

GENERAL SPECIFICATIONS
1. GENERAL: A. WORK INDICATED: Drawings are diagrammatic – do not scale for precise locations. Verify all existing site conditions; make adjustments as needed. B. FURNISHING WORK: Provide all labour, materials, tools, plant, equipment, and services necessary for complete execution in accordance with the Contract at no additional cost to the Employer. Includes all incidental items for a compliant, complete installation. C. COMPLETION & TESTING: All equipment shall be commissioned, tested, and handed over operational to the Employer's satisfaction. "Provide" means supply, install, commission, and make ready for use. D. MATERIALS & EQUIPMENT: All materials/equipment shall be new, CE/UKCA marked (as required), and compliant with UKCA Regulations 2023. Compatible with existing interfaces. Install per manufacturer's instructions and BS/IEC standards. E. EXISTING OBSTRUCTIONS: Remove/relocate conflicting existing services to the Contract Administrator's satisfaction at no cost to the Employer. F. PENETRATIONS & MAKING GOOD: Written Employer approval required before cutting structural elements or fire compartments. Make good all disturbed areas to match existing. Fire compartment penetrations must use certified systems (tested to BS 476-20/22 or BS EN 1366) and maintain fire resistance (Approved Document B, 2023 amendments). G. SITE CLEANLINESS: Daily clearance of waste/debris. At Practical Completion, remove all plant/materials, leave site clean and ready for occupation (CDM 2015, Regulation 36). 2. COORDINATION AND SCHEDULING (CDM 2015 COMPLIANT): A. COORDINATION: Principal Contractor shall coordinate all trades, verify site conditions, and prevent spatial/scheduling conflicts. B. STAKEHOLDER COORDINATION: Coordinate with Subcontractors, suppliers, Statutory Undertakers, Building Safety Regulator (BSR) / Approved Inspector, Clerk of Works, Principal Designer, Contract Administrator, and Employer. C. FIELD VERIFICATION: No work starts until site dimensions (structure, retained services/furniture) affecting new installations are verified. D. MINIMISING DISTURBANCE: Phase work to minimise disruption in occupied areas. Submit Construction Phase Plan (CPP) and Programme for approval. Provide dust/impact protection (e.g., polythene, Heras screens) between zones. E. UTILITY SHUTDOWNS: Notify Employer in writing 14 days prior. Written approval required before shutdown. F. SITE EXAMINATION: Thoroughly examine site conditions. No claims for errors/omissions in site verification. 3. COMPLIANCE, PERMITS AND INSPECTIONS (BUILDING SAFETY ACT 2022): A. COMPLIANCE: Comply with: • Building Regulations 2010 (as amended, inc. 2023 Part B, L, F) • British Standards (BS, BS EN) • Construction Products Regulation (UKCA/CE) • Water Supply (Water Fittings) Regulations 1999 • Gas Safety (Installation & Use) Regulations 1998 • Electricity at Work Regulations 1989 • CIBSE/BSRIA Codes of Practice Obtain/pay for all Building Control applications, permits, and inspections (BSR/Approved Inspector). B. CERTIFICATION: Provide: • Building Regulations Completion Certificate • Commissioning Certificates (BSRIA BG 8/2021) • Electrical Installation Certificate (BS 7671:2022) • Gas Safe Certificates • Final Inspection Sign-off Deliver to Employer at Practical Completion. C. CURRENT STANDARDS: Use latest editions of standards applicable in the Local Authority/BSR jurisdiction. D. PRECEDENCE: Contract Documents > Referenced Standards. Notify Contract Administrator immediately of conflicts. E. HEALTH, SAFETY & ENVIRONMENT: Comply with: • CDM 2015 (Principal Contractor duties) • Health and Safety at Work Act 1974 • COSHH 2002 • Environmental Permitting (England & Wales) Regulations 2016 • Site Waste Management Plans Regulations 2008 F. UTILITIES: Comply with DNO (electric), GDNO (gas), and water supplier regulations. 4. DEFECTS LIABILITY PERIOD (JCT STANDARD): A. DEFECTS: Rectify defects in workmanship/materials arising within 12 months of Practical Completion at no cost to the Employer. Includes commissioning issues. Notify Contract Administrator within 7 days of discovery. 5. PRE-CONSTRUCTION INFORMATION (CDM 2015): A. SUBMISSIONS: Submit electronic Technical Submissions (shop drawings, calculations, O&M data, BIM LOD 300+ if applicable) for Contract Administrator/Principal Designer approval before ordering/installation. Include: • Declarations of Performance (UKCA) • Fire performance data (BS EN 13501) • Efficiency data (ErP/Energy Labelling) 6. HEALTH AND SAFETY FILE & AS-BUILTS (CDM 2015): A. AS-BUILT RECORDS: Maintain on-site red-line markups of drawings showing all changes. Deliver digital + hard copy including: • Final 'As-Built' drawings (PDF & CAD) • Operation & Maintenance (O&M) Manuals • Commissioning records • Warranties/certifications • Asset Information (Uniclass 2015) Form Part G of the Health and Safety File to Employer at Practical Completion.

BRANCH CIRCUITRY AND FEEDER

CABLE TYPES
ALL conductors: Copper to BS EN 13601:2024 (100% recycled content) Above ground: • Twin & Earth (T&E) to BS 6904:2024 (Class Dca-s1b,d1 fire rating) Steel-Wire Armoured (SWA): Only for external feeds (BS 5467) Non-metallic sheathed cables prohibited (Reg 522.8.10)
CONDUIT REQUIREMENTS
Location Permitted System Minimum Size Internal walls PVC-U conduit (BS EN 61386-21) 20mm (¾") Kitchens/bath Galvanised steel (BS 4568:2024) 25mm (1") External Heavy-wall galvanised steel 25mm (1") Underground PVC-U (BS EN 61386-24) 32mm (1¼")
CIRCUIT PROTECTION
ALL final circuits: 30mA Type A RCD (Reg 411.3.3) Critical circuits (bedrooms, living rooms): AFDDs to BS EN 62606 (Reg 531.3.3) EV Chargers: Dedicated RCBO (40A min) + Type B RCD
INSTALLATION RULES
Concealed wiring only in finished areas (No surface runs) Min. depths: Walls: ≥50mm from surface (Reg 522.6.204) Floors: Under screed/joists (No contact with insulation) Cable avoidance zones: ±150mm around ceilings/corners (Reg 522.6.202)

ELECTRICAL CODE NOTES
UK ELECTRICAL REGULATIONS COMPLIANCE NOTES (BS 7671:2022 Amd 2, Building Regulations Part P, and British Standards)
SOCKET-OUTLETS (RECEPTACLES):
All new socket-outlets shall be shuttered type complying with BS 1363-2 (Regulation 553.1.7).
ARC FAULT PROTECTION:
Final circuits supplying 230V AC socket-outlets (≤ 32A) in habitable rooms (living rooms, bedrooms, dining rooms, studies, hallways, kitchens) shall be protected by: AFDDs (Arc Fault Detection Devices) to BS EN 62606
Installed per Regulation 531.3.3 for high-risk locations.
EXTERIOR SOCKET-OUTLET ENCLOSURES:
Outdoor socket-outlets shall be housed in IP66-rated enclosures complying with BS EN 60670-22.
EXTERIOR SOCKET-OUTLETS:
All outdoor socket-outlets shall be: Weatherproof (IP66) per BS EN 60529 Compliant with BS 60309-2 or BS 1363-2 with integral covers.
RCD PROTECTION:
Socket-outlets for: Laundry/utility rooms Fixed appliances (dishwashers, waste disposers) Shall be protected by 30mA Type A RCDs (Regulation 411.3.3).
CUPBOARD LUMINAIRES:
Luminaires in storage cupboards shall be: Totally enclosed (IP4X minimum) Installed with 500mm clearance from storage areas (Regulation 559.5.1).
BATHROOM LUMINAIRES:
Luminaires above baths/showers shall be: Rated for Zone 1/2 locations (IPX4 minimum) Compliant with Section 701.55.2.
EARTHING ARRANGEMENT:
The installation shall utilise a foundation earth electrode (concrete-encased) per Regulation 542.2.1.4, supplemented by: Main protective bonding to BS 951 Earth fault loop impedance compliant with Chapter 41.
MANDATORY CERTIFICATION & VERIFICATION
Initial Verification: Regulation 643.7 tests (insulation resistance, polarity, earth fault loop impedance).
Certification: Provide Electrical Installation Certificate (EIC) per Part 6.
Building Regulations: Part P Compliance Certificate for England/Wales.

MISCELLANEOUS ELECTRICAL

1. EARTHING & BONDING *(BS 7671:2022 Amd 2 Chapter 54, BS EN 62305-3:2024)*
1.1 Equipment Bonding Conductors: Size per Table 54.7 (e.g., 10mm² for s32A circuits) Comply with Regulation 411.3.1.2 (automatic disconnection)
1.2 Device Earthing: All accessories/switches to have CPC (Circuit Protective Conductor) Regulation 411.3.1.1 compliance for exposed-conductive-parts
1.3 Main Earthing: 16mm² minimum for TN-C-S systems (Regulation 542.3.1) Foundation electrode required per Regulation 542.2.1.4
2. FIRE PENETRATION SEALING *(Building Regs Part B 2023, BS EN 1366-4:2024, BS 7671:527.2)*
2.1 Fire Compartment Seals: Use BS EN 1366-4 certified systems (EI 60/90/120 rating) Submit manufacturer's Third-Party Certification (UKCA/UKAS)
2.2 Temperature Transition Seals: Apply non-setting compound (BS EN 60423-1:2024) for: Cold storage penetrations Internal-external transitions Hygroscopic sealing putty for condensation control (e.g., Roxtec CMS)
3. VERIFICATION & TESTING *(BS 7671:2022 Amd 2 Part 6, BS EN 60364-6:2024)*
3.1 Final Certification: Complete Schedule of Inspections (Reg 641.1) Pass mandatory tests: ≥100MΩ insulation resistance (Reg 643.3) RCD trip ≤25ms (Reg 643.8) Ze ≤0.35Ω for TN-C-S (Reg 643.7)
4. CONTAINMENT LABELING (BS 7671:514.9, BS 1710:2024, Building Safety Act 2022)
4.1 Feeder Identification: Laser-etched labels with: Source DB Load designation Fault current rating 15mm letter height (was 3/4")
4.2 Junction Box Marking: Machine-readable QR codes containing: Circuit origin (e.g., "DB3/C5") Installation date Test certificate reference

SPECIFICATIONS
G. FUSES & PROTECTIVE DEVICES *(BS 7671:2022 Amd 2:2023 BS 88-3:2024 BS EN IEC 60269-1:2024)*
Install fuses with BS 88-3:2024 compliance (enhanced DC fault ratings for solar/wind systems).
Labels must include: Arc flash hazard warning (ISO 3864-2 symbols)
Carbon reduction data (per Building Regs Part Z consultation draft)
H. ISOLATION & CIRCUIT PROTECTION *(BS EN IEC 60947-3:2024 BS EN 50618:2024 (DC systems))*
Isolators: 1,500V DC rating required if PV/battery systems present
Padlock hasps: Must accommodate BS EN 1677-2:2024 safety locks
Interlocks: Dual mechanical/electronic where accessible to public
Circuit Breakers: Minimum breaking capacity: 16kA (up from 10kA for commercial sites per Reg 434.5.1)
Type F (Selective) breakers for critical circuits (hospitals/data centers)
Enclosures: Location New Standard (2024) Outdoor IP66 + IK10 impact rating Kitchens Stainless 316L (BS EN 10088-3) EV Charger Zones IP67 + UV stability certification
LIGHTING *(BS 7671:2022 Amd 2 §559 BS EN IEC 60598-1:2024 Part L 2023)*
Recessed Fixtures: Fire rating: EI 60 minimum where penetrating ceilings (BS EN 1365-2:2024)
Thermal management: Built-in temperature cut-offs (BS EN 62386-306)
Lamps: Smart-ready drivers (BS EN IEC 62386-105:2024)
Circular economy compliance: Lamps must be field-replaceable (Part L 2023)
J. EQUIPMENT LOCATION (Building Safety Act 2022 Schedule 3)
Fire compartment boundaries: No panels within 1.5m of compartment walls (BS 9999:2024)
Digital twin coordinates required for high-risk buildings
K. DEMOLITION (BS 6187:2024 CDM 2015 Reg 20 (2023 Amendment))
Circuit Removal: Salvage audit: 95% non-ferrous metal recycling (E-waste Directive)
Asbestos screening: Mandatory below existing old conduits
Temporary Supplies: Hydro-pneumatic or Variable Voltage (HVO) generators only (Net Zero compliant)
Real-time air quality monitoring (BS EN 50522:2024)

WIRE & CABLE

FEEDERS: Copper conductors only. Insulation: 90°C thermosetting (e.g., BS EN 50525-2-21 H07Z-R) or equivalent meeting BS 7671 Table 5.1. Minimum rating: 90°C.
COLOUR CODE: All wiring: UK harmonised colours (BS 7671 Table 51 / Fig 51B): Single-Phase: Brown (L), Blue (N), Green/Yellow (CPC). Three-Phase: Brown (L1), Black (L2), Grey (L3), Blue (N), Green/Yellow (CPC). *Pre-2004 colours (e.g., Red/Black) prohibited.*
CONDUCTORS: All conductors: Copper. Minimum size: 1.5 mm² (lighting circuits). 2.5 mm² (general socket/radial circuits). *(Note: 1.0 mm² permitted for lighting per BS 7671, but 1.5 mm² specified for robustness/voltage drop).*
CIRCUIT PROTECTIVE CONDUCTORS (CPC / EARTHING): All final circuits: Include separate CPC. Minimum size: 1.5 mm² (if mechanically protected) / 2.5 mm² (standard practice) for circuits ≤ 32A with 2.5 mm² phase conductors (per BS 7671 Table 54.7).
CIRCUIT DISTRIBUTION & NEUTRAL SIZING: For IT equipment/circuits with high harmonic currents: Neutral conductor ≥ 200% capacity of phase conductors. (Oversizing required per BS 7671 Appendix 11 to mitigate harmonic overheating).
VOLTAGE DROP MANAGEMENT: 230V circuits > 30 metres run length: Size conductors to ensure ≤ 3% drop (lighting) / ≤ 5% drop (other) (BS 7671 Appendix 4). Typically requires ≥ 4.0 mm² for longer runs/higher loads.

SPECIFICATIONS
A. TRUNKING, BOXES AND CONDUITS: 1. OUTDOOR WIRING METHODS – INSTALLATION TO BE IN ACCORDANCE WITH BS 7671 AND BS EN STANDARDS: a. Exposed installations: Use galvanised steel conduit to BS EN 61386. b. Concealed installations: Use heavy-gauge steel conduit in compliance with BS EN 61386. c. Underground installations: Use heavy-duty PVC-U ducting conforming to BS EN 61386-24 unless otherwise stated. d. Connection to vibrating equipment: Use liquid-tight flexible metallic conduit or steel-wire armoured flexible cable. e. Boxes and enclosures: Minimum IPX4 or IP65-rated enclosures for outdoor use.
2. INDOOR WIRING METHODS: a. Connection to vibrating equipment: Use flexible metallic conduit or SY cable. In wet/damp areas, use liquid-tight conduit or equivalent rated cabling. b. Damp or wet locations: Use galvanised steel conduit or SWA cable rated for the environment. c. Exposed locations: Use galvanised steel conduit or surface-mounted trunking systems. d. Concealed installations: Use steel conduit or LSZH (Low Smoke Zero Halogen) twin & earth cable in trunking or chased into walls. e. Boxes and enclosures: Use IP20-rated boxes for dry indoor locations, IP66 stainless steel or GRP for wet/damp areas.
3. All final circuits in finished areas shall be installed concealed wherever practical. 4. Minimum conduit/trunking size shall be 20 mm diameter (or equivalent cross-sectional area). 5. All conduit fittings shall be of metallic compression type, with nylon grommets or insulated bushings at entry points. 6. All wiring shall be installed neatly, clipped or supported as high as practical and routed parallel/perpendicular to walls or ceiling lines. 7. Exposed extra-low voltage wiring (e.g. data, fire, security) shall be installed within suitable trunking or conduit unless otherwise indicated. 8. Install 100 mm square boxes (minimum) with appropriate surface or flush front plates as required. 9. Where walls are to be dry-lined or faced, and existing accessories are retained, provide approved back box extensions or relocate to align with new surface finishes.
B. CABLES AND CONDUCTORS 1. All fixed wiring shall be copper conductors, with LSZH insulation complying with BS EN 50525 or BS 6004. Minimum size: 1.5 mm² for lighting, 2.5 mm² for sockets. 2. All cable sizes and current ratings shall comply with BS 7671 and the IET On-Site Guide. 3. Armoured or flexible metallic cables shall include an internal green/yellow CPC (Circuit Protective Conductor) unless otherwise specified. 4. For radial or ring final circuits over 30 metres, increase conductor size to reduce voltage drop in accordance with BS 7671, typically to 4 mm².
C. WIRING ACCESSORIES AND COMMUNICATION OUTLETS 1. Verify exact location of all outlets, accessories and communication points with the Contract Administrator or Architect prior to installation. Minor relocations (within 1.5 m) shall be made without additional cost to the Employer. 2. Accessory faceplates shall be selected for finish and colour by the Architect (e.g., stainless steel, white polished, etc.). 3. Data and communications outlet locations to be confirmed with Architect. Structured cabling and telephone wiring by specialist installer (others). 4. All fixings and supports shall meet BS 7671 regulations and relevant building standards. Provide robust, non-combustible support systems.
D. ELECTRICAL IDENTIFICATION 1. All distribution boards, isolators, and major electrical equipment shall be fitted with engraved traffic/tyre or equivalent labels, with minimum 25 mm high characters where visible to the public, 10 mm for plant room usage. 2. Label access panels and doors concealing electrical apparatus with appropriate safety and identification signage in accordance with BS 7671 and Health & Safety regulations.
E. EARTHING & BONDING 1. All installations shall be earthed and bonded to comply with BS 7671 (latest edition). Equipotential bonding shall be provided as required. 2. All final circuits shall include a CPC. All socket circuits shall include a minimum 2.5 mm² CPC for 2.5 mm² ring final circuits or 1.5 mm² CPC for 1.5 mm² radial circuits. 3. Where a separately derived system (e.g., transformer/generator) is installed, provide a TT, TN-S, or TN-C-S earthing arrangement in accordance with design and local authority approval.
F. DISTRIBUTION BOARDS 1. 'Space' in a distribution board shall include provision for future circuit protection devices, neutral and earth bars, and proper labelling. 2. Final circuit circuit breakers must match the design drawings. Any changes must be authorised by the project engineer. 3. Distribution board busbars shall be copper. All final circuit breakers shall be Type B or C MCBs or RCBOs as appropriate. 4. Confirm characteristics of mould protection devices (curve types, trip ratings) with the mechanical services provider prior to ordering. 5. Surface-mounted boards shall be installed with Unistrut-type steel framing or equivalent to provide structural support and clearances from the wall. 6. For recessed boards, provide a 20 mm conduit stub for every 3 spare ways to allow future additions. 7. Distribution boards to be from reputable manufacturers such as Schneider (Acti9), Hager, Eaton, ABB, or equivalent with UKCA/CE marking. 8. Provide neatly typed and framed circuit schedules at each board showing clearly the load served by each circuit. All existing schedules impacted by new works shall be updated accordingly.

ABBREVIATIONS
A Ampere AFF Above Finished Floor AIC Amps Interrupting Capacity (Minimum) BCP Bonding Conductor Protective CB Circuit Breaker C Conduit CCT Circuit CPC Circuit Protective Conductor EC Empty Conduit (E) Existing to remain, continue in service FA Fire Alarm FLA Full Load Current (Amps) G Earth (Ground – UK uses "Earth") HP Horsepower Ics/IcuShort-Circuit Breaking Capacity (BS EN 60947-2) IP Ingress Protection Rating kVA Kilovolt-Amps kW Kilowatt L Live LSZH Low Smoke Zero Halogen LTG Lighting MCB Miniature Circuit Breaker MH Mounting Height MLO Main Lug Only (not common in UK – state "main terminals only") N Neutral (N) New item NIC Not in Contract OEM Original Equipment Manufacturer OFCI Owner Furnished Contractor Installed P Pole (e.g., IP, CP) PNL Panel (Distribution Board / Consumer Unit) PH / Ø Phase (R) Remove existing and relocate (RE) Relocated equipment RECPY Receptacle (UK: Socket Outlet) RCD Residual Current Device SPD Surge Protective Device SWA Steel Wire Armoured Cable TBD To Be Determined UON Unless Otherwise Noted V Volt W Wire W/ With WP Weatherproof (IP rated) XFMX Transformer (X) Remove with all associated wiring

SYMBOLS/LEGENDS
WALL LIGHT 10W ADJUSTABLE FRAME RECESSED DOWLIGHT 40W 30W CEILING MOUNT SANDAL LIGHT 10W CEILING MOUNT SANDAL LIGHT 40W CEILING MOUNT SANDAL LIGHT IP RATED RECESSED DOWLIGHT 20W 3- GANG ROCKERY SWITCH 2-GANG ROCKERY SWITCH SINGLE GANG ROCKERY SWITCH SMOKE DETECTOR EXTRACT FAN 40W LINEAR LED STRIP
DOUBLE SOCKET OUTLET 120V Single Socket COOKER/HOB HOOD FRIDGE/FREEZER 5 AMP SOCKET FOR LIGHTING 120V Microwave Wine Cooler MID LEVEL DOUBLE SOCKET OUTLET 120V HIGH LEVEL DOUBLE SOCKET OUTLET 120V LOW LEVEL DOUBLE SOCKET OUTLET 120V HIGH LEVEL SINGLE SOCKET OUTLET 120V UNDER FLOOR HEATING COMFORT COOLING CONTROL VIDEO ENTRY SYSTEM INTRUDER ALARM MOTION SENSOR CCTV CAMERA PIR MOTION SENSOR FOR LIGHTING CAT6 TO THE COMMUNAL DISTRIBUTION BOX (BT) CAT6 INTERNAL ETHERNET SMOKE DETECTOR SMOKE & CARBON MONOXIDE DETECTOR WITH SOUNDER EXTRACT FAN FUSE BOX 3-GANG ROCKERY SWITCH 2-GANG ROCKERY SWITCH SINGLE GANG ROCKERY SWITCH FUSED SPUR SWITCH SHAVER SOCKET HEAT DETECTOR WITH SOUNDER CEILING RECESSED SPEAKER DOOR CONTACT SENSOR FOR LIGHTING INTRUDER ALARM KEYPAD USB SOCKET OUTLET INTRUDER ALARM WINDOW CONTACT SWITCH INTRUDER ALARM DOOR CONTACT SWITCH

 Engineer's Team LTD Web site: www.innodez.co.uk Email: hello@innodez.co.uk			
CLIENT:		FEDOR PECHININ	
ADDRESS:		100 BUNHILL ROW, LONDON, EC1Y 8ND	
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REV. NO.	DESCRIPTION	DATE	BY
PROJECT: OFFICE ELECTRICAL DESIGN			
TITLE: GENERAL NOTE OF ELECTRICAL PLAN			
PROJ. NO.	PROJ. ENGR. AA	SCALE @ 24X36: N/A	
DATE : May 11, 2026			
DRAWING NO.		REV.	
E-00			



Engineer's Team LTD

Web site: www.innodez.co.uk

Email: hello@innodez.co.uk

CLIENT: FEDOR PECHININ

ADDRESS:
100 BUNHILL ROW, LONDON, EC1Y 8ND

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SUPPORT TO THE BUILDING AND ANY ADJACENT
STRUCTURES.

REV. NO.	DESCRIPTION	DATE	BY

PROJECT: OFFICE ELECTRICAL DESIGN

TITLE: **ELECTRICAL
LIGHTING PLAN**

PROJ. NO.	PROJ. ENGR. AA	SCALE @ 24X36: 1:1200
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DATE :
May 11, 2026

DRAWING NO. E-01	REV.
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Legend:

- | | | | |
|--|--|--|-----------------------------------|
| | WALL LIGHT 10W | | 3-WAY ROCKERY SWITCH |
| | ADJUSTABLE FRAME
RECESSED DOWNLIGHT 20W | | 2-WAY ROCKERY SWITCH |
| | SUSPENDED 3600MM
LINEAR LIGHT 120W | | SCENE SET SWITCH |
| | SUSPENDED 1500MM
LINEAR LIGHT 60W | | EXTRACT FAN (ICON 15
ECO) 30W |
| | 1200MM BATTEN LIGHT
36W | | PER METER LINEAR LED
STRIP 10W |
| | CEILING MOUNT
PENDENT LIGHT 10W | | ISOLATOR SWITCH |
| | SUSPENDED CAN
LIGHT 20W | | S22 ILLUMINATED EXIT
SIGN 4W |
| | PIR SENSOR | | AREA CONTROLLER |
| | LIGHTING CONTROL
MODULE | | MOTION SENSOR LIGHT
20W |
| | ABSENCE DETECTOR
SENSOR / CONTROLLER | | 300mm TRAY WORK |

NOTE:

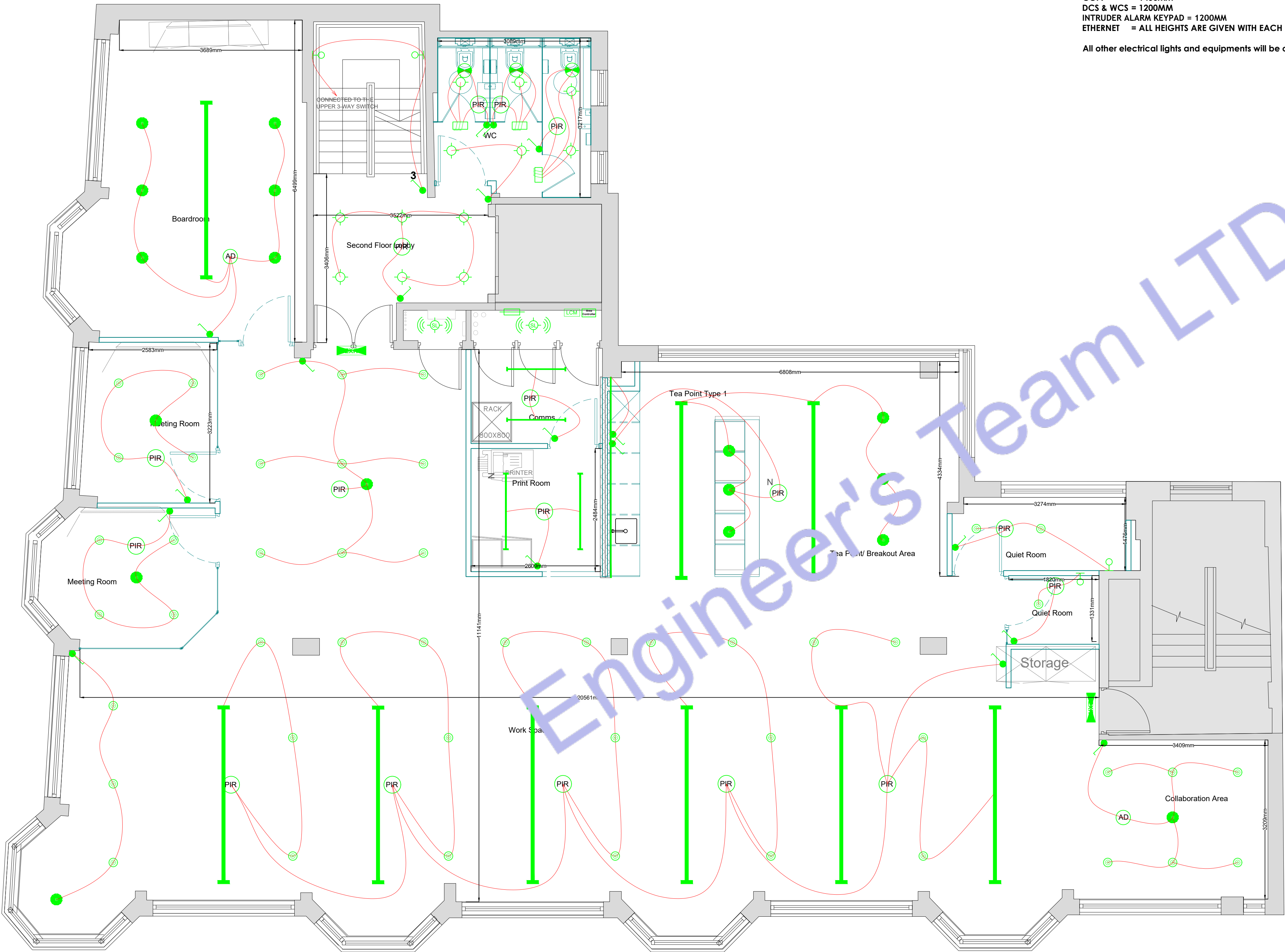
- ALL ELECTRICAL WORK SHALL COMPLY WITH THE CURRENT EDITION OF BS 7671:2018 IET WIRING REGULATIONS (18TH EDITION), INCLUDING AMENDMENT 4:2026, AND ALL APPLICABLE UK BUILDING REGULATIONS.
- ELECTRICAL DESIGN, INSTALLATION, TESTING, INSPECTION, AND COMMISSIONING SHALL BE CARRIED OUT IN ACCORDANCE WITH:
 - BS 7671:2018 + AMENDMENT 4:2026
 - BS EN 12464-1 LIGHTING OF INDOOR WORKPLACES
 - CIBSE LIGHTING GUIDE LG7
 - BUILDING REGULATIONS PART B (FIRE SAFETY)
 - BUILDING REGULATIONS PART L (CONSERVATION OF FUEL AND POWER)
 - BUILDING REGULATIONS PART M (ACCESS TO AND USE OF BUILDINGS)
 - IEC AND BRITISH STANDARD REQUIREMENTS WHERE APPLICABLE.
- ALL LIGHTING FIXTURES SHALL BE HIGH-EFFICIENCY LED TYPE AND SHALL BE SUITABLE FOR COMMERCIAL OFFICE APPLICATIONS WITH DALI DIMMING COMPATIBILITY.
- LIGHTING DESIGN LEVELS SHALL COMPLY WITH BS EN 12464-1 AND CIBSE RECOMMENDED LUX LEVELS FOR OFFICE, MEETING, COLLABORATION, BREAKOUT, AND CIRCULATION SPACES.
- ABSENCE DETECTOR SENSOR / CONTROLLER SYSTEMS SHALL BE PROVIDED IN:
 - COLLABORATION AREAS
 - BOARDROOMS
 - MEETING ROOMSFOR LIGHTING CONTROL OPERATION WITH MANUAL ON / AUTOMATIC OFF FUNCTIONALITY.
- PIR OCCUPANCY SENSORS SHALL BE PROVIDED IN:
 - WC AREAS
 - PRINT ROOMS
 - STORE ROOMS
 - COMMS ROOMS
 - MECHANICAL ROOMS
 - OTHER LOW OCCUPANCY AREASTO PROVIDE AUTOMATIC LIGHTING CONTROL AND ENERGY SAVING OPERATION.
- BATHROOM EXHAUST FANS SHALL BE INTERLOCKED WITH PIR OCCUPANCY SENSOR CONTROL AND PROVIDED WITH ADJUSTABLE OVERRUN TIMER CONTROL.
- LIGHTING CONTROL MODULES AND AREA CONTROLLERS SHALL BE PROVIDED TO ENABLE CENTRALIZED LIGHTING CONTROL, DIMMING, SCHEDULING, MONITORING, AND ZONING OF ALL LIGHTING SYSTEMS.
- ALL LIGHTING CONTROL EQUIPMENT SHALL BE FULLY COMPATIBLE WITH THE DALI LIGHTING CONTROL SYSTEM AND SHALL BE COORDINATED WITH ARCHITECTURAL AND INTERIOR DESIGN REQUIREMENTS.
- ALL ELECTRICAL EQUIPMENT, DEVICES, MATERIALS, AND ACCESSORIES SHALL BE UL, CE, UKCA, OR EQUIVALENT APPROVED PRODUCTS SUITABLE FOR INSTALLATION WITHIN THE UNITED KINGDOM.
- ALL ELECTRICAL PRODUCTS AND INSTALLATION METHODS SHALL COMPLY WITH CURRENT PRODUCT APPROVAL REQUIREMENTS, FIRE PERFORMANCE STANDARDS, ENERGY EFFICIENCY REQUIREMENTS, AND MANUFACTURER INSTALLATION INSTRUCTIONS APPLICABLE TO COMMERCIAL OFFICE BUILDINGS IN LONDON, EC1Y 8ND.
- CONTRACTOR SHALL VERIFY ALL EXISTING SITE CONDITIONS, DIMENSIONS, CEILING HEIGHTS, AND SERVICE COORDINATION REQUIREMENTS PRIOR TO COMMENCEMENT OF WORK.
- CONTRACTOR SHALL COORDINATE ALL ELECTRICAL SERVICES WITH HVAC, MECHANICAL, FIRE ALARM, ARCHITECTURAL, AND REFLECTED CEILING PLANS PRIOR TO INSTALLATION.
- ALL CABLING SHALL BE INSTALLED IN ACCORDANCE WITH BS 7671 REQUIREMENTS FOR CONDUCTOR SELECTION, FIRE PERFORMANCE, MECHANICAL PROTECTION, AND SUPPORT SYSTEMS.
- ALL FINAL CIRCUITS SERVING LIGHTING, HVAC EQUIPMENT, MINI SPLIT SYSTEMS, CONTROLS, AND ANCILLARY DEVICES SHALL BE PROVIDED WITH APPROPRIATE CIRCUIT PROTECTION, ISOLATION, AND EARTHING IN ACCORDANCE WITH BS 7671 REQUIREMENTS.
- MINI SPLIT HVAC SYSTEM ELECTRICAL CONNECTIONS SHALL COMPLY WITH MANUFACTURER REQUIREMENTS, MAXIMUM DEMAND CALCULATIONS, ISOLATION REQUIREMENTS, AND LOCAL ELECTRICAL SAFETY REGULATIONS.
- PROVIDE ACCESSIBLE LOCAL ISOLATORS FOR ALL HVAC EQUIPMENT, LIGHTING CONTROL PANELS, AND MECHANICAL EQUIPMENT IN ACCORDANCE WITH BS 7671 AND MAINTENANCE REQUIREMENTS.
- ALL ELECTRICAL INSTALLATIONS SHALL BE TESTED, INSPECTED, AND CERTIFIED PRIOR TO HANDOVER. PROVIDE ELECTRICAL INSTALLATION CERTIFICATES, TEST REPORTS, AND COMMISSIONING DOCUMENTATION IN ACCORDANCE WITH CURRENT BS 7671 REQUIREMENTS.
- FINAL LIGHTING LEVELS, CONTROL OPERATION, EMERGENCY LIGHTING, AND ENERGY PERFORMANCE SHALL BE VERIFIED DURING COMMISSIONING PRIOR TO FINAL PROJECT COMPLETION.

Note:

Interior Lighting Efficiency
Each interior fixed lighting fitting shall provide a lamp with a luminous efficacy of at least 75 lumens per circuit watt with installation.

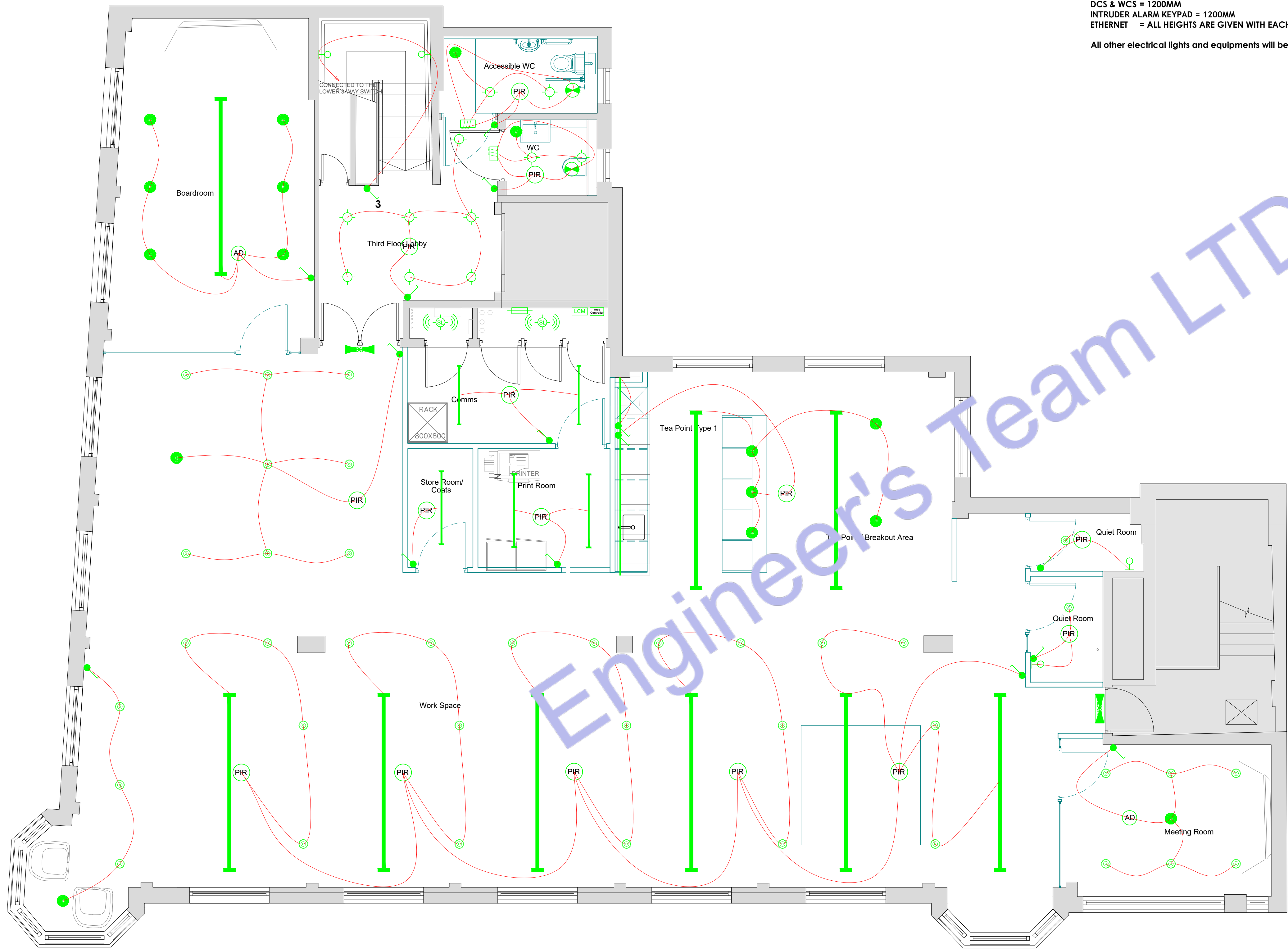
Equipments Height:
SWITCH = 1200MM
ISOLATOR = 1450MM
WALL LIGHT = 1450MM
PANEL BOX = 1450MM
CT = 1450MM
FPCP = 1450MM
AV BOX = 1450MM
CCTV CP = 1450MM
EMERGENCY= 1450MM
SOCKET = ALL HEIGHTS ARE GIVEN WITH EACH SOCKET
CCTV = 1450MM
DCS & WCS = 1200MM
INTRUDER ALARM KEYPAD = 1200MM
ETHERNET = ALL HEIGHTS ARE GIVEN WITH EACH ETHERNET PORT

All other electrical lights and equipments will be on the ceiling



1 LEVEL_02 ELECTRICAL LIGHTING PLAN

SCALE: 1/100" = 1'-0"



Note:
Interior Lighting Efficiency

Each interior fixed lighting fitting shall provide a lamp with a luminous efficacy of at least 75 lumens per circuit watt with installation.

- Equipments Height:
SWITCH = 1200MM
ISOLATOR = 1450MM
WALL LIGHT = 1450MM
PANEL BOX = 1450MM
CT = 1450MM
FPCP = 1450MM
AV BOX = 1450MM
CCTV CP = 1450MM
EMERGENCY= 1450MM
SOCKET = ALL HEIGHTS ARE GIVEN WITH EACH SOCKET
CCTV = 1450MM
DCS & WCS = 1200MM
INTRUDER ALARM KEYPAD = 1200MM
ETHERNET = ALL HEIGHTS ARE GIVEN WITH EACH ETHERNET PORT

All other electrical lights and equipments will be on the ceiling

Legend:

- WALL LIGHT 10W
- ADJUSTABLE FRAME
RECESSED DOWLIGHT 40W
- SUSPENDED 3600MM
LINEAR LIGHT 120W
- SUSPENDED 1500MM
LINEAR LIGHT 60W
- 1200MM BATTEN LIGHT
36W
- CEILING MOUNT
PENDENT LIGHT 10W
- SUSPENDED CAN
LIGHT 20W
- PIR

PIR SENSOR
- LCM

LIGHTING CONTROL
MODULE
- AD

ABSENCE DETECTOR
CONTROLLER

3

3-WAY ROCKERY SWITCH

2

2-WAY ROCKERY SWITCH

SCENE SET SWITCH

SCENE SET SWITCH

EXTRACT FAN (ICON 15
ECO) 30W

EXTRACT FAN (ICON 15
ECO) 30W

PER METER LINEAR LED
STRIP 10W

PER METER LINEAR LED
STRIP 10W

ISOLATOR SWITCH

ISOLATOR SWITCH

S22 ILLUMINATED EXIT
SIGN 4W

S22 ILLUMINATED EXIT
SIGN 4W

Area
Controller

AREA CONTROLLER

MOTION SENSOR LIGHT
20W

MOTION SENSOR LIGHT
20W

300mm TRAY WORK

300mm TRAY WORK

2 LEVEL 03 ELECTRICAL LIGHTING PLAN
SCALE: 1/100" = 1'-0"



Engineer's Team LTD
Web site: www.innodez.co.uk
Email: hello@innodez.co.uk

CLIENT: FEDOR PECHININ
ADDRESS: 100 BUNHILL ROW, LONDON, EC1Y 8ND

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REV. NO.	DESCRIPTION	DATE	BY

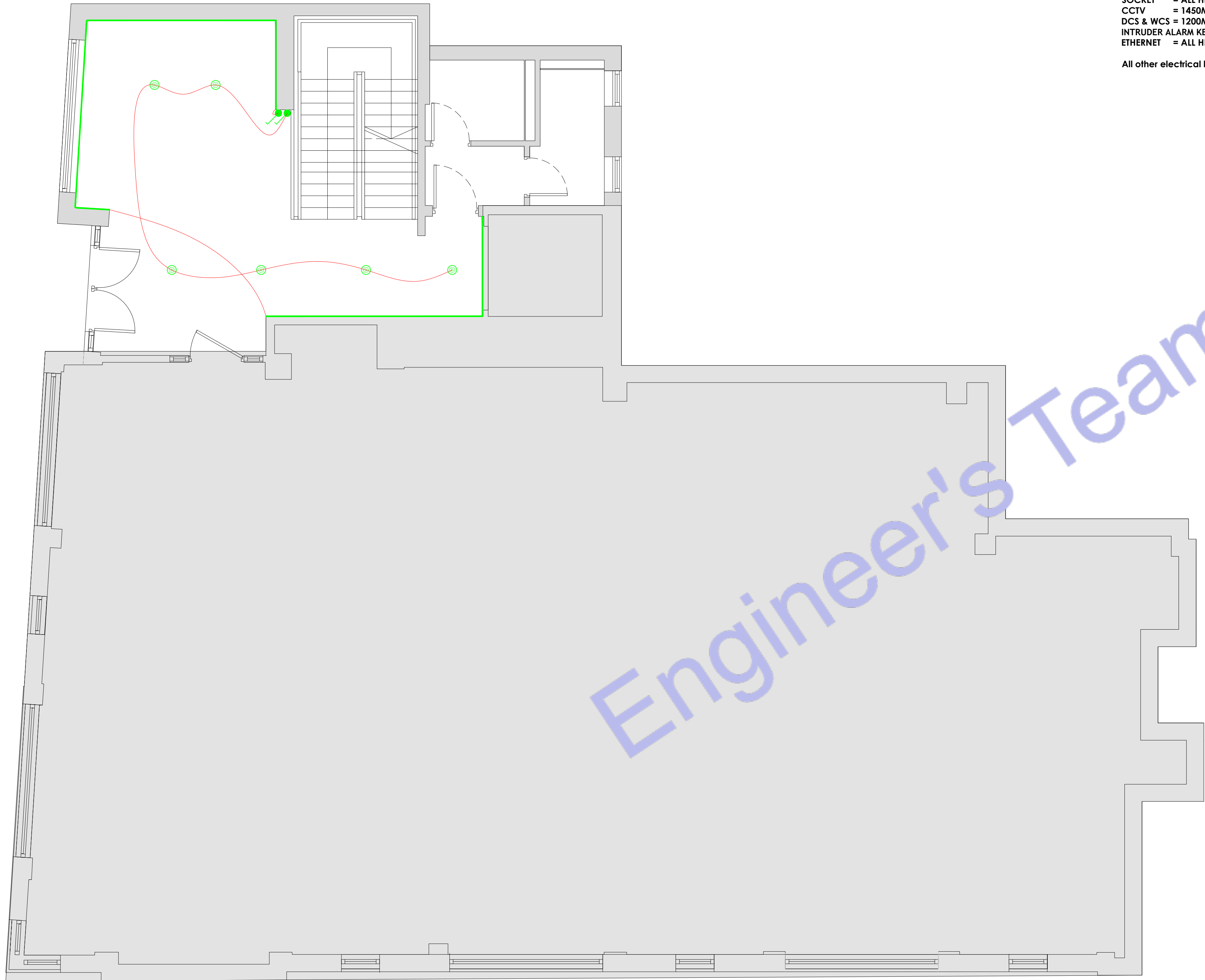
PROJECT: OFFICE ELECTRICAL DESIGN

TITLE: ELECTRICAL LIGHTING PLAN

PROJ. NO. PROJ. ENGR. AA SCALE @ 24X36: 1:1200

DATE : May 11, 2026

DRAWING NO. E-02 REV.



Note:
Interior Lighting Efficiency

Each interior fixed lighting fitting shall provide a lamp with a luminous efficacy of at least 75 lumens per circuit watt with installation.

- Equipments Height:
SWITCH = 1200MM
ISOLATOR = 1450MM
WALL LIGHT = 1450MM
PANEL BOX = 1450MM
CT = 1450MM
FPCP = 1450MM
AV BOX = 1450MM
CCTV CP = 1450MM
EMERGENCY= 1450MM
SOCKET = ALL HEIGHTS ARE GIVEN WITH EACH SOCKET
CCTV = 1450MM
DCS & WCS = 1200MM
INTRUDER ALARM KEYPAD = 1200MM
ETHERNET = ALL HEIGHTS ARE GIVEN WITH EACH ETHERNET PORT

All other electrical lights and equipments will be on the ceiling

Legend:

- WALL LIGHT 10W
- ADJUSTABLE FRAME
RECESSED DOWLIGHT 20W
- SUSPENDED 3600MM
LINEAR LIGHT 120W
- SUSPENDED 1500MM
LINEAR LIGHT 60W
- 1200MM BATTEN LIGHT
36W
- CEILING MOUNT
PENDENT LIGHT 10W
- SUSPENDE CAN
LIGHT 20W
- PIR SENSOR
- LIGHTING CONTROL
MODULE
- ABSENCE DETECTOR
SENSOR / CONTROLLER
- 3-WAY ROCKERY SWITCH
- 2-WAY ROCKERY SWITCH
- SCENE SET SWITCH
- EXTRACT FAN (ICON 15
ECO) 30W
- PER METER LINEAR LED
STRIP 10W
- ISOLATOR SWITCH
- S22 ILLUMINATED EXIT
SIGN 4W
- AREA CONTROLLER
- MOTION SENSOR LIGHT
20W
- 300mm TRAY WORK



Engineer's Team LTD

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REV. NO.	DESCRIPTION	DATE	BY

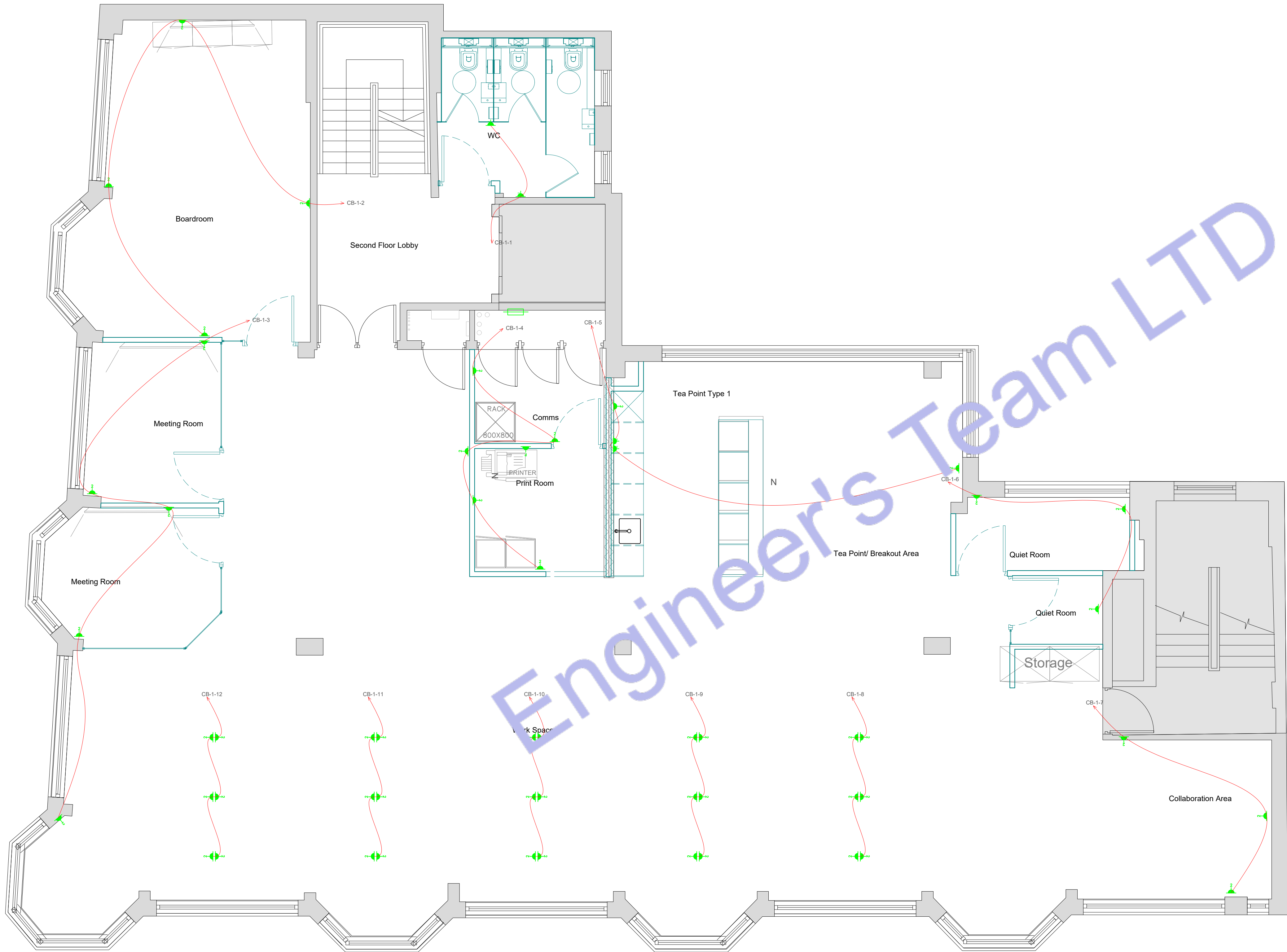
PROJECT: OFFICE ELECTRICAL DESIGN

TITLE: **ELECTRICAL
LIGHTING PLAN**

PROJ. NO.	PROJ. ENGR. AA	SCALE @ 24X36: 1:1200
-----------	-------------------	--------------------------

DATE :
May 11, 2026

DRAWING NO. E-03	REV.
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Legend:

- DOUBLE SOCKET OUTLET 120V
- SINGLE SOCKET
- PRINTER MATCHER
- HOOD
- FRIDGE/FREEZER
- 5 AMP SOCKET FOR LIGHTING 120V
- MICROWAVE
- WINE COOLER
- MID LEVEL DOUBLE SOCKET OUTLET 120V
- HIGH LEVEL DOUBLE SOCKET OUTLET 120V
- LOW LEVEL DOUBLE SOCKET OUTLET 120V
- HIGH LEVEL SINGLE SOCKET OUTLET 120V
- UNDER FLOOR HEATING
- COMFORT COOLING CONTROL
- VIDEO ENTRY SYSTEM
- INTRUDER ALARM MOTION SENSOR
- CCTV CAMERA
- PIR MOTION SENSOR FOR LIGHTING
- ELECTRICAL WIRE

CAT6 TO THE COMMUNAL DISTRIBUTION BOX (BT)CAT6 INTERNAL ETHERNETSMOKE DETECTORSMOKE & CARBON MONOXIDE DETECTOR WITH SOUNDEREXTRACT FANFUSE BOX3-GANG ROCKERY SWITCH2-GANG ROCKERY SWITCHSINGLE GANG ROCKERY SWITCHFUSED SPUR SWITCHFLOOR MOUNT SOCKET 120VSCREWLESS DUAL VOLTAGE SHAVER SOCKETDOOR CONTACT SENSOR FOR LIGHTINGINTRUDER ALARM KEYPADUSB C SOCKET OUTLETINTRUDER ALARM WINDOW CONTACT SWITCHINTRUDER ALARM DOOR CONTACT SWITCHELECTRICAL TOWEL RADIATORTELEVISION

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REV. NO.	DESCRIPTION	DATE	BY

PROJECT: OFFICE ELECTRICAL DESIGN

TITLE: ELECTRICAL POWER PLAN

PROJ. NO.	PROJ. ENGR. AA	SCALE @ 24X36: 1:1200
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DATE: May 11, 2026

DRAWING NO. E-04	REV.
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Note:
Provide switched fused spur connection units for all fixed mechanical and electrical equipment unless noted otherwise.

1 LEVEL 02 ELECTRICAL POWER PLAN
SCALE: 1/100" = 1'-0"

Legend:

-  DOUBLE SOCKET OUTLET 120V

 Single Socket

 COOKER/HOB

 HOOD

 FRIDGE/FREEZER

 5 AMP SOCKET FOR LIGHTING 120V

 Microwave

 Wine Cooler

 MID LEVEL DOUBLE SOCKET OUTLET 120V

 HIGH LEVEL DOUBLE SOCKET OUTLET 120V

 LOW LEVEL DOUBLE SOCKET OUTLET 120V

 HIGH LEVEL SINGLE SOCKET OUTLET 120V

 UNDER FLOOR HEATING

 COMFORT COOLING CONTROL

 VIDEO ENTRY SYSTEM

 CCTV CAMERA

 PIR MOTION SENSOR FOR LIGHTING

 ELECTRICAL WIRE
-  CAT6 TO THE COMMUNAL DISTRIBUTION BOX (BT)

 CAT6 INTERNAL ETHERNET

 SMOKE DETECTOR

 SMOKE & CARBON MONOXIDE DETECTOR WITH SOUNDER

 EXTRACT FAN

 FUSE BOX

 3-GANG ROCKERY SWITCH

 2-GANG ROCKERY SWITCH

 SINGLE GANG ROCKERY SWITCH

 FUSED SPUR SWITCH

 FLOOR MOUNT SOCKET 120V

 SCREW LESS DUAL VOLTAGE SHAVES SOCKET

 DOOR CONTACT SENSOR FOR LIGHTING

 INTRUDER ALARM KEYPAD

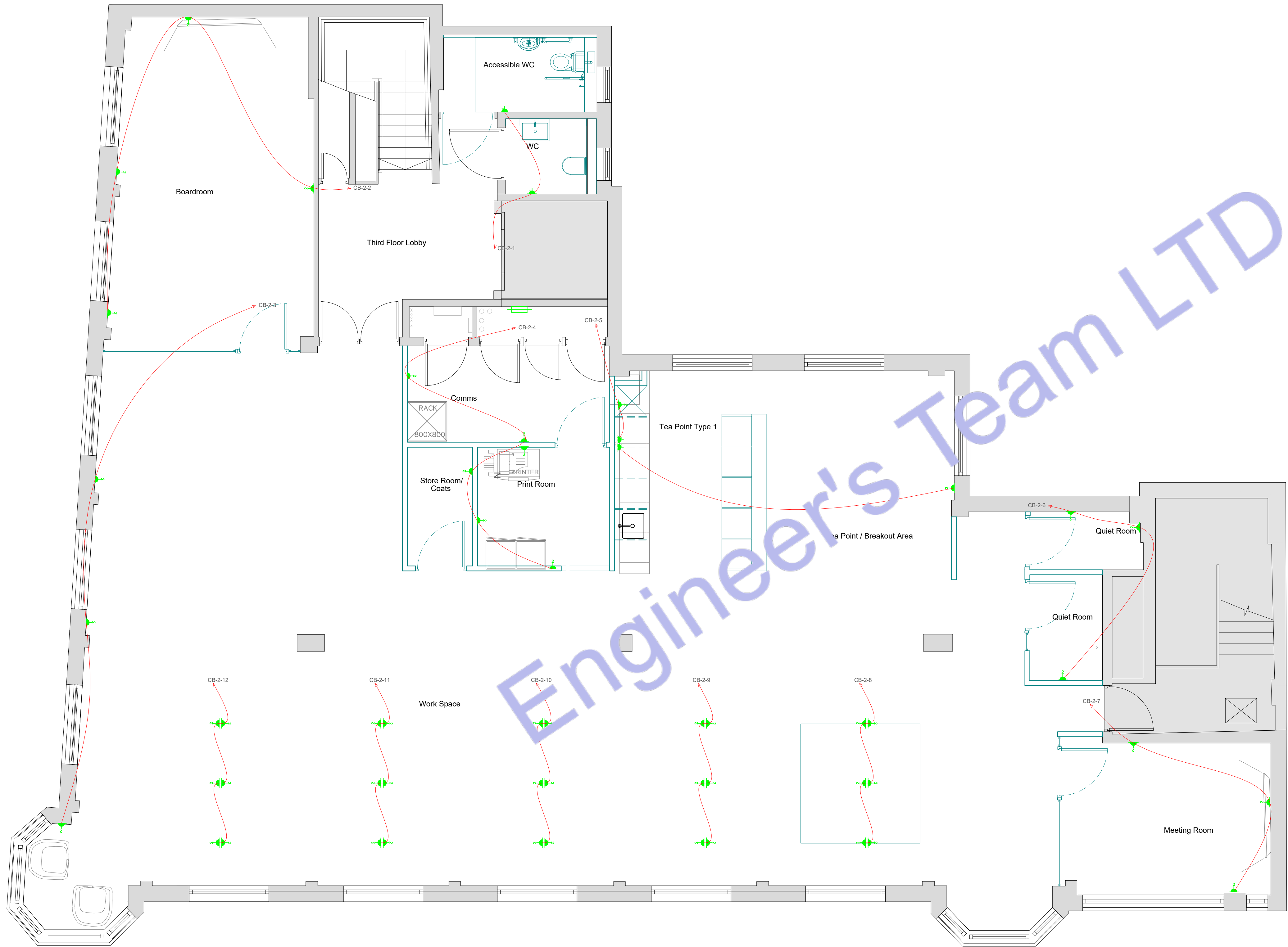
 USB-C SOCKET OUTLET

 INTRUDER ALARM WINDOW CONTACT SWITCH

 INTRUDER ALARM DOOR CONTACT SWITCH

 ELECTRICAL TOWEL RADIATOR

 TELEVISION



Note:
Provide switched fused spur connection units for all fixed mechanical and electrical equipment unless noted otherwise.

2 LEVEL 03 ELECTRICAL POWER PLAN
SCALE: 1/100" = 1'-0"



Engineer's Team LTD

Web site: www.innodez.co.uk

Email: hello@innodez.co.uk

CLIENT: FEDOR PECHININ

ADDRESS:
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REV. NO.	DESCRIPTION	DATE	BY

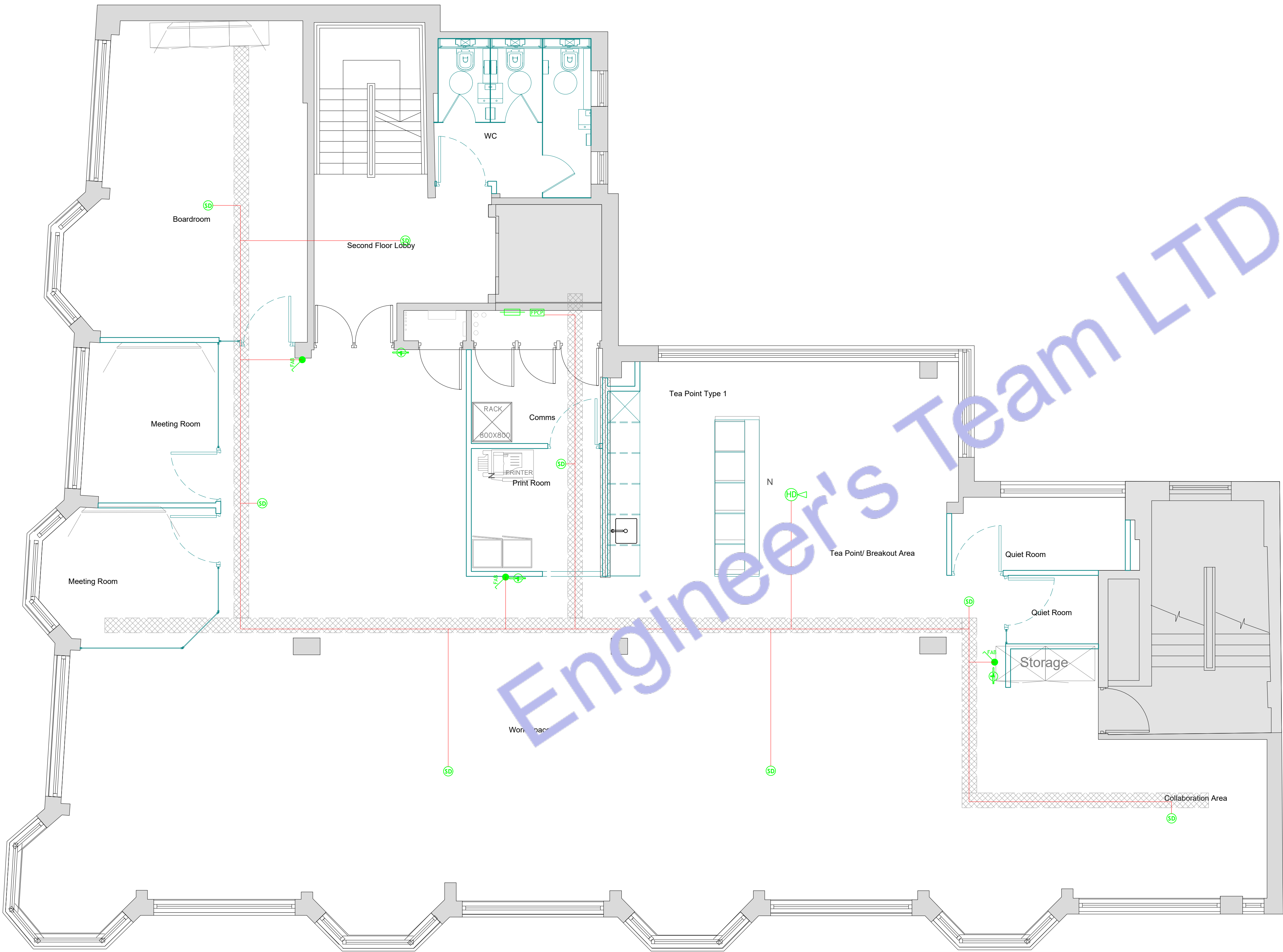
PROJECT: OFFICE ELECTRICAL DESIGN

TITLE: ELECTRICAL
POWER PLAN

PROJ. NO.	PROJ. ENGR. AA	SCALE @ 24X36: 1:1200
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DATE :
May 11, 2026

DRAWING NO. E-05	REV.
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1 LEVEL 02 FIRE ALARM PLAN
SCALE: 1/100" = 1'-0"

Legend:

- SMOKE DETECTOR
- SMOKE & CARBON MONOXIDE DETECTOR WITH SOUNDER
- FUSE BOX
- HEAT DETECTOR WITH SOUNDER
- FIRE PROTECTION CONTROL PANEL
- FIRE ALARM BUTTON
- FIRE ALARM SOUNDER
- ELECTRIC WIRE
- FIRE EXTINGUISHER



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REV. NO.	DESCRIPTION	DATE	BY

PROJECT: OFFICE ELECTRICAL DESIGN

TITLE: FIRE ALARM PLAN

PROJ. NO.	PROJ. ENGR. AA	SCALE @ 24X36: 1:1200
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DATE : May 11, 2026

DRAWING NO. E-06	REV.
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Legend:

- SMOKE DETECTOR
- SMOKE & CARBON MONOXIDE DETECTOR WITH SOUNDER
- FUSE BOX
- HEAT DETECTOR WITH SOUNDER
- CEILING RECESSED SPEAKER
- FIRE PROTECTION CONTROL PANEL
- FIRE ALARM BUTTON
- FIRE ALARM SOUNDER
- ELECTRIC WIRE



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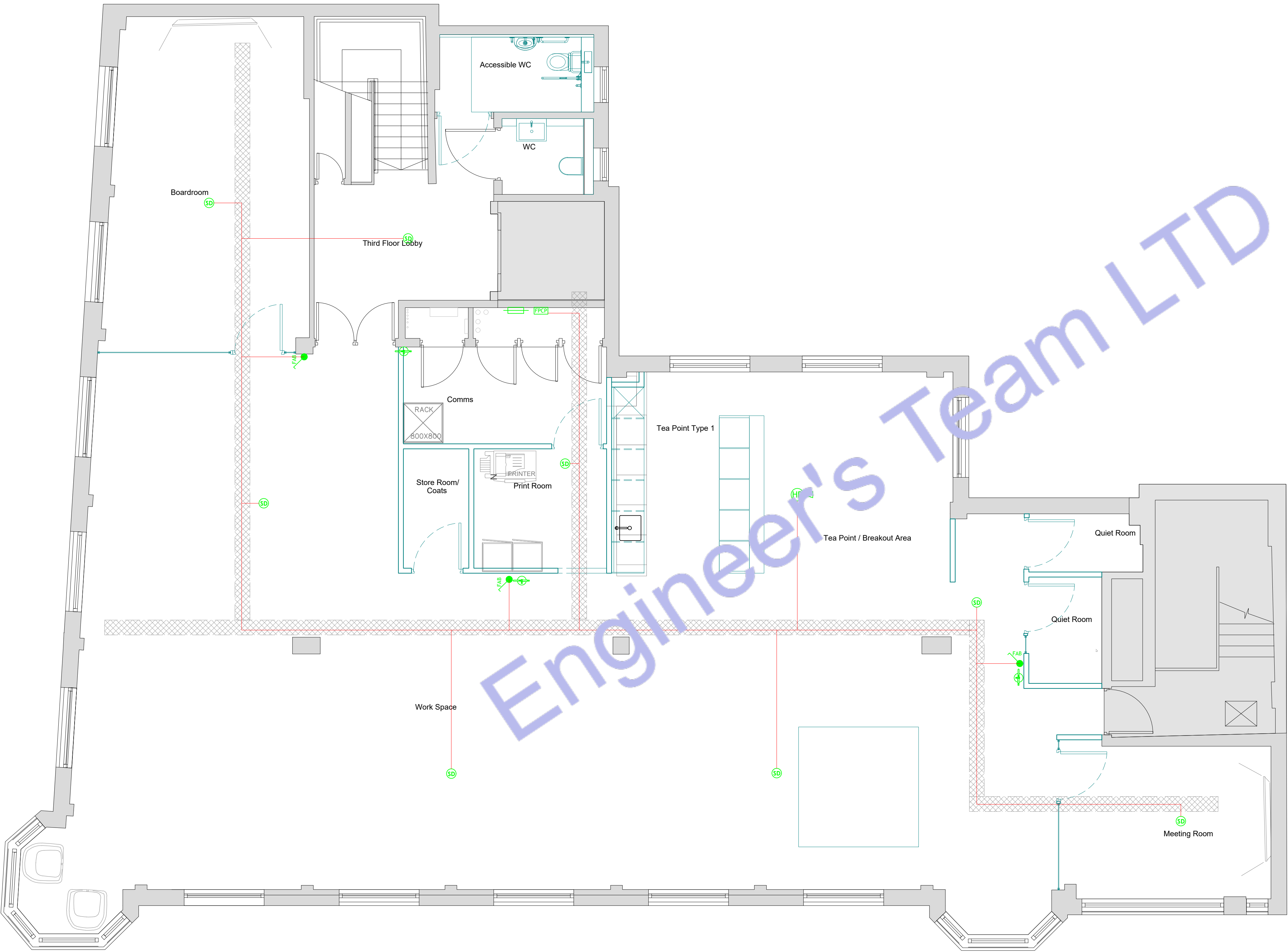
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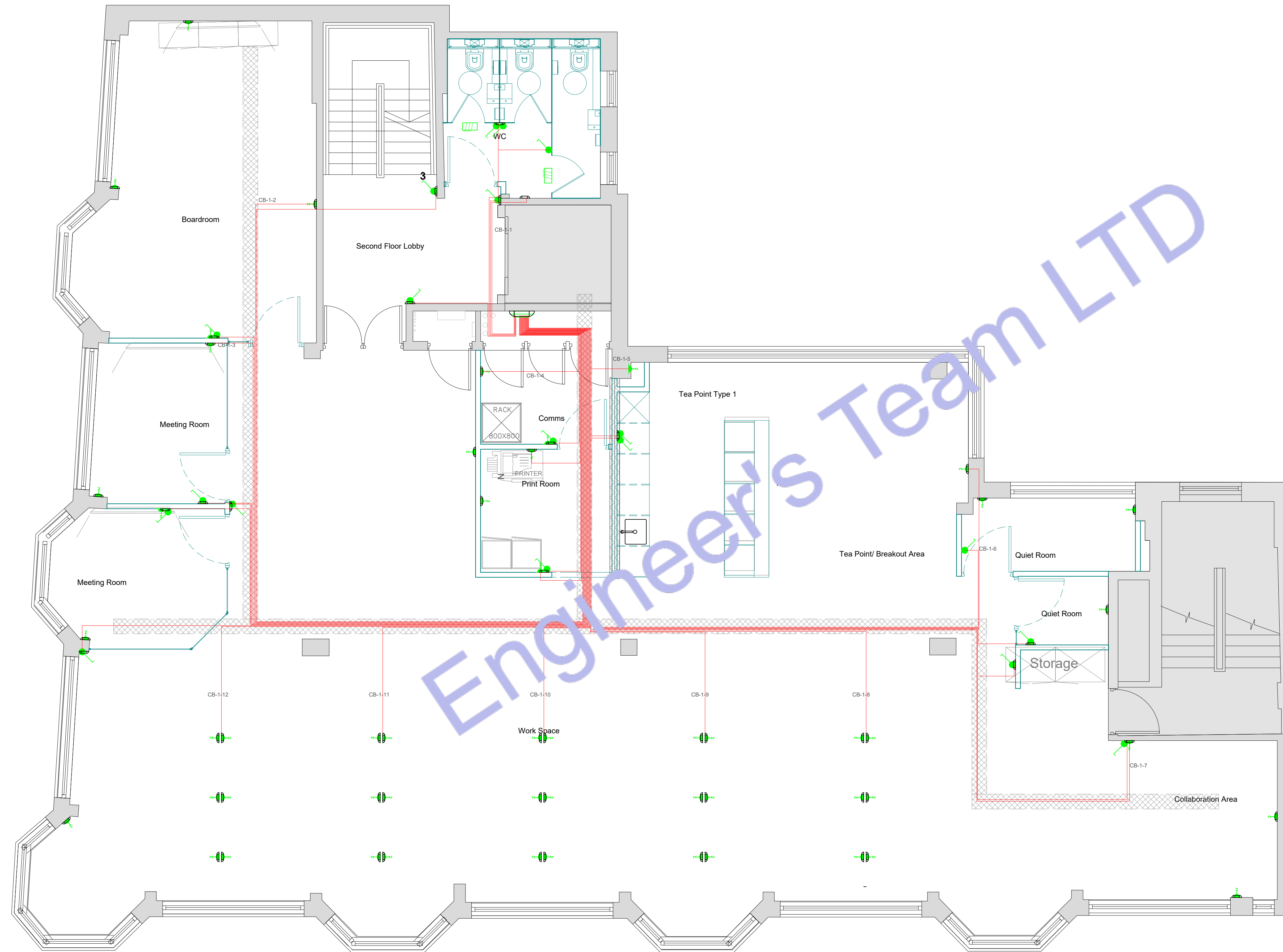
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2 LEVEL 03 FIRE ALARM PLAN
SCALE: 1/100" = 1'-0"

REV. NO.	DESCRIPTION	DATE	BY

PROJECT: OFFICE ELECTRICAL DESIGN		
TITLE: FIRE ALARM PLAN		
PROJ. NO.	PROJ. ENGR. AA	SCALE @ 24X36: 1:1200
DATE : May 11, 2026		
DRAWING NO. E-07		REV.



Legend:

- ELECTRIC WIRE
- 300MM TRAY WORK / CABLE TRAY
- 150X50 TRUNKING
- 20MM CONDUIT



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REV. NO.	DESCRIPTION	DATE	BY

PROJECT: OFFICE ELECTRICAL DESIGN

TITLE: ELECTRICAL CONDUIT PLAN

PROJ. NO.

PROJ. ENGR. AA

SCALE @ 24X36: 1:1200

DATE : May 11, 2026

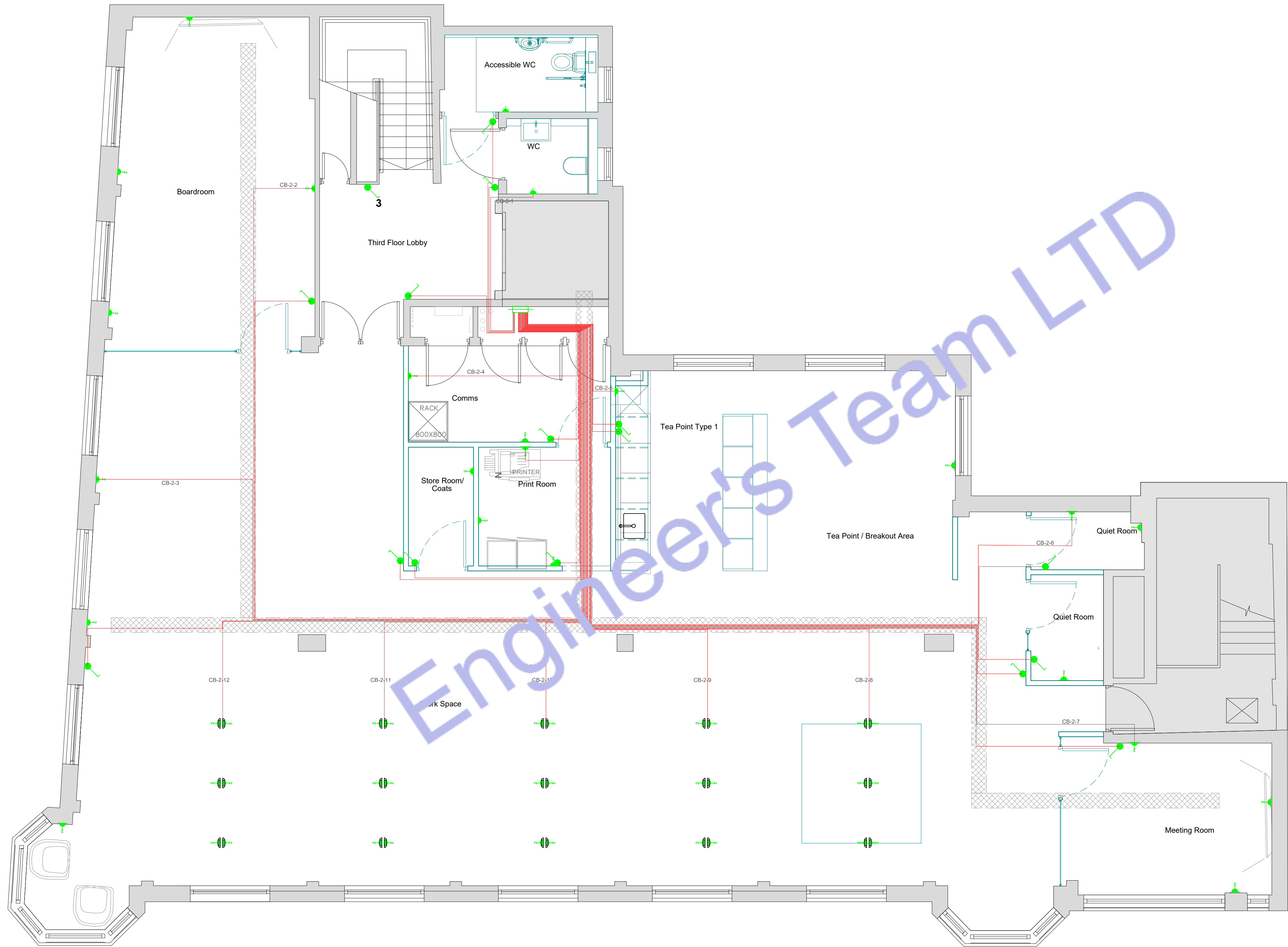
DRAWING NO. E-08

REV.

1 LEVEL 02 ELECTRICAL CONDUIT PLAN
SCALE: 1/100" = 1'-0"

Legend:

- ELECTRIC WIRE
- 300MM TRAY WORK / CABLE TRAY



2 LEVEL 03 ELECTRICAL CONDUIT PLAN
SCALE: 1/100" = 1'-0"



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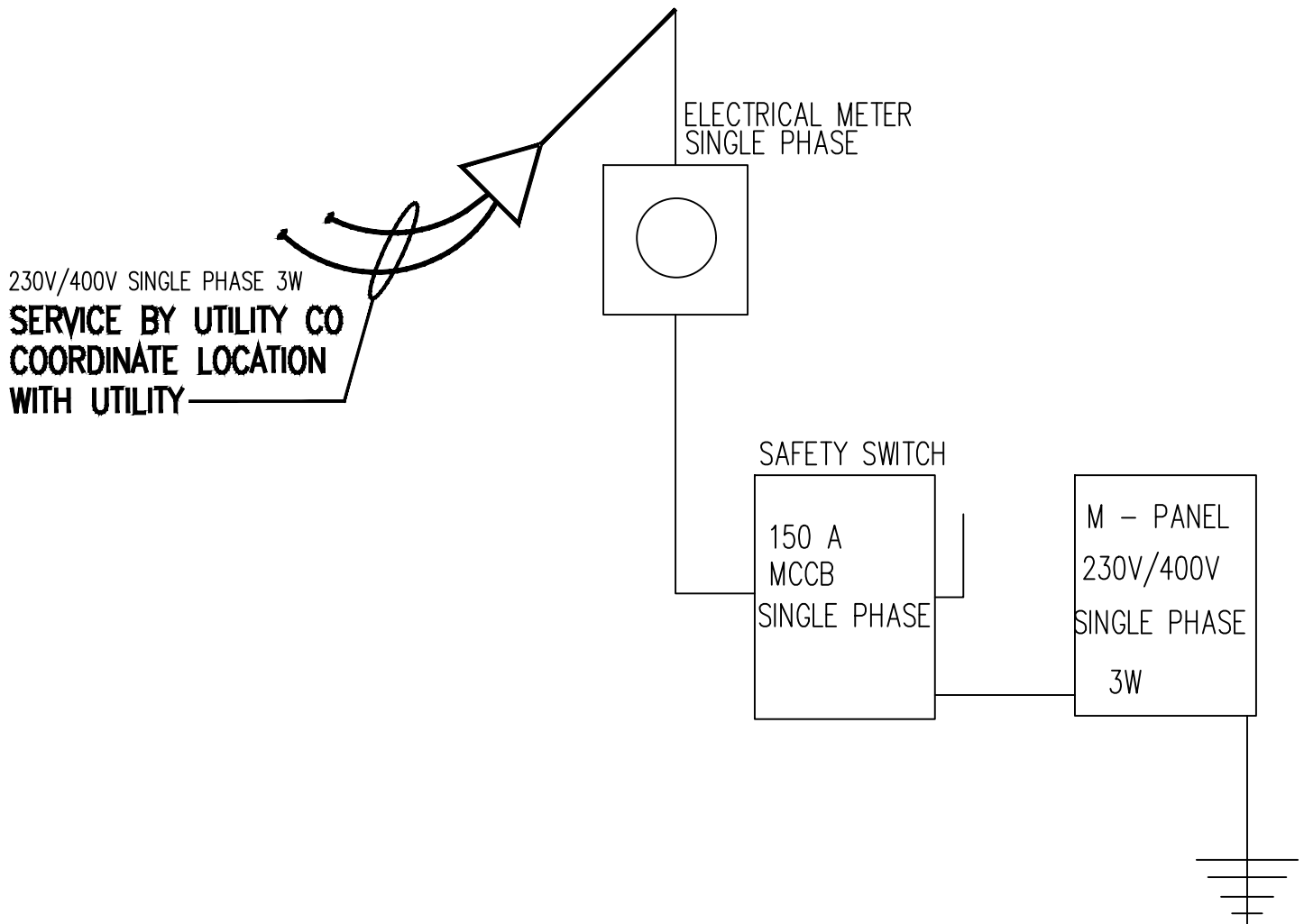
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REV. NO.	DESCRIPTION	DATE	BY

PROJECT: OFFICE ELECTRICAL DESIGN		
TITLE: ELECTRICAL CONDUIT PLAN		
PROJ. NO.	PROJ. ENGR. AA	SCALE @ 24X36: 1:1200
DATE : May 11, 2026		
DRAWING NO. E-09		REV.

MAIN PANEL															
Panel Location-															
Voltage (Phase-Ground/Phase-Phase)		230	400	Source of Supply-From Service Disconnect/Meter											
Phase-		1		Wire-		3									
Rated Amps-		150		AIC-		10k									
MCCB		150 Amps MCCB		Mounting-		Wall Surface									
Circuit	Description	New/ Existing	Load Type	Breaker Size	Poles	Wire Size	A		Wire Size	Poles	Breaker Size	Load Type	New/ Existing	Description	Circuit
1	30 Desks Open Office 01	N		15	1	#14	1170	1190	#12	1	20		N	30 Desks Open Office 02	2
3	2nd Floor Lighting Load	N		20	1	#12	1402	1302	#12	1	20		N	3rd Floor Lighting Load	4
5	CB-2nd-01	N		20	1	#12	200	200	#12	1	20		N	CB-3rd-01	6
7	CB-2nd-02	N		20	1	#12	500	500	#12	1	20		N	CB-3rd-02	8
9	CB-2nd-03	N		20	1	#12	400	300	#12	1	20		N	CB-3rd-03	10
11	CB-2nd-04	N		20	1	#12	500	500	#12	1	20		N	CB-3rd-04	12
13	CB-2nd-05	N		20	1	#12	1050	1050	#12	1	20		N	CB-3rd-05	14
15	CB-2nd-06	N		20	1	#12	300	300	#12	1	20		N	CB-3rd-06	16
17	CB-2nd-07	N		20	1	#12	300	300	#12	1	20		N	CB-3rd-07	18
19	CB-2nd-08	N		20	1	#12	600	600	#12	1	20		N	CB-3rd-08	20
21	CB-2nd-09	N		20	1	#12	600	600	#12	1	20		N	CB-3rd-09	22
23	CB-2nd-10	N		20	1	#12	600	600	#12	1	20		N	CB-3rd-10	24
25	CB-2nd-11	N		20	1	#12	600	600	#12	1	20		N	CB-3rd-11	26
27	CB-2nd-12	N		20	1	#12	600	600	#12	1	20		N	CB-3rd-12	28
29	Printer	N		20	1	#12	1500	1500	#12	1	20		N	Printer	30
A															
Connected Load (W)									20464						
Connected Amp									88.97						
Main Type and Amps Rating									150 Amps MCCB						
Demand Load Calculation															
Load Classification		Connected Load	Demand Factor	Estimated Demand											
Lighting - Dwelling Unit		5064	125%	6330											
Water Heater - Dwelling Unit		0	100%	0											
Receptacle		15400	65%	10010											
Cooling		0	100%	0											
Pump		0	125%	0											
Other		0	100%	0											
Demand Load		20464		16340											
Demand Amps				71.0434783											



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REV. NO.	DESCRIPTION	DATE	BY

PROJECT: OFFICE ELECTRICAL DESIGN		
TITLE: ELECTRICAL LOAD SCHEDULE & SLD PLAN		
PROJ. NO.	PROJ. ENGR. AA	SCALE @ 24X36: N/A
DATE : May 11, 2026		
DRAWING NO. E-10		REV.

GENERAL NOTES:

- I. A LISTED INTERSYSTEM BONDING TERMINATION PROVIDING THE REQUIRED NUMBER OF TERMINALS (MINIMUM OF THREE) FOR CONNECTING OTHER BUILDING SYSTEMS TO THE GROUNDING SYSTEM OF THE ELECTRICAL POWER SUPPLY (NEC250.94).

KEY NOTES: 7

1. ALL METAL CONDUITS ENCLOSING ANY SERVICE SHALL BE FITTED WITH A "BONDING BUSHING".
2. ALL METAL CONDUITS ENCLOSING ANY GROUNDING ELECTRODE CONDUCTOR SHALL BE FITTED WITH A "BONDING BUSHING" AT EACH END.
3. PROVIDE GROUNDING ELECTRODE PER NEC. ELECTRODE SHALL BE IN THE FORM OF A 20'-0" x 1/2" COPPER GLAD GROUND ROD LAID AT LEAST 2" OFF THE BOTTOM OF A CONCRETE FOOTING. SECURE THE GROUND ROD TO THE REBAR WITH STEEL TIE WRAPS. IF THE REBAR BEING USED IN THE FOOTING IS SMALLER THAN 1/2" (#4), THEN USE 20' OF BARE
4. FOR CONNECTION TO COLD WATER MAIN, CONNECT WITHIN 5 FT. OF CONTACT OF EARTH.
5. IF STRUCTURAL STEEL MEMBER OR REBARS ARE AVAILABLE, BOND IT TO THE SERVICE USING A UL LISTED IRREVERSIBLE CLAMP OR WELDING LUG.
6. PROVIDE A INTERSYSTEM BONDING TERMINATION PER NEC 250.94.

SOLID #4 COPPER WIRE IN PLACE OF THE GROUND ROD. IN REMODEL PROJECTS THAT WILL NOT HAVE NEW FOOTINGS INSTALLED, THIS SUPPLEMENTAL ELECTRODE SHALL BE PER NOTE #4 BELOW OR OTHER ELECTRODE PER NEC 250.52.

INTERSYSTEM BONDING TERMINATION SHALL:

6.1. BE ACCESSIBLE FOR CONNECTION AND INSPECTION.

6.2. CONSIST OF A SET OF TERMINALS (LISTED AS GROUNDING AND BONDING EQUIPMENT) WITH THE CAPACITY OF NOT LESS THAN THREE INTERSYSTEM BONDING CONDUCTORS.

6.3. BE SECURELY MOUNTED AND ELECTRICALLY CONNECTED TO SERVICE EQUIPMENT, METER ENCLOSURE, OR EXPOSED NON METALLIC SERVICE RACEWAY, OR BE MOUNTED ON ONE OF THESE ENCLOSURES AND BE CONNECTED TO THE ENCLOSURE OR GROUNDING

ELECTRODE CONDUCTOR WITH A MINIMUM #6 CU CONDUCTOR.

6.4. BE SECURELY MOUNTED TO THE BUILDING'S DISCONNECTING MEANS, OR BE MOUNTED AT THE DISCONNECTING MEANS AND BE CONNECTED TO THE METALLIC ENCLOSURE OR GROUNDING ELECTRODE CONDUCTOR WITH A MINIMUM #6 CU CONDUCTOR.

7. ALL BRANCH CIRCUIT AND FEEDER CONDUITS ARE TO HAVE AN INSULATED EQUIPMENT GROUNDING CONDUCTOR REGARDLESS OF THE CONDUIT MATERIAL.

8. WHEN THE SERVICE CONSISTS OF MULTIPLE DISCONNECTING MEANS IN SEPARATE ENCLOSURES, CONNECT A TAP

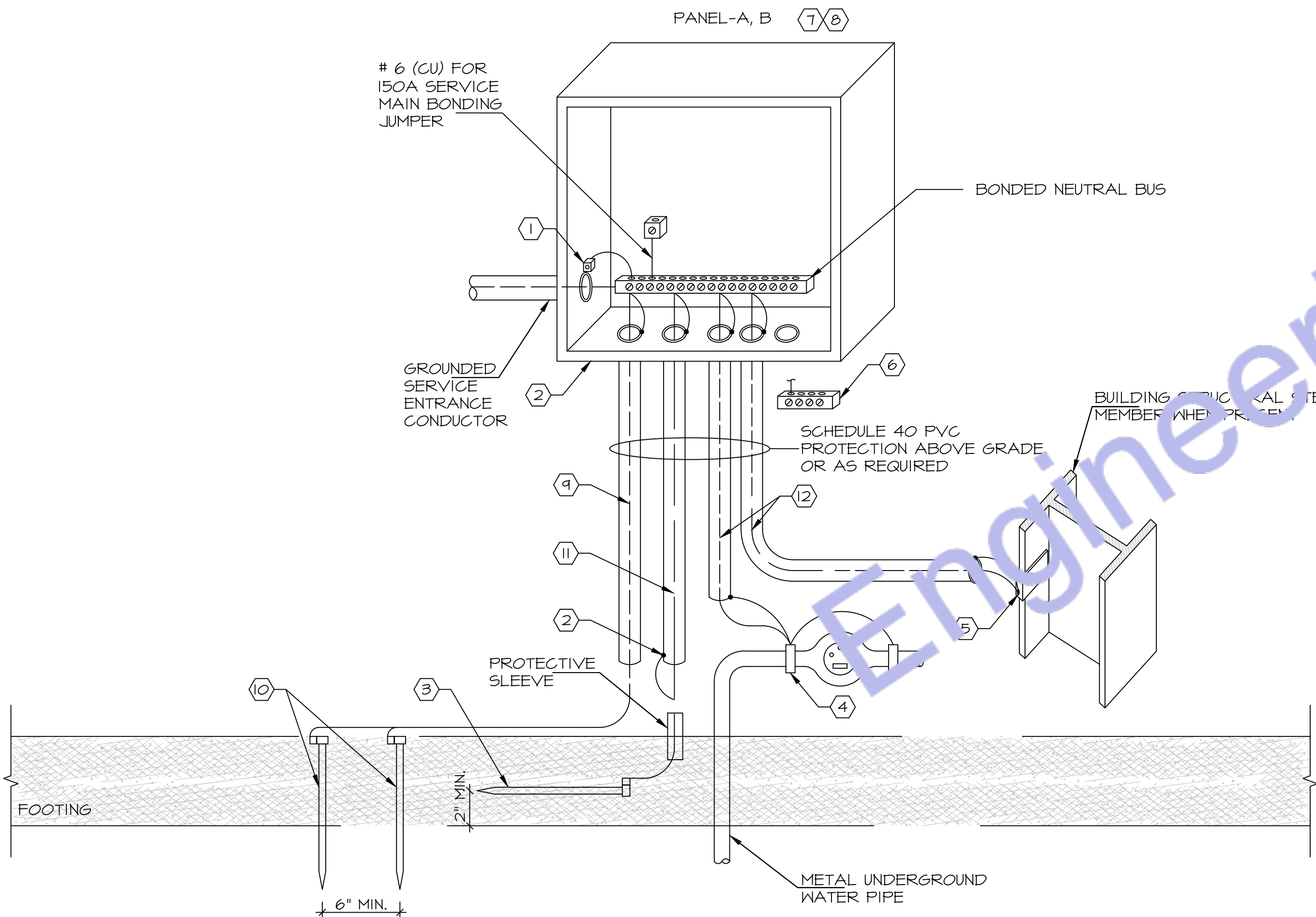
CONDUCTOR FROM THE MAIN GROUNDING ELECTRODE CONDUCTOR TO EACH DISCONNECTING MEANS. SIZE THIS TAP BASED ON THE LARGEST SERVICE CONDUCTOR IN THAT SERVICE DISCONNECT ENCLOSURE.

9. #6 COPPER GROUNDING ELECTRODE CONDUCTOR.

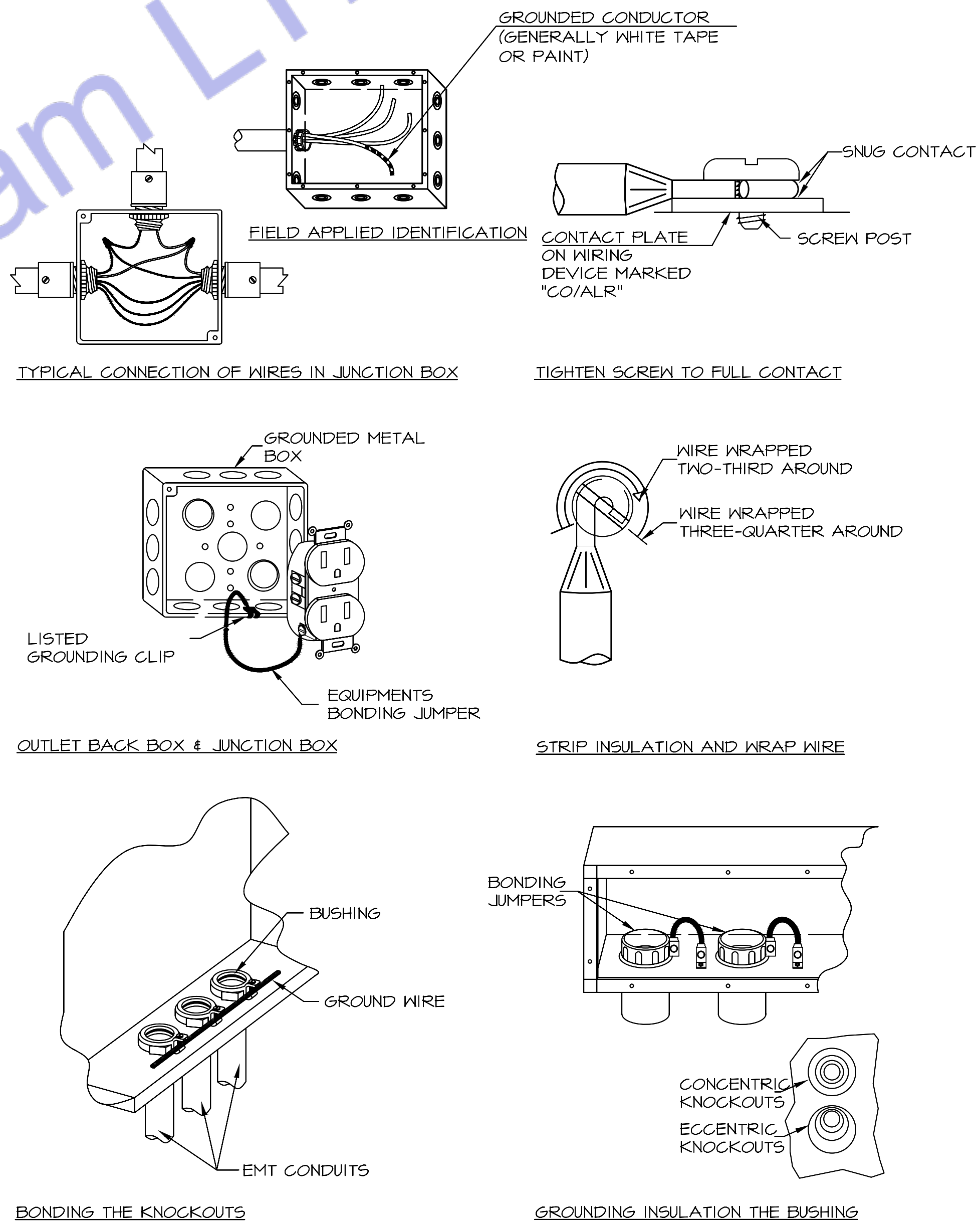
10. INSTALL #6 CU TO TWO 5/8"x 8' MIN. GROUND RODS AS SHOWN.

11. #4 COPPER GROUNDING ELECTRODE CONDUCTOR.

12. COPPER GROUNDING ELECTRODE CONDUCTOR. PROVIDE #6 COPPER.



1 GROUNDING ELECTRODE SYSTEM DIAGRAM
E500 SCALE: NOT TO SCALE



2 BOUNDING DETAILS
E500 SCALE: NOT TO SCALE



Engineer's Team LTD

Web site: www.innodez.co.uk

Email: hello@innodez.co.uk

CLIENT: FEDOR PECHININ

ADDRESS: 100 BUNHILL ROW, LONDON, EC1Y 8ND

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4. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY TEMPORARY SUPPORT TO THE BUILDING AND ANY ADJACENT STRUCTURES.

REV. NO.	DESCRIPTION	DATE	BY

PROJECT: OFFICE ELECTRICAL DESIGN

TITLE: ELECTRICAL INSTALLATION

PROJ. NO. PROJ. ENGR. AA SCALE @ 24X36: N/A

DATE: May 11, 2026

DRAWING NO. E-11 REV.

Electrical Lighting Lux Calculation Report

Preliminary lux level calculations and lighting coordination summary prepared for MEP design coordination.

- Lux values are preliminary estimated calculations based on lighting load and room geometry.
- Lighting arrangement coordinated in accordance with architectural layout and ceiling coordination.
- Typical target lux levels considered in accordance with UK office lighting recommendations.
- Final installation and commissioning to be verified on site by contractor/specialist.

Room Name	Floor	Width (m)	Length (m)	Area (m²)	Ceiling Height (mm)	Lighting Load (W)	Estimated Lux
30 Desks Open Office 01	2nd	38.38	7.3	280.24	3050	1050	222
COLLABORATION AREA	2nd	3.4	3.19	10.86	3050	130	766
1P QUIET ROOM 01	2nd	3.26	1.47	4.79	3050	50	668
1P QUIET ROOM 02	2nd	1.89	1.38	2.61	3050	30	734
BREAKOUT AREA	2nd	7.06	4.39	31.03	3050	340	825
Comms Room	2nd	2.64	1.93	5.08	3050	72	907
PRINT AREA	2nd	2.64	2.47	6.53	3050	120	1176
ARRIVAL LOUNGE	2nd	4.98	4.64	23.15	3050	190	525
4P MEETING ROOM 01	2nd	2.58	3.23	8.35	3050	90	692
4P MEETING ROOM 02	2nd	3.58	2.81	10.08	3050	90	571
10P BOARDROOM	2nd	4.93	6.37	31.46	3050	150	305
WC 01	2nd	2.11	1.15	3.69	3050	50	867
WC 02	2nd	1.83	2.71	4.96	3050	50	645
MECHANICAL ROOM	2nd	2.13	1.97	4.19	3050	40	300
30 Desks Open Office 02	3rd	38.38	7.3	280.24	3050	1070	226
5P MEETING ROOM	3rd	4.24	3.06	12.94	3050	130	643
1P QUIET ROOM 03	3rd	2.32	1.17	2.71	3050	30	708
2P QUIET ROOM	3rd	1.46	2.13	3.11	3050	30	617
BREAKOUT AREA	3rd	6.78	4.2	28.49	3050	290	921
PRINT AREA	3rd	2.66	2.46	6.54	3050	120	1174
STORE ROOM	3rd	1.31	2.46	3.22	3050	60	1193
Comms Room	3rd	4.07	1.94	7.88	3050	72	585
ARRIVAL LOUNGE	3rd	6.02	4.6	27.68	3050	170	393
MECHANICAL ROOM	3rd	2.14	1.97	4.2	3050	40	609
12P BOARDROOM	3rd	4.18	6.43	26.84	3050	270	644
WC 03	3rd	3.08	1.06	3.28	3050	50	975
WC 04	3rd	1.83	1.52	2.78	3050	40	900

- General Notes:
1. Lighting calculations are intended for coordination and planning purposes only.
 2. Cable routing and switching arrangements to be coordinated with reflected ceiling plans and architectural layouts.
 3. All electrical installation works shall comply with applicable UK standards and regulations.



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SUPPORT TO THE BUILDING AND ANY ADJACENT
STRUCTURES.

REV. NO.	DESCRIPTION	DATE	BY

PROJECT: OFFICE ELECTRICAL DESIGN

TITLE: LIGHTING LUX
CALCULATION REPORT

PROJ. NO.	PROJ. ENGR. AA	SCALE @ 24X36: N/A
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DATE : May 11, 2026

DRAWING NO. E-12	REV.
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GENERAL SPECIFICATIONS
1. GENERAL (All specifications on this sheet as applicable)
A. Work indicated on these drawings is diagrammatic and shall not be scaled. The drawings are intended to convey the scope of works and indicate the general arrangement of engineered systems. The Contractor shall verify all existing site conditions, dimensions, and services and make all necessary adjustments to complete the works in accordance with the Contract Documents.
B. Provide all labour, materials, plant, tools, equipment, and services required to execute the works in accordance with the Contract Documents. All supplementary or incidental items necessary for a complete, safe, and fully operational installation shall be deemed included, whether or not specifically shown, at no additional cost to the Client.
C. All equipment under this contract shall be fully installed, tested, commissioned, and left operational to the satisfaction of the Client and Engineer. These drawings are intended to represent finished works, tested and ready for use. Wherever the word "provide" is used, it shall mean supply, install, test, and commission complete.
D. All materials and equipment shall be new, of first quality, UKCA/CE marked where applicable, and compatible with existing systems. Installation shall be carried out strictly in accordance with manufacturers' recommendations, relevant British Standards, and recognised good engineering practice.
E. Where existing pipework, ductwork, containment, cabling, or other obstructions are encountered, the Contractor shall remove, reroute, rearrange, or relocate such items as necessary, subject to approval, at no additional cost.
F. The Contractor shall obtain written approval prior to cutting or forming penetrations through slabs, walls, ceilings, roofs, or shafts for services. All disturbed areas shall be made good using matching materials and finishes. All penetrations through fire-resisting elements shall be sealed with approved fire-stopping systems to maintain fire integrity in accordance with Building Regulations Approved Document B.
G. The Contractor shall maintain a clean and safe site at all times. Waste and debris shall be removed regularly. Upon completion, all tools, surplus materials, and temporary works shall be removed and the site left clean and ready for occupation.
2. COORDINATION AND PROGRAMMING
A. The Contractor shall fully coordinate and programme the works of all trades. All existing site conditions shall be verified to avoid conflicts in routing, sequencing, and installation.
B. The Contractor shall be responsible for full coordination between all subcontractors, suppliers, statutory authorities, utility providers, Building Control, the Architect/Engineer, building management, and the Client.
C. No work shall commence until accurate site measurements and verification of existing structures, ceilings, services, and retained installations have been completed, where these may affect the installation of new systems or equipment.
D. Works shall be phased and programmed to minimise disruption to occupied areas. A detailed programme shall be submitted for approval. Temporary partitions, dust control, and protective barriers shall be provided where necessary.
E. The Contractor shall provide a minimum of fourteen (14) days' written notice prior to any required shutdown of utilities and shall obtain written approval before proceeding.
F. The Contractor shall be deemed to have examined the premises and understood all conditions under which the works are to be carried out. No allowance shall be made for errors or omissions arising from failure to inspect the site.
3. CODES, PERMITS, AND INSPECTIONS (UK)
A. All works shall be carried out in accordance with the latest applicable UK legislation, regulations, and standards. The Contractor shall obtain and pay for all required permits and approvals and arrange all inspections by the relevant Authorities Having Jurisdiction.
B. Final approval and sign-off by Building Control and all relevant authorities shall be obtained at project completion. All completion certificates shall be issued and provided to the Client.
C. Works shall comply with the current editions of all applicable British Standards, Building Regulations, and statutory requirements enforced at the project location.
D. Codes and standards referenced represent minimum requirements. Where Contract Documents require a higher standard, the Contract Documents shall take precedence. Any conflicts shall be reported in writing prior to commencement.
E. The Contractor shall comply with all Health and Safety Executive (HSE) requirements, including the Health and Safety at Work Act 1974 and CDM Regulations 2015.
F. The Contractor shall comply with all requirements of statutory utility providers and local authorities.
4. WARRANTY
A. All works shall be free from defects in workmanship and materials for a period of twelve (12) months from the date of Practical Completion. Any defects arising within this period shall be rectified by the Contractor at no additional cost.
5. SHOP DRAWINGS
A. Shop drawings and product data shall be submitted electronically to the Engineer, Architect, and Client for approval. Submittals shall include manufacturers' technical data and certified performance information for all new equipment.
6. RECORD DRAWINGS / AS-BUILTS
A. The Contractor shall maintain a complete and up-to-date set of marked-up drawings on site, recording all changes made during construction. Final as-built drawings and associated documentation shall be submitted to the Client upon completion of the works.

SPRINKLER SYSTEM SPECIFICATIONS
A. The building is presently fully protected by an automatic fire sprinkler system. Modify and extend the existing system in accordance with the new layouts shown by the Architectural drawings.
B. All works shall be carried out by an LPCB-approved and third-party certified fire sprinkler contractor, experienced in installations of a similar nature and complexity and familiar with current UK standards and regulations.
C. The Contractor shall familiarise themselves with the existing sprinkler pipework layout. Ceiling voids are restricted and require full coordination with all building services. Sprinkler mains and branch pipework shall be rerouted as necessary to avoid clashes with lighting, ductwork, diffusers, pipework, equipment, and ceiling level changes. Claims arising from lack of coordination shall not be accepted.
D. All sprinkler works shall be designed and installed to the appropriate hazard classification in accordance with BS EN 12845, Approved Document B, and the requirements of the local Fire and Rescue Authority. Within thirty (30) days of contract award, submit full technical submittals to the Engineer for approval, including pipework, hangers, sprinkler heads, and associated components, together with any information required by the Authorities Having Jurisdiction.
E. Prior to commencement of works, the Contractor shall verify all site dimensions and examine adjacent works upon which the sprinkler installation depends. Any discrepancies or conflicts shall be reported in writing before installation proceeds.
F. Provide all pipework, fittings, valves, supports, and accessories necessary to connect the new sprinkler works to the existing system.
G. Coordinate all shutdowns of the existing sprinkler system with the Client. Shutdown duration shall be kept to an absolute minimum and carried out at times agreed with the Client.
H. Open ceiling voids or plenum spaces exceeding 900 mm in depth shall be sprinkler-protected in accordance with BS EN 12845 requirements.
I. Provide a twelve (12) month warranty covering all sprinkler system materials and workmanship under this project.
J. The Contractor shall obtain and pay for all permits, approvals, and certifications required for the sprinkler works.
K. The Contractor shall obtain all necessary water supply and flow test data required to carry out hydraulic calculations for the sprinkler system.
L. Where connecting to the existing system, pipework, fittings, and sprinkler head types shall match the existing installation unless otherwise approved.
M. Submit all sprinkler design drawings, calculations, and documentation to the local Fire Authority and/or Building Control for approval. Upon approval, provide the Client with one (1) approved construction set prior to installation and two (2) sets of as-built drawings upon completion.
N. All sprinkler pipework shall be installed above ceilings, within walls, or in concealed spaces. All cutting, making good, and reinstatement required for sprinkler installation shall be included within the Contractor's scope of works.
O. Upon completion, the sprinkler system shall be hydrostatically tested in accordance with BS EN 12845 and local authority requirements. Testing shall be witnessed where required. Provide a minimum of three (3) days' notice prior to testing and submit completed test certificates and commissioning documentation upon successful completion.

PLUMBING GENERAL NOTES & SPECIFICATIONS
A. All water supply and vent pipework shall be routed as high as practicable and concealed above ceilings unless noted otherwise. All soil and waste pipework shall be routed as high as practicable below floor slab or floor structure unless noted otherwise.
B. All soil and waste pipework shall be installed at gradients appropriate to pipe size and in accordance with BS EN 12056 and Approved Document H. All gradients and invert levels shall be verified prior to installation to ensure correct falls are maintained. The Contractor shall confirm that pipe routes and connections are feasible before commencing works.
C. Provide complete and proper soil, waste, vent, hot water, and cold water connections to all fixtures and equipment, whether or not all branches, fittings, or connections are shown on the drawings. Refer to sanitary waste and water riser diagrams for pipe sizes and system configuration.
D. The potable water system shall be flushed, cleaned, and disinfected in accordance with BS EN 806, Water Supply (Water Fittings) Regulations 1999, and local water authority requirements.
E. The Plumbing Contractor shall coordinate with relevant subcontractors regarding the quantity and locations of access panels required for valves and fittings within walls and ceilings. Access panels shall be provided by the appropriate trade.
F. Where horizontal water pipework conflicts with vent pipework within wall cavities, the Contractor shall provide additional water pipe drops or alternative routing to maintain compliance and accessibility.
G. All pipe penetrations below sinks shall be sealed. All pipe penetrations through floor slabs or fire-resisting elements shall be sealed with approved fire-stopping materials in accordance with Approved Document B.
H. Provide individual isolation valves to all plumbing fixtures and appliances. Valves shall be full-bore WRAS-approved ball valves suitable for potable water systems, with threaded, compression, or soldered connections as appropriate.
I. The Contractor shall verify on site the exact location, depth, and direction of flow of all existing drainage and sewer pipework within the building and below ground prior to commencement of works.
J. All pipework shall be adequately supported from existing or new structure using suitable proprietary pipe hangers and supports. Design, selection, spacing, and installation shall comply with relevant British Standards, manufacturers' recommendations, and good engineering practice.
K. Slab Penetrations: Prior to any cutting or coring of slabs, suitable detection methods (such as ground-penetrating radar or equivalent) shall be used to identify reinforcement, post-tensioning cables, services, or conduits. Written approval from the Structural Engineer shall be obtained before proceeding.
L. The Contractor shall make good all existing finishes, surfaces, and elements damaged during construction to match existing, unless otherwise noted.
M. Provide and install dielectric or insulating unions where connections are made between dissimilar metals, as required to prevent galvanic corrosion.
N. No new pipework shall be installed above new or existing electrical switchboards, distribution boards, panelboards, or motor control centres.
O. Provide escutcheon plates at all locations where pipework passes through walls, floors, or ceilings. Plates shall fully cover penetration openings or sleeves. Finishes shall be chrome or nickel plated in exposed areas and primed/painted finish in concealed areas.

PLUMBING PIPING & INSULATION
DOMESTIC WATER PIPING
1. Above ground domestic water pipework shall be copper tube manufactured in accordance with BS EN 1057, hard-drawn (R250) temper, complete with wrought copper fittings. Joints shall be made using lead-free solder and non-corrosive flux suitable for potable water systems, installed in accordance with Water Supply (Water Fittings) Regulations 1999.
2. Provide full-bore isolation ball valves of dezincification-resistant brass or bronze construction, WRAS-approved for potable water use, with threaded, compression, or soldered ends as appropriate. Valves shall be suitable for the system operating pressure and temperature.
WASTE AND VENT PIPING
1. Soil, waste, and vent pipework shall be installed in accordance with BS EN 12056 and Approved Document H, using one of the following approved materials: Cast iron soil pipe systems to BS EN 877 Copper waste and vent pipework to BS EN 1057 Galvanised steel pipework where permitted All fittings shall be compatible with the selected pipe material and system type.
2. Plastic pipework (PVC-U, HDPE, or other approved materials) may be used for cold water, hot water, soil, waste, and vent systems where permitted by Building Regulations and the local authority. All materials shall be installed in accordance with Approved Document H. Where roofs are accessible or used by occupants, vent pipes shall terminate at a safe height above roof level in accordance with regulations.
INSULATION
1. Provide thermal insulation to all pipework and equipment in accordance with BS 5422 and Building Regulations Approved Document L. Insulation materials shall achieve appropriate fire performance classifications in accordance with BS EN 13501-1. Installation shall comply strictly with the insulation manufacturer's instructions. All cold water pipework shall be provided with a continuous vapour barrier to prevent condensation. External pipework insulation shall be protected with a suitable weather-resistant jacket.
1.1. Domestic cold water pipework: minimum 13 mm thickness 1.2. Domestic hot water pipework: minimum 25 mm thickness 1.3. Domestic circulating hot water pipework: minimum 25 mm thickness

PLUMBING CODE NOTES
1. Condensate Drainage Condensate drains shall not be connected to the sanitary sewer system and shall not discharge into mop sinks or similar plumbing fixtures. Condensate shall be disposed of in accordance with applicable plumbing codes and local AHJ requirements.
2. Water Hammer Arrestors Provide water hammer arrestors at all quick-closing valves and fixtures, including but not limited to: Water closets Dishwashers Clothes washers Other solenoid- or fast-acting valve equipment, as applicable Water hammer arrestors shall conform to ASSE 1010 and be installed in accordance with manufacturer's recommendations.
3. Trap Seal Protection Provide trap primers or approved barrier-type trap seal protection devices for all floor drains subject to evaporation or infrequent use. Trap seal protection devices shall comply with ASSE 1072 and shall be installed per the manufacturer's installation instructions.

NATURAL GAS PIPING
1. GENERAL Gas installation shall conform to the requirements of the Gas Safety (Installation and Use) Regulations (GSIUR), BS 6891, IGE/MUP/2, IGE/MUP/1, and all applicable UK standards and Local Authority / Gas Transporter requirements.
2. PIPING A. Steel Pipe – 50 mm (2") and Smaller Carbon steel pipework shall comply with BS EN 10255 (Medium Grade), black steel, threaded ends. Threaded joints shall be in accordance with BS 21. Malleable iron threaded fittings shall comply with BS EN 10242, Class A or B. B. Steel Pipe – 65 mm (2½") and Larger Carbon steel pipework shall comply with BS EN 10255 (Medium or Heavy Grade), welded joints. Steel butt-weld fittings shall comply with BS EN 10253.
3. VALVE LOCATIONS Gas isolation valves shall not be installed within ceiling voids or air plenums and shall remain readily accessible for operation and maintenance in accordance with BS 6891.
4. CONCEALED PIPING A. Concealed Locations Gas pipework installed in concealed locations shall use approved permanent jointing methods only. The following fittings and joint types are not permitted in concealed locations: Unions Compression fittings Gasketed joints Mechanical couplings Bushings Swing joints Running threads All concealed joints shall be welded, brazed, or threaded as permitted by UK standards.
B. Piping in Partitions Gas pipework shall not be embedded in solid walls, concrete, or masonry. Pipework routed within partitions shall be sleeved or otherwise protected against mechanical damage. Pipework passing through walls or partitions shall be sleeved and sealed in accordance with BS 6891.
5. UNIONS Where permitted, unions shall comply with BS EN 10242, malleable iron, ground-joint type, suitable for gas service, and installed only in accessible locations.
6. DIELECTRIC JOINTS Where dissimilar metals are connected, provide approved insulating joints to prevent galvanic corrosion in accordance with IGE/M standards and manufacturer recommendations.
7. CORROSION PROTECTION Where gas pipework is exposed to corrosive environments or installed externally, pipe and fittings shall be protected using: Factory-applied protective coating or Site-applied corrosion protection system suitable for gas installations Protection systems shall comply with BS EN ISO 12944 and manufacturer requirements.
8. PLUG VALVES (65 mm and Larger) Plug valves shall comply with BS EN 331 or BS EN 13774, suitable for gas service with a minimum pressure rating appropriate to the system design. Gas valves shall not be installed above ceilings.
9. GAS COCKS (50 mm and Smaller) Gas cocks shall be: CE-marked and approved for gas service Bronze or brass body Suitable for operating pressure of the system Provided with lever or square head handles Threaded connections complying with BS 21
10. BALL VALVES Ball valves shall be: Full-bore type CE-marked and approved for gas service Brass or steel body with appropriate seal Rated for the system design pressure Installed in accessible locations only
11. GAS PRESSURE REGULATORS Gas pressure regulators shall be: CE-marked and approved for gas service Suitable for the inlet pressure, outlet pressure, and gas flow rate indicated Installed in well-ventilated, accessible locations Regulators shall be vented to atmosphere where required by: The Gas Transporter The regulator manufacturer Vent piping shall: Be of the same material as the gas pipework Discharge externally to a safe, non-hazardous location Terminate with a downward-facing outlet fitted with corrosion-resistant insect screening
12. TESTING AND COMMISSIONING Gas pipework shall be pressure tested, purged, and commissioned in accordance with: BS 6891 IGE/MUP/1 or IGE/MUP/2 Gas Transporter requirements Local Authority and Building Control regulations Test certificates shall be submitted prior to system energisation.

PLUMBING SYMBOLS		
SYMBOL	ABBREVIATION	DESCRIPTION
		EXISTING PIPING OR EQUIPMENT TO REMAIN
		EXISTING PIPING OR EQUIPMENT TO BE REMOVED
	CW	DOMESTIC COLD WATER
	HW	DOMESTIC HOT WATER
	HWC	DOMESTIC HOT WATER RECIRCULATION
	WP	SANITARY SOIL AND WASTE
	VP	SANITARY VENT
	D	DRAIN LINE
	PD	PUMPED DISCHARGE
	G	NATURAL GAS
	ST	STORM WATER
		PIPE TURNING UP
		PIPE TURNING DOWN
		VALVE IN VERTICAL
		PIPE BRANCH BOTTOM TAKEOFF
		PIPE BRANCH TOP TAKEOFF
		CAPPED PIPE
		BALL VALVE
		CHECK VALVE
		UNION
		GATE VALVE
	PRV	PRESSURE REDUCING VALVE
		GAS COCK
		GAS METER
		COMBINATION BALANCING AND SHUT-OFF VALVE
	FDC	FIRE DEPARTMENT CONNECTION
		PIPE DIRECTION OF FLOW
	FD	FLOOR DRAIN
		POINT OF REMOVAL
		POINT OF CONNECTION TO EXISTING
		KEYED NOTE, DEMOLITION
		KEYED NOTE, NEW WORK

ABBREVIATIONS
(E) EXISTING TO REMAIN (R) EXISTING TO BE REMOVED AND RELOCATED (RE) RELOCATED EQUIPMENT (X) DEMOLISHED EQUIPMENT ABV ABOVE ADA AMERICANS WITH DISABILITIES ACT AFF ABOVE FINISHED FLOOR BFP BACKFLOW PREVENTER BTU BRITISH THERMAL UNITS CISPI CAST IRON SOIL PIPE INSTITUTE CLG CEILING CO CLEANOUT CONT CONTINUATION CM COFFEE MAKER DF DRINKING FOUNTAIN DFU DRAINAGE FIXTURE UNITS DN DOWN DW DISHWASHER DWG DRAWING EA EACH ELEC ELECTRIC, ELECTRICAL ELEV ELEVATION EWC ELECTRIC WATER COOLER °F DEGREES FAHRENHEIT FLOOR CLEANOUT FCO FLOOR CLEANOUT FD FLOOR DRAIN GAL GALLON, GALLONS GD GARBAGE DISPOSAL GPH GALLONS PER HOUR GPM GALLONS PER MINUTE HB HOSE BIB HD HUB DRAIN IM ICE MAKER INV INVERT ELEVATION KW KILOWATTS L LAVATORY LBS POUNDS MAX MAXIMUM MECH MECHANICAL MBH THOUSANDS OF BTU'S PER HOUR MIN MINIMUM MS MOP SINK NSF NATIONAL SANITARY FOUNDATION OD OVERFLOW DRAIN OSD OPEN SITE DRAIN PH PHASE PSI POUNDS PER SQUARE INCH RD ROOF DRAIN REF REFRIGERATOR RL RAIN LEADER RL SHOWER SK SINK SQ FT SQUARE FOOT, FEET SS SERVICE SINK TPV TRAP PRIMER VALVE TS TAMPER SWITCH TYP TYPICAL U URINAL V VOLT, VOLTS VS VENT STACK VTR VENT THROUGH ROOF W/ WITH WC WATER CLOSET WH WATER HEATER WHA WATER HAMMER ARRESTOR WS WASTE STACK

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<table><tr><th>REV. NO.</th><th>DESCRIPTION</th><th>DATE</th><th>BY</th></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr></table>				REV. NO.	DESCRIPTION	DATE	BY																												
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PROJECT: OFFICE ELECTRICAL DESIGN																																			
TITLE: PLUMBING GENERAL NOTE																																			
PROJ. NO.	PROJ. ENGR.	SCALE @ 24X36:																																	
	AA	N/A																																	
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DRAWING NO.		REV.																																	
M-00																																			



Engineer's Team LTD

Web site: www.innodez.co.uk

Email: hello@innodez.co.uk

CLIENT: FEDOR PECHININ

ADDRESS: 100 BUNHILL ROW, LONDON, EC1Y 8ND

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REV. NO.	DESCRIPTION	DATE	BY

PROJECT: OFFICE ELECTRICAL DESIGN

TITLE: DRAINAGE PLAN

PROJ. NO. AA SCALE @ 24X36: 1:1200

DATE : May 11, 2026

DRAWING NO. M-01 REV.

PLUMBING LEGEND	
	BALL VALVE (BV)
	GATE VALVE (GV)
	MIXING VALVE (MV)
	FLOOR CLEAN OUT (FCO)
	FLOOR DRAIN (FD)
	HUB DRAIN (HD)
	FLOOR SINK (FS)
	PIPE TURNING UP
	PIPE TURNING DOWN
	EXISTING PIPE
	NEW PIPE
	INSTANT WATER HEATER
	GAS METER
	WATER METER
LINES TYPE LEGEND	
	COLD WATER LINE (CW)
	HOT WATER LINE (HW)
	SEWER LINE (S)
	GAS LINE (G)

NOTE:

Scope & Regulatory Compliance
This Plumbing Layout Plan has been prepared for 100 Bunhill Row, London, EC1Y 8ND, United Kingdom
All plumbing systems—including potable cold water supply, hot water generation and distribution, sanitary drainage, venting, stormwater systems, plumbing fixtures, backflow prevention, and associated materials—have been designed and documented to comply with all applicable statutory building regulations, water supply regulations, public health requirements, and water hygiene obligations applicable in England and enforced by the local authority and statutory undertakers.
The design also incorporates measures to control the risk of Legionella bacteria in accordance with current health and safety legislation and guidance.
Applicable Codes, Standards & Regulatory Framework
The plumbing design and installation are based on the following current UK regulations, guidance documents, and standards, as adopted and enforced in England:
a. The Building Regulations 2010 (as amended) – statutory framework governing building works, including plumbing installations, sanitation, drainage, water supply, hygiene, safety, and water efficiency.
b. Approved Document G – Sanitation, Hot Water Safety and Water Efficiency – guidance on the provision of wholesome water, prevention of scalding, water efficiency, and sanitary facilities.
c. Approved Document H – Drainage and Waste Disposal – requirements for foul water drainage, surface water disposal, ventilation, and protection against contamination.
d. The Water Supply (Water Fittings) Regulations 1999 – legal requirements controlling the design, installation, and maintenance of water fittings to prevent contamination, waste, misuse, undue consumption, and incorrect connection of water supplies.
e. HSE Approved Code of Practice (ACoP) L8 – "Legionnaires' disease: The control of legionella bacteria in water systems" – mandatory guidance for the assessment and control of legionella risk in hot and cold water systems.
f. Relevant British Standards (BS / BS EN) applicable to plumbing materials, fittings, pipework, testing, commissioning, and workmanship, as referenced by the above regulations and accepted professional practice.
g. Local Authority and Water Undertaker Requirements (including Thames Water or relevant statutory undertaker) for notification, inspection, approval, and commissioning of plumbing installations.

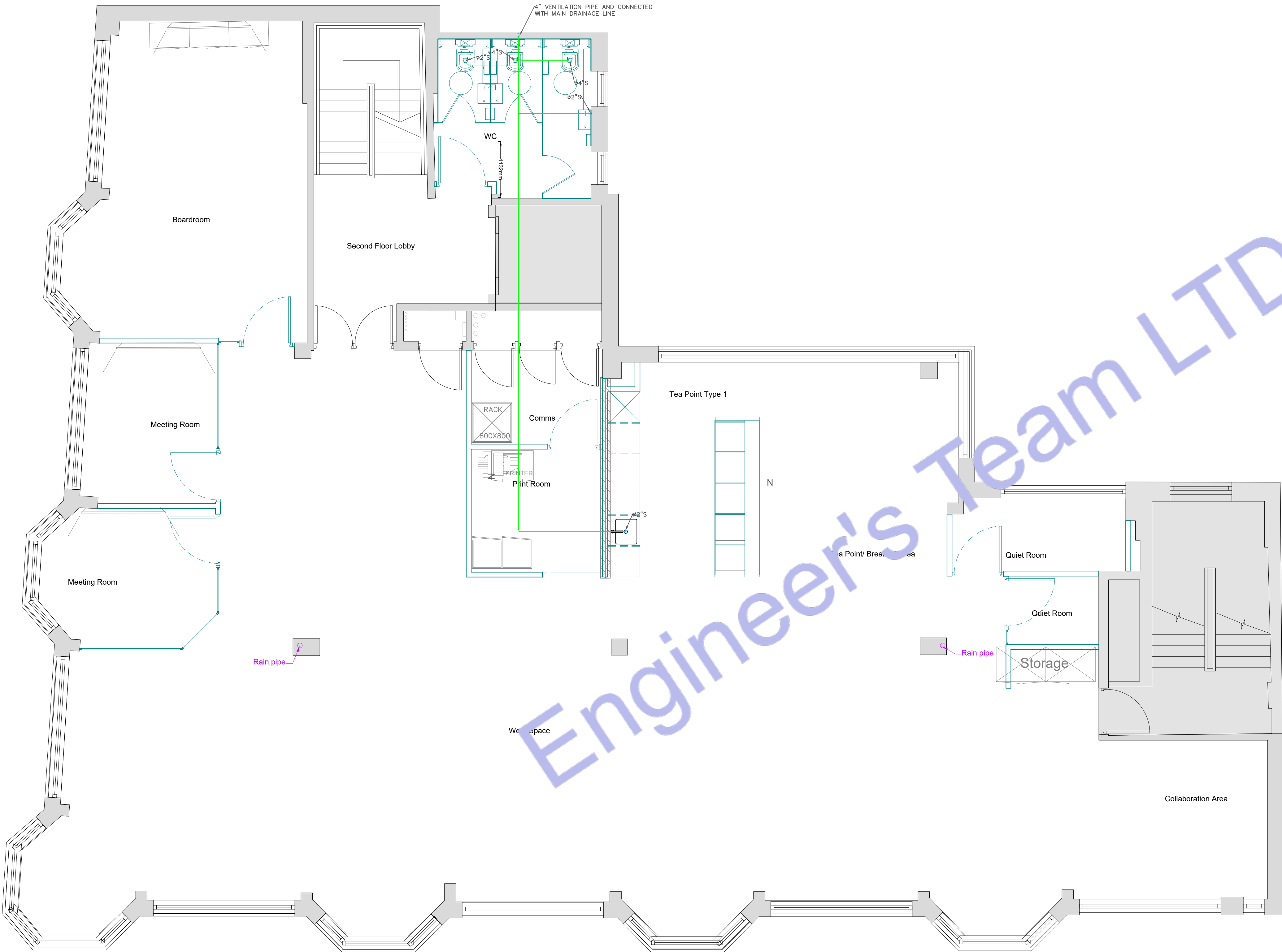
Product & Equipment Approval
"100 Bunhill Row, London, EC1Y 8ND, United Kingdom" – Product Approval Requirements
a. All plumbing products, fixtures, valves, fittings, water heaters, storage vessels, backflow prevention devices, traps, wastes, and flexible connectors shall be approved, certified, or listed by recognised third-party schemes acceptable to the Authority Having Jurisdiction (AHJ).
b. All materials and fittings in contact with potable water shall comply with Regulation 4 of the Water Supply (Water Fittings) Regulations 1999, confirming suitability for use with wholesome water.
c. Products shall be WRAS approved, or otherwise demonstrated to meet equivalent regulatory acceptance where WRAS approval is not available.
d. Manufacturer's technical data sheets, installation instructions, performance data, hygiene classifications, and test certificates shall be submitted for review where required.
e. Any proposed alternative or non-standard product shall be submitted for written approval by the design professional and AHJ prior to installation.
f. Non-compliant or unapproved products shall not be installed and shall be replaced at the contractor's cost.

Water Hygiene & Legionella Control (L8 Compliance)
a. The plumbing system design incorporates measures to minimise the risk of Legionella growth, in accordance with HSE ACoP L8 and HSG274 guidance.
b. Hot water systems shall be designed to:
Store hot water at ≥60°C
Distribute hot water such that ≥50°C is achieved at outlets within one minute (or as otherwise justified)
Provide thermostatic mixing valves (TMVs) where required for scald protection
c. Cold water systems shall be designed to maintain water temperatures below 20°C under normal operating conditions.
d. Pipework layouts shall minimise:
Dead legs and redundant pipework
Oversized storage or distribution volumes
Stagnation and low-use outlets
e. Suitable access shall be provided for inspection, flushing, disinfection, temperature monitoring, and maintenance of water systems.
f. The contractor shall support the client's dutyholder obligations by providing installation information necessary for the Legionella risk assessment and ongoing management.

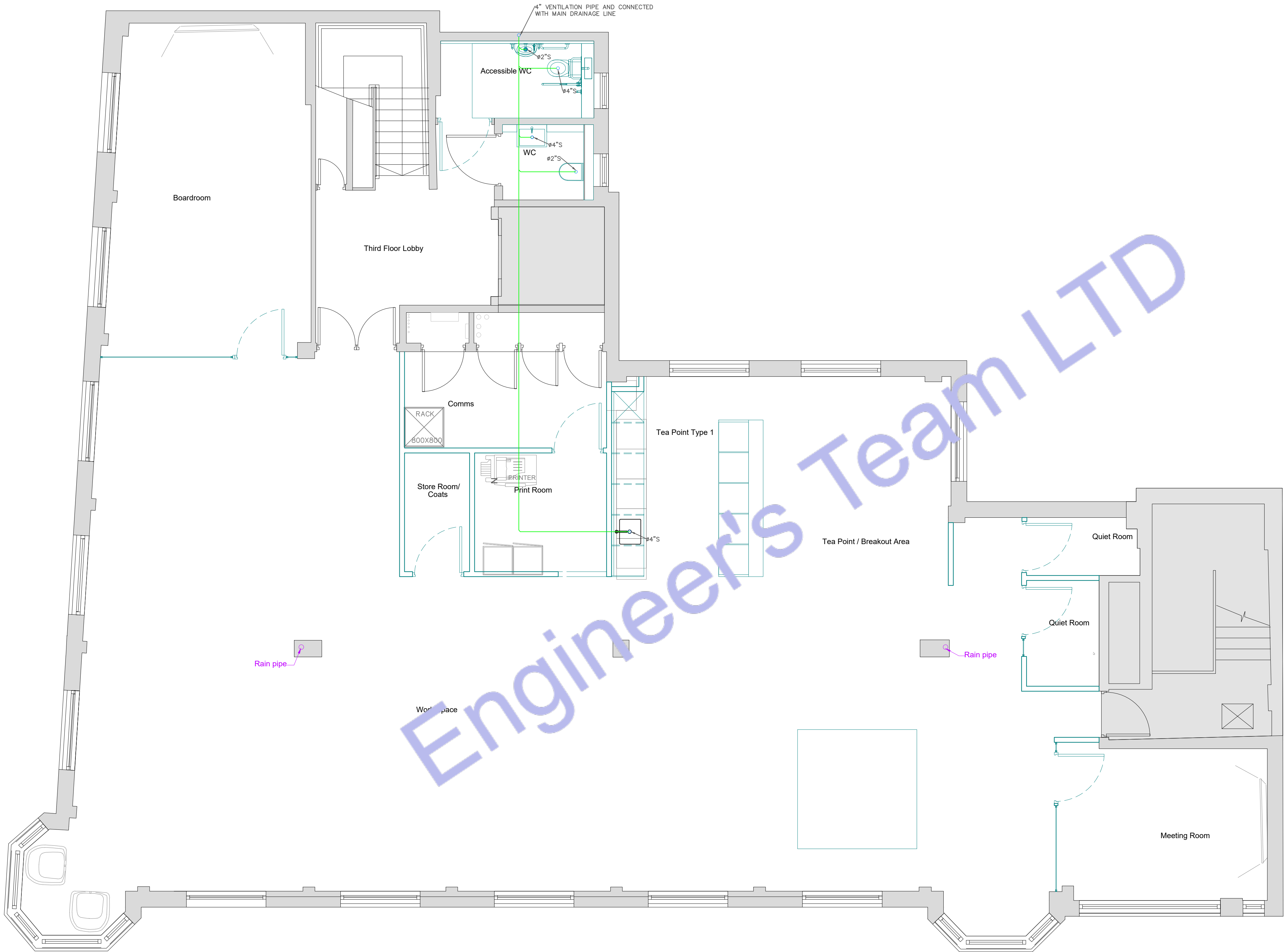
Permitting, Inspection & Statutory Compliance
a. All plumbing work shall be carried out under valid Building Control approval and, where required, notification to the relevant water undertaker in accordance with the Water Supply Regulations.
b. Plumbing installations shall be subject to staged inspections, including:
Rough-in pipework inspection
Pre-concealment testing
Final inspection and commissioning
c. All plumbing works shall be carried out or supervised by competent persons holding appropriate UK-recognised qualifications or scheme registrations, as required by regulation or Building Control.

Design & Installation Criteria / Field Coordination
a. Cold and hot water pipework shall be sized and routed to deliver adequate pressure, flow, temperature stability, and regulatory performance.
b. Drainage and vent systems shall prevent foul air ingress, trap seal loss, blockage, and contamination, and shall connect to approved foul and surface water systems.
c. Hot water systems shall incorporate temperature control, scald protection, and hygiene safeguards in accordance with Approved Document G and L8.
d. Fixture locations, maintenance clearances, and access requirements shall be coordinated with architectural, structural, fire, and MEP systems.
e. Penetrations through fire-rated elements shall be sealed with approved fire-stopping systems to maintain compartmentation integrity.

Testing, Commissioning & Documentation
a. All plumbing systems shall be tested prior to concealment for:
Leak tightness
Pressure performance
Drainage gradients
Venting integrity
b. Commissioning shall include:
Hot and cold water temperature verification
TMV operation testing
Backflow prevention verification
Flushing and disinfection where required
c. Upon completion, submit:
As-built drawings
Test and commissioning records
Manufacturer manuals
Water hygiene and compliance documentation
Deviations & Site Changes
Any deviation from the approved plumbing layout, referenced regulations, Water Supply Regulations, or L8 requirements shall be documented and submitted for written approval by the design professional and AHJ prior to implementation.
Contractor Responsibility & Design Limitation
These drawings and notes form part of the design and regulatory submission.
The contractor is responsible for:
Verification of site conditions
Safe execution and workmanship
Full compliance with Building Regulations, Water Supply Regulations, and L8
Coordination with other trades and authorities
The design professional's responsibility is limited to the defined design scope. Final installation compliance and statutory acceptance remain the contractor's obligation.



1 LEVEL 02 DRAINAG PLAN
SCALE: 1/100" = 1'-0"



PLUMBING LEGEND

BALL VALVE (BV)

GATE VALVE (GV)

MIXING VALVE (MV)

FLOOR CLEAN OUT (FCO)

FLOOR DRAIN (FD)

HUB DRAIN (HD)

FLOOR SINK (FS)

PIPE TURNING UP

PIPE TURNING DOWN

EXISTING PIPE

NEW PIPE

INSTANT WATER HEATER

GAS METER

WATER METER

LINES TYPE LEGEND

COLD WATER LINE (CW)HOT WATER LINE (HW)SEWER LINE (S)GAS LINE (G)

2 LEVEL 03 DRAINAG PLAN
SCALE: 1/100" = 1'-0"



Engineer's Team LTD
Web site: www.innodez.co.uk
Email: hello@innodez.co.uk

CLIENT: FEDOR PECHININ
ADDRESS: 100 BUNHILL ROW, LONDON, EC1Y 8ND

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REV. NO.	DESCRIPTION	DATE	BY

PROJECT: OFFICE ELECTRICAL DESIGN

TITLE: DRAINAGE PLAN

PROJ. NO.

PROJ. ENGR. AA

SCALE @ 24X36: 1:1200

DATE : May 11, 2026

DRAWING NO. M-02

REV.



Engineer's Team LTD

Web site: www.innodez.co.uk

Email: hello@innodez.co.uk

CLIENT: FEDOR PECHININ

ADDRESS:
100 BUNHILL ROW, LONDON, EC1Y 8ND

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REV. NO.	DESCRIPTION	DATE	BY

PROJECT: OFFICE ELECTRICAL DESIGN

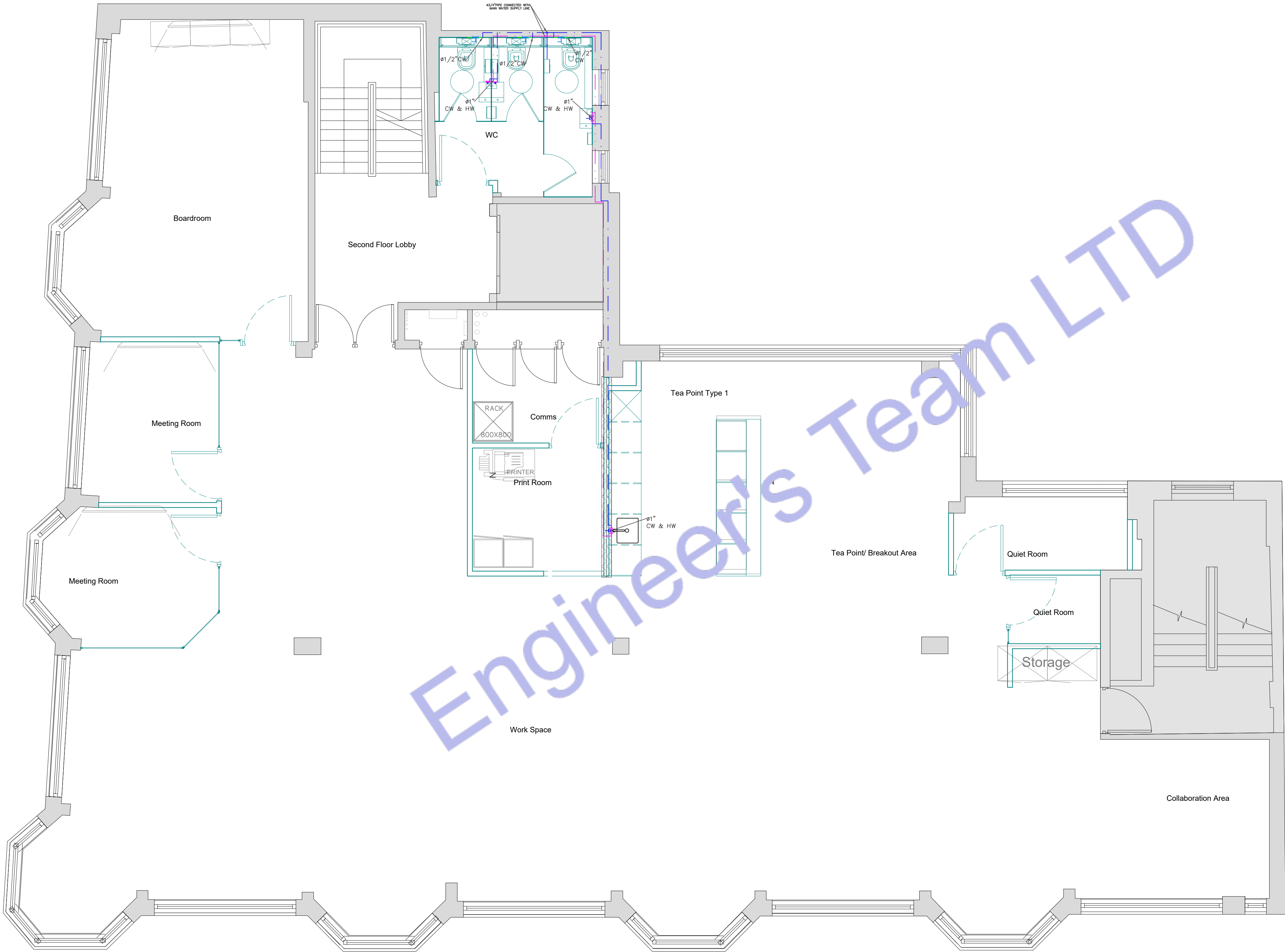
TITLE: WATER SUPPLY PLAN

PROJ. NO.	PROJ. ENGR. AA	SCALE @ 24X36: 1:1200
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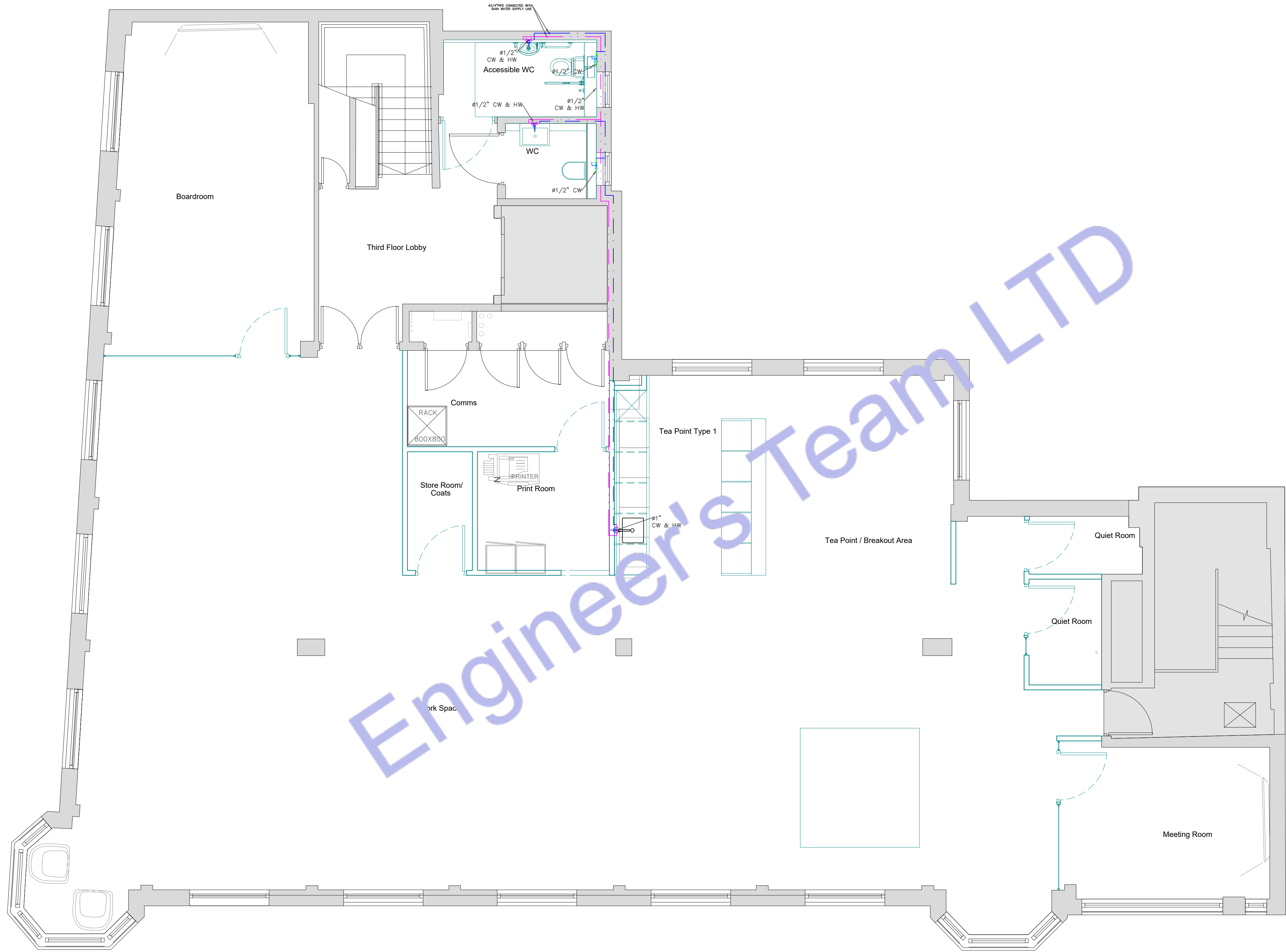
DATE : May 11, 2026

DRAWING NO. M-03	REV.
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PLUMBING LEGEND	
	BALL VALVE (BV)
	GATE VALVE (GV)
	MIXING VALVE (MV)
	FLOOR CLEAN OUT (FCO)
	FLOOR DRAIN (FD)
	HUB DRAIN (HD)
	FLOOR SINK (FS)
	PIPE TURNING UP
	PIPE TURNING DOWN
	EXISTING PIPE
	NEW PIPE
	INSTANT WATER HEATER
	GAS METER
	WATER METER
LINES TYPE LEGEND	
	COLD WATER LINE (CWL)
	HOT WATER LINE (HWS)
	SEWER LINE (S)
	GAS LINE (G)



1 LEVEL_02_WATER_SUPPLY_PLAN
SCALE: 1/100" = 1'-0"



PLUMBING LEGEND	
	BALL VALVE (BV)
	GATE VALVE (GV)
	MIXING VALVE (MV)
	FLOOR CLEAN OUT (FCO)
	FLOOR DRAIN (FD)
	HUB DRAIN (HD)
	FLOOR SINK (FS)
	PIPE TURNING UP
	PIPE TURNING DOWN
	EXISTING PIPE
	NEW PIPE
	INSTANT WATER HEATER
	GAS METER
	WATER METER
LINES TYPE LEGEND	
	COLD WATER LINE (CW)
	HOT WATER LINE (HW)
	SEWER LINE (S)
	GAS LINE (G)



Engineer's Team LTD
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REV. NO.	DESCRIPTION	DATE	BY

PROJECT: OFFICE ELECTRICAL DESIGN		
TITLE: WATER SUPPLY PLAN		
PROJ. NO.	PROJ. ENGR. AA	SCALE @ 24X36: 1:1200
DATE : May 11, 2026		
DRAWING NO. M-04		REV.

2 LEVEL 03 WATER SUPPLY PLAN
SCALE: 1/100" = 1'-0"



Engineer's Team LTD
Web site: www.innodez.co.uk

Email: hello@innodez.co.uk

CLIENT: FEDOR PECHININ

ADDRESS:
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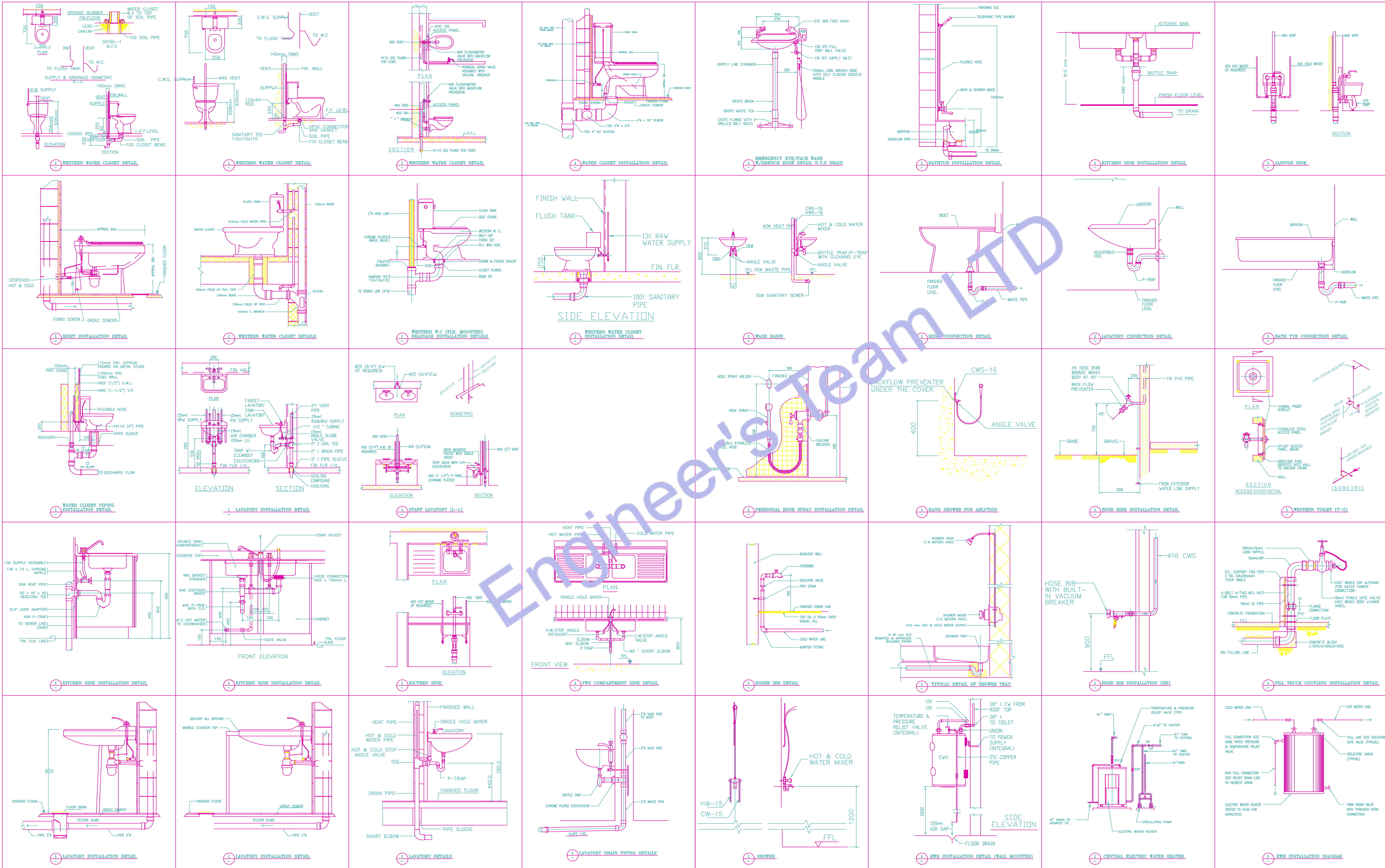
PROJECT: OFFICE ELECTRICAL DESIGN

TITLE: PLUMBING
INSTALLATION

PROJ. NO.	PROJ. ENGR.	SCALE @ 24X36:
	AA	N/A

DATE : May 11, 2026

DRAWING NO.	REV.
M-05	





Engineer's Team LTD

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Email: hello@innodez.co.uk

CLIENT: FEDOR PECHININ

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REV. NO.	DESCRIPTION	DATE	BY

PROJECT: OFFICE ELECTRICAL DESIGN

TITLE: MECHANICAL GENERAL
NOTE

PROJ. NO.	PROJ. ENGR. AA	SCALE @ 24X36: N/A
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DATE : May 11, 2026

DRAWING NO.	REV.
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M-10

GENERAL SPECIFICATIONS

1. GENERAL (ALL SPECIFICATIONS ON THIS SHEET AS APPLICABLE)

A. Work indicated on these drawings is diagrammatic and shall not be scaled. The drawings are intended to convey the scope of work and general arrangement of services. The Contractor shall verify all existing site conditions prior to installation and make all necessary adjustments to complete the works in accordance with the Contract Documents and UK statutory requirements.

B. Provide all labour, materials, plant, tools, equipment, and services necessary for the complete execution of the works in accordance with the Contract Documents. All incidental or supplementary items required for a complete, safe, and operational installation shall be deemed included, whether or not specifically shown or described, at no additional cost to the Employer.

C. All systems and equipment shall be fully installed, tested, commissioned, and left in a complete operational condition to the satisfaction of the Employer. The term "Provide" shall be interpreted as supply, install, test, and commission.

D. All materials and equipment shall be new, of good quality, fit for purpose, and compatible with existing systems where interfaces occur. Installation shall be in accordance with manufacturers' instructions, relevant British Standards, CIBSE guidance, and recognised good engineering practice.

E. Where existing services or building elements obstruct new works, the Contractor shall coordinate and rearrange such items as required, subject to approval by the Contract Administrator, and without additional cost.

F. Written approval shall be obtained prior to cutting or forming penetrations through slabs, walls, ceilings, roofs, or fire compartments. All disturbed finishes shall be reinstated to match existing. All fire-resisting elements shall be reinstated to maintain required fire resistance in accordance with Approved Document B.

G. Maintain the site in a clean and safe condition at all times in accordance with CDM Regulations 2015. Remove waste daily. Upon completion, clear the site of all tools, materials, and debris and leave areas clean and ready for occupation.

2. COORDINATION AND PROGRAMMING

A. The Contractor shall fully coordinate all trades and verify existing conditions to prevent clashes in routing, access, or programme.

B. The Contractor is responsible for coordination between subcontractors, suppliers, statutory authorities, utility providers, the Client, and the Design Team.

C. No installation shall commence until all site dimensions, structural constraints, existing services, and retained fixtures have been verified.

D. Works shall be programmed and phased to minimise disruption to occupied areas. A detailed programme shall be submitted for approval. Temporary partitions or protection shall be provided where required.

E. Provide a minimum of fourteen (14) days' written notice prior to any planned shutdown of utilities. Written approval shall be obtained before shutdown.

F. The Contractor shall be deemed to have inspected the site and fully understood all conditions affecting the works. No claims shall be entertained for failure to do so.

3. STATUTORY COMPLIANCE, PERMITS AND INSPECTIONS (UK)

A. All works shall comply with the latest editions of applicable UK legislation and standards, including but not limited to:

Building Regulations (England/Wales)

Approved Documents A, B, F, G, L, M

BS and EN Standards

CIBSE Guides

Health and Safety at Work Act 1974

CDM Regulations 2015

B. The Contractor shall obtain all required approvals, inspections, and completion certificates from Building Control and relevant Authorities Having Jurisdiction.

C. All works shall comply with statutory utility provider requirements and local authority regulations.

D. Where Contract Documents exceed statutory minimum requirements, the Contract Documents shall take precedence. Any conflict shall be reported in writing prior to installation.

E. The Contractor shall comply with all UK health, safety, and environmental legislation, including COSHH and waste management regulations.

F. All works shall comply with the requirements of relevant utility companies and network operators.

4. WARRANTY

A. All workmanship and materials shall be warranted for a minimum period of twelve (12) months from the date of Practical Completion. Defects arising during this period shall be remedied at no cost to the Employer.

5. SHOP DRAWINGS

A. Submit electronic shop drawings, manufacturers' data sheets, and performance information for all equipment for review and approval prior to installation.

6. RECORD DRAWINGS / AS-BUILT INFORMATION

A. Maintain a complete set of marked-up drawings on site recording all changes. Upon completion, provide electronic and hard-copy as-built drawings and manuals in accordance with CIBSE TM31 / Soft Landings principles, if applicable.

DUCTWORK & INSULATION

SHEET METAL DUCTWORK

A. All ductwork shall be galvanised steel fabricated and installed in accordance with DW/144 and BS EN 1507 / BS EN 12237.

B. All ductwork routes shall be site-verified prior to fabrication.

C. Duct leakage classes shall comply with DW/143. Testing shall be carried out where required.

D. Turning vanes shall be installed in elbows as recommended by DW/144.

E. Flexible duct connections shall be limited in length and installed in accordance with BS EN 13180.

F. Exposed ductwork shall be single-skin galvanised steel with approved seams.

DUCT INSULATION & ACOUSTIC LINING

Thermal Insulation
Insulation thickness shall comply with Approved Document L and CIBSE Guide A.

Insulation Materials
Insulation shall achieve appropriate fire performance in accordance with BS EN 13501-1.

Acoustic Lining
Acoustic lining shall comply with BS EN ISO 11654 and be mould-resistant.

PIPING & INSULATION

REFRIGERANT & CONDENSATE PIPEWORK

1. Refrigerant pipework shall comply with BS EN 378 and manufacturer requirements.

1. Pipe identification shall comply with BS 1710.

3. Pipe routing shall not obstruct equipment servicing.

4. Condensate pipework shall be PVC-U or equivalent and installed to falls per Approved Document H.

5. Traps shall be provided where required.

6. Dissimilar metals shall be isolated to prevent corrosion.

PIPE INSULATION

1. Pipe insulation shall comply with Approved Document L.

2. External insulation shall be weather-protected.

3. Fire stopping shall comply with Approved Document B and BS 476 / BS EN 1366.

MECHANICAL CODE NOTES

1. No ductwork or pipework shall be installed above electrical switchgear, distribution boards, or control panels in accordance with BS 7671 and good engineering practice.

2. Materials within air plenums shall be non-combustible or achieve Class 0 or Class A2-s1,d0 resistance to fire in accordance with Approved Document B and BS EN 13501-1.

3. Verify roof warranty status prior to works. All roof penetrations shall be carried out by approved contractors.

4. Ductwork and horizontal pipework shall be installed as high as practicable and coordinated to avoid clashes.

5. Provide adequate access for maintenance, filter replacement, valves, and electrical isolation in accordance with CIBSE Guide M.

6. Structural approval shall be obtained for equipment loads exceeding manufacturer or structural limits.

7. Motorised dampers shall be provided on all outdoor air and exhaust air ducts where required by Approved Document F.

8. Provide balancing dampers on all main and branch ducts.

9. Fire dampers shall be installed where ductwork penetrates fire compartments in accordance with BS 9999 and BS EN 1366.

10. Provide access panels for fire, smoke, and control dampers.

11. Access panels shall be provided for all concealed valves and dampers.

12. Provide remote volume control where dampers are inaccessible.

13. External vents shall be corrosion-resistant and suitable for UK environmental conditions.

CONTROLS

- Controls installation and commissioning shall be undertaken by competent specialists.
- Thermostats shall be insulated from cold bridging on external walls.
- Thermostats shall be installed at appropriate heights and coordinated with the Design Team.
- Provide all required interfaces for full system control.
- Demonstrate and commission all systems prior to handover in accordance with CIBSE Commissioning Codes.

TESTING & BALANCING

- Scope
Testing and balancing shall be carried out by competent commissioning specialists in accordance with CIBSE Commissioning Codes A, B, and M.
- Pre-conditions
All systems shall be complete, clean, and operational prior to commissioning.
- Documentation
Provide commissioning reports demonstrating compliance with design performance.
- Recorded Data
Record airflow rates, temperatures, capacities, and electrical data.
- Functional Testing
Demonstrate heating and cooling operation and record performance results.

ABBREVIATIONS

(E)	EXISTING TO REMAIN	IN WG	INCHES OF WATER GAUGE
(R)	EXISTING TO BE REMOVED AND RELOCATED	KW	KILOWATTS
(RE)	RELOCATED EQUIPMENT	LAT	LEAVING AIR TEMPERATURE
ACU	AIR CONDITIONING UNIT	LBS	POUNDS
AFF	ABOVE FINISHED FLOOR	LRA	LOCKED ROTOR AMPS
AHU	AIR HANDLING UNIT	LWT	LEAVING WATER TEMPERATURE
BAL	BUILDING AUTOMATION SYSTEM	MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
BTU	BRITISH THERMAL UNITS PER HOUR	MCA	MINIMUM CIRCUIT AMPACITY
CFM	CUBIC FEET PER MINUTE	MIN	MINIMUM
CLG	CEILING	MOCP	MAX OVER-CURRENT PROTECTION
DE	DRY BULB TEMPERATURE	OA	OUTSIDE AIR
DN	DOWN	PD	PRESSURE DROP
ENT	ENTERING AIR TEMPERATURE	PH	PHASE
EF	EXHAUST FAN	PSI	POUNDS PER SQUARE INCH
EFF	EFFICIENCY	RA	RETURN AIR
ESP	EXTERNAL STATIC PRESSURE	RH	RELATIVE HUMIDITY
EWB	ENTERING WET BULB TEMPERATURE	RLA	RUNNING LOAD AMPS
EWT	ENTERING WATER TEMPERATURE	RPM	REVOLUTIONS PER MINUTE
°F	DEGREES FAHRENHEIT	SA	SUPPLY AIR
FLA	FULL LOAD AMPS	SL	SOUND LINING
FPB	FAN POWERED BOX	TYP	TYPICAL
FT	FOOT, FEET	TF	TRANSFER FAN
GPM	GALLONS PER MINUTE	V	VOLT, VOLTS
HP	HORSEPOWER	VAV	VARIABLE AIR VOLUME
HZ	HERTZ (CYCLES PER SECOND)	W/	WITH
IN	INCH, INCHES	WB	WET BULB TEMPERATURE
		WG	WATER GAUGE

HVAC SYMBOLS

SYMBOL	DESCRIPTION
	EXISTING DUCTWORK, EQUIPMENT OR PIPING TO REMAIN
	EXISTING DUCTWORK, EQUIPMENT OR PIPING TO BE REMOVED OR RELOCATED
	NEW OR RELOCATED DUCTWORK, EQUIPMENT OR PIPING
	DUCTWORK WITH SOUNDLINING
	SUPPLY DUCT TURNING UP
	RETURN/EXHAUST DUCT TURNING UP
	SUPPLY DUCT TURNING DOWN
	RETURN/EXHAUST DUCT TURNING DOWN
	TRANSITION IN DUCT, SQUARE TO SQUARE
	TRANSITION IN DUCT, SQUARE TO ROUND
	SQUARE THROAT DUCT ELBOW WITHOUT TURNING VANES
	SQUARE THROAT DUCT ELBOW WITH TURNING VANES
	RADIUS ELBOW
	45 DEGREE TAP
	SPIN-IN RUNOUT FITTING WITH BALANCING DAMPER AND FLEXIBLE DUCT
	CONICAL TAP
	FLEXIBLE DUCT
	FLEXIBLE DUCT CONNECTION
	RECTANGULAR SUPPLY AIR DIFFUSER
	RETURN AIR GRILLE
	HUMIDISTAT, THERMOSTAT, CO2 SENSOR
	EXHAUST FAN
	SIDE WALL/DUCT REGISTER
	CFM DESIGNATION SYMBOL & QUANTITY
	KEYED NOTE, DEMOLITION
	KEYED NOTE, NEW WORK
	POINT OF REMOVAL
	POINT OF CONNECTION TO EXISTING
	DIFFUSER OR GRILLE DESIGNATION SYMBOL
	ACCESS DOOR, SIZE ON FLOOR PLANS
	RECTANGULAR SUPPLY AIR DIFFUSER
	VOLUME DAMPER
	FD: FIRE DAMPER SD: SMOKE DAMPER MD: MOTORIZED DAMPER F/SD: COMBINATION FIRE/SMOKE DAMPER BDD: BACKDRAFT DAMPER
	VAV TAG: TYPE, BOX NUMBER AIRFLOW AND KW
	VAV BOX TYPE V-SHUT-OFF TYPE VAV BOX S-SERIES FAN POWERED BOX P-PARALLEL FAN POWERED BOX



Engineer's Team LTD

Web site: www.innodez.co.uk

Email: hello@innodez.co.uk

CLIENT: FEDOR PECHININ

ADDRESS:
100 BUNHILL ROW, LONDON, EC1Y 8ND

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WORK.
4. THE CONTRACTOR IS RESPONSIBLE FOR
PROVIDING ALL NECESSARY TEMPORARY
SUPPORT TO THE BUILDING AND ANY ADJACENT
STRUCTURES.

Mechanical Legends	
	AIR SUPPLY DIFFUSER
	CHILD WATER COOLING CONDENSER
	SUPPLY AIR DIFFUSER
	MINI SPLIT CASSETTE UNIT
	EXHAUST AIR DIFFUSER
	KITCHEN CHIMNEY
	FAN COIL UNIT
	EXHAUST FAN
	MINI SPLIT OUTDOOR UNIT
	EXISTING EQUIPMENT
	NEW EQUIPMENT
	DUCT / BOX FOR AC PIPES
	AIR RETURN DUCT
	AIR SUPPLY DUCT
	HOSE FEED
	REFRIGERANT PIPE +
	REFRIGERANT PIPE -

IMPORTANT NOTE:

ALL EXISTING VAV SYSTEMS SERVING THE 2ND AND 3RD FLOORS ARE TO REMAIN AND SHALL NOT BE MODIFIED UNLESS OTHERWISE NOTED. NEW PROPOSED MINI-SPLIT UNITS ARE PROVIDED ONLY FOR THE NEWLY ENCLOSED ROOMS. PROPOSED MINI-SPLIT UNITS SHALL SERVE THE FOLLOWING SPACES:

10P BOARDROOM
12P BOARDROOM
4P MEETING ROOM 01
4P MEETING ROOM 02
5P MEETING ROOM 03

CONTRACTOR SHALL VERIFY EXISTING CONDITIONS AND COORDINATE INSTALLATION REQUIREMENTS WITH ARCHITECTURAL AND OTHER BUILDING SERVICES PRIOR TO CONSTRUCTION.

ALL AC CONDENSATE DRAINAGE TO BE PUMPED VIA CONDENSATE PUMPS AND HOSE FEEDS. GRAVITY DRAINAGE IS NOT PROPOSED.

NOTE:

SCOPE & COMPLIANCE
THIS HVAC LAYOUT PLAN HAS BEEN PREPARED FOR THE PROPERTY AT 100 BUNHILL ROW, LONDON, EC1Y 8ND, UNITED KINGDOM. ALL HEATING, VENTILATION, AIR-CONDITIONING, DUCTWORK, PLANT, CONTROLS, AND ASSOCIATED MECHANICAL SYSTEMS SHOWN ON THIS PLAN ARE DESIGNED TO COMPLY WITH THE APPLICABLE AND CURRENTLY ADOPTED NATIONAL AND LOCAL BUILDING REGULATIONS, STANDARDS, GUIDANCE, PERFORMANCE REQUIREMENTS, AND PRODUCT APPROVAL CRITERIA ENFORCED BY THE UK GOVERNMENT (ENGLAND) AND RELEVANT AUTHORITIES HAVING JURISDICTION.

APPLICABLE BUILDING REGULATIONS & APPROVED DOCUMENTS
THE HVAC DESIGN HAS BEEN DEVELOPED IN ACCORDANCE WITH THE BUILDING REGULATIONS 2010 (AS AMENDED) AND RELEVANT APPROVED DOCUMENTS WHICH FORM THE STATUTORY CODE FOR BUILDING DESIGN AND CONSTRUCTION IN ENGLAND. THE PRINCIPAL REGULATORY PROVISIONS APPLICABLE TO HVAC SYSTEMS INCLUDE:
A. APPROVED DOCUMENT PART F – VENTILATION (REQUIREMENTS FOR VENTILATION, INDOOR AIR QUALITY, AND MECHANICAL SYSTEMS INCLUDING MECHANICAL VENTILATION WITH HEAT RECOVERY).
B. APPROVED DOCUMENT PART L – CONSERVATION OF FUEL AND POWER (REQUIREMENTS FOR ENERGY EFFICIENCY OF FIXED BUILDING SERVICES INCLUDING HEATING AND COOLING PLANT, CONTROLS, AND SYSTEM EFFICIENCY, AND ALIGNMENT WITH NATIONAL ENERGY PERFORMANCE POLICY).
C. BUILDING REGULATIONS 2010 AND SUBSEQUENT AMENDMENTS GOVERNING THE DESIGN AND INSTALLATION OF MECHANICAL SERVICES TO ENSURE SAFETY, HEALTH, ENVIRONMENTAL QUALITY AND COMPLIANCE.
D. RELEVANT STATUTORY REQUIREMENTS UNDER THE BUILDING SAFETY ACT 2022 AND ASSOCIATED REGULATORY FRAMEWORK FOR DESIGN, CONSTRUCTION, COMMISSIONING, AND HANDOVER PROCESSES WHERE APPLICABLE.

INDUSTRY STANDARDS, GUIDANCE & BEST PRACTICE
TO SUPPORT COMPLIANCE WITH THE REGULATORY FRAMEWORK AND BEST DESIGN PRACTICE, THE FOLLOWING PROFESSIONAL STANDARDS, CODES OF PRACTICE, DESIGN GUIDES AND COMMISSIONING PROCEDURES HAVE BEEN ADOPTED:
A. CIBSE (CHARTERED INSTITUTION OF BUILDING SERVICES ENGINEERS) GUIDES – INCLUDING GUIDANCE ON VENTILATION, THERMAL COMFORT, ENERGY USE AND INDOOR AIR QUALITY AS APPLICABLE TO HVAC IN COMMERCIAL BUILDINGS.
B. CIBSE COMMISSIONING CODES – FOR AIR DISTRIBUTION, CONTROL SEQUENCES, SYSTEM COMMISSIONING, AND BALANCING OF HVAC SYSTEMS.
C. BRITISH STANDARDS (BS EN / BS) AS APPLICABLE TO HVAC PRODUCT AND SYSTEM PERFORMANCE, DUCT TESTING, AIRFLOW MEASUREMENT (E.G., BS EN 12599, BS EN 16211), SMOKE CONTROL, EXHAUST SYSTEMS, AND OTHER HVAC-RELATED ELEMENTS.
D. RECOGNISED INDUSTRY GUIDANCE FOR SELECTION OF PLANT, DUCTWORK, CONTROLS, AIRFLOW, BALANCING, CONTROL STRATEGIES AND INTEGRATION WITH BUILDING SYSTEMS IN THE UK CONTEXT.

MANDATORY DESIGN REQUIREMENTS
A. VENTILATION SYSTEMS (NATURAL, MECHANICAL EXTRACT, MECHANICAL SUPPLY & EXTRACT, OR MECHANICAL VENTILATION WITH HEAT RECOVERY) HAVE BEEN SIZED AND CONFIGURED TO MEET MINIMUM FRESH AIR SUPPLY RATES, EXTRACTOR RATES AS SET BY VENTILATION PERFORMANCE PRESCRIBED IN APPROVED DOCUMENT PART F.
B. ENERGY PERFORMANCE OF HEATING AND COOLING SERVICES, CONTROLS AND ASSOCIATED PLANT HAS BEEN DESIGNED IN ACCORDANCE WITH THE PRINCIPLES AND MINIMUM STANDARDS OF APPROVED DOCUMENT PART L.
C. ALL SYSTEM DESIGN, SIZING, CONTROL SEQUENCES AND INTEGRATION WITH BUILDING SERVICES CONSIDER OCCUPANT COMFORT, AIR QUALITY, THERMAL PERFORMANCE, ACOUSTIC CRITERIA, MAINTAINABILITY, AND COMPATIBILITY WITH OTHER BUILDING SYSTEMS AND ARCHITECTURAL CONSTRAINTS.

PRODUCT & EQUIPMENT APPROVAL – 100 BUNHILL ROW, LONDON, EC1Y 8ND, UNITED KINGDOM. PRODUCT APPROVAL CODES:
A. ALL HVAC EQUIPMENT AND COMPONENTS INCLUDING BUT NOT LIMITED TO AIR HANDLING UNITS, FANS, CHILLERS, HEAT PUMPS, BOILERS, TERMINAL DEVICES, HEAT RECOVERY UNITS, DAMPERS, CONTROLS, SENSORS, FILTERS AND ACCESSORIES MUST BE CERTIFIED, TESTED AND LISTED FOR USE IN THE UNITED KINGDOM.
B. PRODUCTS SHALL CARRY APPROPRIATE CONFORMITY MARKINGS SUCH AS UKCA, CE (WHERE APPLICABLE), OR RECOGNISED THIRD-PARTY CERTIFICATION DEMONSTRATING COMPLIANCE WITH PRODUCT PERFORMANCE, SAFETY AND ENVIRONMENTAL STANDARDS.
C. MANUFACTURER DOCUMENTATION INCLUDING PERFORMANCE DATA, INSTALLATION INSTRUCTIONS, CONTROL SEQUENCES, SERVICE CLEARANCES AND MAINTENANCE REQUIREMENTS MUST BE SUBMITTED TO THE DESIGN PROFESSIONAL AND THE AUTHORITY HAVING JURISDICTION AS PART OF PRODUCT APPROVAL AND PLAN CHECKING.
D. ANY PROPOSED ALTERNATE OR NON-STANDARD PRODUCT SHALL BE SUBMITTED IN WRITING AND MUST BE APPROVED BY THE DESIGN PROFESSIONAL AND THE AHJ PRIOR TO PROCUREMENT AND INSTALLATION.
E. PRODUCTS NOT MEETING CURRENT UK REGULATORY OR CERTIFICATION REQUIREMENTS SHALL NOT BE INSTALLED.

PERMITTING, INSPECTION & CERTIFICATION
A. PRIOR TO COMMENCING INSTALLATION, THE APPROPRIATE BUILDING CONTROL APPROVAL AND PERMITS MUST BE OBTAINED FROM THE RELEVANT LOCAL AUTHORITY IN LONDON.
B. ALL STAGES OF HVAC INSTALLATION INCLUDING DUCTWORK, PLANT SETUP, CONTROLS, SYSTEM INTEGRATION, TESTING AND COMMISSIONING SHALL BE INSPECTED, VERIFIED AND CERTIFIED AS REQUIRED BY THE BUILDING REGULATIONS FRAMEWORK AND LOCAL INSPECTION PROTOCOLS.
C. SYSTEM COMMISSIONING REPORTS, BALANCING DOCUMENTATION AND EVIDENCE OF COMPLIANCE WITH PART F AND PART L PROVISIONS SHALL BE PROVIDED TO BUILDING CONTROL FOR FINAL ACCEPTANCE.

INSTALLATION & COORDINATION REQUIREMENTS
A. HVAC COMPONENTS AND SYSTEMS MUST BE INSTALLED IN ACCORDANCE WITH THE DESIGN DOCUMENTS, MANUFACTURER INSTRUCTIONS, RELEVANT STANDARDS AND HEALTH & SAFETY REQUIREMENTS.
B. COORDINATION WITH OTHER SERVICES (ELECTRICAL, FIRE PROTECTION, PLUMBING, STRUCTURAL) SHALL BE UNDERTAKEN TO ENSURE PROPER CLEARANCES, PENETRATION PROTECTION, INSULATION, ACCESS FOR MAINTENANCE, VIBRATION ISOLATION AND INTERFACE WITH BUILDING CONTROL SYSTEMS.
C. PENETRATIONS THROUGH FIRE-RATED ELEMENTS AND OTHER PROTECTIVE BARRIERS SHALL BE SEALED AND REINSTATED IN COMPLIANCE WITH FIRE SAFETY REQUIREMENTS.

TESTING, COMMISSIONING & DOCUMENTATION
A. ALL HVAC SYSTEMS SHALL BE TESTED, ADJUSTED AND BALANCED (TAB) BY QUALIFIED PERSONNEL AND SHALL DELIVER THE REQUIRED AIRFLOW, HEATING/COOLING CAPACITY AND CONTROL PERFORMANCE DOCUMENTED ON THE PLAN.
B. COMMISSIONING SHALL INCLUDE VERIFICATION OF CONTROL SEQUENCES, VENTILATION EFFECTIVENESS, AIRFLOW MEASUREMENTS AT TERMINALS, PRESSURE RELATIONSHIPS, NOISE LEVELS, ENERGY PERFORMANCE AND SAFETY INTERLOCKS.
C. AS-BUILT DRAWINGS, TEST CERTIFICATES, COMMISSIONING REPORTS, OPERATION & MAINTENANCE MANUALS AND WARRANTY DOCUMENTATION SHALL BE PROVIDED TO THE OWNER AND MADE AVAILABLE TO THE AHJ AS PART OF PROJECT COMPLETION DOCUMENTATION.

DEVIATIONS & FIELD CHANGES
ANY DEVIATION FROM THIS APPROVED LAYOUT PLAN OR FROM APPLICABLE CODES, STANDARDS OR PRODUCT APPROVALS SHALL BE DOCUMENTED AND SUBMITTED AS A FORMAL REVISION OR FIELD CHANGE REQUEST FOR REVIEW AND WRITTEN APPROVAL BY THE DESIGN PROFESSIONAL AND THE AHJ PRIOR TO IMPLEMENTATION.

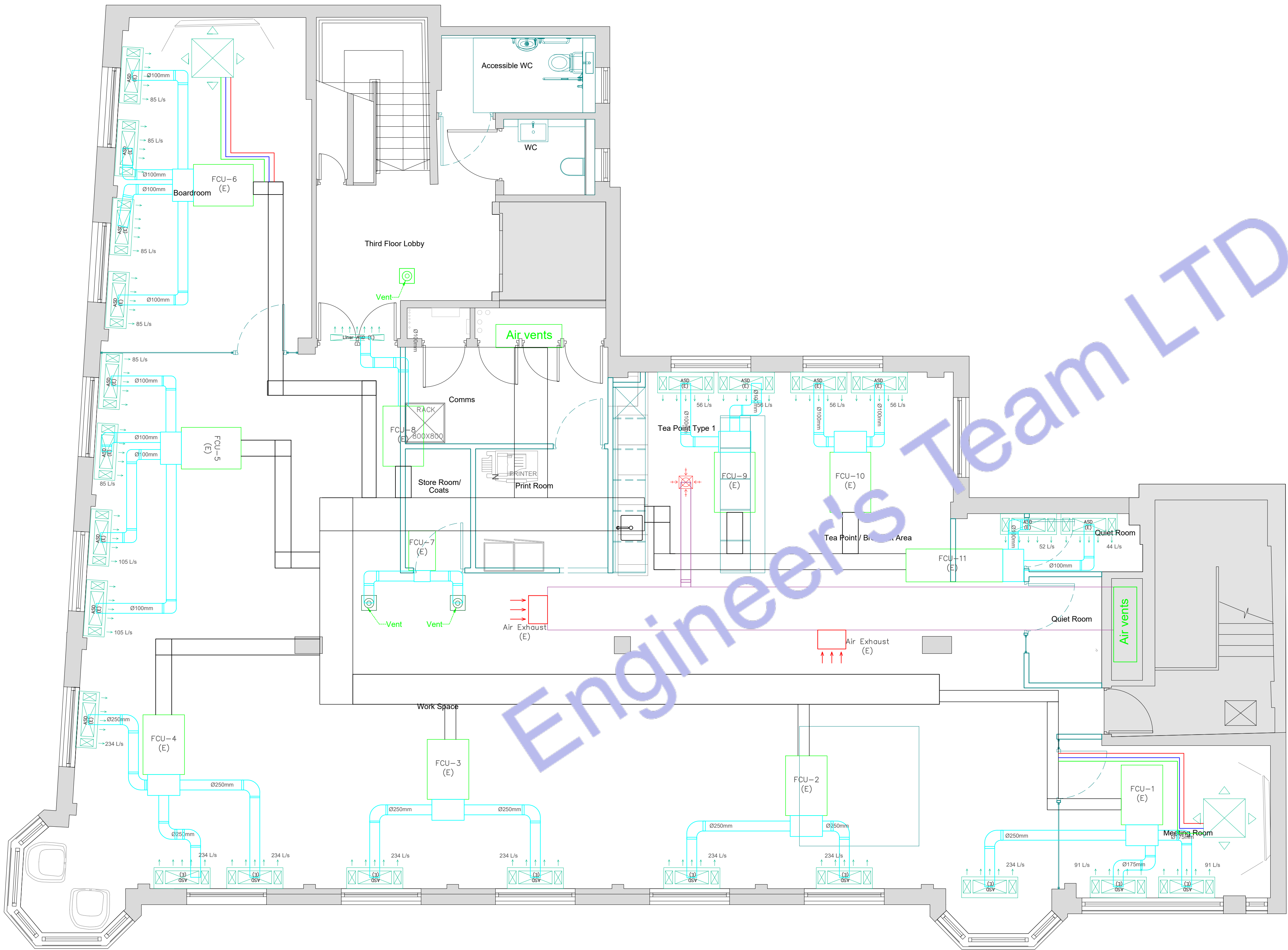
CONTRACTOR RESPONSIBILITY & LIMITATION OF DESIGN LIABILITY
THIS PLAN AND NOTE SERVE AS A DESIGN DOCUMENT FOR PERMITTING AND CONSTRUCTION COORDINATION. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING FIELD CONDITIONS, MEANS & METHODS OF INSTALLATION, COMPLIANCE WITH DESIGN AND REGULATORY REQUIREMENTS, AND FOR SAFE EXECUTION OF ALL WORK. THE DESIGN PROFESSIONAL'S RESPONSIBILITY IS LIMITED TO THE DESIGN SCOPE. FINAL INSTALLATION MUST MEET ALL REGULATORY AND STATUTORY REQUIREMENTS AS ENFORCED AT THE TIME OF CONSTRUCTION.

EXHAUST FAN SCHEDULE

MARK	SERVING	SP	WATTS	RPM	VOLTAGE	MAKE MODEL	NOTES	FAN TYPE
EF-1	BATHROOM	-	8	2400	220–240V AC	Vent-Axia Silent Fan VASF100T		IN-LINE

- NOTES**
1. COMPLETE W/BACKDRAFT DAMPER.
 2. PROVIDE THERMOSTATIC CONTROL DEVICES
 3. INTERLOCK TO OPERATE WHENEVER RTUs OPERATE.
 4. MAINTAIN A MINIMUM CLEARANCE OF 10'-0" FROM ALL INTAKE AIR FANS AND ALL ROOF TOP UNITS OUTSIDE AIR INTAKE OPENINGS.

1 LEVEL_02_HVAC PLAN
SCALE: 1/100" = 1'-0"



2 LEVEL 03 HVAC PLAN
SCALE: 1/100" = 1'-0"

Mechanical Legends	
	AIR SUPPLY DIFFUSER
	CHILD WATER COOLING CONDENSER
	SUPPLY AIR DIFFUSER
	MINI SPLIT CASSETTE UNIT
	EXHAUST AIR DIFFUSER
	KITCHEN CHIMNEY
	FAN COIL UNIT
	EXHAUST FAN
	MINI SPLIT OUTDOOR UNIT
	EXISTING EQUIPMENT
	NEW EQUIPMENT
	DUCT / BOX FOR AC PIPES
	AIR RETURN DUCT
	AIR SUPPLY DUCT
	HOSE FEED
	REFRIGERANT PIPE +
	REFRIGERANT PIPE -



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REV. NO.	DESCRIPTION	DATE	BY

PROJECT: OFFICE ELECTRICAL DESIGN

TITLE: HVAC PLAN

PROJ. NO.	PROJ. ENGR. AA	SCALE @ 24X36: 1:1200
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DATE : May 11, 2026

DRAWING NO. M-12	REV.
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Air System Sizing Summary for HVAC 10P BOARDROOM

Project Name: F_100 Bunhill Row
Prepared by: Engineer's Team LTD
05/17/2026
11:01PM

Air System Information

Air System Name HVAC 10P BOARDROOM
Equipment Class CASSETTE UNIT
Air System Type SZCAV
Number of zones 1
Floor Area 25.2 m²
Location London - Bunhill Row, United Kingdom

Sizing Calculation Information

Calculation Months Jan to Dec
Sizing Data Calculated
Zone L/s Sizing Sum of space airflow rates
Space L/s Sizing Individual peak space loads

Central Cooling Coil Sizing Data

Total coil load 4.0 kW
Sensible coil load 3.3 kW
Coil L/s at Aug 1600 259 L/s
Max block L/s 259 L/s
Sum of peak zone L/s 259 L/s
Sensible heat ratio 0.838
L/s (kW) 64.9
m³/kW 6.3
W/m² 158.3
Water flow @ 5.6 K rise N/A
Load occurs at Aug 1600
OA DB / WB 27.2 / 18.9 °C
Entering DB / WB 24.9 / 18.0 °C
Leaving DB / WB 14.1 / 13.4 °C
Coil ADP 12.7 °C
Bypass Factor 0.120
Resulting RH 52 %
Design supply temp. 12.8 °C
Zone T-stat Check 1 of 1 OK
Max zone temperature deviation 0.0 K

Central Heating Coil Sizing Data

Max coil load 2.1 kW
Coil L/s at Des Htg 259 L/s
Max coil L/s 259 L/s
Water flow @ 11.1 K drop N/A
Load occurs at Des Htg
W/m² 85.0
Ent. DB / Lvg DB 17.9 / 24.8 °C

Supply Fan Sizing Data

Actual max L/s 259 L/s
Standard L/s 259 L/s
Actual max L/(s·m²) 10.27 L/(s·m²)
Fan motor BHP 0.00 BHP
Fan motor kW 0.00 kW
Fan static 0 Pa

Outdoor Ventilation Air Data

Design airflow L/s 33 L/s
L/(s·m²) 1.29 L/(s·m²)
L/s/person 3.26 L/s/person

Air System Sizing Summary for HVAC 4P MEETING ROOM 02

Project Name: F_100 Bunhill Row
Prepared by: Engineer's Team LTD
05/17/2026
11:02PM

Air System Information

Air System Name HVAC 4P MEETING ROOM 02
Equipment Class CASSETTE UNIT
Air System Type SZCAV
Number of zones 1
Floor Area 6.6 m²
Location London - Bunhill Row, United Kingdom

Sizing Calculation Information

Calculation Months Jan to Dec
Sizing Data Calculated
Zone L/s Sizing Sum of space airflow rates
Space L/s Sizing Individual peak space loads

Central Cooling Coil Sizing Data

Total coil load 3.0 kW
Sensible coil load 2.7 kW
Coil L/s at Aug 1500 211 L/s
Max block L/s 211 L/s
Sum of peak zone L/s 211 L/s
Sensible heat ratio 0.907
L/s (kW) 69.9
m³/kW 2.2
W/m² 458.1
Water flow @ 5.6 K rise N/A
Load occurs at Aug 1500
OA DB / WB 26.9 / 18.8 °C
Entering DB / WB 24.6 / 17.4 °C
Leaving DB / WB 13.8 / 13.0 °C
Coil ADP 12.3 °C
Bypass Factor 0.120
Resulting RH 49 %
Design supply temp. 12.8 °C
Zone T-stat Check 1 of 1 OK
Max zone temperature deviation 0.0 K

Central Heating Coil Sizing Data

Max coil load 1.4 kW
Coil L/s at Des Htg 211 L/s
Max coil L/s 211 L/s
Water flow @ 11.1 K drop N/A
Load occurs at Des Htg
W/m² 210.6
Ent. DB / Lvg DB 19.4 / 24.9 °C

Supply Fan Sizing Data

Actual max L/s 211 L/s
Standard L/s 211 L/s
Actual max L/(s·m²) 32.03 L/(s·m²)
Fan motor BHP 0.00 BHP
Fan motor kW 0.00 kW
Fan static 0 Pa

Outdoor Ventilation Air Data

Design airflow L/s 12 L/s
L/(s·m²) 1.82 L/(s·m²)
L/s/person 3.00 L/s/person

Air System Sizing Summary for HVAC 12P BOARDROOM

Project Name: F_100 Bunhill Row
Prepared by: Engineer's Team LTD
05/17/2026
11:01PM

Air System Information

Air System Name HVAC 12P BOARDROOM
Equipment Class CASSETTE UNIT
Air System Type SZCAV
Number of zones 1
Floor Area 24.2 m²
Location London - Bunhill Row, United Kingdom

Sizing Calculation Information

Calculation Months Jan to Dec
Sizing Data Calculated
Zone L/s Sizing Sum of space airflow rates
Space L/s Sizing Individual peak space loads

Central Cooling Coil Sizing Data

Total coil load 4.5 kW
Sensible coil load 3.8 kW
Coil L/s at Aug 1600 285 L/s
Max block L/s 285 L/s
Sum of peak zone L/s 285 L/s
Sensible heat ratio 0.830
L/s (kW) 62.7
m³/kW 5.3
W/m² 187.9
Water flow @ 5.6 K rise N/A
Load occurs at Aug 1600
OA DB / WB 27.2 / 18.9 °C
Entering DB / WB 25.0 / 18.1 °C
Leaving DB / WB 14.0 / 13.3 °C
Coil ADP 12.5 °C
Bypass Factor 0.120
Resulting RH 52 %
Design supply temp. 12.8 °C
Zone T-stat Check 1 of 1 OK
Max zone temperature deviation 0.0 K

Central Heating Coil Sizing Data

Max coil load 2.4 kW
Coil L/s at Des Htg 285 L/s
Max coil L/s 285 L/s
Water flow @ 11.1 K drop N/A
Load occurs at Des Htg
W/m² 99.4
Ent. DB / Lvg DB 17.8 / 24.8 °C

Supply Fan Sizing Data

Actual max L/s 285 L/s
Standard L/s 284 L/s
Actual max L/(s·m²) 11.77 L/(s·m²)
Fan motor BHP 0.00 BHP
Fan motor kW 0.00 kW
Fan static 0 Pa

Outdoor Ventilation Air Data

Design airflow L/s 37 L/s
L/(s·m²) 1.54 L/(s·m²)
L/s/person 3.11 L/s/person

Air System Sizing Summary for HVAC 5P MEETING ROOM 03

Project Name: F_100 Bunhill Row
Prepared by: Engineer's Team LTD
05/17/2026
11:02PM

Air System Information

Air System Name HVAC 5P MEETING ROOM 03
Equipment Class CASSETTE UNIT
Air System Type SZCAV
Number of zones 1
Floor Area 12.9 m²
Location London - Bunhill Row, United Kingdom

Sizing Calculation Information

Calculation Months Jan to Dec
Sizing Data Calculated
Zone L/s Sizing Sum of space airflow rates
Space L/s Sizing Individual peak space loads

Central Cooling Coil Sizing Data

Total coil load 3.3 kW
Sensible coil load 2.9 kW
Coil L/s at Sep 1600 220 L/s
Max block L/s 220 L/s
Sum of peak zone L/s 220 L/s
Sensible heat ratio 0.893
L/s (kW) 67.1
m³/kW 3.9
W/m² 253.6
Water flow @ 5.6 K rise N/A
Load occurs at Sep 1600
OA DB / WB 26.1 / 18.3 °C
Entering DB / WB 24.6 / 17.3 °C
Leaving DB / WB 13.5 / 12.7 °C
Coil ADP 12.0 °C
Bypass Factor 0.120
Resulting RH 49 %
Design supply temp. 12.8 °C
Zone T-stat Check 1 of 1 OK
Max zone temperature deviation 0.0 K

Central Heating Coil Sizing Data

Max coil load 1.5 kW
Coil L/s at Des Htg 220 L/s
Max coil L/s 220 L/s
Water flow @ 11.1 K drop N/A
Load occurs at Des Htg
W/m² 117.1
Ent. DB / Lvg DB 19.3 / 25.0 °C

Supply Fan Sizing Data

Actual max L/s 220 L/s
Standard L/s 219 L/s
Actual max L/(s·m²) 17.02 L/(s·m²)
Fan motor BHP 0.00 BHP
Fan motor kW 0.00 kW
Fan static 0 Pa

Outdoor Ventilation Air Data

Design airflow L/s 16 L/s
L/(s·m²) 1.27 L/(s·m²)
L/s/person 3.27 L/s/person

Air System Sizing Summary for HVAC 4P MEETING ROOM 01

Project Name: F_100 Bunhill Row
Prepared by: Engineer's Team LTD
05/17/2026
11:01PM

Air System Information

Air System Name HVAC 4P MEETING ROOM 01
Equipment Class CASSETTE UNIT
Air System Type SZCAV
Number of zones 1
Floor Area 8.2 m²
Location London - Bunhill Row, United Kingdom

Sizing Calculation Information

Calculation Months Jan to Dec
Sizing Data Calculated
Zone L/s Sizing Sum of space airflow rates
Space L/s Sizing Individual peak space loads

Central Cooling Coil Sizing Data

Total coil load 2.5 kW
Sensible coil load 2.2 kW
Coil L/s at Aug 1600 170 L/s
Max block L/s 170 L/s
Sum of peak zone L/s 170 L/s
Sensible heat ratio 0.889
L/s (kW) 69.1
m³/kW 3.3
W/m² 300.1
Water flow @ 5.6 K rise N/A
Load occurs at Jul 1600
OA DB / WB 27.2 / 18.9 °C
Entering DB / WB 24.8 / 17.7 °C
Leaving DB / WB 14.1 / 13.3 °C
Coil ADP 12.6 °C
Bypass Factor 0.120
Resulting RH 50 %
Design supply temp. 12.8 °C
Zone T-stat Check 1 of 1 OK
Max zone temperature deviation 0.0 K

Central Heating Coil Sizing Data

Max coil load 1.2 kW
Coil L/s at Des Htg 170 L/s
Max coil L/s 170 L/s
Water flow @ 11.1 K drop N/A
Load occurs at Des Htg
W/m² 143.5
Ent. DB / Lvg DB 18.9 / 24.6 °C

Supply Fan Sizing Data

Actual max L/s 170 L/s
Standard L/s 170 L/s
Actual max L/(s·m²) 20.75 L/(s·m²)
Fan motor BHP 0.00 BHP
Fan motor kW 0.00 kW
Fan static 0 Pa

Outdoor Ventilation Air Data

Design airflow L/s 12 L/s
L/(s·m²) 1.52 L/(s·m²)
L/s/person 3.12 L/s/person

Zone Sizing Summary for Existing HVAC

Project Name: 100 Bunhill Row
Prepared by: Engineer's Team LTD
05/14/2026
08:18PM

Air System Information

Air System Name EXISTING HVAC
Equipment Class CASSETTE UNIT
Air System Type VAV / VRF
Number of zones 2
Floor Area 493.9 m²
Location London - Bunhill Row, United Kingdom

Sizing Calculation Information

Calculation Months Jan to Dec
Sizing Data Calculated
Zone L/s Sizing Sum of space airflow rates
Space L/s Sizing Individual peak space loads

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
Zone 1							
2ND 10P BOARDROOM	1	3.5	Jun 1600	259	1.2	25.2	10.27
2ND 1P QUIET ROOM 01	1	0.7	Jun 1600	52	0.6	5.1	10.11
2ND 1P QUIET ROOM 02	1	0.6	Jun 1600	44	0.3	2.6	16.79
2ND 30 DESKS 01	1	18.7	Sep 1500	1402	5.9	135.0	10.38
2ND 4P MEETING ROOM 01	1	2.3	Jun 1600	170	0.9	8.2	20.75
2ND 4P MEETING ROOM 02	1	2.8	Aug 1600	211	1.1	6.6	32.03
2ND ARRIVAL LOUNGE 01	1	1.2	Jul 1600	90	1.0	22.5	4.00
2ND BREAKOUT AREA 01	1	1.6	Jul 1600	123	1.0	30.6	4.02
2ND COLLABORATION AREA	1	2.4	Sep 1500	182	1.0	12.5	14.53
2ND PRINT AREA 01	1	1.7	Jul 1600	130	0.3	6.4	20.24
2ND COMMS ROOM 01	1	0.5	Jul 1600	35	0.4	5.0	6.93
Zone 2							
3RD 12P BOARDROOM	1	3.8	Sep 1600	285	1.2	24.2	11.77
3RD 1P QUIET ROOM 03	1	0.4	Jul 1600	31	0.2	2.7	11.62
3RD 2P QUIET ROOM 04	1	0.6	Jun 1600	46	0.3	3.1	14.89
3RD 30 DESKS 02	1	19.3	Sep 1500	1443	6.0	128.0	11.28
3RD 5P MEETING ROOM	1	2.9	Sep 1500	220	1.0	12.9	17.02
3RD ARRIVAL LOUNGE 02	1	1.8	Jul 1600	138	1.3	28.3	4.88
3RD BREAKOUT AREA 02	1	3.8	Jun 1600	285	1.6	28.5	10.01
3RD COMMS ROOM 02	1	0.5	Jul 1600	35	0.4	5.0	6.93
3RD PRINT AREA 02	1	1.7	Jul 1600	130	0.3	6.5	19.95

PROJECT: OFFICE ELECTRICAL DESIGN

TITLE: HVAC CALCULATION

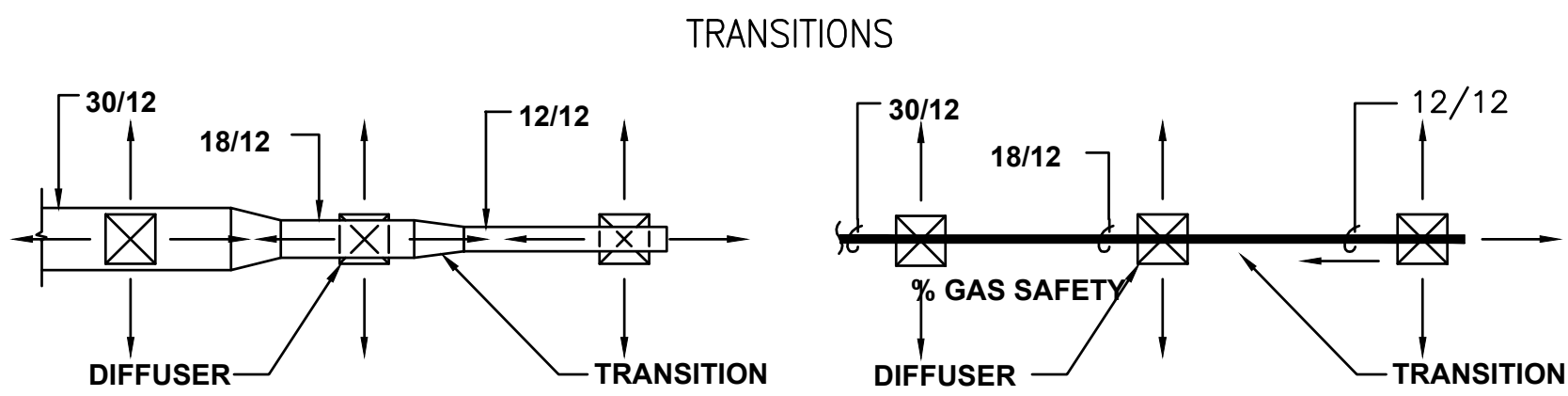
PROJ. NO. PROJ. ENGR. AA SCALE @ 24X36: N/A

DATE: May 11, 2026

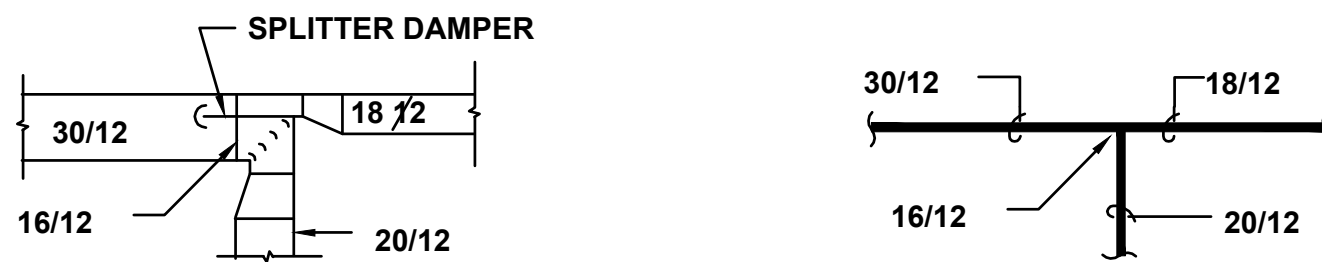
DRAWING NO. REV.

M-13

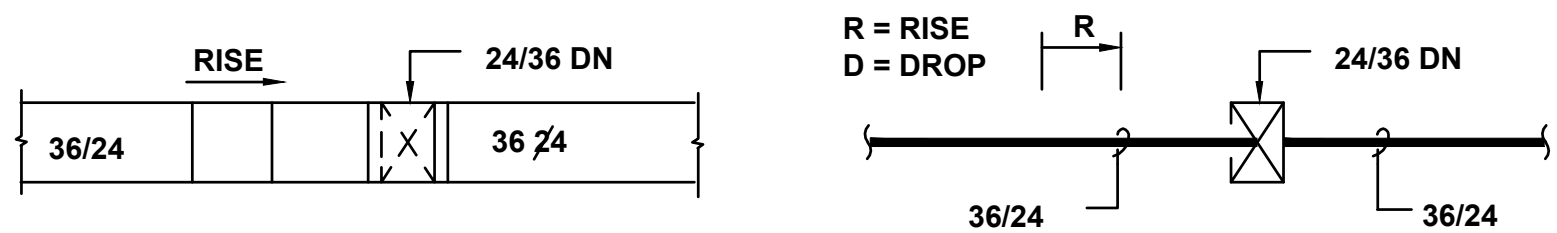
DUCTWORK SYMBOLS LEGEND



MAIN BRANCH TAKE-OFFS



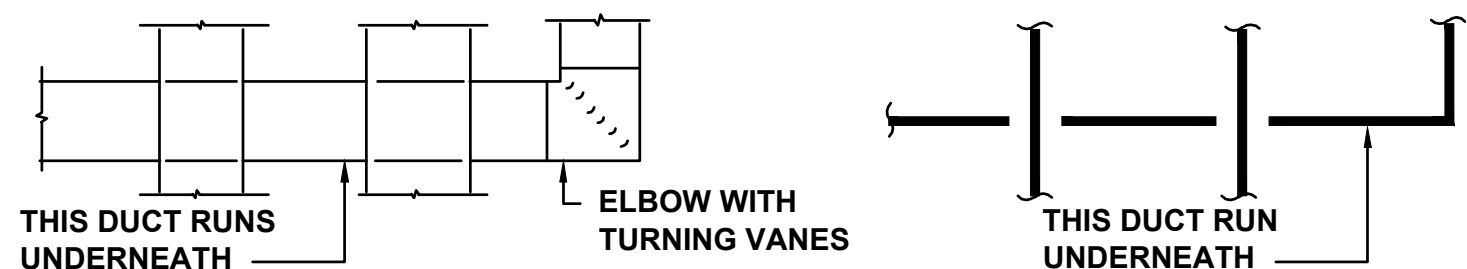
RISERS



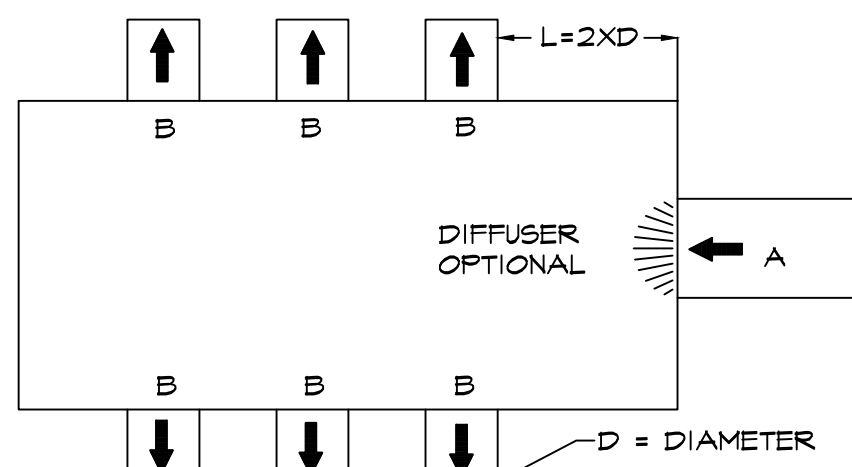
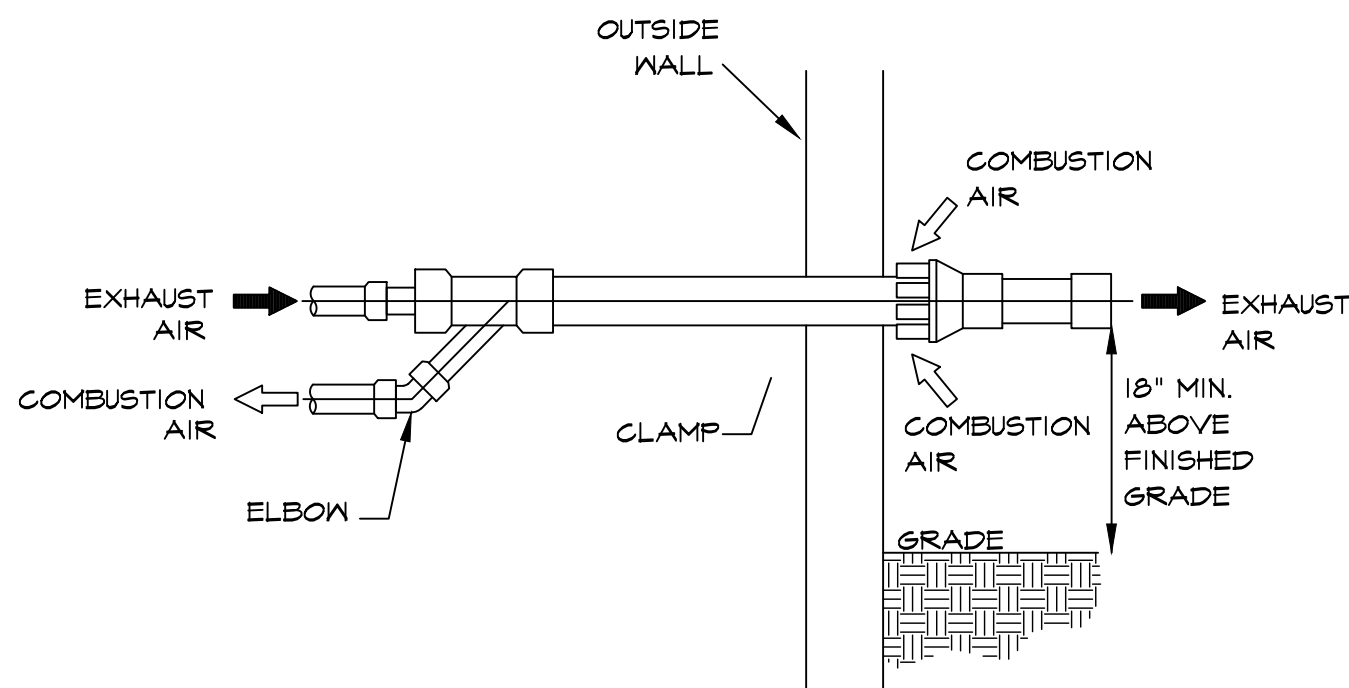
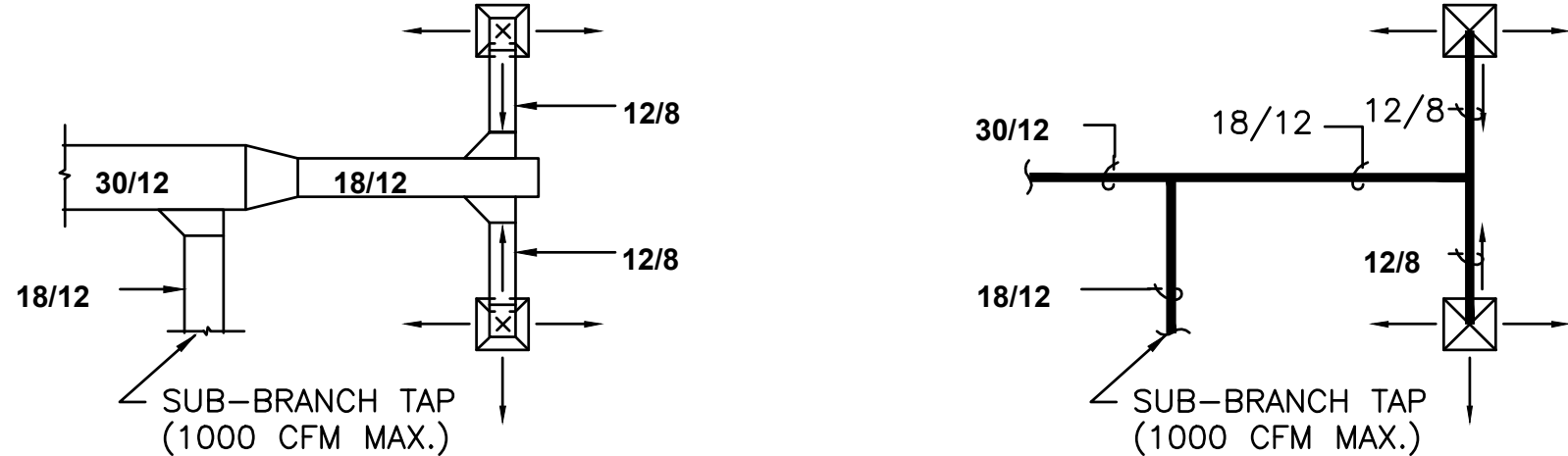
SIDEWALL REGISTERS



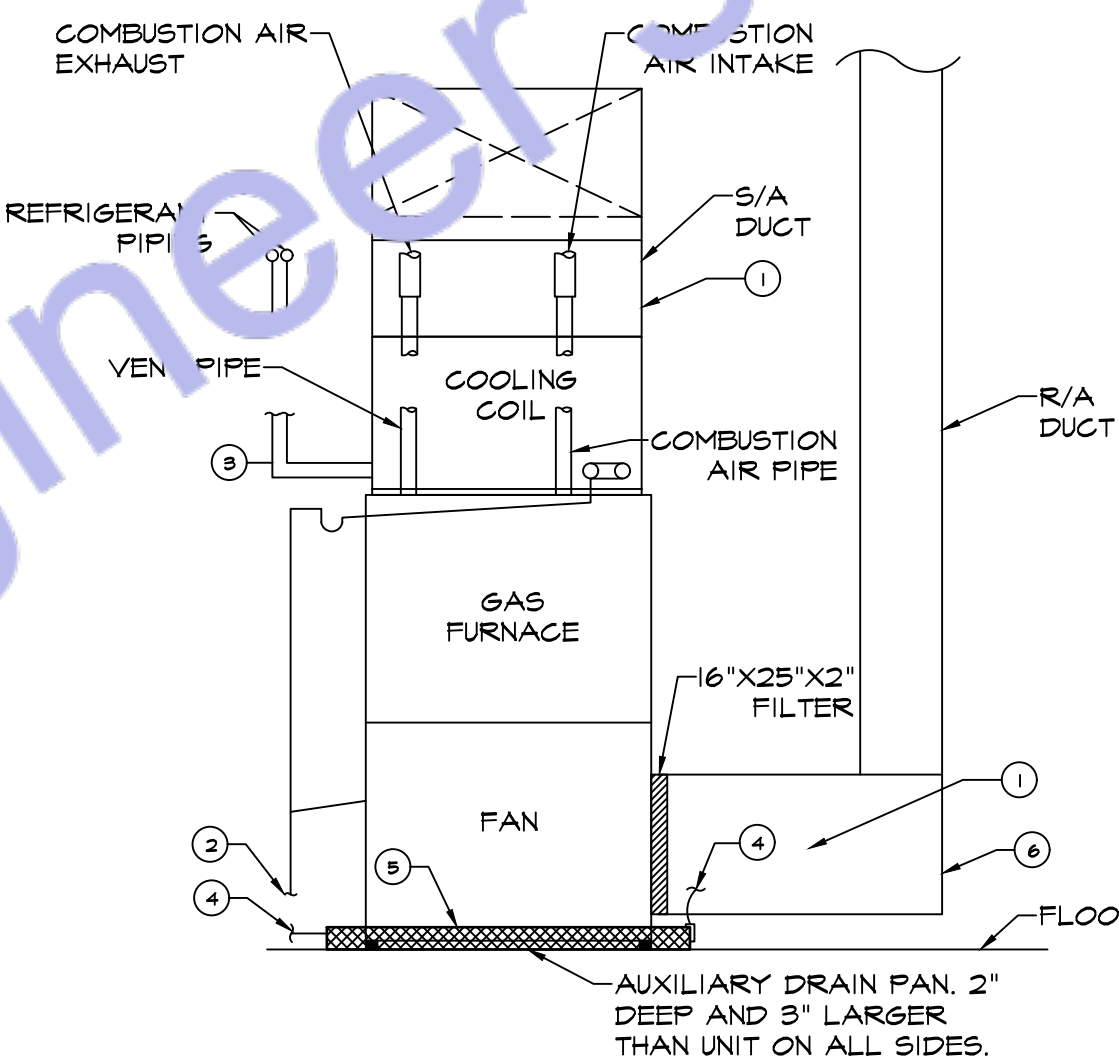
DUCT CROSSOVERS



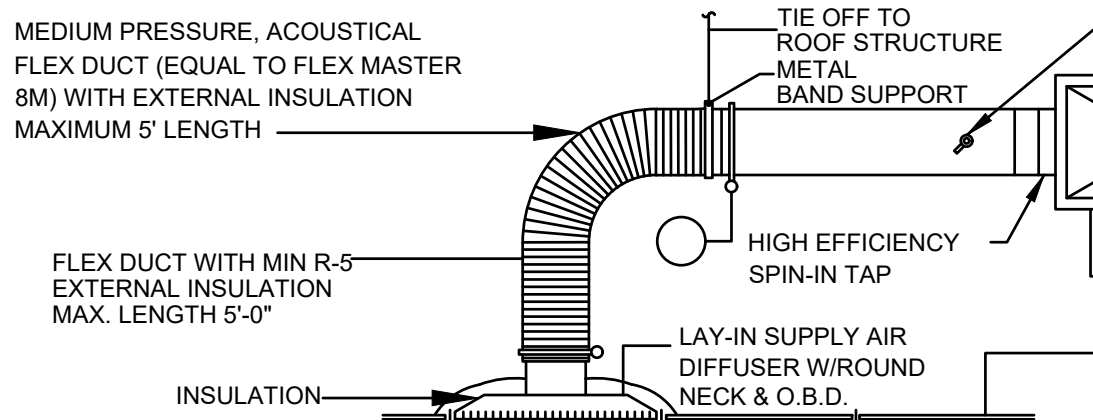
SUB-BRANCH TAP AND TEE



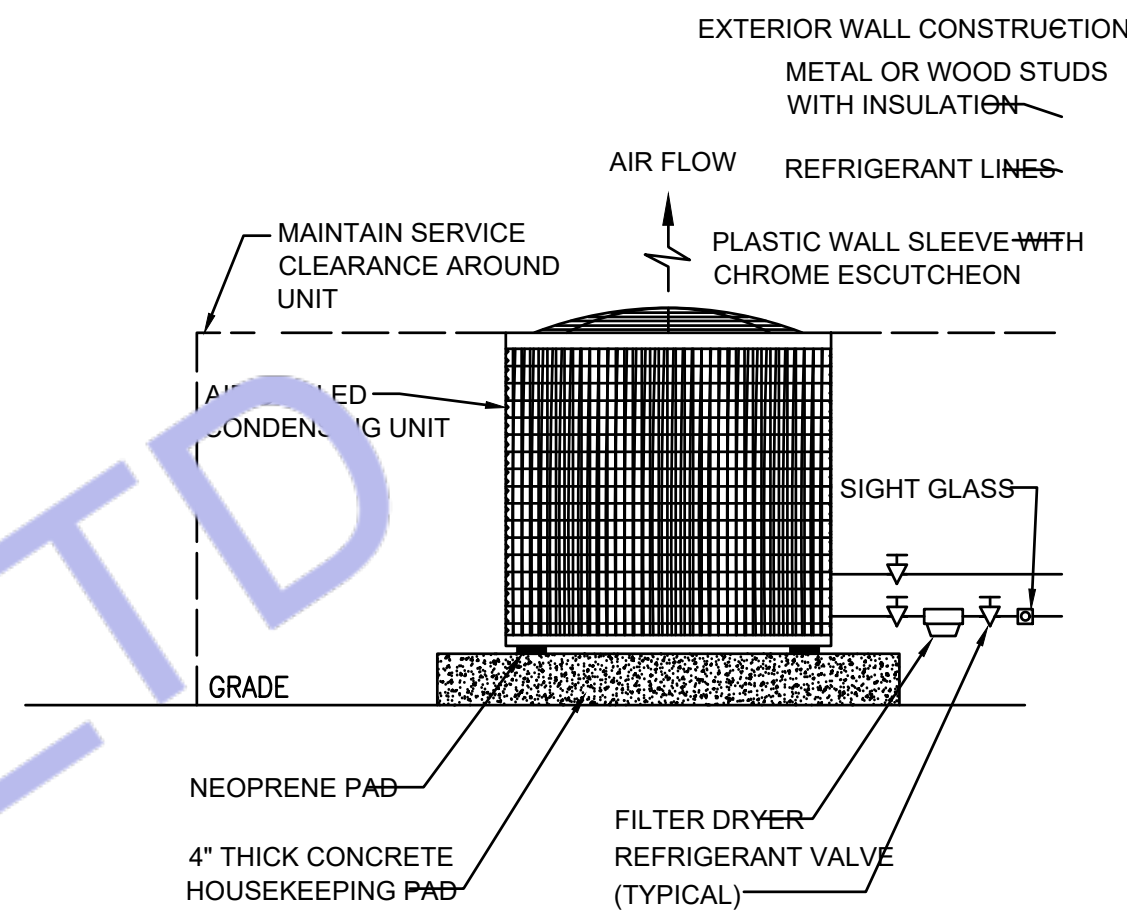
- NOTES:
- ENTRANCE (A) HAS A DIFFUSER FITTING THAT RECOVERS VELOCITY PRESSURES AND PREVENTS SWIRLS (OPTIONAL)
 - STRAIGHT APPROACH (A) AND STRAIGHT EXITS (B)
 - EXITS OPENING ON SIDE (NO TOP OR BOTTOM EXITS)
 - EXIT OPENING AT LEAST TWO DIAMETERS FROM ENTRANCE (L)
 - MAKE BOX AS SMALL AS POSSIBLE BY COMPLYING WITH L = 2 X D



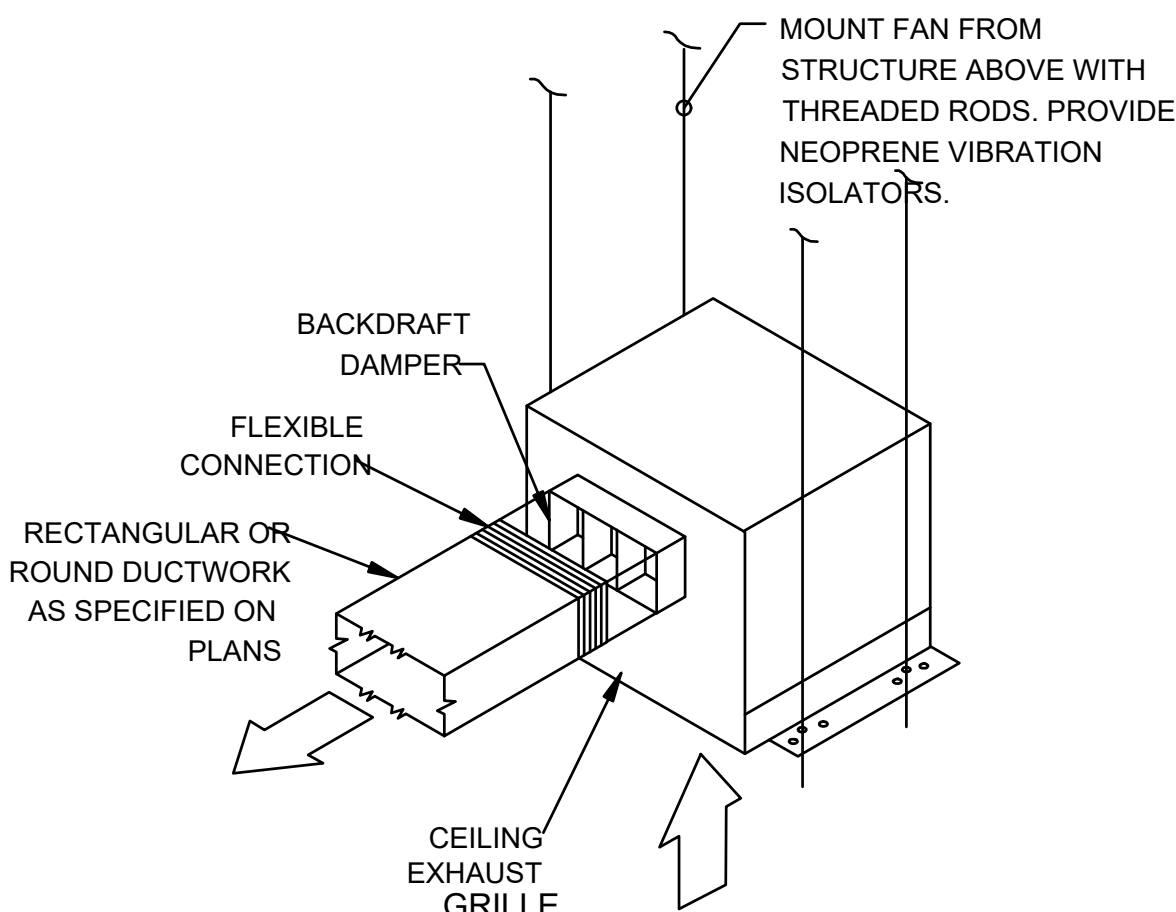
- NOTES:
- INTERNALLY LINED SUPPLY AND RETURN SHEET METAL PLENUMS THAT EXTENDS 10 FEET ON EITHER SIDE OF AHU. FULL SIZE OF UNIT OPENING.
 - 3/4" CONDENSATE DRAIN LINE, ROUTE BEHIND R.A. DUCT AND DOWN TO FLOOR DRAIN. TRAP FOR CONDENSATE IF UNIT HAS NO INTERNAL TRAP.
 - INSTALL REFRIGERANT PIPING PER MANUFACTURER'S RECOMMENDATIONS AND CODE REQUIREMENTS.
 - PROVIDE EMERGENCY DRAIN PAN WITH FLOAT SWITCH BELOW THE AHU TO DE-ENERGIZE THE AHU PRIOR TO OVERFLOW OF THE PAN. PROVIDE SECONDARY 3/4" CPVC CONDENSATE DRAIN LINE FOR THE EMERGENCY DRAIN PAN THAT DAYLIGHTS INTO ADJACENT HUB DRAIN.
 - EMERGENCY DRAIN PAN: A MINIMUM DEPTH OF 1.5" AND FOOTPRINT NOT LESS THAN 3" LARGER THAN THE UNIT IN WIDTH AND LENGTH. EMERGENCY DRAIN PAN SHALL BE MADE OF CORROSION-RESISTANT MATERIAL WITH MINIMUM THICKNESS AS DEFINED BY CODE REQUIREMENTS.
 - RETURN PLENUM BOX TO MATCH THE SIZE OF UNIT'S RETURN OPENING DUCT.



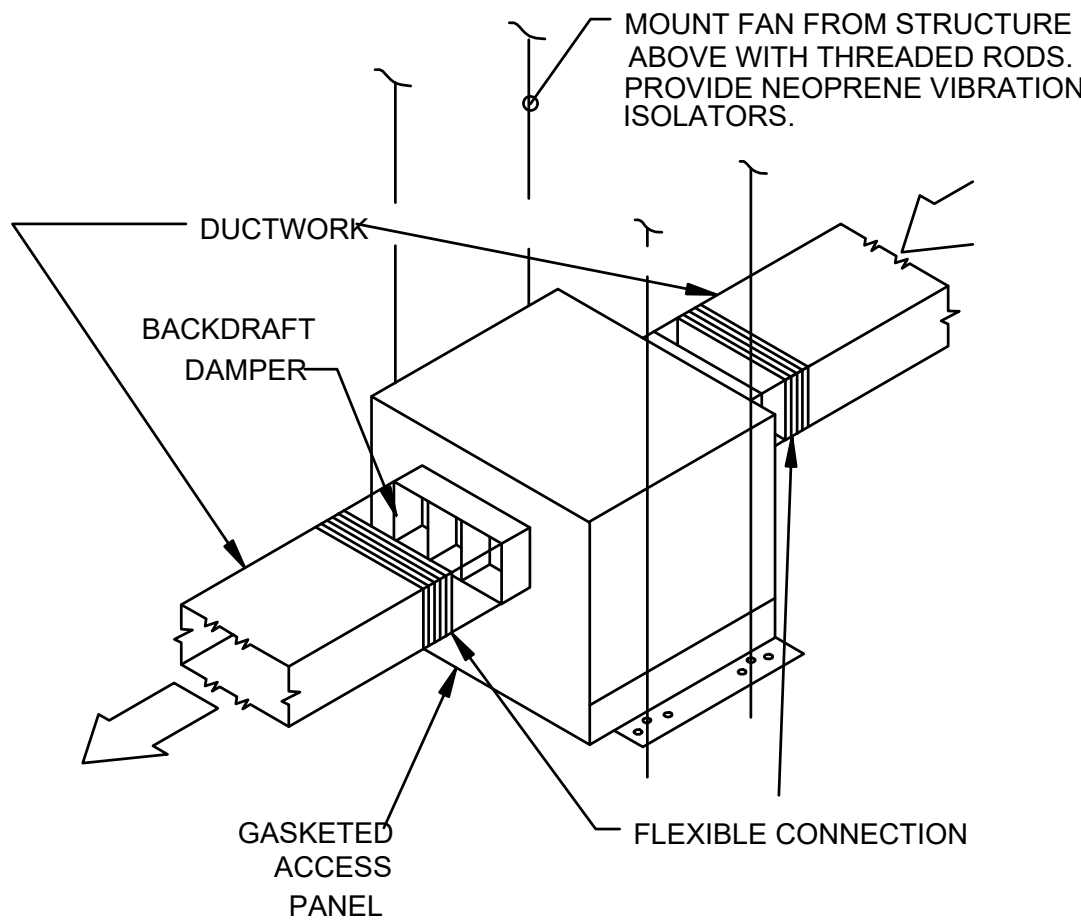
SUPPLY AIR DIFFUSER CONNECTION



OUTSIDE AIR CONDITIONER



CEILING EXHAUST FAN DETAIL



IN-LINE FAN DETAIL



Engineer's Team LTD

Web site: www.innodez.co.uk

Email: hello@innodez.co.uk

CLIENT: FEDOR PECHININ

ADDRESS: 100 BUNHILL ROW, LONDON, EC1Y 8ND

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REV. NO.	DESCRIPTION	DATE	BY

PROJECT: OFFICE ELECTRICAL DESIGN

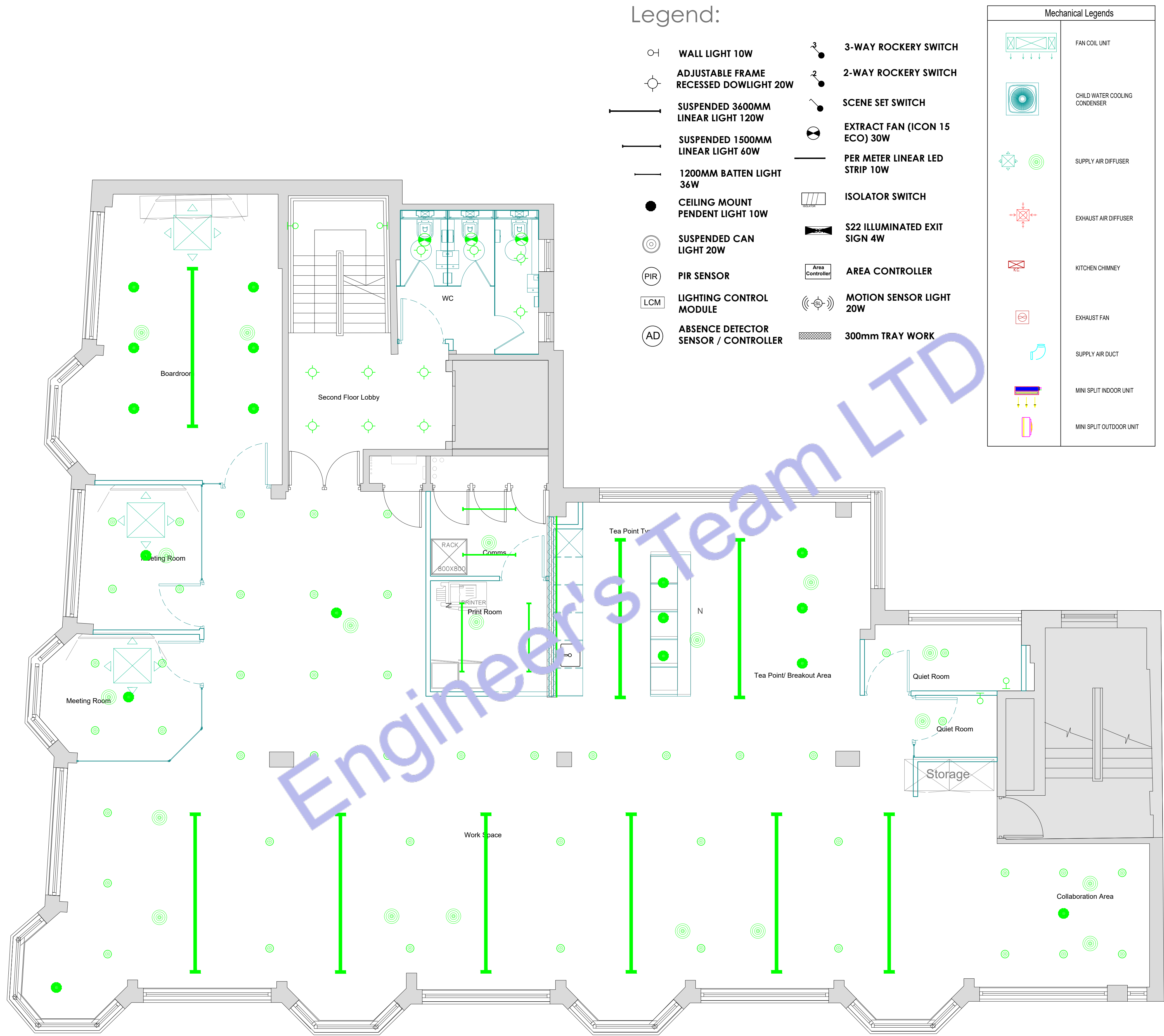
TITLE: HVAC INSTALLATION

PROJ. NO. PROJ. ENGR. SCALE @ 24X36: AA N/A

DATE: May 11, 2026

DRAWING NO. REV.

M-14



1 LEVEL 02 REFLECTIVE CEILING PLAN
SCALE: 1/100" = 1'-0"



Engineer's Team LTD
Web site: www.innodez.co.uk
Email: hello@innodez.co.uk

CLIENT: FEDOR PECHININ
ADDRESS: 100 BUNHILL ROW, LONDON, EC1Y 8ND

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REV. NO.	DESCRIPTION	DATE	BY

PROJECT: OFFICE ELECTRICAL DESIGN

TITLE: REFLECTIVE CEILING PLAN

PROJ. NO.	PROJ. ENGR. AA	SCALE @ 24X36: 1:1200
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DATE : May 11, 2026

DRAWING NO. A-01	REV.
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Engineer's Team LTD

Web site: www.innodez.co.uk

Email: hello@innodez.co.uk

CLIENT: FEDOR PECHININ

ADDRESS:
100 BUNHILL ROW, LONDON, EC1Y 8ND

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SUPPORT TO THE BUILDING AND ANY ADJACENT
STRUCTURES.

REV. NO.	DESCRIPTION	DATE	BY

PROJECT: OFFICE ELECTRICAL DESIGN

TITLE: REFLECTIVE CEILING
PLAN

PROJ. NO.	PROJ. ENGR.	SCALE @ 24X36:
	AA	1:1200

DATE : May 11, 2026

DRAWING NO.	REV.
A-02	

Legend:

- WALL LIGHT 10W
- ADJUSTABLE FRAME
RECESSED DOWNLIGHT 20W
- SUSPENDED 3600MM
LINEAR LIGHT 120W
- SUSPENDED 1500MM
LINEAR LIGHT 60W
- 1200MM BATTEN LIGHT
36W
- CEILING MOUNT
PENDENT LIGHT 10W
- SUSPENDED CAN
LIGHT 20W
- PIR SENSOR
- LIGHTING CONTROL
MODULE
- ABSENCE DETECTOR
SENSOR / CONTROLLER
- 3-WAY ROCKERY SWITCH
- 2-WAY ROCKERY SWITCH
- SCENE SET SWITCH
- EXTRACT FAN (ICON 15
ECO) 30W
- PER METER LINEAR LED
STRIP 10W
- ISOLATOR SWITCH
- S22 ILLUMINATED EXIT
SIGN 4W
- AREA CONTROLLER
- MOTION SENSOR LIGHT
20W
- 300mm TRAY WORK

Mechanical Legends

- FAN COIL UNIT
- CHILD WATER COOLING
CONDENSER
- SUPPLY AIR DIFFUSER
- EXHAUST AIR DIFFUSER
- KITCHEN CHIMNEY
- EXHAUST FAN
- SUPPLY AIR DUCT
- MINI SPLIT INDOOR UNIT
- MINI SPLIT OUTDOOR UNIT

2 LEVEL 03 REFLECTIVE CEILING PLAN
SCALE: 1/100" = 1'-0"



Designed By Engr. Al Amin (MEP Engineer | Director - Engineer's Team LTD)

 support@engrteam.com

 <https://engrteam.com>

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