Plumbing General Notes

P1. All plumbing items are shown schematically, and installation shall be reviewed by the building inspector in the field.
P2. Provide at least 1 inch of R4 nominal insulation on all pipes up to 2 inch diameter and 1 ½" insulation on larger pipes. Isolate all piping with rubber grommets.
P3. All waste lines to be cast iron within structure. Plastic waste lines are acceptable below structure.
P4. All flues and vents penetrating the roof shall make transitions or bends so that they penetrate the back of the roof as far from the edge as feasible and do not extend beyond the peak of the roof. Terminations of all flues and vents shall be located required distances above and/or away from operable doors, windows, skylights (per 2001 CPC section 906) .
P5. All plumbing cleanouts shall be located within 20 feet of a crawlspace access point or will be run to the nearest outside wall. At all plumbing cleanouts provide an access panel to match finish of surrounding surface.
P6. Provide approved non-removable backflow prevention devices at all exterior hose bibs and lawn sprinkler/irrigation systems (per CPC Section 603.4) .
P7. If a pressure regulator or any device that prevents pressure relief through the building supply is installed, an expansion tank is required for the water tank (per 2001 CPC section 1007(c)) .
P8. Provide a temperature and pressure relief valve at each water heater with an approved drain to the exterior of the building that terminates not more than two feet nor less than six inches above ground as shown on the drawings. No part of the drain shall be trapped or subject to freezing and the end of the pipe shall not be threaded (per 2001 CPC Section 608.5)
P9. Provide seismic strapping at water heater storage tank (per 2001 CPC section 1310(E)) .
P10. All toilets to be low flow (1.6 gallons per flush) ; showerheads to be less than 2.5 gpm; and lavatory and kitchen faucets less than 2.2 gpm.
P11. All showers and shower/tub combinations shall be provided with individual control valves of the thermal mixing or pressure balancing type (per 2001 CPC section 420) .
P12. No dishwashing machine shall be directly connected to a drainage system or food disposer without the use of an approved air gap fitting on the discharge side of the dishwashing machine. Listed air gaps shall be installed with the flood level marking at or above flood level of sink or drainboard, whichever is higher (per UPC section 807.4)
P13. All water heater recirculating pipe shall be insulated.
P14. All water lines shall be copper UNO.
P15. Provide corrosion resistant watertight pans with approved drains under water heaters and washing machines.
P16. All building water supply systems in which quick-acting valves are installed shall be provided with devices to absorb water hammer (per UPC 609.10) .
P17. Provide trap seal protection for drains that are infrequently used, e.g. basement utility room (per UPC 1007)

Electrical General Notes

E1: All electrical items are shown schematically, and installation shall be reviewed by the building inspector in the field.
E2: The electrical system shall comply with the 2004 California Electrical Code.
E3: Electrical contractor shall develop rough wiring for all electrical elements shown on the drawings. Load data will be based on the diagrammatic plans and the fixture schedule.
E4: Contractor shall verify size of electrical panels and/or service and shall notify designer and owner if additional capacity and/or equipment are required.
E5: Contractor to supply all equipment such as sub panels, wiring, junction boxes, switches, outlets, recessed fixtures, etc. UNO.
E6: Minimum wire size shall be #12 AWG, excluding control wiring. All conductors shall be copper UNO.
E7: Provide electrical outlet and recessed fixture gaskets or caulk at all exterior walls and ceilings.
E8: Electrical contractor shall supply typewritten panel board directory at panel and circuiting to owner at completion of the job.
E9: Electrical contractor shall install all devices and light fixtures.
E10: All electrical equipment and devices shall be UL labeled.
E11: All exterior outlets and outlets in wet areas such as the bathrooms, kitchens, crawlspaces, and garages shall be protected by ground fault circuit interrupter (GFIC(per NEC Article 210-8(a)) .) .
E12: Smoke detectors shall be hardwired to 110V with battery backup and shall be interconnected. Smoke detectors shall be on their own dedicated circuit.
E13: All branch circuits that supply 125V single phase, 15 and 20 ampere receptacle and/or lighting outlets installed in dwelling unit bedrooms shall be protected by arc-fault circuit interrupters listed to provide protection of the entire circuit (NEC 210-12) .
E14: Grounding electrode system shall be concrete encased and shall be located at the main electrical panel.
E15: Metal water piping and other interior metal piping shall be bonded to the service equipment enclosure (per CEC 250-80(a) (b)) . The point of attachment to the bonding jumper shall be accessible.
E16: Light fixtures in closets shall be enclosed if incandescent type lamp is used. Fixture clearances shall conform to CEC 410-8.
E17: Light fixtures in tub or shower enclosures or other wet/damp locations shall be labeled as being suitable for damp locations.
E18: All recessed cans to be insulation contact (IC) and air tight (AT) rated.

General Mechanical / Plumbing / Electrical Notes

1. All work shall be done by qualified, licensed contractors in accordance with all state and local laws, codes, and ordinances; including the
2001 California Mechanical Code (2000 U.M.C. as adopted & amended by California)
2001 California Plumbing Code (2000 U.P.C. as adopted & amended by California)
2004 California Electrical Code (2002 N.E.C. as adopted & amended by California)
California State Title 24 Building Standards
California State Title 24 Energy Compliance Standards
2. All mechanical, plumbing, and electrical work shall be performed on a design/build basis.
3. General contractor shall pay all fees and coordinate the installation of all utilities with the appropriate utility companies and public agencies.
4. General contractor shall coordinate all work so as to ensure adequate clearances between all ductwork, piping, venting, electrical work, and framing.
5. Thermal and acoustical insulation, including facings such as vapor barriers or breather papers, installed within floor-ceiling assemblies, roof-ceiling assemblies, walls, partitions, crawlspaces, or attics, and insulation/covering on pipe and tubing shall have a flame spread rating of 25 or less and a smoke density rating of 450 or less and shall comply with all requirements of 2001 CBC sections 707, 1510, and 2502.
6. Piping and duct insulation shall be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind.
7. Gas appliances are shown schematically, and installation shall be reviewed by the building inspector in the field.

Mechanical General Notes

M1. All mechanical items are shown schematically, and installation shall be reviewed by the building inspector in the field.
M2. The Title 24 report on sheet T24 entitled "Energy Complicance Report", prepared by Wayne Seward of Bear Technologys, dated 8/2/06, including heat loss calculations, is part of the construction documents. All work must comply with the Title 24 report and all other applicable codes and ordinances.
M3. Provide clear space in front of all mechanical equipment per 2001 CMC.
M4. The house and guesthouse shall be heated with a hydronic radiant heat system. A high efficiency, wall-mount, on demand, direct vent boiler (NTI Trinity TI200C, Takagi TKD20, or equivalent) will provide heat for the system as well as for domestic hot water. The 12" concrete mat slab and retaining wall shall have 7/8" PEX tubing embedded at 12" o.c. The main and second floor shall have 3/8" & 1/2" PEX tubing embedded as part of the floor assembly (see sections on A3.1) . One programmable thermostat will be used to control each individual zone as shown on plans.
M5. A whole house fan (Tamarack HV1600R38 or equiv) will be mounted vertically at the top of the two story central hallway.
M6. The cooling and ventilation systems shall be installed on a design/build basis. Ducts and risers shall be sheet metal, unless noted otherwise. Flexible ducts to registers are acceptable provided that minimum 6" diameter flex is used, the length does not exceed 20 feet, and all connections are mechanically fastened and sealed with UL 181 tape. Provide isolation of ducts from walls and adjacent ductwork. Provide minimum R6 duct insulation.
M7. The house shall include a mechanical ventilation system for use in the heating season. A heat recovery ventilator (Broan Guardian HRV200H or equivalent) will draw exhaust air from grills (FanTech PGE6 or equivalent) in each bathroom, the kitchen, the laundry room, and from under the Kalwall skylight. Fresh outside air will be preheated in the heat recovery ventilator and will go through supply ducts to vents (FanTech CG6 or equivalent) in each bedroom, the family room, and the living room.
M8. The air conditioning system shall have a minimum SEER rating of 13 or EER rating of 8.9. The air handler is in the utility room and the suction line to the condenser shall have at least 0.75 inches insulation with a UV resistant coating. This system will use the ventilation supply ducts during the summer cooling season.
M9. All flues and vents penetrating the roof shall make transitions or bends so that they penetrate the back of the roof as far from the edge as feasible and do not extend beyond the peak of the roof. Terminations of all flues and vents shall be located required distances above and/or away from operable doors, windows, skylights (per 1997 UMC section 806) .
M10. In lieu of required exterior openings for natural ventilation in applicable habitable rooms, the mechanical system shall be capable of providing two air changes per hour and 15 cubic feet per minute of outside air per occupant (per 2001 CBC section 1203.3) .
M11. In lieu of required exterior openings for natural ventilation in applicable bathrooms, laundry, and similar rooms, a mechanical ventilation system connected directly to the outside capable of providing five (5) air changes per hour shall be provided. Such systems shall be directly connected to the outside, and the point of discharge shall be at least three feet from any opening that allows air entry into occupied portions of the building (per 1997 CBC section 1203.3) .
M12. All supply ducts shall be located within the floor/ceiling framing above or within a vertical chase, typ. UNO.
M13. All return ducts shall be located within the floor/ceiling framing above or within a vertical chase, typ. UNO.
M14. Dryer vent to be smooth metal duct with backdraft damper, 14 feet maximum with (2) 90 degree bends maximum.

Revisions

08/08/06	Submittal
09/15/06	Revision 1
DATE	DESCRIPTION

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Notes: Mech, Elec, Plumbing

A4.1