

Electrical Review

Group	Title	Year, Code	Section(s)	Comment Text
Appliances	PROVIDE APPLIANCE DISCONNECT	2020 NEC	422.31	Please provide a disconnecting means for direct connected appliance. [NEC 422.31]
Bonding	INTERSYSTEM BONDING TERMINAL REQUIRED	2020 NEC	250.94	Please provide an intersystem bonding termination for connecting intersystem bonding conductors required for other systems. Such system shall be provided external to enclosures at the service equipment or metering equipment enclosure and at the disconnecting means for any additional buildings or structures. [NEC 250.94]
Branch Circuits	BRANCH CIRCUIT IDENTIFICATION REQUIRED	2020 NEC	408.4(A) and 90.4	Please identify every circuit and circuit modification in a legible manner for its clear, evident, and specific purpose or use. Please note: 1) if the architectural floor plan identifies the areas by their use (classroom, conference, lab, etc.), branch circuits serving those areas should correlate on the panel schedule and 2) in large open office areas with systems furniture, individual or group work stations should be uniquely identified on the floor plan so that the panel schedule can quickly isolate one work station (or a group) without disrupting work on neighboring stations. Circuit labels identified as "furniture" are not accepted. [NEC 408.4(A), 90.4]
Branch Circuits	MAINTENANCE RECEPTACLE REQUIRED	2018 IECC	210.8(B)(3), 210.63, 406.9	Please provide service receptacle(s) for HVAC equipment. If located on a rooftop or outside the building, the receptacle must have GFCI protection and be suitable for a damp or wet location. [NEC 2021 210.63, 210.8(B)(3), 406.9]
Documents	POWER RISER DIAGRAM REQUIRED	2006 ICCEAP	501.1	Please provide a basic power riser diagram that includes the following minimum components of the electrical system for this project: 1) new or existing panel boards serving the tenant, including those that have been re-located, 2) the rating and location of any service disconnect switch that serves the tenant space, 3) the rating, location and schedule of any power transformer(s) directly connected to the tenant's electrical panel, 4) the sizes of the feeders and conduits that connect to the tenant's panel board(s) and equipment, and 5) the rating and location of the over current protective devices protecting those feeders. [ICCEAP 501.1]
Documents	SHOW BRANCH CIRCUITS	2006 ICCEAP	501.1	Please identify and show the branch circuits, indicating the size and number of conductors and/or conduits.
Documents	ELECTRICAL DRAWINGS INCOMPLETE	2006 ICCEAP	501.1	Please ensure the electrical drawings showing the following components of the electrical distribution system, as they apply to this project: 1) power riser diagram, including sizes of all feeders, 2) location, size, and type of the service entrance conductors, 3) location and ratings of all distribution panels between the service entrance and the new or modified panels used for this project, 4) an electrical floor plan that includes home runs to the panels that feed devices and electrical equipment within the scope of work for this project, 5) panel directory (schedule) of all panel boards directly used for this project (new or existing) as well those that might be feeding them, 6) load calculations for all panel boards (new or existing) if associated with this project, and 7) service or transformer grounding detail that includes the size of the grounding electrode conductors and the available grounding electrodes used. [ICCEAP 501.1]
Documents	ELECTRICAL FLOOR PLAN REQUIRED	2006 ICCEAP	501.1	Please provide an electrical floor plan. [ICCEAP 501.1]
Documents	ADDITIONAL COMMENTS MAY BE GENERATED	2006 ICCEAP	501.1	Due to an incomplete submission, additional comments may be generate upon subsequent reviews. [ICCEAP 501.1]
Documents	SHOW LOCATION OF EQUIPMENT	2006 ICCEAP	501.1	Please identify and show the location of electrical equipment, such as service equipment, disconnecting means, tap boxes, C/T cabinets, switchboards, transformers, disconnecting means, enclosed breakers, fused or unfused safety disconnects, motors, and motor controllers.
Documents	LOAD CALCULATIONS REQUIRED	2006 ICCEAP	501.1	Please submit load calculations for all panel boards used on or directly impacted by this project per NEC 220. Please include the size of the existing feeders to the panel affected by this project. [ICCEAP 501.1]
Documents	PROVIDE LUMINAIRE SCHEDULE	2006 ICCEAP	501.1	Please provide a luminaire schedule. [ICCEAP 501.1]
Documents	SHOW LOCATION OF PANEL BOARDS	2006 ICCEAP	501.1	Please identify and show the location of new, relocated, modified and demolished electrical panel boards.

Electrical Review

Documents	PROVIDE SIZE AND LOCATION OF OCPD	2020 NEC	230.31, 230.70, 240.24, 404, 408, 500-517	Please provide the size and location of the over current protection device(s) for panel board(s) used or impacted by this project. [NEC 230.31, 230.70, 240.24, 404, 408, 500-517]
Documents	PROVIDE PARTIAL POWER RISER DIAGRAM	2020 NEC	215.5	Please provide a partial riser diagram that includes the following minimum information: 1) all the panel boards and their associated electrical rating serving this tenant, 2) the size and types of the feeders to the panel boards including size and type of conduit, number and type of individual conductors and ground wires, 3) the source of the power to feed the panels above and the voltage, current and ISC Rating of the over current protection devices protecting those feeders 4) the schedule of power transformers (if any) feeding the affected panels; include rating of primary and secondary OCPD's and any required secondary disconnecting means. [NEC 215.5]
Documents	PROVIDE BASIC POWER RISER DIAGRAM	2020 NEC	215.5	Provide a basic power riser diagram that includes the following minimum components of the electrical system for this project: 1) the new, existing or relocated panel boards serving the tenant, 2) the rating and location of any safety disconnect switches that serve the tenant space, 3) the rating, location and schedule of any power transformer(s) connected to the tenant's electrical system, 4) the sizes of the feeders and the conduits that connect the panel boards and equipment, and 5) the rating and location of the over current protective devices protecting feeders. [NEC 215.5]
Emergency Systems	EMERGENCY LIGHTING UNIT EQUIPMENT INADEQUATE	2020 NEC	NEC 700.12(F)	Please feed the unit equipment for emergency lighting from the same branch circuit as that serving the normal lighting in the area and connected ahead of any local switches. [NEC 700.12(F)]
Energy	ELECTRICAL ENERGY COMPLIANCE REQUIRED	2018 IECC	C405, C407	Show electrical energy compliance on the drawings or submit as a separate document per ASHRAE 90.1. [IECC C405, C407]
General	MAXIMUM AVAILABLE FAULT CURRENT	2020 NEC	110.24(A)	When installations or when modifications to the electrical installation occur that affect the maximum available fault current (MAFC) at the service, the MAFC shall be verified or recalculated by the designer to ensure the service equipment ratings are sufficient for the MAFC at the line terminals of the equipment. A letter from the electric utility that services the equipment which states that the MAFC may be substituted for the required calculation and shall be uploaded to the application prior to the next review. Either the calculation or the value obtained from the utility must be included on the construction plans. Please field mark the MAFC prominently on the service equipment. [NEC 110.24(A)]
General	SIGNATURE AND SEAL OF DESIGNER REQUIRED	2006 ICCEAP	501.1	The electrical plans shall bear the original seal and signature of a professional engineer licensed in the state of Colorado.
General	SELECTIVE COORDINATION REQUIRED	2020 NEC	100, 700.32, 701.32, 708.54, 620.62; 517.31(G)	A licensed professional engineer or other qualified persons is required to design and select the selective coordination of the OCPDs as instructed in NEC 100, 700.32, 701.32, 708.54, 620.62; 517.31(G); the required documentation shall be included on the construction documents.
General	EQUIPMENT CLEARANCE REQUIRED	2020 NEC	110.26	Please provide the minimum working space clearance in front of electrical equipment. [NEC 110.26]
General	RECONDITIONED EQUIPMENT INADQUATE	2020 NEC	110.21	The reuse or reconditioning of equipment must comply with NEC 110.21.
General	PROTECTION OF PENETRATIONS REQUIRED	2020 NEC	300.21	Please provide fire penetration protection. [NEC 300.21]
General	UNDERGROUND PROTECTION REQUIRED	2020 NEC	300.5(J)	Please provide means to prevent damage from earth movement of underground conductors. [NEC 300.5(J)]
Grounding	EQUIPMENT GROUNDING CONDUCTOR SIZE REQUIRED	2020 NEC	250.122	Please note that copper, aluminum, or copper-clad aluminum equipment ground conductors cannot be smaller than the size shown in NEC Table 250.122 based on the size of the OCPD ahead of the equipment. In no case shall they be required to be larger than the circuit conductors supplying the equipment. [NEC 250.122]
Grounding	SHOW SERVICE GROUNDING	2020 NEC	250.5	Please indicate how the service equipment is grounded by providing the size of the grounding electrode conductor and the type and location of system grounding electrode. Please show all the grounding electrodes present and the size of the bonding jumpers connected to the grounding system. [NEC 250.50]

Electrical Review

Grounding	TRANSFORMER GROUNDING REQUIRED	2020 NEC	250.30(A)(5), Table 250.66	Please indicate how the transformer is grounded by providing the size of the grounding electrode conductor, location and type of grounding electrode used. The minimum size shall be determined by the derived ungrounded secondary phase conductors. [NEC 250.30(A)(5), Table 250.66]
Overcurrent Protection	CONDUCTOR OVERCURRENT PROTECTION REQUIRED	2020 NEC	230.9(A), 240.4(A)-(G), Table 310.16	Please provide an overcurrent protection device for service conductors that have a rating or setting not higher than the allowable ampacity of the conductor [NEC 230.90(A)]. Conductors other than flexible cords, cables, and fixture wires shall be protected against overcurrent, according to their ampacities as specified in NEC Table 310.16 unless otherwise permitted or required. [NEC 240.4(A) through (G)]
Overcurrent Protection	PRIMARY OCPD REQUIRED	2020 NEC	450.3	Please provide overcurrent protection on the primary side of the transformer. [NEC 450.3]
Overcurrent Protection	SECONDARY OCPD REQUIRED	2020 NEC	450.3	Please provide overcurrent protection on the secondary side of the transformer. [NEC 450.3]
Overcurrent Protection	TAPS REQUIRED FOR TRANSFORMER (P+S<25 ft)	2020 NEC	240.21(B)(3)	The power riser diagram shows that a feeder is being tapped without an OCPD connected at the point of the tap to supply a power transformer. Please ensure that the proposed tap conductors comply with all of the conditions listed in the referenced article. [NEC 240.21(B)(3)(1) - 240.21(B)(3)(5)]
Panels	PROVIDE PANEL SCHEDULE(S)	2020 NEC	408.4	Please provide a panel board directory/schedule for new, existing or relocated panel boards impacted by this project. If the panel board is a sub-panel or fed through lugs in another, then the schedule(s) for those preceding shall also be included. [NEC 408.4]
Panels	SOURCE OF SUPPLY REQUIRED	2020 NEC	408.4(B)	All switchboards and panel boards supplied by a feeder in other than one- or two-family dwellings shall be marked to indicate the device or equipment where the power supply originates. [NEC 408.4(B)]
Services	FEEDER CONDUCTOR UNDERSIZED	2020 NEC	215.2, Table 310.16	The feeder conductors to panel boards appear undersized. Please ensure feeder conductors are sized per NEC Table 310.16 and NEC 215.2
Services	MAXIMUM NUMBER OF SERVICE DISCONNECT SWITCHES INADEQUATE	2020 NEC	230.71	The service disconnecting means for each service permitted shall comply with NEC 230.71.
Services	PROVIDE NUMBER OF SERVICES	2020 NEC	230.2	Please provide information showing the building or other structure is supplied by only one service unless permitted by NEC 230.2(A) through (D). [NEC 230.2]
Services	ACCESS IN MULTI-OCCUPANT BUILDINGS REQUIRED	2020 NEC	230.72(C)	In a multiple occupancy building, each occupant shall have access to the occupant's service disconnecting means. [NEC 230.72(C)]
Services	PROVIDE MEANS OF DISCONNECT	2020 NEC	230.70(A)(1), (2)	Please provide means of disconnect to conductors in the building from the service entrance conductors. [NEC 230.70(A)(1), (2)]
Services	FEEDER CONDUCTOR UNDERSIZED FOR TRANSFORMER	2020 NEC	450.14	Please provide a disconnecting means for transformer. When located in a remote location, the disconnecting means shall be lockable with approved, listed fittings, and the location of aforementioned disconnecting means shall be field marked legibly and permanently at the transformer by approved means. [NEC 450.14]
Services	SURGE PROTECTION REQUIRED	2020 NEC	230.67	Please provide means of surge protection. [NEC 230.67]