

**HUMBOLDT COUNTY BUILDING AND SAFETY DEPARTMENT
CITY OF WINNEMUCCA BUILDING DEPARTMENT**

**STORAGE BUILDING
RESIDENTIAL – ONE STORY ONLY
2006 INTERNATIONAL RESIDENTIAL CODE
MAY 2011**

1. Using the charts below fill in the blanks on the worksheet:

	_____ Eave Height
	_____ Building Width
	_____ Building Length
Foundations	
	_____ Footing and stemwall
	_____ Slab foundation
	_____ Roof Design (Flat, Hip, Gable, etc)
	_____ Trusses/submit Nevada stamped engineers drawing
	_____ Rafters – Request handout if desired
	_____ Size
	_____ Spacing
Wall Studs – Bearing wall stud height shall be a max. of 10'	
	_____ Size
	_____ Spacing
	_____ Wall Bracing Material
	_____ Tie down devices required – wall less than 4' from corner to opening.
Header Sizes – See attached header schedule	
If using engineered headers (versalams, LVL, etc) the headers are required to be protected from the weather. This requires total encasement of the header with weatherproof materials.	
	_____ Over Man Doors
	_____ Over Windows
Roof	
	_____ Roof Sheathing Material
	_____ Roofing Material
Siding	
	_____ Siding material
Sheetrock	
	_____ Is storage building going to be sheetrocked? If so, provide attic ventilation
	_____ Number of lights
	_____ Number of switches
	_____ Number of outlets
	_____ New electric service required or what size is existing service and what is the amperage

2. On the floor plan provided show the size of the building, the location and spacing of all trusses, doors and windows. Indicate the location of the electrical subpanel. If you are going 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 property lines and other buildings. Check with the Planning Department (623-6393) for their required setbacks from the property lines.

3. General Notes

- Foundations – Storage buildings less than 400 square feet and not used to park vehicles may be constructed with walls supporting slab or wood foundation.
 - o Slab foundations – The anchor bolts shall be placed 6' o.c. and 12" from each end. A plate washer that is .0229" x 3" x3" shall be installed on the anchor bolt. The sill plate shall be pressure treated. The anchor bolts shall not be countersunk in the sill plate.
 - o Tie down devices may be required where there is less than 4' from a corner to an opening. Each panel end stud shall have a tie-down device fastened to the foundation capable of providing an uplift capacity of not less than 1,800 lbs.

- All framing shall comply with minimum County standards as designated by the Uniform Building Code. See Humboldt County handout for minimum wall framing. Provide fire blocking per IRC Section 602.8.
- Install positive connections on each truss or rafter at the double plate.
- **Wall Bracing** – IRC Section R602.10, R602.10.9, R602.10.1, R602.10.11 & Table 602.10.11. Braced wall panels shall start at each corner and not more than 25' o.c. All braced wall panels shall be clearly indicated on plans.
 1. Wood boards of 5/8" net minimum thickness applied diagonally on studs spaced not over 24" on center. Each braced panel must be at least 48" in length, covering three stud spaces where studs are spaced 16" apart and covering two studs spaces where studs are spaced 24" apart. Min. 30% of wall requires bracing.
 2. Wood structural panel sheathing with a thickness not less than 5/16" for 16" stud spacing and not less than 3/8" for 24" stud spacing in accordance with R602.10.1 & R602.10.2. Each braced panel must be at least 48" in length, covering three stud spaces where studs are spaced 16" apart and covering two studs spaces where studs are spaced 24" apart. Min. 20% of wall requires bracing.
 3. Gypsum board (sheathing ½" thick by 4' wide, wallboard or veneer base) on studs spaced not over 24" on center and nailed 7" on center. Each braced wall line must be at least 96" in length when applied to one face of a braced wall panel and 48" when applied to both faces. Min. 30% of wall requires bracing.
 4. Alternate bracing requirements for 2'8".
 5. APA wall system for 16" braced wall line.
- **Beams** – Versalam beams shall be enclosed with weather resistant materials and shall be sized by the manufacturer/Lumber Company
- **Doors** – a man door shall be provided in addition to the garage doors. This 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. Exit doors shall be capable of opening so that the clear width of the exit door is not less than 32". IRC Section R311.4.3
- **Fire Protection**
 - Exterior walls shall be protected by a (1) hour fire resistive rating (approved assembly) when less than (3) feet from property line or (6) feet to another building. IRC R302.1
 - Openings shall not be permitted in exterior walls with a fire separation distant of less than 3 feet. IRC Section R302.2. Openings in exterior walls shall be ¾ hour rated. IBC Table 715.3
 - All drywall joints shall be taped.

Electrical

- Owner shall verify service size is adequate for an additional electric load. Only one service permitted on a residential lot.
- 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 2002 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 a handout.
- All garage outlets shall be GFI (ground fault circuit 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 406.8(B)
- 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 garage. If a four-wire system is run from the service a ground rod is not required. (NEC Art. 250-24)
- A disconnecting means and overcurrent protection shall be provided per NEC. Overcurrent protection requires the 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 as per NEC, Art. 250-61(b).
- Feeder wires for the garage shall not be serviced from the manufactured/mobile home unless approved by 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(D)(5)
- Inform the Building Department if an upgraded service will be necessary.
- Contact Sierra Pacific Power Company at (775) 623-3667 or Harney Electric at (775) 272-3336 for their requirements.

Plumbing

- Locate your septic system before planning the garage construction. A minimum of 8 feet is required to the nearest portion of the septic tank.
- Approval of plumbing fixtures is required by the Bureau of Health Protection Services. You can contact them at 623-6588.
- Permits are required for all plumbing fixture installations.

Heating/Mechanical (Including woodstoves)

- Permits are required for all mechanical installations.
- All gas appliances shall be installed to manufacturer's installation instructions and to Uniform Mechanical Code requirements.
- Heating & cooling equipment located in a garage and which generates a glow, spark or flame capable of igniting flammable vapors shall be installed with the pilots and burners or heating elements and switches are at least 18 inches above floor level. IRC Section M1307.3
- Appliances located in a garage or carport shall be protected from impact by automobiles. IRC Section M1307.3.1
- Exhaust fans in bathroom are required or a window shall be installed. IRC Section R303.

**HEADER SCHEDULE
IRC TABLE R502.5(1)
ROOF AND CEILING ONLY**

SIZE	BUILDING WIDTH					
	20'		28'		36'	
	SPAN	# OF JACK STUDS	SPAN	# OF JACK STUDS	SPAN	# OF JACK STUDS
2-2X4	3'6"	1	3'2"	1	2'10"	1
2-2X6	5'5"	1	4'8"	1	4'2"	1
2-2X8	6'10"	1	5'11"	2	5'4"	2
2-2X10	8'5"	2	7'3"	2	6'6"	2
2-2X12	9'9"	2	8'5"	2	7'6"	2
3-2X8	8'4"	1	7'5"	2	6'8"	2
3-2X10	10'6"	1	9'1"	2	8'2"	2
3-2x12	12'2"	2	10'7"	2	9'5"	2
4-2x8	9'2"	1	8'4"	1	7'8"	1
4-2x10	11'8"	1	10'6"	1	9'5"	2
4-2x12	14'1"	1	12'2"	2	10'11"	2

Box header information available upon request

**RAFTER SPAN TABLES
2006 INTERNATIONAL RESIDENTIAL CODE**

Rafter Spans for Douglas Fir-Larch #2 – Ceiling not attached to rafters (R802.5.1(1))

Rafter Spacing	2x6	2x8	2x10	2x12
12" o.c.	16'7"	21'	25'8"	*
16' o.c.	14'4"	18'2"	22'3"	25'9"
19.2 o.c.	13'1"	16'7"	20'3"	23'6"
24" o.c.	11'9"	14'10"	18'2"	21'0"

*Span exceeds 26 feet in length

2x4's can be used in limited situations with reduced span; higher slope; light roof covering.
Table cannot be used to determine rafter sizes for tile or other heavy roof coverings.

Rafter Spans for Douglas Fir-Larch #2 – Ceiling attached to rafters (R802.5.1(2))

Rafter Spacing	2x6	2x8	2x10	2x12
12" o.c.	15'6"	20'5"	25'8"	*
16' o.c.	14'1"	18'2"	22'3"	25'9"
19.2 o.c.	13'1"	16'7"	20'3"	23'6"
24" o.c.	11'9"	14'10"	18'2"	21'

*Span exceeds 26 feet in length

2x4's can be used in limited situations with reduced span; higher slope; light roof covering.
Table cannot be used to determine rafter sizes for tile or other heavy roof coverings.

Rafter Ties:

Where ceiling joists are not parallel to rafters, the rafters shall be tied to 2"x4" minimum size rafter ties and installed in accordance with the connection requirements in Table R802.5.1(9) or connections of equivalent capacities will be provided. (R802.3.1)

Collar Ties:

Collar ties or ridge straps to resist wind uplift shall be connected in the upper third of the attic space in accordance with Table R602.3(1). Collar ties shall be a minimum of 1"x4", spaced not more than 4 feet on center. (R802.3.1.)

STORAGE BUILDING HANDOUT

