

Reese Air Force Base, Maintenance Hangar
(Building No. 92)
221 N. Davis Drive
Lubbock Vicinity
Lubbock County
Texas

HABS No. TX-3486-B

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN BUILDING SURVEY
Southwest System Support Office
National Park Service
P.O. Box 728
Santa Fe, New Mexico 87504

HISTORIC AMERICAN BUILDING SURVEY
REESE AIR FORCE BASE, MAINTENANCE HANGAR
(BUILDING No. 92)

HABS No. TX-3486-B

Location: Reese Air Force Base
221 N. Davis Drive
Lubbock Vicinity,
Lubbock County, Texas

USGS Wolfforth Quadrangle
13 775230 3721185

Present Owner: United States Air Force

Present Occupant: Building is vacant

Present Use: Building is vacant

Significance: Building 92 at Reese Air Force Base (AFB) is significant due to its association with World War II. The building served as a repair hangar for aircraft used to train pilots at the base. The structure has been modified, but it still retains a great deal of its historic integrity and character. The building is also a distinctive variation of the Demountable Hangar-1 (DH-1) type Air Force structure. Building 92 is a good example of a World War II era hangar and it served an important function in the base's role as an air training facility during World War II.

Description: Building 92 was built in 1942 as one of a set of three identical hangars. The hangar sits parallel to the concrete apron at Reese AFB, and has been altered by the addition of a concrete structure on the north elevation of the building.

Building 92 has a shallow arched roof covered by corrugated, galvanized iron and five-ply built-up roofing. The roof structure is supported by bowstring trusses that rest on steel columns, forming ten bays. The west elevation faces the runway apron, and contains a twelve-leaf hangar door that slides into narrow door towers on either side of the entry. The doors are covered with sheet metal panels; an original pedestrian door is located on each end of the hangar door. The towers are the same height as the doors, and extend beyond the original exterior walls of the north and south sides. The north elevation retains excellent historic integrity, with eight paired nine-pane metal industrial windows. The main hangar space remains open with the original roof structure exposed on the interior.

The north elevation of the building has been more extensively altered. A small, narrow concrete block addition was added to this side of the building in 1951. The addition, which stretches the entire width of the hangar, has a shed roof covered with asphalt rolled roofing, a series of metal doors and no windows. The addition stretches the entire length of the hangar. The east elevation of the hangar is composed of the rear elevation of the building's main arched truss-covered space with a metal shed rear bay that stretches the entire width of the building and is punctuated by a series of historic and non-historic doors and windows.

The interior of the building is composed of the main hangar space and two subsidiary spaces. The main hangar space is largely intact and open, as it was originally constructed. The north side block addition has a small suite of offices and restrooms. The rear shed roof section of the building has a boiler room and a series of small spaces that may have functioned as shops or offices at various times.

History:

After ten years of campaigning by the people of Lubbock, Texas, the city was selected as a site for a new air training base. The base was part of a military mobilization plan that came into effect after the fall of Poland in 1939 and the declaration of war on Nazi Germany by Britain and France. By April 1940 Congress had ordered the expansion of the United States Army Air Corps. The number of pilots trained annually increased from 7,000 to 30,000. On June 26, 1941, the Air Corps Advanced Flying School was officially established at Lubbock.

Preliminary work on building the base began on July 24, 1941. Construction of the base was under the authority of the United States Engineer's Office at Caddoa, Colorado, during the planning stages of the project. The Caddoa office was in control of the project through November 1941. By February 1942, oversight of the project had been transferred to the United States Engineer's Office in Albuquerque, New Mexico. By January 1942, the base was 85 percent complete. The target completion date for the buildings was January 4, 1942, but construction continued until April. Construction of an additional hangar and some minor improvements to the base were carried out in late 1942 under a supplementary contract.

The primary contractor for building the base was Lambie, Moss and Page, a firm which was awarded a lump sum contract for \$3,973,365. W.S. Moss and W.G. McMillan of Lubbock were hired as building construction subcontractors. Their actual role in building the base is somewhat unclear. Cost estimates for exterior finishes on the base's wood temporary buildings point to McMillan's involvement in their construction. Existing documentation does not identify whether McMillan or Moss did work on Buildings 70, 52, and 92. Over 200 buildings were built on the base, ranging in function from hangars and machine shops to barracks, administrative offices, mess halls and recreation buildings. The majority of structures constructed were wood-frame, temporary buildings that were intended to have a lifespan of approximately five to seven years. Building 70 and its twins, Buildings 52 and 92, were, in contrast, built of more permanent steel and galvanized iron. However, much of the fabric of these hangars was bolted, rather than spot-welded together, a feature that would have made it

easy to disassemble the hangars for re-location to another site. This emphasis on temporary buildings and removable hangars indicates that the government may have seen this base as a non-permanent facility to be decommissioned shortly after the end of the war.

The base was shut down on December 31, 1945. The base was then converted to a housing area for veterans and their families and a meeting place for the National Guard, Air Force Reserve, and the United States Navy. On August 1, 1949, the Air Force officially re-activated the base, and the 3500th Pilot Training Wing from Barksdale Air Force Base, Louisiana, was transferred there by October 5, 1949. The field was re-named Reese Air Force Base on November 5, 1949, and Reese AFB was declared a permanent installation on Armed Forces Day, 1950. The base continued training pilots in World War II era twin-engined B-25 aircraft until 1959, when jet training aircraft were adopted for all training activities on the base. The base continued its pilot training mission until its closure in 1997.

The overall configuration of Buildings 70, 52, and 92 conforms to plans for the DH-1 demountable mobilization hangar. This hangar design was composed of two segmental arched-truss roofs supported on a series of steel columns. The hangar, built in individual steel unit sections, could be assembled and disassembled for easy relocation and re-use at another location. The DH-1 was flexible and versatile, and was a frequently used hangar design during World War II. The development of the DH-1 began in 1939 when the Army Air Corps began to show an interest in portable steel hangars. With the possibility of United States involvement in World War II becoming more and more likely, the government needed to be able to build military bases and training facilities quickly. United States aircraft were designed to withstand outside storage in temperate climates, but maintenance activities needed to be carried out indoors. Maintenance hangars were therefore an essential feature of any major air base. Prefabricated portable hangars would make relocating bases and air resources easier.

Beginning in November 1939, the Army Air Corps began receiving plans for portable hangars from individuals and private companies across the United States. These designs varied widely, from relatively conventional hangar designs to unconventional experimental structures. Those submitting plans ranged from large steel, bridge, and portable building manufacturing companies to engineers and architects in private practice. Included in this group was the Star Manufacturing Company, based in Oklahoma City, Oklahoma. Star Manufacturing's main business was the construction of prefabricated steel buildings, especially hangars. In September 1940, Douglas Rowland, the president of Star Manufacturing, wrote a letter to Brigadier General Jacob Fickle, Chief of the Army Air Corp's Training Division. Rowland emphasized his company's experience in building prefabricated hangars, and enclosed a brochure illustrating a number of hangars constructed by his firm.

Prefabricated hangar designs continued to be received by the Army Air Corps through 1941. By March 1941, the investigations into portable hangars was being overseen by Colonel Frank M. Kennedy of the Army Air Corps Buildings and Grounds Division.

On March 7, 1941, Colonel Kennedy issued a memo to a Colonel Tomkins reporting that the Army Air Corps needed to build approximately thirty-six to thirty-eight new hangars for air training schools. Colonel Tomkins' assignment and the reason for his interest in demountable hangars was not indicated in the memo. Colonel Kennedy stated that building a large number of small inexpensive hangars would be more efficient than building a smaller number of large permanent hangars at these installations. He thought that a good steel portable hangar could be built for about \$45,000, and mentioned that such prefabricated buildings were being manufactured by Star Manufacturing and a number of other companies. In May 1941, Colonel Kennedy indicated that a drawing for the DH-1 portable hangar had been approved. He stated that Star Manufacturing had provided drawings that had been used by the Army Air Corps to prepare drawings for the DH-1. Colonel Kennedy indicated that Star Manufacturing had enough steel in stock to build eighteen of the hangars, and mentioned six air training bases where the hangars were to be built: Macon, Georgia; Dothan, Alabama; Victoria, Texas; Taft, California; Bakersfield, California; and Phoenix, Arizona. Searches of current Air Force directories and consultations with the Air Force Historical Research Agency indicate that none of these bases are still in operation.

Surviving drawings of the DH-1 developed by the Army Air Corps appear to be based on a hangar built by Star Manufacturing at the Texas Aviation School at Hicks Field in Fort Worth. This Hicks Field hangar was illustrated in a brochure mailed to the Army Air Forces in September 1940 by Star Manufacturing. The Hicks Field hangar has the same double segmental roof with a small peak in the middle seen in the standard drawings of the Army Air Corps DH-1 hangar.

By the time Lubbock Field was built, the DH-1 was being used at Army Air Corps training bases around the United States. Cost estimates for all three DH-1 hangars at Lubbock came to \$204,961 according to July 1941 correspondence from the United States Engineer's Office in Caddoa, Colorado. This put the cost of each hangar at \$68,320, considerably higher than the \$45,000 cost for the DH-1 envisioned by Colonel Kennedy. By August 1941, the budget for the hangars at Lubbock had been set at \$140,000. A memo from Lieutenant Colonel James Shively of the Army Air Corps Building and Grounds Division to the Chief of the Army Air Corps indicated that the Army Air Corps originally intended to build three DH-1 hangars at Lubbock, but the cost was prohibitive, so the number of hangars was reduced to two. In March 1942, however, Lieutenant Colonel Harry S. Bishop of the Lubbock Sub-Depot wrote a letter to the Chief of the Field Service Section at Wright Field in Dayton, Ohio, claiming that he desperately needed another maintenance hangar at Lubbock due to the dusty conditions there. The dusty conditions, according to Lieutenant Colonel Bishop, were making maintenance of propellers, landing gear, and other mechanisms difficult. Although further correspondence on this subject has not been located, Reese AFB today has three DH-1 hangars, Buildings 70, 92, and 52. Thus, it appears that the base was successful in obtaining authorization for a third hangar in 1942. A 1944 history of the base indicates that in addition to the original construction phase of the base, a "supplementary contract" was made for the construction of "another hangar."

The same history also states that among the improvements to the base in 1942 was "additional work on hangars." It is not known which of the three hangars was the last to be constructed.

In scale and overall layout, Building 92 at Reese AFB conforms to the DH-1 type, but it was not built completely according to the DH-1 specifications. A set of standardized drawings for the DH-1 hangar found in the files of Reese AFB was probably used as an overall model for the construction of Building 92. However, the standard DH-1 has two segmentally arched trusses supported by steel columns at the sides and middle of the building. The center roofline, composed of two segmental curves, also has a small triangular peak in the middle of the building. Building 92 at Reese AFB is also composed of two trusses supported by steel columns on the side walls of the building and in the middle. In contrast to the standard DH-1, the trusses of Building 92 are curved at their outer edges. One third of the way through the length the trusses lose their curvature and create a flat, low-pitched section at the top of the roof. The trusses each appear to be built in three sections. Most of the component parts of the truss roof are bolted or riveted together rather than spot-welded. This indicates that the hangar was definitely intended as a building that could easily be disassembled and re-assembled at alternate locations if necessary.

It is thought that a local engineering firm may have designed alternate trusses for the Reese AFB hangars; this was not unusual. A memo of May 7, 1941, to the Office of the Chief of Engineers from Major John Hardin of the Corps of Engineers Construction Division stated that the Army Air Corp's DH-1 plan was intended to "...inform manufacturers of prefabricated hangars of the type of structure desired. It is therefore only intended as an outline. The successful bidder is to furnish complete drawings." Standardized plans for the DH-1 hangar found in the files of Reese AFB state that "Trusses of other types, complying with specifications, will be permitted." From these comments, it appears that the drawings for the DH-1 were meant as a general guide, and that individual manufacturers were free to deviate from the design as long as the results conformed to minimum Army Air Corps hangar specifications. The authors for the changes in the Lubbock hangars remain unknown, although Lambie, Moss and Page as prime contractors seem to be the most likely candidates. The motivation behind the changes is also unknown. There may have been a shortage of the trusses illustrated in the Army Air Corp's DH-1 drawings, or the party responsible for the changes may have thought that the alternate truss was more efficient or cost effective.

A small hangar with a relatively flat roof and a low clearance made sense at Lubbock where it may not have at other bases. The training aircraft primarily used at the base in the early 1940s, such as the twin-engined AT-9, were relatively small and had a fairly low clearance. Since the base's primary mission was flight training, it did not require large hangars with high roof levels to accommodate larger bomber or transport aircraft.

On February 25, 1942, the first class of seventy-four cadets arrived at Lubbock Army

Air Training Field. Throughout World War II, Building 92 served as a maintenance hangar. It provided shelter for the vital activities of inspecting, maintaining and repairing the aircraft. The hangar included a U-shaped track attached to the bottom of the building's trusses. This track was equipped with hoists for lifting and moving aircraft engines and components around the hangar. With at least seventy pilots engaged in flight training at all times, Lubbock Field needed a large fleet of operational training aircraft. Adequate aircraft maintenance and repair facilities were essential to the base's mission to train as many pilots as possible for service in World War II. Building 92 continued to serve as a maintenance hangar from the 1950s up through the 1990s. In March 1990, Lockheed Support Services assumed responsibility for all aircraft maintenance at Reese AFB. As part of their maintenance contract, Lockheed was allowed to use Air Force buildings, including Building 92, as aircraft maintenance facilities.

In 1995, Reese AFB was recommended for closure, and on January 24, 1997, the last class graduated from Reese AFB. In September 1997, the 64th Flying Training Wing at Reese AFB was officially inactivated, and the base was formally closed on September 30. Some Air Force staff have remained at Reese AFB to facilitate the conversion of the base into a civilian industrial facility. Building 92 has stood vacant since the base was formally closed, and is scheduled for divestiture from federal ownership at this time. Currently, the Air Force has no plans to demolish the structure. Plans for the civilian industrial park are not sufficiently advanced to indicate what the future of Building 92 will be once the Air Force has turned Reese AFB over to civilian authorities.

Sources: "Central Correspondence Files, U.S. Army Air Forces 1939-1944". Record Group 18, entries 293-295. National Archives, College Park, Maryland.

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"History of Lubbock Army Air Field to 7 December 1941." Lubbock Army Air Field, 1941. On File at U.S. Air Force Historical Research Agency, Maxwell Air Force Base, Montgomery, Alabama.

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