

ELECTRICAL NOTES

SITE NOTES

- VERIFY LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES IN AREA OF WORK AND COORDINATE SAME WITH NEW UNDERGROUND WORK AS REQUIRED.
- ALL WORK ASSOCIATED WITH THE UNDERGROUND INCOMING ELECTRIC SERVICE SHALL BE COORDINATED AND SCHEDULED WITH COR.
- ALL WORK ASSOCIATED WITH THE UNDERGROUND INCOMING TELEPHONE SERVICE SHALL BE COORDINATED AND SCHEDULED WITH COR.
- ALL UNDERGROUND BRANCH CIRCUITS SHALL BE ROUTED WITHIN MINIMUM 1" SCHEDULE 40 PVC CONDUIT AND #10 AWG WIRE SIZE. COVER REQUIREMENTS PER NEC TABLE 300.5.
- ALL SITE UNDERGROUND CONDUITS SHALL PASS ABOVE AND CLEAR OTHER SITE UTILITIES OR OBSTRUCTIONS INCLUDING STORM, SEWER, GAS BY 12" MINIMUM, UNLESS OTHERWISE NOTED.
- TRENCH BOTTOMS SHALL BE SMOOTH, FLAT, AND WITHOUT SURFACE IRREGULARITIES. OTHERWISE PROVIDE A SUFFICIENT QUANTITY OF BEDDING MATERIAL TO PROVIDE THE REQUIRED SURFACE. BEDDING MATERIAL SHALL BE AS SPECIFIED BY THE UTILITY COMPANY AND SHALL NOT CONTAIN ROCKS LARGER THAN 1-1/2" DIAMETER IN THEIR LARGEST DIMENSION. BEDDING MATERIAL SHALL FILL ALL VOIDS AND BE CLEAR OF ANY DEBRIS AND ORGANIC MATERIAL.
- REFER TO ELECTRICAL SITE PLAN FOR LOCATIONS OF TRANSFORMER, SWITCHGEAR, AND PRIMARY CABLE ROUTING. CONFIRM EXACT LOCATION OF ALL UNDERGROUND FACILITIES AND EQUIPMENT WITH COR PRIOR TO BID.

POWER NOTES (CONT.)

- EQUIPMENT INTERRUPTING RATINGS INDICATED ON THE DRAWINGS ARE BASED ON PRELIMINARY INFORMATION AND ARE SHOWN FOR BIDDING PURPOSES ONLY. VERIFY EQUIPMENT INTERRUPTING CAPACITY REQUIREMENTS PRIOR TO ORDERING ANY RELATED ELECTRICAL DISTRIBUTION EQUIPMENT.
- CABINETS SHALL BE OF SUFFICIENT SIZE TO ALLOW A GUTTER SPACE OF AT LEAST 3" ON SIDES, TOP AND BOTTOM. TOP AND BOTTOM DISTANCE OF CODE GAUGE STEEL GALVANIZED TRIMS PRIMED FOR FINISH PAINTING BY OTHERS. DOORS AND TRIMS SHALL EACH BE IN ONE PIECE SO DESIGNATED THAT DOORS WILL OPEN 180 DEGREES. TRIMS SHALL BE FASTENED TO BACK BOXES BY SCREWS.
- WHERE NEW CIRCUIT BREAKERS ARE INDICATED ON THE DRAWINGS TO BE PROVIDED IN EXISTING PANELBOARDS, CIRCUIT BREAKERS SHALL MATCH EXISTING PANELBOARD MANUFACTURER, STYLE AND INTERRUPTING RATING.
- SAFETY SWITCHES SHALL BE FUSIBLE OR NON-FUSIBLE AS NOTED. NEMA 1, HEAVY DUTY, EXTERNALLY OPERATED WHERE NOT FURNISHED WITH STARTING EQUIPMENT AND AT ALL OTHER POINTS REQUIRED BY CODE. FUSES SHALL BE BUSSMAN, GOULD OR LITTELFUSE CURRENT LIMITING TYPE. MINIMUM 200,000 AIC. CIRCUIT BREAKERS SHALL HAVE A MINIMUM 10,000 AIC FOR 208Y/120V SYSTEMS AND A MINIMUM OF 14,000 AIC FOR 480Y/277V SYSTEMS UNLESS OTHERWISE NOTED.
- TRANSFORMERS SHALL BE INDOOR, DRY-TYPE, VENTILATED, AND SOUND LEVELS NOT TO EXCEED NEMA STANDARDS.

DEMOLITION NOTES

- AN ATTEMPT HAS BEEN MADE TO SHOW ALL EXISTING ELECTRICAL ITEMS TO BE REMOVED OR TO REMAIN BUT IS NOT SHOWN ON DRAWINGS. THE DEMOLITION PLANS AND THESE DEMOLITION NOTES ARE INTENDED AS A GENERAL GUIDE TO THE DEMOLITION REQUIRED FOR THIS PROJECT. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REMOVE EXISTING CONSTRUCTION AS REQUIRED TO ACCOMPLISH THE PROPOSED WORK. FIGURE A COMPLETE JOB AS NONE OTHER SHALL BE ACCEPTED.
- VISIT EXISTING SITE AND EXISTING PREMISES OF THE WORK AND BECOME FAMILIAR WITH CONDITIONS AFFECTING THE INSTALLATION. SUBMISSION OF A PROPOSAL SHALL PRESUPPOSE KNOWLEDGE OF SUCH CONDITIONS AND NO ADDITIONAL COMPENSATION SHALL BE ALLOWED WHERE EXTRA LABOR OR MATERIALS ARE REQUIRED BECAUSE OF IGNORANCE OF THESE CONDITIONS.
- ALL DEMOLITION WORK SHALL BE ACCOMPLISHED THRU PHASING OF CERTAIN AREAS WHILE MAINTAINING UNAFFECTED AREAS AS FURTHER OUTLINED ON THIS PLAN AND AS DIRECTED BY OWNER AND ARCHITECT/ENGINEER.
- WHERE EQUIPMENT IS SHOWN TO BE DISCONNECTED OR REMOVED, REMOVE POWER, CONTROL, TELEDATA AND ANY OTHER CONDUCTORS OR CABLES BACK TO THEIR SOURCE, JUNCTION BOX OR NEXT DEVICE WHICH IS SCHEDULED TO REMAIN. EXPOSED CONDUITS AND ALL ASSOCIATED JUNCTION BOXES, HANGERS, SUPPORTS, ETC. SHALL BE REMOVED. EMBEDDED CONDUITS SHALL BE REMOVED TO 12" BELOW GRADE AND GROUTED CLOSED.
- EQUIPMENT NOT INDICATED TO BE RE-USED SHALL BE RETURNED TO THE OWNER OR DISPOSED OF IN A PROPER AND LEGAL MANNER AS DIRECTED BY OWNER. ALL ITEMS DESIGNATED FOR DISPOSAL SHALL BE REMOVED FROM THE PREMISES OR PROJECT SITE WITHIN 72 HOURS.
- ALL ELECTRICAL ITEMS THAT ARE NOT SHOWN TO BE REMOVED AND WHOSE REMOVAL IS NOT INDICATED BY EITHER A GENERAL OR KEY NOTE, ARE TO REMAIN. RE-FEED ANY SUCH ITEM(S) WHOSE WIRING IS INTERRUPTED DUE TO WORK IN ADJACENT AREAS.
- THE OPERATION OF THE EXISTING LIFE SAFETY SYSTEMS AND RELATED COMPONENTS (FIRE ALARM, EMERGENCY LIGHTS, EXIT SIGNS, ETC.) SHALL BE MAINTAINED AT ALL TIMES DURING THE ENTIRE PERIOD OF DEMOLITION. AT NO TIME SHALL THE FACILITY BE LEFT WITHOUT FIRE ALARM PROTECTION AND EMERGENCY EGRESS LTG. IN ALL CONTRACTED AREAS.
- PROVIDE ALL CUTTING AND PATCHING WHICH MAY BE REQUIRED FOR THE PROPER INSTALLATION OF THE NEW ELECTRICAL WORK. ALL PATCHING SHALL BE OF THE SAME MATERIALS, WORKMANSHIP, AND FINISH AND SHALL ACCURATELY MATCH ALL ADJACENT WORK.
- PROVIDE FOR CUTTING AND CORE DRILLING OF ALL PENETRATIONS THRU FLOORS, WALLS, ETC. IN ACCORDANCE WITH CRITERIA SET FOR IN THE STRUCTURAL DOCUMENTS. COORDINATE FULLY WITH THE GENERAL CONTRACTOR, ARCHITECT AND STRUCTURAL ENGINEER BEFORE WORK IS TO PROCEED.
- PLAN INSTALLATION OF NEW WORK AND CONNECTIONS TO EXISTING WORK TO INSURE MINIMUM INTERFERENCE WITH REGULAR OPERATION OF EXISTING FACILITIES. ALL SYSTEM SHUTDOWNS AFFECTING OTHER AREAS SHALL BE COORDINATED WITH BUILDING OWNER. ALARM, EMERGENCY AND LIFE SAFETY SYSTEMS SHALL NOT BE INTERRUPTED OR COMPROMISED.

TECHNOLOGY NOTES

- FOR EXACT LOCATION OF EQUIPMENT, SEE ARCHITECTURAL ELEVATIONS AND DETAILS.
- FOR TECHNOLOGY CONDUIT, OUTLET BOX INFORMATION, AND RISER DIAGRAMS REFER TO TECHNOLOGY DRAWINGS.
- REFER TO RISER DIAGRAMS, DETAILS, AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- REFER TO GENERAL FIRE ALARM SYSTEM NOTES FOR ADDITIONAL INFORMATION.
- FIELD VERIFY EXACT PLACEMENT OF ALL TELEPHONE AND/OR TELEPHONE/DATA OUTLETS WITH ARCHITECT AND OWNER PRIOR TO ROUGH-IN. PROVIDE COVER PLATES AND TELEPHONE/DATA JACKS FOR EACH OUTLET AS DIRECTED BY OWNER. PROVIDE BLANK COVER PLATES OVER ALL UNUSED OUTLETS.
- ALL TELEPHONE AND DATA CABLES NOT IN CONDUIT SHALL BE PLENUM RATED. SUPPORT CABLE RUNS ABOVE ACCESSIBLE CEILINGS AT 8'-0" INTERVALS USING J-HOOKS OR BRIDLE RINGS SUSPENDED FROM STRUCTURE.
- COORDINATE INSTALLATION AND ROUTING OF CABLE TRAY ASSEMBLIES ABOVE ACCESSIBLE CEILINGS WITH OTHER TRADES TO AVOID INTERFERENCE WITH HVAC EQUIPMENT INSTALLATION AND FUTURE MAINTENANCE.
- FIELD VERIFY EXACT LOCATION OF CONDUITS AND OUTLET BOXES FOR SECURITY SYSTEM DEVICES WITH SECURITY CONTRACTOR PRIOR TO ROUGH-IN.
- ALL COMPONENTS SHOWN ON RELATED PLANS BUT, NOT ON RISER DIAGRAMS SHALL BE CONSIDERED INCLUDED UNDER CONTRACT WORK.

POWER NOTES

- FOR EXACT LOCATION OF ELECTRICAL EQUIPMENT, SEE ARCHITECTURAL ELEVATIONS AND DETAILS.
- PROVIDE AND MAINTAIN ELECTRICAL SAFETY AND WORKING CLEARANCES IN FRONT OF AND AROUND ALL ELECTRICAL PANELS AND DISTRIBUTION EQUIPMENT IN ACCORDANCE WITH NEC ARTICLE 110.
- FOR MECHANICAL EQUIPMENT TYPE, ELECTRICAL REQUIREMENTS AND CIRCUIT INFORMATION, REFER TO MECHANICAL EQUIPMENT SCHEDULE.
- FIELD VERIFY EXACT LOCATION OF ALL MECHANICAL AND PLUMBING EQUIPMENT PROVIDED BY OTHER TRADES PRIOR TO ROUGH-IN. COORDINATE INSTALLATION AND WIRING REQUIREMENTS, INCLUDING EXACT LOCATION OF POINT OF CONNECTION, WITH THE EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN.
- PROVIDE RELATED DISCONNECT SWITCHES AND FINAL POWER CONNECTIONS FOR ELEVATOR MACHINE AND CAB LIGHTING PER MFR'S REQUIREMENTS AS WELL AS LOCAL, STATE AND NATIONAL CODES. IN ADDITION, ALL RELATED ELECTRICAL EQUIPMENT LOCATED LESS THAN 4 FT. ABOVE PIT FLOORS SHALL BE WEATHERPROOF AND IDENTIFIED FOR USE IN WET LOCATIONS PER LATEST EDITION OF ASME A17.1 INCLUDING ADDENDA AND ANY AMENDMENTS.
- MOUNT EQUIPMENT SAFETY SWITCHES DIRECTLY ON UNIT SERVED WHERE REQUIRED. SWITCHES SHALL BE ACCESSIBLE AND MTD. SUCH THAT DOOR HINGE OPENS AT LEAST 90 DEGREES WITHOUT OBSTRUCTION.
- PROVIDE NEW TYPE WRITTEN DIRECTORIES FOR ALL PANELBOARDS INSTALLED OR MODIFIED UNDER THIS CONTRACT.
- VERIFY EQUIPMENT FAULT CURRENT INTERRUPTING CAPACITY REQUIREMENTS PRIOR TO ORDERING ANY RELATED ELECTRICAL DISTRIBUTION EQUIPMENT. PROVIDE COPY OF POWER COMPANY'S CALCULATED MAXIMUM AVAILABLE FAULT CURRENT TO ENGINEER FOR REVIEW AND APPROVAL.
- ALL PANELBOARDS SHALL BE ENCLOSED TYPE, FLUSH OR SURFACE MOUNTED AS REQUIRED. IN STEEL CABINETS CODE GAUGE, WITH STEEL TRIM CONCEALED HINGES, DOORS AND FLUSH TYPE LOCKS, ALL KEVED ALIKE.
- ALL BUSING, INCLUDING NEUTRAL AND GROUND BUS, SHALL BE MINIMUM 99% CONDUCTIVITY, HARD DRAWN COPPER, SILVER OR TIN-PLATED JOINTS, AND SIZED ON THE BASIS OF 1000 AMPERES PER SQUARE INCH CROSS-SECTIONAL AREA. BUSING SHALL BE ARRANGED FOR SEQUENCING PHASING.
- PANELBOARDS SHALL BE EQUIPPED WITH BOLT-ON, MOLDED CASE CIRCUIT BREAKERS OF THE TYPE, NUMBER OF POLES, TRIP SIZES, AND INTERRUPTING RATINGS AS SHOWN ON THE DRAWINGS.

LIGHTING NOTES

- FOR EXACT LOCATION OF RECESSED LUMINAIRES, SEE ARCHITECTURAL REFLECTED CEILING PLANS AND FOR EXACT LOCATION OF WALL MTD. LUMINAIRES, SEE ARCHITECTURAL ELEVATIONS AND DETAILS.
- ALL EXIT SIGNS, EMERGENCY BATTERY PACK UNITS AND GENERATOR TRANSFER DEVICES ON NORMAL POWER CIRCUITS SHALL BE CONNECTED AHEAD OF ANY LOCAL SWITCHING. PROVIDE CIRCUIT BREAKER LOCK-ON DEVICES ON ANY CIRCUIT CONTAINING EMERGENCY LOADS.
- PROVIDE CONTROL WIRING BETWEEN OCCUPANCY SENSORS AND POWER PACKS PER MANUFACTURER'S RECOMMENDATIONS.
- PROVIDE WIRING BETWEEN OCCUPANCY SENSOR POWER PACK RELAY AND MECHANICAL EQUIPMENT. MECHANICAL CONTRACTOR SHALL PROVIDE WIRING AND TERMINATIONS BETWEEN OCCUPANCY SENSOR POWER PACK RELAY AND MECHANICAL EQUIPMENT.
- INSTALL SURFACE MOUNTED EMERGENCY LIGHTING FIXTURES AND/OR EXIT SIGNS ON EITHER WALL OR CEILING SURFACE AS DIRECTED BY THE ARCHITECT. FIELD VERIFY MOUNTING LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN.
- SHADED SYMBOL INDICATES EMERGENCY LUMINAIRE CONNECTED TO EMERGENCY POWER SOURCE. WIRE AHEAD OF ANY LOCAL SWITCHING PER NEC ART. 700.
- PROVIDE LUMINAIRES AS SHOWN ON THE ELECTRICAL AND ARCHITECTURAL DRAWINGS. VERIFY EXACT LOCATIONS OF LUMINAIRES WITH ARCHITECTURAL REFLECTED CEILING PLANS. COORDINATE LUMINAIRE HOUSINGS AND TRIMS WITH CEILING TYPE. PROVIDE REQUIRED ACCESSORIES FOR VARIOUS CEILING TYPES.
- LIGHTING CONTROLS SHALL BE LOCATED AT OR NEAR DOORS. INSTALL ON SIDE OPPOSITE HINGE. REFER TO ARCHITECTURAL DETAILS FOR EXACT LOCATION. VERIFY FINAL DOOR HINGE LOCATION IN FIELD PRIOR TO INSTALLATION.
- ALL FLUORESCENT LAMPS SHALL BE ENERGY SAVING TYPE, 3500K COLOR TEMPERATURE, PHILLIPS, G.E. OR OSRAM-SYLVANIA, WATTAGES AND TYPES AS LISTED IN LUMINAIRE SCHEDULE.
- ALL FLUORESCENT BALLASTS SHALL BE ENERGY SAVING, HIGH POWER FACTOR, TOTAL HARMONIC DISTORTION OF LESS THAN 10%, UL LISTED, CLASS P, ELECTRONIC TYPE, ADVANCE, PHILLIPS, MAGNETEK, MOTOROLA OR APPROVED EQUAL.
- SPARE LAMPS EQUAL TO 10% (MINIMUM OF 3) OF EACH TYPE AND SIZE USED ON PROJECT SHALL BE PROVIDED AND DELIVERED TO OWNER.
- FIXTURES OF SIZES LESS THAN CEILING GRID SHALL BE INSTALLED AS INDICATED ON REFLECTED CEILING PLANS OR CENTERED IN ACOUSTICAL PANEL. SUPPORT LUMINAIRES INDEPENDENTLY WITH AT LEAST TWO (2) 3/4-INCH METAL CHANNELS SPANNING AND SECURED TO CEILING TEES.
- FASTEN SUPPORT CLIPS TO LUMINAIRES AND TO CEILING GRID MEMBERS AT OR NEAR EACH LUMINAIRE CORNER WITH CLIPS THAT ARE UL LISTED FOR THE APPLICATION.
- LUMINAIRE SUBSTITUTIONS SHALL INCLUDE THE FOLLOWING INFORMATION FOR ENGINEERS' APPROVAL: LUMINAIRE PRODUCT DATA SHEETS, PHOTOMETRIC DATA, POINT BY POINT CALCULATIONS OF FOOT-CANDLE LEVELS ON A PER ROOM BASIS.
- LUMINAIRE TYPES DENOTED AS "EMERGENCY" SHALL BE FURNISHED WITH EMERGENCY BATTERY PACKS AS MANUFACTURED BY BODINE, SIZED TO OPERATE TWO (2) LAMPS, UNLESS OTHERWISE NOTED. BALLASTS SHALL BE REMOTE MOUNTED IF PHYSICAL LIMITATIONS EXIST WITH LUMINAIRES SPECIFIED.

GENERAL NOTES

- LIGHT SOLID LINES DENOTE EXISTING EQUIPMENT TO REMAIN. DARK SOLID LINES DENOTE NEW AND/OR RELOCATED EQUIPMENT. DARK DASHED LINES DENOTE EXISTING EQUIPMENT TO BE DEMOLISHED.
- ALL ELECTRICAL WORK SHALL BE IN STRICT COMPLIANCE WITH THE CURRENTLY EFFECTIVE EDITION OF THE NEC AS ADOPTED BY THE LOCAL JURISDICTION INCLUDING ANY LOCAL AMENDMENTS, ORDINANCES, AND INTERPRETATIONS. ELECTRICAL WORK SHALL ALSO COMPLY WITH ANY APPLICABLE FEDERAL AND STATE REGULATIONS.
- SECURE AND PAY ALL PERMITS AND FEES NECESSARY FOR EXECUTION AND COMPLETION OF ELECTRICAL WORK.
- FOR QUALITY ASSURANCE, ALL EQUIPMENT SHALL BE UL LISTED AND APPROVED BY THE AUTHORITY HAVING JURISDICTION. ALSO, PERFORM WORK IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CONTRACTOR ASSOCIATION (NECA) "STANDARD OF INSTALLATION".
- "FURNISH" SHALL BE DEFINED AS TO SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION AND SIMILAR OPERATIONS. "INSTALL" SHALL BE DEFINED AS WORK WHICH INCLUDES THE ACTUAL UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION AND SIMILAR OPERATIONS. "PROVIDE" SHALL BE DEFINED AS TO BE ALL INCLUSIVE OF RACEWAYS, CONDUCTORS, JUNCTION BOXES, SAFETY SWITCHES AND MAKING FINAL CONNECTIONS.
- CAREFULLY EXAMINE THE SITE AND COMPARE THE DRAWINGS WITH EXISTING ELECTRICAL INSTALLATIONS. BE THOROUGHLY AWARE OF ALL EXISTING CONDITIONS WITHIN THE SCOPE OF THE ELECTRICAL WORK. BY THE ACT OF SUBMITTING A BID, THE CONTRACTOR SHALL HAVE DEEMED TO HAVE MADE SUCH EXAMINATION AND TO HAVE ACCEPTED SUCH CONDITIONS AND TO HAVE MADE ALLOWANCE THEREFORE IN PREPARING HIS BID.
- ELECTRICAL DRAWINGS ARE DIAGRAMMATIC. SIZE AND LOCATION OF EQUIPMENT AND WIRING ARE SHOWN TO SCALE WHERE POSSIBLE, BUT MAY BE DISTORTED FOR CLARITY ON THE DRAWINGS. FINAL LOCATIONS OF OUTLETS AND EQUIPMENT SHALL BE AS SHOWN IN ENLARGED DETAILS OR AS APPROVED BY THE ARCHITECT.
- IT IS NOT INTENDED THAT THE PLANS INDICATE ALL THE NECESSARY BENDS, OFFSETS, PULL BOXES AND OBSTRUCTIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSTALL HIS WORK TO CONFORM TO THE STRUCTURE, MAINTAIN HEADROOM AND KEEP OPENINGS AND PASSAGEWAYS CLEAR. REFER TO THE ARCHITECTURAL DRAWINGS FOR DIMENSIONS.
- PROVIDE NEMA RATED, SCREW-COVER PULL BOXES IN CONDUIT RUNS LONGER THAN 100 FEET AND AS REQUIRED TO LIMIT THE NUMBER OF BENDS TO NO MORE THAN THREE (3) OR 270 DEGREES TOTAL. SIZE PULL BOXES IN ACCORDANCE WITH NEC, ARTICLE 314.28. DOCUMENT ON RECORD DRAWINGS, SIZE AND LOCATION OF PULL BOXES USED IN FEEDER CIRCUIT RINGS.
- TEMPORARY ELECTRICAL SERVICE, LIGHTING, AND RELATED WIRING SHALL BE PROVIDED IN ACCORDANCE WITH OSHA REQUIREMENTS FOR THE USE OF ALL TRADES DURING CONSTRUCTION. TEMPORARY POWER MAY BE EXTENDED FROM THE OWNER'S EXISTING ELECTRICAL SERVICE. THE POINT OF CONNECTION AND METHOD OF EXTENSION SHALL BE APPROVED BY THE OWNER. DEMOLITION OF EXISTING ELECTRICAL EQUIPMENT IS AS PER THE ELECTRICAL WORK AND IS DESCRIBED ON THE DRAWINGS.
- VERIFY LOCATIONS OF ALL ELECTRICAL EQUIPMENT WITH ARCHITECTURAL DRAWINGS AND INTERIOR DETAILS AND FINISHES. IN CENTERING OUTLETS AND LOCATING BOXES AND OUTLETS, ALLOW FOR OVERHEAD PIPES, DUCTS, AND MECHANICAL EQUIPMENT, VARIATIONS IN FIREPROOFING AND PLASTERING, WINDOW AND DOOR TRIM, PANELING, HUNG CEILINGS AND THE LIKE, AND CORRECT ANY INACCURACY RESULTING FROM FAILURE TO DO SO WITHOUT EXPENSE TO OWNER.
- CHECK ARCHITECTURAL AND MECHANICAL DRAWINGS AND SPECIFICATIONS FOR EQUIPMENT TO BE INSTALLED BY OTHERS. PROVIDE WIRING AND NECESSARY ELECTRICAL ADJUSTMENTS TO EQUIPMENT CONFORMING WITH SPECIFIED REQUIREMENTS OF THE EQUIPMENT.
- ALL COMPONENTS SHOWN ON RELATED PLANS BUT, NOT ON RISER DIAGRAMS SHALL BE CONSIDERED INCLUDED UNDER CONTRACT WORK.
- PROVIDE ALL NECESSARY EXCAVATING AND BACKFILLING FOR RELATED ELECTRICAL WORK.
- INSTALL BLACK PHENOLIC NAMEPLATES WITH WHITE ENGRAVED DESIGNATIONS FOR PANELBOARDS, FEEDERS, JUNCTION AND PULL BOXES.
- NO MORE THAN THREE (3) CURRENT CARRYING CONDUCTORS SHALL BE INSTALLED WITHIN RACEWAYS UNLESS DERATING FACTORS IN NEC ARTICLE 310 ARE APPLIED.
- WHERE MULTIPLE DEVICES ARE INDICATED IN A COMMON LOCATION, GANG INTO A SINGLE COVER PLATE. COLORS OF ALL WIRING DEVICES AND ASSOCIATED COVERPLATES SHALL BE PER ARCHITECT'S DIRECTION.
- RACEWAYS SHALL BE INSTALLED CONCEALED IN FINISHED AREAS, UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- CONNECT RACEWAYS TO MOTOR TERMINAL BOXES WITH FLEXIBLE CONDUIT, MINIMUM 18" LENGTH AND 50% SLACK. DO NOT TERMINATE IN OR FASTEN RACEWAYS TO MOTOR FOUNDATION.
- CONDUCTORS SHALL BE COPPER, SIZES AS INDICATED ON DRAWINGS AND SHALL NOT BE LESS THAN #10 AWG. ALL #8 AWG WIRE AND LARGER SHALL BE STRANDED. ALL #10 AWG WIRE AND SMALLER SHALL BE STRANDED OR SOLID. VOLTAGE RATING OF INSULATION SHALL BE 600 VOLTS.
- TYPE THHN/TMVW INSULATION SHALL BE USED FOR ALL BRANCH CIRCUIT WIRING. THE AMPACITIES OF THHN WIRE SHALL BE BASED ON THE ALLOWABLE AMPACITIES OF THW WIRE.
- CONDUCTORS FOR BRANCH CIRCUITS SHALL BE SIZED TO PREVENT VOLTAGE DROP FROM EXCEEDING 3 PERCENT AT THE FARTHEST OUTLET OF POWER, HEATING, AND LIGHTING LOADS, OR COMBINATIONS OF SUCH LOADS. THE MAXIMUM TOTAL VOLTAGE DROP ON BOTH FEEDERS AND BRANCH CIRCUITS TO THE FARTHEST OUTLET SHALL NOT EXCEED 5 PERCENT.
- ALL WIRING SHALL BE IDENTIFIED BY CIRCUIT NUMBERS IN ALL CABINETS, BOXES, WIRING TROUGH, ENCLOSURES, SPLICE OR TERMINATION POINTS, ETC.
- ALL CIRCUITS SHALL BE PROTECTED WITH 20 AMPERE, SINGLE POLE, BOLT-ON TYPE CIRCUIT BREAKERS UON. CIRCUIT BREAKERS SERVING HVAC LOADS SHALL BE "HACR" RATED AND THOSE SWITCHING LIGHTING LOADS SHALL BE "HD" RATED.
- EACH UNGROUNDED CONDUCTOR OF A MULTI-WIRE BRANCH CIRCUIT SHALL BE DISCONNECTED SIMULTANEOUSLY BY EITHER COMMON TRIP, 2-POLE OR 3-POLE CIRCUIT BREAKERS OR SINGLE-POLE CIRCUIT BREAKERS WITH HANDLE TIES IDENTIFIED FOR THE PURPOSE IN ACCORDANCE WITH NEC ART. 210.4(B).
- LOCATIONS FOR WIRING DEVICES SHALL BE SUBJECT TO MODIFICATIONS PRIOR TO ROUGH-IN AND AT NO ADDITIONAL COST TO OWNER.
- HEIGHTS OF WIRING DEVICES ARE DEFINED FROM FINISHED FLOOR TO CENTERLINE OF DEVICE AS PER ARCHITECTURAL DWGS, EXCEPT JUNCTION OF DIFFERENT WALL FINISH MATERIALS, MOLDINGS, BREAKS IN WALL SURFACE, MASONRY GROUT LINES, OR WHERE IN VIOLATION OF CODE.
- HEIGHTS OF FIRE ALARM AUDIO AND VISUAL APPLIANCES ARE DEFINED FROM FINISHED FLOOR TO TOP OF DEVICE.
- PROVIDE REQUIRED EXPANSION/DEFLECTION FITTINGS AT LOCATIONS WHERE CONDUIT PASSES THRU EXPANSION JOINTS. FITTINGS SHALL ALLOW SEISMIC MOVEMENT REQUIRED BY STRUCTURAL ENGINEER.
- PROVIDE UL LISTED FIRE RATED SEALS FOR ALL RACEWAY PENETRATIONS THRU FIRE RATED WALLS, SLABS, AND CEILINGS IN ACCORDANCE WITH NEC 300.21. PROPOSED FIRE-STOP MATERIAL AND SYSTEM SHALL BE SUBMITTED TO THE LOCAL FIRE INSPECTOR OR AHI FOR APPROVAL PRIOR TO INSTALLATION.
- CONNECT ALL ELECTRONIC DOOR DEVICES PROVIDED UNDER DIVISION 8. COORDINATE MOUNTING LOCATIONS AND WIRING REQUIREMENTS WITH DOOR HARDWARE SUPPLIER.
- GROUNDING OF THE ELECTRICAL SYSTEM SHALL BE BY MEANS OF AN INSULATED EQUIPMENT GROUNDING CONDUCTOR, INSTALLED WITH FEEDER AND BRANCH CIRCUIT CONDUCTORS IN ALL CONDUITS WHETHER OR NOT INDICATED ON DRAWINGS. EQUIPMENT GROUNDING CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH NEC TABLE 250.122. PROVIDE EQUIPMENT GROUNDING CONDUCTOR IN ALL TELEPHONE AND CATV SERVICE CONDUITS.
- REFER TO PANEL SCHEDULES FOR BRANCH CIRCUIT NUMBERS AND OVERCURRENT DEVICES.
- CLEAN UP RESULTANT DEBRIS FROM THIS WORK AND REMOVE FROM THE SITE. DISCONNECT AND REMOVE ALL TEMPORARY POWER INCLUDING BUT, NOT NECESSARILY LIMITED TO PANELS, FIXTURES, BOXES AND WIRING.
- TEST FOR GROUNDS AND SHORTS, TO INSURE PROPER OPERATION OF ELECTRICAL EQUIPMENT. REPAIR OR REPLACE FAULTY EQUIPMENT AT NO ADDITIONAL COST TO THE OWNER.
- DEMONSTRATE TO THE OWNER'S SATISFACTION THE PROPER OPERATION OF EACH SYSTEM COMPRISING THIS CONTRACT BEFORE FINAL PAYMENT. GUARANTEE FOR ONE YEAR AFTER FINAL ACCEPTANCE BY OWNER OF ALL WORKMANSHIP AND MATERIALS FURNISHED.
- BALANCE LOADS ON ALL BRANCH CIRCUIT PANELBOARDS, SUCH THAT VARIATION IN AMPERES PER PHASE READINGS WILL NOT EXCEED 5% UNDER NORMAL OPERATING CONDITIONS. SPECIAL CARE SHALL BE TAKEN DURING LOAD BALANCE TO ASSURE THAT REVERSE ROTATION OF MOTORS IS NOT CAUSED. SUBMIT LOAD BALANCING REPORT TO ENGINEER FOR APPROVAL.
- PROVIDE A MINIMUM OF ONE (1) SET OF RECORD DRAWINGS TO ARCHITECT OR OWNER. THESE DRAWINGS SHALL SHOW EXACT EQUIPMENT LOCATIONS, CONCEALED FEEDER ROUTINGS, AND SHALL INDICATE THE "AS-BUILT" CONDITION.

ELECTRICAL ABBREVIATIONS

A	AMPERE	FLEX	FLEXIBLE CONDUIT	MTG	MOUNTING FLOOR
AC	ALTERNATING CURRENT	FL	FLOOR	NEC	NATIONAL ELECTRICAL CODE
AFG	ABOVE FINISHED FLOOR	FLA	FULL LOAD AMPERES	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
AF	ABOVE FINISHED GRADE	FLR	FLUORESCENT	NFC	NOT IN CONTRACT
AHJ	AUTHORITY HAVING JURISDICTION	FT	FEET	NL	NIGHT LIGHT (NON-SWITCHED OPERATION)
AHU	AIR HANDLING UNIT	GC	GENERAL CONTRACTOR	NTS	NOT TO SCALE
AIC	AMPERES INTERRUPTING CAPACITY	GEN	GENERATOR	PAF	PAINTED AFTER FABRICATION
ATS	AUTOMATIC TRANSFER SWITCH	GEQ	GROUNDING ELECTRODE CONDUCTOR	PB	PULL BOX
AW	ABOVE WORK SURFACE	GFCI	GROUND FAULT CIRCUIT INTERRUPTER	PBO	PROVIDED BY OTHERS
BFC	BELOW FINISHED CEILING	GFI	GROUND FAULT INTERRUPTER	PC	PLUMBING CONTRACTOR
BFG	BELOW FINISHED GRADE	GND	GROUND	PH-I	PHASE
BKR	BREAKER	HD	HIGH INTENSITY DISCHARGE	PLC	PROGRAMMABLE LOGIC CONTROLLER
BLDG	BUILDING	HP	HORSEPOWER	PNL	PANEL
C	CONDUIT	HPF	HIGH POWER FACTOR	PVC	POLYVINYL CHLORIDE
CAP	CAPACITOR	HPS	HIGH PRESSURE SODIUM	REF	RETURN EXHAUST FAN
CB	CIRCUIT BREAKER	HVAC	HEATING, VENTILATION, AIR CONDITIONING	REX	REMOVE EXISTING
CATV	COMMUNITY ANTENNA TELEVISION	IG	ISOLATED GROUND	RSC	RIGID STEEL CONDUIT
CCTV	CLOSED CIRCUIT TELEVISION	IMC	INTERMEDIATE METAL CONDUIT	RTU	ROOF TOP UNIT
CD	CANDELA	INC	INCANDESCENT	SCCR	SHORT CIRCUIT CURRENT RATING
CKT	CIRCUIT	JB	JUNCTION BOX	SPT	SINGLE POLE DOUBLE THROW
CO	CONTRACT OFFICER'S REPRESENTATIVE	KCMIL	ONE THOUSAND CIRCULAR MILS	SPKR	SPEAKER
CJ	COPPER	KEC	KITCHEN EQUIPMENT CONTRACTOR	SPST	SINGLE POLE SINGLE THROW
CUR	CABINET UNIT HEATER	KV	KILOVOLT	SW	SWITCH
DISC	DISCONNECT	KVA	KILOVOLT AMPERE	SWBG	SWITCHGEAR
DN	DOWN	KVAC	KILOVOLT AMPERE CONNECTED	SWGR	SWITCH
DPDT	DOUBLE POLE DOUBLE THROW	KVAD	KILOVOLT AMPERE DEMAND	THD	TOTAL HARMONIC DISTORTION
DWG	DRAWING	KVAR	KILOVOLT AMPERE REACTIVE	TTB	TELEPHONE TERMINAL BOARD
EC	ELECTRICAL CONTRACTOR	KW	KILOWATT	TV	TELEVISION
EF	EXHAUST FAN	LTG	LIGHTING	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
ELEV	ELEVATOR	MAX	MAXIMUM	TYP	TYPICAL
EMT	ELECTRICAL METALLIC TUBING	MC	MECHANICAL CONTRACTOR	UH	UNIT HEATER
ENT	ELECTRICAL NONMETALLIC TUBING	MCA	MINIMUM CIRCUIT AMPACITY	UL	UNDERWRITER'S LABORATORY
EQUIP	EQUIPMENT	MCB	MAIN CIRCUIT BREAKER	UON	UNLESS OTHERWISE NOTED
ETR	EXISTING TO REMAIN	MCC	MOTOR CONTROL CENTER	UPS	UNINTERRUPTIBLE POWER SUPPLY
EWG	ELECTRIC WATER COOLER	MFR	MANUFACTURER	V	VOLT
EX	EXISTING	MH	METAL HALIDE	VA	VOLT AMPERE
FA	FIRE ALARM	MIN	MINIMUM	VAR	VOLT AMPERE REACTIVE
FAFP	FIRE ALARM ANNUNCIATOR PANEL	MLO	MAIN LUGS ONLY	VFD	VARIABLE FREQUENCY DRIVE
FACP	FIRE ALARM CONTROL PANEL	MOD	MOTOR OPERATED DAMPER	W/P	WEATHERPROOF
FBO	FURNISHED BY OTHERS	MTD	MOUNTED	XFMR	TRANSFORMER
FBU	FAN CUL UNIT				

ELECTRICAL SYMBOL LEGEND

	POWER SYMBOLS BRANCH CIRCUIT HOMERUN, UNDER FLOOR SLAB, CONCEALED IN WALLS, OR ABOVE CEILING TO PANEL, AND CIRCUIT AS INDICATED. NUMBER OF WIRES AS NOTED BY HASH MARKS (3-PHASE, 1-NEUTRAL, 1-GND, 1-ISO, GND, WIRE SHOWN), MIN. 34% ² , AND #10 AWG. WIRE UON. ALL RACEWAYS TO CONTAIN SEPARATE EQUIPMENT GROUNDING CONDUCTORS.		POWER SYMBOLS (CONTINUED) 20A, 125V, 2 POLE, 3 WIRE, GROUNDING TYPE, NEMA 5-20R, GROUND FAULT CIRCUIT INTERRUPTING TYPE, DUPLEX RECEPTACLE (+18" AFF), PROVIDE WIRING ADAPTER AS REQUIRED TO ALLOW LARGER WIRE TO TERMINATE INTO RECEPTACLE. REFER TO PLANS FOR BRANCH CIRCUIT WIRE SIZE.
	CONDUIT TURNED UP. CONDUIT TURNED DOWN.		20A, 125V, 2 POLE, 3 WIRE, GROUNDING TYPE, NEMA 5-20R, GROUND FAULT CIRCUIT INTERRUPTING TYPE, DUPLEX RECEPTACLE (+18" AFF) WITH WEATHER PROOF "IN-USE" COVER. PROVIDE WIRING ADAPTER AS REQUIRED TO ALLOW LARGER WIRE TO TERMINATE INTO RECEPTACLE. REFER TO PLANS FOR BRANCH CIRCUIT WIRE SIZE.
	CONDUIT RUN CONCEALED IN WALLS OR ABOVE CEILING. CONDUIT MAY BE EXPOSED IN STORAGE ROOMS OR EQUIPMENT SPACES ONLY. ALL RACEWAYS TO CONTAIN SEPARATE EQUIPMENT GROUNDING CONDUCTORS.		30A, 125V, 2 POLE, 4 WIRE, NEMA L6-30R, ISOLATED GROUNDING TYPE, DUPLEX RECEPTACLE (+18" AFF) ON EMERGENCY POWER. PROVIDE WIRING ADAPTER AS REQUIRED TO ALLOW LARGER WIRE TO TERMINATE INTO RECEPTACLE. RECEPTACLE TO RED IN COLOR. REFER TO PLANS FOR BRANCH CIRCUIT WIRE SIZE.
	CONDUIT CONCEALED IN CONCRETE DECK OR ROUTED BELOW FLOOR SLAB OR PAVED AREA. FOR UNDERGROUND CONDUITS, PROVIDE MINIMUM COVER REQUIREMENTS PER NEC. ALL RACEWAYS TO CONTAIN SEPARATE EQUIPMENT GROUNDING CONDUCTORS.		SECURITY CAMERA WITH ENCLOSURE HEATER CONNECTION. COORDINATE REQUIREMENTS WITH SECURITY SYSTEM INSTALLER. REFER TO TE-SERIES DRAWINGS.
	MECHANICAL EQUIPMENT REFERENCE I.D. REFER TO CONNECTION SCHEDULE FOR ADDITIONAL INFORMATION.		UL 1008 EMERGENCY POWER TRANSFER DEVICE.
	20A, 120/277V, SINGLE POLE TOGGLE SWITCH (+48" AFF).		MOTOR OPERATED DAMPER, PBO, WIRING BY EC. SEE MECHANICAL DRAWINGS FOR EXACT LOCATION AND TYPE.
	WALL MOUNTED, ILLUMINATED DIGITAL TIME SWITCH WITH TIME OUT SETTINGS FROM 5 MIN. TO 12 HOURS WITH INTEGRAL ON/OFF WALL SWITCH.		FIRE ALARM SYMBOLS FIRE ALARM CONTROL PANEL. AUDIO/VISUAL ALARM INDICATING APPLIANCE (+80" AFF). SUBSCRIPT DENOTES CANDELA RATING. AUDIO/VISUAL ALARM INDICATING APPLIANCE (CEILING MOUNTED). SUBSCRIPT DENOTES CANDELA RATING. PHOTOELECTRIC SMOKE DETECTOR WITH RELAY BASE. FIRE ALARM MANUAL PULL STATION. (+48" AFF).
	CEILING MOUNTED, ULTRASONIC SENSING, OCCUPANCY SENSOR DEVICE. (WATTSTOPPER "WT" SERIES OR EQUIVALENT).		UNIT HEATER
	METALLIC JUNCTION BOX, SIZE AS REQUIRED PER NEC.		TYPICAL
	HEAVY-DUTY SAFETY SWITCH. REFER TO DRAWINGS AND ONE LINE DIAGRAM FOR SIZE, RATING, AND ENCLOSURE TYPE.		ELECTRICAL PANELBOARD. REFER TO PANEL SCHEDULES FOR VOLTAGE, SIZE, RATING AND MOUNTING TYPE. ALSO REFER TO ONE LINE DIAGRAM.
	20A, 125V, 2 POLE, 3 WIRE, GROUNDING TYPE, NEMA 5-20R, DUPLEX RECEPTACLE (+18" AFF). PROVIDE WIRING ADAPTER AS REQUIRED TO ALLOW LARGER WIRE TO TERMINATE INTO RECEPTACLE. REFER TO PLANS FOR BRANCH CIRCUIT WIRE SIZE. QUADRUPLEX RECEPTACLE - TWO (2) 20A, 125V, 2 POLE, 3 WIRE, GROUNDING TYPE, DUPLEX RECEPTACLES MTD. IN COMMON BACKBOX (+18" AFF). PROVIDE WIRING ADAPTER AS REQUIRED TO ALLOW LARGER WIRE TO TERMINATE INTO RECEPTACLE. RECEPTACLE TO BE RED IN COLOR. REFER TO PLANS FOR BRANCH CIRCUIT WIRE SIZE. QUADRUPLEX RECEPTACLE ON EMERGENCY POWER - TWO (2) 20A, 125V, 2 POLE, 3 WIRE, GROUNDING TYPE, DUPLEX RECEPTACLES MTD. IN COMMON BACKBOX (+18" AFF). PROVIDE WIRING ADAPTER AS REQUIRED TO ALLOW LARGER WIRE TO TERMINATE INTO RECEPTACLE. RECEPTACLE TO BE RED IN COLOR. REFER TO PLANS FOR BRANCH CIRCUIT WIRE SIZE.		

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Drawing Title
ELECTRICAL GENERAL NOTES

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