



# Woodberry Garage & Barn

*Pole-Frame Garage Design #WB-12*



*Use this small, all-purpose pole-barn as your two-car garage, equipment shelter, workshop or backyard studio.*

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These drawings are intended to present the general layout and appearance of the building. They may also be able to serve as a guide to construction in some locations. The publisher can not assure that these plans are suitable for your specific use, for your site's conditions, codes, or for building association criteria.

It's the builder's responsibility to have these drawings reviewed by a local building professional and by the community's building and zoning officials prior to the start of construction. If these plans are not useable or not easily adaptable, they may be returned for a complete refund. The publisher's and designer's liability is limited to the original purchase price of these plans.

The publisher grants the purchaser of these plans permission to build one unit of this design.

## DESIGN CRITERIA

These plans were designed to meet general standards and average weather and soil conditions. They should be reviewed and adapted by a local building professional for suitability to the actual site and for compliance with current codes, ordinances and standards.

This building was planned as a non-habitable utility or accessory building. It must be built at a distance of more than 5' from any adjacent combustible building. It was designed to exceed the requirements for an A.S.C.E.

Category 1 building with the following criteria: 90psf Ground Snow Load (Reduced to 45psf Design Snow Load per A.S.C.E 7-95); 5psf Roof Dead Load; 35psf Loft Live Load; 10psf Loft Dead Load; 90mph Wind Load (10psf plus wind force); 1,500psf Soil Bearing Strength.

The Loft is intended for light storage, typical of a residential attic. The Loft's floor structure must be adapted by a local construction engineer for storage of hay, logs, lumber, metal or masonry or for any operating machinery.

## DESIGN CHANGES

These plans are intended to be suitable for use with various finish materials and with other sizes and locations of doors and windows.

The materials, windows and doors shown are suggested as reasonably inexpensive and available nationwide. For best appearance, your building should be finished and detailed to match or complement adjacent buildings on the site. Different or additional windows and doors may be installed using conventional framing methods. All changes should be coordinated by a local building professional, prior to the start of construction.

## SIDING

Any of a variety of siding materials may be used on this building. Follow manufacturer's or supplier's recommendations for the installation and finishing of siding. Siding should be applied over 1/2" exterior grade plywood. For a more attractive interior, Use prefinished,

textured plywood with the finished side facing in.

## ROOF MATERIALS

Any of a variety of roof materials may be used on this building. They should be applied over a minimum 5/8" exterior grade plywood deck. The plywood deck is an important structural element and should be installed regardless of the roof material used. Metal roofing should be installed to manufacturer's specifications on sleepers or fasteners applied to the roof deck. Wood shingles should be nailed to wood sleepers above the plywood deck. For slate, clay or ceramic tile roofs, use 3/4" exterior grade plywood for the roof deck and decrease the roof rafter spacing to 12" on center. Follow manufacturer's or supplier's recommendations for the installation and finishing of roofing.

## POLE FRAME CONSTRUCTION

This design incorporates the advantages of post-framing, also known as pole framing, or pole-barn framing. Pole framing simplifies construction by reducing site work, excavation and foundation work when compared to conventional stud-frame construction.

Structural posts, set on individual pier footings or on small concrete pads, substitute for the continuous foundations that are necessary with conventional stud-frame construction. The builder should be familiar with post-framing methods and conventions.

Notes 1

Post-frame buildings are usually supported on pressure-treated wood posts set into the ground in post holes. Chemicals used to produce pressure treated wood traditionally provided years of protection from insects and decay. In recent years, manufacturers have been experimenting with new chemical treatments to improve environmental safety. Those treatments may not prove to be as effective.

Plastic post protectors, as shown on the drawings, are recommended for this design.

Some of the chemicals now used for pressure treated wood are corrosive to standard nails, screws, bolts and other metal connectors. Fasteners and connectors that are in contact with pressure treated wood must be stainless steel or hot dip galvanized. Check with the pressure treated wood's suppliers for their recommendations.

Handle all pressure treated wood as specified by the supplier. If this building is used to shelter animals, the pressure treated wood should be boxed with untreated wood or provided with metal corner guards to prevent gnawing.

### LOFT FRAMING

The Loft level gable end walls and the roof of this building are framed with conventional studs and rafters for ease of construction. Care should be taken to align the framing of the Loft walls with the structure below so that sheathing and siding can span upper and lower walls on the same plane.

### OPTIONS

This building is designed to accommodate optional materials and details. The owner and builder should coordinate the selection of all options prior to the start of construction

### SITE DESIGN

The building should be plotted on its site by a surveyor or building professional. It must be located at least 5' away from any other combustible building. Review local ordinances for required setbacks. If the building is intended to shelter animals, review local Health Department regulations for required distances from wells and residences.

### DRAWING NOTES

Lumber sizes shown on these drawings are nominal unless marked as "true." Lumber marked "P.T." is to be pressure treated.

### GENERAL SPECIFICATIONS

1. **Codes:** All work must comply with current codes, ordinances and industry standards.

2. **Permits:** The builder is responsible for obtaining and paying for all necessary permits, scheduling all required inspections and obtaining a Certificate of Occupancy.

3. **Scope of Work:** The builder should provide all materials, labor and equipment required to complete the building in reasonable time. The builder should provide, supervise and coordinate all necessary subcontractors. All workmanship and materials must be of the best quality. Materials and equipment must be installed or applied to the manufacturers and suppliers' specifications.

4. **Work by Owner/Others:** All work required for a complete and finished building should be provided by the builder, except as acknowledged by the owner at the time of the contract agreement.

5. **General Conditions:** The building contract will be governed by standards outlined in the "General Conditions of Contract" published by the American Institute of Architects unless comparable published standards are mutually accepted by the owner and the builder.

### Site Work

1. Clear the building site of all shrubs, trees, rocks and stumps. Remove and store topsoil. Protect all other landscaping, paving and structures from damage by this construction.

2. Excavate for footings to the depth shown on drawings or deeper, if necessary, to reach solid, undisturbed soil or stone that's entirely free of backfill. Footings must extend below the established frost line at the building site. Excavate as required for all planned drives, parking areas and utility lines.

3. Provide clean gravel fill as necessary to allow a flat, well drained building subfloor.

4. Grade the building site so that water flows away from the building. Replace topsoil to a minimum of 3" deep. Rake to remove all surface rocks, roots and debris, and seed and mulch as required.

Notes 2

## *Concrete*

1. All concrete must be a minimum of 3000 psi and must be handled and installed to the American Concrete Institute's standards.

2. Concrete slabs must be a minimum of 4" thick, reinforced with 6x6 (#10) wire mesh. Thicken slabs to a minimum of 6" at all edges and isolate all walls, posts and girts with 1/2" neoprene or oiled felt expansion joints. Provide expansion joints along the centerlines of all posts or columns. Slope floor slab toward the largest door at 1/8" per foot. Provide a smooth, trowel or brush finish.

## *Carpentry*

1. All framing lumber must be structural grade, with a min. 1,200 psi bending stress rating.

2. All framing must be plum, level and true and must be properly nailed, screwed or bolted.

3. Roof sheathing must be min. 5/8" CDX plywood. Exterior wall sheathing should be min. 1/2" CDX plywood.

4. Provide bridging or solid blocking at the midpoint of all joists that exceed 10' in span.

## *Structural Connections*

1. Girder and Beam to Post  
Connections: Four 3/4" Diam. hot-dip galvanized carriage bolts with hot dip galvanized washers. Center each bolt at the corner of a 3" wide x 3" high square pattern that is centered on the post and centered vertically on the beam or girder.

2. Angle Brace to Post  
Connections: Notch 4x6 angle brace 1" into post. Secure with a 3/4" Diam. X 5" hot dip galvanized lag bolt, with hot dip galvanized

washer. Center the bolt on the notch and drill a countersink so the washer is flush.

3. Angle Brace to Girder  
Connections: Three 3/4" Diam. Hot dip galvanized carriage bolts with hot dip galvanized washers. Align the bolts at 3" on center, along the angle of the brace.

4. Girt to Post Connections: Three 20D, hot dip galvanized or stainless steel angular ring shank nails, or spiral shank nails per connection.

5. Roof Plate to Top Girder  
Connections: One, 1/2" Diam. x 4 1/2" galvanized lag bolt, centered between each rafter.

6. Loft Joists to Girder  
Connections: Steel joist hangers - Follow manufacturer's nailing specifications.

7. Rafter to Roof Plate  
Connections: Birdsmouth each rafter for minimum 2" bearing surface. Anchor all rafters at the top plate with steel framing anchors, Simpson Strong Tie #H1 or equal. Follow manufacturer's nailing specifications.

8. Additional wind resistance can be added with metal strapping and ridge-to-rafter connectors. Follow manufacturer's specifications for nailing or bolting.

9. Roof and Wall Sheathing: Nail plywood sheathing to roof rafters and wall girts with 8d Common Nails or 10D Box Nails - 6" on center for all outside edges and 12" on center on the plywood panel field.

Wherever metal connectors, anchors, fasteners, bolts, screws or nails are in contact with pressure treated wood, they must

be hot dip galvanized or stainless steel. Follow recommendations of wood suppliers and connector manufacturers.

## *Roofing*

1. Roofing shall be as selected by the owner, and installed to the manufacturer's or supplier's standards.

2. All roof valleys, intersections and protrusions must be flashed with solidly backed aluminum or copper sheeting and must be entirely weatherproof.

3. Provide metal drip edging at all rakes and eaves.

## *Windows and Doors*

1. All prefabricated windows, doors, hardware and accessories must be as selected by the owner, and must be installed and finished to the manufacturers' specifications.

2. The builder must make every effort to build special doors, as shown on these drawings, that are straight, true, serviceable and durable.

3. Provide durable drip caps above all windows, doors and framed openings.

## *Finishes*

Paint, stain or finish as selected by the owner and to the manufacturers' specifications.

## *Plumbing and Electrical*

As required by the owner and the intended use of the building, provide a plumbing system and an electrical system in accord with all state and local ordinances. The builder must secure all necessary design, permits, inspections, approvals and Underwriter's certificates.

# Notes 3

## CONSTRUCTION RESOURCES

### **Engineering:**

[www.ncees.org/licensure](http://www.ncees.org/licensure)

All stock plans like these are designed to work for average conditions across the country. To comply with your specific local building codes and ordinances and for the best quality of construction for your site and weather conditions you should have these plans reviewed, and modified if necessary, by a Professional Engineer in your area.

These drawings should be reviewed and modified for use in areas with high wind load requirements, for earthquake resistance requirements, high snow load requirements and poor or poorly drained soil conditions. California, Pacific Coast and Rocky Mountain locations may necessitate modifications to meet earthquake resistance requirements. High mountain locations and areas of northern Maine and northern Michigan may require higher snow load resistance. Florida, Long Island, coastal areas, high mountain areas and some other locations will require higher wind load resistance. Many northern locations will require deeper footings because of deeper frost penetration. The states of Florida and Nevada, and some other jurisdictions require that drawings be prepared or reviewed by an in-state architect or engineer. Some local building officials will waive some requirement if the building is planned for agricultural use or for

property that is zoned as Agricultural.

To find a qualified P.E. in your area, check with your building department or with local builders for recommendations. The National Council of Examiners for Engineering and Surveying lists the websites of Licensing Boards for all US states and territories. Most of those websites have lists of licensed Professional Engineers.

### **Builders:**

[www.nfbfa.org](http://www.nfbfa.org)

These drawings are intended for use by experienced building contractors. They are not recommended for first-time builders. Your building should be constructed by a contractor who is familiar with post-frame or "pole-barn" building methods. Check with your local building official for recommendations. The National Frame Builders Association maintains a state-by-state list of its members. You can use it to find qualified post-frame builders in your area.

### **Barn Building Components:**

[www.abetterbarn.com](http://www.abetterbarn.com)

You'll find a variety of specialty products for your new building on the Internet. The resource directories at aBetterBarn.com feature pole-barn post protectors, prefabricated barn doors, rolling track barn door hardware, lightning rods, wrought iron hardware, carriage house style garage doors and much more. Manufacturers listed will ship directly to you or will help you find

a dealer in your area.

### **Cupolas:**

[www.abetterbarn.com](http://www.abetterbarn.com)

Your new barn or garage will look great with a cupola. A traditional cupola is the perfect base for a weathervane and is a good way to help ventilate a building.

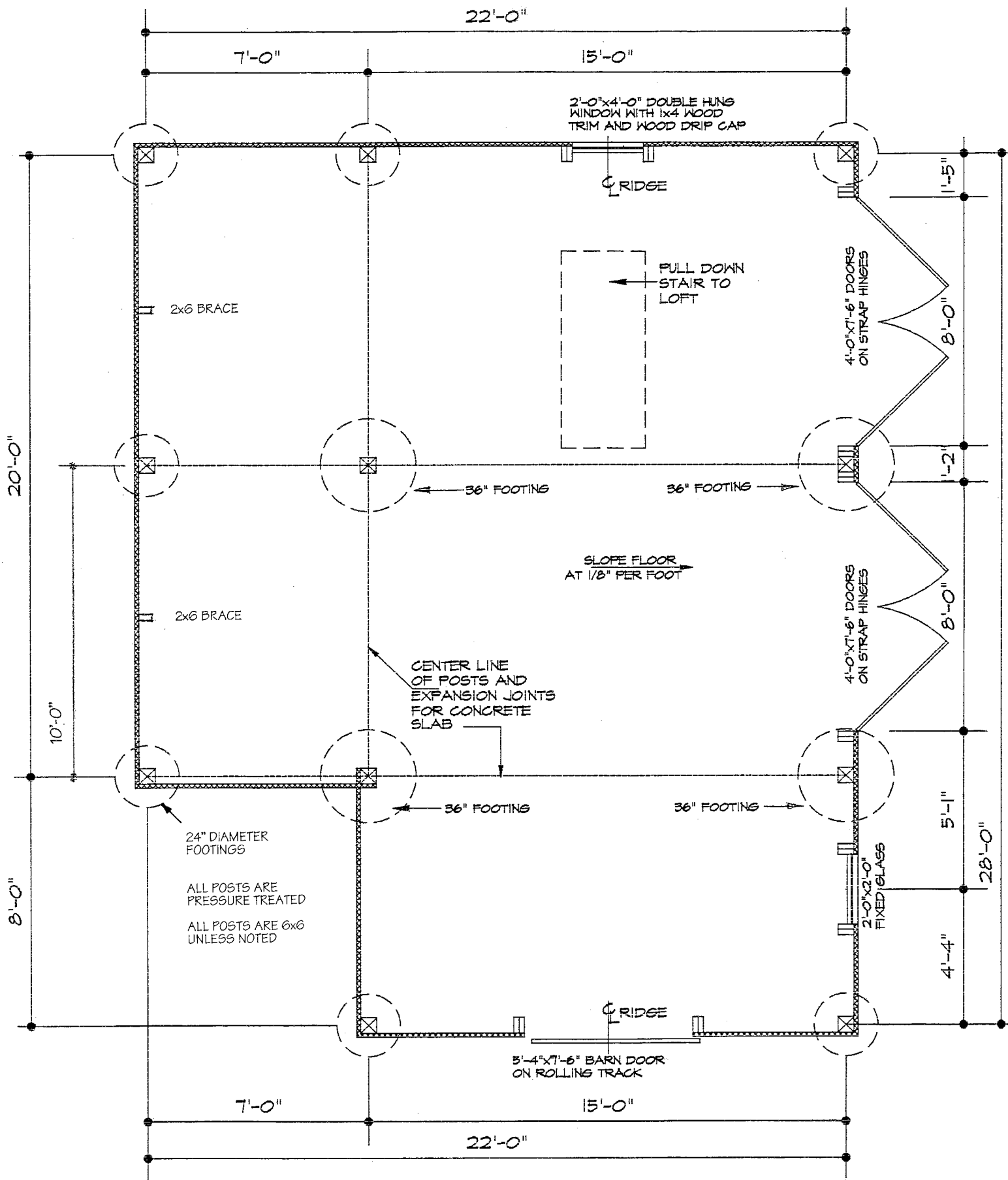
For this design, your cupola should be a minimum of 36" wide on each face of its base and a minimum of 36" in height above the building's ridge. It should be centered on the main ridge as shown on the Elevation drawings.

The design of the cupola should be determined by your planned use of the building. For a storage barn or workshop, a simple ventilator will do. For a "Carriage House" look, a more elaborate cupola should be chosen. Study the cupolas on historic barns and carriage houses in your area for ideas.

Cupolas are elaborate and difficult-to-build little structures. The quality of their construction can determine the weatherproofing and pestproofing of your new building. Unless you're an experienced woodworker, it is better to use a prefabricated cupola from a reputable manufacturer than to try to build one yourself.

You'll find a large selection of prefabricated cupolas, cupola plans and weathervanes at aBetterBarn.com.

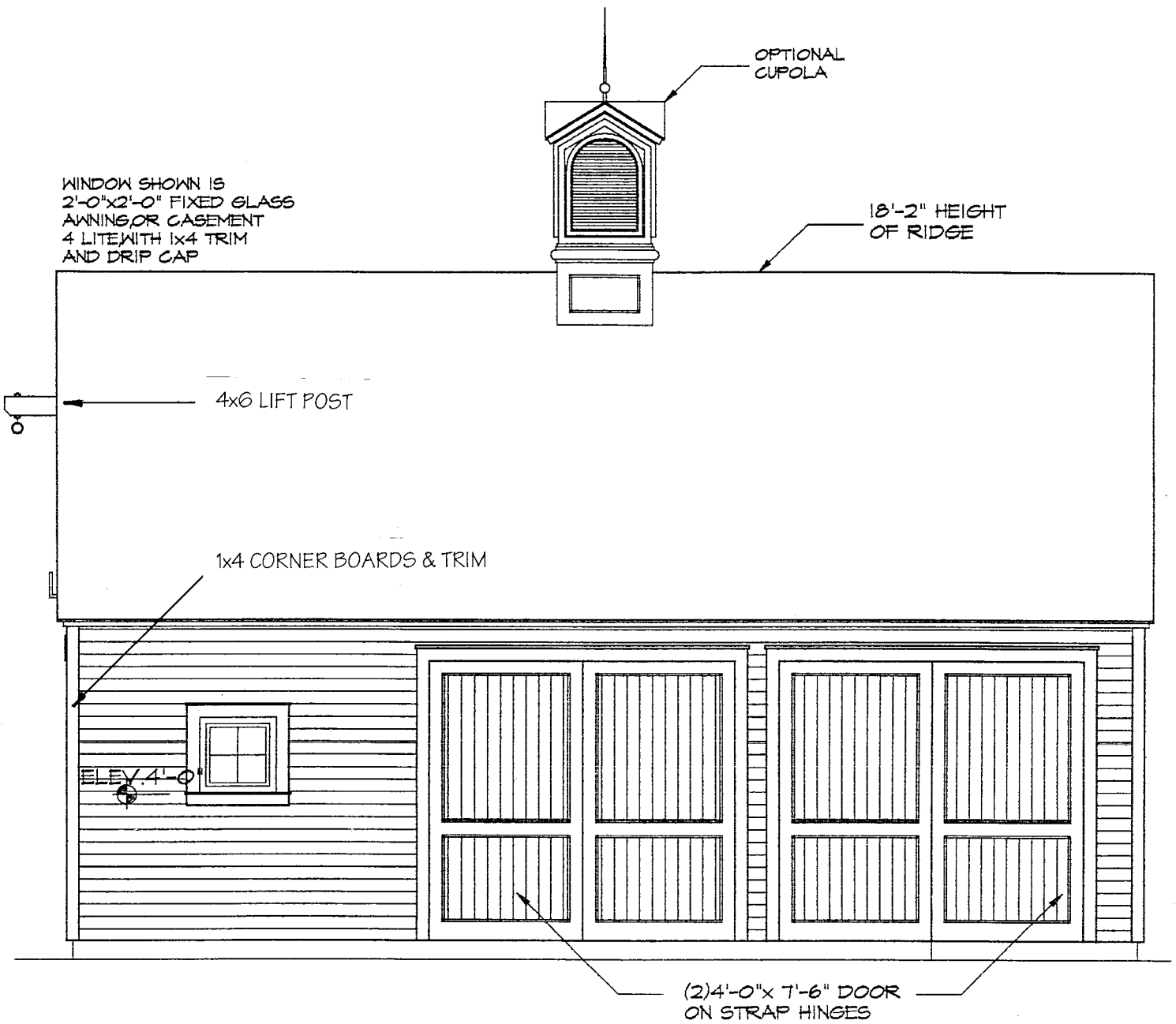
## Notes 4



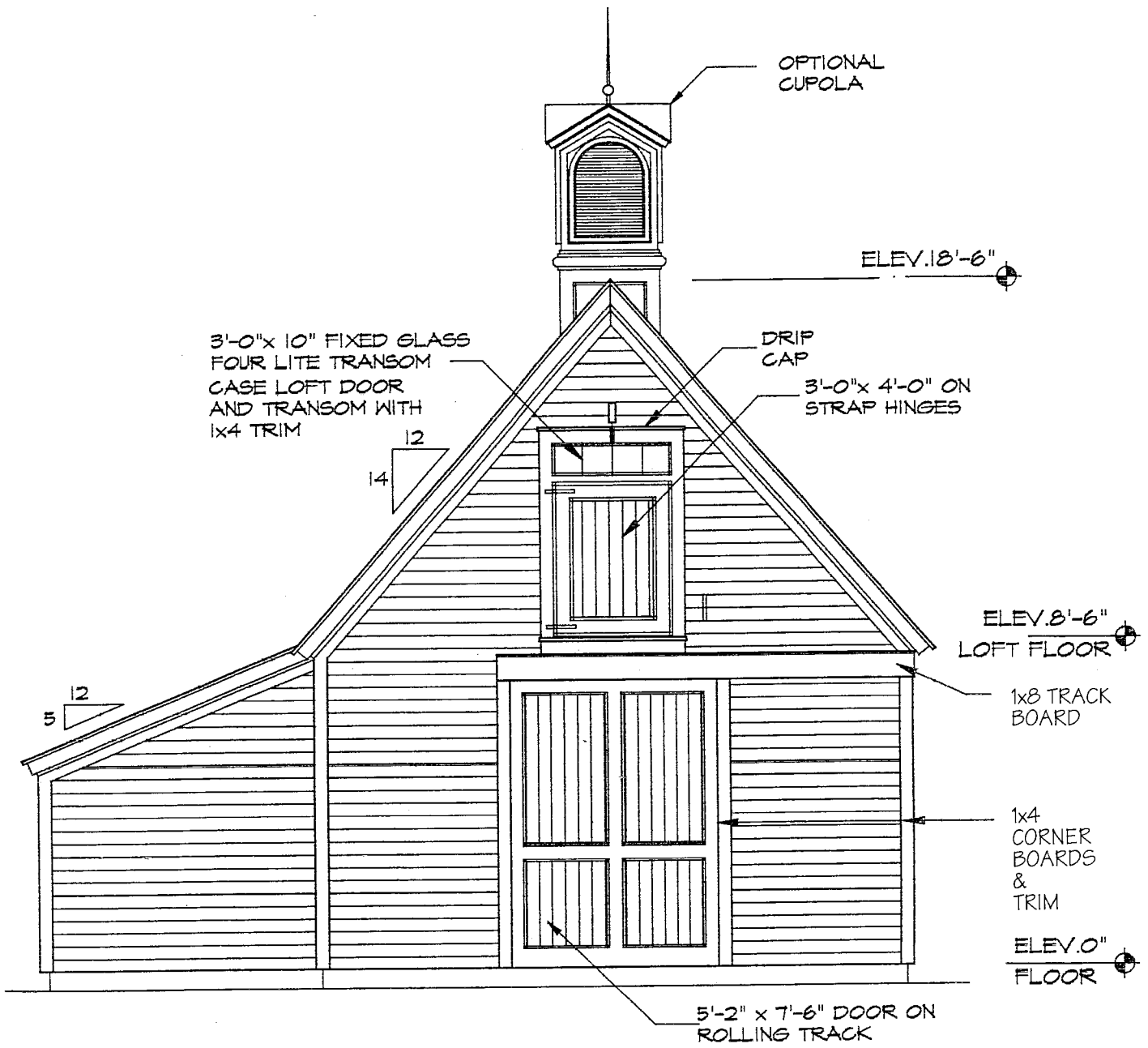
Floor Plan

5

1/4" = 1'-0"

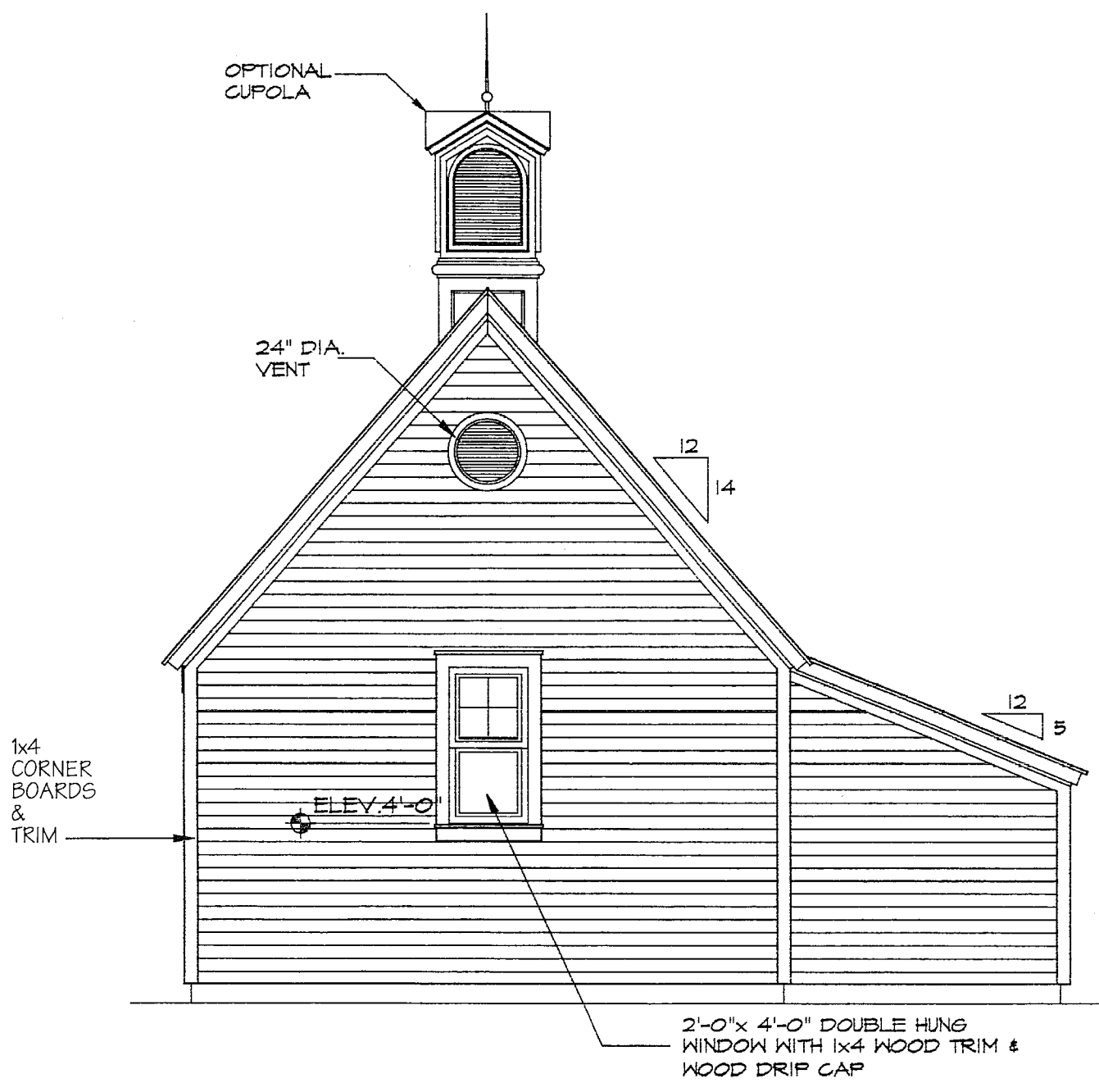


*Front Elevation*  
 1/4" = 1'-0"



*Side Elevation*

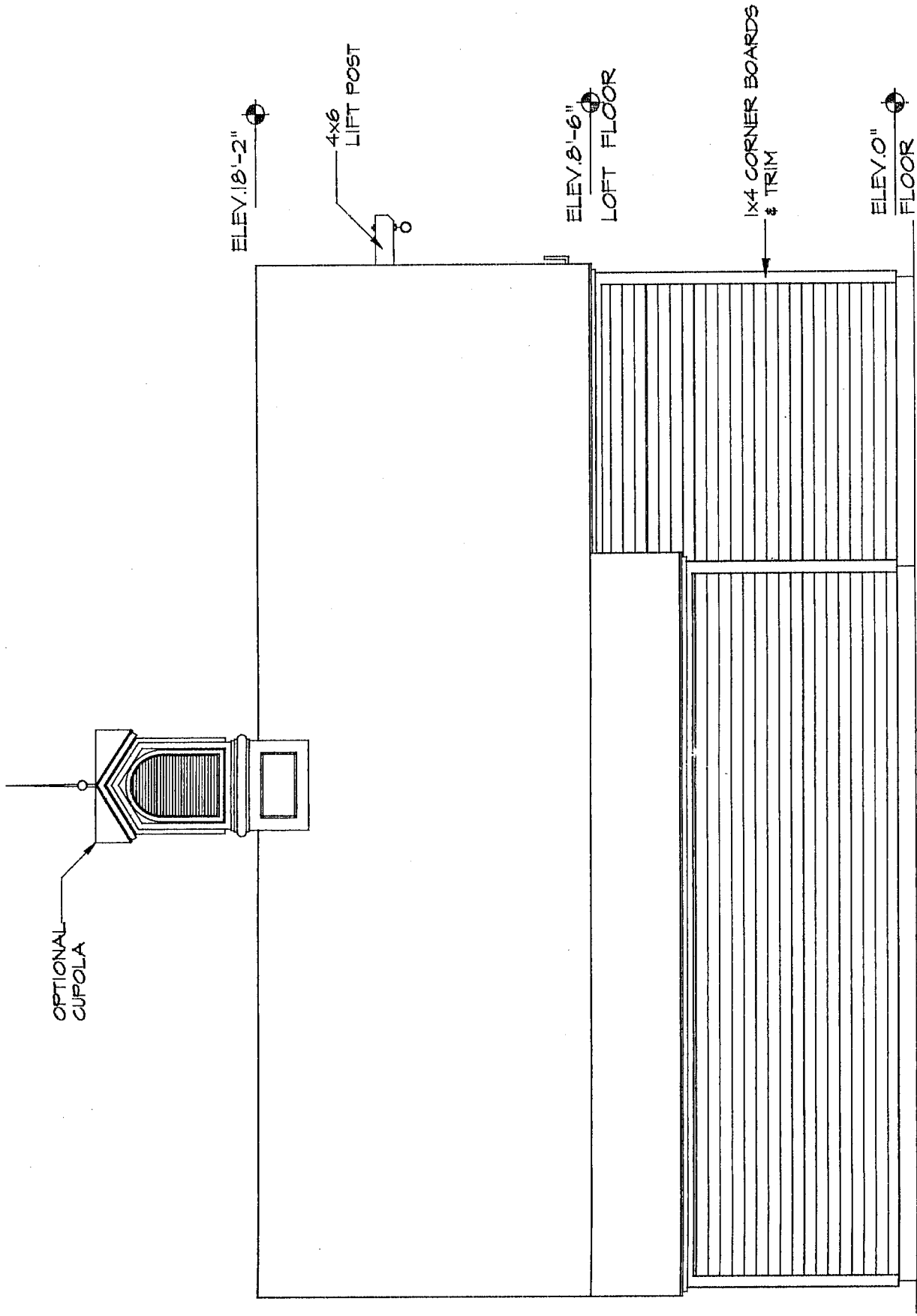




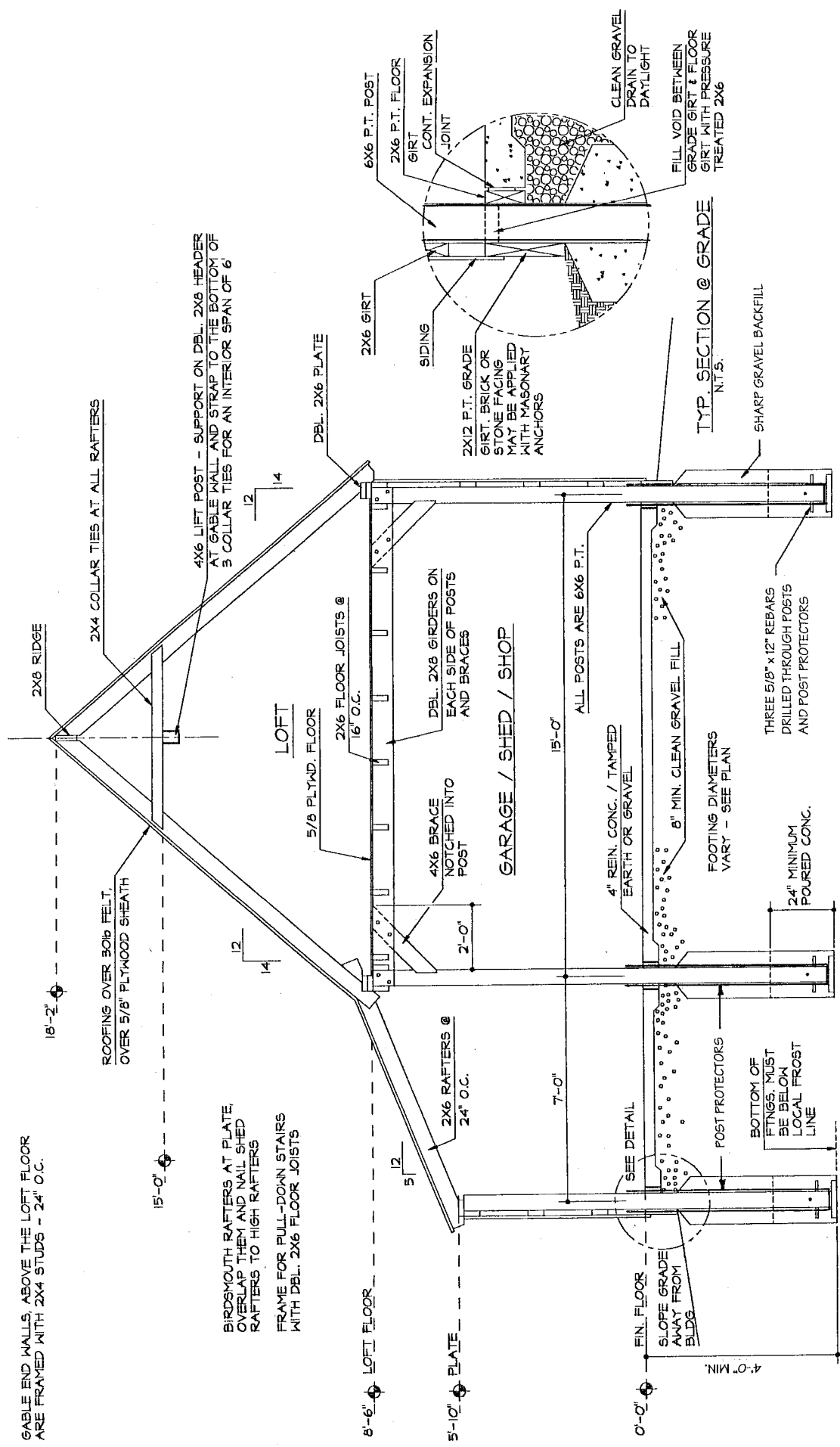
*Side Elevation* *8*

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$\frac{1}{4}'' = 1'-0''$



Rear Elevation 9  
 1/4" = 1'-0"



GABLE END WALLS, ABOVE THE LOFT FLOOR ARE FRAMED WITH 2X4 STUDS - 24" O.C.

ROOFING OVER 30# FELT, OVER 5/8" PLYWOOD SHEATH

4X6 LIFT POST - SUPPORT ON DBL. 2X6 HEADER AT GABLE WALL AND STRAP TO THE BOTTOM OF 3 COLLAR TIES FOR AN INTERIOR SPAN OF 6'

BIRDSMOUTH RAFTERS AT PLATE, OVERLAP THEM AND NAIL SHED RAFTERS TO HIGH RAFTERS  
FRAME FOR PULL-DOWN STAIRS WITH DBL. 2X6 FLOOR JOISTS

LOFT FLOOR  
5/8 PLYWOOD FLOOR  
2X6 FLOOR JOISTS @ 16" O.C.

LOFT FLOOR

PLATE

GARAGE / SHED / SHOP

FIN. FLOOR

SLOPE GRADE AWAY FROM SLUG

4'-0" MIN.

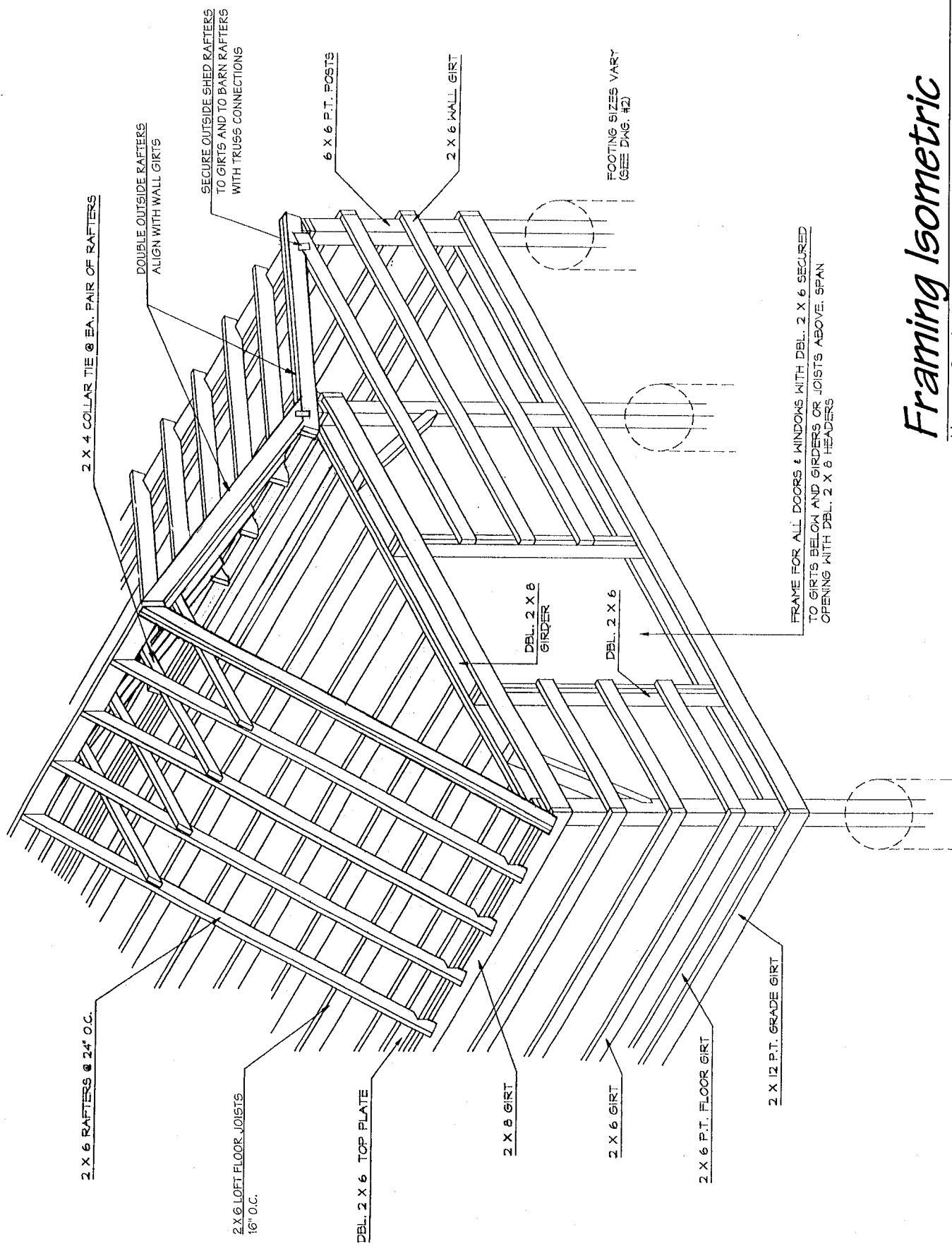
TYP. SECTION @ GRADE N.T.S.

SHARP GRAVEL BACKFILL

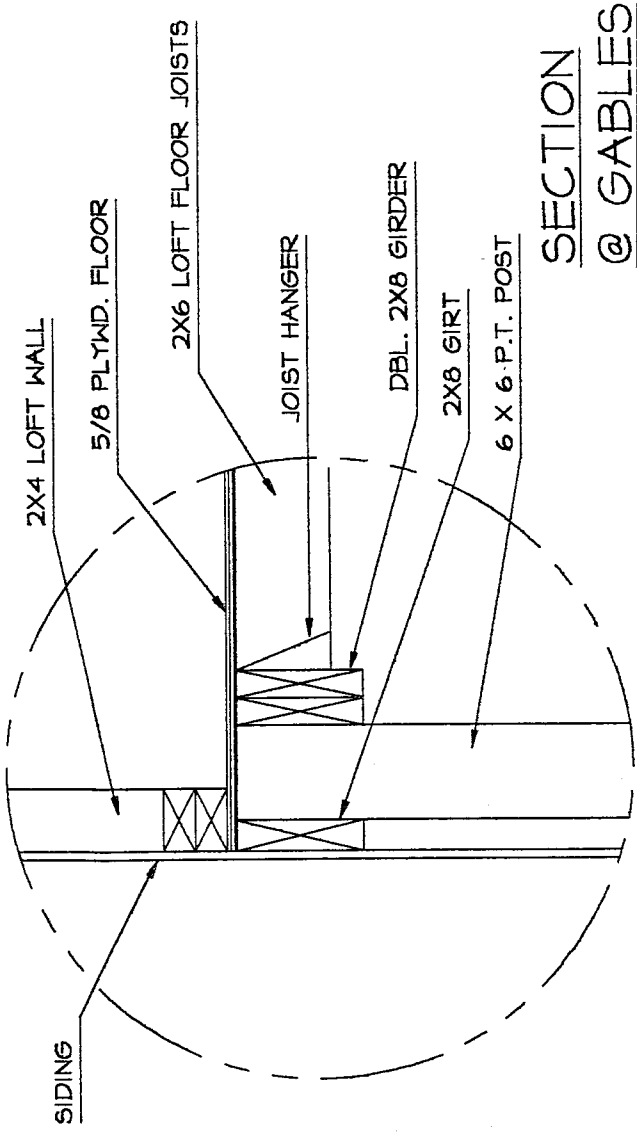
Use Post Protector II! ([www.PostProtector.com](http://www.PostProtector.com)) or equal, plastic sleeves on all P.T. Posts in Footings

# Framing Section 10

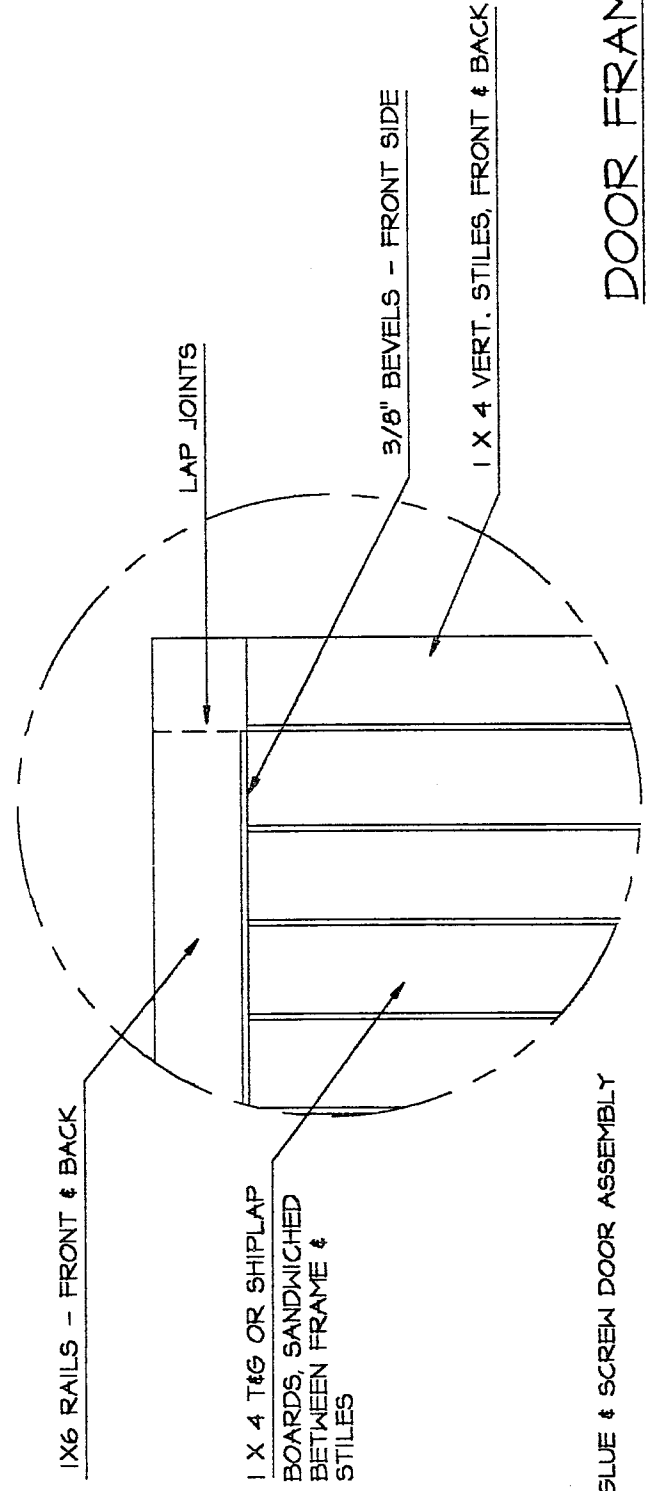
Not to Scale







SECTION @ GABLES



\*GLUE & SCREW DOOR ASSEMBLY

DOOR FRAMING