

**INDIVIDUAL INVENTORY FORM**

**NHDHR INVENTORY # ROC0067**

**Name, Location, Ownership**

- 1. Historic name Skyhaven Airport Hangar No. 1
- 2. District or area n/a
- 3. Street & number 238 Rochester Hill Road
- 4. City or town Rochester
- 5. County Strafford
- 6. Current owner Pease Development Authority

**Function or Use**

- 7. Current use(s) Transportation/Air-related:  
Aircraft Hangar
- 8. Historic use(s) same

**Architectural Information**

- 9. Style No style. Prefabricated steel frame, steel shell  
industrial building: Tee-hangar, standard.
- 10. Architect/builder International Steel Co. Evansville, IN
- 11. Source Manufacturers nameplate
- 12. Construction date c.1956
- 13. Source Aerial photos, airport events
- 14. Alterations, with dates \_\_\_\_\_
- 15. Moved? no  yes  date: \_\_\_\_\_

**Exterior Features**

- 16. Foundation Concrete: poured
- 17. Cladding metal, rolled sheet: steel, galvanized;  
vertical box-rib
- 18. Roof material metal, rolled sheet: steel, galvanized;  
vertical box-rib
- 19. Chimney material n/a
- 20. Type of roof gable
- 21. Chimney location n/a
- 22. Number of stories 1
- 23. Entry location multiple main entries
- 24. Windows Industrial

Replacement? no  yes  date: \_\_\_\_\_

**Site Features**

- 25. Setting Developing mixed-use road; airport
- 26. Outbuildings n/a
- 27. Landscape features Other: pavement; mowed fields
- 28. Acreage 188.4 ac. (entire Skyhaven airport property)



- 35. Photo # 1 Direction W
- 36. Date 04/28/2016
- 37. Reference (file name or frame #): ROC0067-001

- 29. Tax map/parcel # Map 243 Lot 18
- 30. State Plane Feet (NAD83): x = 1,180,020.27 y = 286,081.83

31. USGS quadrangle and scale Rochester NH-ME, 1983 1:24000

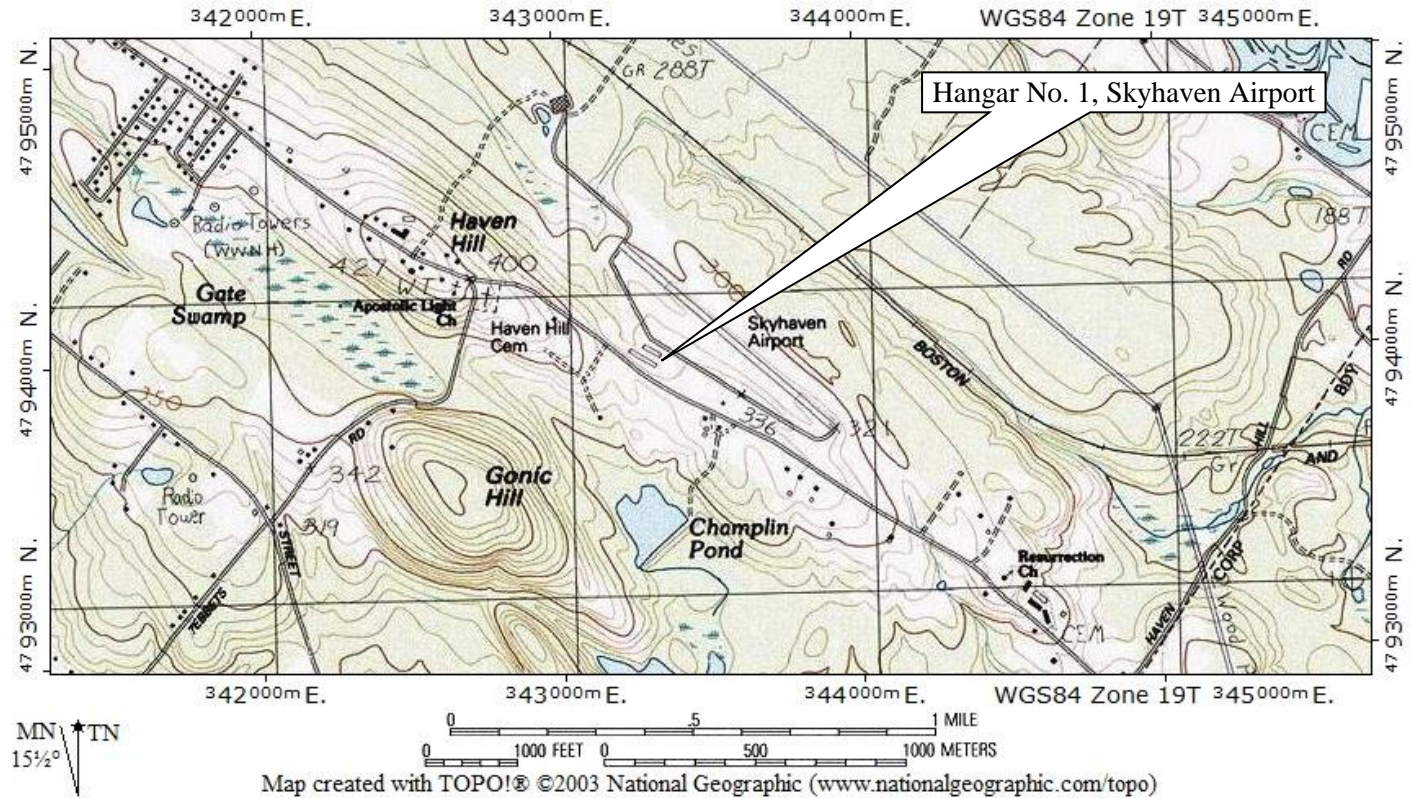
**Form prepared by**

- 32. Name Richard M. Casella
- 33. Organization Historic Documentation Company, Inc.
- 34. Date of Survey 28 April 2016

**INDIVIDUAL INVENTORY FORM**

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**39. LOCATION MAP:** USGS Quad: ROCHESTER, NH-ME 1983 7.5 min. 1:24000. Compare to FIGURE 5: Aerial photograph, 1974.



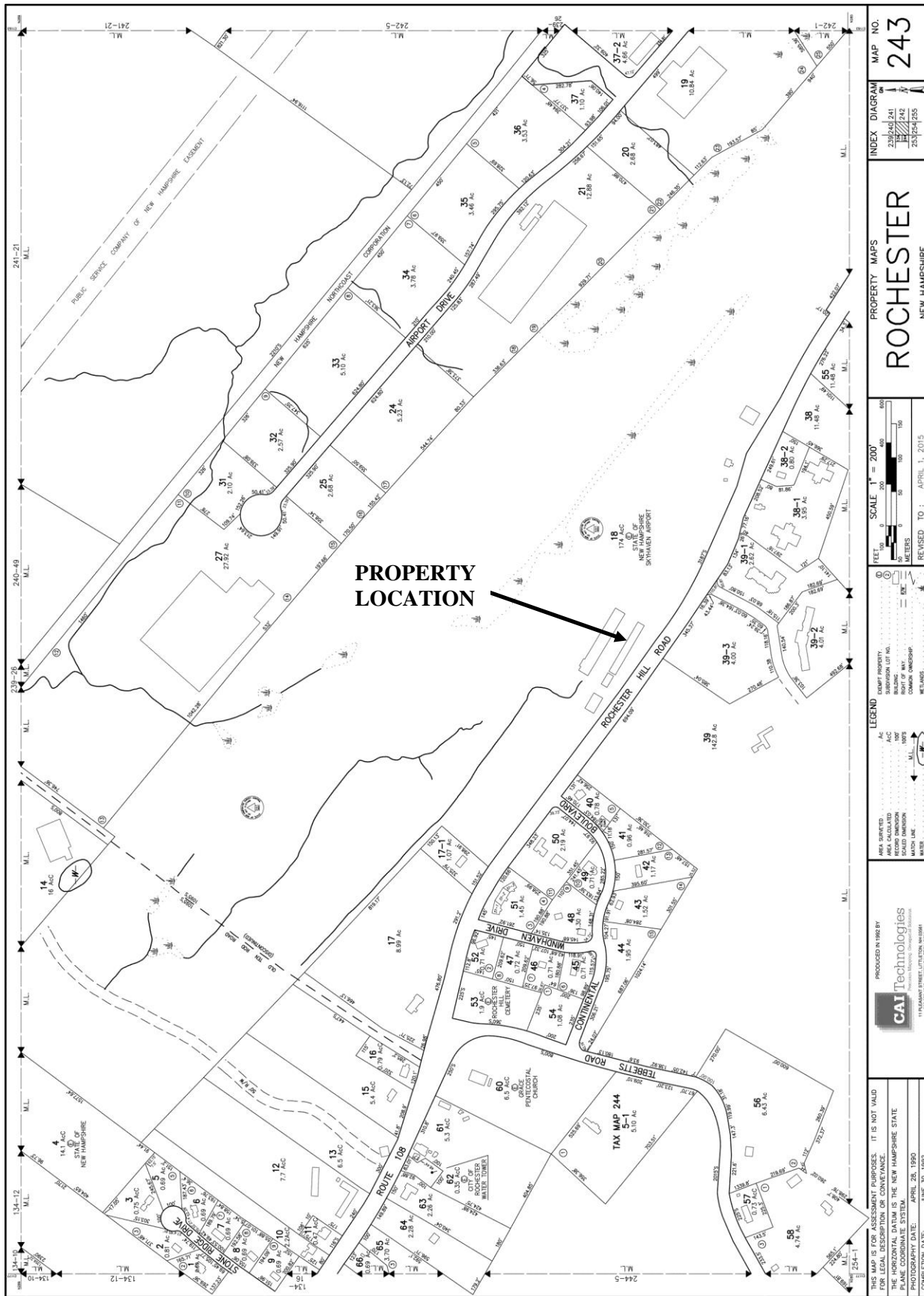
**40. PROPERTY SKETCH & KEY TO PHOTOS:**

see page 4

**INDIVIDUAL INVENTORY FORM**

**NHDHR INVENTORY # ROC0067**

**39. LOCATION MAP (continued): ROCHESTER TAX MAP NO. 243**

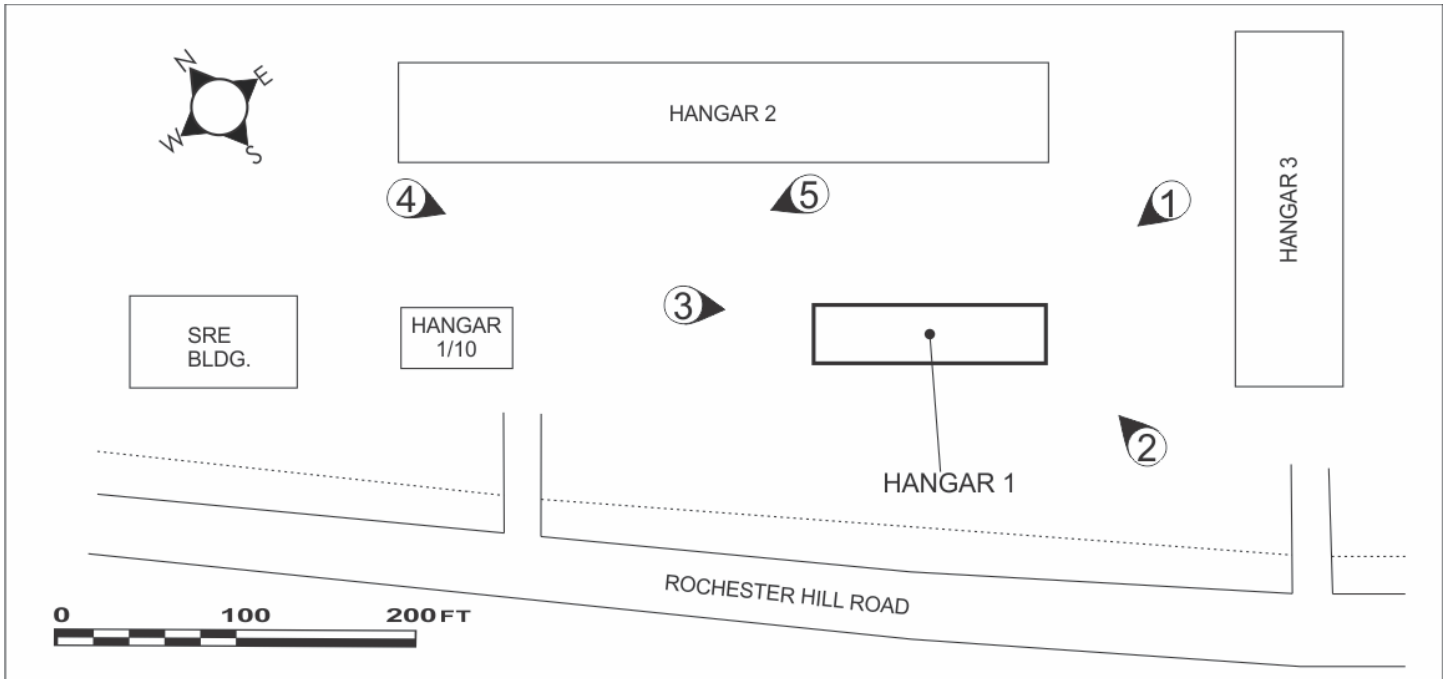


**PROPERTY  
LOCATION**

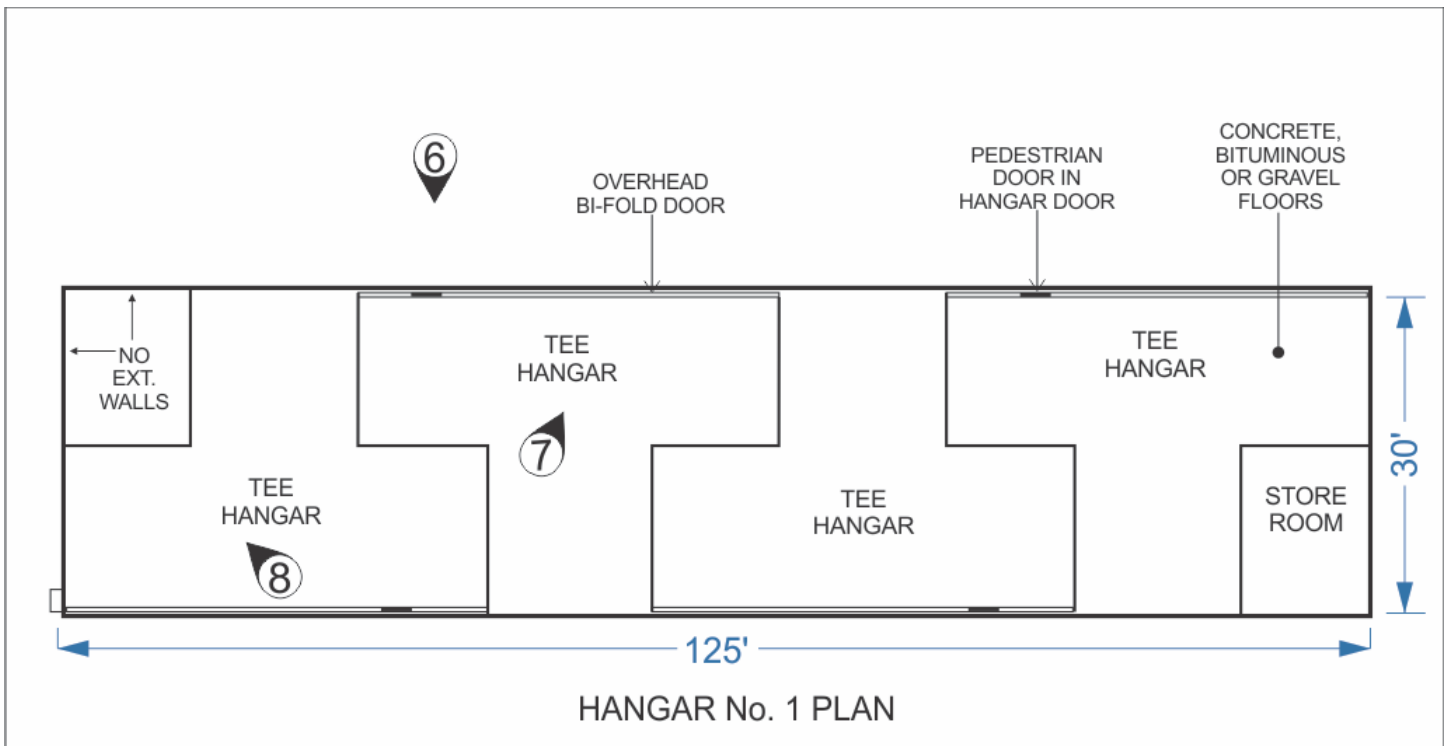


MAP NO. <b>243</b>	INDEX DIAGRAM 238-243 241 239-243 243 240-243 243 241-243 243
<b>ROCHESTER</b> NEW HAMPSHIRE	
SCALE 1" = 200' 0 200 400 600 800 0 200 400 600 800 METERS	
REVISOR TO : APRIL 1, 2015	
LEGEND	PROPERTY
LOT NUMBER	ACREAGE
BUILDING	RECORD DIMENSION
WATER	MASTED LINE
WATER	WATER
PRODUCED IN 1982 BY <b>CAI Technologies</b> 111 RAYBURN AVENUE, FULFORD, MASSACHUSETTS 01930	
THIS MAP IS FOR ASSESSMENT PURPOSES. IT IS NOT VALID FOR LEGAL DESCRIPTION OR CONVEYANCE.	
THE HORIZONTAL DATUM IS THE NEW HAMPSHIRE STATE DATUM.	
PHOTOGRAPHY DATE: APRIL 28, 1980	COMPLETION DATE: JUNE 30, 1992

40. PROPERTY SKETCH & KEY TO PHOTOS:



40.a. PROPERTY SETTING & KEY TO PHOTOS 1-5



40.b. PROPERTY FLOORPLAN & KEY TO PHOTOS 6-8



**41. Historical Background and Role in the Town or City's Development:**

Skyhaven Airport is one of 25 public airports in New Hampshire. It is owned by the Pease Development Authority, an agency of the State of New Hampshire. The airport is located on State Route 108 (formerly Route 16) in the City of Rochester, approximately 2 miles southeast of the downtown area and approximately 3 miles northwest of the town of Somersworth.

No formal history has been prepared on the airport and very little historical information was obtained. A request for available information was submitted to Rochester Historical Society; Martha Fowler, President, responded with the following:

"We would love to have anything you find as we have very little. It was established by William "Billy" Champlin. The Champlin family had a lumber mill and box manufacturing plant that employed many local people and the Champlins were one of Rochester's prominent families, so it is surprising we have virtually nothing on the airport he founded. In her book *Rochester, NH 1890 – 2010*, Kathryn Grover has a bit about it. She says in 1941 William Hilton Champlin, Jr. then 25 years old, built an airstrip near his family's home on Rochester Hill and incorporated Sky-Haven Inc. to run the facility. Began with a turf runway. The rest of what she has is from the 1960s/1980s. In 1968 the state acquired it from the Champlin family. My mother had relatives who lived in a house where the airport is now – that house was moved across the street. Good luck with your research."

The 1994 Skyhaven Airport Master Plan Update prepared by Hoyle Tanner & Associates, Inc. included the following historical overview:

- 1939 Private airport with 1,400 ft grass runway established on a portion of the former Haven Hill Farm, owned by W. Champlin of Rochester, N.H..
- 1940 Skyhaven Incorporated founded.
- 1946 Runway extended 600 ft to 2,000 ft
- 1956-1966 University of New Hampshire Reserve Officer Training Corps (ROTC) Flight Training Program. Airfield improvements include a 2,100 ft long, 48 ft wide paved runway.
- 1968 State of New Hampshire acquires airport property. The airport is operated by the New Hampshire Aeronautics Commission. A new 3,100 ft long, 60 ft wide runway is constructed and the old runway becomes a taxiway.
- 1978 Terminal building and refueling systems purchased by the State. Aircraft parking apron lengthened from 300' to 550' and two stub taxiways constructed.
- 1979 T-hangars purchased by the State.
- 1986 Runway extended 900 ft to 4,000 ft and widened 40 ft to 100 ft. T-hangar expanded by 6 units.
- 1993 New fuel farm and aircraft refueling station completed; Addition to terminal building completed.
- 1994 Eight units of T-hangars with 42 ft doors and six units with 48 ft doors completed.

The exact date of construction of Hangar 1 was not determined but several clues point to 1956 or shortly thereafter as the likely year. The hangar was in production and on the market by 1950 (see Figure 17). Based on historic mapping and aerial photographs it was not present in 1951 and was present in 1962 (see Figures 1-5). The 1958 topo map (Figure 3) shows three structures adjacent to the airstrip but it is impossible to know what they represent. A house with perhaps outbuildings was known to have been moved off the site at some time. The use of the airfield for ROTC Training between 1956 and 1966 and the construction of a paved runway at that time strongly suggests that Hangar 1 was built about the same time.

The hangar appears essentially unaltered since it was built with the exception of upgraded electrical service and removal of two sections of sheet metal siding that apparently enclosed the storeroom in the northwest corner. About 1970 a pole-barn hangar of similar dimensions to Hangar 1 was erected off the west end of Hangar 1 (see Figure 5). The pole barn hangar was taken down about 2010.

**42. Applicable NHDHR Historic Contexts:** 89. Aviation in New Hampshire.

### **43. Architectural Description and Comparative Evaluation:**

Skyhaven Hangar 1 is a one-story prefabricated steel T-hangar, rectangular in plan, measuring approximately 125' by 30' with a gable roof. It was manufactured by International Steel Company Inc. of Evansville, Indiana and marketed under the trade name "Mul-T Hangar" by 1950 (see Figure 17). It is constructed entirely of steel and rests on a concrete foundation. Floor materials vary: concrete, bituminous, and gravel. The frame consists of standard rolled shapes (channels, H-columns, angles) welded and bolted together; the roof, sidewalls and interior partition walls are rolled vertical box-rib galvanized sheet. There are four T-hangar bays arranged nose-to-tail in the standard or "stacked" pattern as shown in the Hangar No. 1 Plan above (Section 40.b. Key to Photos) and Figure 6. The plane bays are equipped with bi-fold overhead doors of the canopy type, meaning they fold outward to form a projecting cantilevered canopy over the entrance. Set within the lower half of the hangar door is a steel pedestrian door for access without opening the overhead door. The plane bays are approximately 40' wide across the door opening (wing section) and 16' wide across the tail section. At each end of the building in opposite corners is a small 12'x15' storeroom. The east storeroom is equipped with a single 4-light industrial window and a pedestrian door; the west storeroom is missing its exterior walls.

#### *Comparative Evaluation:*

Skyhaven Hangar 1 is comparable in both architectural and engineering design and characteristics to the many hundreds of thousands if not millions of prefabricated steel utility and storage buildings produced in the U.S. beginning in the early 20<sup>th</sup> century and continuing today. Competition by hundreds of manufacturers of such buildings over the years has made cost vs. utility the basis of their design and marketing. They are strictly utilitarian in design and finish, with structural material use limited to only that necessary to resist nature and meet building codes.

The design and technology of prefab metal utility buildings has not changed significantly since the 1930s; the advances that have occurred have been primarily in better coatings and fasteners, and in changes in the gauge and shape of rolled structural members and sheet metal sections made in the effort to reduce material costs. There are however limits to how "cheap" the buildings can be physically made because they will not last. Therefore the significant technological advances associated with prefab metals buildings are mostly found in the manufacturing process where costs have been reduced through more efficient machines and labor – advances which are not embodied in the product and evident to the user.

The design of the T-hangar subtype of prefab metal building has also not changed since the 1930s. The primary character defining feature is the arrangement of the interior partition walls to best accommodate the T-shape of an airplane. Humans have always designed interior spaces in buildings to maximize utilization of the space for the purpose.

Large plane hangars have two specialized structural features that define the building type: the clear-span roof structure, typically trusses but sometimes other structural systems, and large movable doors. Big hangar roofs and doors have an extensive history of technological development and innovation. Small-plane hangars generally do not possess such highly engineered features. The long narrow gable-roof design of the T-hangar allows short clear-spans using light trusses of standard design. The requirements of T-hangar doors with opening widths in the 40' to 50' foot range, have been met with simple assemblies of multi-leaf sliding or hinged doors. Sliding doors have been used with wheels mounted on the top (hanging) or on the bottom (bearing). Hinged doors have been used that fold vertically or horizontally, storing inside or outside the hangar when open. The overhead bi-fold door, developed in the 1920s for trolley and auto garages, became the standard for small to medium size hangars due to their superior ability to store out of the way when open. A variety of tracks, balances, operating and locking mechanisms have been developed and some patented for overhead doors.

The standard outward bi-folding doors on Skyhaven Hangar 1 use the basic manually operated chain-fall lift mechanism found on many types of overhead doors. The doors have a manufacturer's name plate that reads "Morgan Canopy Door, Pat. Applied For. Mfg. by International Steel Co., Evansville, Indiana..." (see Photo 6). David H. Morgan was a designer and inventor of overhead door operating systems from the 1920s into the 1950s. He designed an outward bi-fold overhead door for hangars in the late 1930's that was produced by Truscon Steel Company of Youngstown, Ohio under the name "Morgan Canopy Door. He was granted eight patents for specialized components of movable doors, but none those components are incorporated in the "Morgan Canopy Door" on Skyhaven Hangar 1. At some point International Steel began manufacturing the Morgan Canopy Door and fitting them to their hangars. The addition of "Patent Applied For" on product identification plates became routine during the 20<sup>th</sup> century, especially when the designer held related patents or was regularly applying for them. The term became a generic yet effective warning to discourage copy-cats as it sowed confusion as to what might

actually be patented or patentable in a product's design. In any event, the Skyhaven Hangar 1 Morgan Canopy Door does not embody any technology beyond the simple chain-lift and guide-track mechanisms developed in the 1920s by others.

### *T-Hangar History & Development*

The concept of arranging airplanes in a hangar, close-packing them side-by-side, tail to nose, in order to fit as many planes in a hangar as possible, dates to 1917 or earlier (see Figures 6, 7). This design concept may seem elementary, but efforts to patent the idea – directly or indirectly – were made and failed on several occasions. In 1928 Carey Bundy attempted to patent a "New Type of Hangar" described as:

"A unit system of plane storage is followed. Each plane is in a separate compartment, thus cutting down on fire hazard. Space is conserved by heading the planes in opposite directions. Each compartment is T-shaped and the compartment dove-tail into each other making one long rectangular building. Each plane can be put in its stall without disturbing any other."<sup>1</sup>

The above quotation, published in *Aviation* magazine January 9, 1928, seems to have prompted a slew of other hangar makers to come forward with their designs for T-hangars, many of which were already in production, or quickly made so. The multi-plane T-hangar as a single prefabricated building that could be ordered with any number of stalls became popular in the 1930s and remains so today. They were and are a cost-effective means to generate income for small airports through hangar rentals. WWII and the post war years brought further demand for the type in both single and multiple unit configurations. In 1946 *Aero Digest* published their annual "Sampler Chart of Standardized Aircraft Hangars" that listed 51 prefabricated hangars offered by 21 manufacturers, with the T-hangar being the dominant type. The chart included 110 variables covering every building feature for comparison purposes. The authors noted: "Even the cursory glance over the chart will reveal that the designers are applying the yardstick of upmost utility, combined with simplicity, to their structures. They are all truly functional in nature." Please see Figures 8-15 for additional information on T-hangar types and development.

### *International Steel Company*

International Steel Company was founded in Evansville, Indiana around the turn of the 20<sup>th</sup> century and by 1907 was manufacturing revolving doors. The company eventually purchased the two main competing revolving door manufacturers in the US and created a separate division called the International Revolving Door Company. The door division remained the largest revolving door maker in the world through the 20<sup>th</sup> century. The International Steel division grew into a specialized manufacturer of steel roof trusses for large clear-span buildings including arenas, gymnasiums, assembly plants and aircraft hangars. During WWII the company diversified production to assist the war effort and built trussed Bailey Bridges, pontoon bridges and tank landing ships (LST). By the 1950s the company was fully engaged in both large and small hangar construction including T-hangars of the Skyhaven Hangar 1 type. The company's expertise in moving door manufacturing led to a further specialization in building and installing the world's largest hangar doors.

#### **44. National or State Register Criteria Statement of Significance:**

Skyhaven Hangar 1 is not associated with events important to the broad patterns of our history nor has it played any important or significant role in the development of the town of Rochester or the development of Skyhaven Airport. The hangar was built c. 1956 with a capacity to house four small airplanes. Between 1956 and 1966 the airport was reportedly utilized for ROTC pilot training but the extent and significance of that use could not be established. An association between the hangar and the ROTC use could not be established. An important association between Hangar 1 and the operation and growth of Skyhaven could not be established. Since airplanes are typically stored outside at airports, storage hangars are not considered an operational requirement of the airport but rather an amenity for those plane owners wanting the convenience of storing their planes indoors. Airports build storage hangars to provide that amenity; rental income from the hangars may eventually pay off the investment after which a small income stream may be realized. Hangar 1 is therefore not eligible for the National Register under Criteria A.

Skyhaven Hangar 1 is a prefabricated steel-frame, steel-skin building with overhead bi-fold doors and subdivided interior sheet-metal partitions forming T-shaped rooms for the storage of small aircraft. The building type is known in the industry

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<sup>1</sup> *Aviation*. "New Type Of Hangar." January 9, 1928, p. 106.

prefabricated building industry as a Standard T-Hangar and is still being produced in essentially the same design and materials. The building is unexceptional in size and design and does not possess important or notable architectural or engineering characteristics that would distinguish it from the hundreds or perhaps thousands of similar T-hangars in use around the country. It is not an early, unusual, rare or otherwise distinguished example of its type like some of the examples given in the Figures below. T-hangars were manufactured beginning in the 1920s and by the 1950s the type had matured into essentially one standard design of which Hangar 1 (built c.1956) and other T-hangars at Skyhaven erected in the 1980s and 1990s, are representative examples. Hangar 1 is therefore not eligible for the National Register under Criteria C.

Skyhaven Airport as a whole does not represent a significant collection of historic buildings that can be importantly associated or interpreted within the context of aviation history in New Hampshire. The airports runways, taxiways, aprons and other areas have been relocated and reconstructed several times, which, along with the addition of new hangars and other support buildings, have effectively erased any evidence or sense of the original airfield. **The extent of alteration and new construction is evidence by comparing the mapping and aerial imagery shown in Figures 2-5, to current conditions shown in Addendum Figure 1, and by Addendum Photos 1-8.** Skyhaven Airport is therefore not eligible for the National Register as a historic district. Hangar 1 therefore is not a potentially contributing feature of a historic district.

**45. Period of Significance:** N/A

**46. Statement of Integrity:** Skyhaven Hangar 1 retains integrity of location, workmanship, design and materials. Due to the extensive alteration of the airport facilities surrounding Hangar 1, including replacement of original runways and buildings and addition of new runways and buildings, **as depicted in Addendum Figure 1 and Addendum Photos 1-8,** the property does not retain integrity of setting, feeling or association. Hangar 1 therefore does not retain a recognizable association with the context of the history of the airport.

**47. Boundary Discussion:** The boundary of the property is defined by the physical limits of the building.

**48. Bibliography and/or References:**

*Aero Digest*. "Aero Digest's 1946 Sampler Chart of Standardized Aircraft Hangars." July 1946, pp. 67-70, 137.

*Aviation*. "Portable Standardized Steel Hangars." October 15, 1917, p. 398.

———. "An inexpensive serviceable hangar." March 15, 1926, pp. 370-371.

———. "New Type of Hangar." January 9, 1928, p. 106.

———. "Butler Mfg. Co. is Marketing T-Shaped hangar for Plane Owners." February 20, 1928, p. 460.

———. "Virginia Hangars." September 1, 1928, p. 728.

———. "Shepard Hangars." September 22, 1928, p. 946.

———. "Kocher Hangars." December 1, 1928, p. 1776.

———. "Hangar Equipment." July 1936, pp. 78-79.

———. "Pre-Fabricated Steel Hangar." December 1938, p. 49.

*Aviation News*. "Lease-Lend Hangar." November 12, 1945, p. 20.

———. "Pre-cut T-Hangar Put on Market." November 19, 1945, p. 19.

———. "Bayley T-Hangar." December 24, 1945, p. 17.

———. "Novel Hangar." December 31, 1945, p. 25.

Butler Manufacturing Company. "Butler Built All-Steel, Fire-Safe Hangars." Advertisement. *Aviation*, May 1944, p. 42.

Byrne, J. T. "Hangar door design." *Aero Digest*, October 1939, pp. 49-50.

*Contract Record and Engineering Review*. "Airplane hangar construction -- A new field for contractors." May 16, 1928, pp. 498-504.

Corbett, Harvey Wiley. "The Airport of the Future." *Architectural Forum*, January 1930, p. 71, Part 1.



**INDIVIDUAL INVENTORY FORM**

**NHDHR INVENTORY # ROC0067**

- Fischer, R. E. (1964). *New structures: An architectural record book*. New York: McGraw-Hill Book Co.
- Grimsley, E. L. R. "Housing the Airplane." *Aviation*, October 15, 1919, pp. 271-272.
- Harvey, Emil K. General Designs and Materials Used in Hangar Construction. *Aero Digest*, August, 1941, pp. 101-104.
- Historic Aerials. Aerial Photographs as cited in figures. Nationwide Environmental Title Research, LLC. Available online at [historicaerials.com](http://historicaerials.com).
- Hoyle Tanner & Associates, Inc. "Airport Master Plan Update Skyhaven Airport Rochester NH. Prepared for New Hampshire Department of Transportation by Hoyle Tanner & Associates, Inc., Bedford, NH. 1994. On file at NHDOT, Concord.
- Hurd, D. H. *Town and County Atlas of the State of New Hampshire*. Philadelphia: D. H. Hurd & Co. 1892.
- International Derrick & Equipment Company. "Ideco Standard Hangars." Advertisement. *Aviation*, March 9, 1929, p. 757.
- International Steel Company. "Standard Steel Bowstring Trusses, Cat. No. T-37A." 1947. Available online at <https://meskerbrothers.wordpress.com/2013/03/13/crescent-city-rivals/>.
- . Advertisement. *Aviation Week*, March 20, 1950, p. 28.
- . Advertisement. *Aviation Week*, July 17, 1950, p. 37.
- . Advertisement. *Aviation Week*, August 16, 1954, p. 122.
- . Advertisement. *Aviation Week*, August 25, 1958, p. 46.
- Morgan, David H. "Bifold Door." U.S. Patent No. 2,238,181, April 15, 1941; "Pre-lift Device for Hangar Doors." U.S. Patent No. 2,220,656, November 5, 1940.
- Rochester Historical Society. Email communication with Martha Fowler, President. May 9, 2016.
- Sexton, R.W. "Airport hangar Design." *Architectural Forum*, January 1930, p. 121, Part II.
- Stefco Steel Company. Advertisement. "Stefco Steel Hangars." *Aviation*, March 30, 1928, p. 1233.
- Stern, Eugene W. "Recent Airport Construction in Europe." *Architectural Forum*, April 1930, p. 616, Part II.
- Steuber, L.M. "Commercial hangars." *American Architect*, July 20, 1929, pp. 81-95.
- Sherman, R.W. "Airplane hangars." *Architectural Forum*, December 1930, pp. 769-778.
- Tyler, Stewart Rogers. "Airports the New Architectural Opportunity." *Architectural Forum*, April 1929, p. 593, Part II.
- Walling, H.F. *Topographical Map of Carroll County, New Hampshire*. New York: Smith & Peavey Publishers, 1860.
- "Wide-Span Hangars for the U.S. Navy." *Civil Engineering*. December 1941, pp. 697-700.
- Woerner, J.F. "T-type personal hangars." *Aero Digest*, September 1946, pp. 44-45, 96.
- Zaborowski, Robert. "Monolithic Concrete Seaplane Hangars." *Civil Engineering*. August 1944, pp. 355-358.

**Surveyor's Evaluation:**

NR listed: individual \_\_\_\_\_  
              within district \_\_\_\_\_

Integrity: yes              X    
              no             \_\_\_

NR eligible: individual \_\_\_\_\_  
              within district \_\_\_\_\_  
              not eligible     X    
              more info needed \_\_\_\_\_

NR Criteria: A \_\_\_\_\_  
              B \_\_\_\_\_  
              C \_\_\_\_\_  
              D \_\_\_\_\_  
              E \_\_\_\_\_

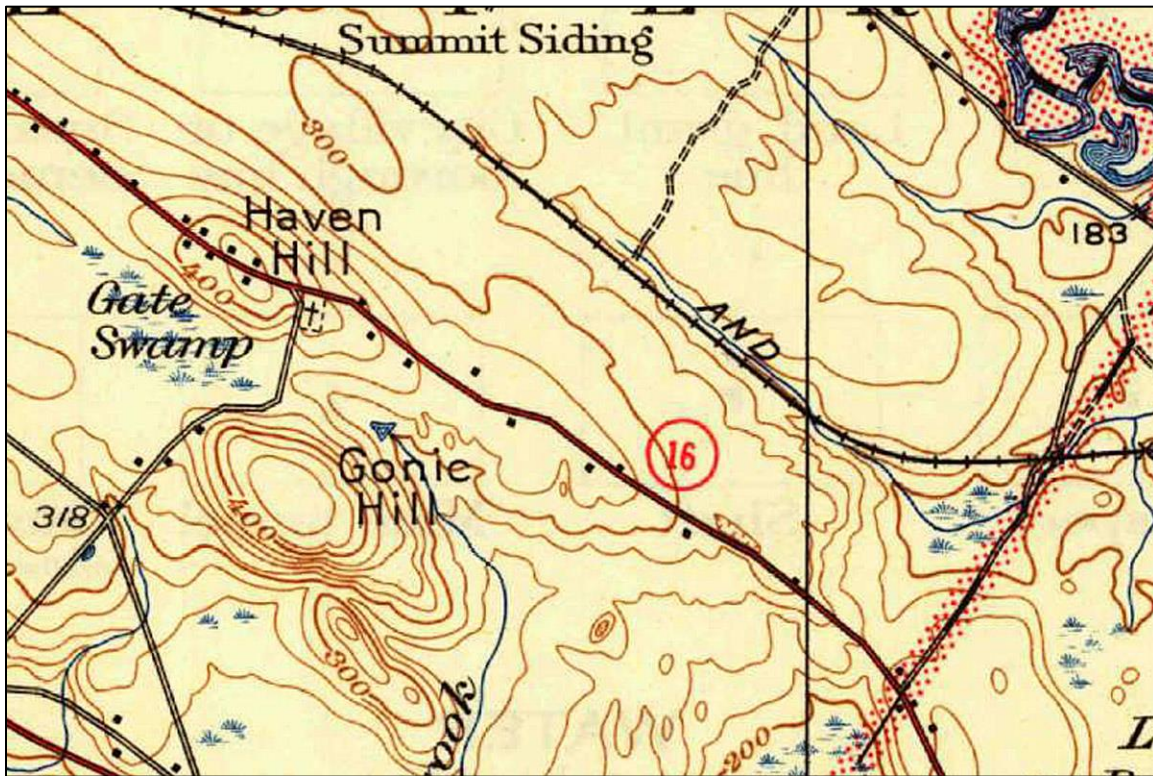


FIGURE 1: Historic Topo map, Berwick, ME 1937. Airstrip not present (compare to 1958 topo, Figure 3).



FIGURE 2: Aerial photograph, 1951. Dashed overlay shows approximate location of grass runway believed to be present at that time but is not evident in photo. (Source: Historic Aerials).



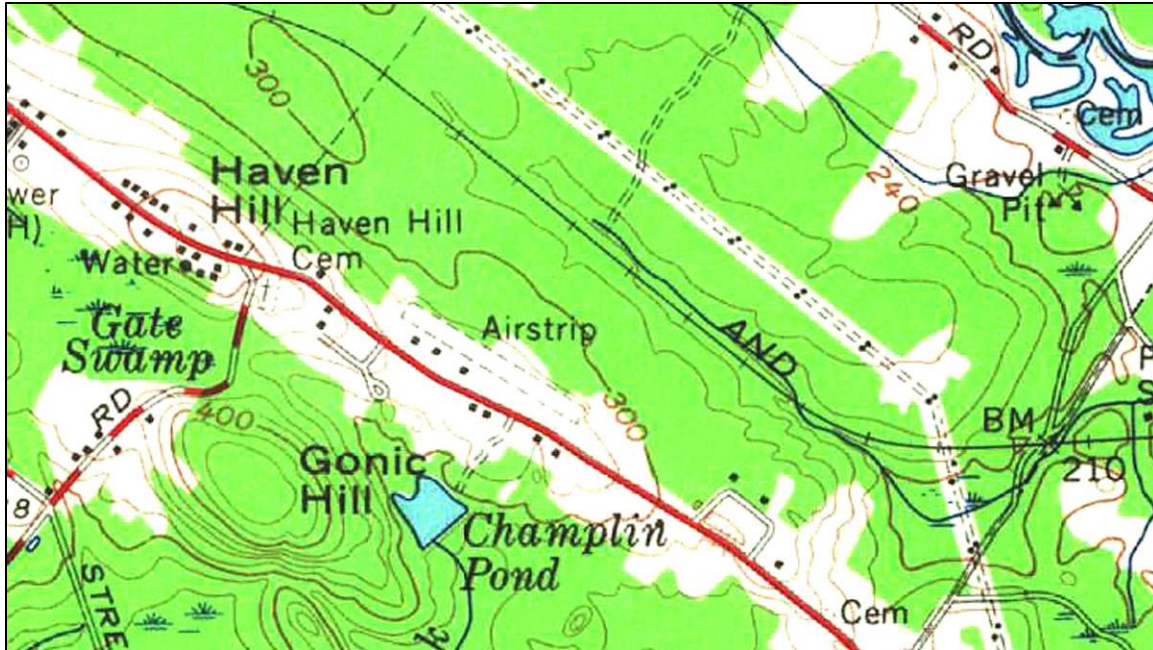


FIGURE 3: Historic Topo map, Berwick, ME 1958. Airstrip and three "structures" shown. (Small solid squares were used on topos to depict most buildings regardless of size and shape).



FIGURE 4: Aerial photograph, 1962. Airstrip and Hangar 1 (circled) are visible (Source: Historic Aerials).





FIGURE 5: Aerial photograph, 1974. New runway built by state can be seen along with Hangar 1 (circled) with open pole-barn hangar added off its west end. Hangar 1/10 is also visible just west of pole barn (Source: Historic Aerials).

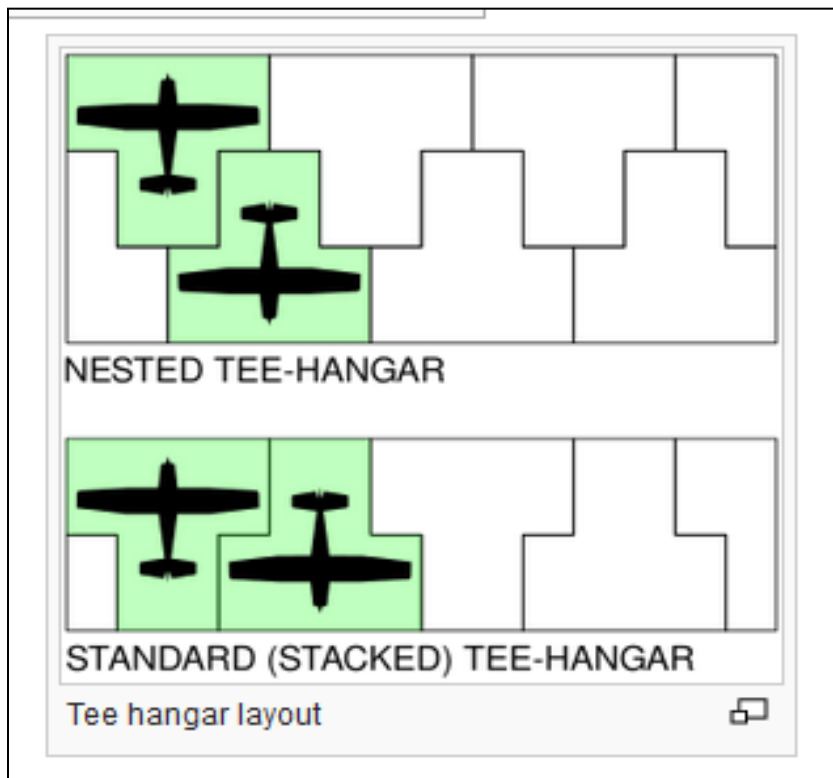


FIGURE 6: Principal of Tee-Hangar design (Source: "Tee-hangar." Wikipedia.com).

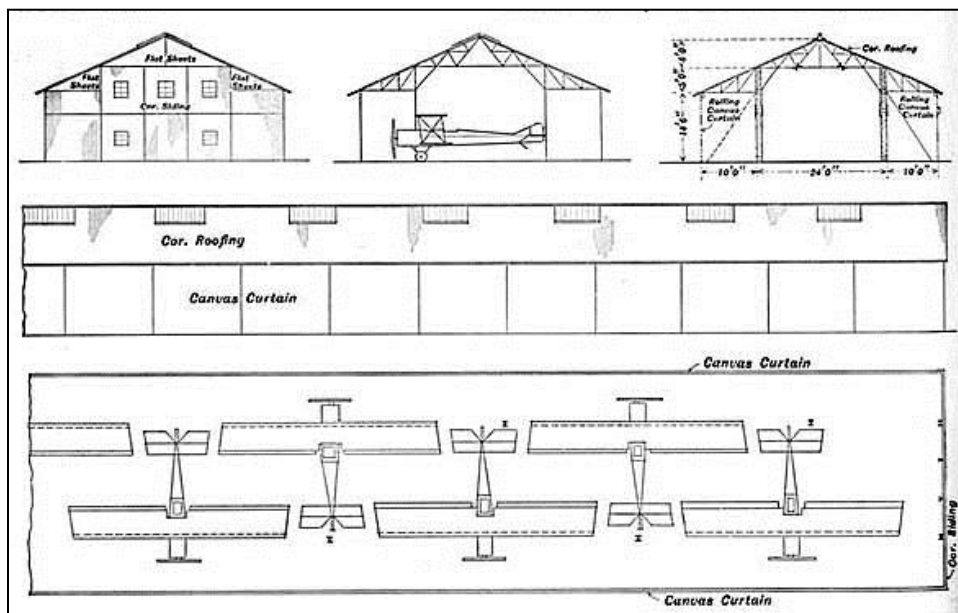
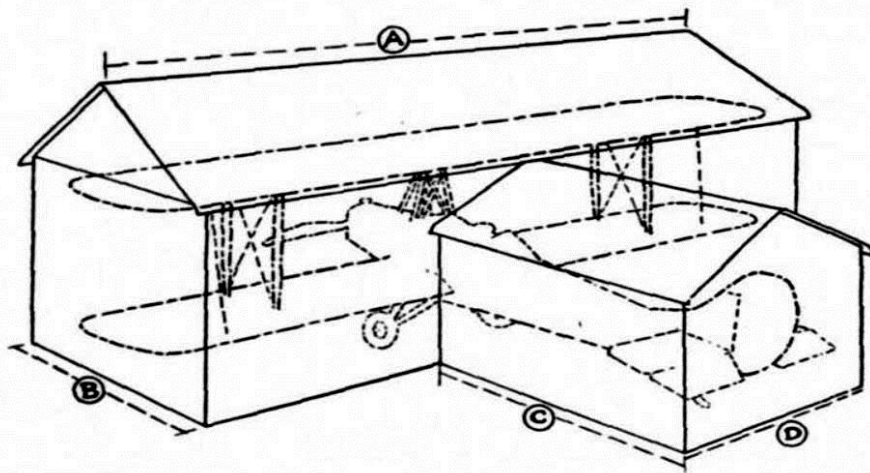
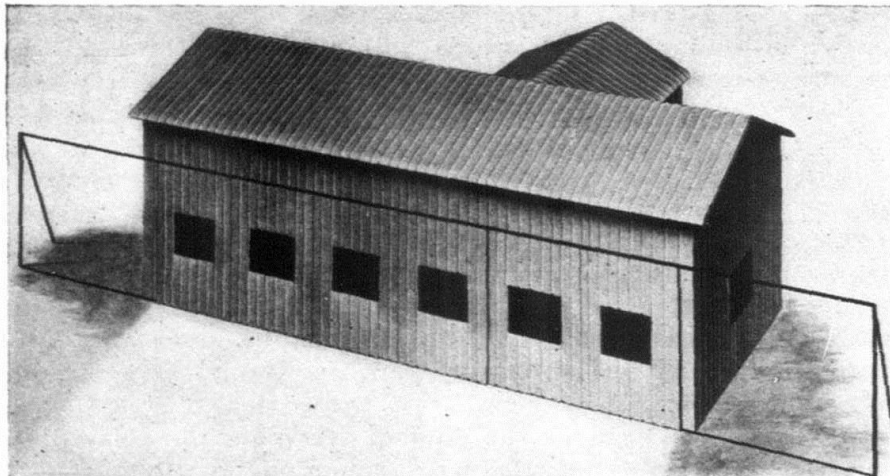


FIGURE 7: "Portable Standardized Steel Hangars" manufactured by the Steel Fabricating Co. were delivered pre-fabricated for assembly by 6 men with basic tools. The long rectangular hangars with coffer-truss roof system were open on both sides. Column placement allowed a T-layout plane storage arrangement, the first example found in the literature. Heavy canvas curtains were used for doors (Source: *Aviation*, October 15, 1917).



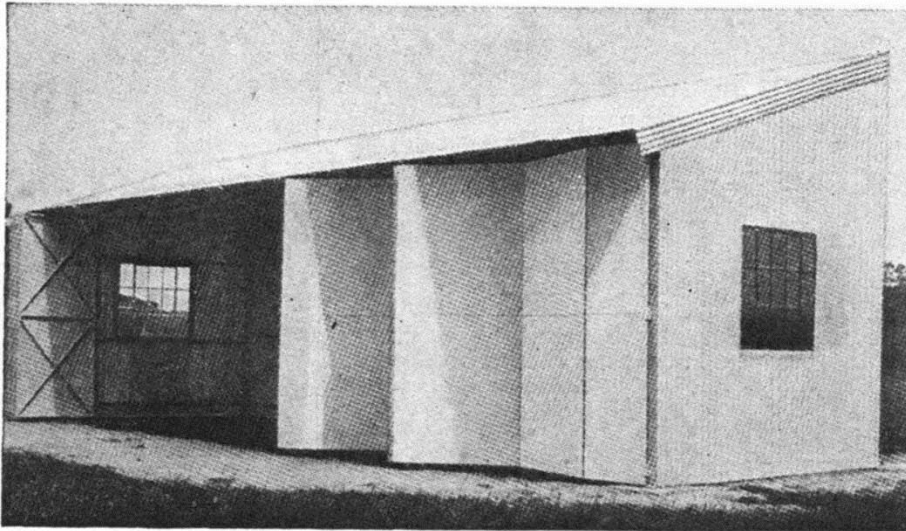


*Phantom drawing of the "T" shaped hangar.*



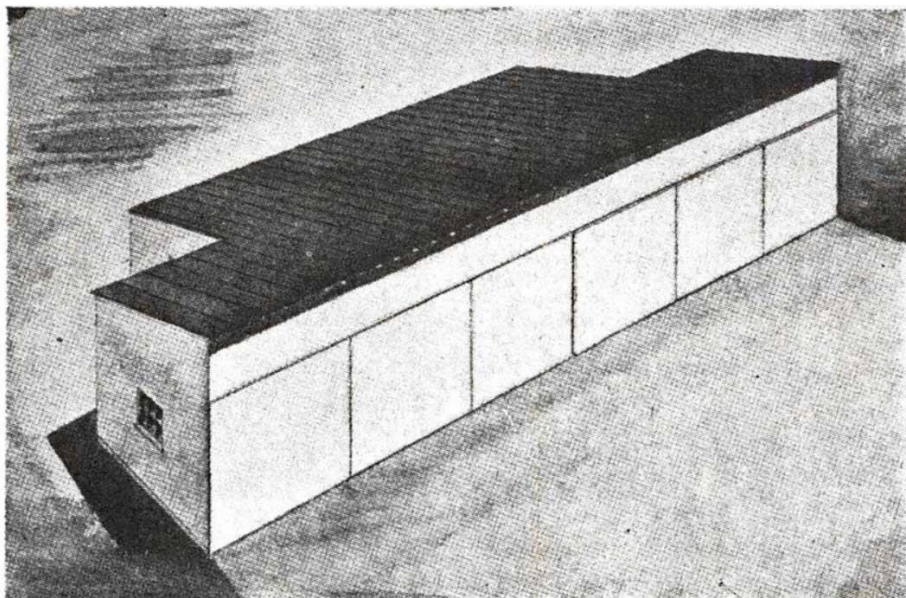
*The private plane "T" shaped hangar placed on the market  
by the Butler Mfg. Co.*

FIGURE 8: By 1928 the T-hangar was an established type. Butler – a name now synonymous with pre-fab metal utility buildings – offered a T-shaped hangar with sliding doors for a single plane. A rear el housed the tail section. A slew of other small-plane hangar manufacturers had sprung up by this time (Source: *Aviation*, February 20, 1928).



*Showing accordion type folding doors used on "T" shaped single plane hangar made by Virginia Bridge Co.*

FIGURE 9: Large steel bridge fabricators such as Virginia Bridge Company, entered the large and small hangar market and offered versions of T-hangars. This model was designed to be used as a "unit in the construction of multi-plane hangars...[with] the individual hangars placed in rows with the alternate units reversed. Doors are of the accordion or folding type and operate freely and easily." (Source: *Aviation*, September 1, 1928.)



*A drawing of the No. 105 two-plane "T" type wooden hangar built by the George T. Kocher Lumber Co.*

FIGURE 10: T-hangars of wood construction were available as pre-cut kits ordered through your local lumber yard that private plane owners could assemble themselves (Source: *Aviation*, December 1, 1928.)

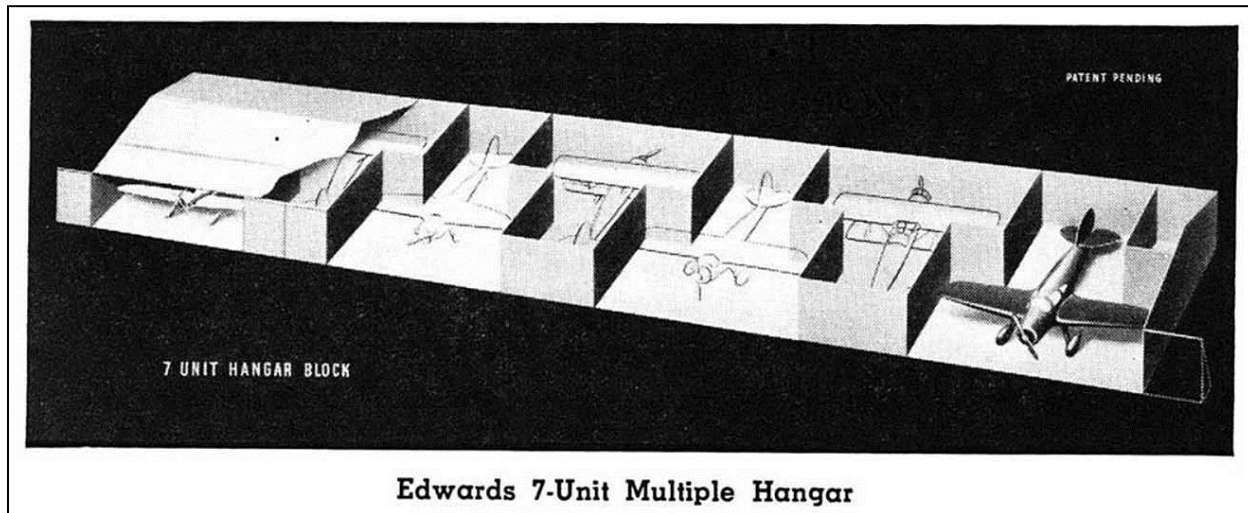


FIGURE 11: The Edwards T-hangar was introduced in 1938 and can be considered the prototype for similar hangars including Skyhaven Hangar 1, later manufactured by International Steel Co. Both companies were located in Indiana; a connection between the two companies was not researched. Previous efforts as early as 1928 to patent the T-hangar design failed and it is assumed Edwards failed as well since nearly identical units by other manufacturers were conceived in the 1920s and on the market in the 1930s and 1940s. The short article accompanying the drawing above summarizes the features of the design that made the T-hangar a staple of small-plane airports nationwide:

#### **Pre-Fabricated Steel Hangar**

##### **Any Number of Dovetailed Units Can be Built and Privacy Preserved**

An advanced type prefabricated all-steel airplane hangar, of special merit for small airports where rental costs must be kept at a minimum but privacy of storage is desired, has been introduced by Edwards Iron Works, Inc., South Bend, Indiana. Developed through the cooperation of Charles R. Bowers, veteran pilot and airport manager, and W. Howard Edwards, engineer and manufacturer, the Edwards hangar provides for dovetailed hangar units with planes nested tail to tail, doors being located on opposite sides of a long multiple hangar which may include any number of individual storage units. The manufacturer claims low first cost for the hangar, low maintenance, completely fireproof construction, with high resistance to windstorm damage, ease of erection and ease of portability if necessary to move (Source: *Aviation*, December 1938).



# BUTLER BUILT ALL-STEEL, FIRE-SAFE HANGARS

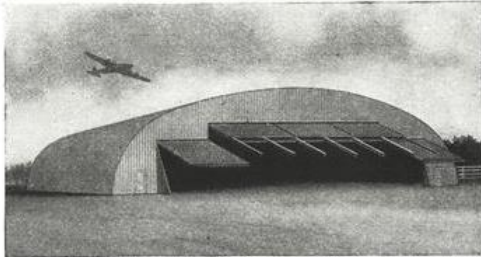


Fig. 460. Arch Frame (All-Steel) 130' wide x 160' long x 32' high. Equipped with overhead doors.

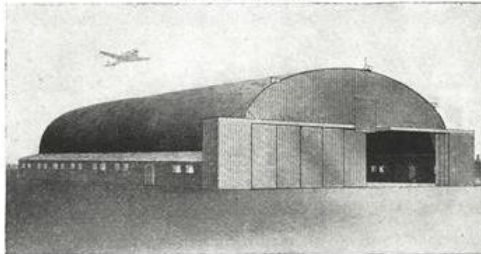


Fig. 462. Butler (All-Steel) Type AFA Hangar 120' wide x 160' long x 43' high with 11' high side wall and lean-to shop facilities on each side.

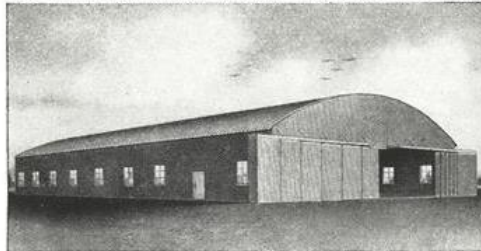
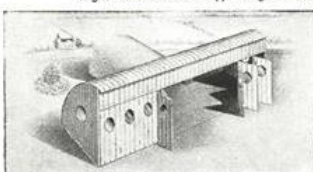


Fig. 469. Butler (All-Steel) Hangar Roof and Doors. Parts for masonry construction may be designed to varying conditions to meet requirements of your architect. Have him contact our engineers.



Fig. 464. Butler (All-Steel) Type RT-100 Hangar 100' wide x 70' long x 25' high. Conventional type regular Butler construction.



Since the early development of airfields, Butler has supplied steel hangars. Out of vast production for lend-lease and for war, many far reaching improvements in design and construction have emerged. When conditions of war permit, Butler will offer the outstanding line of all-steel, fire-safe, economical hangars. It will provide a steel hangar readily adaptable for every airport need.

Butler engineers stand ready to plan with you now on your post-war needs for hangars and other steel buildings and on current needs to the limit war production permits. Address all inquiries to  
1245 Eastern Ave., Kansas City 3, Missouri  
945 Sixth Ave. S. E., Minneapolis 14, Minn.

**BUTLER MANUFACTURING COMPANY**  
Galesburg, Illinois    Kansas City 3, Mo.    Minneapolis 14, Minn.

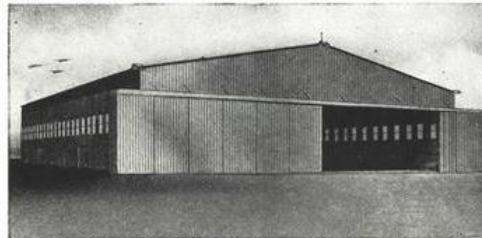


Fig. 461. Butler (All-Steel) Type GR Hangar 122' wide x 160' long x 22' high. Doors may be in one or both ends.

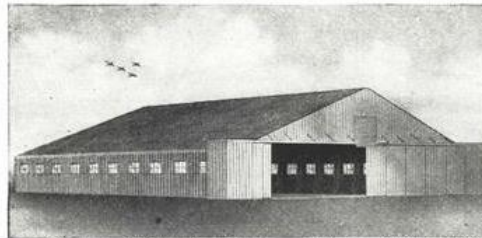


Fig. 463. Butler (All-Steel) Type CH Hangar 130' wide x 160' long x 39' high with frame of light gage cold formed sections.



Fig. 470 (above). Butler (All-Steel) Type MT Hangar. This multiple unit hangar is designed for 4 planes but can be increased in accordance with requirements: 30' wide, 118' long and 12' high with 9' clear opening door.

\*Fig. 467 (bottom left). Butler (All-Steel) Type T-RR Hangar. Front of hangar 40' wide, 12' feet deep and 9' high; tail shed 14' wide, 14' long and 7' high.

\*Fig. 466 (bottom center). Butler (All-Steel) Type T-GA Hangar. Front is 40' wide, 12' deep and 9' high; tail shed 14' wide, 16' long and 8' high.

\*Fig. 468 (bottom right). Butler (All-Steel) Type T-GB Hangar. Front is 40' wide, 14' deep and 9' high; tail shed 14' wide, 14' long and 7' high.

\*These types provide the individual flyer with safe, tamper-proof storage. Dimensions shown may be altered to meet post-war plane sizes.

FIGURE 12: World War II increased the demand for small plane hangars. Growth continued as returning pilots bought personal planes and small-plane based businesses like crop dusting, aerial photography and mapping bloomed. In 1944 Butler Manufacturing Co. was offering a variety of designs, including a modular T-hangar (upper right) that could be designed to any length, a claim the Edwards hangar design made six years earlier and others claimed ten years before that (Source: *Aviation*, May 1944).

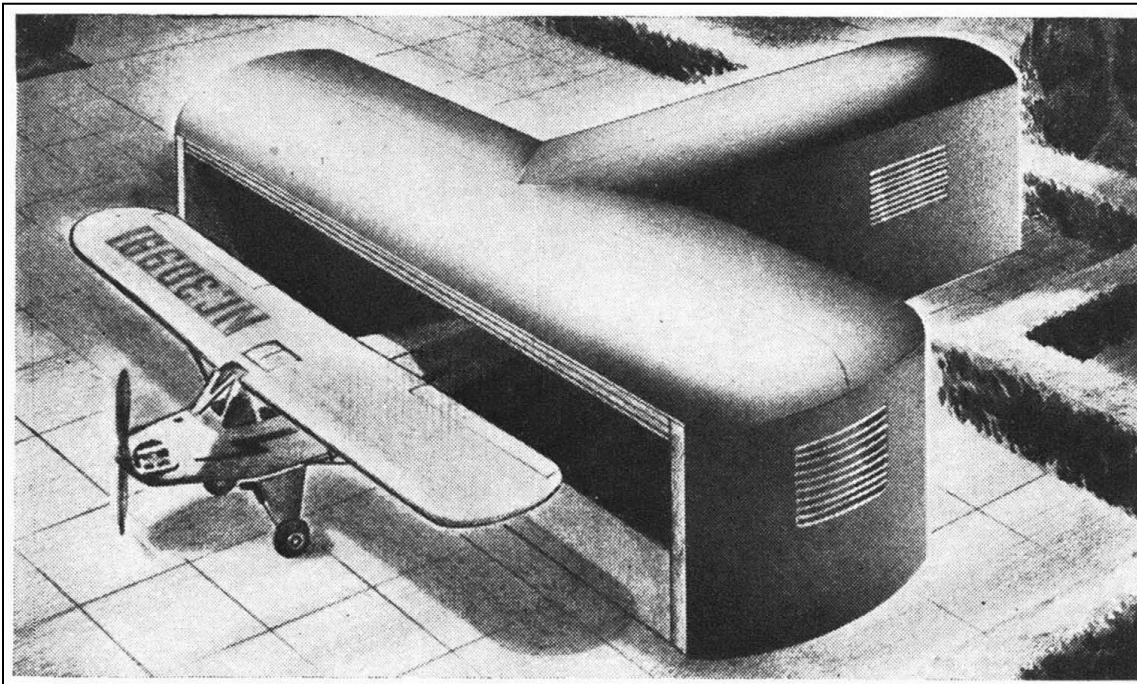
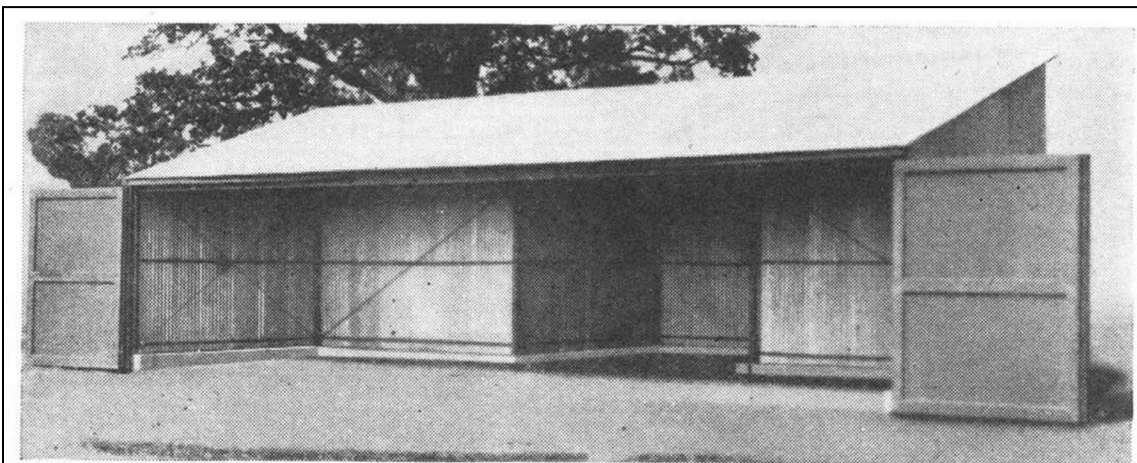


FIGURE 13: U.S. Aeroplane Carriers, Inc. of Baltimore, introduced this streamlined personal T-hangar design as part of their "Lease-Lend" program, in which the company would erect 10 or more units free of charge "if the airport operator agrees to charge a standard hangar rent and pay a portion of this back to the manufacturer for a period of six years, after which the hangars become his property" (Source: *Aviation News*, November, 1945)



**BAYLEY T-HANGAR:**

FIGURE 14: In 1945 the William Bayley Company of Springfield, Ohio offered an all-metal pre-fab T-hangar with jack-knife doors carried on overhead tracks. Wall were anchored to a cement-block foundation to reduce cost. A floor was optional. The back wall widths were identical, allowing multiple units to be nested back-to-back. This so-called *nested T-hangar* housed more planes in a wider but shorter footprint than a standard so-called stacked T-hangar, offering savings in materials and taxiway length (Source: *Aviation News*, December 24, 1945).



**YOU CAN'T RENT YOUR RUNWAYS**

But you can offset much of your operating expenses with the income from an installation of International Steel Mul-T hangars. International Mul-T hangars pay for themselves. They are economical — to erect, to maintain.

Don't let a shortage of buildings hamper your operations when you can get what you need quickly . . . easily . . . from International Steel.

From single-unit T-hangars to commercial steel hangars . . . from all-purpose utility sheds to cargo storage structures . . . International Steel buildings will do the job for you. Write today.

**T-HANGARS**



**MUL-T HANGARS**



**STEEL-MASONRY HANGARS**



**ALL-STEEL HANGARS**



**UTILITY BUILDINGS**



HANGAR DIVISION  
**INTERNATIONAL STEEL COMPANY**  
1802 EDGAR ST., EVANSVILLE 7, IND.

**point your operations toward revenue**



Two 10-ship Mul-T Hangars by International Steel bring revenue to the Bishop Airport, Flint, Michigan.

Airport managers from coast to coast are finding "pay space" in International Steel Aviation Buildings — space bringing in income to help reduce operating costs.

International Aviation Buildings uses are many. They furnish space for rental to plane owners, for rental of offices. They provide housing for equipment, for restaurants, for storage of cargo, for repair shops.

You'll also find that International Aviation Buildings are economical . . . profitable — can be amortized quickly — and bring in welcome income.

Write today — International engineers can help you.

HANGAR DIVISION  
**INTERNATIONAL STEEL CO.**  
1802 EDGAR ST. • EVANSVILLE 7, IND.

FIGURE 15: Advertisements for hangars. By 1950, International Steel Company of Evansville Indiana, the fabricator of Skyhaven Hangar 1, had moved fully into the pre-fab steel T-hangar market. The 4-plane Mul-T Hangar shown in ad at left appears to be same 4-plane unit as Skyhaven Hangar 1. A "10-ship" version is seen in ad at right. The income-producing marketing angle for T-hangars remains valid today (Source: International Steel Company, March 20, 1950 [left]; July 17, 1950 [right]).

**INDIVIDUAL INVENTORY FORM**

**NHDHR INVENTORY # ROC0067**

Date photos taken: 09/16/2015



Photo # 2: Hangar 1, south and east elevations.

Reference (file name or frame #): ROC0067\_002

Direction: N

Date photos taken: 04/28/2016



Photo # 3: Hangar 1, west end, showing new electric service and siding removed from storeroom area.

Reference (file name or frame #): ROC0067\_003

Direction: SE



**INDIVIDUAL INVENTORY FORM**

**NHDHR INVENTORY # ROC0067**

Date photos taken: 04/28/2016



Photo # 4: Context, showing Hangar 1 in relation to Hangar 2, at left and Hangar 3 in distance.

Reference (file name or frame #): ROC0067\_004

Direction: SE

Date photos taken: 04/28/2016



Photo # 5: Context west of Hangar 1, showing Hangar 1/10 (left) and SRE Building (right).

Reference (file name or frame #): ROC0067\_005

Direction: W

**INDIVIDUAL INVENTORY FORM**

**NHDHR INVENTORY # ROC0067**

Date photos taken: 04/28/2016



Photo # 6: Detail of pedestrian door set into overhead bi-fold hangar door. Manufacturer's plate on door reads "Morgan Canopy Door, Pat. Applied For. Mfg. by International Steel Co., Evansville, Indiana, U.S.A. Fabricated Steel Building Products, Bowstring Trusses – Revolving Doors."

Reference (file name or frame #): ROC0067\_006

Direction: SW

Date photos taken: 04/28/2016



Photo # 7: Interior view of bi-fold canopy hangar door

Reference (file name or frame #): ROC0067\_007

Direction: NE



**INDIVIDUAL INVENTORY FORM**

**NHDHR INVENTORY # ROC0067**

Date photos taken: 04/28/2016



Photo # 8: Interior of T-hangar bay showing steel framing, galvanized sheet metal siding and roof panels, and corner storeroom wall partitions.

Reference (file name or frame #): ROC0067\_008

Direction: N

PHOTO KEY IS LOCATED ON PAGE\_4\_\_

I, the undersigned, confirm that the photos in this inventory form have not been digitally manipulated and that they conform to the standards set forth in the NHDHR Photo Policy. These photos were printed at the following commercial printer OR were printed using the following printer, ink, and paper: Walgreen Pharmacy, Fall River, MA. (Color photos must be professionally printed.)  
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**SIGNED:**

A handwritten signature in black ink, appearing to read "Robert M. Cunniff".

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If this inventory form is being submitted for consideration of New Hampshire State Register listing, have you included:

\_\_\_ a photo CD with digital images included in the nomination (does not apply if film photography was used)

\_\_\_ the State Register Contact Information sheet