











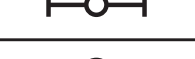















































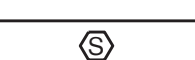

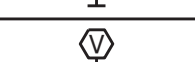












ELECTRICAL LEGEND			
	FLUORESCENT TROFFER, TYPE AS NOTED		DUPLEX RECEPTACLE 18" AFF OR AS NOTED, NEMA 5-20R
	FLUORESCENT TROFFER, TYPE AS NOTED PROVIDE WITH EMERGENCY BALLAST		WEATHER PROOF DUPLEX RECEPTACLE 18" AFF OR AS NOTED, NEMA 5-20R
	FLUORESCENT TROFFER, TYPE AS NOTED PROVIDE WITH EMERGENCY BALLAST		DUPLEX RECEPTACLE ABOVE COUNTER OR AS NOTED, NEMA 5-20R
	FLUORESCENT TROFFER, TYPE AS NOTED PROVIDE WITH EMERGENCY BALLAST		QUAD RECEPTACLE 18" AFF OR AS NOTED, NEMA 5-20R
	RECESSED CAN FIXTURE, TYPE AS NOTED		DUPLEX RECEPTACLE 18" AFF OR AS NOTED, NEMA 5-20R
	RECESSED CAN FIXTURE, TYPE AS NOTED PROVIDE WITH EMERGENCY BALLAST		SPECIAL PURPOSE RECEPTACLE 18" AFF OR AS NOTED, SEE SCHEDULE
	FLUORESCENT STRIP FIXTURE		WALL / CEILING MOUNTED JUNCTION BOX
	WALL MOUNTED FIXTURE, TYPE AS NOTED		60/3/1 UNFUSED DISCONNECT SWITCH RATING/POLES/NEMA RATING
	PENDANT FIXTURE, TYPE AS NOTED		60/3/3R/40 FUSED DISCONNECT SWITCH RATING/POLES/NEMA RATING/FUSE SIZE
	PENDANT FIXTURE, TYPE AS NOTED PROVIDE WITH EMERGENCY BALLAST		MOTOR
	TRACK LIGHT FIXTURE, TYPE AS NOTED		GROUND
	EMERGENCY LIGHT		TRANSFORMER
	EXIT/EMERGENCY LIGHT COMBINATION		UTILITY GRADE METER
	CEILING MOUNTED EXIT SIGN		TRANSIENT VOLTAGE SURGE SUPPRESSOR
	WALL MOUNTED EXIT SIGN		TELEPHONE OUTLET, PROVIDE 4" BOX SINGLE GANG PLASTER RING, 3/4" C ABOVE CEILING
	SINGLE POLE SWITCH, 44" AFF		DATA OUTLET, PROVIDE 4" BOX SINGLE GANG PLASTER RING, 3/4" C ABOVE CEILING
	TWO SINGLE POLE SWITCHES GANGED TOGETHER FOR INNER/OUTER CONTROL OF LAMPS, 44" AFF		TELEVISION/CABLE OUTLET
	THREE SINGLE POLE SWITCHES GANGED TOGETHER 44" AFF		TELEPHONE OUTLET, PROVIDE 4" BOX FLUSH IN FLOOR, 3/4" C ABOVE CEILING
	THREE WAY SWITCH, 44" AFF		DATA OUTLET, PROVIDE 4" BOX FLUSH IN FLOOR, 3/4" C ABOVE CEILING
	TWO THREE WAY SWITCHES GANGED TOGETHER FOR INNER/OUTER CONTROL OF LAMPS, 44" AFF		DOOR HOLD-OPEN DEVICE
	FOUR WAY SWITCH, 44" AFF		TRANSFORMER, SEE ONE LINE
	WALL BOX DIMMER 1000W UNLESS NOTED DIFFERENTLY 44" AFF		SPEAKER STROBE
	WEATHER PROOF SWITCH, 44" AFF		HORN
	MOTOR RATED SWITCH, 44" AFF OR AS NOTED		PULL STATION
	COMBINATION SWITCH AND OCCUPANCY SENSOR, 44" AFF		FIRE ALARM STROBE, MIN 75 CANDELA CEILING / WALL MOUNT
	DIGITAL TIMER SWITCH, 44" AFF		DUCT MOUNTED SMOKE DETECTOR
	CEILING MOUNTED OCCUPANCY SENSOR		SMOKE DETECTOR
	WALL MOUNTED OCCUPANCY SENSOR, 44" AFF		HEAT DETECTOR
	TIME CLOCK		TAMPER SWITCH
	LIGHTING CONTACTOR		FLOW SWITCH
	PHOTO CELL		RACEWAY CONCEALED IN WALL OR ABOVE CEILING
	8" CONE SPEAKER IN CEILING EC TO PROVIDE BLACK SPEAKER		RACEWAY EXPOSED
	8" CONE SPEAKER IN WALL EC TO PROVIDE BLACK SPEAKER		RACEWAY CONCEALED IN FLOOR SLAB, BELOW SLAB OR GRADE BELOW SLAB OR GRADE, OR UNDER RAISED ACCESS FLOOR
	VOLUME CONTROL		DENOTES CONDUIT TURNING UP IN PLAN VIEW
	PLYWOOD EQUIPMENT BACKBOARD 4'X8' UNLESS NOTED OTHERWISE		DENOTES CONDUIT TURNING DOWN IN PLAN VIEW
	CLOSED CIRCUIT TELEVISION CAMERA		STUB UP
			SHORT CIRCUIT AVAILABLE CURRENT

(NOTE: ALL SYMBOLS SHOWN MAY NOT APPEAR ON DRAWINGS AND ARE USED AS APPLICABLE TO THIS PROJECT)

ABBREVIATIONS

A, AMPS	AMPERES	FLA	FULL LOAD AMPERES	NO	NORMALLY OPEN, NUMBER
A/C	AIR CONDITIONER	GND	GROUND	NTS	NOT TO SCALE
AC	ALTERNATING CURRENT	GALV	GALVANIZED	PNL	PANELBOARD
AF	AMPERE FRAME	GRS	GALVANIZED RIGID STEEL	PVC	POLYVINYL CHLORIDE
AFF	ABOVE FINISHED FLOOR	GFCI	GROUND FAULT CIRCUIT INTERRUPTER	RGS	RIGID GALVANIZED
AFG	ABOVE FINISHED GRADE	GFI	GROUND FAULT INTERRUPTER	RMC	RIGID CONDUIT
AIC	AMPERE INTERRUPTING CURRENT	HD	HEAT DETECTOR	RMD	RIGID METALLIC CONDUIT (GALVANIZED)
AL	ALUMINUM	HP	HORSEPOWER	RMS	ROOT-MEAN-SQUARE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	IMC	INTERMEDIATE METAL CONDUIT	RNC	RIGID NON-METALLIC CONDUIT
AWG	AMERICAN WIRE GAUGE	ISC	INTERRUPTING SHORT CIRCUIT	SCA	SHORT CIRCUIT AVAILABLE
BC	BARE COPPER	IC	ISOLATED GROUND	SCB	SHORT CIRCUIT BOARD
BKBD	BACKBOARD	INST	INSTANTANEOUS	SWBD	SWITCHBOARD
C	CONDUIT	JB	JUNCTION BOX	SWGR	SWITCHGEAR
CB	CIRCUIT BREAKER	KAIC	KILO (THOUSAND) AMPERES	TBD	TO BE DETERMINED
CKT	CIRCUIT	KCMIL	KILO (THOUSAND) CIRCULAR MILS	TCP	TEMPERATURE CONTROL PANEL
CU	COPPER	KV	KILO (THOUSAND) VOLTS	TD	TIME DELAY
DIST	DISTRIBUTION	KVA	KILO (THOUSAND) VOLTS-AMPERES	TEL	TELEPHONE
DN	DOWN	KW	KILO (THOUSAND) WATTS	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
DP	DISTRIBUTION PANEL	KWH	KILO (THOUSAND) WATT-HOURS	TYP	TYPICAL
DWG	DRAWING	LFMC	LIQUID-TIGHT FLEXIBLE METAL CONDUIT	UG	UNDERGROUND
EB	ENCASED BURIAL	MCB	MAIN CIRCUIT BREAKER	UON	UNLESS OTHERWISE UNDERGROUND PULLBOX
EC	EMPTY CONDUIT	MCM	THOUSAND CIRCULAR MILS	V	VOLTS
EEW	ENERGIZED ELECTRICAL WORK	MCCB	MOLDED CASE CIRCUIT BREAKER	VA	VOLT-AMPERES
EGG	EQUIPMENT GROUNDING CONDUCTOR	MLO	MAIN LUGS ONLY	VFD	VARIABLE FREQUENCY DRIVE
ELR	END-OF-LINE RESISTOR	N	NEUTRAL	WH	WATER HEATER
EMC	ELECTRIC WATER COOLER	NEC	NATIONAL ELECTRICAL CODE	WP	WEATHERPROOF
<E>	EXISTING	NEC	NATIONAL ELECTRICAL CODE	WT	WATERTIGHT
<ER>	EXISTING TO REMAIN	NEC	NATIONAL ELECTRICAL CODE	XFMR	TRANSFORMER
<EX>	EXISTING	NEC	NATIONAL ELECTRICAL CODE		
FA	FIRE ALARM	NEC	NATIONAL ELECTRICAL CODE		
FAA	FIRE ALARM ANNUNCIATOR	NEC	NATIONAL ELECTRICAL CODE		
FACP	FIRE ALARM CONTROL PANEL	NEC	NATIONAL ELECTRICAL CODE		

ELECTRICAL SPECIFICATIONS

A. DEFINITIONS:

- "PROVIDE": FURNISH AND INSTALL, COMPLETE AND READY FOR OPERATION.
 - "INSTALL": RECEIVE, MOUNT, AND CONNECT, COMPLETE AND READY FOR OPERATION.
 - "FURNISH": SUPPLY, DELIVER TO JOB SITE, PROTECT AND STORE.
- B. WORK INCLUDED: PROVIDE ALL LABOR, TOOLS, MATERIAL, EXCAVATION, BACKFILL, CUTTING, PATCHING, TESTING, ADJUSTING, AND TRADE COORDINATION REQUIRED FOR A COMPLETE AND FULLY OPERATIONAL INSTALLATION, AS DESCRIBED ON THE DRAWINGS OR IN THE SPECIFICATIONS.
- C. CODES, RULES, AND REGULATIONS: COMPLY WITH ALL CODES ENFORCED BY THE LOCAL INSPECTION AUTHORITY, THE EDITION OF THE NATIONAL ELECTRICAL CODE BEING ENFORCED FOR THIS PROJECT BY THE LOCAL INSPECTION AUTHORITY, ALL APPLICABLE LAWS AND ORDINANCE, NFPA FIRE CODES, STANDARD BUILDING CODE, GIVE ALL NECESSARY NOTICES, OBTAIN ALL REQUIRED PERMITS, AND PAY ALL INSPECTION AND OTHER FEES REQUIRED BY AUTHORITIES HAVING JURISDICTION OVER THE WORK.
- D. MATERIALS: ALL MATERIAL SHALL BE NEW, AND SHALL COMPLY WITH THE INDICATED STANDARDS. ALL MATERIAL SHALL BE U/L LABELED OR U/L LISTED. ALL MATERIAL SHALL BE OF A SUITABLE TYPE AND RATING FOR THE INTENDED USE, AND SHALL BE INSTALLED IN CONFORMANCE WITH THE INSTRUCTIONS AND RECOMMENDATIONS OF THE MANUFACTURER.
- E. DRAWINGS
- THE DRAWINGS ARE SCHEMATIC IN NATURE AND DO NOT SHOW ALL OF THE REQUIRED DETAILS OF THE WORK. ALL MATERIALS CUSTOMARILY CONSIDERED TO BE A PART OF THE ELECTRICAL WORK AND REQUIRED FOR A COMPLETE AND OPERATIONAL INSTALLATION SHALL BE PROVIDED WITHOUT ADDITIONAL COST TO THE OWNER. THE CONTRACTOR SHALL REFER ALSO TO THE ARCHITECTURAL DRAWINGS AND TO THE DRAWINGS OF ALL OTHER TRADES TO COORDINATE THE ELECTRICAL INSTALLATION. WHERE ELECTRICAL EQUIPMENT IS SHOWN ON ARCHITECTURAL DRAWINGS OR DETAILS, THE EQUIPMENT SHALL BE INSTALLED AS SHOWN ON THE ARCHITECTURAL DRAWINGS.
 - EQUIPMENT OF OTHER TRADES IS SHOWN SCHEMATICALLY ON THE ELECTRICAL DRAWINGS. THE CONTRACTOR SHALL EXAMINE THE DRAWINGS OF THE TRADE PROVIDING THE EQUIPMENT BEFORE ROUGHING IN THE CONNECTIONS FOR IT. THE CONTRACTOR SHALL CONNECT THE EQUIPMENT WHERE ACTUALLY INSTALLED, INCLUDING WIRING THROUGH ANY LINE VOLTAGE CONTROLLERS, WITHOUT ANY ADDITIONAL COST TO THE OWNER.
 - PRIOR TO ROUGHING IN CIRCUITS FOR EQUIPMENT FURNISHED BY OTHER TRADES, AND PRIOR TO RELEASING FOR MANUFACTURE PANELBOARDS, STARTERS OR MOTOR CONTROL CENTERS FEEDING SUCH EQUIPMENT, THE CONTRACTOR SHALL COORDINATE THE ELECTRICAL PROVISIONS BEING PLANNED WITH THE TRADE PROVIDING THE EQUIPMENT AND SUBMIT ANY CONFLICTS IN WRITING TO THE ARCHITECT.
 - THE ARCHITECT MAY DIRECT THE RELOCATION OF ANY ELECTRICAL OUTLET, FIXTURE, OR OTHER EQUIPMENT TO A LOCATION WITHIN 10 FEET OF THE LOCATION SHOWN ON THE DRAWINGS AT NO ADDITIONAL COST TO THE OWNER PROVIDED SUCH RELOCATION IS DIRECTED PRIOR TO THE INSTALLATION OF THE OUTLET, FIXTURE OR EQUIPMENT BEING RELOCATED.
- D. SUBMITTAL DOCUMENTS: PRODUCT DATA AND SHOP DRAWINGS SHALL BE SUBMITTED IN SIX COPIES TO THE ARCHITECT FOR REVIEW PRIOR TO THE RELEASE OF THE MATERIAL FOR MANUFACTURE. REVIEW OF SUBMITTALS BY THE ARCHITECT WILL BE ONLY FOR GENERAL CONFORMANCE WITH THE DRAWINGS AND SPECIFICATIONS. REVIEW WILL BE MADE ONLY OF INFORMATION CLEARLY AND SPECIFICALLY INDICATED IN THE SUBMITTAL, AND DOES NOT IMPLY THE ACCEPTABILITY OF DETAILS WHICH ARE NOT SO DESCRIBED IN THE SUBMITTAL. REVIEW OF THE SUBMITTAL DOCUMENTS BY THE ARCHITECT DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO COMPLY WITH ALL REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS. SUBMITTAL IS REQUIRED FOR PANELBOARDS AND LOADCENTERS, LIGHT FIXTURES, WIRING DEVICES, FIRE ALARM DEVICES, AND SURFACE ALUMINUM RACEWAY.
- G. AS-BUILT DRAWINGS: AS-BUILT DRAWINGS SHALL BE MAINTAINED AT THE JOBSITE, AND SHALL BE AVAILABLE FOR REVIEW DURING CONSTRUCTION. AS-BUILT DRAWINGS SHALL BE KEPT CURRENT DURING THE COURSE OF CONSTRUCTION OF THE WORK. SUBMIT AS-BUILT DRAWINGS TO THE ARCHITECT AT THE COMPLETION OF THE PROJECT.
- H. TESTING: TEST ALL PARTS OF THE WORK TO VERIFY COMPLIANCE WITH THE DRAWINGS AND SPECIFICATIONS. VERIFY TIGHTNESS OF ALL MECHANICAL AND ELECTRICAL CONNECTIONS, VERIFY INTEGRITY OF ALL WIRING SYSTEMS TO ASSURE CONTINUITY, ABSENCE OF UNINTENTIONAL GROUNDS, AND INTEGRITY OF REQUIRED GROUNDS.
- I. CHANGE REQUEST (CHANGE ORDER) APPROVAL: CHANGE REQUESTS WILL NOT BE CONSIDERED UNLESS THE CONTRACTOR'S DETAILED LABOR AND MATERIAL ESTIMATE DESCRIBING THE CHANGE IS SUBMITTED TO THE ARCHITECT ALONG WITH THE CHANGE REQUEST, WITH MATERIAL PRICES AND LABOR UNITS ASSIGNED TO EACH LINE ITEM OF THE ESTIMATE. MATERIAL PRICES SHALL BE THE ACTUAL PRICE PAID BY THE CONTRACTOR FOR MATERIAL PURCHASED OR THE ACTUAL PRICE QUOTED TO THE CONTRACTOR BY THE MATERIAL VENDOR PROPOSED BY THE CONTRACTOR.
- J. COORDINATION WITH THE WORK OF OTHERS: COORDINATE WITH EACH TRADE FURNISHING EQUIPMENT REQUIRING ELECTRICAL SERVICE TO INSURE THAT THE CHARACTERISTICS SHOWN ON THE DRAWINGS FOR THE CIRCUIT SERVING THE EQUIPMENT ARE COMPATIBLE WITH THE REQUIREMENTS OF THE EQUIPMENT BEING FURNISHED. CIRCUIT BREAKERS, FUSES, DISCONNECT SWITCHES AND ASSOCIATED BRANCH CIRCUITS SHOWN ON THE DRAWINGS TO FEED HVAC EQUIPMENT, KITCHEN EQUIPMENT, ELEVATOR MOTORS, AND OTHER EQUIPMENT HAVE BEEN SELECTED BASED UPON THE CHARACTERISTICS OF EQUIPMENT BY ONE MANUFACTURER AND MAY NOT BE CORRECT FOR THE EQUIPMENT BEING PROVIDED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE THE OPERATING CHARACTERISTICS OF THE EQUIPMENT ACTUALLY BEING PROVIDED AND SHALL PROVIDE AT NO ADDITIONAL COST TO THE OWNER CIRCUIT BREAKERS, FUSES, DISCONNECT SWITCHES AND BRANCH CIRCUITS AS REQUIRED BY THAT EQUIPMENT.
- K. EXISTING WORK: THE EXISTING ELECTRICAL INSTALLATION SHALL REMAIN AS-IS AND IN OPERATION EXCEPT WHERE OTHERWISE REQUIRED. GIVE WRITTEN NOTICE OF ANY UNFORESEEN EXISTING CONDITIONS WHICH MAY AFFECT THE WORK. WORK INVOLVING EXISTING SYSTEMS OR EXISTING SPACES SHALL BE ACCOMPLISHED WITH MINIMUM INCONVENIENCE TO THE OWNER, AND SHALL BE DONE IN A MANNER AND TIME APPROVED BY THE OWNER. ANY INTERRUPTIONS SHALL BE DURING TIMES DESIGNATED BY THE OWNER.
- L. DEMOLITION: IN THE AREA SHOWN ON THE ARCHITECTURAL DRAWINGS TO BE DEMOLISHED REMOVE ALL EXISTING CONDUITS, CONDUCTORS, BOXES, FIXTURES, SERVICE ENTRANCE CONDUCTORS, DISTRIBUTION EQUIPMENT, AND ALL OTHER ELECTRICAL EQUIPMENT NOT SHOWN TO REMAIN, UNLESS OTHERWISE INDICATED. MATERIAL BEING REMOVED INCLUDING WIRE, CONDUIT, AND HANGING MATERIALS BEING REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE PREMISES. EQUIPMENT NOTED TO REMAIN THE PROPERTY OF THE OWNER SHALL BE STORED ON SITE AS DIRECTED BY THE ARCHITECT. COORDINATE WITH OTHER TRADES AND DISCONNECT MOTORS, HEATERS, OR OTHER EQUIPMENT AS REQUIRED FOR THE DEMOLITION OF OTHER TRADES WORK. CUT OFF ALL IN FLOOR CONDUITS, GRIND SMOOTH WITH FLOOR AND PREPARE FOR PATCHING BY OTHERS. REMOVE CONDUCTORS AND DEVICES FROM WALL AND CEILING OUTLETS AND PREPARE OUTLET FOR PATCHING BY OTHERS. CONTRACTOR SHALL DENOTE ALL DEMOLISHED CIRCUITS ON EXISTING PANEL DIRECTORIES AND NOTE ALL SPARE BREAKERS.

M. BASIC MATERIALS AND METHODS:

- ALL WORK SHALL BE SUPPORTED FROM STRUCTURAL ELEMENTS OF THE BUILDING, EXCEPT CEILING MOUNTED EQUIPMENT SUCH AS LIGHT FIXTURES, DETECTORS, REMOTE LAMPS, ETC. CEILING MOUNTED EQUIPMENT SHALL BE SUPPORTED FROM CEILING STRUCTURAL MEMBERS, INDEPENDENT OF CEILING TILES. SIZE AND SPACING OF SUPPORTS SHALL BE DETERMINED BY THE LOAD TO BE SUPPORTED SUCH THAT THE WORKING LOAD OF SUPPORTS WILL NOT EXCEED A SAFETY FACTOR OF 4:1. PLASTIC ANCHORS ARE NOT ACCEPTABLE. ELECTRICAL WORK SHALL NOT BE SUPPORTED FROM PIPING, DUCTS, OR WORK OF OTHER TRADES.
- PROVIDE ENGRAVED PLASTIC NAMEPLATES FOR ALL SWITCHBOARDS, PANELBOARDS, MOTOR CONTROL CENTERS, STARTERS, DISCONNECTS, PRIMARY SELECTOR SWITCHES, AND TRANSFORMERS. INDICATE EQUIPMENT NAME, CIRCUIT SOURCE AND NUMBER, CIRCUIT SIZE, AMPERE RATING, VOLTAGE AND PHASE. NAMEPLATES SHALL BE BLACK MICARTA WITH 0.25" WHITE LETTERS.

- ALL PENETRATIONS OF FIRE RATED WALLS, SLABS, PARTITIONS, AND CEILINGS SHALL BE FIREPROOFED WITH A U/L LISTED SYSTEM THAT WILL MAINTAIN THE ORIGINAL FIRE RATING OF THE PENETRATED STRUCTURE. ALL FIREPROOFING MATERIALS APPLIED AT ANY ONE PENETRATION SHALL BE THE PRODUCT OF ONE MANUFACTURER AND SHALL BE APPLIED AS DESCRIBED BY THE U/L FIREPROOFING SYSTEM BEING CONSTRUCTED. FIREPROOFING OF SLEEVES, CABLE TRAYS, TROUGH, AND NIPPLES TO BE USED FOR LOW VOLTAGE CABLES SHALL BE INDEFINITELY NON-HARDENING AND REMOVABLE WITH COMMON HAND TOOLS. BACKBOARDS SHALL BE 8 FT. HIGH BY LENGTH SHOWN ON THE DRAWINGS AND SHALL BE U/L LABELED FIRE TREATED PLYWOOD.
 - PROVIDE ALL POWER WIRING AND CONNECTIONS FOR ALL ELECTRICALLY OPERATED EQUIPMENT. POWER WIRING INCLUDES WIRING THROUGH ANY LINE VOLTAGE CONTROL DEVICES, SUCH AS THERMOSTATS AND MANUAL STARTERS. INSTALL ALL STARTERS AND CONTACTORS EXCEPT THOSE FURNISHED AS AN INTEGRAL PART OF THE EQUIPMENT.
 - CONNECTIONS TO MOTORS, TRANSFORMERS, AND OTHER VIBRATING EQUIPMENT NOT INSTALLED IN A PLENUM SPACE SHALL BE MADE WITH A SHORT LENGTH OF LIQUIDTIGHT FLEXIBLE CONDUIT, MINIMUM 18", INSTALLED IN A MANNER TO PERMIT MOVEMENT OF EQUIPMENT.
 - PERFORM ALL EXCAVATING, BACKFILLING, CUTTING AND REPAIRING REQUIRED FOR INSTALLATION OF ELECTRICAL WORK.
 - CONTRACTOR SHALL X-RAY FLOOR SLABS PRIOR TO ALL CORE DRILLINGS.
- N. CONDUIT: FEEDERS AND BRANCH CIRCUIT HOME RUNS SHALL BE CONSTRUCTED OF EMT WITH ALL STEEL SET-SCREW FITTINGS. CONNECTORS SHALL BE INSULATED THROAT TYPE. PROVIDE METALLIC BUSHINGS WITH PLASTIC INSERTS FOR 3" OR LARGER. CONDUITS FEEDING OR CONNECTING TO EQUIPMENT PROVIDED BY OTHER TRADES SHALL NOT BE INSTALLED UNTIL SUCH EQUIPMENT IS INSTALLED OR UNTIL SPECIFIC ROUGH-IN INSTRUCTIONS ARE PROVIDED BY THE TRADE PROVIDING THE EQUIPMENT. UNLESS OTHERWISE INDICATED, CONDUITS SHALL BE CONCEALED. RACEWAYS INSTALLED IN OR UNDER SLABS, ON GRADE, OR AS EXTERIOR DUCT BANKS SHALL BE PVC COATED RMC. RUN EXPOSED CONDUITS PARALLEL OR PERPENDICULAR TO STRUCTURAL ELEMENTS. TWO OR MORE RACEWAYS RUN TOGETHER SHALL BE INSTALLED ON GANG TRAPEZOID TYPE HANGERS. SUCH RACEWAYS ASSEMBLIES SHALL BE RUN PARALLEL OR PERPENDICULAR TO STRUCTURAL ELEMENTS. CONDUITS EMBEDDED IN SLABS SHALL HAVE A MINIMUM OF 1" COVER OF CONCRETE ON ALL SIDES. OUTSIDE DIAMETER OF CONDUIT SHALL NOT EXCEED 1/3 OF THE SLAB THICKNESS, AND SHALL NOT BE LARGER THAN 1 1/4". PROVIDE 0.25" NYLON PULL TAPE IN ALL EMPTY CONDUITS. BRANCH CIRCUITS MAY UTILIZE TYPE MC ARMORED CABLE ASSEMBLY WITH COPPER CONDUCTORS AND FULL SIZE EQUIPMENT GROUNDING CONDUCTORS FOR INDIVIDUAL DROPS TO DEVICES. TYPE MC CABLE SHALL BE SUPPORTED A 48" INTERVALS AND SHALL NOT LAY ON THE CEILING GRID OR INTERFERE WITH THE REMOVAL OF CEILING SIZE EQUIPMENT GROUNDING CONDUCTORS.
- O. CONDUCTORS: ALL BUILDING WIRE SHALL BE 600 VOLT RATED THHN OR THWN COPPER, STRANDED FOR SIZES #8AWG AND LARGER, SOLID FOR SIZES 10 AND SMALLER UNLESS APPLIED FOR CONTROL. ALL BUILDING WIRE AND SPECIAL CABLES FOR SYSTEMS SHALL BE INSTALLED IN A RACEWAY. ALL WIRE AND CABLE SHALL BE DELIVERED TO THE JOBSITE IN ORIGINAL UNBROKEN PACKAGES, CARTONS OR REELS, WITH THE MANUFACTURERS NAME, U/L LABEL, AND CHARACTERISTICS OF THE PRODUCT PLAINLY VISIBLE. ALL WIRE AND CABLE SHALL BE MANUFACTURED IN THE UNITED STATES OF AMERICA. WIRES SHALL BE COLOR CODED AS FOLLOWS (A,B,C,N,G): 120/208-BLACK, RED, BLUE, WHITE, GREEN, 480/277 - BROWN, ORANGE, YELLOW, GRAY, GREEN. SPLICES SHALL BE COMPRESSION TYPE. CONTROL CONDUCTORS SHALL BE TERMINATED WITH INSULATED CONNECTORS, T&B STAKON. 120 VOLT CIRCUITS WITH HOMERUN LENGTH OVER 100 FEET AND 277 VOLT CIRCUITS WITH A HOMERUN LENGTH OVER 200 FEET SHALL HAVE #10 MINIMUM HOMERUN CONDUCTORS. ALL THREE PHASE BRANCH CIRCUITS WITH A COMMON NEUTRAL SHALL HAVE #10 MINIMUM NEUTRAL.
- P. BOXES: OUTLET BOXES SHALL BE SHEET STEEL, MINIMUM 4" SQUARE, MINIMUM 1.5" DEEP, WITH PLASTER RING IN PLASTER OR BRICK CONSTRUCTION. OUTLETS BOXES IN POURED CONCRETE SHALL BE CONCRETE RINGS. MASONRY BOXES SHALL BE USED IN MASONRY OR TILE CONSTRUCTION. OUTLET BOXES FOR SURFACE ALUMINUM RACEWAY SHALL BE 4-11/16" WITH PLASTER RINGS ORIENTED HORIZONTALLY. BOXES SHALL BE SECURELY ANCHORED IN PLACE. AND SHALL BE SUPPORTED INDEPENDENT OF THE RACEWAY SYSTEM. PULL BOXES SHALL BE GALVANIZED SHEET STEEL, MINIMUM 12 GAUGE, WITH SCREW COVERS, AND WELDED CONSTRUCTION. WELDS SHALL BE COLD GALVANIZED. USING PERMANENT WATER PROOF WIDE BLACK MARKER, CLEARLY LABEL COVER OF ALL BRANCH CIRCUIT JUNCTION AND PULL BOXES WITH PANEL AND CIRCUIT NUMBER OF CIRCUITS CONTAINED IN OR PASSING THROUGH THE BOX. BRANCH CIRCUIT AND FEEDER JUNCTION AND PULL BOXES USED WITH EMERGENCY FEEDERS AND CIRCUITS SHALL BE PAINTED RED. PROVIDE ENGRAVED LAMINATED PLASTIC LABEL ON COVER OF EACH FEEDER PULL OR JUNCTION BOX INDICATING FEEDER DESIGNATION, SOURCE, LOAD, AND VOLTAGE.
- Q. WIRING DEVICES: SWITCHES FOR LIGHTING CIRCUITS SHALL BE 120/277 VOLT, 20 AMP, A.C. ONLY. QUIET TYPE, WITH GROUND BONDING SCREW, SPECIFICATION GRADE. MOMENTARY CONTACT SWITCHES SHALL BE SINGLE POLE DOUBLE THROW, CENTER OFF GE #5935 OR EQUAL. DUPLEX RECEPTACLES SHALL BE 15 AMP HUBBELL 5262 OR EQUAL. DEDICATED DUPLEX RECEPTACLES SHALL BE 20AMP HUBBELL IG5362 OR EQUAL. SPECIAL RECEPTACLES SHALL BE OF SIMILAR CONSTRUCTION. FACE PLATES SHALL BE SMOOTH NYLON OR THERMOSET PLASTIC. ADJACENT OUTLETS SHALL BE INSTALLED IN MULTI-GANG BOXES WITH A SINGLE MULTI-GANG FACE PLATE. RECEPTACLES CONNECTED TO AN EMERGENCY CIRCUIT SHALL BE RED. COORDINATE COLOR OF DEVICES AND FACEPLATE WITH ARCHITECT.
- R. GROUNDING: ALL FEEDERS AND BRANCH CIRCUITS SHALL BE PROVIDED WITH INSULATED GREEN EQUIPMENT GROUNDING CONDUCTOR.
- S. LIGHTING: SPARE FLUORESCENT LAMPS SHALL MATCH BUILDING STANDARD UNLESS NOTED OTHERWISE. INCANDESCENT LAMPS SHALL BE 130VOLT NEW BALLASTS SHALL BE SOLID STATE ELECTRONIC. EXIT FIXTURES SHALL MATCH BUILDING STANDARD. FIXTURE LOCATIONS SHALL BE AS SHOWN ON THE REFLECTED CEILING PLAN. PROVIDE LAY-IN FIXTURES WITH TWO REMOVABLE CLIPS ATTACHING FIXTURE TO CEILING GRID. FLANGED FIXTURES SHOWN TO BE INSTALLED IN CONTINUOUS ROWS SHALL NOT HAVE INTERMEDIATE FLANGES. ALL PENDANT FIXTURES SHALL BE MOUNTED TO STRUCTURE. SEISMIC SUPPORT WIRES AND/OR COMPRESSION STRUTS FOR LAY-IN FIXTURES SHALL BE SUBJECT TO LOCAL AHJ LATEST REQUIREMENTS.
- T. FIRE ALARM DEVICES: NEW FIRE ALARM DEVICES SHALL BE COMPATIBLE WITH EXISTING BUILDING ADDRESSABLE FIRE ALARM SYSTEM. INSTALL NEW DEVICES AND CONNECT TO NEAREST SIGNALING OR NOTIFICATION DEVICE CIRCUIT WITHIN THE AREA. CONTRACTOR SHALL VERIFY CIRCUIT HAS CAPACITY FOR ADDED LOAD. SYSTEM SHALL BE CERTIFIED BY FIRE ALARM VENDOR AFTER COMPLETION OF WORK.
- U. PANELBOARDS: DEAD FRONT PANEL CONSTRUCTION WITH SEPARATELY MOUNTED INTERIOR TRIM. MAIN AND BRANCH DEVICES SHALL BE BOLT-ON. MULT-POLE BREAKERS SHALL BE COMMON TRIP. WIDTH SHALL NOT EXCEED 22" FOR PANELBOARD AND ENCLOSURE SHALL MATCH BUILDING STANDARD. PROVIDE GROUND BUS IN PANELBOARD AND PROVIDE DEVICE MOUNTING HARDWARE WHERE A SPACE IS SCHEDULED. PANEL AND OCPD SHORT CIRCUIT RATINGS SHALL BE AT LEAST 10% GREATER THAN AVAILABLE SHORT CIRCUIT CURRENT AT PANELBOARD.
- V. DRY-TYPE TRANSFORMERS: TRANSFORMERS SHALL BE DRY-TYPE, ENCLOSED, SELF-COOLED, VENTILATED TYPE, DEAD-FRONT DRIP PROOF. PRIMARY AND SECONDARY TAPS SHALL BE ACCESSIBLE FROM THE FRONT. TRANSFORMERS SHALL MEET OR EXCEED BUILDING STANDARD TRANSFORMERS SPECIFICATIONS. PROVIDE AN EQUIPMENT GROUNDING CONDUCTOR IN THE PRIMARY FEED TO THE TRANSFORMER, SUPPLEMENTAL GROUND TO NEAREST ACCESSIBLE PRIMARY STRUCTURAL MEMBER OR EQUIPMENT ROOM GROUND BUS BAR. SIZE PER NEC AND RUN IN CONDUIT WITH BOND BUSHING AT EACH END. NEUTRAL AND GROUNDING CONDUCTOR SHALL BE BONDED TO ENCLOSURE.

WORKOUT ANYTIME

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09-09-15

Guido Inoa Alvarez

DATE	DESCRIPTION / UNLINED COMMENTS
5/28/2015	

PROJECT NO: _____
DRAWN BY: _____
CHECKED BY: _____
ISSUE DATE: 08-19-15 RELEASED FOR CONSTRUCTION

ELECTRICAL SPECIFICATIONS