I the undersigned acknowledge that I have received the Building Permit Packet and understand that there is pertinent information regarding my Building Permit. I realize the importance of reading and understanding this information.

Date:_____
Printed Name:_____
Signature:_____

City of Ava, Missouri
Information packet for residential construction
Department of Planning and Development
115 SE 2nd Ave., Suite A
Ava, MO 35608
Phone 417-683-5516 Fax 417-683-3823

The building permit process:

Building permits have two basic building construction types: one and two family residential construction; and multifamily and commercial construction. Each construction type has its own sets of standards that are required for a building permit. This information packet pertains to residential one and two family construction only.

This information is intended to provide an overview of the procedures to obtain a building permit. It does not represent all of the provisions regulating residential construction and is not intended to replace the adopted codes and ordinances of the City of Ava.

Ordinary repairs and minor alterations not involving any change in major structural parts such as walls, beams, girders, or chimneys with an estimated cost less than $200.00 do not require the issuance of a building permit.

Construction is not allowed to begin until a building permit is issued. Once issued the permit will be available for pick-up at the City of Ava utilities building. Payment is due at time of pick-up.

The building permit application:

A universal permit application form is used for the various types of building permits. Some sections will pertain to your project and some will not:

Page1:
The first page asks for information on the property being developed, the owner of the property, the location of the property and the contractors with contact information who will work on the project. You will need to list the primary construction material and the estimated value of improvements. The estimated value of improvements is how much you expect the project to cost and can be shown as a range of values. **Make sure that your contact name and phone # are clearly written**

Page 2:
The first section asks for details on the residential construction itself. You will need to know how large the building will be, types of heat/air, water and sewer line sizes, and lumber sizes.

The second section does not apply, leave blank and cross out.

The third section asks for lot sizes and setbacks. **This information must be included for the application to be reviewed.** The building must be staked out on the lot when the application is submitted so that a setback inspection can be conducted.

The fourth section is for miscellaneous permits just cross out this section.

Page 3:
Since most residential construction projects do not require engineered construction drawings, this page should include a floor plan showing layout and dimensions of rooms, windows, and doors. This can be hand drawn, but please include accurate measurements. You may attach more sheets if necessary.

Page 4:

Please read all of the information on this page, since it includes reference to state and local regulations that you are required to follow. There are signature lines for public works and planning personnel. The city will fill in the building permit fee, but **the applicant should sign and date the form**.

The review process:

After your application has been accepted for review it will be routed to the necessary departments for their comments and signatures. The application will then be taken to City Utilities for payment and pick-up. You will be contacted at the name and number provided on page 1 when ready.

Permit fees:

Permit fees are to be paid before the permit is considered valid and construction can begin. Fees will include the permit fee and utility connect fees.

Building Codes:

The City of Ava has adopted the following codes applicable to residential construction

- International Residential Code 2006
- National Electric Code 2005
- City of Ava, MO Municipal Code

Additional Permits:

Depending on the scope of your project, the following permits may also be required:

- Floodplain Development Permit
- Excavation Permit
- Zoning Approval

Call the Planning and Development office for advice on additional permits at 417-683-5516+

Inspections:

The following inspections are required-

- Setback
- Footing
- Footing wall / foundation
- Framing
- Rough Electric
- Rough Plumbing / Sewer
- Rough Mechanical
- Gas Test
- In ground Plumbing
- In ground Electric
- In Ground Sewer
- Temporary Electric service
- Permanent Electric service
- Final Inspection

Call Kurt McGee, Building Inspector, to schedule inspections at 417-683-8052

Call City Utilities at 417-683-4122 to schedule work orders for utility installation.

CITY OF AVA

BUILDING DEPARTMENT HANDOUT

THE PURPOSE OF THIS HANDOUT IS TO HELP WITH CODE INTERPRETATION; IT IS BY NO MEANS AN ATTEMPT TO ADDRESS EVERY CODE ITEM.

This information handout is base on the 2006 International Building Codes, the 2005 National Electric Code, and the City of Ava zoning and ordinance codes.

The Building Department's mission is to work with the Contractors and the Public so that the consumer may purchase a quality home that meets or exceeds the requirements of the code in the City of Ava.

Required Inspections

Footing: Commonly made after forms are erected and steel is in place- **prior to concrete being placed.**

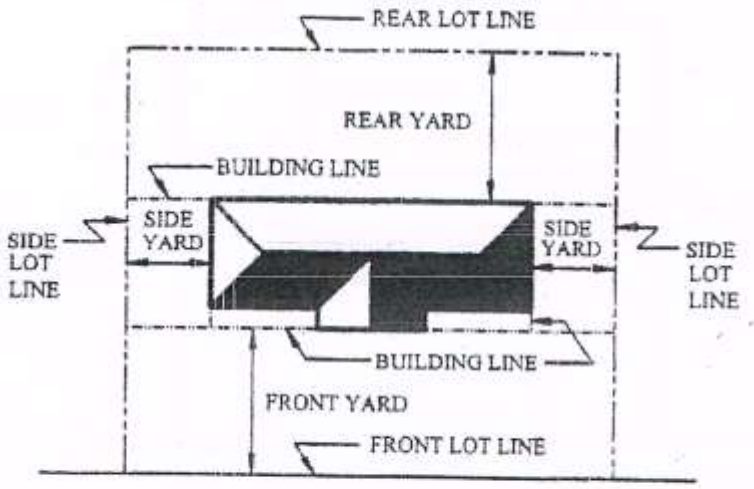
Foundation (stem wall): Commonly made after forms are erected and steel is in place-**prior to concrete being placed,** or upon completion of laying concrete block foundation.

Open Wall: Framing, Electrical, Mechanical, and Plumbing. **This Inspection is required before any concealment.**

Final Inspection: Commonly made after the building is complete and the yard and driveway are completed

NO BUILDING SHALL BE OCCUPIED UNTIL A FINAL INSPECTION IS APPROVED

In addition to a building permit, an evaluation of whether or not the property resides in a flood plain will be done by the building department. If the property is found to be in a floodplain, a **Floodplain Development Permit** will need to be applied for.



Minimum lot area (sq feet): single family R-1 is 10,000.
Minimum lot area (sq feet): two-family R-2 is 6,000.
Minimum lot area (sq feet): Multifamily R-3 is 6,000.
Maximum height of principle building is 35 feet.
Front lot line to building line is not less than 35 feet.
Side lot line to building line is not less than 7 feet, 6 feet on R-3.
Side lot line to building line is not less than 8 feet if building exceeds 20 feet in height, 7 feet on R-3.
If a street is on the side lot, then no less than 15 feet.
Rear lot line to principal building is no less than 20 feet.

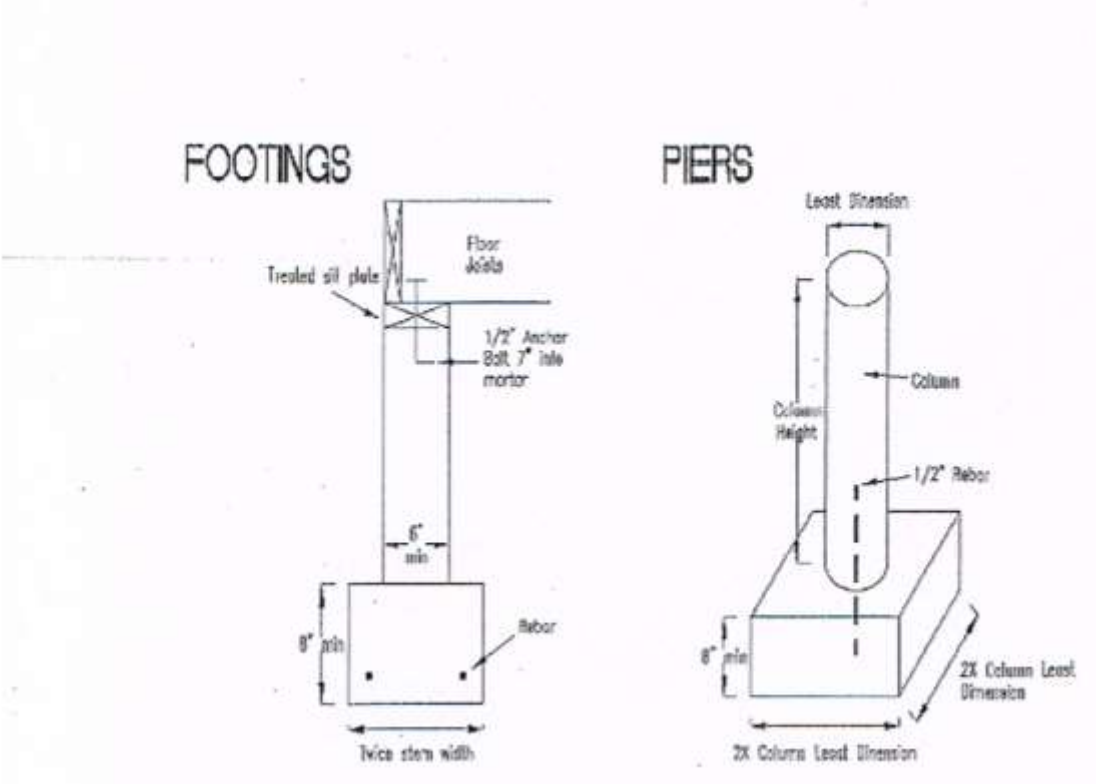
No detached accessory building shall occupy a front yard, or be located within 10 feet of any dwelling existing or under construction; except for a detached garage the distance shall be 5 feet.
No accessory building shall be located any closer than 5 feet to any lot line. If a street is on the side lot, then no less than 15 feet.

Density requirements	R-1 Single-family and R-	R-2 Two-family	R-3 Multifamily
Minimum lot area			
Single-family dwelling	10,000	6,000	6,000
Two-family unit, family	—	3,000	3,000
Family over two	—	—	
Churches, hospitals,	20,000	20,000	20,000
All other permitted	10,000	10,000	10,000
Minimum lot width (feet):			
Dwelling, internal lot	70	70	60
Dwelling, external lot	80	80	70
Maximum height of			
Principal building	35	35	35
Accessory building	15	15	15
Other restrictions		(see section	
Minimum front yard			
Principal buildings	35	35	35
Other restrictions		(see section	
Minimum side yard			
Dwellings:			
Single-family and	7	7	6
In excess of 20-foot	8	8	7
Multiple-family	—	—	10
Other permitted uses	Ten feet, plus one foot for every foot by which building exceeds 35 feet		
External lots, (street	15	15	15
Minimum rear yard			
Principal building	20	20	20

Footings: The minimum dimensions for footings are based on loading and an assumed allowable soil pressure of 2000 pounds per square foot **on undisturbed soil**. Footing widths or the depth of footings below natural grade may have to be increased if the supporting soil is of a type not having an allowable bearing pressure of at least 2000 pounds per square foot.

The following are minimal requirements for footings:

- Concrete can only be placed on frost free surfaces.
- Concrete footing shall be protected from freezing during placement and for a period of not less than five (5) days thereafter
- The material used for footings shall be poured concrete, at least a 1-3-5 mix (3,000psi) with ½" rebar.
- The top of the footing shall be level. The bottom of the footing shall have a slope not exceeding 1 in 10 fall.
- Footings are to be 24 inches below finish grade on solid bearing surface.
- Footings are to be at minimum 6 inches thick and 12 inches wide for a one story, 15 inches wide for two stories, and 18 inches wide for three stories. The minimum width should also be twice the width of the foundation wall. Example: an 8 inch wall will require a 16 inch wide footing.
- Footings for a masonry fireplace should be a minimum of 12 inches thick.
- Foundation walls shall be centered on the centerline of the footings.



Foundation:

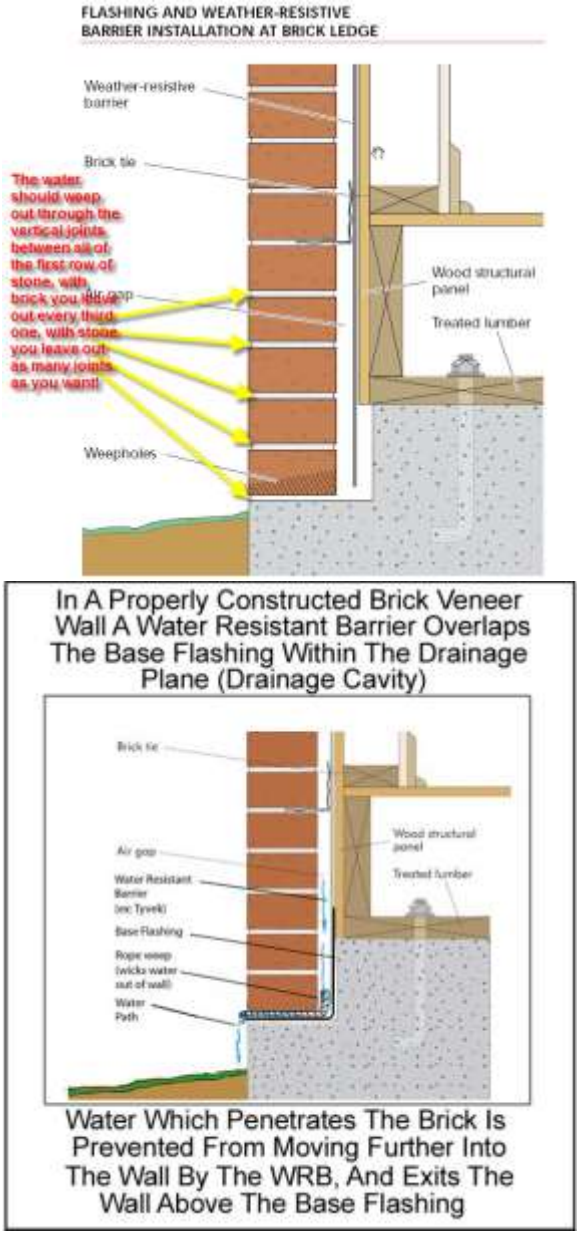
- Foundation walls should be of sufficient heights to provide a minimum of 8 inches clearance between sill plate and finish grade, and shall be 3,000psi concrete mix with ½" rebar.
- Stem walls are to be a minimum of 6 inches wide for a one (1) story structure.
- Stem wall height should be a minimum of one (1) foot above the street curb, depending on grade of lot.
- Foundation shall have 1/2" bolts at 6 feet on center, not more than 12 inches from each corner or opening, and seven (7) inches into concrete.
- Foundation walls made of concrete or block of habitable rooms located below grade shall be waterproofed.
- Drain lines shall be provided around all foundations enclosing habitable space below grade. Drain lines shall discharge by natural means.
- All bottom sill plates in contact with concrete or masonry shall be treated wood or wood naturally resistant to decay

Drainage:

Lots shall be provided with adequate drainage and shall be graded so as to drain surface water away from foundation walls. The grade away from foundation walls shall fall a minimum of six (6) inches within the first ten (10) feet. Where width is restricted, the fall will be six (6) inches regardless of horizontal distance available.

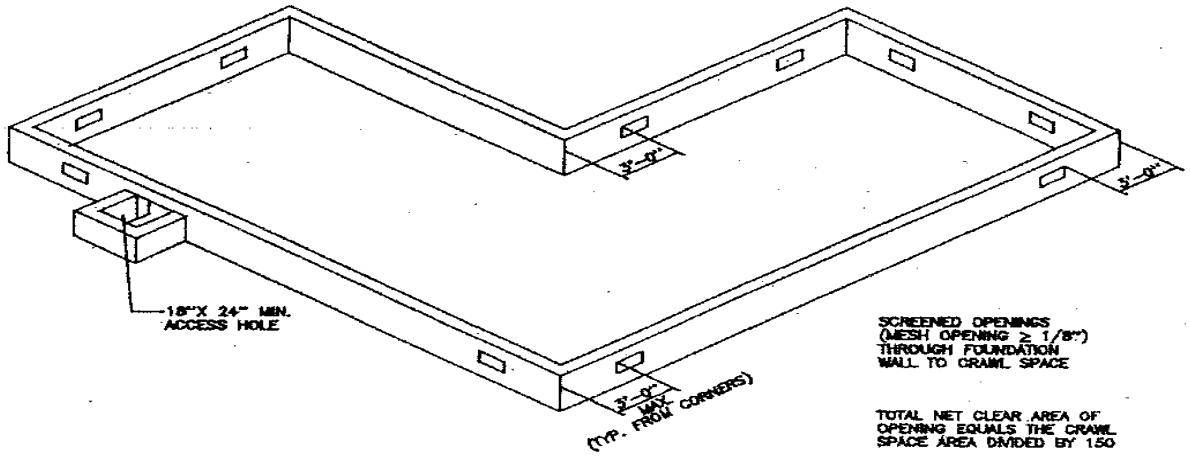
Brick Ledge:

- Brick or Masonry veneers must be supported by the foundation and footings.
- The brick ledge can be formed in the foundation wall, or by concrete units bearing on the footing. Head and bed joints are required.
- Plywood under the brick is required to be protected from moisture.
- Wall ties are to be spaced a minimum of 16 inches horizontal and 30 inches vertical.



Crawl Space:

- Minimum height of crawl space to bottom of floor joists is 18 inches.
- Minimum access hole required is 18" x 24".
- Ventilation openings may be omitted on one side.
- Ventilation opening requirement is a minimum of 1 square foot for each 150 square feet of crawl space.



Concrete slabs:

- Concrete slabs shall be 3,000psi 4 inches thick over 4 inches of gravel, over well tamped earth. Concrete shall be re-enforced with 6-6-10-10 mesh.
- The bottom of the slab shall not be lower than the top of the footing.

Piers and Columns:

- Piers and columns are vertical members usually made of concrete, brick, block, steel or wood and are used to support the floor or roof system. Piers and columns may be used to support the entire structure, or they may be used in conjunction with the foundation wall and provide intermediate support between riders and beams.
- The unsupported height of columns shall not exceed ten (10) times their least dimension. Block or hollow masonry unit columns are required to have voids filled with concrete when their unsupported height exceeds four (4) times their least dimension.
- Hollow columns shall be capped with four (4) inch thick solid masonry.
- Pier columns shall be at least eight (8) inches thick and doweled to the footing with ½" rebar.
- Columns in basements shall be of treated wood, minimum 4" x 4" or steel posts not less than three (3) inches in diameter.
- Shims for floor joists or girders shall be of hardwood or steel plates. Shim width shall not be less than girder width.

Girders:

- Girders are the main horizontal support members upon which the floor system is laid. They are supported by posts, beam pockets, and piers.
- The arrangement of the girders under the floor system is dependant on the design of the floor system itself and the load it is expected to carry. Some girders are positioned to carry only floor load while others will have to support floors, walls, and roof structures. This can result in girders of various size and spacing. The most common method of laying out girders is to determine the size of the largest girder required and use girders of like size in all locations where they will be needed. This results in a uniform design and makes the job of framing easier.

Floors:

- All lumber for joists beams and girders shall be grade marked by an approved agency and shall be at minimum grade #3.
- The ends of each joist, beam, or girder shall have not less than 1-1/2 inches bearing on wood or metal, and not less than 3 inches on concrete or masonry.
- Joists attached into the sides of wood girders shall be supported by approved framing anchors.
- Notches in the top or bottom of a joist shall not exceed 1/6th the depth of the joist and cannot me located in the middle 1/3rd of the span.
- Holes bored into the joist shall not exceed a diameter greater than 1/3rd of the depth of the joist.
- Joists under bearing walls shall be doubled. Double joists which are separated to permit installation of piping or vents shall be solid blocked at a minimum spacing of four (4) feet on center.

- The clear span of floor joists shall not exceed the values set forth in the IBC tables appendix.
- Openings over four (4) foot shall be framed with a header and double trimmer joists.
- Floor trusses shall be designed and installed in accordance with approved engineering practices. Floor trusses shall not be drilled, cut, notched, or altered in any manner unless so designed.
- Joists shall be supported laterally by solid blocking metal bridging or diagonal 1”x3” braces double nailed at each end. A maximum of 8 feet on center.

Walls:

- Load bearing dimensional lumber for plates, studs, and headers shall be grade marked by an approved agency and shall be at minimum grade #3.
- A stud cannot be cut, or notched more than 25% of its width.
- Drilling and notching: where top plates are cut, drilled, or notched, due to piping or duct work, more than 50% of its width, the plates shall be reinforced with 24 gauge steel angle or equivalent support.
- Fire stopping shall be provided to cut off all concealed draft openings both horizontal and vertical in concealed spaces of stud walls and partitions, including furred spaces, at the ceiling and floor level. At all soffits, dropped ceilings, and cove ceilings. And in concealed spaces between stair stringers at the top and bottom of the run.
- Draft stop shall be installed at openings around vents, pipes ducts, chimneys, and fireplaces at the ceiling and floor level.
- Wall bracing is required every 25 feet of wall length using a 1” x 4” let in, metal straps, or structural sheathing.
- Cripple walls shall be framed with studs not less in size than studding above, with a minimum length of 14”, or shall be made of solid blocking. When exceeding four (4) feet, studs will be sized for an additional story.

Ceilings and Roof:

- New concepts in ceiling design have brought about new configurations in framing methods and introduced assemblies such as stiff backs, A-frames, and trusses to enable the new concepts in ceiling design to be accomplished. Some of these designs are so complex that it is necessary to consult with an engineer to insure structural integrity.
- The clear spans of joists and rafters shall not exceed th values in the IBC tables appendix.
- All load bearing dimensional lumber for ceiling joists, rafters, stiff backs, a-frames, trusses and all other load bearing assemblies shall be grade marked by an approved agency and shall be at minimum grade #3.
- Beams used to support raised ceilings shall have a continuous support to the bottom plate.
- Rafters shall be nailed to ceiling joists to form a continuous tie between exterior walls. Where rafters are not parallel, they shall be connected with

rafter ties located as near the plate as practical. Rafter ties shall not be spaced more than 4 feet on center.

- The Ends of each rafter or joist shall not have less than 1-1/2 Inch bearing on wood or metal, and not less than 3 inches on concrete or masonry.
- Notching at the ends of the rafters shall not exceed 25% of the depth. Notches in the bottom or top of joists shall not exceed 1/6th of the depth, and shall not be located in the middle 1/3rd of the span.
- Holes bored in the rafter and ceiling joists shall not be within two (2) inches of the top and bottom, and their diameter shall not exceed 1/3rd the depth of the member.
- Ridge boards shall be at least 1 inch nominal thickness and depth shall not be less than the cut at the end of the rafter.
- Hip and valley ridges shall be not less than two (2) inches nominal thickness, and not less in depth than the cut at the end of the rafter at every hip and valley.
- All hip and valley rafters shall be supported at the ridge by a brace that returns to a load bearing partition, or are to be designed to carry and distribute the specific load at that point.
- Rafters and ceiling joist shall be provided with lateral support at points of bearing to prevent rotation. Rafters and ceiling joists shall be supported laterally by solid blocking, metal bridging or diagonal1" x 3" bridging double nailed at each end a maximum of 8 feet on center.

Purlins:

- The unsupported span of rafters shall not exceed the values set forth in the span tables. Intermediate support of long rafters shall be provided with purlins or interior walls. The maximum rafter span is the maximum distance between the exterior or interior wall support and the purlin, or between the ridge member and the purlin, or from purlin to purlin.
- Purlins shall never be smaller in dimension than the rafters that they support, and are to be spaced 4 feet on center
- Braces to support the purlin above ceiling shall not be less than 45 degrees or more than 60 degrees.
- Purlin braces exceeding 6 feet in length are required to be doubled or teed.
- Braces are to bear on interior walls or beams designed to carry the load
- Do not brace to ceiling joists or stiff backs except where these members are directly over a bearing wall

Garage:

- Garages shall have the driveway elevation so that at five (5) feet from the garage door opening, the finish surface of the driveway shall be a minimum of four (4) inches below the elevation of the garage floor

IBC tables appendix:

Spans for wood floor joists shall not exceed those tabulated in the following span table:

Size	Spacing	Grade no. 1	Grade no. 2
2 × 6	12″	11′0″	10′0″
2 × 6	16″	10′0″	8′0″
2 × 6	18″	9′6″	7′6″
2 × 6	24″	8′6″	7′0″
2 × 8	12″	15′0″	14′0″
2 × 8	16″	14′0″	12′6″
2 × 8	18″	12′6″	11′0″
2 × 8	24″	12′0″	10′0″
2 × 10	12″	19′0″	18′0″
2 × 10	16″	17′0″	16′6″
2 × 10	18″	16′0″	14′6″
2 × 10	24″	14′6″	13′6″
2 × 12	12″	23′0″	22′0″
2 × 12	16″	21′6″	20′0″
2 × 12	18″	19′6″	18′6″
2 × 12	24″	18′6″	17′0″

Ceiling joists shall not exceed those tabulated in the following table:

Size	Spacing	Grade no. 1	Grade no. 2
2 × 4	12″	12′0″	10′0″
2 × 4	16″	10′6″	8′6″
2 × 4	18″	9′6″	7′6″
2 × 4	24″	8′6″	7′0″
2 × 6	12″	18′6″	17′0″
2 × 6	16″	18′0″	16′6″
2 × 6	18″	14′6″	14′0″
2 × 6	24″	14′0″	12′0″
2 × 8	12″	18′6″	16′0″
2 × 8	16″	17′0″	14′0″
2 × 8	18″	16′0″	12′6″
2 × 8	24″	14′6″	11′6″
2 × 10	12″	24′0″	21′0″
2 × 10	16″	21′6″	18′0″
2 × 10	18″	20′0″	16′0″
2 × 10	24″	18′0″	14′6″