outputs : 3 Core X 1.0 mm PVC sheathed shielded copper cable ( unarmoured)	800	RMT				
113.3B	Signal cable for digital input & outputs : 3 Core X 1.0 mm PVC sheathed shielded copper cable ( armored)	QRO	RMT				
113.4A	Signal cable for digital input & outputs : 4 Core X 1.0 mm PVC sheathed shielded copper cable ( unarmoured)	1200	RMT				

SI. No.	DESCRIPTION	Qty	Unit	SUPPLY (INR)		INSTALLATION (INR)	
				Rate	Amount	Rate	Amount
113.4B	Signal cable for digital input & outputs : 4 Core X 1.0 mm PVC sheathed shielded copper cable (armoured)	QRO	RMT				
113.5	Communication cable 2 core X 1.5 sq.mm PVC cable as per specification	1400	RMT				
114	<b>Heavy duty PVC Conduit with Accessories</b>						
114.1	25mm	1000	RMT				
114.2	20mm	500	RMT				
115	Supply and rection of GI slotted type cable trays using MS angle , channels, flats etc.,. All MS supports used shall be given one coat of red oxide primer and 2Coats of synthetic enamel paint of approved colour .150mm (w)x60mm (h) with all mounting accessories for floor mounting & wall /ceiling mounting	350	Mts				
	<b>TOTAL</b>						
<b>IX. FIRE ALARM SYSTEM AND ACCESS CONTROL SYSTEMS FOR BTCIF AT FIRST FLOOR.</b>							
116	<b>FIRE ALARM PANEL</b>						
	Supply, Installation, Testing and Commissioning of 2 Loop Panel with 1 Loop card for Analog Addressable Fire Alarm devices with necessary interface hardware & software, interface to a Repeater panel etc.,necessary interface card for integrating to similar Fire Alarm Panels and battery back up to power all the detectors & devices as per technical specification. panel should be networkable type with main FAS panel.	1	No.				
117	<b>DETECTORS</b>						
	<b>MULTI SENSOR</b>						

Sl. No.	DESCRIPTION	Qty	Unit	SUPPLY (INR)		INSTALLATION (INR)	
				Rate	Amount	Rate	Amount
	Supply, Installation, testing and commissioning of Addressable analogue MUTISENSOR type detectors with inbuilt isolator base with dual chamber, solid state design, indicating LED, mounting base etc. as per detailed specification. <b>( For Above Ceiling / True Ceiling )</b>	30	NOS				
	<b>RESPONSE INDICATOR</b>						
118	Supply, Installation, testing and commissioning of <b>Response Indicator</b> with Twin LED type For Above Ceiling MULTI SENSOR Detector	30	NOS				
	<b>MULTI SENSOR</b>						
119	Supply, Installation, testing and commissioning of Supply, Installation, testing and commissioning of Addressable analogue MUTISENSOR type detectors with inbuilt isolator base with dual chamber, solid state design, indicating LED, mounting base etc. as per detailed specification. <b>(For Below Ceiling )</b> .	63	Nos				
120	Duct Detector (Addressable): Supply, Installation, Testing and Commissioning	5	Nos				
	<b>MANUAL CALL POINT</b>						
121	Supply, Installation, testing and commissioning of Analogue addressable double action type Manual pull / call points with breakable glass	8	Nos				
	<b>ELECTRONIC HOOTERS</b>						
122	Supply, Installation, testing and commissioning of Analogue addressable <b>Loop sounders</b> .	8	Nos				
	<b>CONTROL RELAY MODULE</b>						
123	Supply, Installation, testing and commissioning of Addressable Control relay modules to shut down FCUs, AHUs and other plant equipment as per BMS I/O Summary for respective floors.	21	Nos				
	<b>LPG GAS DETECTOR</b>						

Sl. No.	DESCRIPTION	Qty	Unit	SUPPLY (INR)		INSTALLATION (INR)	
				Rate	Amount	Rate	Amount
124	Supply, Installation, testing and commissioning of Addressable type LPG Gas Detector for canteen area.	1	Nos				
	<b>MONITOR MODULE</b>						
125	Supply, Installation, testing and commissioning of Addressable Monitor modules as input device for respective floors.	16	Nos				
	<b>CABLES</b>						
126	Supply,wiring,testing and commissioning of 2Cx1.5sq.mm twisted FRLS type,armoured insulated copper cable.	500	Mtrs				
127	Supply,wiring,testing and commissioning of 2Cx1.5sq.mm twisted FRLS type,Shielded Unmoured insulated copper cable in the existing Conduit.	2,500	Mtrs				
128	Supply and laying 25 mm dia PVC Conduit on wall and celing with suitable PVC accessories for FAS cabling.	500	Mtrs				
	<b>TOTAL</b>						
129	<b>ACCESS CONTROL SYSTEM</b>						
	<b>Access Door Controller</b>						
	Supply, Installation, Testing & Commissioning of RS485 based 4 Reader Controller as per technical specification with indicating lamp, mounting base and all other mounting accessories complete as required.	3	Nos				
130	<b>Smart Card Readers</b>						
	Supply, Installation, Testing & Commissioning of Smart Card Readers for Indoor Application as per technical specification with indicating lamp, mounting base and all other mounting accessories complete as required.	11	Nos				
131	Supply, Installation, Testing and Commssioining of Electro Magnetic lock with required mounting accessories, ZL brackets (where ever required) for all type of doors and with external (surface / recess mountable) door contacts	12	Nos				

Sl. No.	DESCRIPTION	Qty	Unit	SUPPLY (INR)		INSTALLATION (INR)	
				Rate	Amount	Rate	Amount
132	Supply and commissioning of Magnetic Contact for Access Control System with necessary hardware as specified for centralized security monitoring.	12	Nos				
133	Smart cards with labelling as per client requirement	200	Nos				
	<b>Cable &amp; Conduiting</b>						
134	Supply, Installation, Testing and Commissioning of 8 core x 1.0 sq mm multi strand, shielded ATC, PVC Sheathed Cable to connect Card Readers to controller in 1" FRLS PVC Conduit as specified in the Tender Specifications	1750	Mtrs				
135	Supply, Installation, Testing and Commissioning of 4 core x 1.0 Sq mm multi strand, ATC, PVC Sheathed Cable to connect access controllers in 1" FRLS PVC Conduit as specified in the Tender Specifications	500	Mtrs				
	<b>TOTAL</b>						
	<b>Grand Total</b>						

<b>TICEL BIO PARK LIMITED,</b>		
<b>INTEGRATED BUILDING MANAGEMENT SYSTEM</b>		
<b>Bill of Quantities</b>		
<b>X. Operating Contract for Six Years Including during Two Years Defects Liability Period (<u>Considered for Evaluation Purpose</u>)</b>		
<b>Sl. No.</b>	<b>Description of Work</b>	<b>Lumpsum Fee in Rs.</b>
<b>1</b>	<b>Operation</b>	
	Full time round the clock and year round, operation of the IBMS Systems of Ticel Bio park II in the premises including keeping log books, generating the occupants bills and records of maintenance etc.The quoted rates inclusive supply of papers, catradges, catradges for ID Card printer, visitor management badging materials, etc.,	
	The man power to be deployed. Detailed in the annexure enclosed	
<b>a.</b>	First year after Handing over the Installation – Quote Lumpsum Fee for one year.	
<b>b.</b>	Second Year – Quote Lumpsum Fee for one year.	
<b>c.</b>	Third Year – Quote Lumpsum Fee for one year.	
<b>d.</b>	Fourth Year - Quote Lumpsum Fee for one year.	
<b>e.</b>	Fifth Year – Quote Lumpsum Fee for one year.	
<b>f.</b>	Sixth Year – Quote Lumpsum Fee for one year.	
<b>Note:1. The escalation for maintenance cost for any consecutive year should not exceed 5% value of the Lump sum rate quoted by the tenderer.</b>		
<b>Required man power enclosed as Annexure -I</b>		

Place :

Date :

Signature of Tenderer(s)

<b>TICEL BIO PARK LIMITED,</b>		
<b>INTEGRATED BUILDING MANAGEMENT SYSTEM</b>		
<b>Bill of Quantities</b>		
<b>XI. Comprehensive Maintenance Contract Fee for Six Years including Two years defective liability period ( <u>for Evaluation Purpose</u> )</b>		
S.No.	Description of Work	Lumpsum Fee in Rs.
1	<b>Maintenance :</b>	
	Comprehensive Maintenance of the system supplied, installed, Commissioned for 6 years including the Defects Liability Period of 2years. This will include start up / commissioning routine servicing, regular maintenance, preventive maintenance of equipments and components and break down repairs as and when occurred, ensuring that system does not remain out of service for a period more than 8 hours in case of major breakdowns and one hour in the case of minor breakdowns due to any unforeseen break down. TICEL will provide the Water / Electricity power, etc.	
	The successful tenderer shall keep the essential spares at TICEL site during the Contract Period to <b>avoid</b> the delay in attending faults / maintenance.	
a.	Third Year after DLP period of Two year – Quote Lumpsum Fee for one year.	
b.	Fourth Year – Quote Lumpsum Fee for one year.	
c.	Fifth year – Quote Lumpsum Fee for one year.	
d.	Sixth Year – Quote Lumpsum Fee for one year.	
	<b>Total C/o to Summary - Amount in Rs.</b>	
<b>Note:1. The escalation for maintenance cost for any consecutive year should not exceed 5% value of the Lump sum rate quoted by the tenderer.</b>		
<b>Required man power enclosed as Annexure -I</b>		

Place :

Date :

Signature of Tenderer(s)

**ANNEXURE-I****Minimum man power requirement for operation and comprehensive maintenance of integrated building management systems**

<b>Sl. No</b>	<b>Designation</b>	<b>No. of Persons</b>	<b>Minimum Qualification</b>	<b>Minimum Experience (No. of Years)</b>
1	System operators	ONE	Degree in Electronics & Communications Engineering  (OR) Diploma in Electronics & Communications Engineering	Degree Holder-3 Years experience in Construction /O & M experience and should have worked in similar nature of project, after graduation ( OR ) Diploma Holder-5 Years experience in Construction /O & M experience and should have worked in similar nature of project, after graduation
2	Technicians 3 persons on shift	THREE	Diploma in Electronics & Communication / Instrumentation / Electrical & Electronics Engineering.	Diploma Holder-3 Years experience in Construction /O & M experience and should have worked in similar nature of project, after graduation

**Note:**

- (i) With the above 4 persons, 24 X 7 services are to be provided including leave reliever.
- (ii) The above man power is minimum requirement for 24X7Hours Operation and Maintenance of Integrated Building Management Systems works. In case of annual maintenance, major Break downs, Emergency situations, etc. contractor has to provide required manpower, tools, tackles, etc to full fill the contractual requirement. If Contractor feels that the above minimum manpower is not adequate for operation and maintenance of Integrated Building Management Systems works, the contractor shall engage more manpower with in quoted price.
- (iii) The O&M is on round the clock service on Seven days per week.

**Payment:**

- (iv) **The payment will be made on quarterly basis on submission of bills along with all relevant details / including particulars of attendance, EPF, ESI remittance and other statutory provisions. The attendance particulars are subject to verification with TPCL IBMS reports / records.**
- (v) **In case the services are not upto the mark (or) inadequate manpower are provided and corrective actions are not taken within Ten days a penalty equal to One month of O&M charges of that month will be levied as decided by TPCL.**

**Signature of the bidder with seal**