LEGEND

NOTE: ALL SYMBOLS MAY NOT BE USED ON THIS PROJECT

DEVICES

- SINGLE RECEPT. - 125V, 15A/20A AS REQUIRED
- DUPLEX RECEPT.- 125V, 15A/20A AS REQUIRED
- FOURPLEX RECEPT. - 125V, 15A/20A AS REQUIRED
- HALF-SWITCHED RECEPT. - 125V, 15A/20A AS RQ'D
- FACELESS GFCI OUTLET - READILY ACCESSIBLE
- SPECIAL PURPOSE RECEPT. - V AND A AS REQUIRED
- FLUSH FLOOR OUTLET (DEVICE AS INDICATED)
- CLOCK RECEPTACLE
- PM12 — PLUGMOLD - # INDICATES RECEPTACLE SPACING O.C.
- WM — WIREMOLD - AS SPECIFIED ON PLAN
- PP — POWER POLE
- PP — POWER/DATA POLE (DIVIDED)
- POWER OUTLET FURNITURE WHIP
- BELL, CHIME, OR BUZZER
- HOOD CONNECTION
- THERMOSTAT
- DAMPER MOTOR
- IBTD — INTERSYSTEM BONDING TERMINATION DEVICE

SWITCHES/CONTROLS

- S — SINGLE POLE SWITCH
- S_2 — TWO POLE SWITCH
- S_3 — 3-WAY SWITCH
- S_4 — 4-WAY SWITCH
- SS — DUAL-LEVEL SWITCHING (ALTERNATE LAMPS OR FIXTURES)
- S_P — SWITCH WITH PILOT LIGHT
- S_K — KEY OPERATED SWITCH
- D OR S_D — DIMMER SWITCH - WATTAGE AS REQUIRED
- S_T — MECHANICAL TIME SWITCH
- S_{LV} — LOW VOLTAGE SWITCH
- V OR S_V — VARIABLE SPEED MOTOR CONTROL SWITCH
- S_{CB} — CIRCUIT-BREAKER SWITCH - 20A1P
- OCCUPANCY SENSOR - CEILING MOUNTED
- OCCUPANCY SENSOR - WALL MOUNTED
- OCCUPANCY SENSOR - 2-POLE, WALL MOUNTED
- OCCUPANCY SENSOR - 3-WAY, WALL MOUNTED
- OCCUPANCY SENSOR - CORNER MOUNTED - WALL OR CEILING
- OS — OCCUPANCY SENSOR - LIGHT FIXTURE MOUNTED/INTEGRAL
- PHOTOSENSOR - CEILING MOUNTED
- PS — PHOTOSENSOR - LIGHT FIXTURE MOUNTED/INTEGRAL
- CM1 — DIGITAL LOAD CONTROL MODULE WITH 1 RELAY
- CM2 — DIGITAL LOAD CONTROL MODULE WITH 2 RELAYS
- CM2 — DIGITAL LOAD CONTROL MODULE WITH 3 RELAYS
- CM1D — DIGITAL LOAD CONTROL MODULE WITH 1 RELAY & DIMMING
- CM2D — DIGITAL LOAD CONTROL MODULE WITH 2 RELAYS & DIMMING
- S — DIGITAL SWITCH
- S # — DIGITAL SWITCH - # = NUMBER OF BUTTONS
- DIGITAL SWITCH WITH RAISE/LOWER BUTTON
- LCD TOUCHSCREEN - X = SCREEN SIZE
- S_{TO} — THERMAL OVERLOAD SWITCH
- PUSH BUTTON
- EMERGENCY POWER-OFF SHUNT-TRIP
- T S — TIME SWITCH - TORK (DIGITAL)
- PC — PHOTOCELL

POWER DISTRIBUTION

- SWITCHBOARD OR EQUIPMENT ENCLOSURE
- ELECTRICAL PANEL
- SWITCH WITH FUSE
- SWITCH
- PULLOUT FUSED DISCONNECT
- CIRCUIT BREAKER
- M2 — CONTACT - NO - # INDICATES ASSOC. COIL
- M2 — CONTACT - NC - # INDICATES ASSOC. COIL
- M2 — COIL - # INDICATES ASSOCIATED CONTACT
- OVERLOAD RELAY
- KKI 2 — KIRK KEY INTERLOCK - # INDICATES RELATED KEYS
- TVSS — TRANSIENT VOLTAGE SURGE SUPPRESSER
- SPD — SURGE PROTECTIVE DEVICE
- AC POWER SOURCE
- DC POWER SOURCE
- NF — NON-FUSED DISCONNECT SWITCH
- FUSED DISCONNECT SWITCH
- MAGNETIC STARTER OR CONTACTOR
- COMBINATION STARTER
- M OR M — ELECTRIC METER - UTILITY METER U.O.N.
- OR CT — CURRENT TRANSFORMER
- MOTOR
- TRANSFER SWITCH
- GENERATOR
- J/B OR — JUNCTION BOX
- CIRCUIT RUN CONCEALED IN WALL OR CEILING
- CIRCUIT RUN IN OR UNDER FLOOR OR IN EARTH
- CIRCUIT RUN SURFACE MOUNTED
- CONDUIT UP, CONDUIT DOWN
- CONDUIT STUB - CAP IF UNDERGROUND
- FLEXIBLE CONNECTION TO EQUIPMENT
- HOMERUN - ARROWS INDICATE # OF PHASE COND.
- GROUNDING ELECTRODE
- PAD MOUNTED TRANSFORMER
- OR T — TRANSFORMER
- OVERHEAD SERVICE ENTRANCE

LIGHTING

- RECESSED FLUORESCENT
- SURFACE FLUORESCENT
- FLUORESCENT STRIP LIGHT
- LIGHT - TYPE INDICATED ON SCHEDULE
- LIGHT - TYPE INDICATED ON SCHEDULE
- TRACK LIGHT
- SURFACE MOUNTED FIXTURE
- RECESSED FIXTURE
- RECESSED WALL WASHER
- PENDANT MOUNTED FIXTURE
- WALL MOUNTED FIXTURE
- KEYLESS PORCELAIN LAMP HOLDER - 150W
- BATTERY PACK EMERGENCY LIGHT
- REMOTE EMERGENCY LIGHT
- EMWP — EXTERIOR EMERGENCY EGRESS LIGHT
- BATT — BATTERY PACK FOR REMOTE EMERGENCY LIGHT
- BATTERY PACK EXIT LIGHT
- BATTERY PACK EXIT/EM COMBINATION LIGHT
- OR NL — INDICATES NON-SWITCHED NIGHT LIGHT
- EM — INDICATES INTEGRAL EMERGENCY POWER BATTERY

UPPERCASE LETTER ADJACENT TO FIXT. INDICATES FIXTURE TYPE

LOWERCASE LETTER ADJACENT TO FIXT. INDICATES CONTROL

ABBREVIATIONS

AC	ABOVE COUNTER
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AFI/AFCI	ARC-FAULT CIRCUIT INTERRUPTER
AIC	AMPERE INTERRUPTING CAPACITY (MINIMUM RATING)
ATS	AUTOMATIC TRANSFER SWITCH
CD	CORD DROP
CLG	CEILING MOUNTED
DT	DUST TIGHT
E OR (E)	EXISTING
FLR	FLOOR MOUNTED
G OR GND	GROUND
GFI/GFCI	PERSONNEL GROUND-FAULT PROTECTION (.5ma)
GF/GFPE	EQUIPMENT GROUND-FAULT PROTECTION
IG	ISOLATED GROUND
ISC	AVAILABLE FAULT CURRENT (RMS SYMMETRICAL)
ILT	LET-THROUGH FAULT CURRENT (RMS SYMMETRICAL)
N OR (N)	NEW
NO/NC	NORMALLY OPEN/NORMALLY CLOSED
O.C.	ON CENTER
R OR (R)	RELOCATE
SCCR	SHORT CIRCUIT CURRENT RATING
ST	SHUNT-TRIP
TL	TWIST-LOCK
TR	TAMPER RESISTANT
UC	UNDER COUNTER
UON	UNLESS OTHERWISE NOTED
WP	WEATHER PROOF
XP	EXPLOSION PROOF

AUDIO/VISUAL

- SPEAKER - CEILING MOUNTED (FLUSH)
- SPEAKER - WALL MOUNTED
- AUDIO/VISUAL EQUIPMENT RACK - FLOOR MOUNTED
- AUDIO/VISUAL EQUIPMENT RACK - WALL MOUNTED
- VC — VOLUME CONTROL
- MICROPHONE OUTLET - FLOOR MOUNTED
- MICROPHONE OUTLET - WALL MOUNTED
- CABLE/TV OUTLET

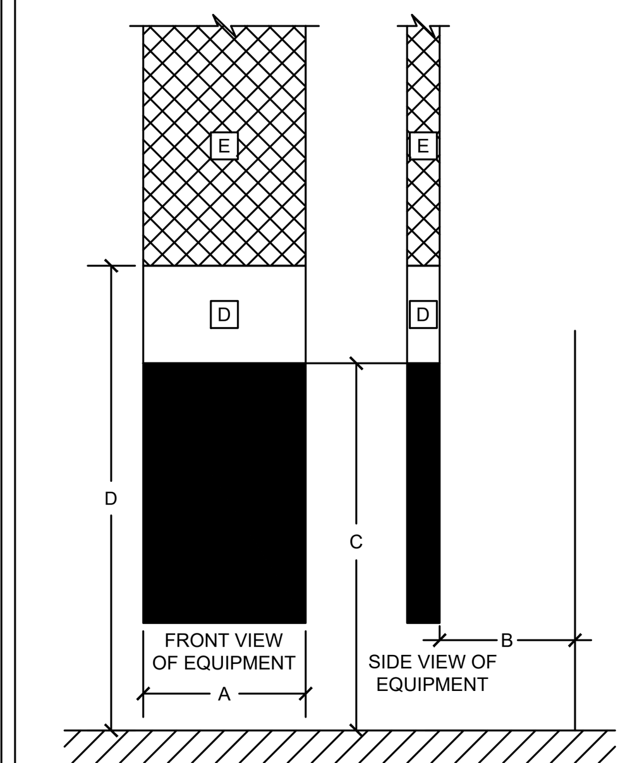
DESIGNATIONS

- X — MECHANICAL/PLUMBING EQUIPMENT
- X — REVISION TAG
- XX — DETAIL NOTE
- X — DETAIL NOTE
- XXX — KITCHEN EQUIPMENT

PHONE/DATA

- DATA OUTLET
- TELEPHONE OUTLET
- COMBINATION TELEPHONE/DATA OUTLET
- FLUSH FLOOR OUTLET (DEVICE AS INDICATED)
- COMMUNICATIONS OUTLET FURNITURE WHIP
- TELEPHONE TERMINAL BOARD
- TELEPHONE TERMINAL CABINET

CLEAR SPACE/WORKING SPACE ABOUT ELECTRICAL EQUIPMENT



A	PROVIDE CLEAR SPACE EQUAL TO THE WIDTH OF EQUIPMENT OR 30", WHICHEVER IS GREATER.
B	PROVIDE THE FOLLOWING CLEAR SPACE IN FRONT OF EQUIPMENT: 3' FOR 0-150 L-G VOLTAGE AND 4' FOR 151-600 L-G VOLTAGE.
C	PROVIDE CLEAR SPACE, FOR THE WIDTH OF THE EQUIPMENT, FROM GRADE, FLOOR OR PLATFORM TO A HEIGHT OF 6-1/2' OR THE HEIGHT OF THE EQUIPMENT, WHICHEVER IS GREATER.
D	THE SPACE EQUAL TO THE WIDTH AND DEPTH OF THE EQUIPMENT AND EXTENDING FROM THE FLOOR TO A HEIGHT OF 6' ABOVE THE EQUIPMENT OR TO THE STRUCTURAL CEILING, WHICHEVER IS LOWER, SHALL BE DEDICATED TO THE ELECTRICAL INSTALLATION - NO PIPING, DUCTS, LEAK PROTECTION APPARATUS, OR OTHER EQUIPMENT FOREIGN TO THE ELECTRICAL INSTALLATION SHALL BE LOCATED IN THIS ZONE. SUSPENDED CEILINGS WITH REMOVABLE PANELS SHALL BE PERMITTED WITHIN THE 6' ZONE. SPRINKLER PROTECTION SHALL BE PERMITTED FOR THE DEDICATED SPACE WHERE THE PIPING COMPLIES WITH THIS SECTION. A DROPPED, SUSPENDED, OR SIMILAR CEILING THAT DOES NOT ADD STRENGTH TO THE BUILDING STRUCTURE SHALL NOT BE CONSIDERED A STRUCTURAL CEILING.
E	THE AREA ABOVE THE DEDICATED SPACE SHALL BE PERMITTED TO CONTAIN FOREIGN SYSTEMS, PROVIDED PROTECTION IS INSTALLED TO AVOID DAMAGE TO THE ELECTRICAL EQUIPMENT FROM CONDENSATION, LEAKS, OR BREAKS IN SUCH FOREIGN SYSTEMS.

THE FINAL LOCATION OF EQUIPMENT SHALL BE COORDINATED IN THE FIELD, PRIOR TO ROUGH-IN, TO MEET APPLICABLE LOCATION, HEIGHT AND CLEARANCE REQUIREMENTS.

THE ELECTRICAL CONTRACTOR SHALL STOP WORK IMMEDIATELY, AND ADVISE OTHERS TO STOP WORK IF THERE IS A CONFLICT WITH THE ELECTRICAL CLEARANCE AND WORK SPACE REQUIREMENTS PER THE ABOVE INFORMATION AND THE NEC.

BRANCH-CIRCUIT WIRING SCHEDULE (UNLESS OTHERWISE NOTED)

OVERCURRENT PROTECTION DEVICE RATING/ SETTING	PHASE CONDUCTOR SIZE (CU)	NEUTRAL CONDUCTOR SIZE (CU) (IF REQUIRED)	EQUIPMENT GROUNDING CONDUCTOR SIZE (CU)	CONDUIT SIZE
15 A	#12 AWG	#12 AWG	#12 AWG	1/2"
20 A	#12 AWG	#12 AWG	#12 AWG	1/2"
25 A	#10 AWG	#10 AWG	#10 AWG	1/2"
30 A	#10 AWG	#10 AWG	#10 AWG	1/2"
35 A	#8 AWG	#8 AWG	#10 AWG	3/4"
40 A	#8 AWG	#8 AWG	#10 AWG	3/4"
45 A	#6 AWG	#6 AWG	#10 AWG	1"
50 A	#6 AWG	#6 AWG	#10 AWG	1"
60 A	#4 AWG	#4 AWG	#10 AWG	1 1/4"
70 A	#4 AWG	#4 AWG	#8 AWG	1 1/4"
80 A	#3 AWG	#3 AWG	#8 AWG	1 1/4"
90 A	#2 AWG	#2 AWG	#8 AWG	1 1/2"
100 A	#1 AWG	#1 AWG	#8 AWG	1 1/2"

NOTES:

1.	FOR MOTOR LOADS, USE MCA (MINIMUM CIRCUIT AMPACITY) TO SIZE PHASE AND NEUTRAL CONDUCTORS AND USE MOCP (MAXIMUM OVER-CURRENT PROTECTIVE DEVICE) TO SIZE EQUIPMENT GROUNDING CONDUCTOR.
2.	INCREASE PHASE, NEUTRAL, AND EQUIPMENT GROUNDING CONDUCTOR SIZES BY 1 STANDARD CONDUCTOR SIZE PER EACH 75' OF CONDUCTOR LENGTH. INCREASE CONDUIT SIZE ACCORDINGLY.

ELECTRICAL SPECIFICATIONS

GENERAL REQUIREMENTS

DRAWINGS ARE DIAGRAMMATIC AND DO NOT INDICATE ALL FITTINGS, JUNCTION BOXES, ETC. REQUIRED. PROVIDE ALL REQUIRED EQUIPMENT, CONDUIT, FITTINGS, WIRING, BOXES, ETC. FOR A COMPLETE AND OPERATIONAL INSTALLATION.

WORK AND EQUIPMENT SHALL COMPLY WITH STATE AND LOCALLY ADOPTED CODES AND STANDARDS, INCLUDING THE 2017 NATIONAL ELECTRICAL CODE (NEC), INTERNATIONAL CODES (I-CODES), AND LOCAL AMENDMENTS.

ANYTHING DRAWN OR SPECIFIED SHALL NOT BE CONSTRUED TO CONFLICT WITH STATE AND LOCALLY ADOPTED CODES AND STANDARDS, INCLUDING THE NATIONAL ELECTRICAL CODE, WHICH GOVERNS THE INSTALLATION OF ANY ELECTRICAL WORK. ITEMS SHALL NOT BE INSTALLED IN CONFLICT WITH THE NEC. RESOLVE ANY AND ALL CONFLICTS PRIOR TO INSTALLATION.

BECOME THOROUGHLY ACQUAINTED WITH THE CONDITIONS UNDER WHICH WORK IS TO BE PERFORMED. EXAMINE ALL SERVICES, EQUIPMENT, AND EXISTING CONDITIONS, WHICH THIS WORK IS IN ANY WAY DEPENDENT UPON, AND BRING ANY DISCREPANCIES OR OMISSIONS FOUND IN THE DRAWINGS TO THE ELECTRICAL ENGINEER'S ATTENTION PRIOR TO SUBMITTING BID.

THE LOCATION OF OUTLETS AND EQUIPMENT SHOWN ON THE DRAWINGS ARE APPROXIMATE. THE ARCHITECT AND ENGINEER SHALL HAVE THE RIGHT TO ADJUST THE LOCATION OF OUTLETS OR FIXTURES, WITHIN 10' OF THE SPECIFIED LOCATION, BEFORE THEY ARE INSTALLED AND WITHOUT ADDITIONAL COST.

PROVIDE DRAWINGS TO LOCAL BUILDING AUTHORITY AND OBTAIN A PERMIT PRIOR TO STARTING ANY WORK.

NOTIFY ELECTRICAL ENGINEER OF ANY CHANGES REQUESTED BY THE LOCAL BUILDING AUTHORITY IMMEDIATELY AND PRIOR TO STARTING WORK.

VERIFY AND COMPLY WITH UTILITY COMPANY REQUIREMENTS. PROVIDE METERING, CONNECTION CABINETS, CT CABINETS, AND TRANSFORMER AND CONNECTION CABINET PADS PER LOCAL UTILITY COMPANY REQUIREMENTS.

PROVIDE A REDLINED AS-BUILT SET OF ELECTRICAL DRAWINGS TO OWNER UPON COMPLETION OF WORK.

ELECTRICAL WORK SHOWN LIGHT OR MARKED "E" IS EXISTING, SHOWN DARK IS NEW, AND SHOWN DASHED IS EXISTING TO BE REMOVED OR RELOCATED UNLESS OTHERWISE INDICATED. DASHING MAY ALSO INDICATE UNDER FLOOR OR UNDER GROUND CONDUIT. IF UNCLEAR, CONTACT ELECTRICAL ENGINEER FOR CLARIFICATION.

EQUIPMENT, WIRING, AND DEVICES SHOWN ARE NEW UNLESS OTHERWISE NOTED.

MAINTAIN CIRCUITING TO EXISTING EQUIPMENT AND DEVICES TO REMAIN.

REFERENCE ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

INSTALL EQUIPMENT AND DEVICES PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. NOTIFY ELECTRICAL ENGINEER, PRIOR TO INSTALLING EQUIPMENT AND DEVICES, IF MANUFACTURER'S INSTALLATION INSTRUCTIONS CONFLICT WITH ELECTRICAL INFORMATION ON THE THESE DRAWINGS.

ELECTRICALLY OPERATED EQUIPMENT SHOWN ON PLANS (ARCHITECTURAL, MECHANICAL, PLUMBING, ELECTRICAL, CIVIL, EQUIPMENT SUPPLIER, SHOP DRAWINGS) AND NOT CIRCUITED ON THE ELECTRICAL PLANS, WILL REQUIRE ELECTRICAL SERVICE. CONTACT ELECTRICAL ENGINEER FOR CONNECTION REQUIREMENTS AND CLARIFICATION PRIOR TO BID. THE COST FOR THIS WORK SHALL BE INCLUDED IN THE BID.

PROVIDE HANGERS AND SUPPORTS TO ADEQUATELY AND SECURELY SUPPORT ELECTRICAL SYSTEM COMPONENTS IN A NEAT AND WORKMANLIKE MANNER.

MAINTAIN THE FIRE RATING OF THE ASSEMBLY (CEILING, WALL, OR FLOOR) IN WHICH EQUIPMENT, WIRING, AND DEVICES ARE TO BE INSTALLED.

EQUIPMENT SHALL BE FULLY RATED FOR THE AMBIENT CONDITIONS (ELEVATION, TEMPERATURE, WIND LOAD, SOIL CONDITIONS, ETC) AT THE PROJECT LOCATION.

KEEP PRODUCTS IN ORIGINAL MANUFACTURER'S PACKAGING AND PROTECT FROM DAMAGE UNTIL READY FOR INSTALLATION.

PROVIDE PRODUCTS LISTED, CLASSIFIED, AND LABELED AS SUITABLE FOR THE PURPOSE INTENDED.

UNLESS SPECIFICALLY INDICATED TO BE EXCLUDED, PROVIDE ALL REQUIRED CONDUIT, BOXES, WIRING, CONNECTORS, HARDWARE, SUPPORTS, TRIMS, ACCESSORIES, ETC. AS NECESSARY FOR COMPLETE AND OPERATIONAL SYSTEMS.

SUBMITTALS AND SUBSTITUTIONS

PROVIDE PRODUCT DATA SHEETS AND SHOP DRAWINGS FOR EQUIPMENT, FIXTURES, AND DEVICES TO ELECTRICAL ENGINEER PRIOR TO PURCHASING. REVIEW, STAMP AND INITIAL ALL ELECTRICAL SUBMITTALS AND SHOP DRAWINGS CERTIFYING THAT THE SUBMITTALS HAVE BEEN REVIEWED PRIOR TO SUBMITTING TO ELECTRICAL ENGINEER FOR REVIEW.

EQUIPMENT AND FIXTURES SPECIFIED REPRESENT REQUIRED QUALITY AND PERFORMANCE.

PROVIDE PRODUCT DATA SHEETS AND SHOP DRAWING OF PROPOSED SUBSTITUTIONS TO SPECIFIED EQUIPMENT TO ELECTRICAL ENGINEER FOR REVIEW. ELECTRICAL ENGINEER SHALL DETERMINE THE ACCEPTABILITY OF SUBSTITUTIONS TO SPECIFIED EQUIPMENT. REVIEW, STAMP AND INITIALED ALL ELECTRICAL SUBMITTALS AND SHOP DRAWINGS CERTIFYING THAT SUBMITTALS HAVE BEEN REVIEWED PRIOR TO SUBMITTING TO ELECTRICAL ENGINEER FOR REVIEW.

SUBMITTALS AND SHOP DRAWINGS ARE TO INCLUDE THE FOLLOWING: KEY TO PLAN DESIGNATIONS, MANUFACTURER, MODEL NUMBER, DATA SHEETS, QUANTITIES, COLORS, LABELS, DIMENSIONS, INSTALLATION INSTRUCTIONS, AND ANY ADDITIONAL INFORMATION REQUIRED TO DETERMINE IF THE PRODUCT MEETS THE DESIGN INTENT.

REQUESTS FOR MODIFICATIONS TO THE CONTRACT (CHANGE ORDERS)

REQUESTS BY CONTRACTOR FOR ADDITION OR REDUCTION TO THE CONTRACT AMOUNT SHALL BE ACCOMPANIED BY THE FOLLOWING FOR EVALUATION BY THE OWNER AND ENGINEER:

1. ORIGIN AND DATE OF CLAIM
2. QUANTITIES OF PRODUCTS, LABOR, AND EQUIPMENT
3. DOLLAR AMOUNT OF TAXES, OVERHEAD, AND PROFIT
4. JUSTIFICATION FOR ANY CHANGE IN CONTRACT TIME
5. CREDIT AMOUNT FOR DELETIONS (WITH DOCUMENTATION)
6. DATES AND TIMES OF WORK PERFORMED, AND BY WHOM
7. TIME RECORDS AND WAGE RATES PAID
8. INVOICES AND RECEIPTS FOR PRODUCTS AND EQUIPMENT

SUBMIT ALL DOCUMENTATION TO ENGINEER AND OWNER, AND OBTAIN WRITTEN APPROVAL PRIOR TO STARTING ANY WORK THAT AFFECTS THE CONTRACT AMOUNT OR COMPLETION DATE.

EXISTING CONDITIONS

THESE DRAWINGS CONTAIN INFORMATION REGARDING EXISTING CONDITIONS. THIS INFORMATION WAS COMPILED FROM EXISTING DRAWINGS, CASUAL FIELD OBSERVATIONS OR INFORMATION PROVIDED BY OTHERS. IN SOME CASES, ASSUMPTIONS WERE MADE WHEN FIELD OBSERVATIONS OR EXISTING DRAWINGS DID NOT PROVIDE NECESSARY INFORMATION (I.E. LOCKED DISCONNECTS, NO WIRE SIZE INDICATED, NAMEPLATE DATA MISSING, INACCURATE AS-BUILT DRAWINGS, ETC.).

EXISTING CONDITIONS SHALL BE VERIFIED AND ALLOWED FOR PRIOR TO BID AND CONSTRUCTION. NOTIFY THE ELECTRICAL ENGINEER OF ANY DISCREPANCIES WITH THESE DRAWINGS IMMEDIATELY AND PRIOR TO COMMENCING ANY FURTHER WORK.

COORDINATION

THE ELECTRICAL DRAWINGS ARE ONLY ONE PART OF A COMPLETE SET OF CONSTRUCTION DOCUMENTS. EXAMINE THE ARCHITECTURAL, MECHANICAL, PLUMBING, AND CIVIL DRAWINGS PRIOR TO SUBMITTING BID AND STARTING WORK TO DETERMINE THE FULL EXTENT OF ELECTRICAL WORK REQUIRED.

COORDINATE WORK WITH OTHER TRADES PRIOR TO ROUGH-IN. COORDINATION SHALL INCLUDE REVIEWING THE ARCHITECTURAL, MECHANICAL, PLUMBING, ETC. DRAWINGS AND SHOP DRAWINGS PRIOR TO BID AND CONSTRUCTION.

OBTAIN AND REVIEW SHOP DRAWINGS, PRODUCT DATA, MANUFACTURER'S WIRING DIAGRAMS AND MANUFACTURER'S INSTRUCTIONS FOR EQUIPMENT PROVIDED BY OTHERS.

THE FINAL LOCATION OF EQUIPMENT SHALL BE COORDINATED IN THE FIELD, PRIOR TO ROUGH-IN, TO MEET APPLICABLE LOCATION, HEIGHT AND CLEARANCE REQUIREMENTS.

DEMOLITION

DISCONNECT WIRING TO EQUIPMENT, DEVICES, AND FIXTURES TO BE REMOVED. REMOVE EQUIPMENT, WIRING, DEVICES AND CONDUIT NOT BEING USED. DISCONNECT ELECTRICAL SYSTEMS IN WALLS, FLOORS, AND CEILINGS TO BE REMOVED.

FIELD VERIFY EXISTING CONDITIONS TO DETERMINE EXTENT OF DEMOLITION WORK. REFERENCE ARCHITECTURAL, MECHANICAL, AND ELECTRICAL PLANS FOR ADDITIONAL INFORMATION. DEMOLITION DRAWINGS ARE BASED ON CASUAL FIELD OBSERVATION AND EXISTING RECORD DOCUMENTS. DEMO PLANS ARE PROVIDED FOR REFERENCE ONLY.

MAINTAIN THE ELECTRICAL SERVICE TO EXISTING EQUIPMENT AND DEVICES TO REMAIN. EXTEND EXISTING INSTALLATIONS USING MATERIALS AND METHODS COMPATIBLE WITH EXISTING ELECTRICAL INSTALLATIONS.

PROVIDE TEMPORARY WIRING AND CONNECTIONS TO MAINTAIN EXISTING SYSTEMS IN SERVICE DURING CONSTRUCTION.

MAINTAINING EXISTING SERVICES

MAINTAIN THE ELECTRICAL SERVICE TO EXISTING TENANTS AND AREAS. ANY SERVICE DISCONTINUITY SHALL BE COORDINATED AND APPROVED BY OWNER AND TENANTS PRIOR TO OUTAGE. IF REQUIRED, PROVIDE TEMPORARY POWER DURING OUTAGE.

WIRING AND CONDUIT

NEW WIRING SHALL BE THHN/THWN-2, 90°C INSULATED COPPER UNLESS OTHERWISE NOTED. ALUMINUM CONDUCTORS SHALL BE XHHW-2, INSULATED COMPACT STRAND.

THE CONDUCTORS FOR 15A AND 20A BRANCH CIRCUITS SHALL BE #12 THHN/THWN-2, 90°C INSULATED COPPER.

15A BRANCH CIRCUITS IN DWELLING UNITS MAY BE #14 THHN/THWN-2, 90°C INSULATED COPPER.

BRANCH-CIRCUIT CONDUCTORS GREATER THAN 20A SHALL BE AS INDICATED ON PLANS OR REQUIRED PER CODE.

INCREASE CONDUCTOR SIZES AS REQUIRED TO LIMIT FEEDER VOLTAGE DROP TO 3%, BRANCH-CIRCUIT VOLTAGE DROP TO 3%, AND TOTAL VOLTAGE DROP (FEEDER + BRANCH-CIRCUIT) TO 5%.

THE MAXIMUM NUMBER OF CONDUCTORS IN A CONDUIT FOR A 3Ø SYSTEM SHALL BE THREE (AØ, BØ, CØ), NOT INCLUDING NEUTRAL AND EQUIPMENT GROUNDING CONDUCTORS, UNLESS OTHERWISE INDICATED. CONDUIT SIZE SHALL BE BASED UPON NEC CHAPTER 9 AND ANNEX C. MORE THAN 3 CURRENT-CARRYING CONDUCTORS MAY BE INSTALLED IN A RACEWAY IF THE APPROPRIATE AMPACITY-DERATING FACTORS ARE APPLIED.

THE MAXIMUM NUMBER OF CONDUCTORS IN A CONDUIT FOR A 1Ø SYSTEM SHALL BE TWO (AØ, BØ), NOT INCLUDING NEUTRAL AND EQUIPMENT GROUNDING CONDUCTORS UNLESS OTHERWISE INDICATED. CONDUIT SIZE SHALL BE BASED UPON NEC CHAPTER 9 AND ANNEX C. MORE THAN 3 CURRENT-CARRYING CONDUCTORS MAY BE INSTALLED IN A RACEWAY IF THE APPROPRIATE AMPACITY-DERATING FACTORS ARE APPLIED.

PROVIDE A DEDICATED NEUTRAL FOR EACH LINE-TO-NEUTRAL CIRCUIT UNLESS A MULTI-POLE BREAKER, WHICH DISCONNECTS ALL PHASE CONDUCTORS THAT SHARE A NEUTRAL, IS PROVIDED (LISTED BREAKER-TIES ARE PERMITTED).

PROVIDE AN INSULATED EQUIPMENT GROUNDING CONDUCTOR WITH ALL FEEDERS AND BRANCH-CIRCUIT WIRING.

INCREASE CONDUIT SIZE AS REQUIRED TO ACCOMMODATE EQUIPMENT GROUNDING CONDUCTOR.

PROVIDE ALL CONDUIT, FITTINGS, SUPPORTS, AND ACCESSORIES REQUIRED FOR A COMPLETE RACEWAY SYSTEM.

CONDUIT SHALL BE CONCEALED IN WALLS, FLOOR OR CEILING IN FINISHED AREAS UNLESS OTHERWISE INDICATED.

IN FINISHED AREAS, WHERE CONDUIT AND CABLE CAN NOT BE CONCEALED IN WALLS OR CEILINGS (I.E. EXISTING MASONRY CONSTRUCTION), PROVIDE WIREMOLD OR EQUAL SURFACE MOUNTED RACEWAY AS APPROVED BY ARCHITECT OR ENGINEER.

UNLESS OTHERWISE INDICATED AND WHERE NOT OTHERWISE RESTRICTED, USE THE CONDUIT TYPES INDICATED BELOW FOR THE SPECIFIED APPLICATIONS. WHERE MORE THAN ONE LISTED APPLICATION APPLIES, COMPLY WITH THE MOST RESTRICTIVE REQUIREMENTS. WHERE CONDUIT TYPE FOR A PARTICULAR APPLICATION IS NOT SPECIFIED, USE GALVANIZED STEEL RIGID METAL CONDUIT. DO NOT USE CONDUIT AND ASSOCIATED FITTINGS FOR APPLICATIONS OTHER THAN AS PERMITTED BY NFPA 70 AND PRODUCT LISTING. REFERENCE THE NEC FOR ADDITIONAL APPLICATION REQUIREMENTS.

APPLICATION	TYPE OF CONDUIT
IN CONCRETE OR MASONRY	EMT, IMC, GRC, PVC
OUTDOORS (ABOVE GRADE)	EMT, IMC, GRC
BRANCH CIRCUITS (EXPOSED)	EMT, IMC, GRC
INTERIOR BRANCH CIRCUITS (CONCEALED BEHIND DRYWALL)	MC, EMT, IMC
INTERIOR BRANCH CIRCUITS (ABOVE DROPPED CEILINGS)	EMT, IMC
SUPPLY TO DISTRIBUTION PANELS	EMT, IMC, GRC, PVC
UNDERGROUND	PVC, IMC, GRC

CONNECTIONS TO LUMINAIRES ABOVE ACCESSIBLE CEILINGS: USE FLEXIBLE METAL CONDUIT. MAXIMUM LENGTH TO BE 6' UNLESS OTHERWISE INDICATED.

WHERE MC CABLE IS PERMITTED TO BE USED, A 6' LENGTH IS PERMITTED TO BE EXPOSED ABOVE A DROPPED CEILING TO CONNECT THE ABOVE CEILING JUNCTION BOX TO THE DEVICES BEHIND DRYWALL.

FINAL CONNECTIONS TO VIBRATING EQUIPMENT (MOTORS, TRANSFORMERS, ETC) SHALL BE MADE WITH FLEXIBLE METAL CONDUIT IN DRY LOCATIONS AND LIQUIDTIGHT FLEXIBLE METAL CONDUIT IN DAMP, WET, OR CORROSIVE LOCATIONS. MAXIMUM LENGTH TO BE 6' UNLESS OTHERWISE INDICATED.

INSTALL RACEWAYS AND CABLES EXPOSED TO SUNLIGHT ON ROOFTOPS A MINIMUM OF 1" ABOVE ROOF SURFACE.

PROVIDE PVC COATED GRC FOR ELBOWS IN PVC CONDUIT RUNS.

ALL CONDUITS AND CABLES PASSING THROUGH RATED WALLS, FLOORS OR CEILINGS SHALL BE FIRE STOPPED WITH APPROVED FIRE BARRIER CAULK. INSTALL CAULK PER MANUFACTURE'S INSTRUCTIONS AND MAINTAIN THE RATING OF THE WALL, FLOOR, OR CEILING BEING PENETRATED.

SERVICE CONDUCTORS: ROUTE OUTSIDE OF BUILDING OR STRUCTURE OTHER THAN AT THE POINT OF ENTRANCE TO CONNECT TO THE SERVICE DISCONNECTING MEANS.

DEVICES

DEVICE AND FACEPLATE COLOR SHALL BE AS SPECIFIED BY THE ARCHITECT OR TO MATCH EXISTING. COORDINATE FACEPLATE AND DEVICE COLORS WITH ARCHITECT, INTERIOR DESIGNER AND OWNER PRIOR TO PURCHASING AND INSTALLING DEVICES AND FACEPLATES.

PROVIDE COMMERCIAL SPECIFICATION GRADE SWITCHES AND RECEPTACLES.

OCCUPANCY SENSOR LOCATION ADJUSTMENTS: LOCATIONS INDICATED ON PLANS ARE DIAGRAMMATIC AND ONLY INTENDED TO INDICATE WHICH ROOMS OR AREAS REQUIRE DEVICES. PROVIDE QUANTITY AND LOCATIONS AS REQUIRED FOR COMPLETE COVERAGE OF RESPECTIVE ROOM OR AREA BASED ON MANUFACTURER'S RECOMMENDATIONS FOR INSTALLED DEVICES.

PHOTOCELL/PHOTOSENSOR LOCATION ADJUSTMENTS: LOCATIONS INDICATED ARE DIAGRAMMATIC AND ONLY INTENDED TO INDICATE WHICH ROOMS OR AREAS REQUIRE DEVICES. PROVIDE QUANTITY AND LOCATIONS AS REQUIRED FOR PROPER CONTROL OF RESPECTIVE ROOM OR AREA BASED ON MANUFACTURER'S RECOMMENDATIONS FOR INSTALLED DEVICES.

DEMONSTRATE PROPER OPERATION OF LIGHTING CONTROL DEVICES TO OWNER, AND CORRECT DEFICIENCIES OR MAKE ADJUSTMENTS AS DIRECTED.

GFCI PROTECTION FOR PERSONNEL PROTECTION: PROVIDE GFCI RECEPTACLE, FACELESS GFCI DEVICE FEEDING STANDARD RECEPTACLE, OR GFCI CIRCUIT-BREAKER. THE GROUND-FAULT CIRCUIT-INTERRUPTER SHALL BE INSTALLED IN A READILY ACCESSIBLE LOCATION.

NON-DWELLING UNIT GFCI PROTECTION: PROVIDE GFCI PROTECTION FOR 1Ø RECEPTACLES RATED 120V, 208V AND 240V, 50A OR LESS AND 3Ø RECEPTACLES RATED 208V AND 240V, 100A OR LESS FOR THE FOLLOWING: BATHROOMS, KITCHENS, ROOFTOPS, OUTDOORS, SINKS (WITHIN 6' OF TOP INSIDE EDGE OF SINK BOWL), ELECTRIC WATER COOLERS, INDOOR WET LOCATIONS, LOCKER ROOMS, CRAWL SPACES, UNFINISHED BASEMENTS, GARAGES, SERVICE BAYS, VEHICLE EXHIBITION HALLS AND SHOWROOMS, AND LOCATIONS INDICATED ON POWER PLAN AND REQUIRED PER THE NEC.

GFCI PROTECTION: PROVIDE GFCI PROTECTION FOR 1Ø AND 3Ø APPLIANCES RATED 120V, 208V AND 240V, 60A OR LESS FOR THE FOLLOWING: PUBLIC USE AUTOMOTIVE VACUUM MACHINES, DRINKING WATER COOLERS, CORD-AND-PLUG HIGH PRESSURE SPRAY WASHING MACHINES, PUBLIC USE TIRE INFLATION MACHINES, VENDING MACHINES, AND LOCATIONS INDICATED ON POWER PLAN AND REQUIRED PER THE NEC.

PROVIDE WEATHER-RESISTANT RECEPTACLES FOR RECEPTACLES INSTALLED IN DAMP OR WET LOCATIONS.

PROVIDE HUBBELL RECEPTACLES WITH THE APPROPRIATE NEMA CONFIGURATION FOR RECEPTACLES SHOWN ON THE ELECTRICAL PLAN.

PROVIDE 6' CORD AND PLUG FOR SPECIAL-PURPOSE RECEPTACLES IF EQUIPMENT TO BE INSTALLED IS NOT SUPPLIED WITH A CORD AND PLUG.

PROVIDE FLOOR-MOUNTED DEVICE COVERS MOUNTED FLUSH WITH THE FINISHED FLOOR SURFACE.

PROVIDE WIRING DEVICES AS MANUFACTURED BY HUBBELL, PASS AND SEYMOUR, LEVITION, WATT-STOPPER, LUTRON OR EQUAL.

COORDINATE MOUNTING HEIGHTS OF SWITCHES, RECEPTACLES, PHONE OUTLETS, DATA OUTLETS, TV OUTLETS, AND LIGHT FIXTURES WITH ARCHITECTURAL DRAWINGS.

THE MOUNTING HEIGHT FOR DEVICES SHALL BE AS INDICATED BELOW, UNLESS OTHERWISE NOTED. MOUNTING HEIGHTS ARE TO CENTER OF DEVICE, UNLESS OTHERWISE NOTED. MATCH MOUNTING HEIGHT OF EXISTING DEVICES IF APPLICABLE.

GENERAL RECEPTACLES (COMMERCIAL) @18" AFF
ABOVE COUNTER RECEPTACLES AND SWITCHES @ 2" ABOVE
COUNTER OR BACKSPLASH TO BOTTOM OF DEVICE
(COORDINATE WITH ARCHITECT)
LIGHT SWITCHES @ 44" AFF
LIGHT SWITCHES IN BATHROOMS @ 44" AFF
TELEPHONE OUTLETS @ 18" AFF
TELEPHONE OUTLET (WALL MOUNTED) 44" AFF
CLOCK OUTLETS @ 7'-6" AFF
TV OUTLETS (COMMERCIAL) @ 18" AFF
DATA/PHONE OUTLETS (COMMERCIAL) @ 18" AFF

PROVIDE "IN-USE" WEATHERPROOF COVER FOR EXTERIOR RECEPTACLES.

COMPLY WITH ADA STANDARDS FOR MOUNTING HEIGHTS AND LOCATIONS.

DEVICES IN THE SAME LOCATION AND AT THE SAME MOUNTING HEIGHT SHALL BE MOUNTED UNDER A COMMON WALL PLATE.

DISTRIBUTION EQUIPMENT

PROVIDE DISTRIBUTION PANELS, DISCONNECTS, CONTACTORS, ETC. OF VOLTAGE, AMPERAGE, PHASE, AND SHORT-CIRCUIT RATINGS AS INDICATED ON PLANS.

TERMINATIONS SHALL BE RATED 75°C MINIMUM CU/AL.

EQUIPMENT SHALL BE FULLY-RATED FOR THE AVAILABLE FAULT CURRENT UNLESS A SERIES-RATED COMBINATION IS SPECIFICALLY NOTED ON PLANS.

FUSES SPECIFIED ARE AS MANUFACTURED BY BUSSMANN. THE SAME CLASS OF FUSE AS MANUFACTURED BY LITTELFUSE AND GOULD-SHAWMUT MAY BE SUBSTITUTED.

ENCLOSURES FOR EQUIPMENT AND DEVICES SHALL BE SUITABLE FOR THE INSTALLED LOCATION.

PROVIDE 3 5/8" DEEP LOAD CENTERS FOR PANELS INSTALLED IN 4" STUD WALLS. PROVIDE PANELBOARDS FOR ALL OTHER INSTALLATIONS, UNLESS OTHERWISE NOTED.

PROVIDE A 3/4"C FROM PANEL ENCLOSURES TO NEAREST ACCESSIBLE CEILING SPACE FOR EACH (3) SPARE BREAKERS AND SPACES IN PANELBOARDS AND LOAD CENTERS THAT ARE RECESSED IN A WALL.

PROVIDE PANELS AND SWITCHBOARDS BUSSING AND FINGERS TO ACCOMMODATE BREAKERS OR SWITCHES IN ALL AVAILABLE SPACES.

PROVIDE DOOR-IN-DOOR HINGED COVER FOR PANELBOARDS.

PROVIDE A LISTED BREAKER-TIE OR MULTI-POLE BREAKER FOR EACH MULTIWIRE (SHARED NEUTRAL) BRANCH CIRCUIT.

PROVIDE DISTRIBUTION EQUIPMENT AS MANUFACTURED BY AMERICAN MIDWEST POWER, SQUARE D, ELECTRO-MECHANICAL INDUSTRIES, CUTLER-HAMMER, SIEMENS, ERICKSON ELECTRIC, GE OR METRON.

THE MOUNTING HEIGHT FOR DISTRIBUTION EQUIPMENT SHALL BE AS INDICATED BELOW, UNLESS OTHERWISE NOTED.

PANELS/LOADCENTERS - 6' AFF MAX TO CENTER OF TOP HANDLE
DISCONNECT SWITCHES - 6'-6" AFF MAX TO CENTER OF HANDLE
SINGLE UTILITY METER - 4' MIN, 6' MAX TO CENTER OF METER

PROVIDE BRASS TAG (ATTACHED WITH BRASS SCREWS), INDICATING UNIT SERVED ON SERVICE DISCONNECTS, FEEDER DISCONNECTS, AND METERS SERVING MULTI-TENANT FACILITIES.

PROVIDE A TYPED PANEL SCHEDULE WITH LOAD DESCRIPTIONS FOR PANELS AFFECTED BY THIS PROJECT.

PROVIDE A PHENOLIC LABEL ON EACH NEW OR RENAMED PANEL INDICATING THE PANEL NAME.

CLEAN EXPOSED SURFACES AND CHECK TIGHTNESS OF ELECTRICAL CONNECTIONS FOR EQUIPMENT TO BE REUSED. REPLACE DAMAGED CIRCUIT BREAKERS AND PROVIDE CLOSURE PLATES FOR VACANT POSITIONS IN EXISTING PANELS.

PROVIDE CONCRETE PAD FOR FLOOR AND GROUND MOUNTED ELECTRICAL EQUIPMENT.

LABEL SERVICE EQUIPMENT WITH MAXIMUM AVAILABLE FAULT CURRENT AND DATE CALCULATION WAS PERFORMED.

IDENTIFICATION FOR ELECTRICAL SYSTEMS

PROVIDE IDENTIFICATION LABELS OR HANDWRITTEN TEXT USING INDELIBLE MARKER TO IDENTIFY CIRCUITS ENCLOSED IN BOXES.

USE IDENTIFICATION LABEL OR ENGRAVED FACEPLATE TO IDENTIFY BRANCH CIRCUITS FEEDING RECEPTACLES AND SWITCHES. PROVIDE IDENTIFICATION ON INSIDE SURFACE OF FACEPLATE FOR RECEPTACLES AND SWITCHES IN PUBLIC AREAS OR IN AREAS AS DIRECTED BY ARCHITECT OR OWNER.

USE IDENTIFICATION LABEL TO IDENTIFY RECEPTACLES PROTECTED BY UPSTREAM GFI PROTECTION.

LABEL CONDUCTORS AND CABLE WITH POWER SOURCE AND CIRCUIT NUMBER OR OTHER REQUIRED DESIGNATION. USE WRAP-AROUND SELF-ADHESIVE VINYL CLOTH, WRAP-AROUND SELF-ADHESIVE VINYL SELF-LAMINATING, HEAT-SHRINK SLEEVE, PLASTIC SLEEVE, PLASTIC CLIP-ON, OR VINYL SPLIT SLEEVE TYPE MARKERS SUITABLE FOR THE CONDUCTOR OR CABLE TO BE IDENTIFIED. USE FACTORY PRE-PRINTED OR MACHINE-PRINTED TEXT, ALL CAPITALIZED UNLESS OTHERWISE INDICATED.

IDENTIFY EACH PIECE OF ELECTRICAL EQUIPMENT WITH AN IDENTIFICATION NAMEPLATE. PROVIDE THE FOLLOWING INFORMATION ON THE NAMEPLATE:

SWITCHBOARDS: AMPERE RATING, VOLTAGE AND PHASE, POWER SOURCE AND CIRCUIT NUMBER, LOADS BEING SERVED.

PANELBOARDS AND LOAD CENTERS: AMPERE RATING, VOLTAGE AND PHASE, POWER SOURCE AND CIRCUIT NUMBER, LOADS BEING SERVED (TYPED CIRCUIT DIRECTORY).

ENCLOSED SWITCHES AND CIRCUIT BREAKERS: AMPERE RATING, VOLTAGE AND PHASE, POWER SOURCE AND CIRCUIT NUMBER, LOAD BEING SERVED.

CONDUCTOR INSULATION SHALL BE COLOR CODED AS FOLLOWS:

208/120V, 3Ø: PHASE: A - BLACK; PHASE B - RED; PHASE C - BLUE

PROVIDE UNDERGROUND WARNING TAPE 12" BELOW GRADE FOR POWER AND COMMUNICATIONS CONDUIT AND CABLE. USE NON-DETECTABLE TYPE POLYETHYLENE TAPE SUITABLE FOR DIRECT BURIAL, 6" WIDE MINIMUM, AND INDICATE THE TYPE OF SERVICE CONTINUOUSLY REPEATED OVER THE FULL LENGTH OF TAPE. TAPE FOR BURIED POWER LINES: BLACK TEXT ON RED BACKGROUND. TAPE FOR BURIED COMMUNICATIONS: BLACK TEXT ON ORANGE BACKGROUND.

IDENTIFY EXISTING ELEMENTS TO REMAIN THAT ARE NOT ALREADY IDENTIFIED.

PROVIDE TYPEWRITTEN CIRCUIT DIRECTORY TO IDENTIFY LOADS SERVED FOR PANELBOARDS AND LOAD CENTERS.

MECHANICAL EQUIPMENT

REFERENCE MECHANICAL DRAWINGS FOR EXACT LOCATION AND REQUIREMENTS OF MECHANICAL EQUIPMENT.

ELECTRICALLY OPERATED EQUIPMENT SHOWN ON THE MECHANICAL PLANS AND NOT SHOWN ON THE ELECTRICAL PLANS WILL REQUIRE ELECTRICAL SERVICE. CONTACT ELECTRICAL ENGINEER FOR CONNECTION REQUIREMENTS PRIOR TO BID. THE COST FOR THIS WORK SHALL BE INCLUDED IN THE BID.

VERIFY MECHANICAL EQUIPMENT NAMEPLATE DATA (VOLTAGE, PHASE, FLA, MCA, MOCP, ETC.) PRIOR TO ROUGH-IN. NOTIFY ELECTRICAL ENGINEER IN WRITING OF ANY DISCREPANCIES WITH THESE DRAWINGS IMMEDIATELY AND PRIOR TO COMMENCING ANY FURTHER WORK.

MECHANICAL CONTRACTOR SHALL PROVIDE STARTERS FOR MECHANICAL EQUIPMENT.

MECHANICAL CONTRACTOR SHALL PROVIDE CONDUIT, WIRE, AND DEVICES FOR MECHANICAL EQUIPMENT CONTROLS, UNLESS OTHERWISE INDICATED ON THE ELECTRICAL DRAWINGS.

ELECTRICAL CONTRACTOR SHALL PROVIDE MECHANICAL EQUIPMENT CONTROL WIRING, CONDUIT, AND DEVICES IF INDICATED ON THE ELECTRICAL DRAWINGS. NOTIFY ELECTRICAL ENGINEER IN WRITING OF ANY DISCREPANCIES WITH THESE DRAWINGS IMMEDIATELY AND PRIOR TO COMMENCING ANY FURTHER WORK.

REFERENCE MECHANICAL DRAWINGS FOR LOCATIONS OF FIRE SMOKE DAMPERS AND CONTROL REQUIREMENTS OF MECHANICAL EQUIPMENT. PROVIDE 120V TO FIRE SMOKE DAMPERS AND PROVIDE EITHER DUCT OR SMOKE DETECTORS AS REQUIRED. RETURN AIR SYSTEMS OVER 2000CFM REQUIRE A SMOKE DETECTOR TO SHUT UNIT OFF MECHANICAL EQUIPMENT UPON ACTIVATION OF SMOKE DETECTOR. CONNECT DETECTORS TO FIRE ALARM SYSTEM IF APPLICABLE.

PROVIDE EW201B FOR MECHANICAL EQUIPMENT CONTROLLED BY A TIME SWITCH. PROVIDE CONTACTORS RATED FOR THE MECHANICAL LOAD BEING CONTROLLED.

MAKE FINAL ELECTRICAL CONNECTIONS TO MECHANICAL EQUIPMENT.

UTILIZATION EQUIPMENT

VERIFY EQUIPMENT NAMEPLATE DATA (VOLTAGE, PHASE, FLA, MCA, MOCP, SCCR, ETC.) PRIOR TO ROUGH-IN. NOTIFY ELECTRICAL ENGINEER IN WRITING OF ANY DISCREPANCIES WITH THESE DRAWINGS IMMEDIATELY AND PRIOR TO COMMENCING ANY FURTHER WORK.

MAKE FINAL ELECTRICAL CONNECTIONS TO EQUIPMENT.

LIGHTING

PROVIDE LIGHT FIXTURES AS INDICATED ON LIGHTING PLAN OR FIXTURE SCHEDULE.

THE MOUNTING HEIGHT FOR LIGHT FIXTURES SHALL BE AS INDICATED ON THE FIXTURE SCHEDULE, ARCHITECTURAL ELEVATIONS, OR AS SHOWN BELOW, UNLESS OTHERWISE NOTED. MATCH MOUNTING HEIGHT OF EXISTING LIGHT FIXTURES IF APPLICABLE.

INSTALL EXIT AND EMERGENCY LIGHTS @ 6" BELOW CEILING TO TOP OF FIXTURE WITH A MAXIMUM MOUNTING HEIGHT OF 10' AFF.

PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH LIGHTING CIRCUIT.

CONNECT EXIT AND EMERGENCY LIGHTING TO NON-SWITCHED LEG OF LOCAL LIGHTING CIRCUIT UNLESS OTHERWISE NOTED.

MAKE CONNECTIONS TO LIGHT FIXTURES USING BUILDING WIRE WITH INSULATION SUITABLE FOR TEMPERATURE CONDITIONS WITHIN THE LUMINAIRE.

MAINTAIN THE FIRE RATING OF THE ASSEMBLY (CEILING OR WALL) IN WHICH LIGHT FIXTURES ARE TO BE INSTALLED. PROVIDE FIRE-RATED FIXTURES OR PROVIDE BOX AROUND FIXTURES AS MANUFACTURED BY TENMAT, EZ BARRIER OR EQUAL.

PROVIDE 30A LIGHTING CONTACTOR WITH NUMBER OF POLES AS REQUIRED FOR LIGHTING CONTROLLED BY A TIME SWITCH OR PHOTOCELL.
TIME SWITCH: TORK EWZ201
TIME SWITCH WITH PHOTOCELL: TORK DGLC SERIES

COORDINATE THE PLACEMENT OF SUPPORTS, ANCHORS, ETC. REQUIRED FOR MOUNTING LIGHT FIXTURES. COORDINATE COMPATIBILITY OF LUMINAIRES AND ASSOCIATED TRIMS WITH MOUNTING SURFACES AT INSTALLED LOCATIONS.

ELECTRIC UTILITY COMPANY

SUBMIT ELECTRICAL DRAWINGS AND SERVICE APPLICATION TO ELECTRIC UTILITY COMPANY PRIOR TO STARTING ANY WORK.

COORDINATE WITH THE ELECTRIC UTILITY COMPANY TO ARRANGE FOR PERMANENT AND TEMPORARY ELECTRICAL SERVICE TO BE PROVIDED TO THE SITE AS REQUIRED.

OBTAIN WRITTEN APPROVAL FROM THE LOCAL ELECTRIC UTILITY COMPANY INDICATING THAT THE SERVICE DESIGN IS ACCEPTABLE. PROVIDE LETTER TO ELECTRICAL ENGINEER PRIOR TO PURCHASING ANY ELECTRICAL SERVICE EQUIPMENT OR STARTING ANY WORK ON THE ELECTRICAL SERVICE. NOTIFY ELECTRICAL ENGINEER IMMEDIATELY OF ANY DESIGN CHANGES REQUESTED BY THE UTILITY COMPANY.

TELEPHONE SERVICE

PROVIDE ONE 2" CONDUIT FROM THE TELEPHONE PEDESTAL TO BUILDING TELEPHONE BOARD. VERIFY THE LOCATION OF THE PEDESTAL AND THE SIZE OF THE CONDUIT REQUIRED WITH THE TELEPHONE COMPANY.

CABLE SERVICE

PROVIDE ONE 2" CONDUIT FROM THE CABLE PEDESTAL TO BUILDING CABLE BOARD. VERIFY THE LOCATION OF THE PEDESTAL AND THE SIZE OF THE CONDUITS REQUIRED WITH THE CABLE COMPANY.

PROVIDE 1" CONDUIT FROM BUILDING CABLE TERMINAL BOARD TO CABLE BOARD IN TENANT'S SPACE. COORDINATE EXACT LOCATION WITH TENANT PRIOR TO ROUGH-IN.

Kazin & Associates, Inc.
Consulting Electrical Engineers
Est. 1984
Village Square at Lone Tree
9364 Teddy Lane, Ste #101
Lone Tree, CO 80124
Phone: 720-489-1609
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Project #: 17401 © 2017

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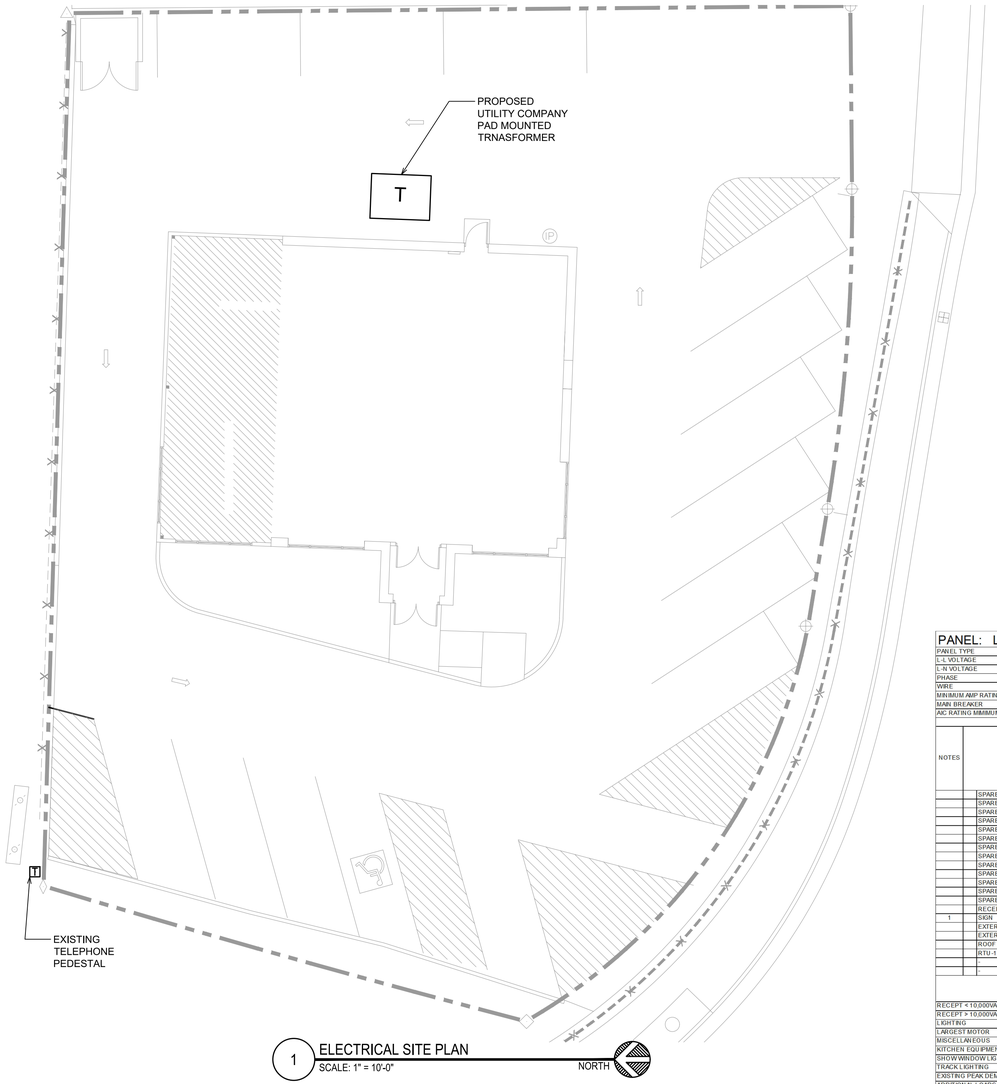
COLORADO LICENSED PROFESSIONAL ENGINEER
DAVID M. KAZIN
20747
12-6-7

NOT ISSUED FOR CONSTRUCTION UNLESS SIGNED THROUGH THE SEAL IN BLUE INK OR DIGITALLY SIGNED BY DAVID KAZIN. LIMITED TO ELECTRICAL.

DO NOT SCALE DRAWINGS FOR CONSTRUCTION PURPOSES

NEW SHELL BUILDING ADDITION FOR:
INDEX DEVELOPMENT MANAGEMENT. LLC
908 WEST HIGHWAY 50
PUEBLO, COLORADO

PROJECT NO.	201733
DATE	MAY 5, 2017
DRAWN BY	DJL
CHECKED	DMK
APPROVED	
REVISED	
SHEET	E1

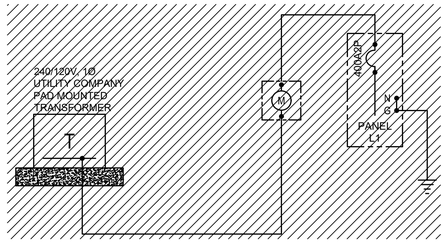


1 ELECTRICAL SITE PLAN
SCALE: 1" = 10'-0"

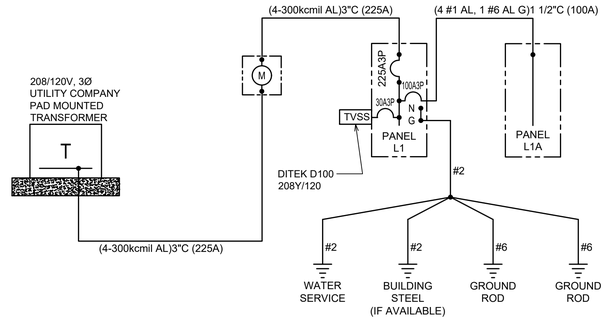
NORTH

FAULT CURRENT CALCULATIONS (END OF CONDUCTOR)

LOCATION DESCRIPTION (@ I_{sc} END)	STARTING I_{sc}	MINIMUM CONDUCTOR LENGTH	PHASE MULTIPLIER	VOLTAGE	# OF CONDUCTOR SETS	C VALUE	I_{sc} END
@ PANEL L1 (SERVICE ENTRANCE)	13,000	20	1.73	208	1	14,922	11,355



EXISTING / DEMO



PROPOSED

1 ONE-LINE DIAGRAM

NOT TO SCALE

NOTES:

1. EQUIPMENT, WIRING, AND DEVICES SHOWN LIGHT ARE EXISTING, SHOWN DARK ARE NEW, AND SHOWN HATCHED ARE EXISTING TO BE REMOVED UNLESS OTHERWISE NOTED.
2. CONDUCTORS ARE COPPER UNLESS OTHERWISE NOTED.
3. NEW CONDUCTORS SHALL BE THHN/THWN-2 INSULATED COPPER UNLESS OTHERWISE NOTED.

PANEL: L1

PANEL TYPE	PER SPECS
L-L VOLTAGE	208
L-N VOLTAGE	120
PHASE	3
WIRE	4
MINIMUM AMP RATING	225
MAIN BREAKER	225A3P
AIC RATING MIMIMUM	22,000

GENERAL PANEL NOTES:
A SERVICE ENTRANCE RATED
B
C
D
E
F
G

BRANCH-CIRCUIT NOTES
1 VIA TIME SWITCH
2
3
4
5
6
7

NOTES	DESCRIPTION	LOAD (VA) RECEPTACLES	LOAD (VA) LIGHTING	LOAD (VA) LARGEST MOTOR	LOAD (VA) MISC	LOAD (VA) KITCHEN EQUIPMENT	BREAKER (E) IF EXISTING	BREAKER TRIP	BREAKER POLES	#	Φ	#	BREAKER (E) IF EXISTING	BREAKER TRIP	BREAKER POLES	LOAD (VA) KITCHEN EQUIPMENT	LOAD (VA) MISC	LOAD (VA) LARGEST MOTOR	LOAD (VA) LIGHTING	LOAD (VA) RECEPTACLES	DESCRIPTION	NOTES
	SPARE							20	1	1	A	2		20	1						SPARE	
	SPARE							20	1	3	B	4		20	1						SPARE	
	SPARE							20	1	5	C	6		20	1						SPARE	
	SPARE							20	1	7	A	8		20	1						SPARE	
	SPARE							20	1	9	B	10		20	1						SPARE	
	SPARE							20	1	11	C	12		20	1						SPARE	
	SPARE							20	1	13	A	14		20	1						SPARE	
	SPARE							20	1	15	B	16		20	1						SPARE	
	SPARE							20	1	17	C	18		20	1						SPARE	
	SPARE							20	1	19	A	20		20	1						SPARE	
	SPARE							20	1	21	B	22		20	1						SPARE	
	SPARE							20	1	23	C	24		20	1						SPARE	
	SPARE							20	1	25	A	26		100	3						PANEL L1A	
	RECEPT	180						20	1	27	B	28		100	-						-	
1	SIGN		1200					20	1	29	C	30		100	-						-	
	EXTERIOR LIGHTING		56					20	1	31	A	32		30	3						TVSS	
	EXTERIOR LIGHTING		540					20	1	33	B	34		30	-						-	
	ROOF RECEPT	360						20	1	35	C	36		30	-						-	
	RTU-1				3143			40	3	37	A	38		40	3		3143				RTU-2	
	-				3143			40	-	39	B	40		40	-		3143				-	
	-				3143			40	-	41	C	42		40	-		3143				-	

	CONNECTED LOAD (VA) Aϕ	Bϕ	Cϕ	NEC FACTOR (%)	NEC DEMAND LOAD (VA) Aϕ	Bϕ	Cϕ	TOTAL
RECEPT < 10,000VA	0	180	360	100%	0	180	360	540
RECEPT > 10,000VA	0	0	0	50%	0	0	0	0
LIGHTING	56	540	1,200	125%	70	675	1,500	2,245
LARGEST MOTOR	0	0	0	125%	0	0	0	0
MISCELLANEOUS	6,286	6,286	6,286	100%	6,286	6,286	6,286	18,858
KITCHEN EQUIPMENT	0	0	0	65%	0	0	0	0
SHOWWINDOW LIGHTING	0	0	0	125%	0	0	0	0
TRACK LIGHTING	0	0	0	125%	0	0	0	0
EXISTING PEAK DEMAND	0	0	0	125%	0	0	0	0
ADDITIONAL LOADS	0	0	0	100%	0	0	0	0
TOTAL VA	6,342	7,006	7,846		6,356	7,141	8,146	21,643
AMPERAGE	52.8	58.3	65.3		52.9	59.5	67.8	60.1

ELECTRICAL ENGINEER:
KAZIN & ASSOCIATES
(720)489-1609

PANEL: L1A

PANEL TYPE	PER SPECS
L-L VOLTAGE	208
L-N VOLTAGE	120
PHASE	3
WIRE	4
MINIMUM AMP RATING	100
MAIN BREAKER	MLO
AIC RATING MIMIMUM	22,000

GENERAL PANEL NOTES:
A
B
C
D
E
F
G

BRANCH-CIRCUIT NOTES
1
2
3
4
5
6
7

NOTES	DESCRIPTION	LOAD (VA) RECEPTACLES	LOAD (VA) LIGHTING	LOAD (VA) LARGEST MOTOR	LOAD (VA) MISC	LOAD (VA) KITCHEN EQUIPMENT	BREAKER (E) IF EXISTING	BREAKER TRIP	BREAKER POLES	#	Φ	#	BREAKER (E) IF EXISTING	BREAKER TRIP	BREAKER POLES	LOAD (VA) KITCHEN EQUIPMENT	LOAD (VA) MISC	LOAD (VA) LARGEST MOTOR	LOAD (VA) LIGHTING	LOAD (VA) RECEPTACLES	DESCRIPTION	NOTES
	SPARE							20	1	1	A	2		20	1						SPARE	
	SPARE							20	1	3	B	4		20	1						SPARE	
	SPARE							20	1	5	C	6		20	1						SPARE	
	SPARE							20	1	7	A	8		20	1						SPARE	
	SPARE							20	1	9	B	10		20	1						SPARE	
	SPARE							20	1	11	C	12		20	1						SPARE	
	SPARE							20	1	13	A	14		20	1						SPARE	
	SPARE							20	1	15	B	16		20	1						SPARE	
	SPARE							20	1	17	C	18		20	1						SPARE	
	SPARE							20	1	19	A	20		20	1						SPARE	
	SPARE							20	1	21	B	22		20	1						SPARE	
	SPARE							20	1	23	C	24		20	1						SPARE	
	SPARE							20	1	25	A	26		20	1						SPARE	
	SPARE							20	1	27	B	28		20	1						SPARE	
	SPARE							20	1	29	C	30		20	1						SPARE	

	CONNECTED LOAD (VA) Aϕ	Bϕ	Cϕ	NEC FACTOR (%)	NEC DEMAND LOAD (VA) Aϕ	Bϕ	Cϕ	TOTAL
RECEPT < 10,000VA	0	0	0	100%	0	0	0	0
RECEPT > 10,000VA	0	0	0	50%	0	0	0	0
LIGHTING	0	0	0	125%	0	0	0	0
LARGEST MOTOR	0	0	0	125%	0	0	0	0
MISCELLANEOUS	0	0	0	100%	0	0	0	0
KITCHEN EQUIPMENT	0	0	0	65%	0	0	0	0
SHOWWINDOW LIGHTING	0	0	0	125%	0	0	0	0
TRACK LIGHTING	0	0	0	125%	0	0	0	0
EXISTING PEAK DEMAND	0	0	0	125%	0	0	0	0
ADDITIONAL LOADS	0	0	0	100%	0	0	0	0
TOTAL VA	0	0	0		0	0	0	0
AMPERAGE	0.0	0.0	0.0		0.0	0.0	0.0	0.0

ELECTRICAL ENGINEER:
KAZIN & ASSOCIATES
(720)489-1609

LIGHTING FIXTURE SCHEDULE

PREPARED BY KAZIN & ASSOCIATES

DESCRIPTION OF LUMINAIRE				BASIS OF DESIGN			
ID	DESCRIPTION	FINISH	MOUNTING INFO	MANUFACTURER	CATALOG NUMBER	LOAD (VA)	VOLTAGE
A4	WALL MOUNTED FULL CUT-OFF LED AREA LIGHT WITH TYPE VI DISTRIBUTION	DARK BRONZE	WALL	HUBBELL	LNC3-24L-4K-075-4-U-DB	60W	120-277
B	WALL MOUNTED FULL CUT-OFF LED AREA LIGHT WITH TYPE IV DISTRIBUTION AND EMERGENCY BATTERY PACK	DARK BRONZE	WALL	HUBBELL	LNC-2-12L1-4K-4-DB-PC-BBU	28W	120

NOTES:

1. FIXTURE SPECIFICATIONS REPRESENT THE ENGINEER'S UNDERSTANDING OF THE REQUIRED FIXTURES. FIXTURE SPECIFICATIONS SHALL BE REVIEWED AND APPROVED IN WRITING BY OWNER OR OWNER'S REPRESENTATIVE PRIOR TO ORDERING FIXTURES. NOTIFY ELECTRICAL ENGINEER OF ANY FIXTURE CHANGES PRIOR TO PURCHASING FIXTURES.
2. PROVIDED HANGERS, ADAPTERS, INSTALLATION KITS, PARTS AND PIECES TO INSTALL THE SPECIFIED FIXTURE IN THE LOCATIONS SHOWN ON THE PLAN.
3. UNLESS OTHERWISE INDICATED, PROVIDE COMPLETE LUMINAIRES INCLUDING LAMP(S) AND ALL SOCKETS, BALLASTS, REFLECTORS, LENSES, HOUSINGS AND OTHER COMPONENTS REQUIRED TO POSITION, ENERGIZE AND PROTECT THE LAMP AND DISTRIBUTE THE LIGHT.
4. UNLESS SPECIFICALLY INDICATED TO BE EXCLUDED, PROVIDE ALL REQUIRED CONDUIT, BOXES, WIRING, CONNECTORS, HARDWARE, SUPPORTS, TRIMS, ACCESSORIES, ETC. AS NECESSARY FOR A COMPLETE OPERATING SYSTEM.

JOHN DAVIS DESIGN GROUP

ARCHITECTS
INTERIORS
PLANNERS

176 TALAMINE COURT
SUITE 100
COLORADO SPRINGS,
COLORADO 80907
P 719/528-1177
F 719/444-8409

COLORADO LICENSED
DAVID M. KAZIN
20747
12-6-7
PROFESSIONAL ENGINEER

NOT ISSUED FOR CONSTRUCTION UNLESS SIGNED THROUGH THE SEAL IN BLUE INK OR DIGITALLY SIGNED BY DAVID KAZIN. LIMITED TO ELECTRICAL.

DO NOT SCALE DRAWINGS FOR CONSTRUCTION PURPOSES

NEW SHELL BUILDING ADDITION FOR: INDEX DEVELOPMENT MANAGEMENT, LLC

908 WEST HIGHWAY 50
PUEBLO, COLORADO

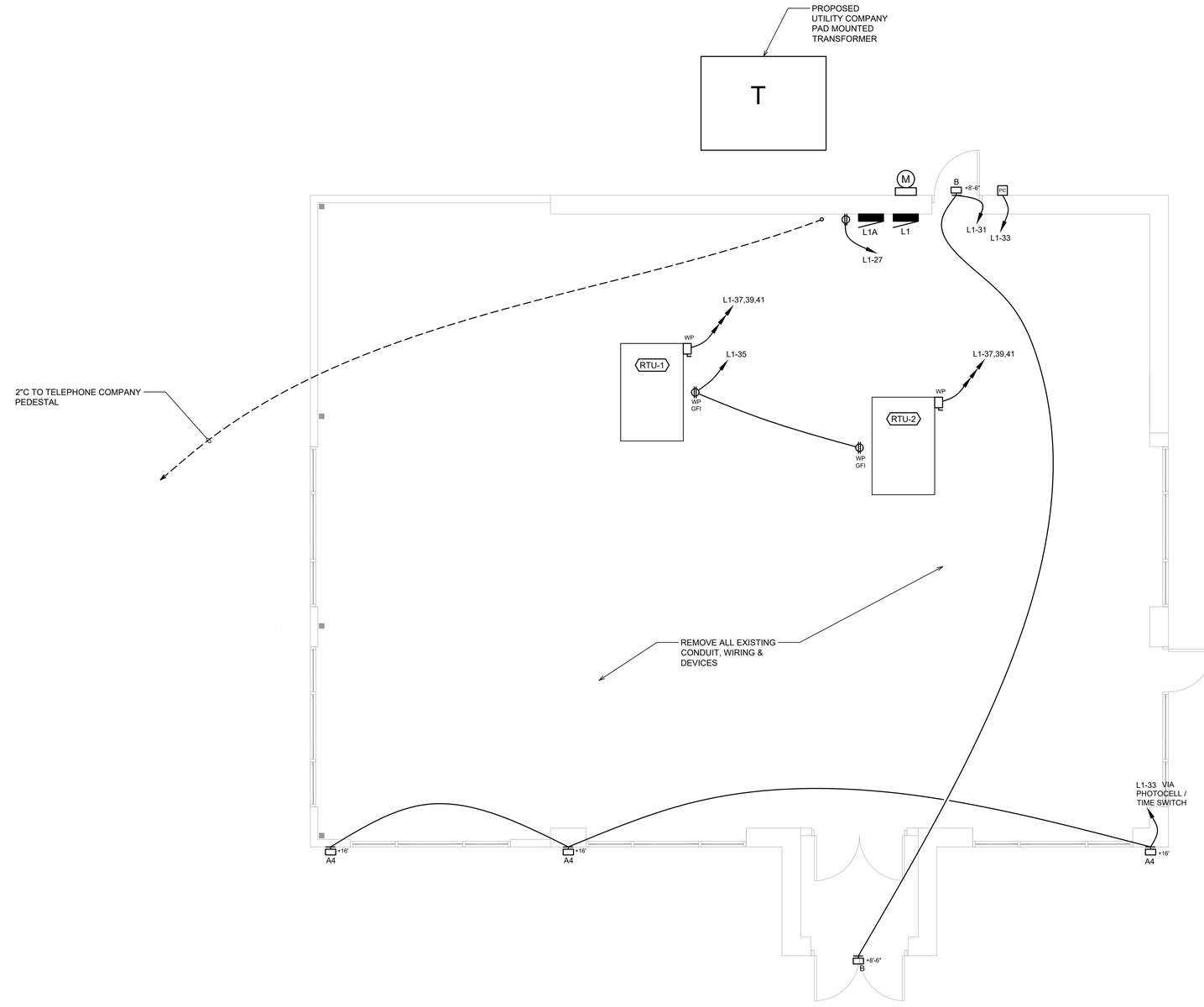
PROJECT NO.	201733
DATE	MAY 5, 2017
DRAWN BY	DJL
CHECKED	DMK
APPROVED	
REVISED	

Kazin & Associates, Inc.
Consulting Electrical Engineers
Est. 1984

Village Square at Lone Tree
9364 Teddy Lane, Ste #101
Lone Tree, CO 80124
Phone: 720-489-1609
Fax: 720-489-1611

Project #: 17401

SHEET
E2



1 ELECTRICAL PLAN
SCALE: 1/4" = 1'-0"

NORTH

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