COMMERCIAL ELECTRICAL PLAN REVIEW REQUIREMENTS

GENERAL PLAN REQUIREMENTS:

- Compliance with currently adopted NEC, IECC, and ANSI 117.1
- Colorado professional engineer stamp and signature per RBC 106.1.3
- Scale and format per RBC106.1.1 (1/8” = 1’-0” minimum scale/ 1/8” minimum lettering)
- Grid lines and column lines coinciding with architectural pages
- Electrical COM*check* Compliance Certificate
- Complete one-line diagram (see below)
- Complete panel schedules (see below)
- Complete floor plan (see below)

ONE-LINE DIAGRAM

- Conduit/conductor size, type *CU* or *AL* and quantity beginning at the utility transformer to include all conductors in the chain of supply for the electrical equipment in the scope of work
- Electrical meters, disconnects, and panels clearly identified as new or existing
- Fault current information (SCCR, AIC, SCA) at all of the following locations. See FAULT CURRENT TERMS AND METHODOLOGIES section below.
    1. All new panelboards and switchboards
    2. All new transfer equipment
    3. All new industrial control panels
    4. All new air conditioning and refrigeration equipment
    5. At any of the above locations when refed
- Overcurrent protection for MCB and feeders showing compliance with NEC 215.10, 230.95, and 517.17
- Method of compliance with 240.87 NEC
- Method of compliance with 240.67 NEC
- Calculated load of service
- Multi-meter services must include a list of enumerated addresses on the one-line diagram

PANEL SCHEDULES

- All information must be supplied and verified by engineer at time of plan submittal
- Disconnect and panel ampacity
- Volt amps on all branch circuits and calculated load of panel in amps
- Panelboard AIC rating
- Series rating information (AIC of the lowest rated OCPD must be specified) see 240.86(C) NEC

FLOOR PLANS

- Footprint (site plan) showing all electrical service equipment and disconnects serving the structure
- Location of all electrical equipment
- Panel and circuit number on all electrical equipment (new and relocated)
- Elevator pit and machine room details showing all required circuits and disconnects (devices required to be 3R and installed above 30”)
- Patient care areas must show compliance with 517.13 NEC
- Light fixture schedule including fixture type and lamp wattage
- Accessible units must be clearly identified.
- Dimension and partition of all meeting rooms per 210.65 NEC

FAULT CURRENT TERMS AND METHODOLOGIES

- AIC - Ampere Interrupting Capacity | SCA - Available Short Circuit Current | SCCR - Short Circuit Current Rating
- At panelboards and switchboards AIC and SCA are required

For SCA that exceeds AIC, let-through current of current limiting fuses is not allowed for mitigating the excess fault current. Current limiting fuses are allowed as part of a tested combination to series rate the system to mitigate the excess fault current.

- At transfer equipment, control panels, and air conditioning and refrigeration equipment, SCA and SCCR are required

For transfer equipment, control panels, and refrigeration equipment current limiting fuse let-through current is acceptable for SCA that exceeds SCCR if fuse type is matched to fuse size and SCA per manufacturers current-limitation charts.

SEE ELECTRICAL EQUIPMENT SCCR AND FUSE PROTECTION DOCUMENT HERE

ADDITIONAL REQUIREMENTS FOR 2021 INTERNATIONAL ENERGY CONSERVATION CODE (IECC):

- Recessed lighting must be shown on the lighting schedule and comply with C402.5.10.
- Vestibules must be identified on plans as conditioned or unconditioned. If the vestibule is conditioned or an air curtain is specified, show compliance with C403.4.1.4.
- Provide a note on the Electrical Plan specifying refrigeration performance per C403.11 and C403.11.3.
- For mechanical systems located outside of a building, verify controls comply with C403.13.
- Lighting controls must be clearly shown and must comply with C405.2 (Interior), C405.2.7 (Exterior), and C405.2.8 (Parking Garages), where applicable.
- Where applicable, Daylight Zones must be shown on the plans per C405.2.4.2 through C405.2.4.4.

ADDITIONAL REQUIREMENTS FOR 2021 INTERNATIONAL ENERGY CONSERVATION CODE (IECC) (CONT):

- Where applicable, Lighting for plant growth and maintenance must have the photon efficiency indicated on the plan per C405.4.
- Individual dwelling units in Group R-2 Buildings must have individual Electrical meters per C405.6. (Design professionals may utilize 2019 ASHRAE, section 8.4.3.2, with an approved Alternative Material and Methods request to avoid this requirement.)
- Provide a note on the plans indicating that the Electrical design has a maximum volt drop of 5% per C405.10.
- Controlled receptacles must be shown on the plan per C405.11 and the symbol used to mark these receptacles must be as shown in article 406.3(E) of the adopted National Electrical Code (NEC).
- The following general note must be included on the electrical plans: "*A Final Commissioning Report shall be delivered to the building owner per section C408.2.5 of the 2021 IECC*."

SOLAR READY REQUIREMENTS

- Pathways for routing of conduit from the solar ready zone(s) to the electrical service panel
- Number and location of EV capable light spaces.
- Number and location of EV capable spaces.
- Number and location of EV ready spaces.
- Number and location of EVSE installed spaces.
- Locations of conduit and termination points serving the aforementioned parking spaces.