Section 21 – Standard Drawings

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Typical section over 5'-0"
\[ \frac{1}{2}'' = 1'-0''\]

Design for level grade above wall

Design for sloping grade above wall

**NOTE:** Concrete in footing to test
2,000 lbs. per sq. in. at 28 days
Concrete block - grade 'A' units
A.S.T.M. C-90
Grout - 1 part cement, 3 parts sand,
2 parts pea gravel
Mortar - 1 part cement,
\[ \frac{1}{2} \text{ part lime putty}, 4\frac{1}{2} \text{ parts sand} \]

**MAXIMUM STRESSES**

\[ f_s = 18,000 \text{ P.S.I.} \]
\[ f_m = 225 \text{ P.S.I.} \]

**BOND:** U F 100 P.S.I.

**SOIL PRESSURE:** 1,000 lbs. per sq. ft.

**CONCRETE TO SOIL**

**FRICTION COEFFICIENT:** 0.4
STANDARD 3' RETAINING WALL

1. Backfill soil 6" above perforation drain
2. Filter fabric
3. ¾" drainage aggregate
4. 2x Douglas Fir Pressure Treated for Soil Contact
5. Fasten to posts with 1½" Galvanized Nails
6. 3½" perforated drain line sloped 1½" ft to approved discharge location

4½" 4½" E.C Pressure Treated Douglas Fir Posts
Set 4' on center

2,500 PSI Concrete per Section 3.03 & 3.04

Clearance between base of post and soil. Excavate piers 12" Ø x 4' deep.

COMBINATION RETAINING WALL & FENCE

12" Pier Hole
5½" deep
3' O.C

Piers may be 4' O.C for 3' high retaining wall without fence.

1/4" per ft slope
Monolithic Slab with Footings

Form board removed after concrete sets

Concrete
min. 3½ in. depth

Min. #4 bar min. 18” on center each way
between center & upper third of slab secured in place during pour

Min. 18 in.
Min. 12 in.
Min. 12 in.

Sand

1/3
1/2

Vapor retarder
(plastic sheeting)

Gravel & vapor retarder req’d. per BO

Gravel
max. 2 in.
diameter,
min. 4 in.
thick

Underfloor Clearance

Siding closer than 6 in. to soil must be PT

Girder

Min. 18 in.
Min. 12 in.

Joists
For SI: 1 inch = 25.4 mm.

FIGURE 4—CONCRETE FOUNDATION DETAILS

TABLE 1805.4.2
FOOTINGS SUPPORTING WALLS OF LIGHT-FRAME CONSTRUCTION

<table>
<thead>
<tr>
<th>NUMBER OF FLOORS SUPPORTED BY THE FOOTING</th>
<th>WIDTH OF FOOTING (inches)</th>
<th>THICKNESS OF FOOTING (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>15</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>18</td>
<td>8</td>
</tr>
</tbody>
</table>

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

a. Depth of footings shall be in accordance with Section 1805.2.
b. The ground under the floor is permitted to be excavated to the elevation of the top of the footing.
c. Interior-stud-bearing walls are permitted to be supported by isolated footings. The footing width and length shall be twice the width shown in this table, and footings shall be spaced not more than 6 feet on center.
d. See Section 1908 for additional requirements for footings of structures assigned to Seismic Design Category C, D, E or F.
e. For thickness of foundation walls, see Section 1805.5.
f. Footings are permitted to support a roof in addition to the stipulated number of floors. Footings supporting roof only shall be as required for supporting one floor.
g. Plain concrete footings for Group R-3 occupancies are permitted to be 6 inches thick.

2007 CALIFORNIA BUILDING CODE
Required separation from garage and dwelling

5/8 in. (15.9 mm) TYPE X GYPSUM BOARD IS REQUIRED ON CEILING IF THERE IS HABITABLE SPACE ABOVE

1/4 in. (12.7 mm) GYPSUM WALLBOARD ON GARAGE SIDE

1/4 in. (12.7 mm) GYPSUM WALLBOARD IF WALL ADJACENT TO DWELLING UNIT IS NOT PROTECTED TO ROOF

GARAGE

DOOR BETWEEN GARAGE AND DWELLING SHALL BE 1-1/2 in. (34.9 mm) THICK SOLID CORE WOOD, SOLID CORE STEEL, HONEYCOMB CORE STEEL OR A DOOR WITH A 20 MINUTE FIRE PROTECTION RATING. DOOR SHALL BE SELF-CLOSING AND SELF-LATCHING

NO OPENINGS ALLOWED BETWEEN GARAGE AND BEDROOM

SECTION THROUGH GARAGE
In addition to the lateral support at the ends, joists may also be required to have intermediate support at intervals not exceeding 10 feet when such members have a depth-to-thickness ratio exceeding 8:1 based upon nominal dimensions. Intermediate blocking is not required for joists 2 inches by 12 inches or smaller. Such intermediate lateral support may be provided by solid blocking, diagonal bridging or wood bridging not less than 1-inch by 3-inch in nominal size nailed to the bottom of the joist. Figure No. 602.4B illustrates the various alternatives for intermediate lateral support.
HEADER TABLE
(CARRIERS ROOF ONLY)
4"x6" - 4' 3" SPAN
6"x4" - 10' 6" SPAN
4"x8" - 6' 10' 6" SPAN
4"x10" - 8' 10' 6" SPAN

FURLIN
2"x4" BRACE
1 1/2" COLLAR TIE
20" x 30" WHERE ATTIC FURNACES ARE USED

ROOF- 6" MIN. WET 6"" 13" ONE BALE TOP 4 BUNTON.
PIER 1- STORY 5' MAX APART - 2 STORY 10' MAX APART.
Stair Treads and Risers

2007 CBC – Section 1009.3

- The minimum tread depth equals 10 inches (254 mm).
- The maximum riser height equals 7\(\frac{3}{4}\) inches (197 mm).
- A minimum 10-inch (254 mm) winder tread depth is measured at the 12-inch (254 mm) walk line.
- A nosing not less than 0.75 inch (19 mm) but not more than 1.25 inches (31.75 mm) shall be provided on stairways with solid risers where the tread depth is less than 11 inches (279 mm).
- There are stair tread profile requirements.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm

Figure 11
STAIR TREAD AND RISER

- HCD and SFM have amended the CBC to include critical elements of the IRC this amendment allows in Group R-3 occupancies, a floor or landing is not required at the top of an interior flight of stairs, including stairs in an enclosed garage, provided a door does not swing over the stairs. Additionally this amendment was allowed in the 2001 CBC and was brought forward.
Guards

2007 CBC – Section 1013

- Height in all occupancies is to be a minimum of 42 inches (1067 mm).
- A handrail at 34 inches to 38 inches (864 mm to 965 mm) along stairs is permitted to be used as a guard.
- A 43/8-inch (111 mm) sphere limitation is permitted at the open sides of the stairs.
- Escape and Rescue Openings

![Diagram of guard height and handrail](image)

Figure 14
GUARD

Handrails

2007 CBC – Sections 1009.10 and 1012

- Handrails are required on stairways having 2 or more risers.
- HCD and SFM amendment: "In Group R-3 occupancies, a continuous run of treads or flight of stairs with fewer than four risers does not require handrails."
- Handrails are permitted on only one side.
- Handrails with a circular cross-section shall have an outside diameter of at least 1.25 inches (32 mm) and not greater than 2 inches (51 mm), or shall provide equivalent graspability.
- If the handrail is not circular, it shall have a perimeter dimension of at least 4 inches (102 mm) and not greater than 6.25 inches (158 mm) with a maximum cross-section dimension of 2.25 inches (57 mm).
- A vertical 2 by 6 handrail is not permitted.

![Diagram of handrails](image)

Figure 13
HANDRAILS

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TYPICAL DETAIL OF BUILT-UP ROOFING

TAPER BOARD OR CANT

MINERAL SURFACE CAP SHEET

2X6 DECKING
ROSON PAPER
INSULATION-R 12.5
1/2" FIBERBOARD
THREE PLY COVERAGE

RELOCATE DOWNSPOUTS TO LOW POINT
PLUG EXISTING OPENING

NOTE: SEE SECTION 7.
NOT TO SCALE

2X2 CAP - EXTEND FACIA AS NEEDED

SHORT OVERHANG

EXISTING BUILDING

63
Nailing as recommended by manufacturer

Min. 20" wide roll roofing material — No. 30 or heavier

Source NRCA
TYPE B INSTALLATION REQUIREMENTS.
DOUBLE-WALL METAL VENT 4" OVAL IN FRAME WALL, FOR SINGLE OR MULTISTORY USE.

TYPE B-2x4

DOUBLE PLATE CUT AWAY FOR FULL 14½" WIDTH OF STUD SPACE

FIRE-STOP SPACER NAILED TO PLATE AT BOTH ENDS

FIRE-STOP SPACER

NOMINAL 2x4 STUDS (MINIMUM)
STUD SPACE 16" O.C. MINIMUM

INTEGRAL SPACERS AT EACH PIPE JOINT FOR CENTERING

PLATE CUT AWAY FOR FULL 14½" WIDTH OF STUD SPACE

DOUBLE PLATE CUT AWAY FOR FULL 14½" WIDTH OF STUD SPACE

FIRE-STOP SPACER NAILED TO PLATE AT BOTH ENDS (FLOOR & CEILING LEVELS)

SEE MANUFACTURER'S INSTRUCTIONS AND SEC. 907.7

FIRE-STOP SPACER

DOUBLE-WALL VENT PIPE MAY BE SAME AS THAT USED IN TYPE BW INSTALLATIONS

TYPE B VENTS LISTED FOR INSTALLATION IN 2x4 FRAME WALLS.

TYPE B INSTALLATION REQUIREMENT.
DOUBLE-WALL METAL VENT 2x6 WALL CONSTRUCTION

5"-6" OVAL

TERMS OF LISTING MUST BE FOR 0" OR 1" CLEARANCE

FIRE-STOP SPACERS TO BE USED AT EVERY FLOOR OR CEILING

FIRE-STOP SPACER NAILED TO PLATE AT BOTH ENDS

SEE COMMENTS ON FIGURE 903 (a)—2

TYPE B - 2x6

NOMINAL 2x6 STUDS (MIN)
STUD SPACE, 16" O.C. MIN.

DOUBLE PLATE CUT AWAY FOR FULL 14½" WIDTH OF STUD SPACE

FIRE-STOP SPACER
TYPICAL ONE-STORY OR TOP STORY OF MULTISTORY TYPE BW INSTALLATION REQUIREMENTS

26 GAGE METAL SLEEVE OPEN AND EXTENDING INTO ATTIC 12" OR 2" BELOW ROOF SHEATHING. CEILING PLATE SPACER (NOT FIRE-STOP SPACER) TO VENTILATE STUD SPACE ABOVE BASE PLATE AT FIRST HEADER ONLY. SEC. 907.6

VENT CAP

STORM COLLAR

VENTILATED ATTIC SPACE

CUT DOUBLE PLATE FULL WIDTH BETWEEN STUDS .16" ON CENTERS

14½"

12' MINIMUM TOTAL HEIGHT

CEILING PLATE SPACERS

HOLD-DOWN PLATE OR BASE PLATE

FURNACE HEADER PLATE

HOLD-DOWN PLATE OR BASE PLATE

HOLD-DOWN SCREWS

MAXIMUM 85,000 BTU/H INPUT PERMITTED ON TYPE BW VENT FOR SINGLE STORY. MAXIMUM 65,000 BTU/H INPUT PERMITTED ON TYPE BW VENT FOR MULTISTORY.
TYPE L VENT

VENT TERMINATION FOR OIL-FIRED APPLIANCES LISTED FOR USE WITH TYPE L VENTING SYSTEMS

2" O. MINIMUM ABOVE ANY ROOF OR 4" O. FROM ANY PORTION OF THE BUILDING EXTENDING UPWARD AT AN ANGLE GREATER THAN 45°

LISTED VENT CAP
TYPE L VENT
STORM COLLAR
VENT FLASHING

L-0, L-1, L-2 OR L-3 SIGNIFY 0, 1, 2 & 3-INCH REQUIRED CLEARANCE RESPECTIVELY.

LESS THAN 45°

TERMS OF LISTING ARE MORE RESTRICTIVE THAN U.M.C. REQUIREMENTS

TERMS OF LISTING REQUIRE 2' ABOVE HIGHEST PORTION OF BUILDING WITHIN 10'

DO THIS

<10' 2'

BY U.M.C. OKAY IF MORE THAN 4'

NEVER DO THIS
Every evaporative cooler supported directly by the ground shall be isolated from the ground by a level concrete slab extending not less than 3" above the adjoining ground level.

Every evaporative cooler shall be installed on a level base at least 6" above the adjoining ground level and shall be supported in an approved manner.

Related Code Section: California Mechanical Code 405

These illustrations show that when an evaporative cooler is mounted on a slab, ground separation of 3 inches is applicable. When an evaporative cooler is mounted on a base other than a concrete slab, ground separation of 6 inches is required.
EVERY EVAPORATIVE COOLER SUPPORTED BY THE BUILDING STRUCTURE SHALL BE INSTALLED ON A SUBSTANTIAL LEVEL BASE AND SHALL BE SECURED DIRECTLY OR INDIRECTLY TO THE BUILDING STRUCTURE BY SUITABLE MEANS TO PREVENT DISPLACEMENT OF THE COOLER. SEE ALSO U.B.C. SEC. 2312 (g).

ROOF-MOUNTED – ONE OF MANY ACCEPTABLE METHODS

WALL-MOUNTED – ONE OF MANY ACCEPTABLE METHODS

Related Code Section: California Mechanical Code 405

Anchorage of evaporative cooling systems, like other mechanical equipment, must be sturdy and adequate to resist displacement.
Figure 3-1
Meter Set Separation Dimensions and Clearances

Notes in reference to Figure 3-1.

1. For the service regulator vent locations and termination requirements, see Section 2, Subsection 2.4.4., “Service Regulator Vent Requirements,” on Page 2-18.

2. Electric meter panel locations are subject to utility approval and must comply with the applicable code requirements. PG&E has no specific requirement for the distance from the electric panel to the outside building corner. See Section 7, “Electric Metering - General,” for more information on properly locating the electric meters.

3. Place the gas riser 6 inches to 9 inches from the finished wall.

4. The completed houseline at the service delivery point (see Section 2, Subsection 2.3.5., “Customer-Owned and Installed Gas Service Piping, Valves, and Automatic Shut-Off Devices,” on Page 2-10) must extend 3 inches to 6 inches from the finished wall where the meter is to be set, and must be 26 inches above the finished grade. The houseline at the service delivery point, which is usually located after the PG&E service tee for residential services, also must be reinforced so that it will provide support for the meter-set piping. The pipe must be rigid and have a minimum diameter of 3/4 inches, and have tapered pipe threads.

5. Where different service facilities (including gas, electric, and telecommunications facilities) are installed in close proximity (e.g., in a joint trench), a minimum horizontal separation of 12 inches shall be maintained where those facilities transition from below ground to above ground. An exception shall be made for the separation between PG&E secondary, electric-service conduit and gas-service piping, which may be reduced to 6 inches. Clearances between other facilities can be reduced only when the parties supplying those services or facilities reach a mutual agreement. However, enough space shall be provided at all times to allow for the maintenance and operation of the facilities.

6. In addition, an enclosure for the termination or connection of telecommunication cables, wires, or other equipment, shall not be installed within an area 12 inches above an extending the entire width of the gas meter and service facilities, including the gas service riser. Also, the area immediately behind the gas meter, service facilities and risers, and between those facilities and the premises or structure being served, shall be kept free and clear of all other facilities or equipment such as pipes, wires or cables, or conduits.
Installation Standard
For
TILE-LINED SHOWER RECEPTORS (and Replacements)
IAPMO IS 4-2003

FORWARD
This standard specification for the installation of tile-lined shower receptors is
the result of extensive study and research by the following:

Ceramic Tile Institute of America
Associated Tile Contractors of Southern California, Inc.

Tile Layers Local No. 18 of I.U.B.A.C., United States and Canada
Tile Helpers Local No. 18 of I.U.B.A.C., of the United States and Canada

APPROVED CONSTRUCTION OF TILE-LINED SHOWER RECEPTORS
STANDARD SPECIFICATION FOR THE INSTALLATION OF TILE-LINED SHOWER RECEPTORS

Receptor lining must extend 3" (76 mm) above top of finished dam and outward on face of rough jamb.
Finish height of dam to be at least 2" (51 mm) above high point of shower drain.

Receptor lining turned over dam and thoroughly tacked outside. No punctures less than 1" (25.4 mm) above the finished dam or threshold on the interior and top of dam or threshold.
Receptor lining shall be pitched not less than 1/4" per foot (20.8 mm/m) to weep holes in drain.

For receptor lining see Section 4.2

1024 (0.66m²) minimum floor area finish floor to have minimum of 1/4" (20.8 mm/m) and maximum of 1/2" (41.7 mm/m) pitch to drain per foot.

Minimum of 0.06 inch (1.3 mm) thickness strainer

Flange of approved type sub drain set exactly level with sub floor with clamping ring or other device to make tight connection with receptor lining.

Mortar setting bed with approved waterproofing additive.
Keep lining flush with face of studs or turning.

Fur out or notch studs to receive lining.

Receptor lining must extend 3" (76 mm) above top of finished dam and outward on face of rough jamb.

shall encompass a 30" (750 mm) circle

See Section 2.5.
Typical Applications

Waterproofing Shower Pans

Use 20, 30 or 56 mil BFG Vinyl Water Barrier. For residential use, 20 mil material is recommended. Install one ply of the membrane dry over the subfloor. Turn the membrane up at least 6” at the side wall. Fold the corners without cutting, adhering the fold to the membrane. Adhere the membrane to the side walls, at the corner fold, and at any lap joints.

Use BFG Construction Adhesive 103 as per manufacturer’s recommendations.
ELEVATION
WATER HEATER ON STRAIGHT WALL

Office of the State Architect

Earthquake Bracing of Water Heaters for Residential Use
FIRST STUD NOT BEHIND WATER HEATER
LINE CONNECTING POINTS OF SUPPORT
6" MAXIMUM

FLEXIBLE WATER CONNECTIONS
WATER HEATER
7" MINIMUM

PLUMBERS TAPE LAYOUT
(2 PIECES)
3/4" x 24 GAUGE
PERFORATED STEEL
PLUMBERS TAPE
ENCIRCLING TANK
FROM FRONT AND BACK

PLAN

PLUMBERS TAPE

FLEXIBLE WATER CONNECTIONS
1/4" DIA. x 3" LAG SCREW WITH FLAT WASHER
WOOD STUD

FLEXIBLE GAS CONNECTION

MATERIALS NEEDED:
* 4-10' LENGTHS OF 3/4" x 24 GAUGE PERFORATED PLUMBERS TAPE
* 8-1/4" x 3" LAG SCREWS AND WASHERS
* STUD FINDER

TOOL S NEEDED:
* POWER DRILL
* 3/16" DRILL BIT
* MEASURING TAPE
* 7/16" OPEN END OR ADJUSTABLE WRENCH

ELEVATION
WATER HEATER IN CORNER

Office of the State Architect

Earthquake Bracing of Water Heaters for Residential Use

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Three acceptable positions for installing are shown in sketches below. Figure 1 installation is preferred when a special tapping is provided in the tank or heater.

A pressure relief valve must be installed as shown to prevent excess pressure by thermal expansion. There must be no valve between the relief valve and heater. Relief valve must be piped to a suitable drain.

"Alternate" Only When The Tappings Are Not Provided

Note: In addition to the Watts 210, a pressure relief valve and drain is required on HOT water line.
Smoke Alarms

2007 CBC – Section 907.2.10

- Smoke alarms are required to be interconnected in such a manner that the activation of 1 alarm will activate all of the alarms.
RESIDENTIAL ELECTRICAL LOAD CALCULATION
For One-Family Dwelling (with optional calculation)
[see 220.82 2005 NEC]

General lighting load _____ ft² x3va

20A Small appliance (2 minimum) @1,500va

Laundry circuit @1,500va each

Total Gen lgt, Sm app, Lau. Load: ____________

1st 3,000va @100% ____________

2nd 3,000va @35% ____________

Remainder @25% ____________

General lighting demand load ____________

Appliances

Water heater; name plate ampere or 4,500va________

Refrigerator; name plate ampere or 1,400va________

Freezer; name plate ampere or 600va________

Dishwasher; name plate ampere or 1,030va________

Disposal; name plate ampere or 690va________

Range hood; name plate ampere or 400va________

Microwave; name plate ampere or 1,600va________

Other; name plate ampere

Total appliance load__________

>4 appliances @ 75% demand factor__________

Heat vss A/C load; greatest load @100%

Baseboard heating: nameplate@100%

Electric dryer: 5 Kva or nameplate (whichever is larger)

Electric range 12 Kva or nameplate (whichever is larger)@80% demand factor
[12 Kva and less, use 220.55 column C or 8Kva]

Total service demand__________

Service demand ÷ 240 volts = Load for service _________ amps

Vpc 2007CEC

See reverse for sample worksheet
RESIDENTIAL ELECTRICAL LOAD CALCULATION
For One-Family Dwelling (with optional calculation)
[see 220.82 2005 NEC]

General lighting load $116^2$ ft² x3va

6 20A Small appliance (2 minimum) @1,500va

Laundry circuit @1,500va each

VA [watts]

$3,486$

$9,000$

$1,500$

Total Gen Igt, Sm app, Lau. Load: $13,986$

$1^st$ 3,000va @100% 2,000

$2^nd$ 3,000va @35% 3,845

Remainder @25% —

General lighting demand load $6,845$

Appliances

**Water heater,** name plate ampere or 4,500va

**Refrigerator,** name plate ampere or 1,400va 1,400

**Freezer,** name plate ampere or 600va 600

**Dishwasher,** name plate ampere or 1,030va 1,030

**Disposal,** name plate ampere or 690va

**Range hood,** name plate ampere or 400va 400

**Microwave,** name plate ampere or 1,600va 1,600

**Other,** name plate ampere

Total appliance load $5,060$

>4 appliances @ 75% demand factor $3,795$

Heat vss A/C load, greatest load @100%

Baseboard heating: nameplate@100%

Electric dryer: 5 Kva or nameplate (whichever is larger)

Electric range 12 Kva or nameplate (whichever is larger)@80% demand factor (12 Kva and less, use 220.55 column C or 8Kva)

$8,000$

Total service demand $26,540$

Service demand + 240 volts = Load for service __________ amps

Vpc 2007CEC

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# Overview of Title 24 Changes in 2005

<table>
<thead>
<tr>
<th>Kitchen</th>
<th>2005 Standards</th>
<th>2001 Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High efficacy</td>
<td>General lighting must be high</td>
</tr>
<tr>
<td></td>
<td>OR</td>
<td>efficacy (fluorescent) and must be</td>
</tr>
<tr>
<td></td>
<td>Up to 50% of the total wattage can be</td>
<td>controlled by the primary switch at</td>
</tr>
<tr>
<td></td>
<td>low efficacy.</td>
<td>the kitchen entrance.</td>
</tr>
<tr>
<td></td>
<td>All high-efficiency and low-efficiency</td>
<td>Additional luminaires used for</td>
</tr>
<tr>
<td></td>
<td>lighting must be controlled separately.</td>
<td>decorative effects need not meet</td>
</tr>
<tr>
<td></td>
<td><em>Switch location requirement removed</em></td>
<td>this requirement.</td>
</tr>
<tr>
<td>Bathroom</td>
<td>High efficacy</td>
<td>Each bathroom containing a shower</td>
</tr>
<tr>
<td></td>
<td>OR</td>
<td>or bathtub must have at least one</td>
</tr>
<tr>
<td></td>
<td>Manual-on-occupancy sensor</td>
<td>fluorescent luminaire.</td>
</tr>
<tr>
<td>Garage</td>
<td>High efficacy</td>
<td>OR</td>
</tr>
<tr>
<td></td>
<td>OR</td>
<td>Fluorescent lighting may be</td>
</tr>
<tr>
<td></td>
<td>Manual-on-occupancy sensor</td>
<td>installed in a utility room, laundry</td>
</tr>
<tr>
<td>Laundry Room</td>
<td>High efficacy</td>
<td>room, or garage instead of a</td>
</tr>
<tr>
<td></td>
<td>OR</td>
<td>bathroom</td>
</tr>
<tr>
<td></td>
<td>Manual-on-occupancy sensor</td>
<td>AND</td>
</tr>
<tr>
<td>Utility Room</td>
<td>High efficacy</td>
<td>All other lighting must be</td>
</tr>
<tr>
<td></td>
<td>OR</td>
<td>fluorescent or equipped with a</td>
</tr>
<tr>
<td></td>
<td>Manual-on-occupancy sensor</td>
<td>motion sensor.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If using the alternative option, each</td>
</tr>
<tr>
<td></td>
<td></td>
<td>additional bathroom must have at</td>
</tr>
<tr>
<td></td>
<td></td>
<td>least one fluorescent luminaire.</td>
</tr>
<tr>
<td>All other interior rooms (e.g., living room, dining room, bedrooms, hallways) except closets less than 70 sq. ft.</td>
<td>High efficacy</td>
<td>No requirements</td>
</tr>
<tr>
<td></td>
<td>OR</td>
<td>OR</td>
</tr>
<tr>
<td></td>
<td>Manual-on-occupancy sensor</td>
<td>Dimmer</td>
</tr>
<tr>
<td>Outdoor lighting attached to buildings</td>
<td>High efficacy</td>
<td>No requirements</td>
</tr>
<tr>
<td></td>
<td>OR</td>
<td>OR</td>
</tr>
<tr>
<td></td>
<td>Controlled by manual switch</td>
<td>Controlled by motion sensor</td>
</tr>
<tr>
<td>Common areas of low-rise residential buildings with 4 or more dwelling units</td>
<td>High efficacy</td>
<td>No requirements unless used as an</td>
</tr>
<tr>
<td></td>
<td>OR</td>
<td>alternate for fluorescent bathroom</td>
</tr>
<tr>
<td></td>
<td>Occupancy sensor</td>
<td>lighting</td>
</tr>
<tr>
<td>Residential parking lots and garages for 8 or more vehicles</td>
<td>Must meet nonresidential lighting standards</td>
<td>No requirements</td>
</tr>
</tbody>
</table>
Overview of Title 24 Changes in 2005

The following is the 2005 Title 24 residential lighting code, quoted directly from the California Energy Commission’s 2005 Building Energy Efficiency Standards, Section 150 (www.energy.ca.gov/title24).

**Kitchens**

Section 150 (k) 2: Permanently installed luminaires in kitchens shall be high-efficacy luminaires.

Exception: Up to 50 percent of the total rated wattage of permanently installed luminaires in kitchens may be in luminaires that are not high-efficacy luminaires, provided that these luminaires are controlled by switches separate from those controlling the high-efficacy luminaires. The wattage of high-efficacy luminaires shall be the total nominal rated wattage of the installed high-efficacy lamp(s).

**Bathrooms, garages, laundry rooms, and utility rooms**

Section 150 (k) 3: Permanently installed luminaires in bathrooms, garages, laundry rooms, and utility rooms shall be high-efficacy luminaires.

Exception: Permanently installed luminaires that are not high-efficacy shall be allowed provided that they are controlled by an occupant sensor(s) [sic] certified to comply with Section 119 (d). Such motion sensors shall not have a control that allows the luminaire to be turned on automatically or that has an override allowing the luminaire to be always on.

**Other spaces**

Section 150 (k) 4: Permanently installed luminaires located other than in kitchens, bathrooms, garages, laundry rooms, and utility rooms shall be high-efficacy luminaires.

Exception 1: Permanently installed luminaires that are not high-efficacy luminaires shall be allowed provided they are controlled by a dimmer switch.

Exception 2: Permanently installed luminaires that are not high efficacy shall be allowed provided that they are controlled by an occupant sensor(s) [sic] certified to comply with Section 119 (d). Such motion sensors shall not have a control that allows the luminaire to be turned on automatically or that has an override allowing the luminaire to be always on.

Exception 3: Permanently installed luminaires that are not high-efficacy luminaires shall be allowed in closets less than 70 square feet.

**Porches and outdoor lighting**

Section 150 (k) 6: Luminaires providing outdoor lighting and permanently mounted to a residential building or to other buildings on the same lot shall be high-efficacy luminaires.

Exception 1: Permanently installed outdoor luminaires that are not high-efficacy shall be allowed provided that they are controlled by a motion sensor(s) [sic] with integral photocontrol certified to comply with Section 119 (d).

Exception 2: Permanently installed luminaires in or around swimming pools, water features, or other locations subject to Article 680 of the California Electric Code need not be high-efficacy luminaires.
NSP ADDENDUM 1. GREEN SPECIFICATIONS

Addendum 1.01 Replace conventional faucets, showerheads, and toilets with water-saving/low-flow components.

Addendum 1.02 Paint with low or no volatile organic compound (low VOC) paints.

Addendum 1.03 Install Energy Star rated appliances when appliances are being replaced. Cook tops should have fan hoods that are ventilated to the outside.

Addendum 1.04 Install Energy Star qualified heating/ventilation/air conditioning units when existing HVAC is being replaced.

Addendum 1.05 Install Energy Star qualified light fixtures with energy efficient light bulbs.

Addendum 1.06 Replace standard windows with low-emissivity, double pane windows.

Addendum 1.07 Install of low-VOC carpet or renewable bamboo.

Addendum 1.08 Install durable (minimum 15 years useful life) countertops.

Addendum 1.09 Properly seal openings to the outside with weather stripping and pest barriers.

NSP ADDENDUM 2. LANDSCAPING

STANDARD – USE COST EFFECTIVE WATER EFFICIENT MEASURES WHEN UPGRAADING FRONT AND BACK YARD LANDSCAPING.

Addendum 2.01 Grade yards as necessary to divert surface water away from house and towards the natural drainage path.

Addendum 2.02 If landscaping is salvageable:

• Trim trees and plantings
• Check and repair irrigation system as necessary. Test for leaks and repair system
• Install 3” of mulch to planted areas.

Addendum 2.03 Install weather base irrigation controller (if applicable)

Addendum 2.04 Employ high-efficiency irrigation systems with zones to separate plants with low and high watering needs (if applicable)
Addendum 2.05  Install 3" of mulch to planted areas.

Addendum 2.06  Minimize turf areas

Addendum 2.07  Maintain existing and/or plant new drought tolerant shade trees.

Addendum 2.08  A minimum of 75% of installed landscaping shall be drought tolerant.

Addendum 2.09  Remove any invasive species and replace with low water plants