## GENERAL ELECTRICAL NOTES

(GENERAL NOTES ARE PROVIDED AS A BASIC DESCRIPTION OF THE EXTENT AND QUALITY EXPECTED IN THIS PROJECT. IF A CONFLICT EXISTS SETWEEN THESE GENERAL NOTES AND THE REMAINDER OF THE CONTRACT DOCUMENTS THE SPECIFICATIONS, PLANS AND DETAILS WILL GOVERN.)

- THE ENTIRE INSTALLATION SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, LATEST EDITION (NEC) AND THE LATEST EDITIONS OF ALL LOCAL CODES, RULES AND ORDINANCES HAVING JURISDICTION.
- AS A MINIMUM, ALL EQUIPMENT SHALL MEET APPLICABLE STANDARDS, FOR THE TYPE OF EQUIPMENT AND INTENDED USE, OF THE FOLLOWING: A. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
- B. ILLUMINATING ENGINEERS SOCIETY (IES) C. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
- . NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATES.(NEMA) . NOTE: THESE STANDARDS ARE SUBORDINATE TO CODES AND STANDARDS SET BY U.L. ALL ELECTRICAL EQUIPMENT, DEVICES, WIRE, ETC., SHALL BE LISTED, FOR INTENDED USE, WITH UNDERWRITER'S LABORATORIES INC. (U.L.), WHERE STANDARDS HAVE BEEN
- CONTRACTOR TO PROVIDE ALL LABOR, MATERIALS AND SUPERVISION NECESSARY TO ACCOMPLISH THE WORK AS SHOWN AND/OR NOTED ON THE DRAWINGS.
- THE CONTRACTOR SHALL VISIT THE JOB SITE AND VERIFY ALL CONDITIONS, LOCATIONS, DIMENSIONS AND COUNTS AS SHOWN OR NOTED ON THE DRAWINGS, PRIOR TO
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL LABOR, MATERIALS AND SUPERVISION NECESSARY TO ACCOMPLISH THE WORK AS SHOWN AND/OR NOTED ON THE PLANS.
- ELECTRICAL CONTRACTOR SHALL NOT SCALE DRAWINGS. CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS AND ELEVATIONS FOR EXACT LOCATIONS OF ALL EQUIPMENT
- IT SHALL BE UNDERSTOOD THAT ALL WORK PERFORMED SHALL BE DONE BY A LICENSED CONTRACTOR AND IN A FIRST-CLASS WORKMANLIKE MANNER. SAID CONTRACTOR SHALL MEET ALL REQUIREMENTS SET FORTH BY ANY LOCAL ORDINANCE AND GOVERNING
- THE CONTRACTOR SHALL PROVIDE ALL REQUIRED INSURANCE FOR PROTECTION AGAINST PUBLIC LIABILITY AND PROPERTY DAMAGE FOR THE DURATION OF THE WORK.
- CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORKMANSHIP FREE FROM DEFECTS FOR A PERIOD OF NOT LESS THAN ONE YEAR FROM DATE OF ACCEPTANCE, UNLESS INDICATED OR SPECIFIED OTHERWISE.
- IT SHALL NOT BE THE INTENT OF THESE PLANS AND/OR SPECIFICATIONS TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION. THE CONTRACTOR SHALL BE EXPECTED TO JRNISH AND INSTALL ALL ITEMS FOR A COMPLETE ELECTRICAL SYSTEM AND PROVIDE FOR ALL REQUIREMENTS NECESSARY FOR EQUIPMENT TO BE PLACED IN PROPER
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING TO ORIGINAL CONDITIONS, ANY AND ALL DAMAGES TO BUILDING SURFACES, EQUIPMENT, ETC. CAUSED DURING THE PERFORMANCE OF WORK.
- CORRECTION OF ANY DEFECTS SHALL BE COMPLETED WITHOUT ADDITIONAL CHARGE O DELAYS AND SHALL INCLUDE REPLACEMENT OR REPAIR OF ANY OTHER PHASE OF THE INSTALLATION WHICH MAY HAVE BEEN DAMAGED THEREBY.
- FOR ELECTRIC POWER SYSTEM. COORDINATE POWER SERVICE WITH POWER COMPANY: A. VERIFY LOCATION OF POWER SERVICE TERMINATION WITH POWER COMPANY, PRIOR TO SUBMITTING BID. CONTRACTOR TO VERIFY AVAILABLE SERVICE VOLTAGE AND PHASES WITH POWER COMPANY PRIOR TO BID AND PROVIDE BID ALLOWANCE FOR
- PROVIDE TEMPORARY ELECTRICAL SERVICE FOR USE BY ALL TRADES DURING CONSTRUCTION AND REMOVE SAME AT COMPLETION OF PROJECT,
- CONTRACTOR SHALL KEEP ALL AREAS IN WHICH WORK IS BEING PERFORMED, FREE FROM DEBRIS AT ALL TIMES AND SAID AREAS SHALL BE LEFT BROOM CLEAN AT THE
- END OF EACH WORKING DAY. CONTRACTOR SHALL PAY FOR ALL PERMITS, FEES, INSPECTIONS, AND TESTING COSTS.
- COORDINATE ALL ELECTRICAL SITE WORK WITH ALL OTHER TRADES CONTRACTORS. 17. IT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR FOR THE ADVANCE

ORDERING OF LONG LEAD ITEMS. AS TO NOT INTERFERE WITH THE PRODUCTION OF

- OTHER TRADES RESULTING IN ANY DOWN OR LAG TIME. THE CONTRACTOR SHALL NOT ORDER ANY ITEMS UNTIL APPROVED SHOP DRAWINGS ARE RETURNED TO HIM. ELECTRICAL CONTRACTOR SHALL SUBMIT (6 COPIES) EQUIPMENT LAYOUT OF ALI LECTRICAL SPACES, ROOMS, ETC., TO ENGINEER FOR APPROVAL PRIOR TO ORDERING EQUIPMENT OR INSTALLING CONDUITS, ETC. LAYOUT SHALL CONSIST OF PLAN VIEWS
- (SCALED AS REQUIRED) AND ELEVATIONS (DIMENSIONED) FOR EACH SUCH SPACE, CONTRACTOR SHALL SUBMIT AT ONE TIME. SIX (6) SETS OF LOOSE-LEAF BOUND BOOKS, INDEXED WITH ALL PRODUCTS, MATERIALS, LIGHTING FIXTURES, LAMPS, WIRING EVICES, SWITCHGEAR, ETC. CLEARLY HIGHLIGHTING ALL EQUIPMENT QUANTITIES AND ALL EQUIPMENT SHALL BE AS SPECIFIED ON PLANS: THE RESPONSIBILITY TO ACCEPT OR REJECT ANY PROPOSED SUBSTITUTION REMAINS WITH THE PROJECT

INGINEER. THE CONTRACTOR MAY AT HIS JUDGMENT USE ANY ARTICLE, DEVICE

PRODUCT, OR MATERIAL WHICH IN THE JUDGMENT OF THE ENGINEER EXPRESSED IN

20. ALL CONDUCTORS SHALL BE COPPER, TYPE THHN/THWN EXCEPT WHERE OTHERWISE REQUIRED BY U.L. OR CODES. MINIMUM WIRE SIZE SHALL BE #12 AWG, EXCLUDING

WRITING ARE EQUAL TO THAT SPECIFIED.

- CONTROL WIRING. ALUMINUM CONDUCTORS ARE NOT PERMITTED ALL CONDUCTORS SHALL BE IN CONDUITS. ALL CONDUITS SHALL BE GALVANIZED RIGID STEEL (GRS) EXCEPT THAT: (a) PVC CONDUITS MAY BE USED UNDERGROUND PROVIDED ELBOWS AND RISERS ARE GALVANIZED RIGID STEEL OR SCHEDULE 80 PVC, WHERE SUBJECT TO PHYSICAL DAMAGE (b) ELECTRICAL METALLIC TUBING (EMT) MAY BE USED IN OR ON WALLS OR CEILINGS WHERE NOT SUBJECT TO MECHANICAL DAMAGE, DAMP OR CORROSIVE CONDITIONS. (c) LIQUID TIGHT FLEXIBLE CONDUIT WHERE REQUIRED. (d) FLEXIBLE METALLIC CONDUIT WHERE REQUIRED IN DRY LOCATIONS ONLY, (e) MC CABLE WITH DEDICATED GREEN GROUNDING CONDUCTOR WHERE PERMITTED. ALL CONDUITS IN HAZARDOUS AREAS (PER NEC) SHALL MEET THE REQUIREMENTS OF NEC CHAPTER 5.
- SINGLE CONDUIT RUN HAS BENDS IN EXCESS OF 360. PULL BOXES SHALL BE SUITABLE AND APPROVED FOR THE INTENDED USE. WARNING TAPE WHICH SAYS WARNING BURIED ELECTRIC" SHALL BE PLACED IN TRENCHES ABOVE ALL UNDERGROUND LECTRIC CONDUITS. WHERE CONDUITS PASS UNDERNEATH PAVED AREAS, THEY SHALL WHERE UNDERGROUND CONDUITS ARE NOT EXPOSED TO MECHANICAL DAMAGE R ARE NOT UNDER PAVED AREAS, THEY SHALL BE SCHEDULE 40 PVC

FOR UNDERGROUND ELECTRICAL CONDUITS, PROVIDE PULL BOXES, SUCH THAT NO

- 23. ALL CONDUIT RUNS ARE SHOWN DIAGRAMMATIC. EXACT ROUTING SHALL BE DETERMINED IN THE FIELD, UNLESS OTHERWISE NOTED.
- WIREWAYS SHALL BE SIZED AS REQUIRED, PER NEC, UNLESS OTHERWISE NOTED (UON). WHERE CORE DRILLING OF FLOOR/WALLS IS REQUIRED, CONTRACTOR SHALL SEAL OPENINGS WATERTIGHT AFTER UTILITIES HAVE BEEN INSTALLED. LOCATION OF CORED

HOLES SHALL COORDINATE WITH LOCATION OF EQUIPMENT IN A MANNER TO BE CLEAN

- AND FUNCTIONAL. THE CONTRACTOR SHALL INSTALL ONLY ONE CONDUIT PER HOLE AND SEAL THE OPENING AROUND THE CONDUIT AS SPECIFIED. PROVIDE FIRE RETARDANT U.L. APPROVED SEALANT ON ALL PENETRATIONS OF FIRE RATED PARTITIONS, WALLS AND STRUCTURAL SLABS. CONTRACTOR TO VERIFY, PRIOR TO
- SUBMITTING BID, LOCATIONS OF ALL SUCH FIRE RATED PARTITIONS, WALL AND STRUCTURAL SLABS. 27. UNLESS NOTED AS EXISTING, ALL EQUIPMENT, WIRING, DEVICES, ETC. SHALL BE NEW.

- 28. ALL CIRCUIT BREAKERS SHALL BE INVERSE TIME TYPE (THERMAL MAGNETIC OR SOLID STATE AS REQUIRED BY SPECIFICATION). TWO AND THREE POLE CIRCUIT BREAKERS SHALL BE COMMON TRIP. NO TIE HANDLES PERMITTED.
- 29. ALL FUSES SHALL BE CURRENT LIMITING, PER U.L., RATED 600V., UON NON-TIME DELAY FUSES IN MAIN SWITCHES AND SWITCHES FEEDING B. TIME DELAY FUSES FOR MOTOR AND A/C CIRCUITS.
- 30. ALL DISCONNECT SWITCHES SHALL BE SIZED BY NEC REQUIREMENTS TO ACCOMMODATE EQUIPMENT SERVED, INCLUDING REQUIRED FUSES U.O.N. SWITCHES SHALL BE HORSEPOWER RATED FOR MAX. HORSEPOWER, HEAVY DUTY TYPE.
- CONTRACTOR SHALL VERIFY CIRCUIT PROTECTIVE DEVICE RATING FOR EQUIPMENT PRIOR O INSTALLATION. FURNISH AND INSTALL DISCONNECT SWITCHES AND WIRING FOR AIR CONDITIONING SYSTEM AS PER MANUFACTURER RECOMMENDATIONS. CONTROLS ARE TO BE SUPPLIED BY AIR CONDITIONING CONTRACTOR AND CONNECTED. PROVIDE ALL CONTROL WIRING FOR

A/C SENSORING AND CONTROL UNITS, COORDINATE WITH A/C CONTRACTOR FOR WIRING

- 33. ALL ELECTRICAL EQUIPMENT SHALL BE RAINTIGHT WHERE EXPOSED TO THE WEATHER. ALL FLEX CONDUITS CONNECTED TO SUCH EQUIPMENT SHALL BE LIQUID TIGHT.
- EQUIPMENT SHALL BE OF MATERIALS SUITABLE FOR AND NEMA RATED FOR THE ENVIRONMENT IN WHICH THEY ARE TO BE INSTALLED.

DIAGRAMS AND EXACT MOUNTING LOCATIONS.

- 35. ALL CONNECTIONS TO GROUND RODS SHALL BE MADE WITH U.L. APPROVED WELDED CONNECTIONS, UNLESS NOTED OTHERWISE. THE CONTRACTOR SHALL FORM A GROUNDING ELECTRODE SYSTEM AS PER NEC 250-50.
- OUTLET IN DRY LOCATIONS BOXES SHALL BE PRESSED STEEL, IN WET OR DAMP LOCATIONS SHALL BE CAST ALLOY WEATHER-RESISTANT OUTLET WITH THREADED HUBS AND IN OTHER CLASSIFIED AREAS IT SHALL BE IN A SPECIAL ENCLOSURE. PROPER PLASTER RINGS SHALL BE USED WITH OUTLET BOXES. PROPER COORDINATION BETWEEN ELECTRICAL SUBCONTRACTOR AND GENERAL CONTRACTOR FOR PLASTER RING INITIATION WILL BE REQUIRED. NO "GOOF" RINGS SHALL BE ALLOWED. ALL OUTLET BOXES SHALL
- WHEN ELECTRICAL BOXES ARE LOCATED IN VERTICAL FIRE RESISTIVE ASSEMBLIES, (CLASSIFIED AS FIRE/SMOKE AND SMOKE PARTITIONS), THEY SHALL BE INSTALLED WITHOUT AFFECTING THE FIRE CLASSIFICATION. ALL OF THE FOLLOWING CONDITIONS
- A. ALL ELECTRICAL BOXES SHALL BE METALLIC. B. BOX OPENING SHALL OCCUR ONLY ON ONE SIDE OF FRAMING SPACE. BOX OPENING SHALL NOT EXCEED 10322.56 SQUARE MM (16SQUARE INCHES). ALL CLEARANCES BETWEEN OUTLET BOX AND GYPSUM BOARD SHALL BE
- COMPLETELY FILLED WITH JOINT COMPOUND (OR OTHER APPROVED MATERIAL) E. PROVIDE A WALL AROUND OUTLETS LARGER THAT 10322.56 SQUARE MM (16 SQUARE INCHES). THE INTEGRITY OF THE WALL RATING SHALL BE MAINTAINED. F. THE TOTAL AGGREGATE SURFACE AREA OF THE BOXES SHALL NOT EXCEED 64516
- SQUARE MM (100 SQUARE INCHES) PER 9.29 SQUARE METERS (100 SQUARE FEET). G. OUTLET BOXES LOCATED ON OPPÓSITE SIDES OF FIRE RESISTIVE ASSEMBLIES SHALL BE SEPARATED BY A MINIMUM HORIZONTAL DISTANCE OF 609.6MM (24 INCHES). H. OUTLET BOXES SHALL BE SECURELY FASTENED TO WALL FRAMING MEMBERS. THE OPENING IN THE GYPSUM BOARD FACING SHALL BE CUT NOT TO EXCEED 3.175MM (1/8 INCH) BETWEEN THE EDGES OF THE OUTLET BOX AND THE EDGES
- OF THE OPENING. 38. SMOKE DETECTORS SHALL BE PROVIDED NO CLOSER THAN 36" FROM SUPPLY AIR
- 39. CONTRACTOR SHALL PROVIDE A TYPE WRITTEN DIRECTORY OF EACH PANELBOARD. HAND WRITTEN DIRECTORY IS NOT ACCEPTABLE, EXCEPT SPARE AND SPACES SHALL BE
- HANDWRITTEN IN PENCIL. 40. PROVIDE A 4" STEEL REINFORCED CONCRETE HOUSEKEEPING PAD UNDER ALL FLOOR
- MOUNTED ELECTRICAL EQUIPMENT. A. WORKING CLEARANCES FOR ELECTRICAL EQUIPMENT SHALL BE IN COMPLIANCE WITH
- B. THE EXCLUSIVELY DEDICATED SPACE EXTENDING FROM FLOOR TO STRUCTURAL CEILING WITH A WIDTH AND DEPTH OF THE PANELBOARD OR SWITCHBOARD MUST BE CLEAR OF ALL PIPING, DUCTS, EQUIPMENT FOREIGN TO THE ELECTRICAL EQUIPMENT OR
- ARCHITECTURAL APPURTENANCES IN ACCORDANCE WITH NEC 408. METER CANS, HUBS, & LUGS FOR SAME ARE TO BE FURNISHED & INSTALLED BY CONTRACTOR. CONTRACTOR TO VERIFY SPECIFIC TYPE OF METER CAN TO BE USED WITH F.P.L. PRIOR TO BID.
- 43. A. PROVIDE A PERMANENT SIGN ON THE MAIN ELECTRICAL ROOM DOOR TO THE BLDG. STATING THAT THE SERVICE DISCONNECTS ARE LOCATED INSIDE. B. SIGNS SHALL BE PLACED AT THE MAIN DISCONNECT EQUIPMENT INDICATING TYPE AND
- LOCATION OF ON-SITE EMERGENCY POWER SOURCES. THE EQUIPMENT GROUNDING TERMINAL BARS OF THE NORMAL AND EMERGENCY ELECTRICAL SYSTEM PANELBOARDS SERVING THE SAME BUILDING SHALL BE BONDED TOGETHER WITH AN INSULATED, CONTINUOUS, COPPER CONDUCTOR NOT SMALLER THAN
- 45. THE ELECTRICAL CONTRACTOR SHALL FURNISH A COMPLETE SET OF AS-BUILT DRAWINGS, SHOWING ALL CHANGES AND DEVIATIONS TO THE ARCHITECT/ENGINEER PRIOR TO COMPLETION OF THE PROJECT.
- ARCHITECTURAL AND/OR ENGINEERING EXPENSES THAT ARE INCURRED DUE TO REVISIONS OR SUBSTITUTIONS REQUESTED BY THE CONTRACTOR SHALL BE PAID FOR BY

47. FOR TELEPHONE SYSTEMS:

- A. PROVIDE GROUNDING FOR ALL TELEPHONE OUTLETS AND EQUIPMENT PER REQUIREMENTS OF THE TELEPHONE COMPANY B. COORDINATE INSTALLATION OF ALL TELEPHONE OUTLETS, RACEWAYS, ENCLOSURES AND BACKBOARDS WITH TELE, CO. C. VERIFY LOCATION OF TELEPHONE SERVICE WITH TELEPHONE COMPANY. PROVIDE SERVICE CONDUIT TO BLDG. FROM SERVICE POINT PER TELCO. INSTRUCTIONS, INCLUDE ALL ASSOCIATED COSTS IN BID. D. MARK TERMINATIONS OF TELEPHONE CONDUIT AS DIRECTED BY THE TELEPHONE E. VERIFY LOCATION OF TELEPHONE SERVICE WITH TELEPHONE COMPANY PRIOR TO SUBMITTING BID, INCLUDE ALL ASSOCIATED COSTS IN BID. F. USE EXTERIOR GRADE 3/4" PLYWOOD BACKBOARDS FOR MOUNTING TELEPHONE EQUIPMENT AND TERMINAL STRIPS. PAINT BOARD ON ALL SIDES AND EDGES WITH TWO COATS OF FLAT BLACK FIRE RETARDANT PAINT.
- INDUSTRIAL CONTROL TYPE TRANSFORMERS SHALL BE PROVIDED WITH FINGERSAFE COVERS AND PRIMARY FUSE PROTECTION AS REQUIRED PER NEC 450-3. MOUNT TRANSFORMERS ON 4"X4" JUNCTION BOX ABOVE ACCESSIBLE CEILINGS OR ELECTRICAL
- FOR RESIDENTIAL WORK PROVIDE COMBINATION TYPE ARC-FAULT CIRCUIT INTERRUPTER PROTECTION THROUGHOUT THE DWELLING UNIT, EXCEPT IN KITCHEN BATHROOM, GARAGES AND OUTDOORS. ALL DWELLING UNIT RECEPTACLE OUTLETS MUST BE LISTED TAMPER-RESISTANT
- 50. PROVIDE U.L. LISTED COMPOUND APPLIED TO BACK OF "BACK TO BACK" BOXES IN RATED WALLS WHERE THE BOXES ARE LESS THAN 609.6MM (24 INCHES) APART MEASURED HORIZONTALLY.

## GENERAL LIGHTING NOTES:

- REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF LIGHT COORDINATE TYPE OF CEILING FOR EACH FIXTURE WITH ARCHITECTURAL REFLECTED
- CEILING PLANS AND PROVIDE FIXTURE TRIM AS REQUIRED. ALL COMPACT FLUORESCENT DOWNLIGHTS SHALL USE LAMPS WITH 3500K TEMPERATURE, MINIMUM 10,000 HOUR LIFE, ELECTRONIC BALLAST, UNLESS OTHERWISE NOTED. PROVIDE APPROVED FIRE RATED ENCLOSURES FOR ALL LIGHT FIXTURES LOCATED IN
- FIRE RATED CEILINGS. FIXTURES IN AREAS WITHOUT CEILINGS, OR IN MECHANICAL AND ELECTRICAL ROOMS SHALL BE MOUNTED WITH 1 1/2"X1 1/2"KINDORF CHANNEL SUPPORT SUSPENDED FROM ROOF STRUCTURE WITH THREAD RODS. FIXTURES SHALL BE MOUNTED 10'-0" A.F.F.
- ALL ACRYLIC LENSED FIXTURES SHALL HAVE A LENS THICKNESS OF .125 INCHES
- HALF SHADED FIXTURES DENOTE EMERGENCY FIXTURES EITHER WITH 1100 LUMEN EMERGENCY BATTERY PACK OR ON LIFE SAFETY CIRCUIT LIGHTING FIXTURE SCHEDULE IS PREDICTED ON PERFORMANCE AND IS DESIGNED TO
- FOR PRIOR APPROVAL TEN (10) DAYS PRIOR TO BID DATE. ALL BALLASTS SHALL HAVE MINIMUM POWER FACTOR OF 0.90. ALL BALLASTS FOR METAL HALIDE AND HIGH PRESSURE SODIUM FIXTURES SHALL BE CONSTANT WATTAGE

MEET CERTAIN AESTHETIC CRITERIA. ALL ALTERNATIVE SELECTIONS MUST BE SUBMITTED

- TYPE WITH +/-5% LAMP WATTS FOR +/-10% NOMINAL LINE VOLTAGE VARIATION. PROVIDE LAMPS WITH FIXTURES, VERIFY LAMP TYPE WITH MANUFACTURER. FLUORESCENT LUMINAIRES THAT UTILIZE DOUBLE-ENDED LAMPS AND CONTAIN
- BALLAST(S) OR MULTIWIRE BALASTED LUMINAIRES SHALL CONTAIN AN INTEGRATED INTERNAL DISCONNECT AND TO BE COMPLIED WITH NEC 410.73(G) ALL OPENINGS FOR LIGHT FIXTURES IN CEILINGS SHALL BE PROTECTED IN A MANNER
- (PER ALL GOVERNING CODES) THAT WILL PROVIDE THE SAME RATING AS THE CEILING. (THIS APPLIES TO ALL FIRE RATED CEILINGS).

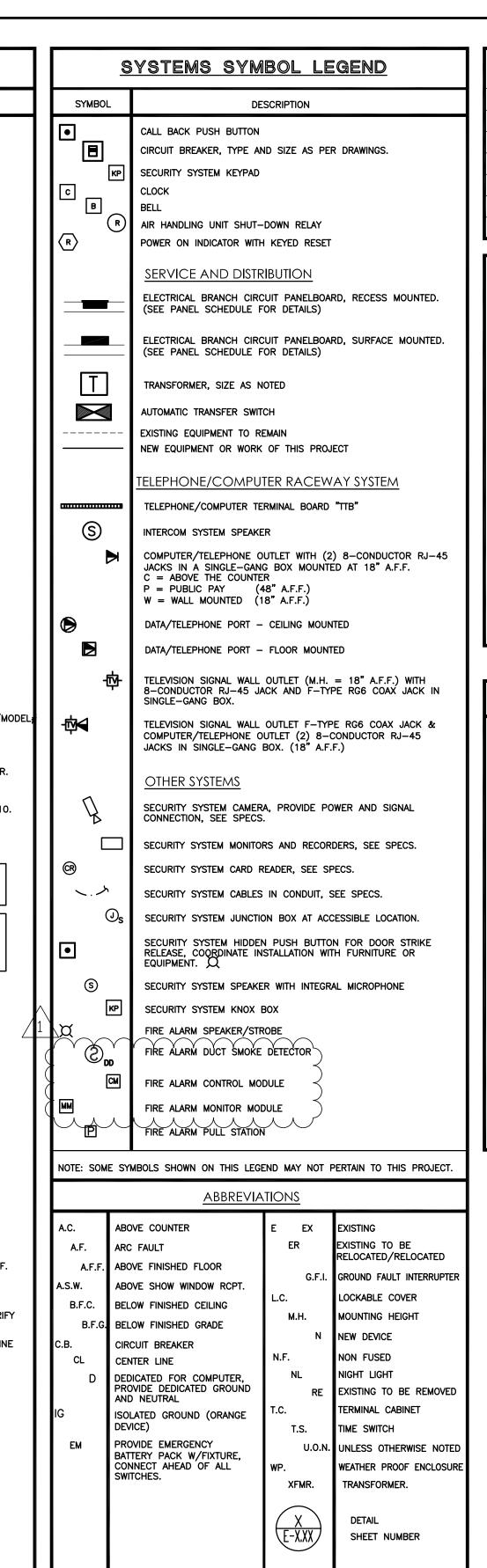
- FOR EMERGENCY EXIT SIGNS AND EMERGENCY BATTERY PACKS MAKE CONNECTION AHEAD OF ALL SWITCHES AND CONTROLS.
- PROVIDE A FUSE HOLDER AND FUSE (BUSSMAN HEB AND FNQ OR EQUAL), IN THE PRIMARY SIDE OF EACH UNGROUNDED CONDUCTOR FOR ALL BALLASTS AT THE HAND HOLE OF EACH EXTERIOR POLE MOUNTED LIGHTING FIXTURE OR J-BOX FOR WALL OR GROUND MOUNTED FIXTURE.
- PROVIDE WIND LOAD RATED LIGHT POLES WITH 145 MPH MINIMUM WIND SPEED (ASCE 7). EXPOSURE C WITH IMPORTANCE FACTOR OF 1.0. AND PROVIDE PHOTOMETRICS WITH LL FIXTURE SUBMITTALS. CONTRACTOR TO VERIFY VOLTAGES OF ALL LIGHT FIXTURES
- PHOTOMETRICS ARE BASED ON MANUFACTURER'S INFORMATION AND CATALOG NUMBERS. ALTERNATIVE MANUFACTURERS MUST PROVIDE THE IESNA FORMAT ELECTRONIC FILES OF THE INDEPENDENT TEST LAB REPORTS FOR THE PROPOSED FIXTURES ON CD OR FLOPPY DISKETTE 10 WORKING DAYS PRIOR TO BID. (SPECIFIER) WILL CONFIRM THAT THE PHOTOMETRIC CRITERIA HAS BEEN MET, AND IF ALTERNATE IS APPROVED WILL ISSUE AN ADDENDUM. MANUFACTURERS NOT LISTED ON THE PLANS OR IN AN ADDENDUM WILL NOT BE ACCEPTED.
- TO CONFIRM THAT THE SPECIFIED PHOTOMETRIC CRITERIA HAS BEEN MET, A COMPUTER DISK CONTAINING AN IES FILE FOR THE PROPOSED ALTERNATE MUST BE SUBMITTED TO (SPECIFIER) FOR EVALUATION NO LESS THAT 10 DAYS PRIOR TO BID. ANY ACCEPTABLE ALTERNATE MUST BE APPROVED IN WRITING PRIOR TO BID DATE.
- CONTRACTOR MUST BID PROJECT USING SPECIFIED LIGHTING FIXTURES AS BASE BID (NO EXCEPTIONS). IF ALTERNATE FIXTURES ARE PROPOSED, THEY MUST BE BID AS AN ALTERNATE BID MUST INCLUDE: A) TOTAL DOLLAR CREDIT TO OWNER IF ALTERNATE IS ACCEPTED.
- IF THERE IS A DISCREPANCY BETWEEN A FIXTURE DESCRIPTION AND GENERAL NOTES. AND THE CATALOG NUMBER LISTED, THE FIXTURE DESCRIPTION AND GENERAL NOTES

C) CATALOG SUBMITTAL DATA FOR EACH ALTERNATE FIXTURE PROPOSED.

B) LINE ITEM CREDIT FOR EACH ALTERNATE FIXTURE PROPOSED.

COORDINATE FIXTURE TYPES WITH ARCHITECTURAL DRAWINGS.

## ELECTRICAL SYMBOL LEGEND DESCRIPTION IGHTING (REFER TO LIGHTING FIXTURE SCHEDULE) LIGHT FIXTURE DESIGNATION. LIGHTING FIXTURE, SURFACE MOUNTED LIGHTING FIXTURE (HID, FLUORESCENT OR INCANDESCENT), RECESSED MTD. LIGHTING FIXTURE, WALL MOUNTED EXIT LIGHT FIXTURE. DIRECTION ARROWS AS SHOWN WALL MOUNTED EXIT LIGHT FIXTURE (SHADED QUADRANT INDICATES FACE(S) OF FIXTURE) 2 X 2 FLUORESCENT LIGHT FIXTURE 2 X 4 FLUORESCENT LIGHT FIXTURE DIAGONAL SHADING DENOTES LIGHT FIXTURE CONNECTED TO EMERGENCY BRANCH CIRCUIT OR, W/EMERG. BATTERY PACK. 1 X 4 FLUORESCENT LIGHT FIXTURE DIAGONAL SHADING DENOTES LIGHT FIXTURE CONNECTED TO EMERGENCY BRANCH CIRCUIT OR, W/EMERG. BATTERY PACK. FLUORESCENT WALL MOUNTED FIXTURE WITH WALL OUTLET BOX -FLUORESCENT STRIP FIXTURE DIAGONAL SHADING DENOTES LIGHT FIXTURE CONNECTED TO EMERGENCY -BRANCH CIRCUIT OR, W/EMERG. BATTERY PACK. EXTERIOR LIGHT FIXTURE WITH ARMS AS SHOWN ON DRAWINGS EMERGENCY BATTERY WALL PACK WITH TWIN HEADS TOGGLE SWITCH 120/277V. 20 AMP., (M.H. = 48" A.F.F.) TOGGLE SWITCH 120/277V. 20 AMP. ,(M.H. = 48" A.F.F.) , 3-WAY TOGGLE SWITCH 120/277V. 20 AMP., (M.H. = 48" A.F.F.), 4-WAY TOGGLE SWITCH 120/277V. 20 AMP. KEYSWITCH, (M.H. = 48" A.F.F.) FAN SWITCH 120/277V. 20 AMP, (HORSEPOWER RATED) 30-MINUTE ROTATABLE TIMER SWITCH (M.H. = 48" A.F.F.) TOGGLE SWITCH 120/277V. 20 AMP., WITH PILOT LIGHT, (M.H.=48"A.F.F.)TOGGLE SWITCH 120/277V. 20 AMP. EXPLOSION-PROOF, (M.H.=48"A.F.F.)SPEED SWITCH 120/277V. 20 AMP. U.O.N. ,(M.H. = 48" A.F.F.) SINGLE PHASE MANUAL MOTOR STARTER, (M.H.=48" A.F.F.) DIMMER SWITCH 120/277V. 20 AMP., (M.H.=48" A.F.F.) (1500 WATTS UNLESS OTHERWISE INDICATED) THREE-WAY DIMMER SWITCH (48" A.F.F.) SINGLE POLE SWITCH (48" A.F.F.) (SUBSCRIPT INDICATES ITEM CONTROLLED) PANIC SWITCH, MUSHROOM TYPE, (M.H.=48" A.F.F.) WALL MOUNTED - OCCUPANCY SENSOR SWITCH, (M.H.=48"A.F.F.) MFGR./MODEL SENSOR SWITCH/#WSD-PDT (a, b) OR (2) INDICATES TWO POLE SWITCH - WSD-PDT-2P LV INDICATES LOW VOLTAGE - WSD-PDT-LV CEILING MOUNTED OCCUPANCY SENSOR - LIGHTING CIRCUIT CONTROLLER. MFGR./MODEL# (SENSOR SWITCH/#CM-PDT) CEILING MOUNTED DUAL TECHNOLOGY EXTENDED RANGE OCCUPANCY SENSOR - LIGHTING CIRCUIT CONTROLLER. SENSOR SWITCH/#CM-PDT-10. PHOTOCELL OCCUPANCY SENSOR NOTE: CONTRACTOR SHALL PROVIDE ALL SWITCHPACKS AND CONDUCTORS AS REQUIRED FOR LAYOUTS AND CONTROLS SHOWN ON PLANS. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE AND INSTALL A COMPLETE AND FULLY FUNCTIONAL LIGHTING CONTROL SYSTEM IN ACCORDANCE WITH THE PLANS, DETAILS, INTENT OF THE DESIGN AND SPECIFICATIONS SHOWN ON THESE PLANS. BASIC MATERIALS DUPLEX RECEPTACLE, 20 AMP., 125V., (M.H.=18"A.F.F.) FLOOR OUTLET BOX AND DUPLEX RECEPTACLE 20 AMP., 125V., WITH APPROPRIATE FLANGE. CEILING OUTLET BOX AND DUPLEX RECEPTACLE 20A, 125V. DUPLEX RECEPTACLE, 20 AMP., 125V., TOP HALF SWITCHED, M.H. = 18" A.F.F. UNLESS OTHERWISE NOTED DUPLEX RECEPTACLE, 20 AMP., 125V., ISOLATED GROUND AND SURGE PROTECTED, (M.H.=18"A.F.F.) SINGLE RECEPTACLE, 20 AMP., 125V., COORDINATE M.H. WITH SIMPLEX RECEPTACLE (16" A.F.F.) (EWC DENOTES ELECTRIC WATER COOLER. COORDINATE WITH EWC INSTALLER FOR MOUNTING HEIGHT) TWO DUPLEX RECEPTACLES WITH COMMON COVER 20A., 125V.,(18" SPECIAL PURPOSE OUTLET e.g. RANGE OUTLET, COORD. W/ EQUIPT. DUPLEX RECEPTACLE, 20 AMP., 125V., MOUNT ABOVE COUNTER @42"AFF. GFCI DUPLEX RECEPTACLE, 20 AMP., 125V., (M.H.=18"A.F.F.) GFCI DUPLEX RECEPTACLE, 20 AMP., 125V., MTD. ABOVE COUNTER (VERIFY 30 AMP., 125V., TWIST LOCK RECEPTACLE FOR FLOOR POLISHING MACHINE JUNCTION BOX, MOUNTING AS SHOWN POWER POLE ELECTRIC MOTOR, NUMBER INDICATES HORSEPOWER MAGNETIC MOTOR STARTER OR CONTACTOR, COMBINATION MAGNETIC MOTOR STARTER, SIZE AS NOTED DISCONNECT SWITCH, SIZE AS NOTED **ENCLOSURE TYPE:** ---# OF POLES NEMA 3R- FOR EXTERIOR —— AMP RATING/FRAME NEMA 1- FOR INTERIOR ——FUSE SIZE ( \* DENOTES AS PER MANUFACTURER) LIGHTING CONTROL TIME CLOCK PHOTOCELL, MOUNTED ON ROOF FACING NORTH SHUNT-TRIP BUTTON - FLUSH MOUNTED UNLESS OTHERWISE NOTED PLUG-IN STRIP WITH RECEPTACLES, 18" O.C. UNLESS OTHERWISE INDICATED CABLE TRAY GROUND OR GROUND ROD AS NOTED CONDUIT TURNING UP CONDUIT TURNING DOWN CONDUIT STUB CONDUIT CONTINUED NOTE: SOME SYMBOLS SHOWN ON THIS LEGEND MAY NOT PERTAIN TO THIS PROJECT.



NOTE: SOME SYMBOLS SHOWN ON THIS LEGEND MAY NOT PERTAIN TO THIS PROJECT.

<u>electrical index</u>										
	DRAWING	$\triangle$								
1	E-100 ELECTRICAL INDEX, SYMBOL LEGEND AND NOTES.									
2	E-101 PROPOSED FLOOR PLAN - POWER									
3	E-102 PROPOSED FLOOR PLAN - LIGHTING									
4	E-103 PARTIAL RISER DIAGRAM AND PANEL SCHEDULES									
5										
6										
SHOP DRAWING REQUIREMENTS										
1. CONTRACTOR SHALL SUBMIT 6 COPIES OF COMPLETED SHOP DRAWINGS, TOGETHER AT ONE TIME AND MUST COME THROUGH THE ARCHITECT. ALL SUBMITTALS SHALL BE MADE WITHIN 30 DAYS OF NOTICE TO PROCEED.										
	. ALL SUBMITTALS MUST CLEARLY INDICATE EXACTLY WHICH ITEMS ARE BEING PROPOSED FOR USE. IF NOT, THE SUBMITTAL SHALL BE REJECTED.									
	3. SUBSTITUTIONS SHALL BE LIMITED TO ONE OF THE ALTERNATES LISTED IN THE CONSTRUCTION DOCUMENTS. PRODUCTS CONSIDERED TO BE EQUAL SHALL BE REVIEWED AND ACCEPTED BY THE ENGINEER, ARCHITECT AND OWNER (10) DAYS PRIOR TO BID DATE.									
	4. THE CONTRACTOR ASSUMES ALL DESIGN RESPONSIBILITY AND ALL FINANCIAL RISKS FOR PROCEEDING PRIOR TO SHOP DRAWINGS PROCESSING, AND ON ANY ITEM OR WORK THAT IS AT VARIANCE TO THE CONSTRUCTION DOCUMENTS.									
	5. SHOP DRAWINGS AND SUBMITTALS FOR EACH ITEM SHALL BE REVIEWED NO MORE THAN TWICE. A THIRD SUBMITTAL ON AN ITEM MUST BE ACCOMPANIED BY A PURCHASE ORDER FROM THE CONTRACTOR OR IT SHALL BE REJECTED.									

- 6. CIRCUMSTANCES NECESSITATING A REVISION TO THE PERMITTED DOCUMENTS NOT PROCE NOT BE ACCEPTED. IF ACCEPTED IT MUST BE LEGIBLE, ACCURATE AND ACCOMPANIED B FROM THE CONTRACTOR. THE REVISION SHALL BE CHARGED TO THE CONTRACTOR AND
- SUBSTITUTIONS FROM THE BASE DESIGN OR VARIATIONS TO THE PERMITTED CONTRACT I FROM PROCESSED SHOP DRAWINGS OR NOT, THAT RESULT IN REQUIREMENTS IN LETTERS PERMIT CONTRACT DOCUMENT CHANGES MANDATED BY THE AUTHORITY HAVING JURISDICTION WILL NOT BE MADE BY THIS OFFICE UNLESS ACCOMPANIED BY A PURCHASE ORDER FROM THE CONTRACTOR, AND RELEASED ON A C.O.D. BASIS.
- · CONTRACTOR SHALL SUBMIT 5 COPIES OF EQUIPMENT LAYOUTS OF ALL ELECTRICAL SPACES, ROOMS, ETC. TO THE ENGINEER FOR APPROVAL PRIOR TO ORDERING EQUIPMENT OR INSTALLING CONDUITS, ETC. THE LAYOUTS SHALL CONSIST OF PLAN VIEWS AT A SCALE OF 1/2" = 1'0" AND ELEVATIONS FOR EACH SUCH SPACE OR ROOM, ETC.

## FIRE ALARM NOTES

- ALL NEW EQUIPMENT AND DEVICES SHALL BE U.L. LISTED FOR FIRE SERVICE AND SHALL BE COMPATIBLE WITH THE EXISTING SYSTEM IN USE
- ALL WIRING AND CONDUIT TO CONFORM TO N.F.P.A. 72 (2010 EDITION) AND N.F.P.A. 70 (2011 EDITION) ARTICLE 760. WIRING SHALL BE SOLID COPPER OR STRANDED COPPER WITH A MAX. OF 7 STRANDS FOR 16 GA AND 18 GA, STRANDED COPPER WITH A MAX.OF 19 STRANDS FOR SIZES 14 AND LARGER PER N.F.P.A. 70 ARTICLE 760
- ALL FIRE STOP PENETRATIONS SHALL BE MADE WITH APPROVED (NEC) METALLIC CONDUIT AND SHALL BE SEALED WITH A U.L. APPROVED FIRE STOP MATERIAL. (SEE FIRE STOP DETAIL)
- I. COLOR CODING MAY NOT APPLY TO EXISTING SYSTEMS. LABEL EXISTING WIRING ACCORDINGLY. 5. A GENERAL ALARM SHALL BE ANNUNCIATED UPON ACTIVATION OF ANY PULL STATION, FLOW SWITCH
- OR DETECTION DEVICE. 6. A TROUBLE SIGNAL SHALL BE ANNUNCIATED UPON FAILURE OR REMOVAL OF ANY DETECTION OR
- MANUAL DEVICE. A SUPERVISORY SIGNAL SHALL BE ANNUNCIATED UPON ACTIVATION OF ANY FIRE SPRINKLER SYSTEM
- TAMPER SWITCH.
- . HVAC DUCT SMOKE DETECTORS SHALL BE CONNECTED TO THE FIRE ALARM CONTROL PANEL AND SHALL INITIATE A SUPERVISORY SIGNAL ONLY.
- 9. ALL FIRE ALARM SYSTEM DEVICES INSTALLED FOR THIS SPECIFIC PROJECT SHALL BE U.L. CERTIFIED. 10. ALL FIRE ALARM INITIATING DEVICES SHALL BE ADDRESSABLE
- 11. PROVIDE CERTIFICATE OF COMPLETION AT THE FINAL INSPECTION OF THE FIRE ALARM
- SYSTEM FIRE ALARM CONTRACTOR SHALL PROVIDE A DETAILED SET OF SHOP DRAWINGS (INCLUDING DEVICE CUT SHEETS). A COMPLETE POINT TO POINT WIRING DIAGRAM, FLOOR PLAN DRAWINGS INDICATING ALL DEVICE LOCATIONS AND NUMBERS, COMPLETE BATTERY CALCULATIONS AND COMPLETE NOTIFICATION APPLIANCE CIRCUIT CALCULATIONS (FOR THE SYSTEM TO BE INSTALLED) TO THE BUILDING DEPARTMENT (AUTHORITY HAVING
- JURISDICTION) AT THE TIME OF APPLICATION FOR BUILDING PERMIT. 13. PROVIDE THE OWNER WITH A COMPLETE FIRE ALARM SYSTEM AND INSTALLATION MANUAL COVERING MANUAL COVERING ALL SYSTEM EQUIPMENT INSTALLED FOR THIS PROJECT. KEEP AT THE MAIN FIRE ALARM CONTROL PANEL.

ONE TIME AND MUST COME CE TO PROCEED.  FOR USE. IF NOT, THE SUBMITTAL  UCTION DOCUMENTS. PRODUCTS		AN INSTRUMENT OF PROFESSIONAL SERVICES, IS THE PROPERTY OF RUSSE	AWSON FL, INC., AND MAY NOT E IN WHOLE OR IN PART, FOR ANY	RECOJECT OF BY ANY OTHER PERPORTION OTHER THAN THAT  O HEREON WITHOUT THE WRITTED  PROFILE AND DAWN	AUTHORIZATION OF ROSSELL AND DAW FI, INC. ANY SUCH UNAUTHORIZED US WILL BE SOLELY ATTHE USER'S RISK AT RUSSELL AND DAWSON FI, INC. WILL BI NO RESPONSIBILITY ARISING OUT OF SI
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