GUIDELINE: STRUCTURAL PLAN REVIEW

Division of the State Architect (DSA) documents referenced within this publication are available on the DSA Forms or DSA Publications webpages.

DISCIPLINE

Structural Safety (SS).

PURPOSE

This Guideline (GL) document provides direction to DSA structural safety plan reviewers and structural safety plan review consultants concerning their duties in the review and approval of project applications. While its primary audience is structural safety plan reviewers, the GL is made available via the DSA website to design professionals preparing project applications for transparency and to facilitate the preparation of complete project submissions and thus more efficient approvals.

OVERVIEW

The Plan Review Engineer (PRE) is responsible to assure that the construction documents (i.e., drawings and specifications) comply with the effective codes and regulations and represent structurally stable construction under all loading conditions. This assurance is achieved through an efficient and timely plan review and back check process. Final construction documents should depict buildable structures.

BACKGROUND

In addition to drawing from past experience in the design and construction of buildings, a successful PRE will use a broad range of technical and procedural documents in the performance of their duties. Some but not all of those resources are referenced from this GL document, which serves as a guide to the review and approval of construction documents as implemented by DSA.

The PRE must be familiar with and will use in the performance of their duties the following:

- Current applicable building codes, adopted standards, and consensus standards.
- DSA Interpretations of Regulations (IR), Policies (PL), Procedures (PR), and Bulletins (BU), which are available on DSA's Publications webpage.

Refer to the ADDITIONAL RESOURCES section below, for a list of documents referenced in this GL.

STRUCTURAL PLAN REVIEW

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STRUCTURAL PLAN REVIEW

GUIDELINE

Plan review to ensure the structural safety in accordance with the Field Act is one of the primary and fundamental functions performed by DSA. It is performed through a comprehensive program composed of both technical rigor and well-established procedures. This guideline summarizes aspects of both but also relies on other publications for many of the inherent details and nuances.

1. PROCESS

Project applications submitted to DSA include a form *DSA 1: Application for Approval of Plans and Specifications*, plan review fees, stamped and signed construction documents, and other supporting documents. Upon registration, a DSA application number is assigned to the project. Form *DSA 3: Project Submittal Checklist* provides a comprehensive list of documents required to be submitted to DSA.

1.1 Plan Review Sequence

Conventional project applications are generally subject to a phase 1 plan review performed by the DSA intake team followed by the phase 2 plan review performed by the Plan Review Engineer (PRE) and the Fire and Life Safety (FLS) and Access Compliance (ACS) plan reviewers.

1.1.1 In phase 1, an intake team performs a preliminary review for completeness. If a project is determined to be incomplete, the design professional in general responsible charge (DPoR) and the school district are notified by letter. Phase 2 plan review is scheduled after the intake team verifies that a complete submittal has been received.

1.1.2 Upon completion of phase 1, a project is assigned to a PRE. Before commencing a detailed plan review, the PRE will perform the following actions:

1.1.2.1 Make an initial review to become familiar with the overall project.

1.1.2.2 Verify receipt of complete and legible plans, specifications, calculations, and geotechnical report.

1.1.2.3 Determine if a geohazard report is required; see *IR A-4: Geohazard Report Requirements*.

1.1.2.4 Confirm that the drawings are sufficiently complete to perform a plan review.

1.1.2.5 Confirm that calculations are sufficiently complete to perform a plan review.

1.1.2.5.1 California Administrative Code (CAC) Section 4-317(d) states that "*the calculations shall be sufficiently complete to establish that the structure will resist the loads and forces prescribed in*" the California Building Code (CBC).

1.1.2.5.2 There should be no major discrepancies or errors such as incorrect seismic factors, wind loads, snow loading, etc.

1.1.3 If any documents are missing or incomplete, the PRE should contact the DPoR immediately so that deficiencies can be addressed as soon as possible. Sometimes plan review can continue pending receipt of certain minor documents. However, when it would be inefficient to review the incomplete project, it will be returned to the intake team and plan review will stop until a complete submittal is received. The PRE must consult with the plan review supervisor if there are deficiencies that prevent continuing the plan review. Refer to Section 1.3 below for additional information.

1.2 Plan Check Worksheet (eTracker)

The “Plan Check Worksheet” screen in eTracker will be maintained, updated, and ultimately completed by the PRE according to the project scope and plan review progress. Information will be input into eTracker by the DSA staff PRE or the DSA point of contact for consultant PRE.

1.2.1 At the completion of the plan review phase, the PRE will flag items that may have to be changed at back check.

1.2.2 It is the responsibility of the PRE to verify the scope of work listed in eTracker. The scope must be independently verified from the drawings and specifications, not the form DSA 1 prepared by the DPoR.

1.2.3 Where the scope of work requires revision, the PRE will edit the “Project Scope” screen in eTracker accordingly and place a note on the first sheet of the drawings informing the DPoR. Refer to the form DSA 1 Instructions, Project Scope and Lines 5 to 10, for more information on the definition of project scope.

1.3 Recheck

In rare cases when a major design error is discovered and this error results in major redesign, the plan review may be suspended. The PRE must immediately consult with their plan review supervisor if such a condition is discovered. Plan review will resume when revised documents adequately addressing the issue are received by DSA.

The plan review supervisor’s approval must be obtained before requesting a recheck.

1.4 Incremental Project Submissions

Projects may be submitted in separate increments under the same application. An example of this would be the case where a site development package (increment #1) precedes the permanent building package (increment #2) which precedes the relocatable building package (increment #3). Refer to *IR A-11: Incremental Submittals* for more information.

Plan review procedures for incremental project submissions are the same as conventional projects with the following exceptions of note:

1.4.1 The scope of all increments must be clearly defined before the first increment is submitted.

1.4.2 Increments must be scoped so that the work included in each increment will be complete and code compliant should the other increments not be constructed. In general, portions or components of buildings such as walls or foundations may not be separated into different increments.

1.4.3 No more than six months may elapse between the approval of one increment and the submission of the subsequent increment.

1.4.4 Additional increments may not be added to an application after plan review of the first increment has commenced without the consent of the plan review supervisor.

1.4.5 Increments may not be combined after plan review of the first increment has commenced.

1.4.6 The DPoR must be consistent between all increments per CAC Section 4-316(a). Separate DPoR assignments for separate increments is not permitted.

1.4.7 All drawing sheets shall have unique sheet numbers across all increments.

1.4.8 Drawings with content included in more than one increment must be carefully coordinated so that instructions to the contractor are clear and consistent.

1.4.9 Drawing sheets or details previously approved in one increment may not be included in the drawings (i.e., the "DWG" file) of subsequent increments. Previously approved drawings used for reference in a subsequent increment can be submitted as a separate supporting document file. Refer to *PR 18-05: Electronic Plan Review for Consultant Plan Reviewer*, Section 1.4.4.2 or *PR 18-06: Electronic Plan Review for DSA Plan Review Staff*, Section 2.1.3.2.

1.4.10 The content of previously approved increments cannot be modified by subsequent increments; modifications may be made by an addendum, revision, or construction change document (CCD).

1.4.11 Revisions, addenda, and deferred submittals shall clearly indicate the increment they are associated with. Changes made to scope approved in separate increments cannot be combined into a common revision or addendum.

1.4.12 For each modification made therein, the revision, addendum, or CCD must clearly indicate the increment, sheet number, and detail being modified.

1.5 Over-the-Counter (OTC) Project Submissions

OTC review and approval is primarily used for relocatable classroom building projects and other structures with pre-check approvals. PRE are scheduled on a rotating basis to handle OTC appointments. Most administrative tasks for OTC plan review are identical to conventional plan review. For more information on the OTC process, see *PL: 07-02 Over-the-Counter Review of Projects Using Pre-Check Approved Designs*.

1.5.1 The OTC review and approval process is intended to take place during a two-hour appointment window.

1.5.2 For relocatable buildings designed by design professionals (DP) other than the DPoR listed on the form DSA 1, the DPoR must either sign and stamp all drawings or include the signed Statement of General Conformance for drawings prepared by others. See *IR A-18: Use of Construction Documents Prepared by Other Professionals.*

2. PLAN REVIEW

The PRE must use their personal judgment and independent paths of reasoning to verify the conclusion of the DP whenever possible.

2.1 Review Methodology

There are many methods for the PRE to organize the sequence of a plan review. One suggested course of action is as follows:

2.1.1 Start by developing an understanding of the construction drawings and expected behavior of the structure.

2.1.2 Proceed to a technical review of the structural analysis.

2.1.3 Check the structural calculations against the drawings.

2.1.4 Perform independent calculations for a few elements to verify the validity of the design methods employed by the DP.

2.1.5 Review drawings for conflicting details, dimensions, or notes.

2.1.6 Dedicate time to intentionally consider details or other aspects of the project that may be entirely missing. This task relies on the engineering experience of the PRE to ensure the approved drawings are complete and represent buildable construction.

2.2 Review Comments

The PRE must make comments that are clear and complete so they can be easily understood by the DP. Clear comments will alleviate confusion and reduce time spent in back check. The PRE will provide their phone number and email address on the first sheet of the drawings, which the DPoR will use to schedule the back check.

2.2.1 The PRE should not specify member sizes, materials, details, or methods of construction in plan review comments.

2.2.2 Structural calculations authored by the PRE should not be given to the DP.

2.2.3 The DP is required to determine the remedy for any deficiency that may be discovered by the PRE. Comments should be clear and easily understood, so the DP can make an accurate interpretation and appropriate design correction. While the DP may ask for suggestions to remedy a deficiency, it is inappropriate for the PRE to perform design or make design decisions for the DP.

2.2.4 If possible, the PRE should word general comments to apply to numerous drawings such that the comments need not be repeated on each drawing.

2.2.5 When the PRE has need to repeat a specific comment at multiple details, the comment may be communicated by creating a standard, numbered list and referencing the applicable number at each detail.

2.2.6 The PRE is encouraged to use standard comments from the Bluebeam tool chest to save time and to maintain uniformity of comments. See PR 18-06 Section 2.2.8 for additional information.

2.2.7 The PRE should avoid correcting spelling or grammar mistakes unless the meaning is unclear.

2.2.8 Typical details on the drawings that are not used and conflict with DSA requirements must be deleted from the drawings or corrected by the DP.

2.2.9 The PRE will make comments as described in PR 18-06 Section 2.2. Comments should be constructed in accordance with the following rules:

2.2.9.1 Comments should be specific, such as: ***Show complete details in accordance with calculation page F-67.***

2.2.9.2 Comments should NOT be vague, such as: ***Clarify welding.***

2.2.9.3 Comments should avoid personalized wording, such as: ***Your calculation for this connection is in error.***

2.2.9.4 Comments should cite specific code sections whenever possible, such as: ***CBC Section 2507.3: Provide additional lath support at horizontal soffits.***

2.2.10 If incorrect section properties were used in the design of a structural element resulting in the specified element being overstressed, the PRE should write a comment on the sheet where the element is specified, such as: ***W18x36 overstressed. Recheck section modulus used in calculation page F-19.***

2.2.11 The PRE should perform independent calculations when portions of the submitted calculations are difficult to follow or interpret. Independent calculations may be referred to in the comment, such as:

Shear wall is overstressed along gridline A, wall shears are 520plf by independent calculation.

2.2.12 If the PRE performs extensive independent calculations, their pages should be numbered to facilitate the back check**.** The PRE may note the independent calculation page number in the comment for ease of reference, but the calculations performed by the PRE should never be provided to the DP. The DP is responsible for performing complete and correct calculations.

2.3 Design Omissions

It is recommended that the PRE dedicate intentional time to "step back" from the detailed review of the drawings and calculations to consider what may be entirely missing from the documents. If during the review the PRE only follows the same path and thought process used by the DP, they may overlook the same aspects the DP overlooked. It is essential the PRE use their structural engineering expertise to identify aspects of the design that may be missing from the drawings or specifications. The following are examples of potential design omissions:

2.3.1 Reduction factors missing from the calculations.

2.3.2 Connection details missing from the drawings.

2.3.3 Entire systems overlooked in the design.

2.3.4 Overhangs or parapets significantly increasing tributary wind load.

2.3.5 Tie-beams for a deep foundation system.

2.4 Structural Software

It is common for DP to use commercially available (or proprietary) structural analysis software and other computational tools to demonstrate the adequacy of their design. The PRE is also encouraged to use standards, charts, computer software, spreadsheets, and other tools as reviewing aids.

2.4.1 The PRE will review computer analysis prepared and submitted by the DP in justification of the design.

2.4.1.1 The PRE should have access to the software's user manual. If DSA does not have such access, the user manual must be provided by the DP.

2.4.1.2 The PRE shall verify all input to the software application, including geometry, orientation, loading, member sizes, dimensions, etc.

2.4.1.3 The PRE should make every effort to verify computer analysis performed by the DP without running another software application.

2.4.2 The PRE may verify computer output by checking the summation of forces is balanced or estimating approximate results with simplified methods, such as the portal frame method.

2.4.3 The PRE may run independent computer analysis when the computer analysis performed by the DP is disputed or difficult to follow. The PRE should discuss with and obtain the concurrence of the plan review supervisor before commencing extensive independent computer analysis. If the computer analysis performed by the DP is shown to be inconsistent or incorrect, it must be corrected. It is not the responsibility of DSA to perform independent computer analysis of the entire structure to refute the results of the submitted computer analysis.

2.5 Structural Calculations

All major structural portions of the project must be substantiated by calculations per CAC Section 4-317(d).

2.5.1 An example of complete calculations for a column footing includes checking punching shear of the concrete, checking bearing and bending stresses on the base plate, checking soil bearing stresses, determining required reinforcement in the footing, determining required embedment lengths, determining footing depths, etc. The PRE should not perform calculations to verify the footing design.

2.5.2 The PRE should not request additional calculations for items where the capacity can be easily derived from similar conditions or experience. As a basic rule, the PRE should not request additional calculations unless they have determined the design is questionable. Engineering judgment should be used before asking for additional calculations.

2.5.3 It is not necessary for the PRE to comment on errors in the calculations if the drawings and specifications will result in compliant construction. For example, if calculations omit a code-required reduction factor, but the element specified is adequate for the imposed loads when the factor is accounted for (i.e., as shown by the independent analysis of the PRE), a plan review comment is not necessary nor warranted.

2.5.4 Calculations are not permitted to be shown on the drawings because DSA does not approve calculations.

2.5.5 Equipment anchorage (including kitchen equipment) details shall be justified by design calculations. Design calculations are not required for anchorage that are clearly adequate.

2.6 Deferred Submittals

When a portion of the design cannot be fully detailed on the construction drawings due to variations in product design and manufacture, DSA may permit the design and approval to be deferred until the product supplier is selected.

2.6.1 The use of deferred submittals shall be kept to a minimum. See Section 5.4.2 below for eligible deferred submittal items. Items not listed in Section 5.4.2 below may be proposed by the DPoR as deferred submittals on a project-specific basis, but their acceptance requires approval of the plan review supervisor.

2.6.2 The PRE must ensure that all items accepted as deferred submittals are clearly listed on the construction drawings and in the deferred submittals section of the eTracker “Plan Check Worksheet” screen.

2.6.3 The PRE must verify that the drawings or specifications clearly establish the loading and performance criteria for each deferred item; see CAC Section 4-317(g).

2.6.4 The PRE must ensure the standard deferred submittal note is included on the construction documents in the following locations:

2.6.4.1 First sheet of the construction drawings.

2.6.4.2 Sheet(s) within the construction drawings where the deferred item is shown.

2.6.4.3 Specification section where the deferred item is addressed.

2.7 Final Review

For the purpose of verifying completeness and consistency of the plan review, projects are subject to a “final review” by the plan review supervisor.

The plan review supervisor’s final review is a quality control measure performed before documents are returned to the DPoR. The plan review supervisor will ensure comments are complete and written a manner consistent with DSA policy and the practices described herein. If any adjustments to the plan review comments are necessary, the supervisor will ask the PRE to modify the comments before the documents are returned.

3. CONSTRUCTION DOCUMENTS

This section summarizes responsibilities of the PRE relative to common elements of a project submission. The responsibilities listed herein are not all inclusive but intend to capture the most common aspects of a typical plan review.

3.1 Architectural Drawings

The PRE will review the architectural drawings and verify the following:

3.1.1 Dead loads imposed on the structure due to fixed equipment, casework, ceilings, soffits, finishes, and other architectural systems are coordinated with the basis of the structural design.

3.1.2 Live loads imposed on the structure due to the specified use and occupancy are coordinated with the basis of the structural design.

3.1.3 Nonstructural component supports, anchorage, and bracing are adequate to resist code prescribed vertical and lateral loads. Nonstructural components include, but are not limited to:

3.1.3.1 Ceilings and soffits.

3.1.3.2 Equipment, storage racks, cabinets, and casework.

3.1.3.3 Parapets, architectural ornamentation, and appendages.

3.1.4 Structural dimensions and details are coordinated with those specified on the architectural drawings (i.e., thickness of walls, depth of roof structure, etc.).

3.1.5 Wood is protected against moisture, decay, and termites.

3.1.6 Enclosed spaces are adequately ventilated.

3.1.7 Roof drainage is adequate.

3.2 Mechanical, Plumbing, Electrical, and Fire Protection Drawings

The PRE will review the mechanical, plumbing, electrical, and fire protection drawings and verify the following:

3.2.1 Dead loads imposed on the structure by equipment, piping, conduit, ducts, etc. are coordinated with the basis of the structural design.

3.2.2 Penetrations by pipes, ducts, conduit, etc. do not compromise the required strength or stiffness of structural elements.

3.2.3 Support and bracing of pipes, ducts, and conduits is adequate to resist code prescribed vertical and lateral forces.

3.2.4 Sufficient allowance for movement is provided in distribution systems (i.e., pipes, ducts, and conduits) at seismic separation joints.

3.2.5 Support and bracing of light fixtures, mechanical air terminals, etc. is adequate to resist code prescribed vertical and lateral forces.

3.2.6 Anchorage details for all equipment (including kitchen equipment) are complete. See CAC Section 4-317(b).

3.2.7 Typical connection details are appropriate, particularly at wood trusses and steel decks.

3.2.8 Spring vibration isolators are preapproved by the Office of Statewide Hospital Planning and Development (OSHPD). When such isolators are specified, the specific product name and number (if applicable) must be listed on the construction drawings. Merely citing the OSHPD preapproval number is not acceptable. Details of connections to the building structure must be shown on the drawings.

3.2.9 Fire sprinkler bracing complies with National Fire Protection Agency (NFPA) requirements, including NFPA 13: Standard for Installation of Fire Sprinkler Systems as amended in CBC Chapter 35.

3.3 Specifications

Specifications may be included on the drawings as notes or compiled in a separate book format (i.e., project manual).

3.3.1 The general conditions or supplementary conditions must indicate the following requirements:

3.3.1.1 A copy of Title 24, Parts 1, 2, 3, 4, and 5 shall be kept on-site during construction.

3.3.1.2 All work shall be performed according to the current edition of Title 24, California Code of Regulations (CCR).

3.3.1.3 The owner (i.e., the school district), not the contractor, shall employ the testing laboratory, project inspector, and special inspectors.

3.3.1.4 No changes are permitted to the construction documents without DSA approval.

3.3.2 Where standard “boiler plate” specification format is used, conditions in conflict with DSA requirements may be resolved by adding to or amending supplemental general conditions.

3.3.3 Specified materials must comply with applicable codes and standards, such as ASTM A572 for structural steel.

3.3.4 Testing and inspection requirements must be described in detail. References to CBC sections alone are inadequate.

3.3.5 Requirements for proper execution of the work must be provided, such as “fully vibrate concrete”, “maximum grout lift for concrete block”, etc.

3.3.6 The PRE must verify the specifications are coordinated with the general notes on the drawings. Specifications sometimes state they take precedence over the drawings. The PRE must verify the specifications are coordinated with the drawings and calculations.

3.4 Document Coordination

The PRE should verify the architectural, structural, mechanical, plumbing, and electrical drawings (as well as their specifications) are coordinated. Since consultants typically work independently on these aspects of the design, it is common to find inconsistencies and errors. For example, the location of doors, windows, interior walls, or even overall building dimensions may change on the architectural drawings during development of the design. If these changes are not mirrored on the structural drawings, shear wall lengths and locations may be incorrect. Other examples of coordination problems include, but are not limited to, the following:

3.4.1 Rooftop equipment location.

3.4.2 HVAC duct routes relative to structural elements.

3.4.3 Pipe or conduit riser locations relative to structural walls.

3.4.4 Fire rated gypsum board relative to structural plywood.

3.5 Tests and Inspections List

Form *DSA 103: List of Required Structural Tests and Special Inspections* is a summary of required structural material tests and special inspections. In conjunction with review of the plans and specifications, the PRE will verify that all code required testing and special inspection is appropriately listed on the form DSA 103.

3.5.1 Tests are activities that take place either before or after materials are installed. Compression tests of concrete cylinders, tension tests of reinforcing steel, and compaction tests of soils are all examples of tests.

3.5.2 Special inspection is a procedure that takes place during the work. Special inspection is performed by an individual who is specifically qualified to inspect a given aspect of the work. Masonry inspection, welding inspection, and inspection of the placement and compaction of engineered fills are examples of special inspections.

3.5.3 CAC Section 4-333(c) and CBC Chapter 17A define general requirements for special inspection. Special inspection requirements for specific materials and systems are given in CBC Chapters 17A, 18A, 19A, 21A, 22A, and 23.

3.5.4 Depending on the extent and complexity of the work, special inspection requirements may be adapted to suit the project. Special inspection should also be required for unusual construction types like glass fiber reinforced concrete, epoxy repairs, and light-metal-plate-connected wood trusses. The PRE should consult with the DPoR and the DSA field engineer who will oversee the construction phase of the project to determine the appropriate requirements for special inspection when unusual construction types are specified.

3.5.5 The PRE will perform the following actions during plan review:

3.5.5.1 Fill out an independent form DSA 103 based on the requirements of the code. Include any additional structural testing and special inspections required by the drawings and specifications.

3.5.5.2 Note unusual tests and special inspections on the form DSA 103 such as load tests for skylights.

3.5.5.3 Add plan review comments to the form DSA 103 submitted by the DPoR as necessary to reconcile differences with the form DSA 103 independently authored by the PRE.

3.5.5.4 Retain the independent list for use at back check.

3.5.5.5 If the DPoR has not submitted a form DSA 103 when one is required, add a plan review comment on the drawings requiring the DPoR to submit a form DSA 103 at back check.

4. BACK CHECK

The PRE will coordinate and conduct the back check as the lead plan reviewer in accordance with *PR 23-01: Back Check Procedure for DSA Plan Reviewer*.

4.1 Process

The back check will be conducted in accordance with the procedural requirements set forth in PR 23-01, which includes the PRE performing actions described in PR 18-06 Section 3.

4.2 Disagreement and Impasse

During the back check, differences of opinion may occur between the PRE and the DP.

4.2.1 The PRE should respectfully and logically explain the reasoning behind the comment.

4.2.2 The plan review supervisor should be consulted if the disputed comment cannot be resolved.

4.2.3 For differences of opinion concerning matters of engineering judgment and not regulated by a specific provision of the code, the judgment of the DPoR should prevail.

4.3 Tests and Inspections List

The DPoR will submit a signed copy of the form DSA 103. During back check the PRE will verify the submitted form DSA 103 addresses all plan review comments and any differences with the form independently authored by the PRE per Section 3.5.5 above have been reconciled. After DSA stamps the approved form DSA 103, the DPoR is responsible for distributing it to the testing laboratory, project inspector, and contractor.

4.4 Documents Required List

The “Required Documents Worksheet” screen in eTracker is accessed from the “Certification” tab. This page lists documents that will be required during construction and after construction is complete. These documents are required before the project can be certified and are required from the owner, contractor, design professional, inspectors, and testing laboratories.

4.5 DSA Identification Stamp

The DSA identification stamp will appear on all drawing sheets of the construction drawings and the cover sheet of the specifications when approved by DSA.

4.5.1 The DSA stamp is for identification purposes. Only a letter signed by the DSA regional manager grants approval of drawings and specifications.

4.5.2 Calculations, correspondence, substantiating information, and other supporting documents are not stamped by DSA. Only clear and complete instructions given in the drawings (i.e., “DWG” file), specifications (i.e., “SPC” file), and form DSA 103 are stamped by DSA. All instructions necessary to perform the construction must be shown in the drawings and specifications.

4.5.3 Prior to the DSA identification stamp being applied to the approved construction documents, the PRE must verify the following:

4.5.3.1 All plan review comments are marked “CLOSED”.

4.5.3.2 DP have stamped and signed the drawings and specifications. See *IR A-19: Design Professional’s Signature and Seal (Stamp) on Construction Documents* for additional information.

4.5.3.3 Form DSA 103 is complete.

4.5.3.4 "Plan Check Worksheet” eTracker screen is updated.

4.5.3.5 All required calculations, justifications, amending letters, and other supporting documents are received and filed.

4.5.3.6 Geohazard Report (when required) is approved by the California Geological Survey. Refer to IR A-4 for additional information.

4.5.3.7 Fire and Life Safety (FLS) approval is granted.

4.5.3.8 Access Compliance (ACS) approval is granted.

4.5.4 The PRE will remind the DPoR that after the DSA identification stamp has been applied to the documents, changes may not be made to the drawings or specifications unless written DSA approval is obtained. Changes may be approved through an addendum, revision, or CCD as described in Section 5 below. Unapproved changes may automatically void DSA approval of the project.

4.6 Conclusion of Back Check

Upon completion of the back check, the PRE will perform the actions described in PR 18-06 Section 3.3.

5. POST-APPROVAL DOCUMENTS

The processing and routing of post approval documents is managed by eTracker worksheets dedicated to this purpose. CCD are generally routed to the field engineer; they are routed to the original PRE when extensive review of calculations is required. Addenda, revisions, and deferred submittals are typically routed to the original PRE. Post-approval documents are not reviewed and approved by consultant PRE.

5.1 Review and Approval

Review of post-approval documents typically takes precedence over plan review work. When multiple post-approval documents are received at the same time, the PRE should discuss scheduling impact and priorities with their plan review supervisor.

5.1.1 The PRE will require the signature of the DPoR on all construction documents (i.e., drawings and specifications) before reviewing.

5.1.2 The PRE will require the signature of DP delegated responsibility for portions of the project affected by the scope of the proposed changes.

5.1.3 Review of post-approval documents is performed as described in Sections 2 and 3 above and PR 18-06 Section 4.

5.1.4 All instructions necessary to perform the construction must be included on drawings or specifications approved by DSA. Calculations and other substantiating information that is required to justify the changes is not permitted to be included on the drawings or specifications stamped by DSA.

5.1.5 DSA administrative staff will manage the receipt, return, and stamping (when approved) of post-approval documents in accordance with *PR 18-07: Electronic Plan Review for DSA Administrative Staff*, Section 6.

5.2 Addendum

An addendum is used for a change(s) made to the DSA approved drawings or specifications before a construction contract is awarded.

5.3 Construction Change Document (CCD)

A CCD is used for a change(s) made to the DSA approved drawings or specifications after the construction contract has been awarded. Refer to *IR A-6: Construction Change Document Submittal and Approval Process*.

5.4 Revision

A revision is used for a change(s) made to the DSA approved drawings prior to the start of construction or when substantial changes are made during construction exceeding the scope of a typical CCD.

5.5 Deferred Submittal

A deferred submittal represents a portion of the design that cannot be fully detailed on the construction drawings because of variations in product design and manufacture. See Section 2.6 above for additional information.

5.5.1 Deferred submittal items may be designed by a DP not listed on the form DSA 1 provided that the DPoR provides the signed Statement of General Conformance per IR A-18.

5.5.2 The following items are eligible for approval as deferred submittals:

5.5.2.1 Access floors.

5.5.2.2 Bleachers. See *IR 16-5: Design, Fabrication, and Inspection of Bleachers, Folding and Telescopic Seating, and Grandstands* for additional information.

5.5.2.3 Elevator guide rails and support bracket anchorage.

5.5.2.4 Exterior wall systems such as precast concrete panels, glass fiber reinforced concrete (GFRC) panels, or similar custom designed systems engineered by a specialty contractor. Metal stud framing is not permitted to be deferred, nor are wall panels (and similar finish materials) qualified by an evaluation report. See *IR 19-2: Glass Fiber Reinforced Concrete (GFRC) Panels* for additional information on GFRC wall systems.

5.5.2.5 Fire pumps and fire protection water tanks. See *PL 10-01: Plan Submittal Requirements: Automatic Fire Sprinkler Systems* for additional information.

5.5.2.6 Skylights.

5.5.2.7 Stage rigging.

5.5.2.8 Steel open web joists and joist girders. See *IR 22-3: Open Web Steel Joists and Joist Girders* for additional information.

5.5.2.9 Window wall systems or storefronts with any span greater than 10-feet. See *IR 24-2: Window Wall Systems* for additional information.

5.5.2.10 Metal plate connected wood trusses. See *IR 23-4: Metal-Plate-Connected Wood Trusses* for additional information.

5.5.2.11 Wood-chord-metal-web trusses. See *IR 23-8: Manufactured Wood-Chord-Metal-Web Trusses* for additional information.

STRUCTURAL PLAN REVIEW

ABBREVIATIONS

ACS – Access Compliance

DP – Design Professional.

DPoR – Design Professional of Record.

DSA – Division of the State Architect

FLS – Fire and Life Safety

PRE – Plan Review Engineer

SS – Structural Safety

GLOSSARY

Design Professional of Record

Architect or structural engineer in general responsible charge of the project as defined in CAC Section 4-316(a).

Plan Review Engineer

DSA structural safety plan reviewer or a consultant plan reviewer responsible for Structural Safety review and approval.

STRUCTURAL PLAN REVIEW

ADDITIONAL RESOURCES

Refer to the following resources for additional information:

- California Administrative Code (CAC): Part 1, Title 24, California Code of Regulations
- California Building Code (CBC): Part 2, Title 24, California Code of Regulations
- California Existing Building Code (CEBC): Part 10, Title 24, California Code of Regulations
- PL: 07-02 Over-the-Counter Review of Projects Using Pre-Check Approved Designs
- PL 10-01: Plan Submittal Requirements: Automatic Fire Sprinkler Systems
- IR A-4: Geohazard Report Requirements
- IR A-6: Construction Change Document Submittal and Approval Process
- IR A-11: Incremental Submittals
- IR A-18: Use of Construction Documents Prepared by Other Professionals
- IR A-19: Design Professional's Signature and Seal (Stamp) on Construction Documents
- IR 16-5: Design, Fabrication, and Inspection of Bleachers, Folding and Telescopic Seating, and Grandstands
- IR 19-2: Glass Fiber Reinforced Concrete (GFRC) Panels
- IR 22-3: Open Web Steel Joists and Joist Girders
- IR 23-4: Metal-Plate-Connected Wood Trusses
- IR 23-8: Manufactured Wood-Chord-Metal-Web Trusses
- PR 18-05: Electronic Plan Review for Consultant Plan Reviewer
- PR 18-06: Electronic Plan Review for DSA Plan Review Staff
- PR 23-01: Back Check Procedure for DSA Plan Reviewer