



REPAIR and RECONSTRUCTION MODEL ORDINANCE 2010 Edition
(Amending the 2010 California Building Code)

Prepared by
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Emergency Preparedness Committee

Preface

Currently, the California Building Code Title 24 does not provide for damaged structures to be repaired or reconstructed to a structurally safe level, accounting for upgrades in wind and seismic standards. The inability to repair structures based upon the most recent industry knowledge, thus preventing or mitigating future unnecessary damage or injury, is not in the best interest of the citizens we are tasked with assisting. With this in mind, the following model is provided to permit jurisdictions to assist building owners in repairing their structures to reasonably safe levels based upon current industry standards, which helps preserve our communities by preventing future losses.

One of the primary driving forces behind this effort is the federal requirements under the Stafford Act.

The following excerpts from the Stafford Act have been provided for informational purposes, and to assist the local jurisdiction as local ordinances are drafted and implemented locally.

The Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended, ("Stafford Act") authorizes the Federal Emergency Management Agency (FEMA) to fund the repair and restoration of eligible government and non-profit facilities damaged in a Presidential declared disaster. Section 406(e) of the Stafford Act requires that the repair and restoration be "on the basis of the design of such facility as it existed immediately prior to the major disaster and in conformity with current applicable codes, specifications and standards."

In 1998, FEMA interpreted the Stafford Act, Federal Regulations in 44 CFR 206.226(d) as follows:
"To the extent a code or standard requires changes to the pre-disaster construction of a facility when it is being repaired or restored, those changes will only be eligible for FEMA funding if the code meets the following five specific criteria:

- (1) Apply to the type of repair or restoration required (standards may be different for new construction and repair work);
- (2) Be appropriate to the pre-disaster use of the facility;
- (3) Be found reasonable, in writing and formally adopted and implemented by the state or local government on or before the disaster declaration date or be a legal federal requirement applicable to the type of restoration;
- (4) Apply uniformly to all similar types of facilities within the jurisdiction of the owner of the facility; and
- (5) For any standard in effect: at the time of a disaster, it must have been enforced during the time it was in effect."

FEMA has issued several interpretations of the above regulations paraphrased below:

- 1) Repair ordinances must apply "uniformly", that is to all occupancies regardless of the funding source, the owner, or the regulator. FEMA intends to play one disaster grant applicant off the other if regulations are not entirely applicable or enforced uniformly. FEMA does not consider Appendix Chapter 34 Division III of the 1997 UBC to be eligible since it applies only to "natural" disasters. So FEMA insists that repair ordinances apply to both natural and man-made damage repairs for funding eligibility.
- 2) Repair ordinances must also apply both before and after disasters regardless of whether or not it is a Federally declared disaster. At this time, FEMA supports the intent of the International Existing Building Code (IEBC), which, if adopted, applies to all repairs regardless of the cause, or whether or not local or federal declarations of disaster or emergency exist.
- 3) The reasonableness clause of FEMA's regulations has also been the subject of FEMA's interpretations. FEMA recognizes the IEBC because FEMA has been actively pursuing code change proposals through ICC. If FEMA deems that a local- or state-generated regulation is unreasonable, FEMA reserves the right to initially deny requests for Public Assistance funds on that basis. After recent disasters, some applicants have then been forced to appeal in these cases, creating delays and uncertainty about funding and repairs.

California Building Officials Emergency Preparedness Committee Recommendation

It is the Emergency Preparedness Committee's belief that the following ordinance options, as currently drafted, is good public policy. If local jurisdictions consistently and uniformly comply with the five point criteria under the Stafford Act, compliance with Federal requirements may be met. Nonfeasance on this issue may be a greater risk to local jurisdictions.

The proposed model ordinance is intended to provide local jurisdictions the tools necessary to comply with the Stafford Act.

REPAIR and RECONSTRUCTION MODEL ORDINANCE
(Amending the 2010 California Building Code [based upon the 2009 IBC])

ORDINANCE NO. _____

An ordinance of the city of (town or county or city and county) of _____ of the state of California, adding a new chapter ____ to division _____ of the Municipal (or County or City and County) Code, relating to repair of damaged structures.

The City Council (County Board of Supervisors) of the City (Town or County or City and County) of the _____, State of California, ordains as follows:

Chapter ____ is added to Division __ of Title __ of the City (or County or City and County) of _____ Municipal (or County or City and County) Code, to read:

Section _____ Adoption and Intent

This chapter establishes regulations as amendments to the building code for the expeditious repair of damaged structures. In the event an amendment to the California Building Standards Code results in differences between these building standards and the California Building Standards Code, the text of these building standards shall govern. In accordance with California Health and Safety Code Section 17958.7, express findings that modifications to the California Building Standards Code are reasonably necessary because of local climatic, geological or topographical conditions are either already on file with the California Building Standards Commission, or will be filed prior to the effective date of the ordinance codified in this Article. In accordance with California Government Code Section 50022.6, at least one true copy of the California Building Code has been on file with the _____ Clerk since fifteen (15) days prior to enactment of the ordinance codified in this Article. While this Article is in force, a true copy of this Chapter shall be kept for public inspection in the office of the _____ Clerk. A reasonable supply of this Chapter shall be available in the office of the _____ Clerk for public purchase.

Section _____ Seismic Evaluation and Design Procedures for Repairs

For the purposes of this chapter, the following repair requirements are hereby amended to Section 3405 of the 2010 California Building Code:

- (a) Section 3402 of the 2010 California Building Code is hereby adopted in its entirety.
- (b) Section 3405 of the 2010 California Building Code is hereby adopted in its entirety.
- (c) Section 3405.6 of the 2010 California Building Code in hereby added to read:

3405.6 Seismic Evaluation and Design Procedures for Repairs. The seismic evaluation and design shall be based on the procedures specified in the California Building Code, ASCE 31 *Seismic Evaluation of Existing Buildings* (for evaluation only) or ASCE 41 *Seismic Rehabilitation of Existing Buildings*. The procedures contained in Appendix A of the *International Existing Building Code* shall be permitted to be used as specified in Section 3403.5.1.1.3.

3405.6.1 Compliance with CBC level seismic forces. Where compliance with the seismic design provisions of the California Building Code is required, the procedures shall be in accordance with one of the following:

1. One-hundred percent of the values in the California Building Code. Where the existing seismic force-resisting system is a type that can be designated as “Ordinary,” the values of R , Ω_o , and C_d used for analysis in accordance with Chapter 16 of the California Building Code shall be those specified for structural systems classified as “Ordinary” in accordance with Table 12.2-1 of ASCE 7, unless it is demonstrated that the structural system will provide performance equivalent to that of a “Detailed,” “Intermediate” or “Special” system.
2. Compliance with ASCE 41 using both BSE-1 and BSE-2 earthquake hazard levels and the corresponding performance levels in Table 3405.6.1.

**TABLE 3405.6.1
PERFORMANCE CRITERIA FOR CBC LEVEL SEISMIC FORCES**

OCCUPANCY CATEGORY (BASED ON CBC TABLE 1604.5)	PERFORMANCE LEVEL FOR USE WITH ASCE 41 BSE-1 EARTHQUAKE HAZARD LEVEL	PERFORMANCE LEVEL FOR USE WITH ASCE 41 BSE-2 EARTHQUAKE HAZARD LEVEL
I	Life Safety (LS)	Collapse Prevention (CP)
II	Life Safety (LS)	Collapse Prevention (CP)
III	Note a	Note a
IV	Immediate Occupancy (IO)	Life Safety (LS)

a. Acceptance criteria for Occupancy Category III shall be taken as 80 percent of the acceptance criteria specified for Occupancy Category II performance levels, but need not be less than the acceptance criteria specified for Occupancy Category IV performance levels.

3405.6.2 Compliance with reduced CBC level seismic forces. Where seismic evaluation and design is permitted to meet reduced California Building Code seismic force levels, the procedures used shall be in accordance with one of the following:

1. The California Building Code using 75 percent of the prescribed forces. Values of R , Ω_o , and C_d used for analysis shall be as specified in Section 3405.6.1 Item 1.
2. Structures or portions of structures that comply with the requirements of the applicable chapter in Appendix A of the *International Existing Building Code* as specified in Items 2.1 through 2.5 below shall be deemed to comply with this section.
 - 2.1. The seismic evaluation and design of unreinforced masonry bearing wall buildings in Occupancy Category I or II are permitted to be based on the procedures specified in Appendix Chapter A1.
 - 2.2. Seismic evaluation and design of the wall anchorage system in reinforced concrete and reinforced masonry wall buildings with flexible diaphragms in Occupancy Category I or II are permitted to be based on the procedures specified in Appendix Chapter A2.
 - 2.3. Seismic evaluation and design of cripple walls and sill plate anchorage in residential

buildings of light-frame wood construction in Occupancy Category I or II are permitted to be based on the procedures specified in Appendix Chapter A3.

2.4. Seismic evaluation and design of soft, weak, or open-front wall conditions in multiunit residential buildings of wood construction in Occupancy Category I or II are permitted to be based on the procedures specified in Appendix Chapter A4.

2.5. Seismic evaluation and design of concrete buildings in all Occupancy Categories are permitted to be based on the procedures specified in Appendix Chapter A5.

3. Compliance with ASCE 31 based on the applicable performance level as shown in Table 3405.6.2. It shall be permitted to use the BSE-1 earthquake hazard level as defined in ASCE 41 and subject to the limitations in item 4 below.

4. Compliance with ASCE 41 using the BSE-1 Earthquake Hazard Level defined in ASCE 41 and the performance level as shown in Table 3405.6.2. The design spectral response acceleration parameters S_{xs} and S_{x1} specified in ASCE 41 shall not be taken less than 75 percent of the respective design spectral response acceleration parameters S_{DS} and S_{D1} defined by the *California Building Code* and its reference standards.

**TABLE 3405.6.2
PERFORMANCE CRITERIA FOR REDUCED CBC
LEVEL SEISMIC FORCES**

OCCUPANCY CATEGORY (BASED ON CBC TABLE 1604.5)	PERFORMANCE LEVEL FOR USE WITH ASCE 31	PERFORMANCE LEVEL FOR USE WITH ASCE 41 BSE-1 EARTHQUAKE HAZARD LEVEL
I	Life Safety (LS)	Life Safety (LS)
II	Life Safety (LS)	Life Safety (LS)
III	Note a, Note b	Note a
IV	Immediate Occupancy (IO)	Immediate Occupancy (IO)

- a. Acceptance criteria for Occupancy Category III shall be taken as 80 percent of the acceptance criteria specified for Occupancy Category II performance levels, but need not be less than the acceptance criteria specified for Occupancy Category IV performance levels.
- b. For Occupancy Category III, the ASCE screening phase checklists shall be based on the life safety performance level.

3405.6.3 Referenced Standards

Standard Reference Number	Title	Referenced In Code Section Number
ASCE 31-03	Seismic Evaluation of Existing Buildings	3405.6.1, TABLE 3405.6.1 3405.2.4.2, TABLE 3405.6.2

ASCE 41-06
Including Supplement No. 1

Seismic Rehabilitation of Existing Buildings

3405.6.1,
TABLE 3405.6.1
3405.6.2,
TABLE 3405.6.2