
FINAL

**Building 161
Carpenter Shop**

**Historic American Buildings Survey
Level II/III**

**2701 North Harbor Drive,
San Diego, California 92101**

Prepared for

**San Diego Unified Port District (SDUPD)
San Diego County Regional Airport Authority**

April 2010

CH2MHILL

HISTORIC AMERICAN BUILDINGS SURVEY
RYAN AERONAUTICAL COMPANY HISTORIC DISTRICT
BUILDING 161 - CARPENTER SHOP

Location:	2701 North Harbor Drive, San Diego, CA 92101, USA
Present Owner/Occupant:	San Diego County Regional Airport Authority
Present Use:	Vacant
Significance:	<p>Building 161 is located within the boundaries of the Ryan Aeronautical Company Historic District, a 46-acre complex containing 17 contributing resources and 30 non-contributing resources. The district is eligible on the local and national levels for the National Register of Historic Places (NRHP) under Criteria A, B, and C and for the California Register of Historical Resources (CRHR) under Criteria 1, 2 and 3. The historic district is eligible under NRHP Criterion A (CRHR 1) for its association with the contribution of aircraft manufacturers at Lindbergh Field to World War II defense production. It is also eligible for its association with Cold War research, development projects, and defense manufacturing. Under Criterion NRHP B (CRHR 2) the district is eligible for its association with aviation pioneer T. Claude Ryan and his aircraft aerospace manufacturing businesses. Ryan Aeronautical Company, under Mr. Ryan’s leadership, made significant contributions to national defense production during World War II, as well as important developments in aerospace research and development in the 1950s and 1960s. The historic district is eligible under NRHP Criterion C (CRHR 3) for its representation of industrial architecture associated with the 1930s and World War II. The district embodies the distinctive architectural characteristics of aircraft manufacturing buildings of the period in Southern California. The building and structures in the district illustrate the design fabrication concepts common to aircraft manufacturing plants from the 1930s to the 1960s. During this period, the aerospace industry played a dominant role in the economy of the region (URS Corporation, 2008).</p> <p>Building 161 is a non-contributing resource to the Ryan Aeronautical Company Historic District.</p>

Historian: Jessica Feldman

PART I. HISTORICAL INFORMATION

A. Physical History:

1. Date of erection: c. 1941, post-1953 (extension)
2. Architect: Unknown

3. Original and subsequent owners: Ryan Aeronautical Company signed a 50-year lease in 1939. Ryan Aeronautical Company sold to Teledyne Inc. in 1969, and the combined company became Teledyne-Ryan Aeronautical Company (TDY Industries). TDY Industries merged with Allegheny Ludlum Corporation in 1996, and Northrop Grumman Corporation acquired TDY Industries from Allegheny in 1999. Presently, the property is leased by the San Diego County Regional Airport and is under the Jurisdiction of the San Diego Unified Port District.
4. Original plans and construction: Building 161 was constructed in two phases. The first phase consisted of a rectangular form building approximately 40 feet by 60 feet. Building 161 has two 6-inch-by-6-inch timber columns at the mid-span in the transverse direction. This section has wood-framing with corrugated metal. The exterior walls have metal cladding and the interior walls have plywood. The walls are framed with wood studs (San Diego County Regional Airport Authority, 2005).
5. Alterations and additions: The current L-shaped plan and form of Building 161 was completed after 1956 (URS Corporation, 2009). The addition is referred to as the east wing and is approximately 31 feet by 39 feet. This section is steel-framed with a corrugated sheet-metal roof covering (San Diego County Regional Airport Authority, 2005). The current sliding door on the west elevation is a replacement, date unknown. The east section of Building 161 was constructed post-1953. The Box Shop may have been attached to the north elevation of the west section; it was removed post-1953 but before 1986.

B. Historical Context:

1. San Diego’s Aviation History:

During the first three decades of the 20th century, the aviation industry was established in San Diego and it became a focal point of San Diego’s activities and reputation. In 1912, the Army founded an air base and the first year-round military aviation school at Rockwell Field on Naval Air Station North Island, San Diego (Macaulay, 1928; Moore, 1960). The creation of the military air bases helped establish aviation in the region during the industry’s pioneering years. In 1928, the Army and Navy had invested \$5,500,000 in the air bases at North Island (Macaulay, 1928). The high profile attained by aviation in the local community during these years resulted in an awareness of the potential future of the industry by the inhabitants of the region. San Diego became the first U.S. city to establish a Municipal Board of Air Control in 1926, and was also the first to issue a complete set of air ordinances (Macaulay, 1928).

In 1922, T. Claude Ryan, an aviation pioneer who began his career as an Army pilot, left the Army and moved to San Diego, where he began giving airplane rides and flying instructions. He soon established the Ryan Flying Company at the Dutch Flats Airfield in San Diego, which later became Ryan Airport. Dutch Flats Airfield was located at present-day Barnett Avenue and Midway Drive, off the current San Diego airport site and not within the current historic district boundaries. In the 1920s, Ryan Airport was the focal point for Ryan’s expanding aeronautical enterprises (flying school, flying service, and an airplane manufacturing company). In the late 1920s, the use of the airport expanded as civil aviation came of age with other companies using Ryan’s field to operate air services. With the help of T. Claude Ryan, civilian aviation flourished in San Diego County during these decades.

In the mid-1920s, the Chamber of Commerce promoted San Diego as the “Air Capital of the West.” The development of what is now Lindbergh Field would be the central effort in this

campaign. The committee realized that in order to maintain a leadership role in aviation, San Diego must have an adequate municipal airport. They wanted the location of the airport to be a place that would combine facilities for the operation of land and seaplanes, and be as near to the city of San Diego as possible. They selected an area at the north end of San Diego Bay on City-owned tideland; however, this area did not contain enough area to meet government requirements. Negotiations were made with the United States Navy to provide portions of the Marine Corps-owned tidelands for the airport expansion (URS Corporation, 2009).

Ryan was instrumental in the development of Lindbergh Field, San Diego’s nascent municipal airport, which was established in 1928. In 1929, 4,755 planes and over 20,000 passengers arrived or departed from the Dutch Flats Airfield (Leiser, 2000). Within a few years, the majority of these activities would move to Lindbergh Field. In 1939, Ryan established a manufacturing site on airport grounds, which is the location of the historic district.

2. Ryan Aeronautical Company:

T. Claude Ryan was born in Parsons, Kansas in 1898, but moved with his family to Orange, California in 1912. Ryan began a lifelong relationship with the aviation industry when, around the age of 19, he enrolled at the American School of Aviation in Los Angeles. In 1919, Ryan began studying mechanical engineering at Oregon State College. While in school, he applied to the Army for aviation cadet training and was accepted, but left the Army by January 1922 in hopes of flying as a civilian (National Aviation Hall of Fame, 2009). Ryan moved to San Diego to establish the Ryan Flying Company. The Ryan Flying Company changed its name to Ryan Airlines, Inc. when it was reorganized in 1924 to begin operating the first year-round, scheduled airline service in the United States from Dutch Flats (URS Corporation, 2009). Around the same time, in the mid-1920s, Ryan entered the aircraft manufacturing business with partner Frank Mahoney and created the Ryan M-1 Monoplane, which became one of the best-known air mail carriers in the country. A modified Ryan Monoplane became the *Spirit of St. Louis*, the plane Charles Lindbergh flew from New York to Paris in May 1927 on the first solo flight across the Atlantic Ocean. Ryan sold the company to Mahoney in 1926 and established the Ryan Aeronautical Corporation for the sale and manufacture of aircraft engines. The company changed its name to the Ryan Aeronautical Company in 1934.

Ryan Aeronautical Company signed a 50-year lease, starting in 1939, on land at the southeastern edge of Lindbergh Field along North Harbor Drive. Three buildings from the site of the previous company were relocated to this new location. The Ryan plant was one of several aircraft manufacturers located at Lindbergh Field that contributed to the nation’s war effort in the 1940s. At peak wartime production, the Ryan plant had 8,500 employees and annual production exceeded \$55 million. Following the war, workforce was reduced to 1,200 and annual production to \$8 million (URS Corporation, 2009).

The Korean conflict provided the Ryan Aeronautical Company the opportunity to work with electronics for aerospace applications. The role in aerospace electronics led to the development of a variety of aircraft navigation and positioning equipment, including helicopter hovering devices, altimeters, and remote sensors (URS Corporation, 2009).

In 1947, the United States Navy awarded Ryan a contract to research the feasibility of reaction controls for jet aircraft. With jet engines and reaction controls handled by remote control, a Ryan vertical test rig lifted itself off the ground for the first time in 1950. In 1953, the Air Force

awarded Ryan a contract to design and build two manned vertical takeoff jet research planes and 2 years later, the Ryan X-13 Vertijet was constructed. In the 1960s, Ryan continued target drone and electronic systems production and vertical takeoff and landing research (URS Corporation, 2009).

In 1969, the company was sold for \$128 million to Teledyne Inc. and became known as Teledyne-Ryan Aeronautical Company (TDY Industries). T. Claude Ryan remained with the company as chairman until his death in 1982. In 1996, TDY Industries merged with Allegheny Ludlum Corporation, and then later became a subsidiary of that company. In 1999, Northrop Grumman Corporation acquired TDY Industries from Allegheny and relocated the plant to a site in Ranch Bernardo, California, leaving the former plant site vacant. The site continues to be mostly vacant, with only a small portion of Building 100 used for administrative offices and several other buildings used for storage.

PART II. ARCHITECTURAL INFORMATION

A. General Statement:

1. Architectural Character: Building 161 is an industrial-style building located within an industrial facility. It was constructed in two sections and has an irregular L-shaped plan and form. The building has corrugated sheet-metal cladding, gabled and shed roofs, multi-pane steel-framed windows, and sliding and hanging doors.
2. Condition of Building Material: Building 161 is in poor condition.

B. Description of Exterior:

1. Overall Dimensions: Building 161 consists of two sections, a west wing and an east wing. The west wing is approximately 40 feet by 60 feet and the east wing is approximately 31 feet by 39 feet (San Diego County Regional Airport Authority, 2005).
2. Foundations: Building 161 has a poured concrete foundation.
3. Walls: Building 161 is covered with corrugated sheet-metal cladding.
4. Structural System: Building 161 was constructed in two phases and has two different structural systems. The west wing is wood-framed and the east wing is steel-framed (San Diego County Regional Airport Authority, 2005).
5. Openings:
 - a. Doorways: There is a hanging door along the east elevation of the west wing of Building 161 and a sliding door along the west and south elevations of the west wing. To the south of this sliding door is a single-entry door with a small window (now painted over) in the upper panel. There is a single hollow-core metal door on the north elevation of the east wing and a sliding door on the south elevation of the east wing. (URS Corporation, 2009).
 - b. Windows: There are multi-paned windows along the north, south, and west elevations of Building 161 (URS Corporation, 2009). The west elevation of the west wing has two steel-framed, six-over-three windows, with a moveable section in the center of the upper two rows of lights. Below the window near the southwest

corner is a smaller opening with two large panes, possibly once a sliding sash. It is no longer operable and has been painted over. On the north elevation is a paired set of steel-framed windows with three-over-three light arrangements; the upper two rows are hopper style. On the south elevation of the west wing is a six-over-two, steel-frame window with a pivoting center panel. There are no windows on the east wing.

- 6. Roof: Building 161 has a corrugated sheet metal roof. It has a side gable roof over the west wing and a dropped shed style roof on the east wing.

C. Description of Interior:

Floor Plans: Building 161 is one story, has an L-shaped plan and form, and is approximately 3,457 square feet. The building was constructed in two phases with the first (the west wing) being approximately 40 feet by 60 feet square feet and the second section being approximately 31 feet by 39 feet. The west wing is wood-framed with corrugated sheet metal and wood roof beams at 20 feet on center. The walls on the west wing of the building have metal cladding on the exterior and plywood on the interior. In addition, the walls are framed with wood studs. The east wing is steel-framed with corrugated sheet metal. The walls on the east wing of the building are constructed from metal siding supported by channels on the slab-on-grade (San Diego County Regional Airport Authority, 2005).

D. Site:

Historic Landscape Design: None

PART III. SOURCES OF INFORMATION

A. Early Views: From the Teledyne-Ryan Archives

B. Interviews: N/A

C. Bibliography

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Building 161 - Carpenter Shop, San Diego, California, Date unknown. Teledyne-Ryan Archives.



Building 161 - Carpenter Shop, San Diego, California, Date unknown. Teledyne-Ryan Archives.



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Building 161 - Carpenter Shop, San Diego, California, Date unknown. Teledyne-Ryan Archives.



Building 161 - Carpenter Shop, West Elevation, San Diego, California, October 2009.



Building 161 - Carpenter Shop, Southwest Oblique, San Diego, California, October 2009.



Building 161 - Carpenter Shop, Northwest oblique, San Diego, California, October 2009.



Building 161 - Carpenter Shop, Southeast Oblique, San Diego, California, October 2009.



Building 161 - Carpenter Shop, Northeast Elevation, San Diego, California, October 2009.



Building 161 - Carpenter Shop, East Elevation, San Diego, California, October 2009.



Building 161 - Carpenter Shop, Watchmans Clock detail, San Diego, California, October 2009.



Building 161 - Carpenter Shop Interior, facing Northeast, San Diego, California, October 2009.

