MWPS-73112

48’ Wide Hay Barn

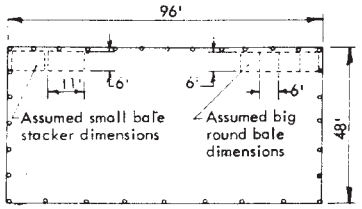
CAUTION!

Additional professional services will be required to tailor this plan to your situation, including but not limited to: assurance of compliance with codes and regulations; review of specifications for materials and equipment; supervision of site selection, bid letting and construction; and provision for utilities, waste management, roads or other access. **Furthermore, any deviation from the given specifications may result in structural failure, property damage, and personal injury including loss of life.**

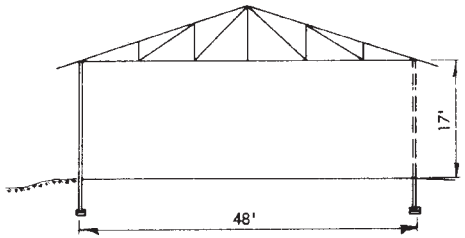
WARRANTY DISCLAIMER

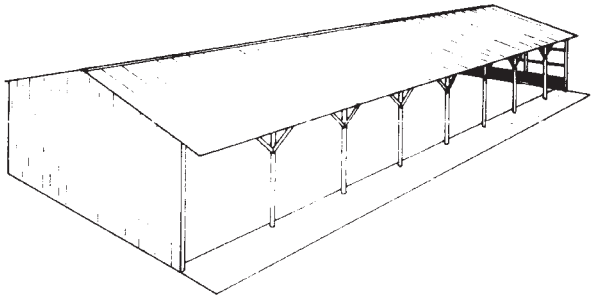
This plan provides conceptual information only. **Neither midwest plan service nor any of the cooperating land-grant universities, or their respective agents or employees, have made, and do not hereby make, any representation, warranty or covenant with respect to the specifications in this plan.** Additional professional services will be required to tailor this plan to your situation, including but not limited to: assurance of compliance with codes and regulations; review of specifications for materials and equipment; supervision of site selection, bid letting and construction; and provision for utilities, waste management, roads or other access.

MIDWEST PLAN SERVICE
Cooperative Extension Work in Agriculture and Home Economics and Agricultural Experiment Stations of North Central Region - USDA Cooperating
48’ Wide Hay Barn
Title Page
MIDWEST PLAN NO. 73112

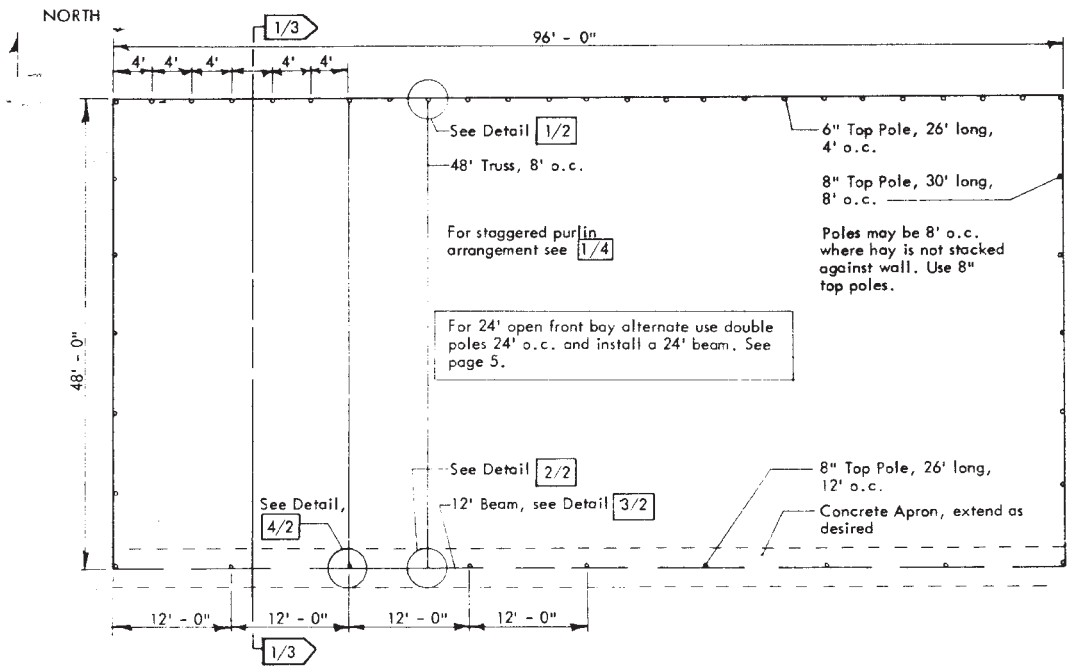


BASIC FLOOR PLAN





Pole lengths may be available in 5' increments only. For other lengths use the next larger size available. For example, buy a 30' long pole where a 26' pole is noted.



FLOOR PLAN—1/1

One Sidewall Open, Endwall Length is for 4/12 Slope

Notes:

1. This plan shows 17' clearance under sidewall girders. Alter this dimension as required to match your equipment. Taller buildings may require larger poles.
2. Poles are preservative-treated round poles increasing in diameter from top to bottom. "8"" indicates approximate diameter at the top. Set the outside edge of round poles vertical for easier framing.
3. Maximum vertical clearance at endwalls. Sidewalls require beam for truss support, lowering clearance.
4. Approximate Storage Capacity:
   64 - 150-bale stacks (11' wide x 6' deep x 13' high) 410 tons or
   330 - 6' diam x 6' long Big Round Bales; 330 tons or
   10,500 - 16" x 18" x 36" Bales; 480 tons
   *Weights based on: small bales - 15 pcf
   large bales - 12 pcf
5. Lightning protection recommended. Use a "Master Label" system.
6. See page 4 for alternate wall enclosures.

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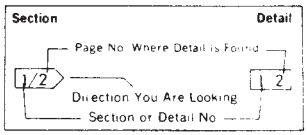


Section & Detail Indicator

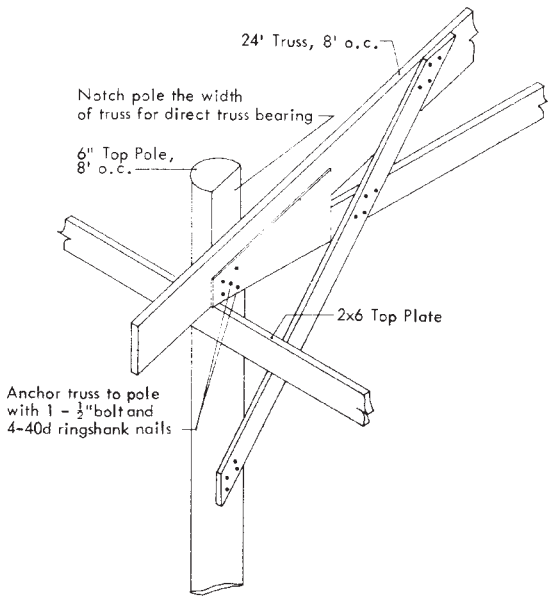
mwps **MIDWEST PLAN SERVICE**

Cooperative Extension & Research in Agriculture & Home Economics in the 12 North Central Universities—USDA Cooperating

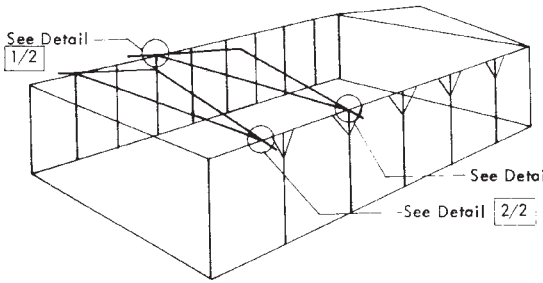
48' WIDE HAY BARN

6 Pages plus 48' Truss Sheet	Plan No mwps- 73112	Page 1 of 8

Pages 2, 4, 5&6 similar to pages 2, 4, 6&5 of 73110



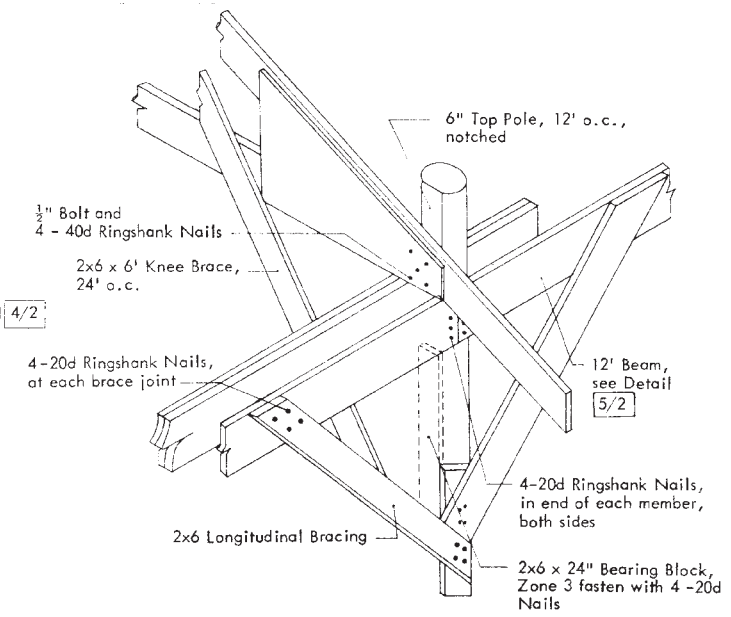
TRUSS/POLE DETAIL—ENCLOSED SIDE —1/2



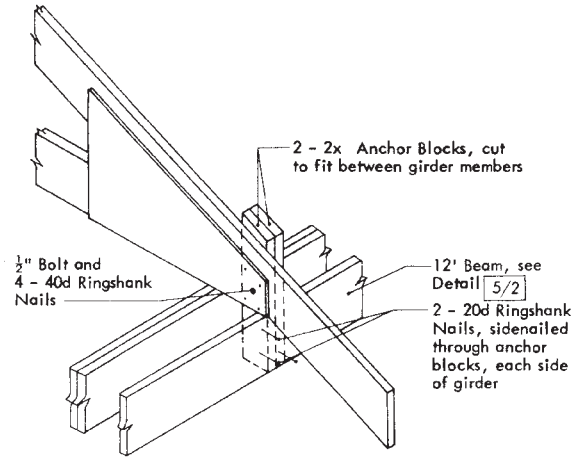
* Footing Size

18" Dia x 6" Thick @ Endwall Posts (8' o.c.)
18" Dia x 6" Thick @ Sidewall Posts (8' o.c.)
20" Dia x 6" Thick @ 12' Opening

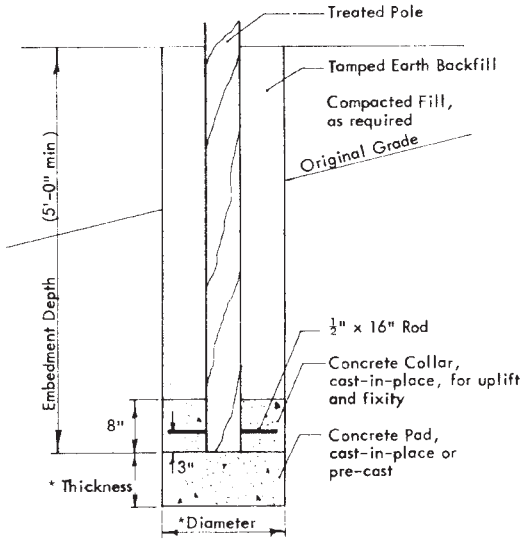
Extend embedment depth as required to place footing on undisturbed soil. For large diameter footings, use smaller diameter auger and flare the bottom of the hole with Lineman's spoon.



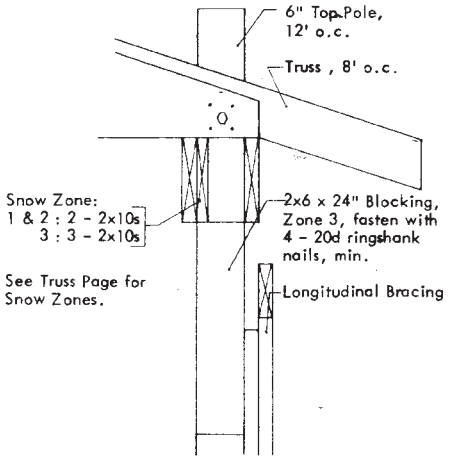
TRUSS/POLE DETAIL—OPEN FRONT SIDE —4/2



TRUSS/BEAM DETAIL—OPEN FRONT SIDE —2/2



POST FOOTING DETAIL—3/2



BEAM DETAIL — 5/2

MIDWEST PLAN SERVICE

24' WIDE HAY BARN

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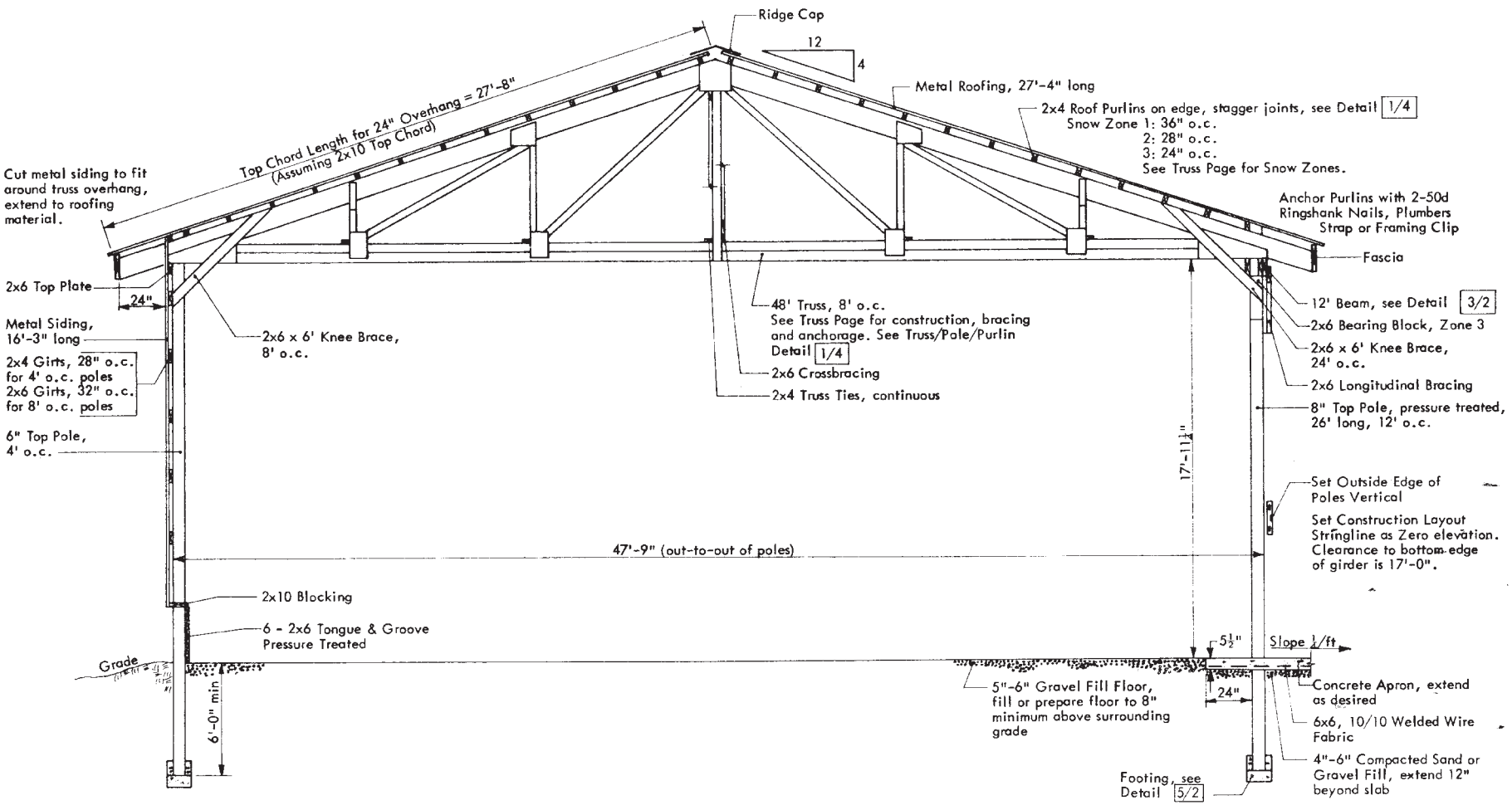

CROSS SECTION—1/3

MWPS MIDWEST PLAN SERVICE

48' WIDE HAY BARN

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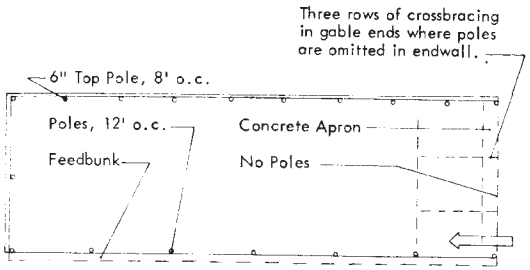
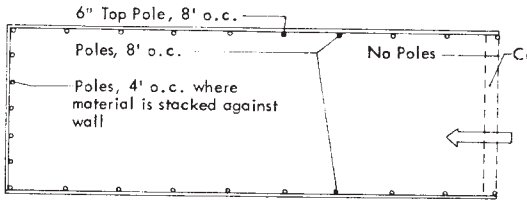


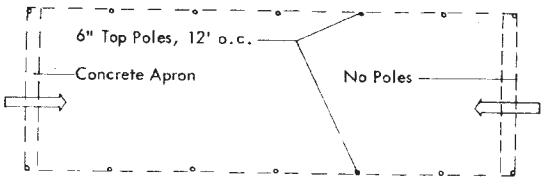
6" Top Pole = 8x10 sawn post for this plan.

One Endwall, One Sidewall Open, Feedbunk



6" Top Pole = 6x10 sawn post for this plan.

One Endwall Open

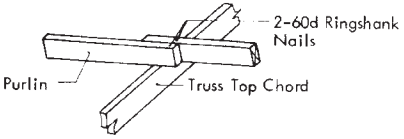


Extend siding partially down north and west open walls to reduce snow and rain blow in.

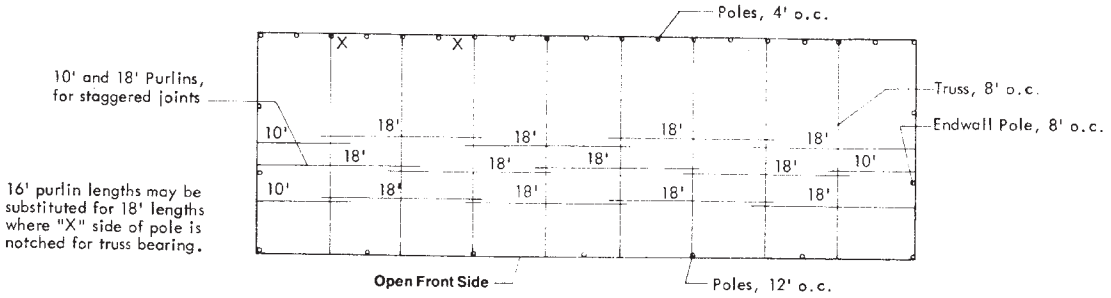
6" Top Pole = 6x8 sawn post for this plan.

All Walls Open

WALL ENCLOSURE OPTIONS



PURLIN ANCHORAGE



TRUSS/POLE/PURLIN DETAIL—1/4

PREFERRED LUMBER SPECIFICATIONS

Roof Purlins, Wall Girts, and Splashboards
No. 2 Doug Fir or Southern Pine

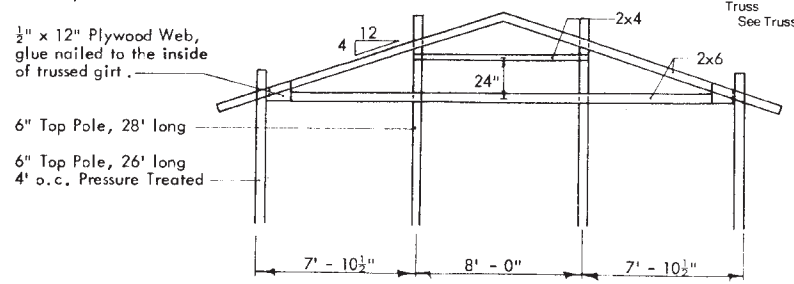
Trusses and Headers
See Truss Page for Additional Information
No. 1 or 1500 f Machine Stress Rated, Doug Fir or Southern Pine

Round Poles
Doug Fir or Southern Pine (F_c = 2100 psi)
Preservative Treatment
Creosote
Southern Pine .9 pcf
Coastal Doug Fir, 12 pcf
Interior Doug Fir, 16 pcf
Penta
0.60 pcf
ACA or CCA (Type A or B) 0.60 pcf
Sawn Timber Posts may be substituted for 6" top poles. Use 6x8s with F_b = 1300 psi min. for this plan.

Alternate Lumber Specs.
2x4 Purlins (No. 2 Hem-Fir)
Maximum Spacing:
Snow Zone 1 30"
2 28"
3 24"
2x6 Girts (No. 2 Hem-Fir)
Maximum Spacing: 24"
Truss
See Truss Page

LIST OF MATERIALS

Quantity	Description
26	6" Top Poles, 26' long, Pressure Treated (17 for 8' o.c. rear wall posts)
4	6" Top Poles, 28' long, Pressure Treated
55	2x6 x 16' Wall Girts and Top Plates
45	2x6 x 16' Pressure Treated Tongue and Groove Splashboards
14	2x4 x 18' Truss Ties
12	2x6 x 10' Crossbraces
56	2x4 x 18' Roof Purlins (Zone 2)
14	2x4 x 10' Roof Purlins (Zone 2)
10	2x6 x 6' Knee Braces
12	2x10 x 12' Girder Members (Zone 2)
8	2x10 x 12' Blocking and Bracing
Truss	
24' Truss, 2-web Pratt, 8' o.c., 4/12 Slope Zone 2, 8 required with 8' o.c. spacing. See Truss Page for Alternate Lumber Specs.	
16	2x6 x 16' Top Chords (Doug Fir)
8	2x4 x 14' Bottom Chords (Doug Fir)
8	2x4 x 10' Bottom Chords (Doug Fir)
8	2x4 x 18' Web Members
1 sheet	4'x8' - 1/2" CC Exterior Plywood
2 sheets	4'x8' - 3/8" CC Exterior Plywood
	Glue and Nails, See Truss Page
32 yds	Gravel Fill, min.
7 yds	Air Entrained Concrete (6' apron + post footings)
72 ft	5' wide - 6x6.10/10 Welded Wire Fabric
2200 ft²	Siding
2200 ft²	Roofing
72'	Ridge Cap
16	1/2"x12" Anchor Bolts
	60d + 20d Ringshank Nails



SOLID ENDWALL DETAIL—2/4

MIDWEST PLAN SERVICE

24' WIDE HAY BARN

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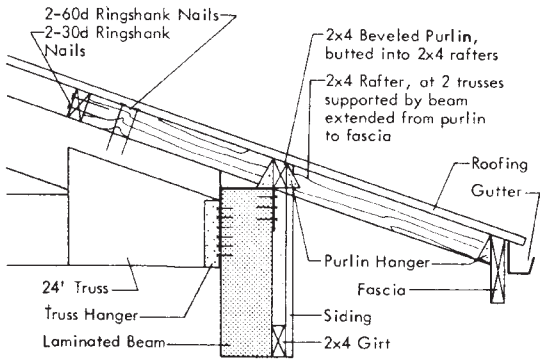
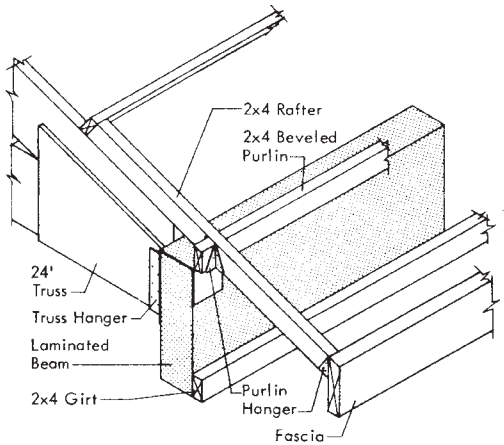
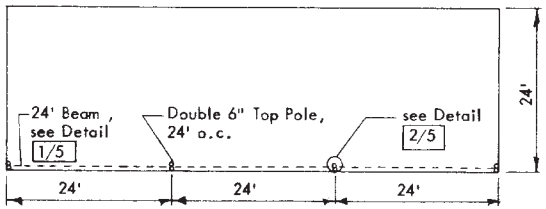


SECTION— 1/6

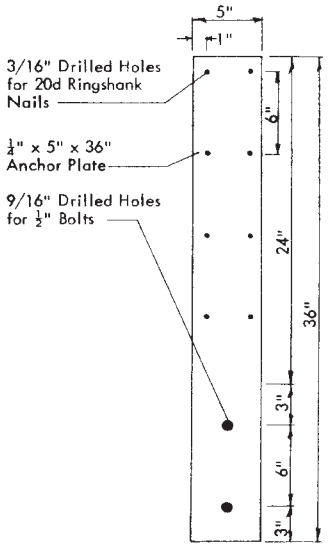
24' truss with 6½" cut off heel. Extend gussets 6½" to the left so they are not shortened.



OVERHANG RAFTER DETAIL— 2/6



FLOOR PLAN FOR 24' OPEN FRONT BAYS



ANCHOR PLATE DETAIL— 3/6

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24' WIDE HAY BARN		
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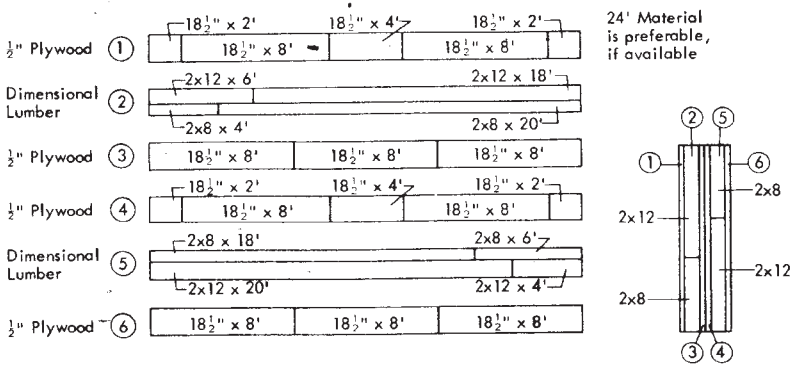
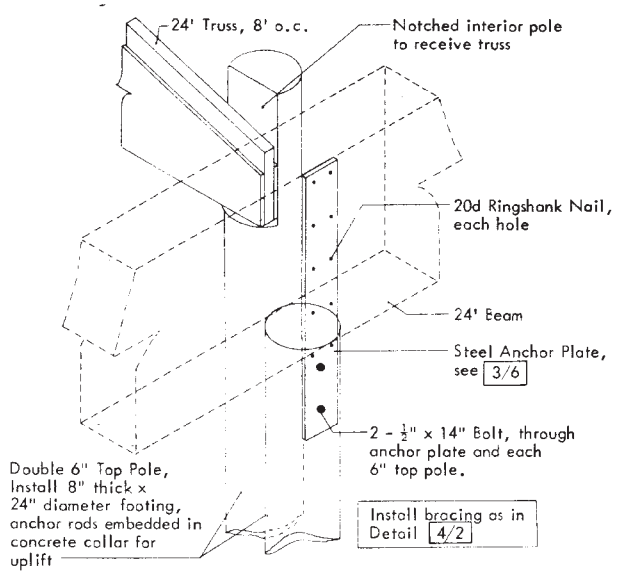


24' LAMINATED BEAM ASSEMBLY—1/5

For snow Zones 1, 2, and 3



24' BEAM TO POST DETAIL—2/5

24' Beam—for 24" Wide Sidewall Bays

MATERIALS

Lumber

This beam is designed for use of Douglas Fir-Larch (No. 1, MC19) or Southern Yellow Pine (No. 1, MC19).

Use clean and smooth lumber. Do not use cupped or twisted lumber.

Plywood

Use 1/2" C-C Ext. ("Identification Index" = 32/16)

Glue

Casein (MMM-125A, type II, mold resistant) is not waterproof, but is highly water resistant. Resorcinol resin glue is waterproof and should be used if the beam is to be exposed to unusual moisture conditions.

Follow the manufacturer's specifications for mixing, pot life, temperature during use, etc.

BEAM CONSTRUCTION

1. Assemble the beam in two pieces, layers 1, 2, and 3 and layers 4, 5, and 6. Clamp the narrow faces of the dimensional lumber together (Layer #2 = 2x8 + 2x12 = 2x20). Spread glue on the plywood (Layer #1). Nail plywood to Layer #2 and 6d box nails, preferably galvanized or cement coated, 4" o.c. both ways. Glue should squeeze out from the edges of the beam. Remove the clamps; glue and nail Layer #3 plywood to the other side of the dimension lumber in a similar manner. Then assemble layers #4, #5, and #6.

2. Final Assembly - use method a, or b.

   a. Clamping method.
   When both halves of the beam have been assembled, apply glue to the two remaining inside surfaces. Place clamps about 2' apart on the fully assembled beam and leave on the 24 hours.

   b. Weighting method.
   When both halves of the beam have been assembled, apply glue to the two remaining inside surfaces. Lay the beam on a level surface. Place sufficient weight on the fully assembled beam to squeeze glue out from the edges of the beam. Leave on for 24 hours.

MIDWEST PLAN SERVICE

24' WIDE HAY BARN

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