ECHELON CENTRE TENANT FIT-OUT VANCOUVER, BC

CIVIC ADRESS 6F - 575 8TH AVENUE WEST VANCOUVER, BC

DRAWIN	IG LIST
DWG. NO.	SHEET TITLE
E001	DRAWING LIST, GENERAL NOTES & SYMBOLS
E002	ELECTRICAL SPECIFICATIONS
E003	SINGLE LINE, CALCULATIONS & SCHEDULES
E100	NEW POWER & LOW TENSION PLAN
E101	NEW LIGHTING & FIRE ALARM PLAN
E200	DEMOLITION POWER & LOW TENSION PLAN
E201	DEMOLITION LIGHTING PLAN

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	GENERAL NOTES
1	CONTRACTOR SHALL PROVIDE AND INSTALL ALL CONDUIT, CONDUCTORS, JUNCTION BOXES AND RECEPTACLES UNLESS OTHERWISE NOTED ON THE DRAWINGS.
2	CONTRACTOR SHALL READ THESE DRAWINGS IN CONJUNCTION WITH THE CANADIAN ELECTRICAL CODE (CURRENT EDITION), MECHANICAL AND ARCHITECTURAL DRAWINGS, VANCOUVER BUILDING BY-LAW (CURRENT EDITION), AND ALL OTHER PROJECT RELATED DOCUMENTATION. SCOPE OF WORK IS NOT LIMITED TO THESE DRAWINGS BUT INCLUDES ALL ITEMS AS LISTED ON DRAWINGS, SPECIFICATION, AND ALL OTHER PROJECT RELATED DOCUMENTATION.
3	FIELD COORDINATE ELECTRICAL DEVICES AND EQUIPMENT WITH OTHER DIVISIONS ON SITE. ADJUST ELECTRICAL DEVICE AND EQUIPMENT PLACEMENT AS REQUIRED TO SUIT FIELD CONDITIONS. ALL NEW ELECTRICAL INSTALLATION SHALL BE IN CONFORMANCE WITH THE CANADIAN ELECTRICAL CODE (CURRENT EDITION) AND VANCOUVER BUILDING BY-LAW (CURRENT EDITION) INCLUDING CLEARANCES AND SETBACKS.
4	CONTRACTOR SHALL COORDINATE INSTALLATION OF ELECTRICAL DEVICES AND COMPONENTS WITH EQUIPMENT MANUFACTURERS AND SUPPLIER. NOT ALL SYSTEM COMPONENTS ARE SHOWN. CONTRACTOR SHALL PROVIDE ALL COMPONENTS, DEVICES, AND MATERIAL AS REQUIRED TO ENSURE INSTALLATION OF A COMPLETE AND FUNCTIONAL SYSTEM.
5	CONTRACTOR SHALL CONFIRM WIRING SIZING AND ENSURE THAT VOLTAGE DROPS IN ALL BRANCH CIRCUIT AND FEEDER MEET CODE REQUIREMENT.
6	ALL WIRING SHALL BE INSTALLED IN CONDUIT SYSTEMS AS INDICATED. ALL CONDUITS SHALL BE SECURELY FASTENED TO THE BUILDING STRUCTURE.
7	ENSURE THAT POWER, COMMUNICATION CABLES AND CONTROL WIRING TO BE IN SEPARATE CONDUIT SYSTEMS.
8	CONTRACTOR SHALL BOND ALL NON-CURRENT CARRYING METAL PARTS OF THE SYSTEM AS REQUIRED BY CODE. ENSURE ALL PARTS OF THE SYSTEM ARE GROUNDED AND EXISTING GROUNDING AND BONDING SYSTEMS ARE PROTECTED AND MAINTAIN CONDUCTIVITY.
9	CONTRACTOR SHALL VERIFY THE NEW ELECTRICAL SYSTEMS ARE TESTED, STARTED, AND READY FOR USE PRIOR TO TURNOVER TO THE OWNER. CONTRACTOR

SHALL FIELD TEST THE ENTIRE SYSTEM AND ENSURE IT IS OPERATIONAL AND READY FOR USE. CONTRACTOR SHALL COORDINATE WITH MANUFACTURER OF ALL SYSTEMS AS PART OF THIS SCOPE OF WORK. ALL TEST REPORTS SHALL BE SUBMITTED TO ENGINEER.

	LIGHTING] [
\$	SINGLE POLE SWITCH	-	₫)	DUPLEX
\$	DOUBLE POLE SWITCH	╡┟	<u>ل</u> ے	<u>```</u>	PROVIDE DUPLEX I
\$	THREE POLE SWITCH	╕┠		·	GFCI DUI
\$	FOUR POLE SWITCH	┓┟	■ 		SPLIT RE
٢	LOW VOLTAGE SWITCH - SINGLE	┓┠			SINGLE F
\$#	LOW VOLTAGE SWITCH - MULTIPLE X: # OF POLES	┓┠			DIRECT
OS \$	LINE VOLTAGE OCCUPANCY SENSOR SWITCH; OS2 = 2-POLE	-1			GFCI QU
OS S	LOW VOLTAGE OCCUPANCY SENSOR SWITCH	-1 F	#	≠	QUAD RE
D \$	LINE VOLTAGE DIMMER SWITCH	-1	4	₽	QUAD RE
D	LOW VOLTAGE DIMMER SWITCH	-1 F	¢	þ	SPECIAL
P \$	LINE VOLTAGE SWITCH WITH PILOT LIGHT	7 [È	(FLOOR R
к \$	LINE VOLTAGE KEY SWITCH		Ę	}-	CEILING
⊺ \$	LINE VOLTAGE TIMER SWITCH		È		ISOLATEI
2 3 4 \$ \$ \$	LINE VOLTAGE SWITCH #: POLES/WAYS		Ę		ISOLATEI
	TIME CLOCK	╡┟	QQ)〕	JUNCTIO
			#		BASEBOA
\square	OCCUPANCY SENSOR - WALL AND CEILING D: INDICATES WITH DAYLIGHT SENSOR		6)	MOTOR
	PHOTOCELL/DAYLIGHT SENSOR - WALL AND CEILING		ତ		MOTOR A
Q	WALL MOUNTED FIXTURE		Ø		MOTOR A
Ø	CEILING SURFACE/PENDANT MOUNT FIXTURE		୍ରଷ	ከ	MOTOR A
Ø	RECESSED FIXTURE				DISCONN
Ø	PENDANT MOUNTED FIXTURE	_			FUSED D
	BOLLARD FIXTURE		×	հ	MAGNET
Ŀ.	POLE MOUNTED FIXTURE	_	HO	A	HAND OF
	TRACK HEAD AND TRACK		VF		VARIABL
>	DIRECTIONAL LUMINAIRE INDICATOR		M \$	5	MANUAL
	NIGHT LIGHT OR EMERGENCY FIXTURE (TYPICAL)		Ć)	THERMO
SW CCT	RECESSED 2X4 FIXTURE (WITH SWITCH LEG AND CIRCUIT ATTRIBUTES - TYPICAL)		•		PUSH BU
	RECESSED 1X4 FIXTURE	┤┟	#	-	ELECTRI
	RECESSED 2X2 FIXTURE	┨┠			
•	CEILING SURFACE/SUSPENDED 2X4 FIXTURE	┨┠			
•	CEILING SURFACE/SUSPENDED 1X4 FIXTURE	-]	E	_	CONDUIT
·	CEILING SURFACE/SUSPENDED 2X2 FIXTURE	┓┟			CONDUIT
	2FT STRIP (SURFACE OR SUSPENDED - AS INDICATED)	┓┠			INDICATE
C2	J 4FT STRIP (SURFACE OR SUSPENDED - AS INDICATED)		•		OTHERW
_	2FT WALL FIXTURE		AD	0	AUTOMA
	4FT WALL FIXTURE	_ [Н]	AUTOMA
	FLEXIBLE CORD LIGHTING	_ ŀ			JUNCTIO
	NIGHT LIGHT OR EMERGENCY FIXTURE (TYPICAL)	_	JP JC		FEED-TH
#	LUMINAIRE TYPE TAG	_			
		」∣	A/V]	AUDIO / \
		I			

ELECTRICAL POWER, LIGHTING, OTHER EQUIPMENT DESIGN (ENERGY)

N/A

VANCOUVER BUILDING BYLAW: 2014

- ELECTRICAL DESIGN: ENERGY STANDARD / CODE: POWER COMPLIANCE PATH:
- IN ACCORDANCE WITH:
- LIGHTING COMPLIANCE PATH: LIGHTING DESIGN METHOD: SPACE-BY-SPACE
- IN ACCORDANCE WITH:
- OTHER EQUIPMENT PATH: IN ACCORDANCE WITH:

ASHRAE 90.1-2010 PRESCRIPTIVE 8.1.5 ALT'S TO EB PRESCRIPTIVE 9.1.2 LIGHTING ALTERATIONS N/A

	POWER
	I OWER
Þ	DUPLEX RECEPTACLE (5-15R TYPE UNLESS INDICATED OTHERWISE) ; PROVIDE WITH 2 USB PORTS IF MARKED "U"
₽	DUPLEX RECEPTACLE (5-20R)
þ	GFCI DUPLEX RECEPTACLE
₽	SPLIT RECEPTACLE
Þ	SINGLE RECEPTACLE
	DIRECT CONNECTION (OR CONNECTION TYPE AS INDICATED)
⊭	GFCI QUAD RECEPTACLE
₽	QUAD RECEPTACLE
	QUAD RECEPTACLE (5-20R)
₽	SPECIAL RECEPTACLE - TYPE AS INDICATED
á 🛛	FLOOR RECEPTACLE (DUPLEX)
	CEILING RECEPTACLE (DUPLEX)
Á	ISOLATED GROUND FLOOR RECEPTACLE
	ISOLATED GROUND CEILING RECEPTACLE
<u>ک</u> ر و	JUNCTION BOX (WALL, CEILING, IN GROUND)
#	BASEBOARD HEAT
୭	MOTOR
Դ	MOTOR AND DISCONNECT
Sh	MOTOR AND FUSED DISCONNECT
∑ h	MOTOR AND MAGNETIC STARTER
Դ	DISCONNECT
Ъ	FUSED DISCONNECT
∑ h	MAGNETIC STARTER
OA	HAND OFF AUTO CONTROL
FD	VARIABLE FREQUENCY DRIVE
1P \$	MANUAL MOTOR STARTER
D	THERMOSTAT
•	PUSH BUTTON - TYPE AS INDICATED
#	ELECTRICAL POWER PANEL - SURFACE OR FLUSH AS INDICATED
#	PANEL - TYPE AS INDICATED
Т	GROUND/BOND BUS BAR
	CONDUIT STUB
	CONDUIT UP
	CONDUIT DOWN
•	INDICATES DEVICE IS ABOVE COUNTER; 44" AFF UNLESS NOTED OTHERWISE
00	AUTOMATIC DOOR OPENER
1	AUTOMATIC DOOR OPENER PUSH PLATE
	JUNCTION BOX FOR FURNITURE POWER WHIP CONNECTION
]	FEED-THRU JUNCTION BOX FOR DATA CABLES TO FEED DESKS
M	AUDIO / VISUAL CONNECTION

	FIRE ALARM
比	FIRE ALARM STROBE
	FIRE ALARM HORN
	FIRE ALARM HORN/STROBE
	PEIZO HORN
	PEIZO HORN/STROBE
Ð	WALL MOUNTED FIRE ALARM SPEAKER
Ē	CEILING MOUNTED FIRE ALARM SPEAKER
	DUCT DETECTOR
	HEAT DETECTOR - ROR: RATE OF RISE, FIX: FIXED
•	SMOKE DETECTOR
	MANUAL STATION
н	HEAT DETECTOR ALARM
	CARBON MONOXIDE ALARM/DETECTOR
MM	MONITORING MODULE
СМ	CONTROL MODULE
R	FIRE ALARM RELAY
EOL	END OF LINE DEVICE
ISO	ISOLATION MODULE
HO	DOOR HOLD OPEN
(TS)	TAMPER SWITCH
FS	FLOW SWITCH
PS	PRESSURE SWITCH
LS	LEVEL SWITCH
Â	FIRE ALARM TELEPHONE OR AS NOTED
#	FIRE ALARM PANEL - TYPES: FACP, FAAP, DACT

EMERGENCY LIGHTING

HØ	WALL EXIT, TYPE AS INDICATED
	CEILING EXIT, TYPE AS INDICATED
X 4>	WALL REMOTE HEADS - TYPE AS INDICATED
Å •••	CEILING REMOTE HEADS - TYPE AS INDICATED
	BATTERY PACK
	BATTERY PACK WITH REMOTE HEADS
	BATTERY PACK WITH REMOTE HEADS AND EXIT SIGN

	ABBREVIATIONS
EX	EXISTING DEVICE TO REMAIN
RM	REMOVE EXISTING DEVICE
RL	RELOCATE EXISTING DEVICE
ER	EXISTING DEVICE IN RELOCATED POSITION
AFG	ABOVE FINISHED GRADE
AFF	ABOVE FINISHED FLOOR
ARC	ARC FAULT
BMS	BUILDING MANAGEMENT SYSTEM
С	CEILING MOUNTED DEVICE
DACT	DIGITAL ALARM COMMUNICATOR TRANSMITTER
DW	DISHWASHER
DR	DRYER
F&S	FAUCET & SOAP
FAX	FAX MACHINE
FR	REFRIGERATOR
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FAAP	FIRE ALARM ANNUNCIATOR PANEL
GF	GROUND FAULT
GFR	GROUND FAULT RECEPTACLE
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
НК	HOUSE KEEPING
IG	ISOLATED GROUND
JB	JUNCTION BOX
MCC	MOTOR CONTROL CENTER
MW	MICROWAVE
PRT	PRINTER
RA	RANGE
RCD	RECESSED MOUNTED DEVICE
RSP	RADIO SPEAKER
RVC	RADIO VOLUME CONTROL
SPR	SURGE PROTECTED RECEPTACLE
SRF	SURFACE MOUNTED DEVICE
TR	TAMPER RESISTANT
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TV	TELEVISION
ТҮР	TYPICAL
WAP	WIRELESS ACCESS POINT
W	WALL MOUNTED DEVICE
	WEATHERPROOF
WP	
WP DC	DISCONNECT AND MAKE SAFE

COMMUNICATIONS

#	WALL STRUCTURED WIRING OUTLET - #: NUMBER AND TYPES. IF UNMARKED, DEFAULT IS 1D/1V (1xDATA AND 1xVOICE)
,	FLOOR STRUCTURED WIRING OUTLET - #: NUMBER AND TYPES
- \$	CEILING STRUCTURED WIRING OUTLET - #: NUMBER AND TYPES
-₩- # ₩	WALL COAXIAL OUTLET - #: NUMBER OF DROPS
<u>#</u>	FLOOR COAXIAL OUTLET - #: NUMBER OF DROPS
-\$ <u>#</u> -	CEILING COAXIAL OUTLET - #: NUMBER OF DROPS
Ψ	INTERCOM STATION
A/V	AUDIO VISUAL BOX / WALL TERMINATION POINT
	INTERCOM MASTER/MAIN STATION
₩ ₩SM/MM	FIBRE OPTIC OUTLET - #: NUMBER OF DROPS, SM: SINGLE MODE, MM: MULTIMODE
Ð	CLOCK WALL
Ф	CLOCK CEILING
0	DATA FEED-THROUGH OUTLET

	SECURITY / LOW TENSION
Ď	CAMERA
	CAMERA - PAN/TILT/ZOOM
CR	CARD READER
K	SECURITY KEYPAD (OR KEYPAD TYPE AS INDICATED)
REX	REQUEST TO EXIT PUSH BUTTON
REX	REQUEST TO EXIT SENSOR
P	PANIC BUTTON
BK	BUZZER AND KEYSWITCH
ML	ELECTROMAGNETIC LOCK
EH	ELECTRIFIED DOOR HARDWARE
ES	ELECTRIC STRIKE
DP	DOOR POSITION SWITCH
•	DOOR PUSH BUTTON
Ą	MOTION DETECTOR - WALL MOUNTED

PUBLIC ADDRESS

Ş	WALL MOUNTED SPEAKER
S	CEILING MOUNTED SPEAKER
國國會	WALL / GROUND / CEILING AUDIO VIDEO JACK - TYPES AS INDICATED

D 08/08/18 ISSUED FOR TENDER C 08/02/18 ISSUED FOR BUILDING PERMIT B 07/23/18 ISSUED FOR REVIEW & COORDINATION A 07/20/18 ISSUED FOR REVIEW & COORDINATION A 07/20/18 ISSUED FOR COORDINATION No. DATE REVISION (dd/mm/yr)	110-1281 WEST GEORGIA, VANCOUVER, B.C. V6E 3J5 TELEPHONE (604) 669-9460 FAX. (604) 683-7684
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ELECTRICAL SPECIFICATIONS

GENERAL REQUIREMENTS

1.1.0 GENERAL

- 1.1.1 THE GENERAL CONDITIONS AND INSTRUCTIONS TO BIDDERS AS SET FORTH IN THE GENERAL CONTRACT SPECIFICATIONS AND ALL ADDENDA THERETO SHALL APPLY TO, AND GOVERN ALL PORTIONS OF THE ELECTRICAL WORK.
- 1.1.2 COORDINATE ALL WORK DESCRIBED BY THESE DRAWINGS AND SPECIFICATIONS WITH THAT OF THE OTHER TRADES WORKING ON THE SITE SO AS TO NOT HOLD UP THE PROGRESS OF OTHER TRADES.
- 1.1.3 POINTS NOT SPECIFICALLY MENTIONED SHALL BE IN STRICT ACCORDANCE WITH THE CANADIAN ELECTRICAL CODE (C22.1–15) AND REGULATIONS OF THE ELECTRICAL INSPECTION DEPARTMENT FROM WHICH THE PERMIT WAS OBTAINED. THE LATEST REVISIONS AND/OR AMENDMENTS TO THIS CODE, WITH APPLICABLE DATE RESTRICTIONS, SHALL ALSO GOVERN WORK ON THIS CONTRACT
- .1.4 IT IS THE INTENT THAT THESE DRAWINGS AND SPECIFICATIONS PROVIDE FOR AN ELECTRICAL INSTALLATION COMPLETE AND IN OPERATING CONDITION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING AND INSTALLING ALL MATERIAL NECESSARY TO ACCOMPLISH THIS, EXCEPT WHERE SPECIFICALLY NOTED THAT SUCH WORK OR MATERIAL IS NOT INCLUDED.
- 5 WHERE THE WORDS "FURNISH", "PROVIDE", OR "INSTALL" APPEAR IN THIS DIVISION, OR A MANUFACTURER IS INDICATED WITH ITEM OR PRODUCT CATALOG NUMBER LISTED, IT IS THE CONTRACTOR'S RESPONSIBILITY TO FURNISH AND INSTALL THE ITEM COMPLETE AND OPERATING FOR THE PURPOSE OR FUNCTION INTENDED, UNLESS NOTED OTHERWISE.
- 1.1.6 NOTIFY THE ENGINEER IN WRITING OF ANY CHANGES REQUIRED BY THE LOCAL INSPECTION DEPARTMENT OF THE AUTHORITY HAVING JURISDICTION (AHJ) PRIOR TO MAKING SAID CHANGES.
- 1.1.7 THESE DRAWINGS AND SPECIFICATIONS SHALL BE READ IN CONJUNCTION WITH THE ARCHITECTURAL, MECHANICAL AND STRUCTURAL DOCUMENTS, POST-TENDER ADDENDA AND WHAT IS CALLED FOR IN ONE AND/OR ANOTHER SHALL BE BINDING IN THIS CONTRACT.
- 1.2.0 CODES, PERMITS AND INSPECTIONS
- 1.2.1 THE INSTALLATION SHALL COMPLY WITH THE REQUIREMENTS OF THE CURRENT EDITION OF THE CANADIAN ELECTRICAL CODE. THE VANCOUVER BUILDING BY-LAW (VBBL) AND THE REGULATIONS OF THE ELECTRICAL INSPECTION DEPARTMENT OF THE AUTHORITY HAVING JURISDICTION.
- 1.2.2 THE ELECTRICAL TRADE SHALL OBTAIN ALL ELECTRICAL PERMITS REQUIRED AND, AFTER COMPLETION OF THE WORK, SHALL FURNISH TO THE ARCHITECT A CERTIFICATE OF FINAL INSPECTION AND APPROVAL FROM THE INSPECTION DEPARTMENT. ELECTRICAL TRADE SHALL PAY AND OBTAIN ALL PERMITS AT THE BEGINNING OF THE WORK.
- 1.2.3 THE ELECTRICAL CONTRACTOR SHALL SUBMIT THE REQUIRED NUMBER OF SETS OF DRAWINGS TO THE ELECTRICAL INSPECTION DEPARTMENT AND SHALL INCLUDE ALL COSTS FOR PRINTS, PLAN REVIEWS, PERMITS, SURVEYS, ETC. IN THIS ELECTRICAL TENDER.
- 1.3.0 STANDARD OF MATERIAL AND WORKMANSHIP
- 1.3.1 ALL EQUIPMENT AND MATERIALS SUPPLIED BY THE CONTRACTOR SHALL BE NEW AND OF THE QUALITY SPECIFIED. ALL SUCH MATERIAL SHALL CONFORM TO THE STANDARDS OF THE CANADIAN STANDARDS ASSOCIATION AND SHALL BEAR THE NECESSARY CSA LABEL. FOR ANY MATERIAL NOT CSA APPROVED, THIS CONTRACTOR SHALL OBTAIN THE APPROVAL OF THE LOCAL INSPECTION AUTHORITY AND SHALL BEAR ALL INSPECTION CHARGES LEVIED AND ANY MODIFICATION COSTS REQUIRED. NOTIFY THE ENGINEER PRIOR TO SUPPLYING MATERIAL THAT IS NOT SCC APPROVED.
- 1.3.2 ALL PHASES OF THE ELECTRICAL INSTALLATION SHALL BE EXECUTED IN A SATISFACTORY, WORKMANLIKE MANNER AND SHALL PRESENT A NEAT. MECHANICAL APPEARANCE WHEN COMPLETED. WORK NOT DEEMED SATISFACTORY TO THE ENGINEER SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
- 1.3.3 THE CONTRACTOR SHALL KEEP ON THE JOB DURING ITS PROGRESS, A COMPETENT FOREMAN AND NECESSARY QUALIFIED TRADESMEN. ALL SATISFACTORY TO THE ENGINEER. THE FOREMAN SHALL REPRESENT THE CONTRACTOR IN HIS ABSENCE, AND ALL DIRECTIONS GIVEN TO THE FOREMAN SHALL BE HELD AS BEING GIVEN TO THE CONTRACTOR. THE CONTRACTOR SHALL GIVE EFFICIENT SUPERVISION TO THE WORK, USING HIS BEST SKILL AND ATTENTION.

1.4.0 SETTING OUT OF THE WORK

- 1.4.1 WHERE THE INTENT OF THE DRAWINGS AND SPECIFICATIONS IS NOT CLEAR. THE CONTRACTOR SHALL OBTAIN A CLARIFICATION FROM THE ENGINEER BEFORE PROCEEDING WITH THE WORK. HE ELECTRICAL TRADE SHALL BE RESPONSIBLE FOR CORRECTING ALL WORK COMPLETED CONTRARY TO THE INTENT OF THE DRAWINGS AND SPECIFICATIONS AND SHALL BEAR ALL COSTS FOR MAKING THE SAID CORRECTIONS.
- 1.4.2 THE ELECTRICAL TRADE SHALL GIVE THE WORK HIS PERSONAL SUPERVISION, LAY OUT HIS OWN WORK, DO ALL NECESSARY LEVELING AND MEASURING OR EMPLOY A COMPETENT ENGINEER TO DO SO. FIGURES, FULL-SIZE DRAWINGS AND DETAILS SHALL TAKE PRECEDENCE OVER SCALE MEASUREMENTS.
- 1.4.3 WHERE ANY EQUIPMENT SUPPLIED BY THE ELECTRICAL TRADE MUST BE BUILT-IN WITH WORK OF OTHER CONTRACTORS, THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE SUPPLYING OF THE EQUIPMENT TO BE BUILT-IN OR MEASUREMENTS TO ALLOW NECESSARY OPENINGS TO BE LEFT SO AS NOT TO HOLD UP THE WORK.
- 1.4.4 THE ELECTRICAL TRADE, IN SETTING OUT OF HIS WORK, SHALL MAKE REFERENCE TO ARCHITECTURAL, STRUCTURAL AND MECHANICAL DRAWINGS AND SPECIFICATIONS. HE SHALL CONSULT WITH THE RESPECTIVE TRADES IN SETTING OUT LOCATIONS FOR CONDUIT RUNS. LIGHTING FIXTURES, PANEL ASSEMBLIES, ETC., SO THAT CONFLICTS ARE AVOIDED AND SYMMETRICAL EVEN SPACING IS MAINTAINED.
- 1.4.5 PRIOR TO SUBMITTING THE TENDER, CAREFULLY AND THOROUGHLY EXAMINE AND BECOME FAMILIAR WITH THE SITE OF THE PROPOSED WORK TO UNDERSTAND ALL THE EXISTING CONDITIONS AFFECTING THE WORK. NO EXTRAS WILL BE ALLOWED FOR WORK NECESSITATED BY CONDITIONS ORDINARILY EVIDENT ON THE SITE.
- 1.4.6 WHERE LIGHTING FIXTURES, SPEAKERS, ETC. OCCUR IN ACOUSTIC TILE TYPE CEILING, THE FIXTURE OR SPEAKER LOCATION SHALL BE COORDINATED WITH THE TILE PATTERN AND SHALL BE ADJUSTED, IF REQUIRED, TO SUIT THE TILE PATTERN.
- 1.4.7 WHERE RECEPTACLES ARE MOUNTED ABOVE COUNTERS, BENCHES, SPLASHBACKS. ETC., LOCATION AND MOUNTING HEIGHTS SHALL BE COORDINATED WITH THE BUILT-IN UNITS. REFER TO ARCHITECTURAL DETAILS. WHERE RECEPTACLES OCCUR IN OUTSIDE WALLS WHERE HEATING UNITS OCCUR, RECEPTACLE HEIGHT SHALL BE ADJUSTED TO COORDINATE WITH THE HEATING
- 1.4.8 SWITCH MOUNTING HEIGHTS SHALL BE COORDINATED WITH ARCHITECTURAL DETAILS AND SHALL BE ADJUSTED, IF REQUIRED, TO COORDINATE WITH PANELING, DADOS, MASONRY COURSE LINES,
- 1.4.9 WHERE OUTLETS OCCUR IN THE WARM SIDE OF PERIMETER WALLS, THE ELECTRICAL TRADE SHALL INSTALL "POLY-VAPOR HATS" TO MAINTAIN THE INTEGRITY OF THE VAPOR BARRIER AND ENSURE THAT THERE IS INSULATION BEHIND THE OUTLET BOXES TO PREVENT CONDENSATION IN THE BOXES.
- I.4.10 UPON INSTRUCTION FROM THE ENGINEER, AND PRIOR TO ORIGINAL INSTALLATION, OUTLETS MAY BE RELOCATED UP TO 3m FROM LOCATION SHOWN ON DRAWINGS, AT NO ADDITIONAL

- 1.4.11 OUTLETS LOCATED IN PARTY WALLS SHALL NOT BE INSTALLED BACK-TO-BACK, TO PREVENT SOUND TRANSMISSION THROUGH ADJOINING ROOMS.
- 1.4.12 INSTALLATION OF CONDUITS, OUTLETS AND EQUIPMENT IN MECHANICAL ROOMS SHALL NOT PROCEED UNTIL THE INSTALLATION OF MECHANICAL EQUIPMENT HAS PROGRESSED FAR ENOUGH TO AVOID CONFLICTS. POSITION OF ELECTRICAL EQUIPMENT AND OUTLETS SHALL BE ADJUSTED IN THESE AREAS TO COORDINATE WITH MECHANICAL EQUIPMENT.

1.5.0 CUTTING , PATCHING, EXCAVATION, BACKFILLING, ETC.

- 1.5.1 ARRANGE AND PAY FOR ALL CUTTING, PATCHING, EXCAVATION AND BACKFILLING COSTS RELATED TO THE WORK OF THIS CONTRACT.
- 1.5.2 RESTORE ALL EXCAVATIONS TO THEIR ORIGINAL CONDITION SUBSEQUENT TO THE COMPLETION OF THE ELECTRICAL INSTALLATIONS DESCRIBED IN THESE DRAWINGS AND SPECIFICATIONS
- 1.5.3 SURROUND ALL CABLES OR CONDUITS INSTALLED IN TRENCHES WITH SAND OR 200MM NOMINAL SCREENED EARTH AS INDICATED ON THE DETAILS AND AS REQUIRED BY THE CEC.
- 1.5.4 OBTAIN WRITTEN CONSENT FROM THE OWNER AND THE STRUCTURAL ENGINEER FOR ANY REQUIRED CUTTING AND CORE DRILLING.

1.6.0 SUBSTITUTION

1.6.1 NO SUBSTITUTION WILL BE ALLOWED UNLESS WRITTEN ACCEPTANCE HAS BEEN OBTAINED FROM THE ENGINEER FIVE (5) DAYS PRIOR TO TENDER CLOSING.

1.7.0 SHOP DRAWINGS

1.7.1 PRIOR TO DELIVERY OF ANY PRODUCTS TO THE SITE AND ADEQUATELY IN ADVANCE TO ALLOW SUFFICIENT TIME FOR CHECKING, SUBMIT SETS OF MANUFACTURER'S DETAILED SHOP DRAWINGS (NUMBER OF SETS TO BE DETERMINED LATER), SPECIFICATIONS, DATA SHEETS, CATALOG CUTS. ETC., FOR ALL EQUIPMENT INCLUDING BUT NOT LIMITED TO: PANELBOARDS. SERVICE EQUIPMENT, SAFETY SWITCHES, LIGHTING FIXTURES OR AS MAY BE CONSIDERED NECESSARY BY THE ENGINEER. SUBMITTED SHOP DRAWINGS SHALL HAVE APPROVAL STAMPS OF THE GENERAL CONTRACTOR AND ELECTRICAL CONTRACTOR.

1.8.0 RECORD DRAWINGS

1.8.1 THE CONTRACTOR SHALL PROVIDE ONE SET OF PRINTS TO BE USED TO RECORD WORK AS ACTUALLY INSTALLED ON SITE. MAINTAIN A DAILY RECORD OF REVISIONS AND ADDITIONS TO THE ORIGINAL WORK. ALL MARKUPS SHALL BE DONE NEATLY IN A COLOUR OTHER THAN BLACK OR GREY.

1.9.0 MAINTENANCE MANUALS

- 1.9.1 AT SUBSTANTIAL COMPLETION OF WORK, EMPLOY A COMPETENT (CADD) DRAFTS PERSON TO TRANSFER ALL DEVIATIONS, INCLUDING THOSE CALLED UP BY ADDENDA, REVISIONS, CLARIFICATIONS. SHOP DRAWINGS, AND CHANGE ORDERS, ON A COPY OF TENDER CADD FILES. FROM THESE FILES, PLOT A SET OF AS-BUILTS. DRAFTING QUALITY SHALL BE SAME AS ORIGINAL DRAWINGS
- 1.9.2 THE CADD ELECTRONIC FILES MAY BE BORROWED FROM THE ENGINEER. EACH "AS-BUILT" PRINT SHALL BEAR THE CONTRACTOR'S IDENTIFICATION, THE DATE OF RECORD AND THE NOTATION "WE HEREBY CERTIFY THAT THESE DRAWINGS REPRESENT THE AS-BUILT RECORD OF CONSTRUCTION." THE CONTRACTOR'S SIGNATURE AND COMPANY SEAL SHALL BE PLACED BELOW THAT NOTATION.
- 1.9.3 BEFORE COMPLETION AND ACCEPTANCE OF THE PROJECT, FURNISH AN ELECTRICAL SYSTEMS OPERATION & MAINTENANCE MANUAL IN A 3-POST BINDER INCLUDING A CD OF AN ELECTRONIC VERSION OF THE MATERIAL. EACH SYSTEM AND PIECE OF EQUIPMENT REQUIRING ADJUSTMENT OR MAINTENANCE OR WHOSE OPERATION IS NOT READILY APPARENT TO UNSKILLED USERS, OR REQUESTED BY THE OWNER'S REPRESENTATIVE, SHALL EACH BE COVERED BY A SEPARATE SECTION IN THE MANUAL. THREE SUCH MANUALS ARE REQUIRED. MANUALS SHALL INCLUDE:
- INDEX OF CONTENTS - HARD PAPER DIVIDERS BETWEEN SECTIONS WITH IDENTIFICATION LABELS - LIST OF SUPPLIERS WITH ADDRESSES, PHONE NUMBERS AND CONTACTS
- STATEMENT OF WARRANT - ALL CERTIFICATIONS INCLUDING INSPECTION DEPARTMENT CERTIFICATE, FIRE ALARM VERIFICATION/INSPECTION CERTIFICATES AND ANY OTHER REQUIRED APPROVALS
- ALL REVIEWED SHOP DRAWINGS SEPARATED BY SECTIONS ALL MANUFACTURER'S OPERATING AND MAINTENANCE INFORMATION FOR EACH RELEVANT PIECE OF EQUIPMENT

1.10.0 TESTING

- 1.10.1 PERFORM MEGGER TESTS ON ALL FEEDERS TO ENSURE THAT THE C.E.C. REQUIREMENTS ARE MET.
- 1.10.2 TAKE CURRENT READINGS ON ALL FEEDERS AND IF LOAD UNBALANCE EXCEEDS 15%, RECONNECT LOADS TO BRING WITHIN BALANCE.
- 1.10.3 TAKE VOLTAGE READINGS AND ADJUST THE TRANSFORMER TAP SETTINGS AS NECESSARY.
- 1.10.4 PERFORM TESTS ON ALL EQUIPMENT AS RECOMMENDED BY THE MANUFACTURER.
- 1.10.5 TEST ALL EMERGENCY LIGHTS AND EXIT SIGNS TO MEET THE DURATION REQUIREMENTS OF THE VBBL AND THIS SPECIFICATION.
- 1.10.6 FIRE ALARM VERIFICATION TO MEET CAN/ULC-S537. NOTIFY ENGINEER OF VERIFICATION DATE AND TIME AT LEAST 10 DAYS IN ADVANCE.

1.11.0 SEISMIC PROTECTION

- 1.11.1 THE ELECTRICAL TRADE SHALL PROVIDE SEISMIC RESTRAINT AND ANCHORAGE FOR ALL ELECTRICAL EQUIPMENT AND SERVICES IN ACCORDANCE WITH THE CURRENT EDITION OF THE VBBL, AND ALL APPLICABLE BUILDING BYLAWS. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO, TRANSFORMERS, PANEL BOARDS, CONDUIT AND LUMINAIRES.
- 1.11.2 PROVIDE CERTIFIED PROFESSIONALLY-SEALED SHOP AND PLACEMENT DRAWINGS WHERE APPLICABLE FOR ALL ELECTRICAL EQUIPMENT AND EQUIPMENT ASSEMBLIES SHOWING THE METHODS OF ATTACHMENT TO THE PARTICULAR STRUCTURE FOR EACH PIECE OF EQUIPMENT AND ASSEMBLY AND PROVIDE ANCHORAGE/ATTACHMENT DETAILS APPROVED AND SEALED BY A BC REGISTERED PROFESSIONAL STRUCTURAL ENGINEER.
- 1.11.3 INCLUDE IN THE TENDERED PRICE ALL SERVICES OF THE PROFESSIONAL STRUCTURAL ENGINEER INCLUDING BUT NOT LIMITED TO PROVIDING SUPPLEMENTAL SCHEDULES S-B AND S-C FOR THE PROJECT IN RESPECT OF THE SEISMIC RESTRAINT OF ALL ELECTRICAL MATERIALS AND EQUIPMENT, CONDUCTING THE NECESSARY SITE REVIEWS AND PROVIDING A LETTER AT THE CONCLUSION OF THE PROJECT, CONFIRMING THAT ALL SEISMIC RESTRAINTS FOR THE ELECTRICAL WORKS HAVE BEEN INSTALLED IN ACCORDANCE WITH THE ENGINEER'S INSTRUCTIONS. SUPPLEMENTAL SCHEDULES TO BE ADDRESSED AND SUBMITTED TO THE PROJECT'S ELECTRICAL ENGINEER OF RECORD.

1.12.0 GUARANTEE/WARRANTY

- 1.12.1 THE ELECTRICAL TRADE SHALL FURNISH A WRITTEN GUARANTEE/WARRANTY COUNTERSIGNED AND GUARANTEED BY THE GENERAL CONTRACTOR. STATING:
- 1. THAT ALL WORK EXECUTED UNDER THIS CONTRACT WILL BE FREE FROM DEFECTS OF WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE OF THIS WORK BY THE OWNER.
- 2. THE ABOVE PARTIES FURTHER AGREE TO, AT THEIR OWN EXPENSE, REPAIR AND REPLACE ALL SUCH DEFECTIVE WORK AND OTHER WORK DAMAGED THEREBY WHICH FAILS OR BECOMES DEFECTIVE DURING THE TERM OF THE GUARANTEE/WARRANTY, PROVIDED THAT SUCH FAILURE IS NOT DUE TO IMPROPER USAGE.

OTHERWISE COVERED.

SECTION 2.0 WORK AND MATERIALS

2.1.0 CONDUIT AND DUCT

2.1.1 CONDUIT IN EARTH SUSCEPTIBLE TO FREEZING SHALL BE RIGID STEEL CONDUIT OR TECK CABLE. CONDUIT IN EARTH NOT SUSCEPTIBLE TO FREEZING SHALL BE RIGID PVC CONDUIT, RIGID STEEL CONDUIT OR TECK CABLE.

2.2.5 CAT 6 CABLE SHALL BE USED FOR ALL APPLICABLE STRUCTURED WIRING SYSTEMS.

2.2.7 USE ARMORED CABLE (AC 90) FOR FINAL CONNECTIONS TO ALL MOTORS AND VIBRATING EQUIPMENT AND OTHER ELECTRICAL DEVICES. AC90 SHALL NOT EXCEED 30M FROM FINAL JUNCTION BOX TO ELECTRICAL DEVICE.

2.3.0 WIRING DEVICES

DUTY CAST #5206WO COVERS.

2.4.0 MOUNTING HEIGHTS

- 2. SWITCHES 1200mm

- 6. FIRE ALARM HORN/STROBES 150mm BELOW CEILING.

2.5.0 IDENTIFICATION

2.6.1 MANUAL MOTOR STARTERS TO BE QUICK-MAKE, QUICK-BREAK WITH THERMAL OVERLOAD PROTECTION, MANUAL RESET AND TRIP INDICATING HANDLE, CSA 1 ENCLOSURES UNLESS OTHERWISE INDICATED ON THE DRAWINGS. GENERAL ELECTRIC #CR1061 FOR 250 VOLT MAXIMUM, .75 KW OR LESS; #CR1062 FOR 3-PHASE MOTORS. ALL MAGNETIC AND COMBINATION MAGNETIC STARTERS SHALL BE OF THE SIZE AND RATING SPECIFIED. SOLENOID OPERATED CONTACTOR, POWER AND CONTROL TERMINALS, H-O-A SELECTOR SWITCH, ADJUSTABLE ELECTRONIC OVERLOAD DEVICES WITH NON-THERNMAL TYPE CURRENT SENSING 3:1 CURRENT RANGE ADJUSTMENT, PHASE UNBALANCE AND PHASE LOSS PROTECTION. RED LED PILOT LIGHT ON THE OUTSIDE OF THE ENCLOSURE AND TWO SETS OF NO AND NC AUXILIARY CONTACTS. COMBINATION MAGNETIC STARTERS SHALL INCLUDE A MOTOR CIRCUIT INTERUPTER CIRCUIR BREAKER WITH AN OPERATING LEVER.

2.7.0 WIRING FOR MECHANICAL TRADE

- 2.8.0 TELEPHONE SYSTEM

3. THE PERIOD OF THE GUARANTEE SPECIFIED SHALL IN NO WAY SUPPLANT ANY OTHER GUARANTEE OF A LONGER PERIOD BUT SHALL BE BINDING ON WORK NOT

2.1.2 INTERIOR METAL RACEWAYS TO BE EMT (ELECTRICAL METALLIC TUBING) EXCEPT WHERE WITHIN 1500mm OF THE FINISHED FLOOR AND ARE SUBJECT TO INJURY, IN WHICH CASE THEY SHALL BE GALVANIZED RIGID STEEL.

2.1.3 PROVIDE PULL WIRE IN ALL EMPTY CONDUITS.

2.2.0 BRANCH CIRCUIT WIRING

2.2.1 BRANCH CIRCUIT WIRING TO BE COPPER, 600 VOLT, MINIMUM #12 AWG RW90 XLPE. UNLESS NOTED OTHERWISE, NO ALUMINUM WIRING WILL BE PERMITTED. NOTE THAT WHENEVER WIRE SIZES ARE NOT SHOWN ON THE DRAWINGS, IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE CONDUCTORS COMPLY WITH C.E.C. SECTION 8 AND THE CORRESPONDING VOLTAGE DROP TABLES.

2.2.2 INTERIOR WIRING SHALL BE METALLIC CONDUIT THROUGHOUT WITH FLEXIBLE CONDUIT BEING UTILIZED FOR FINAL FIXTURE DROPS, WIRING IN STUD WALLS AND FINAL CONNECTION OF MOTORS (SEAL-TIGHT FLEXIBLE CONDUIT).

2.2.3 RG6 COAXIAL CABLES SHALL BE HIGH PURITY COPPER.

2.2.4 FIBER OPTIC CABLE SHALL BE SINGLE MODE BY BELDEN.

2.2.6 ALL WIRING OR CONDUIT ENCASING WIRING SHALL BE FT4 RATED EXCEPT IN PLENUM SPACES WHERE THEY SHALL BE FT6 RATED.

2.3.1 LIGHTING SWITCHES SHALL BE 20A, 120V, SUITABLE FOR #10 WIRING, HUBBELL #1201 OR APPROVED EQUAL. 3-WAY, 4-WAY AND 2-POLE SWITCHES SHALL BE OF MATCHING TYPE. COMMERCIAL GRADE, COLOR, IVORY OR APPROVED EQUAL.

2.3.2 DUPLEX RECEPTACLES SHALL BE IVORY, HUBBELL #5252 OR EQUAL. ISOLATED GROUND RECEPTACLES TO BE HUBBELL #.G.5252 OR EQUAL. GROUND FAULT RECEPTACLES TO BE HUBBELL #G.F.52521 OR EQUAL.

2.3.3 DEVICE PLATES SHALL BE SMOOTH BRUSHED STAINLESS STEEL.

2.3.4 WEATHERPROOF DUPLEX RECEPTACLES TO BE COMPLETE WITH HUBBEL HEAVY

2.3.5 DIMMERS TO BE EQUAL TO LUTRON NT-1500, 1500ATTS OR APPROVED EQUAL.

2.4.1 VERIFY HEIGHTS OF ALL DEVICES SUCH AS RECEPTACLES. SWITCHES, BRACKET LIGHTS, ETC., WITH THE ARCHITECT BEFORE ROUGH-IN. IN GENERAL, MOUNTING HEIGHTS SHALL BE AS FOLLOWS, UNLESS OTHERWISE SPECIFIED ON THE DRAWINGS:

1. DUPLEX RECEPTACLES 450mm

3. THERMOSTATS 1200mm

4. TELEPHONE/COMPUTER OUTLETS 450mm

5. FIRE ALARM PULL STATIONS 1200mm

2.5.1 LABEL ALL STARTERS, PANELS, SWITCHES, AND MISCELLANEOUS EQUIPMENT INDICATING THE VOLTAGE, USAGE AND OTHER PERTINENT INFORMATION PER C.E.C SUBJECT TO THE APPROVAL OF THE ENGINEER. LABELS SHALL BE LAMICOID PLATES, 13mm MINIMUM HEIGHT, "PERMANENTLY" ATTACHED.

2.5.2 RECEPTACLES AND DATA OUTLETS SHALL BE LABELED WITH ELECTROSTATIC TAPE, BLACK LETTERING ON WHITE.

2.6.0 MOTOR STARTERS AND CONNECTIONS

2.6.2 FURNISH DISCONNECT SWITCHES FOR ALL MOTORS AS REQUIRED BY THE C.E.C.

2.7.1 ALL WIRING FOR THE MECHANICAL TRADE TO BE BY THE ELECTRICAL CONTRACTOR. PROVIDE THERMOSTAT WIRING, MOTOR DISCONNECTS AND CIRCUITS AS SHOWN. REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATIONS OF MOTORS, THERMOSTATS. ETC.

2.7.2 RECEPTACLES FOR MAINTENANCE OF EQUIPMENT LOCATED ON ROOF SHALL BE PROTECTED BY A GFCI, SUPPLIED BY A CIRCUIT THAT DOES NOT SUPPLY ANY OTHER OUTLETS OR EQUIPMENT, CSA 5-20R, LOCATED WITHIN 7.5M OF THE FOLIIPMENT AND LOCATED NOT LESS THAN 750MM ABOVE FURNISHED ROOD AND PROTECTED FROM MECHANICAL DAMAGE AS PER CEC.

2.8.1 PROVIDE CONDUIT, PULL WIRES, OUTLET BOXES, ETC., REQUIRED FOR INTERIOR CONDUIT DISTRIBUTION AS SHOWN ON THE DRAWINGS.

2.8.2 PROVIDE OUTLET BOXES AT EACH OUTLET LOCATION SHOWN ON THE DRAWINGS AND TO UTILITY COMPANY REQUIREMENTS.

2.8.3 FOR EACH OUTLET, RUN CAT.6 CABLE TO THE PATCH PANEL. CONFIRM EXACT LOCATION OF THE PATCH PANEL(S) ON SITE PRIOR TO TENDER CLOSING. REFER TO SPECIFICATION

SECTION 2.23.0 - STRUCTURED WIRING SYSTEM.

2.9.0 POWER SERVICE AND DISTRIBUTION

- 2.9.1 PROVIDE ALL CONDUIT, WIRE, CONNECTIONS, ETC., REQUIRED FOR SERVICE AS INDICATED ON THE DRAWINGS.
- 2.9.2 INCLUDE IN TENDER PRICE ALL CHARGES WHICH MAY BE LEVIED BY THE SERVICING UTILITY COMPANIES (POWER, TELEPHONE AND CABLE TV) IN SERVICING THE PROJECT. IF CHARGES ARE NOT AVAILABLE, QUALIFY THE TENDER SUBMISSION.
- 2.9.3 ALL THE REQUIREMENTS OF THE UTILITY COMPANIES SHALL GOVERN THE SERVICE INSTALLATIONS AND SUCH UTILITIES SHALL BE NOTIFIED AT THE TIME WORK IS COMMENCED ON THE BUILDING, WITH DRAWINGS AND SPECIFICATIONS SUBMITTED TO SAME IF REQUESTED.
- 2.9.4 COORDINATE THE COMPLETE SERVICE INSTALLATIONS WITH THE SERVICING UTILITY COMPANIES BEFORE ROUGH-IN.

2.10.0 CABLE TELEVISION SYSTEM

2.10.1 SUPPLY AND INSTALL ALL NECESSARY COMPONENTS AS REQUIRED TO PROVIDE A CABLE TELEVISION SERVICE AND DISTRIBUTION SYSTEM. ARRANGE FOR INSTALLATION OF ALL NECESSARY MATERIAL BY THE LOCAL TV COMPANY. COORDINATE SO THAT ALL WIRING IS INSTALLED WHILE FRAMING IS OPEN AND ACCESSIBLE. PAY ALL CHARGES WHICH MAY BE LEVIED BY THE CABLE TV COMPANY FOR A COMPLETE SYSTEM INSTALLATION. READY FOR CONNECTION. COORDINATE WITH TELEPHONE COMPANY TO DETERMINE IF CABLE TV SERVICE WILL BE RUN ALONG WITH THE TELEPHONE SERVICE AND, IF NECESSARY, INCREASE THE SIZE OF THE ENTRY CONDUIT ACCORDINGLY. IF CABLE TV IS RUN SEPARATELY, INSTALL PROPERLY SIZED ENTRY CONDUIT AS PER CABLE TV COMPANY REQUIREMENTS.

2.11.0 LUMINAIRES

2.11.1 THE ELECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL LUMINAIRES AS NOTED ON THE DRAWINGS COMPLETE WITH LAMPS, HANGERS FOR MISCELLANEOUS EQUIPMENT NECESSARY FOR A COMPLETE AND OPERATIONAL INSTALLATION.

- 2.11.2 LUMINAIRES SHALL BE LEFT CLEAN AT COMPLETION OF THE PROJECT AND ALL LAMPS OPERATIONAL
- 2.11.3 SUBMIT SHOP DRAWINGS OF ALL LUMINAIRES INDICATING EXACT MODEL AND SPECIFICATIONS FOR APPROVAL PRIOR TO ORDERING.

2.12.0 OCCUPANCY SENSORS

- 2.12.1 SHALL BE DUAL TECHNOLOGY AND SHALL: .1 BE EITHER CORNER MOUNTED OR CEILING MOUNTED IN SUCH A WAY AS TO
- MINIMIZE COVERAGE IN UNWANTED AREAS. .2 CONSIST OF PASSIVE INFRARED AND ULTRASONIC TECHNOLOGIES FOR OCCUPANCY DETECTION. PRODUCTS THAT REACT TO NOISE OR AMBIENT SOUND SHALL NOT BE
- CONSIDERED 2.12.2 ALL SENSORS SHALL BE CAPABLE OF OPERATING NORMALLY WITH ELECTRONIC
- BALLASTS, PL LAMP SYSTEMS AND RATED MOTOR LOADS. .3 COVERAGE OF SENSORS SHALL REMAIN CONSTANT AFTER SENSITIVITY CONTROL HAS
- BEEN SET. NO AUTOMATIC REDUCTION SHALL OCCUR IN COVERAGE DUE TO THE CYCLING OF AIR CONDITIONER OR HEATING FANS
- .4 WHEN SPECIFIED, SENSORS SHALL UTILIZE SMARTSET™ TECHNOLOGY FOR AUTOMATICALLY ADJUSTABLE TIME DELAY AND SENSITIVITY SETTINGS.
- .5 ALL SENSORS SHALL HAVE READILY ACCESSIBLE, USER ADJUSTABLE SETTINGS FOR TIME DELAY AND SENSITIVITY. SETTINGS SHALL BE LOCATED ON THE SENSOR (NOT THE CONTROL UNIT) AND SHALL BE RECESSED TO LIMIT TAMPERING.
- .6 IN THE EVENT OF FAILURE, A BYPASS MANUAL OVERRIDE SHALL BE PROVIDED ON EACH SENSOR. WHEN BYPASS IS UTILIZED, LIGHTING SHALL REMAIN ON CONSTANTLY OR CONTROL SHALL DIVERT TO A WALL SWITCH UNTIL SENSOR IS REPLACED. THIS CONTROL SHALL BE RECESSED TO PREVENT TAMPERING.
- .7 ALL SENSORS SHALL BE PROVIDED WITH AN LED AS A VISUAL MEANS OF INDICATION AT ALL TIMES TO VERIFY THAT MOTION IS BEING DETECTED DURING BOTH TESTING AND NORMAL OPERATION.
- .8 WHERE SPECIFIED, SENSOR SHALL HAVE AN INTERNAL ADDITIONAL ISOLATED RELAY WITH NORMALLY OPEN, NORMALLY CLOSED AND COMMON OUTPUTS FOR USE WITH HVAC CONTROL, DATA LOGGING AND OTHER CONTROL OPTIONS. SENSORS UTILIZING SEPARATE COMPONENTS OR SPECIALLY MODIFIED UNITS TO ACHIEVE THIS FUNCTION ARE NOT ACCEPTABLE.

2.13 EMERGENCY LIGHTING AND EXIT SIGNAGE

- 2.13.1 BATTERY ENCLOSURE (WITH REMOTE HEADS): EMERGENCY LIGHTING BATTERY PACKS TO INCLUDE 10 YEAR LIFE, SEALED LEAD ACID BATTERIES, AUTOMATIC CHARGER AND TRANSFER SWITCH. VOLTAGE INPUT AS SHOWN ON THE DRAWINGS. INTEGRAL DOUBLE LED LIGHTING HEADS. T&B LUMACELL RGC SERIES OR APPROVED EQUIVALENT.
- 2.13.2 STANDARD EMERGENCY LIGHTING HEADS: 10 YEAR LIFE, 12VDC, DOUBLE 5W LED LIGHTING HEADS. FACTORY WHITE. T&B LUMACELL MQM SERIES OR APPROVED FOUIVALENT.
- 2.13.3 STANDARD EXIT LIGHTING: ENAMEL FINISH, WHITE LED SOURCE, 12VDC VOLTAGE OPTION, 5 YEAR WARRANTY, SINGLE OR DOUBLE FACE (AS SHOWN). GREEN RUNNING MAN STYLE, SELF-POWERED, 2.5W PER FACE. T&B LUMACELL LA & LAC SERIES OR APPROVED FOULVALENT.
- 2.13.4 EMERGENCY LIGHTING DC WIRING TO BE MINIMUM OF #10 AWG. USE LARGER WIRE SIZING AS NECESSARY TO ENSURE VOLTAGE DROP DOES NOT EXCEED 3%.
- 2.13.5 EMERGENCY LIGHTING MONITOR MODULE: VOLTAGE AS SHOWN ON THE DRAWINGS, CAPABLE OF SENSING MINIMUM THREE (3) CIRCUITS. PUSH BUTTON FOR ZONE TESTING. T&B LUMACELL VSR SERIES OR APPROVED EQUIVALENT.
- 2.13.6 EM LIGHTING TO BE INSTALLED TO ACTIVATE UPON FAILURE OF LOCAL LIGHTING CIRCUIT. PROVIDE ALL NECESSARY RELAYS/CONTACTORS OR REVISED CIRCUITING TO ACHIEVE THIS FUNCTIONALITY.
- 2.13.7 ALL EMERGENCY LIGHTS AND EXIT SIGNAGES SHALL HAVE 120-MINUTE BATTERY BACK-UP TIME AFTER NORMAL POWER BECOMES UNAVAILABLE.

2.14.0 BRANCH CIRCUIT PANELS

- 2.14.1 ALL PANELBOARDS ARE TO BE OF THE BUSSING (COPPER), VOLTAGE AND FAULT RATING AS SPECIFIED. PANELBOARDS ARE TO BE COMPLETE WITH COPPER BASELY FLUSH TYPE HINGES, LOCKING DOORS, BOLT-IN BREAKERS AND CIRCUIT DIRECTORY CARD INSIDE OF DOOR. EATON CUTLER HAMMER OR SCHNEIDER, SQUARE D.
- 2.14.2 PROVIDE TYPEWRITTEN PANEL DIRECTORIES IN ALL PANELS.

2.15.0 GROUNDING

2.15.1 PROVIDE ALL NECESSARY GROUNDING AND BONDING, WHETHER SHOWN ON THE DRAWINGS OR NOT. AS PER THE LATEST C.E.C. REQUIREMENTS AND ADDITIONAL REQUIREMENTS INDICATED IN THESE DRAWINGS OR SPECIFICATIONS.

2.16.0 DISTRIBUTION TRANSFORMERS

- 2.16.1 TRANSFORMERS SHALL BE OF GENERAL USE TYPES WITH RATING AS INDICATED ON THE DRAWINGS. TRANSFORMERS SHALL BE VENTILATED, HIGH EFFICIENCY COPPER WOUND, 80° MAX. TEMPERATURE RISE, CLASS H INSULATION, COMPLETE WITH 4-2.5% TAPS, 2 PACN AND 2FCBN BUILT TO THE REQUIREMENTS OF CSA C9-02 MOUNT ON VIBRATION ISOLATOR PAD AND MAKE TERMINATIONS WITH FLEXIBLE CABLE OR CONDUIT.50 DB AVERAGE SOUND LEVEL, EEMAC 1 ENCLOSURE WITH REMOVABLE FRONT PANEL AND drip shield.
- 2.16.2 ENSURE ADEQUATE CLEARANCE SPACE FROM WALLS AND OTHER OBSTRUCTIONS WITH A MINIMUM OF 150mm FROM ANY WALLS AND 1M CLEARANCE IN FRONT. MOUNT TO FLOOR ELEVATED ON 100mm CHANNELS.
- 2.16.3 WHERE INDICATED. TRANSFORMERS TO BE WALL MOUNTED WITH MANUFACTURER APPROVED MOUNTING SYSTEMS AND REVIEWED WITH THE SEISMIC STRUCTURAL ENGINEER.

2.17.0 FIRE ALARM SYSTEM

- 2.17.1 PROVIDE A COMPLETE AND OPERABLE FIRE ALARM SYSTEM TO MEET THE REQUIREMENTS OF THE LATEST APPLICABLE VERSIONS OF THE FOLLOWING CODES/STANDARDS: .1 CAN/ULC-S524 INSTALLATION OF FIRE ALARM SYSTEMS
- .2 CAN/ULC-S525 AUDIBLE SIGNAL APPLIANCES FOR FIRE ALARM
- .3 CAN/ULC-S527 CONTROL UNITS FOR FIRE ALARM SYSTEMS
- .4 CAN/ULC-S528 MANUAL PULL STATIONS
- .5 CAN/ULC-S529 SMOKE DETECTORS FOR FIRE ALARM SYSTEMS .6 CAN/ULC-S530 FIRE DETECTORS, HEAT ACTUATED, FOR FIRE ALARM SYSTEMS
- .7 CAN/ULC-S536 INSPECTION AND TESTING OF FIRE ALARM SYSTEMS
- .8 CAN/ULC-S537 VERIFICATION OF FIRE ALARM SYSTEMS
- .9 DFC NO. 410(M) FIRE ALARM SYSTEMS
- .10 VBBL VANCOUVER BUILDING BY-LAW

2.17.2 FIRE ALARM SYSTEM: SUPERVISED NON-CODED, ANNUNCIATED CLOSED CIRCUIT, 24V AC/DC SYSTEM.

- 2.17.3 SYSTEM TO INCLUDE CONTROL PANEL, TROUBLE SIGNAL DEVICES, POWER SUPPLY FACILITIES, MANUAL ALARM STATIONS, AUTOMATIC ALARM INITIATING DEVICES, AUDIBLE SIGNAL DEVICES, END-OF-LINE DEVICES, ANNUNCIATORS, VISUAL ALARM SIGNAL DEVICES, AND ANCILLARY DEVICES.
- 2.17.4 INCLUDE INSTRUCTIONS FOR COMPLETE FIRE ALARM SYSTEM TO PERMIT EFFECTIVE OPERATION AND MAINTENANCE, TECHNICAL DATA - ILLUSTRATED PARTS LISTS WITH PARTS CATALOGUE NUMBER, COPY OF APPROVED SHOP DRAWINGS WITH CORRECTIONS COMPLETED AND MARKS
- REMOVED EXCEPT REVIEW STAMPS AND A LIST OF RECOMMENDED SPARE PARTS FOR SYSTEM. 2.17.5 EQUIPMENT AND DEVICES: ULC LISTED AND LABELED, SUPPLIED BY A SINGLE MANUFACTURER.
- 2.17.6 FIRE ALARM COMMUNICATOR: APPROVED FOR NFPA CENTRAL STATION USE. SOLID STATE DEVICE, CHANNELS CONFIGURABLE FOR "CONTACTS OPEN", "CONTACTS CLOSE" OR "NO ALARM". OPERABLE ON BOTH TOUCH TONE AND ROTARY-DIAL STANDARD TELEPHONE LINES AND FULLY COMPATIBLE WITH CENTRAL STATION MONITORING FACILITY SELECTED BY OWNER. DUAL TELEPHONE MODULE AND TWO TELEPHONE LINES CONNECTED. PROVIDE AUTOMATIC BATTERY/CHARGER SYSTEM WITH SUFFICIENT CAPACITY TO OPERATE DIALER IN SUPERVISION MODE FOR 48 HOURS. MAKE CONNECTION TO FIRE ALARM PANEL TO REPORT TROUBLE, SUPERVISORY AND ALARM CONDITIONS. SYSTEM TO BE FULLY OPERATIONAL WITH CONTRACTED MONITORING SERVICE AT TIME OF FIRE ALARM VERIFICATION.

2.18.0 SYSTEM VERIFICATION:

- .1 AN INDEPENDENT (RETAINED BY THE CONTRACTOR) FIRE ALARM VERIFIER THAT IS QUALIFIED TO PERFORM FIRE ALARM VERIFICATIONS INCLUDING AMBIENT AND ALARM SOUND PRESSURE LEVELS (dB) IS REQUIRED TO MAKE A THOROUGH INSPECTION OF ANY AND ALL INITIATING AND SIGNAL ZONES. THE INSPECTION IS TO BE PERFORMED TO THE STANDARDS OF CAN/ULC-S537 TO ENSURE THE FOLLOWING: .1 VERIFICATIONS TO BE COMPLETED PRIOR TO OCCUPANCY.

- .3 SYSTEM IS INSTALLED ACCORDING TO ULC S524 REQUIREMENTS. .4 SYSTEM IS INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

(dBA) IN TYPICAL ROOMS.

.1 AIR BALANCING IS COMPLETE.

COMPLETION.

ALARM VERIFIER.

REPRESENTATIVE.

AND

2.19.0 FIRE RATED ASSEMBLIES

2.20.0 SUBSTANTIAL COMPLETION

DEPARTMENT.

MATERIAL

COMPLETE:

UNACCEPTABLE BY THE OWNER.

.4 VERIFICATION MAY BE PERFORMED ONLY AFTER:

REQUESTING FIRE ALARM VERIFICATION.

DURING THE VERIFICATION INSPECTION.

THIS INSPECTION.

SPECIFICATION.

- .2 SYSTEM IS COMPLETE AND FUNCTIONAL IN ACCORDANCE WITH ENGINEER'S SPECIFICATIONS
- .5 REGULATIONS COVERING SUPERVISION OF COMPONENTS ARE ADHERED TO. .6 SUBSEQUENT CHANGES NECESSARY TO CONFORM TO ITEMS 1, 2, 3 AND/OR 4 TO BE
- DONE WITH TECHNICAL ASSISTANCE SUPPLIED BY THE MANUFACTURER. .7 FIRE ALARM VERIFICATION SHALL INCLUDE AMBIENT AND ALARM SOUND PRESSURE LEVELS
- .2 SUPPLY THE FIRE ALARM INSPECTOR ONE JOURNEYMAN ELECTRICIAN DURING THE PERIOD OF
- .3 BID TO INCLUDE COSTS FOR FIRE ALARM VERIFIER TO PERFORM TASKS AS OUTLINED IN THIS
- .2 SPRINKLER SYSTEM IS COMPLETE, CHARGED AND READY FOR USE. .3 BUILDING IS AT A STATE OF COMPLETION THAT WILL ENSURE A DUST FREE ENVIRONMENT
- AND THE ABSENCE OF CONTAMINATING FUMES FROM VERIFICATION DATE TO FINAL .4 ENSURE THAT FIRE ALARM SYSTEM AND ALL ANCILLARY COMPONENTS AND FUNCTIONS ARE FULLY FUNCTIONAL, FREE OF FAULTS AND READY FOR TESTING PRIOR TO
- .5 NOTIFY OWNER OF REQUESTED VERIFICATION DATE AND TIME AT LEAST 10 DAYS IN ADVANCE. INDICATE IN WRITING THAT ITEMS IN 2.18.0.1 ARE COMPLETE.
- .6 PROMPTLY CORRECT ANY DEFICIENCIES IDENTIFIED BY THE FIRE ALARM SYSTEM INSPECTOR .7 PROVIDE TWO HAND HELD TWO-WAY VOICE COMMUNICATION RADIOS DURING VERIFICATION. .8 SUBMIT TO ENGINEER ON COMPLETION OF INSPECTION A POINT-BY-POINT CHECK LIST INDICATING DATE AND TIME OF EACH ITEM INSPECTED AND ALSO ISSUE A CERTIFICATE FOR
- HIS RECORDS CONFIRMING THAT INSPECTION HAS BEEN COMPLETED AND SYSTEM IS INSTALLED AND FUNCTIONING IN ACCORDANCE WITH THE SPECIFICATIONS. INCLUDED WITH THIS CERTIFICATE TO BE SATISFACTORY PROOF OF LIABILITY INSURANCE VALID FOR NOT LESS THAN ONE (1) YEAR FROM DATE OF FINAL INSPECTION. THESE ITEMS TO BE CERTIFIED BY FIRE
- .9 CERTIFICATE TO BE FREE FROM DEFINING AND QUALIFIED STATEMENTS WHICH WOULD MAKE IT .10 IF REQUESTED, SYSTEM VERIFICATION TO BE CONDUCTED IN THE PRESENCE OF THE OWNER'S
- .11 PROVIDE SUFFICIENT BACKUP PARTS ON SITE DURING VERIFICATION TO ACCOMMODATE ANY COMPONENT FAILURES. BACKUP PARTS NOT USED DURING VERIFICATION CAN BE REMOVED
- FROM SITE BY THE MANUFACTURER. RECOMMENDED BACK-UP PARTS LIST: 10 BREAK GLASS RODS, 5 HEAT DETECTORS, 1 DUCT DETECTOR, 2 BREAK GLASS STATIONS, 2 FIRE ALARM GONGS, 1 OUTDOOR HORN, 5 SPARE ALARM ZONE CARDS, 2 SPARE TROUBLE ZONE CARDS, 2 SPARE SIGNAL ZONE CARDS, 5 APPROPRIATE SIZED FUSES, 1 CPU PROGRAMMING CHIP (IF
- APPLICABLE), ANY ADDITIONAL PARTS PERTINENT TO THE PARTICULAR MANUFACTURER THAT MAY POSSIBLY FAIL RESULTING IN AN INCOMPLETE VERIFICATION. .12 WHERE THE FIRE ALARM IS NOT MONITORED, LEGIBLE NOTICES THAT ARE NOT EASILY REMOVED
- SHALL BE AFFIXED TO THE WALL NEAR EACH MANUAL PULL STATION STATING: .1 THAT THE FIRE DEPARMENT IS TO BE NOTIFIED IN THE EVENT OF A FIRE EMERGENCY,
- .2 THE EMERGENCY TELEPHONE NUMBER FOR THE FIRE DEPARTMENT.
- 2.19.1 ALL PENETRATIONS OF FIRE RATED ASSEMBLIES ARE TO BE SEALED WITH A ULC-APPROVED FIRE STOP ASSEMBLY SUCH THAT THE FIRE RATING OF THE PENETRATED MEMBRANE IS MAINTAINED: OR TO HAVE SUITABLE MATERIALS INSTALLED IN WALL CAVITY SUCH THAT THE FIRE RATING IS MAINTAINED BEHIND THE ELECTRICAL BOXES AND OTHER DEVICES. REFER TO ARCHITECTURAL DRAWINGS FOR THE LOCATIONS OF FIRE RATED ASSEMBLIES BUT NOTE THAT, AS A MINIMUM, THESE INCLUDE STAIR SHAFTS, VERTICAL SHAFTS (INCLUDING ELEVATORS), JANITOR'S ROOMS, AND SERVICE ROOMS. ALL FIRE STOP PRODUCTS ARE TO BE TESTED AS ULC APPROVED SYSTEMS FOR THE FIRE STOPPING APPLICATION. CONFIRM REQUIREMENTS WITH VBBL.
- 2.20.1 PRIOR TO REQUESTING A SUBSTANTIAL COMPLETION REVIEW, THE FOLLOWING ITEMS MUST BE
- .1 PRIOR TO REQUESTING FOR ELECTRICAL SCHEDULE C-B: .1 FIRE ALARM VERIFICATION CERTIFICATE AND TECHNICIAN'S REPORT.
 - .2 CONNECTION TO A CENTRAL MONITORING AGENCY VIA A ULC APPROVED DIALER OR A SECURITY PANEL MUST BE COMPLETELY INSTALLED AND OPERATIONAL. .3 PROVIDE A CERTIFICATE OF ACCEPTANCE FROM THE ELECTRICAL INSPECTION
 - .4 SIGNED AND SEALED SCHEDULES S-B AND S-C INDICATING ALL EQUIPMENT INSPECTED BY THE STRUCTURAL/SEISMIC ENGINEER AND LETTER CONFIRMING THAT THE INSTALLATION IS ACCEPTABLE TO THE ENGINEER'S STANDARDS.
 - .5 Letter indicating firestopping has been installed by trained and qualified TRADESMEN FOR THE SPECIFIC APPLICATION OF THE APPLICABLE ULC TESTED FIRESTOP

- .6 LETTER INDICATING EM LIGHTING AND EXIT SIGNAGE HAVE BEEN INSTALLED AND TESTED ACCORDING TO VBBL AND CEC REQUIREMENTS. .2 MAINTENANCE MANUALS AND RECORD DRAWINGS MUST BE SUBMITTED TO THE ENGINEER FOR THEIR REVIEW. .3 COMMISSIONING REPORT VERIFYING THAT LIGHTING CONTROLS ARE INSTALLED AND FUNCTIONING AS INTENDED.
- .4 IF ANY OF THE ABOVE ITEMS HAVE NOT BEEN COMPLETED AT THE TIME OF THE SUBSTANTIAL COMPLETION REVIEW, AND THE LETTER OF "ASSURANCE OF PROFESSIONAL FIELD REVIEW AND COMPLIANCE" CANNOT BE ISSUED, ALL COSTS FOR ANY SUBSEQUENT REVIEWS WILL BE CHARGED TO THE ELECTRICAL CONTRACTOR.
- 2.21.0 SERVICE ENTRANCE BOARD
- 2.21.1 RATED FOR 120/208VOLTS, 3 PHASE, 4 WIRE, AMPERAGE AS INDICATED ON SINGLE LINE DIAGRAM, SHORT CIRCUIT BRACING FOR 34,000 AMPS RMS SYMMETRICAL.
- 2.21.2 FLOOR MOUNTED, AFFIXED TO WALL, FRONT ACCESSIBLE, METAL ENCLOSED INCLUDING BOTTOM, SPRINKLER PROOF ENCLOSURE.
- 2.21.3 CDP SECTION TO CONSIST OF AN ASSEMBLY OF MOLDED CASE AUTOMATIC CIRCUIT BREAKERS WITH INTERRUPTING CAPACITY OF NOT LESS THAN 34,000 (RMS SYMMETRICAL) AT 208V.
- 2.21.4 ENCLOSED MAIN BREAKER SECTION AND BARRIERED UTILITY METERING SECTION WITH MOUNTING FACILITIES FOR SUPPLY AUTHORITY'S METERING TRANSFORMERS. BUSSING TO BE ALUMINUM WITH FULL SIZED NEUTRAL.
- 2.21.5 INCLUDE CUSTOMER DIGITAL METER WITH SENSING POINT IMMEDIATELY AFTER MAIN SERVICE DISCONNECT WITH THE ABILITY TO SENSE AND DISPLAY THE FOLLOWING PARAMETERS AND WITH RS-232 PORT TO INTERFACE WITH A COMPUTER FOR DATA COLLECTION:
 - .1 VOLTS PHASE TO PHASE, AVERAGE.
- .2 VOLTS LINE TO NEUTRAL, AVERAGE. .3 VOLTS NEUTRAL TO GROUND.
- .4 CURRENT PER PHASE AND AVERAGE.
- .5 NEUTRAL CURRENT.
- .6 GROUND CURRENT
- .7 REAL POWER.
- .8 REACTIVE POWER. .9 APPARENT POWER.
- .10 ENERGY CONSUMPTION REAL, REACTIVE & APPARENT.
- .11 POWER FACTOR DISPLACEMENT AND APPARENT. .12 FREQUENCY
- .13 DEMAND CURRENT, REAL POWER, REACTIVE POWER AND APPARENT POWER.
- .14 TOTAL HARMONIC CURRENT DISTORTION (%).
- .15 TOTAL HARMONIC VOLTAGE DISTORTION (%). .16 K-FACTOR.
- .17 EVEN AND ODD HARMONIC MAGNITUDES THROUGH THE 50TH HARMONIC.

TO BE CUTLER-HAMMER IQ ANALYZER OR APPROVED EQUIVALENT.

- 2.23.0 STRUCTURED WIRING SYSTEM
- 2.23.1 REFERENCE STANDARDS, LATEST APPLICABLE VERSIONS OF:
- CAN/CSA-T528. DESIGN GUIDELINES FOR ADMINISTRATION OF
- TELECOMMUNICATIONS INFRASTRUCTURE IN COMMERCIAL BUILDINGS. .2 CAN/CSA-T529, TELECOMMUNICATIONS CABLING SYSTEMS IN COMMERCIAL BUILDINGS.
- .3 CAN/CSA-T530, BUILDING FACILITIES DESIGN GUIDELINES FOR
- TELECOMMUNICATIONS .4 IEEE STD 802.3, TELECOMMUNICATIONS AND INFORMATION EXCHANGE
- Between systems. .5 TIA/EIA-606, ADMINISTRATION STANDARD FOR THE TELECOMMUNICATIONS
- INFRASTRUCTURE OF COMMERCIAL BUILDINGS. .6 TIA/EIA-607, COMMERCIAL BUILDING GROUNDING AND BONDING
- REQUIREMENTS FOR TELECOMMUNICATIONS.
- .7 ANSI/TIA/EIA-568-C. COMMERCIAL BUILDING TELECOMMUNICATIONS WIRING STANDARD.
- .8 CSA C22.1, CANADIAN ELECTRICAL CODE.

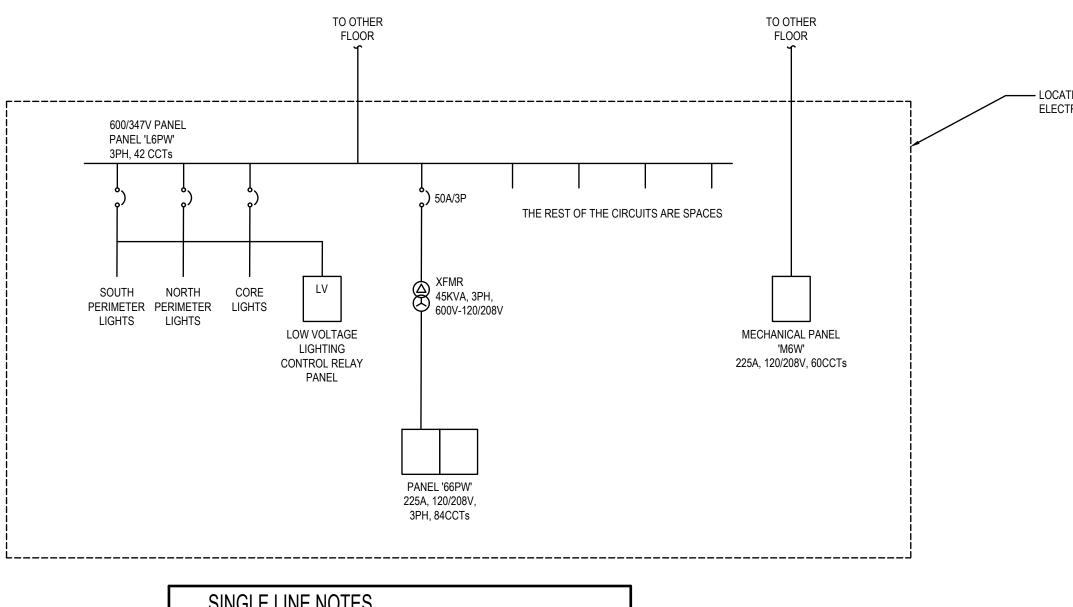
2.23.2 PROVIDE A COMPLETE, TELECOMMUNICATIONS DISTRIBUTION SYSTEM FOR VOICE AND DATA THROUGHOUT THE BUILDING.

- 2.23.3 PROVIDE CAT6 OPERATING LEVEL AS PER MANUFACTURERS SPECIFICATIONS.
- 2.23.4 WIRING AND DEVICES SHALL CONFORM TO CAN/CSA-T528, CAN/CSA-T529 AND CAN/CSA-T530.
- 2.23.5 SYSTEM IS LIMITED TO CABLING INSTALLATIONS BETWEEN COMMUNICATION OUTLETS AND ACCESSORY WIRING SPECIFICALLY INDICATED ON DRAWINGS OR SPECIFICATION. PROVIDE PATCH PANELS, RACKS, JACKS, PATCH CORDS AND OTHER EQUIPMENT AS REQUIRED FOR A COMPLETE AND FUNCTIONAL SYSTEM.
- 2.23.6 ALL STRUCTURED WIRING OUTLET BOX FACEPLATES TO BE WHITE IN COLOR.
- 2.23.7 SUBMIT PRODUCT DATA IN ACCORDANCE WITH THIS SPECIFICATION.
- 2.23.8 WHERE CONDUIT IS STUBBED TO CEILING SPACES FROM WALLS, FINISH ENDS WITH NYLON BUSHINGS.
- 2.23.9 PROVIDE AN ADMINISTRATIVE CABLE DATABASE FOR THE STRUCTURED WIRING SYSTEM. THE CABLE RECORD TO INDICATE IDENTIFIER, TERMINATION POINTS, CABLE USE, CABLE NUMBER, CABLE PATH FROM END TO END, CABLE LENGTH AND TEST REPORT NUMBER FOR EACH CABLE. DATABASE TO BE BOTH PRINTED AND ELECTRONIC FORMAT INCLUDING LABELLING ACCORDING TO TIA/EIA-606-93 AND AS FOLLOWS:
 - .1 EACH WIRED OUTLET JACK TO BE UNIQUELY IDENTIFIED AS JCXXXYYY WHERE J INDICATES "JACK", C INDICATES "COPPER", XXX INDICATES THREE DIGIT ROOM NUMBER WHERE THE JACK IS LOCATED, AND YYY INDICATES SEQUENTIAL UNIQUE NUMBER OF JACK WITHIN THE ASSOCIATED ROOM.
- .2 EACH CONDUIT TO BE IDENTIFIED BY UNIQUE CODE AS CDXXXYYY WHERE CD INDICATES "CONDUIT" AND XXX INDICATES THREE DIGIT ROOM NUMBER WHERE ASSOCIATED JACK IS LOCATED AND YYY INDICATES THREE DIGIT NUMBER THAT MATCHES THAT OF THE CONNECTED JACK.
- .3 EACH AND EVERY CONDUIT PATH THAT IS FOLLOWED BY THE CABLE FROM THE OUTLET JACK TO THE TELECOMMUNICATIONS CLOSET IS TO BE RECORDED USING THE PATHWAY IDENTIFIERS SHOWN ON THE DRAWINGS.
- .4 THE LABEL OF THE PATCH PANEL PORT TO WHICH EACH CABLE IS CONNECTED IS TO BE IDENTIFIED AS XXXX-YY WHERE XXXX INDICATES PATCH PANEL IDENTIFIER SHOWN ON DRAWINGS AND YY INDICATES PORT NUMBER ON THE ASSOCIATED PANEL.

2.23.10 DATA PORTS SHALL BE OF THE TYPE THAT CAN ACCEPT RJ-11 CONNECTORS WITHOUT DAMAGE TO RJ-45 PINS.

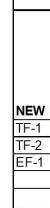
В. В. 00 D 08/08/18 ISSUED FOR TENDER C 08/02/18 ISSUED FOR BUILDING B 07/23/18 ISSUED FOR REVIEW & OORDINATION бЩ A 07/20/18 ISSUED FOR COORDINATION DATE REVISION No. (dd/mm/yr) PROJECT TITLE ENANT FIT-OU FOR ECHELON CENTRE 6F-575 8TH AVE. WES VANCOUVER C Copyright reserved. This plan and design is and at all times remains the exclusive property of Chernoff Thompson Architects and cannot be used without the architects consent All dimensions on the project must be checked by the contractor. This drawing must not be used for construction purposes until here counter- \frown cta: \square \square NCOUVER OFFICE 0 - 1100 Melville Street Incouver, BC V6E 4A6 ENGINEERIN Bus: (604) 689-1915 Toll Free: 1-800-263-2393 WE ncouver@williamsengine ww.williamsengineering.co SHEET TITLE ELECTRICAL SPECIFICATIONS PROJECT No. 0039278.00 DRAWN AG CHECKED MA AS NOTED SCALE DATE JULY 2018 ____ PRINTED AUGUST 2018

RAWING No.



- SINGLE LINE NOTES ALL COMPONENTS SHOWN ON THIS SINGLE LINE DIAGRAM ARE EXISTING AND SHALL BE RETAINED OR MODIFIED AS NOTED.
- 1 EXISTING PARTIAL SINGLE LINE DIAGRAM

	EVICTING DANEL 1000						LOCATION:	
	EXISTING PANEL '66F	YV (20	08/12	<u>0V, :</u>	3PH)	6TH FLOOR ELECTRICAL ROOM	
NOTE	DESCRIPTION	BRKR	сст	PHASE	сст	BRKR	DESCRIPTION	NOTE
_	TELCOM SERVER OUTLETS	1P20A	1	A	2			Ŧ
	TELCOM SERVER OUTLETS	1P20A	3	В	4	1P20A	BREAKAREA 612 DEDICATED FOR COFFEE MACHINE	╈
	OPEN WORKSTATIONS #3 DESKS (611)	1P20A	5	С	6	1P20A	BREAKAREA 612 DEDICATED FOR MICROWAVE	t
	OPEN WORKSTATIONS #3 DESKS (611)	1P20A	7	A	8		PRINT / COPY 609 DEDICATED REC	$^{+}$
	OPEN WORKSTATIONS #3 DESKS (611)	1P20A	9	В	10		OPEN WORKSTATIONS #2 DESKS (606)	$^{+}$
	OPEN WORKSTATIONS #3 DESKS (611)	1P20A	11	C	12		MEETING ROOM FLOOR BOX, PROJECTOR	$^{+}$
	OPEN WORKSTATIONS #3 DESKS (611)	1P20A	13	A	14		POWER FOR SECURITY SYSTEM	$^{+}$
	OPEN WORKSTATIONS #3 DESKS (611)	1P20A	15	В	16		EXHAUST FANS	$^{+}$
	OPEN WORKSTATIONS #3 DESKS (611)	1P20A	17	C C	18			t
	OPEN WORKSTATIONS #3 DESKS (611)	1P20A	19	A	20			┫
	MEETING ROOM 607 RECS	1P20A	21	B	22			+
	OPEN WORKSTATIONS #2 DESKS (606)	1P20A	23	C	24			╉
	OPEN WORKSTATIONS #2 DESKS (606)	1P20A	25	A	26			╉
	OPEN WORKSTATIONS #2 DESKS (606)	1P20A	27	B	28			╉
	OPEN WORKSTATIONS #2 DESKS (606)	1P20A	29	C	30			╉
	OPEN WORKSTATIONS #2 DESKS (606)	1P20A	31	A	32			╉
	VFRS DEPUTY OFFICE 605 RECS	1P20A	33	B	34			╉
	BREAKOUT ROOM 604 RECS	1P20A	35	C C	36			+
	OPEN WORKSTATIONS #1 DESKS (601)	1P20A	37		38			_
	OPEN WORKSTATIONS #1 DESKS (601)	1P20A	39	B	40			_
	· · ·	1P20A	41	C	40			_
	OPEN WORKSTATIONS #1 DESKS (601)	1P20A	41		42			_
	OPEN WORKSTATIONS #1 DESKS (601)	1P20A	43	B	44			_
	VFRS DEPUTY OFFICE 602 & 603	IP20A		_				4
		10004	47 49	C A	48 50			_
	HOUSE KEEPING RECS	1P20A		A	50			_
		40004	51	B				_
	BREAKAREA 612 DEDICATED COUNTER RECS	1P20A	53	C	54			_
	BREAKAREA 612 FRIDGE DEDICATED REC	1P20A	55	A	56			
	ACCESSIBLE SHOWER 610 RECS	1P20A	57	B	58			
	PRINT / COPY 609 DEDICATED REC	1P20A	59	C	60			
	PRINT / COPY 609 DEDICATED REC	1P20A	61	A	62			_
			63	B	64			
	BREAK AREA 612 - RANGE		65	C	66			
			67	A	68			
			69	В	70			
	BREAK AREA 612 - DISHWASHER		71	C	72			
			73	A	74			
	WORKOUT ROOM 613 DEDICATED REC	1P20A	75	В	76			
	WORKOUT ROOM 613 DEDICATED REC	1P20A	77	С	78			
	BREAK AREA 612 TV REC	1P20A	79	A	80			
			81	В	82			
			83	C	84			
			NOTE D	ESCRI	PTION			_
EXISTING CIRCUITS								
2 IF CIRCUITS ARE OCCUPIED BY EXISTING EQUIPMENT, CONTRACTOR TO USE NEXT AVAILABLE CIRCUIT.						AVAILAB	LE CIRCUIT.	
	3 COORDINATE WITH UNIT NAME PLATE FOR EXACT POWER REQUIREMENTS AND PROVIDE ACCORDINGLY.							
	COORDINATE WITH UNIT NAME PLATE FOR EACT F			NIS AN			JUCKDINGLT.	



TED INSIDE 6TH FLOOR	
TRICAL ROOM	

ECHELON OFFICE							
208/120V LOADS			CEC Table 14				
Area Name	Approx. Floor Area (sqft)	Occupancy Type	Power Density (Watts/sq meter)	Power Density (Watts/sqft)	Basic Load (Watts)	Connected Lighting Load (Watts)	Basic Load minu lighting loads (Watts)
OFFICE (6th LEVEL)	6,188	Office	50	4.65	28,744	4,608	24,136
Sub Total	6,188				28,744		
Notes:	1. The general lighting	for this project is existing and	l is served from <mark>600/347</mark> V	panel; therefore t	he lighting load is	subtracted from th	ne Basic Load.
	2. The existing heat pu	Imps for this floor are served f	from a separate electrical	panel and transfo	rmer.		



MECHANICAL E Q U I P M E N T									PANEL		EL		
TAG	QT Y	DESCRIPTION	LOCATION / AREA SERVED	TYPE	LOAD	UNIT	FLA	KVA INPUT	VOLT	РН	NAME	CCT. NO.	I J
FANS											Щ Ш	ы ш	
	1	FAN	MEETING ROOM	Ν	146	W	1.2	0.146	120	1	NEL	SEE PANEL SCHEDULE	
	1	FAN	IT CLOSET	Ν	1 9	W	0.2	0.019	120	1	PA ED	ΕD	
	1	FAN	BREAK ROOM	Ν	168.000	W	1.4	0.168	120	1	ш	비유	
											SESC	S SI	
:c ·													

NOTES:

GENERAL: PRIOR TO ROUGH-IN, ELECTRICAL CONTRACTOR TO COORDINATE AT SITE WITH MECHANICAL CONTRACTOR TO DETERMINE EXACT REQUIREMENTS AND LOCATIONS OF CONTROLS AND EQUIPMENT.

CONTROLLED BY TIMECLOCK CONTROLLED BY REVERSE ACTING THERMOSTAT

4 MECHANICAL EQUIPMENT LIST

Connected Mechanical loads (w/ Demand factor 80%)	Equipment Power Allowance (w/ Demand factor 80%)	Total Load (Watts)	Line Current (Amps @ 208V, 3ph)	Existing transformer serving 208V loads
266	4,000	28,403	79	
266	4,000	28,403	79	45kVA

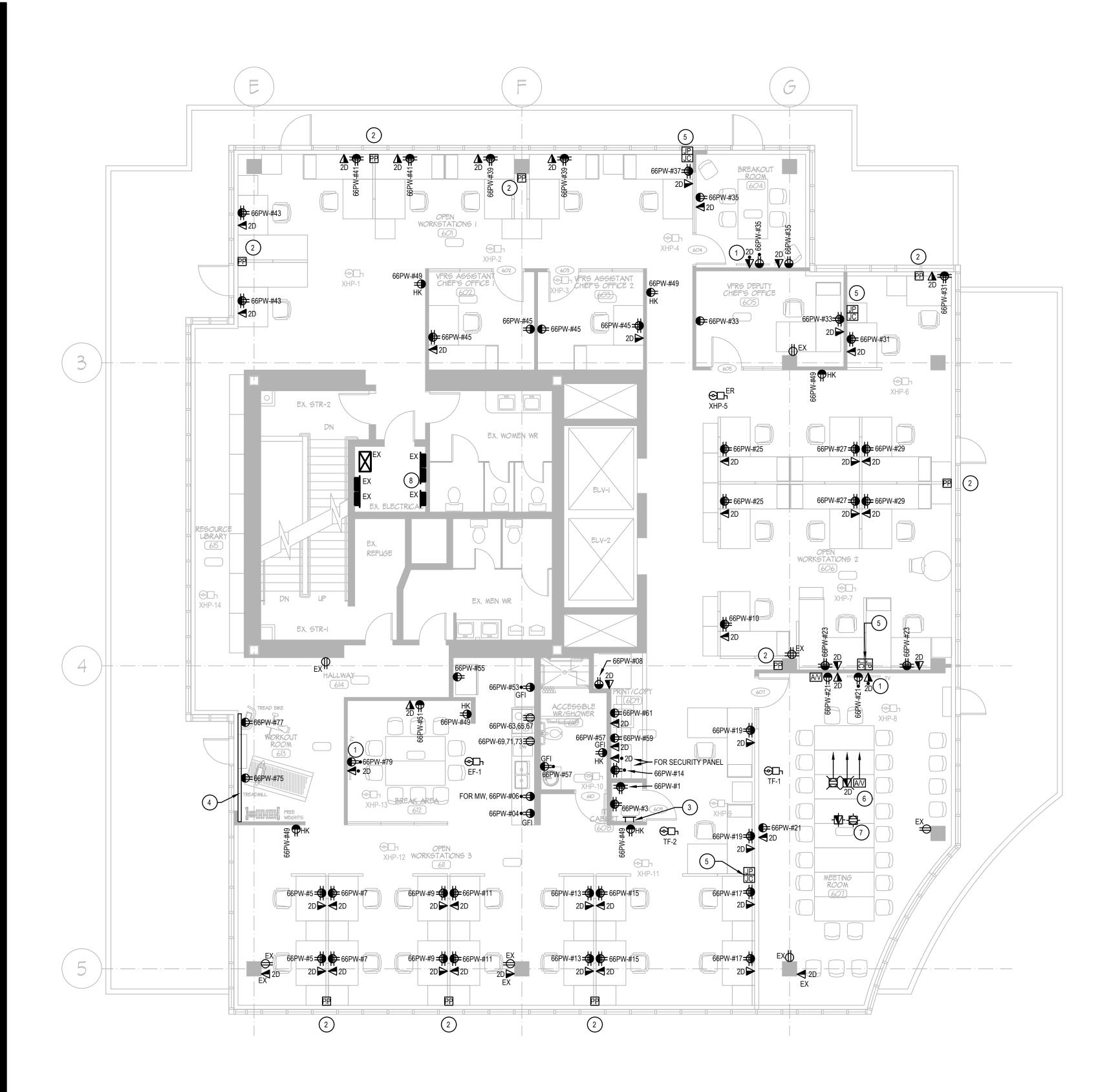
L			CIRCUIT			UNIT	ſ	DIS	SCON	NECT	
BRKR AMPS	BRKR POLES	NO. OF WIRES	WIRE SIZE (AWG, MIN.)	CO. SIZE (mmØ, MIN.)	Supplied	Installed	Connected	Supplied	Installed	Connected	NOTES
15	1	2	#12	3/4	Μ	Μ	Π	Е	Ш	Е	1
15	1	2	#12	3/4	Μ	Μ	Е	E	Е	E	2
15	1	2	#12	3/4	Μ	Μ	Е	E	Е	E	

				- 110-1281 WEST GEORGIA, VANCOUVER, B.C. V6E	TELEPHONE (604) 669-9460 FAX. (604) 683-7684
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VANCOUVER OFFICE 740 - 1100 MeVille Street Vancouver, BC V&E AS Bus: (604) 689-1915 Tol Free: 1-80-253-2393 vancouver@williamsengineering.com	M D S O F
SHEET TITLE SINGLE LINE, CALCULATIONS & SCHEDULES PROJECT NO. 0039278.00 DRAWN AG CHECKED MA SCALE AS NOTED	
SCALE AS NOTED DATE JULY 2018 PRINTED AUGUST 2018 DRAWING No.	



1 NEW POWER & LOW TENSION PLAN 1:75

GENERAL NOTES

- B. PROVIDE STICKERS AT ALL OUTLET FACE PLATES INDICATING CIRCUIT NUMBERS OR DATA DROP PORT.
- CONTRACTOR MUST PROVIDE POWER TO NEW LOCATIONS.
- E. REFER TO ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS AND DETAILS.
- F. ALL WIRING FOR POWER, DATA AND A/V SHALL BE IN SEPARATE RACEWAYS.
- G. '#D' BY DATA OUTLETS INDICATE NUMBER OF DATA DROPS. PROVIDE 3/4" CONDUIT INSIDE WALL FOR EACH DATA OUTLET.

KEY NOTES

- 1. PROVIDE POWER AND DATA MOUNTED BEHIND THE TV.
- OUTLETS ARE TO BE PROVIDED BY FURNITURE SUPPLIER.
- RATING TO MATCH FURNITURE OUTLET AMPERAGE RATING.
- 2.2. DATA WIRING TO PASS THROUGH PAC POLES AND TERMINATE AT FURNITURE DATA OUTLETS.
- 3. PROVIDE THE FOLLOWING FOR IT CABINET: 3.1.
- 3.2. 2x 20A RATED QUADPLEX WITH 20A DEDICATED CIRCUITS.
- 4. PROVIDE NEW WIRE MOLD AND OUTLETS TO SERVE POWER TO EXERCISE MACHINES.
- 5. PROVIDE THE FOLLOWING: 5.1. JUNCTION BOX FOR FURNITURE POWER WHIP CONNECTION. FEED-THRU JUNCTION BOX FOR DATA CABLES TO PASS-THROUGH TO FEED THE DESKS. 5.2. 5.3. JUNCTION BOXES MUST BE RECESSED IN WALL AND CONCEALED.
- 6. FOR MEETING ROOM, PROVIDE THE FOLLOWING: AND A/V CONNECTIONS. 6.2.
- FOR POWER, 2"C FOR A/V. 6.3. COORDINATE EXACT LOCATIONS ON SITE AND WITH A/V SUPPLIER.
- 8.

SYSTEM.

A. FOR ALL WORK PERTAINING TO FIRE ALARM SYSTEM, CONTRACTOR MUST COORDINATE DIRECTLY WITH BASE BUILDING SUPERINTENDENT PRIOR TO STARTING WORK. CONTRACTOR MUST PROVIDE FIRE ALARM VERIFICATION FOR THE ENTIRE FLOOR TO BE DONE BY LANDLORD'S CONSULTANT. VERIFICATION COST TO BE CARRIED BY THIS CONTRACTOR.

C. CONTRACTOR SHALL PROVIDE FIRE-STOPPING ASSEMBLIES TO ALL PENETRATIONS IN FIRE RATED SEPARATIONS.

D. PROVIDE POWER AND DISCONNECT TO NEW MECHANICAL EQUIPMENT. REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATIONS AND TO UNITS' NAMEPLATES FOR EXACT POWER REQUIREMENTS. FOR HEAT PUMPXHP5 THAT IS BEING RE-LOCATED,

2. PROVIDE PAC POLES TO RUN DOWN FROM CEILING TO FEED POWER AND DATA TO FURNITURE OUTLETS. FURNITURE

2.1. CONTRACTOR TO PROVIDE POWER CIRCUITS TO BE CONNECTED TO FURNITURE WHIP AND MUST BE COMPLETED FOR FINAL CONNECTIONS AFTER FURNITURES ARE INSTALLED. CONTRACTOR TO ENSURE CIRCUIT BREAKERS AMPERAGE

GROUND BUS ON 1" STANDOFFS. COPPER, 1/4" THK x 4" HIGH x 12" WIDE. PROVIDE #6 BARE COPPER CONDUCTOR FROM BUILDING GROUNDING SYSTEM TO THIS BUS BAR. LOCATE BUS BAR @+12" AFF.

6.1. FLOOR BOX: SURFACE MOUNTED UNDER THE TABLE TO HOUSE 1x 20A RATED QUADPLEX RECEPTACLE, 1x DATA OUTLET POWER, DATA AND A/V WIRINGS TO RUN SURFACE ON FLOOR TO TV WALL. PROVIDE LOW PROFILE WIREMOLD FOR PHYSICAL PROTECTION OF WIRES. PROVIDE CONDUITS INSIDE WALL TO HOUSE THE WIRES TO BE 1"C FOR DATA, 3/4"C

7. PROVIDE CEILING MOUNTED POWER AND DATA OUTLETS FOR PROJECTOR. COORDINATE EXACT LOCATIONS ON SITE.

CONTRACTOR TO PROVIDE AND INSTALL NEW LIGHTING CONTROLS PANEL C/W TIME CLOCK AND RELAYS. LABEL AS 'LVLC#1'. CONTRACTOR MAY CHOOSE TO RE-USE EXISTING RELAYS IF THEY ARE COMPATIBLE WITH NEW CONTROLLER. PERFORM A SITE VISIT TO ASSESS THE CONDITION AND TO DETERMINE WHAT COMPONENTS ARE CURRENTLY EXISTING. PROVIDE ALL NEW NECESSARY COMPONENTS INCLUDING BUT NOT LIMITED TO ENCLOSURE, TIME CLOCK, RELAY CONTROLLER, RELAYS, CONTACTS, LOW VOLTAGE WIRING, LIGHT SWITCHES, ETC. TO ACHIEVE A FULLY FUNCTIONAL AUTOMATIC LIGHTING CONTROL

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6TH FLOOR NEW POWER & LOW TENSION PLAN	
PROJECT No.0039278.00DRAWNAGCHECKEDMASCALEAS NOTEDDATEJULY 2018PRINTEDAUGUST 2018	
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1 NEW LIGHTING PLAN 1:75

GENERAL NOTES

- THE VOLTAGE.
- USED FOR PROGRAMMING DIRECTLY WITH CLIENT.
- CONTRACTOR TO RE-WIRE LIGHTS AS NEEDED.
- SENSORS MUST NOT BE TIED TO BASE BUILDING LIGHTING CONTROLS SYSTEM.
- MUST NOT BE PART OF SWITCHING.
- MATCH VOLTAGE RATING OF LUMINAIRES.
- ELECTRICAL CONSULTANT UPON COMPLETION.

KEY NOTES (-)

- LOCAL OCCUPANCY SENSOR(S) AND LIGHT SWITCH MUST BE TIED TOGETHER TO CONTROL ROOM LIGHTS.
- CEILING.

A. FOR ALL WORK PERTAINING TO FIRE ALARM SYSTEM, CONTRACTOR MUST COORDINATE DIRECTLY WITH BASE BUILDING SUPERINTENDENT PRIOR TO STARTING WORK. CONTRACTOR MUST PROVIDE FIRE ALARM VERIFICATION FOR THE ENTIRE FLOOR TO BE DONE BY LANDLORD'S CONSULTANT. VERIFICATION COST TO BE CARRIED BY THIS CONTRACTOR.

B. CONTRACTOR TO RE-USE EMERGENCY CIRCUITS FOR EXIT SIGNS AND EMERGENCY LIGHTS.

C. CONTRACTOR TO PROVIDE NEW EXIT SIGNS AS SHOWN ON LAYOUT. EXIT SIGNS TO BE LED GREEN RUNNING MAN PICTOGRAM, SELF-POWERED FOR 120 MINUTES, EQUIVALENT TO LUMACELL "LA" SERIES. RE-USE EXISTING EXIT SIGN CIRCUITS AND EXTEND TO NEW LOCATIONS. CONTRACTOR TO DETERMINE VOLTAGE USED FOR EXIT SIGN CIRCUIT(S) AND ENSURE NEW DEVICES MATCH

D. AS STATED ON THE POWER LAYOUT, CONTRACTOR TO PROVIDE NEW LIGHTING CONTROLS PANEL C/W TIME CLOCK, RELAYS AND CONTACTS. LABEL CONTROL PANEL AS 'LVLC#1'. THESE LIGHTS TO AUTOMATICALLY TURN 'ON' AT THE START OF TIME CLOCK PROGRAMMED HOURS AND TO AUTOMATICALLY TURN 'OFF' AT THE END OF PROGRAMMED HOURS. COORDINATE HOURS TO BE

E. UNLESS NOTED OTHERWISE, ALL LIGHT FIXTURES MUST BE WIRED TO BE TIED TO THE NEW LIGHTING CONTROLS SYSTEMS.

a. ALL LIGHTS SHOWN ON NEW LIGHTING PLAN LOCATED INSIDE ENCLOSED ROOMS TO BE RE-WIRED SUCH THAT THESE LIGHT FIXTURES ARE CONTROLLED BY LOCAL OCCUPANCY SENSORS. ALL LUMINAIRES CONTROLLED BY LOCAL OCCUPANCY

b. CONTRACTOR TO PROVIDE EMERGENCY LIGHTING LAYOUT AS SHOWN ON PLAN. RE-WIRE EXISTING EMERGENCY LIGHTING CIRCUITS TO ACHIEVE LAYOUT SHOWN. THESE LIGHTS TO SERVE AS NIGHT LIGHTS AND EMERGENCY LIGHTING THEREFORE

F. CONTRACTOR TO VERIFY VOLTAGE OF EXISTING LUMINAIRES. ALL NEW OCCUPANCY SENSORS, LIGHT SWITCHES, DIMMERS TO

G. CONTRACTOR MUST HIRE AND DIRECTLY INTERFACE WITH LIGHTING CONTROLS MANUFACTURER. PROVIDE ALL NECESSARY COMPONENTS, DEVICES, WIRING, PROGRAMMING FOR A FULLY FUNCTIONAL LIGHTING CONTROLS SYSTEMS.

H. CONTRACTOR SHALL PROVIDE AND PAY FOR COMMISSIONING AND PROGRAMMING OF TIME CLOCK AND LIGHTING CONTROLS DEVICES. COORDINATE DIRECTLY WITH CLIENT FOR HOURS TO BE USED FOR TIME CLOCK FUNCTION. CONTRACTOR MUST CARRY THE COST OF INDEPENDENT THIRD PARTY TO PERFORM THE COMMISSIONING. SUBMIT COMMISSIONING REPORT TO THE

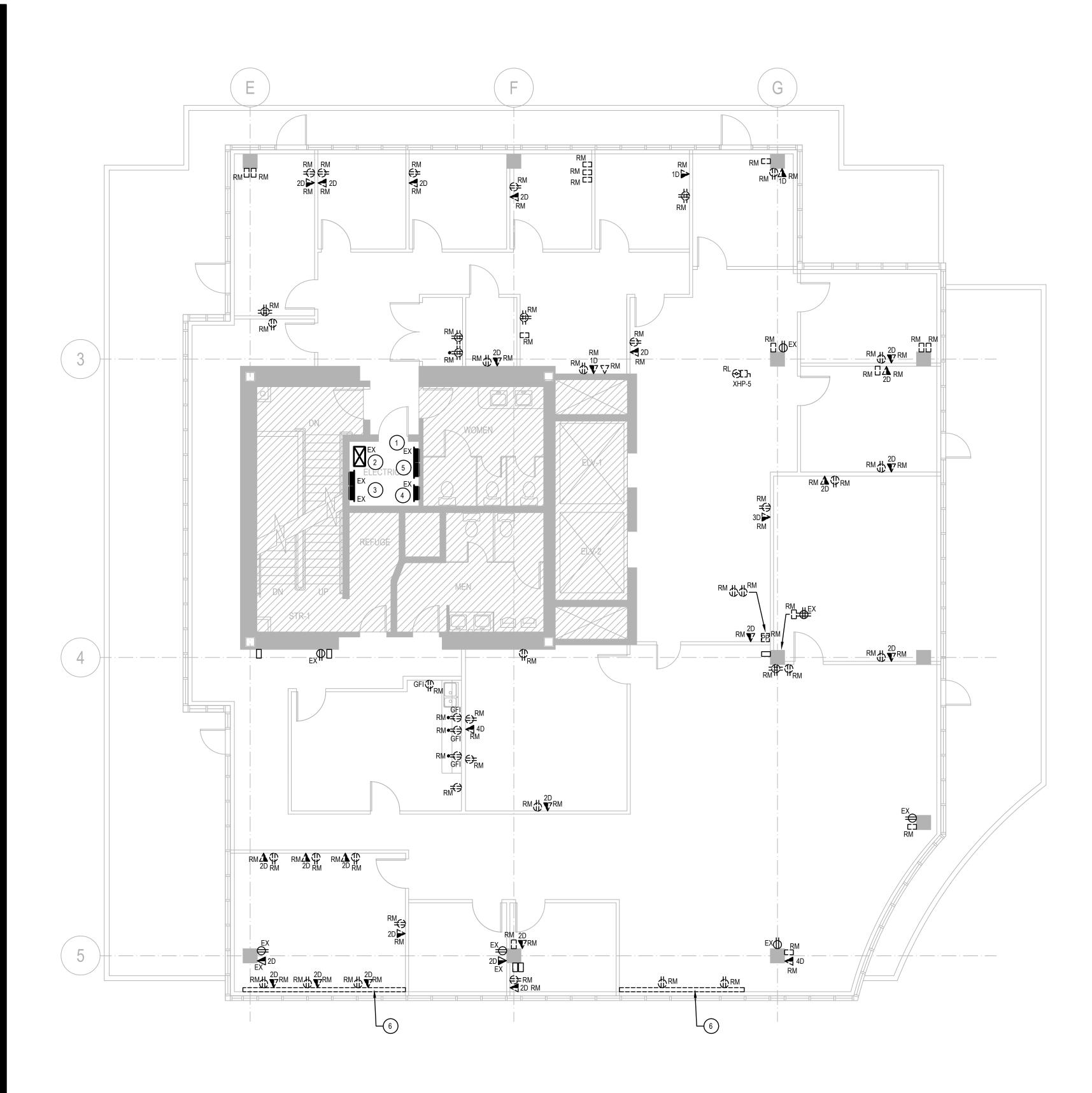
1. CONTRACTOR TO PROVIDE CEILING MOUNTED OR WALL MOUNTED OCCUPANCY SENSORS AS SHOWN ON LAYOUT. OCCUPANCY SENSORS TO BE DUAL TECHNOLOGY (INFRARED & MICROPHONICS / ULTRASONIC). SENSORS TO AUTOMATICALLY TURN 'ON' UPON OCCUPANCY AND MUST AUTOMATICALLY TURN 'OFF' WHEN 30 MINUTES OF VACANCY IS DETECTED. SHOWN

CONTRACTOR TO PROVIDE NEW MASTER SWITCH (REPLACE EXISTING SWITCH). THIS SWITCH MUST FUNCTION AS AN OVERRIDE SWITCH TO TIME CLOCK TO ALLOW OCCUPANTS TO TURN LIGHTS 'ON' OUTSIDE OF PROGRAMMED HOURS. REFER TO GENERAL NOTES ABOVE FOR MORE LIGHTING INSTRUCTIONS.

CONTRACTOR TO PROVIDE NEW 4" LED DOWN LIGHT FOR SHOWER TO BE EQUIVALENT TO SENSO LATONA 1, <u>WET RATED</u>, 1000 LUMENS, 10 WATTS, CRI 80+, 2 STEP MACADAM ELLIPSE, 3500K COLOUR TEMP, TO BE MOUNTED RECESSED IN DRYWALL

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PROJECT TITLE	()
TENANT FIT-OUT FOR ECHELON CENTRE	
6F-575 8TH AVE. WEST VANCOUVER	
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VANCOUVER OFFICE	
740 - 1100 Melville Street Vancouver, BC V6E 4A6 Bus: (604) 689-1915 Toll Free: 1-800-263-2393 vancouver@williamsengineering.com www.williamsengineering.com	
SHEET TITLE 6TH FLOOR NEW LIGHTING & FIRE ALARM PLAN	
PROJECT No.0039278.00DRAWNAGCHECKEDMASCALEAS NOTEDDATEJULY 2018PRINTEDAUGUST 2018	
DRAWING No.	



1 DEMOLITION POWER & LOW TENSION PLAN

GENERAL NOTES

- A. CONTRACTOR MUST PERFORM A SITE VISIT AND BASE THE COUNT OF LUMINAIRES, OUTLETS, WIRING THESE LAYOUTS ARE ESTIMATED ONLY AND MAY NOT INCLUDE ALL EXISTING CONDITION.
- B. ALL DEMOLITION WORK MUST BE DONE AFTER HOURS UNLESS OTHERWISE PRE-APPROVED BY THE LANDLORD.
- BASE BUILDING SUPERINTENDENT PRIOR TO STARTING WORK.
- D. NO ELECTRICAL CIRCUITS, FANS OR PUMPS ARE TO BE TURNED OFF WITHOUT PRIOR PERMISSION OF THE BASE BUILDING SUPERINTENDENT. CONTRACTOR MUST COORDINATE DIRECTLY PRIOR TO STARTING WORK.
- E. REFER TO MECHANICAL DRAWINGS TO DETERMINE WHICH MECHANICAL UNITS ARE TO REMAIN, TO BE RE-LOCATED OR TO BE REMOVED. ASSOCIATED ELECTRICAL POWER AND WIRING TO BE REMOVED OR RE-LOCATED ACCORDINGLY.
- F. UNLESS NOTED OTHERWISE, WHERE INDICATED AS 'RM' ON LAYOUT, CONTRACTOR TO REMOVE INDICATED EXISTING LUMINAIRES, OUTLETS, JUNCTION BOXES AND DEVICES THAT WILL NOT BE RE-USED. ASSOCIATED WIRING AND CONDUIT TO BE REMOVED BACK TO SOURCE. FIRE-STOP ALL OPENINGS ON FIRE RATED SEPARATIONS.
- G. EXISTING CEILING ZONE JUNCTION BOX SYSTEM TO REMAIN TO BE RE-USED.
- CLOSE PROXIMITY OF NEW OUTLETS SHOWN ON THE NEW POWER LAYOUT.

KEY NOTES

- 1. APPROX. LOCATION OF EXISTING PANEL 'L6PW', 600/347V, 42CCTs.
- 2. APPROX. LOCATION OF EXISTING 45KVA TRANSFORMER
- 3. APPROX. LOCATION OF EXISTING PANEL 'PP6W', 225A, 208/120V, 84CCTS.
- 4. APPROX. LOCATION OF EXISTING PANEL 'M6W', 225A, 208/120V, 60 CCTS.
- 5. APPROX. LOCATION OF EXISTING LIGHTING CONTROLS RELAY PANEL.
- 6. EXISTING WIREMOLD, OUTLETS AND WIRING TO BE REMOVED.

AND DEVICES TO BE REMOVED OR TO BE RE-LOCATED FROM THE SITE VISIT. INFORMATION SHOWN ON

C. FOR ALL WORK PERTAINING TO FIRE ALARM SYSTEM, CONTRACTOR MUST COORDINATE DIRECTLY WITH

H. CONTRACTOR MAY RE-USE CIRCUITS OF OUTLETS BEING REMOVED IF EXISTING LOCATIONS ARE IN

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¹ DEMOLITION LIGHTING PLAN 1:75

GENERAL NOTES

- A. CONTRACTOR MUST PERFORM A SITE VISIT AND BASE THE COUNT OF LUMINAIRES, OUTLETS, WIRING THESE LAYOUTS ARE ESTIMATED ONLY AND MAY NOT INCLUDE ALL EXISTING CONDITION.
- C. NO ELECTRICAL CIRCUITS, FANS OR PUMPS ARE TO BE TURNED OFF WITHOUT PRIOR PERMISSION OF THE BASE BUILDING SUPERINTENDENT. CONTRACTOR MUST COORDINATE DIRECTLY PRIOR TO STARTING WORK.
- D. REFER TO MECHANICAL DRAWINGS TO DETERMINE WHICH MECHANICAL UNITS ARE TO REMAIN, TO BE RE-LOCATED ACCORDINGLY.
- E. UNLESS NOTED OTHERWISE, WHERE INDICATED AS 'RM' ON LAYOUT, CONTRACTOR TO REMOVE INDICATED EXISTING LUMINAIRES, OUTLETS, JUNCTION BOXES AND DEVICES THAT WILL NOT BE RE-USED. ASSOCIATED WIRING AND CONDUIT TO BE REMOVED BACK TO SOURCE. FIRE-STOP ALL OPENINGS ON FIRE RATED SEPARATIONS.
- G. CONTRACTOR TO RE-LOCATE EXISTING LIGHT FIXTURES AS INDICATED TO ACCOMMODATE NEW WALL PARTITION LAYOUT. LIGHTS LABELED AS 'RL' TO BE RE-LOCATED. REFER TO NEW LIGHTING LAYOUT FOR NEW LOCATIONS.
- H. CONTRACTOR TO REMOVE ALL EXISTING EXIT SIGNS TO BE REPLACED BY NEW GREEN RUNNING MAN TYPE EXIT SIGNS. REFER TO NEW LIGHTING LAYOUT FOR LOCATIONS AND SPECIFICATIONS OF NEW EXIT SIGNS. EXTEND EXISTING EMERGENCY CIRCUITS TO NEW LOCATIONS.

KEY NOTES

1. EXISTING FIRE ALARM SPEAKER(S) TO BE RE-LOCATED TO NEW LOCATION AS SHOWN. REFER TO NEW LIGHTING PLAN FOR NEW LOCATIONS.

AND DEVICES TO BE REMOVED OR TO BE RE-LOCATED FROM THE SITE VISIT. INFORMATION SHOWN ON

B. FOR ALL WORK PERTAINING TO FIRE ALARM SYSTEM, CONTRACTOR MUST COORDINATE DIRECTLY WITH BASE BUILDING SUPERINTENDENT PRIOR TO STARTING WORK.

RE-LOCATED OR TO BE REMOVED. ASSOCIATED ELECTRICAL POWER AND WIRING TO BE REMOVED OR

F. CONTRACTOR TO RE-USE EMERGENCY CIRCUITS FOR EXIT SIGNS AND EMERGENCY LIGHTS.

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AS NOTED

JULY 2018

AUGUST 2018