



Well-planned barns and pastures, and innovative use of high- and low-tech gadgets can make life on the farm much easier. If you have any helpful "husbandry hints," *Alpacas Magazine* would love to hear from you.

■ Fabric Covered "Hoop" Buildings for Alpacas

A number of alpaca owners are finding that fabric covered buildings offer excellent features for sheltering alpacas and are turning to these "hoop buildings" for their herds. Fabric-covered structures, or "hoop buildings," as some call them due to the metal arch support system utilized in their design, are catching on as an economical alternative to conventional wood or metal farmstead buildings.

Applications for their use already include dairy and beef cattle, greenhouses, hay and grain storage, sand and salt storage, and machinery storage. They are also popular for indoor equestrian riding arenas. (One fabric covered building company manufactures and ships over 10,000 structures per year.)

Fabric Covered Building Advantages

1. Can be delivered and set up quickly
2. Lower construction cost than wood or metal buildings
3. Less heat convection from roof than metal

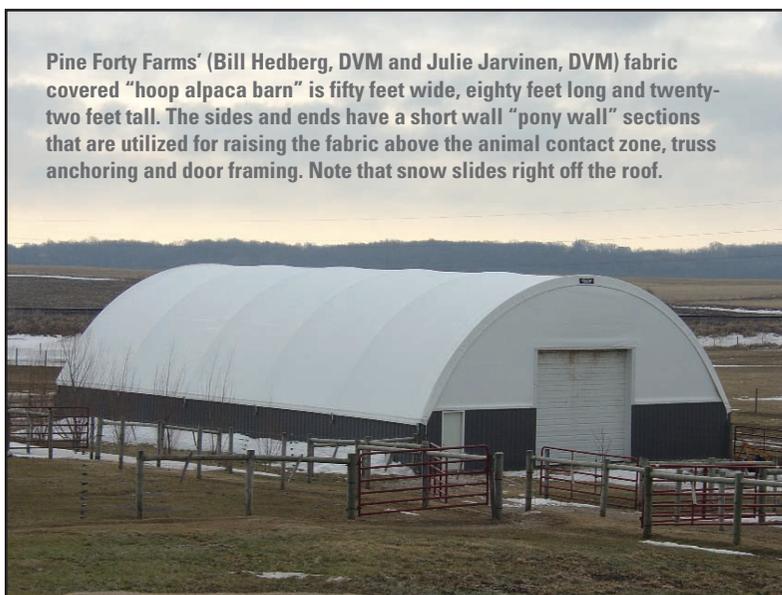
4. Maximize ventilation in summer
5. No interior support columns allow for variety of pen configurations
6. Very quiet – fabric does not reflect sound inside
7. Excellent light reflection inside
8. Amazing light transmission through lighter fabrics
9. No need for artificial lighting during the day
10. Few light fixtures needed for bright lighting at night

Hoop Building Construction Technology

The hoop buildings have to be securely attached to the ground with ground anchors or attached to a short "pony wall" made of wood posts and boards or concrete. This "pony wall" can increase the useable building space by providing a vertical wall section on both sides. Without this pony wall, the arched building starts tapering in from the sides, starting at the ground. A pony wall of four to eight feet also adds overall height to the arched trusses and thus higher overall clearance inside of the building. Pony walls get the fabric up and away from potential damage from daily wear at ground level where most of the wear and tear on a building occurs.

Ends of the buildings can be left totally open and thus serve as a simple summer shade structure with maximum ventilation. For year-round use, there are various options for enclosing the ends, including fabric covered ends, wood framed or concrete pony walls – which can include various door configurations from standard walk-through doors to sliding pole-barn-type doors to large, overhead-tracked garage doors.

The frame materials are hot-dipped galvanized tubular steel and have varying designs, depending on building size and manufacturer. They all utilize some form of arched truss, with cabling used to



Pine Forty Farms' (Bill Hedberg, DVM and Julie Jarvinen, DVM) fabric covered "hoop alpaca barn" is fifty feet wide, eighty feet long and twenty-two feet tall. The sides and ends have a short wall "pony wall" sections that are utilized for raising the fabric above the animal contact zone, truss anchoring and door framing. Note that snow slides right off the roof.

Top: Pine Forty Farms alpacas love their hoop building. The end wall sections accommodate a large garage door that can be opened up in the summer for maximum air flow. Note the arched trusses made of galvanized tubing inside the building.

Middle: Bacon's Alpacas (Gregg and Kay Bacon) have utilized traditional red and white farm building colors to have their hoop building fit in visually with their other farmstead buildings. Their building incorporates alpaca access doors through the sidewall.

Bottom: Bacon's Alpacas also included louvered vents in the top of both end-walls to improve ventilation and help prevent condensation. This building design utilizes smaller sized trusses, but spaces them close together. Your building supplier can assist you with sizing the building and selecting truss designs to fit your needs.

provide lateral bracing and tubular steel (purlins) between the truss members. Most companies are designing their structures to withstand winds up to ninety miles per hour.

After the building is structurally framed, the fabric is then stretched over the arched trusses and placed under tension through a system of pipes, webbed straps, cables and heavy duty ratchets both the length of the building and along the sides of the building. This tensioning is very important and can be adjusted easily.

Most companies warrant the fabric material for fifteen years, prorated at one-fifteenth per year. For example, if you have to replace the cover in year five, the fabric would cost one-third the cost of a new cover; in year ten, two-thirds the cost, etc.

Many Sizes Available

Standard building sizes range from twenty to forty two feet wide and from twenty-four to ninety-six feet in length. Building heights without a pony wall would be 12 to 17 feet respectively plus the height of a pony wall if utilized. Heavy-duty truss arch type buildings for large buildings and arenas can be up to two-hundred feet in width. These buildings can be insulated with a TekFoil reflective insulation material that is applied to the inside of the building, but usually are not insulated for alpacas.

Alpacas of the Ark

Jim, DVM, and Linda Stark (Alpacas of the Ark) were probably the first alpaca owners in the country to try the fabric covered buildings. They have been thoroughly pleased with their building. Jim and Linda both commented about how they really like the great natural light transmitted by the fabric. They said it is always light and airy inside during the day. They specifically selected a white fabric to give them the best light transmission possible.



Husbandry Hints



Alpacas of Buffalo Creek (Jim and Karen Post) included both sliding doors and walkthrough doors in a solid end wall to provide maximum flexibility. The photo was taken on a cloudy day, but note the inside of the building is very light and bright.



North end wall of the Posts' building has two sliding doors that open up in the summer to allow for outstanding air flow.



Hoop buildings offer great flexibility because they have a totally clear floor area, free from building columns. An automatic waterer, strategically located in the center of the building, is accessible by animals in up to four pens. A clay floor allows the Post family to reconfigure the pen layout throughout the year.



The end-wall of this hoop building has been totally framed up and skinned with metal. The framing allows for easy installation of various door configurations. Note the heavy duty tubular trusses, cable cross bracing and tubular purlins (pipes running between the trusses).

The cost to build their hoop building was significantly less than that of a traditional metal-skinned building. Their building is usually about 10° cooler than outside air in the summer and seems to be about 10° warmer in the winter. Their floor material is packed lime and Jim feels it is superior to concrete. The lime is more forgiving on the alpaca's legs and tends to absorb moisture and drain off much better than the concrete. The Starks' building has single hoop frames spaced 10' apart. Their building is a Cover-All and is thirty feet by sixty feet. It is oriented

north and south and has a 12' x 15' and a walk-through door in the south end. They have four double walk-through doors on the west. Starks commented they had excellent builders and it went up quickly.

Features the Starks like best:

Wonderful daytime light transmission, exceptional ventilation due to open floor design, ease to reconfigure pens.

Starks' tips: Select a company with a good local installer and include vents in the end walls.

Bacon's Alpacas

Gregg and Kay Bacon (Bacon's Alpacas) recently completed a fabric-covered ClearSpan building and say the best features of their buildings are:

1. Open-air design, the floor space is wide open
2. Very good daytime lighting inside
3. Does not heat up in summer like metal-skinned buildings
4. Costs less than conventional wood or metal buildings



Above: The arched trusses of the Post building are bolted to the top of 6' x 6' treated wooden posts, which are set in concrete about four feet in the ground.

Below: Fabric on hoop buildings is stretched very tight the entire length of the building and is kept under tension by utilizing pipes, web strap lacing, and heavy-duty ratchets.



Above: The fabric is stretched tight over the top and down the sides of the buildings and also kept under tension by a system of cables, straps and heavy-duty ratchets. The cover is a rip-stop, twelve and a half ounce, twenty-four mil, polyethylene, fabric.

Their building is 36' x 70' and is twenty-five feet high. It has walk-through openings for alpacas out the south sidewall of the building and a 12' x 16' sliding door in the east end-wall. Inside the west end of the building is a wood-framed, fifteen-foot long room the width of the building. The ceiling stringers on this room are heavy duty and the Bacons store their hay on top. They installed louvered vents near the top of both end walls. The metal arched trusses for this building are one and three-quarter inch tubing spaced five feet apart. Bacons assembled the building themselves using a cherry picker boom truck. The side walls are seven feet high. Arches are 18 feet so ceiling height is 25 feet. Automatic waterers and electrical outlets for fans are located along one side wall.

Bacons' tips for those building a fabric hoop building: Be sure to install vents in the ends of the building up

near the top to eliminate condensation. Compare brands. Look at rafter spacing and keep them close to eliminate fabric "flap."

Pine Forty Farms

Bill Hedberg, DVM and Julie Jarvinen, DVM (Pine Forty Farms) built a Cover-All building in 2004 oriented east and west. It is a 50' x 80' by twenty-two feet tall building. It has six foot side walls and seven-and-one-half foot pony end walls to accommodate walk-through doors. The ends are fabric covered above the pony wall which is different than the other buildings. They have a sixteen foot by fourteen foot high garage doors in each end.

Bill and Julie really liked the cost per square foot, the light transmission characteristics and the large open air, open floor design of the building.

Bill suggests including louvered vents in the top of the end walls for ventilation

to prevent condensation. He also recommended allowing the fabric to season a few days after covering the building to allow it to lose the "memory" temporarily formed during folding and shipping, then stretch the fabric on a very warm day and fasten to the solid door frames on the end walls.

Alpacas of Buffalo Creek

Jim and Karen Post (Alpacas of Buffalo Creek) built a Cover-All building themselves in 2004. It is a 42' x 64'. It has seven foot tall pony walls made of six by six foot treated posts, buried four feet deep and anchored in concrete. The side walls and end walls are then framed and skinned with metal siding. Post's building has a clay floor, automatic waterer and electrical system mounted in conduit. Total cost in 2004 was about ten dollars per square foot.

Post's building has two 8' x 9' sliding doors on each corner of the north end of their building. The south end has a

Husbandry Hints

walk-through door on each corner and a large fifteen foot by twelve foot high garage door in the middle. The truss spacing on this building is sixteen feet on center.

Jim and Karen really like their building. They like how light it is on the inside during the day, the low cost per square foot, the tall interior height that allows for maximum ventilation and the fact there is little heat convection in summer. One special note is that Posts have installed a “night light” in their alpaca hoop building. It is a single fifteen watt bulb that actually lights up the entire building at a moderate level at night. The white and curved underside of the fabric cover seems to reflect any light in the building and provides a warm glow for the alpacas at night.

Posts’ tips: Space the trusses a little closer together (say twelve feet) to reduce flap in high winds. Add vents near the top of each end wall.

Bill and Sherri Duey operate Southern Iowa Alpacas ranch located in the hills of Southern Iowa 60 miles southeast of Des Moines. They specialize in raising Accoyo huacaya alpacas. They have incorporated innovative features into their ranch and conduct seminars on business planning, animal selection and ranch setup for new alpaca ranchers. They also enjoy helping existing ranchers learn about new products and techniques for fine tuning their operation. View their site at www.southerniowaalpacas.com or contact them via e-mail at alpacas@southerniowaalpacas.com.

MORE INFORMATION

Fabric covered or “hoop” buildings have some excellent characteristics for sheltering alpacas. The four alpaca owners interviewed for this article are very happy with their buildings and recommend them as a good investment in their businesses. You can further research fabric covered buildings by contacting one of the following manufacturers and finding a dealer near your ranch location.

Cover-All Building Systems

<http://www.coverall.net>

ClearSpan Fabric Structures International

<http://www.clearspan.com>