



CITY OF DANA POINT

COMMUNITY DEVELOPMENT, BUILDING
AND SAFETY

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PR002-STRUCTURAL

2016 CALIFORNIA CODES

CODE CYCLE

01/01/2017

EFFECTIVE DATE

STRUCTURAL PLAN REVIEW COMMENTS

REVIEW NO.: **BLDxx-xx**

PROJECT:

PROJECT ADDRESS:

APPLICANT:

OCCUPANCY GROUP:

TYPE OF CONSTRUCTION:

SPRINKLERS:

1st REVIEW BY:

DATE:

STATUS:

ADDITIONAL REVIEW BY:

DATE:

STATUS:

ADDITIONAL REVIEW BY:

DATE:

STATUS:

INFORMATION: A plan review has been performed on the referenced project for verification of conformance with construction codes adopted by the State of California and the City of Dana Point. As a result of that review, the items listed below require additional information, inclusion within the plans or calculations or revision to the plans or calculations.

Plan review fees include the initial review and one additional re-check. Additional reviews beyond the 1st re-submittal may require additional fees.

Please provide the requested information to allow completion of the plan review process and issuance of the building permits. Please provide a written response to the items listed below with an indication as to the method of resolution and the location within the plans or calculations.

INSTRUCTIONS: Please return *ALL* checked sets and include four (4) completed and corrected sets of plans, two (2) sets of all other required documents along and *ALL* plan review comments with their respective responses. Incomplete resubmittal may result in delayed review time and additional plans check fee.

GENERAL

See the plans for additional comments and clarifications. **Please return the marked-up plans with your submittal.** The comments on the checked set are part of this correction list.

1. Approved Plans and Documents Requirements:

- a. All sheets of the final plans, calculations, and documents submitted (including subsequently corrected and revised plans) need the wet-stamp, date of signing, and signature of State of California Registered Design Professional who is responsible for the preparation of the plans, calculations and/or any documentation.
- b. If a soils report is required/provided, the final structural drawings shall be reviewed by the Soils Engineer and shall be wet stamped and signed indicating the plans conform to the soils requirements.
- c. Please note that altered plans, inked information, and whited-out plans are **NOT ACCEPTABLE**. Please revise & update the final accordingly.

- d. Provide plan sheets in a legible format suitable for scan or microfilm archival. Your sheet(s) may contain plot errors or the depictions or notes are illegible and will not reproduce correctly.
 - e. Please provide the design of the walls, retaining walls, pilasters, etc. shown in the landscape plans or make a note that the landscape plans are “**FOR REFERENCE**” only.
2. **Structural Observation** (1704.5): Structural Observation is required for this project; please provide complete notes and an inspection/observation program on the first sheet of the structural plans.
 3. **Special Inspections** (1704): The Registered Design Professional shall include a “*Statement of Special Inspections*” on the plans. Provide complete inspection program & list on the Title Sheet.
 4. **Material Specification:** Provide complete material notes and specifications on the plans.
 5. The architect or engineer of record shall list all deferred submittals on the cover sheet. Deferred submittals require prior approval of the Building Official. Provide a note on the plan: “**Deferred submittals to be reviewed by project architect or engineer of record and certified prior to submittal for plan review.**” A separate plan review and fee will be required for deferred submittal items.
 6. **Alternate Material:** Provide ICC ES approvals for all alternate materials used or provide general notes that detail the necessary procedures and installation instructions per ICC ES Evaluation Reports.
 7. **Note on Plans:**
 - a. *The applicable Codes are: 2016 CBC, 2016 CPC, 2016 CMC, 2016 CEC, 2016 Energy Code, 2016 CGBC, City of Dana Point Municipal Code*
 - b. *A separate permit(s) is/are required for accessory building, swimming pool, shoring, demolition, etc.*
 - c. *Deputy Inspectors are required to be listed by the City of Dana Point Building Department.*
 - d. *Periodic Special Inspection is required for wood shear walls, shear panels, and diaphragms, including nailing, bolting, anchoring, and other fastening to components of the seismic force resisting system where the fastener spacing is < 4 inches on center. (1705.11.2)*
 - e. *Excavations shall be made in compliance with CAL/OSHA Regulations.*
 - f. *Fasteners for pressure treated wood shall be of hot dipped zinc-coated galvanized steel, stainless steel, silicon bronze or copper.*
 8. Design shall be based on an approved soils report. The RDP is responsible to obtain all updated addendums (if provided/required) by the soils engineer & incorporating all changes. Submit the approved soils report with the next submittal. The foundation design will be re-reviewed once an approved soils report is submitted.
 9. If a soils report requirement is waived by Engineering Services, comply with the following recommendations in lieu of providing a soil report (see the handout titled “*When a Soils Report is Required*”):
 - a. Footings shall be founded a minimum of 24 inches below grade.
 - b. Provide continuous footings with 2- #5 reinforcement at top and bottom.
 - c. Concrete slabs shall be minimum 5” thick reinforced with #4 @ 18 inches on center each way, over 2” sand, over a minimum 10 mil moisture barrier, over 2 inches of sand.
 - d. Isolated footings shall be tied with grade beams.

- e. Dowel new foundations and slabs into existing foundations and slabs with a minimum 6 inches into existing concrete and 24 inches into new concrete with #3 bars @18 inches on center.
 - f. Post-tensioned slabs are used in areas with expansive soil. Foundation work slab shall proceed with caution to prevent damage to the tendons. Please have the engineer or architect of record address this issue.
 - g. Concrete in contact with the soil shall have an ultimate compressive strength of 4,500 psi, water-cement ratio of 0.45 and Type V cement unless a soil report recommends otherwise.
10. **Foundation:**
- a. Specify foundation dimensions and reinforcement in the continuous and pad footings.
 - b. Specify slab on grade concrete floor slab thickness, reinforcement and moisture barrier on foundation plan.
 - c. Add pad footing(s) as required under point loads where missing and/or required.
 - d. Show method of tying new footings and slab into existing footings. Show construction details.
 - e. Provide typical details & cross-reference for perimeter walls, interior bearing/shear walls, slab depression, spread footings, etc.
 - f. Provide details for stepped footings.
 - g. Provide detail of the reinforcement at footing intersection and corners.
11. Provide a current ICC ESR report for the roofing material & specify on plans "***Roofing material on the roof shall not exceed ___ pounds per square foot.***"
12. **Trusses:**
- a. Show drag trusses with additional lateral loads over shear walls. Callout drag load on the framing plans. Note that specifying the loads only in the general notes is not acceptable!
 - b. Provide support under all truss point loads or design the top plate for the point load.
13. **Framing:**
- a. Show size of headers and beams over all openings.
 - b. Show support for all beams and connecting hardware.
 - c. Provide positive connections at all post-beam connections to account for uplift forces and lateral displacements.
 - d. Call out all metal straps and hangers.
 - e. Show panel index, type, orientation and nailing of floor / roof / shear wall plywood.
 - f. Show location of purlins and struts (kickers) to reduce rafter spans and support ridges, hips, valleys, etc.
 - g. Show on plans, rafter & ceiling joist sizes, spacing, span direction, and support locations
 - h. Provide lapped ceiling joist splice detail.
14. **Wall framing:**
- a. Please calculate (state all assumptions) and detail wall framing to support vertical plus lateral (out-of-plane) loads – review studs, headers, posts, etc.
 - b. Vaulted ceiling areas: Specify balloon (full height) studs at interior and exterior walls. Specify size, spacing and maximum allowable span of full height studs.
15. **Elements Supporting Discontinuous Walls or Frames** (ASCE 7 Section 12.3.3.3): Columns, beams, trusses, or slabs supporting discontinuous walls or frames of structures having *horizontal irregularity Type 4* of Table 12.3-1 or *vertical irregularity Type 4* of Table 12.3-2 shall be designed to resist the seismic load effects including over-

strength factor of Section 12.4.3. The connections of such discontinuous elements to the supporting members shall be adequate to transmit the forces for which the discontinuous elements were required to be designed.

16. **Redundancy Factor, ρ** , (ASCE 7 12.3.4.2): For structures assigned to Seismic Design Category D, E, or F, ρ shall equal 1.3 unless one of the two conditions in ASCE 7 Section 12.3.4.2 is met, whereby ρ is permitted to be taken as 1.0. Use $\rho=1.3$ or justify using $\rho=1.0$.
17. **Shear Walls:**
 - a. Provide a shear wall schedule on the plans and specify the maximum design shear load for each shear wall type. Limit the design shear wall loads to those allowed by Code. Clearly indicate on the plans all plywood and drywall shear walls.
 - b. Show the shear wall type, length and location on the framing and/or foundation plans.
 - c. Detail the shear connections.
 - d. Provide manufactured shear wall installation drawings. Note ICC ES report number on the plans.
18. **Interior Shear Walls:** A collector is required at all interior shear walls (shear walls define diaphragm boundary location and all edges of a diaphragm shall be supported by boundary elements per ASCE 7 Section 11.2). ASCE 7 Section 12.10.2
19. **In-plane Offset Segmented Shear Wall (Type 4 vertical irregularity):** Follow through with the upper floor holddown to the foundation, or:
 - a. Design the lower wall (transfer wall) for the additional horizontal shear loads from the transfer load;
 - b. Design the lower wall with the over-strength per ASCE 7 Sections 12.3.3.3 & 12.3.3.4;
 - c. Design the collector per ASCE 7 Section 12.10.2.1.
20. **Out-of-Plane Offset Shear Wall (Type 4 horizontal & vertical irregularity):**
 - a. Design the supporting beam/collector and columns (supporting the beam/collector) in accordance with ASCE 7 Section 12.3.3.3 using the over-strength factor of Section 12.4.3.
 - b. The transfer force must be increased by ρ per ASCE 7 Section 12.10.1.1.
 - c. Provide collectors per ASCE 7 Sections 12.10.2 & 12.10.2.1.
 - d. Increase the diaphragm design forces, as determined from ASCE 7 Section 12.10.1.1, by 25% for the following (except for forces using over-strength factor of Section 12.4.3):
 - i) Connections of the diaphragm to vertical elements and collectors;
 - ii) Collectors and their connections to the vertical elements.
21. **Shear wall vertical/plan irregularity:**
 - a. Please address the vertical plan irregularity for the upper floor shear walls; show compliance with ASCE 7 Sections 12.3.2.2. & 12.3.3.4. Check adequacy of the drag strap & diaphragm capacity.
 - b. Consider shear wall overturning reactions on the beam/columns per Section 1630.8.2 and 1612.4 for the Special Seismic Combinations.
22. **Details:**
 - a. Provide details where redlined on the plans;
 - b. Please call out straps where top plates are cut for beam-to-post attachments;
 - c. Provide complete shear transfer details including detailing for nails, bolt, shear plates, sill plates and blocking;
 - d. Design, detail, and cross reference all guards on the structural framing plans;

- e. Show edge of bearing plates (BP) to be within ½” from the sheathed edge of the sill plate and detail where shear panels occur on both sides of the shear wall. (IRC R602.11.1 & SDPWS 4.3.6.4.3)

23. Calculation:

- a. Provide complete structural calculations to verify the adequacy of the structural system in resisting seismic, wind and gravity loads. (1604)
- b. To help facilitate plan check of calculations, please provide a building schematic in the calculations showing framing directions and spans; beam locations and spans; posts and footings, etc.

24. The comments on the checked set are part of this correction list. Please comply with all red-marks on the submitted plans. Return all sets with the completed plans. This review does not preclude additional corrections that may follow upon re-submittal.

To assist in completing the next review of your plans, please provide written responses to all redlines comments and to the comments included in this correspondence.

If you have any questions about this review or any general questions on the structural requirements, please contact me at (949) 248-3xxx or via email at xxx@danapoint.org.