

# **ELECTRICAL GUIDE for HEALTH FACILITIES REVIEW**

**Hospitals  
Skilled Nursing Facilities  
Clinics**

**2022**

May 8, 2023

## Forward

The Office of Statewide Hospital Planning and Development (OSHPD) is responsible for enforcing all building standards, codes, and regulations pertaining to hospitals, skilled nursing facilities, and under specific circumstances, clinics in the State of California.

The following document was compiled by the OSHPD electrical engineering staff as a guide for plan review to verify compliance and is intended for OSHPD use. All others who use this information for any other purpose do so with the full knowledge that it may not contain every requirement or change in policy and that the requirements are as interpreted by OSHPD.

Title 24, Part 3, California Electrical Code, as well as other parts of Title 24, apply in the design and construction of health care facilities. This guide highlights and summarizes the most common requirements encountered in the review of hospitals, skilled nursing facilities, and clinics. This document may not contain every requirement or change in policy and the requirements are as interpreted by OSHPD.

All projects submitted on or after January 1, 2023, are subject to the 2022 California Electrical Code (CEC) which is based on the 2020 National Electrical Code (NEC) with the 2022 California amendments.

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## PLAN SUBMITTAL CHECK LIST

*The following may be used as a guide to check that submitted plans are complete and permittable by OSHPD.*

Item	Description
1	All electrical plans and specifications signed by the electrical engineer of record and responsible person in charge of the project.
2	List of symbols and abbreviations used on plans and their meaning.
3	Correct electrical code cited. Refer to HCAI Code Application Notice (CAN) 1-0 for current enforceable codes.
4	Gridlines, key plans, room/area names and numbers on all plan sheets.
5	Site plan with area names showing electrical equipment locations, electrical utility runs, and site lighting.
6	Show all new electrical devices, equipment, luminaires, and exit signs.
7	Show existing electrical equipment and devices as they relate to the project for code verification (i.e. nurse call devices, receptacles, panelboards, light fixtures, fire alarm, etc.).
8	Schedules of equipment requiring electrical connection (mechanical equipment, conduit/feeder schedules, luminaire, etc.). Include special seismic certification numbers and power source (Normal, Life Safety, Critical, Equipment).
9	Indicate conductor quantities, properties (i.e. aluminum or copper), and sizes for all circuits.
10	Indicate voltage drops for all feeders and branch circuits on plans for new buildings and additions. California Energy Code 130.5(c)
11	Indicate conduit and raceways types and sizes.
12	Single line diagram of the electrical system. Clearly identify the normal and essential electrical system (i.e. Life Safety, Critical, Equipment).
13	Indicate the electrical ratings, available asymmetrical fault current, and short circuit withstand/interrupting rating of switchgear, switchboards, ATS, control panels, circuit breakers, fuses, busses, MCCs, transformers (including percent impedance), and other electrical equipment as applicable for new buildings and additions.
14	Panel schedules with accurate circuit descriptions, power branch type (Normal, Life Safety, Critical, Equipment), buss and overcurrent protection ratings, AIC ratings, connected load, demand load, and totalized load.
15	Load calculations or other approved methods showing verification of load capacity for all equipment and conductors. Refer to HCAI Policy Intent Notice (PIN) 38, Electrical Load Capacity Verification Guideline for more information.
16	Nurse call system - Provide specifications for equipment, show locations of all devices, and show power sources.
17	Coordination of plans with all disciplines.
18	Mark all required testing and inspections on the Testing, Observation, and Inspection form. Add additional testing and inspections as required. Check the box for the EEOR to provide Final Verified Reports.
19	Provided all the required California Energy Code NRCC forms and show all require details on plans. This would include daylight zones for automatic daylighting controls per California Energy Code 130.1(d)(1).
20	Provide local approvals. Refer to HCAI CAN 2-0.



<b>21</b>	Provide functional programs as required. Refer to CAC 7-119.
<b>22</b>	Coordination of the essential electrical distribution system including elevators and fire pumps (including fire pumps in a multi-campus style system) connected to the essential electrical system.

<b>ELECTRICAL PLAN REQUIREMENTS - BRANCH CIRCUITS</b>		
<b>Required content</b>	<b>Code Section</b>	<b>Parameter being verified</b>
Conductor count and size	CEC 210.4(B)	Multiwire branch circuits – disconnecting means
	CEC 210.19	Branch circuit rating
	CEC 310.15(B)(1)	Conductor ampacity adjustment
	CEC 220, PIN 38	Load calculations
	CEC 404.2(C)	Grounded conductor at lighting switches
	CEC 517.13(A & B)	Grounding in patient care areas
	CEC 517.18(A)	Multiwire branch circuits - Not allowed at general care patient bed locations
	CEC 517.19(A)	Multiwire branch circuits – Not allowed at critical care patient bed locations
	CEC 700.19	Multiwire branch circuits – Not allowed for emergency power and lighting
	Conduit and box sizing	CEC 300.17
CEC 314.16		Sizing of outlet, device, junction boxes, and conduit bodies
Routing	CBC 714	Penetrations
	CEC 310.15(B)(1)	Ambient temperature ampacity adjustment
	CEC 700.10(C)	Emergency System wiring location
	T24 Part 6 130.5(C)	Voltage drop
Grouping of branch circuits	CEC 517.31(C)(1)	Separation of hospital life safety branch
	CEC 517.31(C)(1)	Separation of hospital critical branch
	CEC 517.42(D)	Separation of SNF life safety and equipment branches
	CEC 700.10(B)	Separation of emergency systems
Required circuits	CEC 210.11	Required branch circuits
Required circuits	CEC 517.18(A)	Normal power source and dedicated critical branch circuit required at general care bed locations
	CEC 517.19(A)	Normal power source and dedicated critical branch circuit required at critical care bed locations
Circuiting requirements	CEC 517.33	Hospital life safety branch loads
	CEC 517.34	Hospital critical branch loads
	CEC 517.35	Hospital equipment branch loads
	CEC 517.43	SNF life safety branch loads
	CEC 517.44	SNF equipment (previously critical) branch loads

## GENERAL HEALTH CARE FACILITY REQUIREMENTS

<b>ELECTRICAL LOAD VERIFICATION</b>			
Item	Branch	Requirements	Applicable Codes
1		Electrical load verification requirements.	Article 220 HCAI PIN 38

<b>SELECTIVE COORDINATION HCAI PIN 70</b>			
Item	Branch	Requirements	Applicable Codes
1	Essential System	Overcurrent protective devices serving the essential electrical system shall be coordinated for the period of time that a fault's duration extends beyond 0.1 second.	CEC 517.31(G)
2		Ground fault protection of the service and feeder disconnecting means shall be fully selective.	CEC 517.17(C)
3		Selective coordination for more than one driving machine (elevators, escalators, etc.).	CEC 620.62
4		Selective coordination for fire pumps in multibuilding campus-style complexes.	CEC 695.3(C)(3)
5		EEOR and/or DPOR are required to review and stamp and sign the coordination study. Coordination study is to include a summary from the EEOR and/or the DPOR stating the individual has reviewed the study and no issues were found. If coordination is required, the appropriate tests and inspections in the TIO form shall be marked. IOR and EEOR and/or DPOR to verify installed OCPDs match approved drawings and settings are adjusted as called for in the coordination study. Changes to the approved coordination study are to be submitted to the office for review as an ACD along with the updated single-line diagrams.	OSHPD TIO Form CAC Chapter 7, Article 4 Construction HCAI PIN 70
6		Coordination studies are to be submitted to the Office for review. Coordination studies are to be listed as a deferred submittal on the title sheet unless submitted as part of the project during plan review. Coordination information can be shown on the project drawings in lieu of a deferred approval.	HCAI PIN 70

<b>SHORT CIRCUIT CURRENT</b>			
<b>Item</b>	<b>Branch</b>	<b>Requirements</b>	<b>Applicable Codes</b>
<b>1</b>		<p>Circuit breakers and fuses shall have AIC ratings greater than or equal to the available short circuit current.</p> <p>Electrical equipment short-circuit current ratings shall be greater than or equal to the available short-circuit (fault) current.</p> <p>Provide SCCRs, AIC ratings, transformer impedances and short circuit calculations on plans.</p>	CEC 110.9 CEC 110.10 CEC 409.22 CEC 440.10(B) CEC 480.7(D) CEC 620.51(D)(2)
<b>2</b>		Provide acceptable method for arc energy reduction for fuses and circuit breakers rated 1200 amps or higher.	CEC 240.67 CEC 240.87
<b>3</b>		Switchboards, switchgears, panelboards, industrial control panels, meter socket enclosures, and motor control centers shall have arc flash hazard warning labels.	CEC 110.16(A)
<b>4</b>		<p>Service equipment 1200 amps or more shall have arc flash hazard warning labels with the following information:</p> <ul style="list-style-type: none"> <li>• Nominal system voltage</li> <li>• Available fault current at the service overcurrent protective devices</li> <li>• The clearing time of service overcurrent protective devices based on the available fault current at the service equipment</li> <li>• The date the label was applied</li> </ul> <p>Exception: Service equipment labeling shall not be required if an arc flash label is applied in accordance with acceptable industry practice.</p>	CEC 110.16(B)
<b>5</b>		Service equipment shall be legibly marked in the field with the maximum available fault current and date calculation was performed.	CEC 110.24(A)
<b>6</b>		Elevator control panel shall be legibly marked in the field with the maximum available fault current and date calculation was performed.	CEC 620.51(D)(2)
<b>7</b>		Responsible Engineer in Charge to provide necessary tests, inspections, and reports in OSHPD TIO form. Responsible Engineer in Charge to review all tests, data, studies, and reports. Short circuit studies to be submitted with a summary page stating specifically that all electric equipment short circuit withstand/interrupting ratings meet or exceed available fault currents values determined in the	OSHPD TIO Form CAC Chapter 7, Article 4 Construction

		study. Any changes required to the construction documents due to the tests, data, studies, and reports are to be submitted as an ACD. Responsible Engineer in Charge to stamp and sign all documentation.	
8		Motor Control Centers and Industrial Control Panels. (AIC values and date of calculations)	CEC 430.99 CEC 440.10
9		Switchboards, switchgear, and panelboards shall have short-circuit current rating not less than the available fault current. In other than one and two family dwelling units, the available fault current and the date the calculation was performed shall be field marked on the enclosure at the point of supply.	CEC 408.6
10		Storage battery disconnects: <ul style="list-style-type: none"> <li>Nominal battery storage</li> <li>Available fault current derived from the stationary battery system information.</li> </ul>	CEC 480.7(F)

<b>ELECTRICAL DEVICES, EQUIPMENT, AND INSTALLATION</b>			
<b>Item</b>	<b>Branch</b>	<b>Requirements</b>	<b>Applicable Codes</b>
1		All electrical devices and equipment shall be listed, labeled, or certified for its use by a Nationally Recognized Testing Laboratory (NRTL). Field labeling requires a Field Evaluation Body (FEB that is accredited by the International Accreditation Services (IAS) in accordance with NFPA 790.	CEC 110.2
2		Listed or labeled equipment shall be installed in accordance with the instructions provided by its manufacturer.	CEC 110.3(B)
3	Essential	Location of essential electrical system components to minimize risk of damage and interruptions due to natural forces.	CEC 517.30(C) CEC 517.41(C) CBC 1617A.1.40
4		Special seismic certification.	OSHPD PIN 55 CBC 1705.13.3.1 CBC 1705A.13.3.1 CEC 517.1(B)
5		Temperature limitations of equipment terminals and conductor ampacity limits: <ul style="list-style-type: none"> <li>For circuits rated at 100 amperes or less, Conductors rated 60 degrees C (140 degrees F)</li> </ul>	CEC 110.14(C)(1)

		<ul style="list-style-type: none"> <li>For circuits rated over 100 amperes, Conductors rated 75 degrees C (167 degrees F)</li> </ul>	
6		Electrical rooms with electrical equipment rated 800 amps or more shall have the door(s) swing in the direction of egress and panic hardware or fire exit hardware. See applicable codes for details.	CBC 1010.1.10 CEC 110.26(C)(3)
7		For large electrical equipment rated 1200 amps or more and over 6 feet wide shall have one entrance to the required working space at each end of the working space. See applicable code for details.	CEC 110.26(C)(2)
8		Unless otherwise permitted, 1000 volts and higher switchgear and control panel which are over 6 feet wide shall have one entrance at each end of the equipment. See applicable code for details.	CEC 110.33(A)(1)
9		Electrical equipment clearance, accessibility, and egress.	CEC Article 110 Part II, Part III, Part IV, and Part V

<b>EQUIPMENT AND DEVICE IDENTIFICATION EQUIPMENT AND DEVICE LABELING</b>			
Item	Branch	Requirements	Applicable Codes
1	Life Safety Critical Equipment	All receptacles and light switches (or their covers) connected to the life-safety and critical branches shall have a distinctive marking or color to identify they are on the essential electrical system.	CEC 517.31(E) CEC 517.42(E) CEC 700.10(A)
2	Critical	All receptacles at patient bed locations shall be marked with the panel and circuit number supplying them.	CEC 517.18(A) CEC 517.19(A)
3	Life Safety Critical Equipment	Boxes, enclosures, equipment, devices, and cables for emergency circuits shall be permanently marked so they will be readily identified as a component of the emergency power system.	CEC 517.31(C)(1)(a) CEC 700.10(A)
4	Life Safety Critical Equipment	Cable or raceway systems shall be permanently marked to be identified as a component of emergency system at intervals not to exceed 25 ft.	CEC 517.31(C)(1)(a) CEC 700.10(A)
5		Panelboards shall have an accurate circuit directory. Every new circuit and circuit modification shall be identified as to its clear, evident and specific purpose or use. The identification shall include sufficient detail for each circuit to be distinguished from others.	CEC 408.4(A)

6		Each switch or circuit breaker in switchboard or switchgear shall be legibly identified as to its clear, evident, and specific purpose or use.	CEC 408.4(A)
7		All switchboards, switchgears and panelboards shall be permanently marked to indicate the device or equipment where power supply originates.	CEC 408.4(B)
8		Switchboards, switchgear, and panelboards shall be field marked with a label that contains the available fault current and the date the calculation was performed. The label shall be on the enclosure at the point of supply. When modifications to the electrical installation occurs that affects the available fault current, the available fault current shall be verified or recalculated and labeled.	CEC 110.24 CEC 408.6
9		Solar Photovoltaic (OV) Systems, Fuel Cells, Interconnected Power Systems and Energy Storage Systems shall be installed with all required labeling.	CEC 480.10 CEC Article 690 CEC Article 691 CEC Article 692 CEC Article 705 CEC Article 706 CFC Chapter 12
10		Refer to other Articles of the CEC for more equipment and device labeling requirements.	
11		Transformer top surfaces that are horizontal and readily accessible shall be marked to prohibit storage.	CEC 450.9

<b>WIRING METHOD AND MATERIALS</b>			
<b>Item</b>	<b>Branch</b>	<b>Requirements</b>	<b>Applicable Codes</b>
1		Non-metallic raceways, like PVC conduit, shall not be used for branch circuits that supply patient care spaces of health care facilities.	CEC 517.13(A) CEC 517.31(C)(3)(1) CEC 517.31(C)(3)(2)
2		Branch circuits serving patient care spaces shall have redundant grounding path. <ul style="list-style-type: none"> <li>• Must use metal raceway or metallic armor or sheath that qualify as an equipment grounding conductor.</li> <li>• Must have a green insulated copper equipment grounding conductor.</li> </ul>	CEC 517.13

<b>3</b>	Type 1 ESS Life Safety Critical	Schedule 40 PVC conduits used for Type 1 life safety branch and critical branch feeders shall be encased in minimum of two inches of concrete.	CEC 517.31(C)(3)(2)
<b>4</b>	Type 1 ESS Life Safety Critical	Listed flexible metallic conduit and listed metal sheathed cable assemblies are permitted for use in any of the following: <ul style="list-style-type: none"> <li>a) Where used in listed prefabricated medical headwalls.</li> <li>b) In listed office furnishings.</li> <li>c) Where fished into existing walls or ceilings, not otherwise accessible and not subject to physical damage.</li> <li>d) Where necessary for flexible connection to equipment.</li> <li>e) For equipment that requires a flexible connection due to movement, vibration, or operation.</li> <li>f) Luminaires installed in ceiling structures.</li> <li>g) Where necessary to allow relative movement between immediately adjacent buildings.</li> </ul>	CEC 517.31(C)(3)(3)
<b>5</b>		Flat conductor cable (FCC) is not permitted for use in hospital buildings, other than administrative office areas.	CEC 324.12(5)
<b>6</b>		Sizing outlet, device, and junction boxes and conduit bodies.	CEC 314.16
<b>7</b>		Boxes used to enclose flush devices shall be provided with substantial support. Substantial support as interpreted by OSHPD requires such boxes to be supported in order to withstand incidental contact and the repeated insertion and removal of plugs without the enclosed flush device box breaking the surface around it and being pushed in or removed.	CEC 314.19 CEC 314.20 CEC 314.23
<b>8</b>		Separation of 24 inches (horizontal distance) for switch or outlet boxes in fire rated walls and partitions.	CBC 714.4.2 ex. 1.1
<b>9</b>		Raceway and conduit fill.	CEC 300.17
<b>10</b>		Conductors shall be sized not less than the maximum load served.	CEC 210.19 CEC 215.2 CEC 230.42
<b>11</b>		Conductor ampacity adjustments.	CEC 310.15(B)



12		Class 2 and Class 3 signaling and communication systems and power-limited fire alarm systems are not required to be enclosed in raceway unless otherwise specified by Chapter 7 and Chapter 8 or required by local building department.	CEC 517.80 CEC 725 CEC 760 CEC 800
13		Class 2 and Class 3 circuits that transmit power and data to a powered device shall meet the requirements of 725.144 including the ampacity derating when installed in bundles.	CEC 725.144 CEC 840.160

### MULTIWIRE BRANCH CIRCUITS

Item	Branch	Requirements	Applicable Codes
1		Provide means to disconnect all ungrounded conductors in a multiwire branch circuit.	CEC 210.4(B)
2		Branch circuits serving patient bed locations shall not be part of a multiwire branch circuit.	CEC 517.18(A) CEC 517.19(A)
3		Multiwire branch circuits are not permitted on the essential electrical system.	CEC 700.19

### GROUNDING

Item	Branch	Requirements	Applicable Codes
1		Size of equipment grounding conductors.	CEC 250.122 CEC Table 250.122
2		Size of grounding electrode conductor.	CEC 250.66 Table 250.66
3		Generator grounding.	CEC 250.34 CEC 250.35
4		Provide redundant grounding path for branch circuits serving patient care spaces.	CEC 517.13
5		Panelboard grounding and bonding.	CEC 408.40 CEC 517.14 CEC 517.19(E)
6		Isolated power systems.	CEC 517.19(F) CEC 517.19(G)
7		X-Ray and diagnostic equipment grounding.	CEC 517.78
8		Patient care vicinity grounding (optional)	CEC 517.19(D)

<b>RECEPTACLES GFCI RECEPTACLES AFCI RECEPTACLES</b>			
<b>Item</b>	<b>Branch</b>	<b>Requirements</b>	<b>Applicable Codes</b>
<b>1</b>		Hospital grade receptacles in patient bed locations, procedure rooms, and operating rooms.	CEC 517.18(B)(2) CEC 517.19(B)(2) CEC 517.61(C)(2)
<b>2</b>		Hospital grade receptacles are not required in sleeping areas in nursing homes.	CEC 517.18(B) ex. 3
<b>3</b>		Listed tamper resistant covers or listed tamper resistant receptacles in pediatric locations.	CEC 517.18(C)
<b>4</b>		Special purpose receptacles in critical care spaces.	CEC 517.19(H)
<b>5</b>		Isolated ground receptacles shall not be installed within a patient care vicinity.	CEC 517.16
<b>6</b>	Essential	Receptacles supplied from the essential electrical system shall have a distinctive color or marking as to be readily identifiable.	CEC 517.31(E) CEC 517.42(E)
<b>7</b>		No receptacles within 3 feet of the perimeter of shower stalls or bathtubs.	CEC 406.9(C)
<b>8</b>		Meeting room receptacle requirements: <ul style="list-style-type: none"> <li>• Maximum of 12' on center on perimeter walls.</li> <li>• A meeting room with any floor dimension that is 12' or greater in any direction shall have at least one floor receptacle located not less than 6' from any wall.</li> </ul>	CEC 210.65 CEC 210.52(A)(1)- (A)(4)
<b>9</b>		All single-phase receptacles rated 150 volts to ground or less and 50 amps or less and 3-phase receptacles rated 150 volts to ground or less and 100 amps or less shall have GFCI protection in the following places: bathrooms, kitchens, rooftops, outdoors, near sinks/bathtubs/showers, indoor damp and wet locations, locker rooms with associated showering facilities, accessory buildings, and laundry buildings.	CEC 210.8(B) CEC 422.5
<b>10</b>		Receptacles located in Category 1 (Critical Care) and Category 2 (General Care) patient bathrooms and toilet rooms shall have GFCI protection	CEC 210.8(B)(1) CEC 517.21
<b>11</b>		GFCI protection shall not be required for receptacles located in Category 2 (General Care) or Category 1 (Critical Care) spaces where a basin, sink, or other similar plumbing fixture is installed in the patient bed location.	CEC 210.8(B)(5) exception 2 to (5) CEC 517.21
<b>12</b>		Receptacles within 6 feet of therapeutic tubs shall be GFCI protected.	CEC 680.62(E)

13		GFCI protection for receptacles and fixed equipment in wet procedure locations where isolated power systems are not provided.	CEC 517.20(A)
14		Receptacle shall be located within 25 feet of all heating, ventilation air-conditioning and refrigeration equipment. Receptacle shall be located on the same level as the equipment. Receptacle shall not be connected to the load side of the equipment disconnected means.	CMC 301.4 CEC 210.63
15	Type 1 ESS Critical  Type 2 ESS Equipment	At least one receptacle in electrical and mechanical rooms.  In other than the service equipment room, the electrical room receptacle shall not be connected to the load side of the equipment's branch circuit disconnecting means that feeds this receptacle.	CEC 210.63(A) and (B) CEC 517.34(A)(7)(k) CEC 517.44(A)(8)
16		New or replaced receptacles in patient sleeping rooms in skilled nursing facilities require AFCI protection.	CEC 210.12(C)
17		The following appliances shall have GFCI protection: <ul style="list-style-type: none"> <li>• Drinking water coolers</li> <li>• Spray washing machines</li> <li>• Vending machines</li> <li>• Sump pumps</li> <li>• Dishwashers</li> </ul>	CEC 422.5

<b>LIGHTING</b>			
<b>Item</b>	<b>Branch</b>	<b>Requirements</b>	<b>Applicable Codes</b>
1		Artificial lighting levels shall be per the ANSI/IES RP-29: <i>Recommended Practice: Lighting Hospital and Health Care Facilities</i> for OSHPD 1, 2, 3, & 4 and ANSI/IESNA RP-28, <i>Recommended Practice for Lighting and the Visual Environment for Senior Living</i> for OSHPD 2.	CEC 517.22(A) and (B)
2		Lamps shall be protected against accidental breakage.	CEC 517.22(C)
3		Light switches shall not be within 3 feet of the perimeter of shower stalls and bathtubs.	CEC 404.4(C)
4		Permanent lighting shall be provided at roof access for mechanical equipment. Switch to be located inside building near the mean to access leading to the roof.	CMC 304.3.2

5	Essential	Light switches supplied from the essential electrical system shall have a distinctive color or marking as to be readily identifiable.	CEC 517.31(E) CEC 517.45(F) CEC 700.10(A)
6	Life Safety	Switching restrictions for light fixtures on the life safety branch.	CEC 517.33(A) CEC 517.43(A) CEC 700.20
7	Life Safety Critical	Wiring of the life safety and critical branch shall be allowed to share the same raceway, box, or cabinet, with the normal branch wiring if located in an exit sign or emergency system power luminaire supplied by two sources.	CEC 517.31(C)(1)(b)(2) CEC 517.31(C)(1)(b)(3)
8	Life Safety Critical	Listed flexible metal raceways and listed metal sheathed cable assemblies can be used for (6'-0" max length) luminaires in ceiling structures.	517.31(C)(3)(f)
9	Type 1 ESS Critical  Type 2 ESS Equipment	At least one light fixture in electrical and mechanical rooms.	CEC 517.34(A)(7)(k) CEC 517.44(A)(8)
10		For attics and underfloor spaces, utility rooms, and basements, at least one lighting outlet containing a switch or controlled by a wall switch shall be installed where these spaces are used for storage or contain equipment requiring servicing.	CEC 210.70(C)
11		Class 2 circuits that transmit power and data to luminaires in Power over Ethernet Systems (PoE) are not required to have mechanical protection as required in CEC 517.31(C)(3)(5) or to be enclosed in raceways.	CEC 517.80

<p><b>CORRIDORS</b>  <b>HALLWAYS</b>  <b>ENTRANCES</b>  <b>EXITS</b>  <b>PUBLIC RESTROOM</b>  <b>EGRESS ILLUMINATION</b>  <b>STAIRCASES</b></p>			
Item	Branch	Requirements	Applicable Codes
1	Normal Life Safety	Egress illumination: <ul style="list-style-type: none"> <li>Minimum of 1 fc at walking surface under normal power.</li> </ul>	CEC 517.33(A) CEC 517.43(A) CBC Section 1008

		<ul style="list-style-type: none"> <li>• Minimum of 10 fc for exit access stairways and exit stairways and at their required landings at the walking surface when the stairway is in use under normal power.</li> <li>• Minimum of 1 fc average and a minimum of .1 fc at any point along the path of egress at floor level under emergency power.</li> </ul> <p>In Group I-2 occupancies, failure of a single lamp in a luminaire shall not reduce the illumination level to less than .2 fc under emergency power.</p>	
2	Life Safety	Switch control for emergency egress illumination.	CEC 517.33(A) CEC 517.43(A) CEC 700.20
3	Life Safety	Exit sign requirements.	CEC 517.33(B) CEC 517.43(B)
4	Life Safety	Automatic doors in egress paths. <i>Note: Not required for skilled nursing facilities.</i>	CEC 517.33(H)
5	Equipment	Automatic doors not used for building egress. <i>Note: Not required for skilled nursing facilities.</i>	CEC 517.35(B)(5)
6	Life Safety	Emergency lighting for public restrooms greater than 300 square feet.	CBC 1008.3.3(5)
7	Normal Life Safety	Egress illumination for staircases. Minimum of one foot-candle at floor level.	CEC 517.33(A) CEC 517.43(A) CBC Section 1008
8	Life Safety Branch required  Normal, Critical, Equipment, or separate life-safety branch circuit as 2 <sup>nd</sup> branch circuit	Egress pathways and staircases shall have illumination powered by the life-safety branch.  In addition, illumination powered by a separate branch circuit by either the normal, critical, equipment, or another life-safety branch circuit from a different transfer switch shall be provided.	CEC 517.33(A) CEC 517.43(A) CEC 700.17 CBC Section 1008

<b>PANELBOARDS SWITCHBOARDS SWITCHGEARS</b>			
Item	Branch	Requirements	Applicable Codes
1		Provide insulated copper equipment bonding jumpers (minimum 10 AWG) between equipment	CEC 517.14

		grounding terminal buses for panelboards serving the same individual patient care vicinity.	
2		Panelboards not allowed in patient care rooms unless they serve only that room.	CEC 517.12(A)
3		Only authorized personnel shall have access to overcurrent protective devices serving Category 1 (Critical Care) and Category 2 (General Care) spaces. A panelboard with a lock meets this requirement.	CEC 110.26(F)
4	Essential	A listed surge protection device shall be installed in or on all emergency system and essential electrical system switchboards and panelboards.	CEC 700.8

### GROUND FAULT PROTECTION (GFP) OF EQUIPMENT

Item	Branch	Requirements	Applicable Codes
1	Normal and Essential	Overcurrent Protection Devices (OCPD's) rated 1,000A or more on 480VAC or 600VAC solidly grounded wye systems shall be provided with ground-fault protection.	CEC 215.10 CEC 230.95
2	Normal and Essential	When GFP devices are provided to comply with CEC 215.10 and 230.95 and facilities have critical care spaces or utilize life-support equipment, an additional step of GFP shall be provided in all next level feeder over current protection devices. The additional levels of GFP shall not be installed on the load side of an essential electrical system transfer switch.	CEC 517.17(B)
3	Essential	The alternate source for emergency systems shall not be required to provide GFP protection. Ground-fault indication is acceptable.	CEC 700.6(D) CEC 700.31

### INTERCONNECTED ELECTRIC POWER PRODUCTION SOURCES ENERGY STORAGE SYSTEMS SOLAR VOLTAIC (PV) SYSTEMS FUEL CELL SYSTEMS WIND ELECTRIC SYSTEMS DIRECT CURRENT MICROGRID

Item	Branch	Requirements	Applicable Codes
1		Code requirements for electric power production sources operating in parallel with a primary source(s) of electricity.	CEC Article 705 CEC Table 705.3

2		An electric power production source shall be permitted to be connected to the supply side of the service disconnecting means as permitted in 230.82(6). The power source output circuit current x1.25 shall be used in ampacity calculations for: <ul style="list-style-type: none"> <li>• Feeders</li> <li>• Taps</li> <li>• Busbars</li> </ul>	CEC 705.12(A)
3		A permanent plaque or directory shall be installed at each service equipment location to show the location of each power source disconnecting means for the building. Multiple configurations are acceptable: <ul style="list-style-type: none"> <li>• Supply-side source connections</li> <li>• Load-side source connections</li> </ul>	CEC 705.10 CEC 705.11 CEC 705.12
4		When power production sources and/or energy storage systems are located in local jurisdiction, a means of disconnect shall be provided at point of demarcation between local and OSHPD jurisdictions.	CEC 705.20 CAN 2-0 CEC 706.7
5		Energy storage systems shall meet code requirements.	CEC Article 706 CFC Chapter 12
6		Solar (PV) systems shall meet code requirements.	CEC Article 690 CEC Article 691 CFC Chapter 12
7		Fuel cell systems shall meet code requirements.	CEC Article 692 CFC Chapter 12
8		Direct current microgrid shall meet code requirements.	CEC Article 712
9		Wind electric systems shall meet code requirements.	CEC Article 694

<b>MOBILE MEDICAL FACILITIES</b>			
<b>Item</b>	<b>Branch</b>	<b>Requirements</b>	<b>Applicable Codes</b>
1		Feeder and disconnect for mobile medical facilities.	CEC 517.24

<b>FIRE ALARM EMERGENCY COMMUNICATIONS ALARM AND ALERTING SYSTEMS WIRELESS PHONE AND PAGING EQUIPMENT</b>			
<b>Item</b>	<b>Branch</b>	<b>Requirements</b>	<b>Applicable Codes</b>
<b>1</b>	Life Safety	Fire alarm systems powered by life safety branch. Includes fire alarm control units, fire suppression control units, NAC power extenders, remote power supplies, fire alarm terminal cabinets (FATC), fire water flowmeters, and automatic fire sprinkler bells, and smoke detection devices. Branch circuit supplying the fire alarm system shall supply no other loads. Branch circuit disconnecting means shall have red identification, provided with an approved breaker locking device, and be identified as "FIRE ALARM CIRCUIT."	CEC 517.33(C)(1) CEC 517.43(C)(1) CEC 760.41(B) NFPA 72 10.6.5.4
<b>2</b>	Life Safety	Communication systems used for issuing instructions during emergency conditions.	CEC 517.33(D) CEC 517.43(D)
<b>3</b>	Life Safety	Alarm and alerting systems other than fire alarm. Example: refrigerant leak detection alarm for chiller rooms, domestic hot-water high temperature alarm, ethylene oxide (ETO) sterilization area air flow alarm.	CEC 517.33(C)(2) CMC 1106.2.2.1 CFC 608.9 CPC 613.5 CMC 418.5
<b>4</b>	Life Safety	Emergency responder radio.	CFC Section 510
<b>5</b>	Critical	Wireless phone and paging equipment for clinical staff communications.	CEC 517.34(A)(9)

<b>ELEVATORS</b>			
<b>Item</b>	<b>Branch</b>	<b>Requirements</b>	<b>Applicable Codes</b>
<b>1</b>	Life Safety	Cab lighting, controls, communications, and signal systems.	CEC 517.33(G) CEC 517.43 (F)
<b>2</b>	Life Safety	Separate branch circuit shall supply car (cab) lights, receptacles, auxiliary power, lighting source, and ventilation for each elevator car. Overcurrent device located in elevator machinery room.	CEC 620.22(A)
<b>3</b>		Dedicated branch circuit for HVAC equipment. Overcurrent device located in elevator machinery room. Receptacles shall have GFCI protection.	CEC 620.6 CEC 620.22(B)
<b>4</b>	Normal, Equipment, or Critical	Dedicated branch circuit for lighting and a dedicated circuit for the receptacle(s) for Hoistway Pit.	CEC 620.24



<b>5</b>	Critical (Type 1 ESS) Equipment (Type 2 ESS)	Dedicated branch circuit(s) for machine room lighting.  Dedicated branch circuit(s) for receptacles in the machine room. Receptacles shall have GFCI protection.	CEC 517.34(A)(7)(k) CEC 517.44(A)(8) CEC 620.6 CEC 620.23
<b>6</b>		Overcurrent protection of control wiring: 18 AWG not over 7 amps, 16 AWG not over 10 amps, 14 AWG or larger per CEC 310.15.	CEC 620.61(A)
<b>7</b>		Motor duty classified as intermittent.	CEC 430.33 CEC 620.61(B)(1)
<b>8</b>		Disconnecting means for all power sources.	CEC 620 Part VI
<b>9</b>	Equipment	Automatic or manual connection for at least one elevator.	CEC 517.35(B)(2) CFC 604.3
<b>10</b>	Equipment (Type 1 ESS)	Where interruption of normal power would result in elevators stopping between floors, throw-over facilities shall be provided to allow the temporary operation of any elevator for the release of passengers.	CEC 517.35(B)(2)
<b>11</b>	Equipment (Type 2 ESS)	For Skilled Nursing Facilities: delayed automatic or manual connection to essential electrical power for all elevators to allow the release of passengers.	CEC 517.44(B)(2)
<b>12</b>	Life-Safety	The building corridors shall be so lighted that the illumination at the landing sills, when an elevator is in service, shall not be less than 10 foot-candles.	ASME A17.1 2.11.10
<b>13</b>	Equipment	Elevator machine rooms serving elevators connected to the equipment branch: elevator HVAC equipment to be connected to the equipment branch.	CFC 604.3.4
<b>14</b>		Elevator shunt trip.	CFC 604.6.3
<b>15</b>	Equipment	Provide surge protection at elevator disconnecting means supplied by equipment branch.	CEC 620.51(E)
<b>16</b>	Life Safety Critical or Equipment	Seismic switch, as required by ASME A17.1, shall be connected to the essential electrical system.	CBC 3009.1.1
<b>17</b>		Elevator machinery, elevator cab HVAC and lighting and receptacle disconnecting means.	CEC 620.51 CEC 620.52 CEC 620.53 CEC 620.54 CEC 620.55
<b>18</b>		Elevator equipment shall be installed in dedicated rooms or spaces.	CEC 620.71

<b>ELECTRIC VEHICLE CHARGING STATION</b>			
<b>Item</b>	<b>Branch</b>	<b>Requirements</b>	<b>Applicable Codes</b>
<b>1</b>		Electric vehicle charging stations are not required for health facilities (OSHPD 1,2 and 4).	CALGreen 301.5.
<b>2</b>		Each outlet installed for the purpose of charging electric vehicles shall be supplied by an individual branch circuit. Each circuit shall have no other outlets.	CEC 625.40
<b>3</b>		Overcurrent protection for feeders and branch circuits supplying equipment shall be sized for continuous duty and shall have a rating of not less than 125 percent of the maximum load of the equipment. Where noncontinuous loads are supplied from the same feeder, the overcurrent device shall have a rating of not less than the sum of the noncontinuous loads plus 125 percent of the continuous loads.	CEC 625.41
<b>4</b>		For equipment rated more than 60 amperes or more than 150 volts to ground, the disconnecting means shall be provided and installed in a readily accessible location. The disconnecting means shall be lockable open in accordance with 110.25.	CEC 625.43
<b>5</b>		When used as an optional standby system, the requirements of CEC Article 702 shall apply. When used as an electric power production source, the requirements of CEC Article 705 shall apply. EVPE that consists of a receptacle outlet only shall be in accordance with CEC 625.60.	CEC 625.48 CEC 625.60

<b>FIRE PUMP</b>			
<b>Item</b>	<b>Branch</b>	<b>Requirements</b>	<b>Applicable Codes</b>
<b>1</b>		Fire pump equipment and installation shall comply with all requirements of CBC 913, NFPA 20, CEC 695 and other CEC requirements.	CBC 913 NFPA 20 CEC 695
<b>2</b>		Electric motor-driven fire pumps shall have a reliable source of power. Such reliable source of power shall consist of a normal source and an onsite generator as the alternate source.	CEC 695.3

3		Selection of power source shall be performed by a transfer switch listed for fire pump service. Transfer switches used in OSHPD 1, OSHPD 2 with patient on life support, and OSHPD 4 shall be provided with electrical by-passing and isolating and in-phase monitor relay found in 517.31(B)(3).	CEC 695.3(G)
4		Fire pump supply conductors shall be installed as service entrance conductor as per article 230.6, 230.9 and Parts III and IV of Article 230.	CEC 695.3(A)(1)
5		Except as permitted, fire pump supply services or on-site power production facilities conductors through a building or other structure shall be either routed outside of the building or installed in a raceway and encased in or under no less than 2 inches of concrete.	CEC 695.6(A)(1)
6		Except as permitted, no disconnecting means shall be installed within the fire pump feeder circuit.	CEC 695.4(A) CEC 695.4(B)(1)(a)
7		Except as permitted, the fire pump room shall have a minimum of 2 hours fire barriers.	CBC 913.2.1
8		Transfer switch(es) shall be as close as practical and within sight of fire pump they control.	CEC 695.12(A)
9		Fire pump controller or fire pump transfer switch shall not be used as a junction box to supply other equipment including a jockey pump.	CEC 695.6(l)(6)
10		Pressure maintenance (jockey) pump(s) shall not be connected to the fire pump controller.	CEC 695.6(l)(6) NFPA 20: 10.3.4.6
11		Over current protection for fire pump source(s) other than on-site standby generator(s) shall be set to carry indefinitely the locked rotor current of fire pump(s), the pressure maintenance pump(s) (when provided as part of system), and the full load current of the associated fire pump accessory equipment.	CEC 695.4(B)(2)(a)
12		The fire pump system shall have a maximum total voltage drop as specified below: <ul style="list-style-type: none"> <li>• No more than 5% at the motor terminals with the motor operating (running) at 115% of its full load current rating.</li> <li>• No more than 15% of the controller voltage rating at the controller line terminals under starting condition.</li> </ul> The utility source (transformer) and other transformer voltage drop shall be included in this calculation.	CEC 695.7

13		Fire pumps for use in high-rise buildings shall be supplied by an emergency generator (via an Automatic Transfer Switch) with a fuel supply of no less than eight hours of full-demand operation at 100 percent of the rated pump capacity in addition to all other required supply demands.	CFC Section 913.6 NFPA 20: 9.6.2.3
14		If the sources in 695.3(A) are not practicable and the installation is part of a multibuilding campus-style complex, feeder sources shall be permitted if approved by the authority having jurisdiction and installed in accordance with either (C)(1) and (C)(3) or (C)(2) and (C)(3).	CEC 695.3(C)
15	Equipment	OSHPD 1,2, 3(surgery clinics), 4, and 5: pressure maintenance (jockey or make-up) pumps for water-based fire suppression systems.	CEC 517.35(B)(1)(1.2)

### TEMPORARY SYSTEMS, UTILITIES, AND EQUIPMENT

Item	Branch	Requirements	Applicable Codes
1		Requirements for temporary systems, utilities, and equipment.	HCAI CAN 2-108

### ESSENTIAL ELECTRICAL SYSTEM TESTING

Item	Branch	Requirements	Applicable Codes
1	Essential	Tests per manufacturer instructions.	CEC 110.3(B)
2	Essential	Tests required for a new Essential Electrical System and/or a new generator installation. Perform all elements of Installation Acceptance: <ul style="list-style-type: none"> <li>Essential Electrical System Building Load Test</li> <li>Generator Full-Load Test</li> <li>Cycle Crank Test</li> <li>Safety Indications and Shutdowns Test</li> </ul>	NFPA 110 7.13.4.3
3	Essential	An operational test shall be initiated at an ATS and shall include testing of each Essential Electrical System component on which maintenance or repair has been performed, including the transfer of each automatic and manual transfer switch to the alternate power source, for a period of not less than 30 minutes under operating temperature.	NFPA 110 8.3.2.1
4	Essential	Perform Essential Electrical System Building Load Acceptance Test after installation of an	NFPA 110 7.13.4.1

		<p>additional Automatic Transfer Switch to an existing Essential Electrical System:</p> <ul style="list-style-type: none"> <li>• Test load shall be all loads served by the Essential Electrical System i.e., the building load. There is no minimum load, but all transfer switches shall be activated by opening breakers supplying normal power and be connected to their loads. If new or existing transfer switches are installed for future use, load banks shall be connected to simulate future loads.</li> <li>• Make all measurements required in the test including time required for transfer switches to pick up loads. Verify that life safety and critical branches meet the 10 second requirement. Equipment and optional branches shall transfer within the time as noted on plans.</li> <li>• Verify building loads do not exceed capacity of the Essential Electrical System.</li> <li>• Test duration shall be a minimum of 90 minutes.</li> <li>• Remaining tests in NFPA 110: 7.13.4 such as generator full-load test are not required.</li> </ul>	
5	Essential	<p>Perform the following tests after an in-kind replacement of an existing Automatic Transfer Switch:</p> <ul style="list-style-type: none"> <li>• Perform operational test on the new replacement transfer switch.</li> <li>• Test load shall be the actual load connected to the new replacement transfer switch.</li> <li>• Make all measurements required.</li> <li>• Test duration shall be a minimum of 90 minutes.</li> </ul>	NFPA 110 7.13.4.1
6		Mark required tests on the TIO form.	
7		If tests are to be performed in a different sequence than required by NFPA 110, provide testing information on drawings and an Alternate Means of Compliance (AMoC) stating reason tests are to be run in a different sequence and state how the requirements of NFPA 110 are still complied with.	

<b>REMODEL</b>			
<b>Item</b>	<b>Branch</b>	<b>Requirements</b>	<b>Applicable Codes</b>
<b>1</b>		Requirements for remodels.	OSHPD CAN 2-102.6

<b>CALIFORNIA ENERGY CODE</b>			
<b>Item</b>	<b>Branch</b>	<b>Requirements</b>	<b>Applicable Codes</b>
<b>1</b>		Alteration projects at health care facilities are exempt from California Energy Code requirements. New facilities, additions, and Tenant Improvement (TI) of shell spaces are required to comply.	California Energy Code Section 141.0
<b>2</b>		Resources for the California Energy Code. <ul style="list-style-type: none"> <li>• California Energy Commission Non-Residential Compliance Manual</li> <li>• Title 24 Hotline 1-800-772-3300</li> <li>• EnergyCodeAce: Fact Sheet: Health Care Facilities 2019</li> </ul>	
<b>3</b>		Manual Area Lighting Controls, Automatic Daylighting Controls.	California Energy Code Section 130.1(a) California Energy Code Section 130.1(d)
<b>4</b>		All skylit daylit zones and primary sidelit daylit zones, and the combined primary and secondary sidelit daylit zones in parking garages shall be shown on the plans.	California Energy Code Section 130.1(d)(1)
<b>5</b>		Outdoor lighting and controls.	California Energy Code Section 130.2
<b>6</b>		Lighting control acceptance installation and certification requirements.	California Energy Code Section 130.4
<b>7</b>		Maximum combined voltage drop on feeder and branch circuit conductors shall not exceed 5%.	California Energy Code Section 130.5(c)
<b>8</b>		Required electrical NCRR forms. <ul style="list-style-type: none"> <li>• 2019-NCRR-ELC-E</li> <li>• 2019-NRCC-LTI-E</li> <li>• 2019-NRCC-LTO-E</li> <li>• 2019-NRCC-LTS-E</li> </ul>	CAC 10-103(a)(2)

<b>9</b>		Energy management system shall not override any control necessary to ensure continuity of an alternate power source.	CEC 750.20 CEC 750.30
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### APPLICATION OF OTHER CODES

Item	Branch	Requirements	Applicable Codes
<b>1</b>	Life Safety Critical Equipment	OSHPD 1,2,3,4, and 5: The essential electrical system shall meet the requirements of Article 700, except as amended by Article 517. <ol style="list-style-type: none"> <li>1. Section 700.4 shall not apply</li> <li>2. Section 700.10(D) shall not apply</li> <li>3. Section 700.17 shall be replaced with the following: Branch circuits that supply emergency lighting shall be installed to provide service from a source complying with 700.12 when normal supply for lighting is interrupted or where single circuits supply luminaires containing secondary batteries.</li> <li>4. Section 700.32 shall not apply</li> </ol>	CEC 517.26
<b>2</b>		Policies and regulations	CAC Chapter 6 and 7

### HELIPAD

Item	Branch	Requirements	Applicable Codes
<b>1</b>	Life Safety	Lighting for the access pathway to the helipad shall be on the life-safety branch.	CEC 517.33(A) NFPA 418
<b>2</b>	Life Safety Equipment Critical	FAA required helipad lighting required to be on emergency power.	NFPA 418 FAA AC 150/5390-2D
<b>3</b>	Critical Equipment	Helipad firefighting equipment.	NFPA 418

## NURSE CALL SYSTEM

<b>NURSE CALL SYSTEM - ACUTE CARE HOSPITAL</b>			
Item	Branch	Requirements	Applicable Codes
1	Critical	Nurse call system power shall be connected to the critical branch.	CEC 517.34(A)(4)
2		Wireless nurse call systems permitted if they comply with the 7th edition or later of UL 1069.	CEC 517.34(A)(4)
3		Nurse call components.	CEC 517.123
4		Nurse call device location requirements. Refer to CBC Table 1224.4.6.5.	CEC 517.123 CBC Table 1224.4.6.5
5		Visible signal shall be activated in the corridor at the patient room door or care space. Visual and audible signals at nurse/control station and at all associated duty stations. In multi-corridor nursing units, additional visible signals shall be installed at corridor intersections. Visual signals at corridor intersections where individual patient room door or care space signals are not directly visible from the associated nurses' stations.	CEC 517.123(A)(3)
6		In patient and client sleeping rooms. Actuation of such smoke detectors shall cause a visual display on the corridor side of the room in which the detector is located and shall cause an audible and visual alarm at the respective nurses' station. A nurse call system listed for this function is an acceptable means of providing the audible and visual alarm at the respective nurses' station and corridor room display.	CBC 907.2.6.2.2 (1)

<b>NURSE CALL SYSTEM - SKILLED NURSING FACILITY</b>			
Item	Branch	Requirements	Applicable Codes
1	Equipment	Nurse call system power shall be connected to the equipment branch. <i>Note: Nurse call systems approved and installed under previous code editions are allowed to remain on the life-safety branch CEC 517.44(A)(6).</i>	CEC 517.44(A)(6)



2		Wireless nurse call systems permitted if they comply with the 7th edition or later of UL 1069.	CEC 517.44(A)(6) OSHPD Ex. 1
3		Nurse call components.	CEC 517.123
4		Nurse call device location requirements. Refer to CBC Table 1224.4.6.5.	CEC 517.123 CBC Table 1224.4.6.5
5		For Skilled Nursing Facilities: two-way voice communication is required unless the system has a resetting function at the calling station.	CEC 517.123(B)(1) ex.
6		Visible signal shall be activated in the corridor at the patient room door or care space. Visual and audible signals at nurse/control station and at all associated duty stations. In multi-corridor nursing units, additional visible signals shall be installed at corridor intersections. Visual signals at corridor intersections where individual patient room door or care space signals are not directly visible from the associated nurses' stations.	CEC 517.123(A)(3)
7		In patient and client sleeping rooms. Actuation of such smoke detectors shall cause a visual display on the corridor side of the room in which the detector is located and shall cause an audible and visual alarm at the respective nurses' station. A nurse call system listed for this function is an acceptable means of providing the audible and visual alarm at the respective nurses' station and corridor room display.	CBC 907.2.6.2.2 (1)

<b>NURSE CALL SYSTEM - PSYCHIATRIC</b>			
<b>Item</b>	<b>Branch</b>	<b>Requirements</b>	<b>Applicable Codes</b>
1		Nurse call system not required.	CEC 517.123(F)
2		If a nurse call system is provided, the nurse call system shall have the following additional requirements: <ul style="list-style-type: none"> <li>• Provisions shall be made for easy removal or for covering of call button outlets.</li> <li>• All hardware shall have tamper-resistant fasteners.</li> <li>• Cords at all call stations in rooms designated for psychiatric patient use shall be detachable.</li> </ul>	CEC 517.123(F)
3		Wireless nurse call systems permitted if they comply with the 7th edition or later of UL 1069.	CEC 517.34(A)(4)
4		Nurse call components.	CEC 517.123

5		Nurse call device location requirements. Refer to CBC Table 1224.4.6.5.	CEC 517.123 CBC Table 1224.4.6.5
6		Visible signal shall be activated in the corridor at the patient room door or care space. Visual and audible signals at nurse/control station and at all associated duty stations. In multi-corridor nursing units, additional visible signals shall be installed at corridor intersections. Visual signals at corridor intersections where individual patient room door or care space signals are not directly visible from the associated nurses' stations.	CEC 517.123(A)(3)
7		In patient and client sleeping rooms. Actuation of such smoke detectors shall cause a visual display on the corridor side of the room in which the detector is located and shall cause an audible and visual alarm at the respective nurses' station. A nurse call system listed for this function is an acceptable means of providing the audible and visual alarm at the respective nurses' station and corridor room display.	CBC 907.2.6.2.2 (1)

<b>NURSE CALL SYSTEM - TEMPORARY</b>			
Item	Branch	Requirements	Applicable Codes
1		Temporary nurse call systems.	OSHPD PIN 60

<b>2022 CBC TABLE 1224.4.6.5 LOCATION OF NURSE CALL DEVICES FOR FACILITIES UNDER CBC 1224 HOSPITALS</b>						
<b>X=Required</b>						
Area Designation	Patient Station	Bath Station	Staff Emergency Station	Code Call Station	Nurse Master Station	Duty Station
<b>Nursing Units</b>						
Patient toilet room		X				
Patient bathing		X				
Special bathing			X			
Patient bed (nursing service)	X		X	X		
Patient bed (intensive care)	X		X	X		
Patient bed (LDR/LDRP)	X		X	X		
Patient bed (Dementia Unit)	X					
Patient bed (SNF/ICF)	X					
NICU			X	X		
Nursery			X	X		
<b>Support Areas</b>						
Nurse/control station					X	
Medication preparation room						X
Soiled workroom/utility/holding						X
Clean workroom/utility/holding						X
<b>Diagnostic and Treatment Areas</b>						
Seclusion room or vestibule			X			
Emergency Department: exam, treatment, and triage rooms	X		X			
Operating room/Cesarean			X	X		
Delivery room/birthing room			X	X		
Observation unit bed/gurney	X		X	X		
Pre-op patient care	X		X	X		
Post-op patient care/PACU	X		X	X		
Imaging exam/procedure room			X	X		
Procedure Room, including Endoscopy			X	X		
Patient toilet room		X				
Electroconvulsive therapy			X	X		

2022 CBC TABLE 1224.4.6.5 LOCATION OF NURSE CALL DEVICES FOR FACILITIES UNDER CBC 1225 SKILLED NURSING AND INTERMEDIATE CARE FACILITIES						
X=Required						
Area Designation	Patient Station	Bath Station	Staff Emergency Station	Code Call Station	Nurse Master Station	Duty Station
<b>Nursing Units</b>						
Patient toilet room		X				
Patient bathing		X				
Patient bed (Dementia Unit)	X					
Patient bed (SNF/ICF)	X					
<b>Support Areas</b>						
Nurse/control station					X	

2022 CBC TABLE 1224.4.6.5 LOCATION OF NURSE CALL DEVICES FOR FACILITIES UNDER CBC 1226 CLINICS						
X=Required						
Area Designation	Patient Station	Bath Station	Staff Emergency Station	Code Call Station	Nurse Master Station	Duty Station
<b>Support Areas</b>						
Nurse/control station					X	
<b>Diagnostic and Treatment Areas</b>						
Operating room/Cesarean			X	X		
Delivery room/birthing room			X	X		
Pre-op patient care	X		X	X		
Post-op patient care/PACU	X		X	X		
Imaging exam/procedure room			X	X		
Procedure Room, including Endoscopy			X	X		
Patient toilet room		X (1)				

Note 1: not required for Primary Care, Chronic Dialysis, Rehabilitation or Psychology Clinics.

<b>2022 CBC TABLE 1224.4.6.5 LOCATION OF NURSE CALL DEVICES FOR FACILITIES UNDER CBC 1227 CORRECTIONAL TREATMENT CENTERS</b>						
<b>X=Required</b>						
Area Designation	Patient Station	Bath Station	Staff Emergency Station	Code Call Station	Nurse Master Station	Duty Station
<b>Nursing Units</b>						
Patient toilet room		X				
Patient bathing		X				
Patient bed (nursing service)	X		X	X		
Patient bed (intensive care)	X		X	X		
Patient bed (LDR/LDRP)	X		X	X		
Patient bed (Dementia Unit)	X					
Patient bed (SNF/ICF)	X					
NICU			X	X		
Nursery			X	X		
<b>Support Areas</b>						
Nurse/control station					X	
Medication preparation room						X
Soiled workroom/utility/holding						X
Clean workroom/utility/holding						X
<b>Diagnostic and Treatment Areas</b>						
Emergency exam, treatment, triage rooms	X		X			
Operating room/Cesarean			X	X		
Delivery room/birthing room			X	X		
Observation unit bed/gurney	X		X	X		
Pre-op patient care	X		X	X		
Post-op patient care/PACU	X		X	X		
Imaging exam/procedure room			X	X		
Procedure Room, including Endoscopy			X	X		
Patient toilet room		X				
Electroconvulsive therapy			X	X		

<b>2022 CBC TABLE 1224.4.6.5</b> <b>LOCATION OF NURSE CALL DEVICES FOR FACILITIES UNDER CBC 1228</b> <b>ACUTE PSYCHIATRIC HOSPITALS</b> <b>PSYCHIATRIC NURSING UNITS</b>						
<b>X=Required</b>						
<b>Area Designation</b>	<b>Patient Station</b>	<b>Bath Station</b>	<b>Staff Emergency Station</b>	<b>Code Call Station</b>	<b>Nurse Master Station</b>	<b>Duty Station</b>
<b>Support Areas</b>						
Nurse/control station					X	
<b>Diagnostic and Treatment Areas</b>						
Seclusion room or vestibule			X			
Electroconvulsive therapy			X	X		

## ACUTE CARE HOSPITAL REQUIREMENTS, ACUTE PSYCHIATRIC (CRITICAL AND/OR GENERAL CARE) HOSPITALS

<b>SYSTEM SEGREGATION SERVICE EQUIPMENT</b>			
<b>Item</b>	<b>Branch</b>	<b>Requirements</b>	<b>Applicable Codes</b>
<b>1</b>	Life Safety Critical Equipment	The Type 1 Essential Electrical System (EES) shall be comprised of three separate branches: the equipment branch, life safety branch, and critical branch.	CEC 517.31
<b>2</b>	Life Safety Critical	Life safety and critical branch wiring shall not share the same raceways, boxes or cabinets with each other or other wiring system.	CEC 517.31(C)(1)(b)
<b>3</b>	Life Safety Critical	Life safety and critical branch conductors may share the same raceways, boxes, or cabinets with each other or other branch circuits in transfer switch enclosures, exit or emergency luminaires supplied by two sources, common junction box attached to exit or emergency luminaires supplied by two sources, and two or more circuits supplied from the same branch and transfer switch.	CEC 517.31(C)(1)(b)
<b>4</b>		Essential services may originate or pass through existing facilities provided they are seismically conforming facilities.	CEC 517.4 CBC 1224.4.1 California Existing Building Code Section 307
<b>5</b>	Critical	At least one receptacle and light fixture in electrical and mechanical rooms.	CEC 517.34(A)(7)(k)
<b>6</b>	Life Safety	No other function than those listed in this Code section are allowed to be connected to the life safety branch.	CEC 517.33
<b>7</b>		Hospital normal and essential electrical system power sources are allowed to serve non-OSHPD buildings on the same site provided the buildings can be disconnected in case of an emergency.	CEC 517.31(B)(2)
<b>8</b>		Loads not required by CEC Article 517 to be on the essential electrical system can be served by their own (optional load) transfer switches.	CEC 517.31(B)(1)
<b>9</b>	Critical Life Safety	Critical and Life Safety branch raceways, cables, enclosures, and equipment shall be marked to identify being part of the essential electrical system.	CEC 517.31(C)(1)(a)

<b>GENERATING UNITS FUEL SUPPLY TRANSFER SWITCHES FUEL CELL SYSTEMS BATTERY SYSTEMS</b>			
<b>Item</b>	<b>Branch</b>	<b>Requirements</b>	<b>Applicable Codes</b>
<b>1</b>	Essential System	Alternate source(s) of power shall be a generator(s) driven by some form of prime mover(s), fuel cell system(s), or battery systems.	CEC 517.30(B)
<b>2</b>	Life Safety	Selected receptacles and battery back-up light fixtures at generator set locations.	CEC 517.33(E)
<b>3</b>	Life Safety Critical	Automatic restoration of power within 10 seconds.	CEC 517.32(B)
<b>4</b>	Life Safety	Generator set accessories and required accessories (battery charger, jacket warmer, fuel pumps, etc.) as required.	CEC 517.33(E) CEC 517.43(E)
<b>5</b>		On site fuel supply for at least 24 hours of operation at full demand. For NPC-5, at least 72 hours.  Main fuel tank shall have a minimum capacity of at least 133% of the low-fuel sensor.  For facilities subject to CMS regulations, see 42 CFR 482.15(e)(3).	CEC 700.12(D)(2) OSHPD exceptions NFPA 110 5.5.3
<b>6</b>	Equipment	Means for automatically transferring from one fuel supply to another when using dual fuel supply.	CEC 700.12(D)(2)(d)
<b>7</b>	Life Safety	Fuel transfer pump shall be on essential electrical system.	CEC 517.33(F) CEC 700.12(D)(2)(b)
<b>8</b>	Life Safety Critical Equipment	Minimum of one transfer switch per essential electrical system branch required. [One transfer switch allowed for the essential electrical system rated for 150kVA or lower]	CEC 517.31(B)
<b>9</b>		Automatic transfer switches shall have bypass isolation capability with an in-phase monitor relay.	CEC 517.31(B)(3)
<b>10</b>		Separately derived EPS's (i.e. grounding at the generator with neutral ground tie) shall require four pole transfer switches.	CEC 250.30 CEC 250.35(A)
<b>11</b>		Generator overcurrent protection.	CEC 445.12
<b>12</b>		Generator shall be listed in accordance with UL 2200.	CBC 2702.1.1
<b>13</b>		Indoor generator room/area requirements.	CBC 442 CBC 2702.1.3 NFPA 110: 7.2.1



			NFPA 37
14		Provide at least one remote emergency stop switch per generator – locate outside the room or on the exterior of enclosure, with signage to identify the generator it controls.	CEC 445.18(B) NFPA 37: 9.2.1.1 NFPA 110: 5.6.5.8
15		Fuel cell systems.	CEC 517.30(B)(2)
16		Provide temporary generator connection for single-source emergency power source system.	CEC 700.3(F)
17		Remote annunciator with battery back-up at 24 staffed location.	NFPA 110: 5.6.6.1
18		For OSHPD 1,3,5, and 5: For fuels cell and battery systems, if a life-safety and critical branch are present, provide a connection for a portable diesel generator.	CEC 517.30(B)(2)(5) CEC 517.30(B)(3)

## TECHNOLOGY AND TELECOMMUNICATION ROOMS

Item	Branch	Requirements	Applicable Codes
1	Critical	Task illumination and at least one receptacle in data and telephone rooms to be on emergency system.	CEC 517.34(A)(6)
2	Equipment	HVAC equipment serving telephone equipment and/or data equipment rooms and closets to be on the equipment branch. <i>Note: Where redundant HVAC system are provided, only one shall be required to be supplied by the equipment branch.</i>	CEC 517.35(A)(8) CMC 320.4.1
3	Critical	Clinical IT network equipment Wireless phone and paging equipment for clinical staff communications.	CEC 517.34(A)(8)
4		Non-lighting circuits shall be dedicated to the room.	CEC 517.124(A)
5		Electrical, mechanical, and plumbing equipment not directly related to the support of the room shall not be installed or pass through the room.	CEC 517.124(A) CMC 320.4.2 CPC 310.13
6		Grounding requirements.	CEC 517.124(B)
7		Each hospital facility shall have at least one telecommunications service entrance room.	CEC 517.124 CBC 1224.5.1
8		Each hospital shall have at least one technology equipment center. It shall be located to minimize the risk of water damage, both from internal and external sources. It shall be located above any floodways or flood hazard areas as described in the National Flood Insurance Program.	CEC 517.124 CBC 1224.5.2
9		There shall be a minimum of one technology distribution room on each floor of the facility.	CEC 517.124 CBC 1224.5.3

		<b>Exception:</b> For existing facilities not undergoing major renovation, a technology distribution room may serve adjacent floors.	
<b>10</b>		A central UPS system serving multiple technology and telecommunication rooms is not allowed to be located in a technology or telecommunication room unless it is dedicated to serving just that room.	CEC 517.124(A)

<b>HVAC SUMP PUMPS MEDICAL AIR MEDICAL GAS CHILLER ROOMS SMOKE CONTROL SYSTEMS PLUMBING FIXTURES ISOLATION ROOMS</b>			
<b>Item</b>	<b>Branch</b>	<b>Requirements</b>	<b>Applicable Codes</b>
<b>1</b>	Equipment	Heating ventilating, cooling, and plumbing equipment required by the California Mechanical Code (CMC) and California Plumbing Code (CPC).	CPC 321 CEC 517.35 CMC 320 CMC 321.0 CMC 322.0 CEC 517.35(A)(9)
<b>2</b>	Equipment	All supply, return, and exhaust fans required for positive or negative pressure.	CMC 321.4 CEC 517.35(A)(6)
<b>3</b>	Critical	Alarms systems for monitoring negative pressure isolation rooms and positive pressure isolation rooms.	CEC 517.34(A)(11)(c) CMC 321.6
<b>4</b>	Equipment or Critical	Delayed automatic connection for medical and surgical central suction including controls.	CEC 517.35(A)(1)
<b>5</b>	Essential System	All control components, and control system necessary for the normal operation of equipment required to have essential electrical power.	CMC 321.5
<b>6</b>	Equipment	Delayed automatic connection for sump pumps and other equipment required to operate for the safety of major apparatus including associated controls and alarms.	CEC 517.35(A)(2)
<b>7</b>	Equipment or Critical	Delayed automatic connection for medical and surgical compressed air systems including controls.	CEC 517.35(A)(3)
<b>8</b>	Equipment	Stair pressurizations systems.	CEC 517.35(A)(4)
<b>9</b>	Equipment or Critical	Fire smoke dampers, smoke control systems, and accordion folding fire doors.	CEC 517.35(A)(4)

10		Emergency shutdown switch for chiller equipment located immediately outside room.	CMC 1108.3 CFC 605.9.1
11	Life Safety	Refrigerant leak detection alarm for chiller rooms.	CEC 517.33(C)(2) CMC 1106.2.2.1
12	Life Safety	Medical gas alarm system.	CEC 517.33(C)(3)
13	Critical	Sensor-operated plumbing fixtures as required by Table 4-2 of the California Plumbing Code.	CEC 517.34(A)(11)(b)
14	Equipment	Domestic water booster pumps, domestic hot water pumps, sewage ejector pumps, sump and drainage pumps, domestic water heating equipment and their controls, and grease removal devices requiring electric power.	CPC 321.0

<b>FOOD PREPARATION AREA KITCHENS NOURISHMENT</b>			
Item	Branch	Requirements	Applicable Codes
1	Critical	Task illumination.	CEC 517.34(A)(7)(j)
2	Critical	At least one receptacle.	CEC 517.34(A)(7)(j)
3	Critical	Patient food refrigeration (single-phase only).	CEC 517.34(A)(11)(f)
4	Equipment	Kitchen hood supply and exhaust fans.	CEC 517.35(A)(5)
5		Receptacles in kitchens or areas with a sink and permanent provisions for either food preparation or cooking shall have GFCI protection as follows: <ul style="list-style-type: none"> <li>• All single-phase receptacles rated 150 volts to ground or less, 50 amperes or less</li> <li>• All three phase receptacles rated 150 volts to ground or less, 100 amperes or less</li> </ul> GFCI shall be installed in a readily accessible location.	CEC 210.8 CEC 210.8(B)(2)

<b>CLEAN UTILITY ROOMS SOILED UTILITY ROOMS CENTRAL SUPPLY</b>			
Item	Branch	Requirements	Applicable Codes
1	Critical	Task illumination.	CEC 517.34(A)(7)(j)

2	Critical	At least one receptacle.	CEC 517.34(A)(7)(j)
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**BLOOD, BONE, AND TISSUE BANKS  
HUMAN PHYSIOLOGY LABORATORY**

Item	Branch	Requirements	Applicable Codes
1	Critical	Task illumination.	CEC 517.34(A)(5) CEC 517.34(A)(7)(g)
2	Critical	At least one receptacle.	CEC 517.34(A)(5) CEC 517.34(A)(7)(g)
3	Critical	Blood, Bone and Tissue Banks Equipment.	CEC 517.34(A)(5)
4	Critical	Human Physiology Laboratory Equipment.	CEC 517.34(A)(7)(g)
5	Equipment	Exhaust fans serving laboratory fume hoods.	CEC 517.35(A)(6)(c)

**MEDICATION PREPARATION AREA  
PHARMACY  
MEDICINE DISPENSING UNITS  
MEDICATION REFRIGERATORS AND FREEZERS  
STERILE COMPOUNDING PHARMACIES  
HAZARDOUS AND NON-HAZARDOUS DRUGS**

Item	Branch	Requirements	Applicable Codes
1	Critical	Task illumination.	CEC 517.34(A)(2)(b) CEC 517.34(A)(2)(c)
2	Critical	At least one receptacle.	CEC 517.34(A)(2)(b) CEC 517.34(A)(2)(c)
3	Critical	Electrically powered, self-contained medication dispensing units.	CEC 517.34(A)(11)(d) CBC 1224.4.4.4.2
4	Critical	Pharmacy compounding engineering controls such as hoods, laminar airflow workbenches, biological safety cabinets, and barrier isolators.	CEC 517.34(A)(11)(g)
5	Critical	Medication refrigerators and freezers.	CEC 517.34(A)(11)(e)

<b>6</b>	Equipment	Ventilation equipment and controls.	CEC 517.35(B)(1.1) CMC 321
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<b>NURSE STATION CONTROL STATION/DESK</b>			
Item	Branch	Requirements	Applicable Codes
1	Critical	Task illumination.	CEC 517.34(A)(2)(d)
2	Critical	At least one receptacle.	CEC 517.34(A)(2)(d)

<b>CALIFORNIA BUILDING CODE EXAMINATION/TREATMENT, IMAGING, PROCEDURE, AND OPERATION ROOM CLASSIFICATION</b>			
Item	Branch	Requirements	Applicable Codes
1		Exam or treatment room Class 1, Class 2, and Class 3 imaging rooms Procedure Rooms Operating Rooms	CBC Table 1224.4.11.4a

<b>CATEGORY 2 GENERAL CARE SPACES PATIENT BEDROOM MED SURGE ROOM ANTEPARTUM BEDROOM POSTPARTUM BEDROOM LABOR ROOM LABOR RECOVERY ROOM PRE-OP PSYCHIATRIC PATIENT BEDS</b>			
Item	Branch	Requirements	Applicable Codes
1	Normal Critical	Normal and critical branch power circuits serving each patient bed location. All branch circuits from the normal system shall originate from the same panelboard. Normal branch circuit is not required if patient bed location is served by two critical branch circuits fed from two separate transfer switches.	CEC 517.18(A) CEC 517.18(A) ex. 3

2	Normal Critical	Minimum of eight receptacles (4 duplex) serving each patient bed location, split between normal and critical branch power or split between two critical branches as allowed in CEC 517.18(A) exception 3.	CEC 517.18(B)
3	Critical	Task illumination.	CEC 517.34(A)(7)(a)
4	Normal Critical	Psychiatric patient bedrooms shall not be required to have receptacle outlets installed in the room. If installed, the receptacles shall be tamper-resistant, controlled by a switch outside the room that is under the control of staff, and shall be protected by a ground-fault circuit interrupter.	CEC 517.18(B) ex. 4

<b>CATEGORY 1 CRITICAL CARE SPACES INTENSIVE CARE UNIT CRITICAL CARE SPACES POST-ANESTHETIC CARE UNIT (PACU)</b>			
Item	Branch	Requirements	Applicable Codes
1	Normal Critical	Normal and critical branch power circuits serving each patient bed location. All branch circuits from the normal power system shall originate from the same panelboard. Normal branch circuit is not required if critical care patient bed location is served by two critical branch circuits fed from two separate transfer switches.	CEC 517.19(A) CEC 517.19(A) ex. 2
2	Critical	A minimum of one dedicated critical branch circuit serving only that patient bed location.	CEC 517.19(A)
3	Normal Critical	Minimum of fourteen receptacles (7 duplex) serving each patient bed location, split between normal and critical branch or split between two critical branches as allowed in CEC 517.19(A) exception 2.	CEC 517.19(B)(1) CEC 517.19(B)(2)
4	Critical	Task illumination.	CEC 517.34(A)(7)(a)

<b>DELIVERY ROOM LABOR/DELIVERY/RECOVERY (LDR) LABOR/DELIVERY/RECOVERY/POSTPARTUM (LDRP)</b>			
<b>Item</b>	<b>Branch</b>	<b>Requirements</b>	<b>Applicable Codes</b>
<b>1</b>	Normal Critical	Normal and critical branch power circuits serving each patient bed location. All branch circuits from the normal power system shall originate from the same panelboard. Normal branch circuit is not required if critical care patient bed location is served by two critical branch circuits fed from two separate transfer switches.	CEC 517.19(A) CEC 517.19(A) ex. 2
<b>2</b>	Critical	A minimum of one dedicated critical branch circuit serving only that patient bed location.	CEC 517.19(A)
<b>3</b>	Normal Critical	Minimum of fourteen receptacles (7 duplex) serving each patient bed location, split between normal and critical branch or split between two critical branches as allowed in CEC 517.19(A) exception 2.	CEC 517.19(B)(1) CEC 517.19(B)(2)
<b>4</b>	Normal Critical	Minimum of six receptacles serving the infant resuscitation location, split between normal and critical branch.	CEC 517.19 CBC 1224.32.3.5
<b>5</b>	Critical	Task illumination.	CEC 517.34(A)(7)(a)
<b>6</b>	Critical	Provide a surgical light in each delivery room.	CBC 1224.32.3.4
<b>7</b>	Critical Battery	Battery-operated or direct wired time lapse clock.	CBC 1224.32.3.3

<b>NURSERY</b>			
<b>Item</b>	<b>Branch</b>	<b>Requirements</b>	<b>Applicable Codes</b>
<b>1</b>	Critical	Task illumination.	CEC 517.34(A)(2)(a)
<b>2</b>	Critical	One duplex receptacle shall be provided for every two bassinets.	CEC 517.18(D) CEC 517.34(A)(2)(a)

<b>NEONATAL INTENSIVE CARE UNIT (NICU)</b>			
<b>Item</b>	<b>Branch</b>	<b>Requirements</b>	<b>Applicable Codes</b>
<b>1</b>	Critical	Illumination level at a minimum of 100 foot candles. Dimmer or multi-level switching allowed.	CEC 517.22(D)(2)

2	Critical	Task illumination.	CEC 517.34(A)(7)(a)
3	Critical	A minimum of one dedicated critical branch circuit serving only that patient bed location.	CEC 517.19(A)
4	Critical Normal	Normal and critical branch power circuits serving each patient bed location. All branch circuits from the normal power system shall originate from the same panelboard. Normal branch circuit is not required if critical care patient bed location is served by two critical branch circuits fed from two separate transfer switches.	CEC 517.19(A) CEC 517.19(A) ex. 2
5	Critical Normal	Minimum of fourteen receptacles (7 duplex) split between normal and critical branch or split between two critical branches as allowed in CEC 517.19(A) exception 2.	CEC 517.19(B)(1)

<b>OPERATING ROOM CYSTOSCOPY HYBRID OPERATING ROOM CLASS 3 IMAGING ROOM CAESAREAN SECTION ROOM TRAUMA ROOM</b>			
Item	Branch	Requirements	Applicable Codes
1		Battery-powered emergency light fixtures with a minimum of a 90 minute runtime.	CEC 517.63(A)
2	Critical	Task illumination and surgical lights.	CEC 517.34(A)(1)
3	Critical	Provide a surgical light in cesarean operating room.	CBC 1224.32.3.4
4		Areas shall be considered wet procedure locations unless the Functional Program required in California Administrative Code Section 7-119 states otherwise. Functional Program should include a list of procedures that will be performed in the area.	CAC 7-119
5	Critical	Minimum of thirty-six receptacles, of which at least twelve (but not more than 24) are fed from the normal branch or a critical branch on a different transfer switch.	CEC 517.19(C)
6	Critical	Fixed electrical equipment including imaging and robotic surgery machines.	CEC 517.34(A)(1)
7	Critical or Battery	Electric clocks.	CEC 517.34(A)(11)(a) CBC 1224.32.3.3



			CBC 1224.15.3.6
8		Grounding and bonding.	CEC 517.19(C) & (D) CEC 517.62
9		Wiring and equipment in other-than-hazardous anesthetizing locations.	CEC 517.61(C) CEC 517.63
10	Normal Critical	Isolated power systems or ground-fault circuit interrupters if required due to wet procedure determination.	CEC 517.19(F) CEC 517.20 CEC 517.160
11	Normal Critical	Minimum of six receptacles serving the infant resuscitation location in caesarean section room, split between normal and critical branch.	CEC 517.19 CBC 1224.32.3.5

**CLASS 2 IMAGING ROOM  
PROCEDURE ROOM  
ANGIOGRAPHIC LAB  
CARDIAC CATHETERIZATION LAB**

Item	Branch	Requirements	Applicable Codes
1		Anesthetizing locations shall have a battery-powered emergency light fixtures with a minimum of a 90 minute runtime.	CEC 517.63(A)
2	Critical	Task illumination.	CEC 517.34(A)(1)
3	Critical Normal	Normal and critical branch power circuits serving receptacles provided in room. All branch circuits from the normal power system shall originate from the same panelboard. Normal branch circuit is not required if critical care patient bed location is served by two critical branch circuits fed from two separate transfer switches.	CEC 517.19(A) CEC 517.19(A) ex. 2
4	Critical	A minimum of one dedicated critical branch circuit serving only that patient bed location.	CEC 517.19(A)
5	Critical	Minimum of fourteen hospital grade receptacles (7 duplex) shall be provided in the room, split between normal and critical branch or split between two critical branches as allowed in CEC 517.19(A) exception 2.	CEC 517.19(B)
6	Critical or Battery	Electric clocks.	CEC 517.34(A)(11)(a) CBC 1224.15.3.6
7		Grounding and bonding.	CEC 517.19(C) & (D) CEC 517.62
8		Wiring and equipment in other-than-hazardous anesthetizing locations.	CEC 517.61(C) CEC 517.63

<b>9</b>	Normal Critical	Isolated power systems or ground-fault circuit interrupters if required due to wet procedure determination.	CEC 517.19(F) CEC 517.20 CEC 517.160
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<b>EMERGENCY ROOM EMERGENCY EXAM ROOM EMERGENCY TREATMENT ROOM EMERGENCY TRIAGE ROOM WARD TREATMENT ROOM</b>			
Item	Branch	Requirements	Applicable Codes
<b>1</b>	Critical	Task illumination.	CEC 517.34(A)(2)(a) CEC 517.34(A)(7)(f)
<b>2</b>	Critical	Minimum of one receptacle.	CEC 517.34(A)(2)(a) CEC 517.34(A)(7)(f)

<b>CLASS 1 IMAGING ROOM X-RAY DIAGNOSTIC EQUIPMENT</b>			
Item	Branch	Requirements	Applicable Codes
<b>1</b>		Disconnecting means – in locations operable/readily accessible from x-ray controls.	CEC 517.72
<b>2</b>		Disconnecting means not required for portable equipment served by 120 volt receptacle rated 30A or less.	CEC 517.72(C)
<b>3</b>		Rating of overcurrent protection and supply conductors.	CEC 517.73
<b>4</b>		Grounding.	CEC 517.78
<b>5</b>	Critical or Equipment	Imaging equipment approved by the Licensing Agency for diagnostic services of emergency/trauma patients.	CBC 1705A.13.3.1.7 CEC 517.34(A)(7)(l)
<b>6</b>	Critical	Task illumination and receptacles in the imaging room containing imaging equipment approved by the Licensing Agency for diagnostic services of emergency/trauma patients.	CBC 1705A.13.3.1.7 CEC 517.34(A)(7)(i)

## SKILLED NURSING FACILITY REQUIREMENTS, ACUTE PSYCHIATRIC (NON-CRITICAL AND/OR NON- GENERAL CARE) HOSPITAL REQUIREMENTS

<b>SYSTEM SEGREGATION SERVICE EQUIPMENT</b>			
Item	Branch	Requirements	Applicable Codes
1	Life Safety Equipment	The Type 2 Essential Electrical System (EES) shall comprise the life safety and equipment branches. <b>Note:</b> facilities approved under previous code editions will not be required to rename the critical branch to equipment branch.	CEC 517.42(A)
2	Life Safety	Branch wiring shall be independent of all other wiring and equipment except as allowed by code.	CEC 517.42(D)
3		Essential services may originate or pass through existing facilities provided they are seismically conforming facilities.	CEC 517.4
4	Life Safety	No other function than those listed in this Code section are allowed to be connected to the life safety branch of the emergency system.	CEC 517.43

<b>GENERATOR FUEL SUPPLY TRANSFER SWITCHES</b>			
Item	Branch	Requirements	Applicable Codes
1		Alternate source of power shall be a generator.	CEC 517.41(B.1)
2	Life Safety	Selected receptacles and light fixtures at generator set location.	CEC 517.43(E)
3	Life Safety Equipment	Automatic restoration of power within 10 seconds.	CEC 517.43 CEC 700.12
4		On site fuel supply for at least 6 hours of operation at full demand.  Main fuel tank shall have a minimum capacity of at least 133% of the low-fuel sensor.	CEC 700.12(D)(2) exception 2 NFPA 110.5.5.3
5	Equipment	Means for automatically transferring from one fuel supply to another when using dual supply.	CEC 700.12(D)(2)(d)
6	Equipment	Fuel transfer pump shall be on essential electrical system power.	CEC 700.12(D)(2)(b)

7	Life Safety Equipment	Minimum of one transfer switch per essential electrical system branch required. [One transfer switch allowed for the essential electrical system rated for 150kVA or lower] Note: Bypass isolation is not required for facilities that are not providing sub-acute care.	CEC 517.42(B)
8		Separately derived emergency systems shall have transfer switches that switch all current carrying conductors and neutral conductor.	CEC 250.30 CEC 250.35
9		Generator overcurrent protection.	CEC 445.12
10		Generator shall be listed in accordance with UL 2200.	CBC 2702.1.1
11		Indoor generator room/area requirements.	CBC 442 CBC 2702.1.3 NFPA 110: 7.2.1
12		No interior openings (doors) are allowed for generator rooms in Group I buildings.	CBC 442.2.2.1
13		Disconnecting means remote generator shut-off.	CEC 445.18(B) NFPA 37: 9.2.1.1 NFPA 110: 5.6.5.6
14		Provide temporary generator connection for single-source emergency power source system.	CEC 700.3(F)
15		Remote annunciator with battery back-up at 24 hour staffed location.	NFPA 110.5.6.6

<b>ASSEMBLY BILL (AB) 2511/HEALTH AND SAFETY CODE (H&amp;SC)</b>			
<b>1418.22</b>			
<b>HCAI PIN 74</b>			
Item	Branch	Requirements	Applicable Codes
1		Fuel provisions to support a minimum of 96 hours of operation from the alternate power source. (Minimum of 6 hours of on-site fuel supply)	HCAI PIN 74
2		Systems required to be backed up for a minimum of 96 hours: <ul style="list-style-type: none"> <li>• Equipment (HVAC) required to maintain safe temperatures</li> <li>• Life-saving equipment</li> <li>• Oxygen generating devices</li> </ul>	HCAI PIN 74
3		Automatic restoration of power within 10 seconds for life-saving equipment and oxygen generating devices and in sufficient time to maintain a temperature range of 71-81 degrees Fahrenheit.	HCAI PIN 74
4	Equipment	Special Seismic Certification required for Alternate Power Source equipment.	HCAI PIN 74

<b>5</b>	Equipment or Legally Required or Normal	<p>New or existing onsite alternate source of power to meet H&amp;SC 1418.22. Alternate source of power can be any of the following:</p> <ul style="list-style-type: none"> <li>• Emergency Power System (EPS) as defined by CEC Article 517</li> <li>• Legally required Standby Power System as defined by CEC Article 701</li> <li>• Interconnected Electric Power Production Source(s) as defined by CEC Article 705</li> </ul>	HCAI PIN 74
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<b>HVAC SUMP PUMPS CHILLER ROOMS SMOKE CONTROL SYSTEMS MEDICAL GAS ALARM PLUMBING FIXTURES</b>			
Item	Branch	Requirements	Applicable Codes
1	Equipment	Heating, ventilating, and cooling equipment required by the California Mechanical Code (CMC).	CEC 517.44(B)(1.1) CMC 321.0
2	Equipment	All supply, return, and exhaust fans required for positive or negative pressure.	CMC 321.4 CEC 517.44(B)(1.1)
3	Equipment	Delayed automatic connection for sump pumps and other equipment required to operate for the safety of major apparatus including associated controls and alarms.	CEC 517.44(A)(3)
4	Equipment	Fire smoke dampers, accordion folding fire doors, and stair pressurizations systems.	CEC 517.44(A)(4)
5		Emergency shutdown switch for chiller equipment located inside the machinery room.	CMC 1108.3 CFC 608.10.1
6	Life Safety	Refrigerant leak detection alarm for chiller rooms.	CFC 608.9 CMC 1106.2.2.1 CEC 517.43(C)
7	Life Safety	Medical gas alarm system.	CEC 517.43(C)(2)
8	Equipment	Sensor-operated plumbing fixtures as required by Table 4-2 of the California Plumbing Code.	CEC 517.44(A)(9)
9	Equipment	Equipment as required by the California Plumbing Code (CPC).	CEC 517.44(A)(10)
10	Equipment	Domestic water booster pumps, domestic hot water pumps, sewage ejector pumps, sump and drainage pumps, domestic water heating equipment and their controls, and grease removal devices requiring electric power.	CPC 321.0

11		Refer to HCAI PIN 74 for HVAC alternate power requirements to meet the requirements of H&SC 1418.22.	HCAI PIN 74
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<b>NURSE STATION                      MEDICATION PREPARATION AREA                      PHARMACY DISPENSING SPACE                      PATIENT CARE SPACE                      ELECTRICAL AND MECHANICAL ROOMS</b>			
Item	Branch	Requirements	Applicable Codes
1	Equipment	Task illumination and select receptacles in patient care spaces, medication preparation spaces, pharmacy dispensing space, and nurse stations.	CEC 517.44(A)(1)
2		Receptacles in patient sleeping areas not required to be hospital grade.	CEC 517.18(B) ex. 3
3	Equipment	Selected receptacles in patient room corridors so that any patient bed can be reached with fifty (50) foot extension cord.	CEC 517.44(A)(7)
4		New or replaced receptacles in patient sleeping rooms in Skilled Nursing Homes (SNFs) require AFCI protection.	CEC 210.12(D)
5	Equipment	Task lighting and at least one receptacle in electrical and mechanical rooms. In other than service equipment rooms, the electrical room receptacle shall not be connected to the load side of the equipment's branch-circuit disconnecting means that feeds this receptacle.	CEC 210.63(A) and (B) CEC 517.44(A)(8)

## SUB-ACUTE CARE NURSING FACILITY REQUIREMENTS

<b>SUB-ACUTE CARE NURSING FACILITY</b>			
<b>Item</b>	<b>Branch</b>	<b>Requirements</b>	<b>Applicable Codes</b>
<b>1</b>		Sub-acute care nursing facilities and units electrical systems shall comply with the requirements of CEC Part III, CEC 517.29 through CEC 517.35.	CEC 517.40(B)
<b>2</b>		Automatic transfer switches shall have bypass isolation capability with an in-phase monitor relay.	CEC 517.31(B)(3)
<b>3</b>		Sub-acute care patient rooms shall be provided with a minimum of eight receptacles.	CEC 517.19(B)(1) OSHPD exception
<b>4</b>		Fuel supply shall provide a minimum of six hours operation at full demand load.  Main fuel tank shall have a minimum capacity of at least 133% of the low-fuel sensor.	CEC 700.12(B) Ex. 2 NFPA 110: 5.5.3
<b>5</b>		Conversion of skilled nursing facilities to sub-acute nursing facilities will require full current code compliance.	OSHPD CAN 3-517.40(B) - Electrical Life-Support Equipment for Nursing Homes and Limited Care Facilities
<b>6</b>		Refer to HCAI PIN 74 for emergency power requirements to meet the requirements of H&SC 1418.22.	HCAI PIN 74

## CLINIC REQUIREMENTS

<b>AMBULATORY SURGICAL CLINIC HEMODIALYSIS CLINIC</b>			
<b>Item</b>	<b>Branch</b>	<b>Requirements</b>	<b>Applicable Codes</b>
<b>1</b>		Ambulatory surgical clinics shall meet the requirements of CEC 517.29 through CEC 517.35.	CEC 517.45(G)
<b>2</b>		Clinics with life support equipment and/or critical care spaces shall meet the requirements of CEC 517.29 through CEC 517.35.	CEC 517.45(B) CEC 517.45(C)
<b>3</b>		Ambulatory surgical clinic essential electrical system shall be supplied by a generator with a minimum of four hours of on-site fuel.  Main fuel tank shall have a minimum capacity of at least 133% of the low-fuel sensor.	CEC 517.45(E.1) CEC 700.12(D)(2) Ex. 3 NFPA 110 5.5.3
<b>4</b>		Automatic transfer switches in ambulatory surgical clinic shall have bypass isolation capability with in an-phase monitor relay.	CEC 517.31(B)(3)
<b>5</b>		Hemodialysis clinic shall have egress lighting and exit signs with at least ninety minutes of battery backup.	CEC 517.45(H)
<b>6</b>		For OSHPD 1,3,4, and 5: For battery systems, if a life-safety and critical branch are present, provide a connection for a portable diesel generator.	CEC 517.30(B)(3)



## HELPFUL LINKS

**OSHPD Facilities Development Division Website:**

<https://hcai.ca.gov/construction-finance/>

**OSHPD PIN:** Policy Intent Notice. Office of Statewide Hospital Planning and Development Facility Development Division's policy on a specific subject. PINs can be found on the following webpage:

<https://hcai.ca.gov/construction-finance/codes-and-regulations/#PINs>

**OSHPD CAN:** Code Application Notice. Interpretation of specific sections of the California Building Standards Code. CANs can be found on the following webpage:

<https://hcai.ca.gov/construction-finance/codes-and-regulations/#CANs>

**Guide for Working on Projects Under OSHPD Jurisdiction – Tips from the Experts:**

<https://hcai.ca.gov/wp-content/uploads/2020/10/Guide-Working-on-Projects-OSHPD-Jurisdiction-Tips-from-Experts.pdf>

**OSHPD Forms, Applications and Reminders Lists, Testing, Inspection, and Observation Form:**

<https://hcai.ca.gov/construction-finance/resources/forms-applications-reminder-lists/>

**Link to Title 24 California Building Standards Code:**

<https://hcai.ca.gov/construction-finance/codes-and-regulations/#title-24-california-building-standards-code>

**OSHPD Phone List**

<https://hcai.ca.gov/construction-finance/resources/fdd-phone-list/>

**OSHPD Electrical Guidelines and other Discipline Comments**

<https://hcai.ca.gov/construction-finance/building-and-construction-projects/comments-activities/>

## Revision History

05/08/2023:Published.