

MWPS-72359

Dairy Barn

105 Free Stalls Slotted Floor.

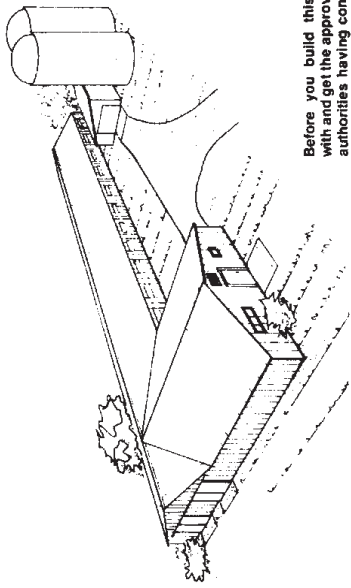
CAUTION!

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.**

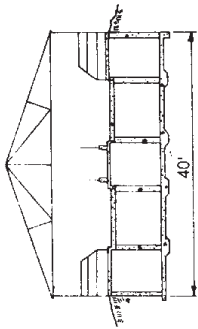
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This plan provides conceptual information only. **Neither midwest plan service nor any of the cooperating land-grant universities, or their respective agents or employees, have made, and do not hereby make, any representation, warranty or covenant 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.

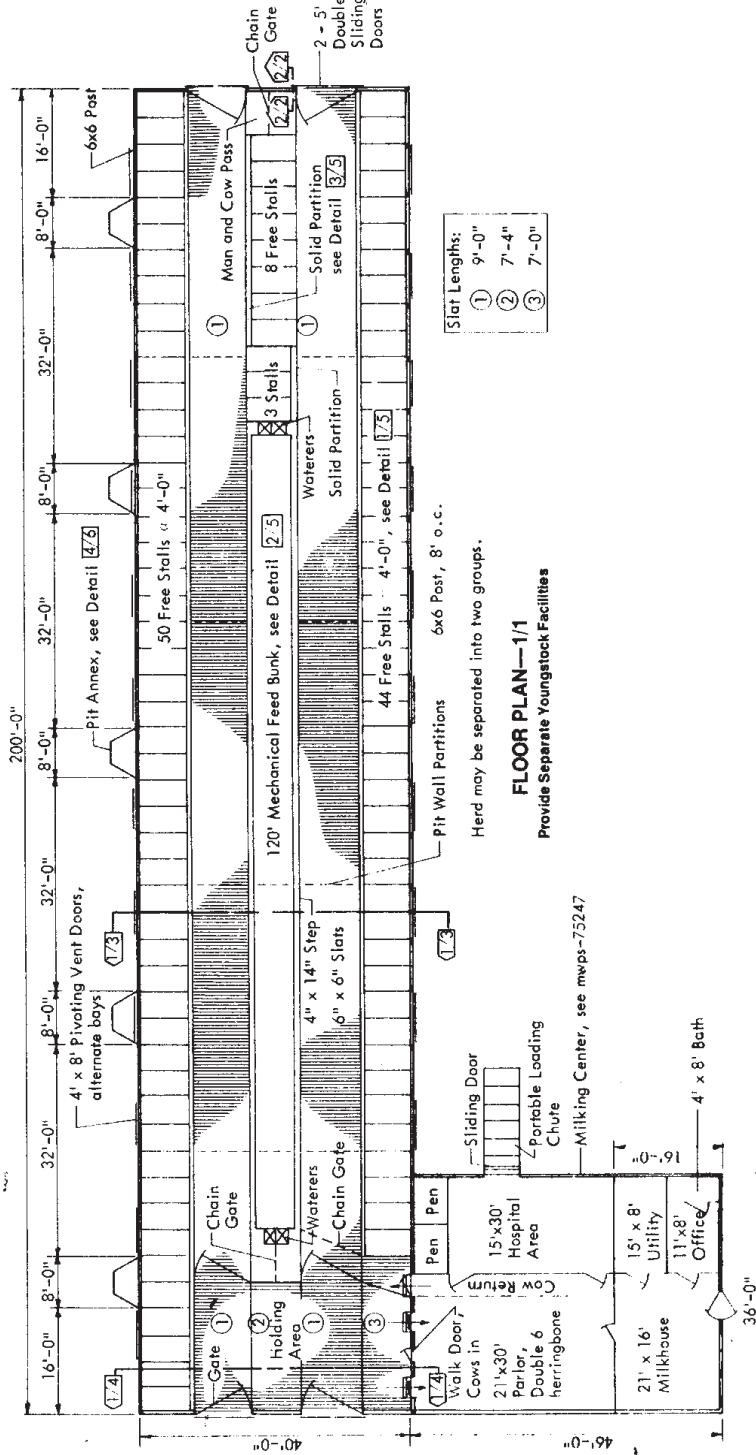
MIDWEST PLAN SERVICE
Cooperative Extension Work in Agriculture and Home Economics and Agricultural Experiment Stations of North Central Region - USDA Cooperating
Dairy Barn 105 Free Stalls, Slotted Floor
Title Page
MIDWEST PLAN NO. 72359



Before you build this barn consult with and get the approval of the health authorities having control of the sale of your milk.



The holding area is sized to hold one half of the herd.



Slat Lengths:

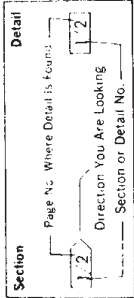
①	9'-0"
②	7'-4"
③	7'-0"

Preferred Lumber Specifications

Wall Girts
2x6 No. 2 (Doug Fir or Southern Yellow Pine)
Trusses, Headers, Top Girts
No. 1 or 1500 f machines rated (Doug Fir or Southern Yellow Pine)
Posts and Splashboards
Pressure Preservative Treated (Southern Yellow Pine or equiv.) Creosote-10 pct. Penec-30 pct. ACA or CCA (Type A or B)-30 pct retention
Plywood Roof Sheathing
Use C-C-Ext unsanded

Alternate Lumber Specifications

2x6 Girts (no 2 Hem-Fir)
Trusses (No. 1 Hem-Fir)
See Truss Page
Posts (Round vs Sawn)
6x6 = ASA or ASAE Class 7, 4.8" Top Diameter



Section & Detail Indicator

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DAIRY BARN

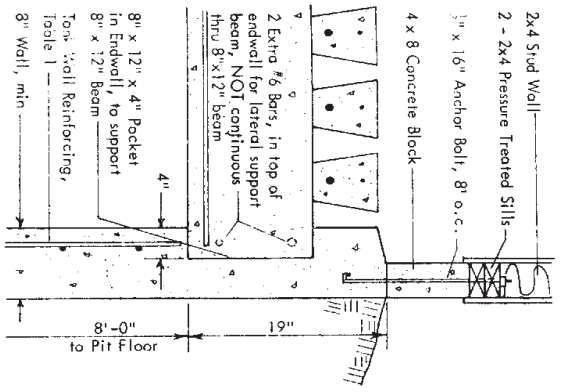
126 Free Stalls, Slotted Floor

8 Pages plus Plan No. **mwps 72359** Page **1** of **10**

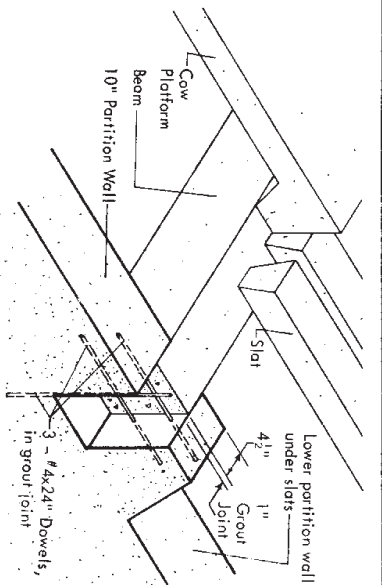
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Pages 2, 4&5 similar to pages 2, 4&7 of 72357

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WALL CONNECTION DETAIL 2/2



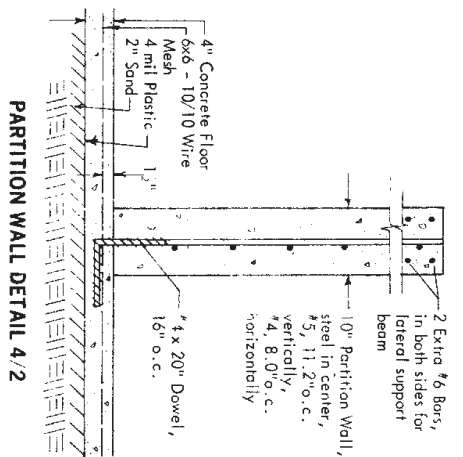
BEAM AND PARTITION WALL CONNECTION 3/2

CONCRETE compressive strength = 3500 psi

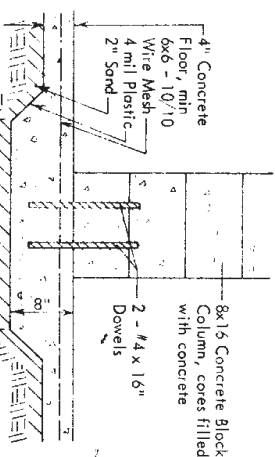
Table 1. Manure Tank Wall Reinforcing.

Grade 36 (36,000 psi) Reinforcing Bars (bar size, spacing)	Vertical Steel	Grade 60 (60,000 psi) Welded Wire Fabric (area of steel per ft. of wall)
30 psi moderately drained soil #3.9.2 #3.7.3	60 psi poorly drained soil #4.8.3	30 psi moderately drained soil #0.1156 #0.1440
8" Wall Thickness	Reinforcing Bars #4.10.0 #4.8.0	Grade 60 (60,000 psi) Welded Wire Fabric 0.1920 0.2400
10" Wall Thickness	Reinforcing Bars #4.10.0 #4.8.0	Grade 60 (60,000 psi) Welded Wire Fabric 0.1920 0.2400

* 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.



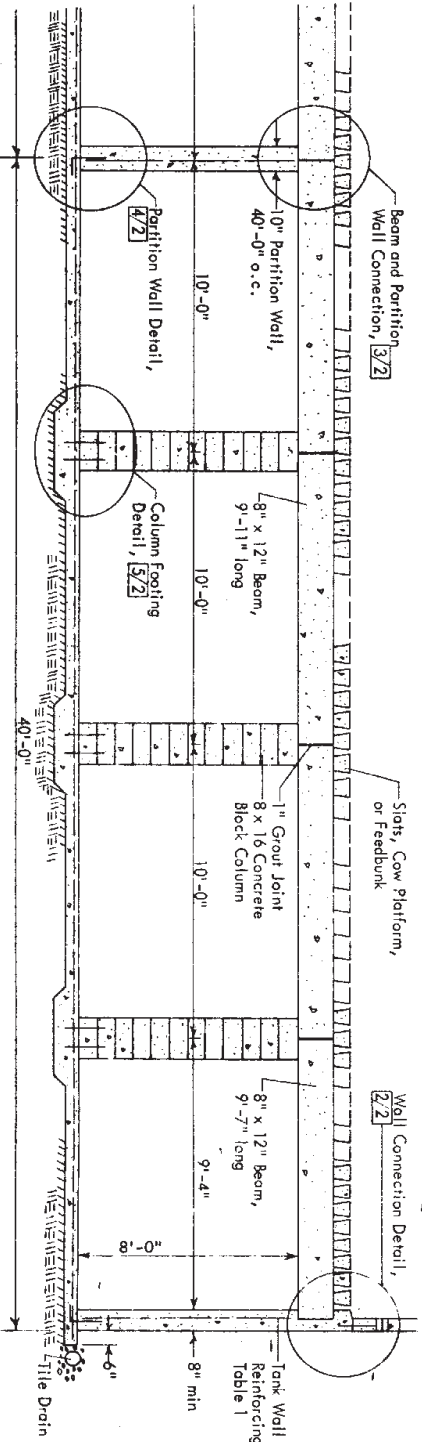
PARTITION WALL DETAIL 4/2



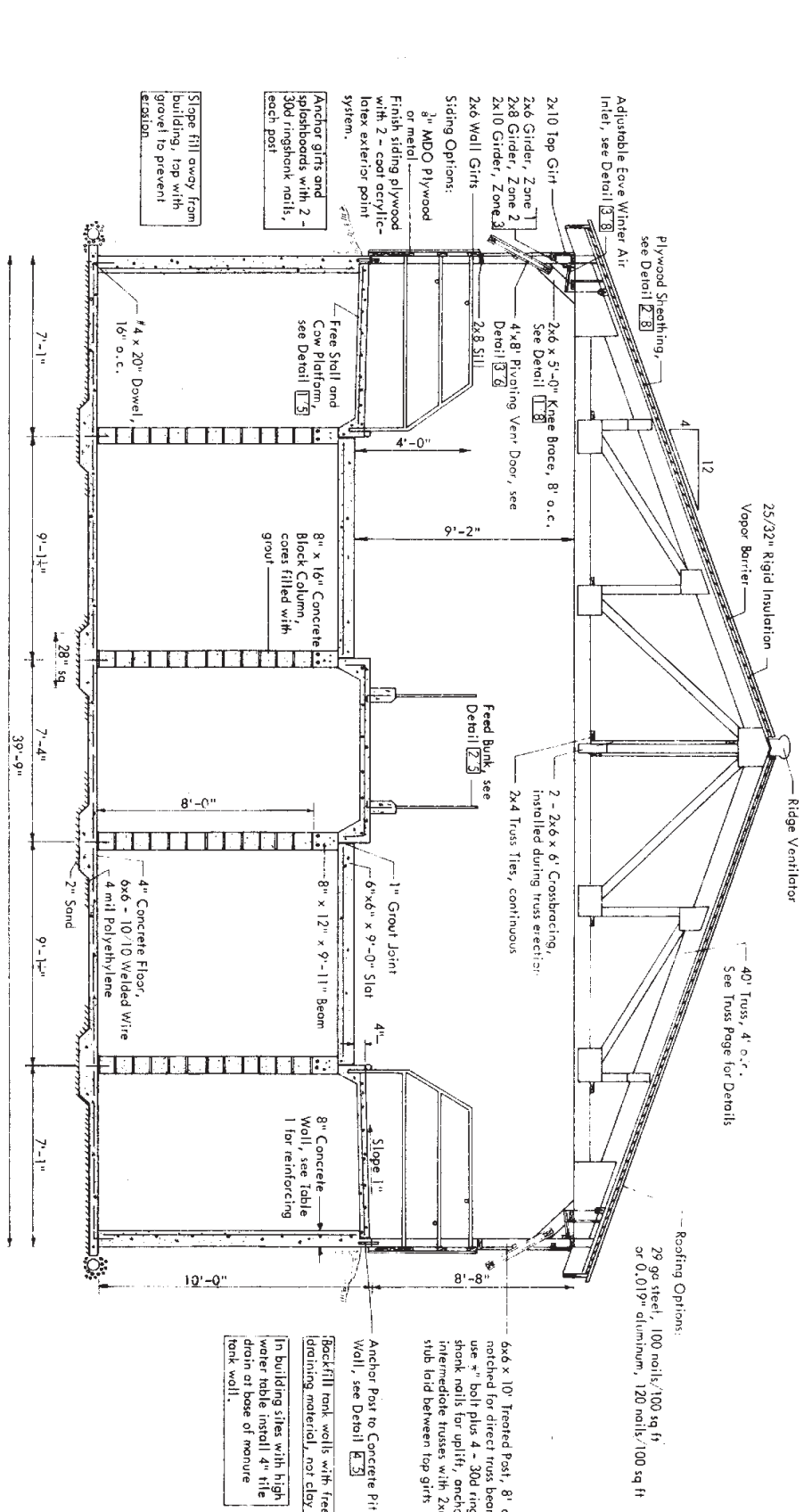
FOOTING DETAIL 5/2

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WARM DAIRY BARN
 80 Free Stalls

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 MIDWEST PLAN NO. 72367



LONGITUDINAL PIT SECTION 1/2



Slope fill away from building, top with gravel to prevent erosion

Anchor girts and splashboards with 2-30d ringshank nails, each post

3" MDO Plywood or metal Finish siding plywood with 2 - cast acrylic-latex exterior paint system.

Sliding Options:

2x6 Girder, Zone 1
2x8 Girder, Zone 2
2x10 Girder, Zone 3

2x6 x 5'-0" Knee Brace, 8' o.c. See Detail 1-8
4x8 Pivoting Verr Door, see Detail 1-9
2x8 Sill

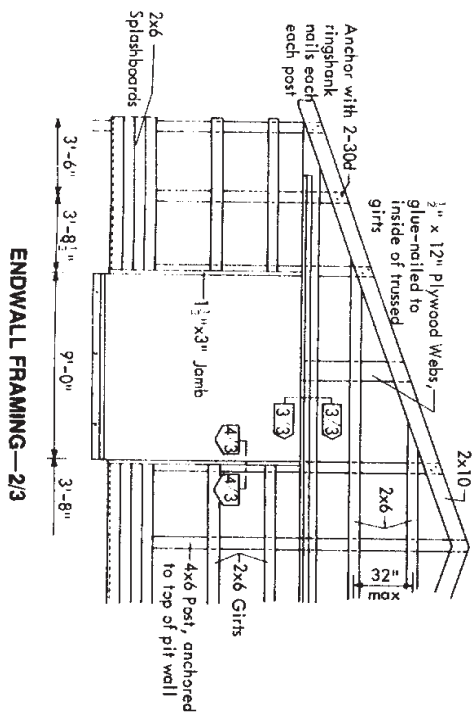
Adjustable Cove Winter Air Inlet, see Detail 1-8
Plywood Sheathing, see Detail 1-8

25/32" Rigid Insulation
Vapor Barrier
Ridge Ventilator
40' Truss, 4' o.c. See Truss Page for Details

Roofing Options:
29 ga steel, 100 nails/100 sq ft
or 0.019" aluminum, 120 nails/100 sq ft

6x6 x 10' Treated Post, 8' o.c. notched for direct truss bearing, use 5" bolt plus 4 - 30d ring-shank nails for uplift, anchor intermediate trusses with 2x6 stub laid between top girts

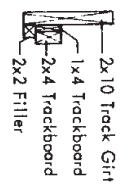
Anchor Post to Concrete Pit Wall, see Detail 1-3



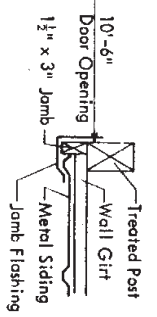
ENDWALL FRAMING—2/3

CROSS SECTION—1/3

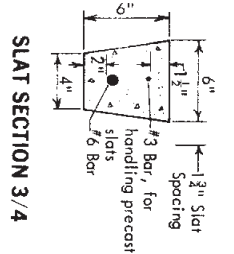
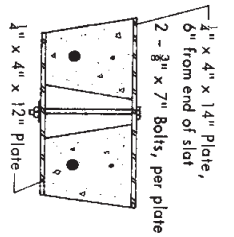
TRACK GIRT SECTION—3/3



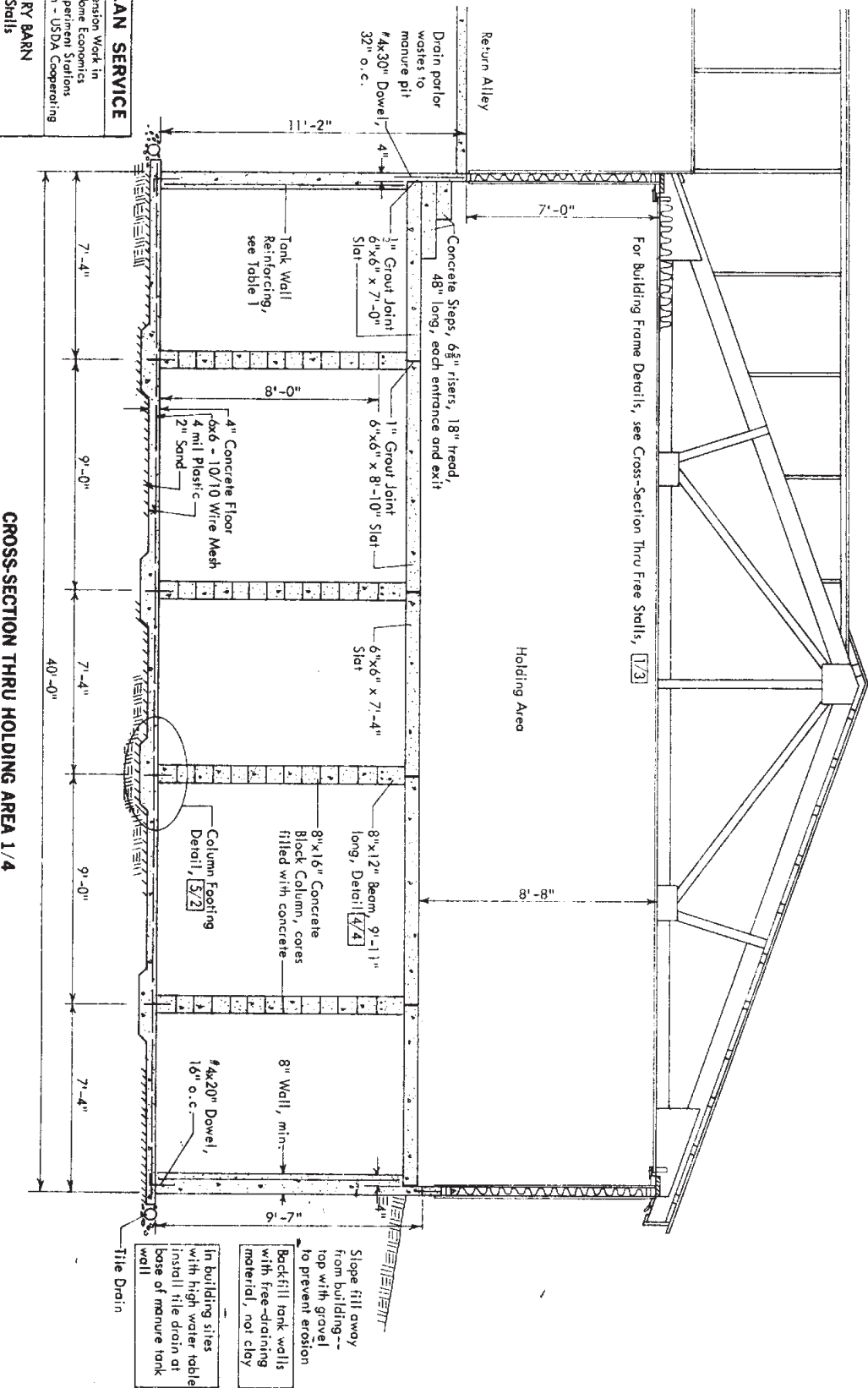
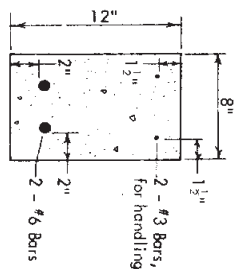
JAMB SECTION—4/3



REMOVABLE SLAT DETAIL 2/4



BEAM SECTION 4/4



CROSS-SECTION THRU HOLDING AREA 1/4

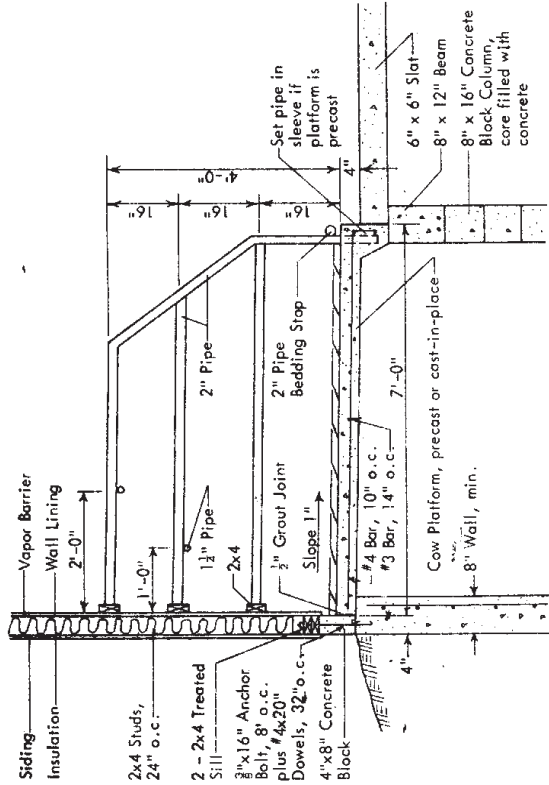
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WARM DAIRY BARN
80 Free Stalls

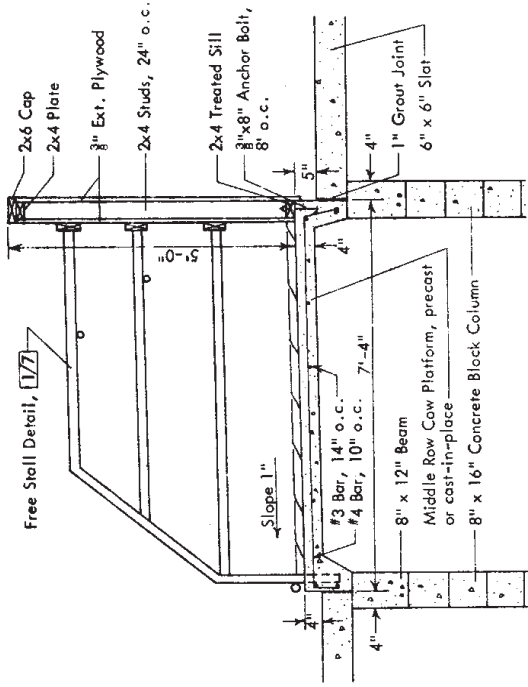
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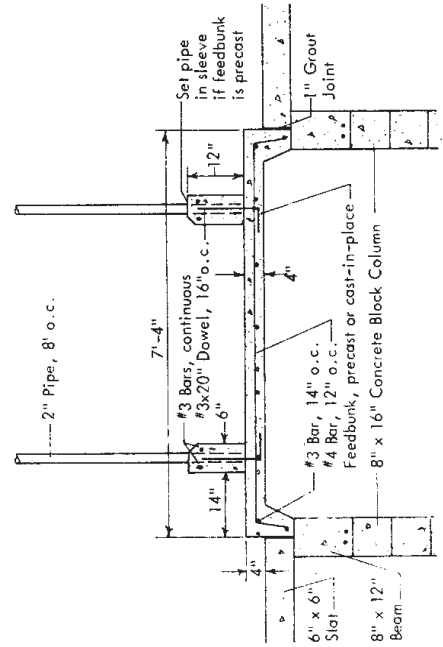


FREE STALL AND COW PLATFORM 1/7

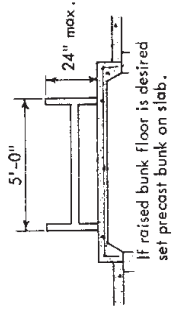
Install 1 1/2" pipe training rails if cows turn around in stalls or deposit manure at back of stall. 2 rails will force cow to move back as it gets up so its shoulders can't get caught under the rails.

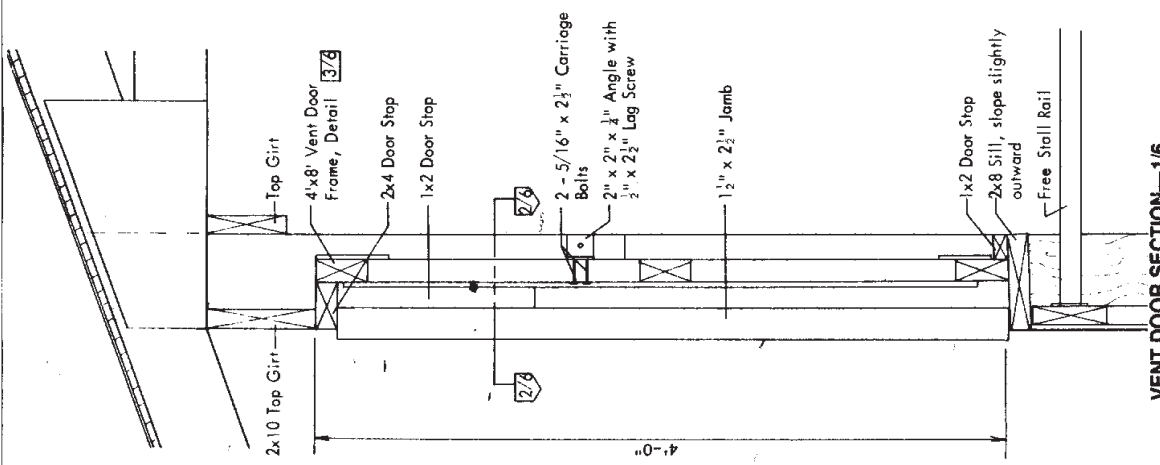


MIDDLE ROW COW PLATFORM 3/7

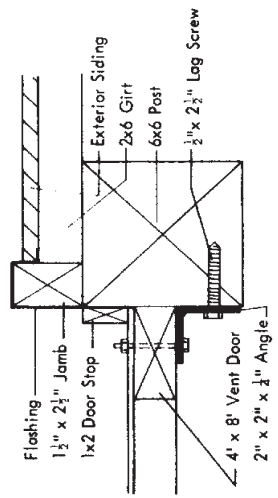


FEEDBUNK DETAIL 2/7

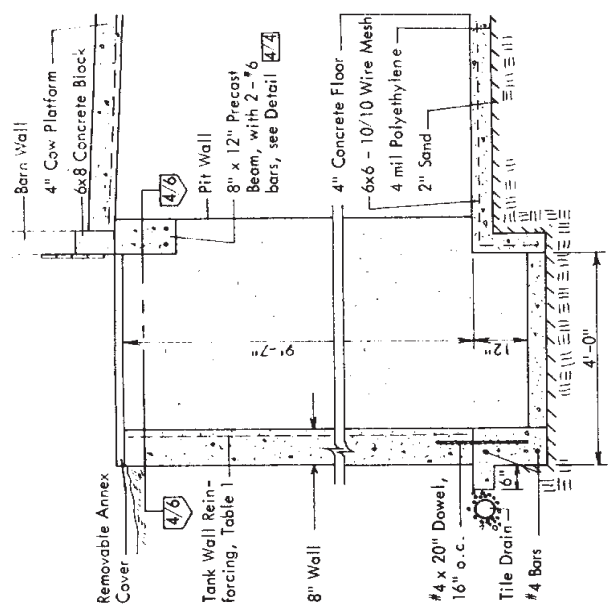




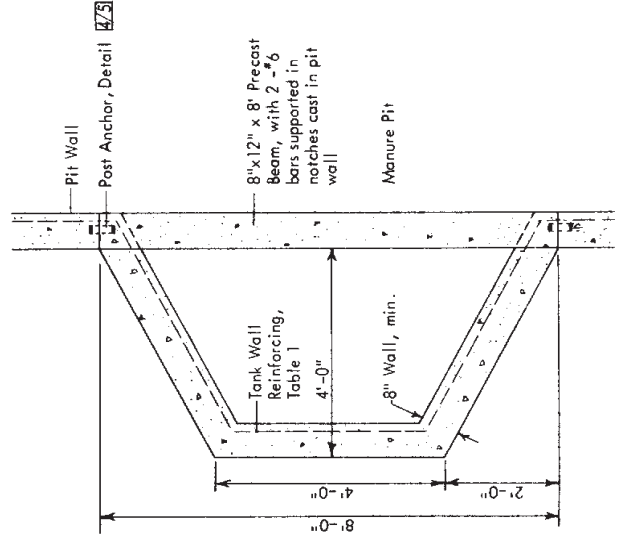
VENT DOOR SECTION—1/6



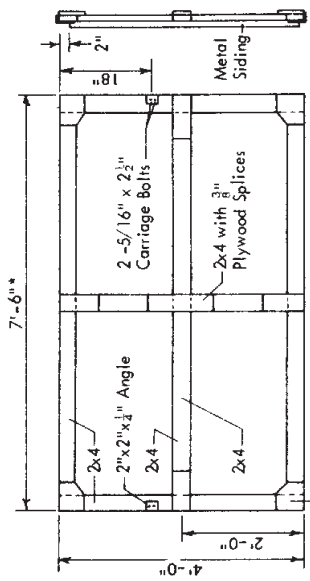
VENT DOOR JAMB SECTION—2/6



ANNEX SECTION—5/6



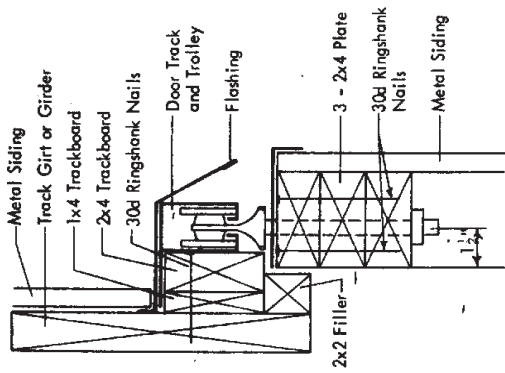
ANNEX DETAIL—4/6



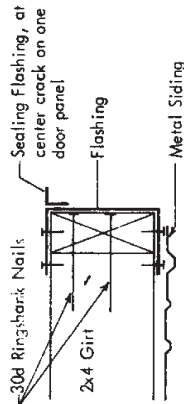
4' x 8' VENT DOOR FRAME—3/6

3/8" Exterior Plywood Gussets, nailed and glued; if 3/8" Exterior C-C Plywood is used for covering, delete the gussets
 *Alter this dimension for other than 6" wide building posts or other than 8'o.c.

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DAIRY BARN	105 Free Stalls, Slotted Floor
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40 Truss Sheet	nwps-72359
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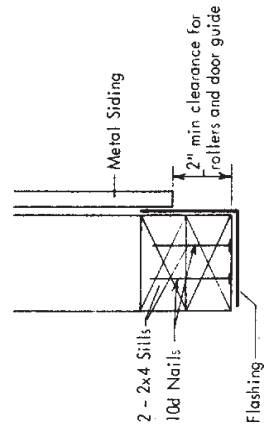


DOOR TRACK ASSEMBLY 1/5

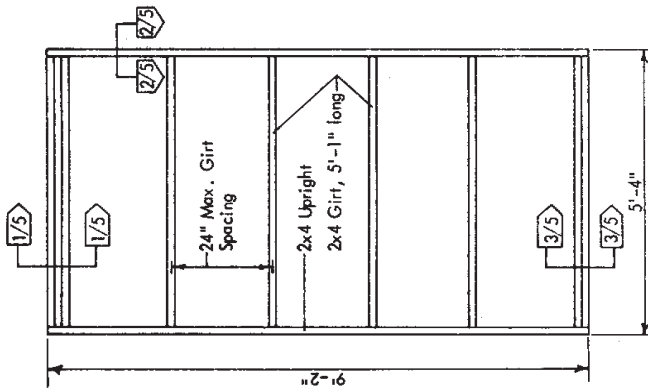


UPRIGHT SECTION 2/5

Extend flashing around uprights and nail to girts and uprights.



SILL SECTION 3/5



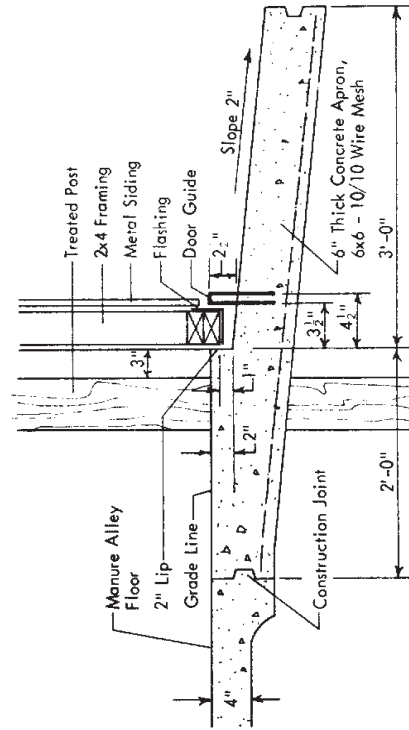
DOUBLE SLIDING DOOR 4/5

2x4 Framing



"U"-Shaped Door Guide

Locate $\frac{1}{2}$ " dia x 20" "U"-shaped door guide at center of door opening. Break at center to force closing door against apron lip. Taper from $4\frac{1}{2}$ " end to $3\frac{1}{2}$ " center clearance.



SLIDING DOOR APRON 5/5

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

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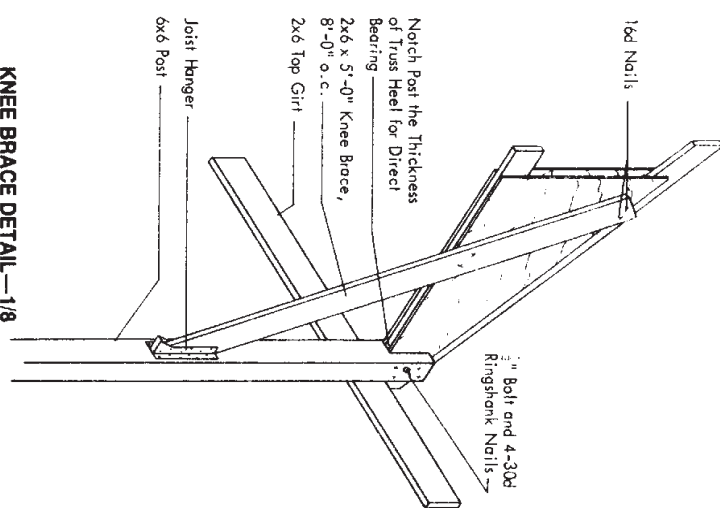
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DAIRY BARN - 62 FREE STALLS
Mechanical Waste Scraper

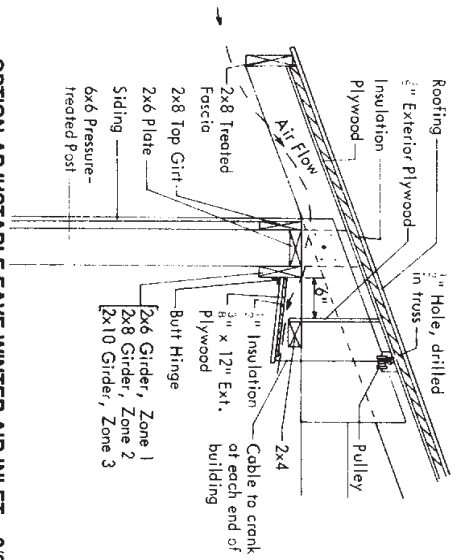
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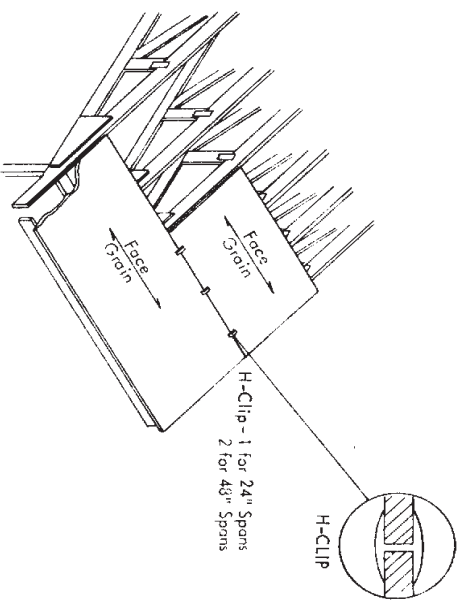
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KNEE BRACE DETAIL—1/8



OPTION-ADJUSTABLE EAVE WINTER AIR INLET—3/8



PLYWOOD OVER TRUSS—2/8

Leave 1/8" gap between panel ends and between panel edges.

Roof Sheathing (Face grain perpendicular to framing).

Total roof load, lb/sq ft	Truss Spacing	Identification Index
15 psf (South)	24"	16/0
25 psf (Central)	24"	20/0
35 psf (North)	24/0	36/16
45 psf (North, heavy)	24/0	42/20
1-OR-32/16, 1"		48/24
2-OR-42/20, 1"		

Plywood Thickness	Nail Size
1/2" or less	6d common
3/4" or 1"	8d common
1 1/4"	10d common

Space nails 6" o.c. at panel support edges