MWPS-74147
60′ Pole Machine Shed

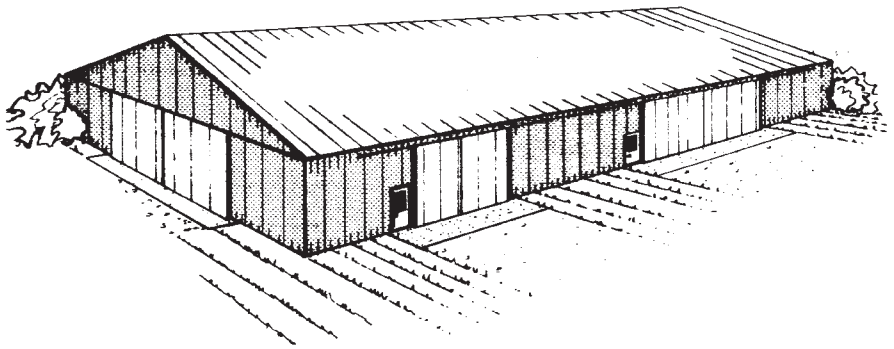
CAUTION!

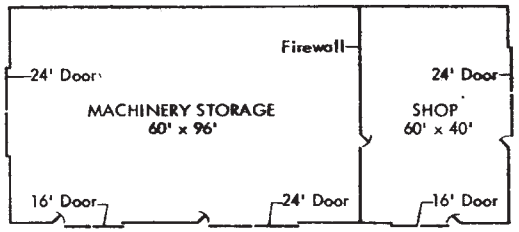
Additional professional services will be required to tailor this plan to your situation, including but not limited to: assurance of compliance with codes and regulations; review of specifications for materials and equipment; supervision of site selection, bid letting and construction; and provision for 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
60′ Pole Machine Shed
Title Page
MIDWEST PLAN NO. 74147





Machine Shed plus Shop
See pages 9 & 10 for details.

***PREFERRED LUMBER SPECIFICATIONS**

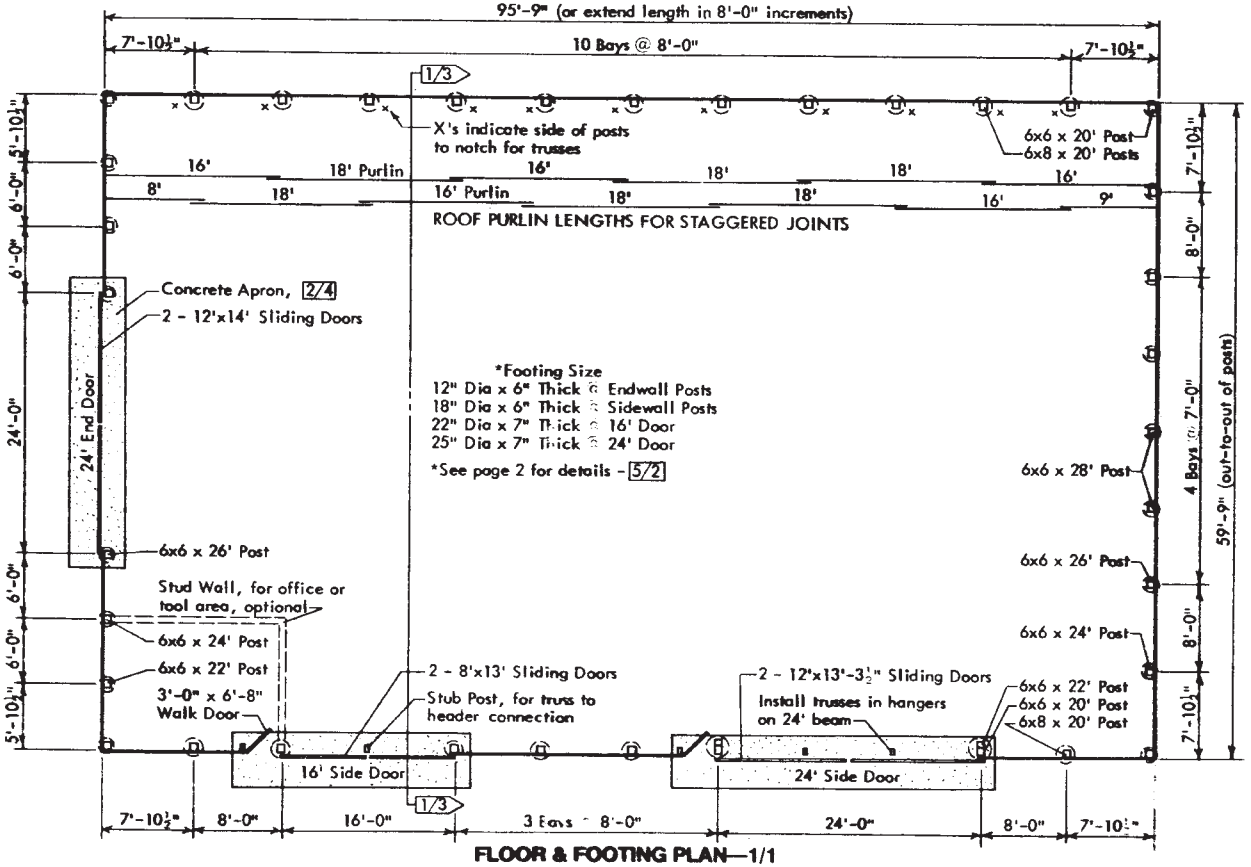
Roof Purlins and Wall Girts
2x4 Construction Grade (Doug Fir or Southern Yellow Pine).
2x6 No. 2 (Doug Fir or Southern Yellow Pine).

Trusses and Headers
No. 1 or 1500f machine rated (Doug Fir or Southern Yellow Pine).

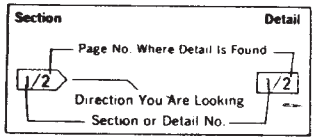
Posts and Splashboards
Pressure Preservative Treated (Southern Yellow Pine or equivalent) creosote—10 pcf, Penta—0.05 pcf, ACA or CCA (Type A or B)—0.40 pcf.

*For alternate member sizes using Hem-Fir and round poles, see page 2 and Truss Page.

Use 60' glue-nailed trusses, 8'-0" o.c., alternate every other pair of trusses to opposite side of posts to install 16' & 18' long roof purlins with staggered joints. Locate truss on far side of sliding door opening for knee brace installation.



FLOOR & FOOTING PLAN—1/1
Locate doors as desired.
Endwall post lengths are for 4/12 roof slope.



Section & Detail Indicator

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60' POLE MACHINE SHED

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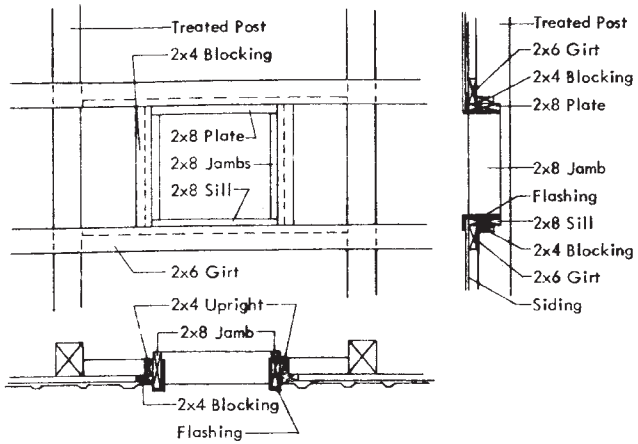
Pages 2, 4, 6-8, & [illegible] similar to pages 2, 4, 6-8, & [illegible] of 74143



FRAMED OPENING DETAIL—1/2

For windows, fans and small vent doors. For a building with an interior lining, extend the jambs, plate and sill to be flush with the inside edges of the posts.

Alternate Lumber Specifications, Spacing and Sizes.

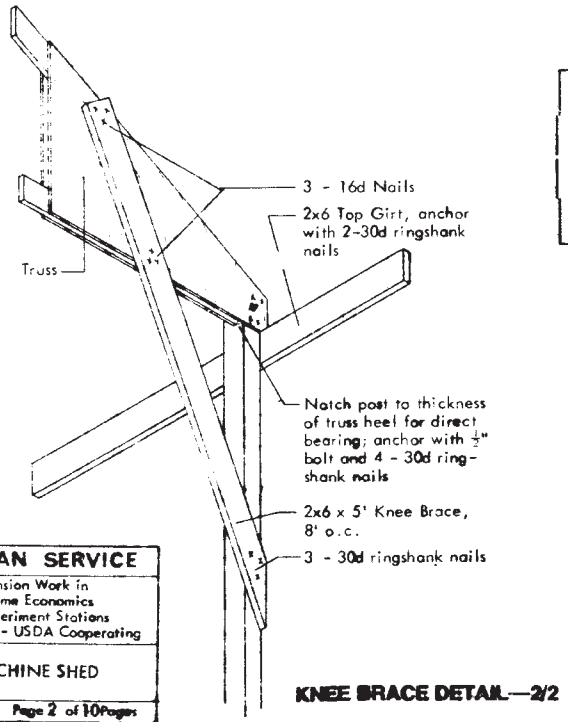
2x4 Purlins (Construction Grade Hem-Fir) Max Spacing
Snow Zone 1: 28" o.c.
Snow Zone 2: 24" o.c.
Snow Zone 3: 18" o.c.

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

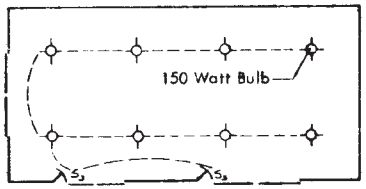
Headers (No. 1 Hem-Fir)
16' Door
Snow Zone 1: 3—2x12
Snow Zone 2: 4—2x12
Snow Zone 3: 5—2x12
24' Door
All Zones: 5½" x 24"

Posts (Round vs Sawn)
6x8 = ASA or ASAE Class 5, 6.0" Top Diameter
6x6 = ASA or ASAE Class 7, 4.8" Top Diameter

Trusses (No. 1 Hem-Fir)
See Truss Page

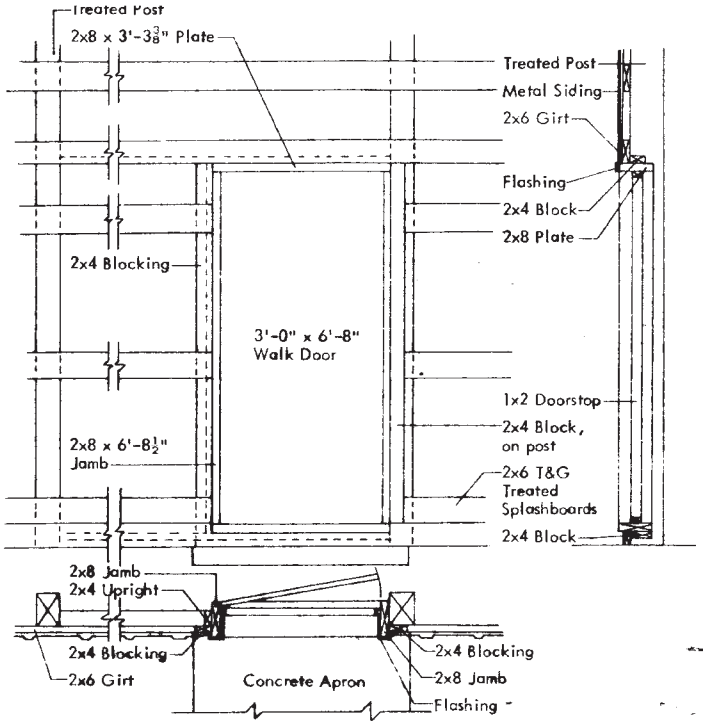


KNEE BRACE DETAIL—2/2



LIGHTING PLAN—3/2

S_3 = 3-way switch

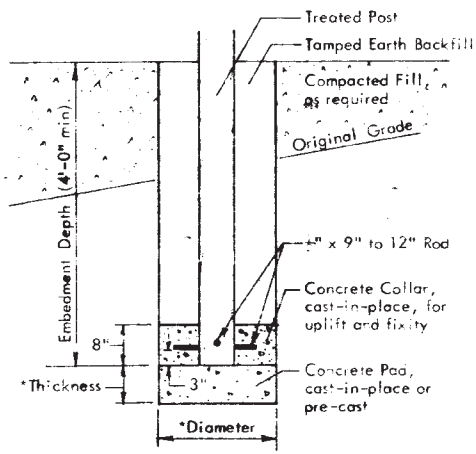


WALK DOOR FRAMING—4/2

For a building with an interior lining, extend the jambs, plate and sill to be flush with the inside edges of the posts.

*Footing Size
12" Dia x 6" Thick @ Endwall Posts
16" Dia x 6" Thick @ Sidewall Posts
20" Dia x 6" Thick @ 16' Door
24" Dia x 7" Thick @ 24' Door

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—5/2

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40' POLE MACHINE SHED

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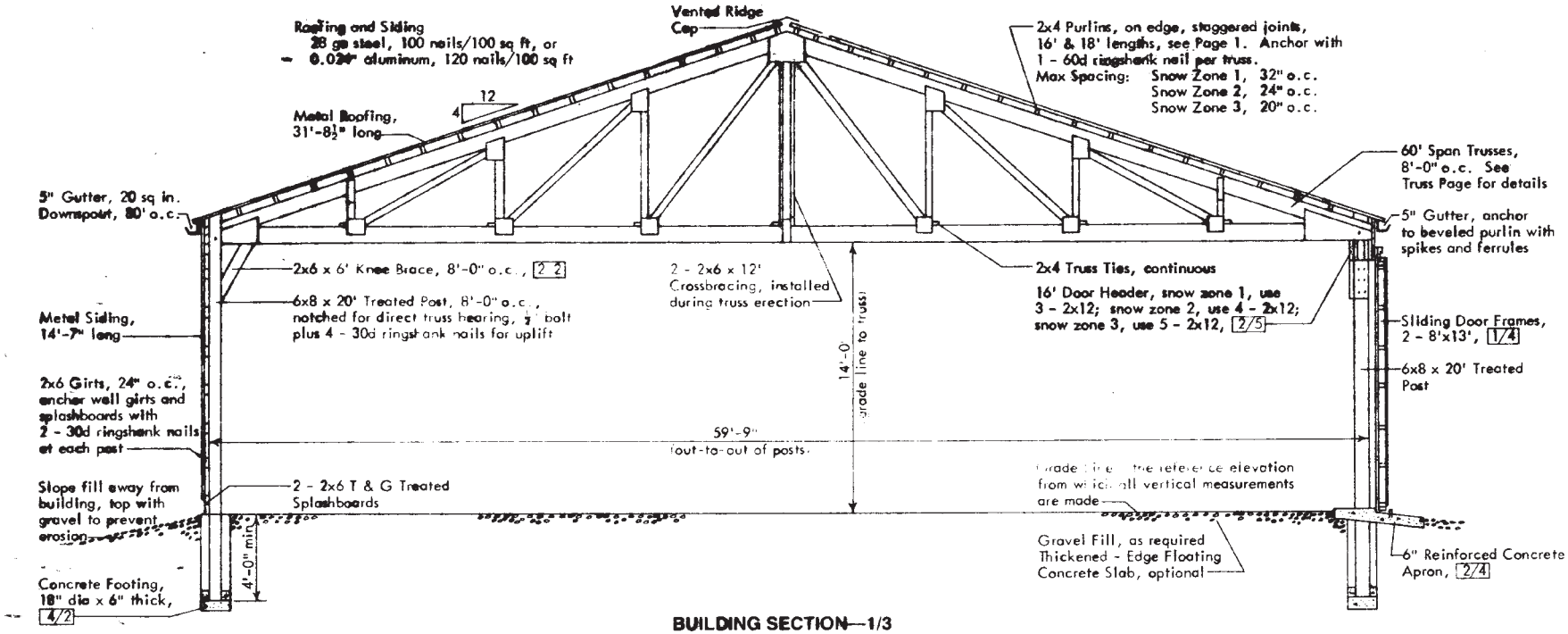
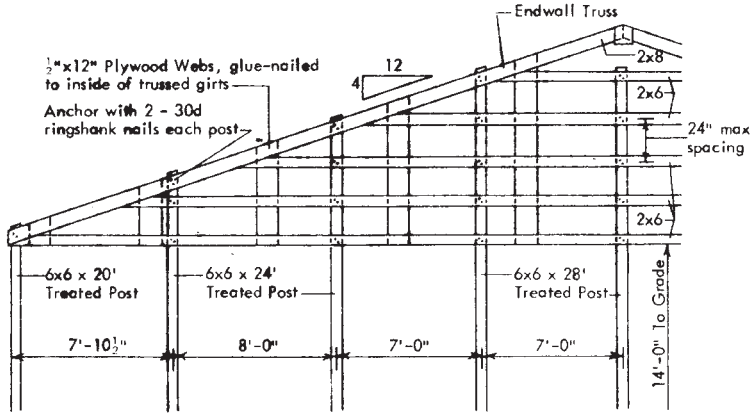
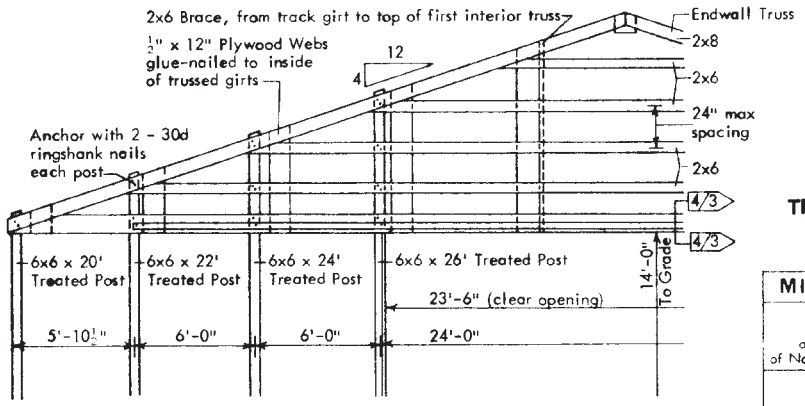


BUILDING SECTION—1/3

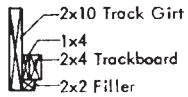
Trusses may also be constructed with 3 or 5/12 roof slopes.



SOLID ENDWALL—2/3



ENDWALL WITH 24' DOOR—3/3



TRACK GIRT SECTION—4/3

Endwall

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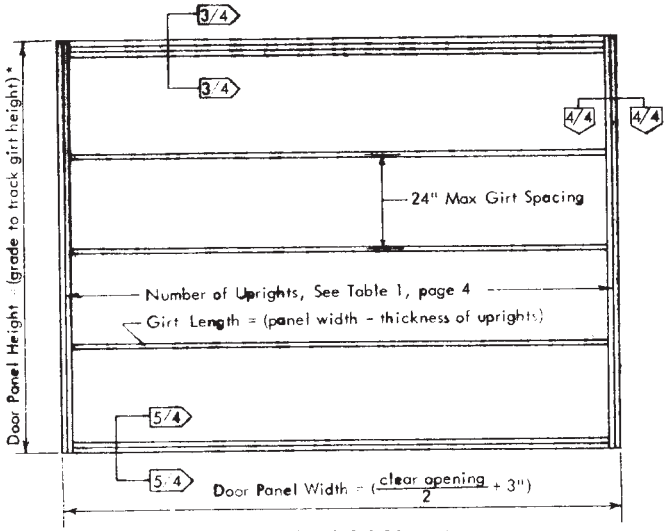


DOUBLE SLIDING DOOR—1/4

2x4 Framing

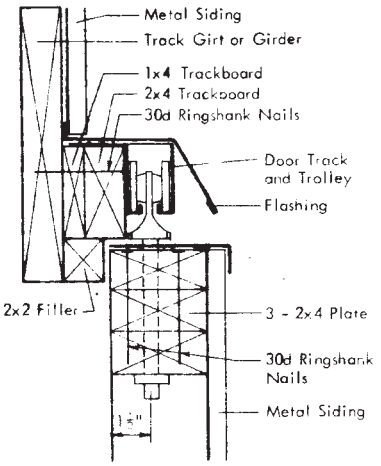
*If sliding door apron 2/4 is not installed, reduce door panel height by 2".

Use clear opening dimensions from Detail 1/5 or 2/7.

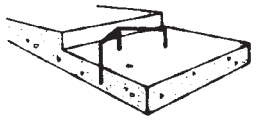
Table 1. Number of 2x4 uprights, each side of door panel.

Door Panel Height, ft	Door Panel Width, ft							
	6	7	8	9	10	11	12	13
8	1	1	1	1	1	2	2	2
9	1	1	1	2	2	2	2	2
10	1	2	2	2	2	2	2	2
11	2	2	2	2	2	2	3	3
12	2	2	2	2	3	3	3	3
13	2	2	2	2	3	3	3	4
14	2	2	2	2	3	3	3	4

Door Siding Sheet length approx. 2" shorter than upright length.

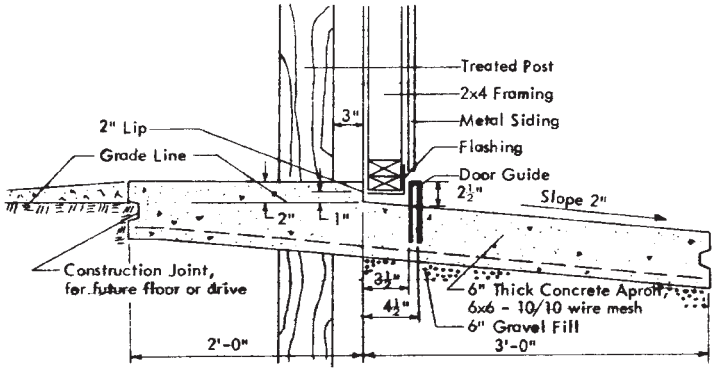


DOOR TRACK ASSEMBLY—3/4



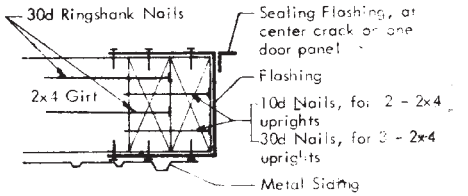
"U"-Shaped Door Guide

Locate ⅝" dia x 20" "U"-shaped door guide at center of door opening. Break at center to force closing door against apron lip. Taper from 4½" end to 3" center clearance.



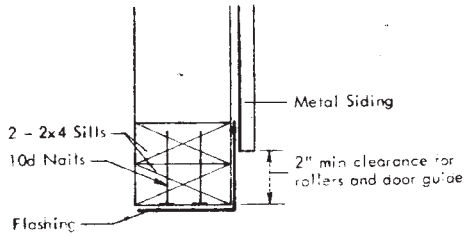
SLIDING DOOR APRON—2/4

Set adjustable roller guides in the concrete apron at door jamb. Use door stops as required.



UPRIGHT SECTION—4/4

Extend flashing around uprights and nail to girts and uprights.



SILL SECTION—5/4

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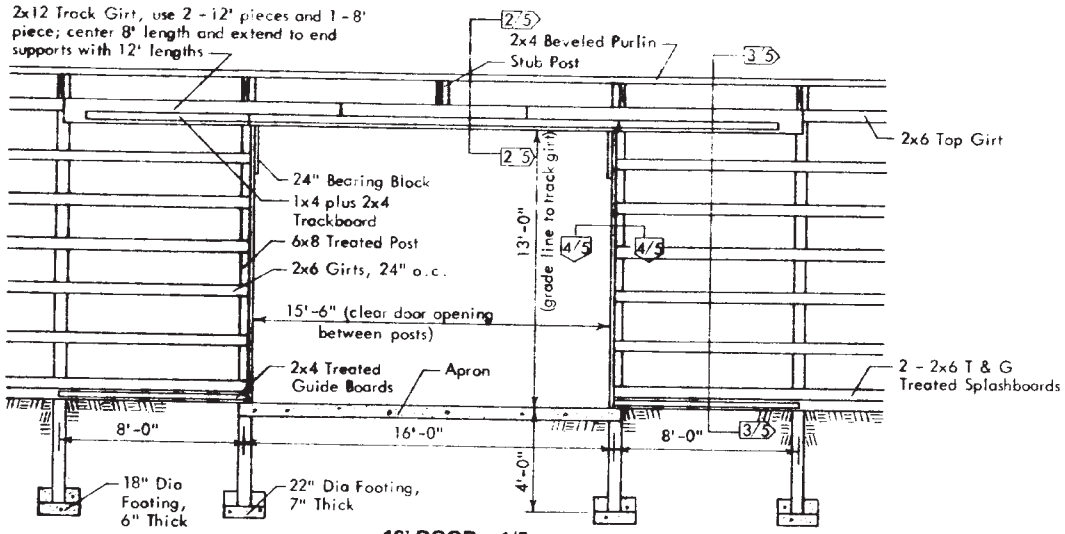
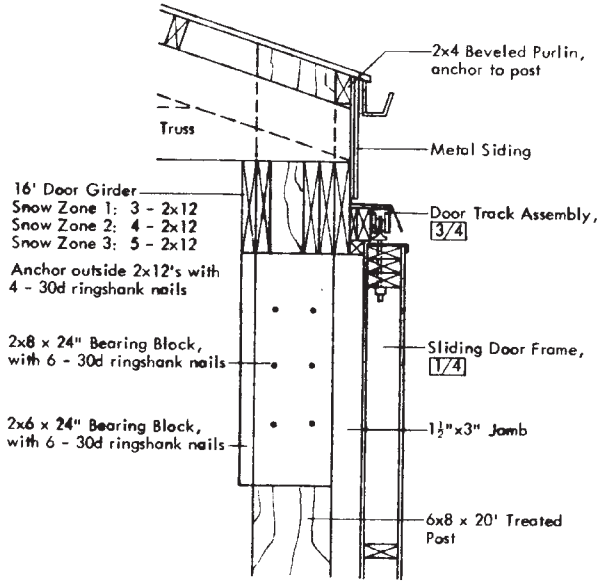
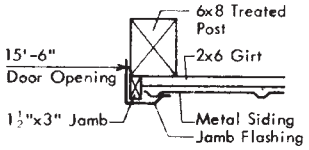


16' DOOR—1/5

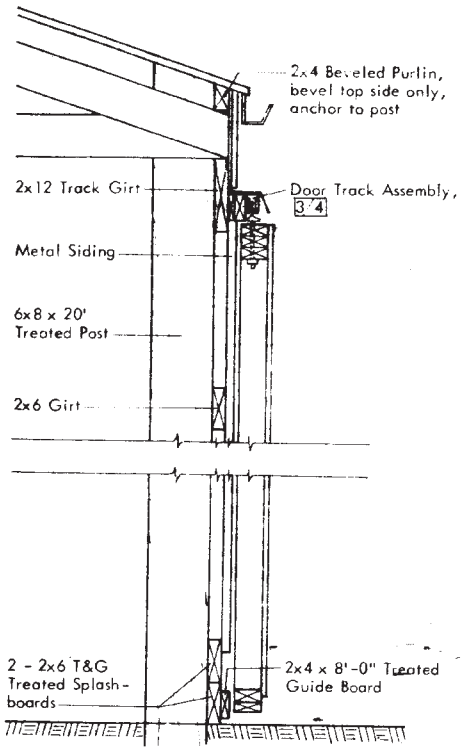
Use stub post for intermediate truss to girder connection, notch post to fit girder opening.



16' DOOR GIRDER SECTION—2/5



JAMB SECTION—4/5



16' DOOR TRACK GIRT SECTION—3/5

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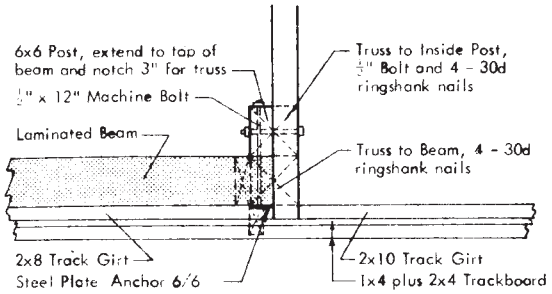
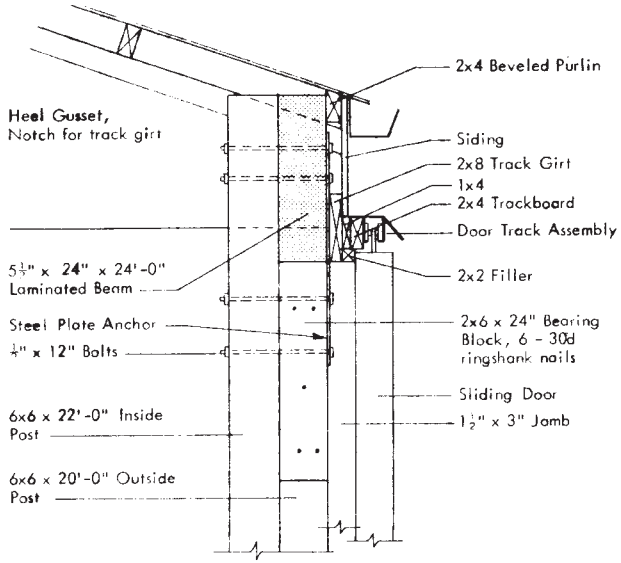
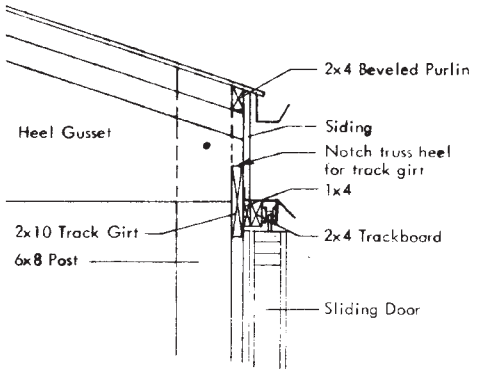


SECTION—1/6

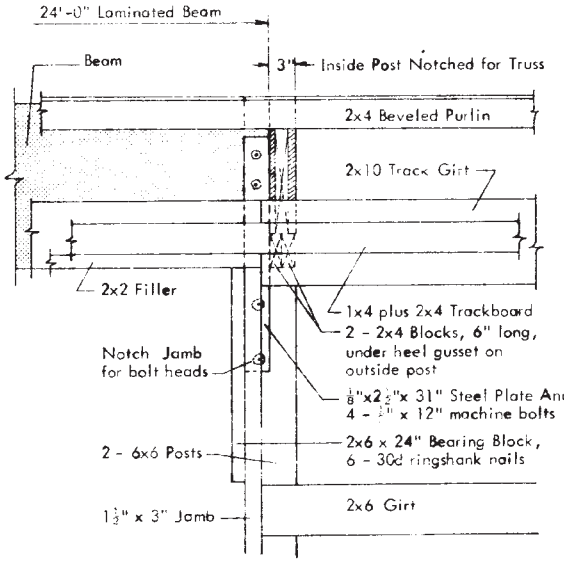
If metal shear plates are used in the truss, notch the posts 1½" and lengthen the beam to 24'-3".



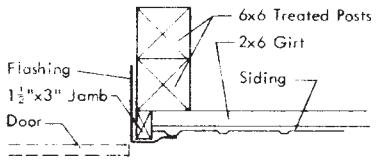
SECTION—3/6



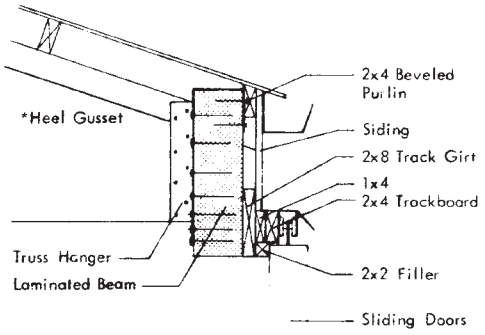
TRACK GIRT SECTION—7/6



BEAM TO COLUMN CONNECTION—2/6

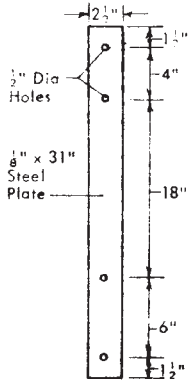


JAMB SECTION—4/6

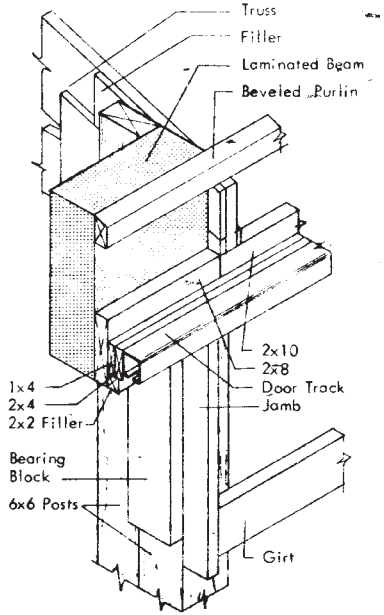


TRUSS TO BEAM—5/6

*** 40' truss with 7" cut off the heel. Extend gussets 7" to the left so they are not shortened.**



STEEL PLATE ANCHOR—6/6



JOINT ASSEMBLY—8/6

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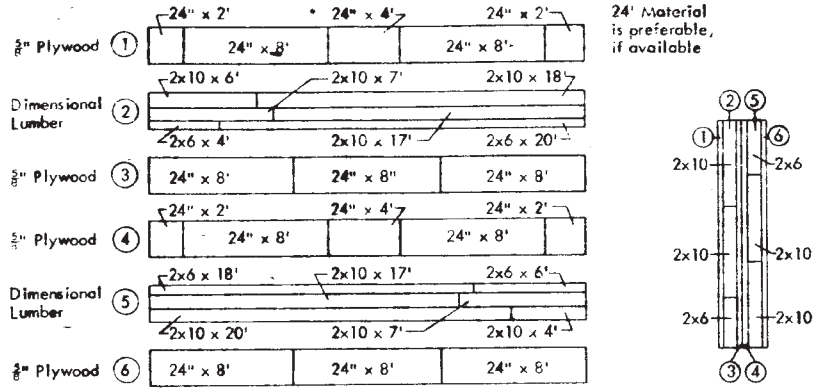
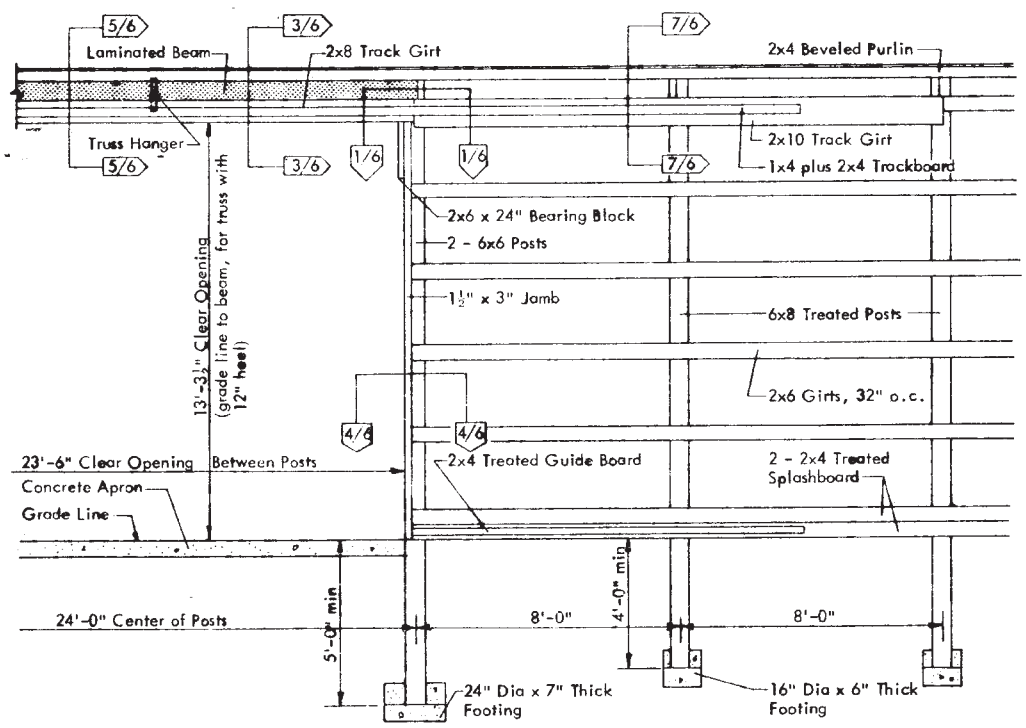


24' LAMINATED BEAM ASSEMBLY—1/7



24' DOOR FRAMING—2/7

24' BEAM— for 24' wide sidewall door

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 5/8" C-C Ext. ("Identification Index" = 42/20)

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 = 2x6 + 2x10 + 2x10 = 2x26). Spread glue on the plywood (Layer #1). Nail plywood to layer #2 with 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 for 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.

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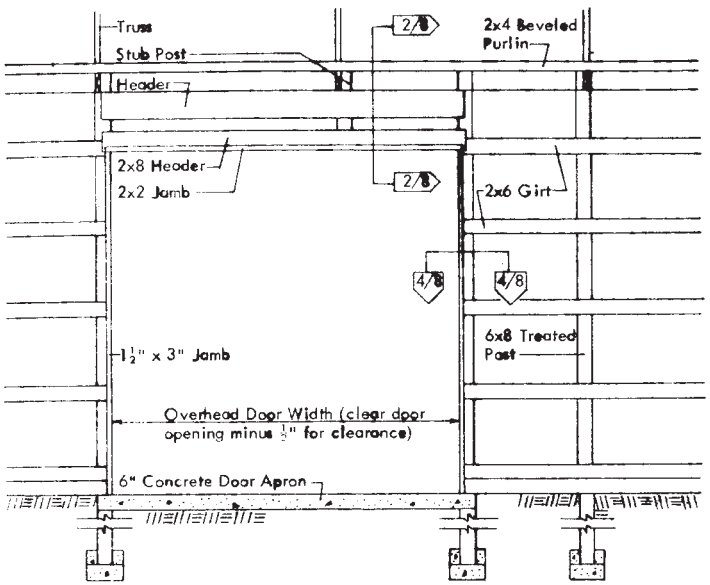
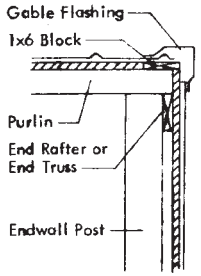
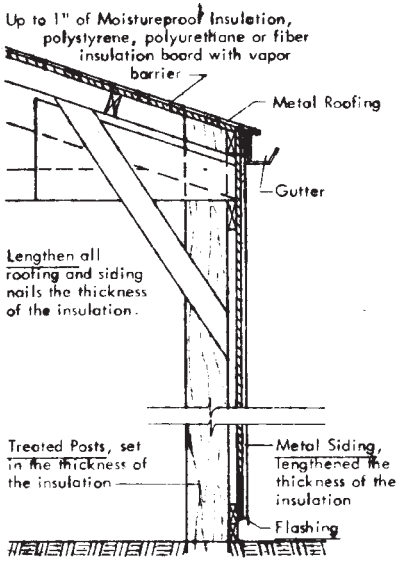


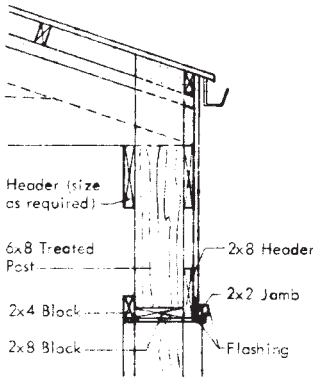
OVERHEAD DOOR FRAMING—1/8



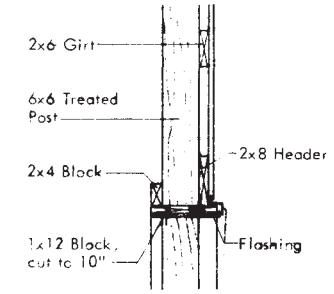
TYPICAL GABLE END SECTION—5/8



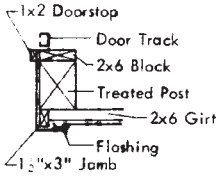
TYPICAL WALL SECTION—7/8



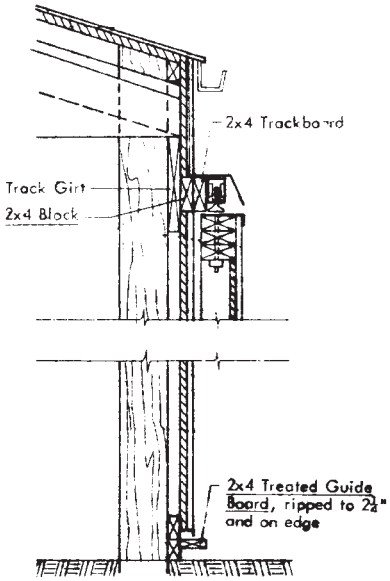
SIDEWALL HEADER SECTION—2/8
For 6x8 Post



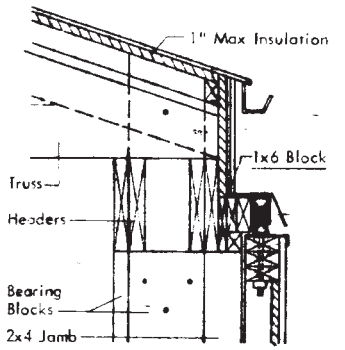
ENDWALL HEADER SECTION—3/8
For 6x6 Post



JAMB SECTION—4/8



WALL SECTION—6/8
With Side Door



16' DOOR HEADER—8/8

OVERHEAD DOOR DETAILS

INSULATION DETAILS

Underlines show materials that change when insulation is added.

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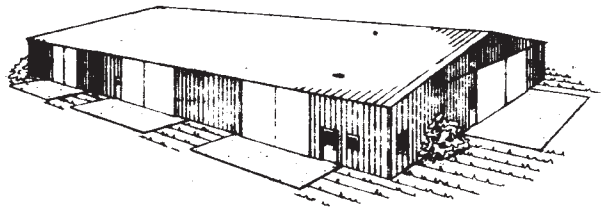
MIDWEST PLAN NO. 74163



HEATING SPECIFICATIONS

Office

Electric: baseboard or wall unit, best size is 2,000-4,000 watts.

Gas: wall unit, 10,000 Btu/hr, oversized

Service Area

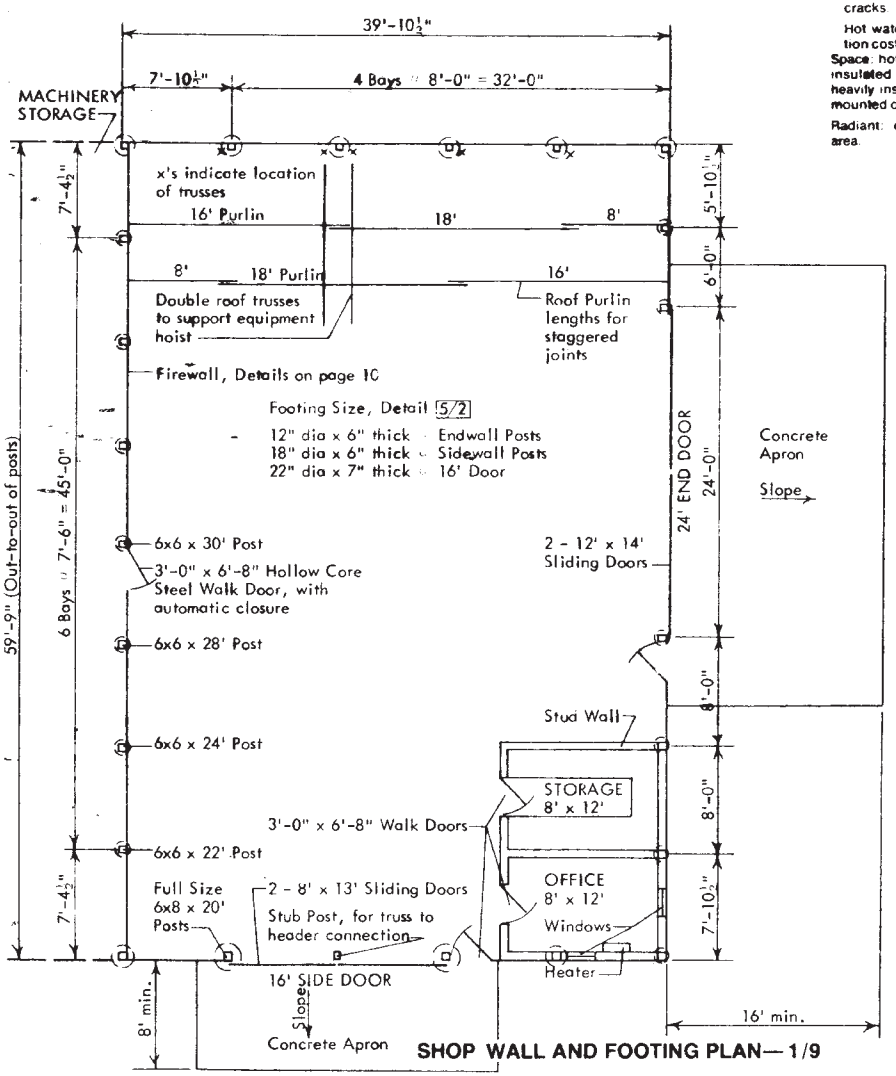
Underfloor: install 4" wide U-shaped strip around the floor drain, open end toward door, 2' away from floor drain.

Electric: 15 watts/ft², easy installation, potential failure due to floor cracks.

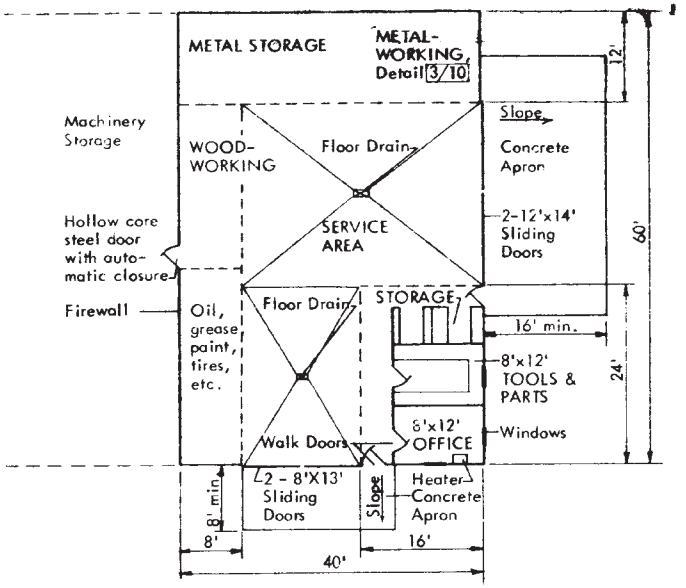
Hot water: 50 Btu/ft², high installation cost, durable.

Space: hot air, 50,000 Btu/hr in lightly insulated shop, 25,000 Btu/hr in heavily insulated shop, ceiling or wall mounted or pot belly stove

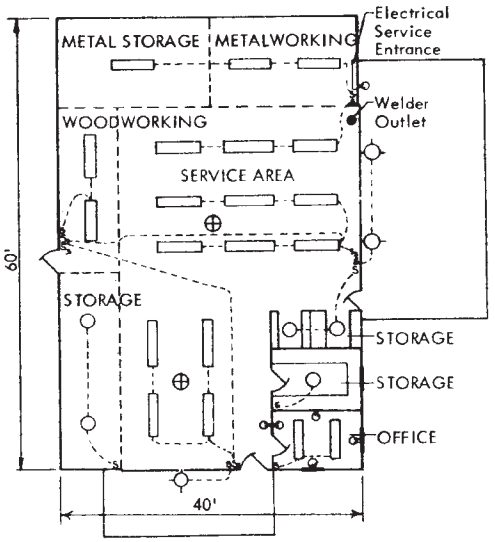
Radiant: electric or gas over work area.



SHOP WALL AND FOOTING PLAN — 1/9



SHOP FLOOR PLAN — 2/9



GENERAL LIGHTING PLAN — 3/9

KEY:

- S — Single Pole Switch
- S3 — 3-Way Switch
- ▭ — 2-40 Watt Fluorescent Light
- ○ — 100 Watt Light Bulb
- ⊕ — Retractable Trouble Light
- ⇜ — 120 Volt Outlet
- ⊹ — 150 Watt Weather Proof Flood Light
- ⇜ — 240 Volt Outlet
- WP — Weather Proof

See page 10 for general electrical specifications and this page for heating specifications.

Fluorescent lights may have difficulty starting at temperatures less than 32 F. Use 150 watt bulbs with reflectors in unheated shops.

MIDWEST PLAN SERVICE

Cooperative Extension Work in Agriculture and Home Economics and Agricultural Experiment Stations of North Central Region - USDA Cooperating

60' POLE MACHINE SHED

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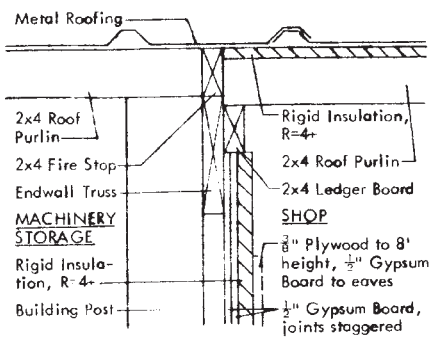
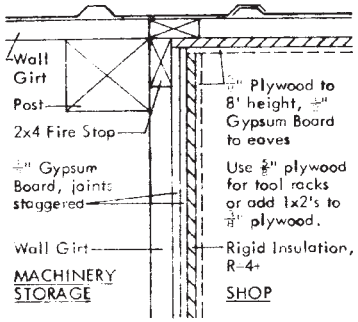
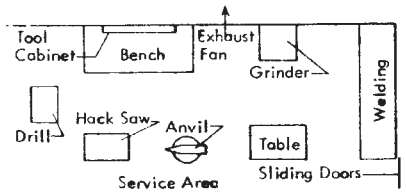
MIDWEST PLAN NO. **74147**



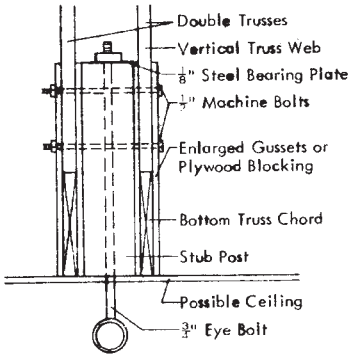
LIGHTLY INSULATED FIREWALL ROOFLINE—1/10



LIGHTLY INSULATED FIREWALL WALL LINE—2/10

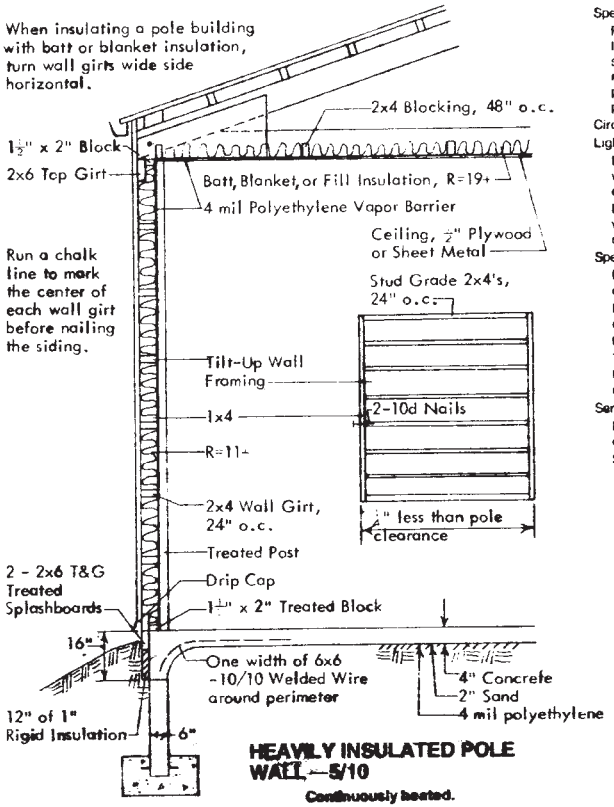


METALWORKING EQUIPMENT LAYOUT—3/10



1½ TON HOIST TO TRUSS CONNECTION

See Table 7 in MWSP-9, Designs for Glued Trusses, for enlarged gusset sizes. Locate at any bottom chord panel point.



HEAVILY INSULATED POLE WALL—5/10

Continuously heated.

FARM SHOP ELECTRICAL SPECIFICATIONS

Use general lighting as shown on plan

Special Lighting

Place two 150-watt bulbs with reflectors or one 4' flourescent fixture over each 10' of work bench, positioned 4' above the front ⅓ of bench.

Place special lighting outlets over each stationary power tool.

Convenience Outlets

Provide one 20-amp duplex outlet for every 5' of bench.

Provide a 240-volt 50-amp outlet for an electric welder located close to an outside door so large machinery can be repaired outside.

Locate an outlet on the ceiling for a retractable trouble light in the service area.

Position outlets about 4' above floor.

Install all exposed wiring on the walls in electrical metallic or PVC tubing.

Special Purpose Outlets

Provide single-phase 120-volt 20-amp outlets for small motors. If 3-phase electrical service is available, wire all permanent motor locations greater than ⅓ hp to 3 phase, unless you already have single-phase motors.

Circuits

Lighting and duplex outlets.

Provide a 120-volt 20-amp circuit of 12-ga wire for each 1500 watts of lighting, 10 duplex outlets, or motors under ⅓ hp.

Provide a 120-volt 15-amp circuit of 14-ga wire for each 1100 watts of lighting or 7 duplex outlets.

Special circuits

Provide a 240-volt 50-amp individual circuit of 6-ga wire for a welder.

Provide 240-volt circuits for heating loads over 1,000 watts and motors over ½ hp.

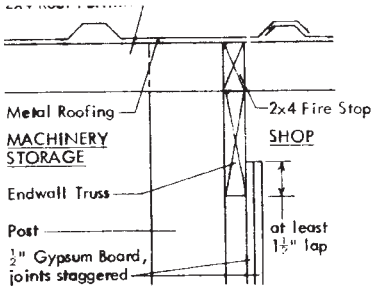
Use 8-ga wire for 40-amp circuits and 10-ga wire for 30-amp circuits.

Use wire one size larger if aluminum is used instead of copper.

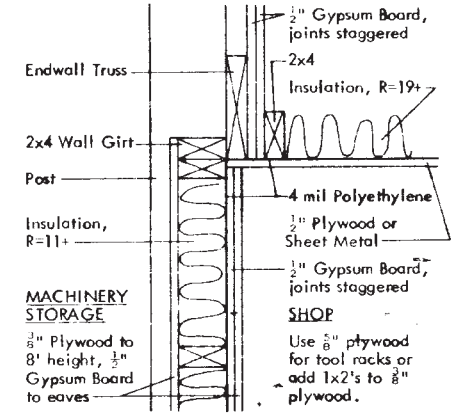
Service entrance

Locate the service entrance by the welder outlet.

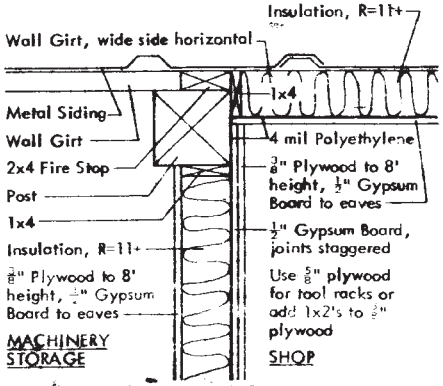
Surface mount it at face height.



HEAVILY INSULATED FIREWALL ROOFLINE—6/10



HEAVILY INSULATED FIREWALL CEILING LINE—7/10



HEAVILY INSULATED FIREWALL WALL LINE—8/10

MIDWEST PLAN SERVICE

Cooperative Extension Work in Agriculture and Home Economics and Agricultural Experiment Stations of North Central Region - USDA Cooperating

40' POLE MACHINE SHED

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