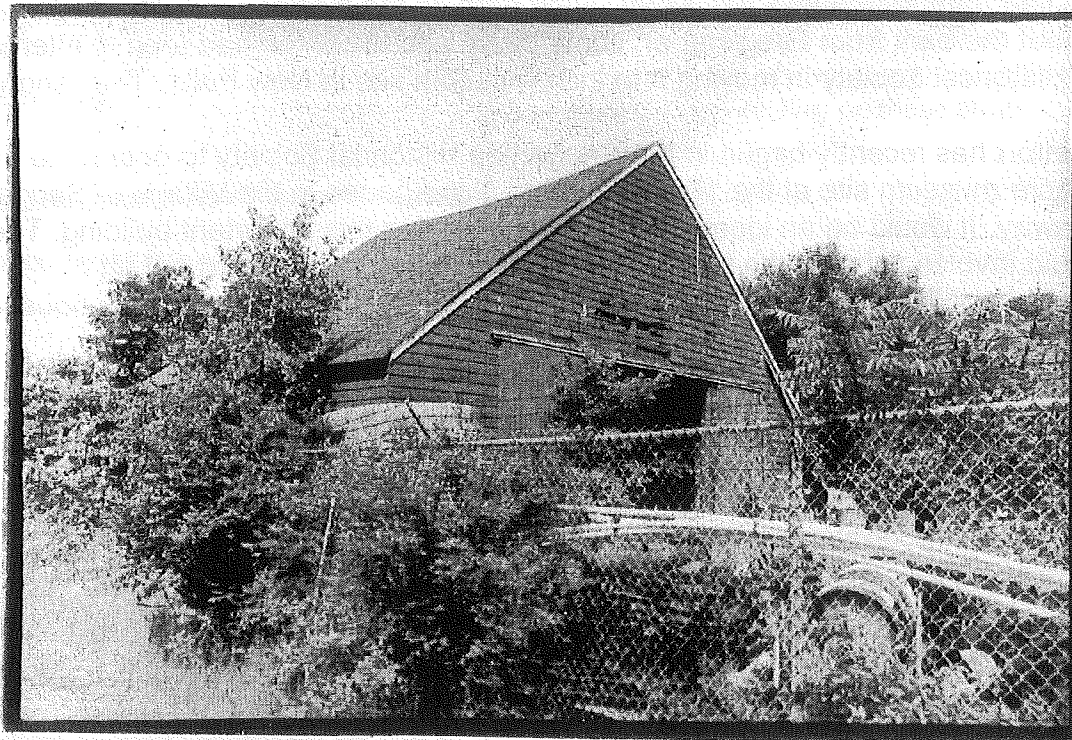




## HUDSON VALLEY VERNACULAR ARCHITECTURE



**The Solite Dutch Barn, June 1998**

Report on  
**The Solite Dutch Barn**  
Saugerties, Ulster County NY  
its recent history,  
a comparison with other barns  
and  
plans for its future.

January 2004

by Peter Snclair

1.

The following are edited and expanded reports from the HVVA Newsletter, Volume 3, Number 6.

**Saturday, August 18, 2001** nine people attended a short tour of two barns in the Town of Saugerties, Ulster County. They were Jean Goldberg, Alvin Shaffer, John and Marian Stevens, Hank Zigler, Jennie Marshall, Alec Wade, Barry Benepe and myself. It was organized by the Saugerties Historical Society and HVVA.

The first barn visited was the 3-bay Dutch barn on the Northeast Solite property. I had learned about the barn from Greg Huber, some years ago, when he had tried to interest the Huguenot Historical Society in moving it to their museum site in New Paltz. They showed no interest.

An effort has recently begun in the Saugerties Historical Society to obtain the building for its 1.5-acre museum site at the 1724 Kierstead stone house in the Village of Saugerties, a few miles away. It would be an ideal solution for preserving this important building. The project would involve not only the work of moving and restoring the barn but an archaeological and historical survey of the site that includes the foundation of a house and a small intact stone building.

The **Solite 3-bay Dutch barn (Uls-Sau-19)** is one of about 6 surviving examples known in the Hudson Valley with a major/minor rafter system. This rafter system was first identified in the **Nieuwkerk/Kaufman Dutch barn (Uls-Hur-2)** in Hurley. Few barns have positive dates of construction but the Nieuwkerk barn is inscribed "1766" on an anchorbeam. In many ways, including the steep pitch of its roof, the low height, 9-feet, of its side walls and the spacing and number of minor rafters, the Nieuwkerk barn seems to be the earliest of the examples known and so it is estimated that the Solite barn was built circa 1770, although the Solite barn includes some

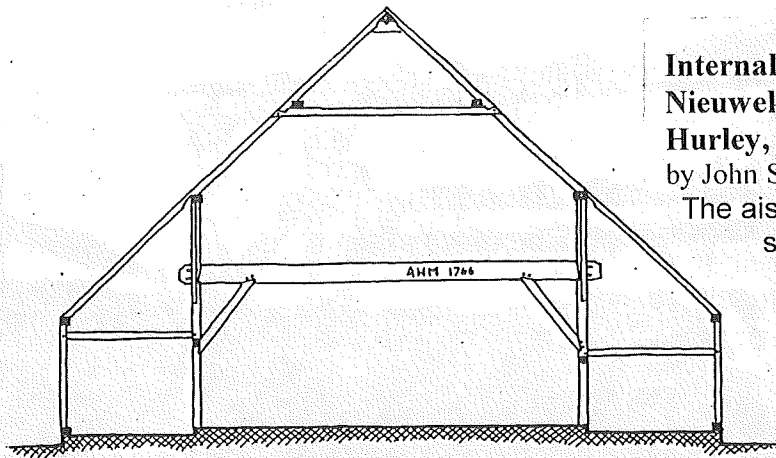


**The Solite Dutch Barn and Carriage Barn  
December 2001, photograph by John Stevens**

earlier framing features such as lap-dovetail anchorbeam braces. In 1963 John Fitchen visited the Nieuwkerk barn and numbered it "42" in his registration of 76 Dutch barns. He noted the gouge-cut marriage marks on timbers but the barn was full of hay and unfortunately Fitchen did not get to see the rafter system and he remained unaware of this Dutch barn feature. In Greg Huber's second edition (page 189) of Fitchen's book, The New World Dutch Barn, he refers to the Nieuwkerk barn as one of three Dutch barns in Ulster County with major/minor rafter systems extant. There are probably a total of 100 Dutch barns extant in the county. "Seventeen other barns in Ulster County," Huber writes, "have evidence to varying degrees of this pre-war barn type." In other writing Huber refers to the possibility of this rafter system's use in Bergen County, New Jersey.

The rafter system of the Solite barn is not a New World tradition but the survival of a European, and I believe Dutch tradition with Medieval origins. We have very few examples of pre Revolutionary barns. Most of our experience is with the 19<sup>th</sup> century or late 18<sup>th</sup> century examples almost all with common rafters but these early major/minor rafter system barns suggest that Hudson Valley architecture of the 17<sup>th</sup> and early 18<sup>th</sup> century may have had more Old World features than we are aware of today.

GARRET NIEUWKIRK BARN, *Hurley Mountain Rd., Ulster Co., N.Y.*



*Section, layout face side*

0 10 20 30 40 feet

**Internal Bent with Date Inscribed Anchorbeam  
Nieuwekerk/Kaufman Dutch barn (Uls-Hur-2)  
Hurley, Ulster County, NY**

by John Stevens

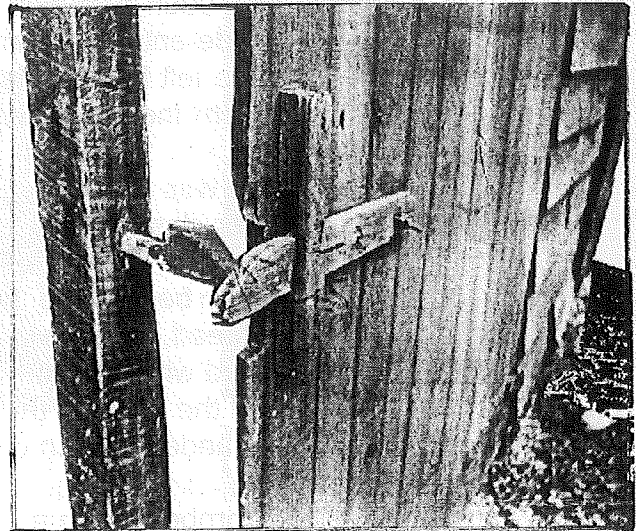
The aisle, or transverse, strut in the left aisle is slightly higher for stalling the horses. The other side-aisle is for the cows. Hay or straw would be stored above the cattle on mow-poles resting on these struts

AMM 1766

J. R. Stevens, 2001

The last barn visited was **The Brink/Mueller 4-bay Dutch U-barn (Uls-Sau-9)**. This is a small sized barn with a 20-foot nave (the Solite barn is a medium size barn with a 25-foot nave). The barn was built soon after 1805, the date Corenelius Brink bought the land. The Brink and Winne families were the first to settle the Saugerties area in the late 17<sup>th</sup> century. Built as a U-barn with lowered anchorbeams in two bents that formed a wide end bay, it was later converted to a true-form drive-through Dutch barn by cutting through the lowered beams and adding wagon doors on the end wall. The barn has a lowered side aisle used as a horse stall. As in the Solite barn there is evidence of built in stake hay mangers for the horses. The stall in the Brink barn seems low for the manger but the floor is presently dirt. Originally it may have been higher with a plank floor resting on sleepers.

The oak frame of the Solite barn is in generally good condition. A good roof and recent repairs to one wall plate and replacement of several rafters has stabilized and saved the structure. It no longer has a threshing floor and not much of its sills survive. The Brink barn has a wood pegged threshing floor in good condition and many original features, like the latching system for the wagon doors, that could help in the restoration of the Solite barn. In both barns the longitudinal struts on the cow side have been removed.



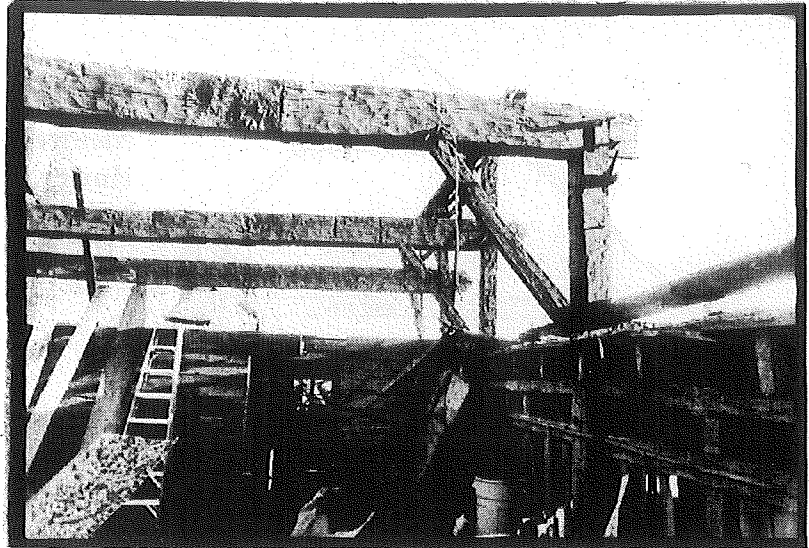
**Wooden latch and Removable  
Center-Pole of the Wagon Doors  
Brink/Mueller 4-bay Dutch U-barn (Uls-Sau-9)  
Saugerties, Ulster County, NY**

The pole was known in the local dialect as the "middelmans" or little-man-in-the-middle.

3.

**Saturday, August 25, 2001**  
I spent the day at the  
**Hornbeck/Myers/Grace farm**  
**(# 58 ) Town of Rochester,**  
**Ulster County, NY,**

Worked with Robert Stevens, son-in-law of the present owner of this third generation Grace family farm, and with a tenant, removing and examining timber from the collapsed frame of this 5-bay Dutch barn with the identical "AHM 1766" inscription as in the Nieuwkerk barn in H. The two barns were probably erected by the same builder in the same year. The Hornbeck barn was altered in the 19<sup>th</sup>



**Hornbeck/Myers/Grace 4-bay Dutch Barn(# 58 )**  
**Town of Rochester, Ulster County, NY,**  
**November 1994**

century by raising the side walls and its major/minor rafter system replaced with common rafters. Three of the six 30-foot anchorbeams survive including the inscription beam. Some of the frame has already been removed by Robert Stevens and is in safekeeping in the 30x40-foot circa 1870 side-entrance barn that has an end wall in need of repair. Two longitudinal struts from the left horse-side of the Hornbeck barn survive with notching for a hay manger and struts from the cow side survive with a series of holes drilled vertically to form a stake wall.

The Hornbeck farm was visited by Hellen Wilkinson Reynolds who described the house and its history in her classic 1929 book, Dutch Houses of the Hudson Valley before the Revolution, (see page 207). She noted the inscribed "AHM 1776" date in the barn and speculated that it might also be close to the date of the Dutch stone house on the farmstead.

At the Grace farmstead, we also jacked and placed blocks under the wheels of a box wagon with wooden spoked wheels and two independent sets of wheels that were sinking into the moist mud floor of the cellar of the granary. The wheels seem in good condition. Wagons and barns were made for each other and both are endangered in the Hudson Valley.

I returned to the Hornbeck barn a week later with Bob Hedges to estimate repairs to the side entrance barn and we moved a few more parts. I acquired a 2-foot section of a notched manger strut for a future museum.

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### **Disassembly of The Solite Barn.**

(upper left) **Bob Hedges and crew disassemble the Solite carriage barn, April 2002**

(upper right and lower right) **Jim Krickler and crew remove the ridge pole, December 2003**

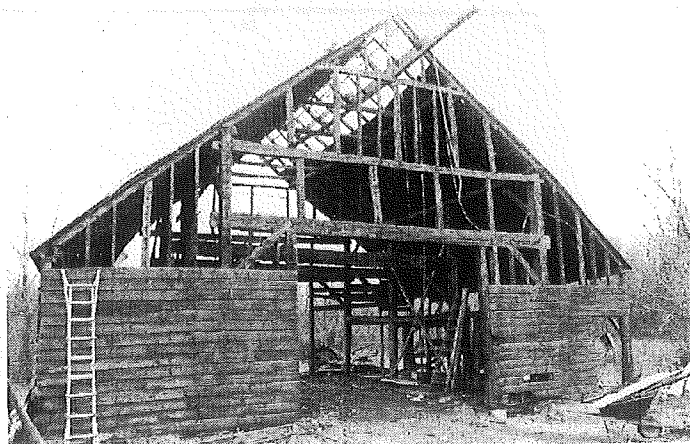
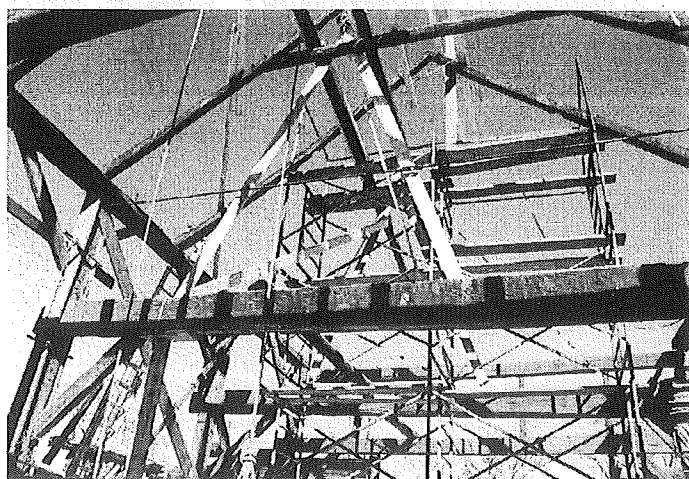
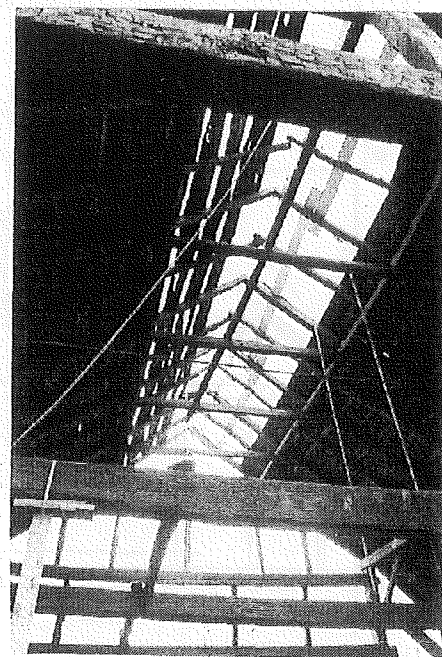
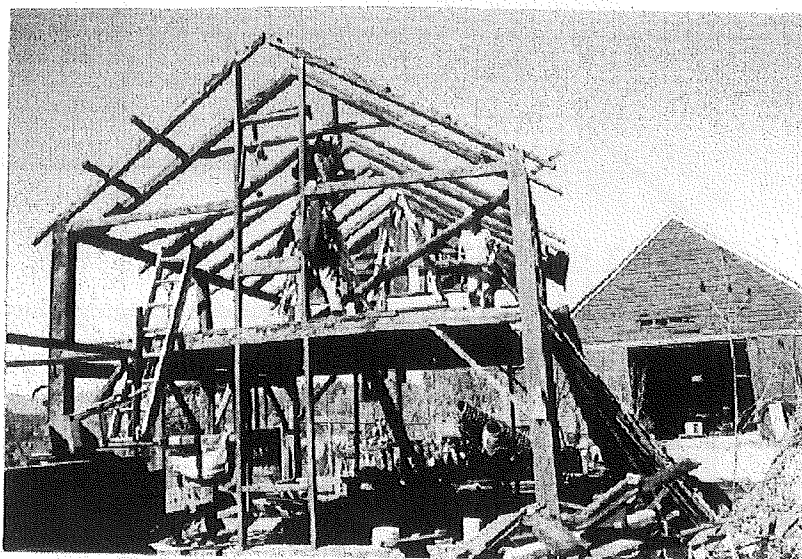
(lower left) **Upper purlins and rafters removed, December 2003**

The removal of the light and delicate 45-foot long 4-sided ridge pole and two upper purlins was a unique situation that required good planning and teamwork.

The following is from  
the HVVA Newsletter, Volume 5, Number 11.

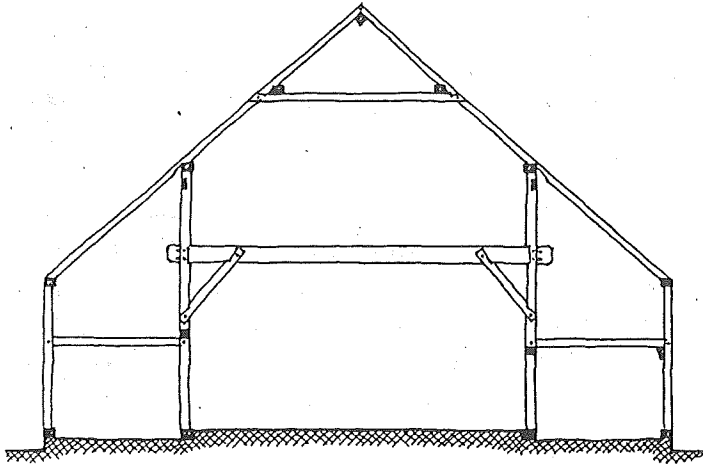
**Saturday, December 20, 2003** The Solite Dutch barn (Uls-Sau-19) is now disassembled and removed from its industrial site at Northeast Solite Corporation and is in storage a few miles away at the Kierstead House in the Village of Saugerties where it is planned to be repaired and re-erected. The 35-foot long four-sided ridge-pole was the first part of the frame removed revealing details of how it had been nailed to the major rafters

Dave Minch coordinated the project and registered the timbers. Many of the wooden pins were saved and will return to their original places. Randy Nash gave his experienced advice and assistance, Jim Kricker and his crew from Rondout Woodworking, with the help of a sophisticated fork lift and some volunteers, lowered the side walls and bents and loaded the heavy oak timbers onto a flat-bed trailer. The project was a pleasure to work on and has gained local public attention to the preservation of its historic structures.

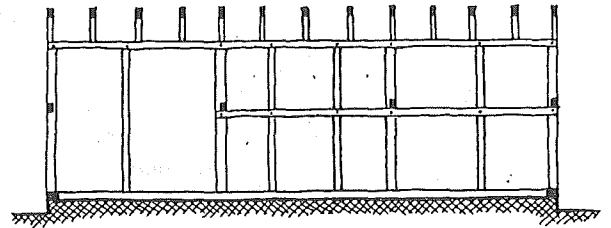


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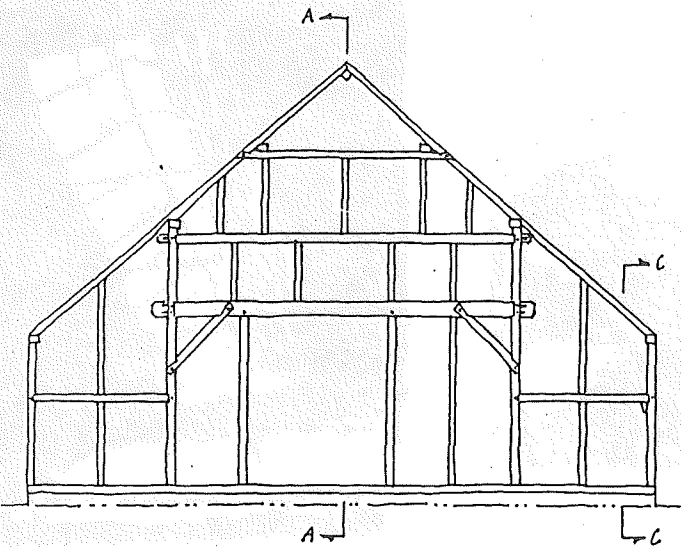
'SOLITE' BARN, near Saugerties, Ulster Co., N.Y.



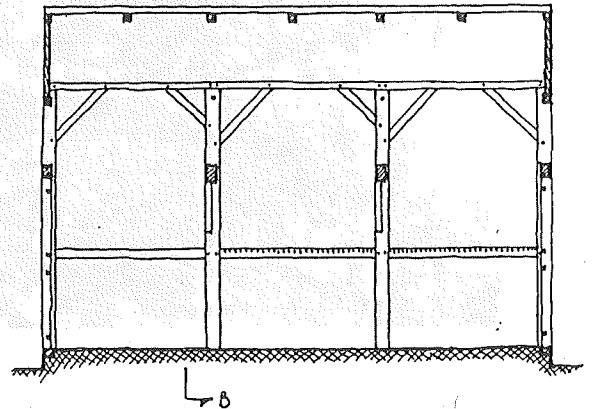
Section B-B



Section C-C

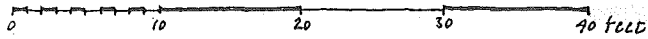


End wall elevation, layout face side.

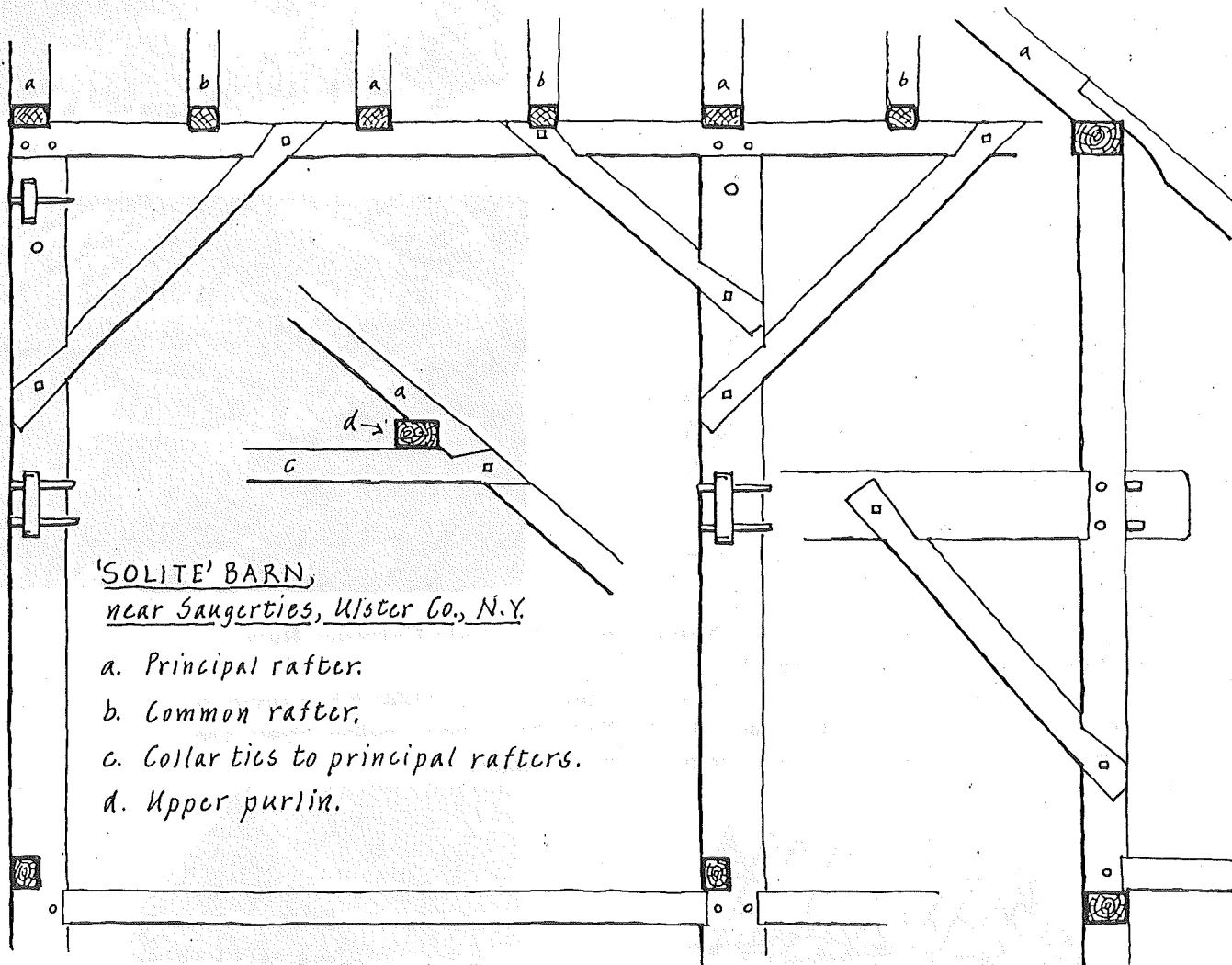


Section A-A.

a. Principal rafters b. Common rafters



J. R. Stevens, 2001



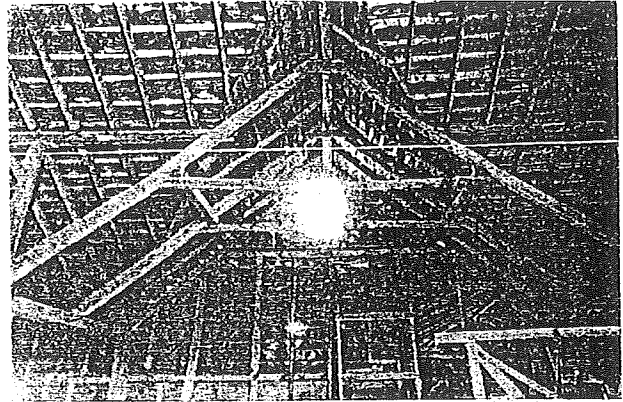
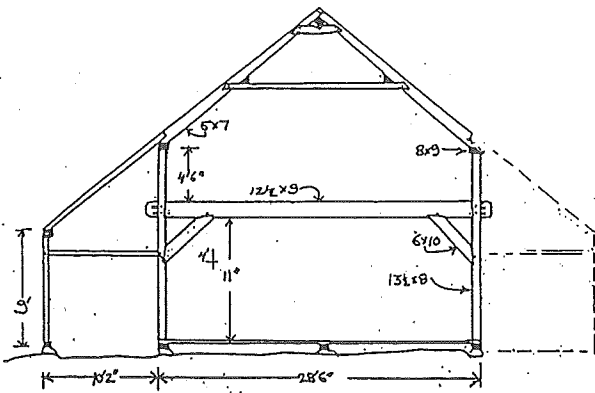
'SOLITE' BARN,  
near Saugerties, Ulster Co., N.Y.

- a. Principal rafter.
- b. Common rafter.
- c. Collar ties to principal rafters.
- d. Upper purlin.

1 2 3 4 5 feet

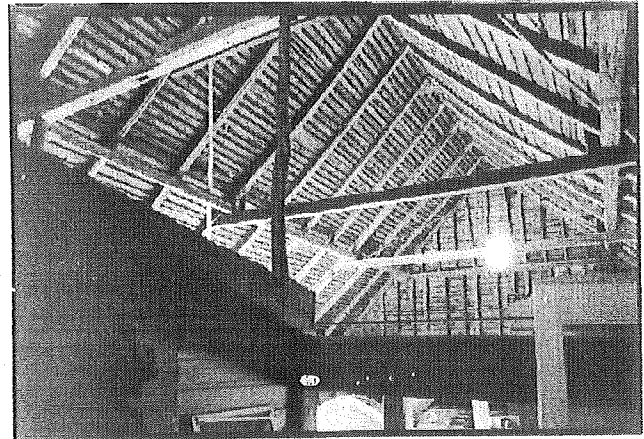
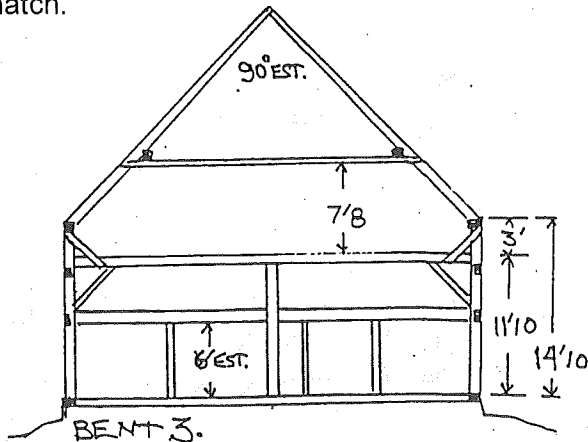
J. R. Stevens, 2001

7.



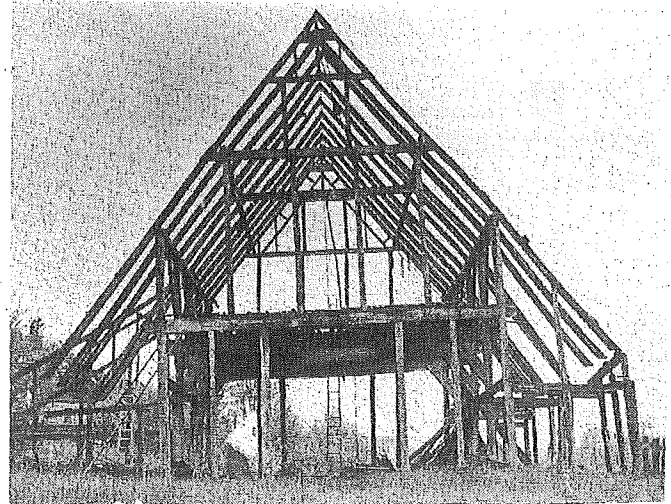
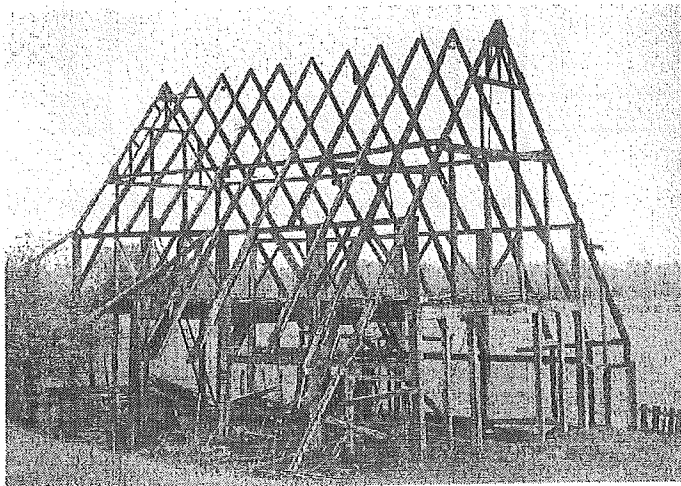
**Krom/Rominger 3-bay Dutch barn (#32)  
Town of Rochester, Ulster County, NY**

This example of a major/minor rafter system was found in 1996. The pitch of the roof seems low for thatch.



**/Shutz/Gonzales (Dut-Rhi-12) Single Aisle 3-bay Side-Entrance Barn  
Rhinebeck, Dutchess County, NY**

This example of a major/minor rafter system was found in 1999. It has upper purlins supported on rafter collar-ties but no ridge pole. Like the Teller barn shown below, there seem to be no dimensional difference between major and minor rafters.



**The Teller/Schermerhorn 4-bay Dutch Barn  
Mohawk Valley above Schenectady**

These photographs were taken in 1948-49 by Vincent J. Schaefer when he was taking this barn down and they were published in his book, Dutch Barns of New York; An Introduction, Purple Mountain Press, 1994, They show that there was no ridge pole but there were upper purlins and collar ties on some of the rafter pairs. It was probably one of the earliest Dutch barns that had survived. From the written record Vince thought the barn could have dated as early as 1701 but this way of dating using the written record is suspect.

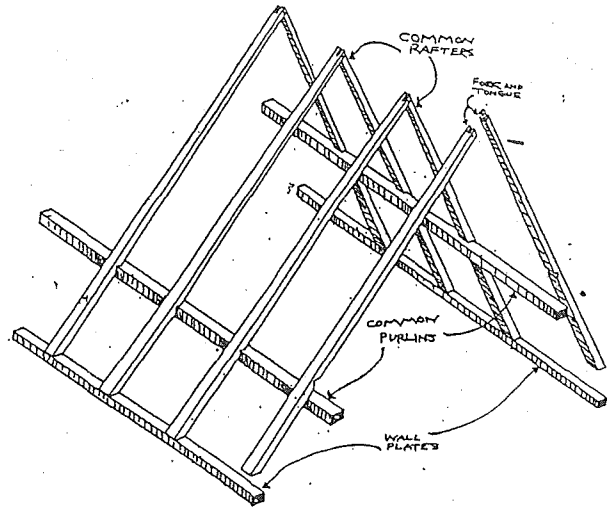


It seems that during the 18<sup>th</sup> century both common and major/minor rafter system were used in the Hudson Valley and it raises the questions; why would people continuing building roofs with a complex Old World system of many parts when the New World had plenty of tall thin trees, perfect for long common rafters; and, do these systems represent separate framing traditions or were they for different uses?

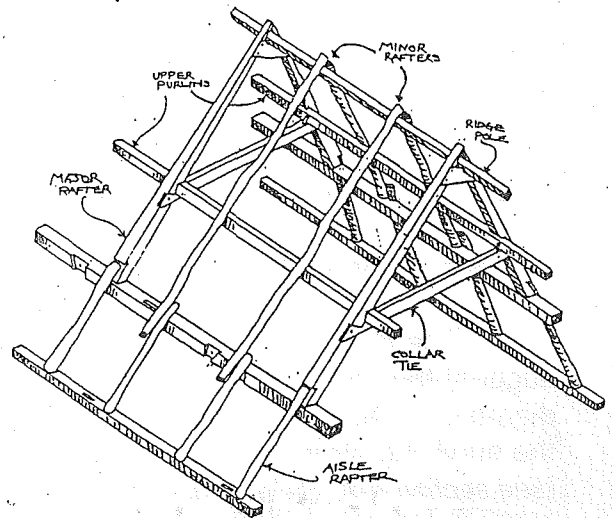
When a roof of common rafters is covered with a nailed coating of boards, or roofers, for shingles, these add a necessary stiffness to the roof. But, nails were expensive in the 18<sup>th</sup> century and their use was avoided when possible. There are many features in the original Solite barn that demonstrate this, such as the use of traditional wooden-hinged wagon doors rather than iron strap hinges.

The use of thatch was a way of saving on nails. It was the "poor man's" way to go. The thatch was tied to thin battens, which might in turn be tied to the rafters in which case the roof had few nails but little strength against racking. The upper purlins, resting on the collar ties and notched to the major rafters, gives the roof a ridged frame as Bob Hedges and I learned when we built a partial half-scale model of a major/minor rafter system in 1998.

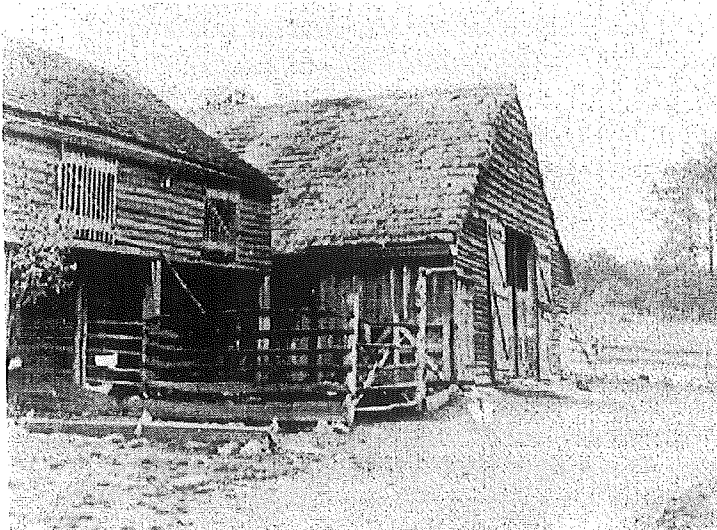
The 4-inch hand forged nails with flattened tips, many with T-heads, that were found used in the frame of the Solite barn are consistent with the circa 1770 date of construction but the 2-inch cut nails with hand forged heads that were found in the roofers, are thought to date after 1790. This has been questioned by Bob Hedges who has found the same nails used in the original fabric of a 1779 meeting house in Clinton, Dutchess County. There is no apparent evidence of an earlier pattern of nails on the rafters of the Solite barn so that the roofers appear to be the original fabric, but perhaps the original fabric was thatch with string tied battens that left no evidence.



Common Rafter System  
before 1840



Major-Minor Rafter System  
before 1766

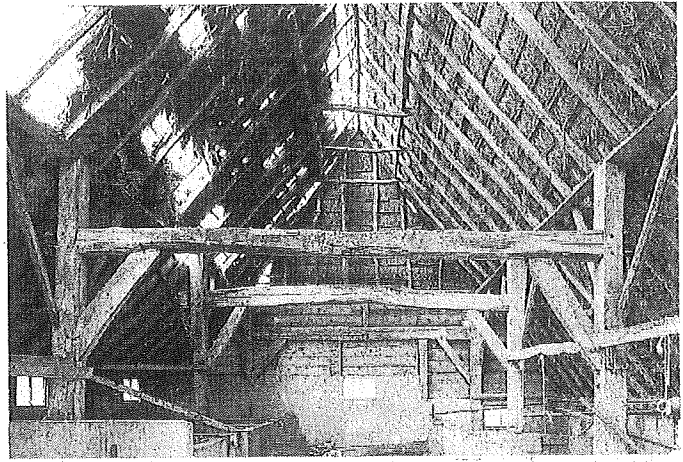


**Wortendyke Dutch Barn**  
Park Ridge, Bergen County, New Jersey  
HABS photograph, 1934

The several early 20<sup>th</sup> century photographs of New Jersey barns and barracks with thatched roofs, like the Wortendyke Dutch barn shown here, indicate the use of straw, rather than reed. The thin layered barn thatch of New Jersey looks very like that seen in early photographs of Pennsylvania thatched barns. In this tradition, a *fackle*, or type of straw bundle, was tied with straw to the battens thus saving quite a bit of money on string.

## OLD WORLD ROOTS

Some of the clearest evidence for the roots of the New World Dutch barn with a major/minor rafter system are found in the book, Historische houtconstructies in Nederland, by G. Berends, published by SHBO, in 1990. The text is in Dutch but by viewing the descriptive photographs and measured drawings and noting the terms applied to the parts, the variations and similarities of Dutch roof framing are made apparent and their differences from English and German rafter systems as well. The thatched *ankerbalkgebenten* (anchor beam bents) barn of *photo 10*, page 16, (illustrated here) would not have been out of place in Ulster County, New York, in the 18<sup>th</sup> century.



**Thatched Anchorbeam 3-Aisle Barn  
Gelderland, The Netherlands**

## CONSIDERATIONS FOR RECONSTRUCTION

The **sills and sleepers** should rest on a **dry laid stone foundation** with large stones under the posts.

The **threshing floor** should be of 2 1/2-inch pine planks splined and held to the **sills** and sleepers with wooden pins. There should be a **longitudinal center sill** and longitudinal **sleepers** to either side. Sills are one of the least studied parts of the Dutch barn. Often they and the floor are missing and when there is a floor the sills are hidden. The best evidence is gained when barns are disassembled.

The three **longitudinal struts** on the west or cow side are missing. I would suggest that the two replaced struts to the south have a series of vertical 1 1/2-inch diameter holes with corresponding holes in the sills below to form a **stake wall**. Two of the surviving struts on the south end of the horse side have notches for a **stake manger** (see section A-A, Stevens drawing). Three-bay Dutch barns often have horses and cows stalled in two bays of the side-aisles leaving one bay of the side-aisles used as a granary or floored over. I would suggest that at least one cow and one horse stall be reconstructed with a dirt floor and manger. A great deal could be learned by building and using the horse and cow stalls and it would add to the authenticity of the building.

There were parts of two rough shaped **riven planks** held with wooden pins to the wall posts on the west side-wall (see section C-C, Stevens drawing). These correspond in height with their longitudinal struts and appear to have been used to support poles for a hay mow above the cows. These need to be reconstructed.

There were **two mow-poles** notched to the anchorbeams in the two north bays. They were fastened with wooden pins to the internal beams and a 4-inch hand made nail on the external beam. The 18<sup>th</sup> century builder saved his nail for where he knew it would be more subject to dampness. These poles are set off center of the threshing floor and have gains indicating an attachment. They may have something to do with the wagon doors not being centered. They are not yet documented.

There were no surviving **pentice roofs** over the wagon doors on the Solite barn but these should be replaced. There were two methods of construction used in Ulster County. One was to nail the rafters to the studs and the short outrigger to the beam above the door. The other way was to use extended mow-poles as the outriggers. Perhaps the two types could be interpreted at either end of the barn.

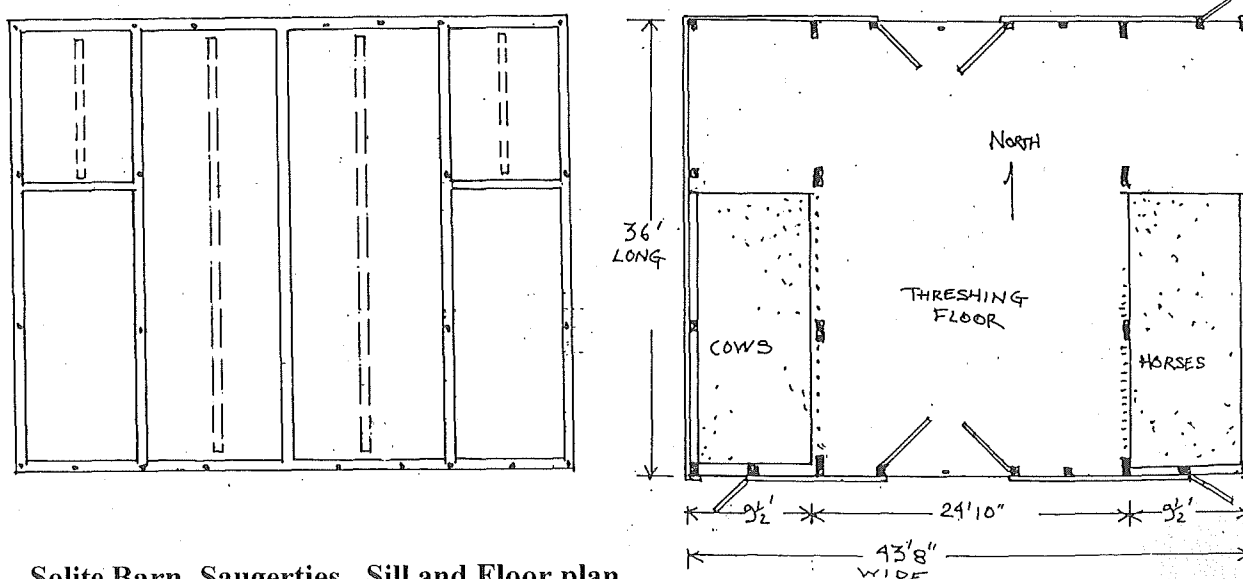
The **four-part wagon doors** at either end of the barn should be reconstructed in the traditional way. Bob Hedges has offered to build the two sets of doors.

One original **animal-door post** survived in the south wall on the east side. It was unused and hidden under later structure. It is unusually heavy, about 5x9-inches, and has two large, about 3x6-inches, through-mortises. It has not been documented. It has no evidence of pintals for hinges. The post at the west side is missing but the wide mortise remains in the girt. These should be compared with a surviving har-hung side door on **the Bogart Dutch barn (Uls-Mar-3)**. There is no evidence of original animal doors on the north end of the barn but there was a later door to the east side. A side-wall animal door is also a possibility. This all needs further study.

The **weather board siding** should be nailed in the traditional manner with rose headed nails that go through only one board and allow for movement of the siding. Three traditional **martin holes** should be cut in the siding at either end of the barn.

There will need to be repairs and replacements of **rafters**. As many of the original **roofers** should be re-used as possible. They have been numbered and can be replaced in order. These are quite fragile and will need some sort of support from above, such as a plywood cover. This will take further planning. Ideally **hand-split 30-inch long white-oak shingles** should be used for the roof. **Wooden gutters** with metal brackets could be set on one or both sides of the barn. They should not have down spouts but extend beyond the roof and empty into a barrel or container.

Eventually a **four-pole thatched hay-barrack** should be added to the site.



#### Solite Barn, Saugerties, Sill and Floor plan

(left) The sill beams rest on a dry-wall foundation. The sleepers, shown with interrupted lines, rest on stones and are unconnected to the sills

(right) The plan shows the horse and cow stalls with dirt floors. The two sets of 4-part wagon doors have traditional wooden hinges and open into the barn.

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by Peter Sinclair

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This report has been written for the Saugerties Historical Society at the request of the NY State Parks and Historic Preservation Office.