

WOLD-CHAMBERLAIN FIELD

Universal Airlines Hangar

(De Ponti Hangar)

~~Minneapolis-St. Paul International Airport~~

6355 34th Avenue South

Minneapolis

Hennepin County

Minnesota

HABS No. ^{MN-158-A}
~~MN-158~~

HABS

MINN

27-MINAP,

35A-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Buildings Survey
National Park Service
Department of the Interior
Denver, Colorado 80225-0287

HISTORIC AMERICAN BUILDINGS SURVEY
WOLD-CHAMBERLAIN FILED,
UNIVERSAL AIRLINES HANGAR
(De Ponti Hangar)
~~Minneapolis-St. Paul International Airport~~

HABS
MINN
27-MINAP,
35A-

HABS No. MN-158 - A

Location: 6355 34th Avenue South, Minneapolis, Hennepin County, Minnesota.

UTM Quad: Saint Paul West Quadrangle

UTM Coordinates: 15:482490:4970300.

Present Owner: Metropolitan Airports Commission
6040 28th Avenue South, Minneapolis, Minnesota

Present Use: The Metropolitan Airports Commission and the Federal Aviation Administration had used the building for maintenance and storage prior to the summer of 1995, when the structure was demolished.

Significance: Dating from 1928, the Universal Airlines Hangar's design is typical of the era. Due to the rapid evolution of the aviation industry and concurrent adaptation of related facilities, representative structures from this period are becoming increasingly rare. The United Airlines Hangar is the oldest structure serving its original function in its original location at Wold-Chamberlain Field, the airfield of the Minneapolis-St. Paul International Airport. Additionally, the hangar housed a production line for the Army Air Force's World War II tactical glider program.

Historians: Shawn P. Rounds and Charlene K. Roise
Hess, Roise and Company, Minneapolis Minnesota
October 1995

Description

The Universal Airlines Hangar (also known as the De Ponti Hangar and Building 16) is a one-story, steel-frame structure situated in a row of hangars and other aviation-related buildings edging Wold-Chamberlain Field, which holds the runways for the Minneapolis-St. Paul Airport, to the east. The hangar's north-south axis parallels 34th Avenue South to the west (see Figure 1). The southern portion of the building was originally a free-standing 100-foot-long hangar, one of a pair built in 1928. Infill construction ca. 1941 joined the two hangars into a single unit. The original northern hangar was demolished by the Federal Aviation Administration in the spring of 1995, leaving only the "bridge" section and the southern hangar. In the summer of 1995, after HABS photography for this documentation was completed, the remainder of the

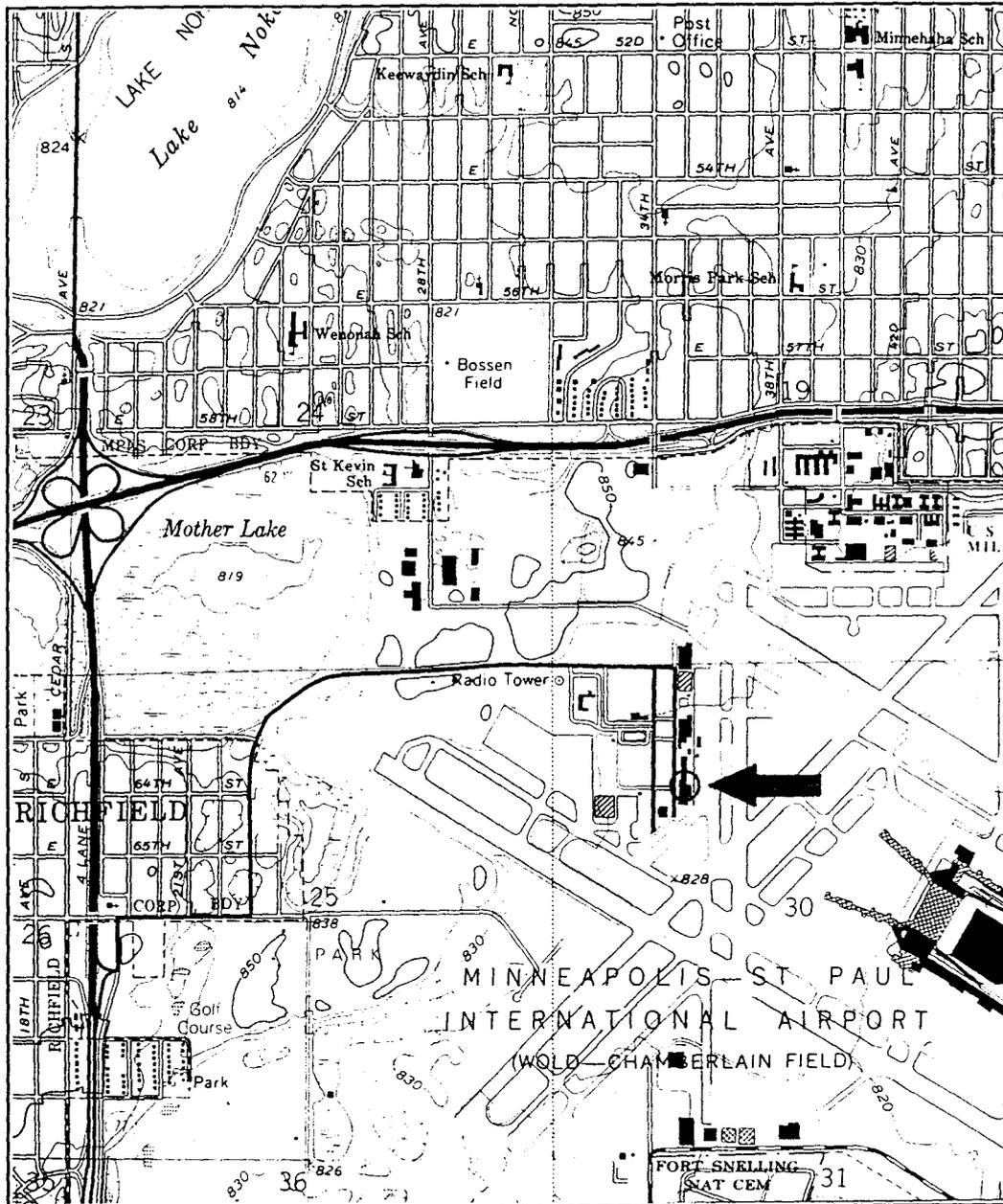


Figure 1: Map showing location of Universal Airlines Hangar. Source: USGS, "Saint Paul West," 7.5 Minute Series, 1993.

structure was razed. This report documents only the bridge and southern hangar, treating them as a single structure unless specifically noted.

Corrugated metal sheathes the exterior of the structure and covers the barrel roof. The roof of the bridge is set off from that of the hangar by a wider curvature. A flat-roofed, two-story rectangular-plan brick bay, which apparently once held offices and perhaps shops, projects from the southern end of the east (airfield) side. A single-story brick addition containing shops and mechanical systems extends along the southern end of the hangar's west side. A separate hangar directly abuts the south wall of the structure, completely obscuring the exterior of that side.

Although an historic photograph (HABS No. MN-158-18) shows a sliding hangar door across the east wall of the bridge, most of the opening has since been covered. A modern roll-up door near the center of the structure allows vehicular access into the bridge from the east, while a service door opens in the hangar wall between the eastern bay and bridge. A large, rectangular, 5- x 2-light fixed-sash window sits between the eastern bay and the service door; two similar windows pierce the west wall of the bridge. A series of braces angled to the ground support the west side. An historic photograph (HABS No. MN-158-17) shows that this row of braces continued along the wall of the now-demolished north hangar.

The interior of the hangar and bridge is a single open space with a poured concrete floor. Panels attached to wood joists form a dropped ceiling, which is partially supported by a series of bolted metal cross-braces. Although the ceiling conceals the roof trusses, the barrel shape of the roof suggests that they are of the bowstring type. Maintenance staff report that the trusses are wood covered with two layers of corrugated metal. The second layer was applied after the first rusted.¹ A gap in the ceiling at the hangar-bridge junction reveals the painted words "DE PONTI" remaining on the original north exterior of the hangar. Rows of fluorescent lights illuminate the entire area.

Interior walls are fronted by an array of pipes and conduits, and, in many places, by crossed eye-bars and braces. The western wall of the bridge is faced with sheetrock, while the east is corrugated metal and plywood. The north wall, exposed after the north hangar was demolished, is covered with plywood.

Corrugated metal covers the entire eastern wall of the hangar. A doorway near the bridge junction and a larger open entrance further south along the wall allow entrance to the first floor of the adjacent brick bay. A doorway, cut into the hangar wall south of the large opening, provides stairway access to the bay's second floor.

¹ Richard Olsen, Maintenance Coordinator, West Terminal Area, Metropolitan Airports Commission, interviewed by Shawn P. Rounds, 20 June 1995.

The upper portion of the west wall is comprised of corrugated metal, while the bottom two-thirds is primarily brick. A door near the south corner provides entrance into a newer boiler room in the adjacent west addition. A corrugated metal wall and metal sliding doors separate the hangar from a "Cleaning Room" in the addition. A third doorway in the hangar wall allows access into an employee area.

Concrete block, installed in the 1980s, comprises the south wall of the hangar. The wall is edged by single metal tracks affixed to the ceiling and set into the floor. At each end, the tracks curve to continue a short distance along the east and west hangar walls. Similar tracks are found at the hangar/bridge junction, marking the original north wall of the hangar. These tracks at one time served as guides for large sliding doors, which allowed both ends of the structure to be opened for aircraft access. The doors no longer remain. A set of hinges at the southeast corner gives evidence of a smaller floor-to-ceiling door, probably part of the sliding-door system.

A one-story addition housing workshop space, employee facilities, and two boiler rooms runs along the entire western wall of the hangar. Walls are beige brick laid in stretcher bond. A single header course marks the parapet of the flat roof, and a single soldier course runs the length of the west wall above the line of the windows. A series of eight 5- x 4-light fixed-sash windows pierces the west wall of the addition; two similar 3- x 4-light windows break the north end. A door near the south end of the addition's west side provides entry into a newer boiler room. A second entrance, centered on the same side, allows access into the shop area, which is marked "Cleaning Room;" a sign within the space indicates that it was used at one time for hazardous waste handling. Differences in brick around these doorways indicate that the openings were once slightly larger; the present doors are apparently not original. A third door, on the north end, provides entrance to an older boiler room; a large brick chimney rises from the roof above this space. Inside the addition, the boiler room opens into an area formerly used for employee facilities, including a washroom and a restroom, now stripped of any fixtures, along the west side.

Constructed at the same time as the original hangar, the two-story eastern bay near the hangar's south end was apparently designed to provide office and storage space; the demolished northern hangar featured an identical bay. A compatible one-story addition was built ca. 1941 at the south end of the original two-story bay. The addition extends to the end of the hangar, abutting the neighboring structure to the south. Beige brick laid in stretcher bond forms the walls of the bay and the addition. On the east facade, the central portion of the second-story wall and narrow vertical strips at the outer corners are recessed slightly, providing the illusion of anchoring piers at each end. This image is further reinforced by pediments on the roofline at the north and south corners. Light-colored brick forms a quoin-like pattern along the outer north and south corners, as well as the vertical edges of the recessed section. This brick also marks the roofline with a header course. Various window openings with brick sills stretch across the

front and north end of the bay's first story. The upper story is pierced by a row of large windows, each with a fixed center pane flanked by two-light casements. Alternating light and dark bricks form a chevron over each of the end windows on the second story. A soldier course runs above the line of the second-story windows, and another marks the bottom edge of the recessed portion. Doors near each end of the east facade provide access into the bay. The south-end addition has a third entrance.

The bay's first-floor space is open except for a narrow room at each end. Electrical ceiling outlets suggest that this area once served as office or workshop space, with storage provided by the smaller rooms. Two exterior doors sit near the corners on the east wall, separated by a now-boarded row of windows. Another door and a larger opening allow entrance to the hangar through a shared wall of concrete block. A metal and concrete stairway provides the only access to the bay's second floor. At one time, the stairs made a turn to the east near the bottom, opening into the first-floor area. These bottom steps and the railings are now enclosed by a wooden partition, and the bay entrance boarded up. The steps have been modified to turn in the opposite direction, with access now gained through a doorway cut into the wall of the hangar.

The second floor of the bay is an open area, now vacant, which has served as office space; a small room, probably once a restroom, stands in the southwest corner above the stairwell. Five large windows admit light from the east, while two more pierce the north and south walls. Tiles were once applied to the concrete floor. Acoustical tiles cover the concrete ceiling, which is crossed by two concrete beams; a narrow band of identical tiles circles the room above the top of the windows. Two rows of fluorescent light fixtures provide illumination.

History

The Universal Airlines hangars were among the earliest structures erected at the airport, which started existence as an automobile racetrack. When constructed in 1915, the Twin City Motor Speedway consisted of a two-mile elliptical concrete track, grandstands, and a scattering of buildings located near the southern boundary of Minneapolis, between 60th and 66th Streets and 34th and 46th Avenues South. Although the complex was intended to rival the Indianapolis 500 raceway, the condition of the track was poor right from the beginning: the oval's concrete was rough, and it buckled in places where it could not withstand Minnesota's climatic changes. After an inaugural race on Labor Day in 1915, the promoters managed to attract little business, and the enterprise went bankrupt after only two years.²

² Noel E. Allard and Gerald N. Sandvick, *Minnesota Aviation History 1857-1945* (Chaska, MN: MAHB Publishing, 1993), 122-123.

Wold-Chamberlain Field,
Universal Airlines Hangar
(De Ponti Hangar)
-Minneapolis-St. Paul International Airport
HABS No. MN-158-A (Page 6)

The grandstands and related buildings were demolished for salvage. Seeing the potential in the open expanse of land, a group of local businessmen purchased the site in 1918. They renamed it Snelling Field after an adjacent army base, Fort Snelling. Following the first airshows in the state in 1910, interest in aviation had grown rapidly, and the new airfield joined at least three others in the Twin Cities' area. The first hangar at the site was built in 1919 on the racetrack's western concrete straightaway by two aviators who offered flight instruction, sight-seeing flights, airshows, and airplane sales. Visible for miles to pilots, the giant concrete track quickly became a well-known landmark. In 1920, another group of prominent businessmen, known as the Twin City Aero Corporation, leased the property to establish an airport.³

One of the first acts of the corporation was to secure the new airmail route between the Twin Cities and Chicago. An 80- x 90-foot hangar was constructed according to government specifications inside the racetrack's northeast quarter. Although service only continued for a few months, the prestigious contract gave the airport much-needed publicity and provided momentum for further development. In 1921, an Air National Guard unit (the 109th Observation Squadron of the Minnesota 34th Infantry Division) was established at the field in three 60- x 100-foot wood-frame hangars erected inside the track north of the airmail hangar. Within a few years, the airfield, which had become known as "Speedway Field" or "Twin Cities Airport," encompassed at least 100 acres of "good landing area." In a 1923 ceremony honoring two local pilots killed in World War I, the airport was dedicated as the "Wold-Chamberlain Twin City Airport."⁴

By 1928, Wold-Chamberlain was serving as the Minneapolis municipal airport. The City Council selected the Minneapolis Park Board, an agency with land-acquisition powers, to formally take over the airfield. The Park Board responded by purchasing 325 acres from various owners at a total cost of \$189,000.⁵ Almost immediately after the transfer of title, the United States Naval Reserve petitioned the Board to provide hangar space for a squadron. An 80- x 90-foot facility was constructed west of the three Air National Guard hangars; the lot was leased to the Navy for \$1 per year, with the Board retaining the deed to the hangar in lieu of rent. Other tenants at the airport included Northwest Airways, a Minneapolis-based company operating out of the old airmail hangar. Northwest not only ran the Twin Cities-Chicago airmail route, but also provided passenger service to points en route.

³ Ibid.

⁴ Ibid., 123-124.

⁵ Minneapolis Board of Park Commissioners, *46th Annual Report* (Minneapolis: n.p., 1928), 65.

Among those encouraged by the success of Northwest were several wealthy investors from Minneapolis, St. Louis, and Chicago who formed the Continental Air Lines Corporation in July 1928. Prominent local businessmen involved in the project included Louis H. Piper of the Lane, Piper and Jaffrey brokerage firm; A.H. Rand, the president of the Minneapolis Gas Company; retailer G. Nelson Dayton; and A.F. Pillsbury, of the renowned flour milling family. Within a few weeks of its birth, the company's name was changed to Universal Aviation Corporation and the business was capitalized at \$2.3 million through the sale of 245,000 shares of stock. Although originally formed to bid on a small airmail contract between Cleveland and Louisville, the corporation was reorganized with the goal of becoming a large holding company encompassing all aspects of the aviation industry. By November, Universal Aviation had acquired nine companies.⁶

One subsidiary located in the Twin Cities was Universal Airlines, Incorporated, which petitioned the Minneapolis Park Board in the summer of 1928 for permission to build two hangars immediately south of the administration area. The Board had platted thirteen 150- x 200-foot lots east of 34th Avenue, with Lots 1 through 7 outside the old racetrack and Lots 8 through 13 within the oval's northwest quarter.⁷ Universal obtained a leasehold for Lots 6 and 7. Earlier in the year, Mid-Plane Sales and Transit Company had erected a gable-roofed hangar to the north. This hangar, occupying Lot 8, also soon fell under Universal Aviation's control when the corporation purchased the small company.

A 1928 photograph of the area shows the two hangars built by Universal separated from the northern Mid-Plane hangar by the concrete racetrack, which runs northwest to southeast. "U.A.L." is painted across both sides of the barrel roofs of the Universal hangars. In addition, the northern hangar on Lot 7 has "PASSENGER TERMINAL" written beneath the initials. A brick office bay projects from the east side of each hangar. Sliding doors large enough to accommodate contemporary aircraft fill the south end of both hangars; similar doors on the north wall are not visible in this photograph. The doors are pierced by a band of windows to provide light to the interior. A concrete apron lies adjacent to the hangars' north, south, and east sides, and connects to the racetrack oval on the east.⁸

Airport development continued the next year. Universal received permission from the Park Board in September to erect a 30- x 100-foot addition on the west side of the Lot 6 hangar,

⁶ Allard, 178-179.

⁷ No primary documentation could be located detailing the construction of the hangars.

⁸ Allard, 1928 photograph, 126.

Wold-Chamberlain Field,
Universal Airlines Hangar
(De Ponti Hangar)
-Minneapolis-St. Paul International Airport
HABS No. MN-158-A (Page 8)

pending approval of the plans.⁹ This addition appears on the south hangar in a 1929 photograph of Lots 6 and 7. The Park Board's refreshment stand, a small, square-plan building, is sited north of the Universal hangar on Lot 7, and a Skelly Oil Station stands immediately south of Lot 6. The north end of the northern terminal is marked "UNIVERSAL FLYING SCHOOL." No lettering appears over the south hangar's north door, which is open.¹⁰

At the time of their construction, the Universal structures were representative of hangar technology in the United States, which was entering a period of evolution spurred by the growth of the air industry and the establishment of larger, permanent airports. As one contemporary author put it, "Merely a shelter is no longer enough. The hangar must keep the plane in condition to take to the air at any desired moment."¹¹

Opinions varied on the best materials to accomplish this goal. Frame hangars, although low-cost and easily altered, were seen increasingly as high-maintenance fire risks. Reinforced concrete presented a durable alternative, although at relatively high cost. Most appealing was a steel-framed structure with masonry walls, or with wood walls sheathed with a fire-proof cladding, like corrugated metal. These hangars were generally inexpensive to build, easy to expand and alter, and simple to maintain.¹² The most popular roof structures were bowstring, pitched, or flat trusses made of structural lumber or steel. Concrete served best for floors and aprons.

Doors were an important component of the hangar's functionality. Of the several types available, the three most common were sliding, rolling steel, and bascule doors, with the latter two being more expensive and requiring more mechanical equipment. Additionally, there were three types of sliding door: single panels that slid straight to the side, multi-paneled units hinged to slide continuously around corners, and multi-paneled units that stacked into a pocket. Each

⁹ Minneapolis Board of Park Commissioners, *Proceedings of the Board of Park Commissioners of the City of Minneapolis (1929)* (Minneapolis: n.p., 1929), 170.

¹⁰ Allard, 1929 photograph, 126.

¹¹ D.R. Lane, "Of What Shall We Build the Hangar?" *Airports* 1 (November 1928): 12.

¹² *Ibid.*; W.A. Hemphill, "General Requirements for Permanent Types of Airport Structures," *Airports* 7 (July 1931): 15.

type of sliding door ran on overhead tracks and rails embedded in the floor.¹³ The Universal hangars featured multi-paneled continuous sliding doors at each end.

Commercial hangars from the period usually fell into one of three categories, the "depot hangar," "sales hangar," or the "service hangar." All shared a similar central hangar area, differing only in the "accessory accommodations" frequently housed in wings along one or both sides. The Universal hangars could most easily be classified as the service type, used for the repair, maintenance, and storage of aircraft. Service hangars were typically 100 to 160 feet in length, with a clear span of at least 100 feet and doors at the end.¹⁴ Generally, a rectangular plan was employed, with the length of the hangar dependent upon the size and number of aircraft to be housed. Repair shops, washroom facilities, storerooms, offices, and heating plants were typically separated from the main hangar area by a wall or set off in a wing.¹⁵

Although Universal Airlines was successful enough to expand their southern hangar sometime in late 1928 or early 1929, the company faced stiff competition from Northwest Airways. Despite running flights to Rochester, Minnesota, and Chicago, Universal was unable to break Northwest's hold on government airmail contracts. Passenger service alone was not enough to sustain the company so, in April 1929, Universal Airlines shut down its Twin Cities' division and shifted its resources to other markets. Only the Universal Flying School remained at Wold-Chamberlain. Shortly after the decision to move the base of the airline's operation to Chicago, Universal Aviation was purchased by a larger company.¹⁶ American Airways emerged from an accompanying series of mergers.¹⁷

The flying school apparently continued to operate successfully in Minneapolis, despite the changes experienced by its parent company. In March 1931, the business petitioned the Park Board for permission to build a 12- x 12-foot addition at the southwest corner of the southern

¹³ National Lumber Manufacturers' Association, "Airplane Hangar Construction--A New Field for Contractors [Part One]," *Contract Record and Engineering Review* 42 (9 May 1928): 479-480; Robert H. Moore, "Permanent Airport Structures," *Airports* 1 (October 1928): 29; Louis M. Steuber, "Commercial Hangars," *American Architect* 136 (20 July 1929): 84, 87.

¹⁴ Steuber, 84.

¹⁵ R. W. Sexton, "Airplane Hangar Design," *Architectural Forum* 52 (January 1930): 121, 123.

¹⁶ Allard, 19, 179.

¹⁷ American Airways became American Airlines in 1934.

Wold-Chamberlain Field,
Universal Airlines Hangar
(De Ponti Hangar)
~~Minneapolis-St. Paul International Airport~~
HABS No. MN-158-^A (Page 10)

hangar.¹⁸ Photographs from the period reveal details of the construction.¹⁹ The first view (HABS No. MN-158-16), which looks north, clearly shows the brick addition at the outer southwest corner of the earlier west-side addition. The roof of the north hangar retains the markings it had in 1928. Those on the south hangar have been painted over to reflect the company's new ownership: the west side reads "AMERICAN AIRWAYS INC.," while the east advertises "SERVICE, SUPPLIES - STORAGE." The sign above the south hangar door further proclaims "AMERICAN AIRWAYS INC., UNIVERSAL DIV." A gap in the center of the south side shows an airplane sitting within the hangar, and indicates that the sliding hangar doors were split in the middle, with each half moving to opposite sides. The second photograph (HABS No. MN-158-17) shows a single window set into the west wall of the new addition.

In 1932, American Airways discontinued all of its operations at Wold-Chamberlain. Earlier, the company had sold the old Mid-Plane hangar to Northwest Airways, which moved the structure from its Lot 8 site. The remaining two hangars were purchased in the fall by Northland Aviation, a locally owned business that could boast of being the first in the Northwest to have a flight school and repair depot approved by the United States Department of Commerce. The \$30,000 agreement gave Northland both structures (appraised at \$46,000) and "all airplanes, engines, furniture, fixtures, equipment, machinery, small tools, and stockroom inventory" located within.²⁰ Northland used the facilities to offer a variety of services beyond flight training, including mechanics' certification, sight-seeing tours, and charter flights.²¹

Within a year, Northland was sharing hangar space with Hanford Airlines. Hanford, a company that had started in Souix City, Iowa, moved its general offices and maintenance base to Minneapolis from the Saint Paul airport.²² Other hangar tenants in the 1930s included Interstate Air Credit, the first aviation financing company in the region, and the Ace High Flying

¹⁸ This addition is no longer extant, probably having been removed to accommodate later construction of a hangar immediately to the south.

¹⁹ These historic photographs (HABS No. MN-158-16, HABS No. MN-158-17) carry no identifying information. The date of the addition can be roughly verified by the presence of the completed passenger terminal in the background, which opened in the fall of 1930.

²⁰ Northland Aviation Company, "Agreement," 5 October 1932, Collection P204, Folder: "Northland Aviation Co., Mpls., Legal Documents, 1932-1933," Manuscripts Collection, Minnesota Historical Society, Saint Paul, Minnesota.

²¹ Allard, 184.

²² Hanford Airlines later underwent a series of mergers, becoming Mid-Continent Airlines in 1938, and part of Braniff in the 1950s.

Service.²³ Northland sold both hangars in 1935 to the Hedberg-Friedheim Company, which continued to operate them as public service facilities.

In 1937, the hangars were purchased by De Ponti Aviation. Among the entrepreneurs operating at Wold-Chamberlain in the 1930s, Angelo ("Shorty") De Ponti ranked among the most industrious and successful. As a boy, De Ponti had spent much of his free time at Speedway Field. Not surprisingly, he seized an opportunity in 1928 to work full time for Universal Airlines' flying school as a lineboy. Within a year, De Ponti and a business partner formed the Minnesota Aero Salvage Company. The two men initially leased space from Universal. By 1929, they were sharing the old airmail hangar with the Minnesota Aviation Company, selling aircraft parts out of the mezzanine. De Ponti soon found that "what with the amount of flying increasing and the replacement need alone," the business could be expanded to include all aspects of aircraft repair and overhaul, as well as flight instruction. Within a year, the company had taken over the entire hangar.²⁴

Success continued for the business, which was rechristened the Minnesota Sales and Service Company. By 1934, the venture had moved into a larger hangar and was serving as the local distributor for Waco and Stinson aircraft. The partnership dissolved in 1935, and the business was reorganized as the De Ponti Aviation Company, Incorporated. In that same year, De Ponti picked up a contract with Piper Cub, becoming the regional distributor for Minnesota, North Dakota, South Dakota, Montana, and part of Wisconsin.²⁵

In the quest for more space, De Ponti built additions onto the rented hangar, then moved again into a larger building. Finally, in 1937, the company purchased the former Universal hangars on Lots 6 and 7 from Hedberg-Friedheim. Northwest Airways leased the northern hangar, while De Ponti used the southern structure to once again expand his operation. He not only maintained a service base for Mid-Continent Airlines in the building, but also acquired the Texaco Oil franchise and used the hangar's apron as a fueling point for aircraft.

In 1938, De Ponti Aviation received permission from the Park Board to combine the two 100-foot-long hangars on Lots 6 and 7 into a single 300-foot-long structure. Within 3 years, construction of the "bridge" was complete, and an underground storage tank had been installed

²³ Allard, 133.

²⁴ Angelo De Ponti, "It's Been a Long, Long Time," *Wings* 1 (March 1946): 18.

²⁵ *Ibid.*, 26.

on Lot 6.²⁶ Additionally, the Skelly Station to the south was moved, and De Ponti built three 70- x 120-foot hangars on Lots 4 and 5. At some point during this period, the company also constructed the southern addition on the south hangar's east office bay.

With the outbreak of World War II, De Ponti geared his business to meet new wartime needs. His stock of aircraft was requisitioned by the military for its War Training Service, and his shops were designated a certified repair depot for the program. De Ponti Aviation also served as an official flying school, and maintained a busy fueling service for all Army Air Force planes at the field.

De Ponti Aviation's most important contribution to the war effort came in 1942, when the company entered into a contract with the Northwestern Aeronautical Corporation of Minneapolis to manufacture military glider components. The United States had adopted the idea of tactical gliders in 1941, after concluding that the German military was successfully using gliders to capture and maintain positions. The Matériel Division of the Air Corps solicited designs for troop- and cargo-carrying models, and contracted for experimental prototypes.²⁷ The Waco Aircraft Company of Troy, Ohio, submitted the design selected for the CG-4A glider. Even before the working prototype was delivered, the Air Corps began awarding production contracts. Eventually, sixteen companies were chosen, including Northwestern, Waco, the Ford Motor Company, and the Cessna Aircraft Company. Contractors spent the summer of 1942 preparing for production by hiring and training workers, organizing facilities, and purchasing materials.

Northwestern had been incorporated in February 1942 in direct response to the military's search for glider manufacturers. A group of New York investment bankers controlled all of the company's stock, while the physical assets were acquired from the Columbia Aircraft Corporation of Kansas City, Missouri. Northwestern retained Northwest Airlines to supply engineering, production, and financial advice. As the glider's designer, Waco was responsible for supplying production information to all contractors. Originally, jigs and fixtures were to be manufactured by a single company and supplied to the contractors to insure uniformity. This plan soon fell by the wayside, however, in favor of faster production for the thousands of

²⁶ Minneapolis Board of Park Commissioners, *Proceedings of the Board of Park Commissioners of the City of Minneapolis (1938)* (Minneapolis: n.p., 1938), 130, 135; Minneapolis Board of Park Commissioners, *59th Annual Report* (Minneapolis: n.p., 1941), 43. No other documentation of the construction was found.

²⁷ The story of the World War II tactical glider program in the United States is a complex one, marked by military bureaucracy, conflicting goals, and manufacturers of differing abilities. For a complete history and analysis, see AAF Historical Office, *Development and Procurement of Gliders in the Army Air Forces 1941-1944* (Army Air Forces Historical Studies No. 47, March 1946); and Gerard M. Devlin, *Silent Wings: The Saga of the U.S. Army and Marine Combat Glider Pilots During World War II* (New York: St. Martin's Press, 1985).

aircraft demanded the Air Corps. Northwestern chose De Ponti Aviation as the manufacturing sub-contractor for the glider fuselages, landing gears, and tail assemblies, and another local business, the Villaume Box Company, as the provider of the wings, floors, tail surfaces, and shipping crates.²⁸

Constructed from wood, metal, and canvas, the CG-4A was an armorless, weaponless glider guided by two pilots. It was designed to carry a variety of loads, such as fifteen equipped soldiers, or a jeep and four soldiers, or a 75-millimeter howitzer and its crew. Cargo was loaded through the nose section, which swung up in its entirety, or through doors along the side. It had an 84-foot wingspan, was 48 feet long and 13 feet high, and had a top speed of 120 miles per hour carrying a gross load of 7,500 pounds. Each glider was comprised of over 70,000 parts.²⁹

De Ponti set up his manufacturing operation at an off-airport site in south Minneapolis, near 53rd Street and Lyndale Avenue, employing around 450 people.³⁰ Jigs fashioned from Waco-supplied drawings were used to assemble steel-tube glider frames. After each fuselage was complete, it was primed with zinc chromate paint and loaded onto a flatbed truck for transport to the airfield. Northwestern had leased De Ponti's three new structures, as well as the southern Universal hangar, to house the final production line. Trucked-in components from De Ponti and Villaume moved through the new buildings, reaching the end of the line in the Universal hangar, where they were either fully assembled for immediate flight or crated for rail shipment.³¹

When the war-time glider program ended in October 1944, Northwestern had one of the best production records in the country. By July 1944, the company had delivered 899 CG-4As at a cost of about \$24,500 each, a price matched by only three other manufacturers. Northwestern's final production tally was 1,175 gliders, from an operation that employed 1,048 workers and utilized 75,000 square feet of facilities. De Ponti Aviation and the Villaume Box Company were noted as being two of the best subcontractors nationwide, each being so efficient that a 1943 inspection report found that Northwestern could not keep up with their production.³²

²⁸ AAF Historical Office, 121-124, *passim*.

²⁹ Devlin, 62-63.

³⁰ De Ponti, 27.

³¹ Allard, 231.

³² AAF Historical Office, 121-124.

After the war, De Ponti set about re-establishing his Piper Cub distributorship, and again provided service and storage facilities to itinerant aviators. The company also participated in a federal airplane-maintenance training program for returning veterans. De Ponti leased out additional space in the Universal hangar to Hinck Flying Service, Parker Aviation Services, and other small businesses. Within a decade, De Ponti moved into larger quarters, completely relinquishing the Universal hangar to other companies. The building was eventually acquired by the Metropolitan Airports Commission, which had taken over airport operations from the Park Board in 1943.

The northern end of the building, consisting of the original north hangar, was razed in the spring of 1995. This Historic American Buildings Survey study was undertaken to document the remainder of the structure before its demolition in the summer of 1995 by the Metropolitan Airports Commission. The site was the only viable location for a new electrical facility for the airfield.

Sources

Published

AAF Historical Office. *Development and Procurement of Gliders in the Army Air Forces 1941-1944*. Army Air Forces Historical Studies No. 47. March 1946.

Allard, Noel E., and Gerald N. Sandvick. *Minnesota Aviation History 1857-1945*. Chaska, MN: MAHB Publishing, 1993.

"Angelo de Ponti Dies; Was Aviation Pioneer." *Minneapolis Star-Tribune*, 24 April 1991.

"Aviation's Been Good to Pioneer De Ponti." *Minneapolis Star*, 8 May 1958.

Bremer, Karl D. *America's North Coast Gateway: Minneapolis-St. Paul International Airport*. Encino, CA: Jostens Publishing Group, 1993.

Bright, Charles D., ed. *Historical Dictionary of the U.S. Air Force*. Westport, CT: Greenwood Press, 1992.

De Ponti, Angelo. "It's Been a Long, Long Time." *Wings* 1 (March 1946): 18, 26-27, 36.

Devlin, Gerard M. *Silent Wings: The Saga of the U.S. Army and Marine Combat Glider Pilots During World War II*. New York: St. Martin's Press, 1985.

Fahey, James C. *U.S. Army Aircraft (Heavier-Than-Air) 1908-1946*. Washington, D.C.: Ships and Aircraft, 1946.

Froesch, Charles, and Walther Prokosch. *Airport Planning*. New York: John Wiley and Sons, 1946.

Glidden, Horace K., Hervey F. Law, and John E. Cowles. *Airports: Design, Construction and Management*. New York: McGraw-Hill, 1946.

Harvey, Emil K. "General Designs and Materials Used in Hangar Construction." *Aero Digest* 39 (August 1941): 101-104.

Hemphill, W.A. "General Requirements for Permanent Types of Airport Structures." *Airports* 7 (July 1931): 15-16, 24.

Lane, D.R. "Of What Shall We Build the Hangar?" *Airports* 1 (November 1928): 12, 34, 46.

Minneapolis Board of Park Commissioners. *Proceedings of the Board of Park Commissioners of the City of Minneapolis*. 1929, 1935, 1938, 1939.

_____. *Annual Reports*. 46th (1928), 56th (1938), 57th (1939), 59th (1941).

Moore, Robert H. "Permanent Airport Structures." *Airports* 1 (October 1928): 7-9, 29, 37.

National Lumber Manufacturers' Association. "Airplane Hangar Construction--A New Field For Contractors [part one]." *Contract Record and Engineering Review* 42 (9 May 1928): 477-480.

_____. "Airplane Hangar Construction--A New Field For Contractors [part two]." *Contract Record and Engineering Review* 42 (16 May 1928): 498-504.

"Peace Plane Armada Waits Word to Go." Unattributed newspaper article, ca. 1939. Angelo De Ponti Papers, Folder: "Clippings--Undated and Ca. 1939-1991," Manuscripts Collection, Minnesota Historical Society, Saint Paul, Minnesota.

Seelye, Elwyn E. "Types of Hangar Trusses." *Architectural Record* 94 (July 1943): 71-72.

Sexton, R.W. "Airplane Hangar Design." *Architectural Forum* 52 (January 1930): 121-124.

Steuber, Louis M. "Commercial Hangars." *American Architect* 136 (20 July 1929): 81-95.

Wold-Chamberlain Field,
Universal Airlines Hangar
(De Ponti Hangar)
Minneapolis-St. Paul International Airport
HABS No. MN-158 - A (Page 16)

Severud, Fred N. "Hangars Analyzed." *Architectural Record* 98 (April 1947): 115-124.

Ward, W.J., Jr. "Hangar Door Details." *Architectural Record* 94 (July 1943): 76-80.

Wirth, Theodore. *Minneapolis Park System, 1883-1944: Retrospective Glimpses Into the History of the Board of Park Commissioners of Minneapolis, Minnesota and the City's Park, Parkway, and Playground System.* N.p., 1945.

Unpublished

Metropolitan Airports Commission. "Minneapolis-Saint Paul Metropolitan Airports Commission History, Volume I: Early Aviation, Metropolitan Area, 1911-1943."

Minneapolis Board of Park Commissioners. "Short History of the Minneapolis Municipal Airport (Wold-Chamberlain Field) and Memorandum of the Principal Official Transactions from its Inception up to the Present Time." 25 January 1930. Typescript. Folder: "Wold-Chamberlain Field, 1930," Manuscripts Collection, Minnesota Historical Society, Saint Paul, Minnesota.

Minneapolis Board of Park Commissioners. "Short History of the Minneapolis Municipal Airport (Wold-Chamberlain Field) and Memorandum of the Principal Official Transactions from its Inception up to the Present Time -- Supplement." 23 September 1937. Typescript. Folder: "Wold-Chamberlain Field, 1930," Manuscripts Collection, Minnesota Historical Society, Saint Paul, Minnesota.

Northland Aviation Company. "Pre-Incorporation Agreement," 19 September 1932. Collection P204, Folder: "Northland Aviation Co., Mpls., Legal Documents, 1932-1933," Manuscripts Collection, Minnesota Historical Society, Saint Paul, Minnesota.

Northland Aviation Company. "Agreement," 5 October 1932. Collection P204, Folder: "Northland Aviation Co., Mpls., Legal Documents, 1932-1933," Manuscripts Collection, Minnesota Historical Society, Saint Paul, Minnesota.

Wright, Lyons and Wright, to Northland Aviation Company, 24 March 1933. Collection P204, Folder: "Northland Aviation Co., Mpls., Legal Documents, 1932-1933," Manuscripts Collection, Minnesota Historical Society, Saint Paul, Minnesota.

Interview with Richard Olsen, Maintenance Coordinator, West Terminal Area, Metropolitan Airports Commission. Conducted by Shawn P. Rounds, 20 June 1995.