

CONSTRUCTION NOTES:

- Care must be taken to properly align and square the foundation pier layout because the entire building relies on accurate post placement.
- Pre-fabricated wood trusses shall be used that meet the requirements of the 8th edition of the Massachusetts State Building Code and local building codes. Roof trusses must be supplied by a truss manufacturer who shall supply truss shop drawings with all truss bracing requirements and connections (including attachment to posts and girders) and stamped by a Massachusetts Registered Structural Engineer. The required configuration and minimum design loadings are:
 - 2 feet overhang with a 5/12 roof slope.
 - Design load=See "Design Loads" on the sheet.
 - Span to be determined for specific project
 - A truss spacing of 2 ft. is recommended. If necessary, a 4ft. spacing may be used to accommodate equipment in the facility. A maximum truss spacing of 2 ft. is required for truss spans exceeding 36 ft. See other requirements below for 4 ft. truss spacing.
 - Trusses are not required to be made of pressure treated lumber but pressure treated lumber is recommended for durability.
- All lumber shall be stress graded and meet the following requirements:
 - Posts shall be Southern Yellow Pine No. 2, for Regions 2 and 3 and Hemlock No. 1 for Region 1. An equivalent species may be substituted for the posts. Minimum tabulated bending stress required, $F_b=850$ psi.
 - Lumber for girders, knee braces, Y braces, girts, and purlins that span 4 ft. truss spacing, shall be Southern Yellow Pine, No. 2 or better with a minimum tabulated bending stress as presented in the 2005 NDS.
 - Roof purlins that span 2 ft. truss spacing and truss bracing members may be Spruce/Pine/Fir No. 2 or better.
 - Posts and lumber shall be pressure treated, conforming to Standard C 16-03 of the American Wood Preservers Association: ACCO 0.6 lbs per cubic foot for posts, 0.4 lbs per cubic foot for other lumber.
- Post lengths limited to 14 ft (measured to bottom of truss) for this standard drawing.
- Tops of posts shall be notched for connection of trusses and girders.
- Provide truss bearing blocks for the connection of the trusses to the girders. Bearing blocks shall be cut to fit between girders.
- Provide double trusses at all posts.
- The bottom chord shall be braced with 1"x4" minimum size stiffener running the length of the roof. They shall be placed at intersection of the webs and the bottom chord, not to exceed 8 feet spacing.
- 2"x6" diagonal braces shall be installed at 8 feet intervals on both sides of the center (king) post, forming an "X". If the trusses have no center post, then install the braces from the peak to the eaves.
- Use 2"x8" cleats nailed to girders to fasten Y-braces as shown on the drawing.
 - 2"x4" at 24" maximum spacing.
 - Minimum length shall be 8 ft. to span 3 trusses at a four foot spacing and 5 trusses at two foot spacing.
 - Minimum overlap of 1 foot.
- When fastening purlins to the trusses, stagger the joints and use 2-16d nails minimum in each purlin at each truss.
- Girts if used, shall be 2"x4" at 24" maximum spacing with a minimum length of 2 post spans (16ft). See also note 17 below.
- The roofing material may be plastic, fiberglass or aluminum panels on 2"x4" purlins spaced 2'-0" on center where the truss spacing is 2'-0" or 4'-0" on center. Tab shingles on 15# felt over plywood panels may only be used over roof trusses that are spaced 2 ft. on center. Plywood roof sheathing shall be minimum of Identification Index 24/0, 3#8; Exterior Grade. The plywood shall be installed directly to the wood trusses with the face grain perpendicular to wood trusses.
- All bolts shall include a nut and 2 washers. Bolt holes shall be predrilled up to 1/16" larger than the bolt diameter. Tighten bolts snugly but not enough to crush the wood fibers. Do not recess the bolts or nuts. Bolts shall have square or hexagonal heads and nuts and meet the requirements of ASTM A 307. All bolts shall be galvanized in accordance with ASTM A 153. Tighten all bolt connections about six months after construction or when the pressure treated lumber is fully dried.
- All nail fasteners shall be in accordance with ASTM F 1667-05.
- Zinc coating shall conform to the requirements of ASTM A 153 for Zinc (Hot-Dip Galvanized) Coating for fastener products and ASTM A653, coating designation on G-185 for connector and sheet products.
- The structure is to be left open (can not be enclosed). Only a kick board with a maximum height of 2 ft may be added.
- Notching at the bottom of column to fit into anchor plates shall not be permitted.

DESIGN LOADS:

DEAD = 15 psf
 ROOF LIVE = 20 psf
 BOTTOM CHORD LIVE LOAD = 20 psf

ASCE 7-05 SNOW LOADS:

(Plastic, Fiberglass, or Aluminum Roof Panels)
 65 psf Ground Snow Load
 $P_s=37.6$ psf
 55 psf Ground Snow Load
 $P_s=31.8$ psf
 35 psf Ground Snow Load
 $P_s=20.3$ psf
 Unbalanced snow load Per section 7.6 of ASCE 7-05

USE OF THE STANDARD DRAWING

- Use of this standard drawing requires strict adherence to all requirements shown on the drawing and in the construction notes.
- Ensure that the roof location is not adjacent to another structure such that snow could slide or drift onto the proposed roof. Minimum 12'-0" between adjacent structures. This standard drawing does not provide for the additional load due to drifting snow.
- The user of this standard drawing must ensure that the site meets the loading assumptions of this design as described in the construction notes, and must properly design the concrete piers based on the soils at the site.
- The posts are not to be attached to a new or existing concrete pad or existing walls of the facility. Posts may be attached to a new cast-in-place wall designed for that purpose.

ESTIMATED BILL OF MATERIALS

Truss Span = _____ feet
 Building length = _____ feet
 Highest elevation of concrete floor = _____
 Clearance required from concrete floor to bottom of truss = _____ feet
 Top of pier elevation = _____ Bottom of truss elevation = _____

Posts: _____" x _____" _____ feet long
 Trusses @ _____ft. spacing
 Girders: 2" x _____", 8'-0" long
 2" x _____", 16'-0" long
 Concrete Piers, _____" diameter
 Simpson Strong Tie CB
 Knee Braces: 2" x _____", 13'-6" long (2 per post)
 Girder/Post (Y) Braces: 2" x _____", 5'-4" long (4 per post)

Facia Board: 1" x 6"
 Plywood Sheathing, 5/8" CDX, if required
 Purlins, 2" x 4"
 Roofing Material: _____

3/4" dia. bolts, _____" long (knee braces to post connections, 3 per post)
 5/8" dia. bolts, _____" long (Y braces to post connections, 5 per post)
 1/2" dia. bolts, _____" long (girders to post connections, 4 per post)
 3/4" dia. bolts, _____" long (post to pier connections, 2 per post)
 Diagonal Truss Braces, 2" x 6"
 Truss Stiffeners, 1" x 6"
 Cleats
 Nails (10d, and 30d)

All truss bearing blocking and truss connections to posts, girders, and knee-braces to be designed by truss manufacturer.

NOTE: All wood to be pressure treated Southern Yellow Pine (SYP), No. 2, except posts in Region 1 which are to be pressure treated Hemlock, No. 1. See construction notes for additional requirements.

DESIGN REGIONS

* Region 1 - V=100 MPH, $P_g=55$ psf

Truss Span 12ft to 24ft			
Post at Top of Piers	Columns Girders	Knee Braces	Y-Braces
	8x8 2x10	2x6	2x6
	Truss Span 25ft to 36ft		
Post at Top of Piers	Columns Girders	Knee Braces	Y-Braces
	10x10 2x12	2x10	2x8
	Truss Span 37ft to 50ft		
Post at Top of Piers	Columns Girders	Knee Braces	Y-Braces
	10x10 2x14	2x14	2x10

* Region 2 - V=110 MPH, $P_g=55$ psf

Truss Span 12ft to 24ft			
Post at Top of Piers	Columns Girders	Knee Braces	Y-Braces
	10x10 2x10	2x6	2x6
	Truss Span 25ft to 36ft		
Post at Top of Piers	Columns Girders	Knee Braces	Y-Braces
	10x10 2x10	2x8	2x6
	Truss Span 37ft to 50ft		
Post at Top of Piers	Columns Girders	Knee Braces	Y-Braces
	12x12 2x12	2x12	2x6

* Region 3 - V=120 MPH, $P_g=35$ psf

Truss Span 12ft to 24ft			
Post at Top of Piers	Columns Girders	Knee Braces	Y-Braces
	10x10 2x10	2x8	2x6
	Truss Span 25ft to 36ft		
Post at Top of Piers	Columns Girders	Knee Braces	Y-Braces
	12x12 2x10	2x10	2x6
	Truss Span 37ft to 50ft		
Post at Top of Piers	Columns Girders	Knee Braces	Y-Braces
	12x12 2x10	2x12	2x6

* Table 1604.11 in the Massachusetts Amendments to the IBC 2009 specifies the ground snow load and basic wind speed for each City/Town in the State of Massachusetts. A City/Town shall not exceed the specified basic wind speed and ground snow load to qualify for the NRCS Standard Design drawings for that region.

Date	_____
Designed	_____
Drawn	_____
Checked	_____
Approved	_____

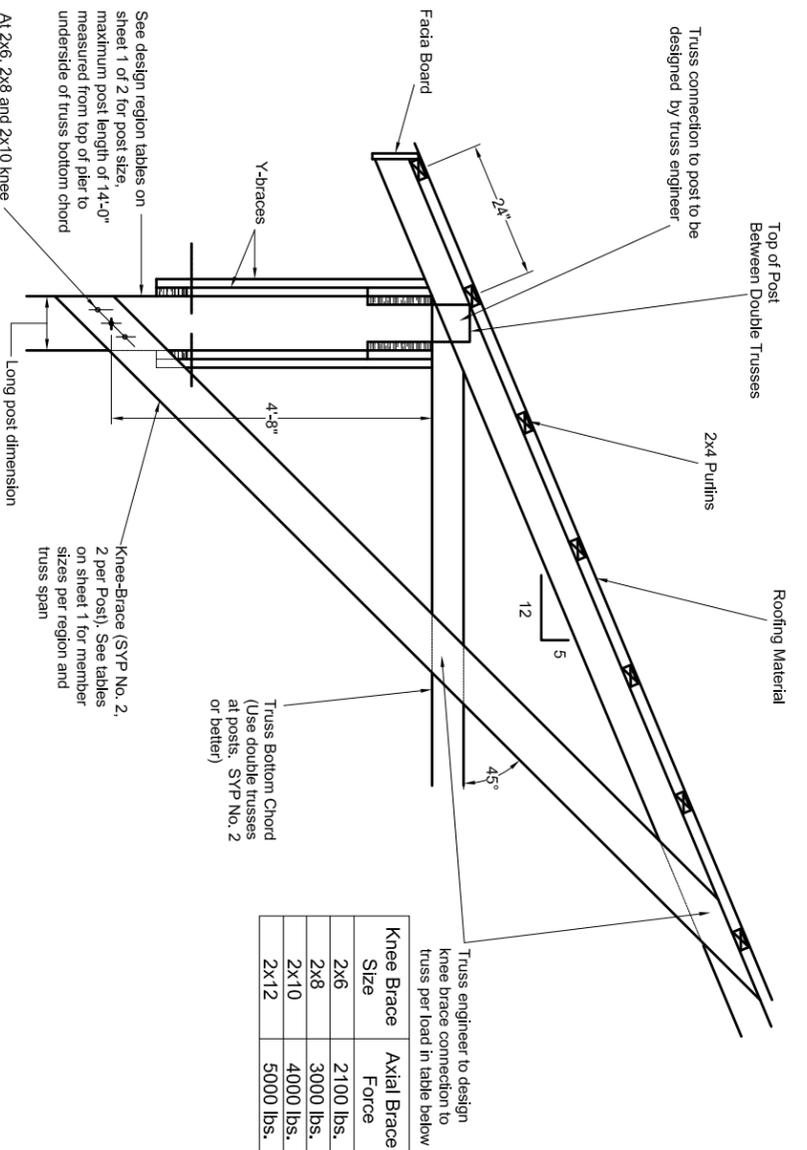
Massachusetts

**GABLE TRUSS ROOF STANDARD DRAWING
 (POSTS AT TOP OF PIERS OR STANDARD MA WALLS)
 GABLE ROOF CONSTRUCTION NOTES**

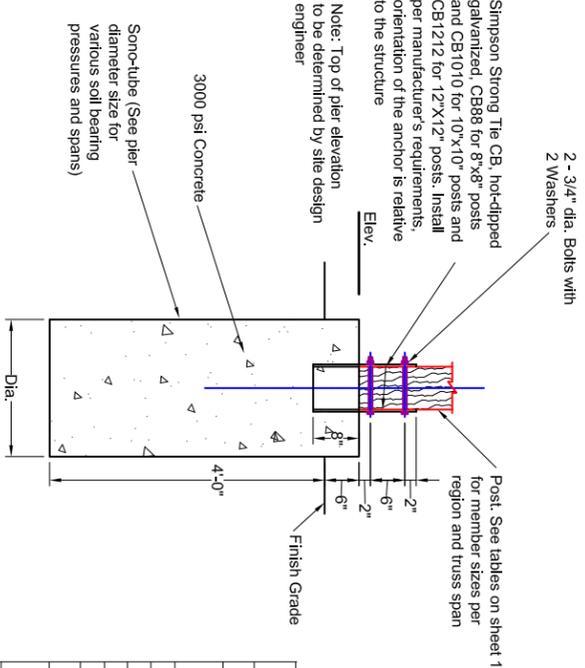


Drawing Name	Truss Roof-Perstdwg
Layout Name	Notes
Date	12/21/11
Sheet	1 of 2

3/7/5/13	ILG	CE - Rev01N
8/18/11	ILG	CE - Logo

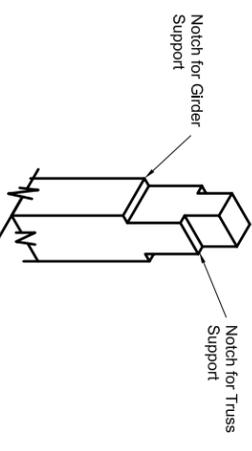


Knee-Brace to Post and Truss Connection Detail
Scale: 3/4" = 1'-0"

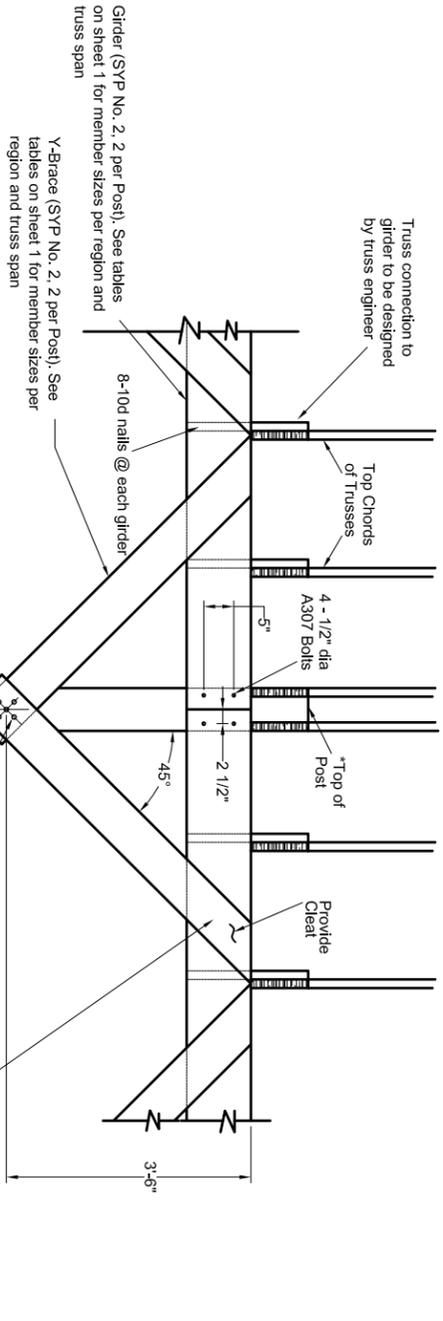
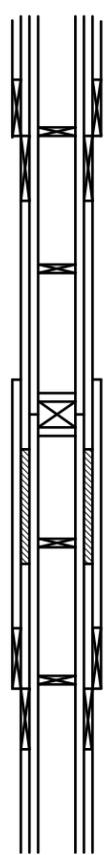


Pier Foundation Detail
Scale: 3/4" = 1'-0"

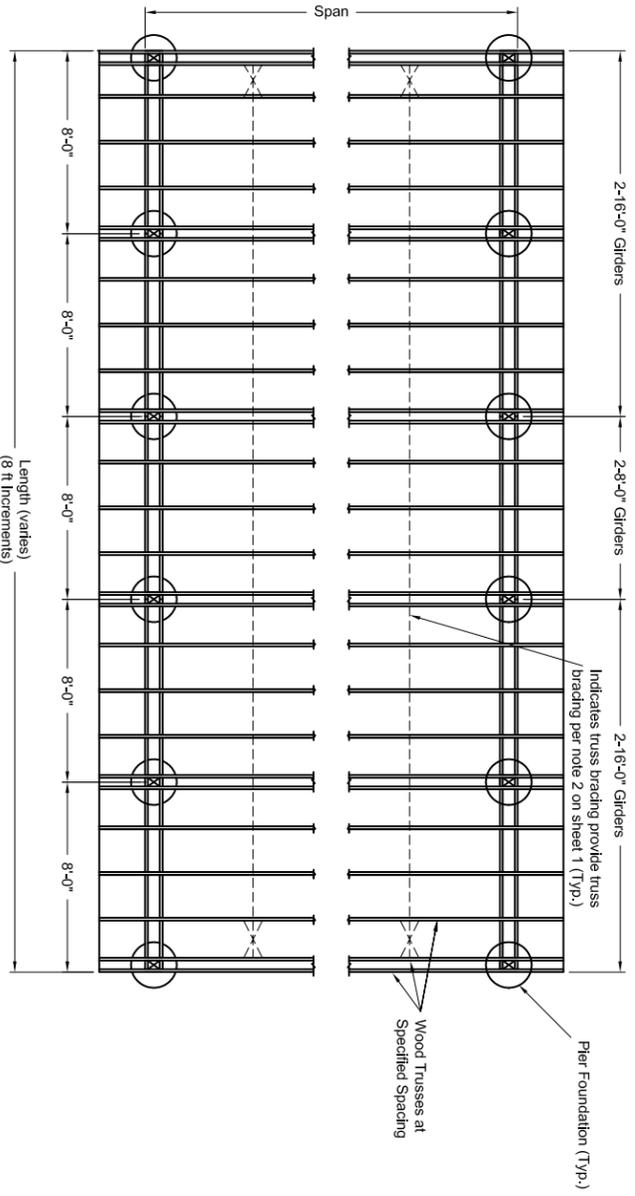
Top of Post Detail
Scale: 3/4" = 1'-0"



PIER DIAMETER SIZE FOR VARIOUS SOIL BEARING PRESSURES & SPANS			
USCS Soil Class	Allowable Bearing (ksf)	Region 1	
		18" Ø	Max. Span (ft)
ML, MH, CL, SM, SC, GM	2	24" Ø	36 Ø
GC, SW, SP	3	24	36
GW, GP	5	32	50
Bedrock	6	16	32
		16	50
Region 2			
USCS Soil Class	Allowable Bearing (ksf)	Region 2	
		18" Ø	Max. Span (ft)
ML, MH, CL, SM, SC, GM	2	24" Ø	36 Ø
GC, SW, SP	3	24	42
GW, GP	5	28	44
Bedrock	6	28	50
		28	50
Region 3			
USCS Soil Class	Allowable Bearing (ksf)	Region 3	
		18" Ø	Max. Span (ft)
ML, MH, CL, SM, SC, GM	2	24" Ø	36 Ø
GC, SW, SP	3	16	32
GW, GP	5	16	32
Bedrock	6	16	32



Y-Brace to Post and Girder Detail
Scale: 3/4" = 1'-0"



Typical Structure Plan Layout
Scale: 1/4" = 1'-0"

Date	Designed	Drawn	Checked	Approved

**GABLE TRUSS ROOF STANDARD DRAWING
(POSTS AT TOP OF PIERS OR STANDARD MA WALLS)
GABLE TRUSS ROOF DETAILS**

Massachusetts

Natural Resources Conservation Service

Drawing Name Truss Roof-Piers.dwg
Layout Name Details
Date 12/21/11
Sheet 2 of 2