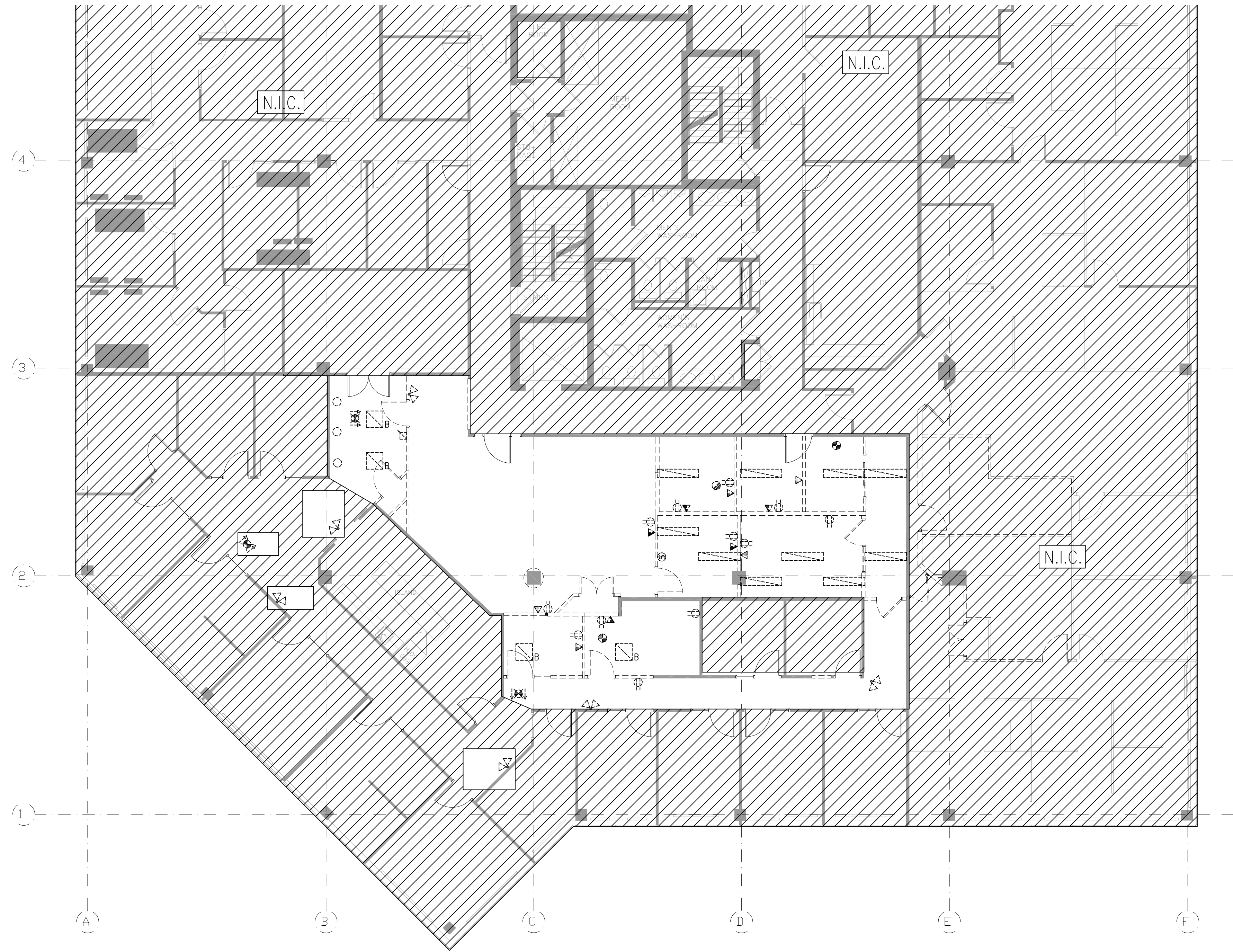




GENERAL NOTES

1. ALL FIXTURES ARE TYPE "A" U.O.N.

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1.	ISSUED FOR TENDER	JUL 11/25
REVISION No.	DESCRIPTION	DATE

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PROJECT:
CAPCORP FIT-UP
1050 MORRISON DRIVE
3RD FLOOR
OTTAWA, ON

DRAWING:
ELECTRICAL:
DEMOLITION

	DATE: JUNE 2025
	DESIGNED BY: C.J.
	DRAWN BY: C.J.
	CHECKED BY: B.T.
	SCALE: 1/8"=1'-0"

No. DWGS. 5	DRAWING No.
PROJECT No. 25064	ED-1

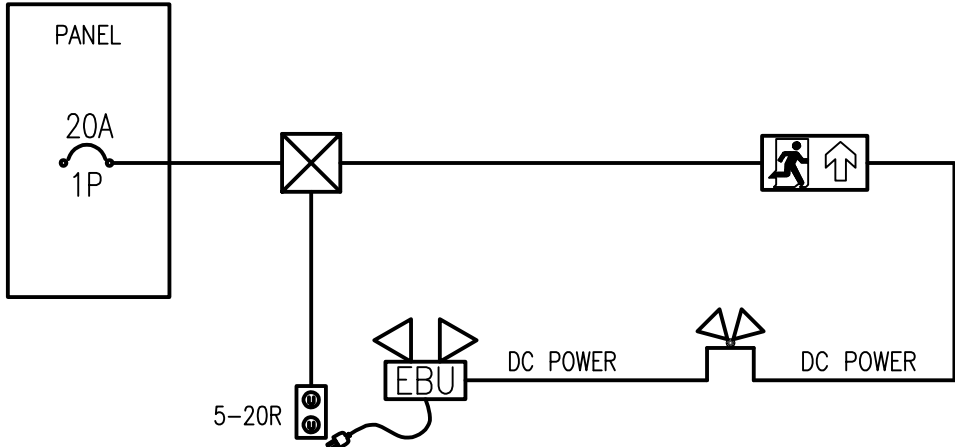
ELECTRICAL DRAWING LIST

DWG. #	DESCRIPTION
ED-1	ELECTRICAL: DEMOLITION
E-1	ELECTRICAL: LEGEND, DETAILS AND DRAWING LIST
E-2	ELECTRICAL: LIGHTING AND FIRE ALARM
E-3	ELECTRICAL: POWER AND SYSTEMS
E-4	ELECTRICAL: SPECIFICATIONS

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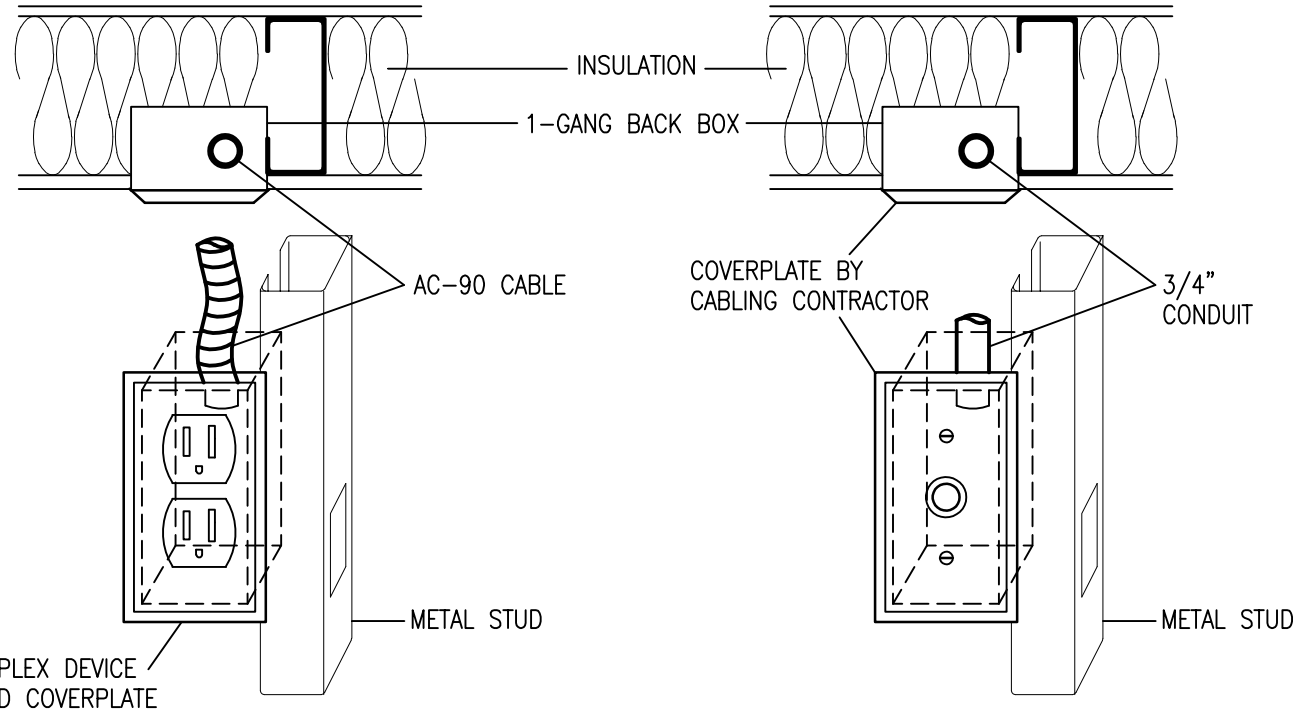
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REMOVE	EXISTING TO REMAIN	NEW AND/OR RELOCATED	ELECTRICAL LEGEND
			BASE BUILDING FLUORESCENT FIXTURE. LENGTH AS SHOWN. LETTER DENOTES TYPE.
			2'x2" LED LIGHT FIXTURE. LETTER DENOTES TYPE.
			2'x2" LED FIXTURE, ON NIGHT LIGHTING CIRCUIT. LETTER DENOTES TYPE.
			LINEAR LED FIXTURE. LENGTH AS SHOWN. LETTER DENOTES TYPE.
			DOWNLIGHT FIXTURE, LETTER DENOTES TYPE.
			LED PENDANT FIXTURE, LETTER DENOTES TYPE.
			FLEXIBLE STRIP FIXTURE, LETTER DENOTES TYPE.
			EXIT LIGHT, CEILING MOUNTED, C/W DIRECTIONAL ARROWS AS NOTED.
			20A, 1P, 347V LIGHT SWITCH.
			20A, 1P, 120V LIGHT SWITCH.
			DIMMER SWITCH.
			LOW VOLTAGE DUAL TECHNOLOGY OCCUPANCY SENSOR, CEILING MOUNTED.
			EMERGENCY BATTERY UNIT WITH TWO (2) INTEGRAL HEADS AS SHOWN.
			EMERGENCY TWIN REMOTE HEADS.
			HEAT DETECTOR, RATE OF RISE, CEILING MOUNTED TYPE.
			FIRE ALARM HORN. WALL MOUNTED TYPE.
			SMOKE DETECTOR, CEILING MOUNTED TYPE.
			15A, 120V, DUPLEX RECEPTACLE. LINE ACROSS INDICATES ELEVATED HEIGHT.
			SPECIAL RECEPTACLE AS NOTED. LINE ACROSS INDICATES ELEVATED HEIGHT. 20A, 120V, 5-20R DUPLEX RECEPTACLE U.O.N.
			15A, 120V, DUPLEX RECEPTACLE ON DEDICATED CIRCUIT. LINE ACROSS INDICATES ELEVATED HEIGHT.
			COMBINATION FLUSH POKE THROUGH FLOOR BOX.
			SURFACE MOUNTED ELECTRICAL PANEL.
			JUNCTION BOX.
			COMBINATION TELEPHONE/DATA OUTLET. LINE ACROSS INDICATES ELEVATED HEIGHT.
ABBREVIATIONS: GFI - GROUND FAULT INTERRUPTER AFF - ABOVE FINISHED FLOOR U.O.N. - UNLESS OTHERWISE NOTED RR - REMOVE AND REINSTALL DF - DRINKING FOUNTAIN C - CEILING MOUNTED N.T.S. - NOT TO SCALE N.I.C. - NOT IN CONTRACT U/S - UNDERSIDE C/W - COMPLETE WITH RL - DENOTES EXISTING ITEM TO BE RELOCATED IN NEW POSITION			



1. LOAD NOT TO EXCEED 80% OF THE 20 AMP BREAKER.
2. BREAKER TO BE EQUIPPED WITH LOCK-ON DEVICE.

1 WIRING OF EBU, EXIT & NIGHT LIGHT FIXTURE
E-1
N.T.S.



DENOTED BY: ON PLANS.

NOTE: PROVIDE DATA CONDUIT FROM BACK BOX TO ACCESSIBLE CEILING SPACE OUTSIDE OF ROOM UNLESS OTHERWISE NOTED.

2 DUPLEX RECEPTACLE AND DATA OUTLETS
E-1
N.T.S.

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OTTAWA, ON

DRAWING:
ELECTRICAL:
LEGEND, DETAILS AND DRAWING LIST

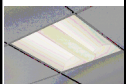
DATE: JUNE 2025
DESIGNED BY: C.J.
DRAWN BY: C.J.
CHECKED BY: B.T.
SCALE: N.T.S.

No. DWGS. 5
PROJECT No. 25064
DRAWING No. E-1



DRAWING NOTES

⬢ COORDINATE EXACT LOCATION OF 120V CONNECTION FOR FEATURE WALL ILLUMINATED SIGN ON SITE.

LIGHTING FIXTURE SCHEDULE								
TYPE	DESCRIPTION	IMAGE	LAMPS	LED DIMMING DRIVER	DIMMING RANGE	VOLT	MOUNTING	REMARKS
A	12"x48" BASE BUILDING TROFFER FIXTURE C/W LOOSE FILLER PLATES TO SUIT 12"x60" GRID.		2-28W T8	-----	-----	347	RECESSED T-BAR	- PARABOLIC LENS
B	24"x24" LED FIXTURE, DAY-BRITE "AVE" SERIES.		40W LED	-----	-----	347	RECESSED T-BAR	- 3,800 LUMENS, 80 CRI, 3500°K, FIXTURE HEIGHT OF 4" - WHITE FINISH, L70 @ 50,000 HOURS, FROSTED RIBBED ACRYLIC LENS - PROVIDE NEW TO MATCH EXISTING
C	6"Ø LED DOWNLIGHT, EQUAL TO ACUTY BRANDS "WF6" SERIES.		13W LED	INC	10-100%	120	RECESSED T-BAR	- 990 LUMENS, 3500°K, POLYCARBONATE LENS - WHITE FINISH, 90+ CRI, L70 @ 50,000 HOURS - REMOTE DRIVER
D	36"Ø LED PENDANT, EQUAL TO EUREKA "CYCLE 4800" SERIES.		62.4W LED	0-10V	10-100%	120	SUSPENDED AIR CRAFT CABLE	- 5220 LUMENS, 3500°K, - WHITE FINISH, 90+ CRI, L70 @ 50,000 HOURS - ROUND CANOPY, WHITE CORD, RECESSED DRIVER
F	FLEXIBLE LED STRIP FIXTURE, EQUAL TO DIODE LED "BLAZE" SERIES, CHANNEL EQUAL TO CHROMAPATH "SLIM" SERIES. PROVIDE TO SUIT FULL LENGTH OF VALANCE.		1.46W/FT LED	-----	-----	120	SURFACE UNDER CABINET	- C/W ALUMINUM CHANNEL 3500°K, FIXTURE HEIGHT OF 0.38" - 117 LUMENS/FOOT, WHITE FINISH, 90+ CRI, L80 > 50,000 HOURS - FROSTED LENS, C/W STEP DOWN TRANSFORMER IN ACCESSIBLE CEILING SPACE

NOTES:
1. 0-10V DENOTES 0-10V DIMMING CONTROL
2. INC DENOTES LINE VOLTAGE DIMMING CONTROL

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OTTAWA, ON

DRAWING:
ELECTRICAL:
LIGHTING AND FIRE ALARM

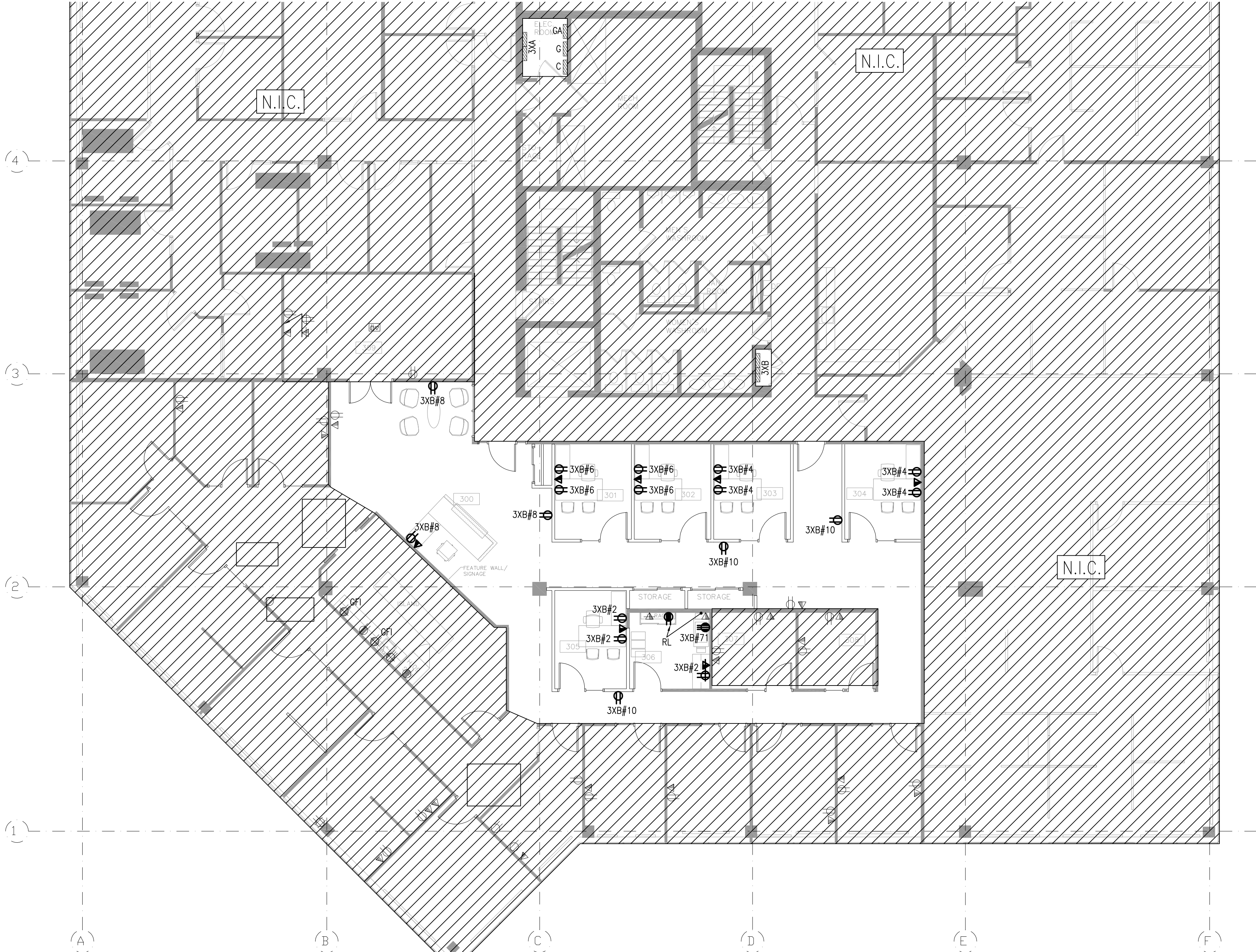
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PROJECT No. 25064
DRAWING No. E-2

PANEL 3XB (EXISTING – SQUARE D)											
84 CIRCUITS	120/208V	3 PH	4 W	225 MAINS		SURFACE MOUNTED					
DESCRIPTION	BR	CIR	A	B	C	CIR	BR	DESCRIPTION			
EXISTING	15	1	⊙			2	15	OFFICE 305/306 RECS.			
EXISTING	15	3		⊙		4	15	OFFICE 303/304 RECS.			
EXISTING	15	5			⊙	6	15	OFFICE 301/302 RECS.			
EXISTING	15	7	⊙			8	15	RECEPTION 300 RECS.			
EXISTING	15	9		⊙		10	15	HOUSKEEPING			
EXISTING	15	11			⊙	12	15	EXISTING			
EXISTING	15	13				14	15	EXISTING			
EXISTING	15	15	⊙			16	15	EXISTING			
EXISTING	15	17		⊙		18	15	EXISTING			
EXISTING	15	19			⊙	20	15	EXISTING			
EXISTING	15	21			⊙	22	15	EXISTING			
EXISTING	15	23			⊙	24	15	EXISTING			
EXISTING	15	25	⊙			26	15	EXISTING			
EXISTING	15	27			⊙	28	15	EXISTING			
EXISTING	15	29			⊙	30	15	EXISTING			
EXISTING	15	31	⊙			32	15	EXISTING			
EXISTING	15	33		⊙		34	15	EXISTING			
EXISTING	15	35			⊙	36	15	EXISTING			
EXISTING	15	37	⊙			38	15	EXISTING			
EXISTING	15	39			⊙	40	15	EXISTING			
EXISTING	15	41			⊙	42	15	EXISTING			
EXISTING	15	43	⊙			44	15	EXISTING			
EXISTING	15	45		⊙		46	15	EXISTING			
EXISTING	15	47			⊙	48	15	EXISTING			
EXISTING	15	49	⊙			50	15	EXISTING			
EXISTING	15	51		⊙		52	15	EXISTING			
EXISTING	15	53			⊙	54	15	EXISTING			
EXISTING	15	55	⊙			56	15	EXISTING			
EXISTING	15	57			⊙	58	15	EXISTING			
EXISTING	15	59		⊙		60	15	EXISTING			
EXISTING	15	61	⊙			62	15	EXISTING			
EXISTING	15	63			⊙	64	15	EXISTING			
EXISTING	15	65			⊙	66	15	EXISTING			
EXISTING	20	67	⊙			68	15	EXISTING			
EXISTING	2P	69			⊙	70	15	EXISTING			
* PHOTOCOPIER ROOM 306	20	71			⊙	72	15	EXISTING			
EXISTING	15	73	⊙			74	15	EXISTING			
EXISTING	15	75		⊙		76	15	EXISTING			
EXISTING	15	77			⊙	78	60	EXISTING			
EXISTING	15	79		⊙		80					
EXISTING	15	81			⊙	82	3P				
EXISTING	15	83			⊙	84	15	EXISTING			

* – DENOTES NEW BREAKER REQUIRED

PANEL G (EXISTING – ITE)											
42 CIRCUITS	120/208V	3 PH	4 W	225 MAINS		SURFACE MOUNTED					
DESCRIPTION	BR	CIR	A	B	C	CIR	BR	DESCRIPTION			
EXISTING	15	1	⊙			2	15	EXISTING			
EXISTING	15	3		⊙		4	15	EXISTING			
EXISTING	15	5			⊙	6	15	EXISTING			
EXISTING	15	7	⊙			8	15	EXISTING			
EXISTING	15	9		⊙		10	15	120V RECEPTION 300 LIGHTS			
EXISTING	15	11			⊙	12	15	EXISTING			
EXISTING	15	13	⊙			14	15	EXISTING			
EXISTING	15	15		⊙		16	15	EXISTING			
EXISTING	15	17			⊙	18	15	EXISTING			
EXISTING	15	19	⊙			20	15	EXISTING			
EXISTING	15	21			⊙	22	15	EXISTING			
EXISTING	15	23			⊙	24	15	EXISTING			
EXISTING	15	25	⊙			26	100	SPARE			
EXISTING	15	27			⊙	28					
EXISTING	20	29			⊙	30	3P				
EXISTING	15	31	⊙			32	15	EXISTING			
EXISTING	15	33		⊙		34	15	EXISTING			
EXISTING	20	35			⊙	36	15	EXISTING			
PANEL GA	60	37	⊙			38	15	EXISTING			
	3P	39		⊙		40	15	EXISTING			
		41			⊙	42	15	EXISTING			



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PROJECT:
CAPCORP FIT-UP
1050 MORRISON DRIVE
3RD FLOOR
OTTAWA, ON

DRAWING:
ELECTRICAL:
POWER AND SYSTEMS

No. DWGS. 5 PROJECT No. 25064	DATE: JUNE 2025
	DESIGNED BY: C.J.
	DRAWN BY: C.J.
	CHECKED BY: B.T.
SCALE: 1/8"=1'-0"	
DRAWING No. E-3	

GENERAL

CONDITIONS OF CONTRACT

ALL CONDITIONS OF CCDC2-2020 (STIPULATED PRICE CONTRACT) SHALL APPLY TO THIS PROJECT.

EXAMINATION OF WORK

THIS PROJECT INVOLVES RENOVATIONS TO EXISTING BUILDING, THEREFORE EXAMINE THE SITE AND LOCAL CONDITIONS TO DETERMINE THE DIFFICULTIES IN CARRYING OUT THE WORK INDICATED AND SPECIFIED PRIOR TO SUBMITTING FINAL PRICE. NO ALLOWANCE FOR EXTRAS WILL BE MADE ON CONDITIONS EXISTING AT THE TIME OF TENDER.

PERMITS, CERTIFICATES, FEES, ETC.

PERFORM WORK IN ACCORDANCE WITH THE ONTARIO BUILDING CODE AND THE ONTARIO ELECTRICAL SAFETY CODE. TURN OVER ORIGINAL OF ELECTRICAL INSPECTION CERTIFICATE AND OF FIRE ALARM VERIFICATION CERTIFICATE AT COMPLETION OF PROJECT.

TESTING

TEST ALL EQUIPMENT AND MATERIAL WHERE REQUIRED BY SPECIFICATIONS OR AUTHORITIES HAVING JURISDICTION AND DEMONSTRATE ITS PROPER OPERATION TO THE OWNER'S REPRESENTATIVE.

AS-BUILT DRAWINGS

KEEP IN THE JOB OFFICE AN EXTRA SET OF WHITE PRINTS AND SPECIFICATIONS ON WHICH ALL CHANGES AND DEVIATIONS SHALL BE RECORDED DAILY WITH A RED MARKER. SIMILARLY, KEEP A SET OF PANEL SCHEDULES AND MARK UP WITH ANY CHANGES. AT COMPLETION OF THE PROJECT TURN MARKED UP DRAWINGS AND PANEL SCHEDULES OVER TO THE ENGINEER.

SHOP DRAWINGS

BEFORE FABRICATION OR DELIVERY OF ANY MATERIALS OR EQUIPMENT, SUBMIT A MINIMUM OF SIX (6) COMPLETE SETS OF SHOP DRAWINGS AND DATA SHEETS COVERING ALL ITEMS OF EQUIPMENT FURNISHED AND INTENDED FOR INSTALLATION UNDER THIS CONTRACT FOR REVIEW BY THE ENGINEER. SUBMIT AT LEAST FIFTEEN (15) WORKING DAYS BEFORE THE DATE REVIEWED SUBMISSIONS ARE REQUIRED.

ELECTRONIC SHOP DRAWING SUBMISSIONS ARE ACCEPTABLE WITH THE FOLLOWING CONDITIONS: THE SHOP DRAWINGS SHALL BE IN PDF FORMAT WITH A TRANSMITTAL AND INCLUDE THE TRADE CONTRACTOR'S REVIEW STAMP, THE PAGE SIZE SHALL NOT EXCEED 8.5"x11", BE BLACK AND WHITE, AND MUST BE FULLY LEGIBLE. IF COLOUR OR LARGER SHEET SIZE IS REQUIRED, THE SUBMISSION SHALL BE IN HARD COPY FORMAT RATHER THAN ELECTRONIC.

TEMPORARY AND TRAIL USAGE

TEMPORARY OR TRAIL USAGE BY THE OWNER OF ANY ELECTRICAL EQUIPMENT OR ANY OTHER WORK OR MATERIALS SUPPLIED UNDER THE CONTRACT BEFORE FINAL WRITTEN ACCEPTANCE BY THE ENGINEER IS NOT TO BE CONSTRUED AS EVIDENCE OF THE ACCEPTANCE OF SAME BY THE OWNER. THE OWNER SHALL HAVE THE PRIVILEGE OF SUCH TEMPORARY AND TRAIL USAGE AS SOON AS THIS CONTRACTOR SHALL CLAIM THAT SAID WORK IS COMPLETED. ANY DAMAGE CAUSED BY DEFECTIVE MATERIAL OR WORKMANSHIP THROUGH TEMPORARY OR TRAIL USAGE BY THE OWNER SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR.

CEILING TILE REMOVAL/REPLACEMENT

ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND REINSTALLATION OF ANY CEILING TILES TO SUIT WORK WITHIN THE CEILING SPACE. ANY DAMAGED TILES SHALL BE REPLACED AT THE CONTRACTOR'S COST.

OPERATING AND MAINTENANCE DATA

FURNISH THREE (3) SETS OF OPERATING AND MAINTENANCE DATA FOR ALL NEW EQUIPMENT AND SYSTEMS. DATA SHALL BE ASSEMBLED IN BOOKLET FORM WITH HARD COVER AND INDEX. BOOKLET TO INCLUDE WARRANTIES, CERTIFICATES AND TYPEWRITTEN PANEL DIRECTORIES. IDENTIFY FRONT COVER OR SPINE WITH NAME AND LOCATION OF THE PROJECT, CONSULTING ENGINEER AND CONTRACTOR. SUBMIT ONE COPY TO THE ENGINEER FOR REVIEW PRIOR TO FINAL SET OF THREE (3) PRINTED MANUALS AND ONE (1) PDF COPY.

NOTICE TO ENGINEER

PROVIDE ENGINEER WITH MINIMUM 48 HOURS NOTICE PRIOR TO INSTALLATION OF CEILING AND PARTITIONS SO THAT A FIELD REVIEW OF THE COMPLETED ROUGH IN WORK MAY OCCUR PRIOR TO THESE SYSTEMS BEING CONCEALED.

MATERIALS

USE SAME BRAND OF MANUFACTURER FOR EACH SPECIFIC APPLICATION.

ACCESS DOORS

SUPPLY TO THE INSTALLING TRADES, ACCESS DOORS FOR SERVICING EQUIPMENT AND ACCESSORIES OR FOR INSPECTION OF LIFE SAFETY OR OPERATING DEVICES. MATERIAL SHALL BE OF 1/8" CORE THICKNESS BONDZERIZED STEEL COMPLETE WITH HEAVY DUTY RUST RESISTANT CONCEALED HINGES, POSITIVE LOCKING AND SELF-OPENING SCREW DRIVER LOCK. FRAME SHALL BE 12" x 12" MINIMUM AND 24" x 24" MAXIMUM AS REQUIRED AND SUITABLE FOR THE TYPE OF ASSOCIATED WALL OR CEILING CONSTRUCTION. THIS TRADE SHALL BE RESPONSIBLE FOR ACCURATELY LOCATING THE ACCESS DOORS, SO THAT ALL ELECTRICAL BOXES ARE ACCESSIBLE. ACCESS DOORS SHALL BE SUITABLY RATED WHERE INSTALLED IN FIRE RATED ASSEMBLIES.

APPROVALS

THE PRICE SUBMITTED FOR THIS CONTRACT SHALL BE BASED ON THE USE OF MATERIALS AND EQUIPMENT AS SPECIFIED. IF THIS CONTRACTOR WISHES TO QUOTE ON EQUIVALENT MATERIALS AND EQUIPMENT HE MUST QUOTE ON PRODUCTS APPROVED BY THE ENGINEER, IN WRITING, AS AN EQUIVALENT TO THE PRODUCT SPECIFIED. THIS CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY ADDITIONAL WORK OR MATERIALS REQUIRED BY THE ELECTRICAL TRADE OR OTHER CONTRACTORS TO ACCOMMODATE APPROVED EQUIVALENT MATERIALS OR EQUIPMENT. EXTRAS WILL NOT BE APPROVED TO COVER SUCH WORK.

CUTTING, PATCHING AND FIRESTOPPING

THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR THIS WORK AND SHALL COORDINATE LOCATIONS FOR ALL HOLES FOR CONDUITS, ETC., AND PROVIDE SLEEVES REQUIRED TO EXECUTE THE ELECTRICAL INSTALLATION. SCAN FLOORS AND STRUCTURAL WALLS BEFORE CUTTING TO LOCATE EXISTING REBAR AND CONDUITS, AND OBTAIN OWNER'S APPROVAL FOR PROPOSED CUTTING. PROVIDE ULC APPROVED FIRESTOPPING SYSTEM FOR ALL PENETRATIONS THROUGH RATED ASSEMBLIES. REPAIR ALL EXISTING WORK DAMAGED BY CUTTING AT NO EXTRA COST TO THE CONTRACT.

IDENTIFICATION

IDENTIFY WITH LAMICOID NAMEPLATES ALL ELECTRICAL EQUIPMENT SHOWN ON THE DRAWINGS AND/OR MENTIONED IN THE SPECIFICATION SUCH AS MOTORS, SWITCHES, STARTERS, PANELBOARDS, TRANSFORMERS, CONTROLS, AND SPECIAL RECEPTACLES, REGARDLESS OF WHETHER OR NOT THE ELECTRICAL EQUIPMENT WAS FURNISHED UNDER THIS SECTION OF THE SPECIFICATION. UNLESS OTHERWISE SPECIFIED, NAMEPLATES SHALL BE RIGID LAMICOID, MINIMUM 1/16" THICK WITH BLACK LETTERS ENGRAVED ON A WHITE BACKGROUND. NAMEPLATES TO BE NEATLY PLACED, AND SQUARE TO SURROUNDING BUILDING OR EQUIPMENT LINES AND FASTENED IN PLACE WITH MECHANICAL FASTENERS (SCREWS OR POP RIVETS). WORDING TO BE REVIEWED BY ENGINEER.

PROVIDE NEATLY TYPED UPDATED CIRCUIT DIRECTORIES IN A PLASTIC HOLDER ON THE INSIDE DOOR OF NEW PANELBOARDS, WITH COPY IN MANUAL. CAREFULLY UPDATE PANELBOARD CIRCUIT DIRECTORIES WHENEVER ADDING, DELETING, OR MODIFYING EXISTING CIRCUITRY.

CLEARLY IDENTIFY ALL PULL AND JUNCTION BOXES, WITH PERMANENT HANDWRITTEN MARKER IDENTIFICATION INDICATING SOURCE PANEL AND CIRCUIT NUMBERS TO SATISFACTION OF ENGINEER. CLEARLY IDENTIFY WIRING WITH PERMANENT INDELEIBLE IDENTIFYING MARKINGS, USING EITHER COLOUR CODED WIRING, OR NUMBERED OR COLOURED PLASTIC TAPES, ON BOTH ENDS OF PHASE CONDUCTORS OF FEEDERS AND BRANCH CIRCUIT WIRING TO SATISFACTION OF ENGINEER.

SEISMIC RESTRAINT

PROVIDE SEISMIC RESTRAINT OF ELECTRICAL SYSTEMS IN ACCORDANCE WITH SECTION 4.1.8 OF THE ONTARIO BUILDING CODE. SUBMIT RESTRAINT DETAILS IN FORM OF SHOP DRAWINGS, STAMPED AND SIGNED BY A SEISMIC ENGINEER LICENSED IN THE PROVINCE OF ONTARIO. HAVE SAME SEISMIC ENGINEER PROVIDE CONFIRMATION IN WRITING AT COMPLETION OF PROJECT THE ELECTRICAL INSTALLATION IS IN GENERAL COMPLIANCE WITH THE SHOP DRAWINGS. INCLUDE ALL COSTS FOR SEISMIC DESIGN, MATERIALS AND SITE REVIEW IN TENDER PRICE.

HOURS OF WORK

ANY AUDIBLE TESTING, CORE DRILLING OR ANY OTHER NOISY WORK TO BE PERFORMED AFTER WORKING HOURS. MAKE ARRANGEMENTS WITH BUILDING PERSONNEL TO CONFIRM TIMES FOR SUCH WORK.

SHUT-DOWNS OF SERVICES AND SYSTEMS

CONTRACTOR TO COORDINATE ALL DOWN TIME AND SYSTEM SHUTDOWNS WITH BUILDING OWNER OR USER GROUP PRIOR TO PERFORMING WORK. CONTRACTOR TO VERIFY WITH OWNER BEFORE MAKING ANY CONNECTION TO ANY EXISTING SYSTEMS. THIS WILL ENSURE THAT (1) THE OWNER IS AWARE THAT WORK WILL BE DONE ON A SYSTEM AND (2) THAT THE CONTRACTOR IS WORKING ON A SYSTEM THAT IS FUNCTIONING NORMALLY WHEN HE STARTS HIS WORK.

DEMOLITION

FULL EXTENT OF DEMOLITION MAY NOT BE ILLUSTRATED ON DRAWINGS. DEVICES SHOWN ARE BASED ON VISUAL INSPECTION PERFORMED DURING NORMAL WORKING HOURS. SOME EXISTING DEVICES MIGHT NOT BE SHOWN DUE TO THE PRESENCE OF VARIOUS OBSTRUCTIONS. DISCONNECT AND REMOVE ALL EQUIPMENT LOCATED ON EXISTING CEILINGS AND WALLS TO BE DEMOLISHED. REMOVE ALL SERVICES FOR EQUIPMENT WHICH HAVE BECOME REDUNDANT UNDER THE CONTRACT COMPLETE WITH ALL REDUNDANT WIRING AND CONDUIT BACK TO PANEL SOURCE OR EXISTING CAST-IN SLAB BASE BUILDING JUNCTION BOX. ALL ITEMS REMOVED DURING DEMOLITION AND WHICH ARE NOT TO BE REUSED SHALL BE REMOVED FROM SITE.

CONTRACTOR IS RESPONSIBLE FOR THE RECONNECTION OF ANY SERVICES WHICH ARE TO REMAIN AND WHICH HAVE BEEN DISCONNECTED DURING THE COURSE OF DEMOLITION OR CONSTRUCTION. MAINTAIN ELECTRICAL SERVICES AND SYSTEMS AT ALL TIMES TO AREAS BEYOND THE CONSTRUCTION AREA. REINSTATE IMMEDIATELY ANY EXISTING SERVICES DISRUPTED DURING DEMOLITION NOT INTENDED TO BE REMOVED AS PART OF THIS CONTRACT. RETAIN CONTINUITY OF SERVICE OF THE FIRE ALARM SYSTEM AND ANY OTHER SAFETY OR SECURITY SYSTEMS TO ALL OCCUPIED AREAS OF THE BUILDING THROUGHOUT CONSTRUCTION PERIOD. WHERE SOME EXISTING MATERIALS OR EQUIPMENT ARE TO BE RETAINED IN PLACE OR RECONNECTED, IDENTIFY AND PROTECT THE MATERIALS OR EQUIPMENT PRIOR TO THE COMMENCEMENT OF DEMOLITION. MAINTAIN ADEQUATE STRUCTURAL SUPPORT FOR EQUIPMENT AND MATERIAL DURING DEMOLITION PROCESS.

ALL EQUIPMENT TO BE RE-USED IS TO BE CLEANED OF PAINT, PLASTIC, ETC. TO THE SATISFACTION OF THE ENGINEER.

CONTRACTOR IS RESPONSIBLE FOR RECONNECTING AND IDENTIFYING ANY EXISTING LOADS WHICH DO NOT APPEAR ON PANEL DETAILS AND WHICH ARE TO BE RE-USED.

WHERE EXISTING MATERIALS ARE TO BE RE-USED, THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR REMOVAL, STORAGE, CLEANING AND REINSTALLATION.

WHERE EXISTING DEVICES ARE BEING RELOCATED, EXTEND EXISTING WIRING AND CONDUIT AS REQUIRED AND REINSTATE IN NEW LOCATION SHOWN.

TURN OVER TO THE OWNER IN CLEAN AND SOUND CONDITION ANY REDUNDANT EXISTING MATERIAL OR EQUIPMENT DESIGNATED BY THE OWNER OR SPECIFIED ON DRAWINGS.

PROVIDE BLANK COVER PLATES FOR ALL DEVICES REMOVED FROM WALLS TO REMAIN.

ALL REDUNDANT BASE BUILDING LIGHT FIXTURES REMOVED AND NOT REUSED ARE TO BE OFFERED TO LANDLORD PRIOR TO REMOVAL FROM SITE.

CHANGES IN THE WORK

CHANGES IN THE WORK MAY BE REQUESTED FROM TIME TO TIME BY THE ISSUANCE OF A CONTEMPLATED CHANGE NOTICE (CCN) AND/OR PROPOSED CHANGE (PC). REFER TO GENERAL CONDITIONS OF THE CONTRACT OR FRONT END SPECIFICATIONS FOR REQUIREMENTS ON HOW TO QUOTE CHANGES IN THE WORK. THOSE REQUIREMENTS TAKE PRECEDENCE OVER THE REQUIREMENTS FOLLOWING IN THIS SECTION.

SHOULD THE BID FORM, GENERAL CONDITIONS OF THE CONTRACT, OR FRONT END SPECIFICATIONS NOT ADDRESS HOW TO QUOTE CHANGES IN THE WORK, THE REQUIREMENTS FOLLOWING IN THIS SECTION SHALL APPLY.

PROVIDE DETAILED BREAKDOWNS OF MATERIAL AND LABOUR WITH UNIT PRICES AND EXTENSIONS REQUIRED FOR REVIEW OF CONTEMPLATED CHANGE NOTICES (CCN'S) OR PROPOSED CHANGES (PC'S).

IN ADDITION TO THE NET COST OF THE CHANGE, THE CONTRACTOR SHALL BE ENTITLED TO A 15% FEE TO COVER OVERHEADS & PROFIT ON THE WORK AND A 10% FEE TO COVER OVERHEADS AND PROFIT ON SUB-TRADES.

REQUIRED LABOUR SHALL BE EVALUATED BASED ON PUBLISHED NECA MANUAL OF LABOUR UNITS, CURRENT AT TIME OF TENDER CLOSING, USING THE "NORMAL" COLUMN. NO OTHER JOB FACTORS SHALL BE CONSIDERED APPLICABLE.

THE OVERHEAD PERCENTAGE AND USE OF NECA LABOUR UNITS INDICATED ABOVE INCLUDES THE FOLLOWING:

1. INSURANCE.
2. BONDING.
3. FINANCING AND INTEREST.
4. COORDINATION WITH OTHER TRADES.
5. SALARIES OF ANY STAFF ABOVE THAT OF WORKING FOREMEN EMPLOYED DIRECTLY ON THE WORK.
6. LICENSES AND PERMITS.
7. ONSITE TIMEKEEPING AND SCHEDULING.
8. REST PERIODS.
9. ELECTRICAL CLEAN UP BEYOND OCA RECOMMENDED PRACTICE.
10. MATERIAL HANDLING.
11. PERSONAL HYGIENE.
12. SAFETY TRAINING.
13. JOB SITE SAFETY TALKS.
14. WHMIS INFORMATION.
15. HEALTH AND SAFETY COMMITTEE.
16. ESCALATING SITE SAFETY PROCEDURES.
17. GARBAGE BINS.
18. SHIPPING AND DELIVERIES.
19. PROJECT MANAGEMENT.
20. ESTIMATING.
21. SPECIAL CLEANING.
22. SPECIAL HANDLING / STORAGE.
23. EQUIPMENT RENTALS FOR SMALL TOOLS.
24. EQUIPMENT START-UP.
25. ANY OTHER NON PRODUCTIVE TIME ITEMS.

A SINGLE BLENDED LABOUR RATE BASED ON A CREW OF 1 WORKING FOREMAN AND 4 JOURNEYMEN SHALL BE USED FOR NORMAL WORKING HOURS FOR THE DURATION OF THE PROJECT AND SHALL INCLUDE THE FOLLOWING:

1. BASE RATE, VACATION PAY AND STATUTORY HOLIDAYS AS PER CURRENT COLLECTIVE AGREEMENT FOR UNIONIZED CONTRACTORS.
2. UNION DEDUCTIONS FOR BENEFITS (HEALTH & WELFARE), RETAIL SALES TAX ON HEALTH & WELFARE, PENSION, AND UNION FUNDS.
3. ECA OTTAWA DEDUCTIONS.
4. LEGISLATED PAYROLL BURDENS FOR:
 1. CANADA PENSION PLAN.
 2. EMPLOYMENT INSURANCE.
 3. WORKPLACE SAFETY & INSURANCE BOARD
 4. EMPLOYER HEALTH TAX.
5. ECAO GUIDELINE ADDERS FOR:
 1. EXPENDABLE SMALL TOOLS (BITS, BLADES, ETC).
 2. SITE FACILITIES (TRAILER, LUNCHROOM, PHONE).
 3. PERSONAL PROTECTION EQUIPMENT (GLASSES, VESTS, FALL PROTECTION, HEARING).
 4. PARKING AS PER COLLECTIVE AGREEMENT.
 5. CLEAN UP AS PER OCA RECOMMENDED PRACTICE.

FOR PREMIUM NIGHT SHIFT (MINIMUM THREE CONSECUTIVE NIGHT SHIFTS), USE THE NORMAL RATE CALCULATION WITH A 20% ADDER TO BASE RATE, VACATION PAY, PENSION, AND HEALTH & WELFARE BENEFITS.

FOR OVERTIME, USE THE NORMAL RATE CALCULATION WITH A 100% ADDER TO BASE RATE, VACATION PAY, PENSION, AND HEALTH & WELFARE BENEFITS.

COST QUOTATIONS SHALL BE BASED ON INDUSTRY ACCEPTED COSTING METHODS. WIRING, CONDUIT AND SIMILAR COMMODITY-TYPE MATERIALS SHALL BE BASED ON CURRENT TRADE SERVICE CANADIAN MONITOR PLUS NET PRICING WITH A 30% DISCOUNT APPLIED. SUBMIT SUPPLIER INVOICES FOR OTHER TYPES OF MATERIAL SUCH AS POWER DISTRIBUTION EQUIPMENT, LIGHT FIXTURES, HEATING PRODUCTS, FIRE ALARM COMPONENTS, ETC.

THE FOLLOWING JOB EXPENSES SHALL BE CONSIDERED TO BE ACCEPTABLE IN CERTAIN PRICING EXERCISES:

1. BONDING COSTS.
2. WARRANTY COSTS BASED ON 2% OF THE MATERIAL & LABOUR COST FOR THE CHANGE.
3. DRAFTING COSTS BASED ON 2% OF THE LABOUR COST FOR THE CHANGE.
4. HOISTING.
5. EQUIPMENT RENTALS FOR LARGE EQUIPMENT.
6. CORE DRILLING.
7. TRAVEL IN ACCORDANCE WITH THE APPLICABLE UNION AGREEMENT.

THE ELECTRICAL CONTRACTOR SHALL SUBMIT A TEMPLATE PROPOSED TO BE USED FOR ANY CCN'S/PC'S AS A FORMAL SHOP DRAWING SUBMISSION FOR REVIEW AND RECOMMENDED ACCEPTANCE PRIOR TO ANY CCN'S/PC'S BEING ISSUED.

GENERAL REVIEW DECLARATION

PRIOR TO TIME OF OCCUPANCY PERMIT APPLICATION, SUBMIT THE FOLLOWING ITEMS FOR REVIEW:

1. ELECTRICAL SAFETY AUTHORITY CERTIFICATE OF INSPIRATION, FOR OCCUPANCY OR FINAL, WITH NO DEFICIENCIES NOTED.
2. FIRE ALARM VERIFICATION REPORT WITH MEASURED AUDIBLE ALARM LEVELS INDICATED, WITH NO DEFICIENCIES, SIGNED BY AUTHORIZED FIRE ALARM TECHNICIAN.
3. LETTER INDICATING SYSTEMS HAVE BEEN SEISMICALLY RESTRAINED IN ACCORDANCE WITH THE OBC. LETTER SHALL BE AUTHORED, SIGNED, AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE PROVINCE OF ONTARIO.

SUBMISSIONS SHALL BE COMPLETE WITH TRANSMITTALS OR COVER LETTERS SIGNED BY AN APPROPRIATE SKILLED TRADE. THE SIGNATORY SHALL BE REGISTERED WITH SKILLED TRADES ONTARIO.

THE PROJECT MUST BE SUBSTANTIALLY COMPLETE AND READY FOR ITS INTENDED USE. ENERGIZE, TEST AND COMMISSION ALL SYSTEMS. ENSURE SYSTEMS HAVE BEEN INSTALLED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, MANUFACTURER'S RECOMMENDATIONS, AND INDUSTRY STANDARDS AS THE CASE MAY BE.

BASIC MATERIAL AND METHODS

WIRING METHODS

PROVIDE COPPER CONDUCTORS WITH RW90 INSULATION. MINIMUM CONDUCTOR SIZE SHALL BE #12 AWG FOR POWER AND LIGHTING AND #14 AWG FOR CONTROLS UNLESS OTHERWISE NOTED. INSTALL IN EMT CONDUIT UNLESS OTHERWISE NOTED. RUN CONDUITS PARALLEL TO BUILDING LINES AND STRAP AT CODE SPACINGS. CONCEAL CONDUITS IN FINISHED AREAS. USE BX ONLY FOR WIRING DROPS FROM AREA BOX TO LIGHT FIXTURES AND BETWEEN FIXTURES IN 1-BAR CEILING, AND WITHIN PARTITION WALLS UP TO CEILING BOX FOR A MAXIMUM CEILING CABLE LENGTH OF 10'-0". ADJUST CONDUCTOR SIZE FOR 120V BRANCH CIRCUIT RUNS EXCEEDING 76'-0" IN LENGTH TO LIMIT VOLTAGE DROP TO MAXIMUM 5% FROM SERVICE ENTRANCE.

COLOUR CODE WIRING AS FOLLOWS:

HOT WIRES DIRECT FROM PANEL: RED/BLACK/BLUE FOR 3 PHASE SYSTEMS, RED/BLACK FOR 1 PHASE SYSTEMS.

GROUND WIRES FROM LIGHT SWITCH TO LOAD: RED.

NEUTRAL WIRE: WHITE.

MECHANICAL GROUND WIRE: GREEN.

WHERE A CIRCUIT IS DEDICATED, ALL CONDUCTORS SHALL BE UNIQUE, NOT COMMON WITH OTHER CIRCUITS. WHERE LOAD OR BREAKER RATINGS ARE GREATER THAN 15 AMPERES, THE CONDUCTOR SHALL BE AS SHOWN ON DRAWINGS OR OF THE CAPACITY EQUAL TO THE BREAKER TRIP SIZE PER THE ELECTRICAL CODE. PROVIDE SEPARATE NEUTRAL FOR EVERY PHASE CONDUCTOR IN BRANCH CIRCUITS FEEDING RECEPTACLE LOADS, AND FOR ANY DIMMED LIGHTING LOADS.

CIRCUITING SHOWN ON DRAWINGS IS FOR GROUPING PURPOSES ONLY AND DOES NOT REFLECT ACTUAL BREAKER POSITION. CONTRACTOR TO WIRE TO ACHIEVE GROUPING SHOWN AND MARK RECORD DRAWINGS WITH CIRCUIT NUMBERS USED TO REFLECT "AS-BUILT" CONDITIONS.

PROVIDE NEW WIRING AND CONDUIT FROM PANELBOARDS FOR CIRCUITING OF NEW DEVICES SHOWN ON PLANS UNLESS OTHERWISE NOTED. WHERE LOCAL CIRCUITS HAVE BEEN FREED UP BY DEMOLITION WORK, REUSE LOCAL CIRCUITS FOR NEW DEVICES AND INDICATE CHANGES ON "AS-BUILT" MARKUPS.

PROVIDE P-TOUCH LABELLING ON ALL RECEPTACLES, SWITCHES AND DIMMERS INDICATING CIRCUIT NUMBER AND SOURCE PANEL. P-TOUCH LABEL SHALL HAVE BLACK LETTERING ON CLEAR BACKGROUND.

LOCATION OF OUTLETS AND MOUNTING HEIGHTS

LOCATE OUTLETS GENERALLY AS SHOWN ON DRAWINGS, REFER TO ARCHITECT/INTERIOR DESIGNER DRAWINGS FOR EXACT LOCATIONS.

DO NOT INSTALL OUTLETS BACK-TO-BACK IN WALL; ALLOW MINIMUM 6" HORIZONTAL CLEARANCE BETWEEN BOXES, AND LOCATE IN SEPARATE STUD CAVITIES WHEREVER POSSIBLE.

CHANGE LOCATION OF OUTLETS AT NO EXTRA COST OR CREDIT, PROVIDING DISTANCE DOES NOT EXCEED 10'-0", AND INFORMATION IS GIVEN BEFORE INSTALLATION.

INSTALL ELECTRICAL EQUIPMENT AT THE FOLLOWING HEIGHTS UNLESS INDICATED OTHERWISE. COORDINATE ALL MOUNTING HEIGHTS OF RECEPTACLES AND VOICE/DATA OUTLETS WITH ARCHITECT/INTERIOR DESIGNER DRAWINGS PRIOR TO ROUGH-IN.

LOCAL SWITCHES	43"
WALL RECEPTACLES:	
GENERAL	16"
ABOVE TOP OF HEATER OR COUNTER BACK SPLASH	7"
TELEPHONE, DATA AND TV OUTLETS (STANDARD)	16"
FIRE ALARM SIGNALS (WALL MOUNTED):	
1. FROM FINISHED FLOOR TO TOP OF DEVICE, AND	90"
2. MINIMUM DISTANCE FROM TOP OF DEVICE TO CEILING	6"

MOUNTING HEIGHT OF EQUIPMENT IS FROM FINISHED FLOOR TO CENTRE LINE OF EQUIPMENT UNLESS SPECIFIED OR INDICATED OTHERWISE. IF MOUNTING HEIGHT OF EQUIPMENT IS NOT INDICATED, VERIFY BEFORE PROCEEDING WITH INSTALLATION.

CONDUIT AND CONDUIT FITTINGS

MINIMUM CONDUIT SIZE SHALL BE 3/4".

FITTINGS TO BE SUITABLY SIZED FOR CONDUIT USED. FITTINGS USED WITH EMT TO BE STEEL SET SCREW TYPE, NOT CAST. FACTORY 'ELLS' WHERE 90 deg BENDS ARE REQUIRED FOR 1" AND LARGER CONDUITS, OR FIELD BENDS WITH APPROVED HYDRAULIC BENDER. PROVIDE WIRING CONNECTION WITHIN JUNCTION BOX FOR ANY TRANSITION FROM CONDUIT TO ARMoured CABLE (BX).

SUPPORT FROM BUILDING STRUCTURE WHERE POSSIBLE. DO NOT FASTEN TO OR SUPPORT FROM METAL ROOFING DECK.

WIRING DEVICES AND OUTLET BOXES

PROVIDE GANGED BOXES AND COMMON COVER PLATES WHERE MULTIPLE DEVICES OCCUR (SWITCHES, DIMMERS, ETC) OR IF NOT POSSIBLE CAREFULLY LOCATE AND ALIGN TO MAKE A NEAT ARRANGEMENT WITH EQUAL SPACINGS BETWEEN FINISHED DEVICES, AND IN HARMONY WITH SURROUNDING BUILDING LINES. PROVIDE WHITE SPECIFICATION GRADE WIRING DEVICES AND STAINLESS STEEL COVER PLATES UNLESS OTHERWISE NOTED.

WEATHERPROOF DEVICES AT EXTERIOR LOCATIONS OR INDICATED BY "WP" ON PLANS. WEATHERPROOF RECEPTACLES SHALL BE COMPLETE WITH CAST ALUMINUM COVER PLATES MARKED "EXTRA DUTY" WHILE-IN-USE AND GASKETS FOR DEVICES, EQUAL TO LEVITON IJM SERIES.

PULL BOXES

BREAK UP LONG RUNS OF CONDUITS BY A SUFFICIENT NUMBER OF PULL BOXES TO MAKE PULLING OF WIRE EASY. IN NO CASE WILL A RUN BE MORE THAN 100'-0" BETWEEN BOXES. LOCATE BOXES IN ACCESSIBLE AREAS.

JUNCTION BOXES

SIZED AS PER ONTARIO ELECTRICAL SAFETY CODE FOR NUMBER AND SIZE OF CONDUCTORS. LOCATE BOXES IN ACCESSIBLE AREAS. USE OF EXTENSION BOXES IS PROHIBITED, EXCEPT WHERE USED TO EXTEND FOR SURFACE CONDUIT DISTRIBUTION OR BY SPECIAL PERMISSION FROM THE ENGINEER.

DIMMERS

PROVIDE DIMMERS TO SUIT CONNECTED LOADS. WHERE DIMMERS ARE SHOWN TO BE GANGED THEY SHALL BE DERATED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. COORDINATE WITH OTHER TRADES SO THAT DIMMERS ARE NOT LOCATED BELOW THERMOSTATS OR TEMPERATURE SENSORS. DIMMERS SHALL BE EQUAL TO LEGRAND WATSTOPPER RADIANT SERIES, COMPLETE WITH PUSHBUTTON PRESET OPTION, UNLESS OTHERWISE INDICATED.

- USE THE FOLLOWING DIMMERS BASED ON LOAD TYPES, AND SIZED TO FIT FIXTURES INADDESSANT LOAD:
1. 0-10V TYPE FOR 0-10V LED DIMMING DRIVERS AND 0-10V FLOURESCENT DIMMING BALLASTS.
 2. TRU-UNIVERSAL TYPE FOR
 - LINE VOLTAGE LED DIMMING DRIVERS UP TO A TOTAL LOAD OF UP TO 200W.

GROUNDING

GROUND ALL FRAMES AND ENCLOSURES TO CODE REQUIREMENTS. PROVIDE SEPARATE GROUND WIRE IN ALL CONDUITS.

LIGHTING

FIXTURES AND INSTALLATION

RELOCATE LIGHTING FIXTURES AS INDICATED ON DRAWINGS. PROVIDE DIRECT CONNECTIONS TO FIXTURES.

PROVIDE LIGHTING FIXTURES COMPLETE WITH LAMPS, CONTROLS, SUPPORTS, ETC. TO PROVIDE A COMPLETE WORKING LIGHTING SYSTEM. FOR SUSPENDED CEILING INSTALLATIONS, SUPPORT EACH NEW AND RELOCATED LUMINAIRE INDEPENDENTLY OF THE CEILING SUPPORT SYSTEM WITH SLACK CHAINS.

PROVIDE LOCAL LIGHTING CONTROLS WHERE INDICATED. CONNECT LOCAL CONTROL ZONES OPERATIONALLY DOWNSTREAM OF MASTER/BASE BUILDING CONTROLS SUCH THAT LOCAL LIGHTING FIXTURES ARE ENERGIZED ONLY WHEN MASTER/BASE BUILDING LIGHTING ZONES ARE "ON". PROVIDE UNSWITCHED POWER UPSTREAM OF MASTER/BASE BUILDING CONTROLS FOR LOCAL CONTROL DEVICES AS NEEDED.

TRACE EXISTING LIGHTING CIRCUITS WITHIN AREA OF WORK BACK TO SOURCE PANEL AND CONTROL RELAYS, PROVIDE ADDITIONAL RELAYS TO MATCH EXISTING AS REQUIRED TO ACHIEVE LOW VOLTAGE LIGHTING CONTROL INDICATED ON PLANS.

LIGHT FIXTURE WITH HATCHING INDICATES NEW CONNECTION TO UNSWITCHED NIGHT LIGHTING CIRCUIT. NIGHT LIGHTING LAYOUT SHOWN IS THE FINAL LAYOUT; EXISTING NIGHT LIGHT CONNECTIONS NOT SHOWN. TENDER PRICE TO INCLUDE SAME NUMBER OF RECONNECTIONS FROM NIGHT LIGHT TO NORMAL AS NUMBER OF NEW NIGHT LIGHT CONNECTIONS SHOWN ON PLAN.

ALL LENSES AND LOUVRES TO BE OF VIRGIN ACRYLIC MATERIAL. THE LENSES SHALL BE K12, 0.125" IN THICKNESS UNLESS NOTED.

INTERIOR FIXTURES MANUFACTURED BY ACUTY BRANDS, AXIS, COOPER, CORONET, CREE, DELVRO, DIODE LED, FOCAL POINT, FINELITE, GENERAL ELECTRIC, HE WILLIAMS, HUBBELL, LEVITON, LUTELINE, PEERLESS ELECTRIC, PHILIPS/SIGNIFY, AND WAC AND HAVING THE SAME APPEARANCE AND DESIGN FEATURES AS THE ONES SPECIFIED ARE ACCEPTED AS EQUIVALENT UNLESS OTHERWISE NOTED IN FIXTURE SCHEDULE, SUBJECT TO SHOP DRAWING REVIEW.

LIGHT EMITTING DIODE (LED) FIXTURES

LED FIXTURES TO COMPLY WITH CSA C22.2 NO. 250.13, COMPLETE WITH DISCRETE DRIVER, HEAT SINK, CIRCUIT BOARD AND HOUSING COMPONENTS.

LED LAMPS SHALL PROVIDE THE MINIMUM DELIVERED LUMENS INDICATED ON LIGHT FIXTURE SCHEDULE AND SHALL MAINTAIN MINIMUM 70% OF INITIAL LUMENS AFTER 50,000 HOURS OF OPERATION OR BETTER AS INDICATED ON LIGHT FIXTURE SCHEDULE. MINIMUM COLOUR RENDERING INDEX OF 85 AND COLOUR TEMPERATURE OF 3500°K UNLESS OTHERWISE NOTED.

EACH LED FIXTURE TO BE COMPLETE WITH INTEGRAL, MODULAR, REPLACEABLE DRIVERS. MINIMUM EFFICIENCY: 85%. MAXIMUM THD: 20%

ACCEPTABLE DRIVER MANUFACTURERS: UNIVERSAL, GENERAL ELECTRIC, SYLVANIA/OSRAM, ULTRASAVE, PHILIPS, ELDOLDO (ACUTY), CREE, NICHIA, SAMSUNG.

LAMPS-GENERAL

PROVIDE ALL REQUIRED LAMPS AS INDICATED IN FIXTURE LIST.

ACCEPTABLE MANUFACTURERS: PHILIPS, GE, OSRAM/SYLVANIA.

EXIT LIGHTS

EXIT SIGNS SHALL BE GREEN RUNNING MAN PICTOGRAM TYPE, WITH WHITE LED LAMPS, UNIVERSAL 2-WIRE AC INPUT VOLTAGE OF 120 TO 347VAC AT LESS THAN 2.5 WATTS AND UNIVERSAL 2-WIRE DC INPUT VOLTAGE FROM 6 TO 24VDC FOR SINGLE AND DOUBLE FACE SIGNS. SHALL BE SUITABLE FOR WALL, END, OR CEILING MOUNT. STEEL HOUSING WITH WHITE FINISH, WITH CLEAR POLY-CARBONATE FACEPLATES WITH DIRECTIONAL INDICATORS AS SHOWN ON PLANS. SHALL MEET CSA 22.2 NO. 141 LATEST EDITION.

EQUAL TO EMERGI-LITE ES SERIES.

ENSURE THAT EXIT LIGHT CIRCUIT BREAKER IS LOCKED IN 'ON' POSITION.

EMERGENCY BATTERY UNIT (EBUS)

PROVIDE EMERGENCY BATTERY UNIT AS FOLLOWS:
TO CSA C22.2 NO. 141: SEALED LEAD ACID BATTERIES, 10 YEAR LIFE.
MINIMUM OPERATING TIME 30 MINUTES BASED ON CONNECTED LOAD PLUS 10% UNLESS OTHERWISE NOTED, MINIMUM 200 WATTS.
MULTI RATE CHARGER, REGULATED, TEMPERATURE COMPENSATED, SHORT CIRCUIT PROTECTED.
SOLID STATE TRANSFER AND LOW VOLTAGE DISCONNECT.
SIGNAL LIGHTS AND TEST SWITCH.
WALL MOUNTING.
INTEGRAL HEADS WHERE SHOWN, AND REMOTE HEADS CEILING MOUNTED ON CANOPY PLATE, FULLY ADJUSTABLE SWIVEL TYPE, WITH 5 WATT LED MR16 LAMPS. WIRING TO BE SIZED TO LIMIT VOLTAGE DROP TO MAXIMUM 5%

ELECTRICAL DISTRIBUTION AND EQUIPMENT

PANELBOARDS

PROVIDE NEW BREAKERS TO MATCH EXISTING PANELS AS SHOWN AND AS REQUIRED. HALF SIZE BREAKERS NOT ACCEPTABLE U.O.N.

TELECOMMUNICATIONS

CONDUITS AND OUTLETS

PROVIDE EMPTY CONDUITS AS SHOWN FOR TELEPHONE/DATA SYSTEM, WITH BUSHING ON EACH CONDUIT END, AND PULL STRING IN ALL EMPTY CONDUITS. PROVIDE SINGLE GANG BACK BOX AT EACH WALL TELEPHONE/DATA OUTLET, WITH 3/4" EMT TO TOP OF WALL INTO ACCESSIBLE CEILING SPACE. THIS SYSTEM REQUIRES CABLES WITH FT6 RATING BY TELEPHONE/DATA INSTALLER.

PROVIDE PULL BOX IN CONDUIT RUNS WHEN THE LENGTH IS OVER 30 METRES, IF THERE ARE MORE THAN TWO 90 DEGREE BENDS OR IF THERE IS A REVERSE BEND IN THE RUN. PULL BOXES SHALL BE CONSTRUCTED OF CODE GAUGE STEEL AND SHALL HAVE A RUST RESISTANT FINISH. INSTALL IN EASILY ACCESSIBLE LOCATIONS WITH AN INDICATOR DECAL ON CEILING OR 1-BAR SHOWING LOCATION. IN ALL INSTANCES PULL BOXES SHALL BE PLACED IN STRAIGHT SECTIONS OF A CONDUIT RUN AND SHALL NOT BE USED IN LIEU OF A BEND. CORRESPONDING ENDS OF THE CONDUIT ARE TO BE ALIGNED WITH EACH OTHER. LB, LL, LR AND OTHER CONDUIT TYPE FITTINGS ARE NOT TO BE USED IN LIEU OF PULL BOXES AND BENDS.

PROVIDE INSIDE RADIUS OF A BEND IN A CONDUIT AT LEAST SIX TIMES THE INTERNAL DIAMETER WHEN THE CONDUIT IS LESS THAN 53MM IN DIAMETER AND TEN TIMES THE INTERNAL DIAMETER WHEN THE CONDUIT IS 53MM AND LARGER IN DIAMETER.

REAM AND BUSH ALL CONDUITS.

AT COMPLETION OF CABLING CONTRACT, PROVIDE BLANK COVER PLATES TO MATCH IN COLOUR, STYLE AND MATERIAL, THE COVERPLATES IN THE AREA, ON ANY UNUSED OUTLET BOX.

FIRE ALARM SYSTEM

FIRE ALARM DEVICES