

# MWPS-73113

## 32' and 48' Wide Hay Sheds

Interior Poles.

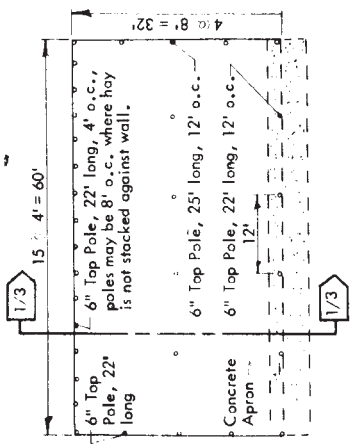
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Additional professional services will be required to tailor this plan to your situation, including but not limited to: assurance of compliance with codes and regulations; review of specifications for materials and equipment; supervision of site selection, 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.**

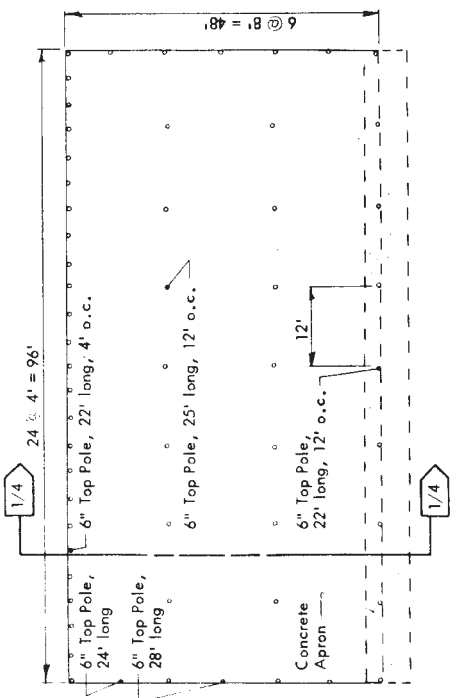
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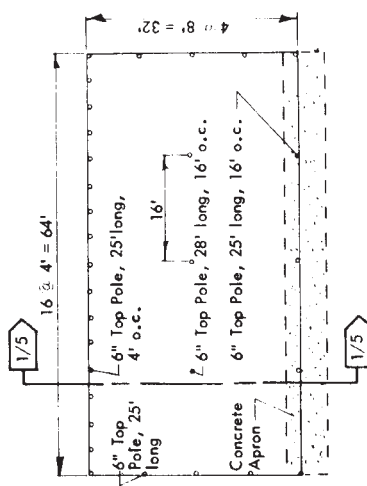
<b>MIDWEST PLAN SERVICE</b>
Cooperative Extension Work in Agriculture and Home Economics and Agricultural Experiment Stations of North Central Region - USDA Cooperating
32' and 48' Wide Hay Sheds
Title Page
MIDWEST PLAN NO. 73113



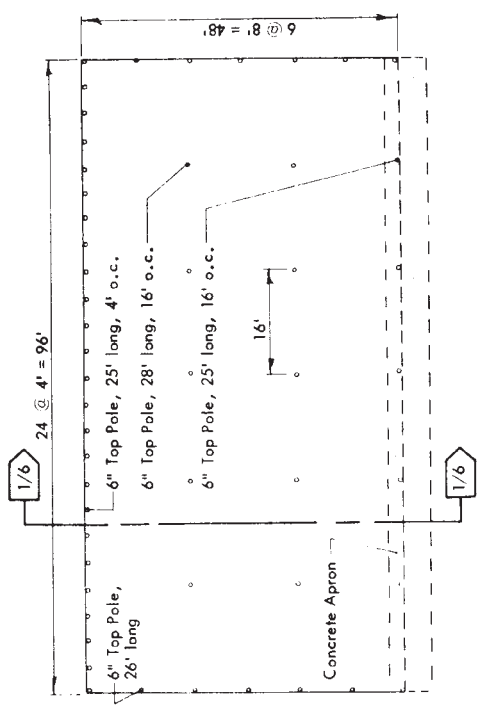
**32' x 60'—12' BAYS**  
 14' EAVE  
 See page 3 for detailed cross section.  
 25-150 Bale Stacks, 11' wide by 6' deep by 10' high, 125 Ton\*  
 or, 120-6 dia. by 8' long big round bales, 120 Ton\*  
 or, 4,300-16" x 18" x 36" bales, 200 Ton\*



**48' x 96'—12' BAYS**  
 14' EAVE  
 See page 4 for detailed cross section.  
 24-150 Bale Stacks, 14' wide by 6' deep by 10' high, 320 Ton\*  
 or, 240-6 dia. by 8' long big round bales, 320 Ton\*  
 or, 11,000-16" x 18" x 36" bales, 485 Ton\*

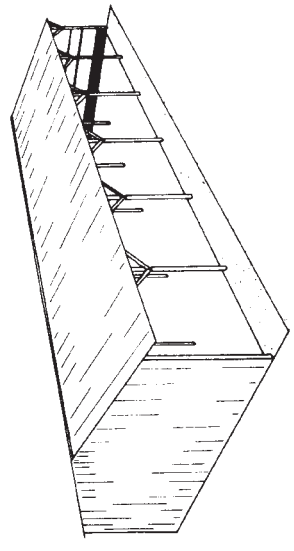


**32' x 64'—16' BAYS**  
 17' EAVE  
 See page 5 for detailed cross section.  
 16-280 Bale Stacks, 14' wide by 7' deep by 13' high, 150 Ton\*  
 or, 120-6 dia. by 8' long big round bales, 160 Ton\*  
 or, 6,000-16" x 18" x 36" bales, 270 Ton\*



**48' x 96'—16' BAYS**  
 17' EAVE  
 See page 6 for detailed cross section.  
 24-280 Bale Stacks, 14' wide by 7' deep by 13' high, 270 Ton\*  
 or, 240-6 dia. by 8' long big round bales, 320 Ton\*  
 or, 13,000-16" x 18" x 36" bales, 575 Ton\*

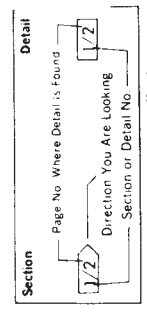
\*Weights based on:  
 Small bales—15 pc  
 Large bales—12 pc



- Notes:**
1. These plans show 14' and 17' clearance under sidewall girders. Consider equipment clearance, stack heights and widths and orientation of round bales when unloaded in selecting building pole spacings and eave heights. Higher eaves may require larger poles.
  2. Poles are presented in increasing diameters increasing in diameter at the top. 6" indicates approximate diameter at the top. Set the outside edge of round poles vertical for easier framing. See list of materials for alternate sawn rectangular posts.
  3. Lightning protection recommended. Use a "Master Label" system.

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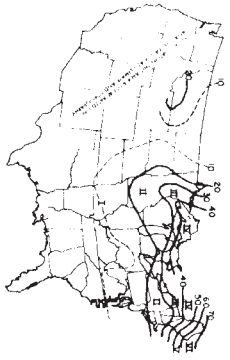


Section & Detail Indicator

**MIDWEST PLAN SERVICE**  
 Cooperative Extension & Research in Agriculture  
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**32' and 48' WIDE HAY SHEDS**  
 Interior Poles

6	Pages plus	Plan No.	Page
	Truss Sheet	mpps- 73113	1 of 6

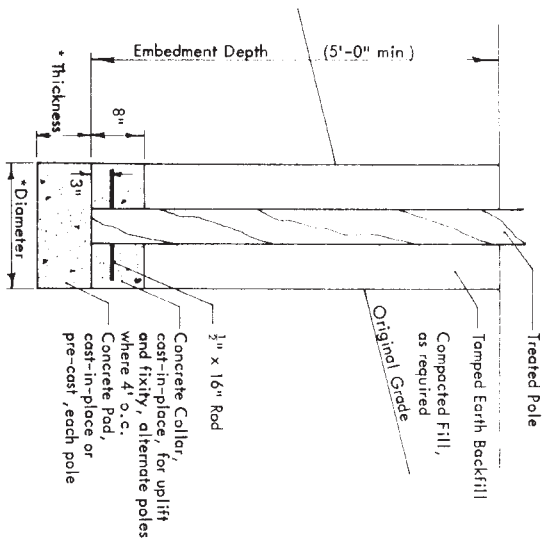


**Snow Zone**

Determine the snow zone number for your locality from the map below. If the building will be in mountain regions, consult local authorities. Design snow loads in lbs/sq ft (psf) for low risk buildings:

- Zone I = 16 psf
- Zone II = 24 psf
- Zone III = 32 psf

For Zones IV, V, and VI, see MWPS-9.



\* See building cross section for footing sizes  
 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.

**POST FOOTING DETAIL 1/2**

**PREFERRED LUMBER SPECIFICATIONS**  
 Roof Purlins, Wall Girts, and Slatboards  
 No. 2 Doug Fir or Southern Pine

Lumber Preservative Treatment	Creosote pcf retention	Penia	ACA or CCA
In contact with the soil	10	0.5	0.82 0.5
Not in contact with the soil	8	0.4	0.25 0.25

**Rafters and Headers**

No. 1 or 1500F Machine Stress Rated,  
 Doug Fir or Southern Pine

**Round Poles**

Doug Fir or Southern Pine ( $F_b = 2100$  psi)  
 Preservative Treatment:

- Creosote
- Southern Pine, 7.5 pcf
- Coastal Doug Fir, 9.0 pcf
- Interior Doug Fir, 16.0 pcf
- Penia
- Southern Pine, 0.38 pcf
- Coastal Doug Fir, 0.43 pcf
- Interior Doug Fir, 0.50 pcf
- ACA or CCA (95% a or 9), 0.80 pcf

**ALTERNATE LUMBER SPECIFICATIONS**

- 2x4 Purlins (No. 2 Hem-Fir)  
 Maximum Spacing: 30"
- Snow Zone 1  
 28"
- 2  
 24"
- 3  
 24"

2x6 Girts (No. 2 Hem-Fir)  
 Maximum Spacing: 24"  
 (8 o.c. poles)

**MWPS MIDWEST PLAN SERVICE**

**32' and 48' WIDE HAY SHEDS**

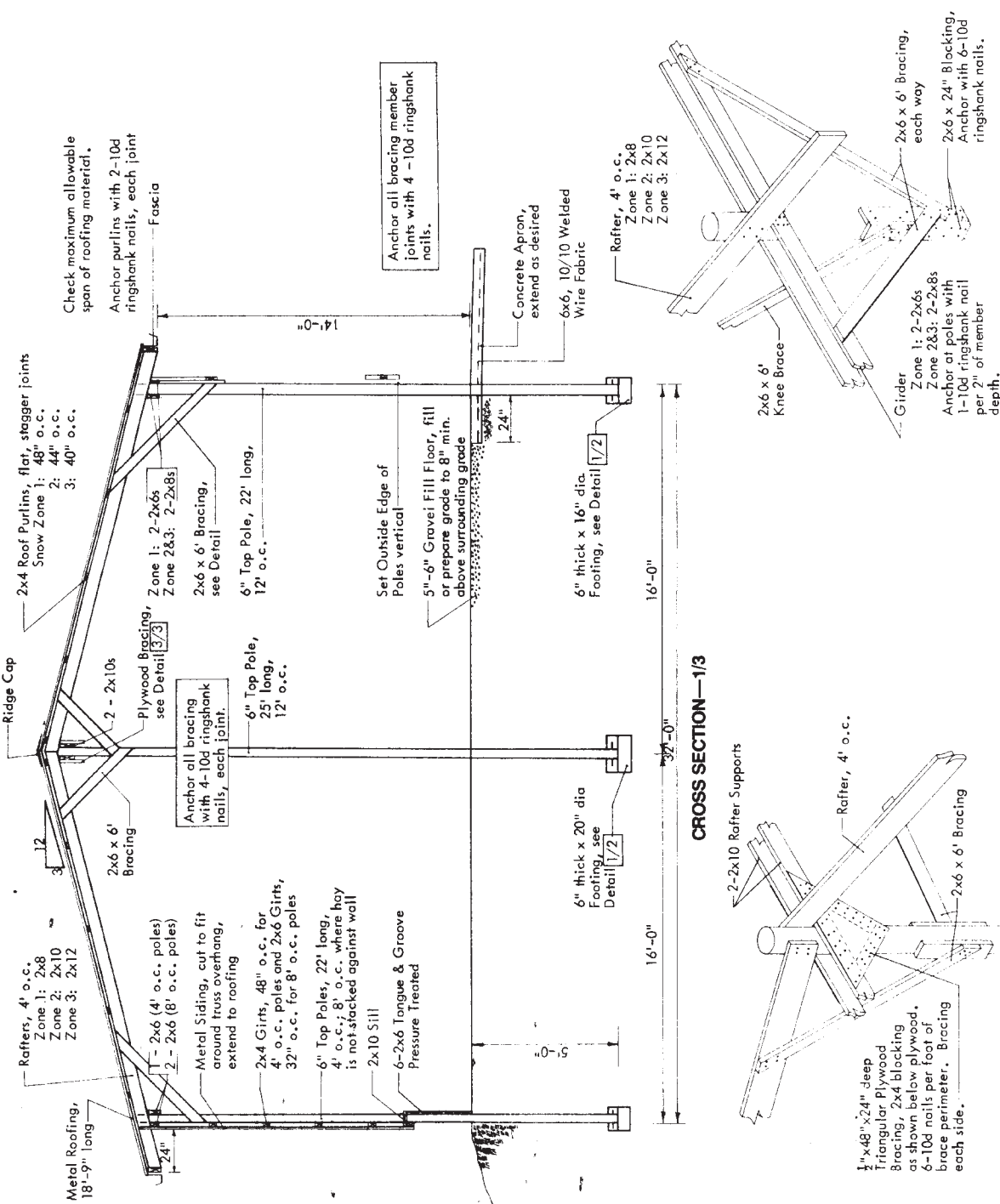
Interior Poles

Plan No. mwps-73113

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**List of Materials**

Description	Quantity
32' x 60' 12' Bays, 14' Eaves	
6" Top Pole, 22' long, P.T.	28 (4 o.c. Rear wall Poles)
6" Top Pole, 22' long, P.T.	19 (8 o.c. Rear wall Poles)
6" Top Pole, 25' long, P.T.	6
48	
2x6 x 16, T & G, P.T.	
2x4 Girts	26 (8' o.c. Poles)
or 2x6 x 16'	34 (8' o.c. Poles)
Top Plates and Rafter Supports	
Zone I	15 (4' o.c. Poles)
or 2x6 x 12'	20 (8' o.c. Poles)
Zones II and III	5 (4' o.c. Poles)
or 2x6 x 12'	106 (8' o.c. Poles)
2x8 x 12'	10
2x10 x 12'	10
Rafters	
Zone I	32
Zone II & III	32
2x12 x 20'	32
Roof Purlins	
Zones I and II	50
2x4 x 14'	
Zone III	60
2x4 x 14'	
Fascia	
Zone I	10
Zone II	10
Zone III	10
Bracing	
2x6 x 12'	12
Blocking	
2x6 x 12'	4
Plywood Bracing	
1/2" x 4' x 8' CDX Plywood	1
2x4 x 14'	8
2300 ft <sup>2</sup> Roofing	
60' Ridgecap	
1800 ft <sup>2</sup> Siding	
1.5 yd Concrete (Footings only)	
Gravel fill as required	
Ringshank nails and fasteners for roofing and siding	
*P.T. means pressure treated lumber	



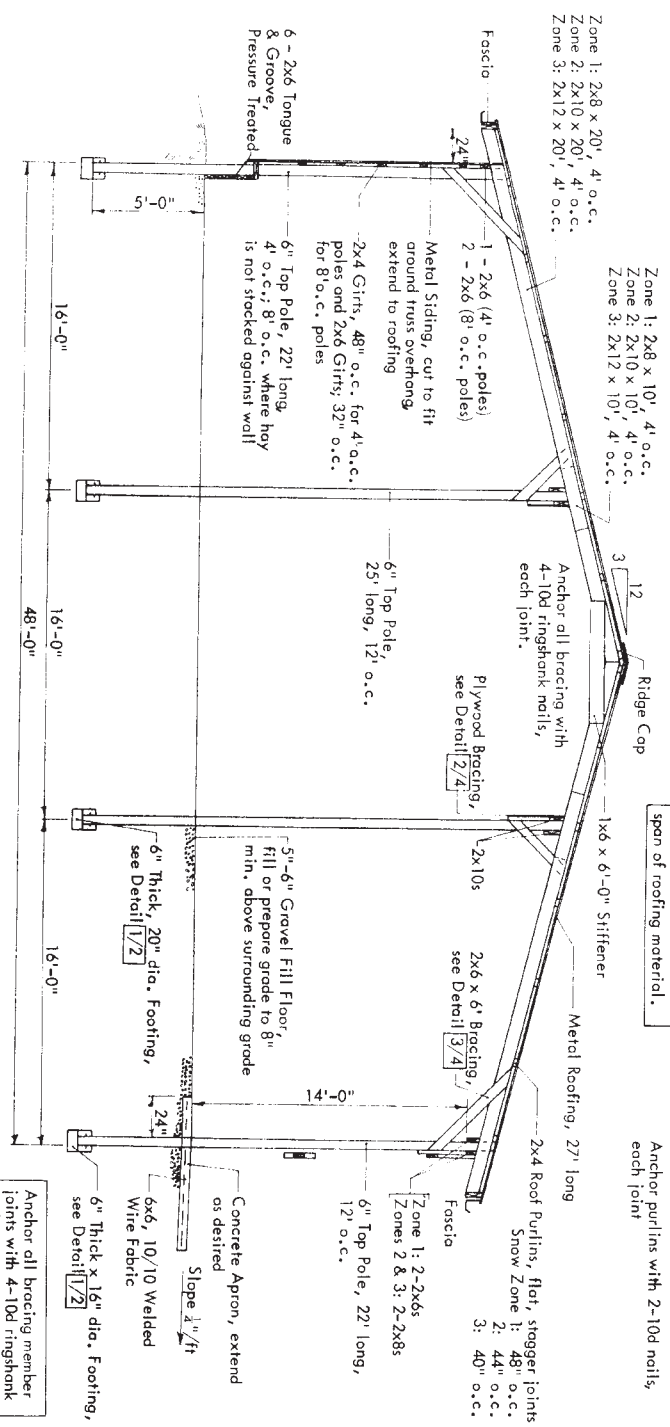
**MIDWEST PLAN SERVICE**  
**32' and 48' WIDE HAY SHEDS**  
 Interior Poles  
 Plan No. **73113**  
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**SIDEWALL BRACE—3/3**

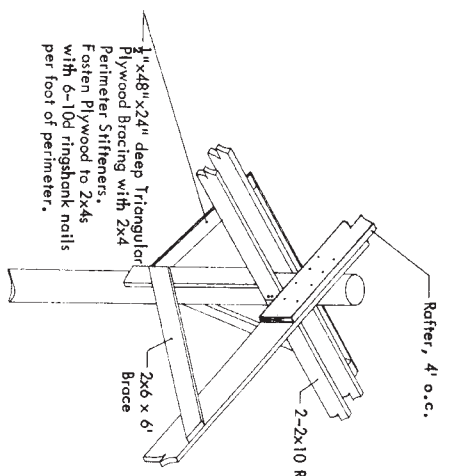
**RIDGE BRACE—2/3**

Zone 1: 2x8 x 20', 4' o.c.  
 Zone 2: 2x10 x 20', 4' o.c.  
 Zone 3: 2x12 x 20', 4' o.c.

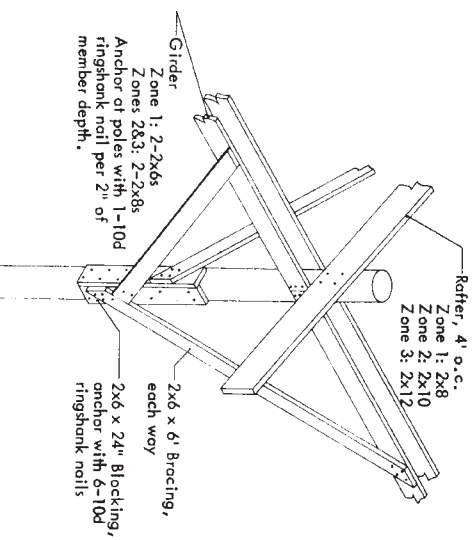
Zone 1: 2x8 x 10', 4' o.c.  
 Zone 2: 2x10 x 10', 4' o.c.  
 Zone 3: 2x12 x 10', 4' o.c.



**CROSS SECTION—1/4**



**INTERIOR BRACE—2/4**



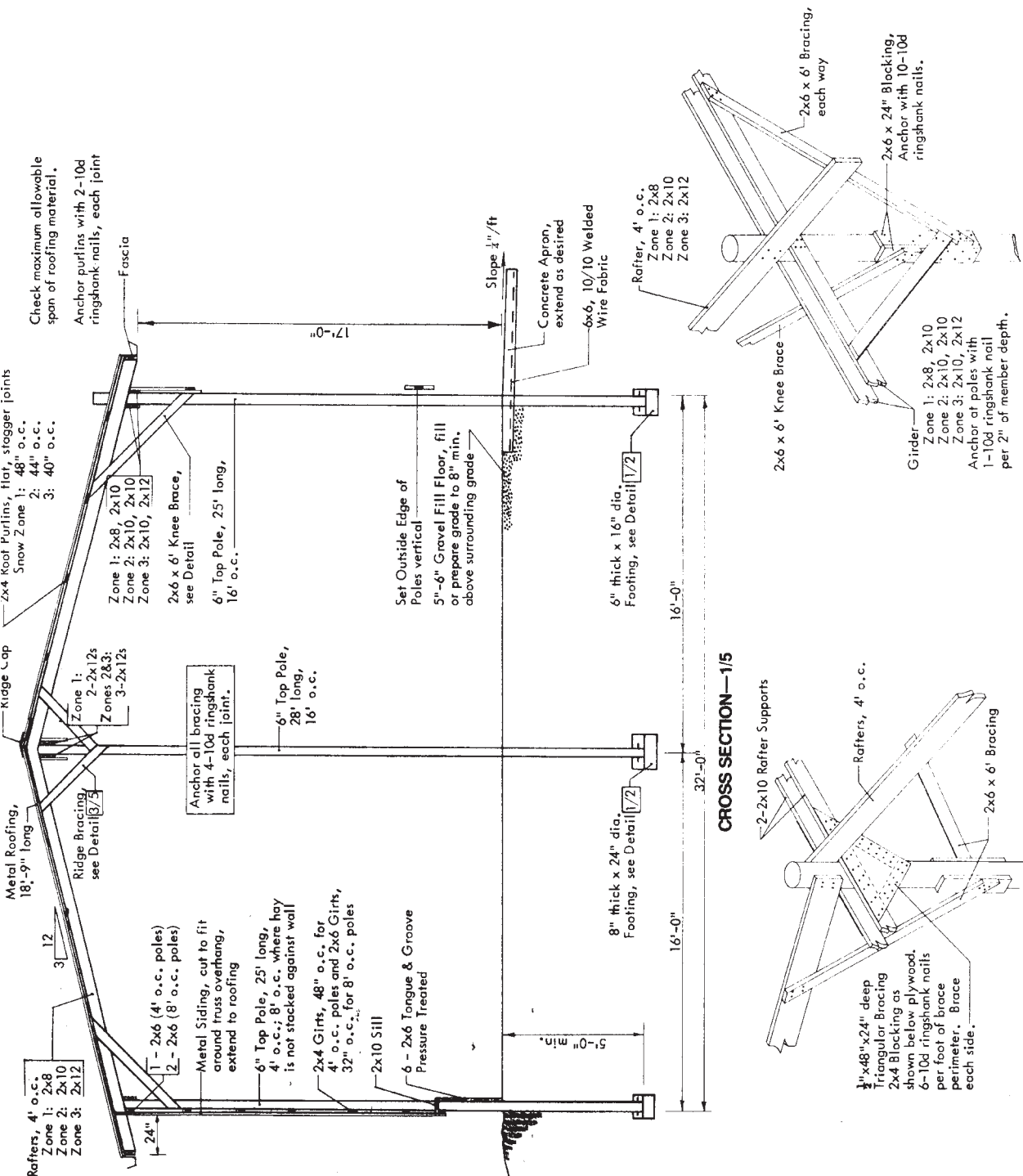
**SIDEWALL BRACE—3/4**

List of Materials	Quantity
48 x 96: 12 Bays, 14 Eaves	34 (4 o.c. Poles)
6" Top Pole 22' long	22 (8 o.c. Renewal Poles)
6" Top Pole 22' long	4 (2 Renewal Poles)
6" Top Pole 24' long	2
6" Top Pole 28' long	
Splashboards 2x6 x 16' T & G, P.T.	72
Wall Girts 2x6 x 16'	52 (8 o.c. Poles)
or 2x4 x 16'	40 (4 o.c. Poles)
Top Poles and Rafter Supports	
Zone I 2x6 x 12'	24 (4 o.c. Poles)
or 2x6 x 12'	32 (8 o.c. Poles)
Zone II and III 2x8 x 12'	16 (4 o.c. Poles)
2x6 x 12'	16 (8 o.c. Poles)
or 2x6 x 12'	32 (8 o.c. Poles)
Rafters	
Zone I: 2x8	50
Zone II: 2x8 x 10'	50
Zone III: 2x10 x 20'	50
Zone III: 2x10 x 10'	50
Zone III: 2x12 x 20'	50
Zone III: 2x12 x 10'	50
Roof Purlins	
Zone I and II 2x4 x 14'	112
Zone III: 2x4 x 14'	128
Fascia	
Zone I: 2x6 x 12'	16
Zone II: 2x10 x 12'	16
Zone III: 2x12 x 12'	16
Bracing	
2x6 x 12'	21
Blocking 2x6 x 12'	7
Plywood Bracing 2' x 4' x 6' CDX	2
5200 Rf Roofing	2
96 Ringshank 2600 Rf Siding	3rd Concrete Footings only
Gravel fill as required	
Ringshank nails and fasteners for roofing	

**MWDPS MIDWEST PLAN SERVICE**  
 Interior Poles  
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**List of Materials**

Description	Quantity
32' x 64' x 16' Bays, 17 Eave Poles	26 (4 o.c. Poles)
6" Top Pole, 25' long	18 (8 o.c. Poles)
or 6" Top Pole, 25' long	5
6" Top Pole, 28' long	
Splashboards 2x6 x 12, T & G, P.T.	64
Well Girts 2x4 x 16' 2x6 x 16'	32 46
Top Plates, Rafter Supports Zone I 2x6 x 16'	4 (4 o.c. Poles)
or 2x6 x 16'	8 (8 o.c. Poles)
2x8 x 16'	4
2x10 x 16'	4
2x12 x 16'	8
Zone II 2x6 x 16'	4 (4 o.c. Poles)
or 2x6 x 16'	8 (8 o.c. Poles)
2x10 x 16'	4
2x12 x 12'	8
Zone III 2x6 x 16'	4
2x6 x 16'	16
Rafters Zone I 2x8 x 20'	34
Zone II 2x10 x 20'	34
Zone III 2x12 x 20'	34
Roof Purlins Zone I (all) 2x4 x 18'	40
Zone II 2x4 x 18'	48
Fascia Zone I 2x8 x 16'	8
Zone II 2x10 x 16'	8
Zone III 2x12 x 16'	6
Bracing 2x6 x 12'	9
Blocking 2x6 x 12'	3
Plywood Bracing 1/2" x 4' x 8' CDX Plywood 2x4 x 8'	1 3
2500 tfs Roofing	
64 Ridgecap	
2100 tfs Siding	
1.5 yd Concrete (Footings only)	
Gravel fill as required	
Ringshank nails and fasteners for roofing and siding	



**SIDEWALL BRACE—3/5**

**RIDGE BRACE—2/5**

Rafters  
 Zone 1: 2x8 x 20', 4' o.c.  
 Zone 2: 2x10 x 20', 4' o.c.  
 Zone 3: 2x12 x 20', 4' o.c.

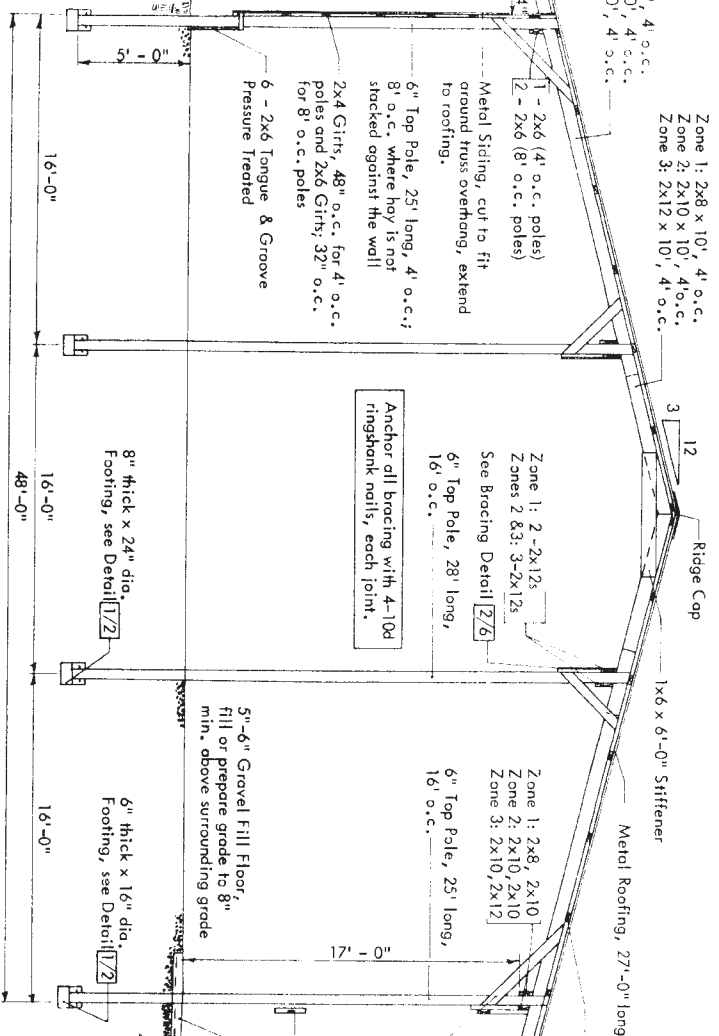
Zone 1: 2x8 x 10', 4' o.c.  
 Zone 2: 2x10 x 10', 4' o.c.  
 Zone 3: 2x12 x 10', 4' o.c.

6" Top Pole, 25' long, 4' o.c., where hay is not stacked against the wall  
 2x4 Girts, 48" o.c., for 4' o.c. poles and 2x6 Girts; 32" o.c. for 8' o.c. poles  
 6 - 2x6 Tongue & Groove Pressure Treated  
 Metal Siding, cut to fit ground truss overhang, extend to roofing.

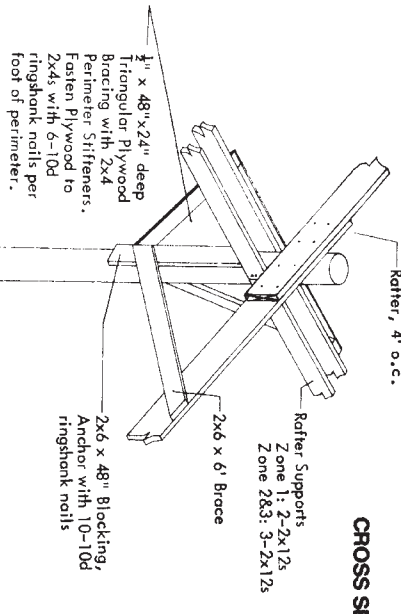
Anchor all bracing with 4-10d ringshank nails, each joint.  
 6" Top Pole, 28' long, 16' o.c.  
 Zone 1: 2-2x12s  
 Zone 2 & 3: 3-2x12s  
 See Bracing Detail 2/6

Zone 1: 2x8, 2x10  
 Zone 2: 2x10, 2x10  
 Zone 3: 2x10, 2x12  
 6" Top Pole, 25' long, 16' o.c.

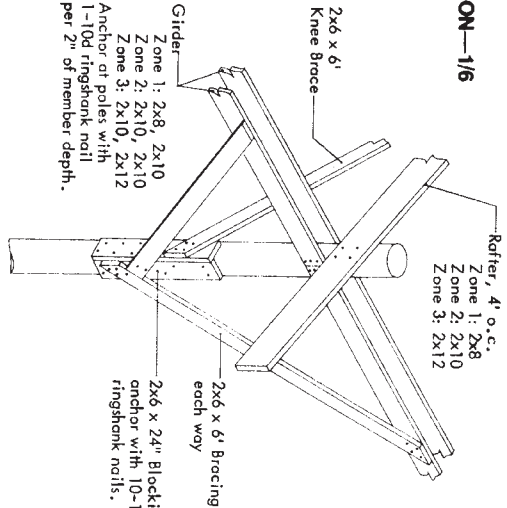
2x4 Roof Purlins, flat, stagger joints  
 Snow Zone 1: 48" o.c., 2' 44" o.c., 3' 40" o.c.  
 Fascia  
 2x6 x 6' Knee Brace, see Detail 3/6  
 6x6, 10/10 Welded Wire Fabric  
 Concrete Apron, extend as desired  
 Set outside edge of poles vertical.



**CROSS SECTION—1/6**



**INTERIOR BRACE—2/6**



**SIDEWALL BRACE—3/6**



Anchor purlins with 2-10d nails, each joint.  
 Check maximum allowable span of roofing material.

List of Materials	Quantity
48 x 96, 16 Bays, 17 Eaves	32 (4 o.c. Returnwall Poles)
6" Top Pole 25' long	20 (8 o.c. Returnwall Poles)
6" Top Pole 25' long	4
6" Top Pole 28' long	16
6" Top Pole 28' long	16
Sheetsboards	72
2x6 x 16, T & G, P.T.	48
Wall Girts	72
2x4 x 16'	80 c.
2x6 x 16'	80 c.

Top Plates and Rafter Supports	Quantity
Zone I	8 (4 o.c. Poles)
2x6 x 12'	16 (8 o.c. Poles)
or 2x6 x 12'	8
2x8 x 12'	8
2x10 x 12'	32
2x12 x 12'	8 (4 o.c. Poles)
2x6 x 12'	16 (8 o.c. Poles)
or 2x6 x 12'	16
2x10 x 12'	48
2x12 x 12'	8
2x6 x 12'	8 (4 o.c. Poles)
or 2x6 x 12'	16 (8 o.c. Poles)
2x12 x 12'	8
2x12 x 12'	56

Rafters	Quantity
Zone I	50
2x8 x 20'	50
2x8 x 10'	50
Zone II	50
2x10 x 20'	50
2x10 x 10'	50
Zone III	50
2x12 x 20'	50
2x12 x 10'	50
1x6 x 6 Sillifier	25

Roof Purlins	Quantity
Zone I and II	112
2x8 x 14'	112
2x4 x 14'	128

Fascia	Quantity
Zone I	16
2x6 x 12'	16
Zone II	16
2x10 x 12'	16
Zone III	16
2x12 x 12'	16

Bracing	Quantity
2x6 x 12'	16
2x6 x 12'	16
2x4 x 8 CDX	2
2x4 x 8	3
Blocking	5
2x6 x 14'	5

5200 lb Roofing  
 36 Ridgecap  
 3200 lb Siding  
 3200 lb Siding (Footings only)  
 Gravel fill as required  
 Ringshank nails and fasteners for roofing and siding

Roofing	Quantity
5200 lb Roofing	2
36 Ridgecap	2
3200 lb Siding	3
3200 lb Siding (Footings only)	3
Gravel fill as required	3
Ringshank nails and fasteners for roofing and siding	5

**PLAN 32' and 48' WIDE HAY SHEDS**  
 Interior Poles

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Rev.			