

PROPOSED INTERIOR DESIGN FOR MATH LAB
Sri Lanka CERT (Pvt.) Limited,
Room 4-112, BMICH,
Bauddhaloka Mawatha,
Colombo 07.
DETAIL DESIGN PACKAGE

FF&E MANUAL

Furniture Specifications
&
MEP Annexure



NUSTUDIO (Pvt) Ltd.
Chartered Architects & Interior Designers
18A 1/1, Hotel Rd, Mt Lavinia. M : +94 773 402 226
info@nustudio.lk

PROJECT: PROPOSED INTERIOR DESIGN FOR MATH LAB Sri Lanka CERT (Pvt.) Limited, Room 4-112, BMICH,	GENERAL CONDITIONS AND PREAMBLES
General	The Interior Designer submits drawings and specifications for design intent and acceptable quality level only. Proprietary specifications indicate a manufacturer and product name and/or design number. It indicates a design and quality level which must be adhered to when bidding "or equal" manufacturers and/or fabricators. Generic specifications are indicated by the words "To Bid". These items are custom designed or modified from existing designs to meet the requirements of the the Project. Bidding for these items are open to any manufacturer who can meet the level of quality and design indicated by the Contract Documents. It shall be the right of the Interior Designer to review all substitutions from the original proprietary specifications. It shall be the right of the Interior Designer to interview bidders before a bid is rewarded. It will be the responsibility of the Interior Contractor to see that vendors and manufacturers submit Shop Drawings for all generic specifications and substitutions from proprietary specifications for case goods and upholstered pieces. Millwork contractors are also required to submit shop drawings for millwork. It shall be the right of the Interior Designer to request and review for approval samples of timber, stone, fabrics, carpets, wallcoverings and all other finishes. It will be the responsibility of the Interior Contractor to arrange the submission of samples. References in any specification to an equivalent product refer to a product of similar quality and appearance, but do not authorize or request any Contractor to reproduce or copy any product in violation of any copyright or other proprietary rights of any third party. Contractor shall be solely responsible for insuring that any product provided by it pursuant to these specifications does not violate the copyright or other proprietary rights of any third party. Contractor shall index-unify and hold harmless Owner and Agent against any damage, claim, loss or liability arising as a result of any claim by any third party alleging that the products provided by Contractor pursuant to these specifications violate any copyright or any other proprietary rights of any third party. Please note for ALL the elements specified in this documents. The Interior Designer will consider alternatives of equal merit and quality. However, it should be noted that sufficient specifications must be provided for approval by the Interior Designer and Client. Carpet The Interior Contractor's work includes coordinating and installing all Carpeting as indicated on drawings and specifications, including procurement, labor, materials and equipment. Two (2) samples of each Carpet pattern, color, quality and texture shall be submitted to the Interior Designer for approval prior to installation. Minimum size to be 18"x18" (450mm square). Schedule of required quantities of each carpet and installation drawings showing location of all joints is to be submitted to Interior Designer prior to installation. Carpet and pad shall meet requirements of local and state codes where applicable. All materials shall meet all flammability requirements of all local, state and national applicable codes and standards. All custom carpet patterns specified by Interior Designer to be Copyright property of Interior Designer and production shall be subject to Interior Designer's approval. Caseloads The Interior Contractor's work includes coordinating and installing all Caseloads as indicated on drawings and specifications, including procurement, labor, materials and equipment. Shop drawings indicating fabrication and installation methods shall be submitted for each Caseload item. Two (2) samples of each species and finish of exposed wood specified shall be submitted. When requested by Interior Designer, provide one (1) complete working model (full size) of each Caseload item. Sample shall be provided prior to fabrication of final items and be for approval by Interior Designer. The Interior Contractor shall be responsible for accurately obtaining all field dimensions related to his work prior to fabrication. Where discrepancies are found, he shall notify the Interior Designer immediately in writing. All lumber shall be kiln-dried to the average moisture content as recommended by the Architectural Woodwork Institute Quality Standards, appropriate for the regional climatic conditions of the project site. All solid and veneer wood elements shall be clear, straight-grain lumber of the best grade of the specified species. Any wood chipboard used in the construction of items shall satisfy the requirement of BS EN 312 Particleboard Specifications Part 1 1997 General Requirements for Formaldehyde potential classboard requirements applies. Part 3: 1997 Requirements for boards for interior fitments (including furniture for use in dry conditions). Any MDF used in the construction of items shall comply with the requirements of BS EN 622 Fibreboard Specifications 1997 Part 1 General Requirements. For formaldehyde potential Class A board requirement applied 1997 Part 5 Requirement for dry process boards (MDF).
 NUSTUDIO (Pvt) Ltd 18A 1/1, Hotel Rd, Mt Lavinia. M : +94 773 402 226 info@nustudio.lk	Detail/ Dwg Ref. No: Checked by: ND IK

PROJECT: PROPOSED INTERIOR DESIGN FOR MATH LAB Sri Lanka CERT (Pvt.) Limited, Room 4-112, BMICH, Bauddhaloka Mawatha, Colombo 07. DETAIL DESIGN PACKAGE	GENERAL CONDITIONS AND PREAMBLES
Caseworks	All Casework hardware and accessories shall be provided and installed by the Interior Contractor as indicated on drawings and specifications as per Interior Designer approval. All finish materials shall be treated with flame-retardant process where required by local code. Furniture with staining, lacquering and varnishing in Product Group 1 shall comply to BS EN 71: Part 3: 1995 in respect of toxicity. The finishes on non-metal surfaces shall comply with the heavy/ severe use requirements for horizontal surfaces on other tables and trolleys as specified in FIRA 6250 Severe. All drawer fronts shall be as specified. All shelvings shall be adjustable unless otherwise indicated on drawings. Chairs and stools shall pass test level 4 description of performance - general contract seating where rough treatment and careless handling occur. Furniture shall not overturn when tested with BS EN 1022: 1997. All veneer core elements shall be clear straight-grain lumbar of the ebst grade of the specified species as listed by the N.H.L.A. Lumbar shall be free of any defects which might impair serviceability, aesthetics, and / or finish. Where veneer differs on two sides, veneers shall be of similar thickness, density and characteristics to prevent any warpage. Veneer core elements shall also be according to the following, unless indicated on drawings or specifications. Adhesives shall be water resistant resin or approved equal; process shall be hot plate method using the following number of plys to achieve specified thickness: 1/4" (6mm) overall thickness shall be of 3-ply veneer core construction. 3/8" (9mm) overall thickness shall be of 5-ply veneer core construction. 1/2" (12mm) overall thickness shall be of 5-ply veneer core construction. 3/4" (20mm) overall thickness shall be of 7-ply veneer core construction. 1" (25mm) overall thickness shall be of 9-ply veneer core construction. For Face Woods receiving transparent finishes, Species shall be as specified on drawings; faces shall be selected and matched by the Interior Contractor with respect to cutting lengths, uniformity of colour, figure and grain character. Face veneers shall not contain open joints, face depressions, glue stain and other manufacturing irregularities. Unexposed woods shall be Birch, Polar or Douglas Fir, rotary cut, Unselect, good one side, interior type plywood, one side Grade A and one side Grade B; Grade A faces shall not contain plugs, knots, pitch pockets, splits, rough grain or other open defects. Drapery The Interior Contractor's work includes coordinating and installing all Drapery as indicated on drawings and specifications, including procurement, labor, materials and equipment. Shop drawings of all areas receiving Draperies shall be submitted to Interior Designer for approval prior to fabrication. These drawings shall indicate plans showing the location of all tracks, details and elevations showing all drapery panels showing seaming, hemming, pleating, weights, hardware attachment and method of installation. Two (2) samples of each Drapery fabric showing fabric pattern repeat shall be submitted to the Interior Designer for approval prior to installation. Minimum size to be 18"x18" (450mm square). One (1) set of Draperies will be installed at job site for approval before fabrication of total job. This sample Drapery shall be fabricated based on field measurements taken by the Interior Contractor and submitted to Interior Designer. All Draperies shall be of the finest contract quality and fabricated to withstand dry cleaning and hard usage. Interior Contractor shall supply the yardage figure per fabric required for the entire job. Drapery fabric shall meet requirements of local and state codes where applicable. All materials shall meet all flammability requirements of all local, state and national applicable codes and standards. Track shall be of heavy duty contract quality made of extruded aluminum in off-white finish. Tracks shall be either cord-traversed or baton operated and shall be 1-way or 2-way draw as indicated on drawings and specifications. Tracks shall be rigged with smooth, free-rolling glides and spaced for 200% fullness, unless specified otherwise.
 NUSTUDIO (Pvt) Ltd 18A 1/1, Hotel Rd, Mt Lavinia. M : +94 773 402 226 info@nustudio.lk	Detail/ Dwg Ref. No: Checked by: ND Prepared by: IK

PROJECT: PROPOSED INTERIOR DESIGN FOR MATH LAB Sri Lanka CERT (Pvt.) Limited, Room 4-112, BMICH, Bauddhaloka Mawatha, Colombo 07. DETAIL DESIGN PACKAGE		GENERAL CONDITIONS AND PREAMBLES	
Furnishing& Upholstry		The Interior Contractor's work includes coordinating and installing all Furnishings as indicated on drawings and specifications, including procurement, labor, materials and equipment. Scaled shop drawings indicating fabrication and installation methods shall be submitted for each Furnishings item. Two (2) samples of each fabric and finish of exposed wood specified shall be submitted. Furniture with staining, lacquering and varnishing in Product Group 1 shall comply to BS EN 71: Part 3: 1995 in respect of toxicity. The finishes on non-metal surfaces shall comply with the heavy/ severe use requirements for horizontal surfaces on other tables and trolleys as specified in FIRA 6250 Severe. When requested by Interior Designer, provide one (1) complete working model (full size) of each Casegood item. Sample shall be provided prior to fabrication of final items and be for approval by Interior Designer. All upholstery fabrics shall be treated with an approved stain/soil Resistant Finish in accordance with applicable code restrictions and requirements and manufacturer's recommendations. Textile covering fabrics shall meet the requirements of BS 2543 1995 for general contract applications. Scotch guarding treatment is required as standard. All fabrics shall be flameproofed as required by Law. Certificate of Flameproofing shall be provided to Owner. Combinations of upholstery cover and fillings shall satisfy the requirements for Medium Hazard as detailed in BS 7176: 1995. All loose cushions shall be attached with sewn fabric loops through metal rings, unless otherwise stated. All seams shall be double stitched, unless otherwise stated. Interior Contractor shall supply the yardage figure per fabric required for the entire job. Urethane foam cushions shall meet the requirements detailed in BS 3379: 1991 Class V for seats and Class S for backs and arms. Cushion density must be a minimum of 1.8 lbs per quare inch. All cushions must be wrapped in either multiple layers of poly dacron or 50 / 50 downfill. Subject to Interior Designer's approval during mock-up stage.	
Painting		Provide the Paint as indicated on drawings and speifications, unless indicated otherwise. All trim, borders or other materials shall be provided as specified and shall be of the highest quality. Schedule for Interior Metals: One coat primer, one coat Alkyd Semi-Gloss Enamel or equivalent. Schedule for Gypsum Board: One coat drywall primer, two coats Alkyd Eggshell finish or equivalent. Schedule for Interior Wood, Painted: One coat wood trim primer, two coats Semi Gloss Enamel or equivalent. Schedule for Interior Wood, Stained: One coat of Wood Stain wiped off after drying five minutes, two coats Urethane Finish (sanded between coats). Should additional coats of paint / stain be required to achieve specified colour, Interior Contractor shall notify Consultant priorto application of any finish / sealer coat. Final coat and finish must match approved sample and specified colour. It is the responsibility of the General Contractor to see that the surface is properly prepared to receive Paint as specified. Start of Painting shall not commence until surface to which Paint will be applied have been inspected by the applicator and found to be satisfactory.	
 NUSTUDIO (Pvt) Ltd 18A 1/1, Hotel Rd, Mt Lavinia. M : +94 773 402 226 info@nustudio.lk		Detail/ Dwg Ref. No: Checked by: ND Prepared by:	

PROJECT: PROPOSED INTERIOR DESIGN FOR MATH LAB Sri Lanka CERT (Pvt.) Limited, Room 4-112, BMICH, Bauddhaloka Mawatha, Colombo 07. DETAIL DESIGN PACKAGE		FURNITURE SCHEDULE	
ITEM CODE	DESCRIPTION	ORIGIN	REMARKS
TF-01	Office Table	Custom Made furntiure	Or Approved Equivalent
CF-01	Office chair	DELMEGE	
TF-02A	Side cupboard	Custom Made furntiure	
PF-01	Bottom pantry cuboard	Custom Made furntiure	
PF-02	Wall pantry cuboard	Custom Made furntiure	Or Approved Equivalent
VF-01	Vanity cupboard	Custom Made furntiure	
SRF-01	FILE RACK & PERSONAL LOCKER CABINET	Custom Made furntiure	
FD -01	Frosed acrylic desk devider	Custom Made furntiure	
PCF -01	Personal cupboard	Custom Made furntiure	Or Approved Equivalent
RB-01	Roman Blinds	Blueskye Innovative Solusions (Pvt) Ltd.	
RB - 02	Roman Blinds	Blueskye Innovative Solusions (Pvt) Ltd.	
PCF -01	Personal Filing Cupboardrds	Custom Made Furniture	
 NUSTUDIO (Pvt) Ltd 18A 1/1, Hotel Rd, Mt Lavinia. M : +94 773 402 226		Detail/ Dwg Ref. No: Checked by: ND Prepared by: IK	

PROJECT: PROPOSED INTERIOR FOR MATH LAB For Srilanka CERT (PVT) Ltd. Room 4-112, BMICH, Bauddhaloka Mawatha, Colombo 07, Sri Lanka . SCHEMATIC DESIGN PACKAGE	ITEM CODE TF-01
Item: Office Table Code: TF-01 Origin: CUSTOM MADE Description: Standard Office Work Table Finish: Dark Walnut Wood Grain Melamine	Operational room Dimension: 1300mm L × 600mm D × 750mm H Quantity: 12
Notes: Standard rectangular office table suitable for general workstation use. Tabletop constructed from 25mm thick MDF / engineered board. Tabletop finished with dark walnut wood-grain melamine laminate. Side panels constructed from 18mm MDF / particle board with matching Full-height side panels provide stable support to tabletop. Steel support frame below tabletop and cross bracing provided where required for stability All joints to be securely fixed and finished neatly. Scrath-resistant, easy-clean laminate surface. Drawer unit constructed from 18mm MDF / particle board with matching laminate. Colour: Dark Walnut / Brown Wood Grain.	
Design Intent: 	
 NUSTUDIO (Pvt) Ltd 18 A 1/1, Hotel Rd, Mt. Lavinia M : +94773402266 E : info@nustudio.lk	Detail/ Dwg Ref. No: NUS_CERT P_01 Checked by: ND Prepared by: IK

PROJECT: PROPOSED INTERIOR FOR MATH LAB For Srilanka CERT (PVT) Ltd. Room 4-112, BMICH, Baudhdhaloka Mawatha, Colombo 07, Sri Lanka . SCHEMATIC DESIGN PACKAGE		ITEM CODE CF-01	
Item: HIGH BACK CHAIR - CIR64TW_HB GREY Code: CF-01 Origin: Delmege Description: Ergonomic Mesh Back Task Chair with adjustable lumbar support & head rest. Finish: As indicated	Operational room & Office room Dimension: Quantity: 13		
Notes: Finish : Nylon frame with black nylon support. Arms : Adjustable armrest and rotatable pad. Mechanism : Synchronized tilting mechanism with three positions locking. Lumbar support : Adjustable lumbar support with cushion Cylinder : High Quality gas-lift Base : Black nylon five star base with PA castors			
Design Intent: 			
		Company / Brand: DELMEGE Type: Commercial Task Chair	
 NUSTUDIO (Pvt) Ltd 18 A 1/1, Hotel Rd, Mt. Lavinia M : +94773402266 E : info@nustudio.lk		Detail/ Dwg Ref. No: NUS_CERT P_02 Checked by: ND Prepared by: IK	

PROJECT: PROJECT:		ITEM CODE TF-02 -A	
Item: Side Cupboard Code: TF-02 -A Origin: Custom Made & Existing Table Description: Custom-made side cupboard designed to integrate with the existing executive office table Finish:	Operational room Dimension: 367 mm, 600 mm ,760 mm Quantity: 1		
Notes: Material: 18 mm melamine-faced MDF / particle board with dark wood grain finish. Finish: Dark walnut / dark wood laminate finish. Length: 367 mmWidth (Depth): 600 mm Height: 760 mm Configuration: Multi-drawer storage unit with lockable drawers. Hardware: Soft-close drawer runners and concealed handles.			
Design Intent: 			
 NUSTUDIO (Pvt) Ltd 18 A 1/1, Hotel Rd, Mt. Lavinia M : +94773402266 E : info@nustudio.lk		Detail/ Dwg Ref. No: NUS_CERT P_03 Checked by: ND Prepared by: AM	

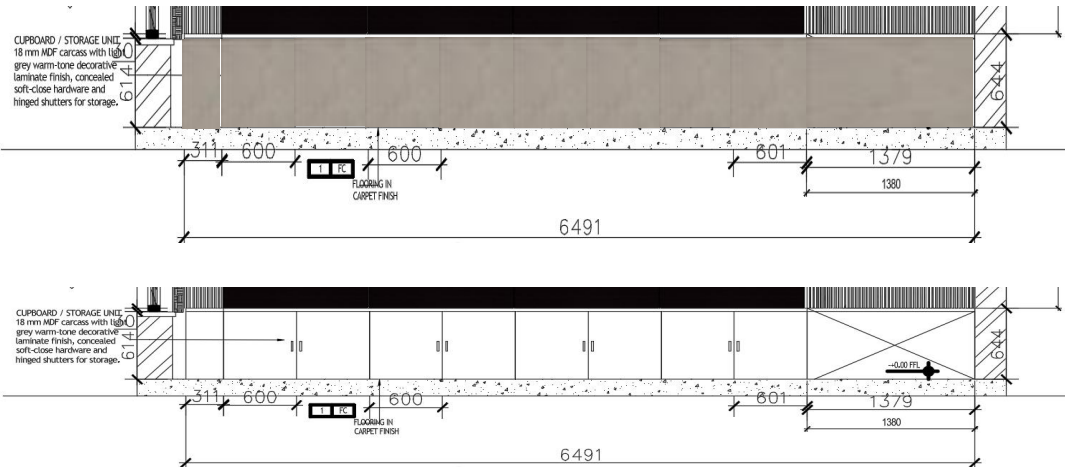
PROJECT: PROPOSED INTERIOR FOR MATH LAB For Srilanka CERT (PVT) Ltd. Room 4-112, BMICH, Bauddhaloka Mawatha, Colombo 07, Sri Lanka . SCHEMATIC DESIGN PACKAGE	ITEM CODE PF-01
Item: Bottom pantry cupboard Code: PF-01 Origin: Custom Made Description: Custom made 4-door side cupboard / credenza. Finish: Wood-grain laminate finish with granite top.	Pantry room Dimension: 1600mm (L) × 850mm (H) × 450mm (D) Quantity: 1
Notes: 18mm commercial grade moisture resistant plywood carcass. 18mm MDF/MR plywood shutter doors with matching wood-grain laminate. Commercial grade concealed soft-close hinges Hafele or equivalent 100mm high matching plinth/base. Cupboard Dimension: 1600mm (L) × 850mm (H) × 450mm (D) Neat edge banding to all exposed edges.	
Design Intent: 	
 NUSTUDIO (Pvt) Ltd 18 A 1/1, Hotel Rd, Mt. Lavinia M : +94773402266 E : info@nustudio.lk	Detail/ Dwg Ref. No: NUS_CERT P_04 Checked by: ND Prepared by: IK

PROJECT: PROPOSED INTERIOR FOR MATH LAB For Srilanka CERT (PVT) Ltd. Room 4-112, BMICH, Buddhaloka Mawatha, Colombo 07, Sri Lanka . SCHEMATIC DESIGN PACKAGE	ITEM CODE PF-02
Item: Wall pantry cupboard Code: PF-02 Origin: Custom Made Description: Custom-made wall-mounted pantry cupboard with hinged doors, finger grooves and internal adjustable shelving, designed for concealed pantry storage.	Pantry room Dimension: 3000mm x 2140mm Quantity: 1
Finish: Natural wood-look laminate Notes: 18mm Moisture resistant plywood carcass with laminate / veneer finish. 18mm moisture resistant plywood hinged doors with concealed hinges. Adjustable internal shelves with shelf pins / brackets. Concealed heavy-duty metal support system and concealed for secure wall mounting. HAFELE or eq. LENGTH: 1600 MM ,DEPTH: 300 MM , HEIGHT: 600 MM , CLEARANCE BELOW: 450 MM Natural wood-look laminate / veneer finish with matching edge banding and brushed stainless-steel handles. 6 mm tempered painted glass back panel with brushed ss fixtures / studs for full length of cupboards.	
Design Intent:	
 NUSTUDIO (Pvt) Ltd 18 A 1/1, Hotel Rd, Mt. Lavinia M : +94773402266 E : info@nustudio.lk	Detail/ Dwg Ref.No:NUS_CERT P_05 Checked by: ND Prepared by: IK

PROJECT: PROPOSED INTERIOR FOR MATH LAB For Srilanka CERT (PVT) Ltd. Room 4-112, BMICH, Baudhaloka Mawatha, Colombo 07, Sri Lanka .		ITEM CODE VF-01
		DELETED ITEM
Item: PANTRY VANITY CUPBOARD Code: VF-01 Origin: Custom made Description: As indicated Finish: As indicated	Office room Dimension: 900mm x 500mm x 900mm Quantity: 1	
Notes: 18mm Moisture-Resistant Plywood carcass Natural wood-look laminate finish to cabinet doors and sides 20mm Granite countertop to match with new under counter wash basin. Cupboard back panel 6-9 mm MDF/Plywood 2 nos. vertical cabinet doors with concealed hinges Adjustable internal shelves for storage 100mm recessed/plinth base Custom-made to suit existing fittings and site conditions Length - 900mm , Height - 900mm, Width - 500mm		
Design Intent:		
 NUSTUDIO (Pvt) Ltd 18 A 1/1, Hotel Rd, Mt. Lavinia M : +94773402266 E : info@nustudio.lk	Detail/ Dwg Ref.No:NUS_CERT P_06	
	Checked by: ND	
	Prepared by: IK	

PROJECT: PROPOSED INTERIOR FOR MATH LAB For Srilanka CERT (PVT) Ltd. Room 4-112, BMICH, Bauddhaloka Mawatha, Colombo 07, Sri Lanka . SCHEMATIC DESIGN PACKAGE		ITEM CODE SRF- 01
Item: FILE RACK & PERSONAL LOCKER CABINET Code: SRF-01 Origin: Custom Made Description: 8-locker mdf unit with bag counter Finish: MDF - teak wood-finish laminate to top, side and bottom panels with matching PVC edge banding		LOBBY Dimension: L-1050, H-2100, D-270 mm Quantity: 1
Notes: Custom-made cupboard with 18mm MR MDF / plywood carcass, finished with natural teak brown wood-grain laminate. Matching teak wood-finish laminate to top, side and bottom panels with matching PVC edge banding. Floor-standing installation with adjustable levelling supports. 18mm MDF hinged door panels finished with light grey matt laminate, arranged in 2 columns and 4 rows, providing 8 individual storage compartments. Chrome-finish cabinet handles with individual locking systems and heavy-duty soft-close concealed hinges for smooth operation. Base: Heavy-duty floor-mounted unit with non-marring floor glides. L-1050, H-2100, D-270 mm If item contractor to verify site mesurment before manufacturing .		
Design Intent: 		
Notes:		
 NUSTUDIO (Pvt) Ltd 18 A 1/1, Hotel Rd, Mt. Lavinia M : +94773402266 E : info@nustudio.lk	Detail/ Dwg Ref.No:NUS_CERT P_07	
	Checked by: ND	
	Prepared by: IK	

PROJECT: PROPOSED INTERIOR FOR MATH LAB For Srilanka CERT (PVT) Ltd. Room 4-112, BMICH, Bauddhaloka Mawatha, Colombo 07, Sri Lanka . SCHEMATIC DESIGN PACKAGE		ITEM CODE FD-01
Item: FROSTED ACRYLIC DESK DIVIDER Code: FD-01 Origin: Custom Made Description: Custom-made frosted acrylic divider providing privacy between office workstations while allowing light transmission. Finish: As indicated	Office room Dimension: 1300W × 450H mm Quantity: 3	
Notes: 10mm frosted acrylic sheet Brushed SS clamp brackets Polished acrylic edges Table-mounted fixing system		
Design Intent:		
Notes:		
 NUSTUDIO (Pvt) Ltd 18 A 1/1, Hotel Rd, Mt. Lavinia M : +94773402266 E : info@nustudio.lk		Detail/ Dwg Ref.No:NUS_CERT P_08 Checked by: ND Prepared by: IK

PROJECT: PROPOSED INTERIOR FOR MATH LAB For Srilanka CERT (PVT) Ltd. Room 4-112, BMICH, Bauddhaloka Mawatha, Colombo 07, Sri Lanka . SCHEMATIC DESIGN PACKAGE	ITEM CODE CU- 01 DELETED ITEM
DATE: 2026/09/07 Item: TV CONSOLE CABINET Code: CU- 01 Origin: Custom Made Description: Custom-made low storage credenza unit featuring alternating hinged shuttered doors and open shelving niches, providing concealed storage and display/placement areas. Finish: Light grey warm-tone decorative laminate finish with soft-close hardware and concealed handles.	Operational room Dimension: 6491 mm - L × 644 mm -H Quantity: 1
Notes: 18mm MDF carcass with light grey warm-tone decorative laminate finish Concealed soft-close hardware and hinged shutters for storage Polished acrylic edgeIntegrated open-shelf tiers/niches for display or quick-access itemss Recessed/plinth base support SECTION BREAKDOWN (LEFT TO RIGHT): 10 parts 1. Section 1 (1 Unit): 311L × 300W × 644H mm 2. Sections 2 to 9 (8 Units): 600L × 300W × 644H mm (Each) 3. Section 10 (1 Unit): 1379L × 300W × 644H mm OVERALL DIMENSIONS: 6491 L × 300D × 644H mm	
Design Intent:  CLIPBOARD / STORAGE UNIT: 18 mm MDF carcass with light grey warm-tone decorative laminate finish, concealed soft-close hardware and hinged shutters for storage. CLIPBOARD / STORAGE UNIT: 18 mm MDF carcass with light grey warm-tone decorative laminate finish, concealed soft-close hardware and hinged shutters for storage. Notes: 	
 NUSTUDIO MOBILE : +94 773 402 226	Detail/ Dwg Ref.No: NUS_CERT P_09 Checked by: ND Prepared by: IK

PROJECT: PROPOSED INTERIOR FOR MATH LAB For Srilanka CERT (PVT) Ltd. Room 4-112, BMICH, Bauddhaloka Mawatha, Colombo 07, Sri Lanka . SCHEMATIC DESIGN PACKAGE		ITEM CODE RB -01
Item: Roman Blinds System Code: RB-01 Origin: Custom Made Description: Manual Blackout Roman Blinds Finish: As indicated Notes: Fabric Specification Premium-quality Blackout Roman Blind fabric suitable for interior applications.Fabric composition: 100% Polyester with acrylic blackout coating. Fabric shall provide effective blackout opacity for control of external light and enhanced privacy.Fabric shall be suitable for use in interior Roman blind applications. Fabric shall have good colour fastness, durability and dimensional stability for long-term interior use. Fabric shall provide protection against UV/light penetration and assist in reducing solar heat and glare. Fabric surface shall be easy to maintain and clean using a soft cloth. Roman Blind System Custom-made manual Roman blind system with neat, uniform and consistent horizontal folds.	Operations Room & Office room Dimension: 5100 W x 2150 HT Quantity: 2	
Design Intent:		Manufacturer / Source Blueskye Innovative Solutions (Pvt) Ltd. <u>123/5 Pannipitiya road Battaramulla</u> Reggie - +94 (74) 135 6677 Angelo-772753325 Detail/ Dwg Ref.No:NUS_CERT P_10
NUSTUDIO (Pvt) Ltd 18 A 1/1, Hotel Rd, Mt. Lavinia M : +94773402266 E : info@nustudio.lk		Checked by: ND Prepared by: IK

PROJECT: PROPOSED INTERIOR FOR MATH LAB For Srilanka CERT (PVT) Ltd. Room 4-112, BMICH, Bauddhaloka Mawatha, Colombo 07, Sri Lanka . SCHEMATIC DESIGN PACKAGE		ITEM CODE RB -02
Item: Roman Blinds System Code: RB-01 Origin: Custom Made Description: Manual Blackout Roman Blinds Finish: As indicated Notes: Fabric Specification Premium-quality Blackout Roman Blind fabric suitable for interior applications.Fabric composition: 100% Polyester with acrylic blackout coating. Fabric shall provide effective blackout opacity for control of external light and enhanced privacy.Fabric shall be suitable for use in interior Roman blind applications. Fabric shall have good colour fastness, durability and dimensional stability for long-term interior use. Fabric shall provide protection against UV/light penetration and assist in reducing solar heat and glare. Fabric surface shall be easv to maintain and clean using a soft cloth. Roman Blind System Custom-made manual Roman blind system with neat, uniform and consistent horizontal folds.	Operations Room & Office room Dimension: 1750 W x 2000 HT Quantity: 1	
Design Intent:		Manufacturer / Source Blueskye Innovative Solusions (Pvt) Ltd. 123/5 Pannipitiya road Battaramulla Reggie - +94 (74) 135 6677 Angelo-772753325
 NUSTUDIO (Pvt) Ltd 18 A 1/1, Hotel Rd, Mt. Lavinia M : +94773402266 E : info@nustudio.lk		Detail/ Dwg Ref.No:NUS_ CERT P_ 11 Checked by: ND Prepared by: IK

PROJECT: PROPOSED INTERIOR DESIGN FOR MATH LAB Sri Lanka CERT (Pvt.) Limited, Room 4-112, BMICH, Bauddhaloka Mawatha, Colombo 07.	ITEM CODE PCF -01			
Item: PERSONAL FILING CUPBOARD Code: PCF-01 Origin: CUSTOM MADE Description: 3 Nos. Personal Cupboards with Sliding Finish: Dark Walnut Wood Grain Melamine	Operational room Dimension:(PCF-01a) - 1416mm L × 450mm D × Dimension: (PCF-01b) - 1140mm L × 450mm D × Dimension:(PCF-01a) - 1416mm L × 450mm D × Quantity:<table><tr><td>PCF -01 a</td><td>PCF -01</td><td>PCF -01 c</td></tr></table>	PCF -01 a	PCF -01	PCF -01 c
PCF -01 a	PCF -01	PCF -01 c		
Notes: Custom-made personal storage cupboards with sliding doors. Carcass constructed from 18 mm MR MDF / plywood. External surfaces finished with Dark Walnut wood-grain laminate. Sliding doors with concealed/aluminium sliding track system. Internal shelves/partitions as required for storage. Full-height side panels provide structural support to cupboard. All exposed edges finished with matching edge banding. Soft-close sliding mechanism where applicable. Durable, scratch-resistant and easy-clean laminate surface. Colour: Dark Walnut Wood Grain Melamine				
Design Intent: PCF -01 a  HT: 310mm PCF -01 b  HT: 460mm PCF -01 c  HT: 610mm				
	Detail/ Dwg Ref.No:NUS_CERT P_12 Checked by: ND Prepared by: IK			

TECHNICAL SPECIFICATION

1 kVA ONLINE UPS

Instructions to Bidders

1. All parameters listed below are minimum mandatory requirements. The offered product shall meet or exceed every stated requirement.
2. Where a published standard is referenced, it is stated only to define the required level of performance and quality; any product complying with the referenced standard, or an equivalent international standard, is acceptable.
3. No brand name or model has been specified by the Purchaser. The Bidder shall state the offered Manufacturer, Brand and Model in the space provided and give the Technical Reference (page number) of the supporting manufacturer datasheet.

Feature	Minimum Mandatory Requirement	Bidder's Offer		
		Yes / No	If "No" indicate your offer	Technical Reference (Page No.)
Manufacturer	(Specify)			
Brand	(Specify)			
Model	(Specify)			
Country of Origin / Manufacture	(Specify)			
Manufacturer's Authorization				
Year of Manufacture	(Specify) – 2025 or later			
UPS Topology	True On-Line, Double-Conversion. Line-interactive / off-line topologies are not acceptable.			
Power Capacity	≥ 1000 VA / 800 W (1 kVA) or higher; output power factor ≥ 0.8.			
Transfer Time / Waveform	Zero transfer time (0 ms); pure sine-wave output.			
Input Voltage Range	160 – 280 V AC at full load (wider range at reduced load); 40 – 70 Hz auto-sensing; generator compatible.			
Output Voltage / Regulation	220 / 230 / 240 V AC selectable; regulated to ± 2 % or better.			
Efficiency	≥ 88 % at full load in on-line (double-conversion) mode.			
Battery	Sealed maintenance-free VRLA (or Li-ion), internal; ≥ 4 minutes backup at full load.			
Bypass	Internal automatic (static) bypass and manual bypass.			
Protection	Overload, short-circuit, over-/under-voltage, over-temperature and deep-discharge protection; input/output surge protection.			
Display & Communication	Multifunction LCD; USB and RS-232 ports; SNMP / expansion slot; auto-shutdown software.			
Form Factor & Environment	Tower form factor; operating temperature 0 – 40 °C; ≤ 95 % relative humidity, non-condensing.			
Standards / Certification	IEC 62040-1 (safety) and IEC 62040-2 (EMC); CE marked or equivalent.			
Warranty	UPS: minimum 02 years. Battery: minimum 01 year.			

Name of Bidder:

Signature & Company Seal: Date:

Technical Specification

Managed Access Switch - 24 x 1GbE PoE (370 W) with 4 x 10G SFP+ Uplinks

Bidders shall indicate compliance (Yes / No) against each clause and provide the make/model, datasheet reference and any clarification in the Remarks column. "Minimum" means the offered equipment shall meet or exceed the stated value.

1. SWITCH SPECIFICATION

Sr. No	Specification	Compliance (Yes / No)	Remarks
i	Manufacturer (Specify)		
ii	Brand (Specify)		
iii	Model (Specify)		
iv	Country of Origin (Specify)		
v	Country of Manufacture (Specify)		
1 General & Architecture			
1.1	The switch shall be a 1U, 19-inch rack-mountable, fully managed Layer 2 / Layer 3 access switch of enterprise/campus grade, supplied with all necessary rack-mounting accessories and power cord.		
1.2	The switch shall have minimum 24 x RJ-45 auto-negotiating 10/100/1000 Mbps (1GbE) access ports, all supporting Power over Ethernet.		
1.3	The switch shall have minimum 4 x SFP+ uplink ports in addition to the above access ports, each auto-negotiating and supporting both 1GbE (1000BASE-X) and 10GbE (10GBASE) speeds.		
1.4	The switch shall be supplied with the required quantity of 10GbE SFP+ optical transceivers as specified separately in this schedule; the switch shall support and warrant these transceivers (refer to the Transceiver specification).		
1.5	The switch shall provide a total usable Power over Ethernet (PoE/PoE+) power budget of minimum 370 W, delivered from an internal (built-in) power supply.		
1.6	The switch shall support the IEEE 802.3af (PoE) and IEEE 802.3at (PoE+) standards, delivering up to 30 W (Class 4) per port on the access ports, subject to the total PoE budget.		
1.7	The switch shall provide a non-blocking / wire-speed switching capacity of minimum 128 Gbps.		
1.8	The switch shall provide a forwarding throughput of minimum 95 Mpps (64-byte packets).		
1.9	The switch shall have a dedicated console port (RJ-45 and/or USB-C) for out-of-band CLI access.		
1.10	The switch shall have a dedicated out-of-band management (OOBM) Ethernet port.		
1.11	The switch shall have minimum 4 GB system memory (DRAM) and minimum 8 GB flash/onboard storage.		
1.12	The switch shall have a packet buffer of minimum 4 MB.		
1.13	The switch shall be equipped with an integrated hardware Trusted Platform Module (TPM) (or equivalent hardware root-of-trust) for secure/verified boot and platform integrity.		
2 Performance & Capacity			
2.1	MAC address table of minimum 16,000 entries.		
2.2	Support for IEEE 802.1Q VLANs with the full range of 4,094 VLAN IDs and minimum 512 active VLANs simultaneously.		
2.3	Support for minimum 128 routed / switched virtual interfaces (SVIs).		

Sr. No	Specification	Compliance (Yes / No)	Remarks
i	Manufacturer (Specify)		
ii	Brand (Specify)		
iii	Model (Specify)		
iv	Country of Origin (Specify)		
v	Country of Manufacture (Specify)		
2.4	IPv4 host (ARP) table and IPv6 host (ND) table of minimum 4,000 entries each.		
2.5	Support for minimum 1,024 IPv4 static/dynamic routes and 512 IPv6 routes in hardware.		
2.6	Support for Jumbo frames up to minimum 9,198 bytes.		
3 Layer 2 Features			
3.1	Shall support IEEE 802.3ad Link Aggregation Control Protocol (LACP) with static and dynamic link aggregation groups.		
3.2	Shall support IEEE 802.1D Spanning Tree Protocol (STP).		
3.3	Shall support IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) for faster convergence.		
3.4	Shall support IEEE 802.1s Multiple Spanning Tree Protocol (MSTP).		
3.5	Shall support Rapid Per-VLAN Spanning Tree (RPVST+) or equivalent per-VLAN spanning tree.		
3.6	Shall support IGMP snooping (v1/v2/v3) for efficient IPv4 multicast forwarding.		
3.7	Shall support MLD snooping for efficient IPv6 multicast forwarding.		
3.8	Shall support IEEE 802.1AB Link Layer Discovery Protocol (LLDP) and LLDP-MED for automatic configuration of endpoints such as IP phones.		
3.9	Shall support Voice VLAN.		
3.10	Shall support port mirroring (ingress and egress) to a monitoring port.		
3.11	Shall support Unidirectional Link Detection (UDLD) or equivalent loop-prevention mechanism.		
3.12	Shall support VXLAN encapsulation for overlay networking.		
4 Layer 3 / Routing Features			
4.1	Shall support static IPv4 routing and static IPv6 routing.		
4.2	Shall support dynamic routing with OSPF (access/limited OSPF acceptable) for IPv4, upgradeable/enabled via software licensing where applicable.		
4.3	Shall support dual-stack (simultaneous IPv4 and IPv6) operation.		
4.4	Shall support DHCP relay and DHCP server functionality to serve multiple subnets.		
4.5	Shall support Virtual Router Redundancy Protocol (VRRP) for IPv4 and IPv6 gateway redundancy.		
4.6	Shall support Protocol Independent Multicast (PIM) for IP multicast routing.		
5 Quality of Service (QoS)			
5.1	Shall support traffic classification and prioritization based on IEEE 802.1p (CoS) and DSCP.		
5.2	Shall support Strict Priority (SP) and Weighted Round Robin / Deficit Weighted Round Robin (WRR/DWRR) queue scheduling.		
5.3	Shall support per-port/per-queue rate limiting and egress traffic shaping.		

Sr. No	Specification	Compliance (Yes / No)	Remarks
i	Manufacturer (Specify)		
ii	Brand (Specify)		
iii	Model (Specify)		
iv	Country of Origin (Specify)		
v	Country of Manufacture (Specify)		
5.4	Shall support QoS policies for both IPv4 and IPv6 traffic.		
6 Security Features			
6.1	Shall support IPv4 and IPv6 Access Control Lists (ACLs) based on Layer 2, Layer 3 and Layer 4 information; time-based ACLs shall be supported.		
6.2	Shall support IEEE 802.1X port-based network access control with RADIUS.		
6.3	Shall support MAC-based authentication and Web / captive-portal authentication, including concurrent 802.1X, MAC and Web authentication on a port.		
6.4	Shall support RADIUS and TACACS+ for administrative authentication, authorization and accounting.		
6.5	Shall support DHCP snooping to block rogue/unauthorized DHCP servers.		
6.6	Shall support Dynamic ARP Inspection / Dynamic ARP protection to block ARP spoofing.		
6.7	Shall support IP Source Guard / Dynamic IP lockdown to prevent IP source-address spoofing.		
6.8	Shall support STP BPDU Guard/Protection and STP Root Guard.		
6.9	Shall support port security (MAC learning limits / MAC lockout) and port isolation / private VLAN.		
6.10	Shall support broadcast, multicast and unknown-unicast storm control with user-defined thresholds.		
6.11	Shall support Control Plane Policing (CoPP) / CPU protection against DoS attacks.		
6.12	Shall support secure management via SSHv2, HTTPS/TLS (SSL) and SNMPv3.		
6.13	Shall support role-based access control / identity-based dynamic segmentation, allowing user/device role assignment independent of physical port.		
7 Management & Monitoring			
7.1	Shall support an industry-standard Command Line Interface (CLI) for configuration and troubleshooting.		
7.2	Shall support an intuitive web-based GUI over HTTP/HTTPS.		
7.3	Shall support SNMP v1, v2c and v3, and RMON.		
7.4	Shall support a built-in REST API for programmatic configuration and automation.		
7.5	Shall support sFlow (or equivalent) for wire-speed traffic sampling and monitoring.		
7.6	Shall support Network Time Protocol (NTP), local and remote syslog logging, and multiple administrative privilege levels.		
7.7	Shall support dual (primary/secondary) firmware images and multiple stored configuration files.		
7.8	Shall support management via IPv6 (IPv6 host).		
7.9	Shall be manageable through a centralised, single-pane-of-glass management platform (on-premises or cloud) offered by the same manufacturer, and shall support zero-touch / one-touch provisioning.		

Sr. No	Specification	Compliance (Yes / No)	Remarks
i	Manufacturer (Specify)		
ii	Brand (Specify)		
iii	Model (Specify)		
iv	Country of Origin (Specify)		
v	Country of Manufacture (Specify)		
8 Stacking			
8.1	Shall support front-plane / virtual stacking of minimum 8 switches managed as a single logical unit, over standard copper and/or fibre ports.		
9 Environmental & Compliance			
9.1	Operating temperature range of minimum 0 °C to 45 °C.		
9.2	Operating relative humidity of minimum 10% to 90% non-condensing.		
9.3	Shall comply with recognised safety standards (IEC/EN/UL 62368-1 or equivalent).		
9.4	Shall comply with recognised EMC/emissions standards (EN 55032 / FCC Part 15 Class A or equivalent).		
9.5	Shall be RoHS and WEEE compliant.		

Name of Bidder:

Signature & Company Seal: **Date:**

2. OPTICAL TRANSCEIVER SPECIFICATION

Sr. No	Specification	Compliance (Yes / No)	Remarks
10GbE SFP+ Optical Transceiver (compatible with the offered switch)			
T.1	Form factor: SFP+ (Small Form-factor Pluggable Plus), hot-pluggable.		
T.2	Data rate: 10 Gbps, compliant with the 10GBASE-SR standard (IEEE 802.3ae).		
T.3	Optical interface: 850 nm VCSEL laser transmitter, multimode.		
T.4	Connector: dual LC (LC duplex).		
T.5	Fibre / reach: shall support minimum 300 m over OM3 (50/125 µm) multimode fibre.		
T.6	Shall support Digital Diagnostics Monitoring (DDM / DOM) / digital optical monitoring.		
T.7	Shall be MSA-compliant and fully interoperable with the offered switch.		
T.8	Compatibility & warranty: the transceivers shall be supplied by the same manufacturer (OEM) as the offered switch, or shall be OEM-certified and warranted for operation in the offered switch, so that use of the transceiver does not void the switch warranty or support. (Brand/model of the switch must not be assumed; compatibility is demonstrated by OEM certification.)		
T.9	Quantity: minimum 2 units per switch (to populate the 4 x SFP+ uplink ports), unless otherwise stated in the Bill of Quantities.		

3. WARRANTY & SUPPORT

Sr. No	Specification	Compliance (Yes / No)	Remarks
Warranty & Support (to be offered directly from / backed by the OEM)			
W.1	The switch shall be covered by the manufacturer's Limited Lifetime Warranty. Where a lifetime warranty is not offered, a minimum of five (5) years comprehensive OEM hardware warranty shall be provided.		
W.2	The supplied optical transceivers shall carry the OEM warranty applicable to the switch (lifetime, or minimum 5 years).		
W.3	Warranty shall include next-business-day / advance hardware replacement and access to firmware/software updates and security patches for the warranty period.		
W.4	The bidder shall submit a Manufacturer's Authorisation Form (MAF) / letter from the OEM or its authorised distributor confirming authorisation to sell and support the quoted product in Sri Lanka for this tender.		
W.5	The bidder shall have minimum five (5) years of experience in selling and supporting the quoted brand in Sri Lanka (documentary evidence to be submitted).		
W.6	The bidder shall have at least one (1) engineer certified by the manufacturer on the quoted product (certificate to be submitted).		
W.7	24x7x365 access to the OEM Technical Assistance Centre (TAC) for the warranty period.		

4. SOFTWARE & LICENSING

Sr. No	Specification	Compliance (Yes / No)	Remarks
Software / Licensing (all licences to be included at no additional cost)			
L.1	The switch shall be supplied with a perpetual base network operating system licence that enables all Layer 2 and Layer 3 features specified in this schedule.		

Sr. No	Specification	Compliance (Yes / No)	Remarks
L.2	Any feature licence required to enable the specified routing, security or segmentation features shall be included and quoted with the switch.		
L.3	A management/support subscription of the Foundation tier (or manufacturer equivalent) for the centralised management platform shall be included for each switch for a minimum of three (3) years (five (5) years preferred), covering cloud/on-premises management, monitoring and firmware updates.		
L.4	All licences shall be delivered as electronic licence entitlements registered to the purchaser, with clear activation instructions.		
L.5	The bidder shall clearly list, in the Remarks column, the exact licence part(s)/subscription(s) quoted and their term, so that renewal costs beyond the included term can be assessed.		

End of Specification

Technical Specification

Indoor Campus Wireless Access Point - Wi-Fi 6 (802.11ax), Dual-Radio 2x2

Note: Bidders shall indicate compliance (Yes / No) against each clause and provide the make/model, datasheet reference and any clarification in the Remarks column. "Minimum" means the offered equipment shall meet or exceed the stated value.

1. ACCESS POINT SPECIFICATION

Sr. No	Specification	Compliance (Yes / No)	Remarks
i	Manufacturer (Specify)		
ii	Brand (Specify)		
iii	Model (Specify)		
iv	Country of Origin (Specify)		
v	Country of Manufacture (Specify)		
1 General / Type			
1.1	The device shall be an indoor Campus / Enterprise Wireless Access Point compliant with the IEEE 802.11ax (Wi-Fi 6) standard and backward compatible with 802.11a/b/g/n/ac.		
1.2	The access point shall be a dual-radio unit operating concurrently in the 2.4 GHz and 5 GHz bands.		
1.3	Each radio shall support minimum 2x2 MIMO with 2 spatial streams (2SS).		
1.4	The access point shall have integrated (internal) omnidirectional antennas, optimised for ceiling-mounted orientation.		
1.5	A complete mounting kit shall be included with every access point at no additional cost. The kit shall comprise the OEM mount bracket suitable for the installation surface (suspended-ceiling T-rail and/or solid ceiling/wall) together with all screws, fixings and accessories required for a complete installation. The mounting type(s) offered shall be stated in the Remarks column.		
1.6	The access point shall be capable of operating as a stand-alone (controller-less) AP and, alternatively, in a managed/gateway or controller-based architecture, giving deployment flexibility.		
2 Radio & RF Performance			
2.1	Maximum aggregate (real-world) data rate of minimum 1.49 Gbps.		
2.2	The 2.4 GHz radio shall deliver a data rate of minimum 574 Mbps (2SS, 802.11ax).		
2.3	The 5 GHz radio shall deliver a data rate of minimum 1.2 Gbps (2SS, 802.11ax, HE80).		
2.4	Shall support channel bandwidths of 20/40/80 MHz (HE20/40/80) in 802.11ax.		
2.5	Shall support Orthogonal Frequency-Division Multiple Access (OFDMA) for improved multi-user efficiency.		
2.6	Shall support 802.11ax Target Wake Time (TWT) to improve battery life of IoT / client devices.		
2.7	Shall support Dynamic Frequency Selection (DFS) in the 5 GHz band.		
2.8	Shall support 1024-QAM modulation for 802.11ax.		
2.9	Shall support Transmit Beamforming (TxBF), Maximum Ratio Combining (MRC), Space-Time Block Coding (STBC), Low-Density Parity Check (LDPC) and Cyclic Delay/Shift Diversity (CDD/CSD).		
2.10	Shall support advanced cellular coexistence / interference mitigation to minimise interference from cellular, DAS and small-cell equipment.		

Sr. No	Specification	Compliance (Yes / No)	Remarks
i	Manufacturer (Specify)		
ii	Brand (Specify)		
iii	Model (Specify)		
iv	Country of Origin (Specify)		
v	Country of Manufacture (Specify)		
2.11	Transmit power shall be configurable in fine increments (0.5 dBm or finer), subject to local regulatory limits.		
2.12	Supported data rates shall span the full 802.11a/b/g/n/ac/ax MCS range.		
3 Capacity			
3.1	Shall support minimum 256 associated client devices per radio (minimum 512 total).		
3.2	Shall support minimum 16 BSSIDs (SSIDs) per radio.		
4 Wired Interfaces & Power			
4.1	Shall have minimum one (1) RJ-45 uplink port, auto-sensing 10/100/1000BASE-T (1GbE) with auto MDI/MDIX.		
4.2	The uplink port shall support Power over Ethernet (PoE) as a Powered Device (PD): minimum IEEE 802.3af (Class 3) or higher.		
4.3	Shall support IEEE 802.3az Energy Efficient Ethernet (EEE).		
4.4	Shall provide a USB 2.0 host interface (Type-A) for peripheral / IoT expansion.		
4.5	Maximum (worst-case) power consumption shall not exceed 12 W (excluding USB load).		
4.6	The bidder shall supply the required power source (PoE from the offered switch, or a PoE injector) so that each access point is fully powered on delivery; the power method quoted shall be stated in Remarks.		
5 IoT / Location Services			
5.1	Shall be IoT-ready with integrated or optional-module support for Bluetooth 5 (BLE) and 802.15.4 / Zigbee, to enable location services, asset tracking and IoT sensors. Where an optional radio module/dongle is required, the bidder shall state this in Remarks and quote it if requested in the BoQ.		
6 Security			
6.1	Shall support WPA3 (Personal and Enterprise) and WPA2.		
6.2	Shall support Enhanced Open (OWE) for encrypted open/guest networks.		
6.3	Shall support Multi Pre-Shared Key (MPSK) for simplified per-device key management.		
6.4	Shall support IEEE 802.1X authentication with RADIUS, and role-based access / dynamic segmentation policies.		
6.5	Shall have a built-in hardware Trusted Platform Module (TPM) for secure boot / anti-counterfeiting.		
6.6	Shall support a zero-trust / SASE-aligned security architecture with centrally enforced role-based policies for users, guests and IoT.		
7 Management & Software Features			
7.1	Shall support Zero-Touch Provisioning (ZTP) for automated deployment.		
7.2	Shall be manageable through a centralised single-pane-of-glass platform (cloud-based and/or on-premises) from the same manufacturer, covering configuration, monitoring, troubleshooting and reporting.		

Sr. No	Specification	Compliance (Yes / No)	Remarks
i	Manufacturer (Specify)		
ii	Brand (Specify)		
iii	Model (Specify)		
iv	Country of Origin (Specify)		
v	Country of Manufacture (Specify)		
7.3	Shall support AI/ML-based automated RF optimisation (channel/power) across the wireless network.		
7.4	Shall support intelligent client steering / band steering to place clients on the best available AP and band.		
7.5	Shall support seamless client roaming across access points.		
7.6	Shall support remote firmware upgrade and configuration management from the central platform.		
8 Mechanical, Environmental & Regulatory			
8.1	Operating temperature range of minimum 0 °C to 40 °C.		
8.2	Operating relative humidity of minimum 5% to 95% non-condensing.		
8.3	Shall be plenum-rated (suitable for installation in air-handling spaces).		
8.4	Shall comply with recognised safety standards (UL / IEC / EN 62368-1 or equivalent).		
8.5	Shall carry recognised regulatory approvals / markings (FCC / CE / RED / EMC or equivalent applicable to Sri Lanka).		
8.6	Shall have visual status indicators (LEDs) and a reset button.		

2. WARRANTY & SUPPORT

Sr. No	Specification	Compliance (Yes / No)	Remarks
Warranty & Support (to be offered directly from / backed by the OEM)			
W.1	The access point shall be covered by the manufacturer's Limited Lifetime Warranty. Where a lifetime warranty is not offered, a minimum of five (5) years comprehensive OEM hardware warranty shall be provided.		
W.2	Warranty shall include advance / next-business-day hardware replacement and access to firmware/software updates and security patches for the warranty period.		
W.3	The bidder shall submit a Manufacturer's Authorisation Form (MAF) / letter from the OEM or its authorised distributor confirming authorisation to sell and support the quoted product in Sri Lanka for this tender.		
W.4	The bidder shall have minimum five (5) years of experience in selling and supporting the quoted brand in Sri Lanka (documentary evidence to be submitted).		
W.5	The bidder shall have at least one (1) engineer certified by the manufacturer on the quoted product (certificate to be submitted).		
W.6	24x7x365 access to the OEM Technical Assistance Centre (TAC) for the warranty period.		

3. SOFTWARE & LICENSING

Sr. No	Specification	Compliance (Yes / No)	Remarks
Software / Licensing (all licences to be included at no additional cost)			
L.1	Each access point shall be supplied with a per-AP management / support subscription of minimum the Foundation tier (or manufacturer equivalent) for the centralised management platform, enabling configuration, monitoring, RF optimisation and firmware updates.		
L.2	The subscription shall be included for a minimum term of three (3) years per access point (five (5) years preferred).		
L.3	Any feature licence required to enable the specified security, IoT or management features shall be included and quoted with the access point.		
L.4	All licences / subscriptions shall be delivered as electronic entitlements registered to the purchaser, with clear activation instructions.		
L.5	The bidder shall clearly list, in the Remarks column, the exact licence/subscription part number(s) and term quoted, so that renewal costs beyond the included term can be assessed.		

End of Specification

Name of Bidder:

Signature & Company Seal: **Date:**

22U Wall-Mounted Cable Closet

Note: Bidders shall indicate conformity (Yes / No) against each item and provide the make, country of origin and any clarification in the Bidder Options column. "Minimum" means the offered item shall meet or exceed the stated value.

Item No.	Listed Specification	Conformity to Specification "Yes / No"		Bidder Options
		Yes	No	
i	Manufacturer (Specify)			
ii	Brand (Specify)			
iii	Model (Specify)			
iv	Country of Origin (Specify)			
v	Country of Manufacture (Specify)			
1.	19" EIA-310 standard, 22U wall-mounted cable closet / network cabinet, of wall-mount construction. Nominal dimensions: 600 (W) x 600 (D) mm, with 22U usable mounting height. Supplied with heavy-duty wall-mounting brackets and all wall-fixing hardware required for a complete installation.			
2.	Fabricated from CRCA / cold-rolled steel with a welded frame and durable powder-coated finish. Front and rear 19" mounting rails (profiles) shall be depth-adjustable and clearly marked with U positions.			
3.	Removable side panels on both sides (lockable / screw-fixed or quick-release) to allow easy access for installation and cabling.			
4.	Front door of toughened (tempered) glass fitted with a locking handle and key; door shall open to at least 180° (reversible / removable hinges preferred).			
5.	Static load-bearing capacity of minimum 60 kg.			
6.	2 nos. Power Distribution Units (power panels), each 13A, minimum 6-way, with individual switched outlets, a master switch / MCB and surge protection; horizontally or vertically mountable within the cabinet. Socket standard (BS 1363 / Type G, or as required) to be stated in Bidder Options.			
7.	2 nos. full-depth equipment trays / shelves (fixed or cantilever) spanning the full usable internal depth of the cabinet, each rated for a minimum load of 40 kg.			
8.	Cage nuts, mounting bolts and washers (M6) supplied in sufficient quantity to fully populate all 22U mounting positions on all mounting rails – minimum four (4) complete fixing sets per U (i.e. adequate to mount equipment across the entire 22U).			
9.	Top and bottom cable entry points fitted with brush strips and/or removable cable-gland plates.			
10.	Ventilated (perforated) top panel with provision (pre-cut mounting) for a fan unit; complete earthing / grounding and bonding kit included.			
11.	Cabinet colour / finish: standard (black or grey) – to be stated in Bidder Options.			
12.	Warranty 3 Years comprehensive.			

Name of Bidder:

Signature & Company Seal: **Date:**

TECHNICAL SPECIFICATION

CATEGORY 6 (CAT 6) 24-PORT UTP PATCH PANEL

Instructions to Bidders

1. All parameters listed below are minimum mandatory requirements. The offered product shall meet or exceed every stated requirement.
2. Where a published standard is referenced, it is stated only to define the required level of performance and quality. Any product complying with the referenced standard, or an equivalent international standard offering the same or higher performance, is acceptable.
3. No brand name or model has been specified by the Purchaser. The Bidder shall clearly state the offered Make and Model in the space provided, and shall submit manufacturer datasheets and valid test/certification reports to substantiate compliance.
4. The patch panel shall be from the same manufacturer / warranted cabling system as the Category 6 cable, outlets and patch cords being procured, and shall form part of a certified end-to-end Category 6 channel.
5. The Bidder shall complete the "Compliance (Yes / No)" column and, where applicable, quote the actual offered value in the "Bidder's Offered Specification / Remarks" column. Unsupported "Yes" entries may render the bid non-responsive.

Item No.	Details	Minimum Required Specification	Compliance (Yes/No)	Bidder's Offered Specification / Remarks
	Make (Manufacturer)	(To be stated by the Bidder)		
	Model / Part No.	(To be stated by the Bidder)		
	Country of Manufacture	(To be stated by the Bidder)		
A. Product Type & Performance				
A1	Product Type	Modular / loaded UTP patch panel for 19-inch rack mounting.		
A2	Performance Category	Category 6, meeting or exceeding ANSI/TIA-568-C.2 and ISO/IEC 11801 Class E component requirements.		
A3	Wiring System	Universal – supports both TIA-568A and TIA-568B wiring schemes.		
A4	Shielding	Unshielded (U/UTP).		
A5	Data Rate Support	Shall support 1000BASE-T (Gigabit Ethernet) and 10GBASE-T over the distance specified in the applicable standard, and IEEE 802.3af/at PoE.		
B. Physical Construction & Mounting				
B1	Mounting	19-inch EIA rack-mountable.		
B2	Rack Units / Height	1U; panel height 44.45 mm.		
B3	Footprint	Flat panel.		
B4	Panel Material	Powder-coated cold-rolled steel or equivalent, black finish.		
B5	Rear Cable Management	Integrated rear cable-management / support bar for strain relief of terminated cables.		
B6	Labelling	Numbered port identification and clear label/icon holders provided on the front.		
C. Port Configuration				
C1	Number of Ports	24 ports.		
C2	Front Interface	RJ45 (8P8C).		
C3	Positions per Port	8 positions.		
C4	Pairs per Port	4 pairs.		
C5	Connectivity	Fully loaded / connectivity included (Category 6 jacks factory-fitted, ready for termination).		
D. Termination, Contacts & Materials				
D1	Rear Termination	110 / IDC-style punch-down, supporting 22–24 AWG solid conductors; colour-coded for T568A/B.		
D2	Contact Plating	Gold-plated contacts in the mating area (minimum 1.27 µm / 50 µin).		

Item No.	Details	Minimum Required Specification	Compliance (Yes/No)	Bidder's Offered Specification / Remarks
D3	Contact Base Material	Phosphor bronze / beryllium copper.		
D4	Housing / Flammability	Thermoplastic (e.g. polycarbonate), UL 94V-0 rated.		
E. Compatibility & Interoperability				
E1	System Compatibility	Fully compatible with the Category 6 cable, information outlets/jacks and patch cords supplied under this tender, forming a warranted end-to-end Category 6 channel.		
E2	Rack Compatibility	Compatible with the standard 19-inch racks/cabinets being procured under this tender.		
F. Standards, Warranty & Documentation				
F1	Standards Compliance	Meets or exceeds all applicable ANSI/TIA-568-C.2 and ISO/IEC 11801 Category 6 component requirements.		
F2	Verification / Listing	Components ETL Verified and/or UL Listed to Category 6.		
F3	Environmental	RoHS and ELV compliant.		
F4	Warranty	Covered under the structured-cabling system warranty (minimum 25 years) offered under this tender.		
F5	Documentation	Manufacturer datasheet, component test reports and compliance declarations to be submitted with the bid.		
G. Bidder / Supplier Qualification				
G1	Experience	The Bidder shall have a minimum of five (5) years' experience supplying Category 6 structured cabling components of comparable specification. Documentary proof shall be attached.		
G2	Authorisation	The Bidder shall be an authorised partner/reseller of the offered manufacturer and able to register the system warranty.		

Name of Bidder:

Signature & Company Seal: **Date:**

TECHNICAL SPECIFICATION

19-INCH 1U CABLE MANAGEMENT PANEL

Instructions to Bidders

1. All parameters listed below are minimum mandatory requirements. The offered product shall meet or exceed every stated requirement.
2. Where a published standard is referenced, it is stated only to define the required level of performance and quality. Any product complying with the referenced standard, or an equivalent international standard offering the same or higher performance, is acceptable.
3. No brand name or model has been specified by the Purchaser. The Bidder shall clearly state the offered Make and Model in the space provided, and shall submit manufacturer datasheets and valid test/compliance documentation to substantiate compliance.
4. The cable management panel shall be compatible with the 19-inch racks and the Category 6 patch panels being procured under this tender, and shall organise cabling without violating the minimum bend radius.
5. The Bidder shall complete the "Compliance (Yes / No)" column and, where applicable, quote the actual offered value in the "Bidder's Offered Specification / Remarks" column. Unsupported "Yes" entries may render the bid non-responsive.

Item No.	Details	Minimum Required Specification	Compliance (Yes/No)	Bidder's Offered Specification / Remarks
	Make (Manufacturer)	(To be stated by the Bidder)		
	Model / Part No.	(To be stated by the Bidder)		
	Country of Manufacture	(To be stated by the Bidder)		
A. Type & Construction				
A1	Product Type	Cable management panel (organiser) for 19-inch rack mounting, for use with the Category 6 copper cabling system.		
A2	Category Suitability	Designed to route and support Category 6 cabling and patch cords while maintaining the required minimum bend radius; shall not degrade Category 6 performance.		
A3	Material	Metal (powder-coated cold-rolled steel) or high-impact flame-retardant thermoplastic; black finish.		
B. Physical & Mounting				
B1	Mounting	19-inch EIA rack-mountable.		
B2	Rack Units / Height	1U (44.45 mm).		
B3	Capacity Match	Sized to manage the patch cords of a 24-port patch panel (one manager per 24-port panel, or as required by the rack layout).		
C. Cable Management Features				
C1	Routing Elements	Front routing fingers / D-rings with adequate cable openings for organised horizontal routing.		
C2	Front Cover	Removable / hinged front cover (duct cover) to conceal and retain cables.		
C3	Bend-Radius Protection	Radius-limiting fingers/guides to preserve the minimum bend radius of copper and, where applicable, fibre cordage.		
C4	Cable Entry	Top and bottom pass-through openings for vertical transition of cables.		
D. Compatibility & Interoperability				
D1	Rack Compatibility	Compatible with the standard 19-inch racks / cabinets being procured under this tender.		
D2	System Compatibility	Compatible with the Category 6 patch panels and patch cords being procured, without obstructing port access.		
E. Compliance, Warranty & Documentation				
E1	Environmental Compliance	RoHS and ELV compliant.		
E2	Mounting Hardware	All necessary rack-mounting screws / cage nuts included.		
E3	Documentation	Manufacturer datasheet to be submitted with the bid.		

Name of Bidder:

Signature & Company Seal: Date:

TECHNICAL SPECIFICATION

19-INCH FIBRE PATCH PANEL – 8F (4 DUPLEX) LC, MULTIMODE, LOADED

Instructions to Bidders

1. All parameters listed below are minimum mandatory requirements. The offered product shall meet or exceed every stated requirement.
2. Where a published standard is referenced, it is stated only to define the required level of performance and quality. Any product complying with the referenced standard, or an equivalent international standard offering the same or higher performance, is acceptable.
3. No brand name or model has been specified by the Purchaser. The Bidder shall clearly state the offered Make and Model in the space provided, and shall submit manufacturer datasheets and valid test/compliance documentation to substantiate compliance.
4. The fibre patch panel shall be fully compatible and interoperable with the 50/125 µm OM3 multimode fibre, LC patch cords and the racks being procured under this tender.
5. The Bidder shall complete the "Compliance (Yes / No)" column and, where applicable, quote the actual offered value in the "Bidder's Offered Specification / Remarks" column. Unsupported "Yes" entries may render the bid non-responsive.

Item No.	Details	Minimum Required Specification	Compliance (Yes/No)	Bidder's Offered Specification / Remarks
	Make (Manufacturer)	(To be stated by the Bidder)		
	Model / Part No.	(To be stated by the Bidder)		
	Country of Manufacture	(To be stated by the Bidder)		
A. Type & Construction				
A1	Product Type	Fibre-optic patch panel / Light Interface Unit (LIU), rack-mounted, factory-loaded with multimode LC adapters.		
A2	Mounting	19-inch EIA rack-mountable construction.		
A3	Rack Units / Height	1U (nominal).		
A4	Enclosure Material	Powder-coated cold-rolled steel; black finish.		
A5	Access	Front access to adapters; sliding or hinged tray/drawer for splice and slack management preferred.		
B. Optical Adapters / Loading				
B1	Fibre Count	Loaded for 8 fibres – four (4) LC duplex positions (8F).		
B2	Adapter Type	LC duplex multimode couplers/adapters, factory-fitted (holders/adapters for 4 LC duplex connectors).		
B3	Adapter Sleeve	Phosphor-bronze or ceramic alignment sleeve, suitable for multimode.		
B4	Fibre Grade	Suitable for 50/125 µm OM3 multimode fibre.		
C. Accessories & Terminations				
C1	Break-out / Fan-out	Shall include break-out box / fan-out kit and tubing to match the fibre count.		
C2	Pigtails / Splice	LC multimode pigtails and a splice tray/holder to match the loaded fibre count, where fusion splicing is used.		
C3	Cable Entry & Strain Relief	Rear/side cable entry with strain-relief and slack-storage provision.		
C4	Labelling	Port numbering and label provision on the front.		
D. Compatibility & Interoperability				
D1	Fibre-Plant Compatibility	Fully compatible with the 50/125 µm OM3 multimode fibre and LC-terminated patch cords being procured under this tender.		
D2	Rack Compatibility	Compatible with the standard 19-inch racks / cabinets being procured under this tender.		
E. Compliance, Warranty & Documentation				
E1	Standards	Adapters to comply with IEC 61754-20 (LC interface); assembly to meet applicable ISO/IEC 11801 / TIA fibre component requirements.		

Item No.	Details	Minimum Required Specification	Compliance (Yes/No)	Bidder's Offered Specification / Remarks
E2	Environmental Compliance	RoHS compliant.		
E3	Mounting Hardware	All necessary rack-mounting hardware included.		
E4	Documentation	Manufacturer datasheet to be submitted with the bid.		

Name of Bidder:

Signature & Company Seal: Date:

OM3 Indoor Fibre Optic Cabling

(Multimode 50/125 µm OM3 – Supply, Installation, Termination & Testing)

1. Cable Specification

Specification	Bidder's Response
Supply, installation, termination and testing of tight-buffered indoor distribution 50/125 µm multimode OM3 fibre optic cabling for uplink wiring. (8-core).	
Fibre type: 50/125 µm laser-optimised multimode (LOMMF), Grade OM3, compliant with ISO/IEC 11801 (OM3) and ITU-T / TIA-492AAAC.	
Cable type: indoor, tight-buffered (900 µm) distribution cable with aramid (Kevlar) strength members and a central strength member.	
Jacket: flame-retardant, compliant with IEC 60332-1 (LSZH – Low Smoke Zero Halogen – preferred for indoor / plenum spaces). Standard OM3 aqua jacket colour.	
Attenuation: not more than 3.5 dB/km at 850 nm and not more than 1.5 dB/km at 1300 nm.	
Modal bandwidth (OFL): at least 2000 MHz·km at 850 nm.	
All fibres shall be capable of supporting 10 Gbps (10GBASE-SR) over the installed distance (up to 300 m over OM3).	
Minimum bend radius: 50 mm (installed / long term); the manufacturer's bend-radius limits shall not be exceeded during installation.	
Operating temperature range suitable for indoor building environments.	
Individual fibres shall be colour-coded to a recognised standard for identification.	
Supply shall include all fibre cabling accessories – surface-mounted PVC casing / conduit, cable trays, ties, labels and fixings – required for a complete and neat installation.	

2. Fibre Terminations

Specification	Bidder's Response
At each rack, All cores of fibres shall be terminated.	
Fibres shall be terminated onto LC connectors (LC/PC or LC/UPC) with ceramic ferrules, mounted on the fibre patch panel / LC coupler.	
Fusion splicing of factory-made LC pigtails is permitted only where fully automated fusion-splicing equipment is used.	
Insertion (mated) loss per connector shall not exceed 0.5 dB; splice loss shall not exceed 0.3 dB per fusion splice.	
All connectors shall be inspected and cleaned before mating.	

3. Optical Fibre Installation

Specification	Bidder's Response
1. All fibres shall be installed as a single cable between patch panels. No joints, however formed, are allowed along the fibre cables between patch panels.	
2. At least 1 m of slack shall be left within the fibre optic patch panel to enable re-termination in future.	
3. Two metres of cable shall be coiled and left secured within the rack or just outside the rack.	
4. The Bidder shall verify that the cable to be used complies with all safety and fire regulations in force.	
5. Suitable mechanical protection / cable guides shall be used to ensure the installation is carried out within the manufacturer's specifications (bend radius, pulling tension).	
6. When installed, all cables shall be clearly marked at the end points showing the destination site of the fibre. Individual fibres in each cable shall be colour-coded.	

Specification	Bidder's Response
7. Fibres shall not be spliced at any point between the fibre patch panels at each site.	

4. Optical Fibre Testing

Specification	Bidder's Response
1. The Bidder shall provide and certify hard-copy OTDR traces for: (a) all individual fibres of all cables; (b) in both directions; (c) at both 850 nm and 1300 nm wavelengths.	
2. For testing, 5 m test leads with LC connectors shall be used. The Bidder shall test each fibre as specified. The client reserves the right to observe all aspects of the testing procedures, and a hard copy of all OTDR traces obtained in the presence of the client's representative shall be submitted immediately after testing.	
3. At 850 nm: the Bidder shall provide and certify attenuation (insertion loss) measurements for all routes, terminated with LC connectors at the equipment end. The maximum attenuation allowed is 7 dB per cable length. The Bidder shall certify that the fibre used has a minimum modal bandwidth of 2000 MHz·km.	
4. At 1300 nm: the maximum attenuation recorded by the OTDR shall be no greater than that derived by assuming a 0.7 dB loss per patch panel, fibre loss of 1.5 dB/km, and splice loss of 0.3 dB. The Bidder shall certify that the fibre used has a minimum modal bandwidth of 2000 MHz·km.	
5. The complete test results shall be submitted with the full documentation set requested by the client on completion of the installation.	

Note: Bidders shall respond against each line item in the Bidder's Response column and state the make, model and country of origin of the offered fibre cable, connectors and patch panels. "Minimum / not more than" values shall be met or bettered.

Name of Bidder:

Signature & Company Seal: **Date:**

TECHNICAL SPECIFICATION

CATEGORY 6 (CAT 6) UTP STRUCTURED CABLING

Instructions to Bidders

1. All parameters listed below are minimum mandatory requirements. The offered product shall meet or exceed every stated requirement.
2. Where a published standard is referenced, it is stated only to define the required level of performance and quality. Any product complying with the referenced standard, or an equivalent international standard offering the same or higher performance, is acceptable.
3. No brand name or model has been specified by the Purchaser. The Bidder shall clearly state the offered Make and Model in the space provided, and shall submit manufacturer datasheets and valid test/certification reports to substantiate compliance.
4. The offered cabling shall be fully compatible and interoperable with the active network equipment (switches, patch panels, outlets, patch cords) being procured, so as to form a certified end-to-end Category 6 channel.
5. The Bidder shall complete the "Compliance (Yes / No)" column and, where applicable, quote the actual offered value in the "Bidder's Offered Specification / Remarks" column. Unsupported "Yes" entries may render the bid non-responsive.

Item No.	Details	Minimum Required Specification	Compliance (Yes/No)	Bidder's Offered Specification / Remarks
	Make (Manufacturer)	(To be stated by the Bidder)		
	Model / Part No.	(To be stated by the Bidder)		
	Country of Manufacture	(To be stated by the Bidder)		
A. Standards Compliance & System Performance				
A1	Cabling Category	Category 6, Unshielded Twisted Pair (U/UTP), meeting or exceeding ANSI/TIA-568-C.2, ISO/IEC 11801 (2nd Edition) Class E and IEC 61156-5 Category 6 channel and component requirements.		
A2	Electrical Performance	Certified performance in a 4-connector channel configuration up to 100 metres.		
A3	Networking Standards	Shall support: • 10BASE-T • 100BASE-TX (Fast Ethernet) • 1000BASE-T (Gigabit Ethernet) • 10GBASE-T (10 Gigabit Ethernet over the distance specified in the applicable 10GBASE-T standard)		
A4	Power over Ethernet (PoE)	Shall support IEEE 802.3af and IEEE 802.3at PoE applications. Support for IEEE 802.3bt (PoE++) is preferred where offered.		
A5	Verification / Listing	ETL Verified and/or UL Listed to ANSI/TIA-568-C.2 Category 6.		
A6	Warranty	Minimum 25-year system warranty covering the bandwidth/performance of the specified and installed cabling system, and covering the cost of re-installation in the event of a warranty failure.		
B. Category 6 U/UTP Cable – Construction & Materials				
B1	Type	Unshielded Twisted Pair (U/UTP), Category 6, exceeding TIA/EIA-568-C.2, ISO/IEC 11801 Class E and IEC 61156-5 performance requirements.		
B2	Conductor	23 AWG solid bare copper.		
B3	Insulation	Polyolefin / Polyethylene.		
B4	Outer Jacket	Flame Retardant PVC (FR-PVC).		
B5	Filler	Polyethylene (where applicable to the construction).		
B6	Pair Separator	Cross-member (+) fluted spine.		
B7	Number of Pairs	4 twisted pairs.		
B8	Nominal Outer Diameter	Approximately 6.0 mm (≈ 0.220 in) or less.		
B9	Colour	As required by the Purchaser at the time of ordering.		
B10	Packing	Box or reel of 305 metres.		

Item No.	Details	Minimum Required Specification	Compliance (Yes/No)	Bidder's Offered Specification / Remarks
C. Mechanical Characteristics				
C1	Bend Radius	Minimum 8 × outer diameter during installation; 4 × outer diameter after installation (≈ 25 mm).		
C2	Operating Temperature	−20 °C to +60 °C.		
C3	Storage Temperature	−20 °C to +80 °C.		
D. Electrical Characteristics (per 100 m)				
D1	Characteristic Impedance	100 Ω ± 15 %, 1 MHz to 250 MHz.		
D2	Propagation Delay	≤ 536 ns / 100 m @ 250 MHz (maximum).		
D3	Delay Skew	≤ 45 ns / 100 m @ 250 MHz (maximum).		
D4	Mutual Capacitance	≤ 5.6 nF / 100 m (maximum).		
E. Approvals & Environmental Compliance				
E1	Product Approvals	UL Listed / ETL Verified to TIA/EIA Category 6.		
E2	Flame Rating	CM rated (or better), per UL / NEC.		
E3	RoHS / ELV	RoHS compliant.		
F. Category 6 Modular Jacks (Keystone)				
F1	Product / Jack Type	Modular Jack, RJ45, Category 6 Unshielded; wired to TIA-568A or TIA-568B.		
F2	Housing Material	Polycarbonate; UL 94V-0 flammability rating.		
F3	Contacts	Beryllium copper contact base; gold-plated mating area, minimum 1.27 μm (50 μin) thickness.		
F4	Termination	110-style punch-down; universal 8-position (8P8C) supporting 1-, 2-, 3- and 4-pair applications; dust cover provided.		
F5	Standards	RoHS and ELV compliant; meets or exceeds all applicable TIA and ISO Category 6 component requirements.		
G. Testing, Certification & Documentation (to be submitted with the bid)				
G1	Performance Parameters	Manufacturer's test data for the following, for 4-connector channels, shall be submitted: • Attenuation (Insertion Loss) • Pair-to-Pair NEXT and Power-Sum NEXT (PS NEXT) • ELFEXT / ACRF and Power-Sum ELFEXT / PS ACRF • Return Loss (RL) • ACR and Power-Sum ACR (PS ACR)		
G2	Channel Testing	4-connector channels shall be tested to meet ANSI/TIA-568-C.2, ISO/IEC 11801 (2nd Ed.) Class E and IEC 61156-5 Category 6 channel and component requirements.		
G3	Independent Verification	The cabling system shall be tested and verified by an independent third-party laboratory for Zero Bit Error Rate (BER) at a data transmission speed of 1 Gbit/s.		
G4	Field Certification	On completion, each installed link shall be certified with a field tester capable of Category 6 permanent-link / channel certification (Fluke DTX-1800 class or better). Certified test reports for all links shall be handed over.		
H. Bidder / Supplier Qualification				
H1	Experience	The Bidder shall have a minimum of five (5) years' experience supplying Category 6 structured cabling systems of comparable specification. Documentary proof shall be attached.		
H2	Manufacturer Authorisation	The Bidder shall be an authorised partner/reseller of the offered manufacturer, and shall submit a valid Manufacturer's Authorisation and warranty registration capability for the offered system.		

Name of Bidder:

Signature & Company Seal: **Date:**

TECHNICAL SPECIFICATION

CATEGORY 6 (CAT 6) DATA OUTLET ACCESSORIES

Instructions to Bidders

1. All parameters listed below are minimum mandatory requirements. The offered product shall meet or exceed every stated requirement.
2. Where a published standard is referenced, it is stated only to define the required level of performance and quality. Any product complying with the referenced standard, or an equivalent international standard offering the same or higher performance, is acceptable.
3. No brand name or model has been specified by the Purchaser. The Bidder shall clearly state the offered Make and Model and shall submit manufacturer datasheets and valid test/compliance documentation to substantiate compliance.
4. The keystone jacks, faceplates, back boxes and associated outlet accessories shall be fully compatible with the Category 6 cable, patch panels and patch cords being procured, forming a certified end-to-end Category 6 channel.
5. The Bidder shall complete the "Compliance (Yes / No)" column and, where applicable, quote the actual offered value in the "Bidder's Offered Specification / Remarks" column. Unsupported "Yes" entries may render the bid non-responsive.

Item No.	Details	Minimum Required Specification	Compliance (Yes/No)	Bidder's Offered Specification / Remarks
	Make (Manufacturer)	(To be stated by the Bidder)		
	Model / Part No.	(To be stated by the Bidder)		
	Country of Manufacture	(To be stated by the Bidder)		
A. Standards Compliance & System Compatibility				
A1	Product Category	Category 6 unshielded outlet accessories suitable for a U/UTP structured cabling system.		
A2	Applicable Standards	Shall meet or exceed applicable ANSI/TIA-568 and ISO/IEC 11801 Category 6 component requirements, or equivalent international standards.		
A3	System Compatibility	Keystone jack, faceplate and back box shall be fully compatible with the proposed Category 6 cable, patch panel and patch cords, forming a certified end-to-end Category 6 channel.		
A4	Networking / PoE Support	Outlet components shall be suitable for 10BASE-T, 100BASE-TX, 1000BASE-T and IEEE 802.3af / 802.3at PoE applications.		
A5	Environmental Compliance	RoHS compliant and suitable for indoor commercial installation.		
B. Category 6 RJ45 Modular Jack (Keystone)				
B1	Product / Jack Type	Modular Jack, RJ45, Category 6 Unshielded, 8-position 8-contact (8P8C); wired to TIA-568A or TIA-568B.		
B2	Housing Material	High-quality polycarbonate housing; minimum UL 94V-0 flammability rating.		
B3	Contacts	Beryllium copper or equivalent contact base with gold-plated mating area, minimum 1.27 µm (50 µin).		
B4	Termination	110-style IDC punch-down termination suitable for 4-pair solid Category 6 UTP cable; colour-coded T568A/T568B wiring guide and dust cover shall be provided.		
B5	Electrical / Performance	Shall meet or exceed applicable Category 6 component performance requirements up to 250 MHz.		
B6	Mechanical Compatibility	Snap-in keystone format compatible with the proposed faceplate / modular outlet system.		
C. Data Outlet Faceplate				
C1	Type	Modular single-gang data outlet faceplate suitable for mounting Category 6 RJ45 keystone jacks.		
C2	Configuration	Single-port or dual-port configuration as indicated on the BOQ / drawings.		
C3	Material	High-quality flame-retardant polycarbonate or equivalent material suitable for commercial indoor installation.		
C4	Colour	White or as approved by the Engineer / Architect.		
C5	Labelling	Shall include an integral label holder or other permanent identification provision for outlet numbering.		
C6	Mounting	Suitable for flush or surface mounting on the proposed back box and complete with fixing screws / accessories.		
D. Data Outlet Back Box				
D1	Type	Flush-mounted or surface-mounted back box compatible with the proposed data faceplate and installation location.		
D2	Material	PVC, metal or equivalent approved material suitable for the installation environment.		
D3	Size / Depth	Adequate internal dimensions to accommodate the Category 6 keystone jack and cable termination while maintaining the required cable bend radius without stress.		
D4	Cable Entry	Provide suitable knockouts / cable-entry provisions and all required fixing accessories.		
E. Testing, Warranty & Documentation				
E1	Field Certification	The completed data point shall be included in the Category 6 permanent-link / channel certification testing. Certified test reports shall be submitted for all		

Item No.	Details	Minimum Required Specification	Compliance (Yes/No)	Bidder's Offered Specification / Remarks
		installed links.		
E2	Warranty	Accessories shall be covered by the structured-cabling system warranty offered under the tender.		
E3	Documentation	Manufacturer datasheets and relevant compliance declarations shall be submitted with the bid.		

Name of Bidder:

Signature & Company Seal: Date:

TECHNICAL SPECIFICATION

50/125 µm MULTIMODE OM3 FIBRE – LC-to-LC – 1 m DUPLEX PATCH CORD

Instructions to Bidders

1. All parameters listed below are minimum mandatory requirements. The offered product shall meet or exceed every stated requirement.
2. Where a published standard is referenced, it is stated only to define the required level of performance and quality. Any product complying with the referenced standard, or an equivalent international standard offering the same or higher performance, is acceptable.
3. No brand name or model has been specified by the Purchaser. The Bidder shall clearly state the offered Make and Model in the space provided, and shall submit manufacturer datasheets and factory test reports to substantiate compliance.
4. The offered patch cords shall be fully compatible and interoperable with the OM3 multimode fibre plant, LC-terminated patch panels, and the 10G (10GBASE-SR) optical transceiver interfaces being procured under this tender.
5. The Bidder shall complete the "Compliance (Yes / No)" column and, where applicable, quote the actual offered value in the "Bidder's Offered Specification / Remarks" column. Unsupported "Yes" entries may render the bid non-responsive.

Item No.	Details	Minimum Required Specification	Compliance (Yes/No)	Bidder's Offered Specification / Remarks
	Make (Manufacturer)	(To be stated by the Bidder)		
	Model / Part No.	(To be stated by the Bidder)		
	Country of Manufacture	(To be stated by the Bidder)		
A. Optical Fibre				
A1	Fibre Type	50/125 µm laser-optimised multimode fibre, Grade OM3, complying with IEC 60793-2-10 type A1a.2, ISO/IEC 11801 OM3 and TIA-492AAAC.		
A2	Effective Modal Bandwidth	≥ 2000 MHz·km at 850 nm (laser / EMB); ≥ 500 MHz·km at 1300 nm.		
A3	Fibre Attenuation	≤ 3.5 dB/km at 850 nm; ≤ 1.5 dB/km at 1300 nm.		
A4	Data Rate Capability	Shall support 10 Gbps operation (10GBASE-SR) over OM3 fibre.		
B. Connectors & Terminations				
B1	Connector Type	LC duplex connector at both ends (LC-to-LC), complying with IEC 61754-20 and TIA-604-10 (FOCIS 10).		
B2	Ferrule	Pre-radiused ceramic (zirconia) ferrule.		
B3	Polish	Physical Contact (PC / UPC) multimode polish.		
B4	Insertion Loss	≤ 0.50 dB per mated connector pair (each end).		
B5	Return Loss	≥ 20 dB (multimode).		
B6	Durability	≥ 500 mating cycles with no degradation beyond the stated insertion-loss limit (per IEC 61300-2-2).		
B7	Polarity	Duplex, A-to-B (crossover) polarity, clearly and permanently marked.		
C. Cable Construction				
C1	Construction	Duplex zipcord / round duplex cable with internal aramid-yarn strength members.		
C2	Jacket	PVC outer jacket (LSZH offered as an alternative where required by the Purchaser).		
C3	Cable Diameter	1.6 mm to 3.0 mm per leg (nominal).		
C4	Overall Length	1 metre (± tolerance as per manufacturer standard).		
C5	Jacket Colour	Aqua – the standard identifier for OM3 per TIA-598-C – or as specified by the Purchaser at time of ordering.		
C6	Boot / Strain Relief	Moulded strain-relief boot at each connector; pull-proof / uni-boot construction preferred.		
D. Environmental & Mechanical				
D1	Operating Temperature	–20 °C to +60 °C (minimum range).		

Item No.	Details	Minimum Required Specification	Compliance (Yes/No)	Bidder's Offered Specification / Remarks
D2	Minimum Bend Radius	As per manufacturer specification for OM3 duplex cordage; the cord shall withstand normal patching without performance degradation.		
E. Compatibility & Interoperability				
E1	Fibre-Plant Compatibility	Fully compatible with the 50/125 µm OM3 fibre backbone and LC-terminated fibre patch panels supplied under this tender.		
E2	Equipment Compatibility	Fully compatible with the LC duplex optical interfaces of the 10G SFP+ (10GBASE-SR, 850 nm) transceivers and switches being procured.		
F. Approvals, Testing & Documentation				
F1	Factory Testing	Each patch cord shall be 100 % factory-tested for insertion loss (and return loss where applicable). A test report/label shall accompany each cord.		
F2	Connector Standards	Connector performance to comply with Telcordia GR-326-CORE and the applicable IEC 61300 test-method series.		
F3	Environmental Compliance	RoHS compliant.		
F4	Documentation	Manufacturer datasheet and material/compliance declarations to be submitted with the bid.		
F5	Warranty	Covered under the structured-cabling system warranty (minimum 25 years) offered under this tender, or minimum manufacturer component warranty.		

Name of Bidder:

Signature & Company Seal: **Date:**

TECHNICAL SPECIFICATION

0.5 m CATEGORY 6 (CAT 6) U/UTP PATCH CORD

Instructions to Bidders

1. All parameters listed below are minimum mandatory requirements. The offered product shall meet or exceed every stated requirement.
2. Where a published standard is referenced, it is stated only to define the required level of performance and quality. Any product complying with the referenced standard, or an equivalent international standard offering the same or higher performance, is acceptable.
3. No brand name or model has been specified by the Purchaser. The Bidder shall clearly state the offered Make and Model in the space provided, and shall submit manufacturer datasheets and factory test reports to substantiate compliance.
4. The patch cords shall be factory-terminated and factory-tested, and shall be from the same warranted cabling system as the Category 6 cable, patch panels and outlets being procured, forming a certified end-to-end Category 6 channel.
5. The Bidder shall complete the "Compliance (Yes / No)" column and, where applicable, quote the actual offered value in the "Bidder's Offered Specification / Remarks" column. Unsupported "Yes" entries may render the bid non-responsive.

Item No.	Details	Minimum Required Specification	Compliance (Yes/No)	Bidder's Offered Specification / Remarks
	Make (Manufacturer)	(To be stated by the Bidder)		
	Model / Part No.	(To be stated by the Bidder)		
	Country of Manufacture	(To be stated by the Bidder)		
A. Type & Performance				
A1	Type	Unshielded Twisted Pair (U/UTP), Category 6, factory-assembled and tested, meeting or exceeding ANSI/TIA-568-C.2 and ISO/IEC 11801 Class E (component / flexible-cord requirements per IEC 61156-6).		
A2	Number of Pairs	4 twisted pairs.		
A3	Impedance	100 Ω (nominal).		
A4	Data Rate / Application	Shall support 1000BASE-T (Gigabit Ethernet) and 10GBASE-T over the applicable distance, and IEEE 802.3af / 802.3at PoE.		
B. Conductor & Cable Construction				
B1	Conductor	24 AWG stranded bare copper (7 / 32 stranding).		
B2	Insulation	Flame-retardant polyethylene / polyolefin.		
B3	Outer Jacket	Flame-retardant PVC (FR-PVC); LSZH offered as an alternative where required by the Purchaser.		
B4	Colour	As specified by the Purchaser at time of ordering.		
C. Connectors (Plugs)				
C1	Plug Type	RJ45 (8P8C) modular plug at both ends, Category 6 rated.		
C2	Contact Plating	Gold-plated contacts in the mating area (minimum 1.27 μm / 50 μin).		
C3	Wiring Scheme	Straight-through, wired T568B (or T568A) identically at both ends.		
C4	Boot / Strain Relief	Transparent slim, snag-free (snagless) moulded boot with integral strain relief at each plug.		
D. Length				
D1	Overall Length	0.5 metre ($\pm$ tolerance as per manufacturer standard).		
E. Compatibility & Interoperability				
E1	System Compatibility	Fully compatible with the Category 6 patch panels, information outlets and horizontal cabling supplied under this tender, forming a warranted end-to-end Category 6 channel.		
E2	Equipment Compatibility	Fully compatible with the RJ45 interfaces of the network switches and end devices being connected.		
F. Approvals, Testing, Warranty & Documentation				

Item No.	Details	Minimum Required Specification	Compliance (Yes/No)	Bidder's Offered Specification / Remarks
F1	Factory Testing	Each patch cord shall be 100 % factory-tested for continuity, wire-map and Category 6 performance. Test verification to accompany the supply.		
F2	Verification / Listing	Components ETL Verified and/or UL Listed to Category 6.		
F3	Environmental Compliance	RoHS and ELV compliant.		
F4	Warranty	Minimum 25-year component warranty, covered under the structured-cabling system warranty offered under this tender.		
F5	Documentation	Manufacturer datasheet and compliance declarations to be submitted with the bid.		

Name of Bidder:

Signature & Company Seal: Date:

TECHNICAL SPECIFICATION

1.5 m CATEGORY 6 (CAT 6) UTP PATCH CORD

Instructions to Bidders

1. All parameters listed below are minimum mandatory requirements. The offered product shall meet or exceed every stated requirement.
2. Where a published standard is referenced, it is stated only to define the required level of performance and quality. Any product complying with the referenced standard, or an equivalent international standard offering the same or higher performance, is acceptable.
3. No brand name or model has been specified by the Purchaser. The Bidder shall clearly state the offered Make and Model in the space provided, and shall submit manufacturer datasheets and valid test/compliance documentation to substantiate compliance.
4. The patch cords shall be factory-terminated and factory-tested, and shall be from the same warranted cabling system as the Category 6 cable, patch panels and outlets being procured, forming a certified end-to-end Category 6 channel.
5. The Bidder shall complete the "Compliance (Yes / No)" column and, where applicable, quote the actual offered value in the "Bidder's Offered Specification / Remarks" column. Unsupported "Yes" entries may render the bid non-responsive.

Item No.	Details	Minimum Required Specification	Compliance (Yes/No)	Bidder's Offered Specification / Remarks
	Make (Manufacturer)	(To be stated by the Bidder)		
	Model / Part No.	(To be stated by the Bidder)		
	Country of Manufacture	(To be stated by the Bidder)		
A. Type & Performance				
A1	Type	Unshielded Twisted Pair (UTP), Category 6, factory-assembled and tested, meeting or exceeding ANSI/TIA-568-C.2 and ISO/IEC 11801 Class E (component / flexible-cord requirements per IEC 61156-6).		
A2	Number of Pairs	4 twisted pairs.		
A3	Impedance	100 Ω (nominal).		
A4	Data Rate / Application	Shall support 1000BASE-T (Gigabit Ethernet) and 10GBASE-T over the applicable distance, and IEEE 802.3af / 802.3at PoE.		
B. Conductor & Cable Construction				
B1	Conductor	24 AWG stranded bare copper (7 / 32 stranding).		
B2	Insulation	Flame-retardant polyethylene / polyolefin.		
B3	Outer Jacket	Flame-retardant PVC (FR-PVC); LSZH offered as an alternative where required by the Purchaser.		
B4	Colour	As specified by the Purchaser at time of ordering.		
C. Connectors (Plugs)				
C1	Plug Type	RJ45 (8P8C) modular plug at both ends, Category 6 rated.		
C2	Contact Plating	Gold-plated contacts in the mating area (minimum 1.27 μm / 50 μin).		
C3	Wiring Scheme	Straight-through, wired T568B (or T568A) identically at both ends.		
C4	Boot / Strain Relief	Transparent slim, snag-free (snagless) moulded boot with integral strain relief at each plug.		
D. Length				
D1	Overall Length	1.5 metres ($\pm$ tolerance as per manufacturer standard).		
E. Compatibility & Interoperability				
E1	System Compatibility	Fully compatible with the Category 6 patch panels, information outlets and horizontal cabling supplied under this tender, forming a warranted end-to-end Category 6 channel.		
E2	Equipment Compatibility	Fully compatible with the RJ45 interfaces of the network switches and end devices being connected.		
F. Approvals, Testing, Warranty & Documentation				

Item No.	Details	Minimum Required Specification	Compliance (Yes/No)	Bidder's Offered Specification / Remarks
F1	Factory Testing	Each patch cord shall be 100 % factory-tested for continuity, wire-map and Category 6 performance. Test verification to accompany the supply.		
F2	Verification / Listing	Components ETL Verified and/or UL Listed to Category 6.		
F3	Environmental Compliance	RoHS and ELV compliant.		
F4	Warranty	Minimum 25-year component warranty, covered under the structured-cabling system warranty offered under this tender.		
F5	Documentation	Manufacturer datasheet and compliance declarations to be submitted with the bid.		

Name of Bidder:

Signature & Company Seal: Date:

TECHNICAL SPECIFICATION

50/125 µm MULTIMODE OM3 FIBRE – LC-to-LC – 10 m DUPLEX PATCH CORD

Instructions to Bidders

1. All parameters listed below are minimum mandatory requirements. The offered product shall meet or exceed every stated requirement.
2. Where a published standard is referenced, it is stated only to define the required level of performance and quality. Any product complying with the referenced standard, or an equivalent international standard offering the same or higher performance, is acceptable.
3. No brand name or model has been specified by the Purchaser. The Bidder shall clearly state the offered Make and Model in the space provided, and shall submit manufacturer datasheets and factory test reports to substantiate compliance.
4. The offered patch cords shall be fully compatible and interoperable with the OM3 multimode fibre plant, LC-terminated patch panels, and the 10G (10GBASE-SR) optical transceiver interfaces being procured under this tender.
5. The Bidder shall complete the "Compliance (Yes / No)" column and, where applicable, quote the actual offered value in the "Bidder's Offered Specification / Remarks" column. Unsupported "Yes" entries may render the bid non-responsive.

Item No.	Details	Minimum Required Specification	Compliance (Yes/No)	Bidder's Offered Specification / Remarks
	Make (Manufacturer)	(To be stated by the Bidder)		
	Model / Part No.	(To be stated by the Bidder)		
	Country of Manufacture	(To be stated by the Bidder)		
A. Optical Fibre				
A1	Fibre Type	50/125 µm laser-optimised multimode fibre, Grade OM3, complying with IEC 60793-2-10 type A1a.2, ISO/IEC 11801 OM3 and TIA-492AAAC.		
A2	Effective Modal Bandwidth	≥ 2000 MHz·km at 850 nm (laser / EMB); ≥ 500 MHz·km at 1300 nm.		
A3	Fibre Attenuation	≤ 3.5 dB/km at 850 nm; ≤ 1.5 dB/km at 1300 nm.		
A4	Data Rate Capability	Shall support 10 Gbps operation (10GBASE-SR) over OM3 fibre.		
B. Connectors & Terminations				
B1	Connector Type	LC duplex connector at both ends (LC-to-LC), complying with IEC 61754-20 and TIA-604-10 (FOCIS 10).		
B2	Ferrule	Pre-radiused ceramic (zirconia) ferrule.		
B3	Polish	Physical Contact (PC / UPC) multimode polish.		
B4	Insertion Loss	≤ 0.50 dB per mated connector pair (each end).		
B5	Return Loss	≥ 20 dB (multimode).		
B6	Durability	≥ 500 mating cycles with no degradation beyond the stated insertion-loss limit (per IEC 61300-2-2).		
B7	Polarity	Duplex, A-to-B (crossover) polarity, clearly and permanently marked.		
C. Cable Construction				
C1	Construction	Duplex zipcord / round duplex cable with internal aramid-yarn strength members.		
C2	Jacket	PVC outer jacket (LSZH offered as an alternative where required by the Purchaser).		
C3	Cable Diameter	1.6 mm to 3.0 mm per leg (nominal).		
C4	Overall Length	10 metre (± tolerance as per manufacturer standard).		
C5	Jacket Colour	Aqua – the standard identifier for OM3 per TIA-598-C – or as specified by the Purchaser at time of ordering.		
C6	Boot / Strain Relief	Moulded strain-relief boot at each connector; pull-proof / uni-boot construction preferred.		
D. Environmental & Mechanical				
D1	Operating Temperature	–20 °C to +60 °C (minimum range).		

Item No.	Details	Minimum Required Specification	Compliance (Yes/No)	Bidder's Offered Specification / Remarks
D2	Minimum Bend Radius	As per manufacturer specification for OM3 duplex cordage; the cord shall withstand normal patching without performance degradation.		
E. Compatibility & Interoperability				
E1	Fibre-Plant Compatibility	Fully compatible with the 50/125 µm OM3 fibre backbone and LC-terminated fibre patch panels supplied under this tender.		
E2	Equipment Compatibility	Fully compatible with the LC duplex optical interfaces of the 10G SFP+ (10GBASE-SR, 850 nm) transceivers and switches being procured.		
F. Approvals, Testing & Documentation				
F1	Factory Testing	Each patch cord shall be 100 % factory-tested for insertion loss (and return loss where applicable). A test report/label shall accompany each cord.		
F2	Connector Standards	Connector performance to comply with Telcordia GR-326-CORE and the applicable IEC 61300 test-method series.		
F3	Environmental Compliance	RoHS compliant.		
F4	Documentation	Manufacturer datasheet and material/compliance declarations to be submitted with the bid.		
F5	Warranty	Covered under the structured-cabling system warranty (minimum 25 years) offered under this tender, or minimum manufacturer component warranty.		

Name of Bidder:

Signature & Company Seal: **Date:**

10 GIGABIT ETHERNET SFP+ OPTICAL TRANSCEIVER MODULE

(10GBASE-SR, 850 nm, Multimode, Duplex LC)

A. Host Equipment (for interoperability purposes)

The transceiver modules to be supplied under this Annexure shall operate in the 10 Gigabit SFP+ uplink ports of the following switch, which is already existing in Purchaser's network (**HPE FlexNetwork 5140 HI Switch Series, 24G 4SFP+ 1-slot, Product No. R9L61A**)

Item No.	Listed Specification	Requirement / Details	Conformity (Yes / No)	Bidder's Option / Remarks
	Make (Manufacturer)	To be stated by the Bidder		
	Model / Part Number	To be stated by the Bidder		
	Country of Manufacture	To be stated by the Bidder		
1	Type and Form Factor			
1.1	Module type	Enhanced Small Form-factor Pluggable (SFP+) optical transceiver module, hot-pluggable and hot-swappable, insertable and removable without powering down or rebooting the host switch		
1.2	MSA compliance	Compliant with SFF-8431 (SFP+ electrical interface / MSA), SFF-8432 (mechanical and cage dimensions) and SFF-8472 Rev. 10.4 or later (diagnostic monitoring interface)		
1.3	Optical connector	Duplex LC / UPC receptacle		
1.4	Enclosure	Metal housing for low EMI, fitted with a protective dust cap, with standard bale-clasp or equivalent release latch		
2	Optical and Electrical Performance			
2.1	Ethernet standard	IEEE 802.3ae 10GBASE-SR (short reach, multimode)		
2.2	Data rate	10.3125 Gbps serial, operating at line rate with a Bit Error Rate better than 1×10^{-12}		
2.3	Nominal wavelength	850 nm (operating range 840 nm – 860 nm)		
2.4	Transmitter	VCSEL laser		
2.5	Receiver	PIN photodiode		
2.6	Fibre type supported	50/125 µm multimode fibre, OM3 and OM4; backward compatible with OM2 and OM1 multimode fibre at the correspondingly reduced distance		
2.7	Transmission distance	Minimum 300 m over OM3 (2000 MHz·km) 50/125 µm multimode fibre; minimum 400 m over OM4; minimum 82 m over OM2		
2.8	Average launch power	Not less than –5.0 dBm and not more than 0 dBm (in all cases not less than the IEEE 802.3ae minimum of –7.3 dBm)		

Item No.	Listed Specification	Requirement / Details	Conformity (Yes / No)	Bidder's Option / Remarks
2.9	Receiver sensitivity	Better than or equal to –11.1 dBm (average power)		
2.10	Receiver overload / saturation	Not less than 0 dBm		
2.11	Extinction ratio	Minimum 3.0 dB		
2.12	Optical link budget	Minimum 6.1 dB (average) over the supported OM3 link		
2.13	Power supply	Single +3.3 V DC supply derived from the host port; power consumption not exceeding 1.0 W		
2.14	Laser safety	Class 1 laser product, compliant with IEC 60825-1 and 21 CFR 1040.10 / 1040.11		
3	Management and Diagnostics			
3.1	Digital diagnostics (DDM / DOM)	Real-time digital diagnostic monitoring in accordance with SFF-8472, internally calibrated, reporting module temperature, supply voltage, transmit bias current, transmit optical power and receive optical power		
3.2	Diagnostic access	All diagnostic parameters shall be readable from the host switch through its CLI, web GUI and SNMP, without error or "unknown transceiver" indication		
3.3	Module identification (EEPROM)	EEPROM shall be programmed such that the host switch correctly identifies the vendor name, part number, serial number, hardware revision, wavelength, media type and supported link length		
4	Environmental and Regulatory Compliance			
4.1	Operating temperature	0 °C to +70 °C (commercial temperature range) or wider		
4.2	Storage temperature	–40 °C to +85 °C or wider		
4.3	Relative humidity	5% to 95%, non-condensing		
4.4	Environmental compliance	RoHS / ELV compliant		
4.5	EMC compliance	CE marked and compliant with FCC Part 15 Class B or equivalent		
4.6	Quality system	Manufactured under an ISO 9001 certified quality management system		
5	Compatibility and Interoperability with the Host Switch			
5.1	Host equipment	The module shall be fully interoperable with the 10 Gigabit SFP+ uplink ports of the host switch identified in Clause A of this Annexure, operating on its current and subsequently released firmware versions		
5.2	Automatic recognition	The module shall be recognised and enabled automatically by the host switch and shall establish a 10 Gbps full-duplex link without any manual coding, patching or special configuration of the switch		

Item No.	Listed Specification	Requirement / Details	Conformity (Yes / No)	Bidder's Option / Remarks
5.3	Error-free operation	No "unsupported transceiver", "unauthorised transceiver", "non-qualified optic" or similar error, warning, alarm or log entry shall be generated by the host switch, and the port shall not be placed in a disabled, error-disabled, restricted or rate-limited state		
5.4	Diagnostic read-out on host	The host switch shall display the complete transceiver inventory and digital diagnostic information for the module through its standard transceiver / diagnostic display commands		
5.5	Warranty of host equipment	Use of the offered module shall not void, suspend or limit the warranty, software entitlement or technical support of the host switch. The Bidder shall confirm this in writing		
5.6	Compatibility declaration	The Bidder shall submit, along with the bid, a written compatibility / interoperability declaration issued by the transceiver manufacturer or its authorised principal, explicitly naming the host switch series and model stated in Clause A		
5.7	Source of supply	Both original equipment manufacturer (OEM) modules and third-party MSA-compliant modules are acceptable, provided all requirements of this Annexure are met. No preference shall be given to any particular brand		
5.8	Matched pairs	Modules shall be supplied in matched pairs for each fibre link, of identical make and model at both ends of the link		
6	Documentation, Warranty and Supply Conditions			
6.1	Technical literature	The manufacturer's original product datasheet, clearly showing conformity to each parameter of this Annexure, shall be submitted with the bid		
6.2	Warranty	Minimum three (3) years manufacturer's warranty (or the manufacturer's lifetime warranty where applicable) with free on-site replacement of failed modules		
6.3	Condition of goods	All modules shall be brand new, unused, factory-sealed and of current production. Refurbished, remanufactured, repaired, end-of-life or grey-market modules shall not be accepted. Serial numbers shall be verifiable with the manufacturer		
6.4	Local support	The Bidder shall be an authorised reseller / partner for the offered product in Sri Lanka and shall provide documentary proof together with the bid		
7	Testing and Acceptance			
7.1	Installation test	Each module shall be installed in the host switch and shall be demonstrated to establish a 10 Gbps full-duplex link over the installed OM3 multimode fibre link at the intended distance		
7.2	Optical power verification	Transmit and receive optical power shall be read from the host switch diagnostics, shall lie within the specified		

Item No.	Listed Specification	Requirement / Details	Conformity (Yes / No)	Bidder's Option / Remarks
		limits and within the receiver dynamic range, and shall be recorded and submitted to the Purchaser		
7.3	Stability test	Each link shall pass a minimum twenty-four (24) hour continuous operation test with no link flaps and zero CRC / input / output errors recorded on the switch interface counters		
7.4	Rejection	Any module that fails the above tests, or that generates any incompatibility indication on the host switch, shall be replaced by the Bidder free of charge		

Name of Bidder:

Signature & Company Seal: **Date:**

TECHNICAL SPECIFICATION

ACCESS CONTROL SYSTEM

Instructions to Bidders

1. All parameters listed below are minimum mandatory requirements. The offered product shall meet or exceed every stated requirement.
2. The proposed works are an extension of the existing Access Control System and are limited to the two additional controlled doors identified in the BOQ and drawings.
3. To ensure compatibility with the existing system, the access control readers shall be ZKTeco F18 / F18-ID as stated in the BOQ. The Contractor shall submit manufacturer datasheets and relevant compliance documentation.
4. The Contractor shall provide all required door accessories, interfaces, licences, programming, configuration and integration necessary for complete operation with the existing Access Control System.
5. The Bidder shall complete the "Compliance (Yes / No)" column and, where applicable, state the actual offered value in the "Bidder's Offered Specification / Remarks" column.

Item No.	Details	Minimum Required Specification	Compliance (Yes/No)	Bidder's Offered Specification / Remarks
	Make (Manufacturer)	(To be stated by the Bidder)		
	Model / Part No.	(To be stated by the Bidder)		
	Country of Manufacture	(To be stated by the Bidder)		
A	ACCESS CONTROL READER (FINGERPRINT + CARD)			
A1	Type	Indoor fingerprint and contactless card access control reader with integral door-control functionality, suitable for connection to the existing Access Control System.		
A2	Required Make / Model	ZKTeco F18 / F18-ID, as required for compatibility with the existing Access Control System.		
A3	Authentication	Support fingerprint and contactless card authentication compatible with the existing user/card database and system configuration.		
A4	Network Interface	10/100BASE-T Ethernet / LAN interface for communication with the existing Access Control System. Network cabling shall be provided under the LAN BOQ.		
A5	Door Control Output	Integral relay output suitable for control of the associated electromagnetic lock / electric drop bolt. No separate door controller is required.		
A6	Exit Input	Dedicated input suitable for connection of the exit push button.		
A7	Local Operation	Reader shall continue normal authorised door operation in accordance with the manufacturer's standard functionality during temporary LAN communication interruption.		
A8	System Compatibility	Fully compatible with the existing Access Control System/software, user/card database and existing system configuration.		
A9	Mounting & Accessories	Complete with mounting plate/base, connectors and all accessories required for installation.		
B	EXIT PUSH BUTTON SWITCH			
B1	Type	Momentary exit push-button switch for installation on the secure side of the controlled door.		
B2	Contacts	Volt-free contact arrangement suitable for connection to the access reader exit input.		
B3	Construction	Suitable for surface or flush mounting and complete with mounting plate/back box as required.		
B4	Identification	Clearly identified for exit operation.		
B5	Accessories	Complete with wiring terminals, fixing accessories and all items required for installation.		
C	EMERGENCY DOOR RELEASE BREAK-GLASS UNIT			
C1	Type	Resettable emergency door-release break-glass unit suitable for local emergency release of the electrically locked door.		
C2	Operation	Operation of the unit shall directly interrupt the lock power circuit and release the door independently of the access reader, LAN connection and management software.		
C3	Contacts	Contact rating shall be suitable for the connected lock power circuit.		
C4	Reset	Unit shall remain in the operated condition until manually reset.		
C5	Mounting	Surface mounted adjacent to the controlled door at an accessible location.		
C6	Accessories	Complete with mounting box, wiring terminals and all necessary accessories.		
D	MAGNETIC DOOR LOCK / DROP BOLT			
D1	Type	Electromagnetic door lock or electric drop bolt selected to suit the		

Item No.	Details	Minimum Required Specification	Compliance (Yes/No)	Bidder's Offered Specification / Remarks
		respective door construction and approved door hardware arrangement.		
D2	Holding / Locking Duty	Locking device shall be suitably rated for the respective door type and intended access-control duty.		
D3	Operating Voltage	Compatible with the specified 12 V DC access control power supply arrangement or as approved for the selected locking device.		
D4	Control Interface	Suitable for control from the access reader integral relay / approved interface arrangement.		
D5	Emergency Release	Lock power shall be routed through the emergency break-glass unit.		
D6	Mounting & Accessories	Complete with armature plate, required mounting brackets, fixing accessories, door loop where required and all necessary hardware.		
D7	Installation	Installation shall suit the actual door/frame construction and applicable life-safety and emergency egress requirements.		
E	LOCK POWER SUPPLY WITH BATTERY BACKUP			
E1	Power Supply	Access control power supply unit with 230 V AC input and nominal 12 V DC output, minimum 5 A unless a higher capacity is required by the selected equipment.		
E2	Enclosure	Metallic enclosure complete with internal terminals and protective devices.		
E3	Battery Charger	Integral automatic battery charging arrangement suitable for the supplied rechargeable battery.		
E4	Battery Backup	Rechargeable SLA backup battery sized to maintain operation of the door lock and associated access-control devices during short-duration mains interruption / generator changeover.		
E5	Protection	Provide short-circuit, overload and battery protection as applicable.		
E6	Changeover	Automatic changeover between normal DC supply and battery backup without loss of normal door operation.		
F	CABLING, INTEGRATION, TESTING & DOCUMENTATION			
F1	Power & Control Cabling	Provide all required low-voltage power and control cabling between the access reader, electromagnetic lock / drop bolt, exit push button, break-glass unit and power supply, including conduits/trunking, junction boxes, terminations and labels.		
F2	Network Cabling	Network cabling to the access reader shall be provided under the LAN BOQ.		
F3	Existing System Integration	Configure and integrate the two new access control readers with the existing Access Control System/software, including device addition, network configuration and all required programming/configuration for complete operation.		
F4	Testing & Commissioning	Verify reader authentication, lock operation, exit push button, emergency release, battery backup, communication and integration with the existing Access Control System, complete with functional demonstration to the Client.		
F5	Documentation	Submit manufacturer datasheets, shop drawings, as-built drawings, wiring diagrams, device/IP schedule, configuration records, test records and O&M manuals.		
F6	Warranty	Minimum 12-month equipment warranty from commissioning/handover unless a longer project warranty is specified elsewhere.		

Name of Bidder:

Signature & Company Seal: Date:

TECHNICAL SPECIFICATION

HDMI VIDEO WALL CABLING AND DISTRIBUTION SYSTEM

Instructions to Bidders

1. All parameters listed below are minimum mandatory requirements. The offered product shall meet or exceed every stated requirement.
2. Where a published standard or performance requirement is referenced, it is stated only to define the required level of performance and quality. Equivalent products providing the same or higher performance are acceptable.
3. No brand name or model has been specified by the Purchaser. The Bidder shall clearly state the offered Make and Model and submit manufacturer datasheets / compliance documentation.
4. All HDMI cables, outlets, adapters, active cable assemblies and patching accessories shall be mutually compatible and suitable for the actual installed route length and required 4K signal performance.
5. The Bidder shall complete the "Compliance (Yes / No)" column and, where applicable, state the actual offered value in the "Bidder's Offered Specification / Remarks" column.

Item No.	Details	Minimum Required Specification	Compliance (Yes/No)	Bidder's Offered Specification / Remarks
	Make (Manufacturer)	(To be stated by the Bidder)		
	Model / Part No.	(To be stated by the Bidder)		
	Country of Manufacture	(To be stated by the Bidder)		
A. General System Requirements				
A1	System Scope	HDMI cabling and distribution infrastructure serving seven workstation HDMI connection points, one CCTV NVR HDMI connection, one HDMI link from the existing TV location to the Operational Room video wall location, and associated AV rack / patching infrastructure.		
A2	Video Performance	All HDMI links shall support minimum 4K UHD video and embedded digital audio at the required system refresh rate, subject to the source and display capability.		
A3	HDCP / EDID	Cabling and active HDMI components shall support transparent HDCP and EDID communication between connected source and display / matrix equipment.		
A4	Route Length	Cable type shall be selected to suit the actual installed route length. Active copper, optical HDMI or approved extender technology shall be used where required by the manufacturer to maintain reliable 4K operation.		
A5	Installation	All HDMI cabling shall be installed without exceeding the manufacturer minimum bend radius or pulling tension, and directional active cables shall be installed in the correct source-to-display orientation.		
A6	Identification	All HDMI outlets, patch-panel ports and cable ends shall be permanently labelled to identify source/location and destination.		
B. HDMI Workstation Connection Point				
B1	Quantity	Seven (7) workstation HDMI connection points.		
B2	Desk Outlet	Desk-mounted HDMI female outlet / coupler complete with suitable faceplate, back box and mounting accessories.		
B3	Fixed HDMI Cabling	High-speed HDMI cabling from each workstation outlet to the central HDMI patch-panel location, selected to suit the individual installed route length and 4K performance requirement.		
B4	Patch Cord	Provide suitable high-speed HDMI patch cord at the workstation end / rack end as required for complete connection.		
B5	USB Type-C Adapter	Provide USB Type-C to HDMI 4K adapter suitable for laptops supporting DisplayPort Alt Mode / Thunderbolt video output, complete with all necessary accessories.		

B6	Total Cable Length	Approximate combined workstation HDMI cable length: 80 m, subject to final route measurement on site.		
C. Active Copper HDMI Cable - CCTV NVR Connection				
C1	Application	Dedicated HDMI connection from CCTV NVR to the central HDMI patch-panel location.		
C2	Cable Type	Active copper HDMI cable with integrated active signal amplification / equalization suitable for long-distance HDMI transmission.		
C3	Video Performance	Minimum 4K UHD video transmission with embedded digital audio over the installed cable length.		
C4	HDCP / EDID	Shall support HDCP and EDID communication transparently through the active cable assembly.		
C5	Directionality	Where the active cable is directional, the source and display ends shall be permanently identified and installed in accordance with the manufacturer instructions.		
C6	Power Requirement	Active electronics shall be powered through HDMI where supported, or complete with any manufacturer-required external power injector / supply.		
C7	Certified Distance	Manufacturer shall certify the offered active copper HDMI cable for the required 4K performance over the proposed installed cable length.		
C8	Approximate Cable Length	Approximate NVR HDMI cable length: 22 m, subject to final route measurement on site.		
D. HDMI Connection - Existing TV Location to Operational Room Video Wall				
D1	Cable Type	High-speed 4K HDMI cabling from the existing TV location to the Operational Room video wall location.		
D2	Performance	Cable assembly shall support minimum 4K UHD video, embedded digital audio, HDCP and EDID communication over the installed route length.		
D3	Outlets / Connectors	Provide HDMI outlets / connectors at the required termination points, complete with faceplates/back boxes where applicable.		
D4	Length Suitability	Where the proposed passive HDMI cable cannot maintain reliable 4K performance at the installed length, provide an active/optical HDMI or approved extender solution.		
D5	Approximate Cable Length	Approximate cable length: 16 m, subject to final route measurement on site.		
E. HDMI Patch Panel				
E1	Type	Rack-mounted HDMI patch panel suitable for centralized termination and patching of the HDMI source links.		
E2	Capacity	Minimum 8 HDMI ports, or sufficient capacity for all scheduled HDMI source connections plus suitable spare capacity where required.		
E3	Connectors	Female-to-female HDMI couplers / feed-through connectors suitable for the specified 4K signal performance.		
E4	Labelling	Each port shall have permanent identification corresponding to the connected workstation / NVR / source location.		
E5	Rack Mounting	19-inch rack-mountable construction complete with rack hardware and all necessary accessories.		
F. Testing, Commissioning & Documentation				
F1	Continuity / Connection Check	Verify correct end-to-end connectivity of every HDMI link and confirm source/destination identification.		
F2	4K Signal Verification	Test each installed HDMI link for stable 4K signal transmission at the specified operating mode, including video and embedded audio where applicable.		
F3	HDCP / EDID Verification	Verify successful EDID detection and HDCP handshake through the installed cabling / active cable assemblies.		

F4	Functional Testing	Carry out end-to-end functional testing with the available source and display / matrix equipment at the interface points.		
F5	Documentation	Submit cable schedule, labelling schedule, manufacturer datasheets, test records and as-built information.		

Name of Bidder:

Signature & Company Seal: **Date:**

TECHNICAL SPECIFICATION

IP CCTV SURVEILLANCE SYSTEM

Instructions to Bidders

1. All parameters listed below are minimum mandatory requirements. The offered product shall meet or exceed every stated requirement.
2. Where a published standard is referenced, it is stated only to define the required level of performance and quality. Any product complying with the referenced standard, or an equivalent international standard offering the same or higher performance, is acceptable.
3. No brand name or model has been specified by the Purchaser. The Bidder shall clearly state the offered Make and Model and shall submit manufacturer datasheets and valid compliance documentation to substantiate compliance.
4. All cameras, NVR, storage and accessories shall be fully compatible and shall form one complete and fully functional standalone IP CCTV system.
5. The Bidder shall complete the "Compliance (Yes / No)" column and, where applicable, state the actual offered value in the "Bidder's Offered Specification / Remarks" column.

Item No.	Details	Minimum Required Specification	Compliance (Yes/No)	Bidder's Offered Specification / Remarks
	Make (Manufacturer)	(To be stated by the Bidder)		
	Model / Part No.	(To be stated by the Bidder)		
	Country of Manufacture	(To be stated by the Bidder)		
A	2 MP FIXED-LENS INDOOR DOME IP CAMERA			
A1	Camera Type	IP fixed-lens indoor dome camera.		
A2	Image Resolution	Minimum 2 megapixel effective resolution; minimum 1920 x 1080 video output.		
A3	Image Sensor	Progressive-scan CMOS or equivalent suitable for 24/7 surveillance.		
A4	Lens	Fixed lens selected to suit the required field of view.		
A5	Frame Rate	Minimum 25 fps at native configured resolution.		
A6	Day / Night	True day/night operation with automatic switching.		
A7	IR Illumination	Integrated IR illumination where required for the installation location.		
A8	WDR	Wide Dynamic Range (WDR) suitable for mixed-lighting conditions.		
A9	Compression	H.265 / H.265+ and H.264 compression support.		
A10	Network Interface	10/100BASE-T Ethernet interface with PoE support.		
A11	Protocols / Compatibility	ONVIF compatible and fully compatible with the proposed NVR system.		
A12	Mounting & Accessories	Complete with mounting base/bracket, connectors and all accessories necessary for installation.		
B	4 MP FIXED-LENS OUTDOOR BULLET IP CAMERA			
B1	Camera Type	IP fixed-lens outdoor bullet camera.		
B2	Image Resolution	Minimum 4 megapixel effective resolution.		
B3	Image Sensor	Progressive-scan CMOS or equivalent suitable for 24/7 surveillance.		
B4	Lens	Fixed lens selected to suit the required field of view.		
B5	Frame Rate	Minimum 25 fps at native configured resolution.		
B6	Day / Night	True day/night operation with automatic switching.		
B7	IR Illumination	Integrated IR illumination suitable for the required scene coverage.		
B8	WDR	Wide Dynamic Range (WDR) suitable for high-contrast lighting conditions.		
B9	Compression	H.265 / H.265+ and H.264 compression support.		
B10	Network Interface	10/100BASE-T Ethernet interface with PoE support.		
B11	Weather Protection	Minimum IP66 weatherproof housing or better.		
B12	Protocols / Compatibility	ONVIF compatible and fully compatible with the proposed NVR system.		
B13	Mounting & Accessories	Complete with wall/ceiling mounting brackets, weather-sealed cable entries, connectors and all accessories necessary for installation.		
C	STANDALONE NETWORK VIDEO RECORDER (NVR)			
C1	System Capacity	Standalone 8-channel IP Network Video Recorder suitable for the specified basic CCTV system.		
C2	Recording Compression	Support H.265+ / H.265 and H.264 video compression or equivalent.		
C3	Live View / Playback	Support simultaneous live viewing, recording and playback.		

Item No.	Details	Minimum Required Specification	Compliance (Yes/No)	Bidder's Offered Specification / Remarks
C4	Display Output / Video Wall Interface	Minimum 1 x HDMI output suitable for connection to the Operational Room Video Wall. HDMI cabling, extenders, video wall processor and associated AV equipment are covered under the AV System BOQ.		
C5	Recording Resolution	Support recording at the native configured resolutions of all connected 2 MP and 4 MP cameras.		
C6	PoE Camera Interfaces	Minimum 8 integrated PoE camera ports for direct connection of the specified IP cameras.		
C7	HDD Bay	Minimum 1 x internal SATA interface for surveillance-grade HDD.		
C8	Power Supply	Standard manufacturer supplied power supply suitable for continuous operation.		
C9	Network Interface	Minimum 1 x Gigabit Ethernet network interface for network and remote viewing connectivity.		
C10	Recording Modes	Support continuous, scheduled, motion/event-based and manual recording.		
C11	Time Synchronisation	Support NTP or equivalent network time synchronisation.		
C12	Remote Viewing	Support remote live view and playback through manufacturer software and/or mobile application.		
C13	Compatibility	Fully compatible with all proposed IP cameras and associated viewing/management functions.		
D	SURVEILLANCE-GRADE HARD DISK STORAGE			
D1	Drive Type	3.5-inch surveillance-grade SATA HDD rated for continuous 24/7 video recording duty.		
D2	Usable Capacity	Provide sufficient HDD capacity for recording of all specified cameras at their configured resolution and recording settings.		
D3	Recording Parameters	Storage sizing shall be based on the specified 2 MP / 4 MP cameras and H.265 / H.265+ compression.		
D4	Retention Period	Minimum 30 days recording retention, unless otherwise instructed by the Purchaser.		
D5	Storage Configuration	Internal SATA HDD storage configuration suitable for the specified recording retention period.		
D6	HDD Management	Support automatic overwrite/recycling of oldest recordings and basic S.M.A.R.T. HDD health monitoring.		
E	SYSTEM TESTING, COMMISSIONING & DOCUMENTATION			
E1	Camera Testing	Verify image quality, field of view, focus, day/night operation, WDR, IR operation where applicable, network connectivity and PoE operation.		
E2	NVR Testing	Verify camera connectivity, recording, playback, user access, network operation, remote viewing and recovery after power/network restoration.		
E3	Storage Verification	Verify installed HDD capacity and required recording retention period.		
E4	Documentation	Submit manufacturer datasheets, compliance declarations, IP/device schedule, test records, configuration backup and O&M manuals.		
E5	Warranty	Minimum 12-month equipment warranty from commissioning/handover unless a longer project warranty is specified elsewhere.		

Name of Bidder:

Signature & Company Seal: Date:

TECHNICAL SPECIFICATION

Inverter Split-Type Air-Conditioning Units — Ceiling-Suspended, 36,000 Btu/h

Part A

Schedule of Requirements and Site Particulars

A.1 Site Particulars

This schedule forms part of the specification and shall be completed by the Procuring Entity before issue.

Room(s) served	Operational Room floor area 33.62 m ²
Indoor design condition	24 °C ± 1 °C dry bulb
Outdoor design condition	35 °C dry bulb (coastal location)
Power supply available	230 V, single-phase, 50 Hz
Outdoor unit location	external wall
Condensate discharge point	rainwater down-pipe
Ceiling construction at indoor unit	suspended ceiling with slab above
Controller type	wireless remote

Part B

Technical Specification and Compliance Schedule

Unless otherwise stated, all performance values refer to the matched indoor and outdoor unit combination offered, at the rating conditions of ISO 5151 (T1): indoor 27 °C dry bulb / 19 °C wet bulb, outdoor 35 °C dry bulb / 24 °C wet bulb.

Bidders shall state compliance against every clause by entering "Yes" or "No" in the Compliance column. Every "Yes" shall be supported by a reference, in the Remarks column, to the document name and page number of the manufacturer's published technical literature submitted with the bid; an unsupported "Yes" will be treated as non-compliant. Where "No" is entered, the Remarks column shall state the actual offer. Figures are minimum requirements unless stated otherwise; equal or better is acceptable. Clauses marked "Mandatory" are pass/fail, and non-compliance with any one of them shall render the bid non-responsive.

Sr. No	Specification	Compliance (Yes/No)	Remarks
i.	Manufacturer: (to be stated by the Bidder)		
ii.	Brand: (to be stated by the Bidder)		
iii.	Model Numbers: Indoor unit Outdoor unit		
iv.	Country of Origin / Manufacture: (to be stated by the Bidder, for indoor and outdoor units)		
v.	Year of Manufacture: (to be stated by the Bidder — not earlier than 2025)		
1	General and System Type		
AC-1.1	Supply, installation, testing and commissioning of an inverter split-type air-conditioning system consisting of a ceiling-suspended direct-expansion fan-coil unit in combination with an air-cooled condensing outdoor unit, complete with refrigerant pipes, insulation, power and control wiring, drain pipes, PVC casing, mounting brackets and all other ancillary items necessary for a complete and working installation, as specified and as shown on the drawings.		
AC-1.2	Mandatory: Indoor and outdoor units shall be of the same manufacturer and shall form a matched combination listed in the manufacturer's published technical data, with rated performance stated for that combination.		
AC-1.3	Mandatory: The compressor shall be variable-speed, driven by an inverter. Fixed-speed (on/off) units shall not be accepted.		
AC-1.4	Operating modes: cooling, dry (dehumidification), fan and automatic. Heat-pump capability is acceptable but not required.		
AC-1.5	Current production model, not discontinued. Spare parts shall be available for not less than seven (7) years after handover.		
2	Performance		
AC-2.1	Mandatory: Rated total cooling capacity not less than 36,000 Btu/h (10.55 kW) at ISO 5151 T1 conditions.		
AC-2.2	Cooling capacity modulation range to be stated (minimum – rated – maximum). Minimum capacity shall not exceed 50 % of rated capacity.		
AC-2.3	Energy efficiency ratio (EER) at rated conditions not less than [3.0] W/W ([10.2] Btu/h per W). Rated power input to be stated. Cooling seasonal performance factor (CSPF) to ISO 16358-1 to be stated, where published.		
AC-2.4	Indoor unit airflow at high fan speed not less than [1,500] m³/h.		
AC-2.5	Sound pressure level not exceeding 50 dB(A) for the indoor unit at high fan speed and 60 dB(A) for the outdoor unit, measured by the manufacturer's published method (to be stated).		

Sr. No	Specification	Compliance (Yes/No)	Remarks
AC-2.6	Cooling operation guaranteed at outdoor ambient temperatures up to not less than 46 °C dry bulb.		
AC-2.7	Rated capacity, power input and EER shall be supported by a test report to ISO 5151 from a laboratory accredited to ISO/IEC 17025, or by certification under an independent performance certification programme. Copy to be submitted.		
AC-2.8	Where the offered model falls within the scope of the SLSI/SLSEA energy efficiency rating scheme for air-conditioners (SLS 1586), the energy label certificate shall be submitted.		
3	Indoor Unit (Ceiling-Suspended)		
AC-3.1	Ceiling-suspended (under-ceiling) direct-expansion fan-coil unit with horizontal air discharge, suitable for exposed mounting.		
AC-3.2	Motorised automatic swing of the vertical louver; horizontal airflow direction adjustable; high- and low-ceiling airflow settings.		
AC-3.3	Fan with not less than three (3) speeds plus automatic speed, statically and dynamically balanced, low-noise.		
AC-3.4	Coil of seamless copper tubes with aluminium fins (hydrophilic-coated or equivalent), factory pressure- and leak-tested.		
AC-3.5	Washable long-life air filter, removable without tools.		
AC-3.6	Casing of corrosion-resistant, flame-retardant plastic or coated steel; colour white or as approved.		
AC-3.7	Dimensions and weight to be stated.		
4	Outdoor Unit		
AC-4.1	Air-cooled condensing unit with inverter-driven hermetic rotary or scroll compressor.		
AC-4.2	Condenser coil with factory-applied anti-corrosion treatment, and galvanised steel casing with powder or polyester coating, suitable for a coastal (saline) atmosphere. Details of the treatment to be stated.		
AC-4.3	Protection devices: high-pressure, low-pressure or loss-of-charge, compressor discharge temperature or overheat, over-current, anti-short-cycle timer, and supply-voltage protection; phase-loss and phase-reversal protection for three-phase units.		
AC-4.4	Weatherproof construction for outdoor installation (IPX4 or better), with fan guard.		
AC-4.5	Dimensions and weight to be stated.		
5	Refrigerant		
AC-5.1	Mandatory: Refrigerant shall be R32, R410A, R407C or R134a, with zero ozone depletion potential. Units using HCFC refrigerants (including R22) shall not be accepted.		
AC-5.2	Refrigerant type and factory charge shall be shown on the outdoor unit nameplate.		
AC-5.3	Mandatory: Where an A2L (mildly flammable) refrigerant such as R32 is used, the total refrigerant charge shall not exceed the maximum permitted for the area of the room served under IEC 60335-2-40. The Bidder shall submit the calculation for each room.		
AC-5.4	Global warming potential of the refrigerant to be stated.		
6	Controls		
AC-6.1	Wireless remote controller with display, providing on/off, mode, temperature set-point in 1 °C steps, fan speed, louver control, timer (24-hour or weekly) and fault-code display.		

Sr. No	Specification	Compliance (Yes/No)	Remarks
AC-6.2	Microprocessor control with automatic restart after power failure, retaining the last settings.		
AC-6.3	Self-diagnosis with fault-code display.		
AC-6.4	Provision for remote on/off and fault-signal connection (dry contact or manufacturer's interface).		
7	Electrical		
AC-7.1	Power supply: 230 V, single-phase, 50 Hz. The unit shall operate within ± 10 % of rated voltage.		
AC-7.2	Mandatory: Unit shall be supplied from a dedicated circuit protected by a correctly rated MCB or RCBO, with a weatherproof (IP65 or better) isolator adjacent to the outdoor unit. All wiring shall comply with BS 7671 (IET Wiring Regulations).		
AC-7.3	Interconnecting power and control cables between indoor and outdoor units: copper conductors, sized in accordance with the manufacturer's instructions and BS 7671, run in PVC conduit or casing.		
AC-7.4	Mandatory: Indoor and outdoor units shall be earthed in accordance with BS 7671.		
8	Refrigerant Piping, Insulation and Drainage		
AC-8.1	Refrigerant pipes of seamless, phosphorus-deoxidised ACR-grade copper (ASTM B280 or EN 12735-1), in sizes and wall thicknesses specified by the manufacturer for the refrigerant used.		
AC-8.2	Brazed joints made with a continuous dry-nitrogen purge. Flare joints made with a flaring tool suitable for the refrigerant and tightened to the manufacturer's torque values with a torque wrench.		
AC-8.3	Liquid and suction lines individually insulated with closed-cell elastomeric insulation of not less than 13 mm thickness on the liquid line and 19 mm on the suction line, fire performance Class O to BS 476 Parts 6 and 7. Joints sealed; insulation exposed outdoors protected against UV.		
AC-8.4	Exposed pipe and cable runs enclosed in PVC casing of matching colour, with fixings at intervals not exceeding 1 m.		
AC-8.5	Condensate drain of uPVC pipe not less than [20] mm, laid to a fall of not less than 1:100, insulated wherever condensation could form within the building, with trap and clean-out		
AC-8.6	Wall and slab penetrations sleeved and sealed weatherproof, and fire-stopped where they pass through fire-rated construction.		
9	Mounting and Installation		
AC-9.1	Indoor unit suspended from the structural slab on galvanised threaded rods and anchors of the size specified by the manufacturer, levelled with a slight fall towards the drain.		
AC-9.2	Outdoor unit mounted on hot-dip galvanised or powder-coated steel brackets or stand, with anti-vibration pads, secured against wind, with the manufacturer's minimum service clearances and safe access for maintenance.		
AC-9.3	Installation in accordance with the manufacturer's installation manual, by technicians trained or authorised by the manufacturer.		
AC-9.4	All surfaces disturbed by the works made good to their original finish, and all debris removed.		

Sr. No	Specification	Compliance (Yes/No)	Remarks
10	Testing and Commissioning		
AC-10.1	Mandatory: Refrigerant pipework pressure-tested with dry nitrogen at the manufacturer's specified test pressure and held for not less than twenty-four (24) hours without pressure drop, corrected for temperature.		
AC-10.2	Evacuation with a vacuum pump to 500 microns (67 Pa) or lower, held for not less than thirty (30) minutes without rising above 1,000 microns, before charging.		
AC-10.3	Condensate drain tested by pouring water into the drain pan and confirming free discharge without leakage.		
AC-10.4	Performance test recording supply and return air temperatures (dry and wet bulb), outdoor ambient temperature, supply voltage, running current and refrigerant pressures. The room shall be brought to the indoor design condition in the Site Particulars under normal load.		
AC-10.5	A commissioning report signed by the Bidder's engineer shall be submitted for each unit.		
AC-10.6	Handover documents: operation and maintenance manuals, wiring diagrams, as-built pipe-route drawings and warranty certificates. Operating instruction shall be given to the Procuring Entity's staff.		
11	Warranty and After-Sales Service		
AC-11.1	Mandatory: Comprehensive warranty, covering parts and labour, of not less than three (3) years on the complete system from the date of acceptance.		
AC-11.2	Compressor warranty, covering parts and labour, of not less than five (5) years from the date of acceptance.		
AC-11.3	Free preventive maintenance every three (3) months during the warranty period, covering filter and coil cleaning, drain clearing, electrical checks and refrigerant performance checks, with a signed service record.		
AC-11.4	Breakdown response on site within 24 hours of notification and rectification within 72 hours. Where a fault cannot be rectified within seven (7) days, a temporary unit of equal capacity shall be provided at no cost.		
AC-11.5	Mandatory: Manufacturer's Authorisation, or authorisation from the manufacturer's appointed distributor in Sri Lanka, for the offered models, in the form included in the bidding documents.		
AC-11.6	The Bidder shall operate a service establishment in Sri Lanka with trained technicians and stocks of spare parts for the offered models.		
AC-11.7	The Bidder shall have not less than three (3) years of experience in the supply and installation of commercial split-type air-conditioning systems in Sri Lanka. A list with client contact details shall be submitted.		
12	Documents to be Submitted with the Bid		
AC-12.1	Manufacturer's published technical data for the matched combination, showing rated capacity at T1, capacity range, power input, EER, airflow, sound levels, operating range, refrigerant and charge, pipe-length limits and electrical data.		
AC-12.2	Test report or certification under AC-2.7 and, where applicable, the energy label certificate under AC-2.8.		
AC-12.3	Evidence of conformity with IEC 60335-1 and IEC 60335-2-40 (for example, a CB test certificate).		

Sr. No	Specification	Compliance (Yes/No)	Remarks
AC-12.4	ISO 9001 certificate of the manufacturer.		
AC-12.5	Refrigerant charge calculation under AC-5.3, where applicable.		

Certified by the Bidder

Signature of Authorised Signatory

Name

Designation

Name of Bidder & Company Seal

Date

— End of Specification —