
EVALUATION AND DESIGN CRITERIA REPORT: 2022 CAC

Disciplines: Structural

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PURPOSE

This Interpretation of Regulations (IR) clarifies requirements for the content, purpose, and technical aspects of the Evaluation and Design Criteria Report (EDCR) applicable to rehabilitation projects under DSA jurisdiction. The EDCR defines the design criteria for the structural safety aspects of a rehabilitation project under which the design professionals shall prepare the plans and specifications and DSA will review and approve. The EDCR serves the project and its stakeholders by aligning the proposed design approach with DSA concurrence early in the design process and thus minimizing redesign that can result from the increased complexity of existing building regulations.

SCOPE

This IR is applicable to rehabilitation projects as defined by the California Administrative Code (CAC) Section 4-314. EDCR are required for all rehabilitation projects including the following:

- Rehabilitation of an existing nonconforming building for use as a school building in accordance with CAC Section 4-307.
- Rehabilitation of an existing certified school building required by a reconstruction, alteration, or addition project in accordance with CAC Sections 4-306 and 4-309(c).
- Rehabilitation of an existing certified school building undertaken at the discretion of the school district.

This IR is not intended to define procedural requirements of rehabilitation projects. The EDCR requirement for a rehabilitation project can only be exempted with concurrence of the local DSA regional office performing plan review and construction oversight for the project. When a rehabilitation is not required, but an alteration project includes voluntary seismic strengthening to a lesser criteria per CAC Section 4-309(d) and California Existing Building Code (CEBC) Section 319.12, an EDCR is not required.

BACKGROUND

A rehabilitation is defined in CAC Section 4-314 and generally consists of an evaluation and resulting construction work to “bring the building, or portion thereof, into conformance with the safety standards of the currently effective regulations”.

CAC Section 4-306 addresses the rehabilitation of an existing school building previously certified by DSA. CAC Section 4-307 addresses the rehabilitation of an existing nonconforming building (i.e., a building that has not been certified by DSA as a school building) for the purpose of conversion to use as a school building. Both CAC Section 4-306 and 4-307 require the school district to prepare an EDCR for review and approval by DSA. These sections define the general purpose and intent of the EDCR but do not include a detailed list of all criteria and topics that should be addressed as each rehabilitation project is unique.

CEBC Section 323.1 further addresses the EDCR and includes specific requirements pertaining to the content and timing of the report. CAC Section 4-326 specifies DSA fees associated with the review and approval of an EDCR.

EVALUATION AND DESIGN CRITERIA REPORT: 2022 CAC**1. GENERAL REQUIREMENTS****1.1 DSA Submittal**

When an EDCR is submitted to DSA it will be assigned an application number (prior to and separate from that assigned to the rehabilitation project) and is subject to Structural Safety review and approval only. The EDCR shall be stamped and signed by the structural engineer and design professional in general responsible charge of the rehabilitation project.

1.1.1 In accordance with CEBC Section 323.1 the EDCR shall be prepared during the schematic design phase of the rehabilitation project and be submitted to DSA prior to proceeding with the design development phase. DSA approval of the EDCR is required before the rehabilitation project is submitted to DSA.

1.1.2 When the seismic retrofit portion of the rehabilitation project is based on design Method B as defined in CEBC Section 321 and a third-party peer review is required, the EDCR shall be accepted by the peer reviewer in accordance with CEBC Section 321.2 prior to its submission to DSA.

1.1.3 After DSA approval of the EDCR, the rehabilitation project may be submitted to DSA. The rehabilitation project will be assigned a unique application number, and generally consists of the construction documents and supporting documents as described in CAC Section 4-317 (e.g., plans, specifications, structural calculations, etc.). The rehabilitation project is governed by the version of Title 24, California Code of Regulations in effect at the date the rehabilitation project (not the EDCR) is submitted to DSA.

1.1.4 When a rehabilitation required by CAC Section 4-309(c) is not discovered until after the reconstruction, alteration, or addition project has been submitted to DSA, the school district and their design team shall meet immediately with the DSA regional office to which the project has been submitted. In such circumstances, the school district and DSA may develop and agree to an alternate, project specific plan for the review and approval of the EDCR and the rehabilitation project that differs from the timeline and sequence described in this IR.

1.1.5 Based on the scope defined in Section 1.2 below and the extent of documentation subject to review, DSA will consider reducing the registration period required by Procedure (PR) 17-03: *Project Submittal Appointment Process*, Section 1 for EDCR applications. In no case will the registration period be reduced to less than two weeks. Applicants requesting a reduced registration period shall clearly state their proposed submittal date in their initial email described in PR 17-03 Section 1, and will be notified of its acceptance or modification via email.

1.1.6 The EDCR and the material testing program described in Section 6 below may be waived where accepted by the regional office at a pre-application meeting provided all the following are complied with:

1.1.6.1 The rehabilitation is to a certified conforming one-story wood frame building on shallow, continuous and spread concrete foundations. The vertical seismic force-resisting system and diaphragms shall be structural panel sheathing or diagonal sheathing fastened directly to wood framing. The waiver of the EDCR is not permitted if the strengthening includes overlaying structural sheathing on straight or diagonal sheathing. The gravity framing is predominately wood framing with incidental steel beam or column gravity framing.

1.1.6.2 The evaluation and retrofit will use the prescriptive seismic design criteria as described in Sections 3.1.1 and 3.3 below and demonstrate compliance with the California Building Code (CBC) requirements for new buildings.

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1.1.6.3 All nonstructural components (e.g., ceilings, equipment, veneer, roof tile, etc.) are evaluated and restrained in accordance with the CBC requirements for new buildings. The waiver of the EDCR is not permitted if CEBC Section 319.9 and American Society of Civil Engineers Standard 41: Seismic Evaluation and Retrofit of Existing Buildings (ASCE 41) Chapter 13 will be used to evaluate the nonstructural components.

1.1.6.4 Material properties are indicated on the original construction documents as described in this section. The waiver of the EDCR is not permitted if the material properties are not shown on the original construction documents or where concrete strengths greater than those indicated below are desired.

1.1.6.4.1 Wood: Both the species and grade of existing wood materials must be stated on the original construction documents.

1.1.6.4.2 Concrete: The concrete strength (i.e., for foundations) must be stated on the original construction documents. For buildings designed and constructed under the 1976 Uniform Building Code (UBC) or a newer version of the UBC or CBC, the full specified strength may be used without testing. For buildings designed and constructed under a code prior to the 1976 UBC, the specified concrete strength shall be reduced by a factor of 0.75.

1.1.6.4.3 Reinforcing Steel: Where the grade of reinforcement (i.e., for foundations) is stated by name (e.g., “structural”, “intermediate”, “hard”) on the documents, the rehabilitation may be based on the yield strength given in ASCE 41 Table 10-3 or Table 10-4. Where the grade of footing reinforcement is not stated on the documents, the rehabilitation may be based on the lowest yield strength given in ASCE 41 Table 10-3 for the year(s) of the original construction.

1.1.6.5 A condition assessment shall be performed in accordance with Section 7 below.

1.1.6.6 A geohazard report indicating that no geological hazards occur at the site shall be submitted with the rehabilitation project. California Geological Survey (CGS) acceptance of the geohazard report is required in accordance with *IR A-4: Geohazard Report Requirements*.

1.2 Report Scope

A separate EDCR shall be prepared for each building subject to rehabilitation. Similarly, each EDCR shall be submitted to and reviewed by DSA under a unique application number. In the event of multiple buildings on the same campus that are similar in construction undergoing a rehabilitation, the design professional may consult the DSA regional office to determine if combining the buildings into a single EDCR and application number will be permitted.

1.3 Electronic Plan Review

DSA will review and approve EDCR through the electronic plan review process outlined in *PR 18-04: Electronic Plan Review for Design Professionals*.

1.4 Documentation of Existing Construction

As required by CEBC Section 319.2, documentation of the existing construction is required for buildings subject to rehabilitation.

1.4.1 Original construction documents include the drawings and specifications used as the basis of the construction of the existing building. In this IR, the terms “original construction documents” or “original construction drawings” refer to the documents or drawings from the original construction and all subsequent reconstruction, alteration and addition projects to which the building has been subjected. The following constitute original construction documents:

1.4.1.1 For DSA-certified buildings, original construction documents bear the stamp and signature of the responsible design professional and the DSA identification stamp.



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1.4.1.2 For nonconforming buildings, original construction documents bear the stamp and signature of the responsible design professional and the approval stamp of the local authority having jurisdiction (AHJ) if applicable. If the application of an approval stamp was not the practice of the local AHJ, equivalent evidence of plan approval or permit issuance will be accepted, such as an approval letter, etc.

1.4.2 The term “design drawings” used in the ASCE 41 shall be understood to be the same as “original construction drawings” as defined in Section 1.4.1 above. ASCE 41 frequently uses “design drawings” in its data collection requirements.

1.4.3 As required by CEBC Section 319.2, when original construction documents of the existing building subject to rehabilitation cannot be obtained, “as-built” plans shall be prepared by the design team. “As-built” plans prepared in this manner are neither “original construction drawings” nor “design drawings” as used by ASCE 41.

1.4.4 Documents defining the construction of existing buildings may exist in a variety of types, formats and conditions. The school district and design team of the rehabilitation project should discuss any questions or concerns about the status of the documentation that has been obtained for an existing building with the DSA regional office to which the EDCR and rehabilitation project will be submitted for review.

1.5 Project Overview

The EDCR shall provide a basic description of the project scope, including all increments if applicable. The type of rehabilitation shall be clearly stated as follows:

1.5.1 Rehabilitation of an existing nonconforming building per CAC Section 4-307.

1.5.2 Rehabilitation required by the cost of a reconstruction, alteration, or addition per CAC Section 4-309(c), Item 1. Refer to *IR EB-4: Rehabilitation Required by Cost* for additional information.

1.5.3 Rehabilitation required by the scope of a reconstruction, alteration, or addition per CAC Section 4-309(c), Item 2. Details of the specific aspects of the scope resulting in the rehabilitation shall be described, including the type (i.e., A, B, or C) of change. Refer to *IR EB-5: Rehabilitation Required by Scope* for additional information.

1.5.4 Rehabilitation required by reclassification to a higher Risk Category resulting from a reconstruction, alteration, or addition per CAC Section 4-309(c), Item 3. Refer to IR EB-5 for additional information.

1.5.5 Rehabilitation undertaken at the discretion of the school district as described in the fourth paragraph of CAC Section 4-306.

1.5.6 Rehabilitation projects proposed as part of the Seismic Mitigation Program (SMP) shall be identified accordingly. Refer to *PR 08-03: School Facility Program/Seismic Mitigation Program*.

1.6 Building Description

The EDCR shall provide a basic description of the existing building and the documentation of its design and construction that has been obtained to inform the rehabilitation. Though not a substitute for a clear and accurate written description, the inclusion of photographs in the report is recommended to show significant or unique features of the building. The building and documentation description shall include the following for the original construction and all subsequent reconstruction, alteration, and addition projects:

1.6.1 DSA application number(s) and certification status(es).

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1.6.2 Summary of the original construction documents that have been obtained, including their date, condition, completeness and legibility. The original construction documents shall not be included in their entirety in report file. Key plans, details, or other excerpts may be pasted into the report as figures where needed to support the text; however, the original drawings or other documents in full should be submitted as separate “supporting document” files.

1.6.3 Building code(s) and year(s) the existing construction was permitted, built and inspected under.

1.6.4 Summary of common building metrics including square footage, number of stories, building height, overall plan dimensions, etc.

1.6.5 Summary of construction materials used in the existing building.

1.6.6 Summary of structural systems used by the existing building to resist gravity and lateral loads. Include a description of the existing foundation system.

1.7 Building Portions

Where the rehabilitation scope is specific to a seismically separate “portion” of a larger building, the EDCR shall address how compliance with CEBC Section 323.2 will be achieved.

1.8 Structural Calculations

Structural calculations (including computer analysis models) will not be reviewed by DSA in conjunction with the EDCR. These are required and will be reviewed with the rehabilitation project.

2. GRAVITY LOAD DESIGN

2.1 Gravity Force-Resisting System

A rehabilitation as defined in CAC Section 4-314 does not exclude the gravity force-resisting system from compliance with current safety standards. However, in many cases a rehabilitation project does not require strengthening of the gravity force-resisting system due to the constancy of the current safety standards with those in place at the time of the original construction. Any project specific exceptions to this typical condition shall be described and documented in the EDCR.

2.2 Methodology

The CAC and CEBC generally take an element-based approach to the evaluation and required strengthening of the gravity force-resisting system. Refer to CAC Section 4-309(a) and CEBC Section 503.3. All elements in the affected load path from the source of the increased load to the foundation are subject to these provisions. The EDCR shall provide a general description of load paths subject to increased gravity loads or elements with decreased capacities anticipated by the project.

2.3 Live Loads

To conform to the safety standards of the currently effective regulations, a rehabilitation project must demonstrate the gravity load-resisting system is adequate to resist the live loads required by CBC Section 1607A. The EDCR shall identify any locations where the live loads required by CBC Section 1607A exceed those used in the original design, and state that the rehabilitation will evaluate and strengthen the gravity force-resisting system in these areas as required.

Exception: DSA will accept compliance with CEBC Section 303.1 in the rehabilitation of an existing certified school building provided the requirement of posting “nonconforming live load” is met. The EDCR shall document when CEBC Section 303.1 is the intended method of compliance.

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To conform to the safety standards of the currently effective regulations, a rehabilitation project must demonstrate the gravity load-resisting system is adequate to resist the design snow loads required by CBC Section 1608A. The EDCR shall identify any locations where the design snow loads required by CBC Section 1608A exceed those used in the original design and confirm the rehabilitation will evaluate and strengthen the gravity force-resisting system in these areas as required.

2.4.1 At sites where snow loads apply, the EDCR shall define the parameters listed in CBC Section 1603A.1.3.

2.4.2 At sites where an increase in the code prescribed snow load since the original construction of the building is deemed to make the rehabilitation project financially unviable, DSA may consider alternate remedies. To request consideration of such an alternate remedy the school district shall meet with the DSA regional office responsible for plan review and approval of the project prior to submitting the EDCR and present the project case and obtain consensus. The agreed alternate approach shall be documented in the EDCR and might consist of one or more of the following:

2.4.2.1 Resolution by the school board documented with a letter to DSA acknowledging the building does not conform with current code prescribed snow load requirements.

2.4.2.2 Indication on the signage required by CBC Section 106.1.2 that the building does not conform with the current code prescribed design snow load requirements and that building use or occupancy during an extreme weather event is prohibited.

2.4.2.3 Implementaion of a maintenance program that will prevent snow accumulating on the building from exceeding the design snow load used in the original design.

2.5 Special Conditions

The EDCR shall address any special conditions in which the safety standards of the currently effective regulations include gravity force-resisting system requirements that were not in place at the time of the existing building's construction. Such special conditions include but are not limited to the following:

2.5.1 Where a permeable floor or roof are exposed to weather and supported by wood structural members, the rehabilitation must demonstrate compliance with CBC Section 2304.12.2.4 and CEBC Section 106.2.5.

2.5.2 Where framing supporting an exterior balcony or elevated walking surface is enclosed, the rehabilitation must demonstrate compliance with the ventilation requirements of CBC Section 2304.12.2.5.

3. SEISMIC DESIGN**3.1 Design Criteria**

In accordance with CAC Sections 4-306 and 4-307(a) the seismic evaluation and retrofit design shall comply with CEBC Section 317 through 323. These sections provide two primary design criteria options as summarized below. The EDCR shall clearly define which seismic design criteria is selected.

3.1.1 A prescriptive seismic design criteria is permitted. In accordance with CEBC Section 317.7 and Table 317.5 (footnote 2) demonstration of full compliance with the CBC requirements for new buildings is an acceptable seismic design criterion.

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Note: In accordance with CEBC Section 319.1 Exception 2, for rehabilitations required by CAC Section 4-307 of buildings constructed to Seismic Design Category D (or higher) requirements of one of the two most recent versions of the CBC as adopted and amended by DSA (i.e., compliance with the “A” chapters) may use that code in lieu of the above criteria.

3.1.2 A performance-based seismic design criteria is permitted. In accordance with CEBC Section 317.5 demonstration of full compliance with the ASCE 41 performance criteria defined in Table 317.5 is an acceptable seismic design criterion.

3.1.3 The selected design criteria, prescriptive or performance-based, shall be used consistently and exclusively throughout the evaluation and retrofit of the seismic force-resisting system required by the rehabilitation. Mixing acceptance criteria from these separate methodologies is not permitted, except as noted in Section 3.5 below or otherwise agreed to in advance by the DSA regional office performing the review of the EDCR.

3.2 Structural Analysis

The EDCR shall define the fundamental parameters and assumptions upon which the seismic analysis will be based, including the following:

3.2.1 Analysis procedure.

3.2.2 Diaphragm flexibility (i.e., flexible, semi-rigid, rigid).

3.2.3 Software to be used (if any).

3.2.4 Foundation/soil modelling considerations.

3.3 Prescriptive Criteria

The CBC-based approach requires the rehabilitated building comply with all prescriptive requirements applicable to the design of new buildings that may not have existed at the time of the original construction.

3.3.1 The EDCR shall define the parameters listed in CBC Section 1603A.1.5, excluding Items #8 and #9, which will be defined and reviewed with the rehabilitation project.

3.3.2 If the existing construction utilizes a seismic force-resisting system that is prohibited by the CBC, selection of the prescriptive criteria will require the rehabilitation to provide a new, compliant seismic force-resisting system. The EDCR shall identify this condition as a structural deficiency and define the replacement system in accordance with Sections 5.1 and 5.2 below. Refer to *IR EB-1: Existing Building Regulations Overview*, Section 3.4.1.1 for an exception to this requirement.

3.3.3 Where details of the existing construction do not comply with the prescriptive requirements of the CBC and its adopted standards, selection of the prescriptive criteria will require the rehabilitation to bring such details into compliance. These conditions should be identified in the EDCR as structural deficiencies in accordance with Section 5.1 below. Refer to IR EB-1 Section 3.4.1.2 for an exception to this requirement.

3.4 Performance-based Criteria

The EDCR shall define the technical parameters of the performance-based seismic evaluation and design approach.

3.4.1 The EDCR shall define whether Method A or Method B will be used.

3.4.1.1 Method A shall be performed in accordance with CEBC Section 320. Compliance with the required performance criteria is defined by the acceptance criteria of the ASCE 41 Tier 3 (systematic evaluation and retrofit) procedure.

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3.4.1.2 Method B shall be performed in accordance with CEBC Section 321. Compliance with the required performance criteria can be defined by the acceptance criteria of the ASCE 41 Tier 3 (systematic evaluation and retrofit) procedure. If an acceptance criteria other than that defined in ASCE 41 is proposed, it shall be fully detailed in the EDCR after approval by the peer reviewer(s).

3.4.1.2.1 Method B shall be used when required by CEBC Section 319.7.

3.4.1.2.2 When a peer review is required in accordance with CEBC Sections 321.2 and 322 the EDCR shall name the peer reviewer(s).

3.4.2 The EDCR shall define the seismic hazard, structural performance level, and nonstructural performance level at both the Level 1 and Level 2 seismic events required by CEBC Table 317.5.

3.4.3 The EDCR shall define the spectral response acceleration parameters and site coefficients for site class adjustment as defined by ASCE 41.

3.4.4 The EDCR shall identify the risk category to which the existing building is assigned in accordance with CEBC Section 319.4.

3.4.5 The EDCR shall identify the existing building as either regular or irregular in accordance with CEBC Section 319.5. Any anticipated irregularities shall be listed, and the EDCR shall state that final determination of irregularity will be based on the complete structural analysis of the rehabilitation project.

3.4.6 The EDCR shall identify the existing and new structural components of the rehabilitated building and make initial assignments of each as primary or secondary in accordance with ASCE 41 Sections 7.2.3.3 and 7.5.1.1. Initial assignments shall be accompanied by language in the EDCR stating that final designations of primary and secondary will be as dictated by the complete structural analysis of the rehabilitation project.

3.4.7 The EDCR shall list the actions in the entire load path resisting seismic forces and define each as force-controlled or deformation-controlled in accordance with ASCE 41 Section 7.5.1.2 and Chapters 8 through 12.

3.4.8 The EDCR shall define and explain the rationale for any project specific interpretations of ASCE 41.

3.4.9 The EDCR shall indicate that new structural components introduced as part of the retrofit design shall be detailed in compliance with the prescriptive requirements of the CBC and its adopted standards.

3.5 Nonstructural Systems

The EDCR shall define the criteria by which compliance of existing nonstructural systems will be determined. DSA will permit the prescriptive or performance-based criteria to be used independently to demonstrate compliance of (1) the structural seismic force-resisting system and (2) all nonstructural component anchorage and bracing systems, respectively. All nonstructural component systems shall use the same criteria.

4. WIND DESIGN

4.1 Design Criteria

A rehabilitation requires the main wind force-resisting system and all appurtenances, components and cladding of the existing building to comply with CBC Section 1609A and American Society of Civil Engineers Standard 7: Minimum Design Loads and Associated Criteria for Buildings and Other Structures (ASCE 7), Chapters 26 through 30 as applicable. The EDCR shall state these criteria and define the parameters listed in CBC Section 1603A.1.4.

EVALUATION AND DESIGN CRITERIA REPORT: 2022 CAC**4.2 Components**

In many buildings it is common to demonstrate compliance of the main wind force-resisting system with the wind design criteria by virtue of its demonstrated compliance with the seismic design criteria, which is often more demanding. However, even in such cases the wind load and deflection criteria can control the design of certain building components. The EDCR shall identify any specific components for which the rehabilitation evaluation and design is expected to be controlled by the wind load criteria of Section 4.1 above. These may include, but are not limited to, the following:

4.2.1 Standing seam metal roofing.

4.2.2 Window wall systems. Refer to *IR 24-2: Window Wall Systems* for additional information.

4.2.3 Solar photovoltaic systems. Refer to *IR 16-8: Solar Photovoltaic and Thermal Systems Review and Approval Requirements* for additional information.

4.2.4 Exterior wall cladding.

4.2.5 Roof screens and parapets.

4.2.6 Uplift on roof framing members, which is of particular importance where the bottom chords of existing trusses are unbraced and will be in compression.

5. POTENTIAL DEFICIENCIES AND REMEDIATION METHODOLOGY**5.1 Structural Deficiencies**

The preparation of the EDCR in accordance with CEBC Section 323.1 occurs at a time (i.e., prior to the design development phase) when all structural deficiencies may not yet be known. However, the EDCR should identify any known and anticipated deficiencies at the time the report is written.

5.1.1 Identification of potential structural deficiencies should consider the complete load path of the seismic force-resisting system as described in CEBC 319.2.

5.1.2 Though not required for the EDCR, AISC 41 contains Tier 1 Screening provisions and checklists that may be useful resources in identifying structural deficiencies. Refer to ASCE 41 Chapters 4 and 17 for additional information.

Note: The use of any screening tool(s), including ASCE 41 checklists, for the preliminary identification of potential deficiencies does NOT allow any compliance check to be excluded from the complete structural analysis required of the rehabilitation project. The seismic design component of the rehabilitation project performed in accordance with ASCE 41 shall consist of a Tier 3 systematic evaluation and retrofit.

5.1.3 The EDCR shall include a statement addressing unforeseen deficiencies and indicating that all structural deficiencies as determined by the complete structural analysis of the rehabilitation project, whether listed in the EDCR or not, shall be rehabilitated to comply with the stated design criteria.

5.2 Structural Remediation Methods

For each structural deficiency identified therein, the EDCR shall also define an anticipated retrofit methodology. Definition of the retrofit methodology is intended to verify a feasible approach exists to correcting the deficiency but should not be misunderstood as a restricting commitment to the proposed design. It is understood the final solution may evolve or change over the course of the design process.

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5.2.1 Strengthening of existing concrete by externally bonded fiber reinforced polymer systems shall comply with CBC Section 1911A.3 and may require approval as an alternate material and method construction in accordance with *PR 18-01: Request for Alternate Design, Materials and Methods of Construction*.

5.3 Deficiencies in Nonstructural Components

The preparation of the EDCR in accordance with CEBC Section 323.1 occurs at a time (i.e., prior to the design development phase) when all deficiencies in nonstructural components may not yet be known. However, the EDCR should identify any known and anticipated deficiencies at the time the report is written.

5.3.1 Identification of potential deficiencies in nonstructural components should consider all systems present in the existing building, including architectural, mechanical, electrical, plumbing, fire protection, fire alarm and any other specialty systems.

5.3.2 Nonstructural components that are planned to be removed, demolished, or replaced as part of the rehabilitation project shall be summarized in the EDCR. It is not necessary to identify anticipated deficiencies for these items.

5.3.3 All new nonstructural components shall be installed in accordance with the current CBC. New nonstructural components need not be listed in the EDCR.

5.3.4 The EDCR shall include a statement addressing unforeseen deficiencies and indicating that all deficiencies in nonstructural components as determined by the complete evaluation of the rehabilitation project, whether listed in the EDCR or not, shall be rehabilitated to comply with the stated design criteria.

5.4 Remediation of Nonstructural Components

For each deficiency of a nonstructural component identified therein, the EDCR shall also define an anticipated retrofit method.

6. MATERIAL TESTING**6.1 Material Testing Program**

A material testing program is one part of data collection defined by ASCE 41 and required of rehabilitation projects regardless of the seismic design criteria selected per Section 3.1 above. The material testing program is specific to the seismic force-resisting system and need not be applied to structural materials not part of this system unless warranted by atypical project specific circumstances. The EDCR shall define the material testing program requirements including the following:

6.1.1 The material testing program shall be directed and observed by the structural engineer or design professional in general responsible charge of the rehabilitation project per CEBC Section 319.2.

6.1.2 The material testing program shall be undertaken after its scope and project specific requirements have been approved by DSA through the EDCR. Material sampling, testing and test results shall be summarized in a report submitted to DSA.

6.1.3 Completion of the material testing program and the report summarizing its findings shall be included as a supporting document with the submission of the rehabilitation project to DSA for plan review. Rehabilitation projects will be deemed incomplete when submitted without the material testing program report.

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Exception: Under rare circumstances at the specific request of the school district, the DSA regional office to which the rehabilitation project is submitted may agree to initiate plan review prior to receipt of the material testing program report. Should the material testing program in such cases result in material properties less than those previously assumed, redesign will be required. When redesign is required, DSA reserves the rights to (1) discontinue plan review until a revised design consistent with the test results is submitted and (2) charge additional fees for the increased plan review effort incurred by the delayed completion of the material testing program. In no case will the rehabilitation project be approved prior to completion of the material testing program.

6.1.4 When the seismic retrofit portion of the rehabilitation project is subject to a peer review per CEBC Section 322, the peer reviewer is required to accept material property assumptions, which typically requires completion of the material testing program prior to submission of the EDCR to DSA.

6.2 Program Scope

CEBC Section 319.2 defines the level of data collection required of rehabilitation projects, which generally permits the knowledge factor of ASCE 41 to be taken as 1.0 unless specific test results dictate otherwise (e.g., see ASCE 41 Sections 10.2.4 and 11.2.4). ASCE 41 Section 6.2 and Table 6-1 define material testing requirements for each level of data collection.

6.2.1 Existing buildings in which the original construction and all subsequent reconstruction, alteration and addition projects have all been certified by DSA are subject to the “usual” level of material testing as defined in each applicable material chapter of ASCE 41.

Exception: When material strengths are not specified on the original construction documents for an existing DSA-certified building, the materials with undefined strengths are subject to the “comprehensive” level of material testing as defined in each applicable material chapter of ASCE 41 unless otherwise approved by DSA.

6.2.2 Existing buildings not complying with Section 6.2.1 above are subject to the “comprehensive” level of material testing as defined in each applicable material chapter of ASCE 41.

6.2.3 Regardless of whether the “usual” or “comprehensive” level of material testing is required, the testing of existing concrete shall comply with CBC Section 1911A.1. Any existing concrete for which material tests result in a strength less than 1,500 pounds per square inch (psi) cannot be used as structural concrete in accordance with CBC Section 1911A.1. Existing concrete need not comply with the minimum concrete strength of 3,000 psi for new construction per CBC Section 1905A.1.9 regardless of the seismic design criteria selected per Section 3.1 above.

6.3 Program Specifications

The EDCR shall define the requirements and details of the material testing program, including the following:

6.3.1 Summary of the existing structural materials used on the project, including the material strengths specified on the original construction documents and the identification of any material whose strength is not defined on the original construction documents.

6.3.2 Type and frequency of sampling and testing of each existing structural material.

6.3.3 Locations of material sampling delineated on a key plan of the existing building.

6.3.4 Identification of any qualified test data from the original construction used to fulfill the material testing requirements (in full or in part) in accordance with CEBC Section 319.2. Documentation of the original test results shall be included in the EDCR as an appendix.

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6.3.5 The EDCR shall address the repair of destructive testing. Unless immediate repair is required for safety or protection from deterioration, repair work shall be specified on the construction documents of the rehabilitation project and subject to inspection and DSA construction oversight at that time.

7. CONDITION ASSESSMENT

7.1 Condition Assessment Program

A condition assessment program is one part of data collection defined by ASCE 41 and required of rehabilitation projects regardless of the seismic design criteria selected per Section 3.1 above. The EDCR shall define the condition assessment program requirements including the following:

7.1.1 The condition assessment can be performed by the structural engineer or design professional in general responsible charge of the rehabilitation project. Alternately, the condition assessment can be performed by a DSA-certified project inspector (certification class corresponding to the rehabilitation project) or a Laboratory Evaluation and Acceptance Program (LEA) laboratory acting under the direction and observation of the structural engineer or design professional in general responsible charge of the rehabilitation project per CEBC 319.2.

7.1.2 The condition assessment program shall be undertaken after its scope and project specific requirements have been approved by DSA through the EDCR. The findings of the condition assessment shall be summarized in a report that is submitted to DSA.

Exception: At the district's option, the condition assessment program may be performed prior to the completion and submission of the EDCR. In such cases, the findings of the condition assessment may be included as an appendix to the EDCR and a separate condition assessment report is not required. However, if DSA review of the EDCR determines the scope of the initial condition assessment to be insufficient, additional condition assessment will be required and submitted per this section.

7.1.3 Completion of the condition assessment program and the report summarizing its findings shall be included as a supporting document with the submission of the rehabilitation project to DSA for plan review. Rehabilitation projects will be deemed incomplete when submitted without the condition assessment program report.

Exception: Under rare circumstances at the specific request of the school district, the DSA regional office to which the rehabilitation project is submitted may agree to initiate plan review prior to receipt of the condition assessment program report. Should the condition assessment in such cases result in findings other than those previously assumed, redesign will be required. When redesign is required, DSA reserves the rights to (1) discontinue plan review until a revised design consistent with the findings of the condition assessment is submitted and (2) charge additional fees for the increased plan review effort incurred by the delayed completion of the condition assessment program. In no case will the rehabilitation project be approved prior to completion of the condition assessment program.

7.2 Program Scope

CEBC Section 319.2 defines the level of data collection required of rehabilitation projects, which generally permits the knowledge factor of ASCE 41 to be taken as 1.0 unless specific conditions dictate otherwise (e.g., see ASCE 41 Sections 10.2.4 and 11.2.4). ASCE 41 Section 6.2 and Table 6-1 define condition assessment requirements for each level of data collection.

7.2.1 Existing buildings for which complete original construction drawings in accordance with Section 1.4 above have been obtained are subject to visual condition assessment as defined by ASCE 41 in each material chapter.

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7.2.2 Existing buildings not complying with Section 7.2.1 above are subject to comprehensive condition assessment as defined by ASCE 41 in each material chapter.

7.3 Program Specifications

The EDCR shall define the requirements and details of the condition assessment program, including the following:

7.3.1 Summary of any existing structural members or connections that are not clearly defined on the original construction documents.

7.3.2 Type and frequency of conditions to be observed and documented.

7.3.3 Locations of conditions to be observed and documented delineated on a key plan of the existing building.

Note: Existing structure that can be observed by the simple removal and replacement of acoustical ceiling tiles is considered accessible and is subject to visual condition assessment.

7.3.4 Sections 7.3.2 and 7.3.3 above shall include condition assessment of nonstructural components in accordance with ASCE 41 Section 13.2.1.

7.3.5 The EDCR shall address the repair of any finishes or components that must be removed to accommodate comprehensive condition assessment. Unless immediate repair is required for safety or protection, repair work shall be specified on the construction documents of the rehabilitation project and subject to inspection and DSA construction oversight at that time.

8. GEOLOGICAL AND SITE HAZARDS**8.1 Geohazard Report**

Rehabilitation projects require the preparation and approval of a geohazard report in accordance with CBC Section 1803A.6 inclusive of the exceptions contained therein. Refer to IR A-4 for additional information.

8.1.1 The geohazard report shall be submitted to DSA as a supporting document accompanying the submission of the EDCR.

8.1.2 The geohazard report shall be submitted to CGS for review prior to submission of the rehabilitation project to DSA as described in IR A-4 Section 1.

8.1.3 Obtaining CGS approval of the geohazard report prior to submission of the EDCR is not required but encouraged by DSA when the project schedule permits. Early approval facilitates incorporation of changes resulting from the CGS review into the EDCR.

8.2 Geological Hazards

In accordance with CEBC Section 323.1, the EDCR shall define geological hazards and the proposed methodology for remediation of such hazards.

8.2.1 Earthquake Fault Zone: CAC Section 4-317(e) prohibits the rehabilitation of an existing building located within 50 feet of a trace of an active fault. For sites located in an earthquake fault zone as defined by CGS, the geohazard report shall document the existing building's compliance with this requirement.

8.2.2 Liquefaction: For sites where the geohazard report identifies a liquefaction or lateral spreading hazard, the EDCR shall define the proposed remediation methodology for the building to be rehabilitated consistent with the recommendations of the report. Compliance with ASCE 7 Section 12.13.9 is permitted to demonstrate remediation even when the seismic design is based upon the performance-based criteria of Section 3.4 above.

EVALUATION AND DESIGN CRITERIA REPORT: 2022 CAC**8.3 Flood Hazard**

For rehabilitation projects located in a flood hazard area the EDCR shall include a section addressing the flood hazard. The proposed remediation methodology shall be described when required by Section 1.2.2 of *PR 14-01: Floor Design and Project Submittal Requirements*.

REFERENCES:

2022 California Code of Regulations (CCR) Title 24

Part 1: California Administrative Code (CAC), Sections 4-306, 4-307, 4-309, 4-314, 4-317, 4-326.

Part 2: California Building Code (CBC), Sections 106, 1603A, 1607A, 1608A, 1609A, 1803A, 1905A, 1911A, 2304.

Part 10: California Existing Building Code (CEBC), Sections 106, 303, 317, 319, 320, 321, 322, 323, 503.

This IR is intended for use by DSA staff and by design professionals to promote statewide consistency for review and approval of plans and specifications as well as construction oversight of projects within the jurisdiction of DSA, which includes State of California public schools (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 subject to revision at any time. Please check DSA's website for currently effective IRs. Only IRs listed on the webpage at www.dgs.ca.gov/dsa/publications at the time of project application submittal to DSA are considered applicable.