

Corporate Real Estate Management
Project Management Office
Metro Hall Toronto, ON
M5V 3C6

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OFFICE MODERNIZATION FOR
TORONTO WATER OFFICE
95 THE ESPLANADE
Toronto, ON M5E 1Y8

PROJECT NO: 148121	
DRAWN BY: I. TUNG	CHECKED BY: T. SHEN
PROJECT MGR: F. BOLOURIAN	APPROVED BY: M. BOJIC

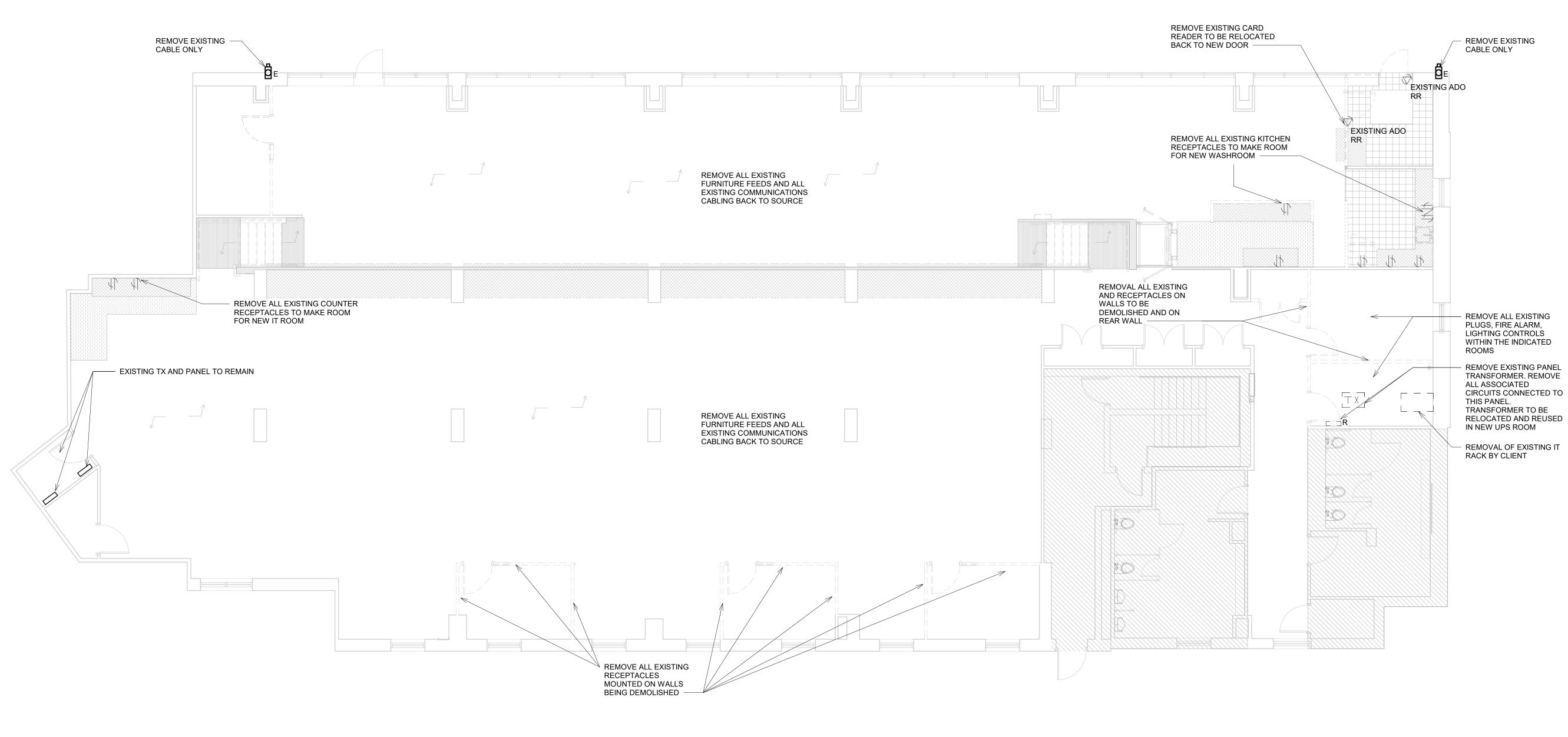
SHEET TITLE

ELECTRICAL LEGEND

E0001

D ISSUE

025\_02\_42 5.50.58 DM



- 1. EXISTING FIRE ALARM DEVICES ARE TO REMAIN UNLESS OTHERWISE NOTED
- 2. REMOVE ALL ITEMS DENOTED WITH AN R TAG OR ARE SHOWN IN DASHED LINES
- ITEMS NOTED AS RR ARE TO BE REMOVED WITH INTENTION TO BE RELOCATED. EXTEND CONDUIT/WIRE TO SUIT NEW LOCATION INDICATED ON PROPOSED PLAN.
- 4. REMOVE ALL EXISTING COMMUNICATIONS CABLING THROUGHOUT THE ENTIRE SCOPE AREA. EXISTING CABLE TRAY IN CEILING TO REMAIN.
- 5. WHEN REMOVING ITEMS FED FROM PANEL IN IT ROOM. IDENTIFY IF LOAD IS TO REMAIN (MECHANICAL LOADS IN CEILING). INVENTORY EXISTING TO REMAIN LOADS AND PRIOVISION TO FEED FROM EXISTING PANEL IN ELECTRICAL ROOM. CONTRACTOR TO SUBMIT BALANCE OF SPARE CIRCUITS/EXISTING TO REMAIN CIRCUITS AS A SHOP DRAWING WITH SKETCH OF LOCATION OF CIRCUITS, QUANTITY AND SPACE IN PANEL LP-A.
- 6. REMOVE ALL EXISTING SECURITY DEVICES AT 95 THE ESPLANADE, EXCEPT TWO EXTERIOR CCTV CAMERAS AS INDICATED ON THE LAYOUT DRAWING.
- 7. REMOVE ALL EXISTING SECURITY DEVICE CABLES AT 95 THE ESPLANADE BACK TO EXISTING SECURITY CABINET LOCATED IN THE IT ROOM AT 105 THE ESPLANADE. COORDINATE WITH CITY OF TORONTO FOR ACCESS TO 105 THE ESPLANADE.

CLIENT CITY OF TORONTO

TORONTO

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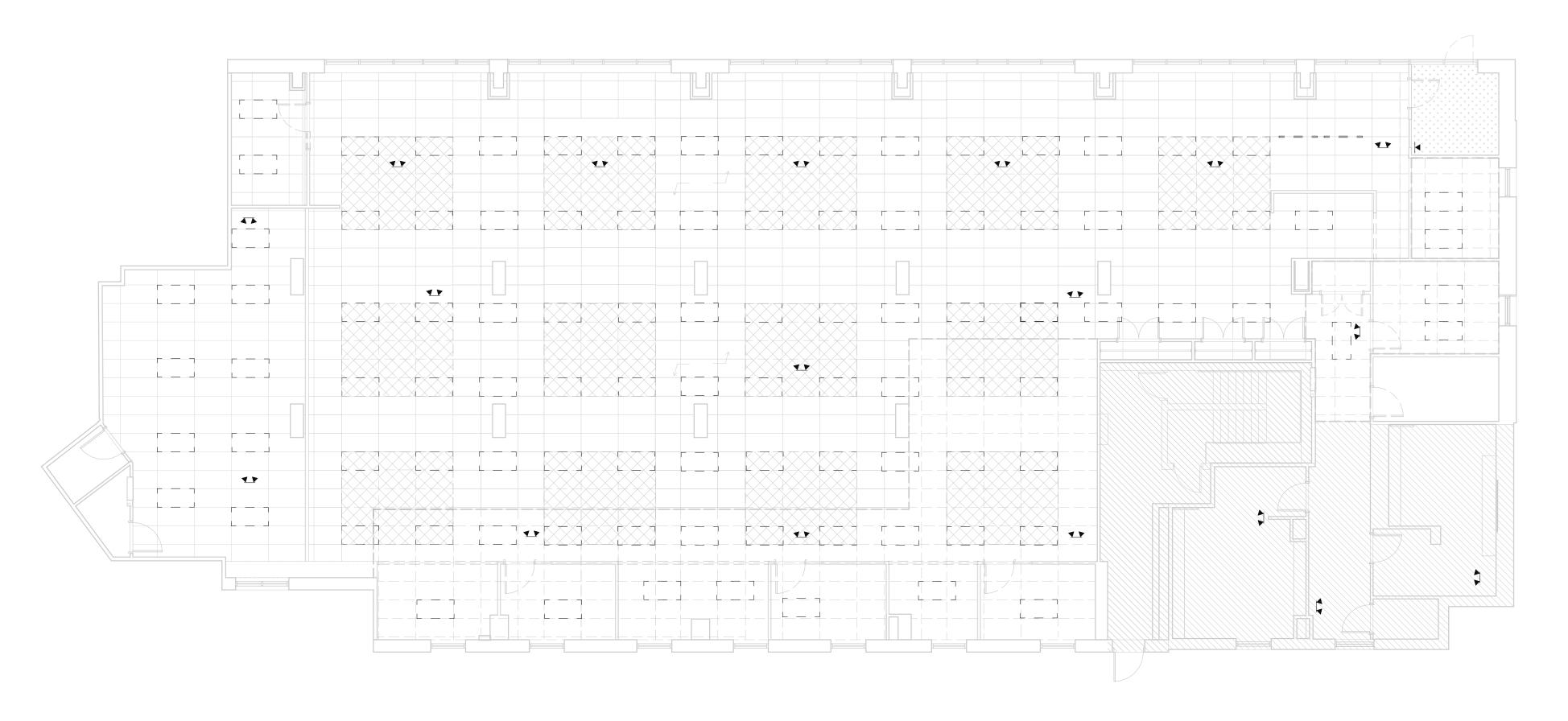
PROJECT NO: 148121	
DRAWN BY: I. TUNG	CHECKED BY: T. SHEN
PROJECT MGR:	APPROVED BY:

F. BOLOURIAN
SHEET TITLE

ELECTRICAL POWER &
SYSTEMS DEMOLITION PLAN

EET NUMBER E0100

D ISSUE



- 1. REMOVE ALL EXISTING CEILIING LIGHT AS INDICATED. REFER TO PROPOSED PLAN FOR NEW LAYOUT. RE-USE CIRCUITS AS AVAILABLE AND NOTED ON PROPOSED PLAN.
- 2. REMOVE ALL EXISTING EMERGENCY LIGHTING HEADS AND BATTERY PACKS IN THE SPACE. THEY ARE TO BE REPLACED WITH DEDICATED EMERGENCY CIRCUITS FROM A NEW LIGHTING INVERTER BATTERY
- 3. REMOVE ALL EXISTING LIGHTING CONTROLS, SWITCHES AND OCCUPANCY SENSORS.
- 4. REMOVE ALL EXISTING EXIT SIGNS.

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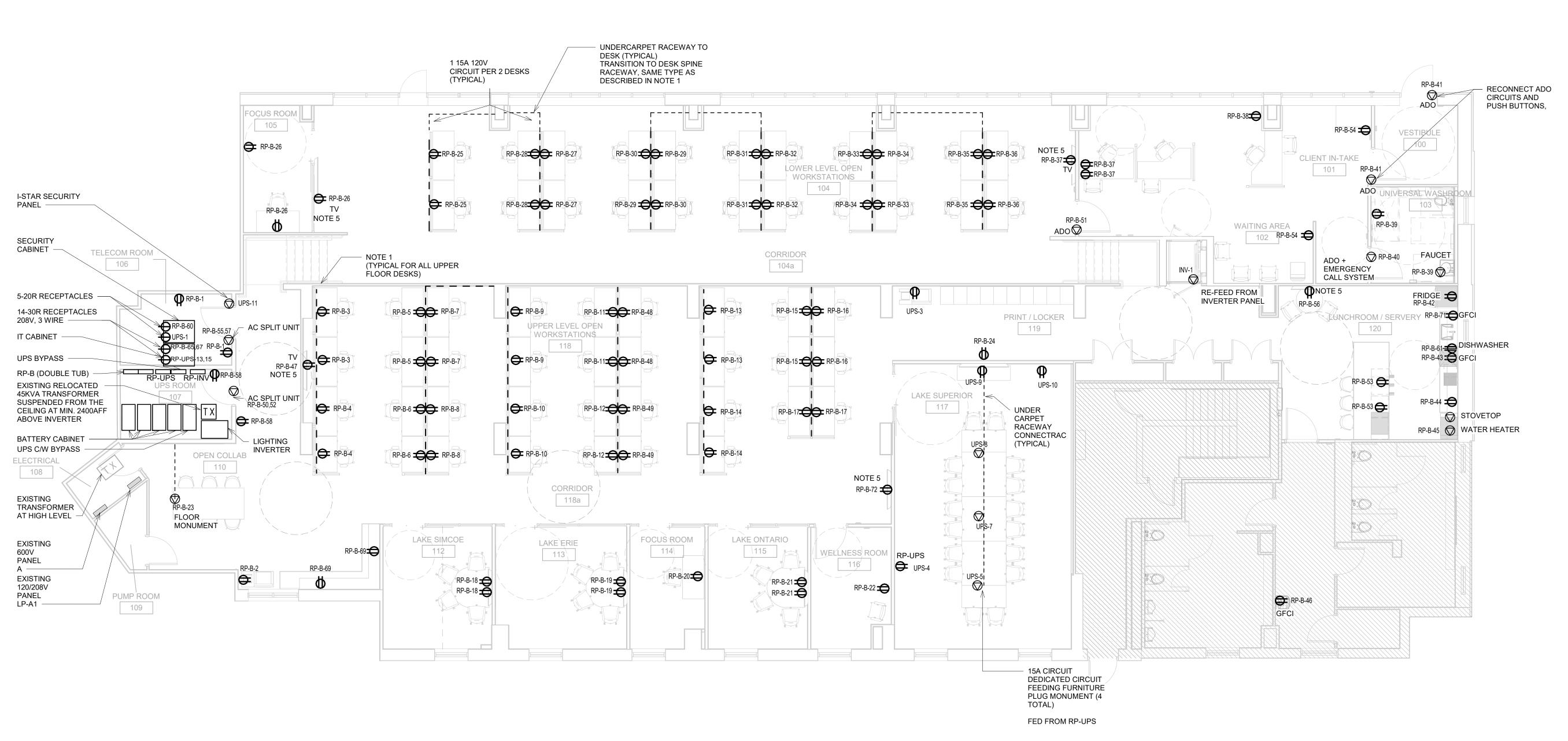
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DRAWN BY: I. TUNG	CHECKED BY: T. SHEN
PROJECT MGR: F. BOLOURIAN	APPROVED BY: M. BOJIC

SHEET TITLE

ELECTRICAL LIGHTING
DEMOLITION PLAN

SHEET NUMBER E0200

D



- PROVIDE 15A CONNECTIONS PER 2 DESKS FROM 120V PANEL. PROVIDE NEW RACEWAY ALONG SPINE OF DESKS WITH INTEGRATED RECEPTACLES AS SHOWN. 2 CIRCUITS PER RACWWAY. DOUBLE SIDES DESKS TO HAVE RACEWAY ON EACH SIDE
- PROVIDE CONNECTIONS FOR NEW ADOS SHOWN. PROVIDE ROUGH IN AND CABLING FOR NEW PUSH BUTTON LOCATIONS. FOR UNIVERSAL WASHROOM CALL SYSTEM PROVIDE ROUGH IN AND CABLING FOR CONNECTION FOR EACH BUTTON AND ALARM BACK TO CONTROL RELAY. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONED LOCATIONS OF PUSH BUTTON LOCATIONS FOR EACH DOOR.
- CIRCUITS SHOWN ARE FOR GROUPING PURPOSES ONLY. AFTER DEMOLITION CONTRACTOR IS TO DO INVENTORY OF QUANTITY OF ORPHANED CIRCUITS DUE TO DEMO AND RE-FEED CIRCUITS TO EXISTING PANEL IN ELECTRICAL ROOM. INVENTORY OF ORPHANED CIRCUITS AND SPARES CREATED TO BE SUBMITTED AS A SHOP DRAWING. ALL ORPHANED CIRCUITS ARE TO BE FED FROM PANEL LP-A1 IN ELECTRICAL ROOM UNLESS OTHERWISE INDICATED. PROVISION FOR EXTENDING CIRCUITS FOR EXISTING NON-REMOVED CIRCUITS (MECHANICAL FAN COIL UNITS, EXHAUST FANS IN CEILING ETC). REFER TO MECHANICAL EQUIPMENT SCHEDULE FOR EXISTING TO REMAIN UNITS.
- FOR AC SPLIT UNITS, FEED ROOM UNIT AS INDICATED. REFER TO MECHANICAL DRAWING M2102 FOR LOCATION OF CONDENSER UNITS IN PARKING LEVEL. PROVIDE CIRCUITS FOR CONDENSER UNITS FROM EXISTING PANEL IN ELECTRICAL ROOM. PROVISION FOR SCANNING AND NEW PENETRATION FROM ELECTRICAL ROOM TO PARKING LEVEL TO FEED CONDENSER UNITS.
- PROVIDE EMPTY CONDUIT AND PULL STRING FOR FUTURE TV CONNECTION FROM COMMUNICATIONS ROOM TO EACH TV. TYPICAL FOR 5 TVS SHOWN.

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PROJECT NO:	
148121	
DRAWN BY:	CHECKED BY:
I. TUNG	T. SHEN
PROJECT MGR:	APPROVED BY:
F. BOLOURIAN	M. BOJIC

SHEET TITLE

**ELECTRICAL POWER PLAN** 

E1100

**Branch Panel: RP-B** 

Location: TELECOM ROOM 106 Supply From: Mounting: Recessed Enclosure: Type 1

Volts: 120/208 Wye Phases: 3 Wires: 4

A.I.C. Rating: 10KA Mains Type: BREAKER Mains Rating: 125 A MCB Rating: 125 A

СКТ	Circuit Description	Trip	Poles	/	A		В		С	Poles	Trip	Circuit Description	СКТ
RP-B-1	TELECOM ROOM RECEPTACLES	20 A	1	360 VA	180 VA					1	20 A	PRINTER	RP-B-2
RP-B-3	WORKSTATION	20 A	1			360 VA	360 VA			1	20 A	WORKSTATION	RP-B-4
RP-B-5	WORKSTATION	20 A	1					360 VA	360 VA	1	20 A	WORKSTATION	RP-B-6
RP-B-7	WORKSTATION	20 A	1	360 VA	360 VA					1	20 A	WORKSTATION	RP-B-8
RP-B-9	WORKSTATION	20 A	1			360 VA	360 VA			1	20 A	WORKSTATION	RP-B-10
RP-B-11	WORKSTATION	20 A	1					360 VA	360 VA	1	20 A	WORKSTATION	RP-B-12
RP-B-13	WORKSTATION	20 A	1	360 VA	360 VA					1	20 A	WORKSTATION	RP-B-14
RP-B-15	WORKSTATION	20 A	1			360 VA	360 VA			1	20 A	WORKSTATION	RP-B-16
RP-B-17	WORKSTATION	20 A	1					360 VA	360 VA	1	20 A	MEETING ROOM 112 RECEPTACLES	RP-B-18
RP-B-19	MEETING RM 113 RECEPTACLES	20 A	1	360 VA	180 VA					1	20 A	FOCUS ROOM 114 RECEPTACLES	RP-B-20
RP-B-21	MEETING ROM 115 RECEPTACLES	20 A	1			360 VA	180 VA			1	20 A	BREAKOUT ROOM 116 RECEPTACLES	RP-B-22
RP-B-23	OPEN COLLAB FLOOR BOX	20 A	1					500 VA	180 VA	1	20 A	CORRIDOR 119 CONVENIENCE RCPT	RP-B-24
RP-B-25	WORKSTATION	20 A	1	360 VA	540 VA					1	20 A	FOCUS ROOM 105 RECEPTACLES	RP-B-26
RP-B-27	WORKSTATION	20 A	1			360 VA	360 VA			1	20 A	WORKSTATION	RP-B-28
RP-B-29	WORKSTATION	20 A	1					360 VA	360 VA	1	20 A	WORKSTATION	RP-B-30
RP-B-31	WORKSTATION	20 A	1	360 VA	360 VA					1	20 A	WORKSTATION	RP-B-32
RP-B-33	WORKSTATION	20 A	1			360 VA	360 VA			1	20 A	WORKSTATION	RP-B-34
RP-B-35	WORKSTATION	20 A	1					360 VA	360 VA	1	20 A	WORKSTATION	RP-B-36
RP-B-37	WORKSTATION	20 A	1	540 VA	180 VA					1	20 A	WAITING AREA FRONT DESK RCPT	RP-B-38
RP-B-39	UNIVERSAL WASHROOM	20 A	1			180 VA	200 VA			1	20 A	EMERGENCY WASHROOM ADO	RP-B-40
RP-B-41	FRONT ENTRANCE ADO	20 A	1					200 VA	180 VA	1	20 A	FRIDGE RECEPTACLE	RP-B-42
RP-B-43	KITCHEN COUNTERTOP	20 A	1	180 VA	180 VA					1	20 A	KITCHEN COUNTERTOP	RP-B-44
RP-B-45	WATER HEATER	20 A	1			1000	180 VA			1	20 A	WASHROOM CORRIDOR FOUNTAIN	RP-B-46
RP-B-47	RCT	20 A	1					180 VA	360 VA	1	20 A	WORKSTATION	RP-B-48
RP-B-49	WORKSTATION	20 A	1	360 VA	2900					_	40.0	LIDO DOOM AC LINIT	RP-B-50
RP-B-51	WAITING AREA ADO	20 A	1			200 VA	2900			2	40 A	UPS ROOM AC UNIT	RP-B-52
RP-B-53	KITCHEN ISLAND RECEPTACLES	20 A	1					360 VA	360 VA	1	20 A	CLIENT INTAKE RECEPTACLES	RP-B-54
RP-B-55	TELECOM DOOM AC LINUT	40.4	2	2900	180 VA					1	20 A	KITCHEN CONVENIENCE RCPT	RP-B-56
RP-B-57	TELECOM ROOM AC UNIT	40 A	2			2900	360 VA			1	20 A	UPS ROOM CONVENIENCE RCPT	RP-B-58
RP-B-59									2000	1	20 A	RCT	RP-B-60
RP-B-61	RCT	20 A	1	180 VA	1479					1	20 A	LOWER LEVEL LIGHTING	RP-B-62
RP-B-63	UPPER LEVEL LIGHTING	20 A	1			1847	397 VA			1	20 A	SMALL MEETING ROOMS LIGHTING	RP-B-64
RP-B-65	IT DACK DECEDTACLE	20.4	2					1000	800 VA				RP-B-66
RP-B-67	IT RACK RECEPTACLE	30 A	2	1000	800 VA					3	15 A	INVERTER	RP-B-68
RP-B-69	RCT	20 A	1			360 VA	800 VA						RP-B-70
RP-B-71	RCT	20 A	1					180 VA	180 VA	1	20 A	RCT	RP-B-72
		Tot	al Load:	1473	39 VA	1515	55 VA	1002	28 VA				
		Tota	I Amps:	12	9 A	13	2 A	84	1 A	,			

Location: TELECOM ROOM 106 Supply From: Mounting: Recessed Enclosure: Type 1

Volts: 120/208 Wye Phases: 3 Wires: 4

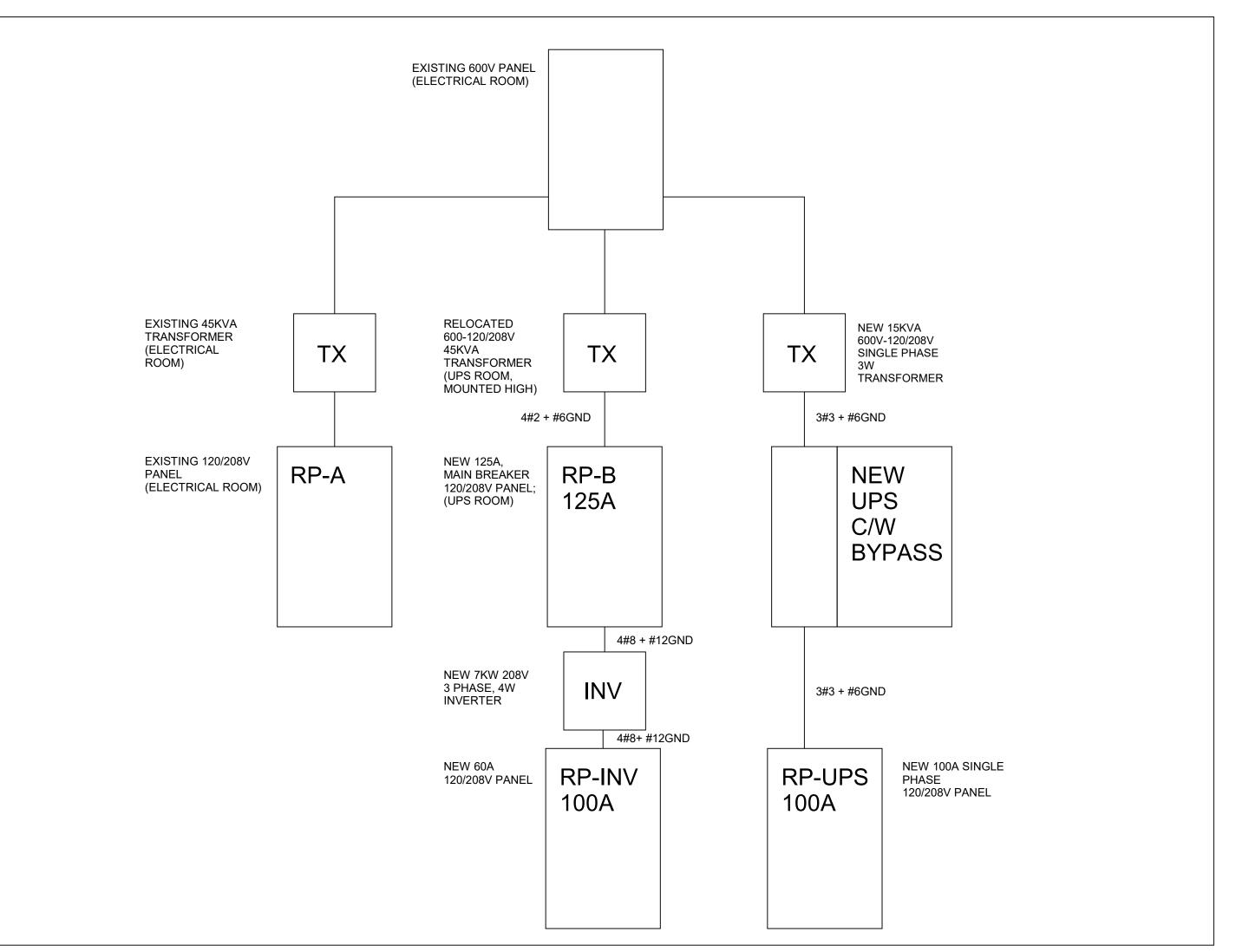
A.I.C. Rating: 14KA Mains Type: Mains Rating: 60 A MCB Rating: 60 A

Legend:

СКТ	Circuit Description	Trip	Poles		4	I	В		C	Poles	Trip	Circuit Description	СКТ
INV-1	ELEVATOR	20 A	1	300 VA	48 VA					1	20 A	VESTIBULE LIGHTING	INV-2
INV-3	EXIT LIGHTING	20 A	1			55 VA	748 VA			1	20 A	UPPER LEVEL LIGHTING	INV-4
INV-5	LOWER LEVEL LIGHTING	20 A	1					572 VA	393 VA	1	20 A	CONFERENCE ROOM LIGHTING	INV-6
INV-7													INV-8
INV-9													INV-10
INV-11													INV-12
INV-13													INV-14
INV-15													INV-16
INV-17													INV-18
INV-19													INV-20
INV-21													INV-22
INV-23													INV-24
		Tota	al Load:	348	VA	803	3 VA	941	VA				
		Tota	I Amps:	3	Α	7	Α	8	Α				

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel	Totals
Lighting	1584 VA	100.00%	1584 VA		
Other	0 VA	0.00%	0 VA	Total Conn. Load:	2071 VA
Power	300 VA	100.00%	300 VA	Total Est. Demand:	2107 VA
Exit Lighting	55 VA	100.00%	55 VA	Total Conn. Current:	6 A
LITES	153 VA	125.00%	191 VA	Total Est. Demand Current:	6 A

Receptacle Panel: RP-UPS Location: TELECOM ROOM 106 A.I.C. Rating: 10KA Volts: 120/208 Wye Supply From: Mains Type: Phases: 3 Mounting: Recessed Wires: 4 Mains Rating: 100 A Enclosure: Type 1 MCB Rating: 100 A CKT **Circuit Description** Trip Poles **Circuit Description** UPS-1 SECURITY RACK RECEPTACLE UPS-2 20 A 1 2000 VA UPS-3 PRINTER 20 A 180 VA | 180 VA 1 20 A MEETING ROOM 117 RECEPTACLES UPS-4 UPS-5 CONFERENCE ROOM FLOOR BOX UPS-6 20 A 1 500 VA UPS-7 CONFERENCE ROOM FLOOR BOX 20 A 1 500 VA 500 VA 1 20 A CONFERENCE ROOM FLOOR BOX UPS-8 1 20 A MEETING ROOM 117 RECEPTACLES UPS-10 UPS-9 MEETING ROOM 117 RECEPTACLES 20 A 180 VA 180 VA UPS-11 SECURITY I-STAR PANEL 20 A 1 500 VA UPS-12 UPS-13 UPS-14 UPS-15 UPS-16 UPS-17 UPS-18 UPS-19 UPS-20 UPS-21 UPS-22 UPS-23 UPS-24 UPS-25 UPS-26 UPS-27 UPS-28 UPS-29 UPS-30 UPS-31 UPS-32 UPS-33 UPS-34 UPS-35 UPS-36 UPS-37 UPS-38 UPS-39 UPS-40 UPS-41 UPS-42 Total Load: 2946 VA 720 VA 1000 VA Total Amps: 25 A 6 A 9 A Legend: **Load Classification** Panel Totals Connected Load **Demand Factor Estimated Demand** 2000 VA 100.00% 2000 VA Total Conn. Load: 4627 VA 2720 VA 100.00% 2720 VA Total Est. Demand: 4627 VA Total Conn. Current: 13 A **Total Est. Demand Current:** 13 A



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DRAWN BY:	CHECKED BY:
I. TUNG	T. SHEN

PROJECT MGR: APPROVED BY: F. BOLOURIAN M. BOJIC

SHEET TITLE

ELECTRICAL POWER PANEL **SCHEDULES** 

SHEET NUMBER E1200

ISSUE D

1 SINGLE LINE DIAGRAM

- PROVIDE LUMINAIRE FIXTURES AS SHOWN. REFER TO LUMINAIRE SCHEDULE FOR LIGHTING TYPES AND MOUNTING INFORMATION
- ALL EMERGENCY FIXTURES ARE DENOTED WITH "EM" SYMBOL. THESE FIXTURES ARE FED FROM PANEL LP-INV LOCATED IN THE UPS ROOM. LIGHTING INVERTER IS SIZED SO THAT ALL EMERGENCY FIXTURES ARE TO RUN FOR 4 HOURS UNDER FULL LOAD.
- CONNECT NEW GREEN RUNNING MAN EXIT SIGNS TO LP-INV
- LIGHTING CONTROL ZONES ARE AS INDICATED, REFER TO LIGHTING SEQUENCE OF OPERATION SPECIFICATION SECTION

	Lighting Fixture Schedule				
ID Type Mark	Voltage	MODEL	Description		
_01	120 V	SIGNIFY DAYBRITE 2SBP4060L8CSP-4-UN3-DIM or equivalent	2x4 RECESSED LED LIGHT PANEL 5000 LUMENS, 39W, 3500K, 120V OR APPROVED EQUAL		
_02	120 V	LUMENWERX VIA 3 SURFACE, VIA3S-D-LGO-FH-SW-80CRI-750-35K-120	SURFACE MOUNT LINEAR LED, 3500K, ALUMINIUM, BLACK, LOW GLARE OPTIC, LENGTH PER DRAWING, MEDIUM OUTPUT		
_03	120 V	ZUMTOBEL CARDAN MEDIUM			
_03	120 V	ZUMTOBEL CARDAN MEDIUM	SQUARE LED DOWNLIGHT, 3500K, TRM, SW, 24W, GIMBLE MOUNT, 1 HEAD, SQUARE ,WIDE FLOOD, WHITE		
_04	120 V	LUMENWERX ENCANA: EC4RR-TRM-SW-OF-ACB-120-20-D1-80CRI-35K	ROUND LED DOWNLIGHT, RECESSED, FLUSH, 4000 LUMEN, 50 DEGREE, WHITE, TRIM		
_05					
_05			SURFACE MOUNT LINEAR LED, 3500K, ALUMINUM, BLACK, LOW GLARE OPTIC, 4FT LENGTH, MEDIUM OUTPUT		
X01	120 V	LUMACELL LS SERIES	GREEN RUNNING MAN EXIT SIGN, 120V, FACING TO SUIT LOCATION		

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I. TUNG	T. SHEN
PROJECT MGR:	APPROVED BY:
F BOLOURIAN	M BOJIC

SHEET TITLE

ELECTRICAL LIGHTING PLAN

E2100

- 1. EXISTING FIRE ALARM DEVICES IN EXISTING CEILINGS ARE TO REMAIN AND BE RE-VERFIED UPON COMPLETION OF PROJECT SCOPE.
- 2. PROVIDE NEW FIRE ALARM DEVICES AS INDICATED ON PLAN. TIE INTO EXISTING CIRCUITS AS
- 3. EXISTING MAIN FIRE ALARM PANEL IS WITHIN THE BASE BUILDING. CONTRACTOR TO COORDINATE WITH OWNER FOR ACCESS.

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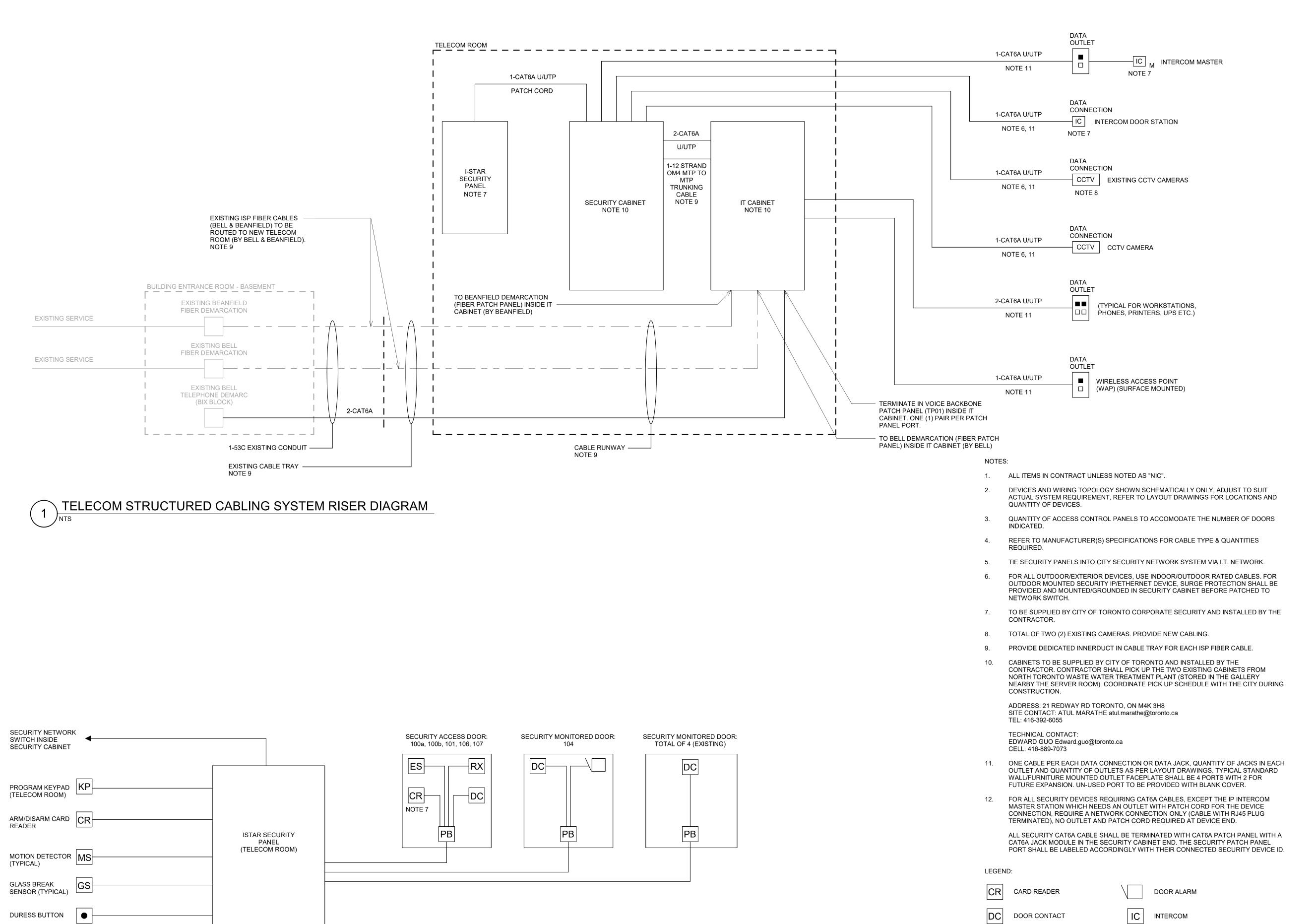
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Toronto, ON M5E 1Y8

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DRAWN BY: I. TUNG	CHECKED BY: T. SHEN
PROJECT MGR: F. BOLOURIAN	APPROVED BY: M. BOJIC

SHEET TITLE

ELECTRICAL FIRE ALARM PLAN

SHEET NUMBER E3100



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PROJECT NO: 148121	
DRAWN BY:	CHECKED BY:
I. TUNG	T. SHEN
PROJECT MGR:	APPROVED BY:
F. BOLOURIAN	S. CHAUDHARY

SHEET TITLE

KP

KEYPAD

PULL BOX

PUSH BUTTON

ELECTRIC STRIKE

REQUEST TO EXIT

MOTION DETECTOR

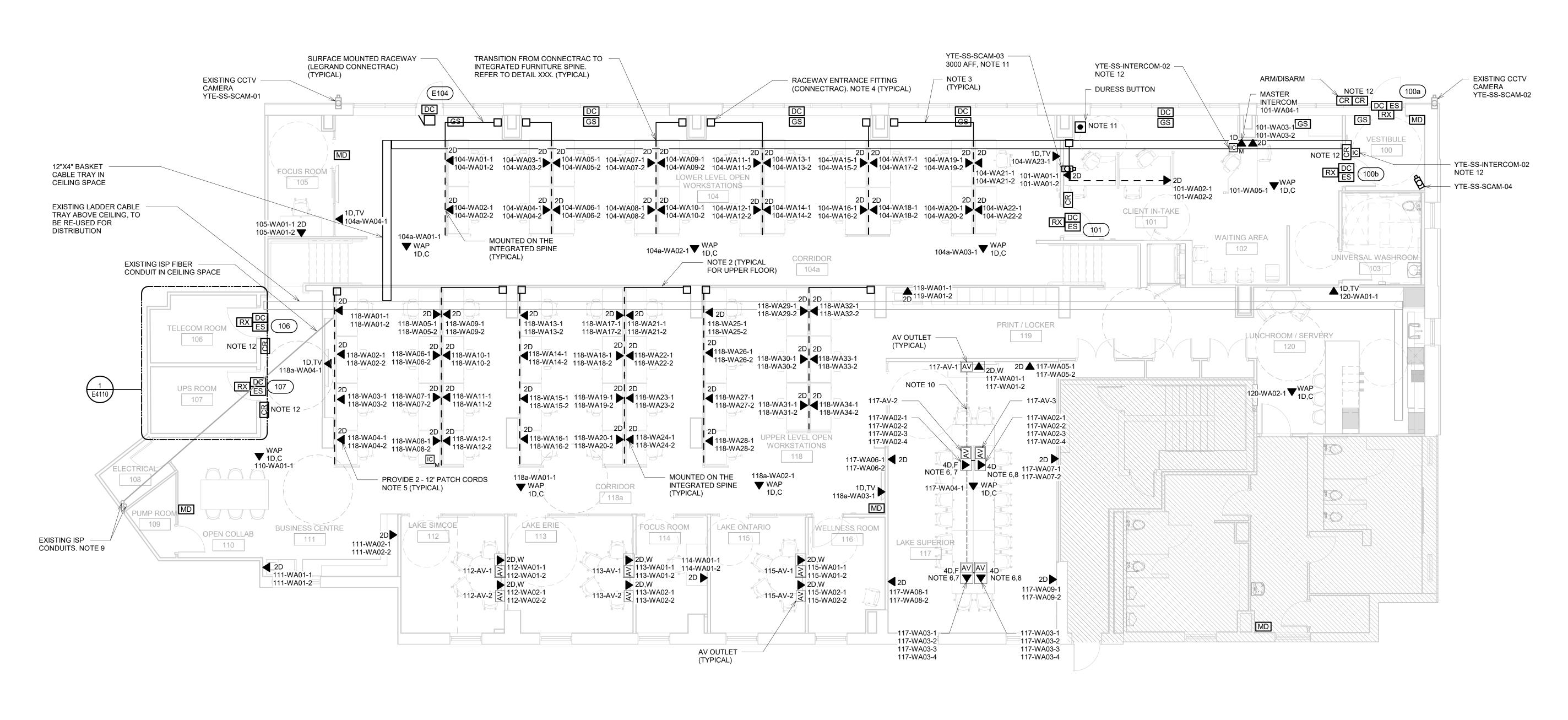
**GLASS BREAK SENSOR** 

**ELECTRICAL AUXILIARY RISER** DIAGRAMS

E4001

ISSUE

SECURITY SYSTEM RISER DIAGRAM



- PROVIDE DATA DROPS TO EACH DESK AS INDICATED FROM PATCH PANEL IN IT ROOM TO DESK. RUN FROM IT CABINET ALONG EXISTING CABLE TRAY RUN IN CEILING. BRANCH OFF FROM CABLE TRAY TRUNK AND DROP DOWN COLUMNS AS NECESSARY.
- PROVIDE WIREMOLD RACEWAY HORIZONTALLY ON WALLS ON TOP LEVEL AND ALONG SPINE OF DESKS TO EACH WORKSTATION FOR COMMUNICATIONS CABLING.
- PROVIDE UNDERCARPET RACEWAY FOR COMMUNICATIONS AND POWER CABLING (WITH DIVIDER) FROM COLUMN TO UNDERSIDE OF DESK.
- 4. RUN CABLES INSIDE THE COLUMN FROM CEILING SPACE CABLE TRAY.
- INSTALL 2-12' PATCH CORDS FROM SPINE MOUNTED DATA OUTLET TO TABLE TOP. PATCH CORD TO BE COILED AND LABELLED. LABEL TO MATCH DATA OUTLET ID TAG.
- PROVIDE CAT6A U/UTP PIGTAILS (SOLID WIRE) BETWEEN FLOOR MONUMENT AND TABLE TOP MONUMENT. THE RJ45 JACK SIDE SHALL BE PLUGGED INTO THE FLOOR MONUMENT DATA OUTLET. THE OTHER SIDE SHOULD BE TERMINATED ON THE TABLE TOP MONUMENT DATA OUTLET (KEYSTONE JACK). PROVIDE CONNECTRAC VERTICAL WIRE MANAGER FOR CABLES FROM FLOOR MONUMENT TO TABLE TOP MONUMENT. BOTH FLOOR MONUMENT OUTLET PORT AND FURNITURE MONUMENT OUTLET PORT SHALL BE LABELED, THE PIGTAIL CABLE SHALL BE LABELED BOTH ENDS AS WELL.
- FLOOR MONUMENT. MANUFACTURER: CONNECTRAC
- TABLE TOP MONUMENT. MANUFACTURER: LEGRAND INTEGREAT A/V TABLE BOX SERIES
- TWO (2) EXISTING ISP FIBER CONDUITS STUBBED UP FROM FLOOR BELOW (FROM BASEMENT TELECOM DEMARCATION ROOM VIA BASEMENT PARKING GARAGE).

CONDUIT 1: FROM THE ELECTRICAL ROOM TO EXISTING CABLE TRAY C/W TWO FIBER CABLES (BELL &

COGECO/BEANFIELD)

ATTACHED TO CONDUIT 1 RUNNING TO EXISTING CABLE TRAY

CONDUIT 2: STOPS INSIDE ELECTRICAL ROOM. ONE EXTISTING MULTIPAIR TELEPHONE CABLE

- 10. PROVIDE CONNECTRAC ON-FLOOR FLEX RACEWAY SYSTEM FROM THE WALL TO FLOOR MONUMENT.
- 11. COORDINATE AND CONFIRM FINAL LOCATION WITH THE CITY PRIOR TO ROUGH-IN.
- 12. TO BE SUPPLIED BY CITY OF TORONTO CORPORATE SECURITY AND INSTALLED BY THE

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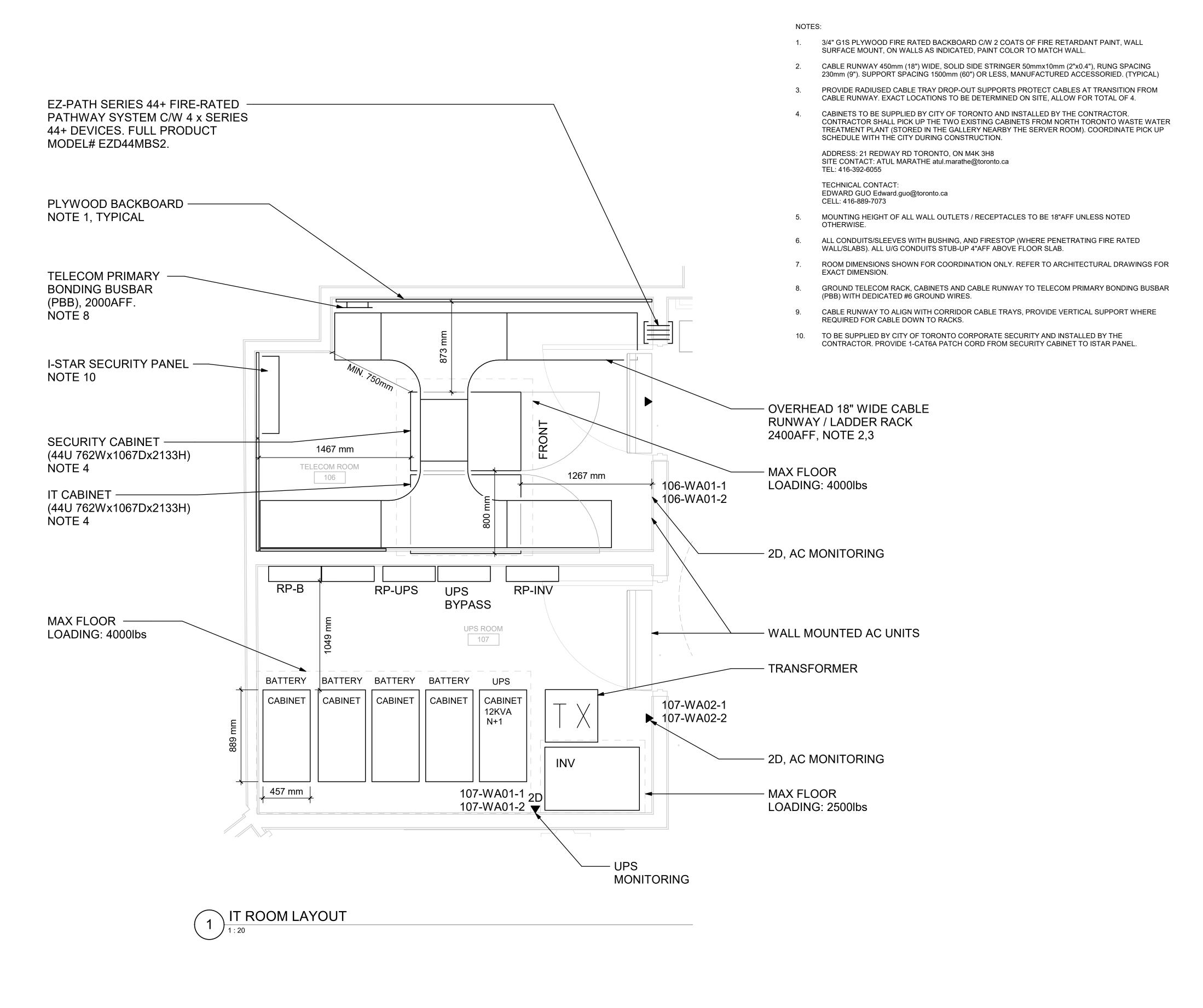
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PROJECT MGR: F. BOLOURIAN	APPROVED BY: S. CHAUDHARY

SHEET TITLE

**ELECTRICAL AUXILIARY PLAN** 

ISSUE

E4100



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PROJECT MGR:	APPROVED BY:
F. BOLOURIAN	S. CHAUDHARY
DRAWN BY:	CHECKED BY:
I. TUNG	T. SHEN
148121	

SHEET TITLE

ELECTRICAL AUXILIARY IT ROOM LAYOUT

SHEET NUMBER **E4110** 

IT CABINET (FREE ISSUED BY CITY)

(FRONT VIEW)

YTE-SS-COM-001 SECURITY CABINET (FREE ISSUED BY CITY) (FRONT VIEW)

44

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NOTES:

- PROVIDE TWO L14-30R RECEPTACLES MOUNTED ABOVE IT CABINET AND PROVIDE TWO L5-20R RECEPTACLES MOUNTED ABOVE SECURITY CABINET, ONE FED FROM UPS PANEL AND ONE FED FROM UTILITY POWER PANEL. THE POWER CABLES SHALL RUN IN A CONDUIT ALONG THE CABLE TRAY TO ABOVE OF CABINET. THE RECEPTACLES SHALL BE LABELED SOURCE POWER PANEL # AND CIRCUIT BREAKER #.
- MAGNETIC MOUNTED LED LIGHT SHALL BE PROVIDED FOR REAR OF EACH CABINET.
- PROVIDE TWO POWER DISTRIBUTION UNITS (PDU) MOUNTED AT THE REAR OF THE
- REAR OF NETWORK AND SECURITY CABINETS. PROVIDE #6AWG GROUNDING WIRE TO CONNECT GROUNDING BUS BAR TO TELECOM PRIMARY BUS BAR (TPP).

PROVIDE RACK MOUNTED GROUNDING BUS BAR (PANDUIT) AT THE BOTTOM OF THE

- CONTRACTOR TO COORDINATE WITH CITY IT/SECURITY PRIOR TO INSTALLATION OF ALL EQUIPMENT, FREE ISSUED BY CITY.
- SUPPLY ONE BOX (PACK OF 250) M6 CAGE NUTS AND SCREWS, FOR TWO CABINETS, CPI CLIK-NUT®, PART NO: 76543-002.
- FOR SECURITY CABINET, CONFIRM THE SUPPLIED ATS PDU POWER CORD PLUG MATCHES POWER RECEPTACLES AT TOP OF CABINET, IF NEEDED, 1 PAIR OF POWER ADAPTER SHALL BE PROVIDED FOR THE ATS AND RECEPTACLE CONNECTION.
- FOR NETWORK CABINET, THE NEW PDU POWER PLUG SHALL MATCH WITH L14-30R, OTHERWISE POWER ADAPTER SHALL BE PROVIDED ACCORDINGLY.
- IF IP CAMERA NEED HPOE WHICH IS MORE THAN 30W, ADDITIONAL REQUIRED HPOE INJECTOR SHALL BE PROVIDED FOR THE CAMERA AND PUT IN THE FIX SHELF OF SECURITY CABINET.

— FREE ISSUED BY CITY

 FOR LOOSE MOUNTED DEVICES (POE SURGE PROTECTORS, POTENTIAL HPOE INJECTOR, ETC.)

NETWORK CABINET.

- HUSKY IVO 1000R

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**ELECTRICAL AUXILIARY** CABINET RACK ELEVATIONS

E4111

ISSUE

**BLANK PANEL** 

**BLANK PANEL** 

FIBER PATCH PANEL

2U HCM

SWITCH

2U HCM

CAT6A PATCH PANEL - 24 PORT

FIX SHELF

BLANK PANEL

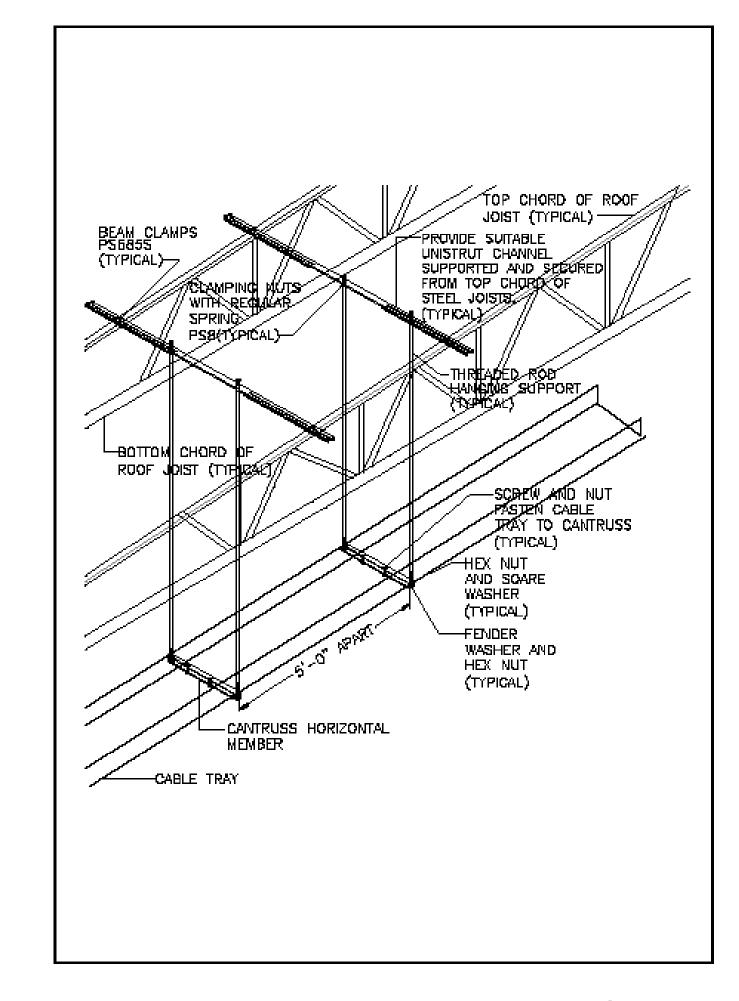
**BLANK PANEL** 

NVR/VIDEO SERVER

ATS PDU (EATON EATS120)

RACK MOUNTED KVM

LAPTOP SLIDE TRAY



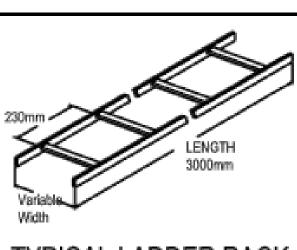
TOP CHORD OF -BOTTOM CHORD ROOF JOIST. OF ROOF JOIST. (TYPICAL)-(TYPICAL) -ERICO BEAM CLAMP #318EG FOR UNIVERSAL/ REVERSIBLE MALLEABLE ≶BEAM CLAMP. (TYPICAL) -TÁIREADED ROD MANGING SUPPORT /**(**T(PICAL) -SCREW AND NUT TO FASTEN EABLE TRAY TO CANTRUSS (TYPICAL) HEX NUT AND SQUARE WASHER CABLE (TYPICAL) -FENDER WASHER AND HEX NUT JMKSJRÚT HORIZONTAL (TYPICAL) 1µember –

DETAIL OF CABLE TRAY SUPPORT
WHEN RUN PARALLEL TO THE JOISTS

DETAIL OF CABLE TRAY SUPPORT
WHEN RUN PERPENDICULAR TO THE
JOISTS

E4112

3 E4112



INSTALLATION DETAIL OF CABLE TRAY

UNDER MECHANICAL DUCT

TYPICAL LADDER RACK

- \* MATERIAL: 16 GAUGE, TUBULAR STEEL

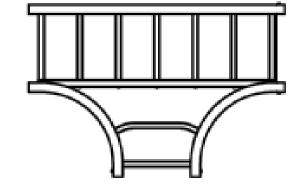
  \* DURABLE POWDER COAT

  \* STRINGER DIMENSIONS: 0.375"W x 1.5"H
- \* RUNG SPACING: 9.0\*
  \* WEIGHT CAPACITY: 45 LBS./FOOT



TYPICAL 90deg SWEEP

LADDER-TYPE RACK DETAILS



TYPICAL 45deg SWEEP

E4112

TYPICAL HORIZONTAL TEE



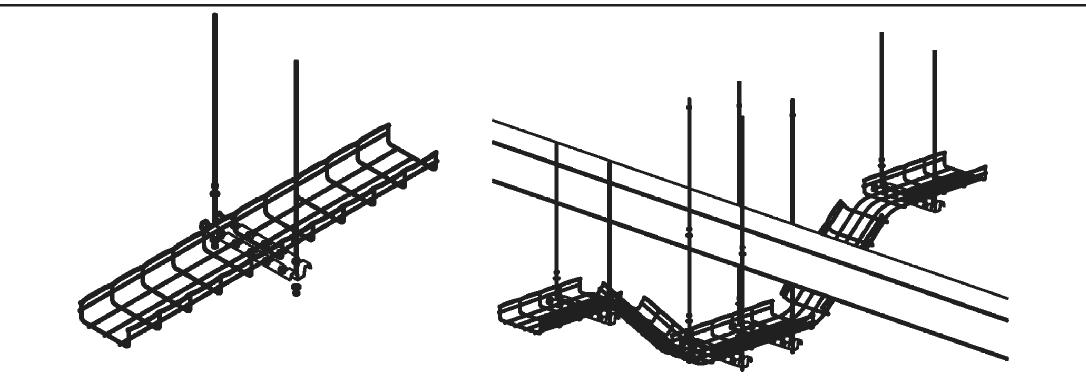
TYPICAL 45deg VERTICAL SWEEP



TYPICAL 45deg VERTICAL SWEEP

## CABLE TRAY GENERAL NOTES:

- SHALL BE A MINIMUM OF 103mm OR 4 INCHES IN DEPTH;
- PROPER MANUFACTURED ACCESSORIES AND FITTINGS SUCH AS ELBOWS, REDUCERS, CROSSOVERS, TEES AND RISER SHALL BE USED FOR ANY CHANGE IN DIRECTION, HEIGHT OR SIZE OF THE CABLE TRAY.
- SPINE TYPE CABLE TRAY IS NOT ACCEPTABLE
- 4. SUPPORT CABLE TRAYS TO SUIT LOADING AND RECOMMENDED SUPPORT REQUIREMENTS IN THE CANADIAN ELECTRICAL CODE, PART 1, FOR THE APPLICABLE CLASS. A SUPPORT SHALL BE PLACED WITHIN A MAXIMUM OF 610MM ON EITHER SIDE OF ANY CONNECTION TO A FITTING.
- MATERIALS BOLTED OR RIVETED TO THE CABLE TRAY SHALL BE FREE OF BURRS AND OR SHARP EDGES. DO NOT ALLOW BOLTS AND OR RIVETS TO OBSTRUCT OR INTERFERE WITH THE INTERIOR SPACE OF THE TRAY



1. THE BASKET TRAY SHALL HAVE 100mm (4") MINIMUM USABLE LOAD DEPTH UNLESS OTHERWISE STATED IN THE SPECIFICATIONS AND/OR PLAN DRAWINGS.
2. SUPPORTS MUST BE ATTACHED TO STRUCTURAL CEILING OR WALLS.

- 3. THE BASKET TRAY SUPPORTS SHALL BE PLACED SO THAT THE SUPPORT SPANS DO NOT EXCEED MAXIMUM SPAN OF 1.52m (5 FT) UNLESS GREATER SPANS ARE PERMISSIBLE BY MANUFACTURER.
- 4. A BASKET TRAY SUPPORT MUST BE PLACED WITHIN 610mm (2 FT) ON EACH SIDE OF ANY CONNECTION TO A FITTING, COUPLER, OR SPLICE.
- 5. ALL TRAY FITTINGS MUST HAVE A MINIMUM BEND RADIUS OF 221mm (8.7").
- 6. ALL DROP OF CABLES FROM THE BASKET TRAY SHALL BE DONE HAVING A MINIMUM BEND RADIUS OF 25.4mm (1").
  7. ALL BASKET TRAY SHALL BE BONDED TO GROUND.
- 8. WHERE CEILINGS ARE TO BE FITTED OUT WITH T-BAR, A MINIMUM OF 76mm (3") OF CLEAR VERTICAL SPACE ABOVE THE CEILING TILES AND SUPPORT
- CHANNELS (T-BARS) SHOULD BE MAINTAINED TO ENSURE ACCESSIBILITY.

  9. WHERE SUFFICIENT SPACE IS AVAILABLE ABOVE THE TRAY, UP TO 152mm (6") SHOULD BE PROVIDED BETWEEN THE SUSPENDED CEILING AND THE CABLING
- PATHWAY.
- 10. ALLOW FOR MINIMUM 103mm (4") ABOVE THE TRAY SIDE WALL TO PERMIT CABLE ACCESS.
- 11. CENTERED SINGLE SUPPORT RÓD OF SUFFICIENT SPACING AND QUANTITY TO PROVIDE EQUAL SUPPORT PERMISSIBLE.
- 12. A SUPPORT MUST BE PLACED BEFORE ANY DEFLECTION OF THE CABLE TRAY ROUTE.
  13. IT IS RECOMMENDED TO PLACE SUPPORTS AT THE START AND END OF 90 DEG. BENDS.

CABLE TRAY DETAILS

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95 THE ESPLANADE

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PROJECT MGR: F. BOLOURIAN	APPROVED BY: S. CHAUDHARY

F. BOLOURIAN
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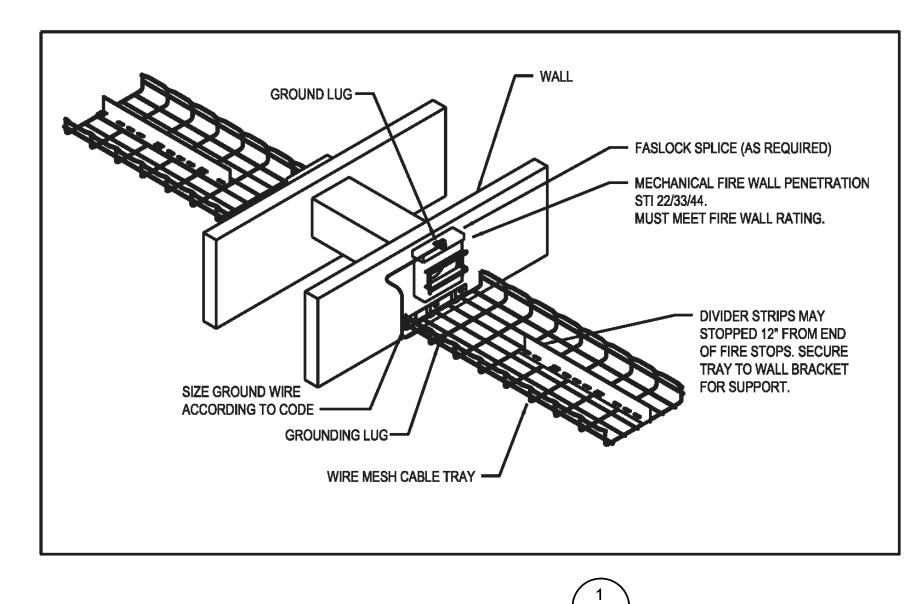
ELECTRICAL AUXILIARY
CABLE TRAY DETAILS

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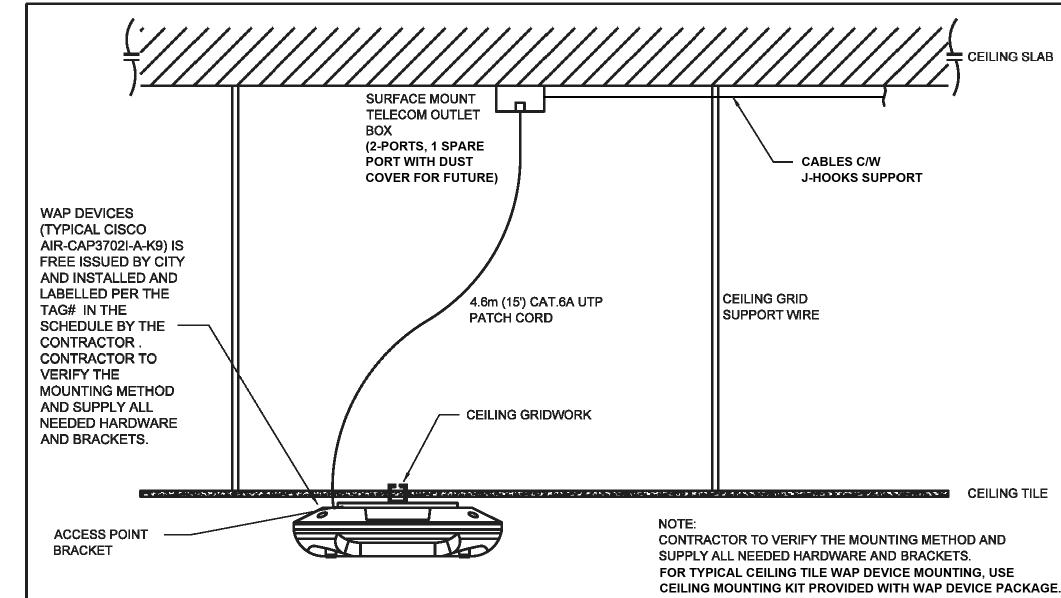
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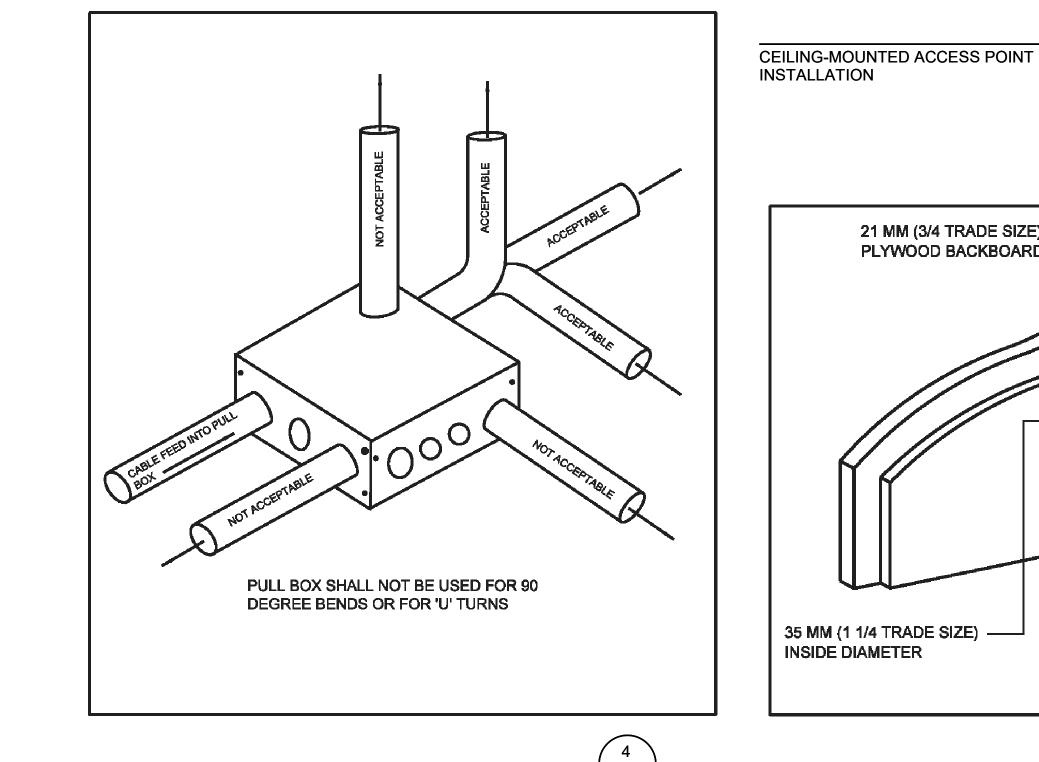
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E4112



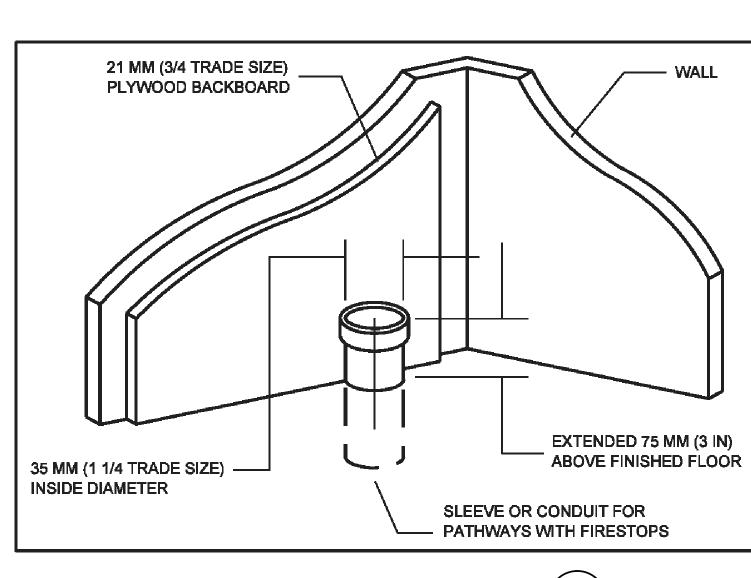
FIRE-STOPPING DETAIL





PULLBOX DETAILS

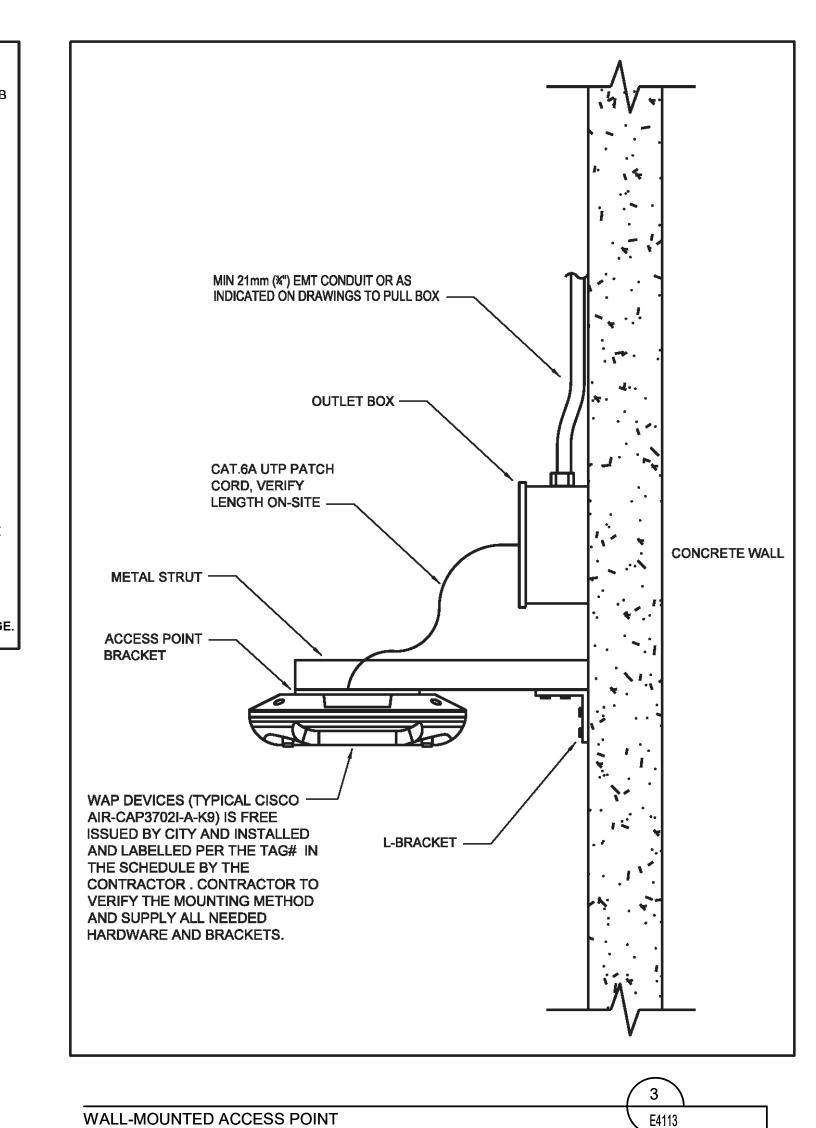
E4113



E4113

TYPICAL SLEEVE/CONDUIT

E4113



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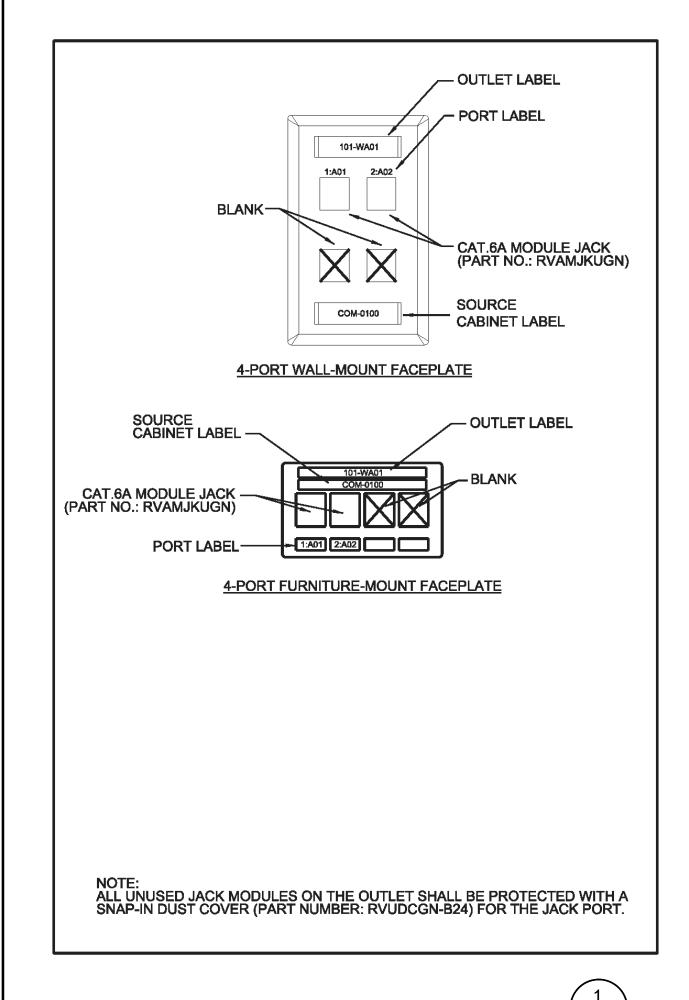
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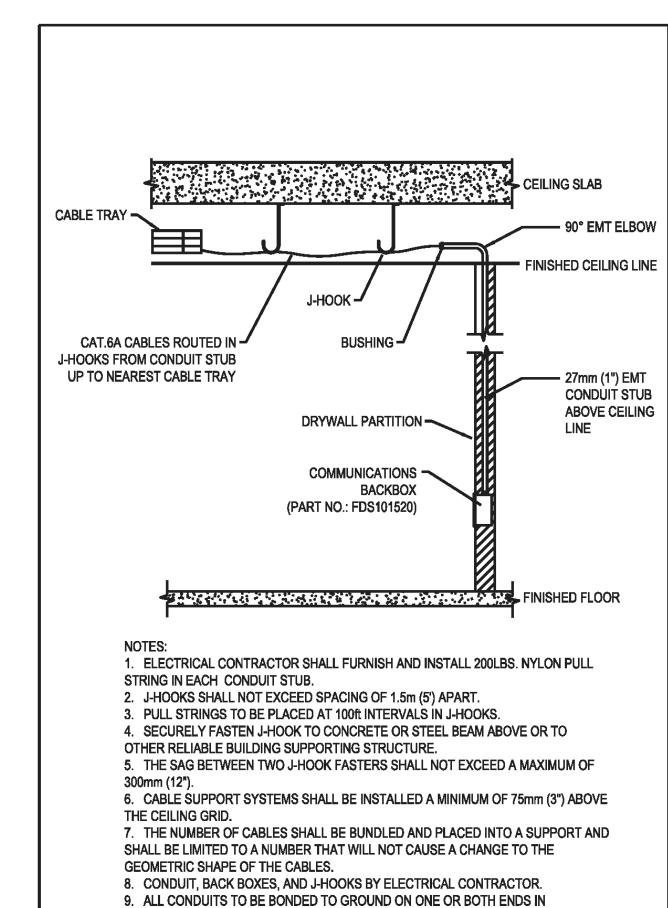
**ELECTRICAL AUXILIARY INSTALLATION DETAILS** 

SHEET NUMBER E4113



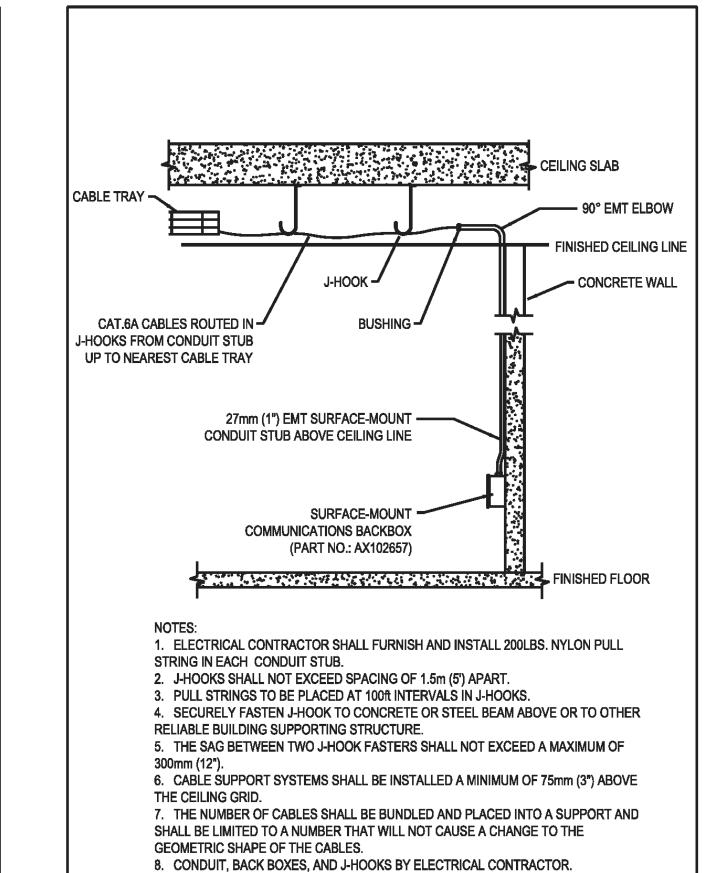
**WORK AREA OUTLETS DETAIL** 

PATCH PANEL LABELING



ACCORDANCE WITH NATIONAL AND LOCAL ELECTRICAL CODES.

FLUSH-MOUNTED WAO INSTALLATION



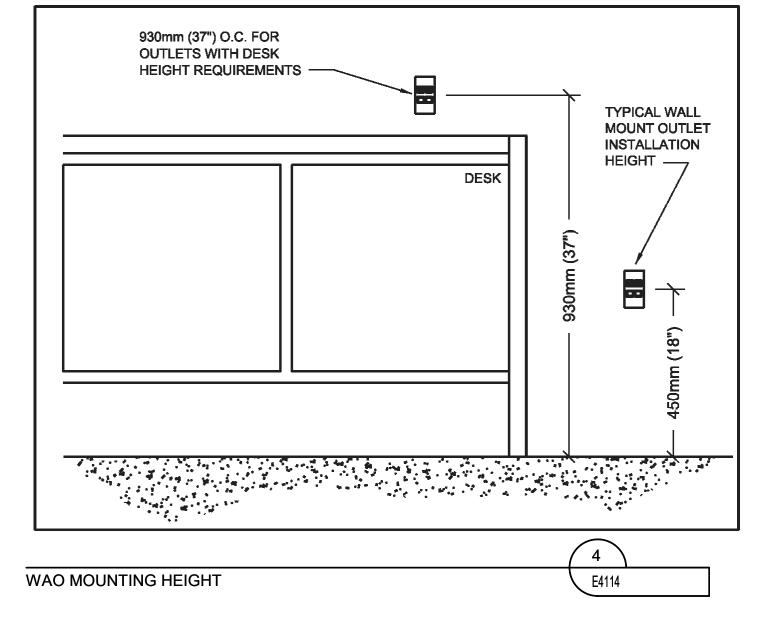
9. ALL CONDUITS TO BE BONDED TO GROUND ON ONE OR BOTH ENDS IN

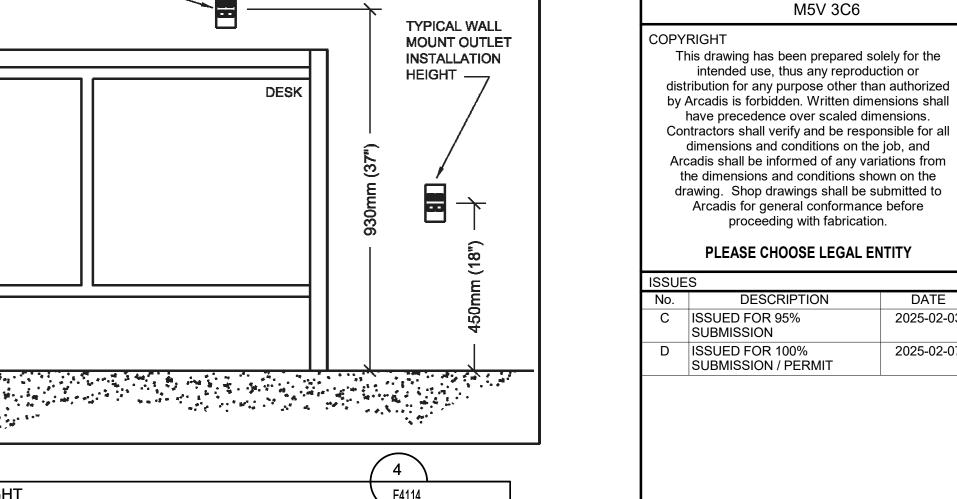
ACCORDANCE WITH NATIONAL AND LOCAL ELECTRICAL CODES.

SURFACE-MOUNTED WAO

**INSTALLATION** 

E4114





WORK AREA PORT LABEL DATA PATCH PANEL LABEL 01 02 03 04 05 06 07 08 09 NOTE: ALL PORTS IN DATA PATCH PANEL SHALL BE GREEN COLOR PATCH PANEL PORT LABEL

E4114

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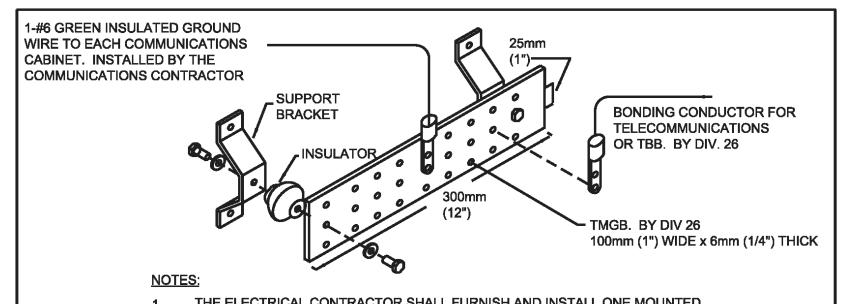
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DRAWN BY:	CHECKED BY:
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PROJECT MGR:	APPROVED BY:
F. BOLOURIAN	S. CHAUDHARY

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ELECTRICAL AUXILIARY WORK AREA OUTLET DETAILS

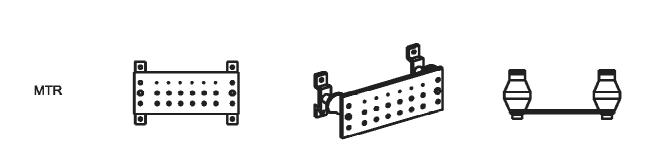
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- THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ONE MOUNTED
- GROUND BUS AT EACH VOICE/DATA EQUIPMENT ROOM.
- GROUND BUS BAR SHALL BE INSTALLED 12"(305mm) AFF.
- ALL BRANCH GROUNDING WITHIN THE MDF AND IDF ROOMS SHALL BE FURNISHED AND INSTALLED BE THE COMMUNICATIONS CONTRACTOR.
- THE ELECTRICAL CONTRACTOR SHALL PROVIDE A GROUND CONNECTION BETWEEN THE BASE BUILDING SERVICE ENTRANCE GROUNDING ELECTRODE AND THE MDF GROUND BUS. ALSO PROVIDE A GROUND CONNECTION BETWEEN THE MDF AND IDF GROUND BUSES (WHERE REQUIRED).
- ALL GROUNDING TERMINATIONS SHALL BE DONE WITH U.L. LISTED HYPRESS LUGS AND GROUNDING CLAMPS.
- 6. TMGB TO BE LOCATED IN SERVER ROOM.

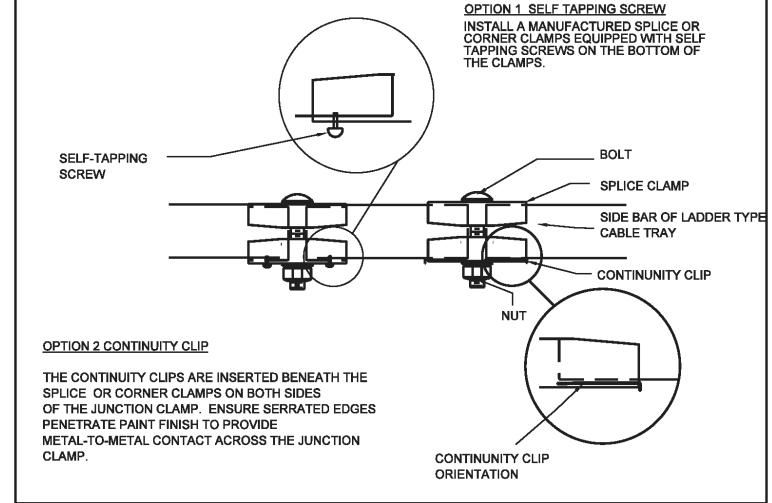
E4115



#### TYPICAL SERVER ROOM COPPER BUS BAR

AN INSULATED PRE-DRILLED ELECTRO TIN PLATED COPPER BUSBAR, MINIMUM DIMENSIONS OF 6MM THICK X 100MM WIDE X 300MM LONG (0.24" X 4" X 12"), (LONGER LENGTH MAY BE REQUIRED TO ACCOMMODATE LARGE OR FUTURE CONNECTION REQUIREMENTS), SHALL BE INSTALLED ON THE WALL OF THE MTR ADJACENT TO THE CABLE ENTRANCE CONDUITS, 150MM (6") FROM THE CORNER OF THE MTR AND 150MM (6") AFF.

THIS BUSBAR IS KNOWN AS THE TELECOMMUNICATIONS MAIN GROUNDING BUSBAR (TMGB) AND SHALL BE INSULATED FROM ITS SUPPORT BY A MINIMUM OF 50MM (2").



E4115

LENGTH m (ft)	kemil	TBB SIZE (AWG)
Less than 4 (13)	26,240	6
4-6 (13-20)	41,740	4
6-8 (20-26)	52,620	3
8-10 (26-33)	66,360	2
10-13 (33-34)	83,690	1
13-16 (44-52)	105,600	1/0
16-20 (52-66)	133,100	2/0
Greater than 20 (66)	167,800	3/0

ANSI J-STD-607-A PROVIDES STANDARD REQUIREMENTS FOR TBBs AND **ASSOCIATED HARDWARE** 

THE TBB SHOULD: - HAVE A MINIMUM SIZE OF 6 AWG [4.1 mm (0.16 in)] AND COULD BE AS LARGE AS A 3/0 AWG [14.73 mm (0.580 in)]. - BE SIZED AT 2 kcmil PER LINEAR FOOT OF CONDUCTOR LENGTH.

- NOT BE DESIGNED TO PROVIDE THE ONLY AC POWER GROUND FAULT

E4115

- NOT BE SPLICED. - HAVE IRREVERSIBLE SPLICED CONNECTIONS (EXOTHERMIC OR COMPRESSION TYPE).

RETURN PATH.

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**TELECOMMUNICATIONS GROUNDING BUS BAR DETAIL** 

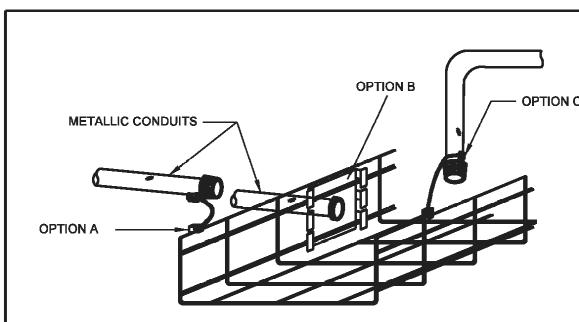
**BUS BAR DETAILS** 

E4115

TRAY SPLICE DETAIL

TWO HOLE, TIN PLATED, LONG BARREL COMPRESSION LUGS MUST BE USED. THE COMPRESSION LUG MUST BE SIZED TO ACCOMMODATE A 6 AWG STRANDED COPPER WIRE . THE DISTANCE BETWEEN THE TWO HOLES ARE 16mm (0.63") CENTRE. THE HOLES ARE TO BE 6.35mm (0.25") IN DIAMETER.

GROUND LUG DETAILS



1. CONDUITS SHALL COMMENCE WITHIN 100mm ABOVE AND PERPENDICULAR TO THE INSIDE EDGE OF THE CABLE TRAY ON THE CLOSEST SIDE TO THE OUTLET BOX.

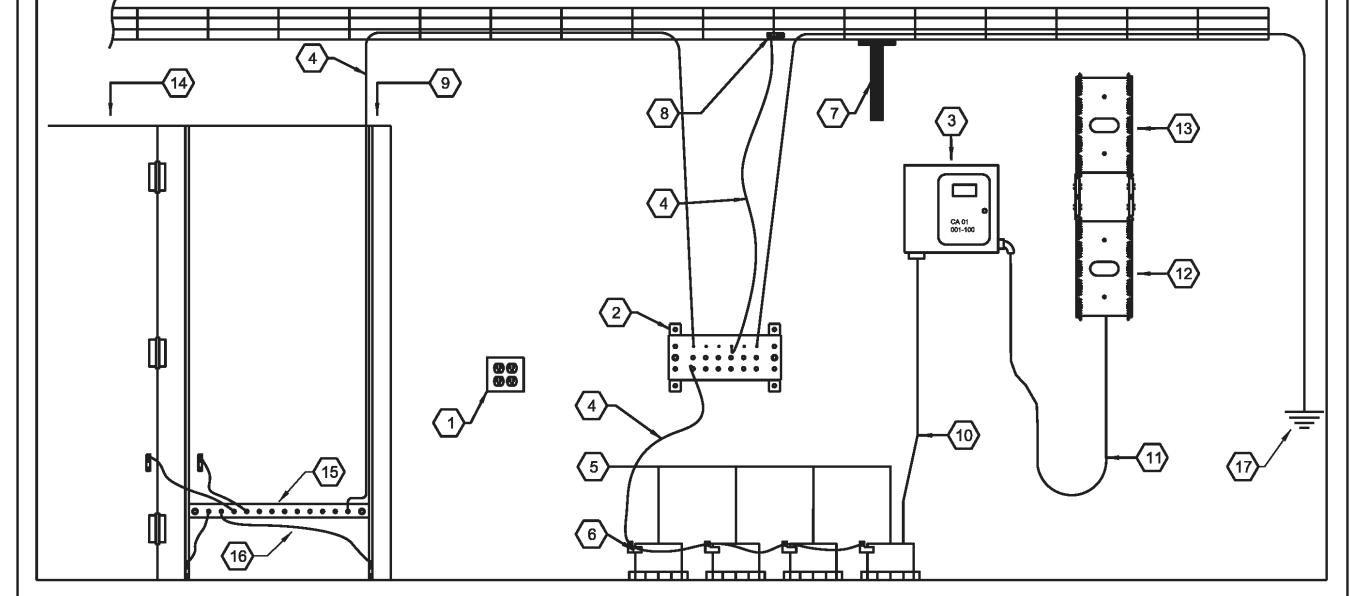
2. CONDUITS SHALL BE REAMED AND BUSHED.

3. CONDUITS SHALL BE BONDED WITH GREEN-JACKETED, #6 AWG RW90 STRANDED COPPER CONDUCTOR (OPTIONS A AND C) OR MECHANICALLY BONDED TO THE CABLE TRAY WITH ELECTRICALLY CONDUCTIVE MATERIAL NOT PRONE TO GALVANIC CORROSION (OPTION B).

4. CONDUITS SHALL USE IRREVERSIBLE COMPRESSION ON OR EXOTHERMIC WELD TYPE LUGS/CONNECTORS, INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

5. MATERIALS BOLTED OR RIVETED TO THE CABLE TRAY SHALL BE FREE OF BURRS AND OR SHARP EDGES. DO NOT ALLOW BOLTS AND OR RIVETS TO OBSTRUCT OR INTERFERE WITH INTERIOR SPACE OF THE TRAY.

E4115



2-15R DUPLEX 150mm AFF (BY DIVISION 26).

(2) GROUNDING BUS BAR (BY DIVISION 26).

(3) ENTRANCE COPPER PROTECTOR (100-PAIR).

MINIMUM #6 AWG GREEN JACKET GROUNDING CABLE TO TELECOMMUNICATIONS GROUNDING

5 INCOMING CONDUITS FOR SERVICE PROVIDER BY ELECTRICAL (DIVISION 26).

**GROUNDING AND BONDING DETAILS** 

6 ALL INCOMING CONDUITS TO BE BONDED TO MAIN TELECOMMUNICATIONS GROUNING BUSBAR.

(7) WALL MOUNTED LADDER RACK SUPPORT. ALL CABLE TRAY/LADDER RACK TO BE BONDED TO

MAIN TELECOMMUNICATIONS BUSBAR WITH A MINIMUM #6 AWG GREEN JACKETED CABLE.

ALL NETWORK CABINETS IN THE SERVER ROOM TO BE BONDED TO MAIN TELECOMMUNICATIONS BUSBAR WITH A MINUMUM #6 AWG GREEN JACKETED CABLE.

(10) INCOMING COPPER FEEDS FROM SERVICE PROVIDER.

PROTECTED COPPER PAIRS TO GIGABIX FIELDS.

(2) SERVICE PROVIDER GIGABIX PUNCH DOWNS.

(3) USER GIGABIX PUNCH DOWNS.

(4) NETWORK CABINET DOOR. (15) RACK MOUNTED GROUNDING STRIP.

MINIMUM #10 AWG GREEN JACKET GROUNDING CABLE FOR CABINET FRONT DOOR, REAR DOOR, SIDE PANELS, AND FRAME OF THE NETWORK CABINET TO TELECOMMUNICATIONS GROUNDING

MINIMUM #6 AWG TO BUILDING MAIN ELECTRICAL ROOM GROUNDING BUS BAR.

CONDUIT TO TRAY GROUNDING DETAIL

TELECOMMUNICATIONS MAIN GROUNDING - BUSBAR (TMGB) TO BE INSTALLED 150mm (6") AFF AND 150mm (6") FROM CORNER OF 150mm (6") 0 . . . . . . . . CORNER OF ROOM -150mm (6")

**TMGB ELEVATION** 

SELECT CONSULTANT TYPE



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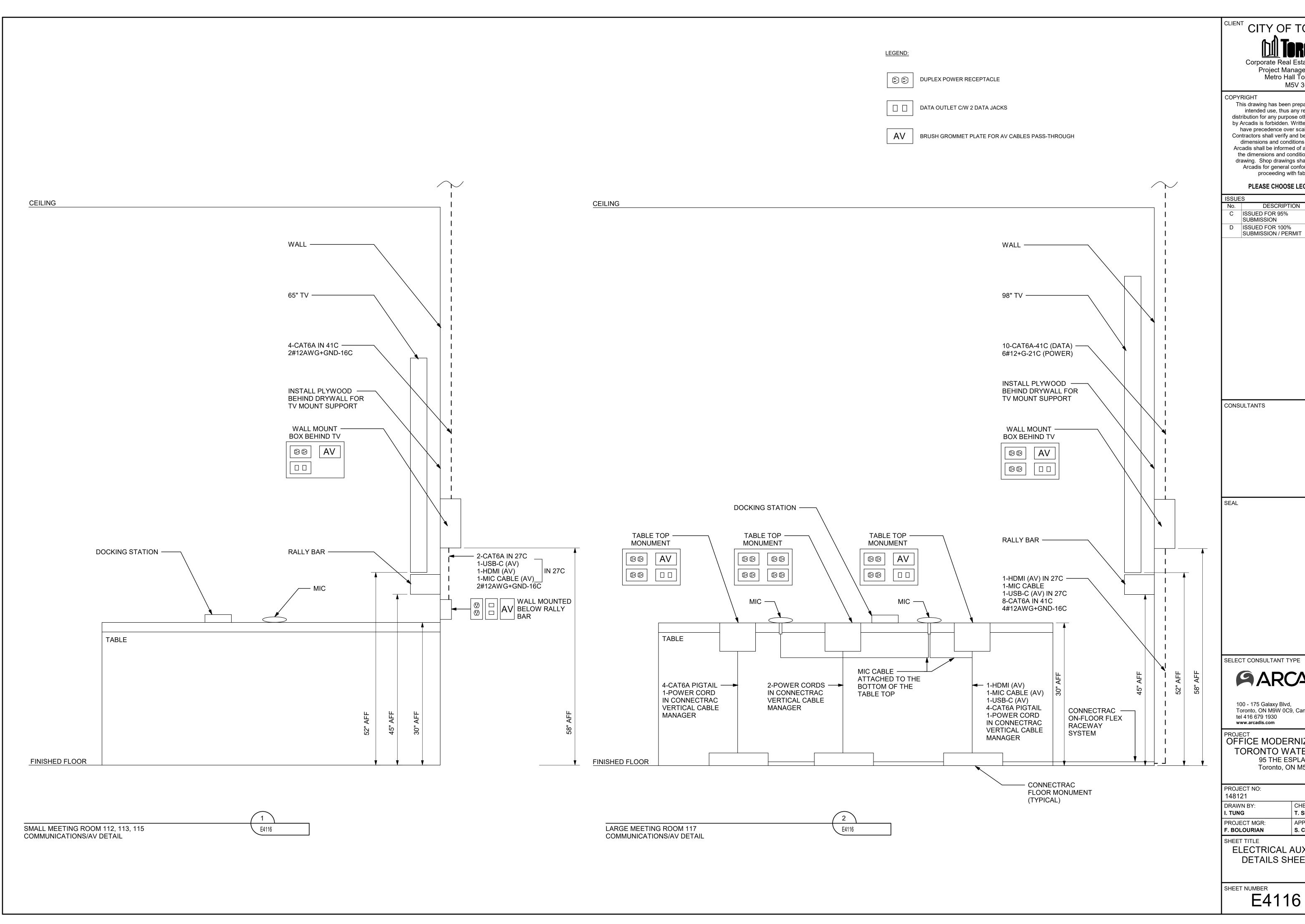
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DRAWN BY:	CHECKED BY:
I. TUNG	T. SHEN
PROJECT MGR:	APPROVED BY:
F. BOLOURIAN	S. CHAUDHARY

SHEET TITLE

**ELECTRICAL AUXILIARY** GROUNDING AND BONDING **DETAILS** 

E4115



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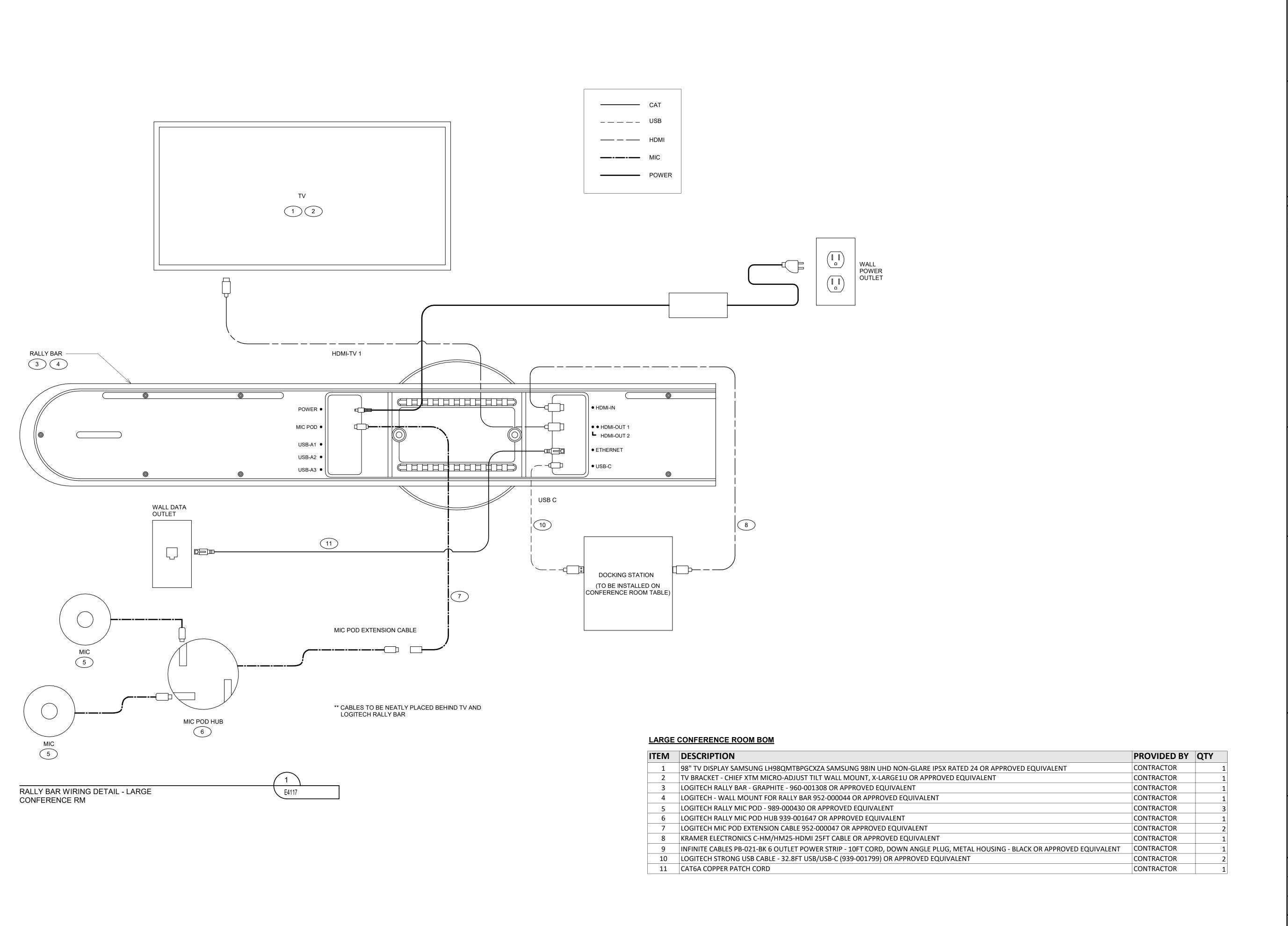
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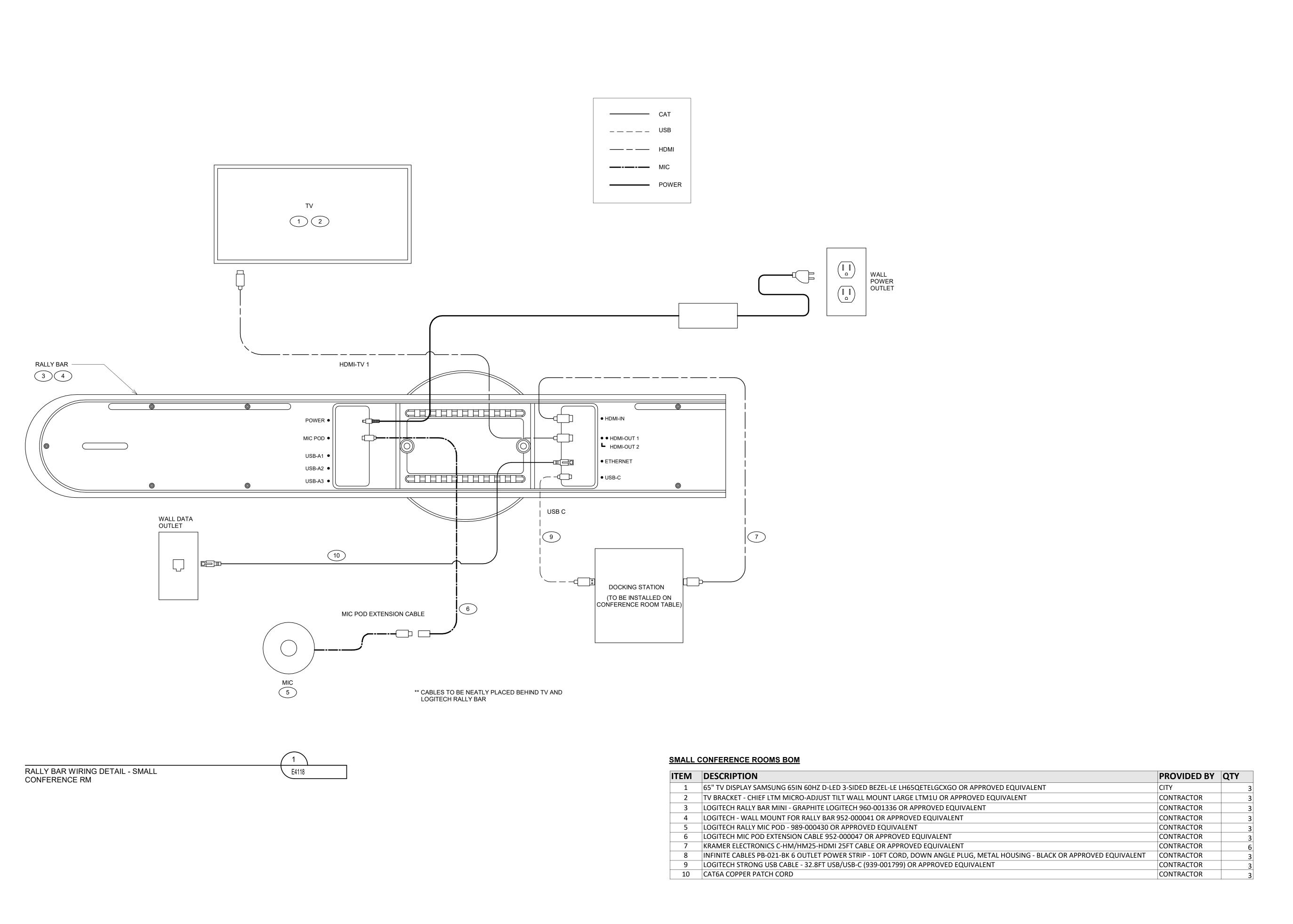
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ROJECT MGR:	APPROVED BY:
BOLOURIAN	<b>S. CHAUDHARY</b>

F. BOLOURIAN

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F. BOLOURIA

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