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*FINAL*

**Building 147  
Ancillary Building**

**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**

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HISTORIC AMERICAN BUILDINGS SURVEY  
RYAN AERONAUTICAL COMPANY HISTORIC DISTRICT  
BUILDING 147- ANCILLARY BUILDING

<u>Location:</u>	2701 North Harbor Drive, San Diego, CA 92101, USA
<u>Present Owner/Occupant:</u>	San Diego County Regional Airport Authority
<u>Present Use:</u>	Vacant
<u>Significance:</u>	<p>Building 147 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 147 is a non-contributing resource to the Ryan Aeronautical Company Historic District.</p>

Historian: Megan Venno

PART I. HISTORICAL INFORMATION

A. Physical History:

1. Date of erection: 1945
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 147 is a rectangular building of concrete block construction. It is approximately 2,562 square feet, one-story with a flat roof. The west wall has integrated piers supporting the roof trusses of Building 146, located adjacent to Building 147. The roof is a one-way cast-in-place concrete system with two interior columns. Building 147 has no windows, internal walls or partitions (San Diego County Regional Airport Authority, 2005). An internal door along the west wall connects the building with Building 146. There is a hanging sheet metal door and a single-entry personnel door along the south elevation (URS Corporation, 2009).

5. Alterations and additions: Along the east elevation of Building 147 is an open lean-to with a shed roof. There is mechanical equipment placed on the roof of the building supported by a steel platform (URS Corporation, 2009). The roof is a replacement (San Diego County Regional Airport Authority, 2005).

B. Historical Context:

1. San Diego's Aviation History:

During the first three decades of the 20<sup>th</sup> 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 147 is a rectangular, one-story building. It is sheathed in concrete, has a utilitarian, nondescript arrangement, and lacks distinctive features and characteristics (URS Corporation, 2009).
2. Condition of Building Material: Building 147 is in good condition.

### B. Description of Exterior:

1. Overall Dimensions: Building 147 is approximately 2,562 square feet (San Diego County Regional Airport Authority, 2005).
2. Foundations: Building 147 sits on a concrete foundation (San Diego County Regional Airport Authority, 2005).
3. Walls: Building 147 has cast-in-place concrete exterior walls. The four walls are 8 inches thick with 12-inch-square pilasters spaced at 12 feet to 15 feet on center. Walls range in height from 25 feet on the east elevation to approximately 27 feet on the west elevation (San Diego County Regional Airport Authority, 2005). The south elevation has two 4-foot-6-inch-by-12-foot louvers.
4. Structural System: Building 147 is constructed of horizontal board-formed cast-in-place concrete. The lateral force resisting system consists of concrete shear walls and a concrete roof diaphragm (San Diego County Regional Airport Authority, 2005).
5. Openings:
  - a. Doorways: Building 147 has one overhead slider door with metal personnel door within the slider on the south elevation. There is an internal door along the west wall of Building 147 providing access to Building 146.
  - b. Windows: Building 147 has no windows.
6. Roof: Building 147 has a flat, one-way cast-in-place concrete system with two interior columns. It is covered with a mineral surface cap sheet built-up over a concrete deck. The roof slab is approximately 8 inches thick and spans in the north-south direction in between

6-inch-by-12-inch concrete beams at approximately 3 feet on center. The concrete beams span approximately 18 feet from the east and west elevations to a 12-inch-by-24-inch concrete girder at the center of the building. There is a 12-inch-by-12-inch concrete beam built with the tops of the east and west elevations to support the roof beams. The steel roof trusses on Building 146, located on the west side of Building 147, are supported by the west wall of Building 147 (San Diego County Regional Airport Authority, 2005).

C. Description of Interior:

Floor Plans: Building 147 has an open floor plan. There are no interior walls or partitions. A door on the west elevation connects the building to Building 146.

D. Site:

Historic Landscape Design: None

PART III. SOURCES OF INFORMATION

A. Early Views: N/A

B. Interviews: N/A

C. Bibliography

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Building 147 - Ancillary Building, South Elevation, San Diego, California, October 2009.



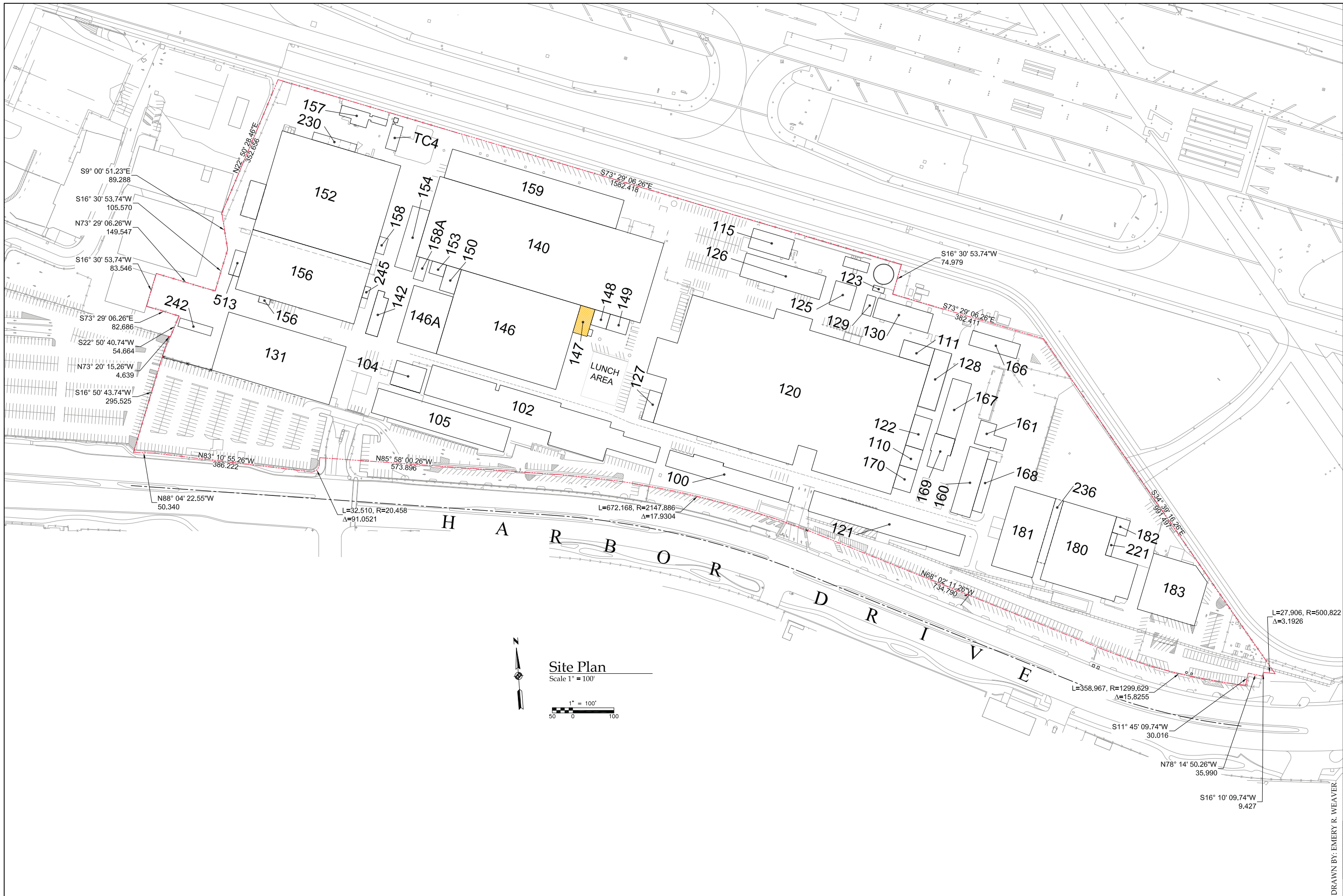
Building 147 - Ancillary Building Interior, facing North, San Diego, California, October 2009.



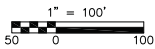
Building 147 - Ancillary Building, Southeast Oblique, San Diego, California, October 2009.



Building 147 - Ancillary Building Interior, facing South, door detail, San Diego, California, October 2009.



Site Plan  
Scale 1" = 100'



Library of Congress Index Number	HISTORIC AMERICAN BUILDINGS SURVEY	SURVEY NO.	SHEET 1 OF 4 SHEETS
NAME AND LOCATION OF STRUCTURE		SAN DIEGO COUNTY	
<b>BUILDING 147 - ANCILLARY BUILDING</b>		SAN DIEGO, CALIFORNIA	
2701 N. HARBOR DRIVE		SAN DIEGO COUNTY	
DRAWN BY: EMERY R. WEAVER		RYAN AERONAUTICAL COMPANY HISTORIC DISTRICT JANUARY 2010	