

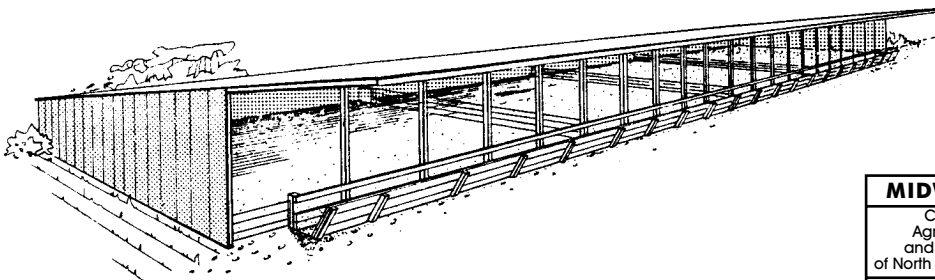
# MWPS-72442

## Confined Beef, 34' Shed Roof

An open-front pole building with a shed roof for 320 feeders in complete confinement. Outside feed alley with fenceline bunk. Slotted floor with 8' manure pit.

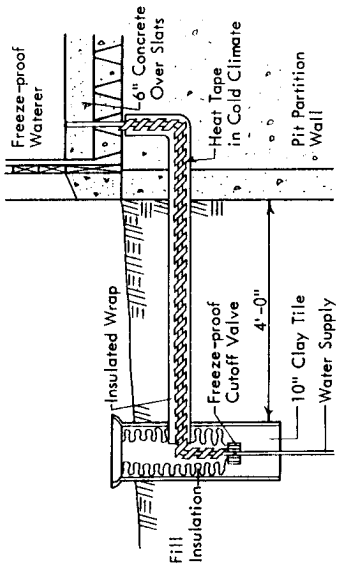
### CAUTION!

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.**



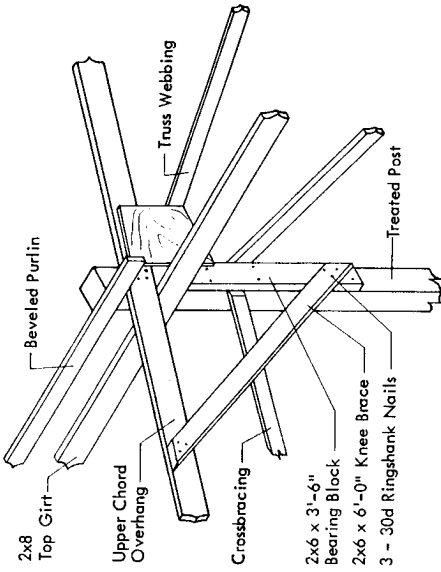
<b>MIDWEST PLAN SERVICE</b>
Cooperative Extension Work in Agriculture and Home Economics and Agricultural Experiment Stations of North Central Region - USDA Cooperating
CONFINED BEEF, 34' SHED ROOF
Title Page
MIDWEST PLAN NO. 72442





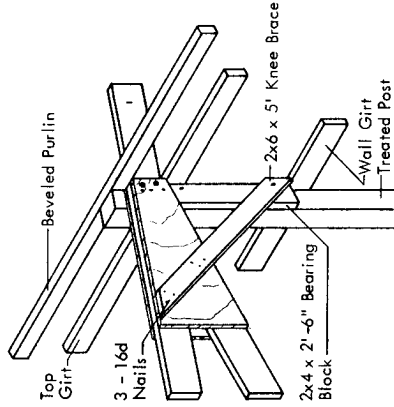
**WATER DETAIL—1/2**

Bring water line into building next to pit partition wall.



**KNEE BRACE DETAIL B—4/2**

Truss to post connection: 2 - 1/2" bolts + 3 - 30d ringshank nails through top chord. 2 - 1/2" bolts + 3 - 30d ringshank nails through gusset and bearing block.



**KNEE BRACE DETAIL A—2/2**

Note: Post is not notched for truss. Truss to post connection: 2 - 1/2" bolts + 3 - 30d ringshank nails. Top girt to post connection: 2 - 30d ringshank nails. Bearing block to post connection: 2 - 1/2" bolt + 3 - 30d ringshank nails. Knee brace to bearing block to post connection: 1 - 1/2" bolt.

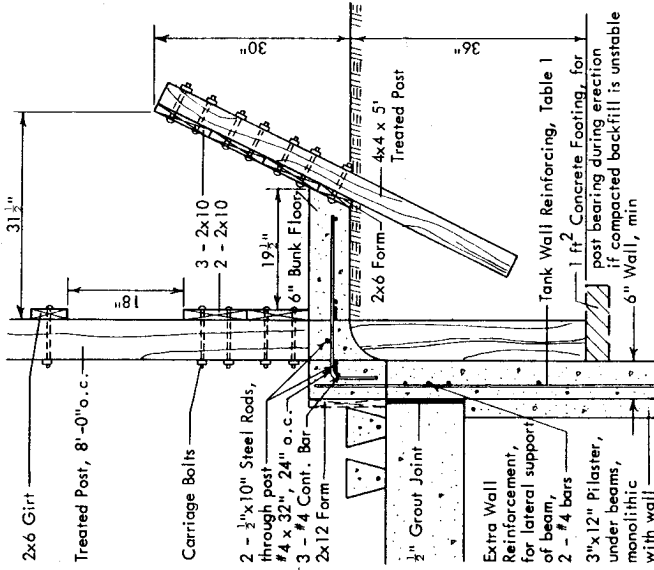
**CONCRETE compressive strength = 3500 psi**

Table 1. Manure Tank Wall Reinforcing

Grade 36 (36,000 psi) Reinforcing Bars (bar size, spacing)		*Grade 60 (60,000 psi) Welded Wire Fabric (area of steel/ft of wall)	
VERTICAL STEEL		SOIL PRESSURE	
Soil Pressure	30 psf	30 psf	60 psf
Wall	moderately drained soil	moderately drained soil	poorly drained soil
Thickness	#3, 9.4	#4, 8.4	drained soil
**8"	#3, 9.2	#3, 6.8	0.1756
			0.0864
			0.1152
			0.1184
HORIZONTAL STEEL		SOIL PRESSURE	
Reinforcing Bars	*Grade 60 (60,000 psi) Welded Wire Fabric		
Thickness	#3, 7.3		
**8"	#4, 10.0		

\*NOTE: Flat sheets of welded wire fabric should be used, not rolls. Two layers may be used to provide required steel area. Reinforcing bars (Grade 60, #3, #4, or #5's may be attached to welded fabric to increase steel area.)

\*\*NOTE: For 8" wall, beams may be supported in 3"x8"x10" notch in tank wall.



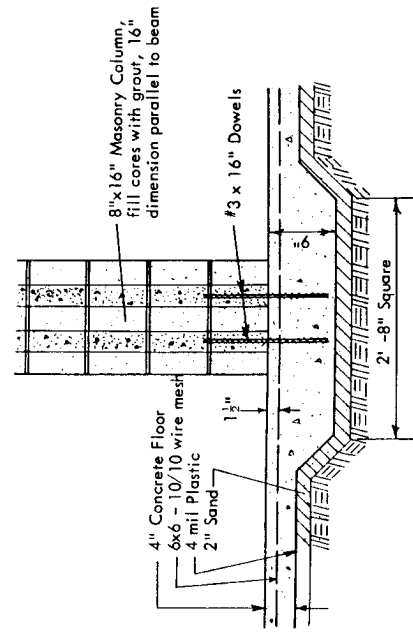
**FEED BUNK DETAIL—3/2**

Use 3/8" x 5" Carriage Bolts to fasten 2x10's to pipe. After erection post bearing transferred to concrete bunk floor by 1/2" steel rods and 2x10 liner.

**BACK WALL DETAIL—5/2**

**MIDWEST PLAN SERVICE**  
 Confined Beef, 34' Shed Roof  
 Sotted Floor, Open-Front, Fence-Line Bunk  
 Plan No. 72442  
 Rev. 10/78  
 m-wps-72442  
 Page 2 of 8  
 Copyright © 1974 Midwest Plan Service, Ames, IA 50011

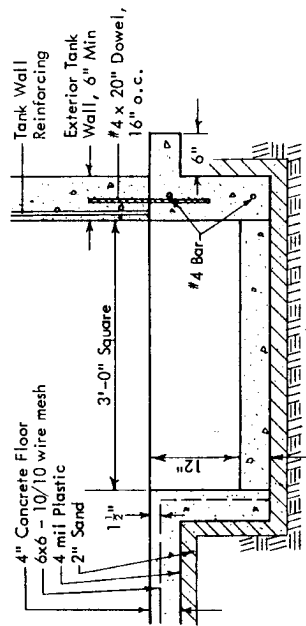




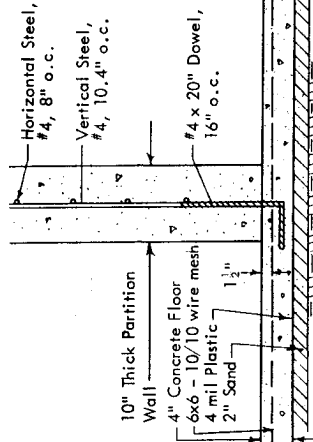
**MASONRY COLUMN FOOTING DETAIL—5/4**

Alternate Lumber Specifications, Spacing and Sizes

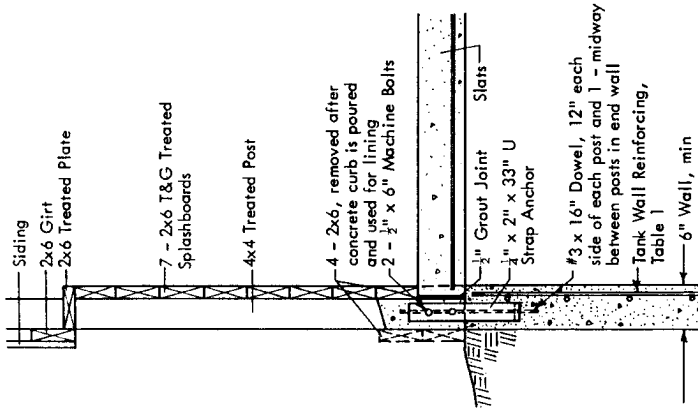
- 2x4 Roof Purlins (Construction Grade Hem-Fir) Trusses (No. 1 Hem-Fir) See Truss Page
- Max Spacing Snow Zone 1: 28' o.c.
- Snow Zone 2: 24' o.c.
- Snow Zone 3: 18' o.c.
- 2x6 Wall Girts (No. 2 Hem-Fir) Max Spacing: 20' o.c.
- 8"x16" Masonry Column, fill cores with grout, 16" dimension parallel to beam
- #3 x 16" Dowels
- 4" Concrete Floor 6x6 - 10/10 wire mesh 4 mil Plastic 2" Sand
- 2'-8" Square
- 1 1/2"



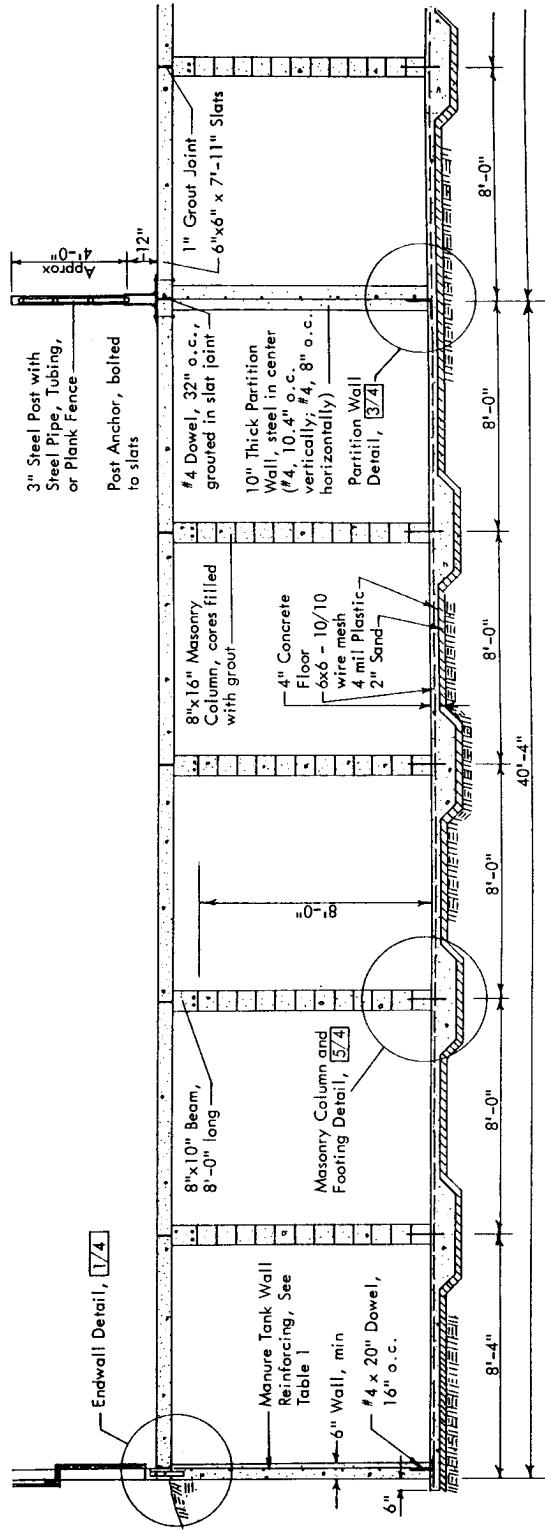
**SUMP DETAIL—2/4**



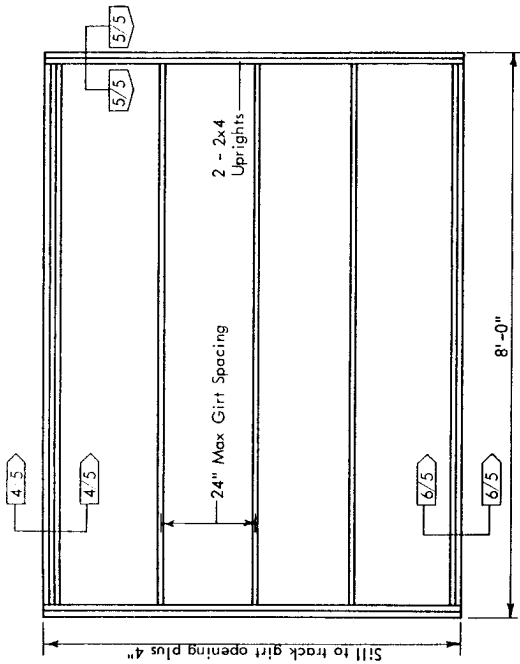
**PARTITION WALL DETAIL—3/4**



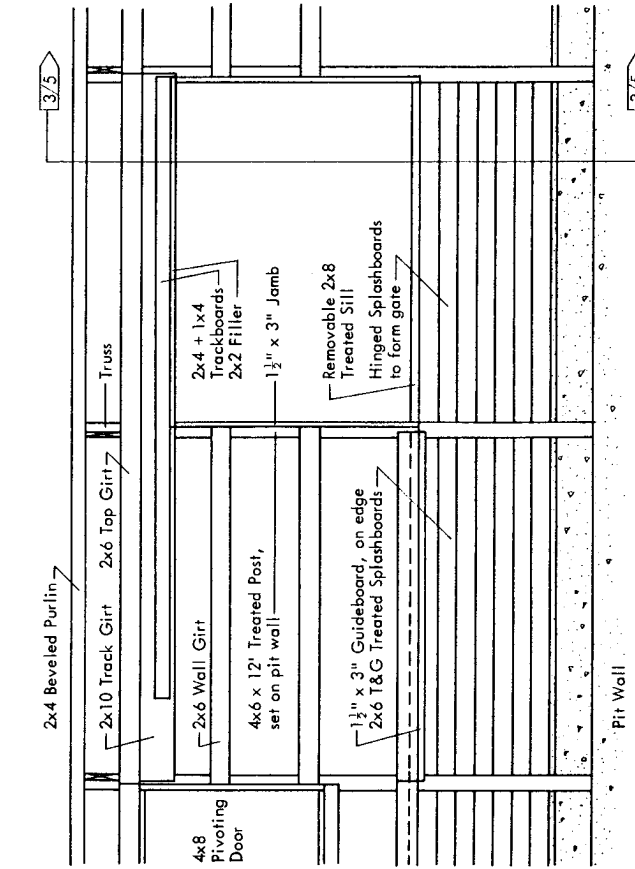
**ENDWALL DETAIL—1/4**



**LONGITUDINAL MANURE TANK DETAIL—4/4**



**SINGLE SLIDING DOOR FRAME—1/5**

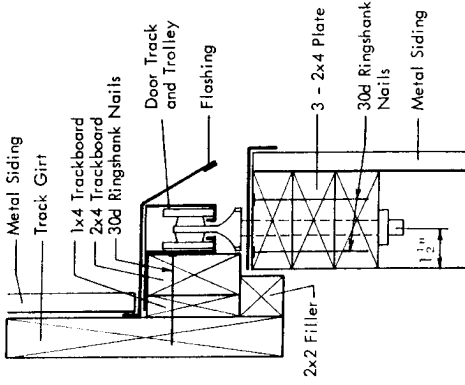


**BACK WALL FRAMING—2/5**

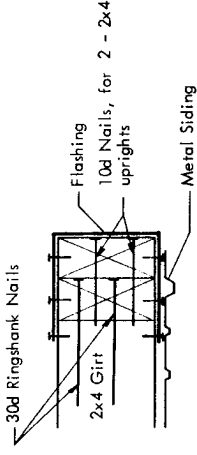
Sliding door for pit access with manure pump.

**ESTIMATING LIST**

Manure Tank	
Floor	68
Concrete, cubic yards	1200
Welded wire fabric, lbs	95
Walls (6 in., 30 lb/sq ft load)	6600
Concrete	432
Columns	36
Masonry block, 8" x 16"	1000
Beams, 8" x 10" x 8' - 0"	
Slats, 6" x 6" x 7' - 11"	
Building	
Trusses	19
30 ft single slope trusses	2
Endwall trusses	
Posts (pressure-treated)	460
6x6, feet	230
4x6, feet	160
4x4, feet	
Purlins (Zone 3) and Truss Ties	4800
2x4's, feet	
Wall Girts and Braces	1080
2x6's, feet	1850
Splashboards (pressure-treated)	9000
Roofing and Siding, sq ft	8
Pivoting Vent Doors (4' x 8')	4
Sliding Doors (7' x 8')	152
Feed Bunk, feet	100
Fencing, feet	160
Observation Walkway, feet	

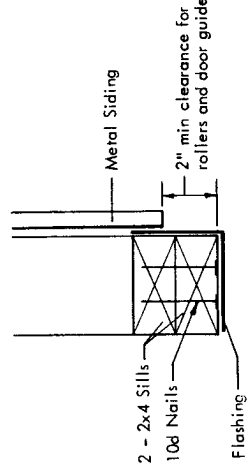


**DOOR TRACK ASSEMBLY—4/5**

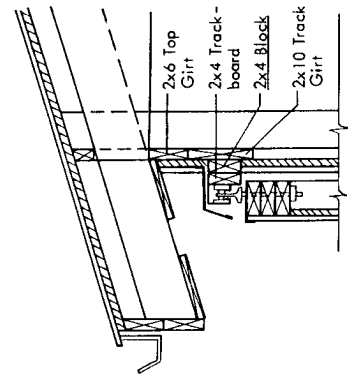


**UPRIGHT SECTION—5/5**

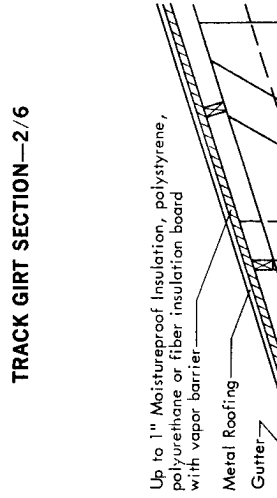
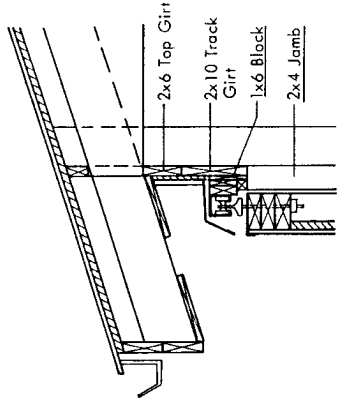
Extend flashing around uprights and nail to girts and uprights.



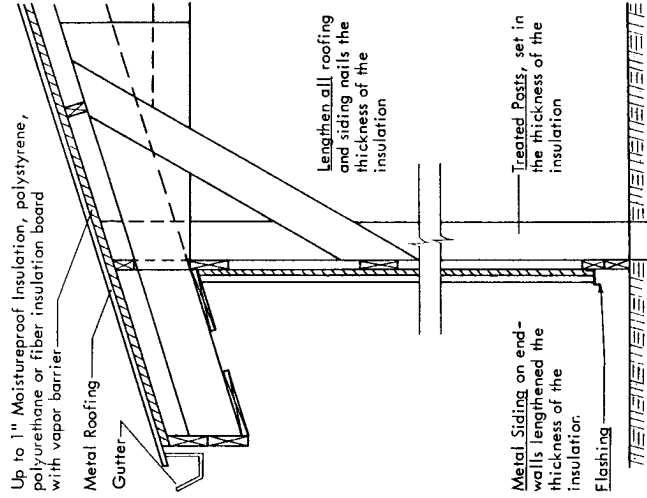
**SILL SECTION—6/5**



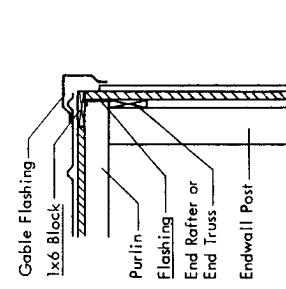
**TRACK GIRT SECTION—2/6**



**BACK WALL SECTION—4/6**



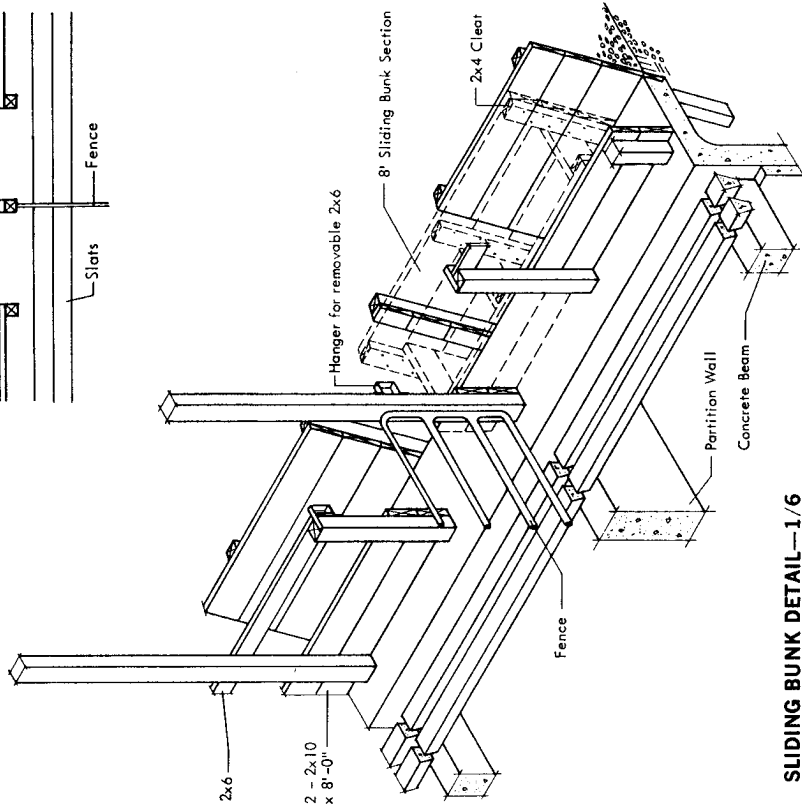
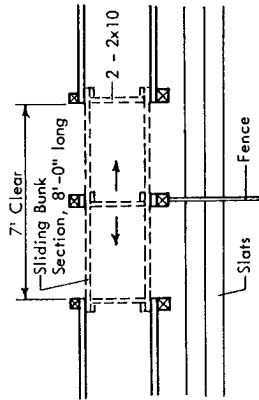
**WALL SECTION—3/6**



**TYPICAL GABLE END SECTION—5/6**

**INSULATION DETAILS**

Underlines show materials that change when insulation is added.



**SLIDING BUNK DETAIL—1/6**

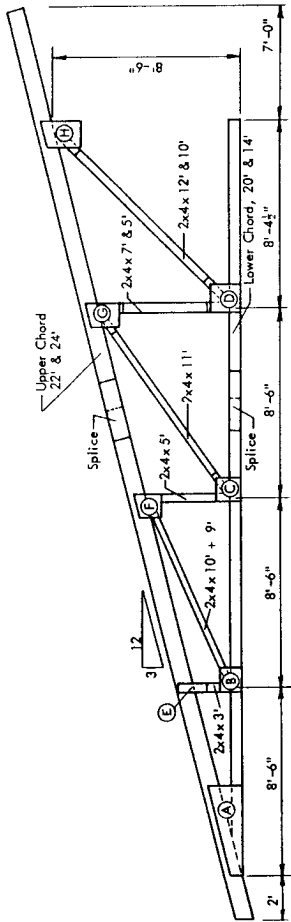
Build sliding sections after main bunk is in place, adapt dimensions as needed.

<b>MIDWEST PLAN SERVICE</b>	
<b>CONFINED BEEF, 34' SHED ROOF</b>	
Slotted Floor, Open-Front, Fenceline Bunk	
Rev. 10/78	Page 6 of 8
Plan No. mwps-72442	
Copyright 1974 Midwest Plan Service, Ames, IA 50011	





### 34' Single Slope

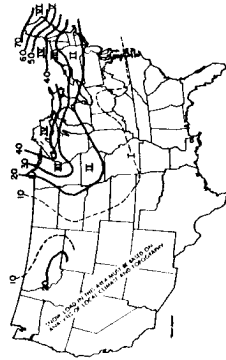


TRUSS SPACING ZONE	WOOD SPECIES	Gusset sizes, inches												
		A	B	C	D	E	F	G	H	A	B	C	D	
4	#1 Doug Fir or Southern Pine	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4
		2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6
		2x8	2x8	2x8	2x8	2x8	2x8	2x8	2x8	2x8	2x8	2x8	2x8	2x8
8	#1 Hem Fir	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4
		2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6
		2x8	2x8	2x8	2x8	2x8	2x8	2x8	2x8	2x8	2x8	2x8	2x8	2x8

GUSSETS B, C, D, F, G, H are 3/4" plywood

#### 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/ft (psf) for low-risk buildings in exposed locations:  
 Zone I = 12 psf  
 Zone II = 18 psf  
 Zone III = 24 psf



This page is a summary of the information in "Designs for Glued Trusses," MWPS-9.

**MWPS MIDWEST PLAN SERVICE**  
 CONFINEE BEEF 34' SHED ROOF  
 Slotted Floor, Open Front,  
 Fenceline Bunk

Plan No. MWPS-72442  
 Page 8 of 8  
 Copyright 1974 Midwest Plan Service, Ames, IA 50011

#### Roof Slope (inches of rise/inches of run)

Roof slope significantly affects the forces in the truss members. A steeper roof may reduce some truss member sizes.  
 3/12 slope—used in low snow load areas or for short spans and narrow spacings.  
 4/12 slope—most common for farm buildings  
 5/12 slope—used in high snow load areas or for long spans and wide spacings.

#### Truss Spacing

Roof and ceiling materials and wall framing influence truss spacing selection. In pole buildings it is desirable to support each truss on a pole.  
 2' spacing uses more material and labor. It is common for buildings with ceilings and plywood roof decks.  
 4' spacing is common in insulated livestock buildings with ceilings and metal roofs, and in some storage buildings.  
 8' spacing uses least material and labor for buildings without ceilings such as machinery storages, uninsulated livestock buildings, etc. Total cost may be greater if a ceiling is needed.

#### Dead Load lb/sq ft (psf)

Dead loads include the weight of the roof, ceiling, trusses, and bracing.

Low for uninsulated buildings:  
 roof = 3.5 psf; ceiling = 0.0 psf.

Medium for insulated buildings:  
 roof = 3.5 psf; ceiling = 3.0 psf.

High, for residential and commercial buildings:  
 roof = 7.5 psf; ceiling = 8.0 psf.

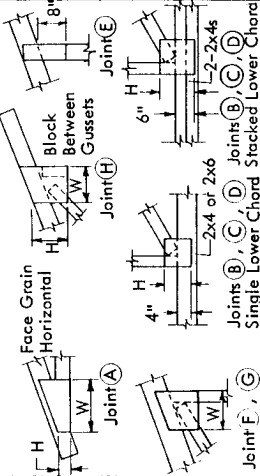
#### Precautions

Remove all dirt, oil, and sand from the lumber and plywood. Protect the glued joints from moisture for one week after fabrication. Temperatures below 70° will delay curing. Trusses will be ready to erect in 24 hours at 70°, but require at least a week at 40°.

#### Joints

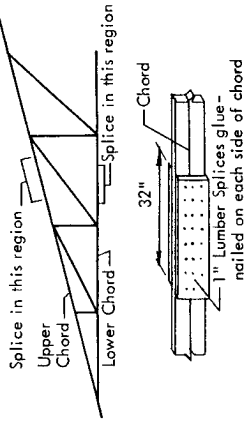
##### Gussets and Laps

Apply a gusset to each side of each joint. Use gussets listed in table at left. Laps are 1" lumber or 1/2" plywood as wide as the web or king post, applied to each side of each joint.



##### Splices

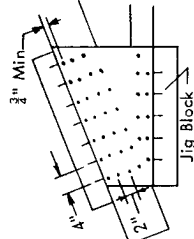
Upper chord and lower chord lumber should be full-length if possible. When splices are necessary, locate them as shown below.



#### Construction

1. Measure and cut all the pieces for one truss. Lengths given are approximate. They will need to be cut to true length. All members are in the same plane and all joints are butt joints.
2. Draw the complete truss on the floor or a plywood base and fit the pieces on the outline. Lightly nail (don't glue) the complete truss together. Check the dimensions; both sides of the truss should be the same. Make a jig by nailing 2x4 blocks around the lightly nailed truss. Mark off the 4" nail spacings along the jig at each joint.
3. Cut lumber for all trusses using the cut pieces as patterns. Gussets are required on both sides of each joint.
4. Use the jig to make uniform trusses. Spread the glue with a fiber brush, wooden paddle, or paint roller. Apply to both surfaces to be joined. When nailing the gussets in place, glue should ooze out around the joint. Move the truss out of the way and store flat for at least 24 hours. See Precautions. After the glue has cured, the truss is ready to be placed on the structure.

Nails apply pressure to the joint until the glue sets. Use 6d or 7d box nails, preferable galvanized or cement coated. Use enough nails—see diagram. If machine nailing is used, hit each nail or staple at least once with a hammer.



#### Windbracing

Brace and anchor the trusses as they are placed. The stiffeners along the lower chords are not required if a rigid ceiling is to be installed. Lower chord stiffeners are required at panel points. For single-slope trusses, cross-brace the supports on the high side of the truss.

