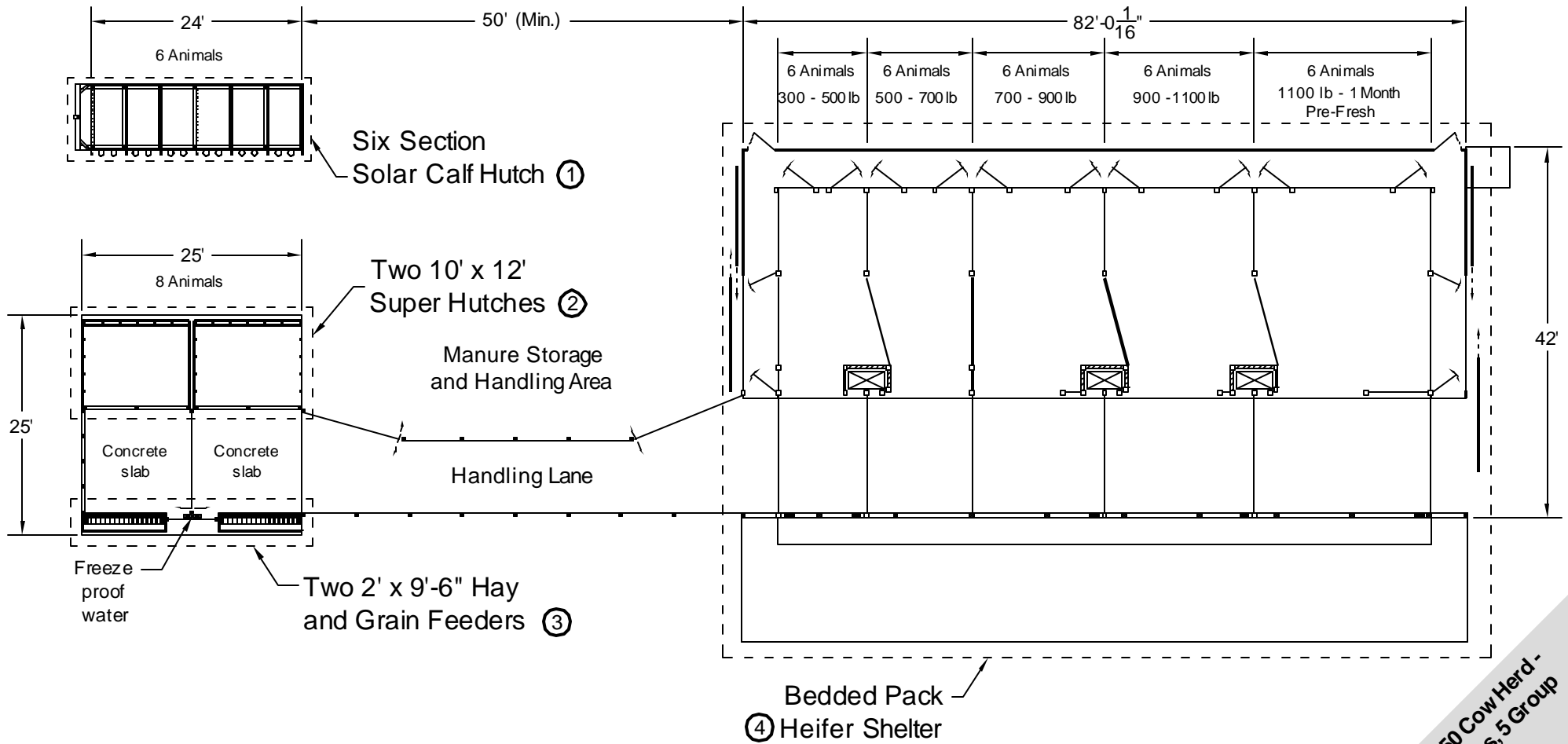


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Reference Plans:

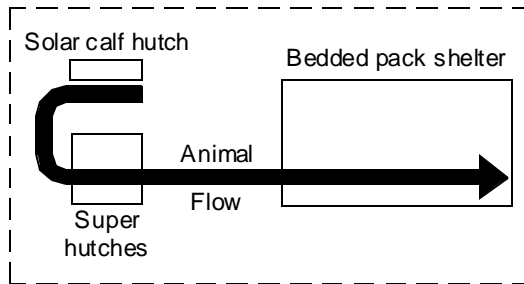
- ① DIP 504 Multi-section Solar Calf Hutch
- ② DIP 512 Super Hutch - 5 Animals, Weaned to 300 Pounds
- ③ DIP 513 Hay and Grain Feeder
- ④ DIP 531 Bedded Pack Heifer Shelter, 300 pounds to 1 month pre-fresh, 5 groups, 60 animals - fits two row heifer freestall

**Calf and Heifer Housing System for 50 Cow Herd -  
 6 Section Solar Hutch, 2 Super Hutches, 5 Group  
 Bedded Pack Shelter, 44 Animals**  
 Graves, McFarland, Tyson, Wilson  
 Date: 02/27/07  
 Sheet #1 of 2



### DIP 591 Calf and Heifer Housing System for 50 Cow Herd

This plan illustrates how to assemble a complete system using some or all of the features found in three different Penn State Dairy Idea Plans and is intended for a dairy herd with about 50 mature dairy cows (females that have calved at least once), assumes a 24 month age at first calving and animals are moved to a pre-fresh group one month prior to calving. It provides space for 44 animals, in 8 groups, from birth to one month pre-fresh.



The system includes a six section solar hutch based on **DIP 504: Multi-section Solar Calf Hutch** for baby calves; two 10' x 12' super hutches for 8 weaned calves based on **DIP 512: Super Hutch -Weaned to 300 pounds** and an 82' x 42' bedded pack shelter with 5 groups for 30 animals 300 pounds - pre-fresh based on **DIP 531: Bedded Pack Heifer Shelter, 300 pounds to 1 month pre-fresh**.

### Sizing and Selecting Components

The number and distribution of heifer calves and the growth rate of these animals will vary from herd to herd and year to year in the same herd. Therefore sizing and selecting buildings for a calf and heifer raising system for a particular size herd will always be an estimate. The breeding program, heifer to bull ratio and average daily rate of gain are the variables that have the biggest impact on housing system space requirements.

The following procedure was used to size this example system.

- Assume 1.05 calvings per cow in herd per year  $50 \times 1.05 = 52.5$  calves
- Calves per month  $52.5/12 = 4.4$  per calves month
- 1:1 heifer: bull ratio  $4.4/2 = 2.2$  heifers per month
- 95% of heifer calves are raised  $2.2 \times 0.95 = 2$  calves raised per month
- 24 month total grow out period  $24 \times 2 = 48$  total animals
- Assume 6-8 weeks in individual housing and 6-8 weeks in weaned calf pens
- Oversize facilities of birth to 300 pounds by 50% to account for variability in numbers of heifer calves and to allow for sanitation and idle time between occupants.
- System will house animals to approximately one month prior to freshening (23 months).

### Planning a Calf and Heifer Raising System

A well planned calf and heifer raising system provides a clean, dry and comfortable home for all animals and flexibility to accommodate the changing needs and numbers of dairy animals from birth to calving. There are a variety of stages in a heifer's life based on age, weight, health or management needs and housing types. Adequate quality space is especially critical for baby calves (birth to weaning) and the weaned calf during the first group living experience to 300 pounds. Housing for these early groups is increased by 50 percent over the average number of animals expected to allow adequate time for cleaning, disinfecting and resting of the pens to minimize disease buildup and to account for variation in animal numbers.

Once animals are well adapted to group living, eating solid feed and have reached 500 pounds there are a wide variety of housing systems that can provide for their needs. Special attention for observation and restraint are important for breeding age animals. Flexibility of size and use of facilities is important as bulges in animal numbers from irregular calvings and changes in the bull to heifer ratio work their way through the system.

Specific items to consider include:

- Changing needs of the growing animals - space, feed, management
- Natural and planned variability in calving patterns including numbers of calvings per month and sex of animals
- Variation in health and death loss
- Changes in management goals
- Animal observation, restraint and treatment requirements at various ages and sizes
- Biosecurity - minimize disease transmission among calves and heifers, from mature animals on the farm, by workers and equipment and from off farm sources including invited and uninvited visitors. Diseases normally are spread from older to younger animals by direct contact, manure, drainage water or contaminated ventilation air.

Items to consider include:

- o Chore patterns, manure flow, air flow and animal movement within and between buildings and age groups
- o Shared equipment
- o Vectors
- o Visitors

Calf and Heifer Housing System for 50 Cow Herd -  
6 Section Solar Hutch, 2 Super Hutches, 5 Group -  
Bedded Pack Shelter, 44 Animals  
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Date: 02/27/07  
Sheet #2 of 2