

CITY OF STANTON

PLAN CHECK #: _____

1ST REVIEW BY: _____ DATE: _____
2ND REVIEW BY: _____ DATE: _____
3RD REVIEW BY: _____ DATE: _____

CORRECTIONS APPROVED
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STRUCTURAL DESIGN REQUIREMENTS

GENERAL

1. Note on structural plans that all work shall conform to the 2001 CBC.
2. Note on the cover sheet of the structural calculations:
 - a. Project name and address.
 - b. Name, address and telephone number of the civil or structural engineer or architect responsible for the structural calculations.
3. Final plans prepared by, or under the responsible charge a civil or structural engineer or architect shall have the signature, stamp and expiration date on each sheet of the plans.
4. Final calculations and reports prepared by a civil or structural engineer or architect shall have the signature, stamp and expiration date on the title, cover or signature sheet.
5. Civil or structural engineers shall include the date of signing and stamping immediately below or next to the signature and stamp.
6. Provide structural calculations for: _____
7. Lists all deferred submittals on cover sheet and note on the plan: "Deferred submittals to be reviewed by project architect or engineer of record and certified prior to submittal for plan review.
8. Omit material specifications that do not apply to this design.
9. Reference all detail shown on the plans or delete or omit details not applicable to this project.
10. Specify on plans "Roofing material on the roof shall not exceed _____ pounds per square foot."
11. Revisions to the calculations shall be made on the original set and new copies of calculations submitted.
12. See the plans and calculations for additional comments and clarifications. Please return the marked-up plans and calculations with your submittal. Additional plan checks cannot proceed without them.

SOILS AND GEOLOGY

13. Submit a soil report approved by the City's Engineering Department. A second plan review cannot be performed without the approved report.
14. Reference the soil report on the plans. (CBC 1804)
15. The soil classification and design-bearing capacity shall be shown on the plans, unless the foundation conforms to Table 18-I-C.
16. The potential for seismically soil liquefaction and soil instability shall be evaluated as described in CBC1804.5.
17. The final foundation plan shall be reviewed and approved by the soil engineer.
18. Note that on site observation of the grading and foundation excavation is required by the soil engineer.

SPECIFICATIONS

19. Provide material specifications on the plans. Specify:
 - a. Grade and species of all lumber (must be grade marked). Specify Douglas Fir-Larch on the plans.

- b. Wood structural panels shall comply with UBC Standard 23-2 (PS1-95) or 23-3 (PS2-92).
- c. Concrete (Type and F'c).
- d. Masonry (Type and F'm).
- e. Grout and mortar mixes
- f. Reinforcing steel (Fy)
- g. Structural steel (Fy)
 - i) Designate members on the plans per AISC..
 - ii) Specify the welding electrode strength on the plans (
 - iii) Structural welding shall conform to AWS D1.1 and the AISC ASD Specifications.
 - iv) Welding to be done by Licensed Welders.
- h. Glue-lam beams shall be marked ANSI / AITC Standard A 190.1.
 - i) Provide field inspector with approved "Certification of inspection."
 - ii) Specify stress, exterior grade if exposed.
 - iii) Provide camber.
- i. The manufacturer and ICBO report number for the Structural Composite Lumber (SCL).
- j. The manufacturer, model number, size and ICBO report number for the manufactured wood connectors.
20. Special inspection is required for: _____
21. When special inspection is required, by Section 1701, the Architect or Engineer of Record shall submit an inspection program to the City for approval.

DESIGN REQUIREMENTS

22. Provide on the first sheet of the structural calculations the design criteria used in the design. Show all assumed dead loads, live loads and wind and earthquake loads.
23. Wood design shall comply with Chapter 23 and based on the 1991 NDS, Revised 1991 Edition and the Revised Supplement to the Revised 1991 Edition. Show the allowable stresses used in the design in the calculations.
24. Wood design values shall be adjusted per Table 2.3.1 of the NDS.
25. Calculations may include the results from an electronic digital computer program. Please provide information on the computer program being used.
26. Provide a framing plan in the calculations. Reference the calculations for joists, beams, etc. to the framing plan.
27. Check the deflection of the structural members.
28. Nailing shall be in compliance with Table 23-II-B-1.
29. Show roof, floor and ceiling framing.
30. Provide structural calculations for post and show post sizes. Specify connection at top and bottom.
31. Provide design for the wall framing for vertical and lateral loads.
32. Submit manufactured truss profiles, layout plan and calculations from truss manufacturer for plan check. Truss plans shall be signed by the design engineer and approved by the architect or engineer of record prior to building department approval.

33. Detail connection of the top of interior non-bearing walls to manufactured trusses. Provide a 1/2" minimum deflection space.
34. Fire blocking, vertical or horizontal, shall conform to Sec. 708.2. Clarify.
35. Studs in bearing walls supporting 3 stories shall be 2x6 or 3x4 at 16" o.c. maximum. Clarify. Table No. 23-IV-B. Maximum stud height is 10'-0" for bearing walls, maximum 14'-0" for non-bearing walls with 2x4 studs. Clarify. Table 23-IV-B.
36. Note the use of full-length studs (balloon frame) on exterior walls of rooms with vaulted ceiling.
37. Provide double top plate with minimum 48" lap splices. Provide 8 - 16d lap splice nailing. (CBC 2320.11.2.)
38. Where top or sole plate are cut for pipes, a metal tie minimum 0.058 inches thick and 1 1/2 inches wide shall be fastened across the opening with 6 - 16 d nails minimum each side. (CBC 2320.11.7)
39. Provide straps from new walls at top plate to tie to existing walls.
40. Provide design of guardrail and handrail on open side of balconies, decks, landings, and stairs. Provide design calculations and details for guardrails and handrails for 20 pounds per linear foot horizontal load at the top of rails and components for 25 p.s.f., per Tab. 16-B, CBC. (Table 16-B)
41. Provide design of the glass railing.
 - a. Glass balusters shall be provided with a handrail or guardrail.
 - b. Baluster panels shall be safety glazing conforming to Section 2406.6. Minimum thickness shall be 1/4 inch.
 - c. The panels and support shall be design to withstand a lateral force of 80 p.l.f. at the top rail.
 - d. The guardrail must be attached between walls or posts or supported by a minimum of three balusters
50. Provide details and calculations for post-tensioned slab per Sec. 1806.2, CBC
51. Specify mechanical anchors and shot pins by manufacturer's part number and ICBO approval number and specify the minimum embedment, per the report.
52. Specify slab on grade concrete floor slab thickness, reinforcement and moisture barrier on foundation plan.
53. Provide method of tying new footings and slab into existing footings. Show construction details.
54. Provide steel anchor bolts for the wood plates or sills to the foundations with 5/8" Ø bolts spaced not more than 6'-0" apart with bolts embedded at least 7 inches into the concrete or masonry. Provide minimum 2" x 2" x 3/16 thick plate washer for the anchor bolts. Provide minimum edge distance of 1 7/8" for the 5/8" Ø anchor bolts. (CBC 1806.6 and Table 19-D)
55. Foundation plan shall show all proposed hold-downs and non-standard anchor bolt spacing.
56. Note on plan that shear wall anchor bolts and hold-down hardware must be secured in place prior to foundation inspection.
57. Provide detail of the reinforcement at footing intersection and corners.
58. Provide detail for stepped footings when slope of the footing exceeds one in ten. (CBC 1806.4)
59. Detail set back of footings from the face of slopes. (5 feet minimum unless specified otherwise by a soil engineer).
60. For wood floors with raised foundations, provide:
 - a. Girder size and location, joist size.
 - b. Pier size and location; provide details.
 - c. 18" clearance, earth to joists, 12" at girders.
 - d. Under floor ventilation.
 - e. 24" x 18" access opening.
61. For foundation retaining walls:
 - a. Show positive moment reinforcing steel. Specify location.
 - b. Detail connection to floor diaphragm.
 - c. Show footing size and reinforcing required.
 - d. Show drain behind wall and show disposal point.
 - e. Provide damp proofing barrier. Specify method to be used.

FOUNDATION

42. Submit a completed foundation design.
43. Specify soil type and bearing value used in design on the plans.
44. Allowable foundation and lateral pressure is limited to of an allowable foundation pressure 1000 p.s.f., an allowable lateral bearing pressure 100 p.s.f./ft. and coefficient of lateral sliding of 0.25, unless a soil report recommends otherwise. (CBC 1805)
45. Footing shall have a minimum depth as indicated in Table 18-I-C, unless a soil report recommends otherwise. (CBC 1806)
46. Provide #4 reinforcing steel, top and bottom, in continuous footings, per 1806.7.
47. Construction employing posts or poles as columns embedded in earth or embedded in concrete footings in the earth may be used to resist both axial and lateral loads. The depth to resist lateral loads shall be determined by means of the design criteria established in Section 1806.8.2.1 or 1806.8.2.2 or other methods approved by the building official.
48. Foundation and floors slabs on expansive soil with an expansion index greater than 20, as determined by UBC Standard 18-2 shall require special design consideration.
49. Interconnect the piles or caissons with ties that can carry, in tension or compression, a minimum horizontal force equal to 10% of the larger pile or caisson loading, or demonstrate that equivalent restraint can be provided, per Section 1807.2, CBC.

WIND & SEISMIC DESIGN

62. Provide a lateral analysis for wind loads based on basic wind speed of 70 mph and wind exposure B. (CBC 1615 - 1625)
63. Seismic Basis of Design:
 - a. Each site shall be assigned a soil profile type per Table 16-J. Use Type S_D when there is no soil report.
 - b. In Seismic Zone 4, each site shall be assigned a near-source factor in accordance with Table 16-S and the Seismic Source Type per Table 16-U.
 - c. Each structure shall be assigned a seismic coefficient C_a and C_v.
 - d. Structure system shall be classified per Table 16-N.
64. The seismic loads shown in Formulas (30-1) and (30-2) shall be used in combinations set forth in Section 1612.
65. Where combinations of structural systems are incorporated into the same structure, the requirements of Section 1630.4 shall be satisfied. Show compliance in the calculations.
66. The design of the base shear shall include the total seismic dead load defined in Section 1630.1.1. Show the seismic factors and the seismic dead loads used in the design.

- 67. The total seismic force shall be distributed over the height of the structure in conformance with Formulas (30-13), (30-14) and (30-15). The vertical distribution shall be determined by using the total dead load tributary to each level. Provide a revised seismic design and resubmit.
- 68. Provide drift calculations, per Sec. 1630.9.
- 69. Provide a diaphragm layout plan in the calculations. Show the shear walls in the plan clearly indicating the contributing diaphragm(s) to all shear walls.
- 70. Provide calculations to determine the ρ factor.
- 71. Size and shape of each horizontal diaphragm and shear wall shall be limited as set forth in Table 23-II-G.
- 72. In Seismic Zones 3 and 4, the allowable shear values for gypsum sheathing board and gypsum wallboard shall be reduced by 50% for seismic forces. (CBC Table 25-I)
- 73. Shear walls that are separated more than 4 feet apart shall be design as separate shear wall systems.
- 74. Provide design of the horizontal diaphragm system:
 - a. Provide design of the roof and floor diaphragms and diaphragm chords. The force F_{px} determined from Formula (33-1) need not exceed $1.0C_{alwpx}$, but shall not be less than $0.5C_{alwpx}$.
 - b. Provide design of the drag struts and drag strut connections.
 - c. Show the diaphragm to drag strut nailing on the framing plan.
- 75. Horizontal wood structural panel diaphragms shall comply with Table 23-II-H. Specify thickness, grade, T&G edges, panel span rating, nailing schedule and required blocking and panel layout pattern.
- 76. Detail California framing. Provide detail showing that roof sheathing continues under California framing to the shear walls.
- 77. Plywood shear walls shall comply with Table 23-II-I. Design and clearly show on the plans:
 - a. Shear wall type, length and location on the framing and foundation plans.
 - b. Provide a shear wall table with allowable shear values in the calculations.
 - c. Where allowable shear value per Table 23 II-I-11 exceeds 350 p.l.f., foundation sill plates and all framing members receiving edge nailing from abutting panels shall not be less than a single 3-x nominal member. Nails shall be staggered. Show location of the 3x foundation sill plates on the foundation plan.
 - d. Where plywood is applied to both sides of a shear wall and nail spacing is less than 6" o.c., plywood panel joints shall be offset to fall on different framing members or framing shall be 3" or thicker with staggered nails.
 - e. The location of the holdowns on the framing and foundation plans.
 - f. The detail of the shear connections to roof, floor and foundation.
- 78. Provide calculations to determine the shear wall holdowns. Provide holdowns at shear walls with any uplift force.
- 79. Structures with vertical and/or plan irregularity shall be designed in accordance to CBC 1629.5.3, Table 16-L and Table 16-M. Submit design and details.
- 80. Detail the shear transfer connections which transfer lateral forces from horizontal diaphragms through intermediate elements.
- 81. Detail the holdown transfer connections which transfer the upper level holdown forces to the foundation. There must be a continuous path to transfer the upper level holdown forces to the foundation. Provide design and details.
- 82. In Seismic Zones 3 and 4, horizontal cantilever components shall be designed for a net upward force of $0.7C_{alWp}$.
- 83. Provide manufactured shear wall installation drawings and incorporate the correct application as part of the plans. Note ICBO approval number on the plans.
- 84. Design footing as grade beam to resist uplift forces at shear wall.
- 85. Where shear walls with openings are designed for force transfer around the openings, the limitations of Table 23-II-G shall apply to the overall shear wall including openings and to each wall pier at the side of an opening. Design for force transfer shall be based on a rational analysis. Detailing of boundary members around the opening shall be provided in accordance with Section 2315. See Figure 23-II-1, Section (b).
- 86. Seismic design of structural steel shall conform to the provisions of Chapter 22, Division V.
 - a. Design columns for the load combinations in Section 2213.5.1.
 - b. Design OMF to resist the load combinations in Section 1612.3.
 - c. All beam-to-column connections shall meet the requirement of Section 2213.6.
- 87. Structural Observation shall be required for R-3 and U-1 Occupancies exceeding two-story with a N_a greater than 1.0.

ADDITIONAL CORRECTIONS
