

SUGGESTED REINFORCEMENT & REPAIRS

SITWORK:

1. Notable cracks on asphalt driveway – For cracks 1/8 to 1/2 inch wide, use rubberized asphalt-emulsion crack filler, and for a very wide crack or pothole, shovel in and compact packaged cold-patch blacktop.
2. Notable cracks on concrete driveway – For cracks up to 3/8 inch wide, use ceramic tile grouting compound and for cracks up to 1/2 inch wide use rubberized asphalt-emulsion crack filler. For heavier traffic concrete cracks, construction joints and expansion joints, use impact resistant flexible epoxy resin.
3. Deteriorating asphalt pavement – Resurface the asphalt pavement with premixed asphalt or at least with thin asphalt emulsion driveway sealer containing mineral grit to prevent further deterioration.
4. Soil erosion – Planting ground covers on slopes or bare areas helps control erosion and runoff because plant roots hold the soil in place, and the leaves protect the soil from the impact of raindrops, reducing soil compaction, and improving the speed with which water soaks into the ground.
5. Drainage system for hillside – Terracing and the associated concrete drainage devices such as terrace drains, down drains, and interceptor drains is recommended at hill sides. An open V-swale concrete gutter shall be constructed and conveyed to public street.
6. Oak tree ordinance – Under the Los Angeles County Ordinance, a person shall not cut, destroy, remove, relocate, inflict damage, or encroach into the protected zone of any tree of the oak tree genus, which is 8" or more in diameter four and one-half feet above mean natural grade or in the case of oaks with multiple trunks a combined diameter of twelve inches or more of the two largest trunks, without first obtaining a permit. Damage includes but is not limited to burning, trenching, excavating, paving, application of toxic substances, pruning or cutting, operation of machinery or equipment, and changing the natural grade.
7. Tree Safe Distances from any houses:
Willow -59'; Poplar -66'; Oak 60'; Elm -63'; Horse Chestnut -48'; Ash -33'; Maple 30'-40' (depending on species); Cyprus -8'; Lime 36'; Beech -30'; Plane -33'; Robinia -28'; Birch – 13'; Cherry -10'; Rowan -16'

STRUCTURE:

1. Alteration of wall foundation – Breaking the wall foundation to accommodate the plumbing or to provide crawlspace access opening could greatly affect the design of the foundation to support vertical and horizontal forces and to form as structural diaphragm.
2. Strengthening of structure – Building in seismic or hurricane prone areas may require T-straps, post caps, and anchor bolts wherever beams, floor joists and posts meet or contact the foundation. They may also require plywood shear panels on cripple walls, and hurricane ties, floor to floor angle iron and all thread hold-downs, and extra long anchor bolts at the foundation. Framing clips and hurricane ties can reinforce the connection between rafters, top plate, and rim joists or frieze blocks. Posts of old houses shall be provided with knee braces against beams at a slope not less than 45 degrees from the horizontal.

3. Racking/shearing reinforcement – Racking/shearing may be resisted by installation of plywood shear panels at walls including reinforcement of cripple walls, T-straps, post caps, joists to plate ties and anchor bolts wherever beams, floor joists and posts meet the foundation, and they may also require floor to floor angle iron and all thread hold-downs, and extra long anchor bolts at the foundation. Cripple walls can be reinforced by anchor bolting of sill plates at every 6 feet on center, installation of metal connectors at structural joints, and installation with 15/32 5-ply plywood or OSB sheathing.
4. Horizontal movement of floor joists and beams – Horizontal movement of floor joists and beams can be minimized by installing Simpson metal connectors on connections between post and beam, wherever beams, floor joists meet or contact with foundation plates, and diagonal braces on 2 feet and longer posts against the beam it is connected and diagonal braces on undersized beams against its posts and bearing wall.
5. Simpson connectors for wood retrofitting – Bolting of sill plate to the foundation – UFP10-SDS3; Foundation to joist or stud – FSA/ FJA; Bearing wall holdown – HDU/ PHD/ HHDQ; Masonry to floor or roof structure– $\frac{3}{4}$ " \varnothing Rod with RP6 plate; Tie between floors– HD/ HAD; Post to beam– LCE4/ ACE/ T & L Strap ties/ RTT; Joist to beam hangers– LU/ U/ HU/ HUCQ/ LUS/ HUS; Rafter to top plate– FSA/ H Seismic & Hurricane ties; Floor joists to foundation plate– H seismic & hurricane ties; Perpendicular connections– A/ L/ LS/ GA/ reinforcing angles & Z clips; Post & beam braces– RCBZ
6. Installing the Universal Foundation Plate (UFP) – The mudsill or foundation plate can be anchored to the foundation with Universal Foundation Plate (UFP). The UFP is a retrofit foundation plate that allows the mudsill to be anchored to the foundation from the side where minimal vertical clearance exists. Foundation plate Model UFP10 is fastened to the mudsill with five Simpson SDS $\frac{1}{4}$ x 3 screws and anchored to foundation with two $\frac{1}{2}$ in. \varnothing by 5 in. Titen HD® screw anchors in hole depth in foundation of $4\frac{1}{4}$ in. Foundation plate spacing shall be 6 ft. on center (o.c.).
7. Retrofit of house WITHOUT cripple walls– Install Simpson UFP10 Foundation Plates with Simpson SDS $\frac{1}{4}$ x 3 screws to mudsill and $\frac{1}{2}$ in. by 5 in. Titen HD® screw anchors to foundation every 6 feet, Simpson A35 Shear Angles with 12 - 8d x $1\frac{1}{2}$ in. nails at the corner between the top plate and the rim joist or blocking every 16 inches, and Simpson AC Post Caps with 8- 16d Nails at post and 12- 16d Nails at beam.
8. Retrofit of house WITH cripple walls < 3 feet tall Mudsill & Studs Same Width – Install $\frac{1}{2}$ in. thick plywood or OSB with 8d common nails every 4 inches on center (o.c.) into the studs at the edges of the panel and every 12 inches o.c. into the studs, Simpson UFP10 Foundation Plates with Simpson SDS $\frac{1}{4}$ x 3 screws to mudsill and $\frac{1}{2}$ in. by 5 in. Titen HD® screw anchors to foundation every 6 feet, Simpson A35 Shear Angles with 12 - 8d x $1\frac{1}{2}$ in. nails at the corner between the top plate and the rim joist or blocking every 16 inches, and Simpson AC Post Caps with 8- 16d Nails at post and 12- 16d Nails at beam.
9. Retrofit of house WITH cripple walls < 3 feet tall Mudsill wider than Studs – Install 2x blocking equal in width to existing studs with 4 - 10d nails per block, $\frac{1}{2}$ in. thick plywood or OSB with 8d common nails every 4 inches on center (o.c.) into the studs at the edges of the panel and every 12 inches o.c. into the studs, Simpson UFP10 Foundation Plates with Simpson SDS $\frac{1}{4}$ x 3 screws to mudsill and $\frac{1}{2}$ in. by 5 in. Titen HD® screw anchors to foundation every 6 feet, Simpson A35 Shear Angles with 12 - 8d x $1\frac{1}{2}$ in. nails at the corner between the top plate and the rim joist or blocking every 16 inches, and Simpson AC Post Caps with 8- 16d Nails at post and 12- 16d Nails at beam.

10. Retrofit of house WITH cripple walls > 3 feet tall Mud sill & Studs Same Width – Install Titen THD62600H screw anchor (5/8" x 6") and 2 in. by 2 in. by 3/8 in. thick steel plate washer every 6 feet o.c., 1/2 in. thick plywood or OSB with 8d common nails every 4 inches on center (o.c.) into the studs at the edges of the panel and every 12 inches o.c. into the studs, Simpson UFP10 Foundation Plates with Simpson SDS 1/4 x 3 screws to mudsill and 1/2 in. by 5 in. Titen HD® screw anchors to foundation every 6 feet, Simpson A35 Shear Angles with 12 - 8d x 1 1/2 in. nails at the corner between the top plate and the rim joist or blocking every 16 inches, and Simpson AC Post Caps with 8- 16d Nails at post and 12- 16d Nails at beam.
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12. Major cracks at wall foundation – Vertical cracks in poured concrete foundations not exceeding 3/16" that do not leak water are acceptable. Major cracks can be repaired with industrial strength epoxy or urethane low pressure injection system.
13. Altered/cut stem wall foundation – Stem wall and footing is designed as inverted T-beam in which the stem wall carries compression loads and the footing carries the tension loads. If part of stem wall is removed, the footing will crack. Buildings with underfloor access opening, the foundation shall be designed as step-like foundation so that it can carry the building load continuously.
14. Cripple walls reinforcement – Seismic rehabilitation of cripple walls may include anchor bolting of sill plates, installing metal connectors at structural joints, and providing with 15/32 5-ply plywood or OSB sheathing. Adhesive or expansion anchors shall be 1/2-inch minimum diameter spaced at six feet maximum center to center for one story. Adhesive or expansion anchors shall be 1/2-inch minimum diameter spaced at four feet maximum center to center; or 5/8 inch spaced at six feet maximum center to center for two story. All wood structural panels shall be nailed with 8d common nails spaced four inches on center at all edges and at 12 inches on center at each intermediate support with not less than two nails for each stud.
15. Unreinforced masonry bearing wall and foundation – sliding between the walls and the floor and roof systems, bending wall sections, and inadequate connections between the walls and the roof/floor systems are noted. Complete replacement with reinforced concrete bearing walls and foundations or major mitigation measures for reduction in future damage is recommended. The following five mitigation process is recommended:
 1. Installing shear anchors between the walls, and the roof and floor systems, prevents sliding between the walls and floors. A typical shear anchor is connected through the floor joists using a steel plate on one end, while the other end is secured into the wall using drypack or epoxy grout.
 2. Strengthened in-place using shotcrete, also known as gunite, which is concrete sprayed in place. Shotcrete is applied directly to the existing walls and secured using epoxy anchors. Shotcrete is reinforced with steel and supported by either a new foundation or by underpinning and enlarging the wall foundation.

3. Walls can be strengthened in-place using fiberglass or carbon fiber sheets. The fiber sheeting is secured to the exterior walls using a chemical adhesive and protected with a weather-resistant barrier or other exterior finish.
4. Crosswalls can be added to act as dampers, absorbing energy and limiting displacements from ground motion. Unlike shear walls, crosswalls are designed to tie two diaphragms together, and thus partitions that are not necessarily lined up above one another can qualify as crosswalls.
5. Tying the walls to the roof and floor systems using tension ties can strengthen these buildings. Tension ties limit wall deflections by tying them to the floor system, thereby reducing the likelihood of damage or building failure.
6. Roof truss is more rigid than rafter or stick framing as it is specifically designed, engineered and fabricated at the factory against common forces that the structure is exposed to, such as compression, tension, torsion, bending, and shear. Truss also can span longer distances and eliminate the need for inside load bearing walls.
16. Poor mortar joints– Poor mortar joints must be tuck pointed (or parged with stucco like coating). If mortar is collapsing or crumbling throughout the wall, rebuilding may be necessary.
17. Room addition & alteration – Inquire for the certificate of occupancy from the seller or from your local building & safety officials– see General recommendation D above.
18. Missing bearing wall/ posts – Replacement of the missing bearing wall/ posts as per Type V residential construction standard by a qualified contractor is recommended; or inquire for Certificate of Occupancy from the seller or Building and Safety office.
19. Notable structural racking of walls –Rectification could include the installation of T-straps, post caps, and anchor bolts wherever beams, floor joists and posts meet the foundation, and they may also require hurricane ties, floor to floor angle iron and all thread hold-downs, and extra long anchor bolts at the foundation.
20. Notable cracks (1/16") at new building stucco – Notable cracks (1/16") at relatively new building stucco could be the result of one of the following reasons: Tyvek wrap or metal lath not adequately secured to the plywood/OSB sheathing, sheathing not secured to the studs properly, inadequate sheathing expansion joint spacing, inadequate braced framing, too much water to the stucco mixture, inadequate curing of brown coat stucco before applying the finish coat, and lumber with high moisture content. The forensic experts say if the home is relatively new or under warranty, you should press the builder for repairs. A flexible finish coat or painting with elastomeric paint could possibly cure the cracks. Check your state's building codes for laws that protect you for much longer than a builder's typical one-year warranty.
21. Notable differential settlement/ uplifting of the wall foundation/ piers– Rectification could include the repair of cracks at wall foundations, replacement of displaced piers with wider reinforced concrete footing and re-leveling of floors.
22. Notable cracks on concrete slabs – Major cracks can be repaired with industrial strength epoxy or urethane low pressure injection system to prevent further splitting of floor and radon gas infiltration if effectively done by a qualified contractor.
23. Notable cracks on block fence, flatwork, driveway, garage floor & foundation– Seal cracks with approved crack sealant to prevent damage due to water intrusion and uplifting from expansive soil, and keep an eye on the subject– if it gets worse, repair with epoxy injection system is recommended.

24. Cripple walls – Seismic rehabilitation of cripple walls that may include extra long anchor bolts at sill plates spaced a maximum of 6 feet on center, floor to floor angle iron and all thread hold-downs at every corner of the foundation, metal connectors at each structural joints, and installation with 15/32 5-ply plywood or OSB sheathing fasten with 2 ½ inch nails at every 4 inches is recommended.
25. Mud jacking – Mud jacking is a process that raises sunken concrete back to its original level. This unique process will restore sunken or uneven concrete slabs close to their original grade and alignment with surrounding concrete slabs. Mud jacking is a common repair method that has been used for many years.
26. Reinforcing wood beams with steel – A flitch plate beam consists of a steel plate sandwiched between two pieces of equal size lumber. The beam derives most of its strength and rigidity from the steel plate, and the lumber sides provide bracing to prevent buckling of the steel. The components are joined with hardened nails in the lighter members and with bolts in heavy plate members. The basic fastener spacing applies to the top edge and double at bottom edge. For wood beams with 1/8" to 1/2" thick plate, shall be held together with 1/2" American Standard Regular bolts and nuts at 5" O.C., 2" from the edges.
27. Splitting beam– Thick beam too often has a moist interior. As the outer part dries it is prevented from shrinking by the wet interior, which is still at its greatest volume. Later when the inner part dries, it tends to shrink away from the hardened outer shell, so that the inner fibres are now strained in tension and the outer fibres are in compression. If the stress exceeds the cohesion, numerous cracks open up, producing a "honey-combed" condition, or "hollow-horning," as it is called.
28. Splitting beam condition– Narrow splitting or checking along the grain is normal (green timbers check as they dry), and you may have shear resistance issues. If the beam split all the way through, you'd have a much less stiff member, however, if 50% of the beam still at the neutral axis, you still have the full beam section.

EXTERIOR:

1. Cracking of new stucco – As stucco cures some of the water it contains evaporates. This causes the stucco to shrink slightly. As it shrinks, small cracks called "check cracking" might appear. Applying stucco finishes in hot, dry weather could contribute to check cracking in stucco. During periods of hot dry weather conditions, a light spray (mist) of clean water is recommended over the stucco finish. Some check cracking in stucco is normal.
2. Efflorescence – Efflorescence or alkali consists of salts leached from cement-based materials when exposed to excessive, saturating moisture. It appears as a whitish powdery "bloom" on the surface of the wall. A wash down with white vinegar or another approved dilute acid solution, followed by a thorough flush with clear water will usually remove efflorescence. Taking care to direct sprinklers, irrigation systems or other sources of water away from stucco walls will help prevent it.
3. How to repair stucco cracks – If the cracks are no more than about three-eighths-inch wide, you can seal them with a high-quality acrylic-latex caulk (paintable). You can add some stucco-like texture by squeezing some of the caulk into a paper cup or can and mixing a little clean sand into it. Press the caulk into the crack with a putty knife and clean up excess with a wet rag. Paint the caulk with latex paint (primer and top coat) that blends reasonably well with your stucco. A special stucco-repair caulk is also available from Quikrete. This comes in a toothpaste-type tube and can be used to patch cracks up to 1/2-inch wide. This caulk contains some sand to add texture and can also be painted with a latex paint.

4. How to install stucco siding– Asphalt-saturated felt, weighing not less than 14 pounds per 100 square feet or other approved weather-resistant material shall be applied over studs or sheathing of all exterior walls. All lath and lath attachments shall be of corrosion-resistant materials, expanded metal or woven wire lath attached with 1 ½ -inch-long, 11 gage nails having a 7 /16-inch head, or 7/8-inch-long, 16 gage staples, spaced at no more than 6 inches. Plastering with portland cement plaster shall be not less than three coats when applied over metal lath or wire lath.
5. How to repair wood splits– If the splits are no more than about three-eighths-inch wide, you can seal them with a high-quality acrylic-latex caulk (paintable). Press the caulk into the crack with a putty knife and clean up excess with a wet rag. Paint the caulking with latex paint (primer and top coat) that blends reasonably well with your wood.
6. How to repair exterior rotten wood – If rot or damage on exterior wood does not affect the cross section by about 25% from the edge and 40% in the middle of structural component and 40% from the edge and 60% in the middle of non-structural component, the damage can be repaired with epoxy wood filler designed for rotted wood. If the damage is too extensive for filling, you can cut it out and slip in a replacement piece of pressure-treated wood or red wood. All decayed or loose wood should be vacuumed out.
7. How to repair plaster and drywall cracks – Drywall paper tape provides the strength to bridge the crack and keep it from reopening. Treat each crack like a drywall joint. Tape, two coats topping, sand tool marks and edges, and texture back in to match.
8. How to waterproof basement walls – The wall surface that is facing against the water must be in good condition, clean, dry, and free of moss and loose material. Apply two to four coats of liquid rubberized elastomeric by brush, roller or sprayer.

ROOFING/ WATER PROOFING:

1. Water Ponding – Water ponding can enhance leakage and shorten the life expectancy of roofing material. Repair water ponding with Elastek #505 Puddle Plaster™. It is a thick, paste-like, black reinforced coating containing plasticized-asphalt emulsion, fiberglass, and a thick, lightweight filler. Puddle Plaster is designed for use as a non-permanent means of reducing the depth of roof depressions thereby reducing the potential for ponding water.
2. Built-up roof repair – Hot-mop or cold-applied polymer-modified coal tar membrane or two coats of 30 dry mils of elastomeric roof coating shall be applied on the entire built up. Before coating however, the roof gravel shall be removed, the roof washed and primed.
3. Metal and modified bitumen roof repair – Coat the entire metal roof with two coats of 30 dry mils of elastomeric roof coating. Before coating however, the roof shall be washed and primed. Elastomeric coatings usually contain polymeric materials, such as acrylic, and a white pigment, such as titanium dioxide, to make them opaque and reflective. Elastomeric coatings are very effective in solving roof leaks and can be used to restore virtually all types of roofs.
4. Tree branches on roof – Trim tree branches that are within 3 feet from the roof to prevent damage to the roof assembly.
5. Balcony/ Porch/ Landing – Apply two to four coats of waterproofing membranes and liquid rubberized elastomeric by brush, roller or sprayer incorporating flint aggregate to provide a weatherproof, slip resistant coating.
6. New roof covering connection with old roof covering – The underlayment of the newer roof shall have continuity and adequate overlap from the underlayment of the existing roof to prevent leak.
7. Rain gutters and downspouts – Provide typical size of downspouts every 30 to 40 feet of rain gutters with maximum of two 45 degree bends and one 90 degree bend.

8. Moss, algae or lichens—Moss or lichens growing on a roof surface will hold moisture on the roof longer than other areas, these growths can reduce the life of the roof covering. Particularly where the roofing materials are asphalt shingles or wood shingles, holding water on the roof surface by any means (leaves, debris, moss, or lichens) speeds up wear on these shingles. Scrub off moss, algae or lichens from roof and spray with biodegradable roof algae cleaner that has no chlorine bleach, solvents and phenols

PLUMBING:

1. Corrosion (pinhole leaks) on valves – Powdery white substance (zinc oxide) and/or mineral stains on the exterior surface of the brass fitting or valve are indications that zinc is leaching from brass corroding the metal. This corrosion process is known as dezincification, and it causes two main problems. First, the zinc builds up inside the walls of the fitting which decreases water flow and eventually causes a blockage. Second, the porous copper-rich structure that is left behind has little mechanical strength and is prone to seepage and breakage. Dezincification occurs when the water contains high levels of chlorine, chloride ion, oxygen and carbon dioxide, when the water is high in mineral content (hard water), when water is stagnant or slow moving, when slightly acidic water is low in salt content, and when neutral or alkaline water is high in salt content.
2. Gurgling sound from drain pipes— Gurgling sound at a sink when draining is the result of inadequate drain-vent system, or blocked vent or the vent is located too far from the “P” trap.
3. Foul smell— Foul odor coming from the drain is created by decomposing materials and methane gas in the sewer line that passes through an empty drain “P” traps or from improper plumbing vent pipe connection. If the odor does not go away after filling up the traps, the problem could be from the plumbing vent pipe that is clogged or has leaky joints.
4. Water hammering – Water hammering can be caused by loose pipes, improper water pressure or both. Loose pipes can be remedied by securing them to a wall with pipe clamps. If the noise persists, you'll need to install a water hammer arrester to stop the racket. The eliminator works like an air chamber or shock absorber and is added inline to the plumbing system.
5. Drain slip joint –The seal between the two pipes is made by the washer and the pressure of the nut. The pressure of the nut on the washer compresses it enough to make a tight seal at the point where the larger pipe meets the smaller pipe. Difficulties with achieving a poor seal and having a leak often occur with cheap, thin plastic drain kits. Deformation of one of the pipes changes it from a circle to a slightly oval shape. A good pressure seal is no longer possible and the joint leaks.
6. Bathtub pop-up drain stopper –Adjust the way the stopper seats either by adjusting the length of the striker rod or by adjusting the rocker arm.
7. Water heater gurgling sound—A gurgling noise when the burner is on, is a sign of sediment buildup which can damage your water heater. To keep lime deposits and sediment from building up in your water heater, starting when it's new, every month drain several pails of water from the drain valve near the bottom of the water heater.
8. Minimum height of gas vent pipe against roof pitch: Flat to 7/12 –1'; Over 7/12 to 8/12 – 1.5'; Over 8/12 to 9/12 –2'; Over 9/12 to 10/12 –2.5'; Over 10/12 to 11/12 –3.25'; Over 11/12 to 12/12 –4'; Over 12/12 to 14/12 –5'; Over 14/12 to 16/12 –6'; Over 16/12 to 18/12 –7'; Over 18/12 TO 20/12 –7.5'; Over 20/12 TO 21/12 –8'

9. Recirculation Pump– Hot water recirculation systems deliver hot water to fixtures quickly without waiting for the water to get hot. Rather than relying on low water pressure common in most water lines, recirculating systems use a pump to rapidly move water from a water heater to the fixtures. In this system, a recirculating pump rapidly pulls hot water from a water heater while simultaneously sending cooled-off water from the hot water lines back to the water heater to be reheated. In addition to having the convenience of hot water on-demand, the system conserves water and can save energy.

ELECTRICAL:

1. FPE “Stab-Lok”, Zinsco and Bulldog push-o-matic brand panel boards and circuit breakers– If the panel board is FPE “Stab-Lok”/ Zinsco / Bulldog push-o-matic brand, invasive physical examination of the panel board such as testing individual breakers by a qualified electrician is recommended– see Safety Information above.
2. Aluminum wiring at general 120-volt circuits – Connections of switches and receptacles must be checked by licensed electrician. If trouble signals are present and if it is necessary to replace switches and receptacle outlets, only devices designed specifically for use with aluminum wiring should be used. Proper installation of CO/ALR device is critical and that the work should only be performed by qualified electrician familiar with techniques of using aluminum wirings.

HEATING & COOLING

1. Cooling System air-flow too low– In humid climates where removing humidity from the interior air is an important function, the best system efficiency may occur where the air flow is between 350 and 400 cfm/ton. In dry climates where little dehumidification is needed, the best system efficiency may occur when the air flow is between 400 and 450 cfm/ton. Before indoor coil air flow measurements are performed, the duct system should be inspected and tested to ensure that leaks are minimized.
2. Airconditioning system not cooling properly– Temperature difference at the supply-air register and return air grill is high– recommend servicing the system and checking refrigerant level.
3. Evaporative coolers – Evaporative coolers (also called swamp coolers, desert coolers, or air coolers) are devices that cool air through the simple evaporation of water, and is especially well suited for climates where the air is hot and humidity is low. Evaporative coolers have a low first cost, use a lot less electricity than conventional air conditioners. Unlike air conditioned rooms, windows or ceiling vents need to be open when an evaporative cooling system is operating so fresh air that is added to the home shall also exits from the home.
4. Burner flame roll out– Burner flame rolling out of its heat shield is the cause of under or over firing, blocked vent pipe, or inadequate secondary air supply.
5. Solid yellow burner flames tips – Natural Gas should have soft blue flame with a very minimum amount of yellow tips on the top of the flame. Too much yellow tips would mean there is not enough primary air or a combination of some other problems where a simple adjustment can be made to correct.
6. Backdrafting cause– Backdrafting is an outside air that enters the house through the vent which could push hot combustion gases (carbon monoxide) back into the house instead of flowing up the vent due to depressurization of the house.

7. Backdrafting solution—Anything that moves air out of a house and depressurizes the house can cause downdrafting. Some ways to reduce depressurization include sealing holes in the upper portion of the house and increasing air leakage in the lower levels; adding combustion air and make-up air openings; shutting off exhaust fans; sealing return ducts in the basement; closing return registers in the basement; opening supply registers in the basement; opening doors between rooms; and closing fireplace dampers.
8. Hard starting compressor – A "hard starting" compressor may frequently trip the circuit breaker (or blowing the fuse) which protects its circuit. Abnormally low line voltage, bad air conditioner starting capacitor, tight or seized-air-conditioner motors, and in any case the compressor is probably near the end of its life.
9. Slow condenser fan – Abnormally slow condenser fan could be the result of bad high pressure switch or capacitor.
10. Roof mounted condenser unit – The condensing units on the roof shall be mounted on rubber pads or restrained spring isolators with a minimum deflection. The rubber pads or restrained spring isolators shall be installed between the condensing unit legs or frame and the roof mounting assembly to reduce noise vibration. Vibration isolators can be a maximum of 10 inches long.
11. Metal rattling – Air conditioner compressor noise could be due simply to loose hardware such as a loose shipping bolt, tubing, or a broken spring. Sometimes a shipping bolt may have been left in the unit and could be the source of a rattle. Loose refrigerant tubing or a bend in tubing that carries it too close to the air conditioner frame or case can lead to rattling that is easily corrected with a careful bend.
12. Floor radiant – Electric elements are embedded in or below the concrete depending on the application and desired outcome, or electric elements are embedded in a mud bed, poured gypsum underlayment or thinset material, or electric elements are applied to the underside of the subfloor in the joist space. Watt Density for Floors; the standard watt density for residential floor heating is 8-12 watts per square foot (27-40 Btus/sq ft). Consider the power of 10 square feet of heated floor is equal to approximately a single 100-watt light bulb.
13. Walls radiant –Surface mount - manufactured panels are mounted to the wall.
14. Ceilings radiant – Pre-manufactured panels are attached to the surface of the ceiling, or panels may be suspended from the ceiling in various ways, or electric elements are either mounted behind the ceiling gypsum board, sandwiched between gypsum board or may be mounted to the gypsum board and plastered over. Watt Density for Ceilings; ceiling radiant systems typically run warmer surface temperatures than floors and the installed wattage ranges from approximately 15 watts per square foot of panel area for embedded or concealed systems to a range of 50 to 125 watts per square foot for visible, insulated ceiling panels.
15. How airconditioning works – The compressor compresses cool Freon gas, causing it to become hot. This hot gas runs through a set of coils so it can dissipate its heat, and it condenses into a liquid. The Freon liquid runs through an expansion valve, and in the process it evaporates to become cold, low-pressure Freon gas. This cold gas runs through a set of coils that allow the gas to absorb heat and cool down the air inside the building.
16. **COMMON GAS FURNACE PROBLEMS**
 - a. When a gas furnace fails to produce sufficient heat, or produces no heat at all, the problem is usually the result of a closed control valve, a faulty circuit or fuse, an incorrectly set or non-working thermostat, or a pilot light that is out.

- b. The temperature or amount of heat is inadequate. Both problems can occur if the blower is blocked or the blower belt is damaged or loose, the burner or filter is too dirty, or the setting on the thermostat is too low. Simply raise the temperature setting in the last case and either clean or restore the appropriate part in the previous cases.
- c. The furnace can switch on and off too frequently when the blower is clogged, the filter is dirty, the motor or blower is overly dry, or a problematic thermostat heat anticipator.
- d. Unusually high burner flame, flame was floating above the burner ports, making a popping noise when turned off and on, burning at the orifice, and spilling out of the burner area. Possible causes include high gas pressure, clogged flue, inadequate air supply, excessive or very cold drafts.
- e. Pilots that won't light are commonly the result of a clogged pilot opening or no gas due to a closed or insufficiently open valve. Clear the blockage in the first case and adjust the gas valve in the second. Then try to light the pilot flame again.
If the pilot won't stay lit, check to ensure the pilot flame isn't set too low, the thermocouple nut isn't loose, or the thermocouple itself isn't damaged. Set the pilot flame to at least 2 inches if it is set too low. Tighten the nut if it is loose. Or replace the entire thermocouple if it is damaged. Occasionally, a defective pilot can be the culprit if the furnace uses the electronic kind, in which case a professional will need to make repairs.
- f. If the fan is not running, check the breaker, fuse, and/or the switch for the furnace. If the breaker was tripped, leave it off and check the furnace wiring for loose connections. Also, you should look for burn spots on the control board and replace the board if spots are found. After any necessary repairs, the breaker can be reset. If the breaker or fuse was not tripped, the problem could be the transformer, thermostat, furnace control board, the blower motor, or it's run capacitor. If you have a condensate pump, ensure that it's reservoir is not full. On most units there is a float switch that will stop the furnace from running if the reservoir is full. If the reservoir is full, then check the power to the unit and replace the pump as required.
After the blower motor is running, the fan can be placed back in the automatic mode at the thermostat.
- g. If the furnace uses a standing pilot, ensure that it is lit and the flame is touching the tip of the thermocouple. If the pilot is lit but the main burners do not come on, you should feel the side of the furnace. If the side of the furnace is cool, the problem could be the thermostat, furnace control board, limit control, or the gas valve.
- h. If the furnace inducer motor not is running, the inducer motor or the furnace control board could be the problem.
- i. If the inducer motor is running, but the electronic ignition pilot does not ignite, the flue could be blocked, the furnace control board could be bad, or the limit control could be the problem.
- j. If the pilot tries to light but goes out, the pilot assembly or flame sensor could be dirty. If the furnace doesn't use a pilot and the ignitor does not come on, the ignitor may need replacement or the furnace control board could be bad.
- k. If the pilot or ignitor is on and the main burners do not light, the gas supply could be off, but if the gas is on , the problem could be the gas valve or furnace control board.
- l. If the burners come on but do not stay on for more than about 3 seconds, the flame sensor could be dirty or the furnace control board could be bad. On condensing furnaces, if the burners come on for longer than 5 seconds but turn off before the thermostat is satisfied, the condensate drain could be plugged. Most of these units have a built in trap and sediment can build up in it. This can cause the furnace to operate abnormally.

- m. If the burners stay lit and the blower motor does not start after a delay of from one to three minutes, the problem could be it's run capacitor or the motor.
 - n. The fan normally run for about 2-3 minutes after the burner shuts off. If the fan does not shut off after the time delay, then the fan/limit control (on older units) may be sticking and require replacement.
17. How to maintain the evaporative cooler – Correct evaporative cooler maintenance will make the coolers last longer and work more efficiently. To maintain the air cooler perfectly, you should clean and disinfect the cooler in every six months. To ensure good flow of air into the room, you should prevent the build-up of sediments, fungus and algae inside the air cooler by using water softeners. Make sure that you specially clean the filter pads and the basin present inside the air coolers. There are windblown dust and pollens that get accumulated in the basin, creating sludge and blocking the pumps, water distribution system and the filter pads. So the interiors of the air cooler should be cleaned at regular intervals.

BATHROOMS:

1. Loose toilet – Loose toilet can be unsanitary and possibly unsafe. The toilet can be loose
Faucet hot and cold reversed – Switching the hot and cold sides on your faucet whether in your kitchen or bathroom is actually pretty simple. If the faucet has just one handle or knob it might be a cartridge type that has a single metal or plastic cylinder in the middle of the faucet body. A movable stem with holes going through it sits inside this cartridge. When the stem gets moved (controlled by the handle or knob), its holes align with holes in the cartridge. As they align, water is let through; usually a mix of hot and cold water. To fix the problem, remove the index cap that sits on top of the handle. Pull out the cartridge. Your hot and cold water reverse problem is caused by a cartridge that is out of alignment. Rotate the cartridge 180 degrees (half-way around) from its original position, then slide the cartridge back in until it's snug, and replace everything back from where they belong.
2. Cracked fiberglass – Cracks on fiberglass bathtub or shower fan are either caused by gelcoat excessively exposed to chemicals such as bleach or acid base cleaners, or the bathtub floor is cracking due to stress from live load directly imposed as aggravated by supports underneath that were not uniformly distributed. Cracks from exposure to chemicals can be repaired by applying layers of gelcoat, however cracks from stress can be repaired with gelcoat but only after the bathtub has been uniformly supported underneath.

APPLIANCES/EQUIPMENT:

1. Unbalanced garage door– Unbalanced garage door may not reverse when required. Weak or broken springs or unbalanced doors could result in an open door falling rapidly and/or unexpectedly.

PESTS/ ENVIRONMENTAL

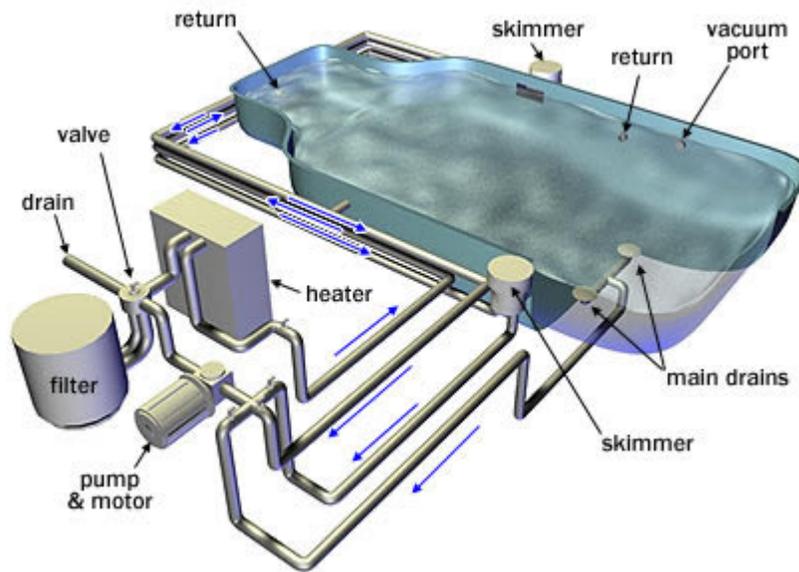
1. Mold noted –Not every mold is a problem however, and that allergic reactions depend on the sensitiveness of individuals. However, if mold is found in your home, testing is recommended and remediation process by a professional is needed. Remediation process can be as little as cleaning and repainting to complete removal or isolation – see Environmental Issues Info below.
2. Asbestos-like material noted – Usually, it is best to leave asbestos material that is in good condition alone. However, if asbestos material is more than slightly damaged, or any changes in your home might disturb it, repair or removal by a professional is needed – see Environmental Issues Info below.

3. Moldy walls/floor/ceiling – Scrub mold thoroughly with ¼ cup bleach to ¼ quart of water, wipe with borate-based detergent solution and lastly apply with mold and mildew resistant paint products. The relative humidity or temperature inside of the house shall not exceed 60% and 65 degrees respectively to prevent the growth of mold spores.

FIRE/SAFETY:

1. Smoke detector not working – Try replacing the battery or check electrical connection, otherwise replacement is recommended.
2. Automatic gate safety – Injuries occur when people put their arms through openings in the grills and the gate is operated. The person cannot retract his/her arm and it get caught between the grill and the fence post or fence. This potential hazard can be averted simply by placing a mesh on the gate and the fence in the area of the gate. This will help to prevent access through openings when the gate travels. If the vehicular gate is near a residential area or pedestrian traffic is expected near the gate, electric gate edge, photoelectric sensors or similar equipment should be installed to prevent entrapment.
3. The Consumer Product Safety Commission (CPSC) institute a recall of certain gas valves in the [Robertshaw R110](#) Series that were installed on GE, Hotpoint or Richmond water heaters that were manufactured between July 25, 2005 and August 14, 2005 and have production dates of 0531, 0532, and 0533.
4. The Consumer Product Safety Commission (CPSC) institute a recall of certain tankless water heaters of brand names Paloma, Rheem, Ruud, Rheem-Ruud, and Richmond manufactured between May 2004 and December 2006. Contact www.tankles-recall.com.
5. The [Consumer Product Safety Commission](#) (CPSC) issued a warning that certain horizontal forced-air gas furnaces manufactured by Consolidated Industries that are marketed by about 30 brand names from 1983 to 1994 present “a substantial risk of fire.” Have the furnace inspected by the Gas Company (free of charge) or an HVAC contractor.
6. The [Consumer Product Safety Commission](#) (CPSC) issued a warning that forced-air gas furnaces in manufactured homes sold nationwide between 1995 and 2000 under the brand names of Coleman, Coleman Evcon and Red T, and Cadet and Encore brand in-wall electric heaters are defective and can overheat. Have the furnace inspected by the Gas Company (free of charge) or an HVAC contractor.
7. The U.S. [Consumer Product Safety Commission](#) announces that Package Terminal Air Conditioner/Heat Pump (PTAC) manufactured by Goodman Company and sold in January 1996 to March 2003 can be a fire hazard. Have an HVAC contractor check the system for the above safety issues.
8. The Marco gas fireplaces subject for recall have a sealed glass-front panel and vent systems that exit the house through the side wall. These fireplaces were sold from February 1993 through November 1997. Have the furnace inspected by the Gas Company (free of charge).

POOL/SPA



Properly designed pools have one or more skimmers that are usually built right into the edge of the pool. Surface water is drawn into the skimmer along with any floating debris, such as dirt, leaves, suntan oil, etc. Skimmers help keep the water's surface clean and minimize the amount of debris that gets into the circulation system. Check and clean your skimmer basket every day for best results.

At the heart of your pool's support system is the pump. Its job is to move the water through the filters, heater and sanitizing system then back into your pool. Before water flows into the pump, it passes through a strainer basket to catch any debris.. Pumps vary in size from ½ to 2 Horsepower and can have 1 or 2 speeds. Your pump run time really depends on many factors including the size of your pool, equipment used, amount of activity, weather and time of year. A pool's pump should circulate all pool water at least once a day. After leaving the pump, the water flows into the filter.

The filter helps to keep your pool's water fresh and clean by removing oils, grease and dirt from the water. There are three basic types of pool filters: Sand, D.E. (Diatomaceous Earth), and Cartridge. All filters work by the same general concept – water is passed through a media (sand, D.E. or cartridge), which catches microscopic particles, blocking them from entering back into the pool. Since the filter is the last line of defense in trapping debris, it is important to use the proper type of filter and clean it as necessary. Generally, when the pressure gauge on the filter increases 10psi above its normal operating level, it's usually a good time to clean your filter. For specific instructions on operating and maintaining your filter, refer to its operating manual or your local pool professional.

Chemical feeders keep your pool water sanitized by maintaining a consistent feed of chlorine or other sanitizing agent into the pool to kill bacteria and algae. Once the proper settings are determined, a chemical feeder can automatically dispense just the right amount of sanitizer to keep your pool sparkling clean without a lot of work. An inline feeder is plumbed into your circulation system after all the other pool equipment (pump, filter, heater). An off-line feeder is freestanding and is connected to the pool's circulation system with additional tubing.

During normal operation, in addition to the skimmers, water flows to your pool's support equipment through one or more main drains at the bottom of the pool. In a large pool there should be multiple main drains and skimmers so if one becomes blocked or plugged, water can still be pulled through the other drains.

The return pipes move the filtered water from your support equipment back into your pool through return ports, or inlet valves around the sides of the pool. Return jets should be properly positioned to establish an overall circulation pattern in the pool to minimize dead spots.

Tying the whole system together, various pipes are used to circulate water in and out of your pool and through your pool's support equipment. Most in-ground pools use 1½" to 2" PVC pipe. It's important to maintain adequate flow through your system by using the proper diameter piping, valves and fittings.

A heater on your pool can extend your swimming by months, or even year-round in some areas of the country. Most people prefer a pool water temperature of 78°F for swimming. Although the sun can help the water reach that temperature, unless you live in a very warm climate your pool water will not usually exceed the average air temperature. Therefore, a heater may be needed to maintain a water temperature of 78°F in most climates. Gas, electric and solar heaters are available in various sizes – some being more effective and less costly than others.

1. How to repair pool structural cracks – The pool cracks can be repaired with Kevlar™ based epoxy paste that can be used either on dry surface or underwater.

CITY ORDINANCES

LOS ANGELES

Single Family Home

Automatic Earthquake Gas Shut Off Valve
 Smoke Detectors (battery operated) hallways and bedroom
 Ultra Low Flow Toilet (1.6 G.P.F.)
 Shower Heads (2.5 G.P.M.)
 Window Glazing (sliding glass doors, sliding portion only)
 Water Heater Strapping (2 straps required)
 Pressure/Temperature Relief Valve
 Overflow Discharge Pipe for water heater

Apartments / Condominiums

Automatic Earthquake Gas Shut Off Valve
 DWP Certificate of Compliance
 Smoke Detectors (hard-wired) hallways and bedroom
 Ultra Low Flow Toilet (1.6 G.P.F.)
 Shower Heads (2.5 G.P.M.)
 Window Glazing (sliding glass doors, sliding portion only)
 Water Heater Strapping (2 straps required)
 Pressure/Temperature Relief Valve
 Overflow Discharge Pipe for water heater

Commercial/Industrial Buildings

Automatic Earthquake Gas Shut Off Valve
 DWP Certificate of Compliance
 Ultra Low Flow Toilet (1.6 G.P.F.)
 Urinals (1.0 G.P.F.)
 Shower Heads (2.5 G.P.M.)
 Window Glazing (sliding glass doors, sliding portion only)
 Water Heater Strapping (2 straps required)
 Pressure/Temperature Relief Valve
 Overflow Discharge Pipe for water heater
 Smoke Detectors Battery Operated (for areas used or defined as sleeping quarters)

BEVERLY HILLSSingle Family Home / Apartments / Condominiums

Smoke Detector (hard wired with battery backup) hallways and bedrooms
 Ultra Low Flow Toilet (1.6 G.P.F.)
 Shower Heads (2.5 G.P.M.)
 Faucets (2.2 G.P.M.)
 Water Heater Strapping (2 straps required)
 Overflow Discharge Pipe for water heater
 Pressure/Temperature Relief Valve

Commercial/Industrial Buildings

Smoke Detectors Hard Wired w/ battery Backup (for areas use or defined as sleeping quarters)
 Ultra Low Flow Toilet (1.6 G.P.F.)
 Urinals (1.0 G.P.F.)
 Shower Heads (2.5 G.P.M.)
 Faucets (2.2 G.P.M.)
 Water Heater Strapping (2 straps required)
 Overflow Discharge Pipe for water heater
 Pressure/Temperature Relief Valve

BURBANKSingle Family Home

Ultra Low Flow Toilet (1.6 G.P.F.)
 Shower Heads (2.5 G.P.M.)
 Faucets (2.2 G.P.M.)
 Smoke Detector (battery operated) in hallways and bedrooms
 Water Heater Strapping (2 straps required)
 Overflow Discharge Pipe for water heater
 Pressure/Temperature Relief Valve

Multi-Family/Commercial/Industrial Buildings

Smoke Detectors Battery Operated (for areas used or defined as sleeping quarters)
 Water Heater Strapping (2 straps required)
 Ultra Low Flow Toilet (1.6 G.P.F.)
 Shower Heads (2.5 G.P.M.)
 Faucets (2.2 G.P.M.)
 Urinals (1.0 G.P.F.)
 Overflow Discharge Pipe for water heater
 Pressure/Temperature Relief Valve

COMPTONSingle Family Home / Apartments / Condominiums

Smoke Detector (battery operated) in hallways and bedrooms
 Water Heater Strapping (2 straps required)
 Overflow Discharge Pipe for water heater
 Pressure/Temperature Relief Valve
 Commercial/Industrial Buildings
 Smoke Detectors Battery Operated (for areas used or defined as sleeping quarters)
 Water Heater Strapping (2 straps required)
 Overflow Discharge Pipe for water heater
 Pressure/Temperature Relief Valve

CULVER CITYSingle Family Home

Smoke Detector (battery operated) in hallways and bedrooms
 Water Heater Strapping (2 straps required)
 Overflow Discharge Pipe for water heater
 Pressure/Temperature Relief Valve
 Apartments / Condominiums
 Smoke Detector (hard wired with battery backup) hallways and bedrooms
 Water Heater Strapping (2 straps required)
 Overflow Discharge Pipe for water heater
 Pressure/Temperature Relief Valve

Commercial/Industrial Buildings

Smoke Detectors Battery Operated (for areas used or defined as sleeping quarters)
 Water Heater Strapping (2 straps required)
 Overflow Discharge Pipe for water heater
 Pressure/Temperature Relief Valve

GLENDALESingle Family Home / Apartments / Condominiums

Smoke Detector (battery operated) in hallways and bedrooms
 Water Heater Strapping (2 straps required)
 Overflow Discharge Pipe for water heater
 Pressure/Temperature Relief Valve

Commercial / Industrial Buildings

Smoke Detectors Battery Operated (for areas used or defined as sleeping quarters)
 Water Heater Strapping (2 straps required)
 Overflow Discharge Pipe for water heater
 Pressure/Temperature Relief Valve

INGLEWOODSingle Family Home

Smoke Detector (battery operated) in hallways and bedrooms
 Water Heater Strapping (2 straps required)
 Overflow Discharge Pipe for water heater
 Pressure/Temperature Relief Valve

Apartments / Condominiums

Smoke Detector (hard wired with battery backup) hallways and bedrooms
 Water Heater Strapping (2 straps required)
 Overflow Discharge Pipe for water heater
 Pressure/Temperature Relief Valve

Commercial / Industrial Buildings

Smoke Detectors Battery Operated (for areas used or defined as sleeping quarters)
 Water Heater Strapping (2 straps required)
 Overflow Discharge Pipe for water heater
 Pressure/Temperature Relief Valve

LANCASTER / PALMDALESingle Family Home / Apartments / Condominiums

Smoke Detector (battery operated) in hallways and bedrooms
 Water Heater Strapping (2 straps required)
 Overflow Discharge Pipe for water heater
 Pressure/Temperature Relief Valve

Commercial / Industrial Buildings

Smoke Detectors Battery Operated (for areas used or defined as sleeping quarters)
 Water Heater Strapping (2 straps required)
 Overflow Discharge Pipe for water heater
 Pressure/Temperature Relief Valve

LOS ANGELES COUNTYSingle Family Home / Apartments / Condominiums

Smoke Detector (battery operated) in hallways and bedrooms
 Water Heater Strapping (2 straps required)
 Overflow Discharge Pipe for water heater
 Pressure/Temperature Relief Valve

Commercial / Industrial Buildings

Smoke Detectors Battery Operated (for areas used or defined as sleeping quarters)
 Water Heater Strapping (2 straps required)
 Overflow Discharge Pipe for water heater
 Pressure/Temperature Relief Valve
 It will be necessary to confirm whether property is an Edison customer or D.W.P. customer

MALIBUSingle Family Home / Apartments / Condominiums

Smoke Detector (battery operated) in hallways and bedrooms
 Water Heater Strapping (2 straps required)
 Overflow Discharge Pipe for water heater
 Pressure/Temperature Relief Valve

Commercial / Industrial Buildings

Smoke Detectors Battery Operated (for areas used or defined as sleeping quarters)
 Water Heater Strapping (2 straps required)
 Overflow Discharge Pipe for water heater
 Pressure/Temperature Relief Valve

PASADENASingle Family Home / Apartments / Condominiums

Smoke Detector (battery operated) in hallways and bedrooms
 Water Heater Strapping (2 straps required)
 Overflow Discharge Pipe for water heater
 Pressure/Temperature Relief Valve

Commercial / Industrial Buildings

Smoke Detectors Battery Operated (for areas used or defined as sleeping quarters)
 Water Heater Strapping (2 straps required)
 Overflow Discharge Pipe for water heater
 Pressure/Temperature Relief Valve

SAN FERNANDOSingle Family Home / Apartments / Condominiums

Smoke Detector (battery operated) in hallways and bedrooms
 Water Heater Strapping (2 straps required)
 Overflow Discharge Pipe for water heater
 Pressure/Temperature Relief Valve

Commercial / Industrial Buildings

Smoke Detectors Battery Operated (for areas used or defined as sleeping quarters)
 Water Heater Strapping (2 straps required)
 Overflow Discharge Pipe for water heater
 Pressure/Temperature Relief Valve

SANTA CLARITA/ VALENCIASingle Family Home / Apartments / Condominiums

Smoke Detector (battery operated) in hallways and bedrooms
 Water Heater Strapping (2 straps required)
 Overflow Discharge Pipe for water heater
 Pressure/Temperature Relief Valve

Commercial / Industrial Buildings

Smoke Detectors Battery Operated (for areas used or defined as sleeping quarters)
 Water Heater Strapping (2 straps required)
 Overflow Discharge Pipe for water heater
 Pressure/Temperature Relief Valve

SANTA MONICASingle Family Home / Apartments / Condominiums

Automatic Earthquake Gas Shut Off Valve
 Smoke Detector (battery operated) in hallways and bedrooms
 Ultra Low Flow Toilet (1.6 G.P.F.)
 Shower Heads (2.5 G.P.M.)
 Faucets (2.5 G.P.M.)
 Water Heater Strapping (2 straps required)
 Pressure/Temperature Relief Valve
 Overflow Discharge Pipe for water heater

Commercial / Industrial Buildings

Automatic Earthquake Gas Shut Off Valve
 Smoke Detectors Battery Operated (for areas used or defined as sleeping quarters)
 Ultra Low Flow Toilet (1.6 G.P.F.)
 Urinals (1.0 G.P.F.)
 Shower Heads (2.5 G.P.M.)
 Faucets (2.5 G.P.M.)
 Window Glazing (sliding glass doors)
 Water Heater Strapping (2 straps required)
 Pressure/Temperature Relief Valve
 Overflow Discharge Pipe for water heater

VENTURA COUNTY (Includes Santa Barbara, Thousand Oaks and Calabasas)Single Family Home / Apartments / Condominiums

Smoke Detector (battery operated) in hallways and bedrooms
 Water Heater Strapping (2 straps required)
 Overflow Discharge Pipe for water heater
 Pressure/Temperature Relief Valve

Commercial / Industrial Buildings

Smoke Detectors Battery Operated (for areas used or defined as sleeping quarters)
 Water Heater Strapping (2 straps required)
 Overflow Discharge Pipe for water heater
 Pressure/Temperature Relief Valve

WEST HOLLYWOODSingle Family Home / Apartments / Condominiums

Automatic Earthquake Gas Shut Off Valve
 Pressure Relief Valve and Drain pipe
 Smoke Detector (battery operated) in hallways and bedrooms
 Water Heater Strapping (2 straps required)
 Overflow Discharge Pipe for water heater
 Pressure/Temperature Relief Valve

Commercial / Industrial Buildings

Automatic Earthquake Gas Shut Off Valve
 Pressure Relief Valve and Drain pipe
 Smoke Detectors Battery Operated (for areas used or defined as sleeping quarters)
 Water Heater Strapping (2 straps required)
 Overflow Discharge Pipe for water heater
 Pressure/Temperature Relief Valve

ACCESSORY AREAS:

Accessory Living Quarters and Guest house shall be used solely as temporary (maximum of 28 days) dwelling for guests of the occupants of the premises; such dwelling has sleeping rooms, full bathrooms and no kitchen facilities and not rented or otherwise used as a separate dwelling unit. Accessory Living Quarters are permitted in any zone in conjunction with a single family dwelling provided the lot meets the minimum area required for an accessory living quarters specified in the particular zone. Projects in the R3 and less restrictive zones require special consideration for possible flexible use.

Recreation Room shall be utilized as bar or for hobby activities, and shall include ½ bath and a single compartment bar sink but not facilities for cooking and preparation of food. Recreation rooms that are not interconnected with the main dwelling cannot be used for living purposes. A shower may be permitted in accessory recreation rooms where there is a swimming pool on the site. However, in order to assure that it will be used only in conjunction with the pool, access to the shower must be from the exterior of the building only.