OWNER'S NAME _____

JOB ADDRESS _____

CITY OF CONCORD

Building Department; 1950 Parkside Drive, M/S 51; Concord, CA 94519; (925) 671-3107

RESIDENTIAL PLAN CHECK SHEET

GENERAL

Applicable Codes: 2007 CBC, 2007 CMC, 2007 CPC, 2007 CEC

Items to be considered at earliest possible stage which could affect project:

1. Land use limitations - Concord Planning Division
2. Flood zones – Current Development Division
3. Sewer & storm drain easements

For express plan check submit 3 complete sets of plans. The omission of any of the following general items may result in delay of plan checking or return of plans due to insufficient information: - **Also See Submittal Checklist**

A. Plot plan: show new and existing building locations. Dimension front, side, rear distances to property lines, other buildings, landscaping and indicate finish and existing ground slope grades. Show roof pitches & provide drainage information. Calculate percent of total building lot coverage, square footage of existing structures, and square footage of new proposed structures.

B. Floor plan: completely dimension, show location, size and label use of each room, location and size of windows and doors, show electric outlets, plumbing, and heating fixtures. List floor area, window area and furnace size on plans.

C. Foundation plan: completely dimension plan including interior footings and fireplace support. Label and locate porches, patios, planters, garage, etc. Locate straps and tie downs on plan.

D. Elevations: min. of 4 elevation views showing all openings, wall finish materials, original and finished grade, stepped footing outline, roof pitch and materials.

E. Framing plans for floor and roof. Carry all loads down to footings.

F. Cross Section: provide true section through building showing structural elements, fireplace section, and other sections as needed. Show earth to wood clearances and floor to ceiling heights.

G. Details: submit foundation, floor, walls and roof details, beam connections, support of beams at fireplace, etc., special framing and flashing details as necessary for construction.

H. All drawings shall be signed by the person responsible for preparing them. Print owner's name, telephone number, address and Assessor's parcel number on plans. Residences, which are wood frame, light-weight conventionally framed, up to two stories high, may be drawn by anyone.

I. Job address must be posted at site. Minimum 3-inches high contrasting numbers.

J. Specific design requirements:

1. Wind: Basic velocity is 70 miles per hour. Use exposure B (without detailed topographic justification) – Typical for Residential Only
2. Seismic Design Category – D or E
3. Allowable soil bearing is 1500 pounds per square foot (Table 1804.2, Class 5 material) for stable soils. Where bearing capacity of less than 1500 psf are likely to be present at the site, the allowable bearing capacity shall be determined by a soils investigation.
4. Climate Zone 12.

LIGHT, VENTILATION, AND MINIMUM ROOM DIMENSIONS - (CBC 1205, 1203)

1. Required window glazed area for natural light in habitable rooms shall not be less than 8 % of floor area. (2007 CBC 1205.1)
2. Artificial light shall be provided that is adequate to provide an average illumination of 10 foot-candles over the area of the room at a height of 30" above the floor level. (2007 CBC Section 1205.3)
3. Ventilation - minimum openable area to the outdoors shall be 4 % of the floor area. (2007 CBC Section 1203.4.1)
4. Provide each bedroom with a min. of one exterior window with a 44" max. sill height, with a clear openable height of 24" min. or clear width of 20" min., with 5.7 sq. ft. min. clear openable area.
   Exception: The minimum net clear opening for emergency escape and rescue grade-floor openings shall be 5 square feet. (2007 CBC Section 1026 &1026.2 & 1026.3)
5. Bathrooms containing bathtubs, showers, spas and similar bathing fixtures shall be mechanically ventilated in accordance with the California Mechanical Code. (2007 CBC 1203.4.2.1 & CMC 504)
6. Provide ventilation for products of combustion to outside air (2007 CMC Sec. 701).
7. Provide attic ventilation: 1/150 of attic area, with 50% of the required ventilation area provided by ventilators located in the upper portion of the space to be ventilated at least 3 feet above eave or cornice vents with the balance of the required ventilation provided by eave or cornice vents.; or 1/300 if 50% of vents are 3 ft. above eaves and the balance are at eaves.
   Exception: The minimum required net free ventilating area shall be 1/300 of the area of the space ventilated, provided a vapor retarder having a transmission rate not exceeding 1 perm in accordance with
   ASTM E 96 is installed on the warm side of the attic insulation and provided 50 percent of the required ventilation area provided by ventilators located in the upper portion of the space to be ventilated at least 3 feet above eave or cornice vents, with the balance of the required ventilation provided by eave or cornice vents. (2007 CBC Section 1203.2)
8. Under-floor vents: min 1.0 sq. ft. for each 150 sq. ft. of under-floor area. Cover opening with galvanized wire mesh with an opening size of ¼". (2007 CBC Section 1203.3, 1203.3.1 & Exceptions 1203.3.2).
9. Sliding glass doors shall be safety glass. (See 2007 CBC Section 2406.3) for other hazardous locations. Provide landings at all exterior doors.(2007 CBC 1008.1.5)
10. Fully tempered or laminated safety glass is required in bathtub and shower enclosure doors and panels, or walls where window sill height is less than 5 ft. above floor (2007 CBC Sec.2406.3).
11. Minimum room sizes (2007 CBC Section 1208.1 & 1208.3) :
    a) 70 sq. ft. for habitable rooms.
    b) minimum of 120 sq. ft. room in each dwelling.
    c) 7'- 0" min. width for habitable rooms other than kitchens
    d) Kitchens shall have a clear passageway of not less than 3 feet between counter fronts and appliances or counter fronts and walls.
    e) Kitchen shall not be less than 50 sq. ft in a one- and two-family dwelling unit.
12. Habitable space and corridors shall have minimum ceiling height of 7'- 6" min.. Bathrooms may have 7' ceiling heights, toilet rooms, kitchens, storage rooms and laundry rooms shall be permitted to have a ceiling height of not less than 7 feet. (2007 CBC Section 1208.2)

Conventional Light-Frame Construction – 2007 CBC Section 2308.2 and 2308.12

FOUNDATIONS & SLABS – 2007 CBC Section 1805 – **See Table 1805.4.2 for Conventional Framing**

13. Concrete: footings, slabs, and piers - 2500 psi min. (2007 CBC Section 1805.4.2.1 & 1808.2.23.2 Exception).
14. All footings design (CBC Section 1805)
15. **Conventional Residential Foundation Requirements**: (CBC Section 1805.4.2.1)

TABLE 1805.4.2 FOOTINGS SUPPORTING WALLS OF LIGHT-FRAME CONSTRUCTION
Maximum two stories for structures in Seismic Design Category D or E using Conventional Framing
See TABLE 1805.5(1) through 1808.5 (5) – For Thickness of Wall

NUMBER OF FLOORS SUPPORTED BY THE FOUNDATION	THICKNESS OF FOUNDATION WALL **(INCHES)** CONCRETE OR MASONRY	WIDTH OF FOOTING **(INCHES)**	THICKNESS OF FOOTING **(INCHES)**	DEPTH BELOW UNDISTURBED SOIL **(INCHES)** See CBC 1805.8 Expansive Soil May Require Larger Footing
1	71/2	12	6	12
2	71/2	15	6	12

NOTES: Where unusual conditions are found, such as expansive soil, footings and foundations shall be as required in section CBC Section 1805. The ground under the floor may be excavated to the elevation of the top of the footing. Foundation may support a roof in addition to the stipulated number of floors. Foundations supporting roofs only shall be as required for supporting one floor.

16. Footing at stud bearing walls shall have longitudinal reinforcement in accordance with CBC 1908.1.15 (c). Minimum 1 #4 rebar at the top and bottom of the footings. There are exceptions – refer to Section 1908.1.15 (c) exceptions 1-3

17. CBC Section 1910.1 minimum slab thickness shall not be less than 3 ½" with 6-mil polyethylene vapor retarder with joints lapped not less than 6" placed between the base course or sub-grade and concrete floor slab. See (CBC 1910.1 Exceptions)

18. Surface water shall be drained away from structure 5% slope for a minimum of 10 feet. (CBC 1803.2 See Exception for 2% slope.)

19. Site excavation and grading shall comply with (CBC Chapter 18 & 33).

20. Provide 18" X 24" foundation access within 20' of plumbing cleanouts (CBC 1209.1 & CPC 707.10))

21. Min. sill bolting: 5/8" with minimum 7" embedment anchor bolts at 4 ft. o.c. for one-story – **Buildings located in Concord are assigned to Seismic Design Category (SDC) D or E** (CBC 2308.12.9). Use 3" x 3" x 1/4" plate washers. (CBC 2308.12.8) The hole in the plate washer is permitted to be diagonally slotted with a width of up to 3/16" larger than the bolt diameter and a slot length not to exceed 1 3/4", provided a standard cut washer is placed between the plate washer and the nut. Locate end bolts not less than 4" not more than 12" from ends of sill.

SIDE 1

22. Tie new foundation to existing footings. Drilling and epoxy 2 rebar minimum 4" into existing concrete, rebar ties shall be minimum 24" long.

CLEARANCES AND TREATMENT FOR WOOD FRAMING

23. Pressure treated wood shall be used for (Sec. 2304.11):
    a) wood in contact with soil or embedded in concrete exposed to the weather.
    b) wood placed against concrete or masonry which is in contact with the soil.
    c) wood with clearances less than 18" under joist or 12" under girders.
    d) wood siding and earth on exterior less than 6"
    e) wood with less than ½" airspace on top, sides & end of members entering concrete or masonry.
    f) isolated posts surrounded by soil with base less than 8" above soil.
    g) posts over concrete subject to moisture with base less than 1" above slab or 6" above exposed soil.
    h) framing adjacent to concrete entries must also use 20 gage galvanized flashing.
    * Approved wood of natural resistance to decay can be substituted for b) through f) above.
24. Exposed structural glued-laminated timber shall be pressure treated (Sec. 2304.11.3)

FLOORS

25. Show floor joist size, grade, and spacing. Spans per Tables 2308.8 (1) & (2), or by calculations.
26. Typical girders in a 4' X 6' foundation grid for a one-story home (D.F. #2 Grade): for floor areas without bearing walls, use 4" X 6" with a span 6' or less. (CBC 2308.7) For Spans See Table 2308.95
27. Bearing partitions parallel to joists shall be supported on beams, girders, doubled joists, walls or other bearing partitions. (CBC 2308.8.4)
28. Bearing walls perpendicular to joists shall not be offset from supporting girders, on walls or partitions more than the joist depth unless such joists are of sufficient size to carry the additional load. (2007 CBC 2308.8.4)
29. Structural floor sheathing shall comply with the provisions of (CBC Section 2304.7.1) Tables 2304.7(1) 2304.7(2), 2304.7(3), 2304.7(4) Nail spacing for floor plywood - 6" o.c. at edges, 12" o.c. in field, unless closer nailing is specified. - Nailing/fasteners Table 2304.9.1 (CBC 2304.9)
30. Provide detail of connection of floor girder at foundation wall.
31. At floor openings, show double trimmer joist with hanger if over 6 ft. span, unless bearing on a beam, partition or wall. Tail joists over 12 feet long shall be supported at the header by framing anchors or on ledger strips not less than 2" x 2". (CBC Sec. 2308.8.3)
32. Solid block all joists at ends and supports or use other approved connection (Sec2308.8.2). Use double rim joists at parallel to joist span condition.
33. For bearing walls perpendicular to framing, use full depth solid blocking between supporting members under wall.

STAIRWAYS – 2008 CBC 1009.3 Exception – Group R2 & R3 occupancies

34. Rise is 4" minimum and 7 3/4" maximum; run 10" minimum; headroom 6' - 8" minimum; width 36" minimum. Variation between riser heights 3/8" maximum over entire length of stairs; Handrails shall be 34" to 38" measured above stair tread nosing. Guards are 42" minimum height and no sphere 4" or larger may pass through the openings. (CBC 1009.10; Section 1012 & Section 1013).
35. Fire blocking along run of stairs is not required. (CBC Section 717.2).
36. Enclosed usable space under interior stairs may have ½" gypsum board on enclosed side within R-2 & R3 occupancies. (CBC Section 1009.5.3 Exception)
37. Usable loft areas require an exit stair complying with (CBC Section 1009.3).

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DECKS

38. Guards are required if deck is over 30" above grade or floor. Height 42" min. and no sphere 4" or larger may pass through openings (CBC Section 1013.1).

39. Provide detail at junction of exterior decking, wall and interior floor framing. Show elevations, flashing and anchorage. (CBC 1604.8.3

40. Use concrete footings with anchors bolts for post over 30" in height.

41. Exterior deck support posts, 3 ft. tall or over, shall be cross braced in two perpendicular directions or anchorage for lateral forces shall be engineered and shown.

WALLS – Conventional Light-Frame Construction

42. Structural elements exceeding limitations of conventional construction, shall be designed. (2007 CBC 2308.4)

43. Seismic Design Category D or E, cripple stud walls shall be considered to be story. Exception: Solidly blocked cripple walls not exceeding 14" in height need not be considered as a story (CBC 2308.2 (1)).

44. Irregular structures in Seismic Category D or E shall not use conventional light-frame construction (they must be engineered. (CBC 2308.12.6)

45. Maximum stud height = 10'; Maximum floor framing (joist) depth= 16" (CBC 2308.2 (2)).

46. Braced Wall lines: Buildings shall be provided with exterior and interior braced wall lines. (CBC 2308.3.1 through 2308.3.4) Braced wall spacing for Category D or E shall not exceed 25 feet. (CBC Table 2308.12.4) – Minimum length of braced walls shall be per Table 2308.12.4 **Note: Gypsum Board sheathing not allowed by City of Concord Ordinance.**

47 Braced wall panel top and bottom plates shall be fastened to joists, rafters or full-depth blocking. Braced wall panels shall be extended and fastened to roof framing at intervals not to exceed 50 feet between parallel braced wall lines (CBC 2308.3.2)

48 Bottom plate shall be fastened to joist or blocking below with not less than 3-16d at 16"o.c. Blocking shall be nailed to top plate below with not less than 3-8d toe nails per block.(CBC 2308.3.2)

49 Joists parallel to top plates shall be nailed to the top plates with not less than 8d at 6"o.c. (CBC 2308.3.2)

50 Show stud size, height, grade and spacing. Specify double top plate with minimum 48" lap at splices and with not less than eight 16d face nails on each side of the joint. (CBC 2308.3.2)

51 Braced wall lines shall be supported by continuous footings. For structures with maximum plan dimension not over 50 feet, continuous footings are required only at exterior walls. (CBC 2308.3.4)

52 Where interior braced wall lines occur without a continuous foundation below, the length of parallel exterior cripple wall bracing shall be one and one-half times the lengths required by Table 2308.12.4. If sheathing is plywood/OSB, same length is ok, but reduce the edge nail spacing to 4"o.c. (CBC 2308.12.4 second paragraph)

53 Height-to-width ratio of all individual panels must not be greater than 2:1, i.e. any panel whose width is less than half the height must be ignored. (Footnote to Table 2308.12.4 – Note: This requirement was already in Chapter 23 of 1997 UBC, but not in the conventional construction section.

54 Braced wall lines on stepped footings (CBC 23011.3.1) Where height of a required braced wall panel varies more than 4 feet, the following applies: (a) Where minimum 8 feet long stretch of floor framing rests directly on sill plates which are anchored to a continuous footing, the line shall be considered to be braced. Provide blocks and shear transfer fasteners as required by other sections of the code. (b) Where the required braced panel occurs at lower level and top plates of the cripple wall are spliced to the sill plate of the upper level which are anchored to a minimum 8 feet long footing, the line wall be considered to be braced. Use minimum two 11/2"x4'-0"x16 gauge steel straps – one on each face of walls with 8-16 common nails on each side of the splice. If this condition is not met, bracing requirements for a story shall apply. (2007 CBC 2308.11.3.2)

55 When plywood/OSB is applied on both sides of a wall, only one-half the tabulated length of bracing is required, BUT design for uplift is required and h/w ratio must still not exceed 2:1. (Footnote to Table 2308.12.4)

56 Opening in horizontal diaphragms: Where opening dimension perpendicular to the joist is greater than 4 feet, provide the following details: (a) Provide steel straps not less than 1 1/2" wide x 16 Gauge thick with 8-16d common nails on each side of the header-joist intersection. (b) Provide blocking beyond headers (2007 CBC 2308.11.3.3)

57 Show on plans location, type and wall length of required bracing. Braced panels shall start not more than 8 feet from each end of a braced wall line. Maximum offset of panels in the same braced wall line shall be 4 feet. (CBC 2308.9.3)

58 Default nailing/fasteners per Table 2304.9.1 (CBC 2308.5)

ROOF – Conventional Light-Frame Construction

59 Show roof rafters and ceiling joists. Spans per Tables CBC 2308.8(1) thru (6). List size, spacing & grade of lumber.

60 Nail rafters with minimum 3-16d nails to adjacent parallel ceiling joists. Where not parallel, design and use ridge beam. (CBC Table 2304.9.1, Section 2308.10.4.1)

61 Blocking for rafters and ceiling joist shall be supported laterally to prevent rotation and lateral displacement. (CBC 2308.10.6)

62 Lateral support with depth-to-thickness ratio grater than or equal to 5:1 shall have 1 edge held in line for the entire span. Ratio greater than 7:1, there shall be 1 line of bridging for each 8 feet of span, unless both edges of the member are held in line. The bridging shall consist of not less than 1"x3" lumber, double nailed at each end, of equivalent metal bracing of equal rigidity, full-depth solid blocking or other approved means. A line of bridging shall also be required at supports where equivalent lateral support is not otherwise provided. (CBC 2308.8.5).

63 Open beam ceilings: Provide ridge beam that is designed adequately to span between the supports. Detail hanger or seat for beams.

64 Ridge, hips, and valleys require design as beams if roof slopes are under 3:12. (CBC 2308.10)

65 Show min. 20" X 30" access opening to attic (CBC 1209.2)). For mechanical attic access, use 22"X 30" opening min. or larger if equipment requires it (CBC 1201).

66 Trusses design drawings shall be reviewed and approved by the Building Department prior to installation (CBC 2303.4)

67 Plywood exposed to weather shall be approved for exterior use. Protected roof plywood shall have exterior glue rated "exposure I". Minimum nailing per 6" edge, 12" field. See plans for closer nail spacing. Edge nail plywood to blocking between rafters at exterior walls and at shear walls.

68 Provide adequate roof slope for drainage, minimum ¼ inch per foot, or submit deflection and ponding calculations (CBC 1507).

69 Wood shakes and shingles shall be fire-rated with an approved label and meet requirements of (CBC Sec. 1505 & 1507.8 & 1507.9). 6" max. opening for spaced roof sheathing (Table 1507.8). See State code and City ordinance for Class C & B roofs.

70 Provide rafter or truss design for tile roofs. Tile shall be installed as recommended by manufacturer and research report approval. CBC 1507.3.4)

71 Roof construction and covering shall comply with Chapter 15, 2007 CBC.

GARAGE AND CARPORT

72 Habitable space above garage is separated with 5/8" Type X Gypsum Board; Common wall between garage and dwelling (from floor to roof sheathing) shall have minimum 1/2" Type X gypsum board on garage side; with a 1-3/8" solid core (or 20 min rated), self-closing weather-stripped door to house (CBC Section 406.1.4 & Section 715.4.3).

73 Firewall separation between a carport (with no enclosed uses above) and dwelling is not required, provided that the carport is entirely open on two or more sides. (CBC Section 406.1.4.3)

74 Carport floor surfaces shall be noncombustible or asphalt pavement (CBC Section 406).

75 Standard 16 ft. garage door header Is 4" X 14" #1 or 6" X 12", except if roof is tiled or tributary roof framing span is over 24 ft., then calculations are needed (for roof load only). For floor loads, provide calculations.

76 No openings from garage into a sleeping area are allowed (CBC 406.1.4).

77 Appliances and receptacles installed in garage generating a glow, spark or flame shall be located 18" above floor. Provide protective barrier from cars as needed (CPC Section 508.14 & CMC 308).

78 A garage wall with a garage door opening in it and a second story above shall have calculations for lateral stability. Provide details of shear wall and hold downs.

WOOD FRAMING -- Shall comply with Chapters 16 and 23 of the California Building Code.

79 Do not install electrical panels larger than 100 sq. in. in fire walls. Never install electrical panels in closets. Place nothing within 36" of the front of panels.

80 Provide a minimum of one 20 Amp dedicated receptacle to be used as a laundry receptacle & for bathrooms. (CEC Section 210.52)

81 Kitchens, dining, breakfast rooms and pantry areas must have a minimum of two 20 Amp circuits. Kitchen counter outlets must be installed in every counter space 12" or wider, not greater than 4' o.c. and within 24" of the end of any counter space.(CEC Section 210.52 (B) & 210.52 (C).

82 GFIC outlets shall be installed in kitchens, bathrooms, under-floor spaces, exterior outlets with direct access to grade, and all garage outlets not dedicated to a single device or appliance. All dwellings must have at least one exterior outlet in front and back of the dwelling. (CEC Section 210.8 (A) 1-8)

83 AFCI protection is required for all bedroom electrical outlets. Receptacles must not be installed above baseboard heaters. (CEC Section 210.12 (B).

84 Receptacles must be installed at 12' o.c. maximum along walls and within 6' of door openings. Walls longer than 2 feet and halls 10 feet or longer must have a receptacle. (CEC Section 210.52 (A) 1, 2 & 3)

85 Bond all metal gas, hot and cold water pipes at hot water heater. A bonding wire from the grounding system to cold water line may be required. All ground/bond clamps must be accessible and approved type. A grounding rod may also be required. – (Concord Standard)

86 Furnaces installed in attics and crawl spaces shall have an access platform, light, switch and receptacle in the space. (CMC Section 904.11.7 & 931.0)

87 New dwellings must have 110V powered smoke detectors at every floor level, and in bedrooms and adjacent hallways. Older dwellings require smoke detectors, which may be battery operated, whenever permitted work exceeding $1,000 is done. (CBC Section 907.2.10.1.2 & 907.2.10.3 & 907.2.10.5)

MISCELLANEOUS

88 Provide pressure relief valve with drain to outside of building for water heater. Provide pan for all water heaters supported by wood construction. (CPC Section 505)

89 Water closet (toilet) shall be located in a space not less than 30" in width with 24" min. clearance in front. (CPC Section 407.6)

90 Showers shall be at least 1024 square inches in floor area, and have a minimum dimension of 30 inches. (CPC Section 411.6 & 411.7)

91 Showers and tubs with showers require a non-absorbent surface up to 70" above the drain inlet. Provide curtain rod or approved enclosure material. Shower doors shall be minimum 22" wide, with a 2" to 9" dam. (CPC Section 411.6)

92 Provide non-removable type backflow prevention device on all hose bibbs. (CPC Section 603.2.3)

93 Provide combustion air for all gas fired appliances. (CPC Section 507 & CMC 701.1 thru 701.8.3)

94 Gas water heaters are allowed in areas opening into bathrooms or bedrooms- must meet specific criteria. (CPC Section 501.1, 501.5 & 505.1)

95 Vent dryer to outside of building, not to under-floor area. Length shall not exceed 14 feet with two 90° elbows without special approval. (CMC Section 504.3.1 & 504.3.2.2)

96 Heating system is required to maintain 68 degrees at 3 ft. above floor in all habitable rooms. (CBC Section 1204.1)

97 Dwellings are to meet 2005 California Energy Commission (C.E.C.) standards. Provide compliance documentation and mandatory features. Air infiltration, insulation, space heating, space cooling, water heating, orientation, windows, etc., shall all comply with Title 24, 2005 C.E.C. standards.

98 Weather proofing of exterior surfaces above and below grade is required. (CBC Section 1408, 1404 & 1405)

99 Habitable space additions exceeding 500 square feet are subject to Mt. Diablo Unified School fees of $2.97 per square foot.

NOTE: THE PRECEDING IS ONLY A PARTIAL LIST OF ITEMS.
COMPLIANCE IS REQUIRED WITH THE FOLLOWING: