



CITY OF MANTECA COMMUNITY DEVELOPMENT DEPARTMENT

1001 West Center Street • Manteca, CA 95337 • FAX (209) 923-8949
Building Safety Division (209) 456-8551 • Community Development/Planning Division (209) 456-8500

Detached Residential Garage or Accessory Building ~ Includes Garage Conversion to Habitable Space ~

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 of CC&R's.

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

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SUBMITTAL REQUIREMENTS

- **No submittals accepted after 4:00 p.m.**
- **Incomplete submittals will not be accepted**
- **Estimated fees must 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.

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

- Manteca Unified School District certificate of fees paid (garage conversions only)
- Special Inspection Agreement
- Soils Report
- Electrical Load Calculations (based upon project type and/or location)
- Plumbing Calculations
- Sound Attenuation Details

NEW GARAGE or SHED

Submit three complete sets of drawings (minimum 18"x24"), to scale and wet-signed by the designer.

These drawings are to include (Refer to page 3 for details):

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

GARAGE CONVERSION to HABITABLE SPACE

PLANNING DIVISION:

Approval from the Planning Division is required before any garage is converted to habitable space. Please contact the Planning Division at (209) 456-8500.

BUILDING SAFETY DIVISION:

Submit two complete sets of drawings (minimum 18"x24"), to scale and wet-signed by the designer.

These drawings are to include:

- 1) Site plan drawn to scale showing property lines, north arrow, easements, well, septic tank, leach field, all existing and proposed structures with distances to property lines and between structures, and proposed parking spaces.
- 2) Floor plan (include plumbing and electrical fixture locations and heating information). Show window sizes and method of opening.
- 3) Framing layout of garage door opening frame-in, cross-section of wall showing ceiling joist size and spacing, and insulation size.
- 4) Detail of foundation curb of garage door frame-in.
- 5) Title 24 Energy report.
- 6) If the floor is to be raised using a wood structure over the concrete floor and code clearances cannot be provided, it shall be totally of pressure-treated wood or be underlain by a two-ply, hot-mopped membrane or other suitable membrane, and underfloor ventilation shall be provided. The ceiling height shall be a minimum of 7' 6".
- 7) When converting a tandem garage (the parking space behind a front parking space), engineering will be required for any new opening provided in an existing exterior wall.

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 all existing and proposed 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 (min. 20' path of travel to garage structure)
- Number of parking stalls
- All easements
- Existing trees and plantings 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)

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

FLOOR PLAN (see sample on pg. 8):

- Dimensions and use of all existing and proposed rooms and/or areas inside buildings
- Locations of any/all windows and doors

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.
- 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 systems and materials listing
- Concrete specifications for driveway and any curb cuts which may be required

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
- Location of concrete-encased electrode (UFER ground) if more than one electrical circuit serves the garage or shed
- Electrical load calculations may be required based upon the project type and/or location.

GRADING PLAN (if required):

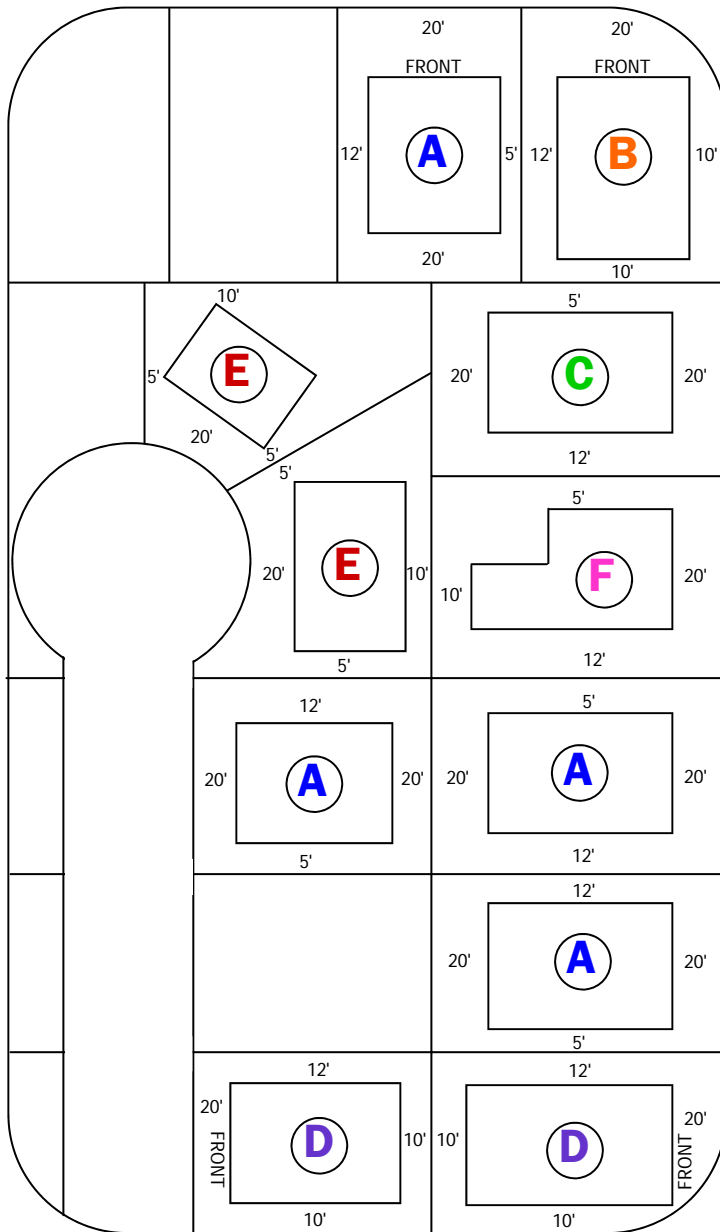
- Existing and proposed grading plans
- Pad elevations ground slope drainage scheme and topographic plan drawn to 1'-0" contours
- Retaining walls and drainage systems, existing and proposed

SETBACK AND LOT COVERAGE REQUIREMENTS

This overview is provided for 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.*

MAIN BUILDING SETBACKS FOR THE R-1 ZONE:

- A: Interior Lot**
- B: Reversed Corner Lot**
- C: Key Lot**
- D: Corner Lot**
- E: Irregular Lot**
- F: L-Shaped Dwelling**



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. Check with Public Works for property line locations.

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 on the half of the lot frontage nearest the radius return, or be closer than 20 feet to said radius return.

L-SHAPED DWELLING:

On rectangular lots, L-shaped dwellings may project into the required rear yard no closer than 10 feet to the rear lot line. Overall rear yard setback area must be maintained.

ALLEYS:

For lots which abut an alley, one-half the width of the alley to a maximum 10 feet may be considered as part of the required rear yard.

MISCELLANEOUS RESIDENTIAL STANDARDS

ACCESSORY BUILDINGS

SIZE: A detached accessory building, other than a covered patio as defined herein, not more than 15 feet in height, may occupy not more than 50% of a required rear yard, subject to the following requirements:

Within an "R" District, no detached accessory building shall be closer than five feet to the main building, inclusive of roof covering.

CORNER LOT: On a corner lot, no detached accessory building shall be located so as to encroach on the half of the lot nearest any street.

On a corner lot adjacent to a key lot (see pg. 4 for example), no detached accessory building shall be located closer to the rear lot line than a distance equal to the side yard required on such key lot.

DOUBLE FRONTAGE: On a through lot having frontage on two more or less parallel streets, no detached accessory building shall not be located on the one fourth of the lot nearest either street.

OVER 120 SQ. FT.: Within an "R" District, no detached accessory building with more than 120 square feet of gross floor area must not be located closer than five (5) feet from the side or rear lot line (up to three (3), inclusive of roof covering, provided it has 1-hour fire wall rating).

UNDER 120 SQ. FT.: Within an "R" District, an accessory building with less than 120 square feet of gross roof area and less than 7 feet in height, may be located on the side or rear lot line.

DECORATIVE LANDSCAPE FEATURES

1. Notwithstanding any other regulations, incidental decorative landscape features such as an arbor or trellis shall be permitted within the front yard setback area of single family residential lots. Such features shall not be closer than 6 feet to the main building or 5 feet to the side lot line. Such feature shall not exceed a height of 12 feet or an area of ½ square foot per linear foot of lot frontage.

a. Such feature shall not have any solid obstruction, which exceed 2 feet in diameter between the height of 3 feet 6 inches and 12 feet.

CORNER LOT:

b. On a corner lot such feature shall not obstruct the vision of vehicular traffic.

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 available 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.

TYPICAL ORDER OF ON-SITE INSPECTIONS—NEW GARAGE/SHED:

1. UNDER-SLAB PLUMBING:

Required if plumbing is being installed in the garage/shed
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. If more than a single 20-amp circuit goes to the garage/shed, the concrete-encased (UFER) electrode should be bent to above the concrete slab.

3. SLAB:

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. DIAPHRAGM & ROOF NAILING:

A nailing inspection is required prior to covering the roof sheathing and wall shear panels. 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 this inspection.*

5. ROUGH FRAME:

All rough plumbing, mechanical and electrical must be complete. Windows, roofing and siding installed (stucco lath installed without stucco).

6. SHEETROCK NAILING:

Prior to taping, all sheetrock must be in place and must be inspected and approved.

7. LATH:

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

8. FINAL INSPECTION:

Structure must be completely finished.

TYPICAL ORDER OF ON-SITE INSPECTIONS—GARAGE CONVERSION:

1. UNDER-SLAB PLUMBING:

Required if plumbing is being installed.

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/SLAB:

Required if making any changes to existing foundation or slab.

3. ROUGH FRAME:

All rough plumbing, mechanical and electrical must be complete. Windows, roofing and siding installed (stucco lath installed without stucco).

4. SHEETROCK NAILING:

Prior to taping, all sheetrock must be in place and must be inspected and approved.

5. LATH:

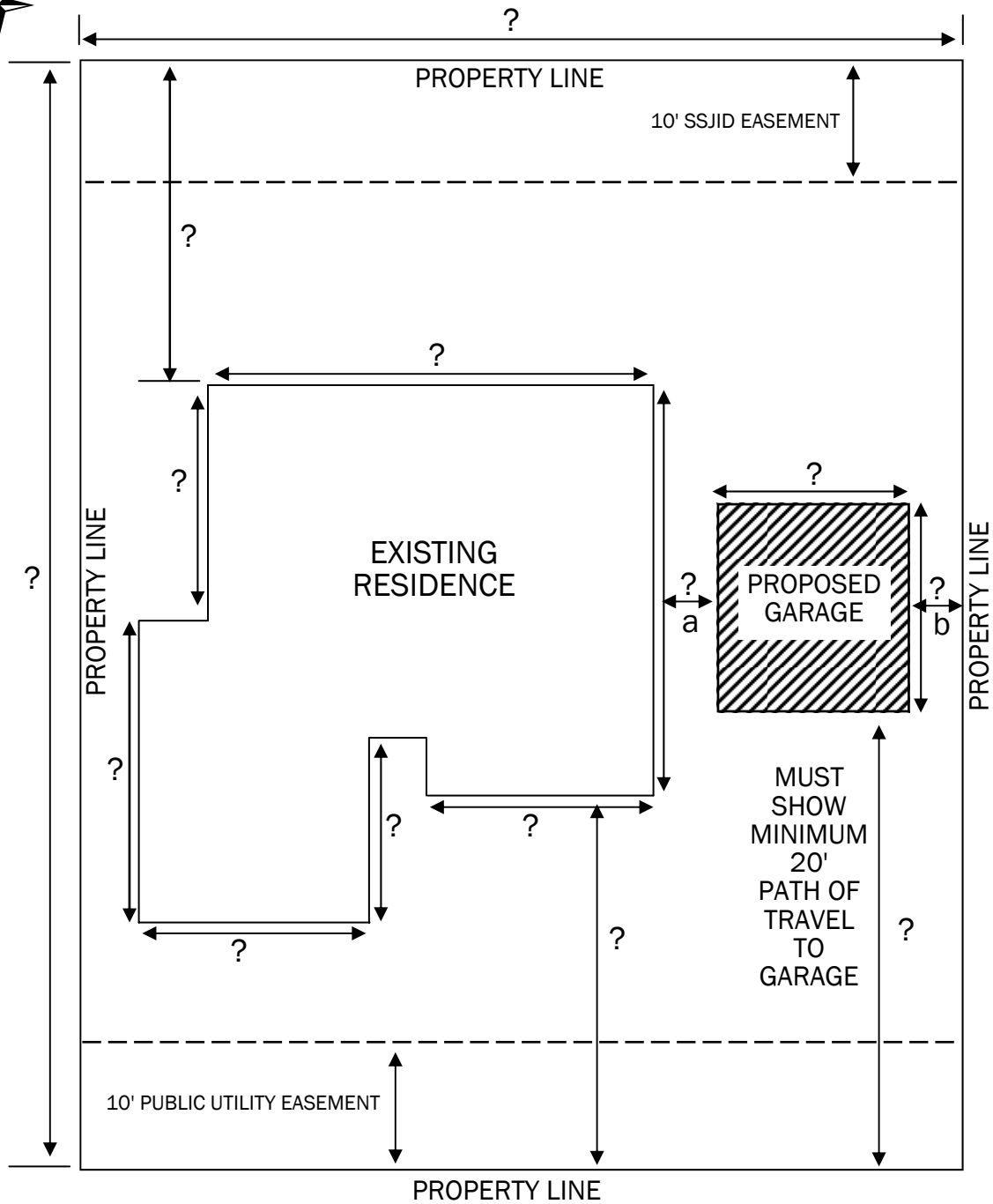
Sheetrock must be installed prior to lath inspection. All tears and holes in lath must be patched or sealed.

6. FINAL INSPECTION:

Structure must be completely finished. Slab to be sealed against hydraulic pressure.



SAMPLE SITE PLAN: NEW DETACHED GARAGE



HOUSE NUMBER AND STREET NAME

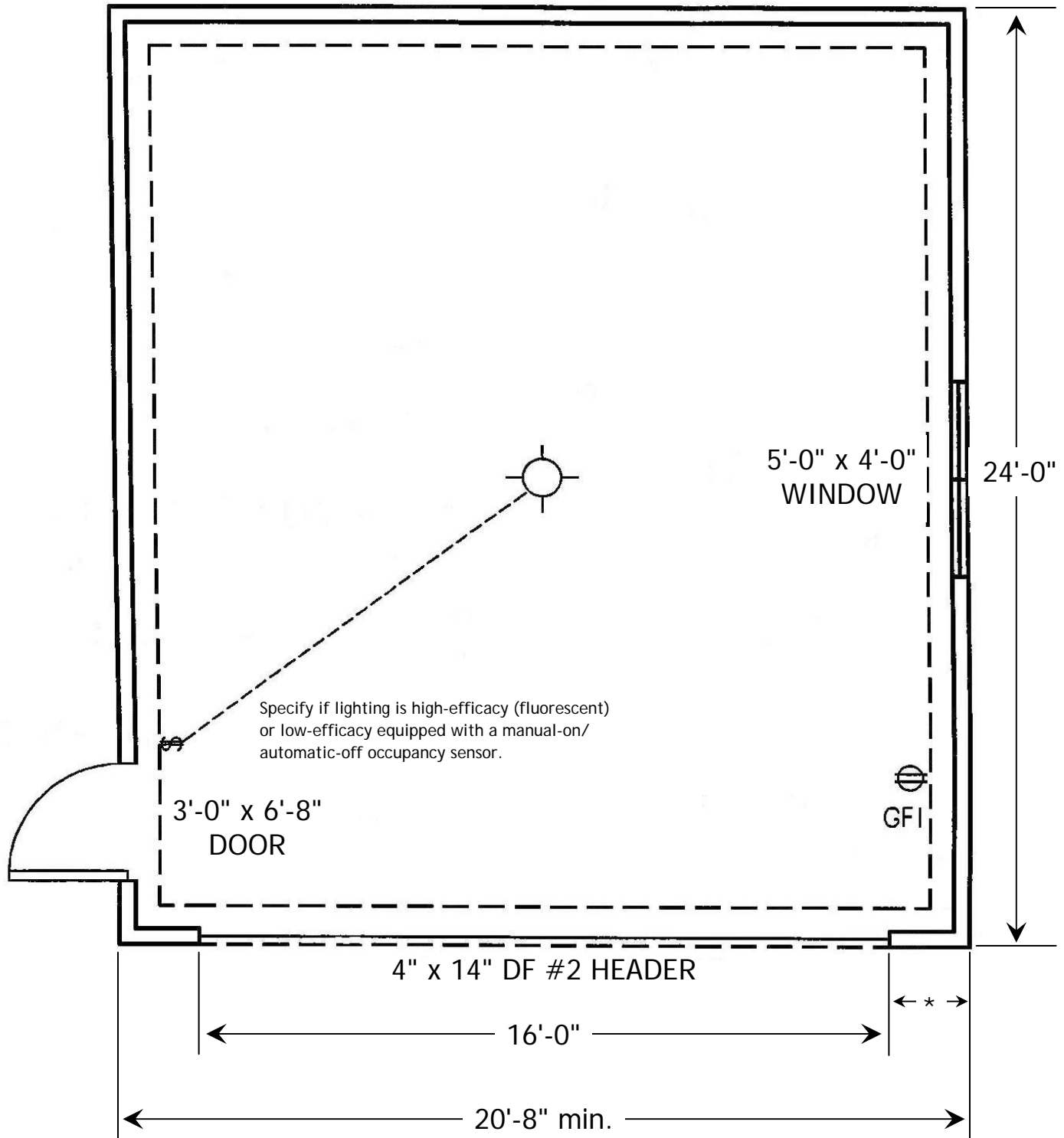
- 1) Show lot dimensions and total square footage of all covered areas.
- 2) Check with the Planning Division for building setback requirements.
- 3) Check with Community Development for location of any utility easements.

NOTES:

- a) Must be a minimum of 5 feet away from main building, inclusive of roof covering.
- b) Must be a minimum of 3 feet away from property line, inclusive of roof overhangs, except corner lots and reversed corner lots (refer to page 5 for setbacks).

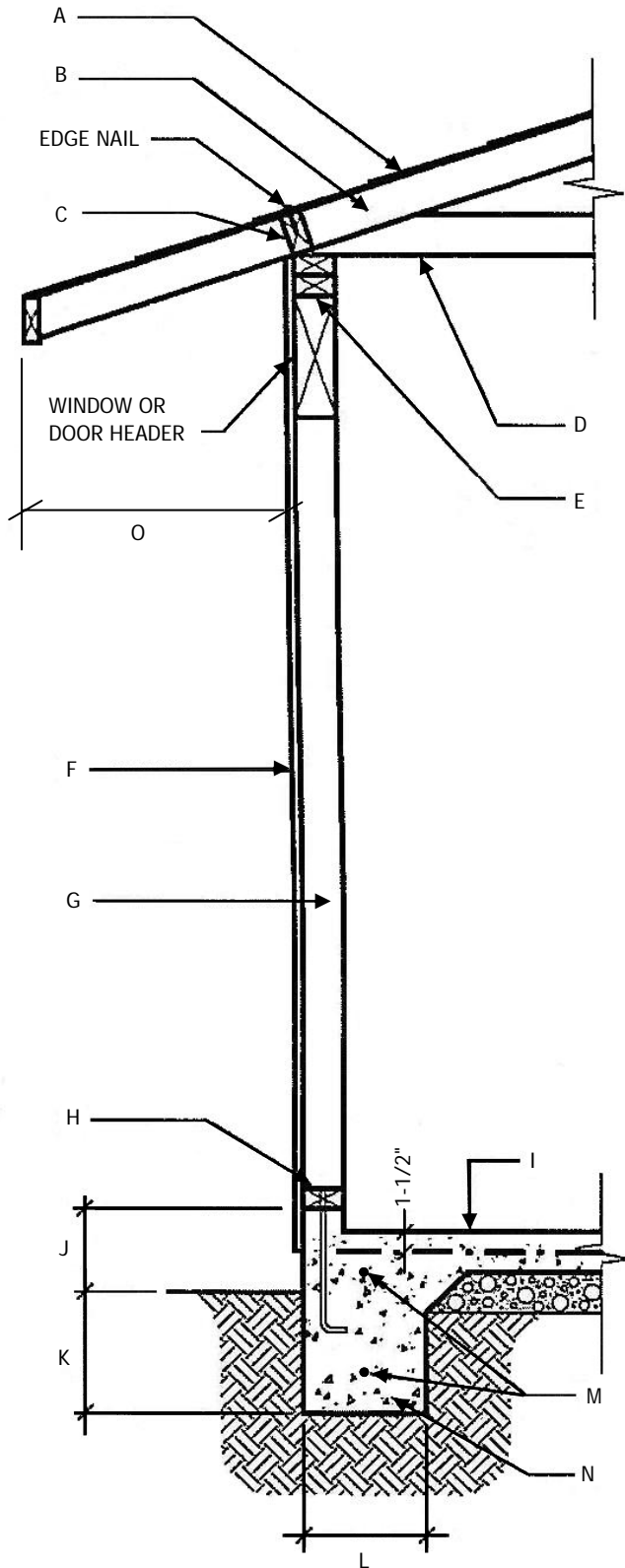
SAMPLE FLOOR PLAN

New detached garage



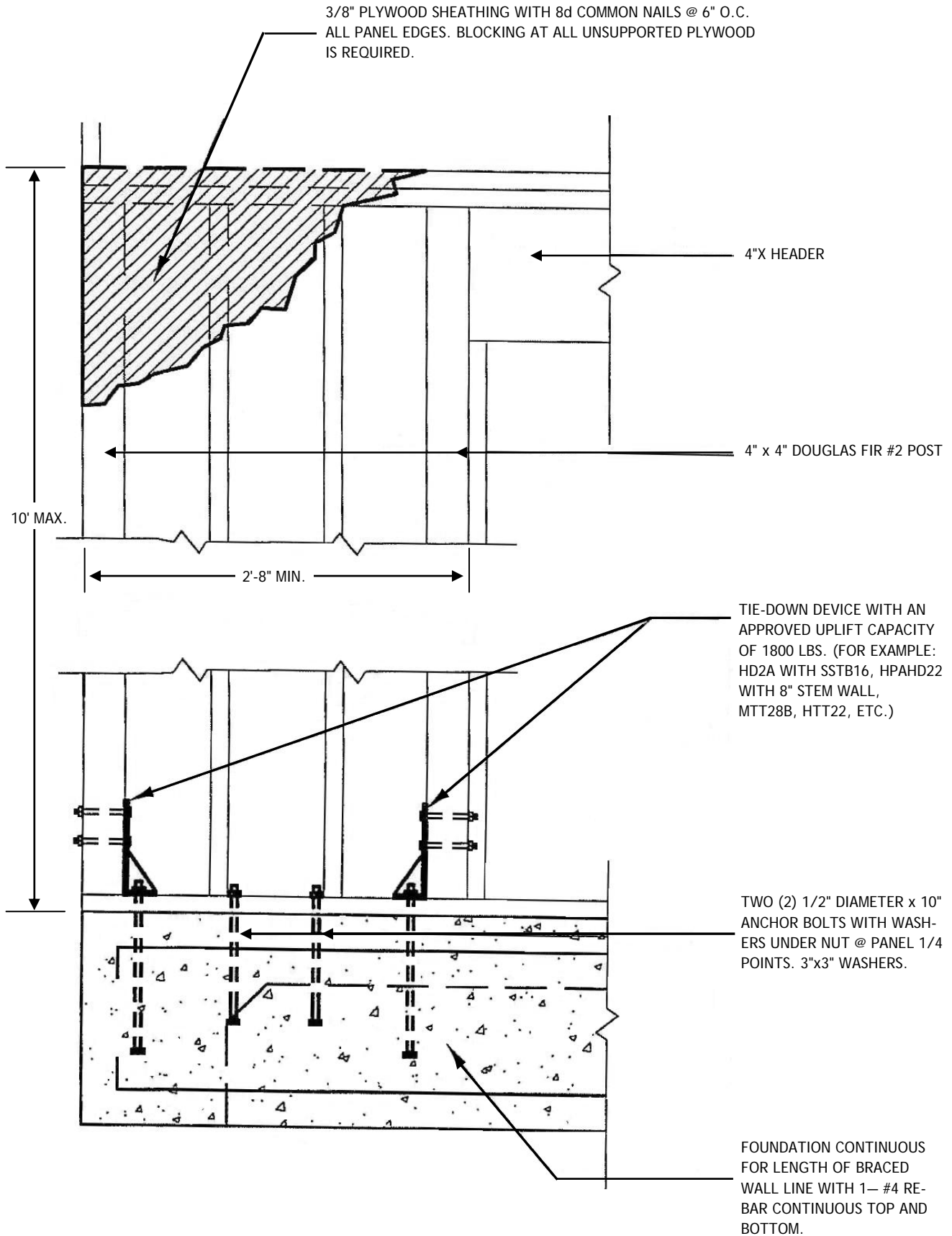
*See pages 10 and 11 for alternate front bracing details

FRAMING AND FOOTING DETAILS

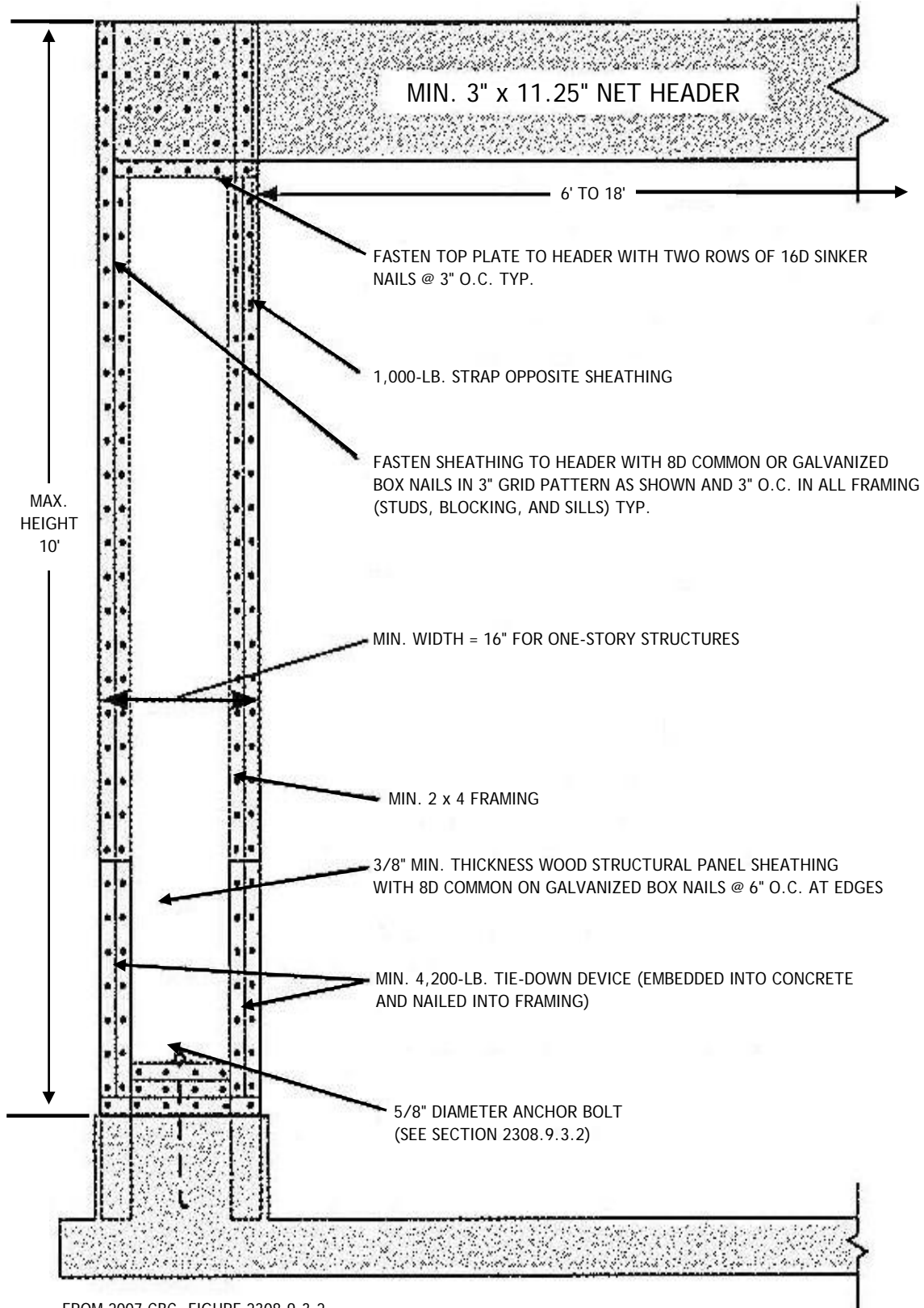


- A. ROOF COVERING ON 15# FELT PAPER ON PLYWOOD OR 1" x 4" SKIP SHEATHING (WOOD SHAKE OR WOOD SHINGLE ONLY). PLYWOOD EDGE NAIL 8d @ 6" O.C. _____" THICK, _____ SHEATHING
- B. MANUFACTURED TRUSSES OR RAFTERS. IF TRUSSES ARE USED, PROVIDE TRUSS CALCULATIONS. RAFTERS: 2" x _____" @ _____ O.C. (REFER TO ALLOWABLE SPAN FOR RAFTERS)
- C. BLOCKING OR EAVE VENTS WITH 16d NAILS @ 8" O.C. TO DBL. TOP PLATE. REFER TO FASTENING SCHEDULE.
- D. CEILING JOIST: 2" x _____" @ _____ O.C. (REFER TO ALLOWABLE SPAN FOR CEILING JOIST)
- E. DOUBLE TOP PLATE (MIN. 48" SPLICE) WITH 12 (16d) NAILS @ EACH SIDE OF SPLICE
- F. SIDING MATERIAL: _____
- G. STUD WALL WITH 2" x _____" STUDS @ 16" O.C.
- H. 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). MINIMUM 3" x 3" WASHERS.
- I. 3-1/2" CONCRETE SLAB
- J. 6" MINIMUM CLEARANCE TO GRADE
- K. 12" DEEP BELOW UNDISTURBED SOIL
- L. 12" WIDE
- M. (2) #4 REINFORCING BARS (CONTINUOUS)
- N. CONCRETE FOUNDATION
- O. EAVE DIMENSION: _____

2'-8" ALTERNATE FRONT BRACING DETAIL



16" ALTERNATE BRACED WALL PANEL DETAIL



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			
<i>Table 2308.8 (2), pages 332-333</i>			
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			
<i>Table 2308.10.2 (2), pages 346-347</i>			
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			
<i>Table 2308.10.3 (2), pages 350-351</i>			
SIZE & SPACING	GRADE #1	GRADE #2	
2 x 6	@ 12" O.C.	15' 9"	15' 6"
	@ 16" O.C.	14' 4"	14' 1"
	@ 24" O.C.	12' 6"	11' 9"
2 x 8	@ 12" O.C.	20' 10"	20' 5"
	@ 16" O.C.	18' 11"	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.

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 Sole plate to joist or blocking at braced wall panel	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. 3" 16d (3-1/2"x0.135") at 16" 4– 3"x0.131" nails at 16" 4– 3" 14-gauge staples per 16"	typical face nail 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 2– 16d common (3-1/2"x0.162") 3– 3"x0.131" nails 3– 3" 14-gauge staples	toenail 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 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. 8– 16d common (3-1/2"x0.162") 12– 3"x0.131" nails 12– 3" 14-gauge staples	typical face nail 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)	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 ^e 1-1/8" to 1-1/4" 10d ^d or 8d ^d	
Single floor (combination subfloor-underlayment to framing)	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