



SANJAY GANDHI POST GRADUATE INSTITUTE OF MEDICAL SCIENCES

RAEBARELI ROAD, LUCKNOW-226014 (U.P.), INDIA

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PRE-BID NOTICE

A Supply/Installation/pre-bid meeting is being organized for Testing/Commissioning of New Pneumatic Tube System (PTS) for EMRTC/ADC/New Diagnostic Block/134-bedded ward area of the SGPGIMS, Lucknow with its integration with existing Pneumatic Tube System (PTS) under turnkey project. Interested bidders are invited to attend the meeting as per schedule mentioned below:

Date: 25.08.2026 Time: 03.30 PM

Venue: Tele-Medicine Auditorium, SGPGIMS, Lucknow.

- Details and technical guidelines for above system are available on Institute's website www.sgpgims.org.in.
- Interested bidders may also contact Mr. Yogendra Kumar, Nodal Officer (PTS) Mobile no 8004968672 for any query/visit.

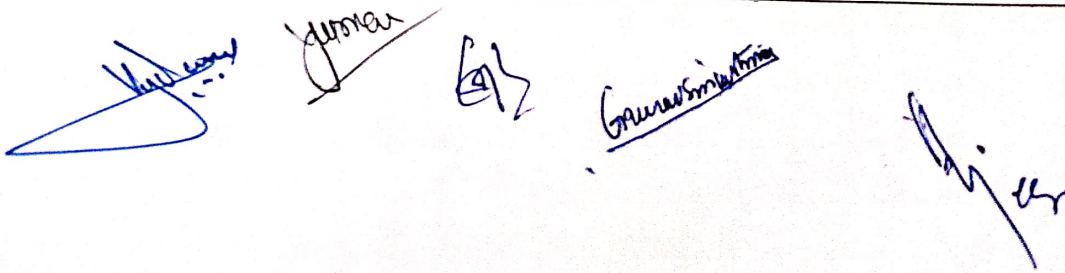
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"New PTS Tender" (Technical & Specific Guidelines)

SPECIAL CONDITIONS FOR DESIGN, SUPPLY, INSTALLATION, COMMISSIONING OF NEW PTS SYSTEM AND ITS INTEGRATION WITH THE EXISTING AEROCOM AC-3000 SYSTEM UNDER TURNKEY PROJECT WITH ITS OPERATION & MAINTENANCE OF ON 24X7X365 BASIS.

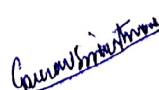
Section 1

S.NO	SPECIAL CONDITIONS
1.	These special conditions, unless repugnant to the context, read together with the general conditions shall form part of the contract. In case any condition conflicts with the provisions made in the general conditions, then the special conditions shall prevail.
2.	It will be a turn-key project inclusive of design, supply, installation & commissioning of the system in the new hospital areas like EMRTC/ADC & existing zone of New Diagnostic Block /134 bedded area the old hospital building.
3.	System External tube diameter should be 160mm, extendable up to 254 Stations divided into 32 Zones along with transfer zones to be integrated with presently installed & functioning of the PTS system i.e., Aerocom AC 3000 model.
4.	Under turnkey project of new PTS System, successful bidder shall carry out upgradation of the existing Aerocom AC 3000 Pneumatic Tube System components as specified below, Free of Cost (FOC), i.e., at no additional charge to the Institute beyond the accepted contract price: • Zone Controller: Upgrade of firmware and/or hardware of the existing Zone Controller(s) of the Aerocom AC 3000 system to ensure full compatibility, seamless communication, and interoperability with the newly installed PTS network under this contract. • Unicorn PCB: Replacement or upgrade of the Unicorn Printed Circuit Board(s) in the existing system, including any associated firmware update, to ensure compatibility with the integrated network and uninterrupted carrier traffic across old and new zones. • Central Processing Unit (CPU) and PC / Workstation: Upgrade or replacement of the existing system CPU and the supervisory PC / workstation used for monitoring and control of the Aerocom AC 3000 system, including reinstallation and reconfiguration of the PTS management software, to support the expanded integrated network without performance degradation. • Software Upgradation: All PTS management, monitoring, diagnostic, and reporting software associated with the Aerocom AC 3000 system shall be upgraded to the latest stable version available at the time of commissioning, to support unified operation of the complete integrated PTS network. • Replacement all existing transparent transport tubes in the existing hospital area that have become old, hazy, discoloured, or have lost transparency due to wear and ageing, to ensure proper visibility and reliable operation of the integrated Pneumatic Tube System. The replacement tubes shall conform to the specifications of the new system and shall be compatible with the existing PTS network. • Replacement of Existing Carriers: The successful bidder shall inspect all existing carriers of the Aerocom AC 3000 Pneumatic Tube System and replace, free of cost (FOC), all carriers that are worn out, damaged, cracked, leaking, deformed, have defective lids, runners, seals, RFID tags, locking mechanisms, or are otherwise unserviceable due to wear and tear or ageing. • The repairing or replacement of damaged existing carriers shall be carried out using of the same size and type, fully compatible with both the existing and newly installed PTS systems, and shall conform to the specifications and requirements of this tender.



S.NO	SPECIAL CONDITIONS
	The scope, make, model, and quantity of components to be upgraded under this clause shall be confirmed by the bidder after site inspection as specified under Clause 3 above. All such upgrades shall be completed and demonstrated to the satisfaction of the Institute prior to issuance of the Completion Certificate. No separate payment shall be made for any material, labour, or services associated with the upgradation work covered under this clause.
5.	The tenderer (or his designated representative) shall visit and inspect the Institute premises, interact with the users to ascertain the requirements, locations, possible routes and submit a design with single line diagram and bill of quantities (BOQ), showing the components of the PTS system and proposed routes, entry and exit provisions for the tubes on the proposed routes at various situations to meet the objectives laid down in the system requirement document, as part of the "Technical bid".
6.	The bidder shall inspect and familiarize himself with the existing installed Aerocom AC3000 PTS system, associated hardware, software, controllers, communication architecture, and interfaces before submission of the bid. No additional claim, compensation, extension of time, or relief on account of lack of knowledge of the existing system or integration requirements shall not be entertained after award of the contract.
7.	The "price bid," indicating the rates, item wise amounts and total amount, based on the BOQ shall be submitted in a separate sealed cover as "Price bid." The bill of quantities (BOQ) shall comply with the conditions indicated in the format for BOQ attached with these tender documents and the quoted rates shall be deemed to be all inclusive taking into consideration the locations & design requirements and all terms, conditions and specifications described in the tender documents.
8.	A compliance sheet showing agreement to / compliance against each specification or requirement including integration of new system with existing PTS system of AEROCOM AC 3000 model with respect to hardware and software compliance shall be submitted. Any non-compliance or deviation shall be specifically indicated, with an alternative proposal as applicable.
9.	The tenderer shall submit detailed calculations to show the maximum carrier transit times and substantiate that the same meets the requirements laid down along with proof.
10.	To ensure this the route between all existing PTS network and proposed new project will be having separate UP ↑ and DOWN ↓ transportation facility of carrier with dedicated tube system.
11.	The work shall be taken up after submission and approval (by the Institute) of the detailed layout drawings, showing the tube routes, location of openings, details of closure and sealing of openings, locations of all peripheral wiring, accessories etc and plant room layout, panel details etc. by the committee designated by the Institute.
12.	Installation works, including making openings/ core cutting etc. shall be carried out after specific written approval of the Institute to carry out works in an area/ building or room. The Tenderer shall give prior notice of at least 7 days in writing of his program, clearly indicating the expected time for completion and clearing of the area, so that disruptions, if any, and alternative arrangements are planned.
13.	The Institute reserves the right to vary the scope, requirements, design and quantities of work at any stage. Variations, if any, shall be adjusted as per tendered/ accepted rates.
14.	The rates quoted should include all costs, including but not limited to- taxes, statutory levies and costs towards meeting statutory requirements for carrying out and proper completion of works, testing, commissioning, operation and maintenance of the PTS system, except the items to be provided by the Institute. Statutory deductions, as per applicable rates, rules and laws in force shall be deducted from






S.NO	SPECIAL CONDITIONS
	the bills of the tenderer.
15.	Statutory approvals for the works, system or any of its components, if required on behalf of the Institute shall be coordinated and obtained by the bidder. The Institute shall provide the necessary authority/ signatures of the authorized official and reimburse the statutory fees against submission of documents.
16.	The entire materials, equipment, software, and works covered under the contract shall be provided with a comprehensive and unconditional warranty for a period of five (5) years from the date of successful installation and commissioning. During this period, all defects, deficiencies, failures, or malfunctions arising from design, manufacture, supply, installation, workmanship, software, or integration issues shall be repaired, rectified, or replaced free of cost, including all necessary spare parts, materials, labour, transportation, and other incidental expenses. Thereafter, the Contractor shall remain responsible for the operation and maintenance of the complete integrated PTS system for a further period of ten (10) years and comprehensive maintenance for an additional period of five (5) years, as provided elsewhere in the contract, ensuring uninterrupted and satisfactory functioning of the system throughout the entire contract period.
17.	The Contractor shall maintain adequate inventory of critical spare parts either at site or at its regional service centre to ensure uninterrupted operation and timely restoration of services.
18.	A performance bank Guarantee (PBG) equal to 15% of the order value shall be submitted at the time/ before shipment or supply of goods. The PBG shall be valid up to the expiry of the maintenance and operation period of 10 years. The PBG shall be released as below: (a) Two-thirds PBG upon satisfactory completion of the warranty period of 5 (five) years (b) One-third PBG upon satisfactory completion of the 10 (ten) year period of operation. The PBG shall be on the standard format of the Institute.
19.	The tenderer shall provide free of cost initial onsite training for operation of the system to the hospital staff (approx 250 no's), in suitable batches during commissioning. Further training shall be carried from time to time on repeated basis, for new or old staff in suitable batches, as and when required.
20.	The tenderer shall provide free of cost training for operation, maintenance, settings & configurations, software etc of the system to the to the Engineering & maintenance personnel (approx six no's) during commissioning.
21.	Further in continuous to above para 8,11 & 12, For integration of new PTS installation of EMRTC/ADC/APC with existing PTS system of main hospital, interlink through bridges between new hospital building to ADC & ADC to EMRTC & EMRTC to APC up to new PTS control room of PTS at proposed site near EMRTC is to be included in the project and to be executed by vendor. *Institute Engineer Department is also having plan to about sky walk near EMRTC/ADC/APC & main hospital (Prepared plan provided by Eng deptt is enclosed for reference of vendor.)

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Section 2.

SPECIFICATIONS/ FEATURES FOR COMPONENT ITEMS OF PTS SYSTEM

ITEM NO	SPECIFICATION / ESSENTIAL FEATURES
1.	CENTRAL CONTROLLER
1.1.	The controller should be windows PC based and the software should be accessible, with authorization, over a local network for reprogramming, status check and statistics.
1.2.	Provision for authorization of up to twenty users with programmable access levels for – super administrator, programming / reprogramming of entire system components, reprogramming select zone, operational functions, online operation view, statistical function view and maintenance or a combination.
1.3.	Provision for designation of at least one additional PC on LAN for taking over functions of central controller in case of failure of controller PC OR supply one additional standby PC fully configured and loaded with necessary software for immediate takeover of controller function. The tenderer shall ensure backing up of the statistical data, PTS system configurations and operating parameters on a continuous basis in the standby PC.
1.4.	The controller shall be a latest windows PC/ server, designed for 24x7x365 operation, with 17" LCD screen, 8 GB RAM (Upgradeable to 12 GB), 500 GB SSD/HDD, keyboard, optical mouse, standalone UPS, power conditioner for voltage variation 170 to 270 V and spike suppresser etc, with required LAN, USB, Cell phone and other ports and hardware for connections to the cell phone/ SMS, Net client Popup etc. Hardware should include a local Laser printer, the PC and its operating system should be the current state of art, at the time of supply.
1.5.	Modem, adapter, data card or any other substitute for GSM cell phone shall be included with all accessories so that the system can be started with insertion of SIM card (To be provided by the Institute, if separate SIM is required) for arrival signals and system on, shut down, breakdown or malfunction reports to designated numbers.
1.6.	Internet connectivity to the Controller if required for operation or maintenance shall be provided by the tenderers, at his own expense.
1.7.	Necessary upgrades for the software for migration to later generations of PC and operating system shall be provided free of cost, as and when released, up to a period of 10 years from the date of commissioning. At the completion of the 10-year operation period, the latest OS and controller software shall be provided and loaded, free of cost.
1.8.	In case separate individual zone controllers are provided, these should be fully programmable from the PC controller.
1.9.	Zone configuration should be set for departure in less than 5 second from initiation by the central controller, within which time all diverters end route, stations should be moved to

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88
338

ITEM NO	SPECIFICATION / ESSENTIAL FEATURES
	required position and blower should receive start command.
1.10.	Communications system to various devices in the system should have adequate capacity and speed for additional 10% stations in each zone and for the proposed future expansion of equivalent number of zones/ stations and Linear coupler.
1.11.	System design standard- Time: • Controller ready for next dispatch in Zone after last delivery - <0.5 sec • Destination recognition upon entry and placement of carrier at station or delivery from transfer/ coupler to line and issue of command by controller to all peripherals in zone end/ transfer or destination station (if in same zone) - <0.5 sec • Zone configuration – all diverters, stations etc enroute to move in required position and confirm -- <5 sec
1.12.	Communication protocol: • Data refresher/ DDC/ DCE : USB or Ethernet/ RS 232 • Zone master/ Stations/ diverters/ blowers' control: RS485 using balanced (3 wire- +ive, -ive & ground) twisted shielded Cu cable. • Linear coupler (s) : Ethernet/ RS 485
1.13.	The communication hardware shall comply with the stated specifications, in the catalogue/ technical brochure/ technical bid, in all other respects, as applicable and should include power supply, signal boosters, cabling and all other requisites for proper functioning of the system.
1.14.	The communication system shall have adequate provision for expansion of PTS system- both within the existing buildings and future expansion, including additional linear coupler and it should be integrated with the existing PTS system installed and operational in the current hospital building with the new PTS System to form a single unified and seamless network.
1.15.	In case of power breakdown, the controller should automatically restart the system and continue ongoing incomplete transactions without any intervention.
1.16.	The controller should be capable and licensed for installation/operation of up to 350 stations and 128 zones with multiple numbers and combinations of zone transfers- linear couplers or direct transfers or short circuits.
1.17.	The controller should allow multiple programmable destinations/ users with separate arrival signals.
1.18.	In addition to arrival signals at stations, arrival notification to individual destination/ user should be possible by SMS/ Net client Pop up.
1.19.	The controller should be capable to provide system breakdown or malfunction notifications by SMS and Net client Pop up, using predesignated plain text messages.
1.20.	Fully graphical programming of zones and all other component parts.
1.21.	Fully graphical, real-time display of movement of carriers in the system using optical/ electronic sensors. No mechanical switches shall be acceptable.
1.22.	Monitoring of the all-system components- sensors, motors, diverters, coupler, blowers etc for any faults. Alarm in case of any malfunction with un coded text.
1.23.	Count individual carrier transactions and programmable collection at designated locations for inspection and maintenance. This feature should be selectable by the super administrator.







39
337

ITEM NO	SPECIFICATION / ESSENTIAL FEATURES
1.24.	Control blowers' power so that that blowers are switched off after completion of carrier transaction to save power.
1.25.	Zone purge, full purge and lost carrier search functions.
2.	SOFTWARE FEATURES
2.1.	The controller should have full live real time communication, supervision of all system components/ accessories and graphical display of system functioning showing graphically all carrier transit operations on the controller display. GUI interface for line/ zone programming, control, servicing and maintenance.
2.2.	Full operation statistics of the system- carrier transactions numbers at stations, diverters, coupler etc and transaction start, end and delivery time, zone, diverter, blowers, couplers, transfer statistics, flow analysis, delay analysis etc, and data storage for last minimum fifty thousand transactions. Indication of disk usage and alarm for backup storage at 75% disk full. Facility to export log files in other popular formats such as excel, access, .pdf etc.
2.3.	Priority/ overtake should be possible by any of the following actions:
2.3.1.	Priority selected from any authorized sending station within the zone. The priority authorization should be programmable (Allow/ Not allow).
2.3.2.	Priority selection from a predesignated sending station- higher priority than other non-predesignated stations. Pre designation should be programmable.
2.3.3.	Carriers sent to stations preassigned as priority receiving shall have highest priority.
2.4.	Within the same priority group as above (2.3.1-3), carriers sent earlier shall have earlier priority.
2.5.	The software should allow for programming of intermediate short circuits/ zone transfers (without blower) and independent lines and should select shortest path/ time automatically.
2.6.	Programmable station closed, follow me function with calendar and real time clock.
2.7.	Should have provision for input from existing Fire/ Smoke detector and switching off blower of effected zone.
3.	ZONE CONTROLLER
3.1.	Shall be EEPROM based, heat sink cooled without fan and suitable for operation at 0 – 51°C ambient temperature.
3.2.	Shall be able to function in case failure of main controller/ communications to main controller, independently and allow PTS services within the one.
3.3.	Shall be fully programmable / reconfigured from the main controller, without disruption of the services.
4.	STATION, FRONT LOADING, WITH LOCKABLE COVER, SEND RECEIVE AND THROUGH (Vertical mounting) :
4.1.	Station should be complete with its power supply.
4.2.	Should have normally closed carrier receptacle cover on front for controlled access- key lock or PIN lock possible. The cover should be transparent (or window) for visibility of carrier arrival/ send.
4.3.	should have send and receive functions

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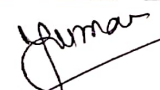
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4.4.	should be able to function as through or end station
4.5.	fully integrated decelerating-device for air-cushioned carrier arrival
4.6.	no air-exhaust at the station
4.7.	Software controlled DC motor/ Servo motor and maintenance free electronic sensors (optical sensor/ proximity sensors/ linear guide/ incremental encoder) for positioning.
4.8.	Positioning movement on roller bearings.
4.9.	Flexible, self-adjusting Teflon seals for air tube.
4.10.	Delivery into an open receiving basket or Integrated basket and rack for empty carriers.
4.11.	Microprocessor station controls, wiring plug able and front opening cover for all electrical/ mechanical maintenance / check operations suitable for recessed/ flush installation. Internal mechanism, wiring and components etc. should be access protected.
4.12.	Ergonomically and aesthetically designed metal (steel) housing, epoxy powder coated finish or hygienic closed cell, non-flammable, fire resistant polymer material. Station design should comply with latest health and safety regulations.
4.13.	Built in RFID reader/ transponder
4.14.	Ergonomically designed and located operation panel and display having:
4.14.1.	Telephone type Membrane keypad or touch screen with buttons for delete, mode, priority/ slow speed and directory.
4.14.2.	Minimum two lines, twenty-four digits each line, back lit LCD display or superior
4.15.	Operational Features:
4.15.1.	Scrolling directory listing – sorting on station number or station name or user/ destination name
4.15.2.	Selectable slow speed transit for individual carrier or all traffic from station
4.15.3.	Follow me, divert and closed functions
4.15.4.	Auto return and programmable send based on RFID
4.15.5.	Selectable repeat destination features for several carriers, selectable by user.
5.	STATION, FRONT LOADING, WITH LOCKABLE COVER, SEND RECEIVE AND THROUGH, WITH INTEGRATED RECEIVE BASKET AND CARRIER RACK (Vertical mounting) :
5.1.	Same as four above AND integrated basket [for 6 (six) received carriers] and rack [for 5 (five) empty carriers]
5.2.	Receiving basket lockable if required
6.	STATION, BOTTOM LOADING, SEND AND RECEIVE, END TYPE (Vertical mounting) :
6.1.	Same as four above, except that this shall be without carrier receptacle cover
7.	STATION, BOTTOM LOADING, RECEIVE ONLY, END TYPE (Vertical mounting) :
7.1.	Same as five above, except that this shall be end type Receive only (without send)
7.2.	It should be possible to retrofit sensor and other peripherals for adding send function,

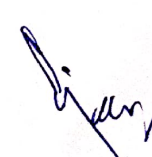
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77
33

ITEM NO	SPECIFICATION / ESSENTIAL FEATURES
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8.	LABORATORY STATION- RECEIVE ONLY, END TYPE:
8.1.	Inlet motorized slide gate
8.2.	SS 304 (or better) guides, with incoming curve- vertical to horizontal and conveyer for smooth arrival and shock free stoppage on horizontal plane.
8.3.	Overall horizontal length for received carriers- approx 2 Mt's
8.4.	With support stand or bench and with control / keyboard for activating divert / station closed.
8.5.	No carrier receptacle cover. Other details same as Serial No. 4 as relevant.
9.	STATION — BOTTOM LOADING, SEND/RECEIVE/THROUGH (Vertical Mounting)
9.1.	Same as four above.
10.	CARRIER RETURN UNIT/ STATION, BENCH MOUNTED
10.1.	With RFID reader for auto send
10.2.	With support stand & bench and drop-down tube with spring loaded, soft closing cover.
10.3.	Complete microprocessor controller and communication with main controller, blower, suction lock, air bypass, slide gate, optical tube switches etc for proper and independent and automatic operation.
10.4.	Should have up to six carrier storage, for return automatically as soon as zone is free.
10.5.	No carrier receptacle cover. Other details same as S No 3 as relevant.
11.	MULTI LOAD STATION, SEND ONLY, END TYPE (Vertical mounting) :
11.1.	Rotating turntable for three carriers' storage, for send or return automatically as soon as zone is free
11.2.	User programmable automatic carrier return or send.
11.3.	No carrier receptacle cover. Other details same as Serial No. 4 as relevant.
12.	STATION, FRONTLOADING, SEND RECEIVE, END TYPE (Vertical mounting) FOR LEAD LINED CARRIER, 110 OD TUBE:
12.1.	Special damper mechanism for heavy lead lined carrier.
12.2.	No carrier receptacle cover. Other details same as S No 3 as relevant.
13.	CARRIER ACCESSORIES
13.1.	Integrated Carrier Rack (for Item 4 station): 4× 160 OD carriers; wall-mountable, flush with station; open, smooth-finished closed-cell plastic.
13.2.	Integrated Carrier Receive Basket (for Item 4 station): 6× 160 OD carriers; wall-mountable, flush with station; smooth closed-cell plastic; removable damping liner; lockable cover.
13.3.	Carrier Receive Basket: 6× 160 OD carriers; wall-mountable below station; chrome-plated steel welded wire mesh; removable damping liner.
13.4.	Carrier Rack: 5× 160 OD carriers; wall-mountable on station side; open, smooth-finished closed-cell plastic.



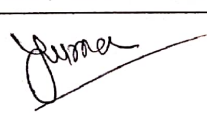




76
334

ITEM NO	SPECIFICATION / ESSENTIAL FEATURES
14.	CARRIERS- STANDARD Suitable for 160 OD tube
14.1.	Size – Inside (Pay load) 115 (ID) x 330 L min
14.2.	Retrofitting of key lock and RFID should be possible.
14.3.	Polycarbonate transparent body with coloured ends. At least four colours shall be available, details of colours required shall be communicated with PO.
14.4.	Both ends open able, swivel design cover
14.5.	Carrier insertion and acceptance not possible unless fully closed
14.6.	Velcro runner and rubber (Silicone/ EPDM) wiper gaskets at both ends
14.7.	Twin RFID, one at each end, should be possible to be changed if required.
15.	CARRIERS- LEAKPROOF Suitable for 160 OD tube
15.1.	Fully leak proof with additional O rings and pressure lock lever, swivel top design
15.2.	Other specifications/ features same as standard carrier (Serial No. 14)
16.	MECHANICAL LOCKS for 160/ 110 OD tube Standard and Integrated receive basket
16.1.	Openable ends with mechanical key lock. Lock possible to be retrofitted
16.2.	Mechanical key lock to be removable and replaceable in unlock position
16.3.	Possible key configurations:
16.3.1.	• Individual keys
16.3.2.	• Common keys for the required number of lock groups
16.3.3.	• Master key for the required number of lock groups
16.4.	All individual locks to be supplied with three keys.
16.5.	Other specifications/ features same as standard carrier (Serial No. 14)
17.	CARRIERS- LEAD LINED AND LEAK PROOF Suitable for 110 OD tube
17.1.	Lead lining suitable for vials of radioactive medication/ injectables, min 5 mm thick, all round
17.2.	Size- Inside (Payload) size 80 mm (ID) x 220 min
17.3.	Other specifications/ features same as leak proof carrier (Serial No. 14)
18.	CARRIER INSERT- MOULDED FOAM
18.1.	Minimum eighteen holes on each face, suitable for vacutainer up to 12 OD x105 mm length for 160 OD tube Carrier.
19.	CARRIER INSERT- MOULDED PLASTIC- Suitable for 160 OD tube Carrier
19.1.	Rigid PVC construction
19.2.	Two movable tiers for vacutainer- minimum two tiers x18Nos x 12 OD x up to 105 mm long
20.	CARRIER INSERT- POUCH TYPE- PVC
20.1.	Flexible transparent PVC, multiple pockets, roll up with Velcro closing, rolled up

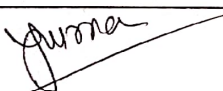






ITEM NO	SPECIFICATION / ESSENTIAL FEATURES
	dimensions to utilize 80% usable payload space of carrier.
20.2.	Pocket size suitable for vacutainer up to 12 OD x105 mm length or vials up to 25 OD x 75 mm length for 160 OD tube carriers
20.3.	Pocket size suitable for 5 ml standard syringe, half filled up, for 110 OD tube carriers
21.	DIVERTORS- 2 WAY
21.1.	Rotating 'S' tube type one incoming and two outlet connections
21.2.	Software controlled DC motor/ Servo motor and maintenance free electronic sensors (optical sensor/ proximity sensors/ linear guide/ incremental encoder) for positioning.
21.3.	Positioning movement on roller bearings.
21.4.	Positioning to be completed within 1.5 seconds after controller command.
21.5.	Flexible, self-adjusting Teflon seals for 'S' tube.
21.6.	Plugs for spare/ unused openings
21.7.	Steel sheet metal housing, epoxy powder coated finish or hygienic closed cell, non-flammable, fire-resistant polymer material. Station design should comply with latest health and safety regulations.
21.8.	Should be mountable in any position or inclined.
21.9.	Built in optical Carrier sensor/ switch
21.10.	Complete with power supply, communication system, mounting frame and any other accessories required.
22.	DIVERTORS- 3 WAY
22.1.	Same as Serial No 21 (2-way diverter) except three outlet connections shall be provided.
23.	DIVERTORS- 4 WAY
23.1.	Same as Serial No 21 (2-way diverter) except four outlet connections shall be provided.
24.	SIDE CHANNEL BLOWERS (3ϕ - 440V) WITH ACCESSORIES FOR EACH ZONES
24.1.	Pressure and flow rate suitable to achieve carrier speed of up to 7.5 m/s.
24.2.	Unidirectional rotation with air flow direction switching valve or diverter. Flow direction switching time within 1.5 sec of controller command. Switching control electronically by central controller/ zone master.
24.3.	With power activation, on/ off control electronically by the central controller/ zone master.
24.4.	With intake filter, inlet and exhaust silencers to achieve noise level < 90 dB
24.5.	With suitable isolator/ Industrial plug and starter < 3.5 KW – DOL and for > 3.5 KW- Star-Delta.
24.6.	Common combined Intake and exhaust plenum with bird screen, prefilter and viscous filters for all blowers in Plant room, with opening outside plant room.
24.7.	All other accessories- base frame for floor/ wall mounting, damper etc.
25.	ELECTRICAL DISTRIBUTION AND CABLING- HIGH VOLTAGE (3ϕ - 440/ 1 ϕ 220 V)
25.1.	The vendor shall provide an MCCB or other approved electrical isolation device of





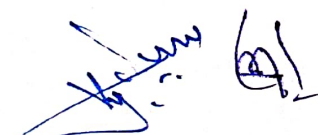


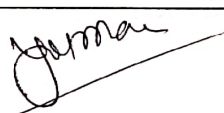
ITEM NO	SPECIFICATION / ESSENTIAL FEATURES
	suitable rating with its test certificate and install the same in a separate box/ cubicle which shall have provision for lock and seal by SGPGI and tenderer, within the plant room premises for receiving the power connection.
25.2.	Electric supply (3- phase) shall be provided by the SGPGI at one point- the isolator - in the plant room. The supply shall be provided by a suitable sized armoured Aluminium Conductor cable, suitable for the connected load as specified by the vendor and agreed by SGPGI. The vendor shall provide the cable and termination for carrying the power to his panel and distribution thereafter.
25.3.	The entire distribution of power to all the components of the PTS system- Stations, diverters, communications systems, blowers, Linear coupler etc shall be part of the scope of the vendor.
25.4.	All armoured cabling shall be clamped on GI saddle clamps, as per BIS or other applicable standards.
25.5.	All un-armoured wiring shall be drawn in rigid conduits, and the conduits shall be clamped on GI saddle clamps, as per BIS or other applicable standards.
25.6.	All cable entries into any building area shall be sealed with suitable approved measures for fire safety and ingress of moisture, dust and insect/ vermin and rodents.
25.7.	The vendor shall employ a qualified electrical consultant for design and supervision of the construction of the electrical distribution system, all the materials, installation and deployment of manpower/ labour shall comply with all statutory, safety and local regulations.
25.8.	The schematic of distribution system shall be submitted by the vendor with his offer.
25.9.	Suitable spare capacity shall be included in the distribution system for expansion within the existing hospital area and should be indicated in the schematic.
25.10.	The detailed drawings showing shop/ construction/ installation details and specifications shall be submitted and got approved from the SGPGI before taking up any work.
26.	LOW VOLTAGE DISTRIBUTION SYSTEM
26.1.	Power (Low Voltage) shielded and grounded PVC insulated Copper conductor cable, of suitable size/ conductors, fixed with wiring harness or other suitable means to the tube.
26.2.	Power boosters as per requirement/ layout. The booster's outputs should be connected in parallel so that load sharing in case of AC Mains power failure is possible. Controller should be able to detect AC mains power failure and notify with alarm.
26.3.	The wiring and all components should be compliant to relevant standards for non-interference with other electronic and hospital equipment's.
27.	COMMUNICATIONS DISTRIBUTION SYSTEM RS485
27.1.	Data shielded and grounded PVC insulated Copper twisted pair/ balanced three wire cable of suitable size/ conductors, fixed with wiring harness or other suitable means to the Tube
27.2.	Signal boosters with required Low Voltage power supply units, as per requirement/ layout. The booster's outputs should be connected in parallel so that load sharing in case of AC Mains power failure is possible. Controller should be able to detect AC mains power failure and notify with alarm.
27.3.	The wiring and all components should be compliant to relevant standards for non-interference with other electronic and hospital equipment's.

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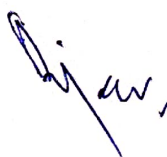
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331

ITEM NO	SPECIFICATION / ESSENTIAL FEATURES
28.	TRANSPORT TUBE AND ACCESSORIES, OPAQUE OR TRANSPARENT/ MILKY TRANSLUCENT
28.1.	The tubes, bends, offsets and other specials shall be 160 O.D., 3.2 mm wall thickness, rigid PVC, conforming to DIN 6660/ 6061
28.2.	Material shall be, self-extinguishing, B1 rated as per DIN 4012 part 4 (Difficult to inflame)
28.3.	Bends, offsets and other accessories shall have adequate bending radius for the type / size of carriers available for the 160 OD pipe, minimum 800 mm
28.4.	The tubes, bends and specials shall be sourced/ have the same "Country of origin" and dispatched from the country of origin of other equipment only.
28.5.	The "Country of origin" manufacturers test certificate for compliance shall be provided with Lot reference number, buyer's name, quantity, and delivery address for the entire quantity supplied. The certificate should clearly show the country of origin, address of manufacturer, address of testing laboratory and the Names and signatures of the personnel conducting the tests and approving the result.
28.6.	The tubes shall be joined using glue and sleeves. All ends (tube, sleeve) shall be deburred, cleaned with cleaner and fresh paper towels before fixing.
28.7.	Tube clamps shall be split type and spaced not more than 2 Mt's apart on straight runs and at each end of bend, offset or specials. Each clamp shall have a threaded rod, min 8 mm Dia, fixed and anchored to the roof or wall or support structure for accurate alignment of the tube.
28.8.	In case of wall support, if rod length exceeds 150 mm, a rigid support system, fabricated out of steel rolled sections shall be provided to carry the load, without exceeding acceptable deflection limits. The support structure shall be corrosion protected with suitable primer and paint.
28.9.	The Tubes, diverters and other accessories, including the supporting structure, if any, shall be installed at a clear height not less than 2800 mm above floor. In exceptional situations, the height may be reduced to 2200 mm, after specific approval of the Institute.
28.10.	The following specific tube requirements shall be included in quoted prices:
28.10.1.	In the plant room- connections from linear coupler to diverters shall be transparent tubes as per specifications.
28.10.2.	Tubes running open to sky or otherwise exposed to sunlight (under Fiberglass or Polycarbonate roof or sky lights) shall be supported on a secondary steel support structure and protected with suitable wrapping and run in a cover tube of suitable UV/ light/ heat protective material and diameter. The support structure shall be corrosion protected with suitable primer and paint. All costs for above works such as excavation, civil works, steel work etc shall be included in the quoted prices.
28.10.3.	Alternately, the tube may be laid underground with suitable protection for damage during laying, overburden, traffic and excavation for repair of adjoining services. Road crossings shall be done in a suitable size pipe conduit (MS or NP-3 class RCC Hume pipe). All costs for above works such as excavation, civil works, steel work etc shall be included in the quoted prices.
28.11.	Additional transparent tubes shall be provided as per approved design/ BOQ at extra cost.
29.	LINEAR COUPLER









ITEM NO	SPECIFICATION / ESSENTIAL FEATURES
29.1.	The linear coupler should have minimum 16 (Sixteen) tubes/zones (incoming and outgoing) functional in all respects with necessary accessories OR the required number of tubes/zones as per design submitted by the tenderer plus additional 6 (six) tube/zones (functional in all respects) for future expansion and it should be integrated with the existing running Linear couple with minimum 2 (Two) Lines.
29.2.	The coupler should function without any separate transfer blower.
29.3.	The coupler should be designed and installed in such a way that installation of "Speed line/ multiple carrier link" and/or connection to additional linear coupler in the same location or different location is possible should be possible in future, without decommissioning and alterations.
29.4.	The coupler should have a RFID reader for identification of carriers- incoming, waiting and sent.
29.5.	Storage hold- 3 carriers for every incoming zone. The carriers from storage should drop to the transfer/ coupler / outgoing tube by gravity or in-built motor drive the without engaging incoming/ outgoing zone blower
29.6.	Linear speed of transfer carousel/ guide- X- 0.25; Y- 0.10; Z- 0.10 Mt/Sec
29.7.	Transfer throughput- Min 140/ Average 250 carriers per hour for the farthest travel distance in the coupler, with eighteen zones/ lines
29.8.	Software controlled DC motor/ Servo motor and maintenance free sensors (proximity sensors/ linear guide/ incremental encoder) for guide movements
29.9.	Gentle and soft collection of carriers for transfer
29.10.	PLC controller and communication with central controller through Ethernet/ RS 485
29.11.	PLC programmable from central controller
30.	CONSTRUCTION OF PLANT ROOM
30.1.	The plant room shall be constructed at a ground-level vacant location identified by SGPGI, subject to site availability and project requirements.
30.2.	The building design showing all aspects of construction, services and equipment- layout plans, sections, elevations, circuit diagrams etc. shall be submitted for approval of the Institute. However, approval shall not in way curtail, diminish or relieve the tenderer of his responsibility regarding safety of the structure, statutory compliances or functionality of the PTS system. Three sets of "As built" drawings shall be submitted along with commissioning of the system.
30.3.	The construction shall include necessary foundations, DPC and roof waterproofing. Minimum area required for the plant room would be around 375 square meters (m ²).
30.4.	Suitable treatment on constructed walls to rule out leakage or moisture ingress into the existing structure, guaranteed for 20 years.
30.5.	The construction and deployment of manpower/ labour shall comply to all statutory, safety and local regulations
30.6.	The construction should be a framed structure on the ground.
30.7.	Access should be provided for personnel from inside, from the hospital's corridors and access control along with record of entry exit time of personnel should be provided. Any external access usable only with the approval of the SGPGI.

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329

ITEM NO	SPECIFICATION / ESSENTIAL FEATURES
30.8.	Apart from the PTS hardware - Linear coupler, blowers, diverters, power distribution, power packs, communications, zone controller etc., space for locating the central controller, office, working space and toilets for the Engineer, technicians and other staff shall be provided in the plant room.
30.9.	The exterior shape and finish should be designed to merge with the existing building architecture and finishes. The interior finishes shall be as per equipment requirements and comply with :
30.9.1.	Walls finish- cement plastered and painted oil bound distemper/ factory finish panel of approved colour
30.9.2.	Floor finish- Kota Marble and tiles in office area & Toilet area.
30.9.3.	The windows shall be Aluminium framed glass shutters with safety grills and doors shall be wooden frames with laminated flush doors.
30.10.	Partitions (for office/ computer room etc shall be glazed aluminium, like existing hospital areas.
30.11.	Fire safety provisions- addressable photoelectric smoke detectors, fire alarm with local and remote alarm (remote alarm to be in the fire control room), fire extinguishers and fire exit shall be provided by the vendor, as per statutory requirements. The building plan and fire safety measures shall comply with the local regulations and NOC of the local fire department shall be obtained by the vendor on behalf of SGPGI for the plant room.
31.	INSTALLATION, TESTING AND COMMISSIONING
31.1.	The tendered shall be responsible for the installation of the complete system and shall include all material and labour costs, taxes duties and other statutory levies and requirements in his bid, to complete and commission the PTS system in the existing, new and under construction buildings.
31.2.	This shall include, but not be limited to the following:
31.2.1.	All dismantling of walls, roof, ceiling, floor etc, core cutting and making good the same to the same finish and standard as existing.
31.2.2.	All cabling, piping etc, including necessary civil works for the support structures, anchoring, drilling etc, in a neat and orderly manner and clean up and restore the buildings and premises to the same finish and standard after completion of each area.
31.2.3.	Necessary sealing to the openings made to ensure fire safety and avoid ingress of dust, vermin, insects and rodents etc.
31.3.	The installed equipment shall be evaluated by the tenderer, individually and collectively for proper performance and achieving the specified values- throughput, time requirements etc.
31.4.	The entire system shall be demonstrated to the Institutes' authorized Officers/ committee to show proper performance and achieving the specified values- throughput, time requirements etc.
31.5.	Before final acceptance, the contractor shall demonstrate successful transfer of carriers between all existing and new zones, including simultaneous traffic operation and fail-safe operation under various conditions.
31.6.	The commissioning shall not be considered completed unless 3 (three) sets of "As built" drawings showing all the details of system are submitted. These drawings shall include – (i) Location, run and layout of all tubes, diverters, power, control and communication cables, switches, sensors and other equipment (ii) The single line diagram of the tubes,

70
328

ITEM NO	SPECIFICATION / ESSENTIAL FEATURES
	power, control and communication cables, switches, sensors, diverters and other equipment.
32.	POWER BACKUP
32.1.	The power back up shall comprise UPS and / OR DG set of adequate rating for running of entire system – blowers, coupler, diverters, stations etc so as to ensure that the system does not get interrupted for more than 5 minutes in case power failure, for any reason what so ever, for up to 24 hours continuously.
32.2.	If a diesel generator set is provided, it shall include an auto mains failure/changeover unit. The tenderer shall be responsible for obtaining all required statutory approvals, including UPPCCB approval, for the DG set. Diesel fuel required for operation during breakdowns of the system or equipment supplied or installed by the tenderer shall be provided by the tenderer. The tenderer shall also provide power backup for up to 96 hours per year for outages or breakdowns caused by utility supply failure or Institute system failure. Any additional generator operation required due to the Institute's failure to provide utility power shall be arranged by the Institute as required, based on justified fuel consumption and power-failure records maintained by the tenderer and verified by the Institute Engineer.
32.3	The Contractor shall provide and install a robust lockable cage-type protective structure (MS/GI as approved by the Engineer-in-Charge) around the Generator Set to prevent unauthorized access, theft, and vandalism. The design, fabrication, and installation of the protective enclosure shall be included in the Contractor's scope and shall ensure adequate ventilation and accessibility for operation and maintenance.
33.	VARIATION ITEMS
33.1.	Removal and re-installation of any Pneumatic Tube System (PTS) station, diverter or other equipment at the same or a different location, including dismantling, transportation, re-fixing, reconnection of all electrical, communication and pneumatic connections, testing, commissioning and restoration of the system to satisfactory working condition.
33.2	Removal and re-installation of transport tubes at a different location, including bends, offsets, supports, clamps, communication wiring, power wiring, accessories, reconnection of all services, testing and commissioning, complete in all respects.
33.3	Variation in quantities of 160 mm OD transport tube, including bends, specials, supports, clamps, high-voltage wiring, low-voltage wiring, communication wiring and all associated accessories, shall be measured only on the basis of the net centre-line length of transport tube installed. The rates quoted shall be deemed to include all associated fittings, supports and accessories required for complete installation. Measurement of the transport tube shall be made only once.
33.4	Additional transparent transport tubing of 160 mm OD, wherever ordered by the Institute, shall be measured separately and paid at the accepted tender rate, including bends, specials, supports, clamps and all accessories required for complete installation.
33.5	The bidder shall quote unit rates in the Financial Bid/BOQ for all Variation Items specified under Clauses 33.1 to 33.3 In the event that any such variation is ordered by the Institute during execution of the contract, payment shall be made strictly at the corresponding accepted rates quoted by the successful bidder in the Financial Bid/BOQ. Any escalation in such rates, wherever applicable, shall be governed only by the escalation provisions accepted under the Contract. No separate or additional rate shall be claimed or entertained for these Variation Items.
34	OPERATION (for 10 years from the date of commissioning)

ITEM NO	SPECIFICATION / ESSENTIAL FEATURES
34.1.	The existing PTS system installed and operational in the current hospital building shall be integrated with the new PTS system proposed under this tender to form a single unified and seamless network.
34.2.	The successful Contractor shall assume complete single-point responsibility for the integration, interoperability, operation, coordination, maintenance, and smooth functioning of the entire integrated Pneumatic Tube System (PTS) network comprising both the existing installed system and the newly installed system under this contract, irrespective of whether the existing system was originally supplied or installed by the same Contractor, the OEM, or any other agency/vendor. After award of the contract, no claim whatsoever regarding incompatibility, interfacing issues, software limitations, hardware constraints, or deficiencies in the existing system shall be entertained, and the Contractor shall be solely responsible for ensuring seamless and uninterrupted operation of the complete integrated PTS network throughout the contract period.
34.2.1	The bidder shall inspect and familiarize himself with the existing installed Aerocom AC3000 PTS system, including associated hardware, software, network architecture, controllers, and interfaces, before submission of the bid. No additional claim, compensation, extension of time, or relief on account of lack of knowledge of the existing system or integration requirements shall be entertained after award of the contract
34.3.	The Contractor shall ensure seamless communication, compatibility, centralized monitoring/control, and uninterrupted operation of the entire integrated PTS network for a period of ten (10) years from the date of commissioning of the new system.
34.4.	The Contractor shall maintain round-the-clock (24x7) operation and support for the integrated Pneumatic Tube System (PTS) by deploying qualified, trained, and experienced manpower in sufficient numbers, with a minimum deployment of four (4) personnel at the plant room/site with a proposal of reliefs. Such deployment shall be organized in shifts and shall comply with all applicable labour laws and statutory regulations. The scope shall include operation, monitoring, integration support, preventive and corrective maintenance, attending user complaints and service requests, and carrying out controller programming/reconfiguration as required for the smooth functioning of the system.
34.5.	One Senior Engineer shall be designated as overall in-charge for supervision, monitoring, operation, integration management, and maintenance of the complete integrated PTS system. The Senior Engineer shall visit the site as and when required, but not less than once every three (3) months. Additionally, the Senior Engineer shall remain available on call and shall report to the site within 24 hours whenever requested, up to four (4) times per year.
34.6.	One full-time Technician shall be deployed on a 24-hour basis on all days, including Sundays and holidays, for operation and maintenance of the complete integrated PTS system.
34.7.	The Contractor shall provide training to the hospital/institute personnel as per the special conditions and operational requirements of the system.
34.8.	The Contractor shall prepare and submit daily, weekly, and monthly reports covering performance of the complete integrated PTS system, including carrier traffic statistics, breakdowns, malfunctions, shutdown details, integration-related issues, and other operational parameters, in the format prescribed by the Institute/designated authority.
34.9.	The Contractor shall promptly attend to all day-to-day operational, integration, and maintenance issues related to the complete integrated PTS system.
34.10.	The Contractor shall provide upgrades of PC operating systems, application software, integration interfaces, and related hardware within one (1) year of their official release in

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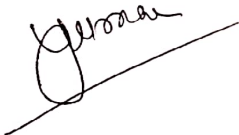
ITEM NO	SPECIFICATION / ESSENTIAL FEATURES
	India, without affecting the performance or interoperability of the complete integrated PTS system
34.10.1	All software supplied under the contract shall be genuine and properly licensed. The Contractor shall provide all software updates, patches, antivirus support, backups, and cybersecurity protection measures throughout the contract period without additional cost.
34.11.	The Contractor shall provide upgrades and updates of controller software, integration software, and communication interfaces whenever released by the OEM/Principal Manufacturer during the contract period, ensuring compatibility and uninterrupted functioning of the complete integrated PTS system.
34.12.	The Contractor shall carry out periodic preventive maintenance activities for the complete integrated PTS system, including cleaning, lubrication, resetting, adjustments, overhauling, repainting, corrosion treatment, software diagnostics, integration health checks, and any other required servicing to ensure optimum system performance, equipment longevity, operational efficiency, and seamless interoperability.
34.13.	Planned shutdowns for preventive maintenance of the complete integrated PTS system shall be limited to a maximum of one (1) hour per month and shall preferably be carried out during non-working hours or low-traffic periods, including night hours, with prior written approval from the Institute's authorized representative. Any shutdown extending beyond the approved duration shall be treated as system breakdown/downtime for the purpose of penalty calculation.
34.14.	All building parts, consumables, accessories, fittings, communication interfaces, integration hardware/software components, and ancillary items necessary for proper functioning and seamless integration of the complete integrated PTS system shall be deemed included in the scope of work without any exclusions.
34.15.	The rates payable for the ten (10) year Operation period shall be as per the accepted rates quoted by the successful bidder in the Financial Bid/BOQ. Any escalation in the Operation charges during the contract period shall be regulated strictly in accordance with the escalation formula, percentage, terms and conditions quoted by the bidder in the tender and accepted by the Institute. No escalation other than that specifically accepted under the Contract shall be admissible.
35.	COMPREHENSIVE MAINTENANCE- CMC -Five (5) years from the date of completion of warranty period (of 5 Years)
35.1.	The Contractor shall provide comprehensive maintenance services for the entire PTS system and all associated components for a period of five (5) years after completion of the warranty period, ensuring uninterrupted and satisfactory operation of the system as per the final approved BOQ. The scope of comprehensive maintenance shall include supply and replacement of spare parts, repairs, rectification of defects, servicing, preventive maintenance, and all activities necessary for proper and efficient functioning of the system.
35.2.	All system breakdowns, malfunctions, and operational failures occurring during the CMC period shall be fully covered under the maintenance scope at no additional cost to the Institute, except in cases where the damage is proven to have occurred due to mishandling, misuse, or deliberate damage caused by the Institute's personnel or its authorized agencies, as determined by the authorized representative of the Institute.
35.3	The rates payable for the Comprehensive Maintenance Contract (CMC) period shall be

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ITEM NO	SPECIFICATION / ESSENTIAL FEATURES
	as per the accepted rates quoted by the successful bidder in the Financial Bid/BOQ. Any escalation in the CMC charges during the contract period shall be governed strictly in accordance with the escalation formula, percentage, terms and conditions quoted by the bidder in the tender and accepted by the Institute. No escalation other than that specifically accepted under the Contract shall be admissible.
36.	PENALTY FOR BREAKDOWN
36.1.	Break down shall be considered as system stoppage or malfunction in any area/ zone/ station, resulting in stoppage of Carrier send or return, excluding periods of approved planned shutdown.
36.2.	Penalty for each breakdown shall be as below: (a) In case of break down exceeding 15 minutes but less than 30 minutes- 0.1% of the accepted monthly operation & maintenance rates for each break down (b) In case of breakdown- 30 to 45 minutes- 0.5% of the accepted monthly operation & maintenance rates for each break down (c) In case of breakdown - 46 to 60 minutes –1.5% of the accepted monthly operation & maintenance rates for each break down (d) In case of breakdown 60 to 75 minutes –3.0% of the accepted monthly operation & maintenance rates for each break down (e) In case of breakdown more than 75 minutes –6.0% of the accepted monthly operation & maintenance rates for each break down
36.3.	In case of an individual breakdown more than 75 minutes, which extends to the next day, the penalty as per 35.2 (e) shall be re applied for every day till the system remains under breakdown.
36.4.	In case the cumulative duration of break downs (including less than & up to 15 minutes) exceeds 30 minutes on any day, penalty as per 35.2 (b), (c) and (d) shall be applied, based on the cumulative duration, for that day.
36.5.	The upper limit of total penalty, reckoned on a yearly basis, shall be 20% of the annual accepted value for the operation and maintenance.



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SKYWALK TO BE
CONNECTED TO
PMSSY BUILDING
AT FIRST FLOOR
LEVEL

8.250

4.500

3.750

RAOD LEVEL
(100.00)

SECTION - ZZ

PROF. CARLOS ALBERTO
SERRANO

[illegible][illegible]

SECTION - XX'

RAMP (SLOPE - 11.2)

RAMP (SLOPE - 11.2)

SKYWALK TO BE CONNECTED TO NEW ORP BUILDING

SKYWALK TO BE CONNECTED TO NEW ORP BUILDING

ROAD

10.00

R.M. Agitation

PROPOSED LAYOUT OF S.G.P.G.I, LUCKNOW

U.P.R.N.N. Ltd.

SKYWALK LAYOUT PLAN & SECTIONS

NTS

Vishal & Associates
3/77, Virajkhand,
Gomil Nagar, Lucknow
Ph: 9044459140, 9839447966

05.04.24

Job title : PROPOSED LAYOUT OF S.G.P.G.I. LUCKNOW

Drwg title : SKYWALK LAYOUT PLAN

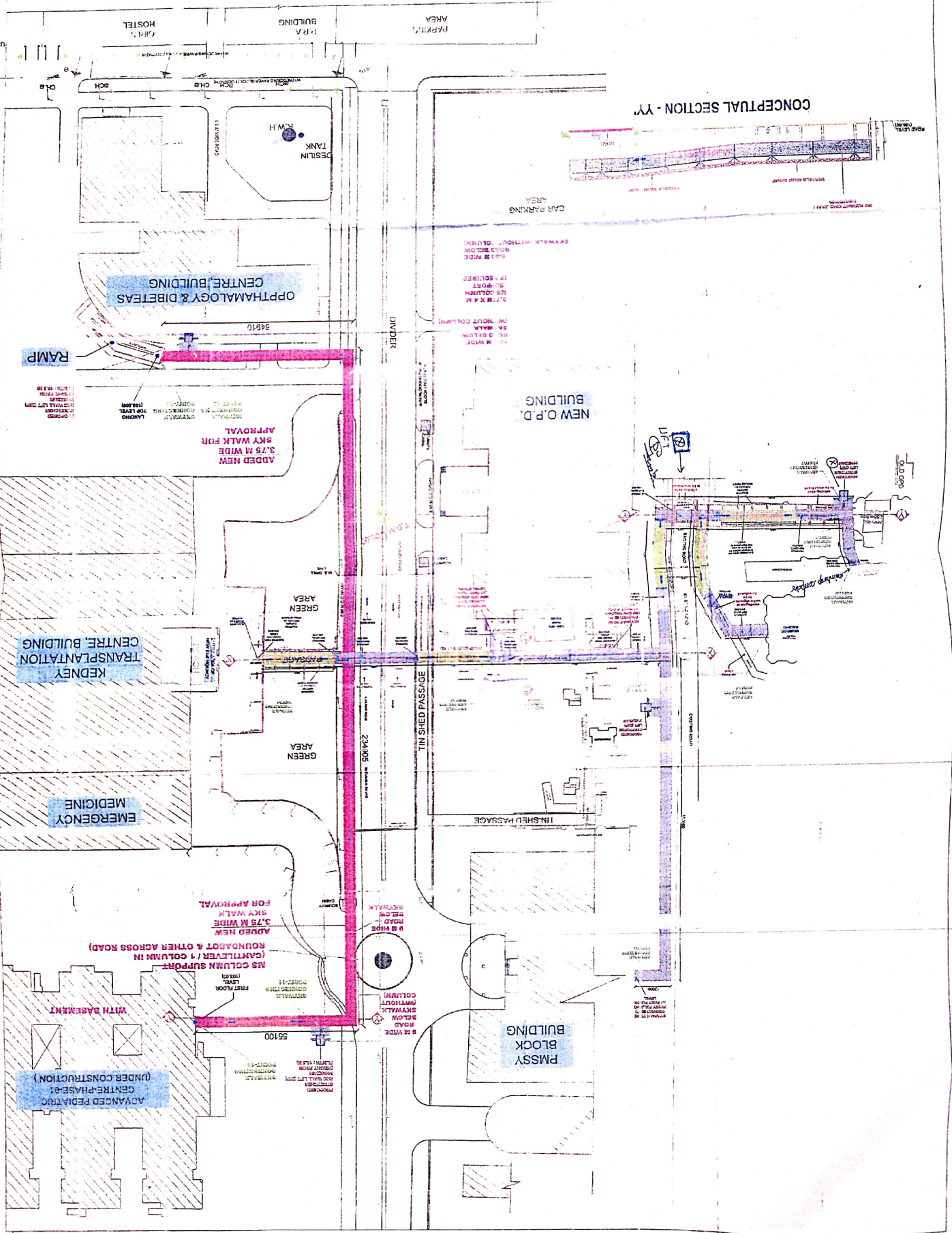
Scale : NTS

North

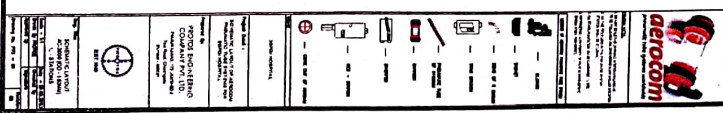
Resident Engineer
Unit-13, C&DS
UP, Jai Nagar, Lucknow

Project Manager
Unit-13, C&DS
UP, Jai Nagar, Lucknow

CONCEPTUAL SECTION - YY'

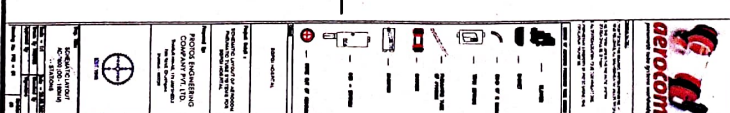


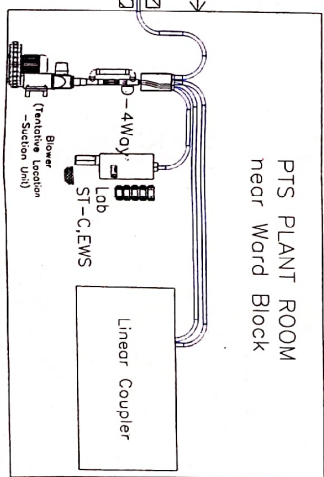
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Non Invasive H.R.f. — 24

- 1)-Radiology Ward-1/14 *Indira*
2)-Medical Oncology Ward-14
3)-Palliative Ward-Ward-14
4)-Radiotherapy Ward-14
5)-Nuclear Medicine Ward-
6)-Medical Genetics Ward-
7)-HR F

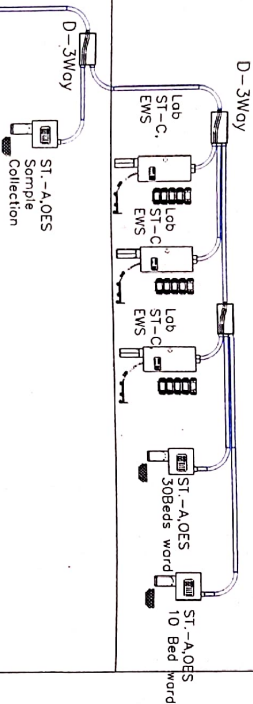
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Location	Zone	Department	Area Description	station no.	Station type			Description of station type	Diver type			Diver type Description	Signature of Incharge of dept.	Signature of PIS Engineer	Signature of PIS nodal officer	Signature of HOD		
					ST(A)-(OES)	ST(B)-(Trow)	ST(C)-(EWS)		A)-0-2Woy	B)-3Woy	C)-0-4Woy							
An Itr		PIS Plant EMRTC AOC	Lab-1	1									B) Diver type 3-Woy=5					
			10 bed word	1	1													
			30 bed word		1													
			Lab-2	1														
			Lab-3	1														
3rd Itr			Sample collection	1														
			1															
Gnd Itr			Lab-4	1														
			7	3		4												
				Total Station=7nos.				Diver=5nos.										

263

4th FLOOR



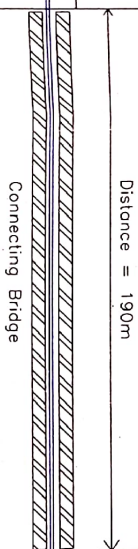
3rd FLOOR

2nd FLOOR

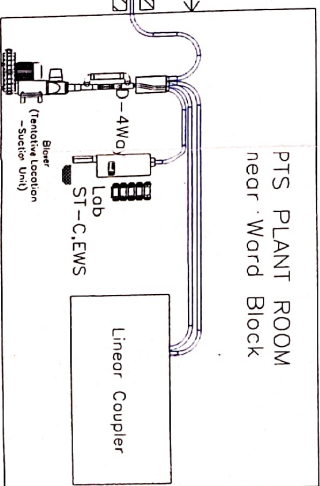
1st FLOOR

Ground
FLOOR

D-3Way



Distance = 190m



PTS PLANT ROOM
near Ward Block

Linear Coupler

PROTEC ENGINEERING
 COMPANY INC. LTD.
 10000 W. 10th Ave.
 Suite 100
 Denver, CO 80231
 Tel: 303.751.1000
 Fax: 303.751.1001
 Email: info@protec.com

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 Tel: 303.751.1000
 Fax: 303.751.1001
 Email: info@protec.com

Location	Zone	Department	Area Description	station no.	Station type			Description of station type	Diverter type			Diverter type Description	Signature of Incharge of dept.	Signature of PIS Engineer	Signature of PIS nodal officer	Signature of HOD
					ST(A)-(OES)	ST(B)-(HMA)	ST(C)-(EWS)		A)-0-Way	B)-0-Way	C)-0-Way					
4th flr	PIS Plant	ADC	Lob-1	1	1							B) Diverter 3-Way=5				
			10 bed ward	1	1				1							
			30 bed ward	1		1										
			Lob-2	1												
			Lob-3	1					2							
3rd flr			Sample collection	1												
			Lob-4	1					1	1						
Grnd flr				1												
				7	3		4									
				Total Station=7nos.			Diverter=5nos.									

289



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~~21/08/24~~

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Location	Zone	Department	Area Description	Station No.	Vehicle type			Description of station no.	Driver type			Signature of incharge of dept.	Signature of P.S Engineer	Signature of P.S node officer	Signature of HOD
					F/A)-(OES)	G/E)-(Taxi)	E/C)-(Bus)		A)-(2Whe)	B)-(3Whe)	C)-(4Whe)				
m #	PIS Place EMRTC	AEC/ Endocrinology	Lab-1					1)-OES st.=1							
			10 bed ward												
			30 bed ward												
			Lab-2												
			Lab-3												
Infir			Sample collection												
Infir		Molecular lab	Molecular Medicine lab	1	1										
Infir			Lab-4/Molecular medicine						1						
				1	1										
				Total Station=1ms				Overturn=1ms							

Bill Of Quantities for SGP GIMS Lucknow -PTS System for EMRTC, ADC, NEW DIAGNOSTICS & 134 Bedded Ward as per verified drawing by HOD's

Sl. No.	Required items for installation with specification	Type	Tube Dia	Unit	Total Qty of EMRTC, ADC & Mol-Med	Total Qty of NDC & 134 bed ward	Estimated Total Qty
					(A)	(B)	(C=A+B)
1	Station - (Bottom loading, Vertical Mounting)	OES	OD160mm	No.	43	7	50
2	Station - (Front loading, Vertical Mounting)	TITAN	OD160mm	No.	22	-	22
3	Station - (Lab Receiving bottom loading End Station)	EWS	OD160mm	No.	9	-	9
4	Station - (Multiload Load station Send Only, End type)	MLS	OD160mm	No.	-	1	1
5	Station - (Laboratory station, Receive Only, End type)	OE	OD160mm	No.	-	1	1
6	Operation Panel OE-Station	OE-panel	OD160mm	No.	-	1	1
7	Carrier stop Above - Tube Grey	PVC	OD160mm	No.	3	-	3
8	Carrier stop Below - Tube Grey	PVC	OD160mm	No.	6	-	6
9	Guide Rail Basic, Radius=650mm	Guide Rail	OD160mm	No.	9	1	10
10	Guide Rail Extense, Length=1000mm	Rail Exten	OD160mm	No.	9	1	10
11	Diverter - (2way, 3way & 4way)	3 Way	OD160mm	No.	31	9	40
12	Diverter - (2way, 3way & 4way)	4 Way	OD160mm	No.	10	-	10
13	Dispatch Tube Grey, Length= 5meter	PVC	OD160mm	Meter	4,590	550	5,140
14	Dispatch Bend Grey, Radius= 800mm	PVC	OD160mm	No.	610	310	920
15	Dispatch Tube Transparent, Length= 5meter	PC	OD160mm	Meter	120	20	140
16	Dispatch Bend Transparent, Radius= 800mm	PC	OD160mm	No.	78	9	87
17	Connecting Sleeve Grey, Length=150mm	PVC	OD160mm	No.	2,175	760	2,935
18	Connecting Sleeve Transparent, Length=150mm	PC	OD160mm	No.	181	24	205
19	RS232/485 Repeater (Booster)	Converter	OD160mm	No.	16	3	19
20	Switching power pack 24VDC/5A	SMPS	OD160mm	No.	21	4	25
21	Suction/pressur Blower 3way valve 400VAC	SD7	OD160mm	No.	6	-	6
22	Blower Controller 6.0-10A	DOL-S	OD160mm	No.	6	1	7
23	Blower control 10-16A	DOL-S	OD160mm	No.	4	-	4
24	Suction/pressur Blower 3way valve 400VAC	SD80W	OD160mm	No.	4	-	4
25	Blower Connecting material	SD7	OD160mm	No.	10	-	10
26	Blower Connecting material	SD7	OD160mm	No.	10	-	10
27	Air Reduction Carrier Stopper -1Mtr length	PVC	OD160mm	No.	10	1	11
28	Silencer OD90	SD7	OD160mm	No.	10	1	11
29	MiniPC DF610 i5-1021 SSD240GB Win10Pro en	PC	OD160mm	No.	1	-	1
30	Box for zone-master AC3000 with 4x PCB's	CCU	OD160mm	No.	3	-	3
31	RF12 Antenna compl. AD 160 / ID = 160mm	Scanner	OD160mm	No.	11	-	11

Bill Of Quantities for SGP GIMS Lucknow -PTS System for EMRTC, ADC, NEW DIAGNOSTICS & 134 Bedded Ward as per verified drawing by HOD's

Sl. No.	Required items for installation with specification	Type	Tube Dia	Unit	Total Qty of EMRTC, ADC & Mol-Med	Total Qty of NDC & 134 bed ward	Estimated Total Qty
32	Seperating Storage of linear coupler	Storage	OD160mm	No.	11	-	11
33	Carrier Transponder reader Kit	Tag Reader	OD160mm	No.	1	-	1
34	Transponder reader kit RF12 Lin.Coupler	Tag Reader	OD160mm	No.	9	-	9
35	Airtube flexible Tube- OD 90mm	PVC	OD160mm	Meter	39	30	69
36	Reduction-ring PVC (160mm x110mm x15mm)	ID Ring	OD160mm	No.	11	-	11
37	Reduction PVC grey (OD 110/OD 90 L135mm)	Reducer	OD160mm	No.	11	-	11
38	Software WIN 3000 Multilingual	Software	OD160mm	No.	1	-	1
39	Multi Carrier Transfer with the additional text SFS.	Software	OD160mm	No.	3	-	3
40	RS485- fiber optics connection Converter	Converter	OD160mm	No.	2	-	2
41	Linear coupler - Up to 16 Zones	Transfer S	OD160mm	No.	1	-	1
42	Control cabinet - Up to 20 devices	C.Cabinet	OD160mm	No.	1	-	1
43	Sending connection C OD 160 Linar coupler	Sending	OD160mm	No.	12	-	12
44	Slide gate Priority OD 160 Linear coupler	Fast Sending	OD160mm	No.	3	-	3
	Consumable Items				-	-	-
45	Steel Sleeves Length=100mm	Steel	OD160mm	No.	325	57	382
46	Tube clamp Basic OD160mm	M8	OD160mm	No.	2,465	750	3,215
47	Control cable 3x2x0,6	Data	OD160mm	Meter	7,200	800	8,000
48	Power cable 3x2,5	Power	OD160mm	Meter	7,200	800	8,000
49	Adhesive 500ml	U-PVC	OD160mm	No.	228	61	289
50	Cleaner 1000ml	U-PVC/C	OD160mm	No.	90	25	115
51	Sensors (Tube Switch)	Optical	OD160mm	No.	67	20	87
52	Expansion sleeve Length 830mm +/-85mm	PVC	OD160mm	No.	9	-	9
53	Carrier DS-2A-MA-KL 160-154/115-330/	PC	OD160mm	No.	441	-	441
54	Laboratory bag Vinyl OD160 W330XH300mm 6f	PVC Bag	OD160mm	No.	304	-	304
55	Receiving basket W500XD613XH485 grey	Basket	OD160mm	No.	74	7	81
56	Carrier rack 5-fold OD 160 crome	Rack	OD160mm	No.	74	8	82