CITY OF MANTECA
COMMUNITY DEVELOPMENT DEPARTMENT
1001 West Center Street • Manteca, CA 95337 • FAX (209) 923-8949
Building Safety Division (209) 456-8550 • Community Development/Planning Division (209) 456-8500

Residential Addition

NOTE: Check with your homeowners' association and architectural review committee for Conditions, Covenants & Restrictions (CC&R's). The City of Manteca has no regulatory authority to enforce or notify permit applicants of CC&R requirements, nor deny permits for non-compliance.

DESIGN CRITERIA/APPLICABLE CODES

- Seismic Design Category D
- Basic wind speed (85 mph) Exposure C
- Climate Zone 12
- Codes: —2010 CBC: Building
  —2010 CPC: Plumbing
  —2010 CMC: Mechanical
  —2010 CEC: Electrical
  —2010 CFC: Fire
  —2008 Building Energy Efficiency Standards

DRAWING CRITERIA

- It is preferred that drawings be limited in size to a MINIMUM of 18"x24" and a MAXIMUM of 30"x42"
- Plans must be clear, complete, and legible; illegible or incomplete plans will not be accepted.
- Preferred scale: 1/4 inch per foot for structural and architectural; 1 inch = 20 feet for site plans

WHAT'S INCLUDED IN THIS HANDOUT

SUBMITTAL CHECKLIST

- ***Incomplete submittals will not be accepted***
- ***No submittals accepted after 4:00 p.m.***
- ***Estimated fees are to be paid at the time of submittal***
- ***Each submittal, five (5) pages or more, and all supporting documents must be accompanied by an electronic copy of plans in PDF or TIFF form.***

Final two sets of plans must be wet-signed by preparer on each page. Architect/Engineer must affix their seal and wet-sign. Cover sheet of supporting documents also to be wet-signed. Project address must be on each sheet.

SUBMITTAL DOCUMENTS CHECKLIST

- ☐ COMPLETED BUILDING PERMIT APPLICATION
- ☐ COVER SHEET (3)
- ☐ SITE PLAN (3)
- ☐ FLOOR PLAN (3)
- ☐ ELEVATIONS (3)
- ☐ ARCHITECTURAL & STRUCTURAL SHEETS (3 sets)
- ☐ PLUMBING/MECHANICAL/ELECTRICAL SHEETS (3 sets)
- ☐ STRUCTURAL CALCULATIONS (2 sets)
- ☐ TRUSS CALCULATIONS (2 sets, if applicable)
- ☐ TITLE 24 ENERGY DOCUMENTS (2 sets)
- ☐ GRADING PLAN (2 sets, if applicable)

THE FOLLOWING ADDITIONAL ITEMS MAY BE REQUIRED BASED ON PROJECT TYPE, SCOPE, AND/OR LOCATION:

- Manteca Unified School District certificate of fees paid (additions of 500 sq. ft. and over)
- Special Inspection Agreement
- Soils Report
- Electrical Load Calculations
- Plumbing Calculations
- Sound Attenuation Details

SEPARATE PERMITS AND PLANS ARE REQUIRED FOR THE FOLLOWING TYPES OF WORK:

- Pools and spas
- Accessory structures proposed on the plot plan

INFORMATION REQUIRED ON PLAN SUBMITTALS

COVER SHEET:

- Legal address of project site
- Assessor's Parcel Number (APN)
- Name, address, phone number of owner, contractor and contact person
- Name, address, phone number, title and registration information of project design professional
- Written description of work to be undertaken
- Current applicable codes and edition dates
- Occupancy classification and type of construction
- Zoning
- Gross square footage area by floor
- Index of drawings
- Scale used for any drawings on cover sheet

SITE PLAN (see sample on pg. 7):

- North arrow
- Lot dimensions & boundaries, showing entire parcel
- Scale used
- Legal address of job site
- Existing and proposed structures, including solid covered patios, porches, sheds, etc., and their areas in square feet and number of stories; include building walls on adjoining properties that are within 10 feet of the subject property
- Distances of structures from property lines and other structures
- Utility lines and connection points (water, sewer, electrical, gas, cable, fire hydrants, etc.)
- Adjoining streets
- Driveways and parking areas
- All easements
- Existing trees on property; note those to be removed
- Fence bollards, barriers or walls; indicate material of construction and height
- Patios, walkways, existing and proposed sidewalks
- Proposed pad and finished floor elevations
- Signature of preparer (two copies must be wet-stamped)

FLOOR PLAN (see sample on pg. 8):

- Dimensions and use of all existing and proposed rooms and/or areas inside buildings

ELEVATIONS SHALL SHOW ALL SIDES OF BUILDING, INCLUDING:

- Windows, doors
- Rooftop equipment
- Types of siding and roofing materials
- Dimensions of all elements, including height of structures
- Roof vents: show compliance with Sec. 1203.2 CBC

TRUSS PLANS & CALCULATIONS (if applicable):

- Truss layout plan with truss member identification corresponding to each truss
- Connection details
- Lateral bracing details
- Project designer approval

ARCHITECTURAL & STRUCTURAL PLANS:

- Foundation and structural floor framing plans; include details of footings, piers, and grade beams
- Architectural floor plan(s), dimensioned, will all openings listed as to size and operation. If it is an addition, show all rooms adjoining the new addition and their window sizes
- Roof plan; show eaves, overhangs, rakes and gables, size of rafters, sheathing material, roofing material, etc.
- A cross-section of each structural system, detailing all structural connections
- Structural second-floor, ceiling-joist, and rafter plans
- Structural systems and materials listing
- Details to include:
    - Fireplace: masonry
    - Post and girder intersections
    - If applicable, stairway rise and run, framing, attachment, and dimensions of members

PLUMBING, MECHANICAL & ELECTRICAL SHEETS:

- Location of all plumbing fixtures
- Location of all mechanical units, ducts, and registers
- Location of all electrical outlets, switches, lights, arc fault and G.F.C.I. outlets, smoke detectors, and service and sub-panel locations and sizes

TITLE 24 ENERGY DOCUMENTS:

- CF-1R ADD form with required signatures if addition is under 1,000 square-feet.
- CF-1R form with required signatures if addition is over 1,000 square-feet.
- Integrate MF-1R (mandatory measures) into plans
- Heating/cooling calculations and equipment listings

GRADING PLAN (if required):

- Existing and proposed grading plans
- Pad elevations ground slope drainage scheme and topographic plan drawn to 1'-0" contours
- Retaining walls and drainage systems, existing and proposed

SETBACK AND LOT COVERAGE REQUIREMENTS

This overview is provided for your reference only. *Prior to building any structure or making an addition or modification to any existing structure, check with the Community Development Department at (209) 456-8500 regarding minimum required distances from property lines and other structures, as well as finding the location of any easements.*

LOT COVERAGE:

The maximum area of a lot that may be covered by roof structures (house, patio, garage, carport, sheds, etc.) is forty-five (45) percent for single-story homes and forty (40) percent for two-story homes.

PROPERTY LINE:

Contact the Planning Division for property line setbacks. The back edge of the sidewalk is NOT the property line. The property line is normally 2 feet in back of the sidewalk.

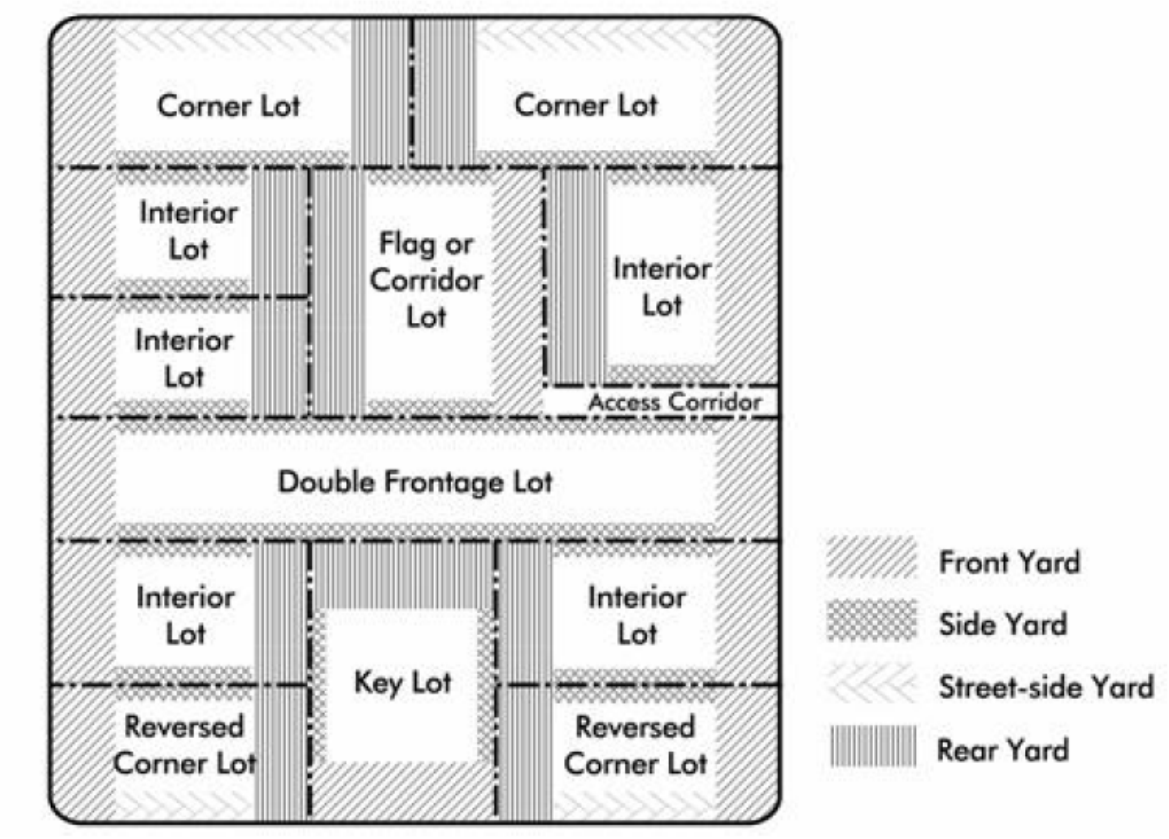
DRIVEWAYS:

Driveways shall be a minimum of 20 feet in length, from carport or garage to property line.

CORNER LOT DRIVEWAYS:

Driveways shall not be located closer than 20 feet to radius return.

FIGURE 17.100.060-3 LOT TYPES



REQUIRED INSPECTIONS

When you are ready for an inspection, call the Building Safety Division's 24-hour inspection recorder at (209) 456-8552. You will be asked to leave your permit number, job site address, type of inspection being requested, date for which you wish to schedule the inspection, and your contact information. Please speak slowly and clearly. Requests left by 4:00 p.m. will be scheduled for the next business day; requests left after 4:00 p.m. will be scheduled for the second following business day.

The approved set of plans, including structural calculations, truss calculations, and/or energy calculations, must be on-site for each inspection. The Inspection Record card must be posted for the inspector's signature.

If the inspector approves the work, the Inspection Record card will be initialed and dated. If the work is not approved, the inspector will leave a correction notice stating which corrections are needed. It is the permit-holder's responsibility to make the required corrections and request a re-inspection of the work.

THE TYPICAL ORDER OF ON-SITE INSPECTIONS IS AS FOLLOWS:

1. UNDER-SLAB PLUMBING:

Drain lines must be plugged and filled with water through a 10' vertical riser. Water lines must be tested with a pressure of 50 psi or City water street pressure for a minimum of 15 minutes. Property lines should be clearly marked.

2. FOUNDATION:

Trenches must be excavated and reinforcing in place. Forms erected and hold-downs held in place. Property lines should be clearly marked.

3. SLAB INSPECTION:

Gravel, compacted sand or soil must be in place. Mesh or reinforcement must be placed over moisture barrier if required. Pipes penetrating slab must be protected from expansion and breakage.

4. UNDERFLOOR INSPECTION:

Prior to installation of floor sheathing, the drain lines must be plugged and filled with water through a 10' vertical riser. Water lines must be tested with a pressure of 50 psi or City water street pressure for a minimum of 15 minutes. Gas lines must be tested to hold a pressure of 10 psi for 15 minutes. The mechanical duct system must be installed and insulated. All floor framing must be in place.

5. DIAPHRAGM & ROOF NAILING:

If the building has shear panels (walls, roof, floor) a nailing inspection is required prior to covering. All metal connectors must be installed. Plans to state exact size and spacing of nails. Trusses should be completed and ready for inspection at the time of the roof nail inspection and truss plans on the job site. *All framing should be completed prior to scheduling this inspection.*

6. ROUGH FRAME INSPECTION:

All rough plumbing, mechanical and electrical must be complete. Windows, roofing and siding installed (stucco lath installed without stucco). No insulation can be installed.

7. INSULATION INSPECTION:

Only certified or approved insulation may be installed. All gaps around windows and penetrations through plates must be sealed with foam sealant. Underfloor must be accessible to inspector and insulation certificate must be on-site.

8. SHEETROCK NAILING INSPECTION:

Prior to taping and texturing, all sheetrock must be in place and must be inspected and approved. Walls of bathtub/shower areas must have moisture-resistant (greenboard) sheetrock. Gas lines should be pumped to 15 lbs.

9. LATH INSPECTION:

Sheetrock must be installed prior to lath inspection. All tears and holes in lath must be patched or sealed.

10. FINAL INSPECTION:

Structure must be completely finished and ready for occupancy. Electric service must be energized.

11. ELECTRIC METER TAGGING:

(If upgrading service)

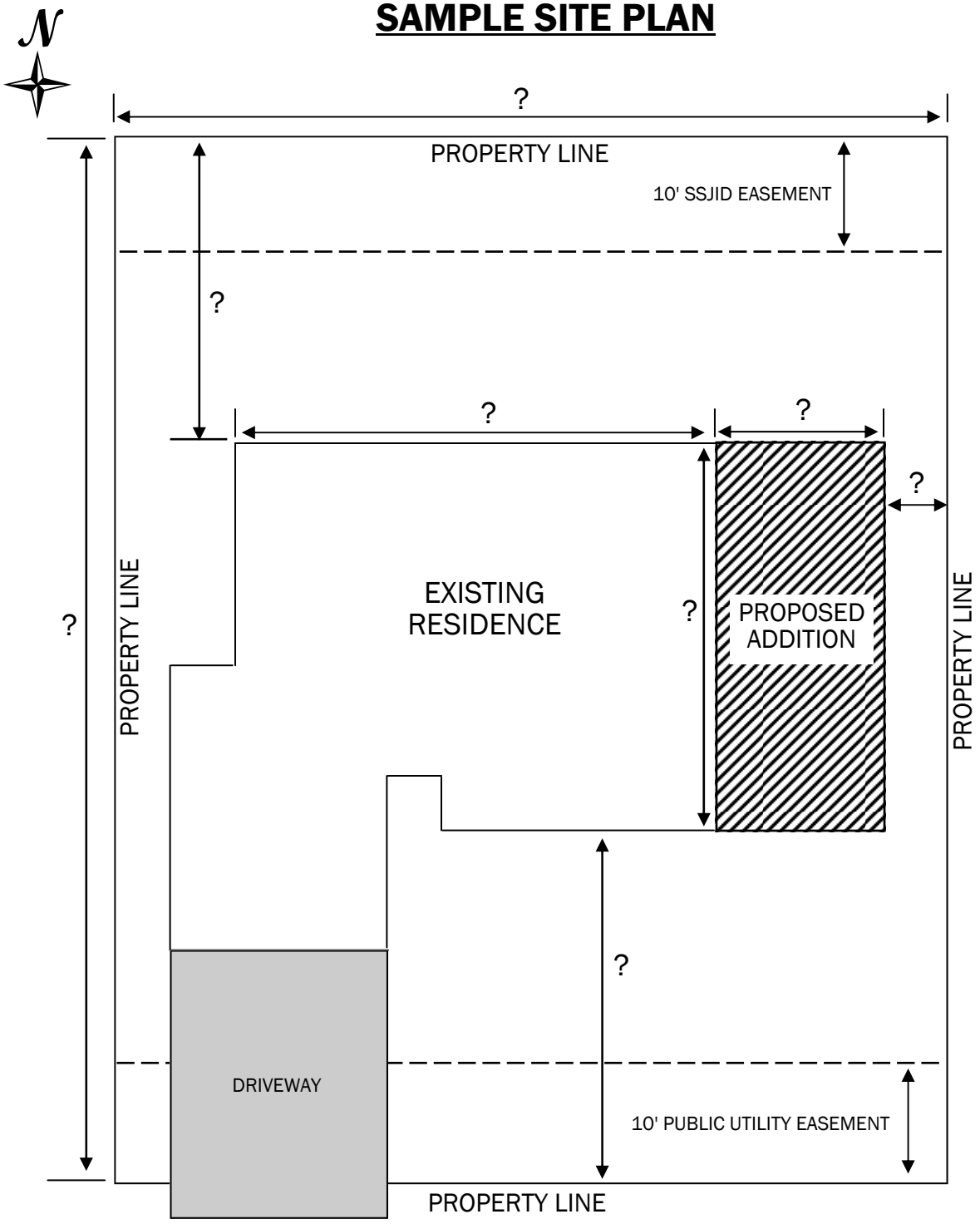
Method of grounding (Ufer) must be visible for inspection. If no Ufer ground available, must install two (2) 5/8" ground rods spaced a minimum of six feet apart. When approved, the inspector will leave a clearance tag on/in the panel box and a card for the applicant to fax to PG&E.*

12. GAS METER TAGGING:

The gas test must be approved prior to requesting a gas tag. At least one appliance must be installed. If approved, the inspector will leave a clearance tag on the gas line at the meter location and will give the applicant a PG&E clearance card. A clearance tag will not be issued unless the building has received a final inspection approval or an application for "Temporary Clearance for Connection of Utilities" has been submitted and approved. The submittal for "Temporary Clearance for Connection of Utilities" must comply with the utility release policy and must be accompanied by a letter stating the reason for the early release of the gas utility.

*Release forms may be faxed to: (800) 700-5722.

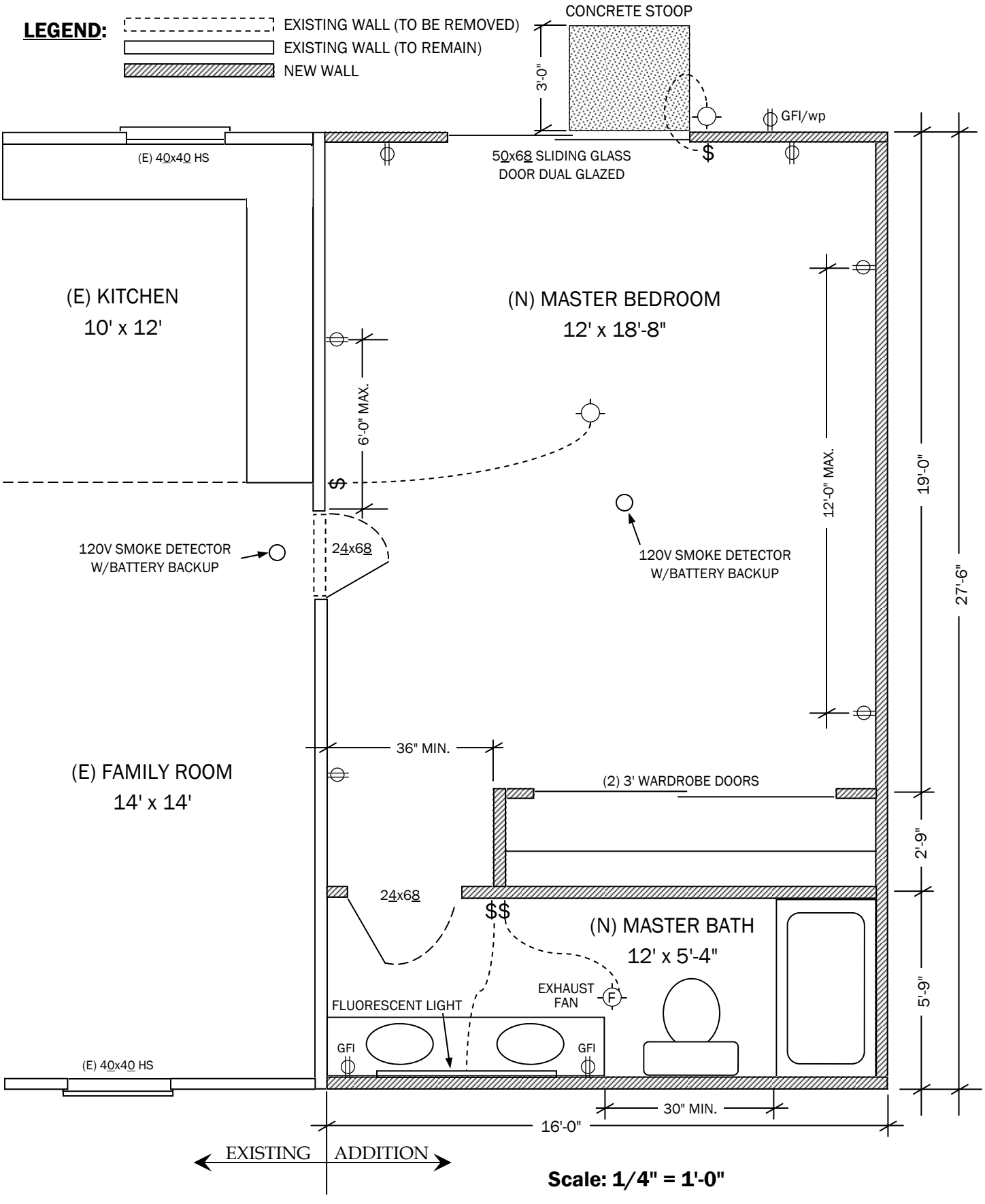
SAMPLE SITE PLAN



HOUSE NUMBER AND STREET NAME

1) Show lot dimensions and total square footage of all covered areas.
2) Check with the Planning Division for building setback requirements.
3) Check with Public Works for location of any utility easements.

SAMPLE FLOOR PLAN



Scale: 1/4" = 1'-0"

NATURAL LIGHT AND VENTILATION REQUIREMENTS
(Windows, Doors and Skylights)

NATURAL LIGHT:

Habitable rooms within a dwelling unit shall be provided with natural light by means of exterior glazed openings with an area not less than 8% of the floor area of such rooms with a minimum of twenty-five (25) square feet. *(2010 CRC R303.1)*

VENTILATION:

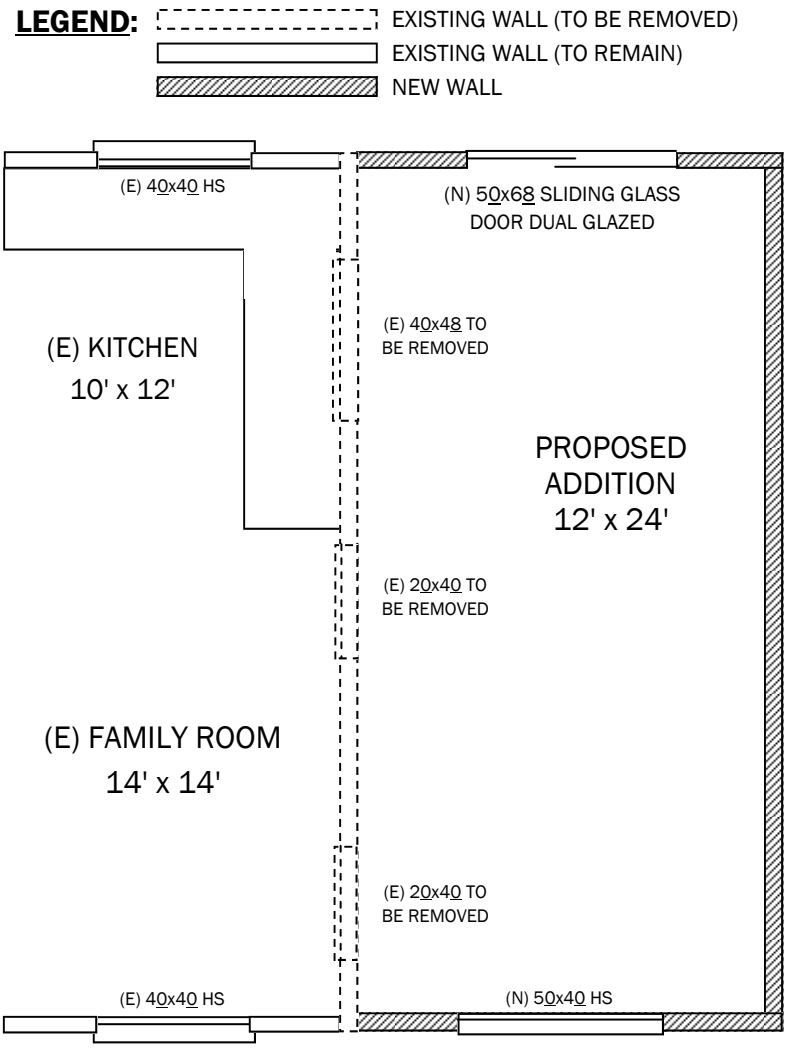
Habitable rooms within a dwelling unit shall be provided with natural ventilation by means of openable exterior openings with an area of not less than 4% of the floor area of such rooms with a minimum of twenty-five (25) square feet. *(2010 CRC R303.1)*

ROOMS ADJOINING PROPOSED ADDITION:

If there are windows and doors that are affected by the addition, rooms adjoining the addition need to be reviewed for lighting and ventilation requirements the same as for new construction.

NOTE: Provide floor plans of rooms adjoining the addition. Indicate any windows and doors (including their sizes and method of opening) which are affected by the addition.

SAMPLE ANALYSIS



PROPOSED ADDITION: 12'x24' = 288 SQ. FT.

LIGHTING REQUIREMENT:
288 SQ. FT. x .08 ..... = 23.04 SQ. FT.
VENTILATION REQUIREMENT:
288 SQ. FT. x .04 ..... = 11.52 SQ. FT.
PROPOSED LIGHTING:
5' x 4' + 5' x 6.67 = 53.35 SQ. FT. ..... > 23.04 SQ. FT. ***OK!***
PROPOSED VENTILATION:
2.5' x 4' + 2.5' x 6.67 = 26.68 SQ. FT. . > 11.52 SQ. FT. ***OK!***

EXISTING KITCHEN: 10'x12' = 120 SQ. FT.

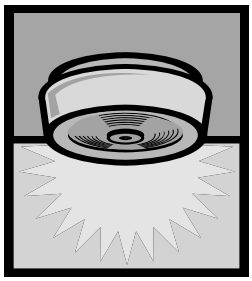
LIGHTING REQUIREMENT:
120 SQ. FT. x .08 ..... = 9.6 SQ. FT.
VENTILATION REQUIREMENT:
120 SQ. FT. x .04 ..... = 4.8 SQ. FT.
(E) WINDOW:
LIGHTING: 4' x 4' = 16 SQ. FT..... > 9.6 SQ. FT. ***OK!***
VENTILATION: 2' x 4' = 8 SQ. FT. ..... > 4.8 SQ. FT. ***OK!***

EXISTING FAMILY RM: 14'x14' = 196 SQ. FT.

LIGHTING REQUIREMENT:
196 SQ. FT. x .08 .....= 15.68 SQ. FT.
VENTILATION REQUIREMENT:
196 SQ. FT. x .04 ..... = 7.84 SQ. FT.
(E) WINDOW:
LIGHTING: 4' x 4' = 16 SQ. FT.....> 15.68 SQ. FT. ***OK!***
VENTILATION: 2' x 4' = 8 SQ. FT. .....>7.84 SQ. FT. ***OK!***

Based on these calculations, no additional windows or enlarging of the existing window is required.

Smoke Detectors and Carbon Monoxide Detectors

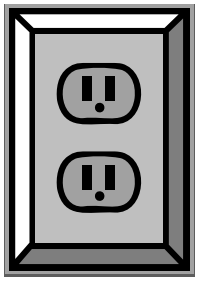


- Smoke detectors shall be installed in every sleeping room, in the hallway outside any sleeping room and on every story including basements and habitable attics.
- Smoke detectors in new bedrooms or hallways must be connected to the house wiring and must also have a battery backup. They shall be interconnected when accessible.
- Carbon Monoxide detectors are required outside sleeping area and on every story. These detectors are also to be interconnected. Multi-purpose alarms are allowed if approved by the State Fire Marshal.
- Show location of each smoke detector on the plans.

ELECTRICAL RECEPTACLES, SWITCHES & FIXTURES

Show locations of all electrical receptacles, switches, and fixtures.

A. Receptacles must be spaced not more than 12 feet apart, with the first outlet not more than six (6) feet from the door, fireplace, or similar opening. Every wall section at least two (2) feet wide or greater requires at least one receptacle.



B. At least one receptacle outlet shall be installed in hallways ten (10) feet or more in length.

C. The following Receptacles shall be GFI-protected:
All receptacles in Bathrooms
All kitchen counter receptacles
All exterior receptacles
All receptacles in garages or accessory buildings that have a floor at or below grade level.
All receptacles in crawl spaces or unfinished basements at or below grade level.
Any other receptacle within 6' of a sink.

D. Receptacles in kitchens and dining areas shall be installed at each counter space so that no point along the wall line is more than 24 inches, measured horizontally from a receptacle outlet in that space. Island and peninsular counter tops 12 inches or wider shall have at least one receptacle.

E. All rooms, halls, and exterior doors must have a switch controlling a light fixture or receptacle.

F. Arc Fault protection is required everywhere not Ground fault protected.

G. All receptacles shall be tamper resistant. CEC 406.11

HIGH-EFFICACY GENERAL LIGHTING

Provide high-efficacy general lighting throughout (see exceptions in the CEC 150(k). High-efficacy lighting shall be at least 30 lumens per watt (see Table 150-C) be switched separately and shall be controlled by the most accessible switch location.

Refer to the information on the following two pages for information on California's Title 24 Residential Lighting Standards.

OVERVIEW of 2010 TITLE 24 LIGHTING STANDARDS

Kitchen	***High-efficacy*** ***OR*** ***Up to 50% of total wattage can be low-efficacy (incandescent)*** ***All high-efficacy and low-efficacy lighting must be switched separately***
Bathroom Garage Laundry Rm Utility Rm	***High-efficacy*** ***OR*** ***Low-efficacy if equipped with a Manual-ON/Automatic-OFF occupancy sensor***
All Other Interior Rooms ***(Living Room, Bedrooms, Dining Room, Hallways) except closets less than 70 sq. ft.***	***High-efficacy*** ***OR*** ***Low-efficacy if equipped with a Manual-ON/Automatic-OFF occupancy sensor*** ***OR*** ***Low-efficacy if equipped with a dimmer switch***
Outdoor lighting attached to buildings	***High-efficacy*** ***OR*** ***Low-efficacy if equipped with a motion-sensor*** ***AND*** ***a photo control to turn off fixtures during daytime***
Common areas of low-rise residential buildings (4 or more dwelling units)	***High-efficacy*** ***OR*** ***Low-efficacy if equipped with an occupancy sensor***

FOR ALL APPLICATIONS:

- Electronic ballasts for all fluorescent lamps rated 13 watts or greater
- Recessed luminaires in all insulated ceilings approved for zero-clearance insulation cover (IC) and certified airtight ASTM E283

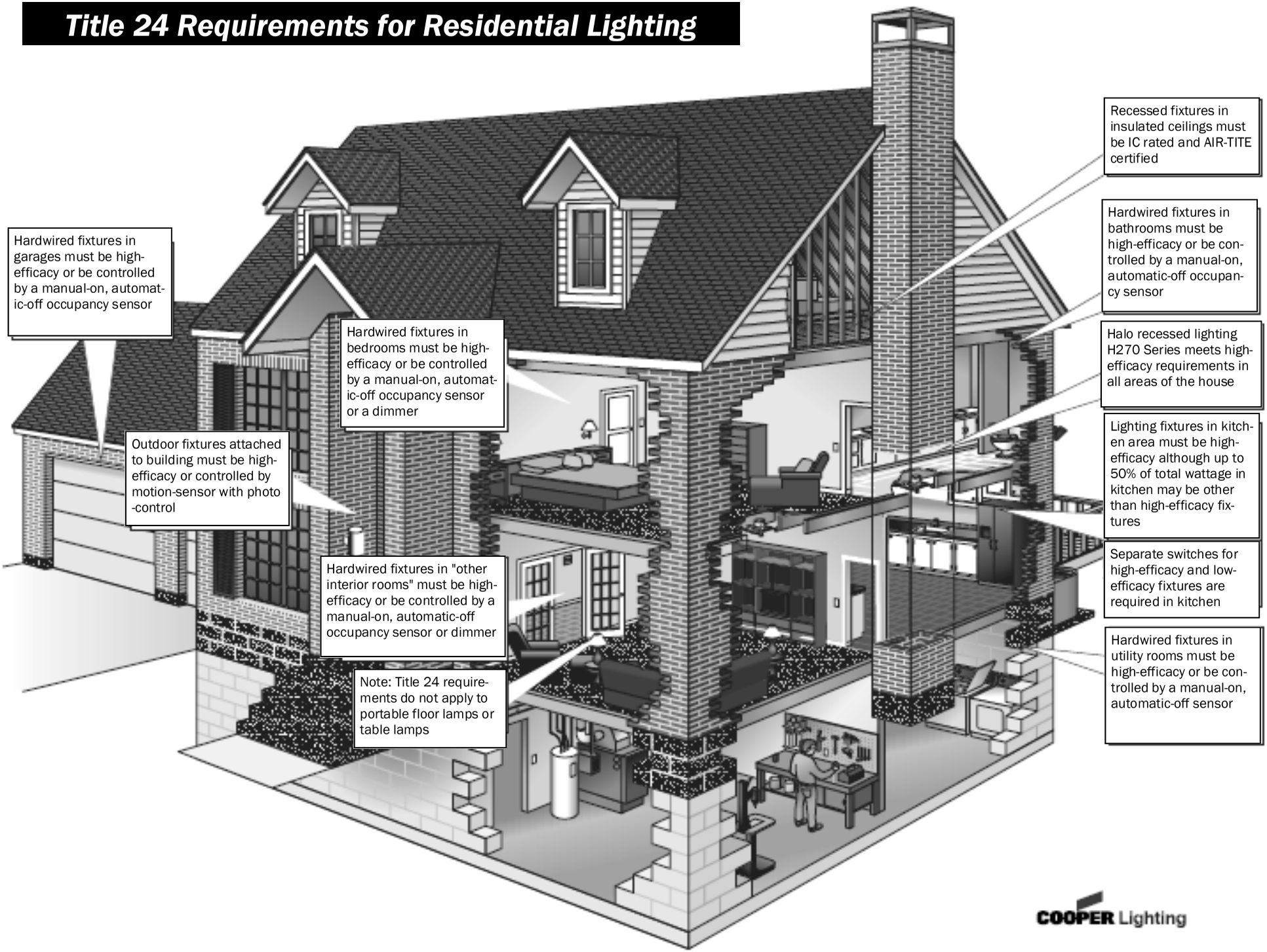
HIGH-EFFICACY FIXTURES

Lamp Power	*Minimum Efficacy Lumens per Watt*	*Compliant Indoor Lamps*	*Compliant Outdoor Lamps*
15 Watts or Less	*40 LPW*	• *Compact Fluorescent* • *Fluorescent*	• *Metal Halide* • *HPS* • *Compact Fluorescent*
>15 Watts to 40 Watts	*50 LPW*	• *Compact Fluorescent* • *Fluorescent*	• *Metal Halide* • *HPS* • *Compact Fluorescent*
>40 Watts	*60 LPW*	• *Compact Fluorescent* • *Fluorescent*	• *Metal Halide* • *HPS* • *Compact Fluorescent*

Note:

• High-efficacy luminaires may not contain medium screw-base sockets. Exception: outdoor metal halide or high-pressure sodium (HPS) high-intensity discharge luminaires with electromagnetic ballast may have medium screw-base sockets if minimum efficacy and motion-sensor/ photo-control requirements are met.

Title 24 Requirements for Residential Lighting



COOPER Lighting

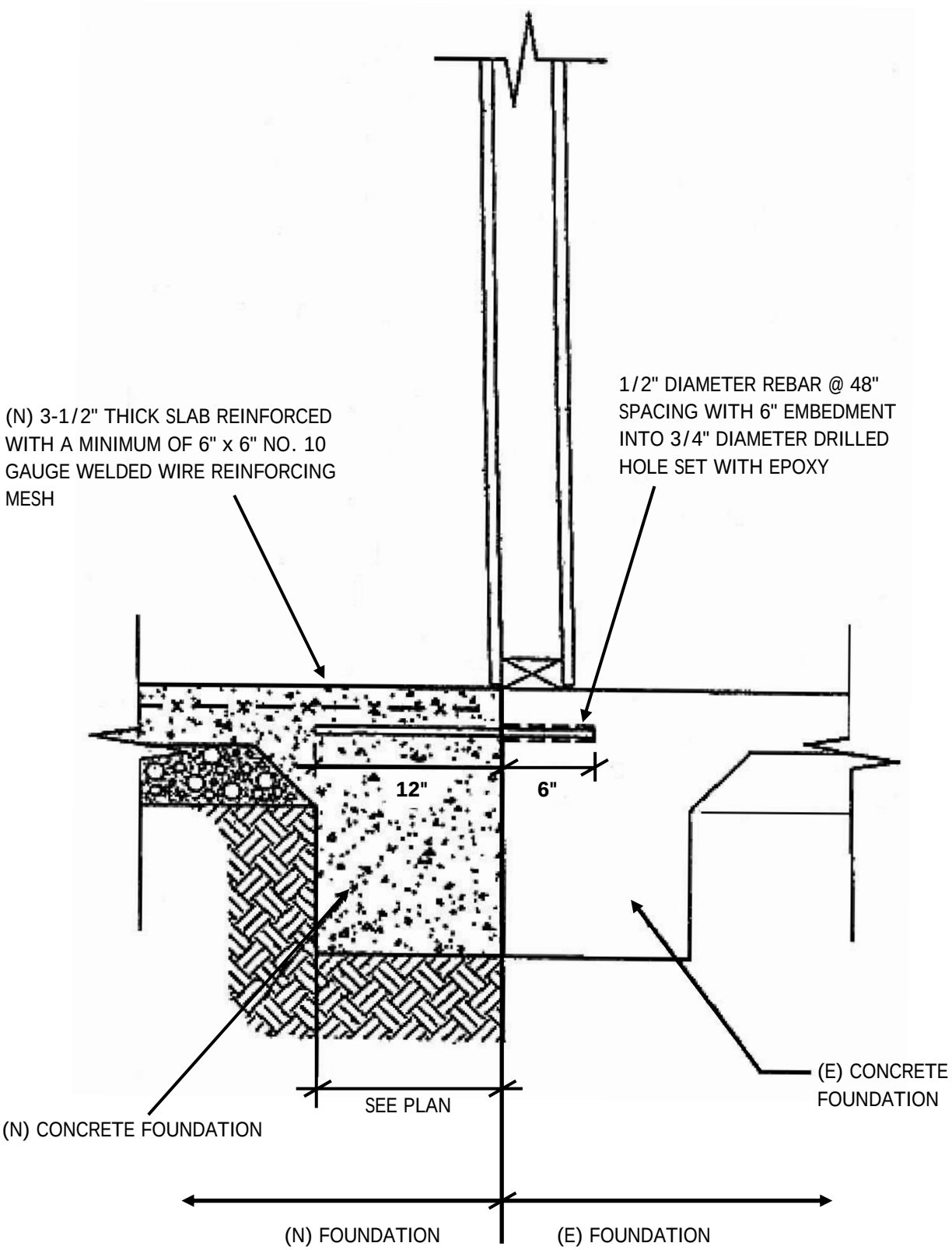
PRESCRIPTIVE ENERGY STANDARDS FOR ROOM ADDITIONS

REQUIREMENTS FOR ADDITIONS OF 100 SQUARE FEET OR LESS	REQUIREMENTS FOR ADDITIONS OF 101 TO 1,000 SQUARE FEET	REQUIREMENTS FOR ADDITIONS OF 1,001 SQUARE FEET AND OVER
BUILDING INSULATION Ceiling = R-19 Walls = R-13 Crawl Space = R-13 Window U = 0.40 (Low E) SHGC = 0.40	**BUILDING INSULATION** Ceiling = R-38 Walls = R-13 Crawl Space = R-19 Window U = 0.40 (Low E) SHGC = 0.40	**BUILDING INSULATION** Ceiling = R-38 Walls = R-19 Crawl Space = R-19 Window U = 0.40 (Low E) SHGC = 0.40
Radiant Barrier Not Required	***Radiant Barrier Required***	***Radiant Barrier Required***
HEATING & COOLING* AFUE = 0.78 Min. SEER Rating = 13 SEER Duct Sealing = Required** Duct Insulation = R-6	**HEATING & COOLING*** AFUE = 0.78 Min. SEER Rating = 13 SEER Duct Sealing = Required** Duct Insulation = R-6	**HEATING & COOLING*** AFUE = 0.78 Min. SEER Rating = 13 SEER Duct Sealing = Required** Duct Insulation = R-6
MAXIMUM GLAZING **(Dual Glaze)** ≤ 50 sq. ft.	**MAXIMUM ALLOWABLE GLAZING SQUARE FEET** **(Dual Glaze)** Addition: _____ sq.ft. x 0.20 = _____ (+) Removed Glazing: _____ = Max. Allowable Glazing: _____ Proposed Glazing: _____ **WEST ORIENTATION GLAZING MAXIMUM 5%** **(Dual Glaze)** Addition _____ sq.ft. x 0.05 = _____ Actual West Glazing: _____	**MAXIMUM ALLOWABLE GLAZING SQUARE FEET** **(Dual Glaze)** Addition: _____sq.ft. x 0.20 = Max. Allowable Glazing: _____ Proposed Glazing: _____ **WEST ORIENTATION GLAZING MAXIMUM 5%** **(Dual Glaze)** Addition _____sq.ft. x 0.05 =_____ Actual West Glazing: _____

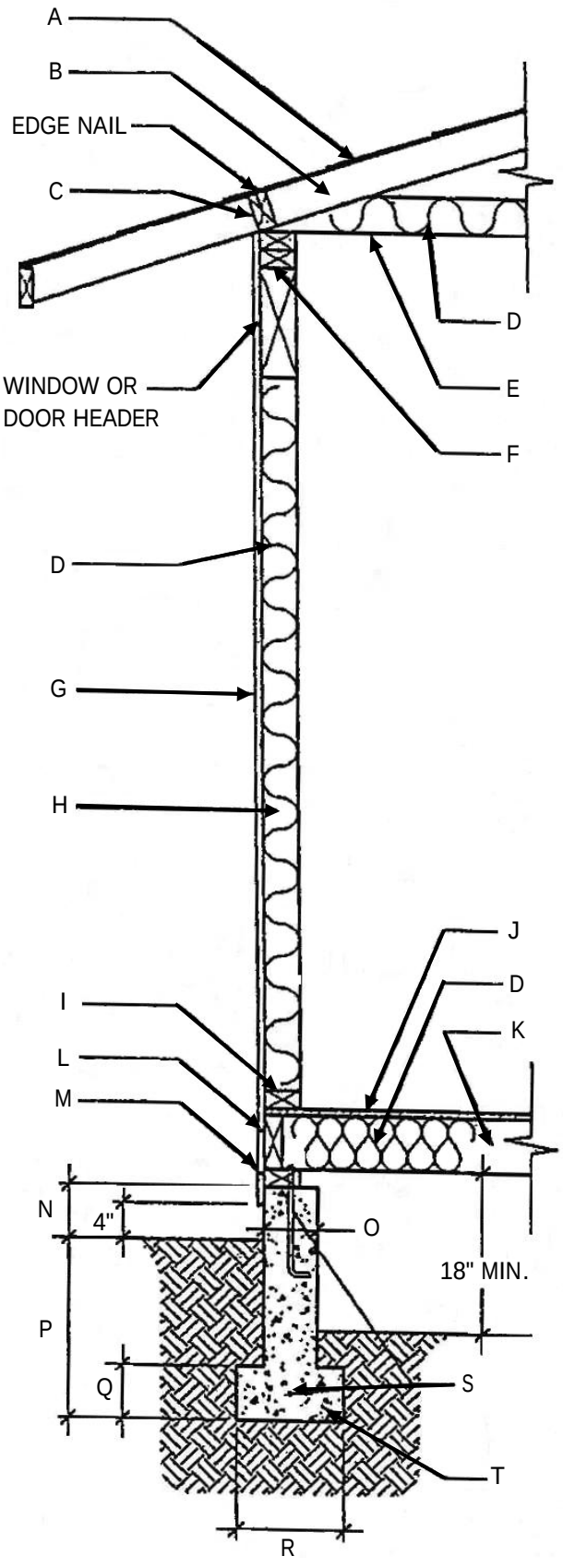
* If heating and cooling system is left unchanged, compliance with the standards is not required.

** If more than 40 feet of new or replacement ducts are installed in unconditioned space, duct testing is required.

ATTACHMENT OF NEW FOOTING TO EXISTING FOOTING



RAISED-FLOOR CONSTRUCTION SECTION



A. ROOF COVERING ON 15# FELT PAPER ON PLYWOOD OR 1" x 4" SKIP SHEATHING (WOOD SHAKE OR WOOD SHINGLE ONLY). PLYWOOD EDGE NAIL 8d @ 6" O.C.
_____" THICK, _____ SHEATHING

B. MANUFACTURED TRUSSES OR RAFTERS.
IF TRUSSES ARE USED, PROVIDE TRUSS CALCULATIONS.
RAFTERS: 2" x _____" @ _____ O.C.
(REFER TO ALLOWABLE SPAN FOR RAFTERS)

C. BLOCKING OR EAVE VENTS WITH 16d NAILS @ 8" O.C. TO DBL. TOP PLATE

D. MINIMUM REQUIRED INSULATION OR BETTER.
CEILING: R-_____, WALL: R-_____,
FLOOR: R-_____ (SEE "PRESCRIPTIVE ENERGY STANDARDS" PAGE FOR REQUIRED INSULATION)

E. CEILING JOIST: 2" x _____ @ _____" O.C.
(REFER TO ALLOWABLE SPAN FOR CEILING JOISTS)

F. DOUBLE TOP PLATE (MIN. 48" SPLICE) WITH 12 (16d) NAILS @ EACH SIDE OF SPLICE

G. SIDING MATERIAL: _____

H. STUD WALL WITH 2" x _____" STUDS @ 16" O.C.

I. WALL SILL PLATE WITH 16d NAILS @ 8" O.C. TO RIM JOIST

J. FLOOR SHEATHING: _____" THICK, _____ SHEATHING

K. FLOOR JOISTS OR FLOOR TRUSSES.
JOIST: 2" x _____ @ _____" O.C.
(REFER TO ALLOWABLE SPAN FOR FLOOR JOISTS)

L. 2" x _____" RIM JOIST WITH 16d NAILS @ 8" O.C. TO BOTTOM PLATE

M. BOTTOM PLATE (PRESSURE-TREATED WHEN IN CONTACT WITH CONCRETE) WITH 1/2" x 10" ANCHOR BOLT @ 6' O.C. MAX (MIN. TWO BOLTS PER SILL SECTION)

N. 6" MINIMUM CLEARANCE TO GRADE

O. 7-1/2" MINIMUM

P. 12" FOR ONE-STORY. 18" FOR TWO-STORY.

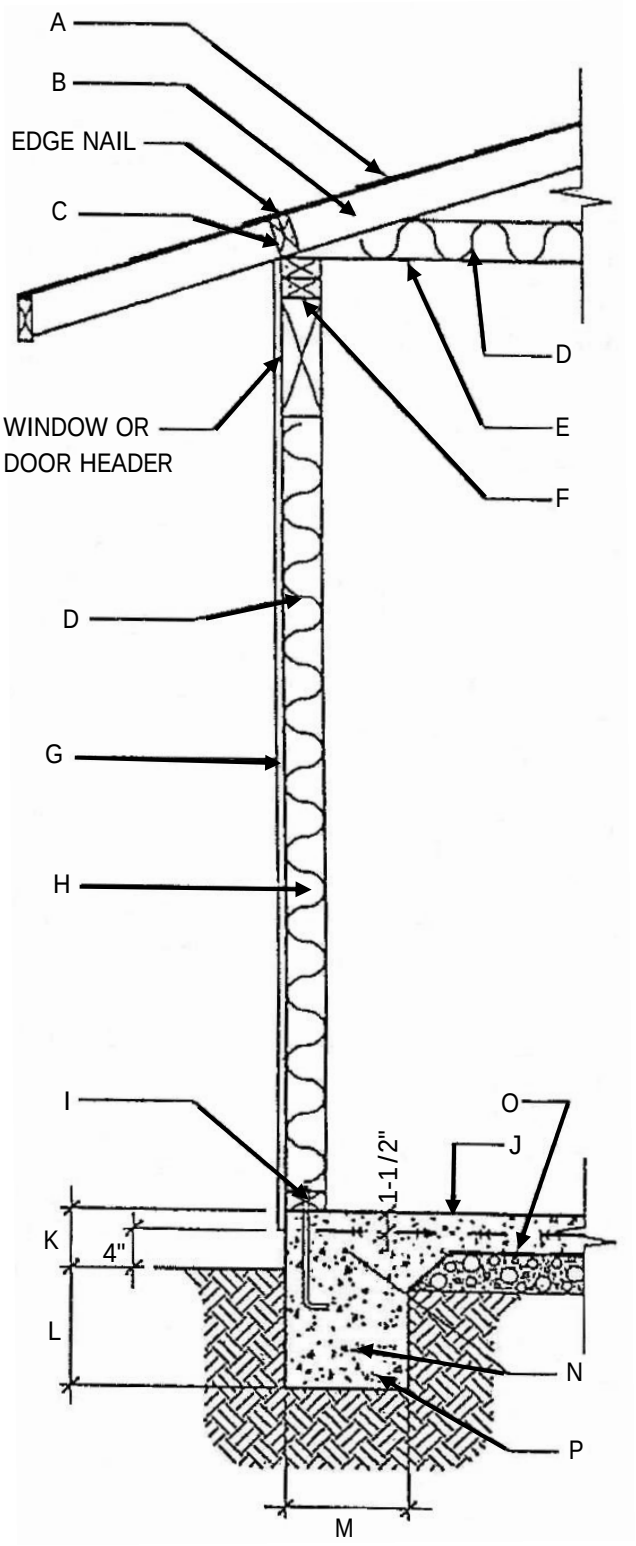
Q. 6" FOR ONE-STORY. 7" FOR TWO-STORY.

R. 12" FOR ONE-STORY. 15" FOR TWO-STORY.

S. (2) #4 REINFORCING BARS (CONTINUOUS)

T. CONCRETE FOUNDATION

SLAB-FLOOR CONSTRUCTION FOOTING



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_____" THICK, _____ SHEATHING

B. MANUFACTURED TRUSSES OR RAFTERS.
IF TRUSSES ARE USED, PROVIDE TRUSS CALCULATIONS.
RAFTERS: 2" x _____" @ _____ O.C.
(REFER TO ALLOWABLE SPAN FOR RAFTERS)

C. BLOCKING OR EAVE VENTS WITH 16d NAILS @ 8" O.C. TO DBL. TOP PLATE

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CEILING: R-_____, WALL: R-_____,
(SEE "PRESCRIPTIVE ENERGY STANDARDS" PAGE FOR REQUIRED INSULATION)

E. CEILING JOIST: 2" x _____ @ _____" O.C.
(REFER TO ALLOWABLE SPAN FOR CEILING JOISTS)

F. DOUBLE TOP PLATE (MIN. 48" SPLICE) WITH 12 (16d) NAILS @ EACH SIDE OF SPLICE

G. SIDING MATERIAL: _____

H. STUD WALL WITH 2" x _____" STUDS @ 16" O.C.

I. BOTTOM PLATE (PRESSURE-TREATED WHEN IN CONTACT WITH CONCRETE) WITH 1/2" x 10" ANCHOR BOLT @ 6' O.C. MAX (MIN. TWO BOLTS PER SILL SECTION)

J. 3-1/2" CONCRETE SLAB 2,000 PSI MINIMUM REINFORCED WITH A MINIMUM OF 6" x 6" #10 GAUGE WELDED WIRE REINFORCING MESH

K. 6" MINIMUM CLEARANCE TO GRADE

L. 12" FOR ONE-STORY. 18" FOR TWO-STORY.

M. 12" FOR ONE-STORY. 15" FOR TWO-STORY.

N. (2) #4 REINFORCING BARS (CONTINUOUS)

O. VAPOR BARRIER

P. CONCRETE FOUNDATION

SPAN TABLES AND ALLOWABLE LOADS

2007 CBC FOR RESIDENTIAL LIGHT-FRAME ONLY

Design Criteria: Douglas Fir-Larch
Strength: Live load of 40 psf, plus dead load of 10 psf
Limited to span in inches divided by L/240
Spans are limited to 26 feet

FLOOR JOISTS
Table 2308.8 (2), pages 370-371

SIZE & SPACING	GRADE #1	GRADE #2
2 x 6 @ 12" O.C.	10' 11"	10' 9"
@ 16" O.C.	9' 11"	9' 9"
@ 24" O.C.	8' 8"	8' 1"
2 x 8 @ 12" O.C.	14' 5"	14' 2"
@ 16" O.C.	13' 1"	12' 7"
@ 24" O.C.	11' 0"	10' 3"
2 x 10 @ 12" O.C.	18' 5"	17' 9"
@ 16" O.C.	16' 5"	15' 5"
@ 24" O.C.	13' 5"	12' 7"
2 x 12 @ 12" O.C.	22' 0"	20' 7"
@ 16" O.C.	19' 1"	17' 10"
@ 24" O.C.	15' 7"	14' 7"

CEILING JOISTS
Table 2308.10.2 (2), pages 385-386

SIZE & SPACING	GRADE #1	GRADE #2
2 x 4 @ 12" O.C.	10' 0"	9' 10"
@ 16" O.C.	9' 1"	8' 9"
@ 24" O.C.	7' 8"	7' 2"
2 x 6 @ 12" O.C.	15' 9"	14' 10"
@ 16" O.C.	13' 9"	12' 10"
@ 24" O.C.	11' 2"	10' 6"
2 x 8 @ 12" O.C.	20' 1"	18' 9"
@ 16" O.C.	17' 5"	16' 3"
@ 24" O.C.	14' 2"	13' 3"
2 x 10 @ 12" O.C.	24' 6"	22' 11"
@ 16" O.C.	21' 3"	19' 10"
@ 24" O.C.	17' 4"	16' 3"

RAFTERS
Table 2308.10.3 (1), pages 387-388

SIZE & SPACING	GRADE #1	GRADE #2
2 x 6 @ 12" O.C.	17' 4"	16' 7"
@ 16" O.C.	15' 4"	14' 4"
@ 24" O.C.	12' 6"	11' 9"
2 x 8 @ 12" O.C.	22' 5"	21' 0"
@ 16" O.C.	19' 5"	18' 2"
@ 24" O.C.	15' 10"	14' 10"
2 x 10 @ 12" O.C.	Note A	25' 8"
@ 16" O.C.	23' 9"	22' 3"
@ 24" O.C.	19' 5"	18' 2"
2 x 12 @ 12" O.C.	Note A	Note A
@ 16" O.C.	Note A	25' 9"
@ 24" O.C.	22' 6"	21' 0"

Note A: Span exceeds 26 feet in length. Check sources for availability of lumber in lengths greater than 20 feet.

HEADER & GIRDER SPANS FOR EXTERIOR BEARING WALLS

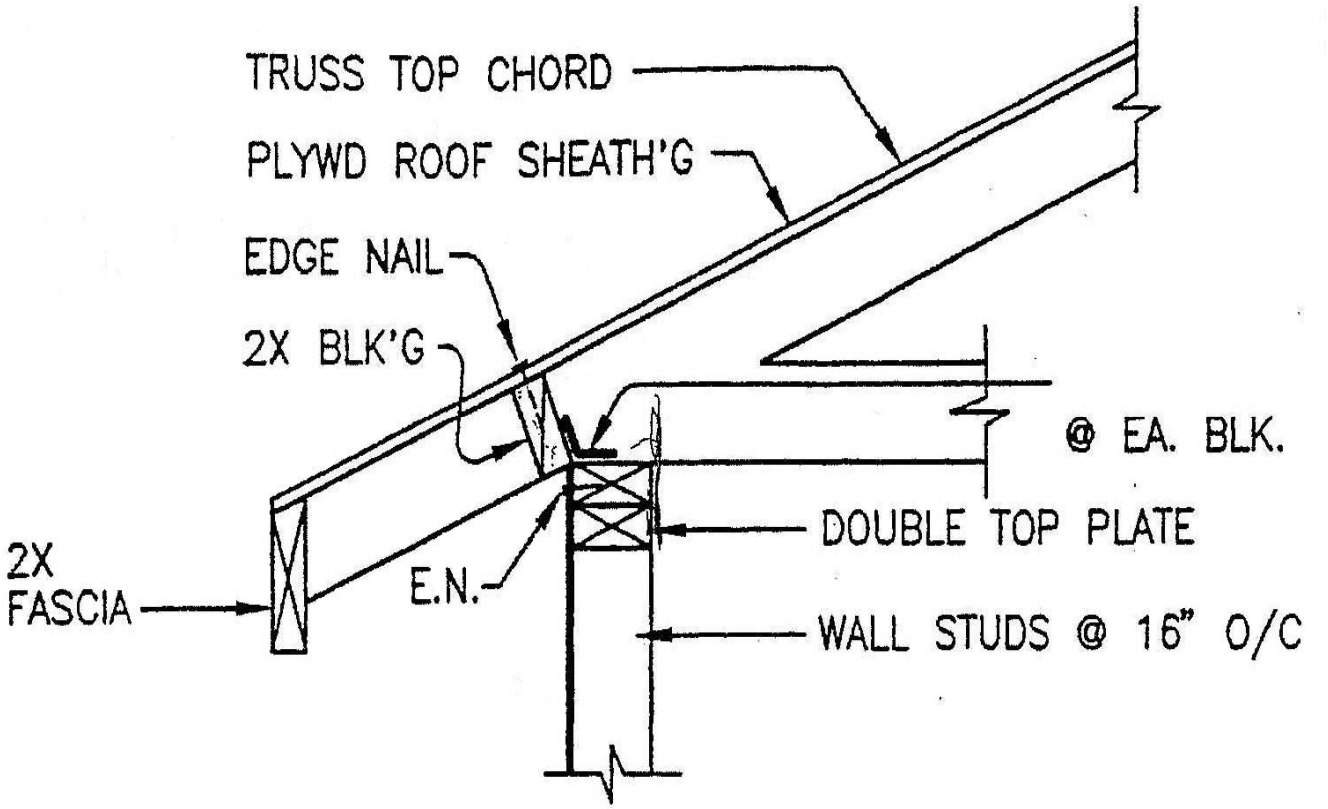
(Table 2308.9.5, California Building Code)

TABLE 2308.9.5
HEADER AND GIRDER SPANS[a] FOR EXTERIOR BEARING WALLS
(Maximum Spans for Douglas Fir-Larch, Hem-Fir, Southern Pine and Spruce-Pine-Fir[b] and Required Number of Jack Studs)

HEADERS SUPPORTING	SIZE	GROUND SNOW LOAD (psf)[e]															
		30						50									
		Building width[c] (feet)															
		20		28		36		20		28		36		20		28		36	
		Span	NJ[d]	Span	NJ[d]	Span	NJ[d]	Span	NJ[d]	Span	NJ[d]	Span	NJ[d]	Span	NJ[d]	Span	NJ[d]	Span	NJ[d]
Roof & Ceiling	2-2 × 4	3-6	1	3-2	1	2-10	1	3-2	1	2-9	1	2-6	1	2-9	1	2-4	1	2-2	1
	2-2 × 6	5-5	1	4-8	1	4-2	1	4-8	1	4-1	1	3-8	2	4-1	1	3-7	1	3-4	2
	2-2 × 8	6-10	1	5-11	2	5-4	2	5-11	2	5-2	2	4-7	2	5-2	2	4-7	2	4-3	2
	2-2 × 10	8-5	2	7-3	2	6-6	2	7-3	2	6-3	2	5-7	2	6-3	2	5-6	2	5-3	2
	2-2 × 12	9-9	2	8-5	2	7-6	2	8-5	2	7-3	2	6-6	2	7-3	2	6-5	2	6-1	2
	3-2 × 8	8-4	1	7-5	1	6-8	1	7-5	1	6-5	1	5-9	2	6-5	2	5-8	2	5-4	2
	3-2 × 10	10-6	1	9-1	2	8-2	2	9-1	2	7-10	2	7-0	2	7-10	2	7-0	2	6-8	2
	3-2 × 12	12-2	2	10-7	2	9-5	2	10-7	2	9-2	2	8-2	2	9-2	2	8-2	2	7-8	2
	4-2 × 8	9-2	1	8-4	1	7-8	1	8-4	1	7-5	1	6-8	1	7-5	1	6-8	1	6-3	2
	4-2 × 10	11-8	1	10-6	1	9-5	2	10-6	1	9-1	2	8-2	2	9-1	2	8-1	2	7-8	2
	4-2 × 12	14-1	1	12-2	2	10-11	2	12-2	2	10-7	2	9-5	2	10-7	2	9-4	2	8-10	2
Roof, Ceiling & 1 Center-Bearing Floor	2-2 × 4	3-1	1	2-9	1	2-5	1	2-9	1	2-5	1	2-2	1	2-5	1	2-3	1	2-0	1
	2-2 × 6	4-6	1	4-0	1	3-7	2	4-1	1	3-7	2	3-3	2	3-7	2	3-4	2	3-0	2
	2-2 × 8	5-9	2	5-0	2	4-6	2	5-2	2	4-6	2	4-1	2	4-6	2	4-2	2	3-9	2
	2-2 × 10	7-0	2	6-2	2	5-6	2	6-4	2	5-6	2	5-0	2	5-6	2	5-1	2	4-7	3
	2-2 × 12	8-1	2	7-1	2	6-5	2	7-4	2	6-5	2	5-9	3	6-5	2	5-11	3	5-4	3
	3-2 × 8	7-2	1	6-3	2	5-8	2	6-5	2	5-8	2	5-1	2	5-8	2	5-3	2	4-8	2
	3-2 × 10	8-9	2	7-8	2	6-11	2	7-11	2	6-11	2	6-3	2	6-11	2	6-5	2	5-9	2
	3-2 × 12	10-2	2	8-11	2	8-0	2	9-2	2	8-0	2	7-3	2	8-0	2	7-5	2	6-8	2
	4-2 × 8	8-1	1	7-3	1	6-7	1	7-5	1	6-6	1	5-11	2	6-6	1	6-1	2	5-5	2
	4-2 × 10	10-1	1	8-10	2	8-0	2	9-1	2	8-0	2	7-2	2	8-0	2	7-5	2	6-7	2
	4-2 × 12	11-9	2	10-3	2	9-3	2	10-7	2	9-3	2	8-4	2	9-3	2	8-7	2	7-8	2
Roof, Ceiling & 1 Clear Span Floor	2-2 × 4	2-8	1	2-4	1	2-1	1	2-7	1	2-3	1	2-0	1	2-3	1	2-1	1	1-10	1
	2-2 × 6	3-11	1	3-5	2	3-0	2	3-10	2	3-4	2	3-0	2	3-4	2	3-0	2	2-9	2
	2-2 × 8	5-0	2	4-4	2	3-10	2	4-10	2	4-2	2	3-9	2	4-2	2	3-10	2	3-6	3
	2-2 × 10	6-1	2	5-3	2	4-8	2	5-11	2	5-1	2	4-7	3	5-1	2	4-8	3	4-4	3
	2-2 × 12	7-1	2	6-1	3	5-5	3	6-10	2	5-11	3	5-4	3	5-11	3	5-5	3	5-0	3
	3-2 × 8	6-3	2	5-5	2	4-10	2	6-1	2	5-3	2	4-8	2	5-3	2	4-9	2	4-5	2
	3-2 × 10	7-7	2	6-7	2	5-11	2	7-5	2	6-5	2	5-9	2	6-5	2	5-10	2	5-5	2
	3-2 × 12	8-10	2	7-8	2	6-10	2	8-7	2	7-5	2	6-8	2	7-5	2	6-9	2	6-3	2
	4-2 × 8	7-2	1	6-3	2	5-7	2	7-0	1	6-1	2	5-5	2	6-1	2	5-6	2	5-1	2
	4-2 × 10	8-9	2	7-7	2	6-10	2	8-7	2	7-5	2	6-7	2	7-5	2	6-8	2	6-2	2
	4-2 × 12	10-2	2	8-10	2	7-11	2	9-11	2	8-7	2	7-8	2	8-7	2	7-9	2	7-2	2

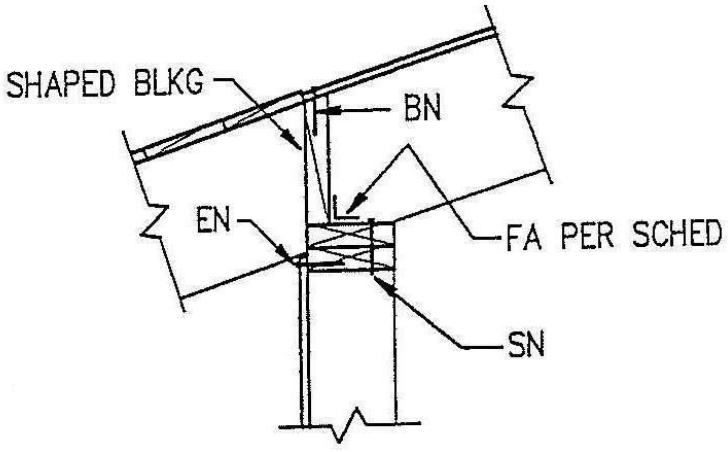
TYPICAL BLOCKING DETAIL

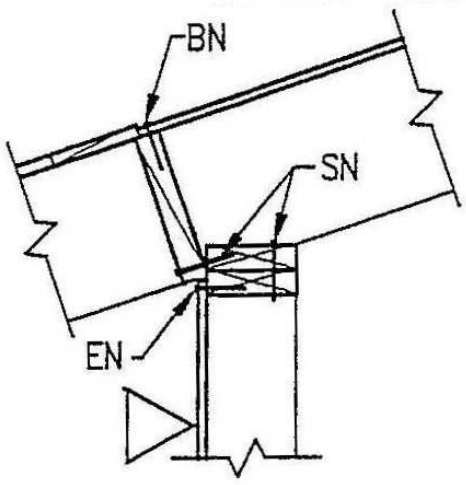
Not to scale



ROOF JOISTS AT PITCHED ROOF

Examples of completed load path





SEISMIC WALL BRACING in DESIGN CATEGORY D

(Excerpt from Table 2308.12.4, California Building Code)

(Minimum Length of Wall Bracing per each 25 Linear Feet of Braced Wall Line[a])

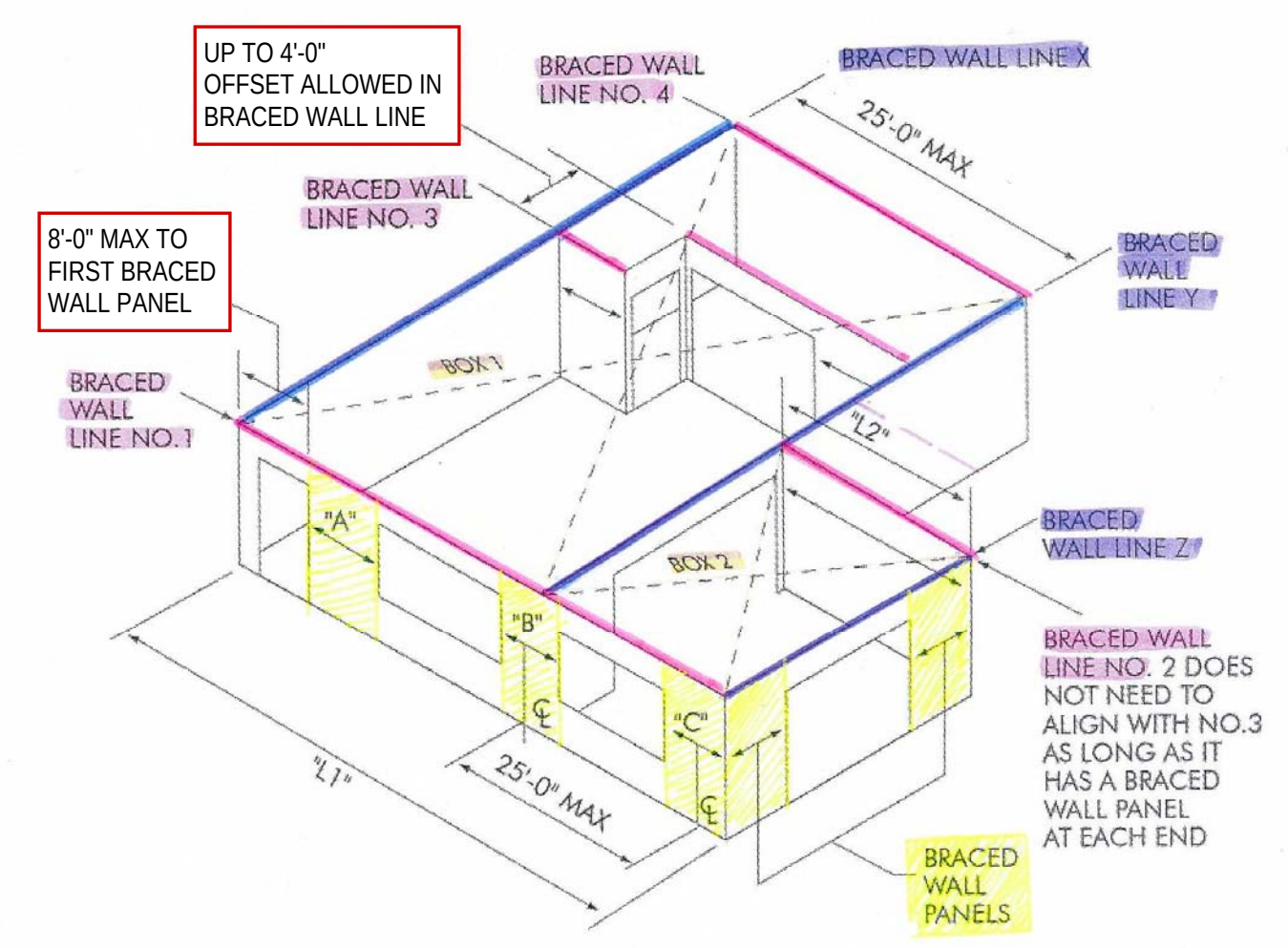
CONDITION	SHEATHING TYPE[b]	$0.50 \le S_{DS} < 0.75$
One story	G-P[c]	14 feet 8 inches
	S-W	8 feet 0 inches
Story below top story [HCD 1]	*G-P[c,d]*	*NP*
	S-W[d]	*13 feet 4 inches[d]*

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

a. Minimum length of panel bracing of one face of the wall for S-W sheathing or both faces of the wall for G-P sheathing; h/w ratio shall not exceed 2:1. For S-W panel bracing of the same material on two faces of the wall, the minimum length is permitted to be one-half the tabulated value but the h/w ratio shall not exceed 2:1 and design for uplift is required.

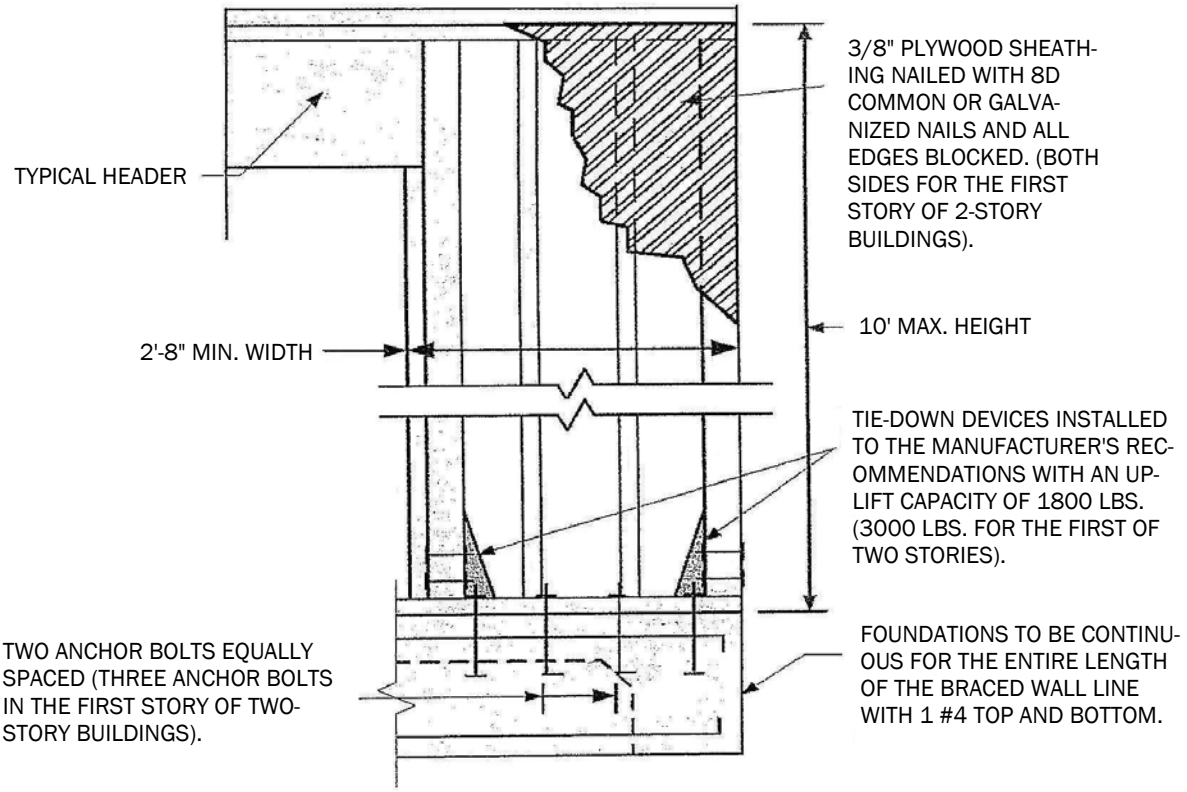
b. G-P = gypsum board, fiberboard, particleboard, lath and plaster or gypsum sheathing boards; S-W = wood structural panels and diagonal wood sheathing. *NP = not permitted.*

c. Nailing as specified below shall occur at all panel edges at studs, at top and bottom plates and, where occurring, at blocking:
For 1/2-inch gypsum board, 5d (0.113 inch diameter) cooler nails at 7 inches on center;
For 5/8-inch gypsum board, No. 11 gauge (0.120 inch diameter) at 7 inches on center;
For gypsum sheathing board, 1-3/4-inches long by 7/16-inch head diamond point galvanized nails at 4 inches on center;
For gypsum lath, No. 13 gauge (0.092 inch) by 1-1/8 inches long, 19/64-inch head, plasterboard at 5 inches on center;
For Portland cement plaster, No.11 gauge (0.120 inch) by 1-1/2 inches long, 7/16-inch head at 6 inches on center;
For fiberboard and particleboard, No. 11 gauge (0.120 inch) by 1-1/2 inches long, 7/16-inch head, galvanized nails at 3 inches on cen-



ALTERNATE WALL BRACING

OPTION 1: 2'8"



OPTION 2: 16"

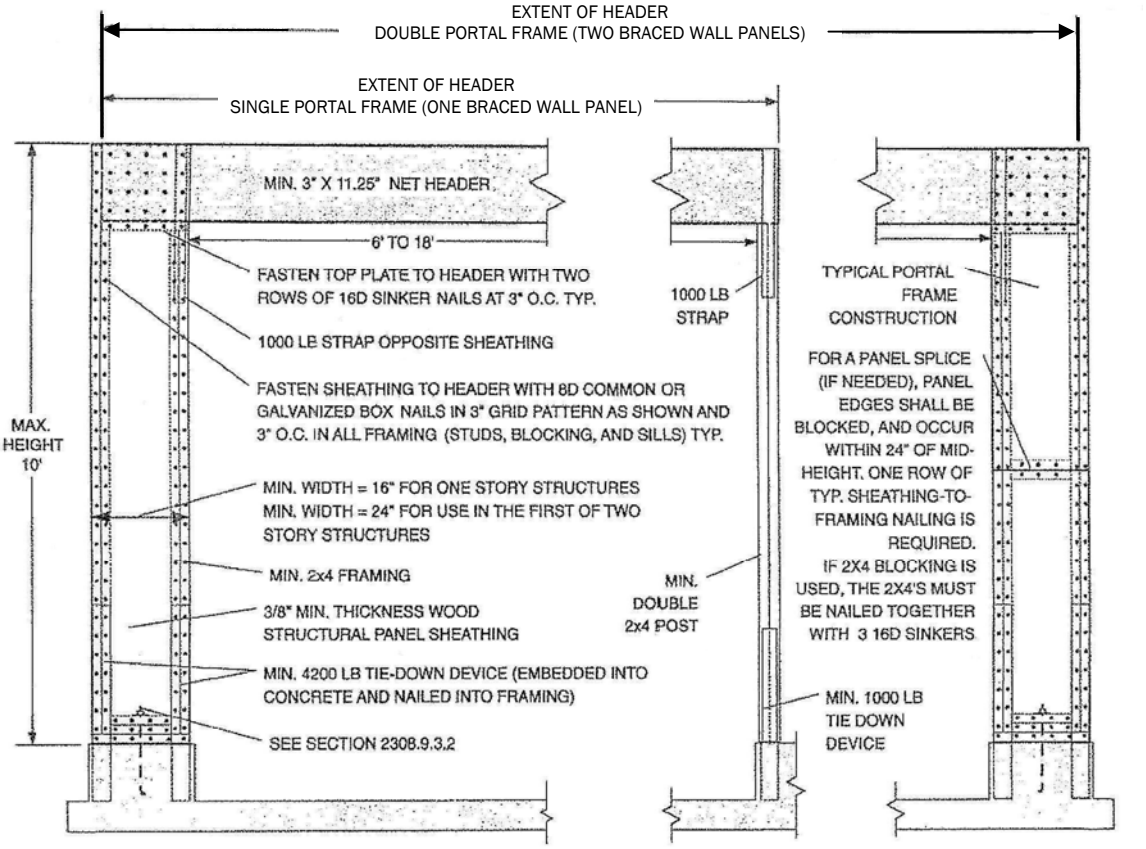


TABLE 2304.9.1 FASTENING SCHEDULE

CONNECTION	FASTENING[a,m]	LOCATION
1. Joist to sill or girder	3– 8d common (2-1/2"x0.131") 3– 3"x0.131" nails 3– 3" 14-gauge staples	toenail
2. Bridging to joist	2– 8d common (2-1/2"x0.131") 2– 3"x0.131" nails 2– 3" 14-gauge staples	toenail each end
3. 1"x6" subfloor or less to each joist	2– 8d common (2-1/2"x0.131")	face nail
4. Wider than 1"x6" subfloor to each joist	3– 8d common (2-1/2"x0.131")	face nail
5. 2" subfloor to joist or girder	2– 16d common (3-1/2"x0.162")	blind and face nail
6. Sole plate to joist or blocking	16d (3-1/2"x0.135") at 16" o.c. 3"x0.131" nails at 8" o.c. 3" 14-gauge staples at 12" o.c.	typical face nail
Sole plate to joist or blocking at braced wall panel	3" 16d (3-1/2"x0.135") at 16" 4– 3"x0.131" nails at 16" 4– 3" 14-gauge staples per 16"	braced wall panels
7. Top plate to stud	2– 16d common (3-1/2"x0.162") 3– 3"x0.131" nails 3– 3" 14-gauge staples	end nail
8. Stud to sole plate	4– 8d common (2-1/2"x0.131") 4– 3"x0.131" nails 3– 3" 14-gauge staples	toenail
	2– 16d common (3-1/2"x0.162") 3– 3"x0.131" nails 3– 3" 14-gauge staples	end nail
9. Double studs	16d (3-1/2"x0.135") at 24" o.c. 3"x0.131" nails at 8" o.c. 3" 14-gauge staples at 8" o.c.	face nail
10. Double top plates	16d (3-1/2"x0.135") at 16" o.c. 3"x0.131" nails at 12" o.c. 3" 14-gauge staples at 12" o.c.	typical face nail
Double top plates	8– 16d common (3-1/2"x0.162") 12– 3"x0.131" nails 12– 3" 14-gauge staples	lap splice
11. Blocking between joists or rafters to top plate	3– 8d common (2-1/2"x0.131") 3– 3"x0.131" nails 3– 3" 14-gauge staples	toenail
12. Rim joist to top plate	8d (2-1/2"x0.131") at 6" o.c. 3"x0.131" nails at 6" o.c. 3" 14-gauge staples at 6" o.c.	toenail
13. Top plates, laps and intersections	2– 16d common (3-1/2"x0.162") 3– 3"x0.131" nails 3– 3" 14-gauge staples	face nail
14. Continuous header, two pieces	16d common (3-1/2"x0.162")	16" o.c. along edge
15. Ceiling joists to plate	3– 8d common (2-1/2"x0.131") 5– 3"x0.131" nails 5– 3" 14-gauge staples	toenail
16. Continuous header to stud	4– 8d common (2-1/2"x0.131")	toenail
17. Ceiling joists, laps over partitions (See Sect. 2308.10.4.1, Table 2308.10.4.1)	3– 16d common (3-1/2"x0.162") minimum, Table 2308.10.4.1 4– 3"x0.131" nails 4– 3" 14-gauge staples	face nail
18. Ceiling joists to parallel rafters (See Sect. 2308.10.4.1, Table 2308.10.4.1)	3– 16d common (3-1/2"x0.162") minimum, Table 2308.10.4.1 4– 3"x0.131" nails 4– 3" 14-gauge staples	face nail
19. Rafter to plate (See Sect. 2308.10.1, Table 2308.10.1)	3– 8d common (2-1/2"x0.131") 3– 3"x0.131" nails 3– 3" 14-gauge staples	toenail

TABLE 2304.9.1—*continued*

CONNECTION	FASTENING[a,m]	LOCATION
20. 1" diagonal brace to each stud and plate	2– 8d common (2-1/2"x0.131") 2– 3"x0.131" nails 2– 3" 14-gauge staples	face nail
21. 1"x8" sheathing to each bearing	3– 8d common (2-1/2"x0.131")	face nail
22. Wider than 1"x8" sheathing to each bearing	3– 8d common (2-1/2"x0.131")	face nail
23. Built-up corner studs	16d common (3-1/2"x0.162") 3"x0.131" nails 3" 14-gauge staples	24" o.c. 16" o.c. 16" o.c.
24. Built-up girder and beams	20d common (4"x0.192") 32" o.c. 3"x0.131" nails at 24" o.c. 3" 14-gauge staples at 24" o.c. 2– 20d common (4"x0.192") 3– 3"x0.131" nails 3– 3" 14-gauge staples	face nail at top and bottom staggered on opposite sides face nail at ends and at each splice
25. 2" planks	16d common (3-1/2"x0.162")	at each bearing
26. Collar tie to rafter	3– 10d common (3"x0.148") 4– 3"x0.131" nails 4– 3" 14-gauge staples	face nail
27. Jack rafter to hip	3– 10d common (3"x0.148") 4– 3"x0.131" nails 4– 3" 14-gauge staples 2– 16d common (3-1/2"x0.162") 3– 3"x0.131" nails 3– 3" 14-gauge staples	toenail face nail
28. Roof rafter to 2-by ridge beam	2– 16d common (3-1/2"x0.162") 3– 3"x0.131" nails 3– 3" 14-gauge staples 2– 16d common (3-1/2"x0.162") 3– 3"x0.131" nails 3– 3" 14-gauge staples	toenail face nail
29. Joist to band joist	3– 16d common (3-1/2"x0.162") 4– 3"x0.131" nails 4– 3" 14-gauge staples	face nail
30. Ledger strip	3– 16d common (3-1/2"x0.162") 4– 3"x0.131" nails 4– 3" 14-gauge staples	face nail
31. Wood structural panels and particleboard[b] Subfloor, roof and wall sheathing (to framing) Single floor (combination subfloor-underlayment to framing)	1/2" and less 6d[c,l] 2-3/8"x0.113" nail[n] 1-3/4" 16-gauge[o] 19/32" to 3/4" 8d[d] or 6d[e] 2-3/8"x0.113" nail[p] 2" 16-gauge[p] 7/8" to 1" 8d[c] 1-1/8" to 1-1/4" 10d[d] or 8d[d] 3/4" and less 6d[e] 7/8" to 1" 8d[e] 1-1/8" to 1-1/4" 10d[d] or 8d[e]	
32. Panel siding (to framing)	1/2" or less 6d[f] 5/8" 8d[f]	
33. Fiberboard sheathing[g]	1/2" No. 11-gauge roofing nail[h] 6d common nail (2"x0.113") No. 16-gauge staple[i] 25/32" No. 11-gauge roofing nail[h] 8d common nail (2-1/2"x0.131") No. 16-gauge staple[i]	
34. Interior paneling	1/4" 4d[j] 3/8" 6d[k]	

Notes for Table 2304.9.1 Fastening Schedule (2007 CALIFORNIA BUILDING CODE)

For SI: 1 inch = 25.4 mm.

a. Common or box nails are permitted to be used except where otherwise stated.

b. Nails spaced at 6 inches on center at edges, 12 inches at intermediate supports except 6 inches at supports where spans are 48 inches or more. For nailing of wood structural panel and particleboard diaphragms and shear walls, refer to Section 2305. Nails for wall sheathing are permitted to be common, box or casing.

c. Common or deformed shank (6d– 2" x 0.113"; 8d– 2-1/2" x 0.131"; 10d– 3" x 0.148").

d. Common (6d– 2" x 0.113"; 8d– 2-1/2" x 0.131"; 10d– 3" x 0.148").

e. Deformed shank (6d– 2" x 0.113"; 8d– 2-1/2" x 0.131"; 10d– 3" x 0.148").

f. Corrosion-resistant siding (6d– 1-7/8" x 0.106"; 8d– 2-3/8" x 0.128") or casing (6d– 2" x 0.099"; 8d– 2-1/2" x 0.113") nail.

g. Fasteners spaced 3 inches on center at exterior edges and 6 inches on center at intermediate supports, when used as structural sheathing,. Spacing shall be 6 inches on center on the edges and 12 inches on center at intermediate supports for nonstructural applications.

h. Corrosion-resistant roofing nails with 7/16-inch-diameter and 1-1/2" length for 1/2" sheathing and 1-3/4" length for 25/32" sheathing.

i. Corrosion-resistant staples with nominal 7/16-inch crown and 1-1/8" length for 1/2" sheathing and 1-1/2" length for 25/32" sheathing. Panel supports at 16 inches (20 inches if strength axis in the long direction of the panel, unless otherwise marked).

j. Casing (1-1/2" x 0.080") or finish (1-1/2" x 0.072") nails spaced 6 inches on panel edges, 12 inches at intermediate supports.

k. Panel supports at 24 inches. Casing or finish nails spaced 6 inches on panel edges, 12 inches at intermediate supports.

l. For roof sheathing applications, 8d nails (2-1/2" x 0.113") are the minimum required for wood structural panels.

m. Staples shall have a minimum crown width of 7/16-inch.

n. For roof sheathing applications, fasteners spaced 4 inches on center at edges, 8 inches at intermediate supports.

o. Fasteners spaced 4 inches on center at edges, 8 inches at intermediate supports for subfloor and wall sheathing and 3 inches on center at edges, 6 inches at intermediate supports for roof sheathing.

p. Fasteners spaced 4 inches on center at edges, 8 inches at intermediate supports.

Notes