

***BIC Meeting of
August 20, 2014***

Agenda Item #4



August 15, 2014

Building Inspection Commission
1660 Mission Street
San Francisco, CA 94103

RE: Proposed New Administrative Bulletin AB-109, Seismic Evaluation of Private School Facilities

Honorable Members of the Commission:

At the regular meeting of August 15, 2014 the full Code Advisory Committee (CAC) deliberated on a proposed new Administrative Bulletin AB-109, Seismic Evaluation of Private School Facilities, Application of Engineering Criteria in SFBC Section 3428. This proposed bulletin is to establish acceptable evaluation criteria and reporting standards for complying with Section 3428 of the 2013 San Francisco Building Code, as amended by Ordinance.

The CAC duly forwards a unanimous recommendation for approval of this new bulletin as written and attached to the Building Inspection Commission.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Kirk Means".

Kirk Means
DBI Technical Services Division
Secretary to the Code Advisory Committee

cc: Tom C. Hui, S.E., C.B.O., Director
Edward Sweeney, Deputy Director
David Leung, Manager
Ned Fennie, Jr., Chair, Code Advisory Committee
William Strawn, Legislative Affairs
Patrick Otellini, Director of Earthquake Safety

Attach: draft AB-109 dated 8/13/2014



ADMINISTRATIVE BULLETIN

NO. AB-109

DATE : DRAFT August 13, 2014
SUBJECT : Seismic Evaluation of Private School Facilities
TITLE : Application of Engineering Criteria in SFBC Section 3428

PURPOSE : The purpose of this Bulletin is to establish acceptable evaluation criteria and reporting standards for complying with Section 3428 of the 2013 San Francisco Building Code, as amended by Ordinance No. XX-XX.

REFERENCE : Chapter 34, 2013 San Francisco Building Code
ASCE 41-13, Seismic Evaluation and Retrofit of Existing Buildings

ATTACHMENTS : Template Scope Report, available at sfdbi.org
Template Evaluation Report, available at sfdbi.org

DISCUSSION : SFBC Section 3428, created with Ordinance XX-XX, mandates the seismic evaluation of certain existing buildings and non-building structures used by schools that are not under the jurisdiction of the Division of the State Architect's Structural Safety section.

SCOPE : Part A of this Bulletin provides regulations to implement the general requirements of SFBC Section 3428, as well as background commentary. Part B of this Bulletin provides interpretation and additional guidance regarding the application of technical provisions in ASCE 41-13, referenced by SFBC Section 3428.

Part A. Regulations and Commentary for SFBC Section 3428

Part A of this Bulletin restates the provisions of Section 3428 and provides corresponding interpretations and background commentary. Commentary is shown in italic font. Section numbers refer to SFBC Section 3428.

Submittal schedule

SFBC Sections 3428.3 and 3428.4 provide two submittal deadlines:

The Evaluation Scope document for each school is to be submitted within one year of the effective date of Section 3428.

The Evaluation Report for each school building and non-building structure is to be submitted within three years of the effective date of Section 3428.

Report templates for each submittal are provided as attachments to this Bulletin.

3428.1 General.

The intent of Section 3428.1 is to cover certain E-occupancy buildings that are not under the jurisdiction of the Division of State Architect's Structural safety section and non-building structures accessory to those buildings.

The intent of Section 3428.1 is to cover all the buildings and non-building structures on the school campus that are used primarily for school purposes, including cafeterias, gyms and multipurpose rooms. Schools will have the opportunity to use the Scoping Document to state buildings they intend to evaluate.

For purposes of Section 3428, a "non-building structure" is defined in SFBC Chapter 2 as a structure that does not support or shelter any use or occupancy and is also defined in ASCE 7-10 Chapter 15. The intent of Section 3428.1 is to include non-building structures such as retaining walls, covered walkways, patio covers, and other structures that are prone to earthquake damage, but only when these non-building structures serve buildings subject to Section 3428. It is not the intent of Section 3428.1 to include lightweight structures with no history of poor earthquake performance, such as well-anchored playground equipment or light wood or metal fences. Some Department judgment is expected to apply during review of the Evaluation Scope document.

It is not the intent of Section 3428.1 to cover:

- Buildings off of the school's campus, even if used by students or faculty.
- Buildings on the school's campus that are used primarily for non-school purposes, such as churches, convents, other places of religious worship, residences, and buildings that infrequently used for school purposes. This includes buildings occupied by 25 or more persons for less than 12 hours per week or four hours in any given day. SFBC Section 305.1.1 applies to spaces associated with the functions of the place of religious worship to which they are accessory. It is the intent of SFBC Section 3428.1 that classrooms in buildings used for religious worship are within the scope of Section 3428.1 if they are

used for educational purposes for an amount of time that exceeds the time restrictions listed in 3428.1 Exception 1.

- Buildings occupied by 25 or more persons for less than 12 hours per week or four hours in any given day.
- Schools where the average enrollment of the past three years is 25 or fewer students.

In accordance with SFBC Section 303.1.3, school gyms, auditoriums, and other spaces or structures used for assembly purposes that are nevertheless assigned an E occupancy and are thus within the scope of Section 3428.1.

Evaluations shall be conducted under the supervision of a licensed design professional.

3428.2 Scope and Criteria

For purposes of Section 3428, previous versions of ASCE 41, specifically ASCE 31-03 and ASCE 41-06, are not acceptable as alternatives to ASCE 41-13. See Part B of this Bulletin for modifications and interpretations of ASCE 41-13 criteria.

***Commentary:** The intent of the evaluation is to identify hazards known to be associated with earthquake-related severe injury or death*

In addition to the tabulated scope, voluntary mitigation of contents hazards is encouraged. Such mitigation could include bracing, restraint, or removal of supplies, stored items, or furnishings prone to hazardous tipping or sliding. It might also include nonstructural mitigation that is not required by Section 3428. References regarding contents bracing have been developed by FEMA, the Division of the State Architect, and others. For example, see "Guide and Checklist for Nonstructural Earthquake Hazards in California Schools," available at <http://www.documents.dgs.ca.gov/dsa/pubs/SB1122.pdf>.

3428.5 Voluntary Minimum Life-Safety Retrofit

***Commentary:** Section 3428 requires evaluation only. Section 3428.5, however, anticipates that some schools will perform voluntary mitigation or retrofit either before or after completing their evaluation. To encourage this work and to relieve these schools from unknown future requirements, Section 3428.5 provides, for a period of 20 years after the effective date of Section 3428, that any building or non-building structure within the scope of Section 3428 for which voluntary seismic strengthening is performed to meet or exceed the criteria of ASCE 41-13, S-3 N-C with the BSE-1E hazard shall not be identified as a seismic hazard pursuant to any local building standards adopted after the effective date of Section 3428 unless the building incurred disproportionate damage, or otherwise has been damaged or altered so that it no longer meets the engineering criteria under which it was retrofitted.*

Part B. APPLICATION OF ASCE 41-13 TO EVALUATION

Part B of this Bulletin makes modifications to and interpretations of ASCE 41-13 as they relate to compliance with SFBC Section 3428. The section numbers refer to section numbers in ASCE 41-13.

1.4 Seismic Evaluation Process

With reference to Figure C1-1, Tier 3 Systematic evaluation is required for certain buildings, subject to Bulletin modifications to Section 3.3. Where Tier 3 Systematic evaluation is not required, Tier 1 Screening is required for all evaluations, and Tier 2 Deficiency-Based Evaluation is optional.

1.4.1 Selection of Performance Objective

Omit. The evaluation objective is given in SFBC Section 3428.2.

1.4.2 Level of Seismicity

Replace with the following:

The level of seismicity shall be taken as High for all schools subject to SFBC Section 3428.

1.4.4 Evaluation Procedures

Tier 1 Screening is required. Tier 2 Deficiency-Based Evaluation is optional. Tier 3 Systematic evaluation is not required.

1.4.5 Evaluation Report

Omit. The template report required by ASCE 41 is not to be used in this case. Evaluation reports should use the attached Template Evaluation Report.

1.5 Seismic Retrofit Process

Omit. Retrofit is beyond the scope of SFBC Section 3428.

2.1 Scope – 2.3 Target Building Performance Levels

Omit. Evaluation objectives are given in SFBC Section 3428.2.

2.4 Seismic Hazard

Per SFBC Section 3428.2, all evaluations are required to consider only the BSE-1E hazard.

For purposes of compliance with SFBC Section 3428, the Site-Specific Procedure of Section 2.4.2 need not be used.

2.4.1 General Procedure for Hazard Due to Ground Shaking

Per SFBC Section 3428.2, all evaluations are required to consider only the BSE-1E hazard.

Seismicity parameters for the BSE-1E hazard may be obtained using the USGS tool available at <http://geohazards.usgs.gov/designmaps/us/application.php>. From the Design Code Reference Document menu, select "2013 ASCE 41." From the Earthquake Hazard Level menu, select "BSE-1E".

For purposes of calculating seismicity parameters with the USGS tool, Site Class F need not be assumed.

2.4.1.6.1 Site Classes

Where the Site Class is known from available documents, the known Site Class should be used. Where the Site Class is not known, for purposes of compliance with SFBC Section 3428, the Site Class may be estimated from the USGS map available at <http://earthquake.usgs.gov/regional/nca/soiltype/map/>.

Unless site-specific investigations indicate otherwise, Site Class F shall be assumed for any site located within a zone of required investigation for liquefaction on the 2000 Department of Conservation map available at http://gmw.consrv.ca.gov/SHMP/download/pdf/ozn_sf.pdf.

Otherwise, Site Class F need not be assumed.

For purposes of compliance with SFBC Section 3428, site-specific investigation of potential Site Class F sites is not required as long as potential liquefaction is noted on the Deficiency List in the seismic evaluation report.

2.5 Level of Seismicity

Replace with the following:

The level of seismicity shall be taken as High for all schools subject to SFBC Section 3428.

3.2.4 Site and Foundation Information

For purposes of compliance with SFBC Section 3428, any requirement in ASCE41-13 for site-specific soils or geotechnical investigation is waived. Owners may perform and report the results of such investigations voluntarily.

3.3.1 Limitations on the Use of the Tier 1 and 2 Evaluation and Retrofit Procedures

For purposes of compliance with SFBC Section 3428, Tier 3 evaluation is not required. However, if ASCE 41-13 Section 3.3.1 would require Tier 3 evaluation, each Tier 1 checklist item subject to that requirement shall be listed in the Deficiency List with a note indicating potential non-compliance subject to Tier 3 analysis.

Tom C. Hui, S.E., C.B.O.
Director
Department of Building Inspection

Date

Approved by Building Inspection Commission on _____