

Remodeling Retired Dairy Barns for Sheep Housing

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A spiral-bound notebook with a light beige, textured cover. The metal spiral binding is visible on the left side. The text is centered on the cover.

Design Your Facilities to Implement Your Management Plan

Design Steps

- 1. Define the sheep management plan**
- 2. Define the sheep management groups**
- 3. Determine the number of sheep in a management group**
- 4. Design the pens for sheep comfort**
- 5. Develop farmstead plan for now and the future**
- 6. Develop the pen layout into a facility design sketch**
- 7. Consider labor efficiency in design layout**
 - 1. Feeding**
 - 2. Bedding and manure removal**
 - 3. Handling and moving sheep**

Develop a Sheep Management Plan

- ☐ Define management groups and number in group
- ☐ List Needs of sheep
 - Comfort
 - Environment
 - Nutrition
 - Health Care
 - Movement between groups
 - Manure Handling
- ☐ List Needs (and wants) of the Owner
 - ☐ Convenient feeding
 - ☐ Convenient manure handling
- ☐ Determine features that meet these needs and (wants)
- ☐ Prioritize the list of features
- ☐ Flexible space design (seasonal needs)
 - ☐ Group pen housing
 - ☐ Lambing space
 - ☐ Sheep handling space
 - ☐ Shearing space

Sheep Management Groups

- **Ewes (Milking)**
- **Dry Ewes**
- **Rams**
- **New born lambs**
- **Growing lambs**
 - **Males**
 - **Females**

Consider Sheep Behavior in Design in pen and facility design

- ☐ Flocking instinct
 - ☐ Social animals
 - ☐ Like to see each other
- ☐ Fearful by nature
 - ☐ Isolation
 - ☐ Predator (you)
- ☐ Social Ranking
- ☐ Remember bad experiences
- ☐ Hard to fence

Sheep Management Plan

“Needs of the Sheep”

- ❑ Provide a safe, comfortable, & healthy environment**
 - Space to rest and walk**
 - Clean & dry resting space**
 - Fresh Air (Ventilation)**
 - Draft free (Ventilation)**
 - Adequate feed and water**
 - Exercise (Activity)**
 - Manage temperature extremes**
 - 50-60 °F Adults, 0-55 °F no production affects**
 - 54-65 °F Kids**

Sheep Bedded Resting Space

Housing Type	Ewes (150-200 lb)	Ewes with Lambs (150-200 lb)	Rams (180-300 lb)	Young Lambs	Feeder Lambs (30-110 lb)
Bedded pen	12-16 s.f.	15-20 s.f. (1.5 -2.0 s.f. creep)	20-30 s.f.	2 s.f.	8-10 s.f
Dirt Lot	25-40 s.f.	30-50 s.f.	25-40 s.f.	NR	20-30 s.f.
Paved Lot	16 s.f.	20 s.f.	16 s.f.	NR	10 s.f.
Total Confinement	20-25 s.f.		NR	8-10 s.f.	8-10 s.f.
Individual Pen	6' x 6'	6' x 6'	6' x 6'	4' x 4'	4' x 4'
Pasture	0.5 acre		MWPS Sheep Handbook 1994		

Sheep Management Plan

“Needs of the Owner”

- ☐ **Safe & Labor efficient**
 - Observation, feeding, cleaning, handling & treatment
- ☐ **Effectively utilize a farm’s resources**
 - Land
 - Capital
 - Labor
- ☐ **Environmentally friendly**

Farmstead Layout



Group Pen with outside yard



Well bedded with outside yard

- ✓ 6 inches bedding
- ✓ Well drained yard

Well fenced

- ✓ 4'-5' high penning and gates
- ✓ 6' high for rams
- ✓ Keep sheep in
- ✓ Keep predators out

Open Front Shelter with Outside Lots



Large Group Pen



Small Group Pen



Small Group Pen



Lambing Pens



Individual Pen

- Individual pen 6' x 6' = 36 s.f.
 - Hay feeder
 - Grain box
 - Water
- Lambing pen
 - 5' x 5' (1 pen per 10 ewes)
- Adjacent Feeding Alley
- 6 inches bedding
- 4'-6' high penning and gates

Remodeled Dairy Barn Design Considerations

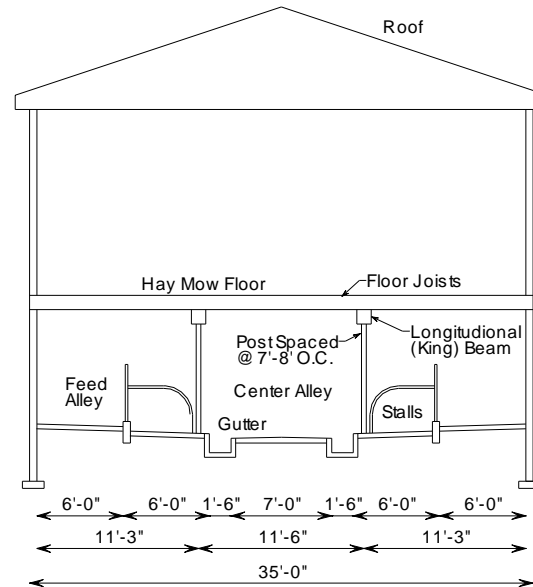
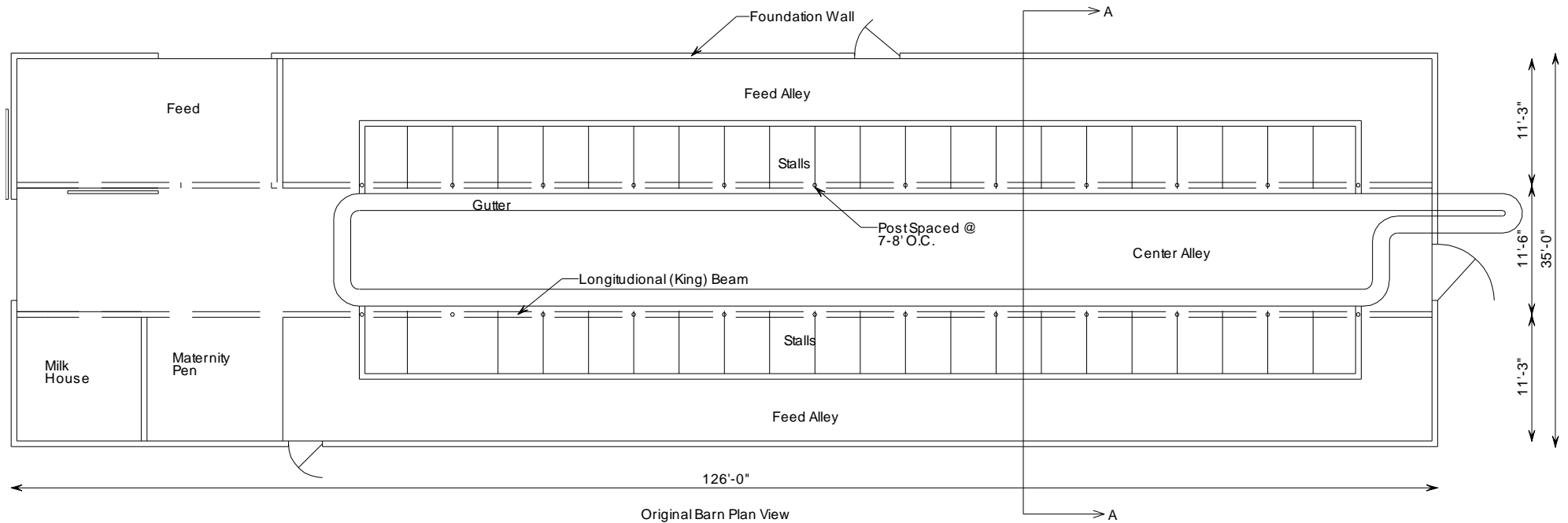
- ✓ Use milk house for warm space
- ✓ Remove gutter cleaner
- ✓ Fill in gutter
- ✓ Protect water lines from freezing
- ✓ Consider access for feeding equipment
- ✓ Consider access for manure removal equipment
- ✓ Minimal structural changes
- ✓ Work around columns
- ✓ Minimal new concrete work
- ✓ Ventilation design
- ✓ Parlor space close to milk house

Remodeled Facilities

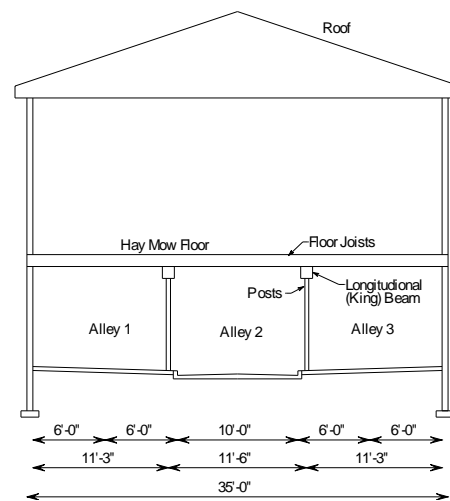
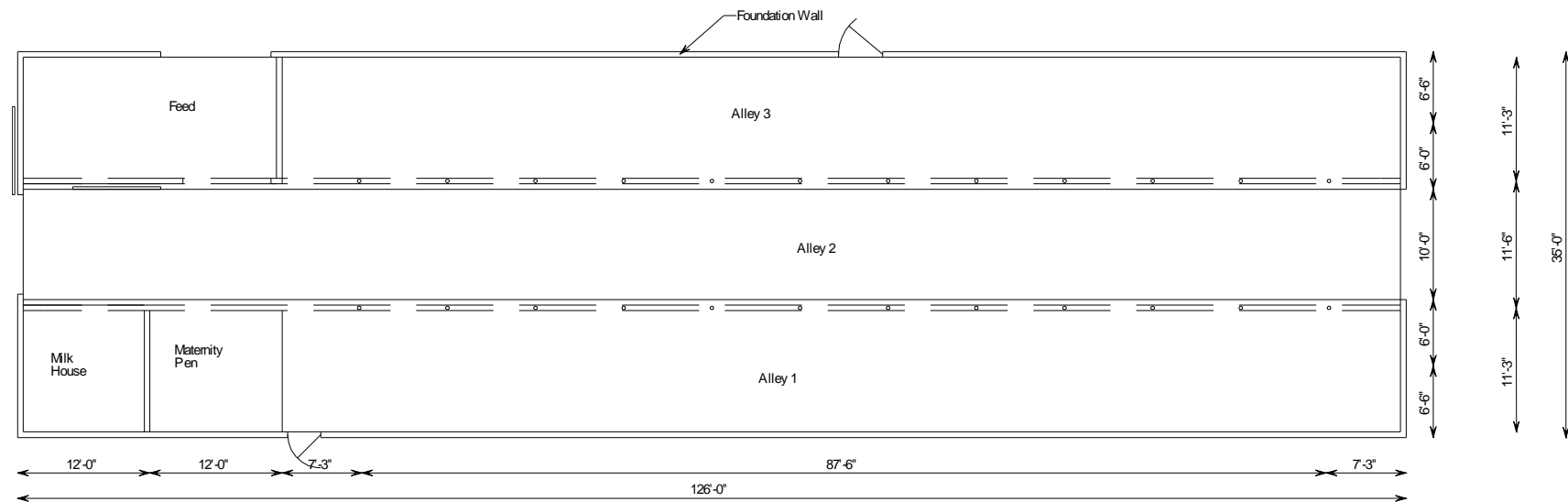
- ✓ Two Story Dairy Barn
- ✓ Heifer Barn
- ✓ Machine Shed
- ✓ Horse Barn
- ✓ Car Ports
- ✓ Hoop Barn
- ✓ Greenhouse Frames
- ✓ New Post Frame Barn

Two Story Barn



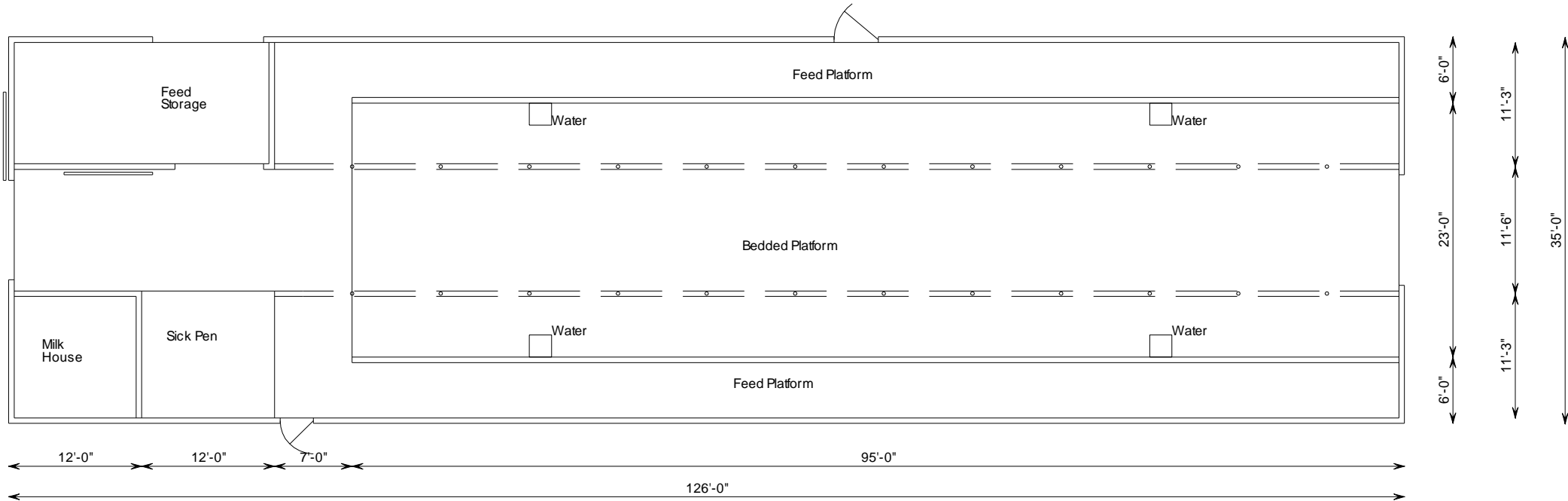


Existing Stall Barn



Stall Barn Alleys

Tie Stall Remodel to Sheep Housing



Bedded Platform
 23' x 95' = 2185 s.f.
 100 head @ 20 s.f./head bedded space
 22"/head feed space
 200 head @ 10 s.f./head bedded space
 11"/head feed space

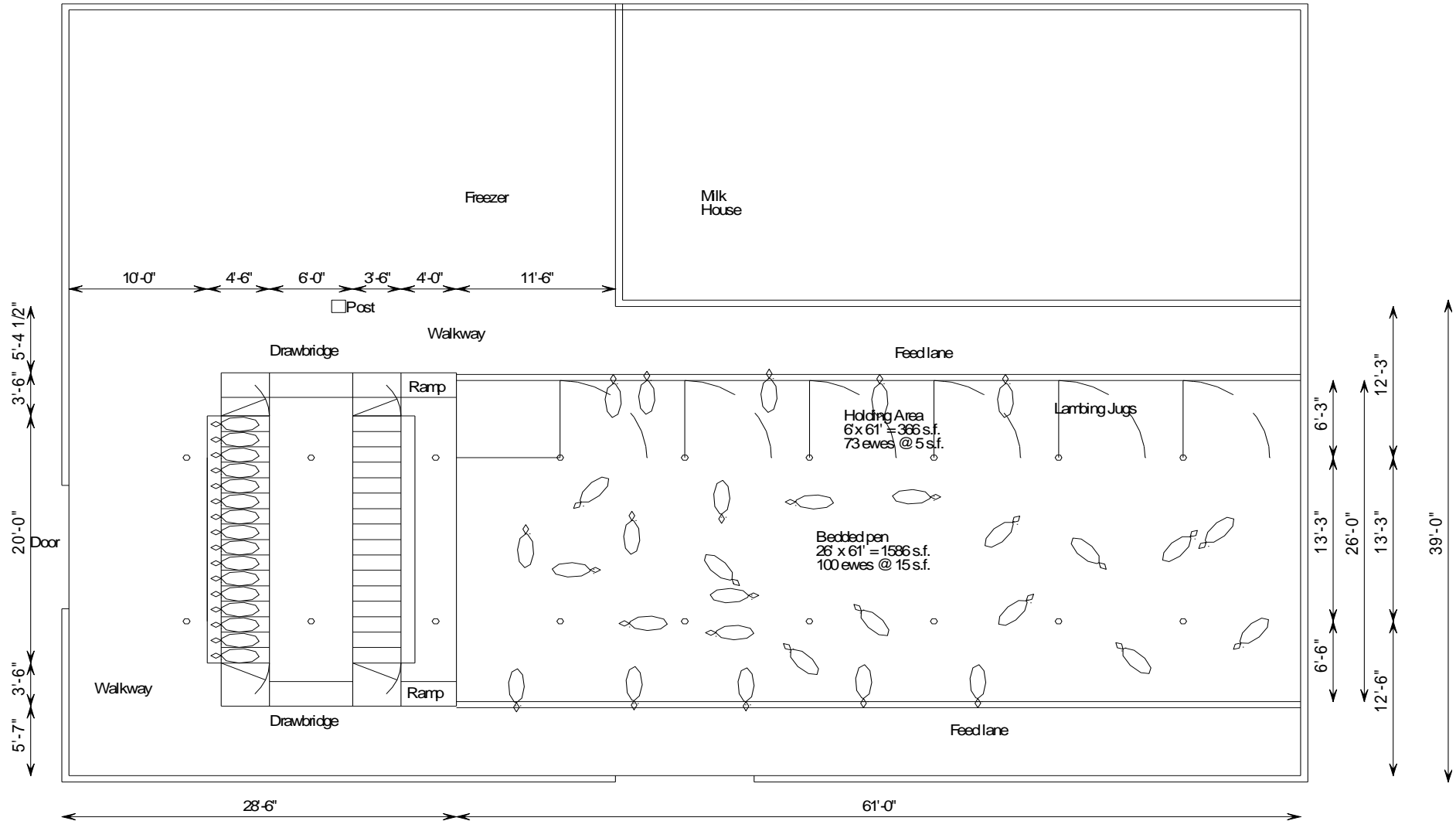
Tie Stall Remodel to Sheep Housing



Tie Stall Remodel to Sheep Housing



Tie Stall Barn Remodel Sheep Housing and Milking



Bedded Resting Space



Silage Feeding Equipment



Feed Space



Feed Space



Feed Space

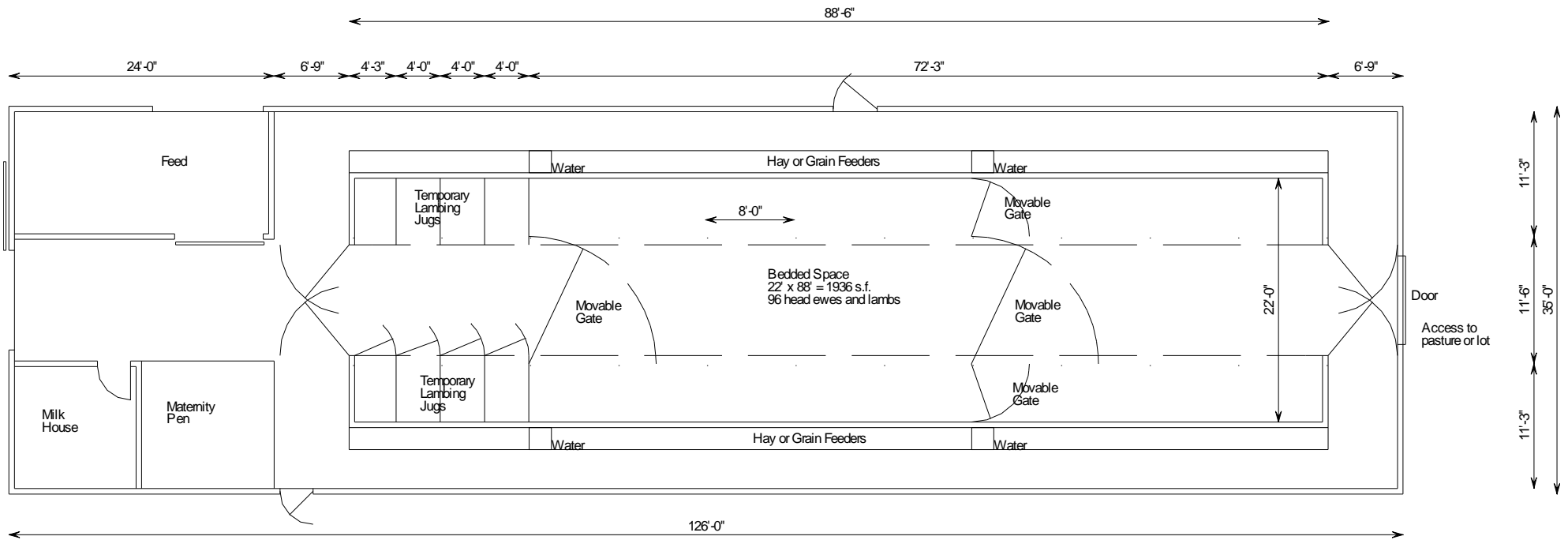


Milking Parlor

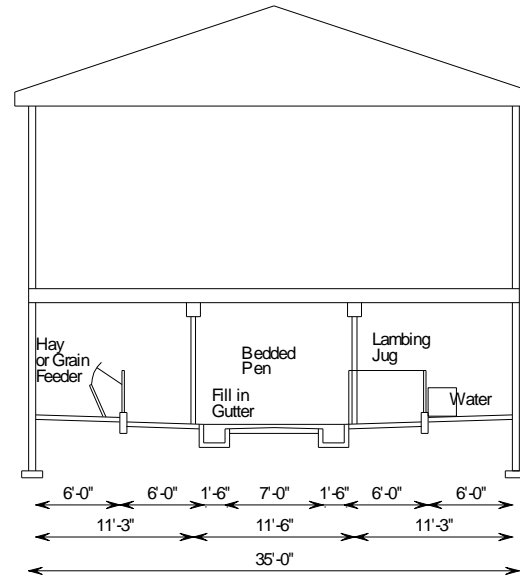


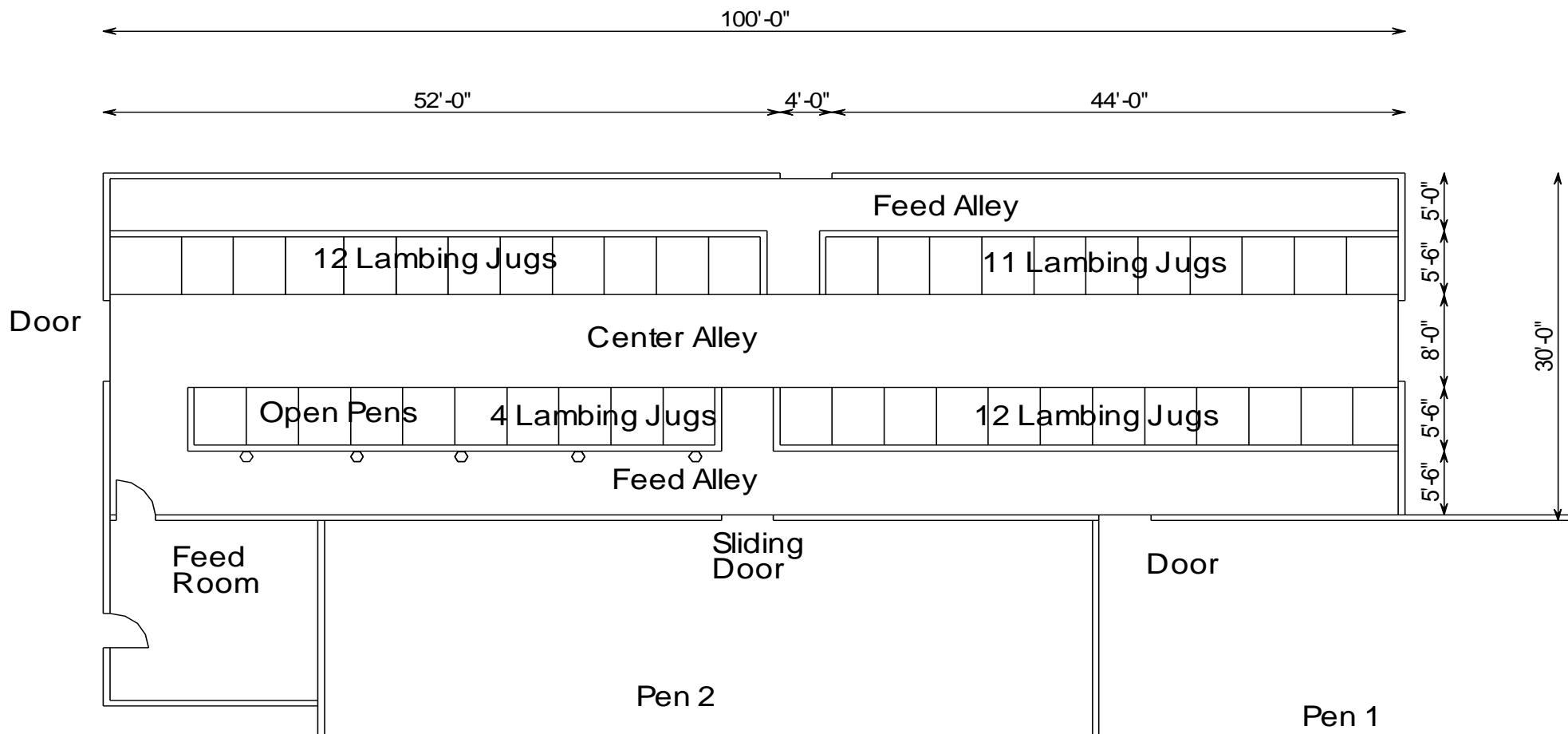
Milking Parlor





Tie Stall Remodel Lambing







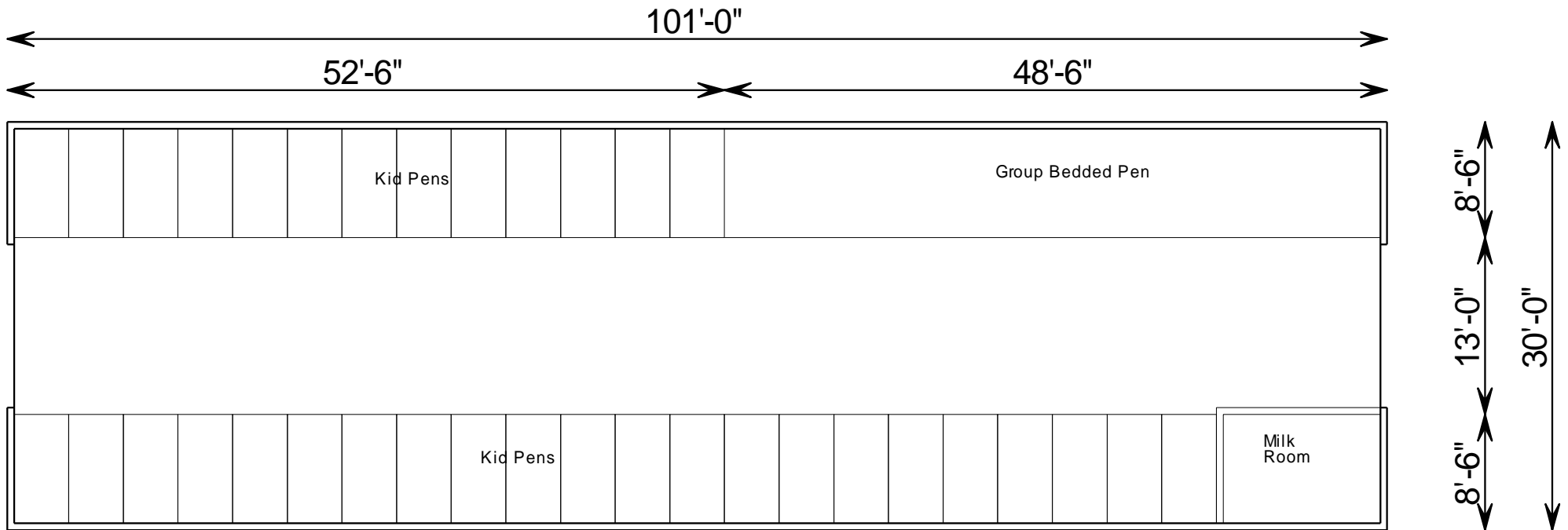




Gate Hinges for 4" diameter posts



Remodeled Calf Barn for Lambs









32

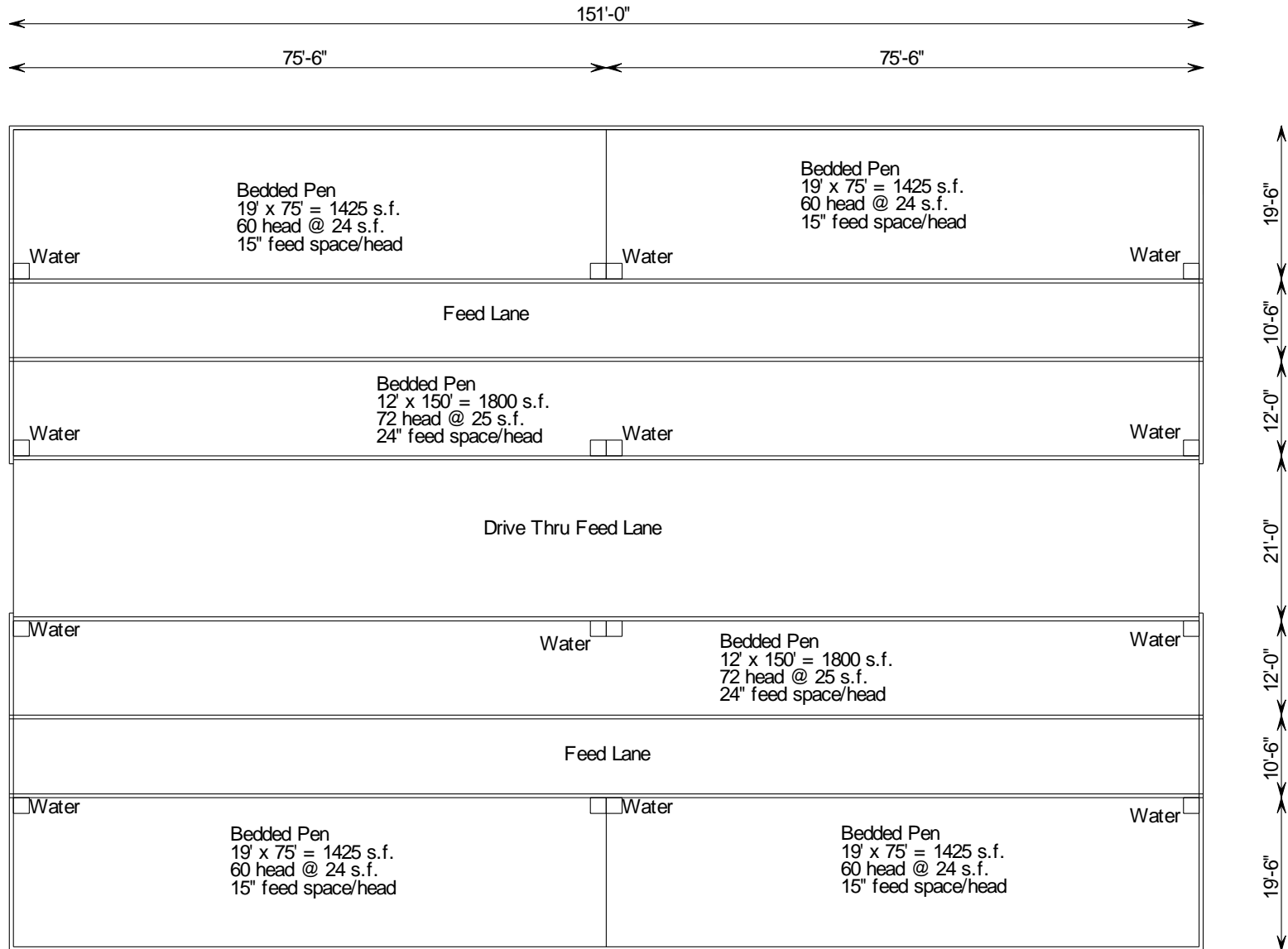
33

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Remodeled Freestall Barn for Dairy Goats



Silage Feeder



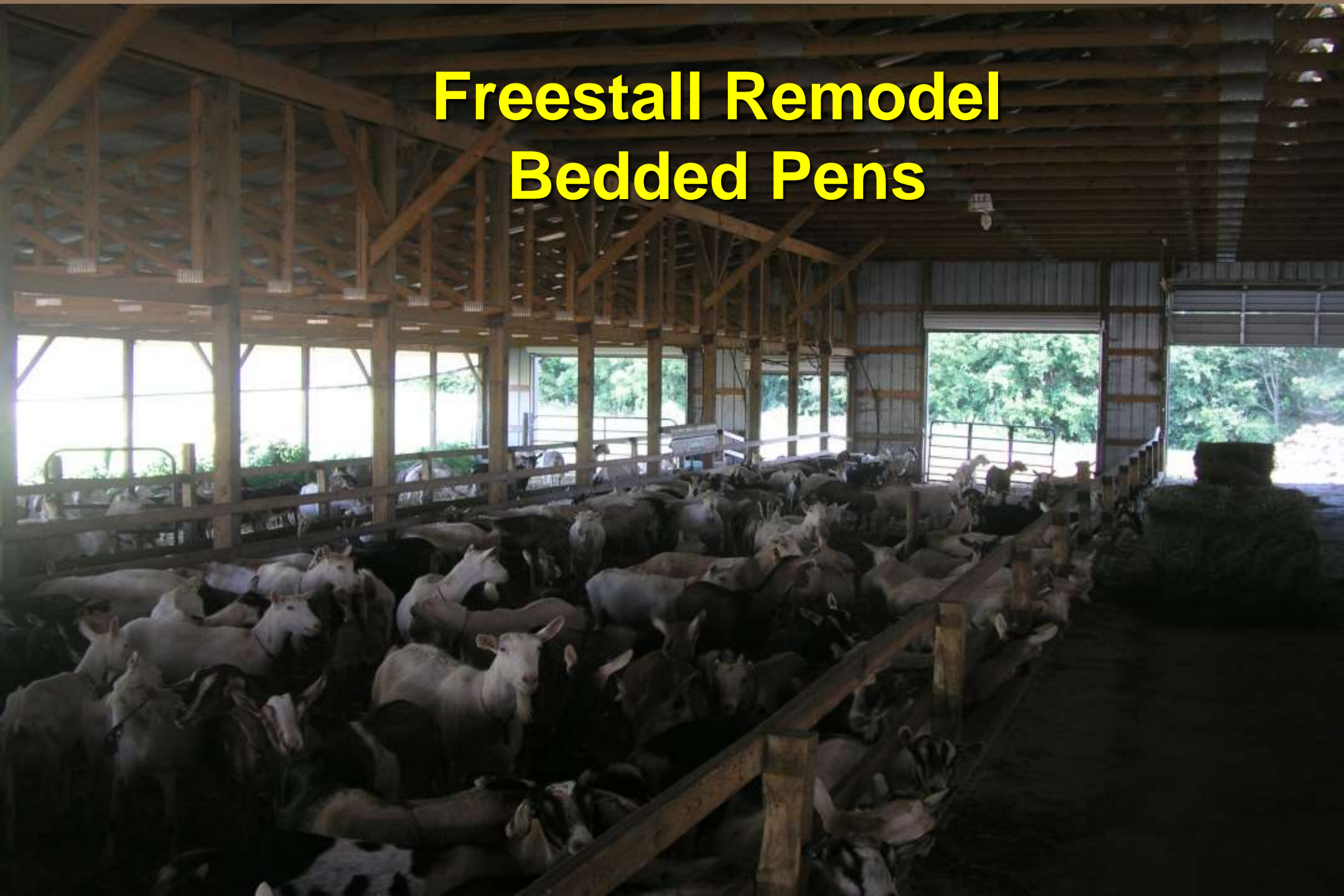
Freestall Remodel Feed Lane



Silage Feeding Equipment



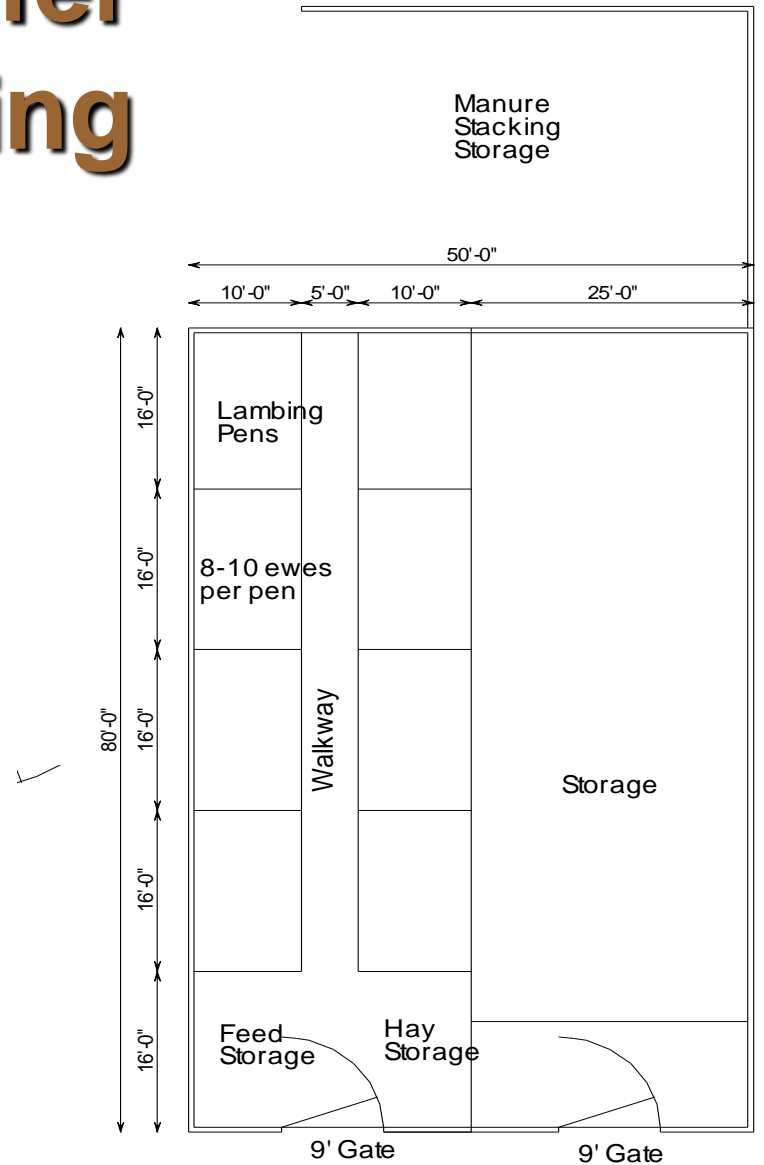
Freestall Remodel Bedded Pens



Freestall remodel Drive Through Feed lane



Remodeled Heifer Shed for Lambing



Remodeled Heifer Shed for Lambing



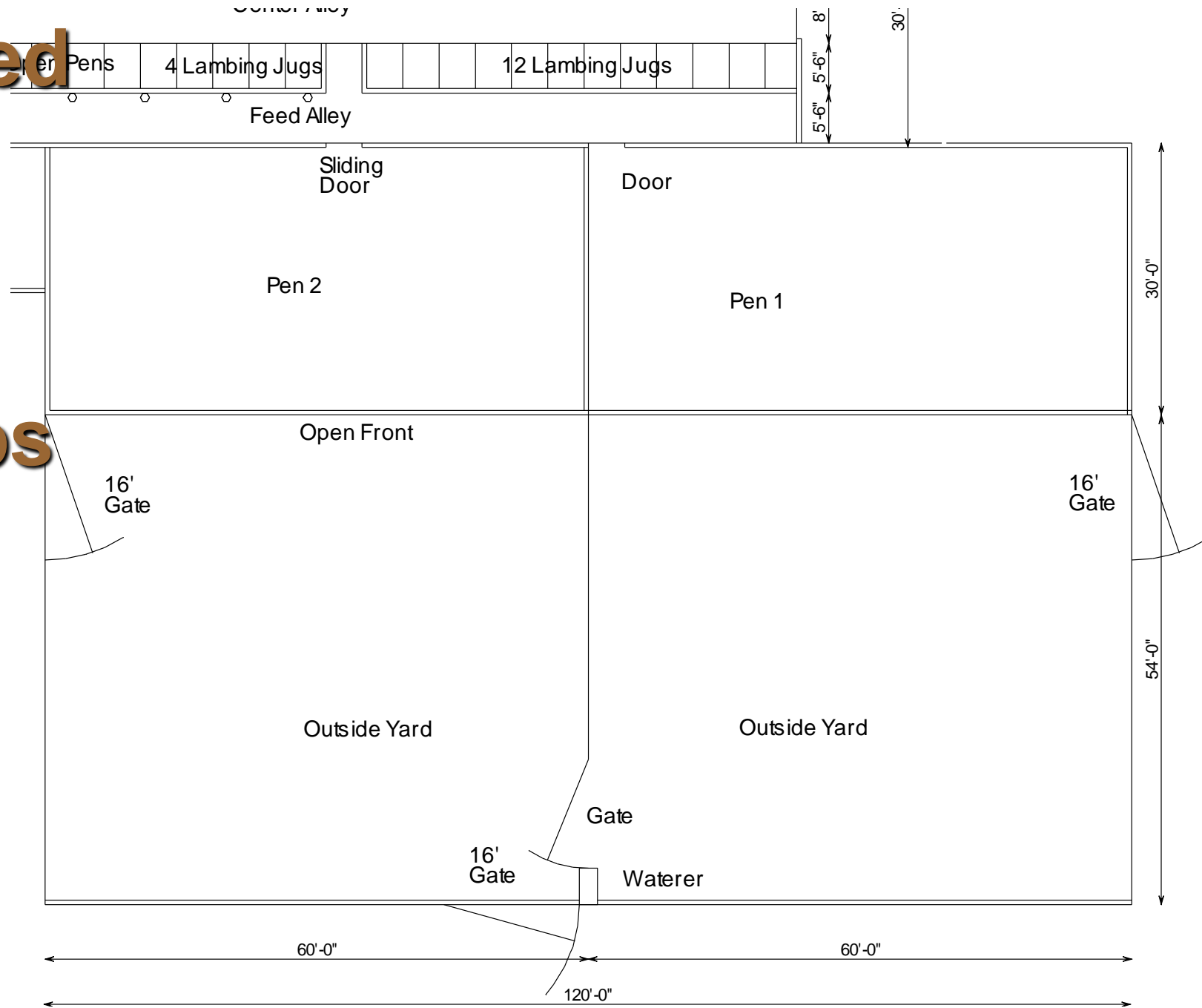
Remodeled Heifer Shed after Lambing



Remodeled Heifer Shed for Shearing



Remodeled Lean-to Shed Ewes with lambs



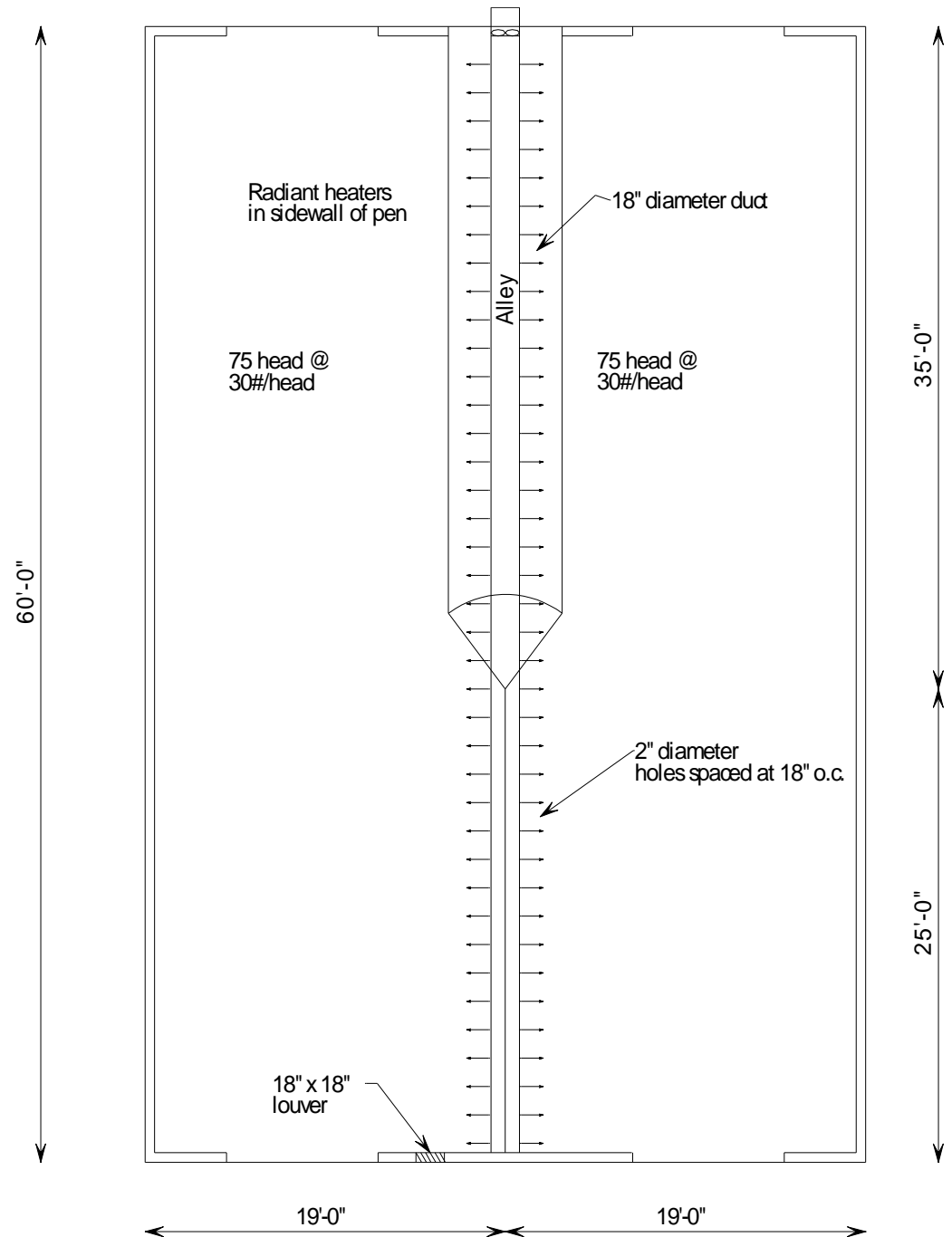
Remodeled Lean-to Shed Ewes with lambs



Remodeled Loafing Shed Ewes with lambs



Spooner Sheep Hoop Barn



Spooner Sheep Hoop Barn



Spooner Sheep Hoop Barn



Spooner Sheep Hoop Barn



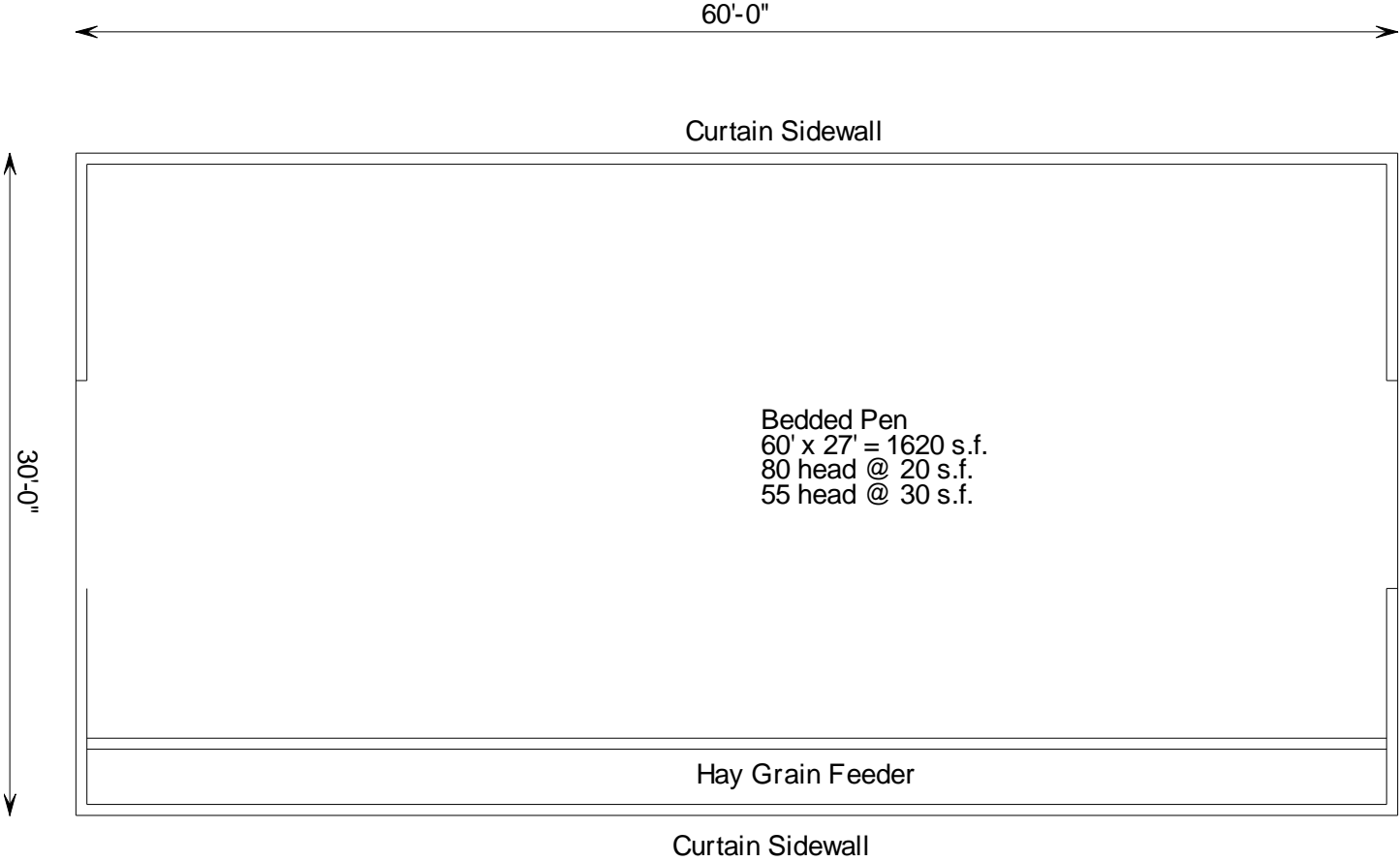
Spooner Sheep Hoop Barn



Remodeled Hoop Building for kids



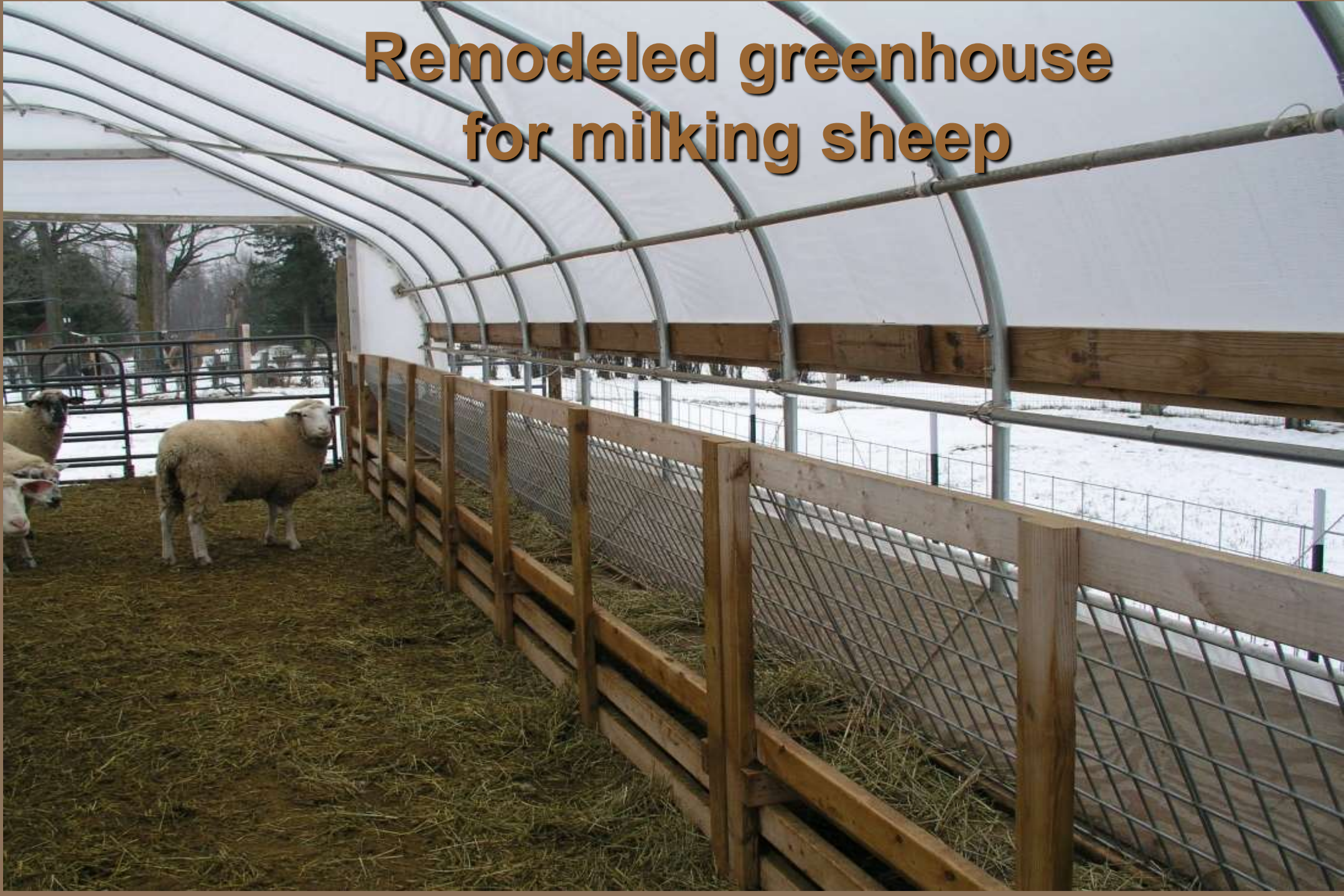
Remodeled greenhouse for milking sheep



Remodeled greenhouse for milking sheep



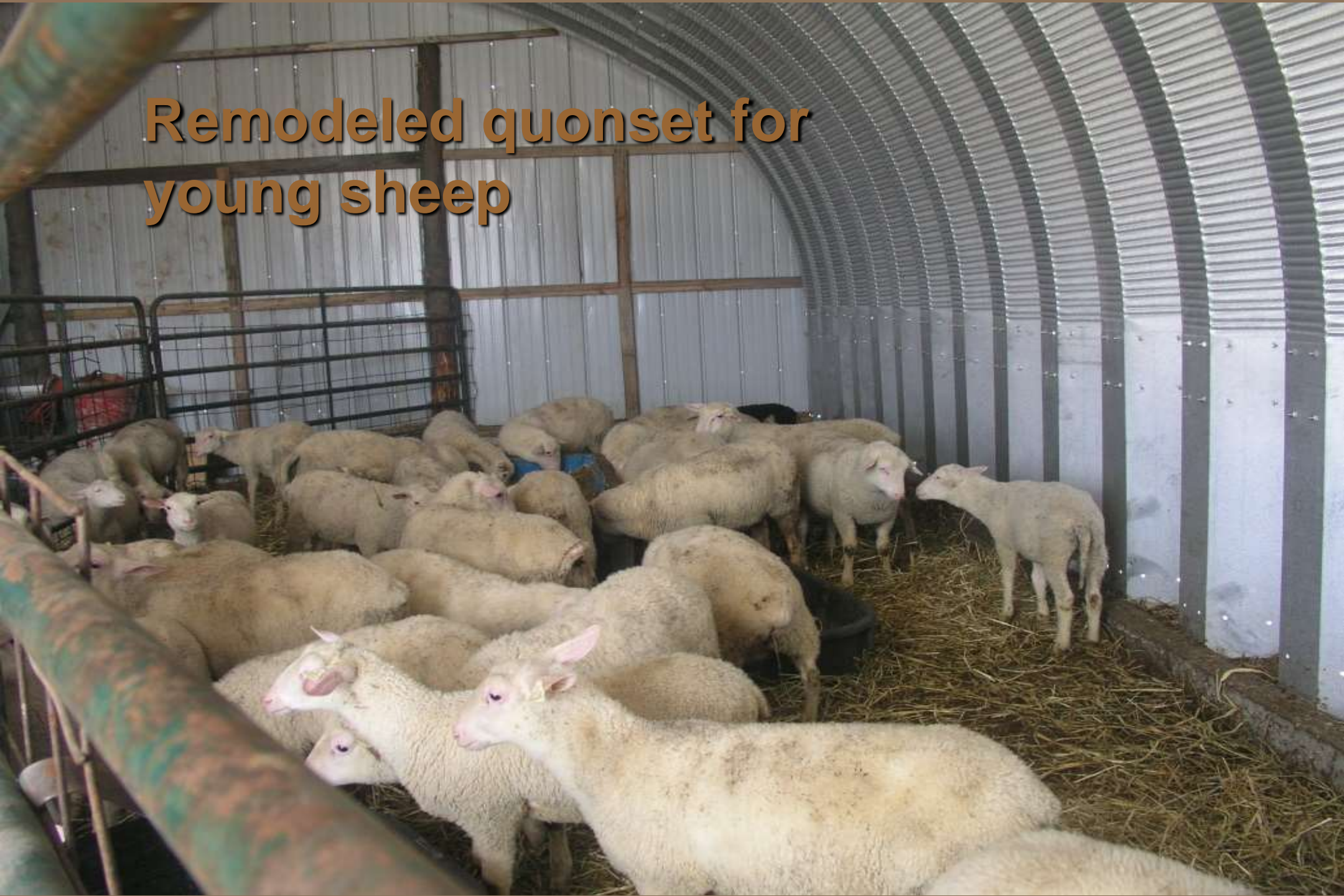
Remodeled greenhouse for milking sheep



Remodeled quonset for Young sheep



Remodeled quonset for young sheep



Remodeled horse barn for sheep





**Remodeled horse barn for
sheep**

Remodeled horse barn for sheep

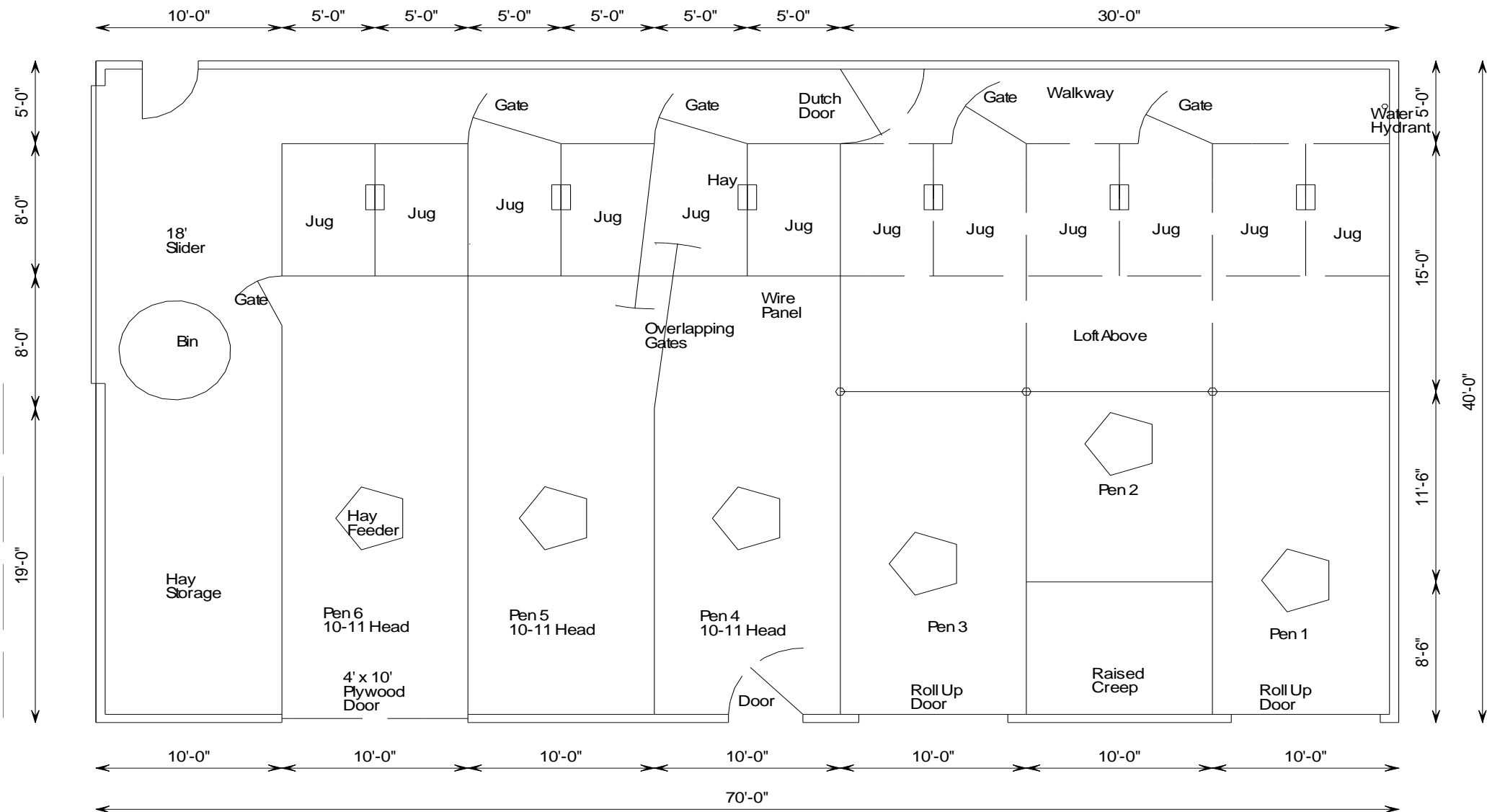




Remodeled lambing jugs



Remodeled Hay Storage Building



Remodeled Hay Storage Building



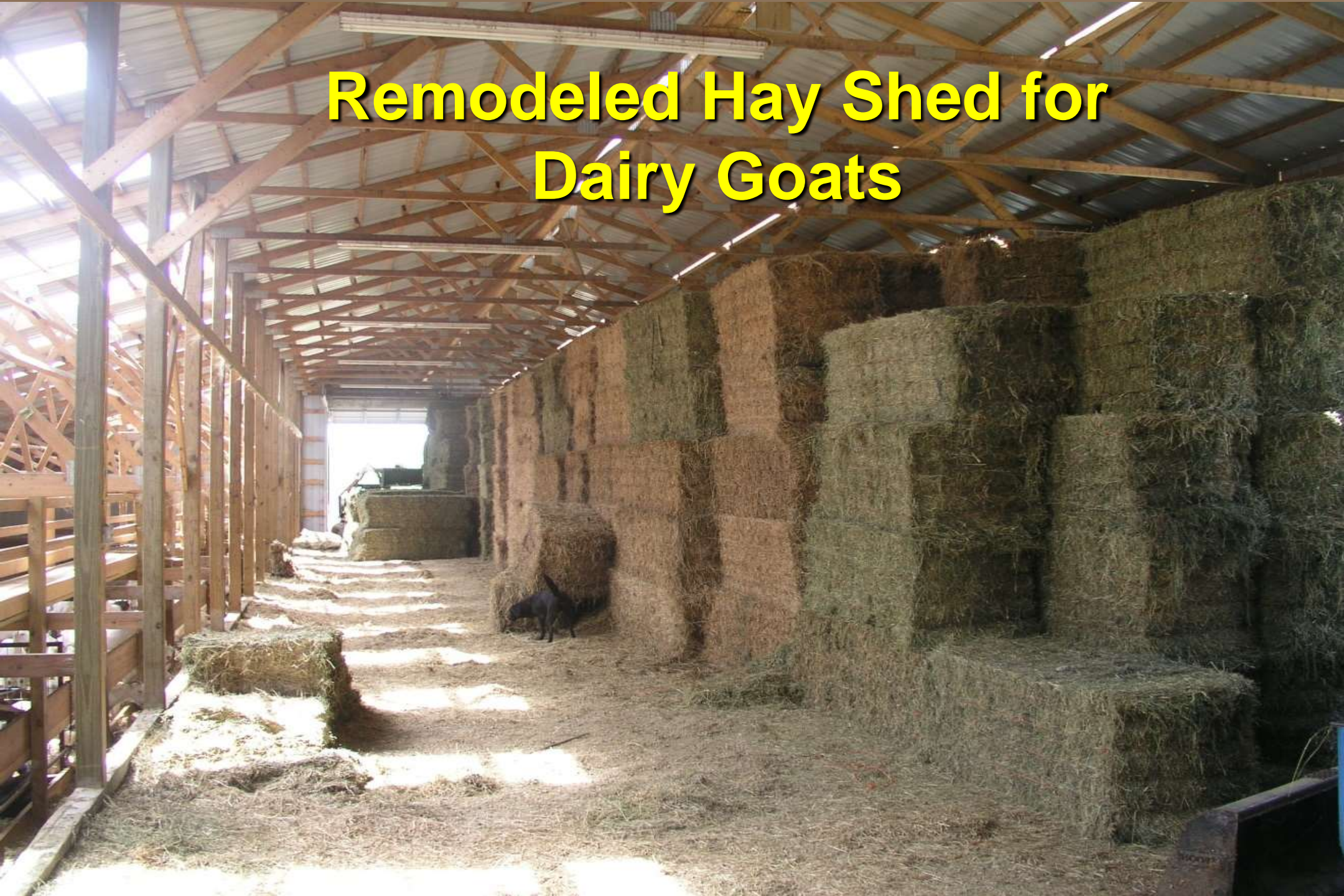
Remodeled Hay Storage Building



Remodeled Hay Shed for Dairy Goats



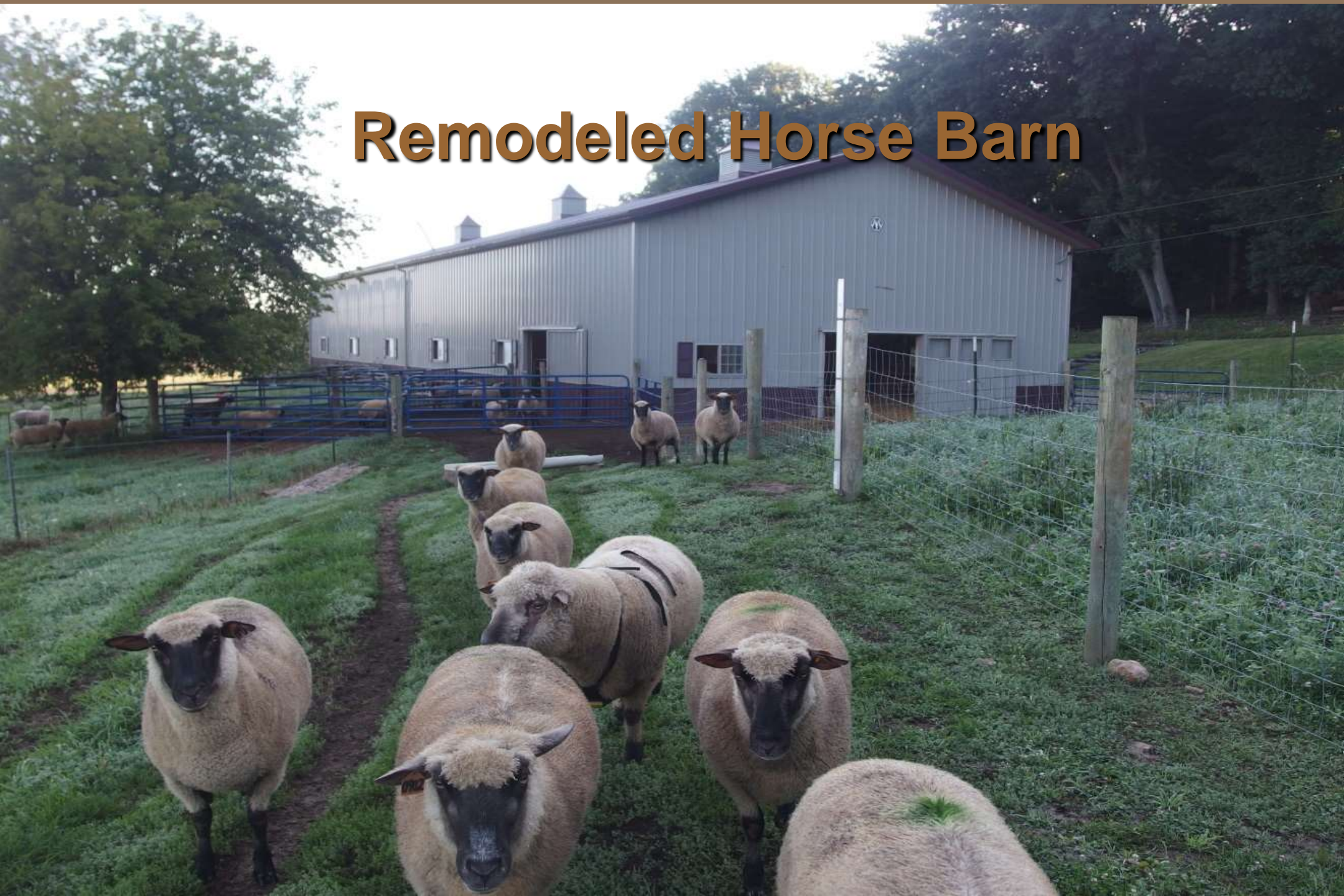
Remodeled Hay Shed for Dairy Goats



Remodeled Horse Run In Shelter



Remodeled Horse Barn



Remodeled Car Port Shelter



Protect metal sides



New Construction





Protect Building Steel Sides

Ventilation

Mechanical

Winter

- 4 air changes per hour or
- 20 cfm per adult goat

Summer

- 30 air changes per hour or
- 150-200 cfm per adult goat

Draft free

- Adults < 1.6 ft per second
- Kids < 0.6 ft per second

Natural

Winter

- 2" ridge outlet /10' building width
- 1" eave opening/ 10' building width

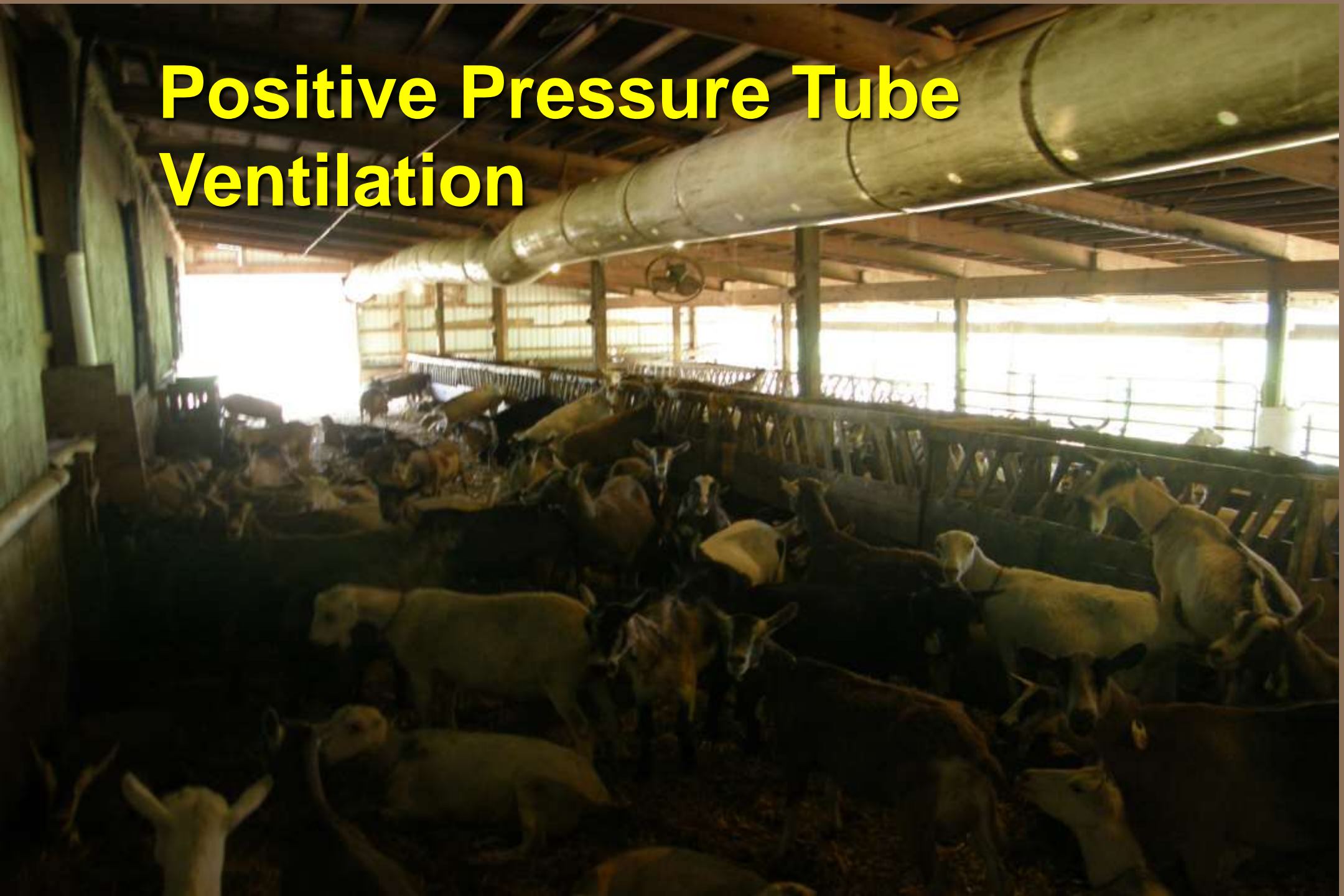
Summer

- Open doors or sidewalls





Positive Pressure Tube Ventilation





Handling Facility Example



Handling Facility Example



Handling Facility Example





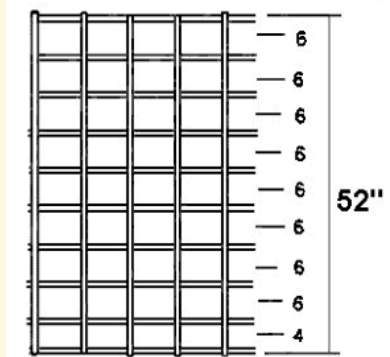
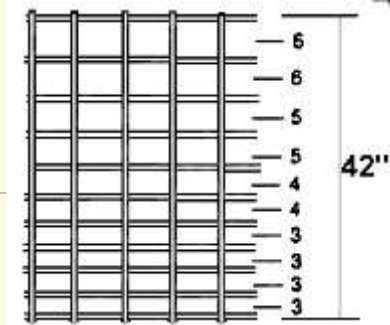




Questions?

Fencing Options

- Chain Link
- Woven wire
- Hog/Sheep panel (wire spacing)
- Cattle Panel (wire spacing)
- HT wire
 - 8-10 strands
- Electrified HT
 - 5-7 strands some hot
- Woven wire/Netting
- Electrified (psychological barrier)
 - Offset at shoulder height keeps sheep off fence
 - 7" off ground for predators
- Train sheep to electric fence



Fencing Options



Water Space Design

□ Quantity

- 0.1-0.3 gal. per day new lambs
- 1.5 gal. per day feeder lambs
- 2-3 gal. per day adults

- 40-50 ewes per bowl
- 12" water tank for 15-25 ewes

- 50-75 lambs per bowl
- 12" water tank for 25-40 lambs

MWPS-3 Sheep Housing and Equipment 1988



Water Space



Water System Designs



Frost Proof Water Space



Feeder Design

- Hay
- Forage



Hay/Grain Feeder



Grain Feeder



Hay Feeder



Hay Feeder



Hay Feeder

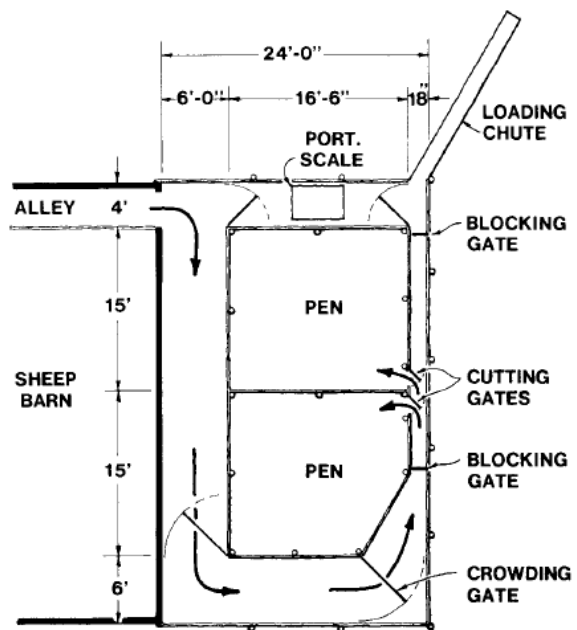


Hay Feeder Repair

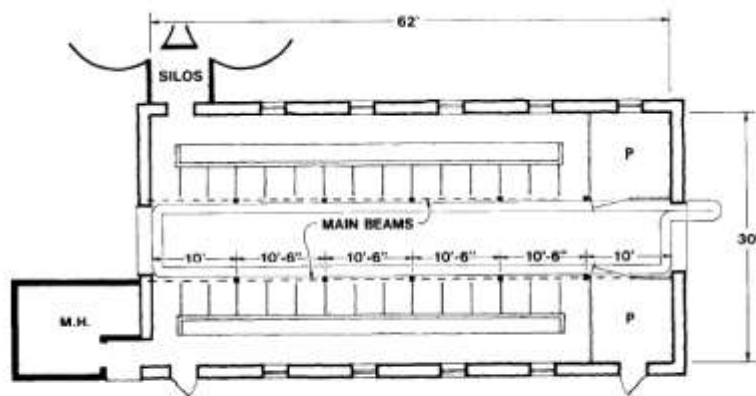


Manger Remodel

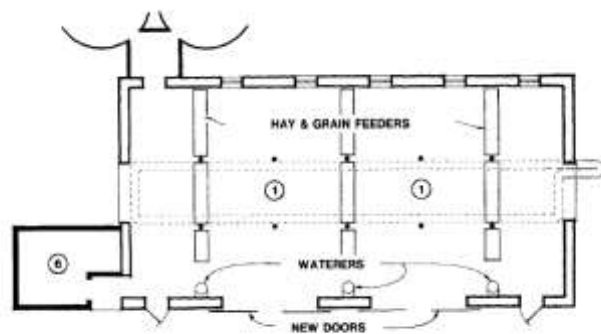




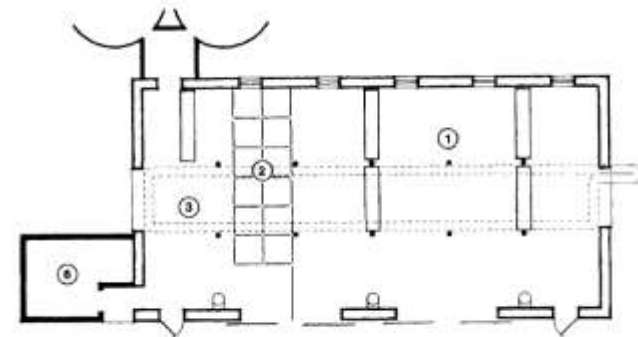
SHEEP CORRAL



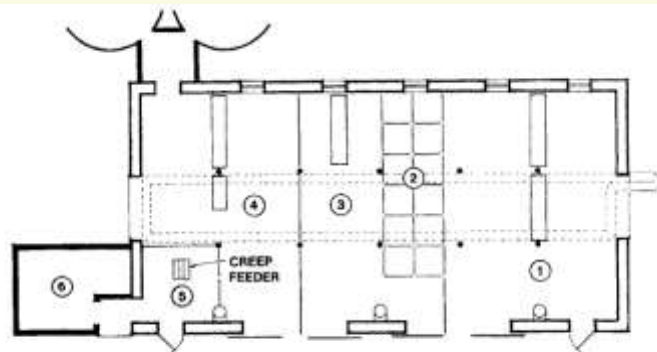
BARN BEFORE REMODELING



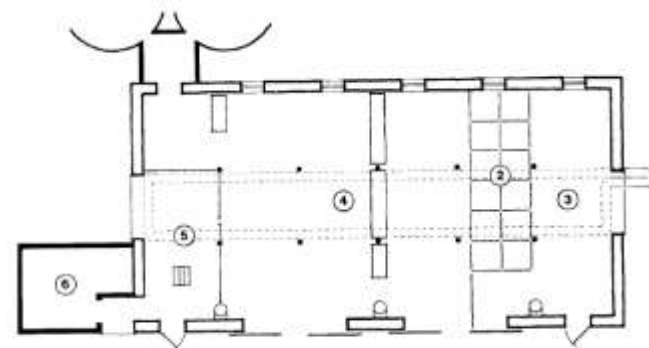
STAGE 1: 100 EWES BEFORE LAMBING



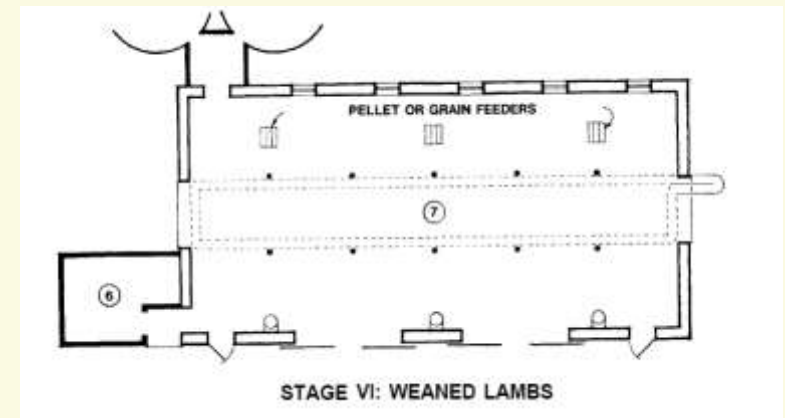
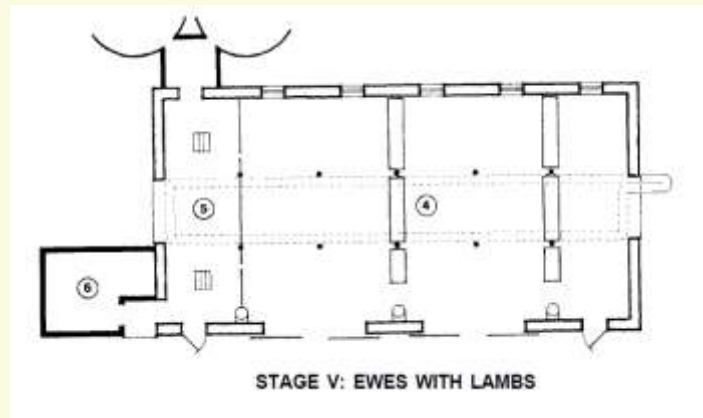
STAGE II: 25 EWES LAMBED

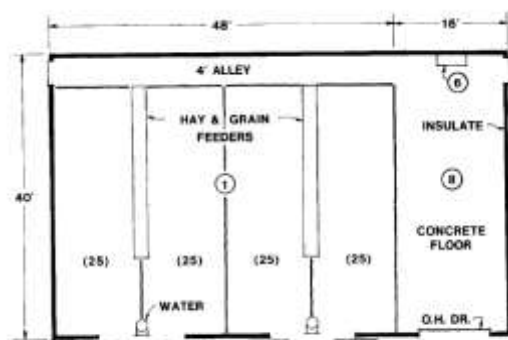


STAGE III: 50 EWES LAMBED

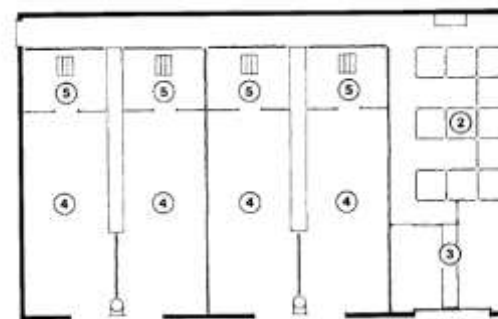


STAGE IV: 100 EWES LAMBED

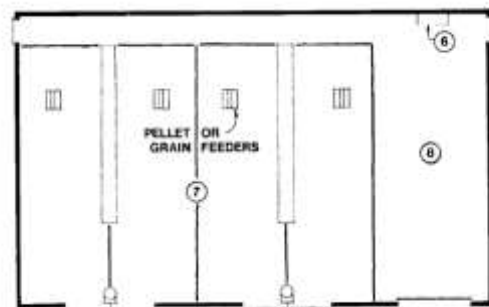




BARN FOR 100 EWES BEFORE LAMBING



DURING LAMBING



LAMBS WEANED

Reasons for Handling facility

- Safety
 - Animals
 - People
- Stress
 - Animals
 - People
- Labor efficiency
 - Ease tasks
 - Yours
 - Veterinarian

Handling Facility Tasks

- Sorting
 - Lambs from ewes
 - Male from female
 - Ewes for breeding
- Vaccinations
- Weighing
- Worming
- Pregnancy check
- Foot trimming
- Crutching
- Drenching
- Shearing
- Loading/unloading

Handling Facility

- 12' Crowding Pen with 4'-5' high solid sides
- 10' long working chute
 - 4'-5' high solid sides
 - 12" wide at bottom
- Squeeze chute
- Headgate
- Loading Ramp
- <http://www.sydell.com/>



Handling Facility Design Areas

- Holding pens
 - Group size
 - Low density holding
 - High density holding
- Forcing (crowding) pen
- Drafting chute or Race (single file)
 - Sorting (Drafting) gate
- Work Area
- Separation
- Handled individually
- Work with the existing
 - Lanes
 - Paddocks
 - yards



Handling Facility

- 12' Crowding Pen with 4'-5' high solid sides
- 10' long working chute
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 - 12" wide at bottom
- Squeeze chute
- Headgate
- Loading Ramp
- <http://www.sydel.com/>



Sheep Handling Behavior

- Sheep behavior can be predicted
- Sheep will follow one another
- Sheep move toward other sheep willingly
- Sheep do not like to be enclosed areas
- Sheep will move from tight spaces to areas with more space
- Sheep move away from workers and dogs (predators) or frightening things
- Sheep have a good memory of bad experiences
- Sheep prefer to move:
 - Over flat areas > uphill > downhill
- Sheep prefer to move from dark areas to light areas
 - Avoid contrasts (walking into the sun)
- Sheep prefer familiar paths over new paths
- Stationary sheep are motivated to move by sight of sheep running away
- Sheep will balk (stop) forward movement when they see sheep moving in the opposite direction
- Sheep will move faster through long narrow pen than through a square pen
- Sheep move through race better if they cannot see operator
- Sheep move better around slight corners or curves
- Sheep will move to an open area rather than what they perceive is a dead end
- Young lambs that have been separated from dams will move back to where they were separated
- Sheep react negatively to loud noises and banging, barking
- Young sheep move through handling facilities when they have been trained by older sheep

Site selection criteria

- Centrally located to pastures or group pens
- Drainage
- Shaded
- Orient chute NS versus EW
- Vehicle access

Handling Facility Design (1 of 3)

- Holding Pen Design
 - 5 s.f per head holding area
 - Long and narrow
 - Width < 30 feet
- Forcing pen
 - Width < 10 feet
 - 30-40 degree angle on one side only
- Races < 5 feet and straight
- Single file race curved
- Sort gates
 - Small flock - 2 way sort
 - Large flock – 3 way with 2 gates

Handling Facility Design (2 of 3)

- Holding pens no larger than necessary
- Avoid obstructions and sharp edges
- Rails or sheeting on inside
- Smooth surface splinter free
- Easily operated gates and latches
- Simple flow pattern

Handling Facility Design (3 of 3)

- Race Design
 - Narrow enough to present sheep singly
 - 14” for small breeds
 - 20” for larger breeds
 - 15-20 feet long with unobstructed view to identify sheep coming
 - Smooth solid sides
 - Clear escape route ahead of sorting gate
 - 36 “ high sides
 - Sort gate at least 36” long (swing)



Questions?

Parlor Design

□ Parlor Platform

- 18" wide space
- 3.5' long
- Headlock
- 36"-40" parlor platform



Remodeled Milking Parlor



Spooner Milking Parlor



Sheep Milking

<http://hambydairysupply.com/xcart/home.php?cat=16>

<http://www.caprinesupply.com/>

http://www.delaval.com/Products/Sheep_goat/default.htm

http://www.westfalia.com/nz/en/products_services/proformance_equipment/products/milking_equipment/default.aspx

<http://www.portablemilkers.com/page/page/1586842.htm>

<http://milking-solutions.com/goat-sheep-milking-machines>

http://agalternatives.aers.psu.edu/Publications/milking_sheep.pdf



Educational Resources

- ❑ http://attra.ncat.org/attra-pub/PDF/sheep_illus.pdf
- ❑ http://www.nfacc.ca/pdfs/codes/sheep_code_of_practice.pdf
- ❑ <http://attra.ncat.org/attra-pub/PDF/dairysheep.pdf>
- ❑ <http://www.sheepandgoat.com>
- ❑ <http://www.ontariosheep.org/>
- ❑ <http://www.sheep101.info/>
- ❑ <http://osufacts.okstate.edu/docushare/dsweb/Get/Document-2155/ANSI-3855web.pdf>

Facility Design should:

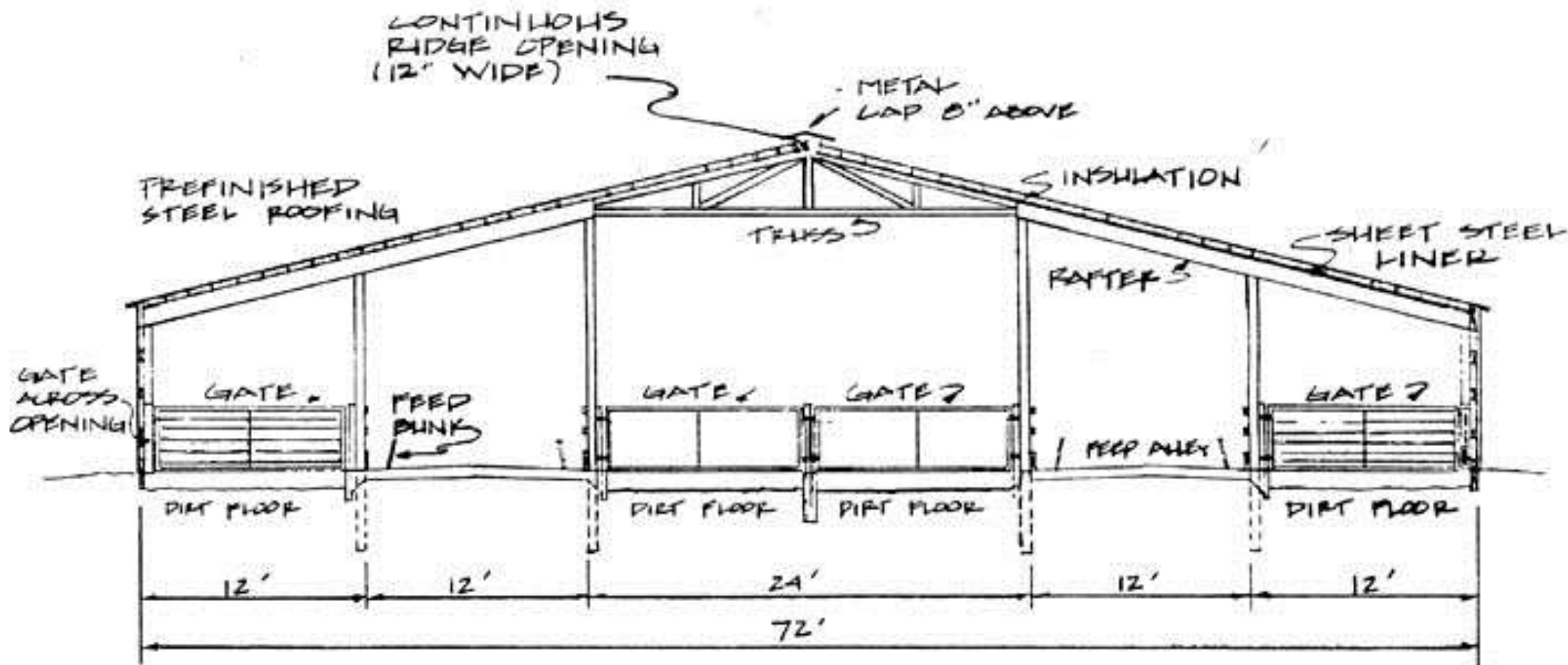
- ❑ **Fit a management plan**

- ❑ **Provide**

- A clean, dry environment
- Plenty of fresh air, feed, and water

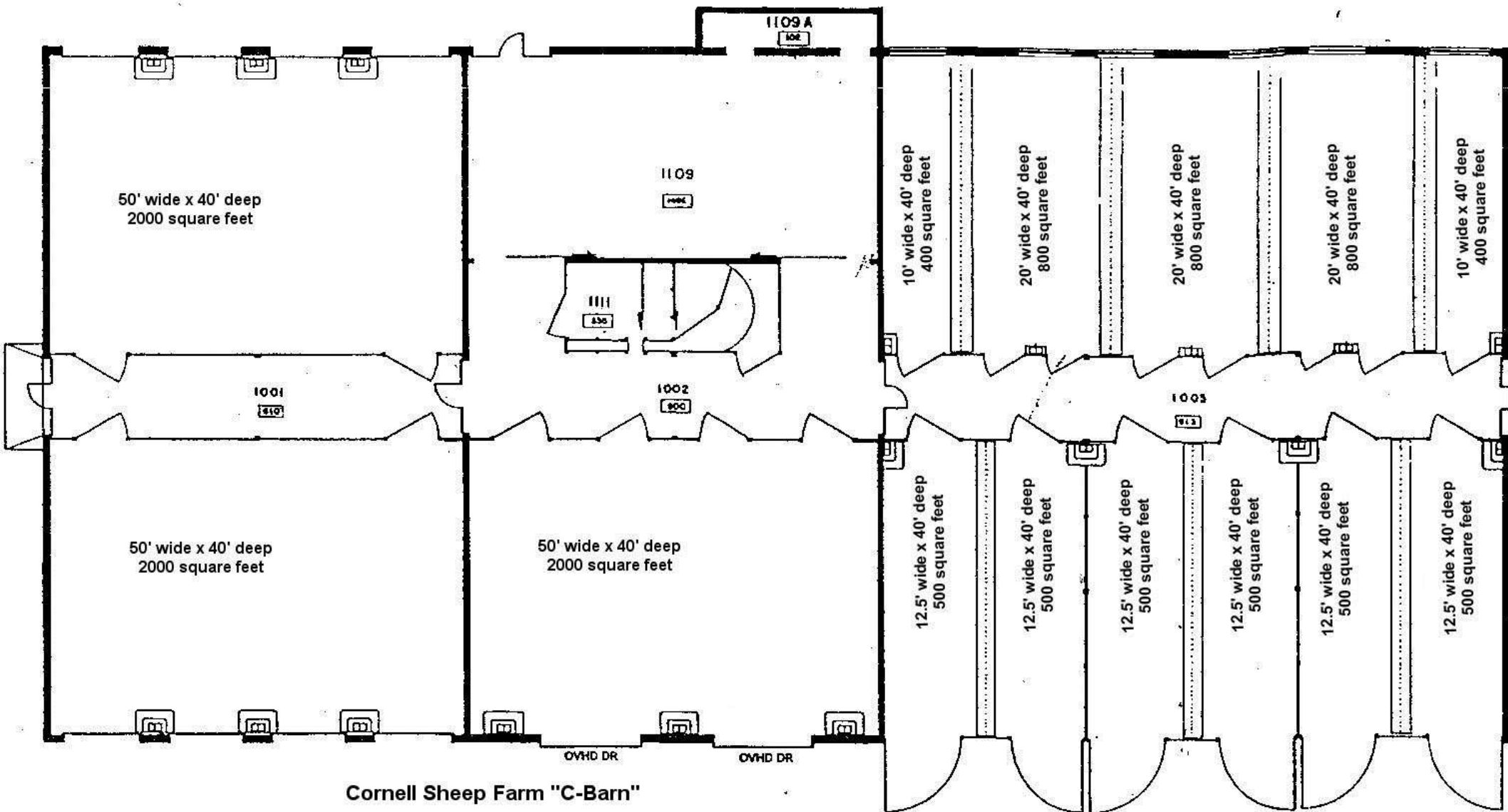
- ❑ **Be:**

- Labor efficient
- Economical
- Safe for both workers and goats
- Environmentally friendly



CROSS SECTION
NO SCALE

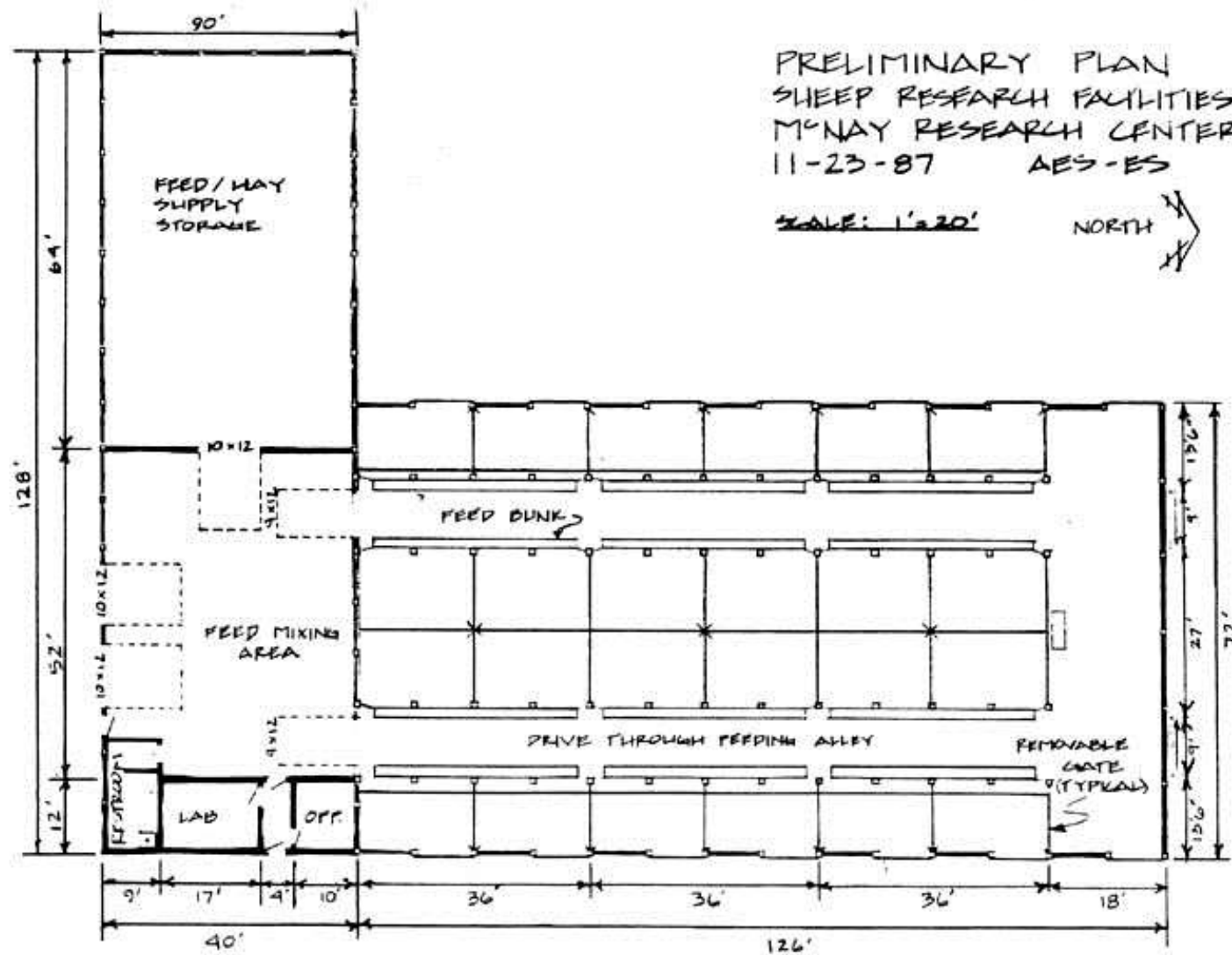
PRELIMINARY CROSS-SECTION
SHEEP FACILITIES
MCNAY RESEARCH CENTER
11-23-87 AES-ES

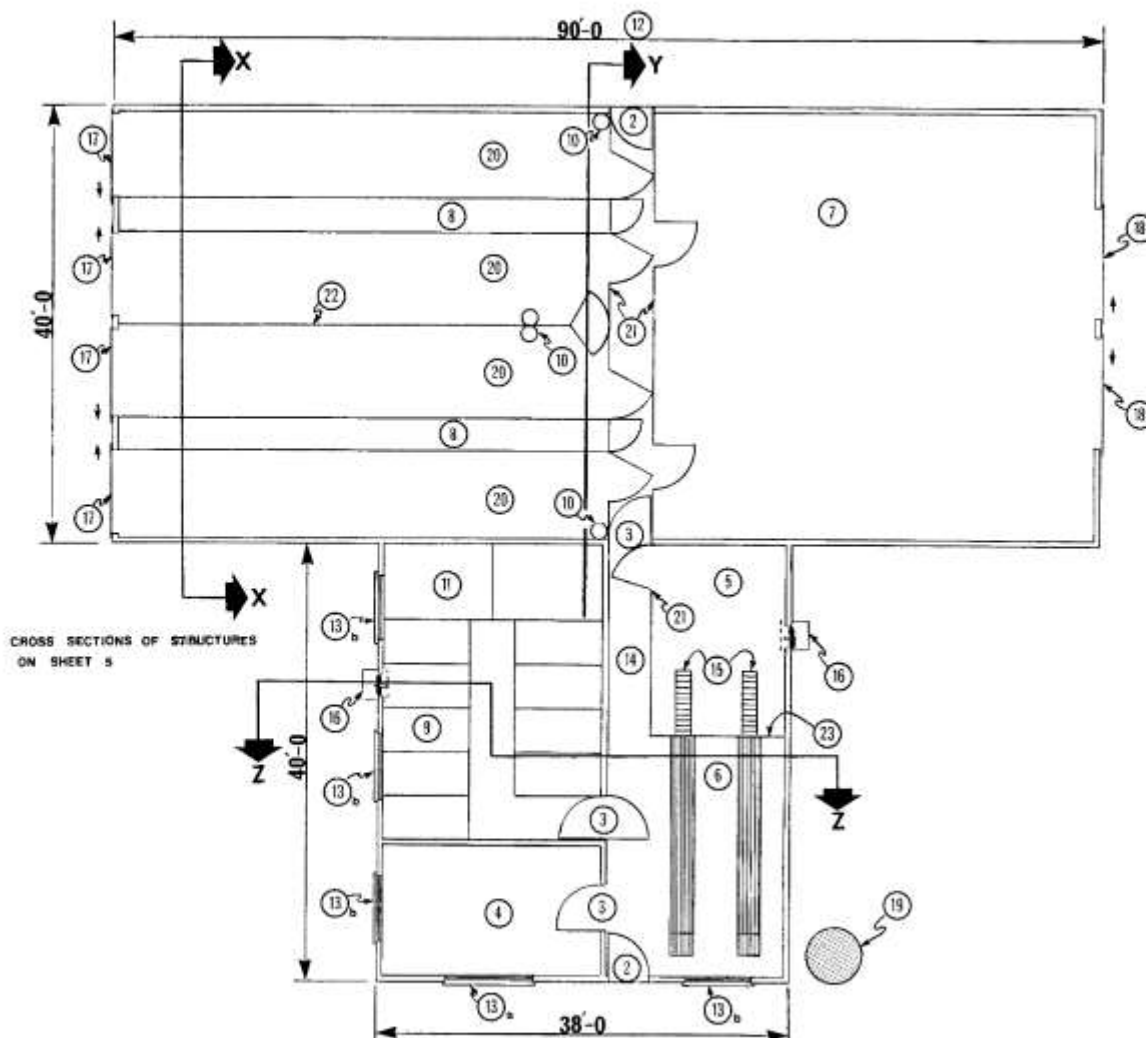


Cornell Sheep Farm "C-Barn"

Scale: 1"=20'

44





CROSS SECTIONS OF STRUCTURES
ON SHEET 5

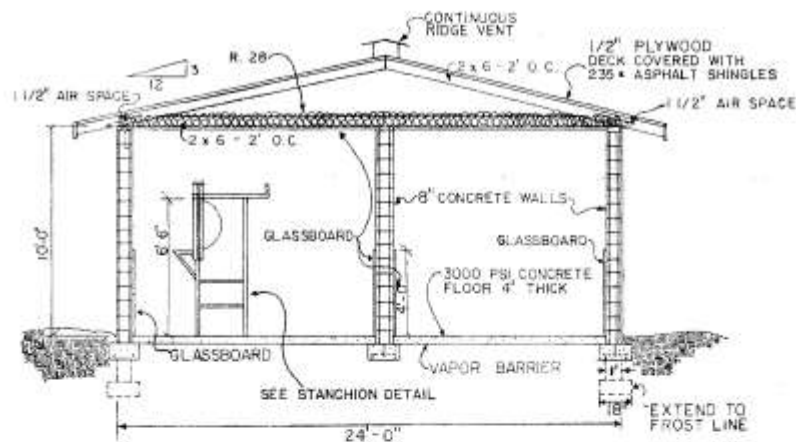
1. Floor plan
2. 3'-6" x 6'-8" insulated door
3. 3'-6" x 6'-8" self-closing door
4. milk house 12'-0" x 20'-0"
5. milking parlour 12'-6" x 17'-6"
6. milking parlour 12'-6" x 22'-0" see details #1
7. Hay Storage 30'-0" x 40'-0"
8. Hay feeder for details see sheet # 3
9. 9'-4'-0" x 8'-0" Kid Pens, walls 4'-0" high
10. Water Bowls
11. 2- 7'-0" x 10'-3" Kid Pens
12. either end may be extended to suit requirements.
13. (a) Window with insulated panel under for installation of milk cooler.
13. (b) Insulated Windows.
14. 4'-0" wide return alley
15. 2- 1'-4" wide x 8'-0" long steel ramps with 1" high ridges to prevent slipping, ramp rises 2'-4" above floor level.
16. Exhaust Fan.
17. Sliding Doors 8'-0" x 8'-0" for clean out purposes.
18. Sliding Doors 10'-0" x 8'-0" for hay storage area.
19. Feed Bin.
20. Feed Area each area app. 3'-2" x 44'-6"
21. 4'-2" High Fencing.
22. Optional 4'-0" high dividing fence with swinging gate.
23. Optional Wall and Door may be used in place of 4'-0" high fencing.

CANADA quick release plan
PLAN SERVICE
DWG. NO. 0-8211 SHEET 2 OF 5

AGRICULTURAL ENGINEERING SERVICE ONTARIO MINISTRY OF AGRICULTURE AND FOOD			
100 DOE CAPACITY GOAT MILKING BARN PLUS FEED AREA			
DESIGNED BY: Don Milburn Brian Horlick	SCALE: 1/8"=1'-0"	PROJECT NO: E-01-80	
DATE: 10/6/80		SHEET 2 OF 5	

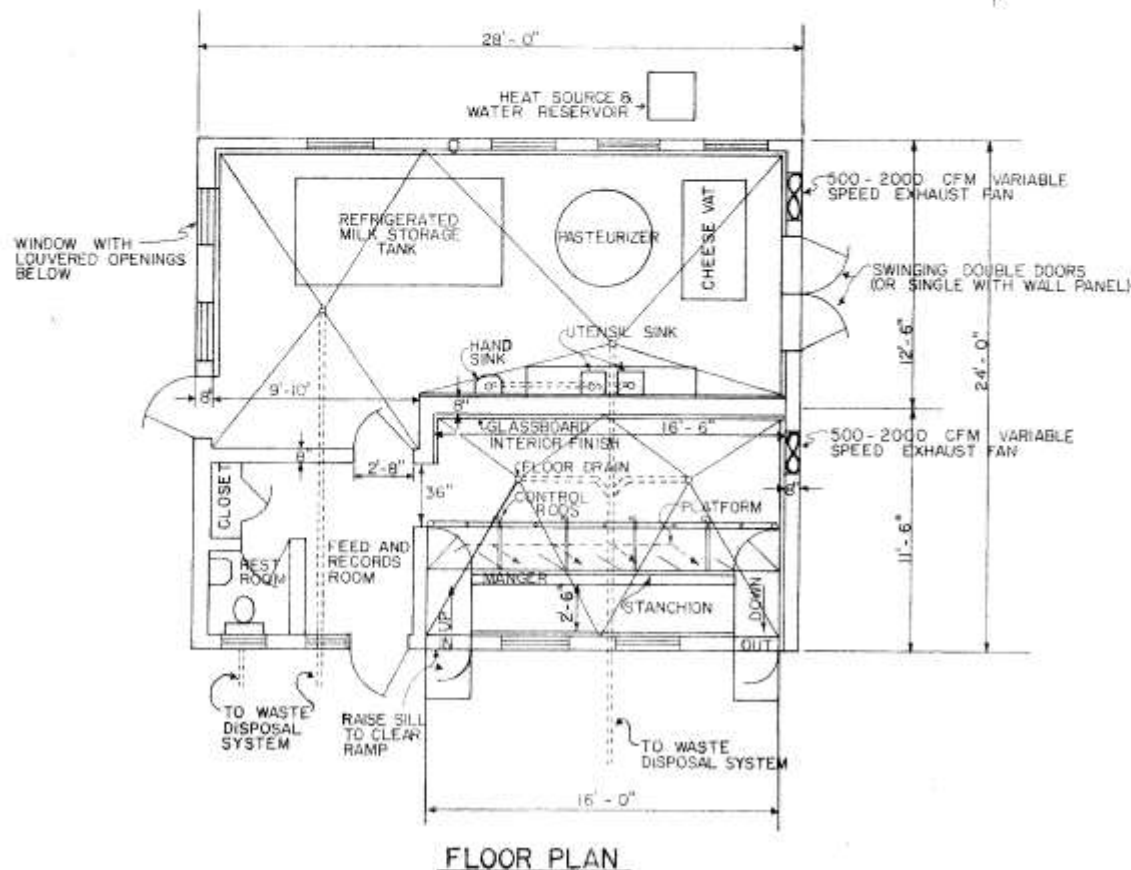
NOTES:

1. CAUTION: CHECK WITH HEALTH AND MARKETING OFFICIALS FOR COMPLIANCE WITH MILKING PARLOR, AND MILK-ROOM/ CHEESE PROCESSING PLANT RULES. REQUIREMENTS VARY FROM STATE TO STATE WITH REGARD TO SEPARATION OF ROOMS, VENTILATION, WINDOW AREA, AND INTERIOR FINISH.
2. CHECK WITH ENVIRONMENTAL AUTHORITIES REGARDING WASTE HANDLING.
3. COLD CLIMATES WILL REQUIRE INSULATED EXTERIOR WALLS.
4. HEATING AND OTHER MECHANICAL EQUIPMENT TO BE LOCATED IN EQUIPMENT ROOM OR IN AN ADD-ON SHELTER OUTSIDE.
5. AWNING WINDOWS RECOMMENDED TO AID IN SUMMER VENTILATION. ALL OPENINGS TO BE SCREENED.
6. IF PLATFORM IS FABRICATED OUTSIDE OF ROOM, CHECK DOOR CLEARANCE. ANCHOR PLATFORM TO WALLS AT EACH END.



CROSS SECTION

SCALE 1/4" = 1'-0"



LSU
AgCenter
Research & Extension

4 GOAT HERRINGBONE DAIRY PARLOR
AND CHEESE PLANT

GA '88 6405 SHEET 1 OF 2

Feeder Design

- Grain
- Creep feeders



Grain Feeder



Mineral Feeder



Milking Parlor

□ Parlor Platform

- 15-18" wide space
- 3.5' long
- Headlock
- 36"- 40" parlor platform



Parlor Headlocks



Milking Parlor Steel Platform



Milking Parlor



Milking Parlor Concrete Platform



Facility Design should:

- ❑ **Fit a management plan**

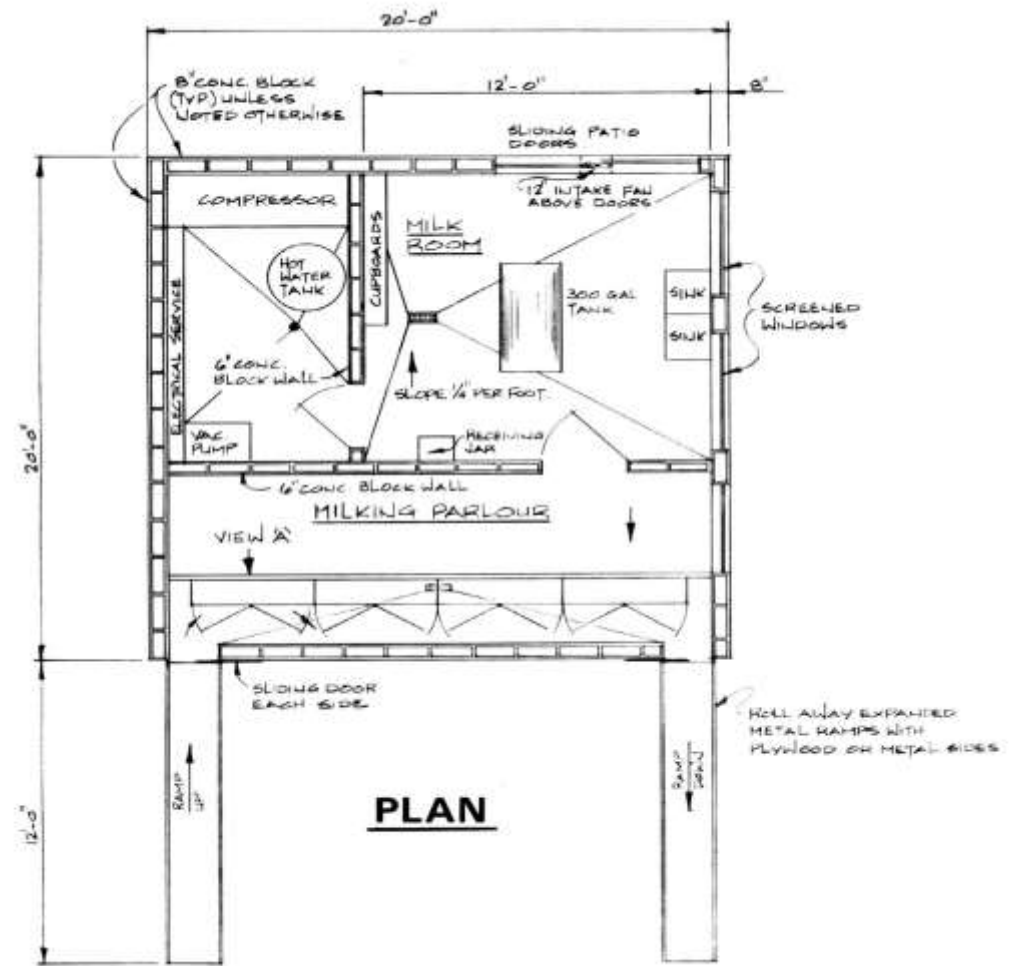
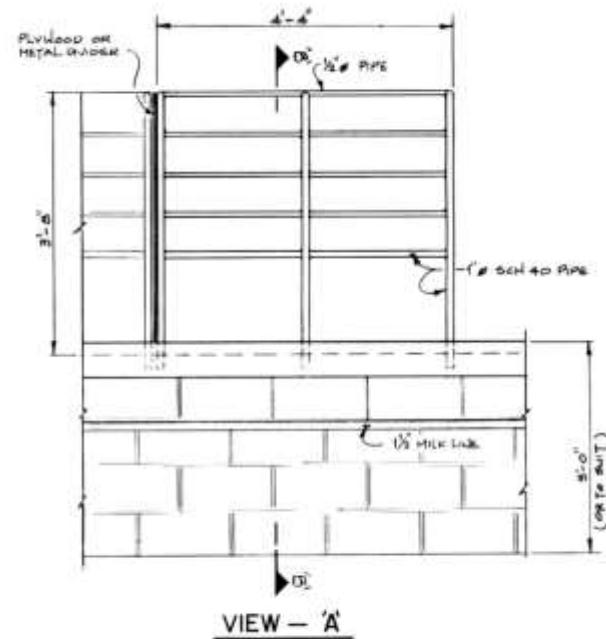
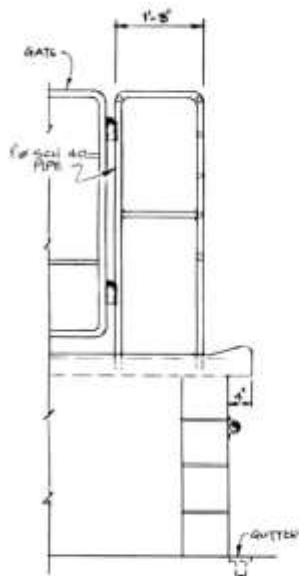
- ❑ **Provide**

- A clean, dry environment
- Plenty of fresh air, feed, and water


- ❑ **Be:**

- Labor efficient
- Economical
- Safe for both workers and goats
- Environmentally friendly

Goat Milking Parlor



Manure Storage

 5% of body weight (60-70 m.c.) per day



Bedded Pens

Shelter (roof)

- Resting Space
- Feeding Space
- Walking Space



Sheep Milking Facility











Milking Parlor



Educational Resources

- ☐ <http://www.dairygoatjournal.com/issues/current.html#article3>
- ☐ <http://adga.org/facts.htm>
- ☐ <http://attra.ncat.org/attra-pub/meatgoat.html>
- ☐ <http://attra.ncat.org/attra-pub/goatoverview.html>
- ☐ <http://attra.ncat.org/attra-pub/dairygoats.html>
- ☐ <http://attra.ncat.org/attra-pub/PDF/dairysheep.pdf>

Educational Resources

Meat Goats

- ❑ <http://bedford.extension.psu.edu/agriculture/goat/Meat%20Goat%20Production.htm>
- ❑ <http://bedford.extension.psu.edu/agriculture/goat/Goat%20Lessons.htm>
- ❑ <http://www.das.psu.edu/goats/production/>
- ❑ <http://www.ces.ncsu.edu/gaston/Agriculture/goatlinks.html>
- ❑ <http://smallfarms.wsu.edu/animals/goats.html>
- ❑ <http://www.gov.mb.ca/agriculture/financial/farm/pdf/meatgoat.pdf>
- ❑ http://www.uky.edu/Ag/AgEcon/pubs/ext_aec/ext2000-11.pdf

Educational Resources

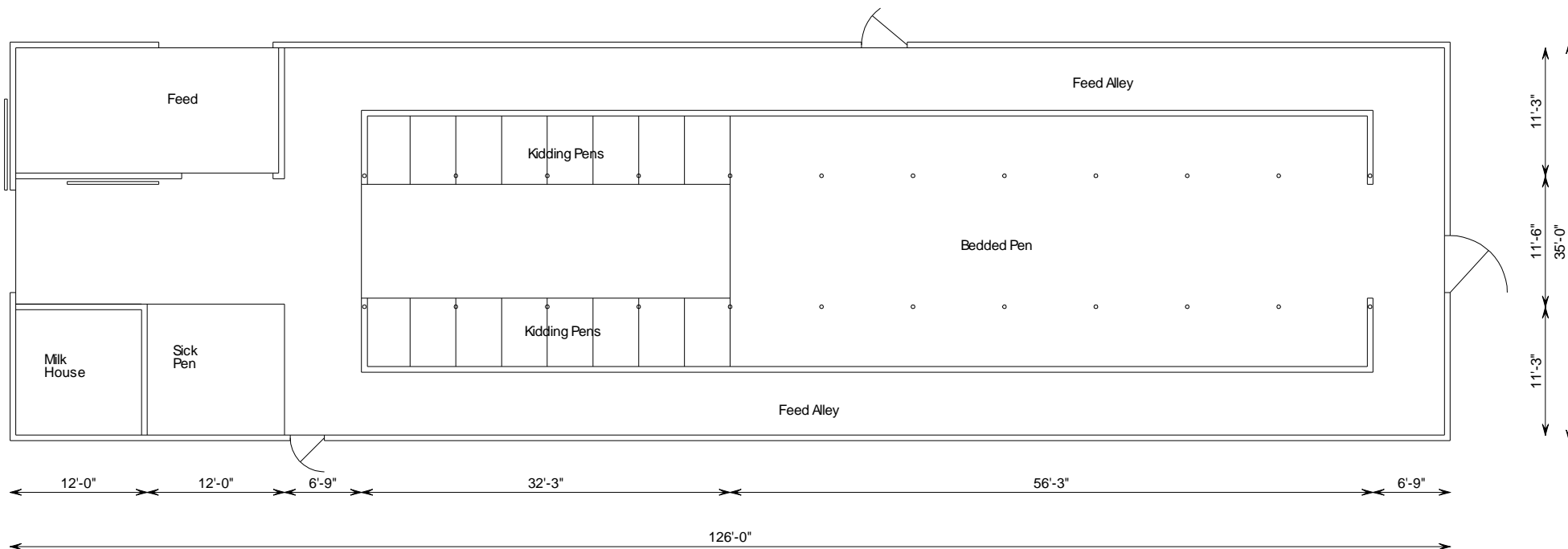
- ❑ <http://www.sheepandgoat.com/articles/goathouse.htm>
- ❑ <http://www.clemson.edu/agronomy/goats/handbook/housing.html>
- ❑ <http://edis.ifas.ufl.edu/DS134>
- ❑ <http://www.allgoats.com/housing.htm>
- ❑ [http://www.dse.vic.gov.au/dpi/nreninf.nsf/9e58661e880ba9e44a256c640023eb2e/d9b96dba766675b7ca256f0f0009b1f8/\\$FILE/ag0591.pdf](http://www.dse.vic.gov.au/dpi/nreninf.nsf/9e58661e880ba9e44a256c640023eb2e/d9b96dba766675b7ca256f0f0009b1f8/$FILE/ag0591.pdf)
- ❑ <http://www.caf.wvu.edu/avs/sheep/Research%20Highlights/Goat%20production%20bulletin.pdf>
- ❑ <http://www.fao.org/docrep/S1250E/S1250E17.htm>
- ❑ <http://www.carc-crac.ca/common/Code%20of%20Practice%20-%20Goats%20English.pdf>
- ❑ <http://www.agric.nsw.gov.au/reader/sheep-management/guard-animals.pdf?MlvalObj=19887&doctype=document&MltypeObj=application/pdf&name=/guard-animals.pdf>

Group Pen Design Options

- ☐ Total Confinement Bedded Pen
- ☐ Solid floor preferred over slotted floor
- ☐ Well fenced
 - ☐ 4'-5' high penning and gates
 - ☐ 6' high for rams
 - ☐ Keep sheep in
 - ☐ Keep predators out

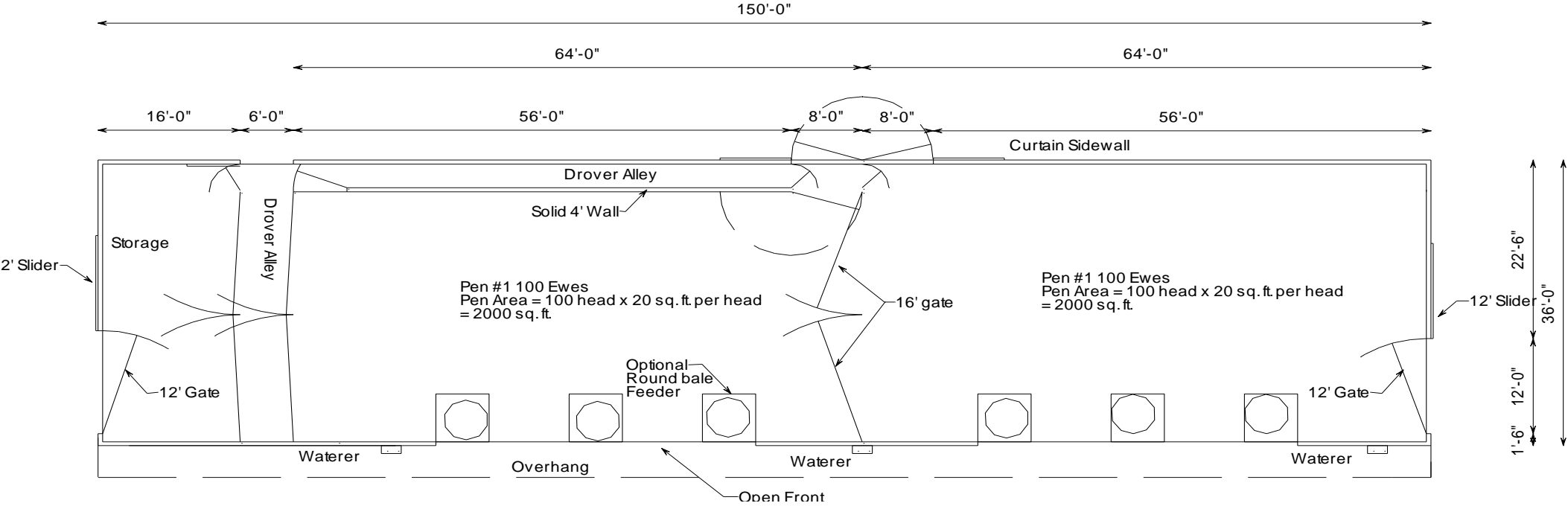


Remodeled Tie Stall barn for Lambing



New Construction

Milking Sheep Barn



Milking Parlor



Milking Parlor



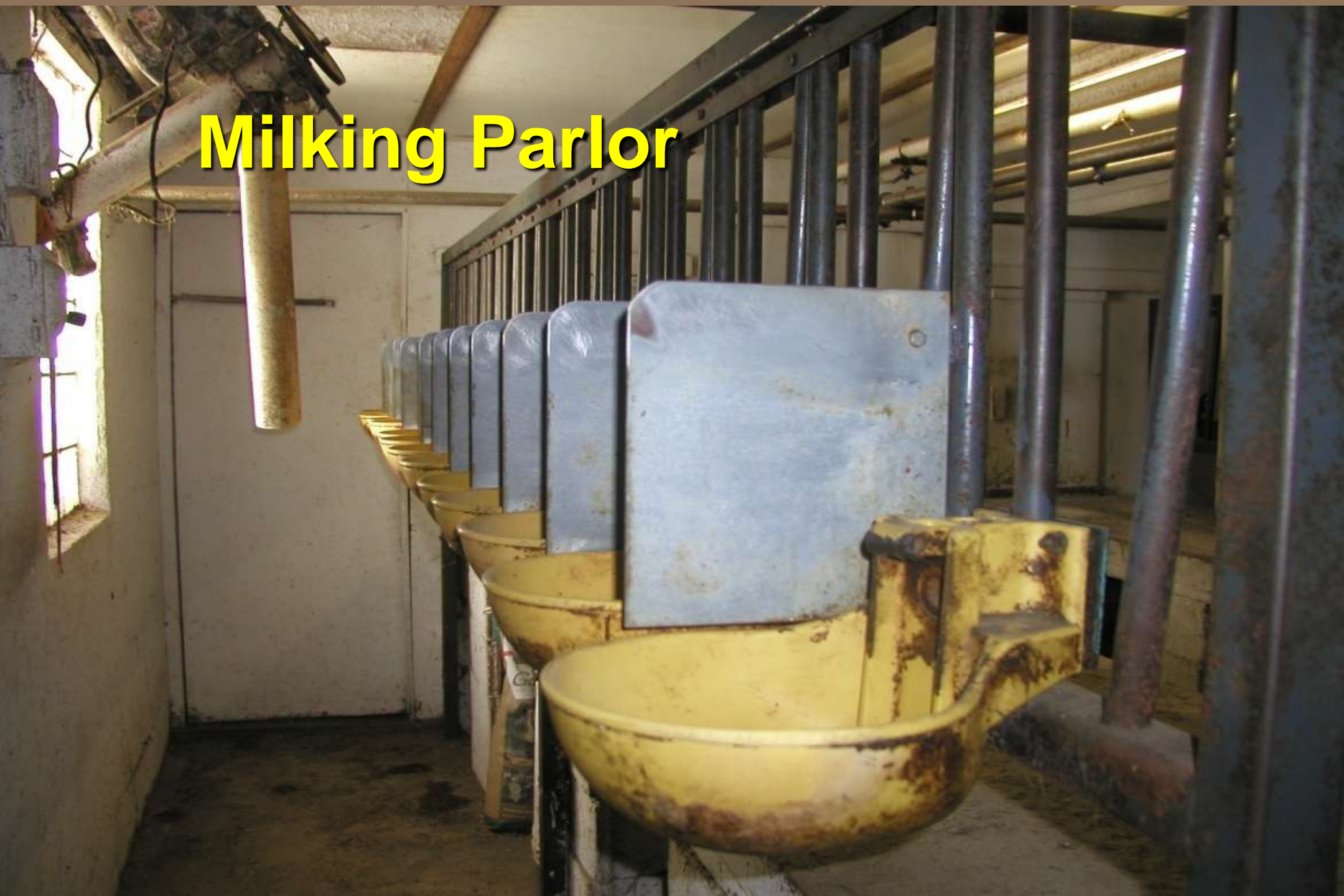
Milking Parlor



Milking Parlor



Milking Parlor



Milking Parlor



Milking Parlor



Milking Parlor

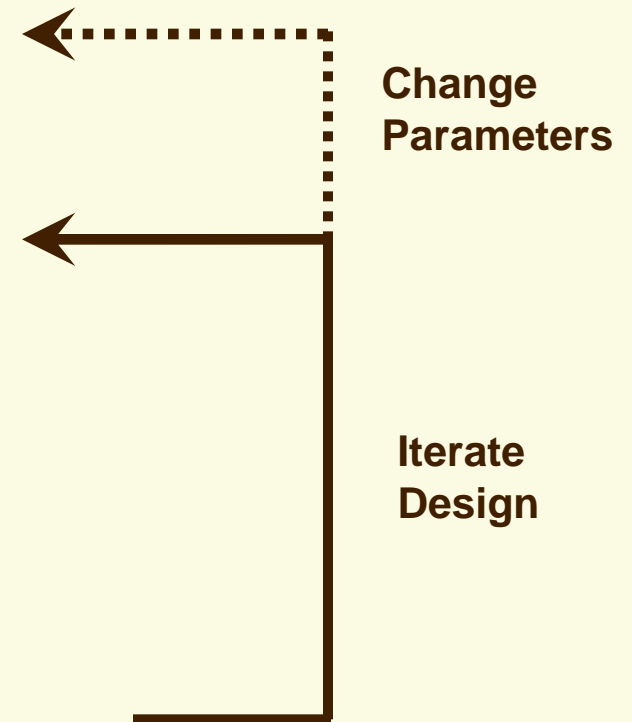


Milking Parlor



The Design Process

- ☐ Develop the sheep management plan
- ☐ Investigate and develop alternative designs
- ☐ Evaluate alternatives and options
- ☐ Choose the “best” system design
- ☐ Troubleshoot and implement the design



Sheep Management Plan

- Housing in stable group(s)
- Spacious indoor enclosure(s) with straw bedding
- Access to spacious outdoor enclosure(s) with pasture
- Provision of bulky food
- Gentle familiarization to any new situation;
- Knowledgeable, patient and gentle-and-firm animal care personnel
- Working with rather than against the animals during procedures

Viktor Reinhardt and Annie Reinhardt Animal Welfare Institute

Sheep Feed Space Design

- Ewes
 - 16"-20" limit fed
 - 6"-8" self fed
- Dry Ewes
 - 4" – 6"
- Rams
 - 12" limit fed
 - 6" self fed
- Feeder Lambs
 - 9"-12" limit fed
 - 2" self fed



Feeder Design

- Off the floor
 - Reduce parasites
 - Keeps feed clean
- Toe Board
- Throat height
 - 12-15" for ewes (size of breed)
 - 10-12" for lambs (size of breed)
- Slant bar feeder or keyhole
- Livestock panels with cutouts for heads



Five Freedoms

1. **Freedom from Hunger and Thirst** - by ready access to fresh water and a diet to maintain full health and vigor.
2. **Freedom from Discomfort** - by providing an appropriate environment including shelter and a comfortable resting area.
3. **Freedom from Pain, Injury or Disease** - by prevention or rapid diagnosis and treatment.
4. **Freedom to Express Normal Behavior** - by providing sufficient space, proper facilities and company of the animal's own kind.
5. **Freedom from Fear and Distress** - by ensuring conditions and treatment which avoid mental suffering.

Sheep Shed Design

- ☐ Three sided shed
- ☐ Low eave height for sheep
- ☐ High eave height for equipment access by skid steer or loader for manure removal
- ☐ Dirt floor can be used
- ☐ Concrete under feeding area

Shelter Options

Calf Hutches





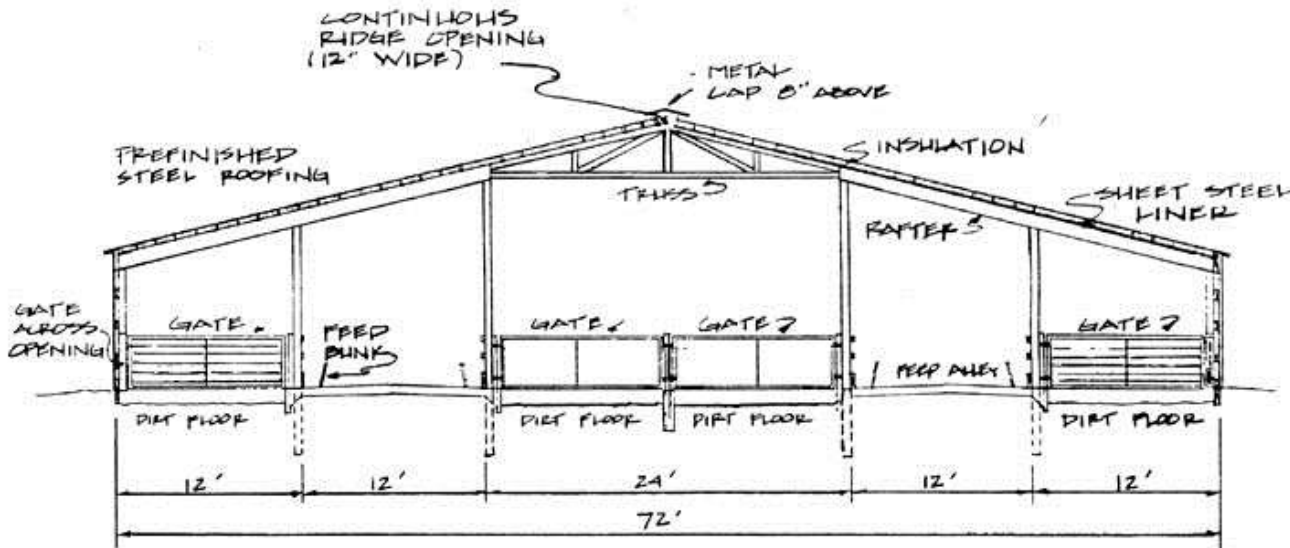
Run in Shelter

Run In Shelter
Quonset Huts
Porta Huts



Permanent Shelter Options

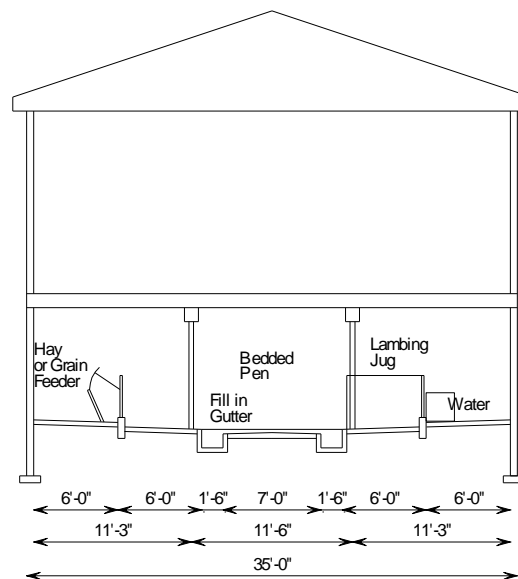
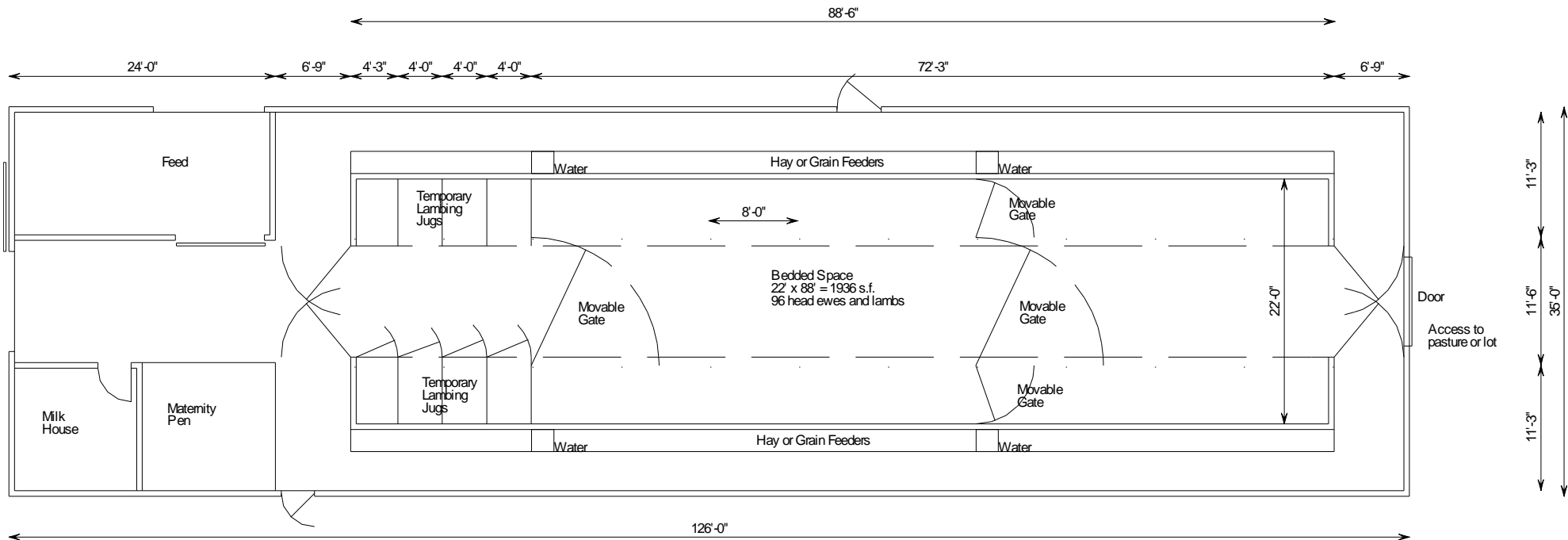
Hoop Shelter
Greenhouse Shelter
Post Frame Building
Remodeled Barns



CROSS SECTION
NO SCALE

PRELIMINARY CROSS SECTION





Open Front Shelter

