

**ARCHITECTURAL DOCUMENTATION
FOR
THE HALLSTEIN BARN,
HITTLE TOWNSHIP, TAZEWELL COUNTY, ILLINOIS**

by
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Illinois Department of Natural Resources

November 2002

Introduction:

In October 2002, Fever River Research (Springfield, Illinois) conducted an architectural documentation of the Hallstein Barn, a Three-Bay or English Barn located in rural Hittle Township, in southeastern Tazewell County, Illinois. This documentation was carried out at the request of the Illinois Department of Natural Resources (IDNR), which owns the barn and land surrounding it, in recognition of the fact that the structure represents a good twentieth-century example of an early barn form in a region where traditional barns are rapidly disappearing from the landscape. The documentation was conducted in anticipation of the barn's eventual demolition by IDNR. The barn is in poor condition structurally, having sat unused for many years without any visible maintenance, and poses a safety hazard. Sections of the sills are rotted away and the roof has holes in it, which has caused considerable water damage on the interior. The building is located on land recently donated to IDNR for conservation purposes; hence, it is fairly isolated and not able to be easily monitored by IDNR personnel. Although this structure was not considered eligible for listing on the National Register of Historic Places (due to its integrity issues), it retained sufficient integrity to warrant preparation of floor plan and sectional drawings (as well as 35mm photographs) to supplement our growing data base on agricultural outbuildings in Illinois. No archival research was conducted as part of this project.

Individuals who participated in the partial day of field investigations included Floyd Mansberger (principal investigator) and Christopher Stratton of Fever River Research and Dr. Harold Hassen, who is the Cultural Resources Coordinator with IDNR's Division of Resource Review and Coordination. The resource has been named the "Hallstein Barn" after Leonard Hallstein, the landowner at the time the barn is believed to have been built.

Geographical and Historical Setting:

Hittle Township (Township 22 North, Range 2 West of the Third Principal Meridian) is positioned in the southeast corner of Tazewell County and is bordered on the east by McLean County and Logan County to the south. The township has predominately been rural in character throughout its history. The only town of consequence is Armington, a small community of approximately 350 residents that lies near the Tazewell-Logan county line. The terrain in Hittle Township is overwhelming level, except for along the West and Middle forks of Sugar Creeks, which flow from northeast to southwest across the township—roughly parallel to one another—before merging 1-1/2 miles southwest of Armington. Historically, the narrow valleys associated with these streams were timbered, while the land extending beyond them was open prairie.

The Hallstein Barn Site is located on the NW1/4, NW1/4, SW1/4 of Section 9 of Hittle Township, four miles northwest of Armington. The barn (and accompanying archaeological site) occupies an elevated site overlooking, and west of, the West Fork of Sugar Creek. A township road (350 North?), which bridges the creek, runs along the north side of the site (see Figure 1). Besides the above-ground remains of the barn, several concrete foundation remnants, and a well suggest that additional farmstead structures (such as a house and ancillary outbuildings) were present at this location.

Nineteenth-century maps and atlases of Tazewell County depict this location as being on the edge of the timber bordering the West Fork. A map published in 1864 illustrates the NW1/4, SW1/4 of Section 9 as being wooded and divided into four ten-acre tracts. Typically, small timbered parcels such as these were used as wood lots. No residences are illustrated on the property, and the local road jogs dramatically to the north off of the quarter section line and away from the future location of the Hallstein Site to facilitate the creek crossing (Thompson 1864) (see Figure 2). An 1873 county atlas indicates that an individual with the initials “R. C.”—whose full name is not known—owned the ten-acre parcel. In contrast to the earlier map, the atlas illustrates a house on the northwest corner of the parcel, which appears to be partially cleared of timber. The road still jogs considerably to the north, with the house apparently located at the sharp 90-degree corner located at the northwest corner of the property (Andreas et al. 1873:44) (see Figure 3).

By the early twentieth century (1910), the Hallstein Site had been incorporated into a 270-acre farm owned by Leonard Hallstein, whose lands extended over portions of Sections 8, 9, and 17. The 1910 atlas illustrates Hallstein’s residence at the *northeast corner* of what was previously the small ten acre tract identified in the previous maps (and at the approximate location of the Hallstein barn site). Additionally, by this date, the previously irregular road (and creek crossing) had been straightened to align with the quarter section line (Ogle 1910) (see Figure 4). As such, it would appear that the farmstead associated with the Hallstein Barn was established sometime after the publication of the 1873 plat, and prior to the publication of the 1910 atlas. By 1920, Hallstein’s farm had been sold off and divided between parties, with 60 acres on the W1/2, SW1/4 of Section 9 having been acquired by William Dillon. A county map published that year does not illustrate rural residences as previous atlases do (Federal Map Company 1920) (see Figure 5). A map in 1929, however, does show a house at the same location as the one depicted in 1910. William Dillon was still the owner of the property and his land holdings had not changed since 1919 (Brock and Company 1929:31) (see Figure 6).

Physical Description:

The Hallstein Barn represents an early-twentieth-century example of a Three-Bay Barn. This barn form, which also is referred to as the “English” or “Three-Bay Threshing” Barn, is a one-story-with-loft, side-gabled structure that is defined primarily by the internal division of its first floor into three bays. The bays are aligned parallel to the roofline, thus making the barn three-bays long and one-bay deep. Four principal framing bents (comprised of vertical posts and horizontal beams or girts) delineate the bays. The central bay has large doors on both ends, which allowed wagons to enter the building—thus facilitating the storage of hay and the handling of grain—and also created a draft through the bay. The latter point is important, since the center bay, or runway, historically was used as a threshing floor where cut grain was processed. Processing the grain involved two steps: first, the grain was threshed (separated from the straw) by being beaten with a hand flail; it then was winnowed by being tossed in the air, causing the lighter chaff to separate and blow away from the heavier grain—a process that had become mechanized by the middle nineteenth century (Noble and Cleek 1994:49-51).

Kniffen (1986:11) notes that the Three-Bay Barn was first introduced in New England by English colonists and then moved westward “with remarkably little change.” In

Great Britain, the Three-Bay Threshing Barn was devoted entirely to the processing of grain. Cut grain was first stored in one of the side bays, threshed in the center bay, and the resulting grain and straw were then stored in the other side bay. By the time the barn form was introduced to the Midwest, however, one of the side bays commonly was devoted to livestock and had stalls on the first floor and a hayloft above. It also was not unusual for wagons or equipment to be stored in the barn (Calkins and Perkins 1995:45; Noble and Cleek 1994:50-1). With the introduction of the mechanical threshing, the central bay ceased to be used for grain processing, though it continued to serve a useful function as driveway from which grain bins could be filled and where machinery could be stored. The Three-Bay Barn proved to be very adaptable to the changing agricultural strategies/processes in the United States, which helps explain both its persistence as well as prevalence in the Midwest.

The Hallstein Barn is oriented north/south and measures 40'-2" (north/south) by 30'-2" (east/west).¹ Typical of a Three-Bay Barn, the structure has a tripartite division of its interior. But unlike many early examples of this barn form, which often have equal (or nearly equal) sized bays, the Hallstein Barn has bays with dramatically different widths. The north bay is the widest and takes up nearly half of the barn's entire length (see Figures 7 and 8). Although difficult to discern (due to the removal of much of the interior framing in this bay), the space in this bay appears to have been originally divided between two large box stalls separated by a personnel aisle. The partition walls separating the stalls and aisle have since been removed, but there is physical evidence of them, in the form of nails left behind after the central support posts had been removed. The box stalls each measure 17'-0"x15'-6" and are lined by 1"-thick, 4'-high vertical planking that extends around three of their sides. This planking protected the framing and exterior siding from being damaged by livestock rubbing or kicking against it. On the side facing the central aisle, the box stalls appear to have had a feed bunk; these, too, have been ripped out, but their presence is suggested by the thicker (2") wall planking found at the what would have been their ends. The bunks appear to have been approximately 2' wide. Livestock could enter either box stall through one of two points: exterior doors positioned on the east and west sides of the barn, and through interior doorways entered off the central drive. Each stall also had three windows. These windows consisted of a single sideways sliding 4-light sash. Additionally, each stall had a series of tack hooks (consisting of both formal cast iron hooks and more expeditious nails) located along the back walls of the box stalls (opposite the feed bunks). These tack hooks probably served for hanging harness and bridles upon when not in use, and strongly suggests that horses were kept in these box stalls. Although it is possible that other livestock, such as cattle, may have been housed in these stalls at some point in time, it would appear that these stalls were constructed to house draft horses for a working farm complex. The aisle dividing the two stalls ran north/south and had doorways at both ends. It was intended for farm personnel and would have been used to feed livestock (with feed being dumped into the feed bunks flanking the aisle) and also a general passageway through the barn (see Figures 9 and 10). Access to the loft was located over the north end of this aisle.

The central drive measures 12'-1" wide and has door openings at each end. Each doorway had a set of double doors that slid on an iron track (as opposed to being hinged). The track was protected by a simple wooden cover or "hood." The central bay, or driveway,

¹Excluding the exterior siding, the barn measures an 40'x30.' All dimensions in the report are given north/south by east/west.

originally had a frame floor consisting of floor joists and floorboards. This floor system has recently been removed (apparently in an effort to salvage lumber from this “abandoned” structure) (see Figure 11). Due to the fact that this barn was constructed on a prominent hill with the ground sloping sharply to the east, the central aisle was raised substantially above the ground level necessitating ramps leading into the driveway. It is suspected that frame ramps were located on each end of the central driveway of the building. The ceiling in the drive is higher than either of the end bays and allows for the additional headroom for unloading of grain into bins in the south bay. The bins were filled from the top, so the elevated ceiling height allowed a farmhand to stand in a wagon and still have room to shovel grain over the wall into the bins. The flooring over the bins was constructed to allow for the grain to be pitched over these walls into the bins. In addition to this use, the central drive likely was used to store agricultural equipment, such as wagons.

The south bay, which is the narrowest of all three bays and measures only 9’-4” wide (north/south) on the interior. This bay is divided into four rooms. Moving from east to west, the rooms measure 10’-2”, 6’-4”, 3’-8”, and 10’-0.” The eastern three chambers were used as grain bins, and have their interior walls framed with studs and sided with narrow horizontal planking (see Figures 10 and 11). The tight planking is indicative of small-grain storage, in contrast to corn—a large grain typically stored on the ear in a slatted crib. Small grains commonly stored on the farm included oats (an essential feed for horses and mules) and wheat, and, less prevalently so, perhaps barley, rye –and by the 1940s, soy beans. The easternmost of the bins was last used to store oats, some of which still remain on the floor. We do not know what grains specifically were stored in the other two bins. All three bins can be accessed through doorways off the central drive. These doorways formerly were equipped with outer hinged doors (now removed) and horizontal interior wood slats that were removed as the bins were emptied. It is not clear what the westernmost of the rooms in the south bay originally was used for. In contrast to the grain bins, this room has two windows and lacks a wall facing the central drive. It is possible that the west room was used for general storage, a work area, or perhaps it, too, was used for grain storage but later had its north wall torn out (although no physical evidence of a wall was noted). Like the box stalls in the north bay, the east wall of this small room has several cast iron tack hooks along the wall, suggesting that tack also was stored in this room. The presence of the windows and a couple of “make-shift” storage shelves in this corner suggests that this small room may have functioned as a work room (or work shop area). At most, only one quarter of the total floor space on the lower floor of the barn was assigned to grain storage. Much (if not all?) of the grain stored there likely was used as feed for the livestock kept in north half of the barn. This stands in contrast to older examples of Three-Bay Barns, which were designed to temporarily hold grains used for feed as well as that sold at market.

The upper floor of the Hallstein Barn was used exclusively for hay storage. Loose hay was brought into the barn by means of a metal hay fork, which is original to the design of the building. The fork lifted the hay through a mow door in the north gable end and then moved down the ridgeline of the roof. The large mow door, located on the north end of the building, was hinged on its lower surface. Opposite the mow door, on the south end of the building, was located a much smaller gable end hole, mounted pulley, and interior ladder that allowed a rope (attached to a draft animal located outside the structure) to operate the hayfork. Prior to the introduction of the hayfork, hay had to be pitched by hand into the loft from a wagon positioned

in the central drive. It was for this reason that the central bay in earlier Three-Bay Barns was left open between the first floor and the rafters, rather than being bridged by a permanent loft as is the case of the Hallstein Barn. A hay bonnet is present over the mow door. The distinctive splayed queen post structure of the roof framing allowed the unencumbered access of the hayfork to the loft space. Floor plans and section views of the barn are attached as Figures 13 through 15.

In respect to its method and materials of construction, the Hallstein Barn is in many ways a very traditional structure. The barn, for example, rests on dry-laid, cut-stone piers, even though concrete was in relatively common use as a foundation material when the building apparently was erected. “Square Rule” timber-framing also was heavily relied upon in the barn’s construction. The sills are 8”x8”, circular-sawn oak and are joined with half-lap joints at the corners and scarf joints in the middle of a span. The four bents of the barn are framed with 6”x8” corner posts, 6’x6” intermediate posts, and two sets of 4”x6” horizontal girts. The lower girts support the floor joists of the hayloft (which measure 2”x8”), while the upper girts tie the corner posts together. Diagonal braces, which measure 4”x4” and are set at a 45-degree angle, extend between the posts and girts. Additional 4”x4” bracing runs horizontally between the posts; these strengthen the frame but also serve as nailers for the exterior board-and-batten siding. The bents are joined together by an 8”x8” top plate that also support the lower ends of the rafters. The spacing of the posts in the northern two bents is different from those on the south, in order to accommodate the different uses of these areas (i.e. livestock versus grain storage). The roof framing is the same across the entire length of the barn. The rafters are 2”x6” with 2’ centers and are supported by a braced-purlin system. The purlins themselves measure 6”x6” and are supported by 6”x6” splayed queen posts that extend diagonally off the upper girt of the bents. As in the bents, 4”x4” diagonal braces run between the posts and purlins. The purlin posts also are supported by a separate 4”x4” brace that set at a 90-degree angle to them and extends off the same upper girt as they do. Lighter interior partitions, such as the walls of the grains bins are framed with 2’x4” studs. The roof originally was covered with sawn-wood shingles, but these later were overlain with asphalt shingles. All of the larger framing in the barn is joined with mortise-and-tenon joints, while secondary framing materials are attached with wire-drawn nails. Except for the sill plats, which are oak, the lumber in the barn appears to be yellow (or southern) pine and is a mixture of circular-sawn and band-sawn stock typical of the late nineteenth and/or early twentieth centuries (see Figures 15 through 18).

Although the frame of the Hallstein Barn appears to have been little altered since its original construction, several oddities within the framing system suggest that it was not constructed as originally conceived by its “designers.” Along the upper girt of the central bents, several mortise holes were cut to received angled braces –none of which ever appear to have been installed. Similarly, mortise holes for the lower rails within the northern of the two central bents were cut into the outer posts but apparently never installed. Presently, the two doors leading into the northern box stalls prevent these rails from extending to these mortise holes. Although our initial thought was that these mortise holes suggest that the barn frame had been altered during its life, subsequent inspection suggests that these mortise holes had never been utilized. This suggests that the barn design was altered during its assembly –and may further suggest that this frame was a previously constructed or “stock” frame purchased from a carpenter-builder, and modified during assembly.

Conclusions:

Based on the physical examination of the Hallstein Barn and our limited knowledge of the ownership history of the property on which it is located, we suspect the structure to have been constructed sometime during the years immediately prior to 1910 (circa 1900-1910), possibly for the Leonard Hallstein family. The predominance of yellow pine lumber, coupled with use of stone foundations, wire-drawn nails, and original features like the hay track and sliding barn doors, all point to an early twentieth-century date of construction. A small barn such as this also would have been ideal for the small-scale agriculture presumably practiced on the property by the Hallstein family during the first decade of the twentieth century. The barn appears to document cereal grain storage and draft horse stabling activities. While not as early as first suspected, the Hallstein Barn nonetheless represents an excellent example of a “modern” Three-Bay, or English barn adapted to fit the changing farm economy (and technology) of the very early twentieth century. It also illustrates the evolution and adaptability of this particular barn type, as well as the persistence of traditional building practices (i.e. use of stone for foundations, and timber-frame construction) into the early twentieth century.

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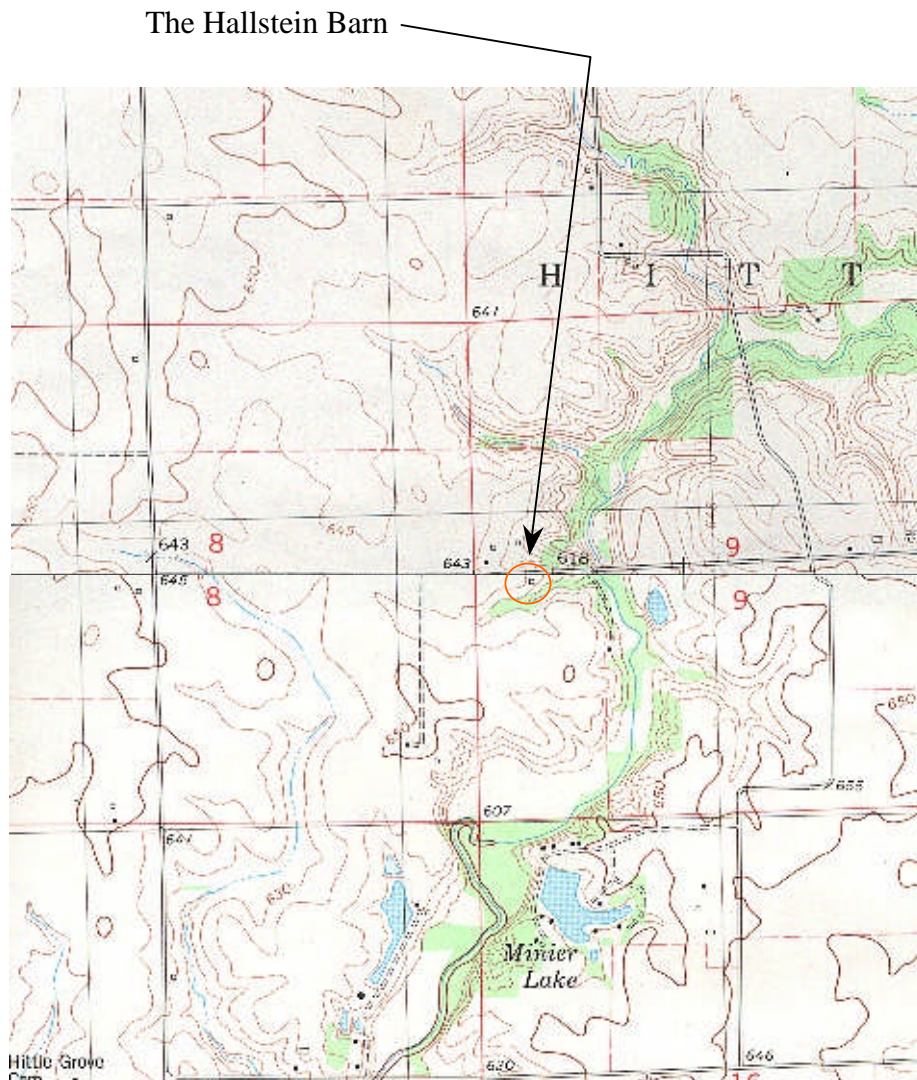


Figure 1. United States Geological Survey (USGS) topographic map showing the location of the Hallstein Barn (USGS Armstrong Quadrangle 1980).



Figure 2. Detail from an 1864 map of Tazewell County, Illinois, showing the site of the Hallstein Barn in Section 9 of Hittle Township. The site has been circled. At this date, the barn site was located within a 10-acre tract depicted as unimproved timberland. The small size of the tract suggests that it was used a woodlot by one of the local farmers. A number of other woodlots are shown adjacent to Sugar Creek, which flows east of the barn site (Thompson 1864).

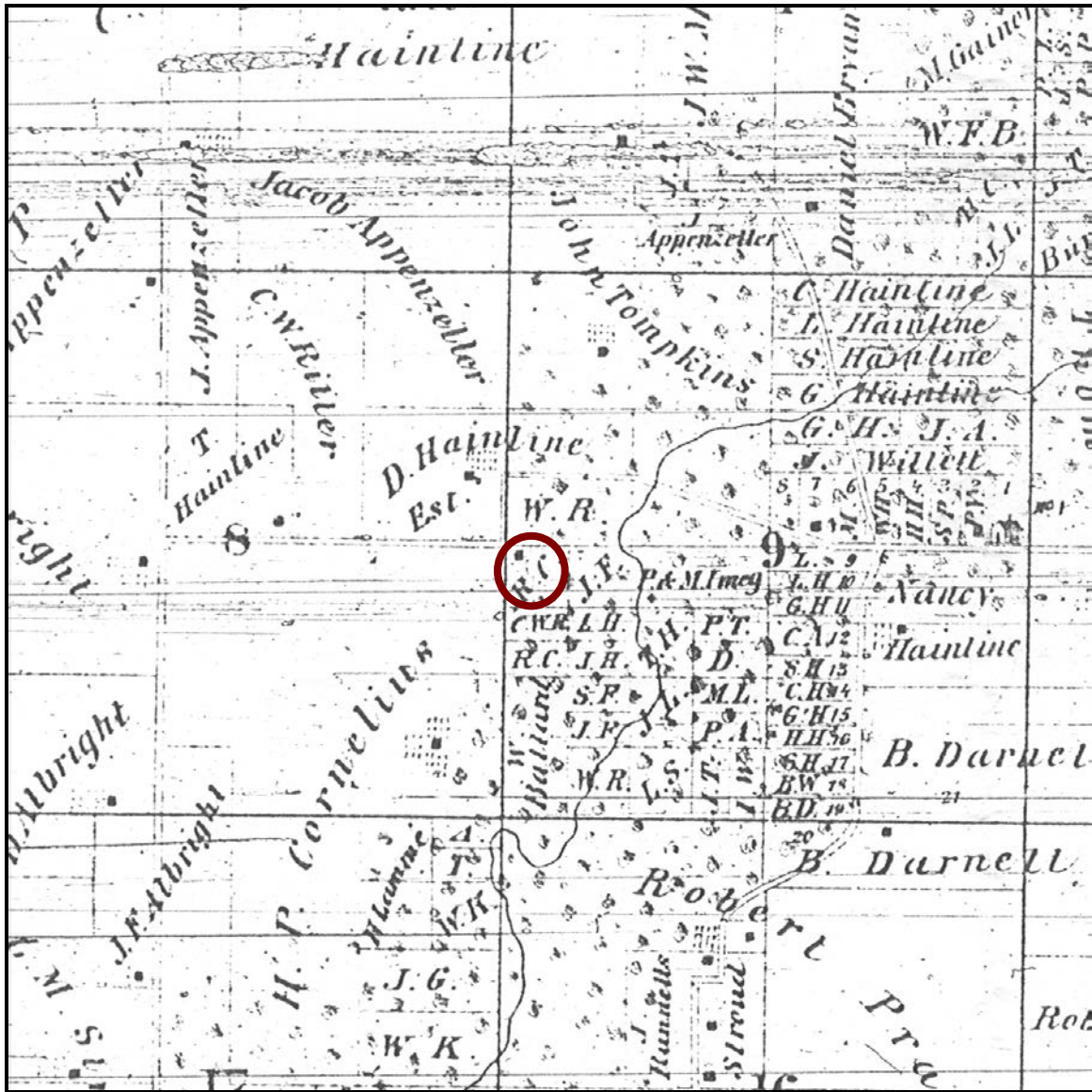


Figure 3. Detail from an 1873 atlas showing the location of the Hallstein Barn. The atlas indicates that an unidentified individual with the initials “R.C” owned the tract at this date. Though the conditions of the tract are largely the same as those in 1864—being part of 10-acre tract and timbered—the atlas illustrates a house on the *northwest corner* of the property (Andreas et al. 1873:44).



Figure 4. Detail from a 1910 county atlas. At this time, the barn site was incorporated into a larger farm owned by Leonard Hallstein. The atlas indicates that Hallstein's residence was located on, or adjacent to, the barn site which is situated on the *northeast corner* of the previous ten acre tract of land (Ogle 1910).

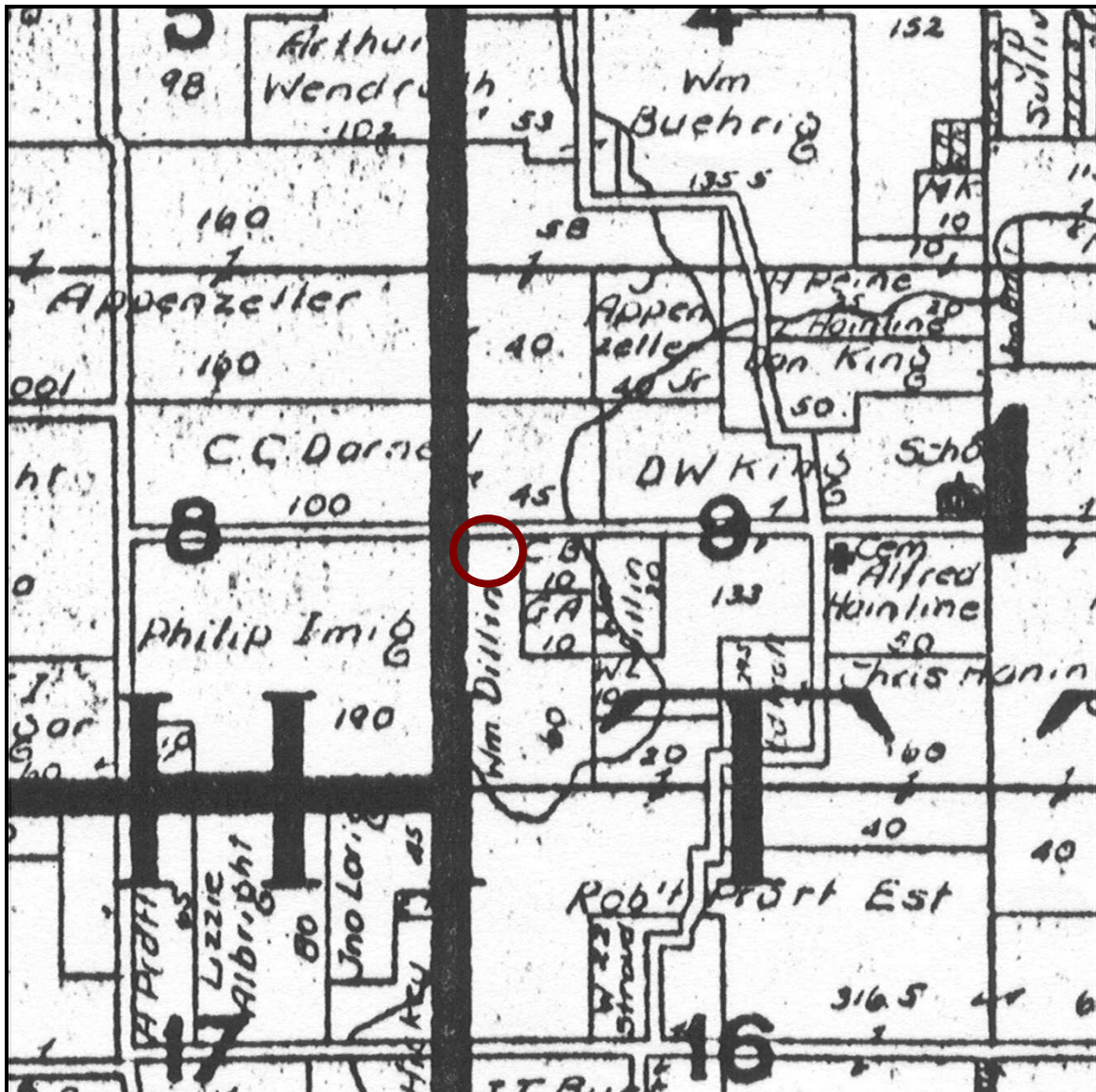


Figure 5. Detail from a 1919 map of Tazewell County, which was published the following year. By this date, the acreage associated with the barn had been separated from the larger farm it was part of in 1910. William Dillon is designated as the owner of the 60 acres surrounding the barn site. Unfortunately, the map does not illustrate any farm residences (Federal Map Company 1920).

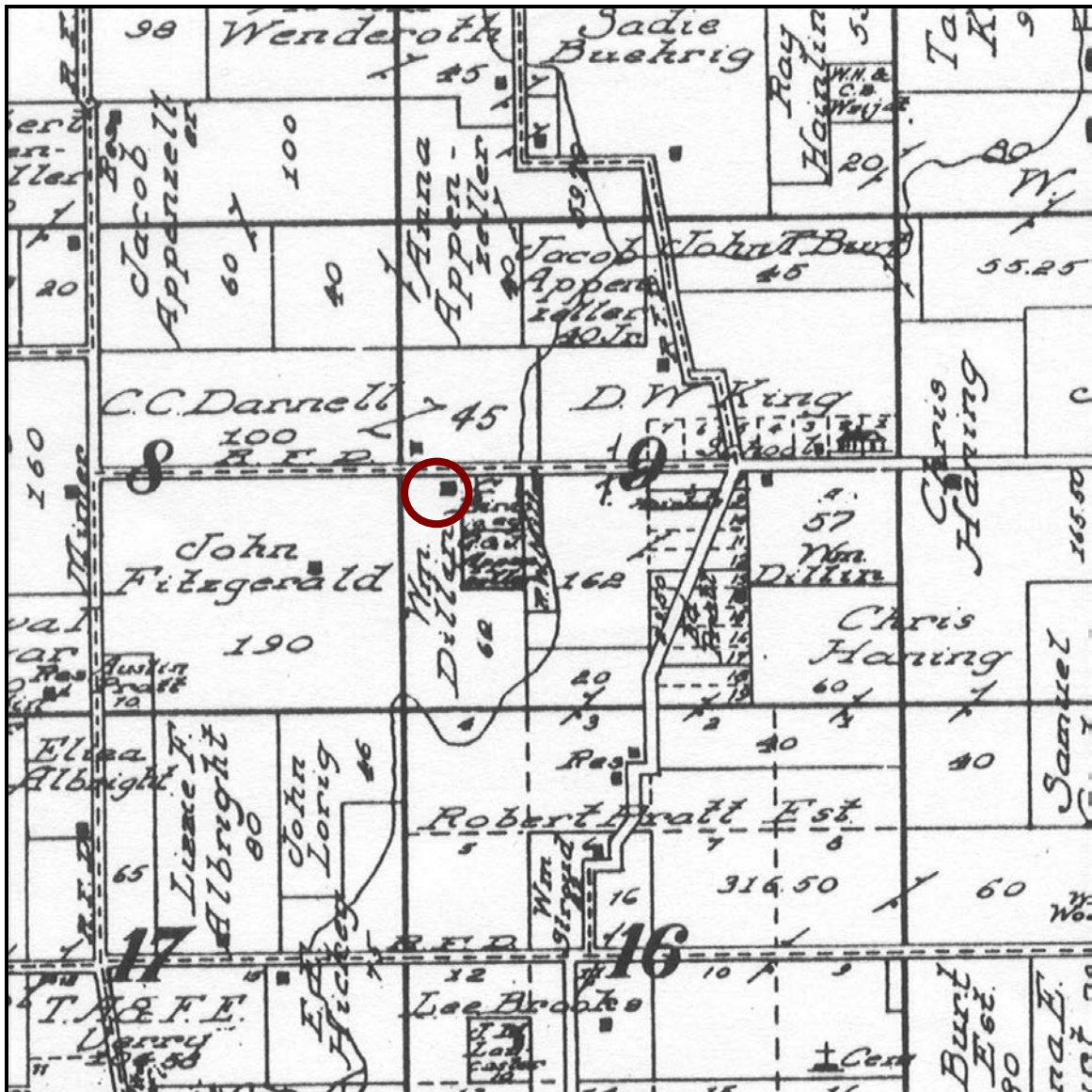


Figure 6. The 1929 atlas of Tazewell County indicates that the William Dillon was still the owner of the barn site, along with 60 acres surrounding it. A residence is illustrated at the northern end of Dillon's small farm, immediately south the public road (Brock and Company 1929).



Figure 7. (TOP) View of the Hallstein Barn, looking southwest from the public road that passes by the site. Note the timber lying beyond the barn, which represents a remnant of the historic woodland along the West Fork of Sugar Creek. The terrain slopes down from the barn towards the creek. (BOTTOM) View of west and north elevations of the barn. Note the wide vehicle doorway in the west elevation and mow door in the north gable end (FRR October 2002).

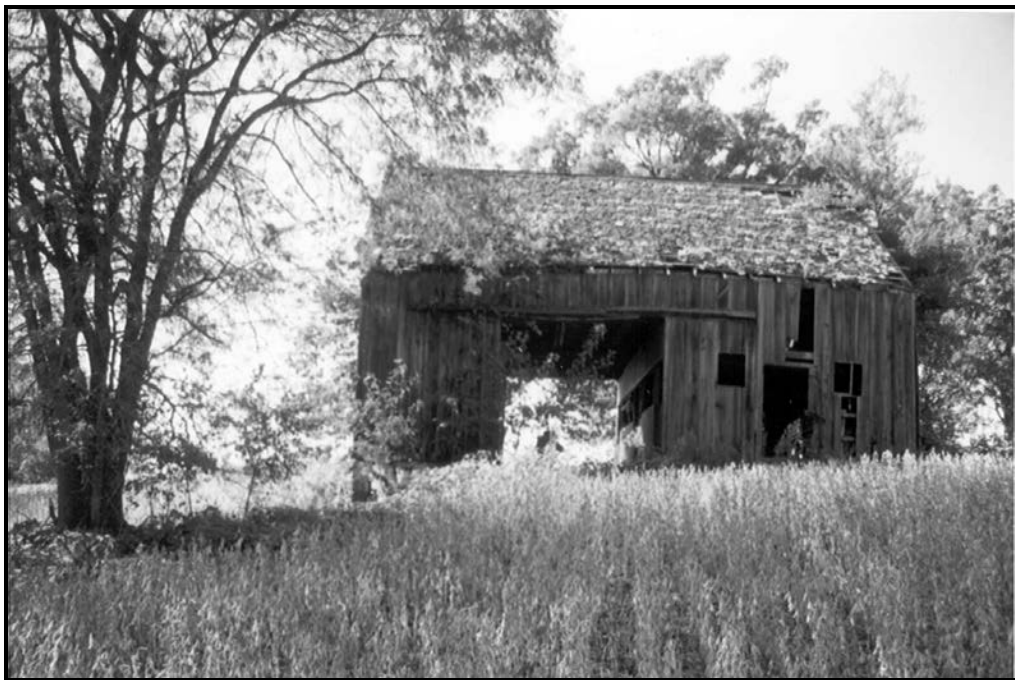


Figure 8. (TOP) View of the west and south elevations of the barn, looking northeast. (BOTTOM) View of the east elevation. This photograph illustrates the tripartite division of the barn, with livestock stalls on the right, a driveway in the center, and grain bins to the left. Note the wider width allowed for the livestock stalls compared to grain storage (FRR October 2002).



Figure 9. View of the eastern box stall, looking towards the southeast corner. Note the hinged livestock door in the background. The door opening at the far right is associated with a central service aisle that formerly divided the two box stalls. The partitions framing the aisle have been removed (FRR October 2002).



Figure 10. (LEFT) Interior view of the eastern box stall in the north bay of the barn. The vertical planking nailed around the lower part of the walls served as a rub guard, protecting the main framing and exterior siding from wear or damage by livestock. The flooring in this part of the barn also has been removed, as have many of the joists. (RIGHT) View of one of the grain bins located in the south bay of the barn. The ceiling and wall adjacent to the central drive was left open in order allow grain to be tossed into the bins. Tight siding used to enclose the grain bins is indicative of small-grain storage, in contrast to the spaced-out slats typical of corncribs. (FRR October 2002).



Figure 11. (TOP) Rather than having traditional hinged doors that swung outward on its central bay, the Hallstein Barn was equipped with sliding doors on a track. This is one of the “modern” features original to the barn. Also note the vertical board-and-batten siding used to cover the exterior walls. **(BOTTOM)** Interior view of the central drive, showing the storage bins for small grains in the south bay. The floor joists and flooring of the driveway have been removed (FRR October 2002).



Figure 12. (TOP) View of the hay loft in the upper floor of the barn, looking towards the south gable end. The floor in the center in the loft is raised to accommodate a higher ceiling in the central drive below, thereby allowing the grain bins to be filled from their tops. **(BOTTOM)** Detail of one of the cut-stone piers on which the barn sits. This photograph also shows the sill plat along the south side of the central drive. Note the scarf joint that bridges the two halves of the sill plate and pockets in which the removed floor joists formerly rested (FRR October 2002).

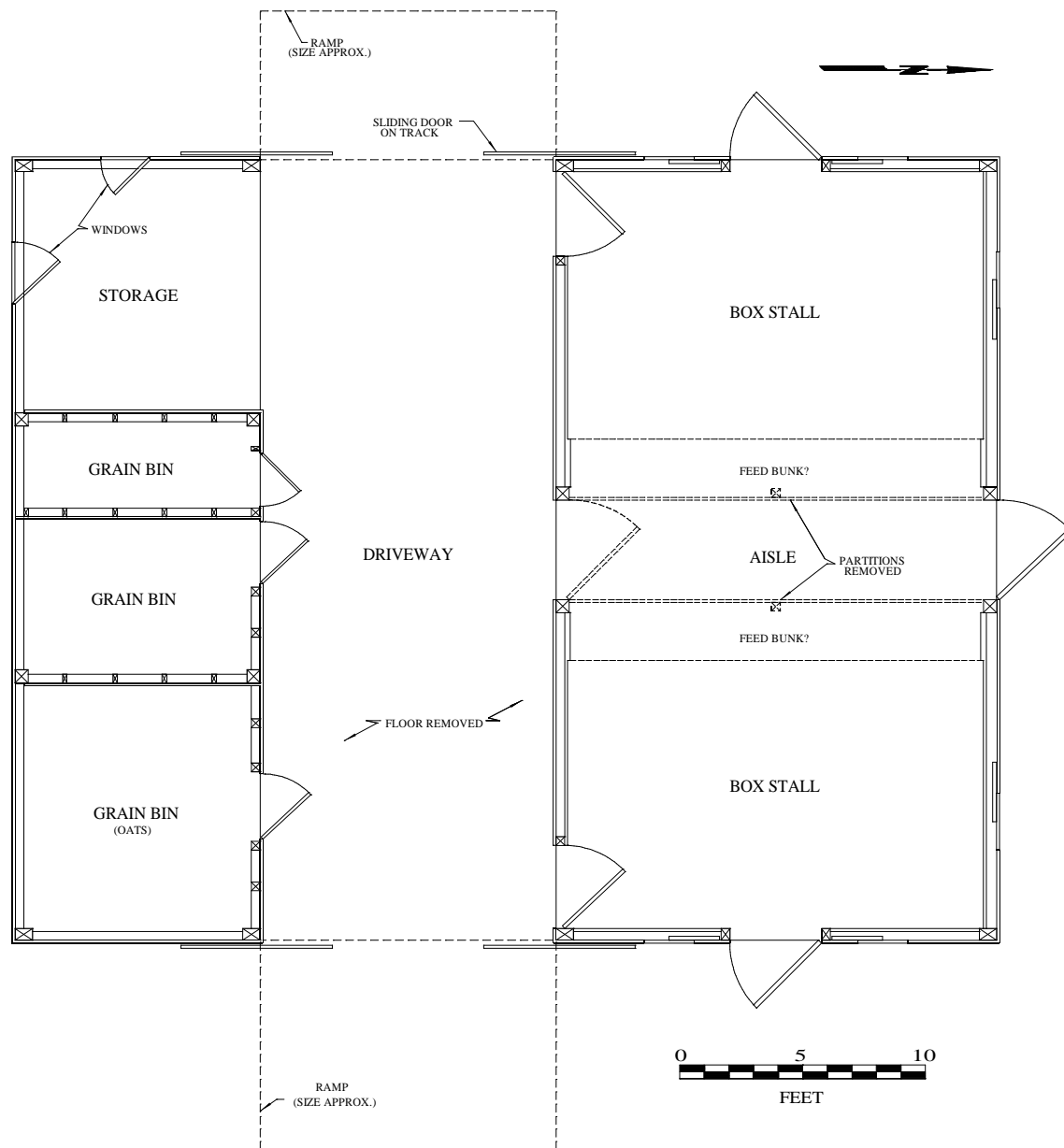


Figure 13. First floor plan of the Hallstein Barn. Conjectural and approximated features are dashed (FRR 2002).

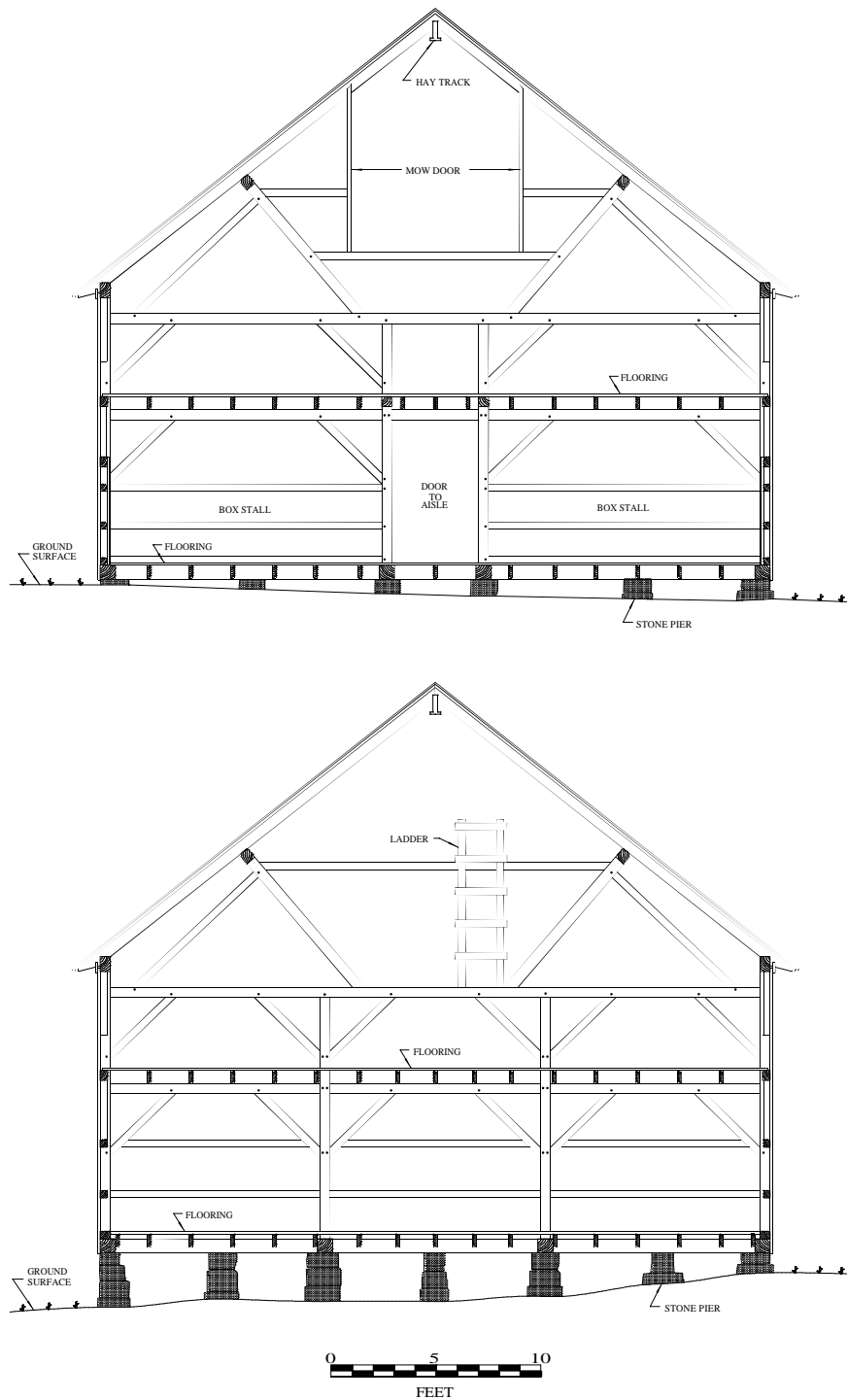


Figure 14. Sectional views of the Hallstein Barn, showing the framing of the north gable-end (TOP) and the south gable-end bents (BOTTOM). Both views are drawn as if looking at the bents from the interior of the barn. Some secondary features, such as interior planking and grain-bin partitions are omitted, in order to better illustrate the main framing (FRR 2002).

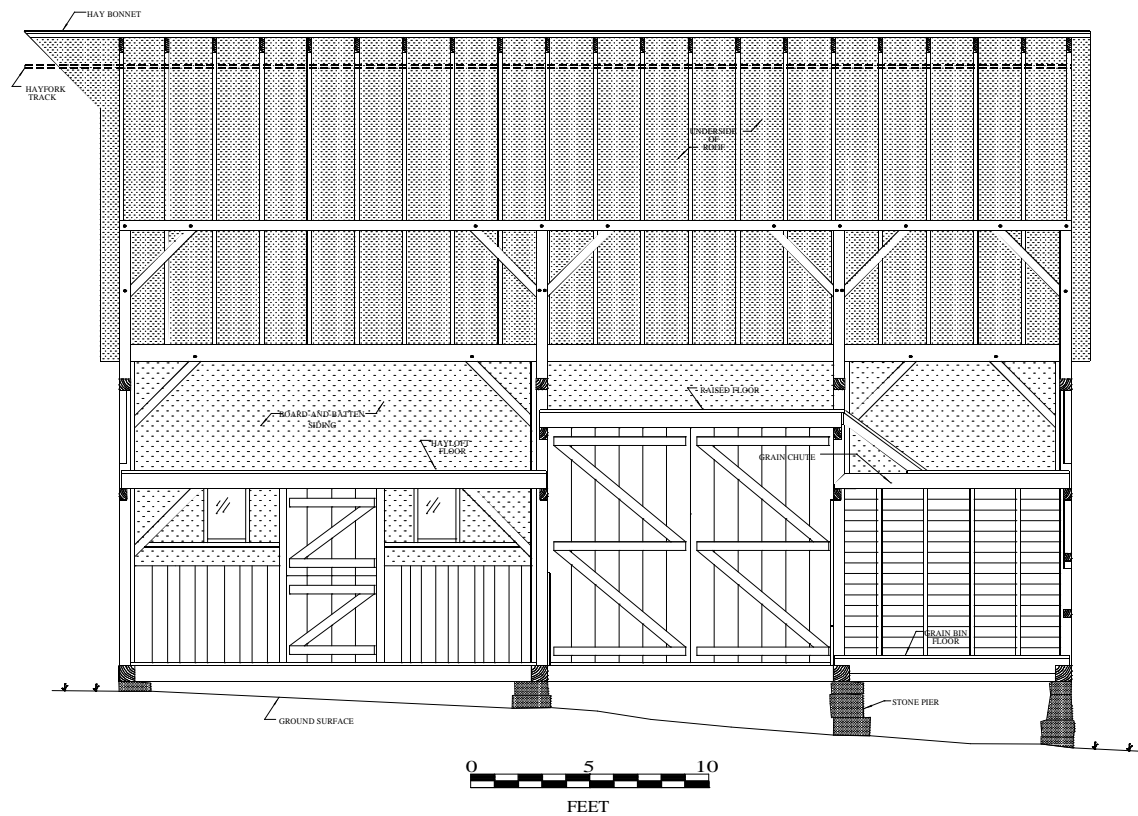


Figure 15. Longitudinal section of the Hallstein Barn looking east down the center of the barn. The doors illustrated are conjectural since the original ones have been removed (FRR 2002).

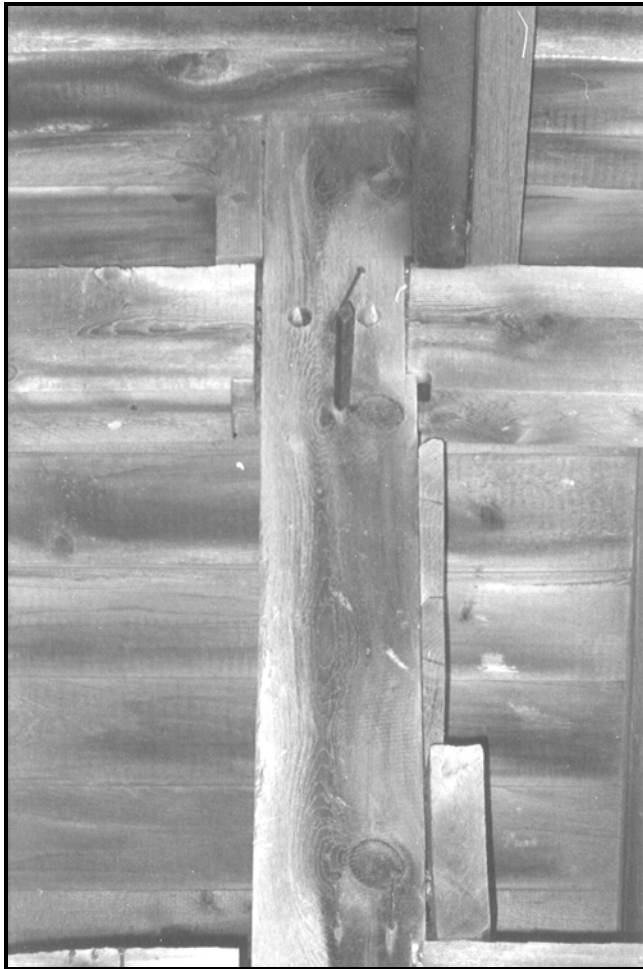


Figure 16. Framing details in the south bay of the barn. (LEFT) Larger framing members in the barn are joined with mortise-and-tenon joints, such as the pictured here, which connects a post and two girts in the interior bent along the south side of the central drive. (RIGHT) Interior view of easternmost grain bin, showing the framing at the southeast corner of the barn. The corner posts are supported by diagonal braces, set at 45-degrees, and by horizontal braces that double as nailers for the exterior siding (FRR October 2002).



Figure 17. Additional framing details on the interior of the grain bins. In contrast to the north and south bents, the diagonal bracing on the two center bents are nailed together, rather than being connected with mortise and tenon. Note the heavy cross bracing used on the walls of the grain bins. The walls bore a great deal of weight and pressure when the bins were filled with grain (FRR October 2002).



Figure 18. The roof of the barn is supported by a braced purlin system formed by heavy timbers joined with mortise and tenon. The diagonal positioning of the purlin bracing frees the center of the barn of framing, thus allowing the hay fork to pass unobstructed down the length of the loft (FRR October 2002).