City of Carlin
Public Works Department
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Carlin, NV 89822
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Fax 775-754-6253
permits@cityofcarlin.com
Director Carlos A Esparza

The City of Carlin is an equal opportunity provider and employer.

POST FRAME/POLE BUILDINGS (NON-ENGINEERED)
For Private Garages/Barns on Residential Lots Only

Buildings must meet the following requirements to be designed without engineering. Owner/Contractor plans accepted providing the following minimum design criteria is met. **See attached special provisions for buildings over twelve (12) foot eave height.**

Building Dimensions

Width	40 ft maximum
Length	50 ft maximum
Eave height	12 ft maximum
Total height	20 ft maximum

Note: lean-to / roof cover / carport supported off pole building are considered part of the width & length of the building.

Design Criteria

Wind speed
90 mph fastest mile; 105 mph 3-second gust Exp. C
Live roof load-20 psf
Ground & Roof snow load-30 lb.
Seismic Design Category-D1
2018 International Building Code
2017 National Electric Code

BUILDING MATERIALS

1. **Using the chart below, fill in the blanks on the worksheet:**

_____Eave Height
_____Building Width
_____Building Length
_____Pole Size
_____Bay Width
_____Header Size

Trusses (NV Engineered), must be submitted at time of permit issuance.

_____Rafter/Perlin size
_____Rafter/Perlin spacing
_____Roof Sheathing
_____Roofing material/gage
_____Truss/Rafter attachment to post
_____Girt size
_____Girt spacing
_____Type of siding & gage
_____Corbel attachment to post
_____Slope of roof (to determine max. height)
_____Burial depth of post

Truss and corbel attachment

Eave Height	Corbel to post	Truss to Post
Max. 12'	8-20d nails	½" thru-bolt

Girt spacing, size and orientation

Bay Width max. 10' -2x6 @ 24" o.c. attached to the outside of the posts. (see girt detail)
Bay Width Over 10' to 12' – 2x6 @ 24" o.c. installed horizontally (flat between posts) with 2x6 blocking between girts.

Roof purlin spacing and size

Roof purlin size and spacing: Min. 2x6 @ 24" o.c.

Header Sizes

Header sizes –see attached sheet

Burial Depth of Posts

Eave Height 10' = 3' depth
Eave Height over 10' = 4' depth

2. **On a separate page provide a plan showing the size of the building, the location and spacing of all posts, trusses, doors and windows. Indicate location of electrical subpanel. If you are planning to construct the roof with rafters, you will be required to submit a roof framing detail. Also, provide a site plan indicating the distances from the property lines and any other structures. Check with the Public Works department (775) 754-6515 for the required set-backs from the property lines.**

General Notes:

- ☐ **Buildings having over a 12' eave height shall be required to provide engineered plans.**
- ☐ Post and ground girts must be pressure treated.
- ☐ Posts must be a minimum of 6 x 6.
- ☐ **Used, warped, cracked or otherwise damaged building materials shall not be approved for use.**
- ☐ Posts should not be surrounded by concrete unless approved by the manufacturer of the posts.
- ☐ Posts shall be placed in undisturbed soil. If fill is installed, post shall be placed 3 feet below any fill.
- ☐ Holes for posts shall not be over excavated. Use an auger to drill holes. Digging holes with a backhoe is an over excavation and is not an approved method. Compact around posts in holes by filling in 6" lifts, adding a small amount of water and tamping.
- ☐ Roof trusses are required to be stamped by a Nevada engineer.
- ☐ End wall trusses are required or if using a rafter/header it shall be sized per the header table attached.
- ☐ Truss loads which will occur over a header/opening shall be indicated on the plans. Header shall be sized for the load.
- ☐ Truss engineering shall be submitted to this office prior to issuance of the permit or inspection.
- ☐ Review truss design for specific bracing requirements.
- ☐ All structural members shall have positive connections made at all points of load. These connectors shall be provided at post and beam (header) connections, rafter (purlins) and truss connections.
- ☐ Nailing shall comply with IBC requirements.
- ☐ Roofing materials shall comply with IBC requirements.

Siding:

- Veneers of metal shall be fabricated from approved corrosion-resistant materials or shall be protected front & back with porcelain enamel or otherwise be treated to render the metal resistant to corrosion. Such veneers shall not be less than 0.0149-inch nominal thickness sheet steel mounted on wood or metal furring strips or approved sheathing on the wood construction. If other types of siding are installed, engineering may be required. IBC Section 1405.10.
- Metal siding shall be attached to pressure treated ground girt so a minimum of 4 to 6 inches is maintained from the bottom of the siding to the soil/finish grade.
- Exterior metal veneer shall be securely attached to the supporting masonry or framing members with corrosion-resistant fasteners, metal ties or by other approved devices or methods. The spacing of fasteners or ties shall not exceed 24 inches either vertically or horizontally, but where units exceed 4 square feet in area there shall be not less than four attachments per unit. The metal attachments shall have a cross-sectional area not less than provided by W 1.7 wire. Such attachments and their support shall be capable of resisting a horizontal force in accordance with the wind loads specified in Section 1609, but not less than 20 psf. IBC Section 1405.10.1.
- Metal supports for exterior metal veneer shall be protected by painting, galvanizing or by other equivalent coating or treatment. Joints and edges exposed to the weather shall be caulked with approved durable waterproofing material or by other approved means to prevent penetration of moisture. IBC 1405.10.2.

- Wood siding-shall be attached to pressure treated ground girt so minimum of 6" is maintained from grade to bottom of siding. Siding shall be nailed per manufacturer's minimum requirements.
- Stucco- weep screed shall be a minimum of 4" from grade.

Metal roof panels – the installation of metal roof panels shall comply with the following:

- ☐ Deck requirements-Metal roof panel roof coverings shall be applied to a solid or closely fitted deck, except where the roof covering is specifically designed to be applied to spaced supports. IBC Section 1507.4.1.
- ☐ The minimum slope for standing seam roof systems shall be one-quarter unit vertical in 12 units horizontal (2% slope). IBC Section 1507.4.2.
- ☐ Material standards-Metal sheet roof covering systems that incorporate supporting structural members shall be designed in accordance with Chapter 22. Metal sheet roof coverings installed over decking shall comply with Table 1507.4.3(1) IBC Section 1507.4.4.
- ☐ Attachment-Metal roof fastened directly to steel framing shall be attached by approved manufacturer's fasteners. In the absence of manufacturer recommendations, all the following fasteners shall be used.
  - Galvanized fasteners shall be used for galvanized roofs.
  - 300 series stainless-steel fasteners shall be used for copper roofs.
  - Stainless steel fasteners are acceptable for all types of metal roofs.

☐ A minimum of 5% grade shall be provided away from the building to allow drainage.

☐ Lean-to / roof cover / carport supported off a pole building are considered part of the width or length of the building.

☐ Ledger installed to support a lean-to / roof cover / carport shall be attached to an appropriately sized header using lag bolts 24" o.c.

Doors:

☐ A man door shall be provided in addition to the garage doors. The exit doorway shall be of a size as to permit the installation of a door not less than 3 feet in width and not less than 6'8" in height. The exit door shall be capable of opening so that the clear width of the exit doors is not less than 32". IBC Section 1010.

Electrical:

☐ Owner shall verify service size is adequate for an additional electric load. Only one service is permitted on a residential lot.

☐ Call 811 for utility locate before you dig.

☐ Submit number of fixtures including switches, lights and outlets.

☐ This office recommends an owner not familiar with electrical installation of the NEC obtain a simple wiring booklet, which is written to comply with the 2017 National Electric Code. This type of book will contain more specific information regarding wiring methods, wiring sizes, supports, sub panels, overcurrent protection, connections, fixtures, working space, safety precautions, grounding, branch circuits, etc. There are various requirements that cannot be covered in this handout.

☐ All garage outlets shall be GFI (ground fault interrupter) protected. See NEC Code for specific exceptions.

☐ Exterior outlets shall have weather tight covers, which will remain weather tight when a plug is inserted. (bubble covers are required). NEC 406.9.

☐ All exposed wiring shall be securely stapled or protected.

- ☐ If installing romex wiring (nonmetallic sheathed cable) wiring shall be protected from damage.
- ☐ Provide individual ground rod and ground wire when more than (1) circuit is provided in a garage. If a four-wire system is run from the service, a ground rod is not required. (NEC 250.24)
- ☐ A disconnecting means and overcurrent protection shall be provided per NEC. Overcurrent protection requires their breaker to be rated for the amperage of the wire. #12 wire=20 amp breaker, #10 wire=30 amp breaker. See NEC for further information.
- ☐ Ground wire and neutral wires shall be separated/isolated.
- ☐ **Feeder wires for the garage shall not be serviced from the manufactured/mobile home unless approved by the Manufactured Housing division.**
- ☐ Schedule 80 PVC rigid nonmetallic electric conduit is required to protect above ground conductors. NEC Art. 230.50.
- ☐ All wiring used underground shall be listed for wet location or underground use when installed in conduit. NEC 300.5.
- ☐ Inform the Public Works Department if an upgraded service will be necessary. Normally one service is permitted on a residential lot.
- ☐ Contact Wells Rural Electric for their requirements at (775) 754-6362
- ☐ Building or concrete floor slab **shall not** be constructed over existing utilities.

Plumbing

- ☐ Locate your septic system before planning the garage construction (if applicable). A minimum of 8 feet is required to the nearest portion of the septic tank.
- ☐ Call 811 for utility locate before you dig.

Mechanical/Heating

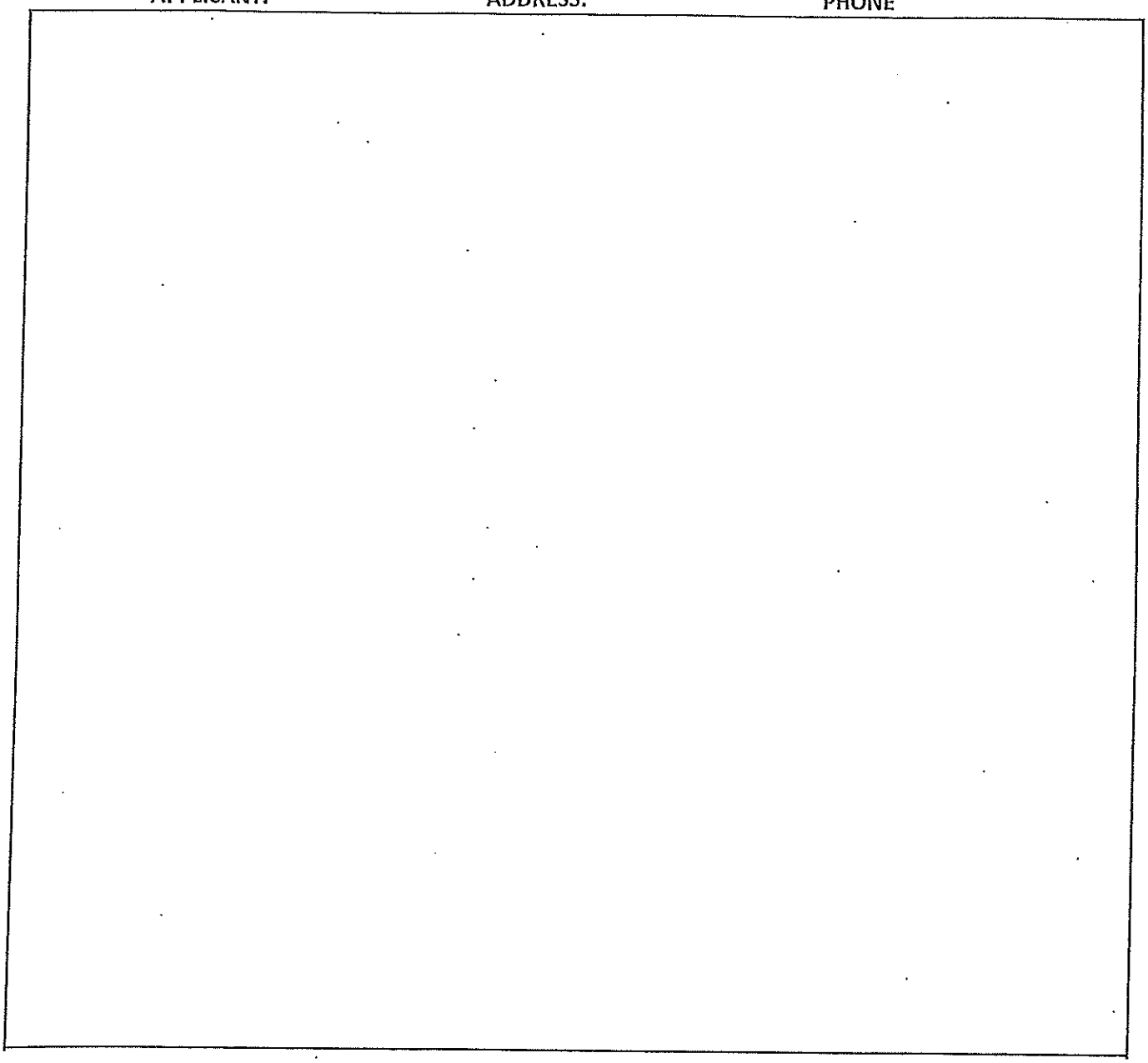
- ☐ Permits are required for wood or pellet stoves and gas/electric appliances and shall comply with Uniform Mechanical Code requirements.
- ☐ Call 811 for utility locate before you dig.

SUBMIT COMPLETED WORKSHEET WITH BUILDING PERMIT APPLICATION.

PLOT PLAN

DATE:

APPLICANT: ADDRESS: PHONE

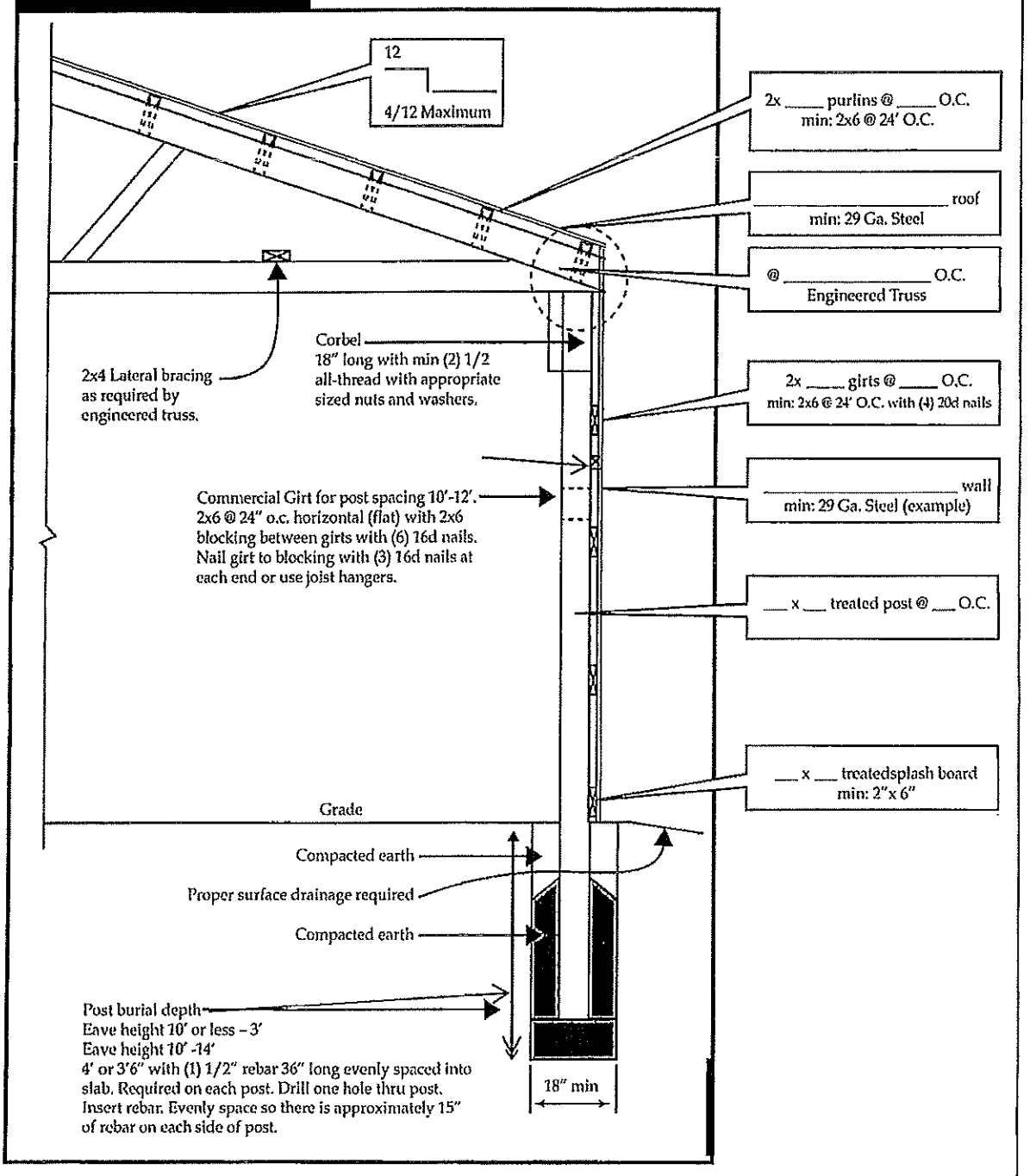


STREET/ROAD

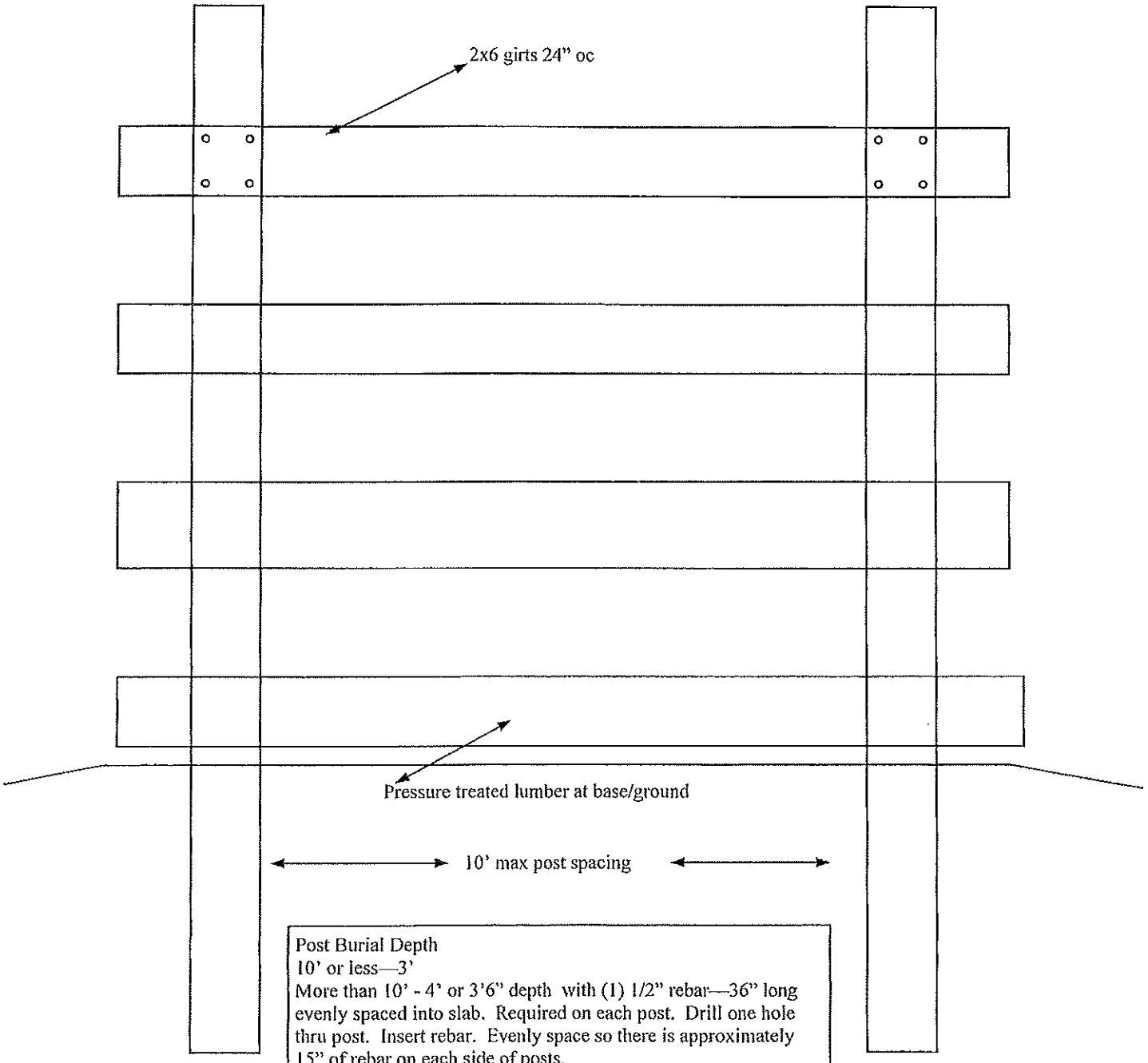
INDICATE THE FOLLOWING INFORMANTION, (IF ALL INFORMATIN LISTED BELOW IS NOT INCLUDED, APPROVAL OF PERMITS WIL BE DENIED). LOCATION OF RESIDENCE; LOCATION AND NAME OF STREET OR ROAD, SEWER OR SEPTIC; CITY WATER OR WELL; PROPANE TANK; POWER SUPPLY PANEL. **(DIMENSIONS, SETBACKS & DISTANCES REQUIRED)**

Pole Barn Construction

End Elevation

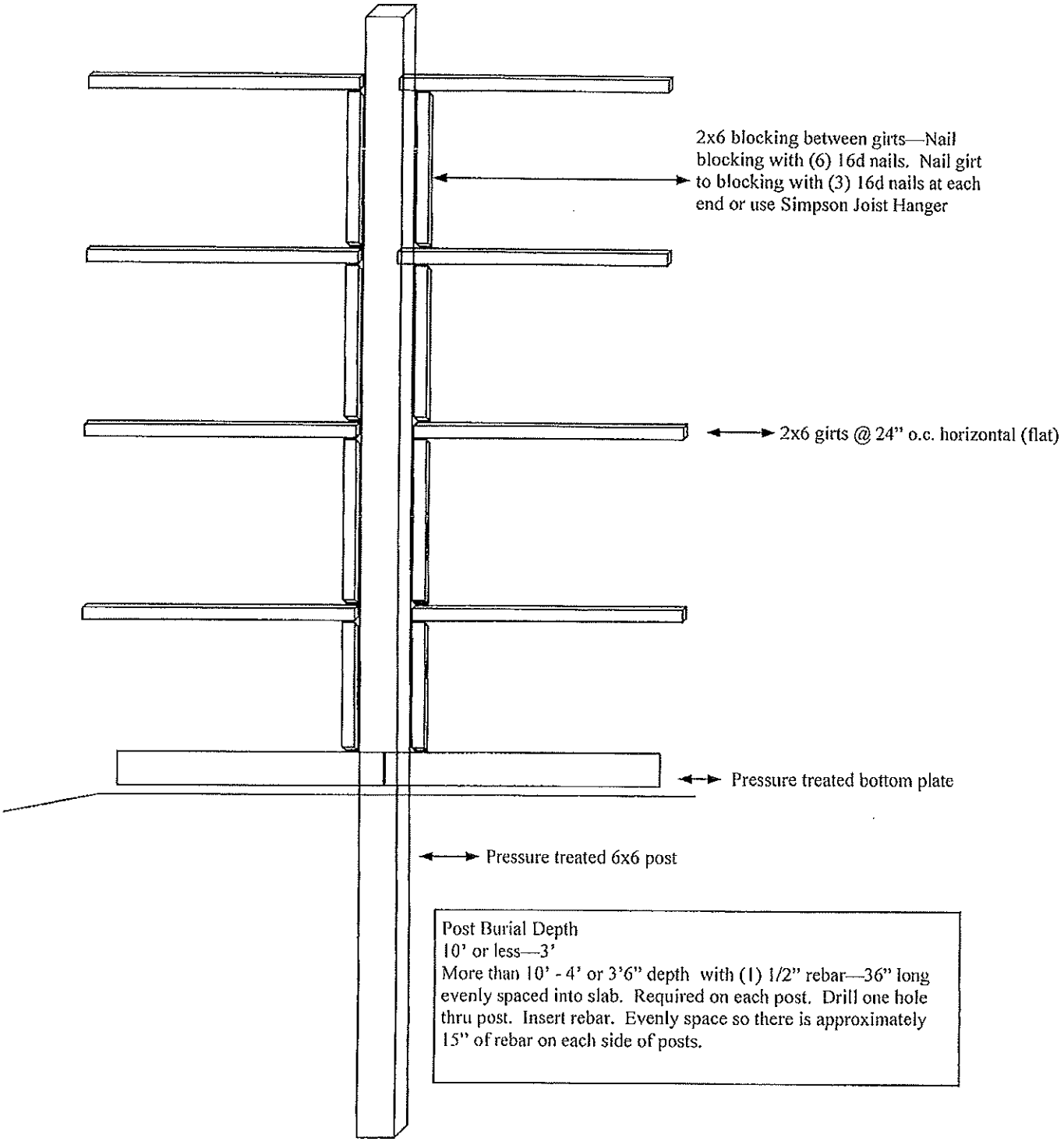


Wall Girt Detail for Buildings with 10' or Less Bay Width



Post Burial Depth
10' or less—3'
More than 10' - 4' or 3'6" depth with (1) 1/2" rebar—36" long evenly spaced into slab. Required on each post. Drill one hole thru post. Insert rebar. Evenly space so there is approximately 15" of rebar on each side of posts.

Wall Girt Detail for Buildings Over 10' Bay Width (Max. 12' Bay Width)



Post Burial Depth
10' or less—3'
More than 10' - 4' or 3'6" depth with (1) 1/2" rebar—36" long evenly spaced into slab. Required on each post. Drill one hole thru post. Insert rebar. Evenly space so there is approximately 15" of rebar on each side of posts.

TABLE R502.5(1)
GIRDER SPANS[a] AND HEADER 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)

GIRDERS AND HEADERS SUPPORTING	SIZE	GROUND SNOW LOAD (psf)[c]											
		30						50					
		Building width[c] (feet)											
		20		28		36		20		28		36	
		Span	NJ[d]	Span	NJ[d]	Span	NJ[d]	Span	NJ[d]	Span	NJ[d]	Span	NJ[d]
Roof and ceiling	2-2×4	3-6	1	3-2	1	2-10	1	3-2	1	2-9	1	2-6	1
	2-2×6	5-5	1	4-8	1	4-2	1	4-8	1	4-1	1	3-8	2
	2-2×8	6-10	1	5-11	2	5-4	2	5-11	2	5-2	2	4-7	2
	2-2×10	8-5	2	7-3	2	6-6	2	7-3	2	6-3	2	5-7	2
	2-2×12	9-9	2	8-5	2	7-6	2	8-5	2	7-3	2	6-6	2
	3-2×8	8-4	1	7-5	1	6-8	1	7-5	1	6-5	2	5-9	2
	3-2×10	10-6	1	9-1	2	8-2	2	9-1	2	7-10	2	7-0	2
	3-2×12	12-2	2	10-7	2	9-5	2	10-7	2	9-2	2	8-2	2
	4-2×8	7-0	1	6-1	2	5-5	2	6-1	2	5-3	2	4-8	2
	4-2×10	11-8	1	10-6	1	9-5	2	10-6	1	9-1	2	8-2	2
	4-2×12	14-1	1	12-2	2	10-11	2	12-2	2	10-7	2	9-5	2

TABLE R802.5.1(1)
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Roof live load=20 psf, ceiling not attached to rafters, L/Δ = 180)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)	(feet - inches)
12	Douglas fir-larch	SS	11-6	18-0	23-9	Note b	Note b	11-6	18-0	23-5	Note b	Note b
	Douglas fir-larch	#1	1-1	17-4	22-5	Note b	Note b	10-6	15-4	19-5	23-9	Note b
	Douglas fir-larch	#2	1-10	16-7	21-0	25-8	Note b	9-10	14-4	18-2	22-3	25-9
	Douglas fir-larch	#3	8-7	12-6	15-10	19-5	22-6	7-5	10-10	13-9	16-9	19-6
	Hem-fir	SS	10-10	17-0	22-5	Note b	Note b	10-10	17-0	22-5	Note b	Note b
	Hem-fir	#1	10-7	16-8	21-10	Note b	Note b	10-3	14-11	18-11	23-2	Note b
	Hem-fir	#2	10-1	15-11	20-8	25-3	Note b	9-8	14-2	17-11	21-11	25-5
	Hem-fir	#3	8-7	12-6	15-10	19-5	22-6	7-5	10-10	13-9	16-9	19-6
	Southern pine	SS	11-3	17-8	23-4	Note b	Note b	11-3	17-8	23-4	Note b	Note b
	Southern pine	#1	11-1	17-4	22-11	Note b	Note b	11-1	17-3	21-9	25-10	Note b
	Southern pine	#2	10-10	17-0	22-5	Note b	Note b	10-6	15-1	19-5	23-2	Note b
	Southern pine	#3	9-1	13-6	17-2	20-3	24-1	7-11	11-8	14-10	17-6	20-11
	Spruce-pine-fir	SS	10-7	16-8	21-11	Note b	Note b	10-7	16-8	21-9	Note b	Note b
	Spruce-pine-fir	#1	10-4	16-3	21-0	25-8	Note b	9-10	14-4	18-2	22-3	25-9
	Spruce-pine-fir	#2	10-4	16-3	21-0	25-8	Note b	9-10	14-4	18-2	22-3	25-9
	Spruce-pine-fir	#3	8-7	12-6	15-10	19-5	22-6	7-5	10-10	13-9	16-9	19-6
16	Douglas fir-larch	SS	10-5	16-4	21-7	Note b	Note b	10-5	16-0	20-3	24-9	Note b
	Douglas fir-larch	#1	10-0	15-4	19-5	23-9	Note b	9-1	13-3	16-10	20-7	23-10
	Douglas fir-larch	#2	9-10	14-4	18-2	22-3	25-9	8-6	12-5	15-9	19-3	22-4
	Douglas fir-larch	#3	7-5	10-10	13-9	16-9	19-6	6-5	9-5	11-11	14-6	16-10
	Hem-fir	SS	9-10	15-6	20-5	Note b	Note b	9-10	15-6	19-11	24-4	Note b
	Hem-fir	#1	9-8	14-11	18-11	23-2	Note b	8-10	12-11	16-5	20-0	23-3
	Hem-fir	#2	9-2	14-2	17-11	21-11	25-5	8-5	12-3	15-6	18-11	22-0
	Hem-fir	#3	7-5	10-10	13-9	16-9	19-6	6-5	9-5	11-11	14-6	16-10
	Southern pine	SS	10-3	16-1	21-2	Note b	Note b	10-3	16-1	21-2	Note b	Note b
	Southern pine	#1	10-0	15-9	20-10	25-10	Note b	10-0	15-0	18-10	22-4	Note b
	Southern pine	#2	9-10	15-1	19-5	23-2	Note b	9-1	13-0	16-10	20-1	23-7
	Southern pine	#3	7-11	11-8	14-10	17-6	20-11	6-10	10-1	12-10	15-2	18-1
	Spruce-pine-fir	SS	9-8	15-2	19-11	25-5	Note b	9-8	14-10	18-10	23-0	Note b
	Spruce-pine-fir	#1	9-5	14-4	18-2	22-3	25-9	8-6	12-5	15-9	19-3	22-4
	Spruce-pine-fir	#2	9-5	14-4	18-2	22-3	25-9	8-6	12-5	15-9	19-3	22-4
	Spruce-pine-fir	#3	7-5	10-10	13-9	16-9	19-6	6-5	9-5	11-11	14-6	16-10
19.2	Douglas fir-larch	SS	9-10	15-5	20-4	25-11	Note b	9-10	14-7	18-6	22-7	Note b
	Douglas fir-larch	#1	9-5	14-0	17-9	21-8	25-2	8-4	12-2	15-4	18-9	21-9
	Douglas fir-larch	#2	8-11	13-1	16-7	20-3	23-6	7-9	11-4	14-4	17-7	20-4
	Douglas fir-larch	#3	6-9	9-11	12-7	15-4	17-9	5-10	8-7	10-10	13-3	15-5
	Hem-fir	SS	9-3	14-7	19-2	24-6	Note b	9-3	14-4	18-2	22-3	25-9
	Hem-fir	#1	9-1	13-8	17-4	21-1	24-6	8-1	11-10	15-0	18-4	21-3
	Hem-fir	#2	8-8	12-11	16-4	20-0	23-2	7-8	11-2	14-2	17-4	20-1
	Hem-fir	#3	6-9	9-11	12-7	15-4	17-9	5-10	8-7	10-10	13-3	15-5
	Southern pine	SS	9-8	15-2	19-11	25-5	Note b	9-8	15-2	19-11	25-5	Note b
	Southern pine	#1	9-5	14-10	19-7	23-7	Note b	9-3	13-8	17-2	20-5	24-4
	Southern pine	#2	9-3	13-9	17-9	21-2	24-10	8-4	11-11	15-4	18-4	21-6
	Southern pine	#3	7-3	10-8	13-7	16-0	19-1	6-3	9-3	11-9	13-10	16-6
	Spruce-pine-fir	SS	9-1	14-3	18-9	23-11	Note b	9-1	13-7	17-2	21-0	24-4
	Spruce-pine-fir	#1	8-10	13-1	16-7	20-3	23-6	7-9	11-4	14-4	17-7	20-4
	Spruce-pine-fir	#2	8-10	13-1	16-7	20-3	23-6	7-9	11-4	14-4	17-7	20-4
	Spruce-pine-fir	#3	6-9	9-11	12-7	15-4	17-9	5-10	8-7	10-10	13-3	15-5

(continued)