



IBC 2024 Code Changes

**Risk category and Table 1604.5
Moving All I-2 Occupancies to Risk
category IV**

Risk Category & Importance Factors for Buildings & Other Structures

- **IBC §1604.5 Risk category**

Each building and structure shall be assigned a risk category in accordance with Table 1604.5. Where a referenced standard specifies an occupancy category, the risk category shall not be taken as lower than the occupancy category specified therein. Where a referenced standard specifies that the assignment of a risk category be in accordance with ASCE 7, Table 1.5-1, Table 1604.5 shall be used in lieu of ASCE 7, Table 1.5-1.

Risk Category & Importance Factors for Buildings & Other Structures

- **ASCE 7 §1.5.1**

... Minimum design loads for structures shall incorporate the applicable importance factors given in Table 1.5-2, ...

2022 CBC/2021 IBC



**TABLE 1604.5
RISK CATEGORY OF BUILDINGS AND OTHER STRUCTURES**

RISK CATEGORY	NATURE OF OCCUPANCY
I	Buildings and other structures that represent a low hazard to human life in the event of failure, including but not limited to: <ul style="list-style-type: none"> • Agricultural facilities. • Certain temporary facilities. • Minor storage facilities.
II	Buildings and other structures except those listed in Risk Categories I, III and IV.
III	Buildings and other structures that represent a substantial hazard to human life in the event of failure, including but not limited to: <ul style="list-style-type: none"> • Buildings and other structures whose primary occupancy is public assembly with an occupant load greater than 300. • Buildings and other structures containing Group F occupancies with an occupant load greater than 250. • Group I-2, Condition 1 occupancies with 50 or more care recipients. • Group I-2, Condition 2 occupancies not having emergency surgery or emergency treatment facilities. • <i>[OSHPD 2] Skilled nursing facilities, intermediate care facilities, Group I-2 occupancy with 50 or more care recipients.</i> • <i>[OSHPD 5] Acute psychiatric hospitals, Group I-2 occupancy with 50 or more care recipients.</i> • Group I-3 occupancies. • Any other occupancy with an occupant load greater than 5,000.^a • Power-generating stations, water treatment facilities for potable water, wastewater treatment facilities and other public utility facilities not included in Risk Category IV. • Buildings and other structures not included in Risk Category IV containing quantities of toxic or explosive materials that: <ul style="list-style-type: none"> Exceed maximum allowable quantities per control area as given in Table 307.1(1) or 307.1(2) or per outdoor control area in accordance with the <i>California Fire Code</i>; and Are sufficient to pose a threat to the public if released.^b
	Buildings and other structures designated as essential facilities, including but not limited to:



2022 CBC/2021 IBC



IV

Buildings and other structures designated as essential facilities, including but not limited to:

- Group I-2, Condition 2 occupancies having emergency surgery or emergency treatment facilities.
- Ambulatory care facilities having emergency surgery or emergency treatment facilities.
- Fire, rescue, ambulance and police stations and emergency vehicle garages.

IV

- Designated emergency preparedness, communications and operations centers and other facilities required for emergency response.
- Power-generating stations and other public utility facilities required as emergency backup facilities for Risk Category IV structures.
- Buildings and other structures containing quantities of highly toxic materials that:
 - Exceed maximum allowable quantities per control area as given in Table 307.1(2) or per outdoor control area in accordance with the *California Fire Code*; and
 - Are sufficient to pose a threat to the public if released.^b
- Aviation control towers, air traffic control centers and emergency aircraft hangars.
- Buildings and other structures having critical national defense functions.
- Water storage facilities and pump structures required to maintain water pressure for fire suppression.

TABLE 1604.5
RISK CATEGORY OF BUILDINGS AND OTHER STRUCTURES

2024 IBC



RISK CATEGORY	NATURE OF OCCUPANCY
I	Buildings and other structures that represent a low hazard to human life in the event of failure, including but not limited to: <ul style="list-style-type: none"> • Agricultural facilities. • Certain temporary facilities. • Minor storage facilities.
II	Buildings and other structures except those listed in Risk Categories I, III and IV.
	Buildings and other structures that represent a substantial hazard to human life in the event of failure, including but not limited to: <ul style="list-style-type: none"> • Buildings and other structures whose primary occupancy is public assembly with an occupant load greater than 300. • Buildings and other structures containing one or more public assembly spaces, each having an occupant load greater than 300 and a cumulative occupant load of these public assembly spaces of greater than 2,500. • Buildings and other structures containing Group E or Group I-4 occupancies or combination thereof, with an occupant load greater than 250.

308.3 Institutional Group 1-2.

Institutional Group 1-2 occupancy shall include buildings and structures used for *medical care on a 24-hour basis* for more than five persons who are *incapable of self-preservation*. This group shall include, but not be limited to, the following:

- *Foster care facilities*
- *Detoxification facilities*
- *Hospitals*
- *Nursing homes*
- *Psychiatric hospitals*

students above the 12th grade with an occupant load greater than 500.

- ~~Group I-2, Condition 1 occupancies with 50 or more care recipients.~~
- ~~Group I-2, Condition 2 occupancies not having emergency surgery or emergency treatment facilities.~~
- Group I-3, Condition 1 occupancies.

III

	<p>potable water, wastewater treatment facilities and other public utility facilities not included in Risk Category IV.</p> <ul style="list-style-type: none"> • Buildings and other structures not included in Risk Category IV containing quantities of toxic or explosive materials that: <ul style="list-style-type: none"> • Exceed maximum allowable quantities per control area as given in Table 307.1(1) or 307.1(2) or per outdoor control area in accordance with the <i>International Fire Code</i>; and • Are sufficient to pose a threat to the public if released.^b
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including but not limited to *nursing homes* and *foster care facilities*.

308.3.1.2 Condition 2.

- This occupancy condition shall include facilities that provide nursing and *medical care* and could provide emergency care, surgery, obstetrics or in-patient stabilization units for psychiatric or detoxification, including but not limited to *hospitals*.

IV

Buildings and other structures designated as essential facilities and buildings where loss of function represents a substantial hazard to occupants or users, including but not limited to:

- Group I-2, ~~Condition 2~~ occupancies. ~~occupancies having emergency surgery or emergency treatment facilities.~~

IV

- Designated emergency preparedness, communications and operations centers and other facilities required for emergency response.
- Public utility facilities providing power generation, potable water treatment, or wastewater treatment.
- Power-generating stations and other public utility facilities required as emergency backup facilities for Risk Category IV structures.
- Buildings and other structures containing quantities of highly toxic materials that:
 - Exceed maximum allowable quantities per control area as given in Table 307.1(2) or per outdoor control area in accordance with the International Fire Code; and
 - Are sufficient to pose a threat to the public if released.^b
- Aviation control towers, air traffic control centers and emergency aircraft hangars.
- Buildings and other structures having critical national defense functions.
- Water storage facilities and pump structures required to maintain water pressure for fire suppression.

a. For purposes of occupant load calculation, occupancies required by Table 1004.5 to use gross floor area calculations shall be permitted to use net floor areas to determine the total occupant load. The floor area for vehicular drive aisles shall be permitted to be excluded in the determination of net floor area in parking garages.

b. Where approved by the building official, the classification of buildings and other structures as Risk Category III or IV based on their quantities of toxic, highly toxic or explosive materials is permitted to be reduced to Risk Category II, provided that it can be demonstrated by a hazard assessment in accordance with Section 1.5.3 of ASCE 7 that a release of the toxic, highly toxic or explosive materials is not sufficient to pose a threat to the public.

for more than five persons who are incapable of self-preservation. This group shall include, but not be limited to, the following:

- Foster care facilities
- Detoxification facilities
- Hospitals
- Nursing homes
- Psychiatric hospitals

308.3.1 Occupancy conditions.

308.3.1.1 Condition 1.

- This occupancy condition shall include facilities that provide nursing and medical care but do not provide emergency care, surgery, obstetrics or in-patient stabilization units for psychiatric or detoxification, including but not limited to nursing homes and foster care facilities.

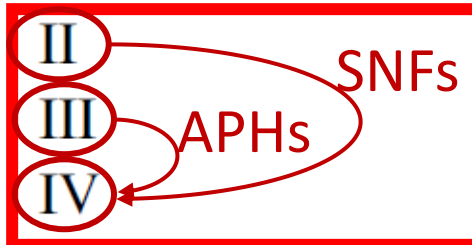
308.3.1.2 Condition 2.

- This occupancy condition shall include facilities that provide nursing and medical care and could provide emergency care, surgery, obstetrics or in-patient stabilization units for psychiatric or detoxification, including but not limited to hospitals.

ASCE 7

Table 1.5-2 Importance Factors by Risk Category of Buildings and Other Structures for Snow, Ice, and Earthquake Loads

Risk Category from Table 1.5-1	Snow Importance Factor, I_s	Ice Importance Factor—Thickness, I_i	Ice Importance Factor—Wind, I_w	Seismic Importance Factor, I_e
I	0.80	0.80	1.00	1.00
II	1.00	1.00	1.00	1.00
III	1.10	1.15	1.00	1.25
IV	1.20	1.25	1.00	1.50



Note: The component importance factor, I_p , applicable to earthquake loads, is not included in this table because it depends on the importance of the individual component rather than that of the building as a whole, or its occupancy. Refer to Section 13.1.3.

$$V = C_s W$$

$$C_s = \frac{S_{DS}}{R \cdot I_e}$$

or,

$$C_s = \frac{S_{DS} I_e}{R}$$

Proponent's Reason for Change

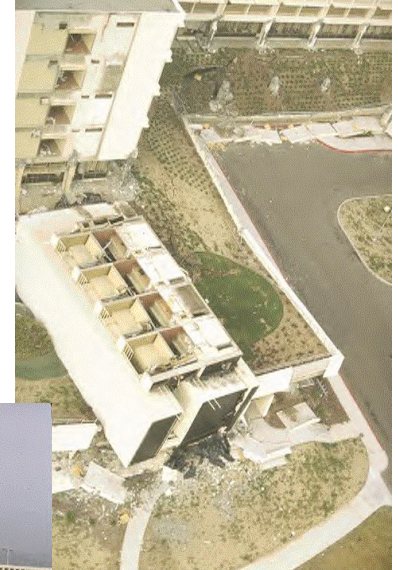
-facilities with special design features and vulnerable users should be strong candidates for Risk Category IV. Following this logic, this proposal expands the scope of RC IV from just “essential facilities” to include “buildings where loss of function represents a substantial hazard.” **This “substantial hazard” can even be life threatening** where, for example, a 24-hour medical facility, residential care facility, public water or power utility, detention center with impeded egress, or critical supply chain facility is out of service for weeks.
-**This proposal is consistent with current IBC principles.** . .
-the IBC’s purpose is broader than just “life safety.” Section 101.3 states that the purpose of the IBC is to provide a “reasonable level of safety, **health and general welfare.**” So a focus on the health and welfare of vulnerable building users, even where their building provides immediate safety, is both “reasonable” and completely consistent with the purpose of the code.

Fiscal Impact Quantified by the Proponents

- . . . *This proposal will increase the cost of construction for the buildings newly assigned to RC IV. The largest increases will likely be in high seismic areas where assignment to RC IV makes the largest changes to structural and nonstructural design criteria. This does not mean, however, that every RC IV facility will have the same unit cost as a new state-of-the-art hospital. On the contrary, case studies of voluntary RC IV-like seismic design have found a construction cost premium ranging typically from 0% to 2% relative to normal RC II designs. . .*

Lessons Learned in the San- Fernando Earthquake

- The Earthquake demonstrated Deficiencies in:
 - Building Design Codes
 - Code enforcement process
 - Plan review
 - Construction inspection



Olive View Medical Center

Godden Collection, Earthquake Engineering
Research Center, University of California,
Berkeley

The Need for a Statewide Enforcement Agency

- Laws, regulations & building codes w/o rigorous enforcement are ineffective.
- HCAI/OSHPD is the enforcement agency of the HSSA.



**Results of the 1971 Sylmar Earthquake
On Hospital Buildings**

HEALTH AND SAFETY CODE - HSC

DIVISION 107. HEALTH CARE ACCESS AND INFORMATION [127000 - 130079]

PART 7. FACILITIES DESIGN REVIEW AND CONSTRUCTION [129675 - 130079]

CHAPTER 1. Health Facilities [129675 - 130070]

129675. This chapter shall be known and may be cited as the Alfred E. Alquist Hospital Facilities Seismic Safety Act of 1983.

129680.

...

(b) Local jurisdictions are preempted from the enforcement of all building standards published in the California Building Standards Code relating to the regulation of hospital buildings and the enforcement of other regulations adopted pursuant to this chapter, and all other applicable state laws, including plan checking and inspection of the design and details of the architectural, structural, mechanical, plumbing, electrical, and fire and panic safety systems, and the observation of construction. The department shall assume these responsibilities.

HEALTH AND SAFETY CODE - HSC

129875.

. . .

The Legislature recognizes the relative safety of single-story, wood-frame, and light steel frame construction for use in housing patients requiring skilled nursing and intermediate care services and it is, therefore, the intent of the Legislature to provide for reasonable flexibility in seismic safety standards for these structures. . .

The Foundation Pillars for Achieving the Targeted Building Performance Level



Higher standards and codes alone are not sufficient

CODES & STANDARDS

DETAILED PLAN REVIEW

FIELD INSPECTION & MATERIALS QUALITY CONTROL

Northridge EQ - Hospital Performance

Performance of all Buildings at 23 Hospital Sites with One or More Yellow or Red Tagged Buildings		
	Number (%) of Buildings	
Type of Damage	Pre Act	Post Act
Structural Damage		
Red tagged	12 (24%)	0 (0%)
Yellow tagged	17 (33%)	1 (3%)
Green tagged	22 (43%)	30 (97%)
Nonstructural Damage		
Major	31 (61%)	7 (23%)
Minor	20 (39%)	24 (77%)
Total Buildings	51	31

THE CALIFORNIA BLUEPRINT



BEHAVIORAL HEALTH

Transforming Behavioral Health: **Past Actions** Transforming Behavioral Health:

- No Wrong Door: Mental health / substance abuse
- Prevention / peer supports / crisis centers
- Facilities ←
- Reimagine Children's Behavioral Health



A History of California's Mental Health Policies

Legislature expands state funds for local community mental health programs



1957

Congress creates Medicare and Medicaid, allowing people with mental illnesses to live in their communities and collect federal benefits



1965

State mental hospitals begin to close as patient numbers decline to a fifth of their high point. Number of prison/jail inmates with mental illnesses rises.



Late 1960s – 1970s

CA begins requiring private health plans to provide comparable benefits, deductibles and copays for physical health and serious mental illness



1999

CA voters OK 1% tax on people with incomes above \$1 million to bolster the mental health system



2004



1954

FDA approves first antipsychotic drug to treat delusions/hallucinations. Thorazine opens possibility that some people with serious mental illnesses can live in the community



1959

Number of patients in CA mental hospitals peaks at 37,500



1967

California Governor signs law limiting involuntary detention of all but the most gravely disabled



1991

Legislature passes "realignment"—shifting responsibility for many mental health services from the state to counties



2002

Laura's Law—named for a young woman killed by a man who refused psychiatric care—allows counties to build court-ordered treatment programs



2010

The Affordable Care Act requires insurers to provide mental health as an essential benefit

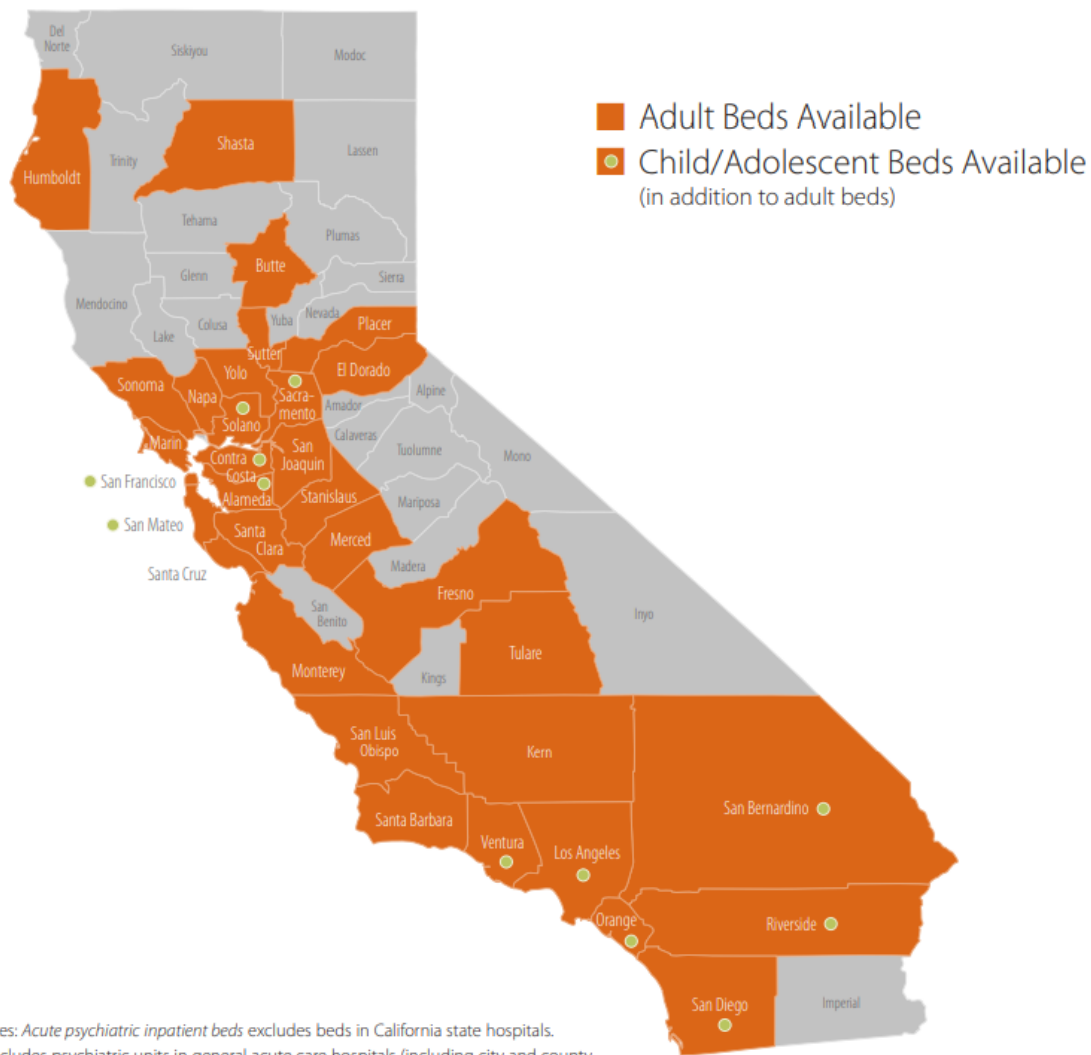
Emergency room visits



30%

Emergency department visits resulting in an inpatient psychiatric admission increased by 30% between 2010 and 2015.

Adult and Child/Adolescent Acute Psychiatric Inpatient Beds by California County, 2015



Notes: *Acute psychiatric inpatient beds* excludes beds in California state hospitals. It includes psychiatric units in general acute care hospitals (including city and county hospitals), beds in acute psychiatric hospitals, and beds in psychiatric health facilities.

Source: *California's Acute Psychiatric Bed Loss*, California Hospital Association, October 25, 2016.

Mental Health

Facilities

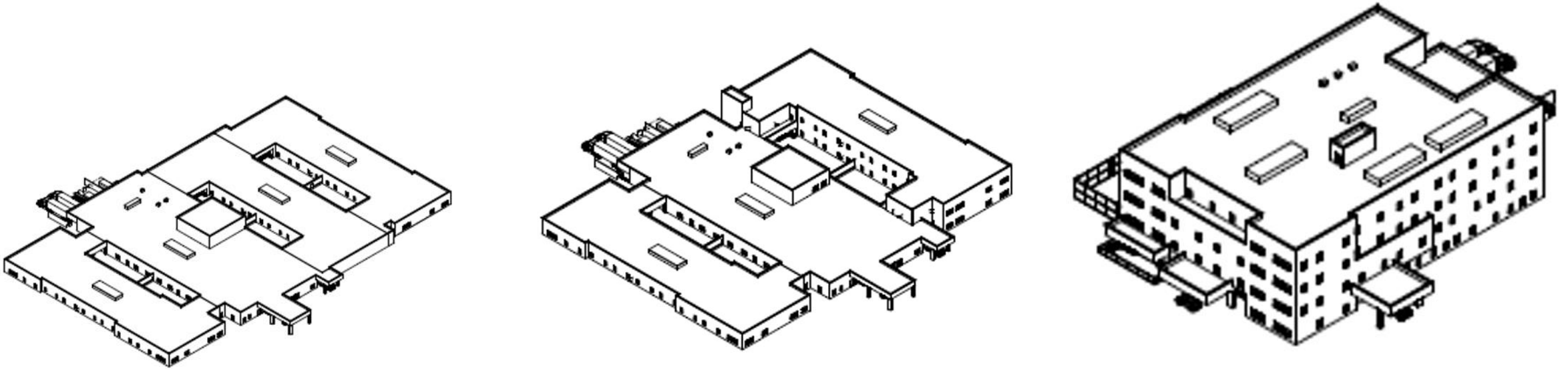
There was significant geographic variation in the availability of acute psychiatric inpatient beds in California: 25 counties had no adult acute psychiatric beds, and 46 counties had no psychiatric beds for children, in 2015. When inpatient facilities are far from where people live, it is more difficult for families to participate in treatment and for facilities to plan post-discharge care.

Acute-Psychiatric Hospitals – Changes in the Building Standards Direction

- 2016 California Building Standards Code Mid-cycle edition
 - OSHPD adopted new standards for Acute Psychiatric Hospitals
 - Designated as OSHPD 5
- New CBC Section, 1228,
 - Provides standards specifically suited for behavioral health.
- In 2018 OSHPD was presented the prestigious Simanek Distinguished Service Award by the California Hospital Association (CHA) for its efforts in bringing forth these much-needed standards.
 - *“The Simanek Distinguished Service Award recognizes leadership that promotes vision and excellence in behavioral health care services; outstanding contributions to hospitals and health care services in either in – or outpatient behavioral health settings; and special achievements as demonstrated by a successful project, program, or action.”*



Templatization of Behavioral Health Facilities



OSHPD collaboration efforts in the development for
Prototype Templates

General Acute Psychiatric Facilities - Advisory Guide

- Applicable Codes
- Checklist
- Anti-ligature products
- Patient Risk Assessment Plan, Check List and Examples
- Sample Alternate Methods of Compliance



TABLE 1604.5
RISK CATEGORY OF BUILDINGS AND OTHER STRUCTURES

RISK CATEGORY	NATURE OF OCCUPANCY
I	<p>Buildings and other structures that represent a low hazard to human life in the event of failure, including but not limited to:</p> <ul style="list-style-type: none"> • Agricultural facilities. • Certain temporary facilities. • Minor storage facilities.
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III	<ul style="list-style-type: none"> • Buildings and other structures containing educational occupancies for students above the 12th grade with an occupant load greater than 500. • <i>JOSH PD 2] Skilled nursing facilities, intermediate care facilities, Group I-2 occupancy with 50 or more care recipients.</i> • <i>JOSH PD 5] Acute psychiatric hospitals, Group I-2 occupancy with 50 or more care recipients.</i> • Group I-3, Condition 1 occupancies.
	<p>(megawatts, alternating current) or greater, water treatment facilities for potable water, wastewater treatment facilities and other public utility facilities not included in Risk Category IV.</p> <ul style="list-style-type: none"> • Buildings and other structures not included in Risk Category IV containing quantities of toxic or explosive materials that: <ul style="list-style-type: none"> • Exceed maximum allowable quantities per control area as given in Table 307.1(1) or 307.1(2) or per outdoor control area in accordance with the International Fire Code <i>California Fire Code</i>; and • Are sufficient to pose a threat to the public if released.^b

