

GEOHAZARD REPORT REQUIREMENTS: 2013 & 2016 CBC

Disciplines: Structural	History:	Revised 10-07-16	Revised 10-11-11	Revised 07-21-05
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PURPOSE: This Interpretation of Regulations (IR) provides clarification of specific Code requirements relating to the requirements for the submission of a geohazard report to the California Geological Survey (CGS) for acceptance, and, subsequently, to the Division of the State Architect (DSA) for projects within the jurisdiction of DSA.

SCOPE: This IR is applicable for projects submitted to DSA for review under the 2013 and 2016 editions of the California Building Code (CBC).

BACKGROUND: A geohazard is any geologic condition that is a potential danger to life or property. Geohazards include, but are not limited to, ground shaking, surface rupture, liquefaction, tsunami and landslides.

The California Administrative Code (CAC), Section 4-317(e) includes requirements for the performance of geotechnical (soils) studies and geohazard studies. Note that “Geotechnical Reports” (or soils investigation reports) often include soils studies only and might not include complete geohazard studies.

In addition, CBC Section 1803A describes requirements for engineering geologic reports, supplemental ground-response reports, and geotechnical reports. Any of these reports may contain elements of the geohazard studies, and shall all be submitted to CGS for review.

1. GENERAL PROCEDURE: When a geohazard report is required for a project (see criteria in Section 2 below), the report must be submitted to CGS before the project is submitted to DSA. Final DSA approval will not occur until DSA receives the final acceptance letter from CGS. It is the responsibility of the applicant to provide CGS’s acceptance letter to DSA and reference the DSA application number for the project.

If a provisional acceptance letter is issued by CGS, as is often required for projects with ground improvements, see Section 8.

1.1 Submittal to CGS: School districts are responsible for the submittal of the geohazard report to CGS and for the cost of review. Reports should be submitted to CGS approximately two months prior to submittal of the project to DSA; contact CGS for its current review timelines. Instructions are available on CGS’s website:
<http://www.conservation.ca.gov/cgs/rghm/reviews/Pages/faq.aspx>

The geohazard report submittal to CGS shall include a site data report as required by CBC Section 1603A.2.

1.2 Submittal to DSA: A copy of the geohazard report, site data report, and the application to CGS indicating the CGS project number shall be submitted to DSA along with the initial DSA project application.

2. PROJECTS REQUIRING GEOHAZARD REPORTS: A geohazard report shall be submitted to CGS for projects as described below.

2.1 Site Specific Ground Motion Analysis: A geohazard report is required for any project for which a site specific ground motion analysis is required or voluntarily used to develop seismic parameters used for design.

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The site specific ground motion analysis requirements of CBC Section 1616A.1.3 (1616.10.2*) and American Society of Civil Engineers (ASCE) 7, Section 11.4.7 are not required for projects delineated in Section 3 as not requiring a geohazard report.

- 2.2 New Sites:** A geohazard report is required for all construction on a new site.
- 2.3 New Structures on Existing Sites:** A geohazard report is required for all new buildings or structures, except as delineated in Section 3.
- 2.4 Additions:** A geohazard report is required for all additions except as delineated in Section 3.

Note: When an addition involves alterations to an existing building, the geohazard reporting requirements of Section 2.5 also apply.

- 2.5 Alterations to Existing Buildings:** A geohazard report is required for alterations which:
- 2.5.1** Involve rehabilitation of a structure as defined per CAC Section 4-307 or 4-309(c).
- 2.5.2** Voluntarily modify the lateral force resisting system (per CAC § 4-309[d]) and include new foundations supporting seismic force resisting systems which utilize any one of the following:
- Deep foundations.
 - Spread foundations designed for bearing pressures that exceed the maximum recommended foundation soil bearing pressures in an existing geotechnical report for that structure or, when a report is not available, the values set forth in CBC Table 1806A.2.
 - Foundations that are not deformationally compatible with the existing foundations (e.g. adding spread footings to a structure supported on deep foundations).
- 2.5.3** Involves repair of structural earthquake damage per CAC Section 4-309(e).
- 2.6 New Relocatable Buildings and Relocation of Existing Relocatable Buildings within a Mapped Geologic Hazard Zone:** Single-story relocatable buildings located in a mapped geologic hazard zone that are less than 2160 sf on non-permanent foundations will require a geologic hazards report. If the report indicates that there are no geologic hazards at the site that may have potential impact upon the building, DSA may waive the requirement for submittal and approval of the report by CGS.

3. PROJECTS NOT REQUIRING GEOHAZARD REPORTS: For projects on existing sites, with scope limited to one or more of those described in Sections 3.1 through 3.2.3 below, a geohazard report is not required.

3.1 For Any Existing Site, Regardless of Location:

- 3.1.1** Sitework, non-building structures, or structures not intended for human occupancy, unless such construction is essential to the operation of the facility.

**Indicates alternative California Building Code (CBC) sections that community colleges may use per 2013 and 2016 CBC Section 1.9.2.2*

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- Non-building structures include, but are not limited to, light poles, flag poles, signs, scoreboards, ball walls, fences, and retaining walls. Non-building structures do not include structures that shelter a use or occupancy such as canopies, lunch shelters, or carports.

Exception: Individual fabric shade structure used as shade canopies and lunch shelters of regular shape (e.g. hip, flat, gable, pyramid) 1,600 square feet or less supported on all corners by columns (3 minimum) with maximum column grid spacing of 40 feet do not require a geohazard report. Individual fabric shade structures may be grouped adjacent to each other using common columns up to a maximum of 4,000 square feet combined. All other fabric shade structures, including single or multiple column supports, used as shade canopies and lunch shelters of regular shape up to a maximum of 4,000 square feet do not require a geohazard report provided a geotechnical report indicates that no liquefaction potential exists.

- A “structure for human occupancy” is any structure used or intended for supporting or sheltering any use or occupancy, which is expected to have a human occupancy rate of more than 2,000 person-hours per year - in accordance with Title 14, Division 2, Chapter 8, Subchapter 1, Article 3, Section 3601(e). Structures not intended for human occupancy include structures such as storage buildings not entered by students and teachers for school purposes and do not include structures that shelter a use or occupancy such as canopies, lunch shelters, or carports

Note: Non-building structures “essential to the use of the facility” **do require** the submission of geohazard reports. Such structures include the following:

- Elevated water tanks necessary for fire protection.
- Earth retaining structures when failure of such structures could endanger occupied structures.
- Communications towers serving Risk Category IV (essential services) buildings.
- Other similar structures.

3.1.2 Structures not defined as a “School Building” per CAC Section 4-314 and exempt from DSA structural review as indicated in [IR A-22](#) Appendix A.

3.1.3 Temporary relocatable or emergency buildings as defined in CAC Section 4-302(b).

3.2 Existing Sites Outside of a Mapped Geologic Hazard Zone: In addition to the project scopes described in Section 3.1.1 through 3.1.3, above, projects on existing sites which are outside of a “mapped geologic hazard zone” (as defined in Section 4 below) are exempt from the requirement to provide a geohazard report if they involve only:

3.2.1 One or more single-story, wood-frame or light-steel frame structures of Type II or V construction, seismically separated into areas of 4,000 square feet or less in covered area. Such structures may include, but are not limited to, most relocatable buildings and plywood shear wall buildings.

3.2.2 Isolated elevator towers serving no more than two levels.

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3.2.3 Open metal site structures (e.g. structural steel, aluminum, etc.) seismically separated into areas of 4,000 square feet or less in covered area. Such structures may include but are not limited to shade structures, bleachers, canopies, and carports.

4. DEFINITION OF A “MAPPED GEOLOGIC HAZARD ZONE”: A mapped geologic hazard zone includes the following:

- A “Seismic Hazard Zone,” as identified by CGS.
- An “Earthquake Fault Zone” as identified by CGS.
- A fault, landslide, liquefaction, tsunami, or other geologic hazard zone defined in the Safety Element of a Local General Plan.

5. RE-USE OF EXISTING GEOHAZARD REPORTS: An existing geohazard report may be used for a new project if the existing report is based on adequate studies (refer to CGS Note 48 for guidance), a reevaluation is made, and the report is found to be currently appropriate. The existing report for the site and the reevaluation must be submitted to CGS for approval for each project.

A reevaluation is not required if **all three** of the following conditions are met:

1. The original geohazard report included the scope of construction proposed for the project.
2. The applicable building code has not changed since the original report was issued.
3. The project is submitted to DSA within the time limit described in the original report.

Note: Subsequent significant geologic events may invalidate an existing Geohazard Report.

6. SCOPE OF GEOHAZARD STUDIES: For guidance in conducting a study and reporting evaluations and recommendations, refer to the following:

- Special Publication 117A, “Guidelines for Evaluating and Mitigating Seismic Hazards in California (2008).”
www.conservation.ca.gov/cgs/shzp/webdocs/Documents/sp117.pdf
- Special Publication 42 (Interim Revision 2007), “Fault-Rupture Hazard Zones in California.” [ftp://ftp.consrv.ca.gov/pub/dmg/pubs/sp/Sp42.pdf](http://ftp.consrv.ca.gov/pub/dmg/pubs/sp/Sp42.pdf)

CGS Note 48 will be used as a guide for review by CGS:

www.conservation.ca.gov/cgs/information/publications/cgs_notes/note_48/Documents/note_48.pdf

7. CONTENT OF GEOHAZARD REPORTS: Requirements regarding contents of geohazard reports are addressed by CGS:

www.conservation.ca.gov/cgs/rghm/reviews/Pages/Default.aspx

8. REQUIREMENTS FOR SOIL IMPROVEMENT PROJECTS WITH CGS PROVISIONAL ACCEPTANCE: If a provisional acceptance letter is issued by CGS, as often required for projects with soil improvements, DSA approval of the construction documents may occur provided the conditions in this Section are complied with. However, foundation construction may not commence until the soil improvements and supplemental testing have been completed, and a final acceptance letter is issued by CGS and processed by DSA as a deferred submittal.

8.1. Construction Documents Note: The following paragraph shall be placed on the project title sheet:

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“The Geotechnical Engineer shall submit a comprehensive report documenting final soil improvements constructed, construction observation, and the results of the confirmation testing and analysis to the California Geological Survey (CGS). The project foundation construction shall not commence until final CGS acceptance letter is issued and processed by DSA as a deferred submittal.”

- 8.2. Deferred Submittal:** DSA will process CGS’s final acceptance letter as a deferred submittal. The following shall be indicated as a deferred submittal on the construction documents and in eTracker.

“Soil Improvement - CGS Final Acceptance of Geohazard Report”

- 8.3. Statement of Structural Tests and Special Inspections (DSA 103):** The following items shall be added to the form DSA-103 under item “6. Other Soils”:

TEST OR SPECIAL INSPECTION	TYPE	PERFORMED BY	CODE REFERENCE AND NOTES
a. Soil Improvements	Test	GE	Submit a comprehensive report documenting final soil improvements constructed, construction observation, and the results of the confirmation testing and analysis to CGS for final acceptance.
b. Inspection of Soil Improvements	Continuous	GE	

- 8.4. DSA eTracker:** The following note shall be added to the Plan Check Worksheet“Notes”:

“The CGS final acceptance is not issued; Geotechnical engineer shall submit a comprehensive report documenting final soil improvements constructed, construction observation, and the results of the confirmation testing and analysis to CGS for final acceptance prior to foundation construction.”

REFERENCES:

California Code of Regulations, Title 24

2016 and 2013 CAC Section 4-317(e)

2016 and 2013 CBC Sections 1603A.2, 1616A, 1616*, and 1803A

This Interpretation of Regulations (IR) is intended for use by the Division of the State Architect (DSA) staff, and as a resource for design professionals, to promote more uniform statewide criteria for plan review and construction inspection of projects within the jurisdiction of DSA which includes State of California public elementary and secondary schools (grades K-12), community colleges and state-owned or state-leased essential services buildings. This IR indicates an acceptable method for achieving compliance with applicable codes and regulations, although other methods proposed by design professionals may be considered by DSA.

This IR is reviewed on a regular basis and is subject to revision at any time. Please check the DSA website for currently effective IRs. Only IRs listed in the document at www.dgs.ca.gov/dsa/Resources/IRManual.aspx at the time of plan submittal to DSA are considered applicable.

Administrative IRs are effective upon publication. Questions regarding the effect for existing projects can be directed to the respective DSA Regional Office with plan review and construction oversight authority for the project.