

ELECTRICAL SYMBOLS LEGEND					
LIGHTING		POWER		SPECIAL SYSTEMS	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	LIGHT (SEE LIGHT FIXTURE SCHEDULE)		DUPLEX RECEPTACLE, 18" AFF		FIRE ALARM PULL BOX, 42" AFF
	EMERGENCY LIGHT		FOURPLEX RECEPTACLE, 18" AFF		FIRE ALARM STROBE, 90" AFF
	LIGHT 2X2 (SEE LIGHT FIXTURE SCHEDULE)		250V RECEPTACLE, 18" AFF		FIRE ALARM HORN/STROBE, 90" AFF
	RECESSED DOWNLIGHT		DUPLEX RECEPT., 1/2 SWITCH, 18" AFF		FA MAGNETIC DOOR HOLDER
	PENDANT		GND FLT INTERRUPT RECEPT., 18" AFF		FA FIRE/SMOKE DAMPER
	LIGHTING TRACK		WEATHER PROOF RECEPTACLE, 18" AFF		FA REMOTE INDICATOR
	CEILING SURFACE MOUNTED		SPECIAL RECEPTACLE		FLOW SWITCH
	LINEAR CEILING SURFACE MOUNTED		SINGLE SPECIAL		TAMPER SWITCH
	SCONCE		DUPLEX SPECIAL		GAS DETECTOR
	VANITY LIGHT		SIMPLEX RECEPTACLE		HEAT DETECTOR
	STRIP LIGHT		CEILING MOUNTED DUPLEX RECEPTACLE		SMOKE DETECTOR
	UNDER CABINET		FLOOR MOUNTED DUPLEX RECEPTACLE		CEILING SPEAKER
	OUTDOOR POLE MOUNTED		CLOCK OUTLET		WALL MOUNTED SPEAKER, 90" AFF
	OUTDOOR SCONCE		SURFACE MOUNTED PLUG RACEWAY		SPEAKER VOLUME CONTROL, 42" AFF
	OUTDOOR WALL PACK		DISCONNECT SWITCH		TELEVISION OUTLET
	EMERGENCY EXIT		THERMAL OVERLOAD SWITCH		SECURITY DIGITAL KEY PAD
	EMERGENCY EGRESS, 90" AFF		MOTOR OR EXHAUST FAN		SECURITY INFRARED MOTION SENSOR
	CEILING FAN		PULL BOX		SECURITY DOOR CONTACTS
	SINGLE POLE SWITCH, 42" AFF		CEILING MOUNTED JUNCTION BOX		SECURITY CAMERA
	THREE WAY SWITCH, 42" AFF		WALL MOUNTED JUNCTION BOX		COMMUNICATIONS/DATA OUTLET
	FOUR WAY SWITCH, 40" AFF		DROP CORD		COMMUNICATIONS/DATA OUTLET, IN FLOOR
	WEATHER PROOF SWITCH, 42" AFF		THERMOSTAT OUTLET BOX		COMMUNICATIONS/DATA OUTLET, IN CEILING
	DIMMER SWITCH, 42" AFF		ELECTRICAL PANEL, SURFACE MOUNTED		TELEPHONE OUTLET
	OCCUPANCY SENSOR SWITCH, 42" AFF		ELECTRICAL PANEL, RECESSED MOUNTED		PA CALL SWITCH
	PUSH BUTTON SWITCH		PAD MOUNT TRANSFORMER		BUZZER
	TIME SWITCH		WALL MOUNT TRANSFORMER		BELL
	LIGHTING CONTACTOR		ELECTRICAL KEYED NOTE		MICROPHONE, WALL MOUNTED
	POWER PACK		EQUIPMENT SYMBOL		MICROPHONE, FLOOR MOUNTED
	OCCUPANCY SENSOR		CONDUIT LEADER LINE FOR SIZES		TELEPHONE BACKBOARD
	EXISTING DEVICE SHOWN DASHED		BRANCH CIRCUIT HOMERUN		PANIC BUTTON
			GROUND		CARD READER
			GROUND ROD		AUTO DIALER
			LIGHTNING ARRESTOR		WIRELESS MICROPHONE TRANSMITTER
					AUDIO MICROPHONE INPUT

NOTE: THIS SYMBOLS LEGEND IS A GENERAL REPRESENTATION OF DEVICES USED. SOME PROJECTS MAY NOT UTILIZE ALL SYMBOLS REPRESENTED. COORDINATE ALL SYMBOLS FROM PLANS.

GENERAL PANELBOARD NOTES:

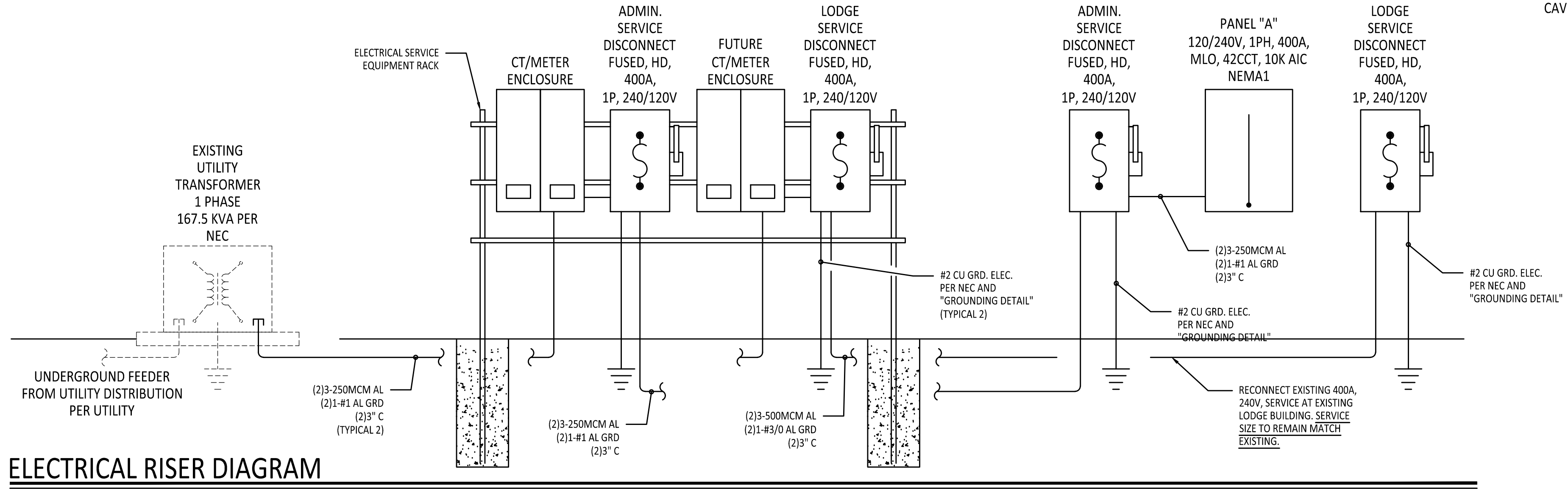
- A. ALL 120/208/240V PANELBOARDS SHALL HAVE MINIMUM 10KAIC RATING, UNLESS OTHERWISE NOTED. ALL 277/480 PANELBOARDS SHALL HAVE MINIMUM 14KAIC RATING, UNLESS OTHERWISE NOTED
- B. ALL PANELBOARDS SHALL HAVE COPPER BUS, BOLT IN BREAKERS, AND DOOR IN DOOR CONSTRUCTION. ALL SURFACE MOUNTED PANELS IN ANY FINISHED AREAS SHALL BE PROVIDED WITH SKIRTS FLOOR TO CEILING (FIELD VERIFY DIMENSIONS), AND ELSEWHERE AS NOTED ON THE PLANS.
- C. ALL PANELBOARDS SHALL HAVE TYPED CIRCUIT DIRECTORIES, PLACED BEHIND CLEAR PLASTIC PROTECTIVE COVER. DESIGNATIONS ON DIRECTORY SHALL BE MORE DESCRIPTIVE THAN AS SHOWN ON THE DRAWING PANEL SCHEDULES. "SPARES" AND "SPACES" SHALL BE INDICATED ON DIRECTORY WITH ERASABLE PENCIL (NOT TYPED).
- D. ALL PANELBOARDS SHALL BE PROVIDED WITH NAMEPLATES SECURED TO EQUIPMENT WITH STEEL SCREWS. NAMEPLATES SHALL BE LAMINATED PLASTIC WITH ENGRAVED 3/4" MIN. WHITE LETTERS ON BLACK BACKGROUND AND SHALL INDICATE PANEL DESIGNATION, VOLTAGE, PHASE, AND AMPACITY AND LOCATION OF OVERCURRENT PROTECTIVE DEVICE FEEDING PANEL.
- E. ALL PANELBOARDS SHALL BE PROVIDED WITH GROUND BUS/GROUND STRIP MOUNTED ON A CLEAN SURFACE OF THE PANELBOARD CAN. GROUND CONDUCTOR SHALL BE PROVIDED TO THE PANELBOARD GROUND BUS FROM THE GROUND SYSTEM IN THE SERVICE ENTRANCE SECTION OF DISTRIBUTION SYSTEM.
- F. ALL PANELBOARDS SHALL HAVE FACTORY FURNISHED CIRCUIT BREAKER NUMBERING. PUNCHED TAPE OR MARKERS WILL NOT BE PERMITTED. BRANCH CIRCUIT BREAKER NUMBER ON PANELBOARDS SHALL MATCH NUMBERING AS SHOWN ON THE PLANS.
- G. ALL BRANCH CIRCUIT CONDUCTORS EXTENDING FROM PANELBOARDS TO RESPECTIVE DEVICES SHALL BE COLOR CODED AND SHALL BE INSTALLED CONTINUOUS IN EACH RUN AND SHALL HAVE A TAG DESIGNATING THE BRANCH CIRCUIT NUMBERS LOCATED AT ALL JUNCTION BOXES.
- H. PER NEC, ALL BRANCH CIRCUIT PANELBOARDS SHALL BE PROVIDED WITH GFI AND AFCI CIRCUIT BREAKERS FOR APPROPRIATE CIRCUITS. TWO AND THREE POLE CIRCUIT BREAKERS SHALL BE PROVIDED FOR MULTIWIRED BRANCH CIRCUITS. USE AHACR@ BREAKERS FOR HEATING/AIR CONDITIONING LOADS AND ASWD@ BREAKERS FOR LIGHTING CIRCUITS.
- I. PROVIDE ALL PANELS WITH LUGS/CONNECTIONS SIZED FOR FEEDERS SPECIFIED. FEEDERS MAYBE OVERSIZED PER NEC FOR DERATING FACTORS. COORDINATE FEEDER SIZES WITH EQUIPMENT SUPPLIER PRIOR TO ORDERING.
- J. RATE PANELBOARDS FOR SERVICE ENTRANCE EQUIPMENT WHERE APPLICABLE, SHORT CIRCUIT RATING OF PANELBOARDS AND OVER-CURRENT PROTECTION TO BE COORDINATED WITH EXISTING UPSTREAM OVER-CURRENT PROTECTION PRIOR TO ISSUANCE OF SUBMITTALS. PROPERLY LABEL ALL PANELBOARDS.

GENERAL SPECIAL SYSTEM NOTES:

- A. ALL EMPTY SPECIAL SYSTEMS FEEDER CONDUITS EXTENDING BETWEEN COMMUNICATIONS CLOSETS SHALL BE PROVIDED WITH AN UNSPLICED, MEASURED PULL TAPE, NO EXCEPTIONS.
- B. IDENTIFY RACEWAYS OF CERTAIN SYSTEMS WITH COLOR BANDING: BAND EXPOSED OR ACCESSIBLE RACEWAYS OF THE FOLLOWING SYSTEMS FOR IDENTIFICATION. BANDS SHALL BE PRETENSIONED, SNAP-AROUND COLORED PLASTIC SLEEVES, COLORED ADHESIVE MARKING TAPE, OR A COMBINATION OF THE TWO. MAKE EACH COLOR BAND 2 INCHES WIDE, COMPLETELY ENCIRCLING CONDUIT, AND PLACE ADJACENT BANDS OF TWO-COLOR MARKINGS IN CONTACT, SIDE BY SIDE. INSTALL BANDS AT CHANGES IN DIRECTION, AT PENETRATIONS OF WALLS AND FLOORS, AND AT 40-FOOT MAXIMUM INTERVALS IN STRAIGHT RUNS. APPLY THE FOLLOWING COLORS:
 1. FIRE ALARM SYSTEM: RED
 2. DATA SYSTEM: GREEN AND YELLOW
 3. TELEPHONE: ORANGE AND YELLOW
- C. FIRE ALARM: THE FIRE ALARM SYSTEM SHALL BE A SYSTEM BY THE ELECTRICAL CONTRACTOR. EQUIPMENT, CONTROL PANELS, DEVICES AND CABLING SHALL BE FURNISHED AND INSTALLED BY THE FIRE ALARM SUBCONTRACTOR. THE ELECTRICAL CONTRACTOR SHALL COORDINATE THE INSTALLATION AND ROUTING OF THE CONDUIT SYSTEM WITH THE FIRE ALARM SUBCONTRACTOR AND SHALL OBTAIN CONDUIT ROUTING PLANS PRIOR TO ROUGH-IN. THE FIRE ALARM SYSTEM SHALL BE AN ADDRESSABLE TYPE AND SHALL LOOP BETWEEN ALL OUTLETS AND DEVICES.
- D. DATA/TELEPHONE: THE DATA/TELEPHONE SYSTEM SHALL BE A C SYSTEM BY THE ELECTRICAL CONTRACTOR. EQUIPMENT, DEVICES AND CABLING SHALL BE FURNISHED BY SPECIAL SYSTEMS SUBCONTRACTOR EACH COMMUNICATIONS/TELEPHONE OUTLET SHALL BE PROVIDED WITH A CONDUIT STUB UP TO THE ACCESSIBLE CEILING SPACE UNLESS OTHERWISE INDICATED. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL BACKBOARDS.
- E. ALL STROBES SHALL BE SYNCHRONIZED AND COMPLY WITH NFPA 72, FIRE ALARMS, AND NFPA 101, LIFE SAFETY CODE.
- F. ALL DEVICES SHALL BE ADA COMPLIANT.

GENERAL PROJECT NOTES:

- A. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND PROVIDING ALL WORK INDICATED BY THESE DRAWINGS. THIS CONSISTS OF FURNISHING ALL LABOR, EQUIPMENT, SUPPLIES AND MATERIALS IN ADDITION TO PERFORMING ALL OPERATIONS INCLUDING CUTTING, CHANNELING AND UNDERGROUND TRENCHING NECESSARY FOR THE INSTALLATION OF COMPLETE POWER, LIGHTING, OR OTHER SYSTEMS AS SHOWN.
- B. PERFORM ALL ELECTRICAL WORK IN A NEAT AND WORKMANLIKE MANNER IN FULL COMPLIANCE WITH ALL APPLICABLE CODES AND THE NATIONAL ELECTRICAL CODE (NEC). ALL LOCAL AND STATE REQUIREMENTS WILL BE OBSERVED DURING THE PERFORMANCE OF THIS WORK.
- C. SHOULD THE CONTRACTOR DETECT ANY DISCREPANCIES BETWEEN CONTRACT DOCUMENTS AND LEGAL OR SAFETY REQUIREMENTS FOR THE PROJECT, HE SHALL PROMPTLY NOTIFY THE ENGINEER IN WRITING. ONCE NOTIFIED THE ENGINEER SHALL MODIFY THE CONTRACT DOCUMENTS ACCORDINGLY. IF THE CONTRACTOR PROCEEDS WITH ANY WORK WHICH IS IN VARIANCE OF KNOWN LEGAL OR SAFETY REQUIREMENTS, THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR THIS WORK AND SHALL PROMPTLY CORRECT THE WORK WHEN NOTIFIED WITHOUT ADDITIONAL COST TO THE OWNER.
- D. FIELD VERIFY EXISTING CONDITIONS PRIOR TO COMMENCING WORK. NOTIFY THE ENGINEER OF ANY DISCREPANCIES BEFORE PROCEEDING WITH DEMOLITION. NO CLAIM FOR ADDITIONAL COST OR TIME EXTENSION WILL BE ALLOWED WITHOUT PROPER NOTICE PLUS PRIOR DETERMINATION OF TIME AND COST TO THE OWNER.
- E. ANY DAMAGE ON THE CONSTRUCTION SITE CAUSED BY THE CONTRACTOR OR A PARTY TO THE CONTRACTOR SHALL BE REPAIRED PRIOR TO CONTRACT DATE OF SUBSTANTIAL COMPLETION AT NO ADDITIONAL EXPENSE TO THE OWNER.
- F. EXTEND ALL CONDUIT AND CONDUCTORS, INSTALL ELECTRICAL EQUIPMENT AS NECESSARY, AND MAKE ALL FINAL CONNECTIONS TO MECHANICAL AND OWNER FURNISHED EQUIPMENT. LEAVE ALL EQUIPMENT IN OPERABLE CONDITION WITH APPROPRIATE OVERLOAD AND SERVICE DISCONNECT PROTECTION AS REQUIRED BY THE APPLICABLE CODES. FOLLOW MANUFACTURER INSTALLATION GUIDELINES WHERE APPLICABLE.
- G. ALL CONDUCTORS SHALL BE COPPER, RATED FOR 600 VOLTS WITH TYPE THHN/THWN, 90 DEGREE INSULATION UNLESS OTHERWISE INDICATED. MINIMUM WIRE SIZE SHALL BE #12 AWG FOR POWER CIRCUITS UNDER 100FT AND #10 AWG FOR POWER CIRCUITS OVER 100FT. CONDUCTORS SHALL BE SOLID FOR #12 AWG AND STRANDED FOR #10 AWG OR LARGER. ALL WIRING SHALL BE RUN IN CONDUIT INCLUDING LOW VOLTAGE CONTROL WIRING. SIGNAL WIRING MAY BE RUN IN PVC CONDUIT OR PVC FLEXIBLE TUBING.
- H. WHERE REQUIRED TO PROTECT FROM PHYSICAL DAMAGE, CONDUIT SHALL BE RIGID OR IMC TYPE. RUN CONDUIT CONCEALED UNLESS OTHERWISE SHOWN ON THE DRAWINGS. USE FLEXIBLE METALLIC CONDUIT OR SURFACE MOUNTED RACEWAY ONLY WHEN APPROVED BY OWNER AND ARCHITECT. PROVIDE EXPANSION FITTINGS FOR CONDUIT CROSSING EXPANSION JOINTS.
- I. SUPPORT ALL CONDUIT INDEPENDENTLY FROM THE BUILDING STRUCTURE. DO NOT SUPPORT FROM VENTILATION DUCTS, MECHANICAL PIPING, SUSPENDED CEILING GRIDS, OR THEIR HANGERS. USE ACCEPTABLE METHODS OF SUPPORT.
- J. PROVIDE WIRING DEVICES RATED FOR THE GIVEN APPLICATION AS REQUIRED BY CODE. SPECIAL DEVICES SHALL BE PROVIDED AS INDICATED.
- K. MAKE ALL MAIN FEEDER CONNECTIONS WITH SOLDERLESS, BOLTED TYPE CONNECTORS AND MAKE SMALLER WIRE SPLICES WITH PRESSURE TYPE CONNECTORS.
- L. INSTALL EXTERIOR WIRING AND DEVICES IN CONDUIT WITH WEATHERPROOF FITTINGS AND IN WEATHERPROOF BOXES. EQUIPMENT SHALL BE RATED FOR EXTERIOR USE.
- M. METERING AND ELECTRICAL SERVICE ENTRANCE REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE NEC AND LOCAL ELECTRIC UTILITY SYSTEM STANDARDS.
- N. SIZE ALL BOXES AND ENCLOSURES PER THE NEC. PROVIDE WORKING SPACE FOR ELECTRICAL INSTALLATIONS IN ACCORDANCE WITH NEC, ARTICLE 110.
- O. MAINTAIN A MINIMUM OF 24 INCH SEPARATION BETWEEN POWER CONDUITS AND SIGNAL CONDUITS AS PRACTICAL. ROUTE CONDUITS TO NOT CROSS EACH OTHER.
- P. AFTER COMPLETION OF THE INSTALLATION, THE ENTIRE SYSTEM SHALL BE THOROUGHLY CLEANED. REMOVE ALL FOREIGN MATTER, PAINT, OIL, DIRT, GREASE, UNNEEDED LABELS OR STICKERS FROM FIXTURES AND EQUIPMENT. REMOVE ALL RUBBISH AND DEBRIS ACCUMULATED DURING INSTALLATION FROM THE PREMISES.
- Q. ALL NEW WORK OUTLETS/DEVICES SHALL BE FLUSH IN WALLS CONDUIT/WIRING SHALL BE CONCEALED. EXPOSED CONDUIT OR WIREWAY IS UNACCEPTABLE. ROUTING OF FEEDERS AND MATERIALS USED FOR BOXES/DEVICES IN TILE WALLS SHALL BE APPROVED BY ARCHITECT AND ENGINEER PRIOR TO ROUGH IN. REPAIR AND GROUT AROUND NEW J-BOXES AND FINISH AS NECESSARY TO MATCH FINISH. COORDINATE WITH ARCHITECT IN FIELD PRIOR TO ROUGH-IN TO AVOID CONFLICTS.
- R. COORDINATE FINAL LOCATION OF ALL CONDUIT/FEEDERS, PANELS, AND CONTROL PANELS WITH ENGINEER, OWNER, ARCHITECT, AND ALL TRADES PRIOR TO BEGINNING ANY ROUGH-IN WORK. PROVIDE WORKING CLEARANCES PER NEC. COORDINATE ROUTING OF FEEDERS WITHIN WALL CAVITIES OR CHASES. VERIFY CONDUIT ROUTING PRIOR TO ROUGH-IN.



ELECTRICAL RISER DIAGRAM
SCALE: N.T.S.



TIPTON ENGINEERING
427 LUISA PLACE
SANTA FE, NM 87505
KARLT@TIPTONENGINEERING.CO
WWW.TIPTONENGINEERING.CO

MD	PD	ED	PM
PROJECT #:			