



# Post Frame / Pole Barn Construction Guide



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The design concepts of post frame construction are simple and offer flexibility, which makes it popular among architects, engineers and building designers.

Post frame construction is also economical, easy to construct, code compliant and they offer excellent high wind and seismic loading conditions.

### How to use this Construction Guide.

To help applicants, our Building Department has developed this Construction Guide with the cooperation of the International Code Council and APA—The Engineered Wood Association to make the proposed design and construction of a post frame construction (a.k.a., pole barn) easy and understandable.

We ask that you simply fill in the blanks on all pages and indicate which construction detail will be utilized.

Once completed, please attach all pages to your application for a Building Permit.

Building Permits are not typically required when the structure has a building area less than 1,000 square feet and is accessory (not attached) to a single-family dwelling.

Some agricultural buildings may also be exempt from the requirement to obtain a Building Permit. The Pennsylvania Uniform Construction Code does not generally require permits for certain agricultural buildings and for residential detached accessory building less than 1000-sq. ft. in size.

With this in mind, our Department advises any person proposing to perform post frame construction to utilize this guide in order to build a safe and code compliant structure regardless if a Permit is required or not

Lastly, the exemption to obtain a Building Permit does not grant an agricultural building the

right to violate any local Zoning Laws.

Please contact the Code Enforcement Officer to ascertain the applicable zoning regulations and obtain a Certificate of Zoning Compliance, which will document your compliance with applicable zoning regulations, prior to the start of work.

Note: If electrical work is installed in an agricultural building, an inspection of the electrical service may be required by the power company. Such inspection will ensure that your electrical work was installed in compliance with the National Electrical Code (NEC) that will provide you a sense of surety that your building is safe not only for you, your family, and crops and livestock but also for emergency response agencies.

### REQUIRED INSPECTIONS

**FOOTER INSPECTION:** A footer inspection is required after post holes have been dug or trenches cut and any required reinforcement steel is in place.

**STRUCTURAL FRAMING INSPECTION:** When all structural framing is completed and prior to placement of insulation and any covering of walls takes place. The framing inspection is not complete until any electrical, plumbing, and mechanical rough-in inspections are completed.

**ELECTRICAL, PLUMBING, MECHANICAL INSPECTIONS:** A rough-in inspection must be conducted prior to covering any of these building components with insulation or wall coverings. A final inspection of these items will be done during the Final Inspection process.

**FINAL INSPECTION:** This inspection is made after the building is completed and any electrical, plumbing, energy, mechanical, and sanitary inspections are verified.

**CERTIFICATE OF OCCUPANCY:** A CO will only be issued after an acceptable Final Inspection and when the construction site has been cleared of all debris and construction waste and equipment.

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Complete this building guide by filling in the blanks on all pages, and indicating which construction methods / details will be used.

This pole building design and permit may be rejected and a full set of engineered plans required at any time if the Code Official deems it necessary to show compliance with state building code requirements.

## **Design Details:**

Maximum height to the square of the truss shall not exceed 12 feet without additional engineering approval.

Minimum post size must be 6x6. Maximum of 8' o.c. buried a minimum of 48" with a 8" punch pad in the bottom of the hole.

Minimum (2) 2 X 6 pressure treated wind cleats or blocked anchors shall be fastened to the bottom of each pole or an alternate method shall be subject to approval by the Building Official.

Posts shall be either butt encased with concrete, or be fully embedded with concrete, or be provided with other approved means to provide for resistance to wind uplift. If posts are provided with butt encasement or blocked anchors, the remaining annular space of the post foundation holes shall be backfilled by firmly tamping clean soil or sand in maximum 8-inch layers.

Baseboards shall be pressure treated tongue and groove lumber and installed from the top of the slab to not less than 8 inches above the slab or final grade - whichever is highest. Finished grades shall be sloped away from baseboards.

All wood in contact with ground or within 18-inches to ground according to the building code shall be natural decay resistant, insect resistant, and pressure treated per AWPA standards. General assumption shall be No. 2 or better (SYP).

Wall girts shall be of 2x4 or greater construction. 2x4 wall girts may not exceed 24" o.c. spacing or 8' maximum span. Girts shall be fastened to the posts using 16d ring shank hot dipped galvanized nails or other fasteners that have been approved by the code official.

Exterior sidewalls shall be braced at building corners. Braces shall be minimum 2X4 nominal dimension lumber installed diagonally or be of other approved bracing materials.

Exterior wall coverings, when provided, shall be of an approved weather-resistant material. Steel panel exterior wall coverings shall be of minimum 29 gage.

Truss headers or carrier beams must be doubled and must meet the span and spacing requirements of the IBC. (ie: 2-2X12 span 12' with no stories above, 2-2x10 span 10' with no stories above, 2-2x8 span 8', etc. one story above divide span by 2 or 2-2x12 span 6', etc.) Headers or beams for doors and other openings required to support building loads shall be

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designed to safely carry the imposed loads. A minimum of three (3) 2"X12"s over a load bearing wall is required with only a roof above. An engineered LVL laminated beam is required if there is a floor above.

**Beams, headers or girders that are used to support roof framing shall be supported by notches in the poles or posts and shall be secured by 3- ½ inch diameter bolts secured with washers and nuts or 3- ½ inch by 4 ½ inch lags or other approved fasteners.**

Fasteners for pressure-preservatively treated wood and fasteners used in locations exposed to weather shall be of hot-dipped zinc galvanized, aluminum alloy wire fasteners or stainless steel fasteners.

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Roof framing must be manufactured truss construction only. Trusses shall be designed by a professional engineer licensed in Pennsylvania to practice in the design of buildings.

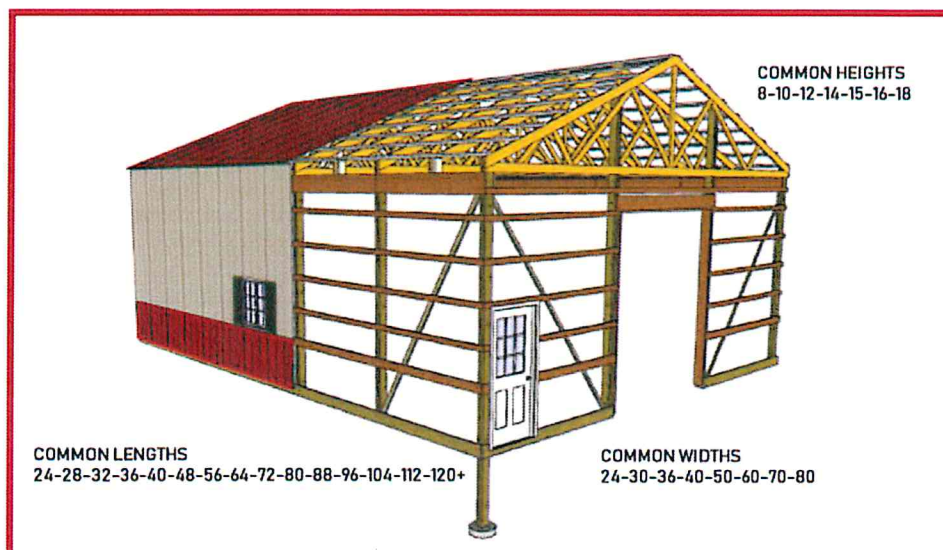
Blocking, straps, approved framing anchors or mechanical fasteners shall be installed from the side of the roof framing member to the exterior posts or other supporting members. Tie straps shall be 1 1/8 -inch (28.6 mm) by 0.036-inch (0.91 mm) (No. 20 gage) sheet steel and shall be corrosion resistant.

Purlins shall be installed with the wide dimension perpendicular to the load that it supports. Purlins shall be supported on top of the trusses or shall be provided with approved hangers.

2x4 lateral truss braces are required at least one per bay. Lateral truss braces shall run from gable end to gable end and may be either L type or T type, attached to the bottom cord.

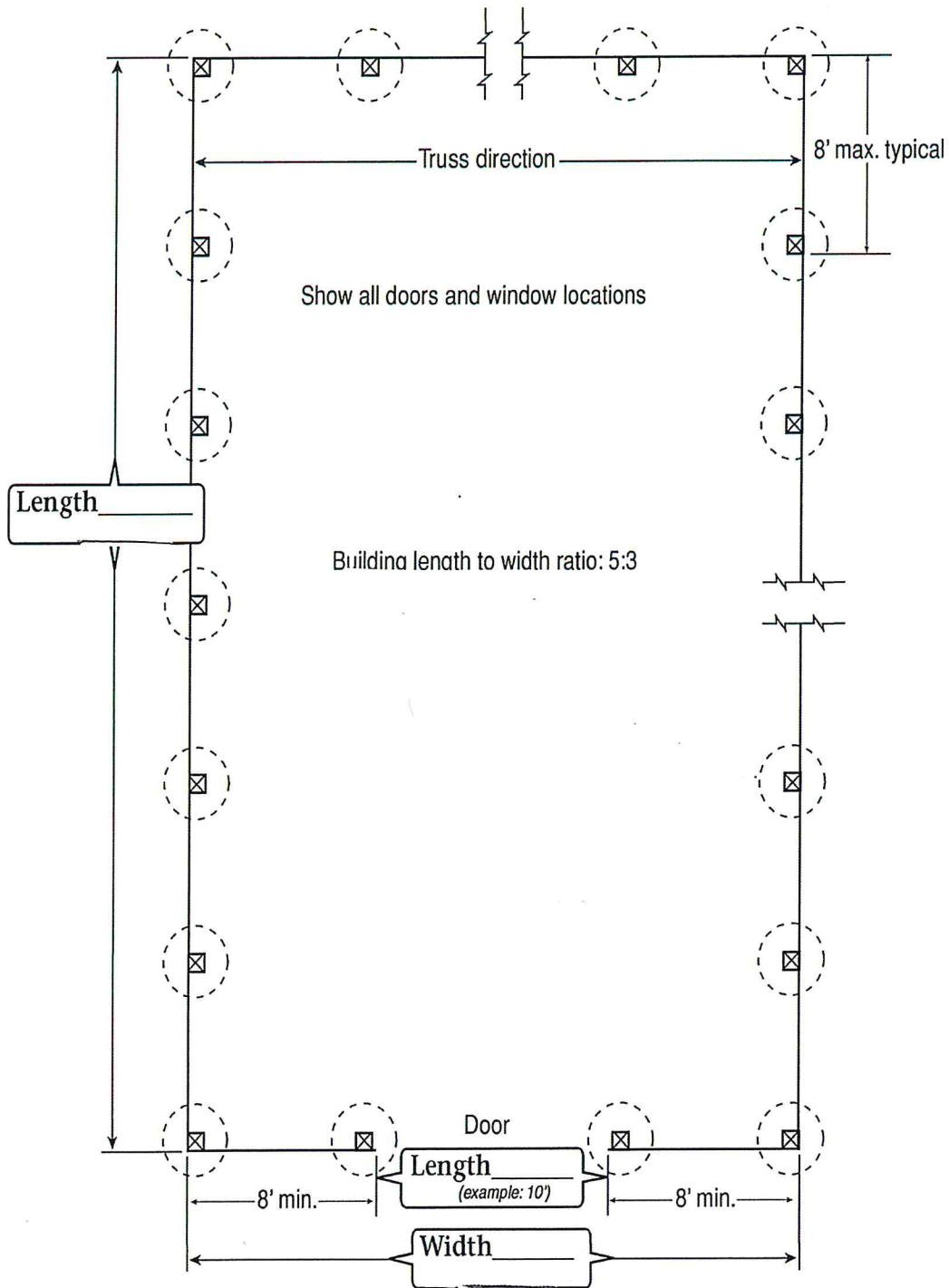
No single opening for doors, windows or other purposes that exceed 16 feet in width shall be placed in exterior walls.

At least one exit 36-inch man-door complying with this section shall be provided. Exit doors shall be of the pivoted or side hinged swinging type.



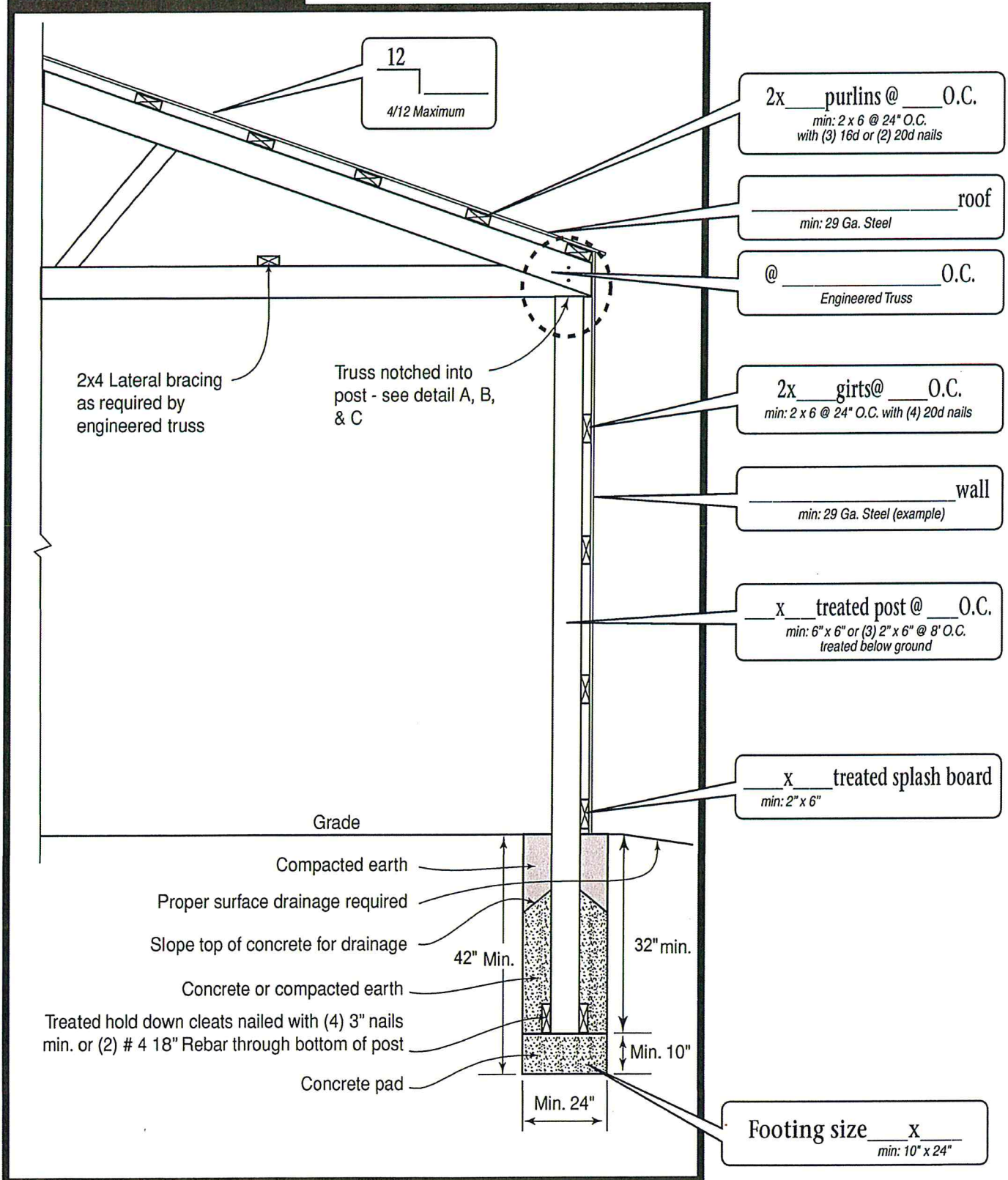
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## Floor plan



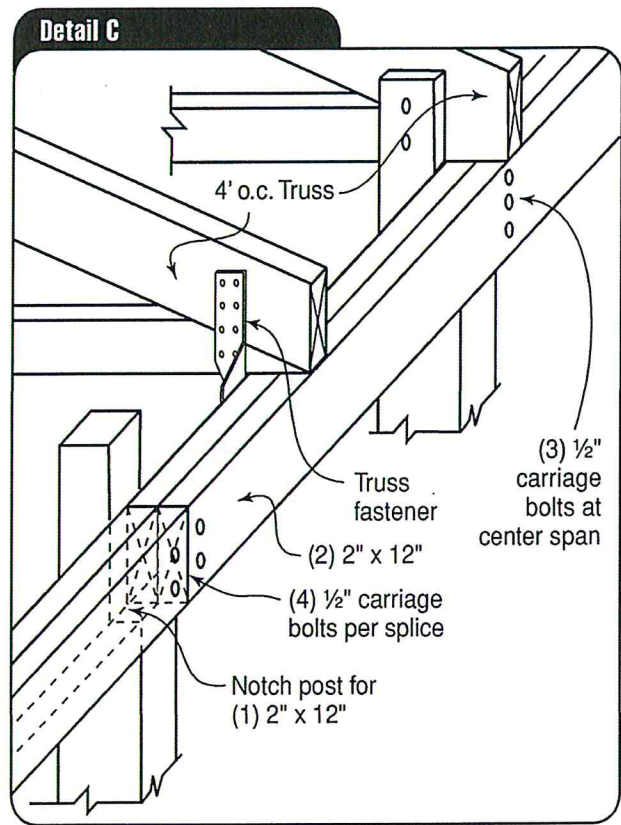
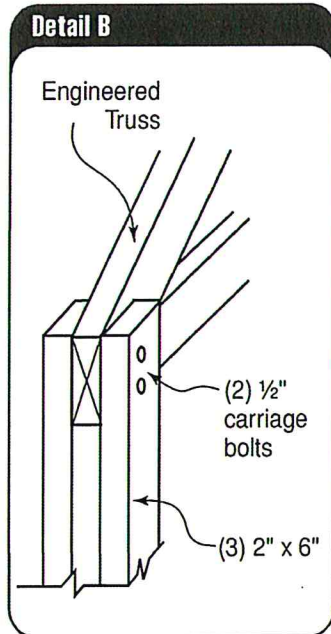
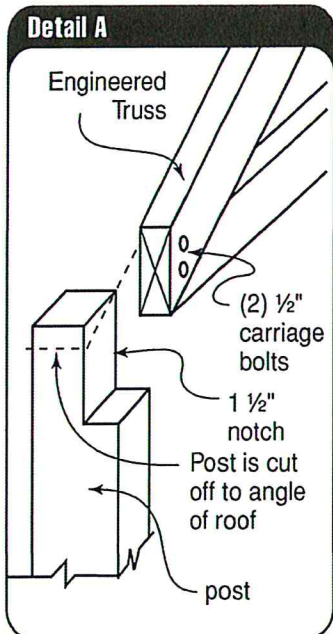
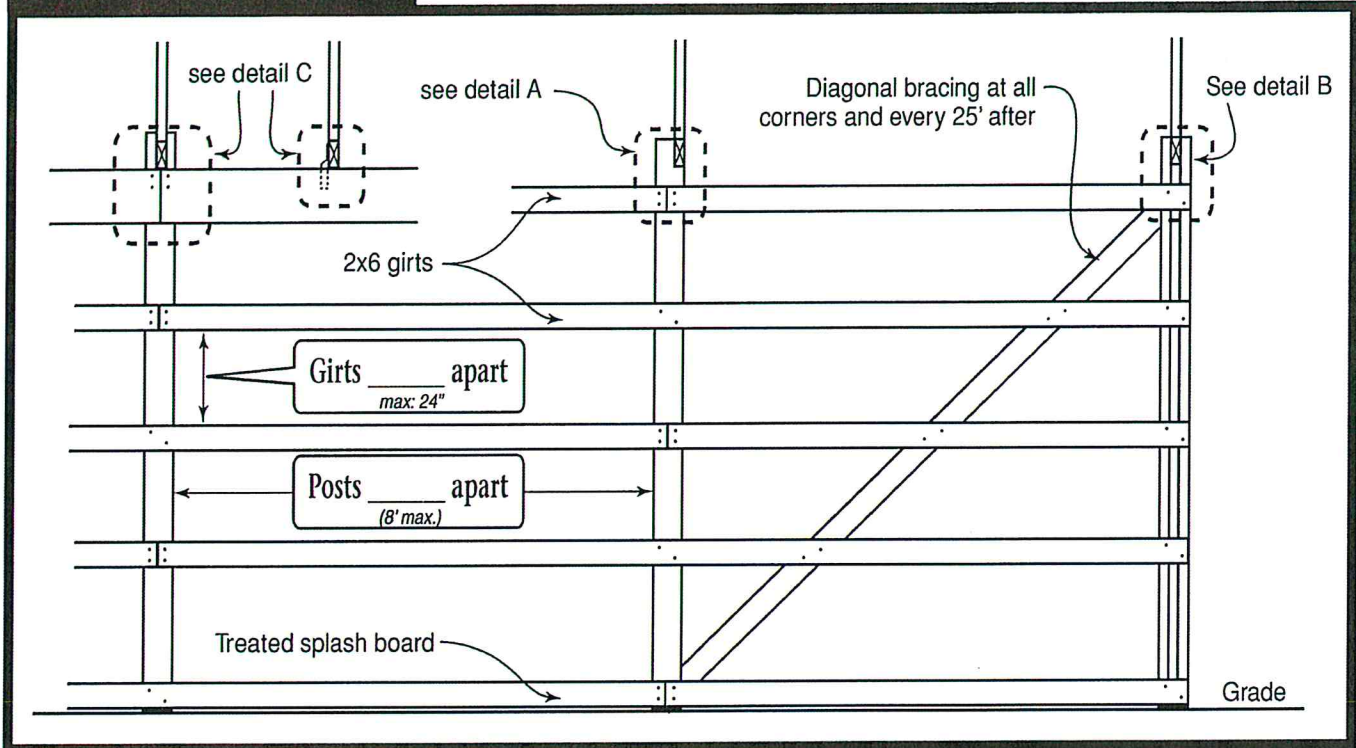
# Pole Barn Construction

## End Elevation



# Pole Barn Construction

## Side Elevation



## OTHER IMPORTANT CODE REQUIREMENTS

- **CHANGES TO BUILDING PLANS:** As with any construction project, plans and ideas will change as the project progresses. However, any change to the approved building plans **SHALL HAVE ADVANCED WRITTEN APPROVAL BEFORE ANY CHANGE TO THE ORIGINAL PLANS OR WORK MAY TAKE PLACE.**
- **STOP WORK ORDERS:** Upon notice from the Code Official or Inspector that work on any building is being done contrary to approved plans, to the provisions of the Code or in an unsafe and dangerous manner, such work must be immediately stopped. Any person who shall continue such work shall be subject to penalties as provided by law.
- **PLACEMENT OF PERMIT AND CONSTRUCTION DOCUMENTS:** The Building Permit placard shall be located in a visible location and shall be kept on the site of the work until the final completion of the project. A set of approved construction documents shall also be kept on the site of the work and be available to the Inspector until the final completion of the project.
- **INTERPRETATIONS:** By law, the Code Official or Inspector has the power to render interpretations of the Code. However, such interpretations must be in conformance with the intent and purpose of the code. It is very possible that Code Officials in various municipalities may render different interpretations of the same requirement. Any interpretation of the Code Official maybe appealed to the Joint Board of Appeals. A fee is charged to file an appeal.
- **RESPONSIBILITY:** By law, the Jones Township and any Building Official or Inspector acting in good faith and without malice cannot be held liable for any liability or damage accruing to persons or property as a result of any act or omission in the discharge of official duties. The builder or individual who actually committed the violation of the Code is the responsible party; this is usually the contractor. It is the duty and responsibility of every person who performs construction work for which the Code is applicable to be knowledgeable and to comply with the requirements of the International Building Codes and the Pennsylvania Uniform Construction Code.
- **RIGHT OF ENTRY:** The Building Official or Inspector has the right to enter property at reasonable times to perform inspections or when reasonable cause exists that violations of the Code exist on the property. If entry is refused, the Official shall have recourse to the remedies provided by law to enter the property.
- **CONSTRUCTION & DEMOLITION WASTE:** All waste generated by construction must be properly disposed of. **BOTH STATE AND LOCAL LAWS STRICTLY PROHIBIT THE BURNING OF ANY CONSTRUCTION OR DEMOLITION WASTE.**
- **TOILET FACILITIES FOR WORKERS:** The Code requires that all construction sites have toilet facilities available to workers. Typically a portable toilet can be rented and installed temporarily at the construction site. A Permit is not required to install this type of unit.
- **CALL BEFORE YOU DIG ... IT'S THE LAW! Call PA One Call at (800) 242-1776 or simply dial "811" three business days in advance of any digging to have underground utilities located. By calling PA One Call, all member facility owners in your work site will be notified of your plans and will mark their lines in the vicinity of the construction area.**

**IF YOU HAVE ANY QUESTIONS REGARDING ANY CODE REQUIREMENT,  
PLEASE CONTACT THE BUILDING CODE DEPARTMENT**