

---

*FINAL*

**Building 111  
Welding Shop**

**Historic American Buildings Survey  
Level I**

**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 111 - WELDING 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 111 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 111 is a contributing resource to the Ryan Aeronautical Company Historic District under NRHP Criterion C/CRHR Criterion 3. It is reflective of an industrial building within an industrial facility during its period of significance, and because this building is one of the more visually distinctive industrial-style buildings at the Ryan Aeronautical Company Historic District due its smaller scale, angular sawtooth roof accentuated with clerestory lights, corrugated metal sheeting, and multi-paned steel-framed windows.</p>

Historian: Jessica Feldman

PART I. HISTORICAL INFORMATION

A. Physical History:

1. Date of erection: 1952
2. Architect: Stanley Burne, Structural Engineer
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 111 is a single-story rectangular building measuring approximately 40 feet by 76 feet, 6 inches supported by a concrete slab and perimeter foundation. The building was constructed on the north elevation of Building 120. Building 111 has an angular “sawtooth” roof accentuated with clerestory lights, corrugated metal-sheet cladding, and multi-pane steel-framed windows along the east, west, and north elevations. Five-inch-square steel “I”-beam posts are placed 18 to 21 feet apart around the building and down the center along the long axis. These I-beams support the steel roof trusses that contain single rows of steel-framed windows along the north elevation (URS Corporation, 2009).
5. Alterations and additions: Post-1956, Building 128 was constructed on the east side of Building 111. The single-entry personnel door on the north elevation of Building 111 was not shown in the original drawings from 1952. It is not known when this door was erected.

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 111 is a one story, rectangular, industrial-style building featuring angular “sawtooth” roof accentuated with clerestory lights, corrugated metal sheet cladding, and multi-pane steel-framed windows. The building is a visually distinctive industrial building within an industrial facility during its period of significance, 1939 through 1969 (URS Corporation, 2009).
2. Condition of Building Material: Building 111 is in good condition.

B. Description of Exterior:

1. Overall Dimensions: Building 111 measures approximately 40 feet by 76 feet, 6 inches.
2. Foundations: Building 111 is built on a 5-inch-thick concrete slab and perimeter foundation.
3. Walls: Building 111 shares an exterior wall with the north elevation of Building 120 and the west elevation of Building 128. The walls are 11 feet, 6 inches high. The perimeter walls consist of corrugated galvanized steel panels.
4. Structural System: Steel-frames and truss systems in longitudinal and transverse directions make up the lateral force-resisting system of Building 111. “X” braces are used in the longitudinal and transverse directions.
5. Openings:
  - a. Doorways: Building 111 has two exterior openings. On the north side near the east wall is a 3-foot-wide opening containing a single-entry hollow-core metal door. The west side has a 6-foot, 4-inch-wide opening with a sliding door. It has a height of 9 feet, 5 inches, bringing the head in alignment with the top of the window frames. The same type of opening is located on the east elevation, providing access to Building 128 which directly abuts Building 111. This opening has been closed off with corrugated metal that is flush with the rest of this wall.



- b. Windows: Building 111 has a row of multi-paned steel-framed windows along the east, west, and north elevations. The plans from 1952 give the height of the windows as 5 feet, 5 inches. These are located 4 feet above the ground. A continuous row of steel-framed “monitor” windows runs along the north elevation of each “sawtooth” peak. The windows on the elevations are fixed, and contain four-over-four light arrangements. There are ten windows on the north elevation and three on the west elevation, one to the north and two to the south of the main opening. The window arrangement on the east elevation is the same, with the exception that these windows are directly facing Building 128 and the panes have been painted.

- 6. Roof: Building 111 has an angular “sawtooth” roof accentuated with clerestory lights. These contain a center pivoting window with three-over-three lights, with a row of three lights above and below. These windows are arranged with three sets of windows separated by a metal panel. There are four sets across each roof slope. The roof is otherwise clad with corrugated galvanized metal sheet over wood purlins.

C. Description of Interior:

Floor Plans: Building 111 is a single-story rectangular building measuring approximately 40 feet by 76 feet, 6 inches, supported by a concrete slab and perimeter foundation. The building was constructed against the north elevation of Building 120 near the east elevation, and the two buildings share an interior wall. After Building 111 was constructed, Building 128 was constructed on its east elevation and the two buildings share an interior wall. Building 111 has an angular “sawtooth” roof accentuated with clerestory lights, corrugated metal sheet cladding, and multi-pane steel-framed windows along the east, west, and north elevations. Five-inch-square steel I-beam posts are placed 12 feet apart around the building and down the center along the long axis. These I-beams support the steel roof trusses that contain single rows of steel-framed windows along the north elevation.

D. Site:

Historic Landscape Design: None

PART III. SOURCES OF INFORMATION

- A. Early Views: N/A
- B. Interviews: N/A
- C. Bibliography

- 1. Primary and Unpublished Sources:

San Diego County Regional Airport Authority (SDCRAA). 2005. Teledyne Ryan Facility Study. January 1.

San Diego Unified Port District (SDUPD). 2009. 2701 North Harbor Drive Demolition Project Environmental Impact Report. April.

URS Corporation. 2008. Department of Parks and Recreation Primary Record form for the Ryan Aeronautical Company Historic District (P-37-028619, CA-SDI-18401H). January.

URS Corporation. 2009. *Appendix B. Cultural Resources Assessment Report. 2701 North Harbor Drive Demolition Project Draft EIR (UPD #83356-EIR-713)*. April.

Van Wormer, Stephen. 2005. Department of Parks and Recreation Primary Record form for the Ryan Aeronautical Company Historic District (P-37-028619, CA-SDI-18401H). Prepared by Walter Enterprises. December.

Van Wormer, Stephen, Mary Robbins-Wade. 2006. *Historic Architectural Survey Report: San Diego International Airport Master Plan*. Prepared for San Diego County Regional Airport Authority. May.

2. Secondary and Published Sources:

Leiser, Edward. 2000. “San Diego Flying Days.” Copies of manuscripts on file at the San Diego Historical Society and San Diego Aerospace Museum, San Diego, CA.

Macaulay, Major T. 1928. “*The Story of Lindbergh Field, San Diego’s ‘Triple A’ Municipal Airport Lindbergh Field.*” Dedication brochure, Lindbergh Field Vertical Files, San Diego Aerospace Museum Library, San Diego, CA.

Moomjian, Scott A. and Wendy L. Tinsley. 2001. *Historic Survey Report of the Former Teledyne-Ryan Aeronautical Complex, 2701 North Harbor Drive, San Diego, California, 92101*. Prepared by Office of Maria Burke Lia, Attorney at Law, 427 C Street, Suite 416, San Diego, CA 92101. Prepared for Jones Lang La Salle, 2701 North Harbor Drive, Building 100, San Diego, California 92101. Copy on file with the San Diego Regional Airport Authority.

Moore, Floyd Roscoe. 1960. San Diego Airport Development. Thesis, Political Science, San Diego State College, San Diego, CA.

National Aviation Hall of Fame. T. Claude Ryan- Biography. [http://nationalaviation.blade6.donet.com/components/content\\_manager\\_v02/view\\_nahf/htdocs/menu\\_ps.asp?NodeID=-2144693577&group\\_ID=1134656385&Parent\\_ID=-1](http://nationalaviation.blade6.donet.com/components/content_manager_v02/view_nahf/htdocs/menu_ps.asp?NodeID=-2144693577&group_ID=1134656385&Parent_ID=-1) (accessed November 5, 2009)

San Diego Unified Port District. 1966. *San Diego Unified District Annual Report: 1965-66*. Carl Reupsch Collection, San Diego Historical Society, San Diego, CA.

San Diego Union. Various Dates. Issues cited in text from Lindbergh Field Vertical Files, San Diego Historical Society, San Diego, CA.

San Diego Unified Port District. 1968. *San Diego Unified District Annual Report: 1967-68*. Carl Reupsch Collection, San Diego Historical Society, San Diego, CA.

San Diego Unified Port District. 1971. *San Diego Unified District Annual Report: 1970-71*. Carl Reupsch Collection, San Diego Historical Society, San Diego, CA.

San Diego Unified Port District. 1977. *San Diego Unified District Annual Report: 1976-77*. Carl Reupsch Collection, San Diego Historical Society, San Diego, CA.



Building 111 - Welding Shop, West Elevation, San Diego, California, October 2009.



Building 111 - Welding Shop, North Elevation, San Diego, California, October 2009.



Building 111 - Welding Shop, Northwest Oblique, San Diego, California, October 2009.





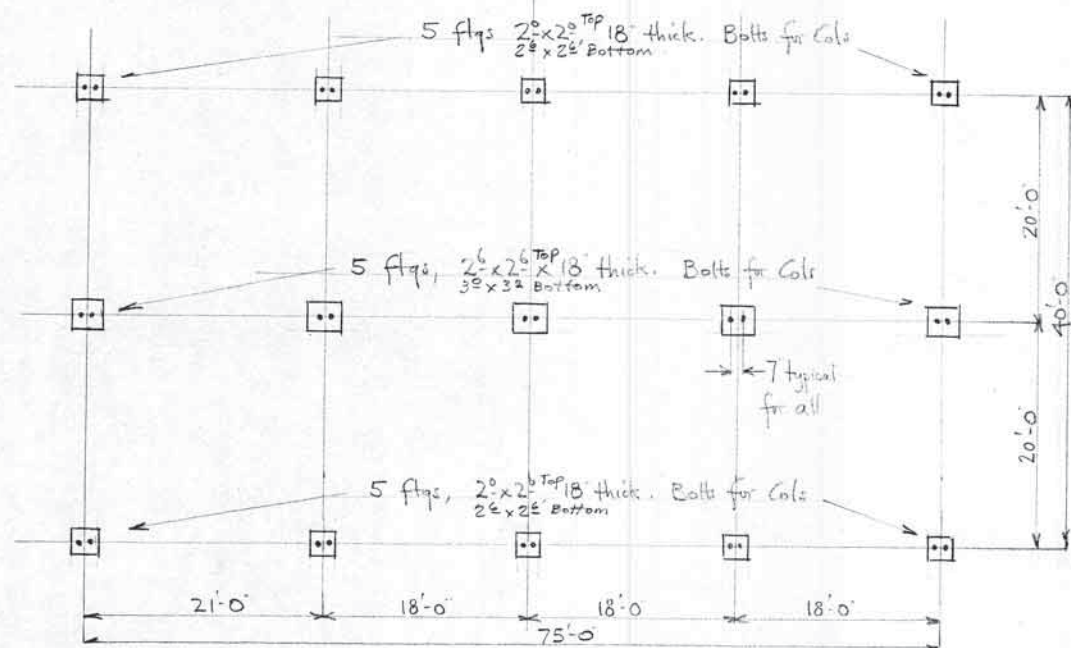
Building 111 - Welding Shop Interior, clerestory windows detail, facing North, San Diego, California, October 2009.



Building 111 - Welding Shop Interior, clerestory windows detail, facing Northeast, San Diego, California, October 2009.

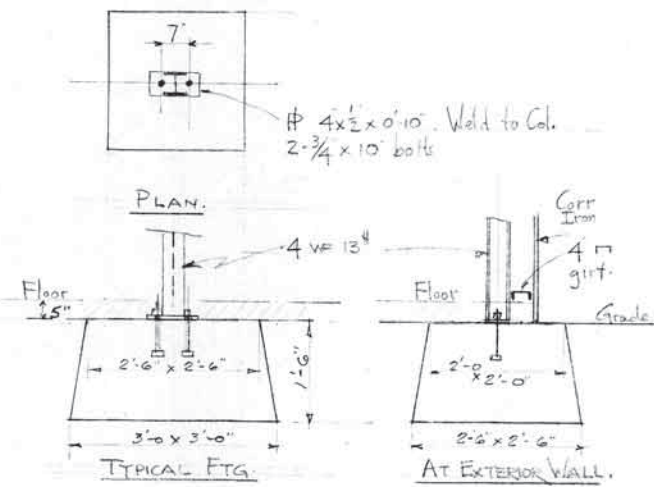


Building 111 - Welding Shop, context view, facing Southwest, San Diego, California, October 2009.



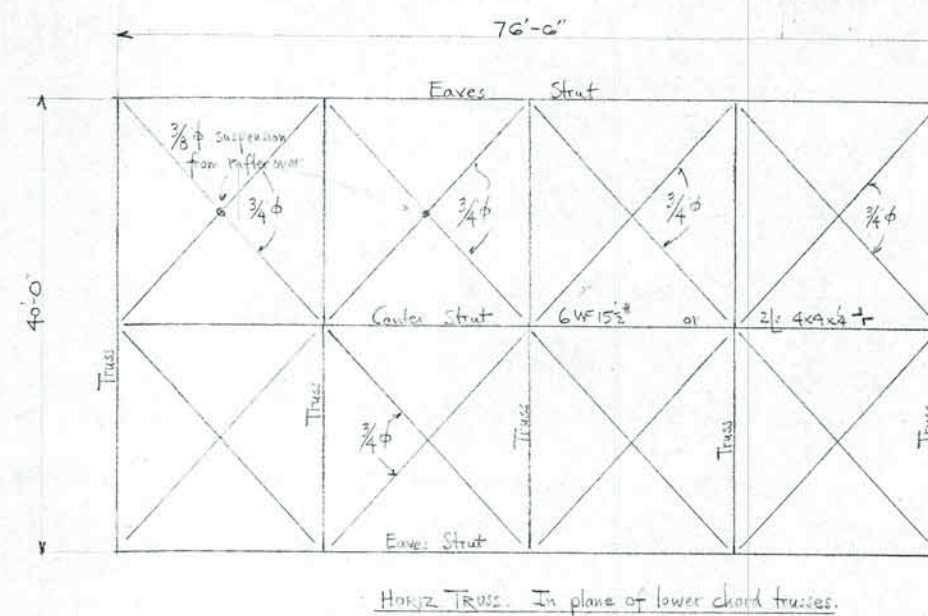
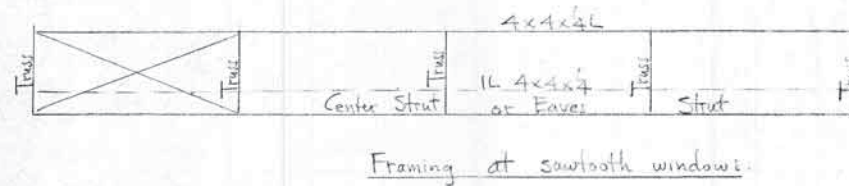
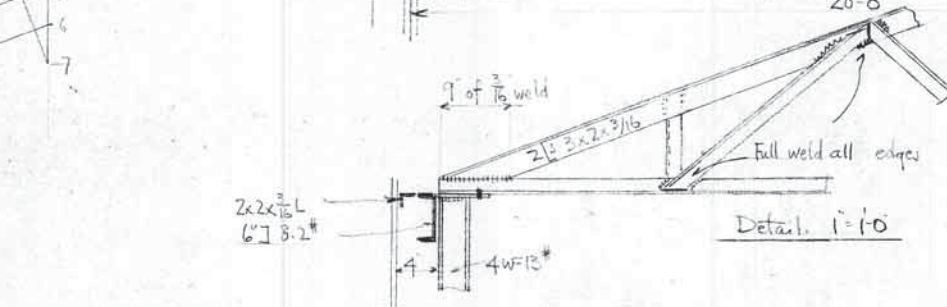
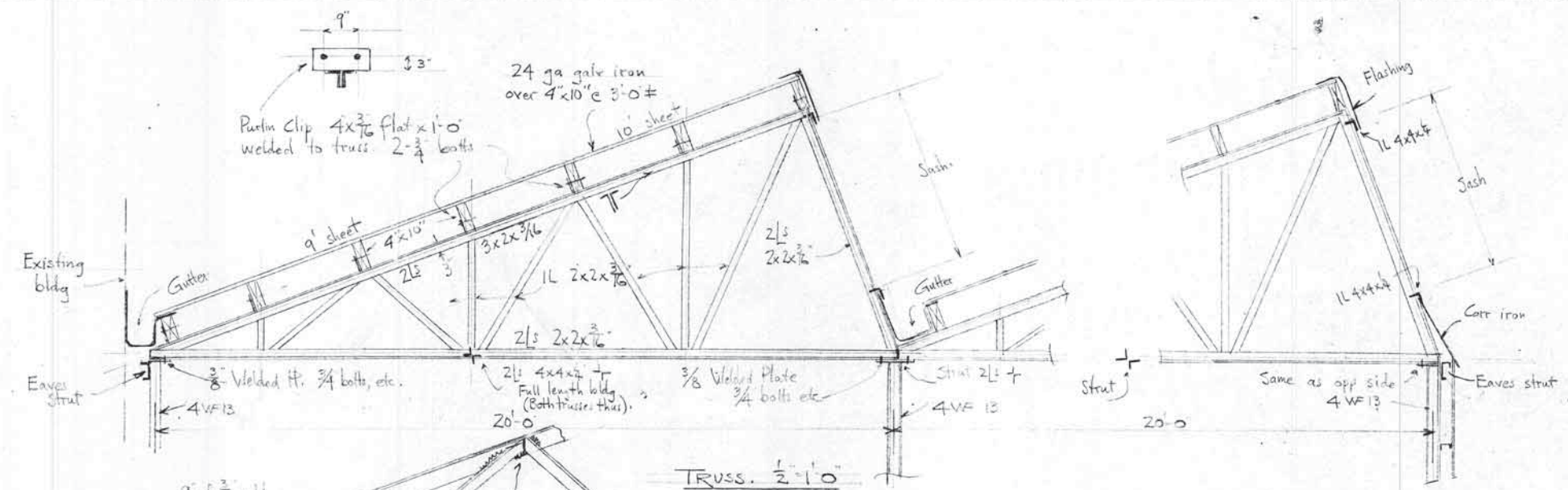
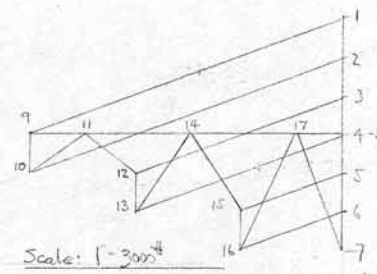
FOUNDATION PLAN. 3'-0"

N



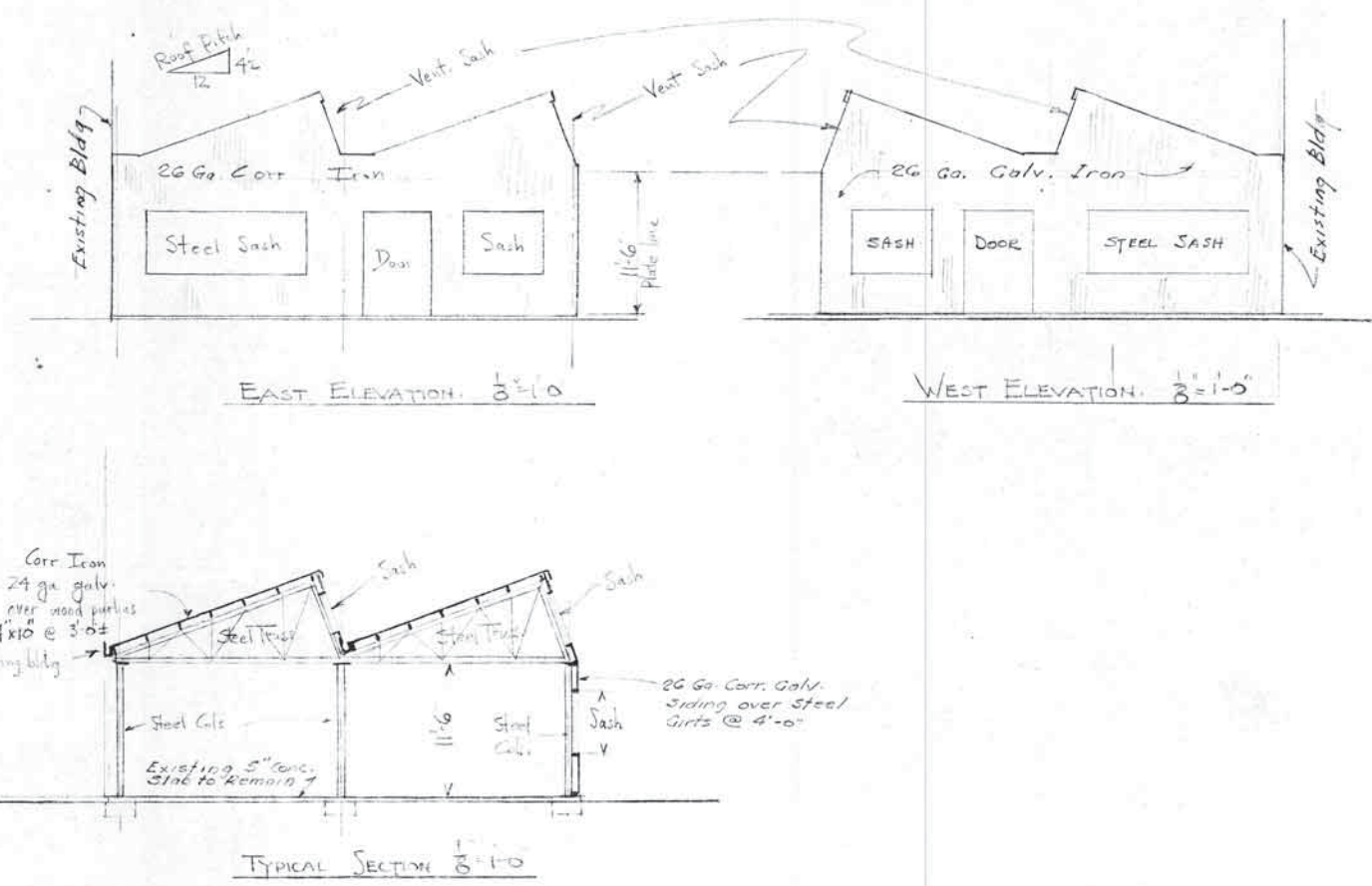
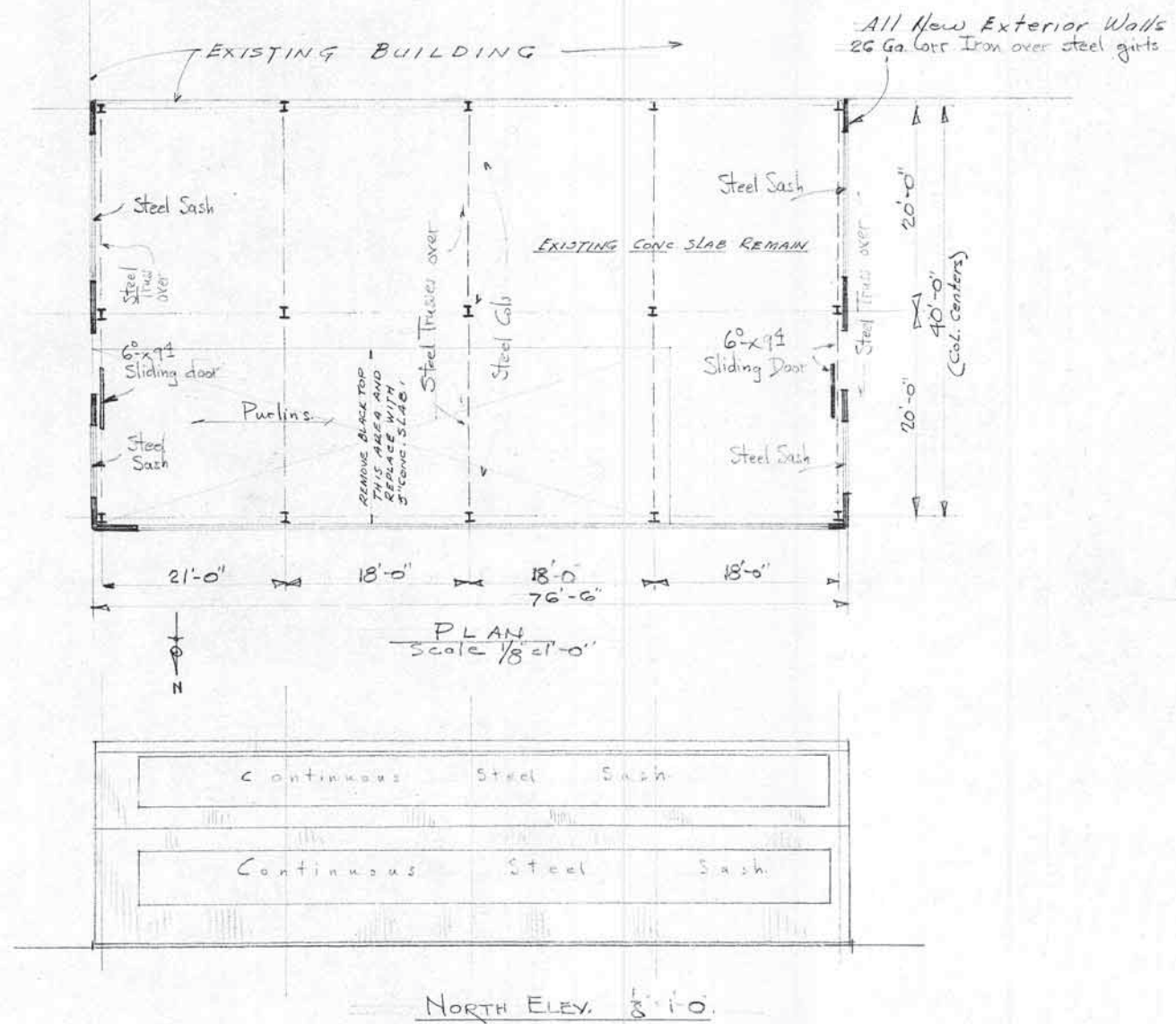
STEEL BLDG.		2
Ryan Aeronautical Co.		
San Diego		2
STANLEY BIRME		
STRUCTURAL ENGINEER		2
2175 LA JOLLA AVENUE SAN DIEGO 10, CALIFORNIA		





Building 111 - 7 of 13

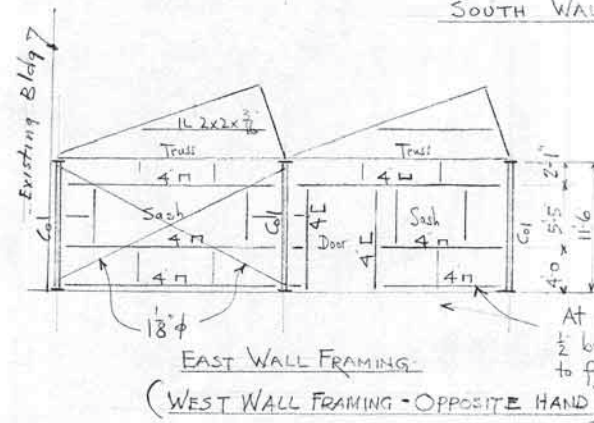
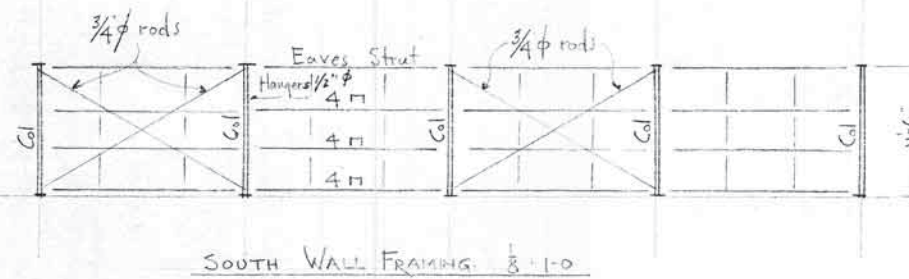
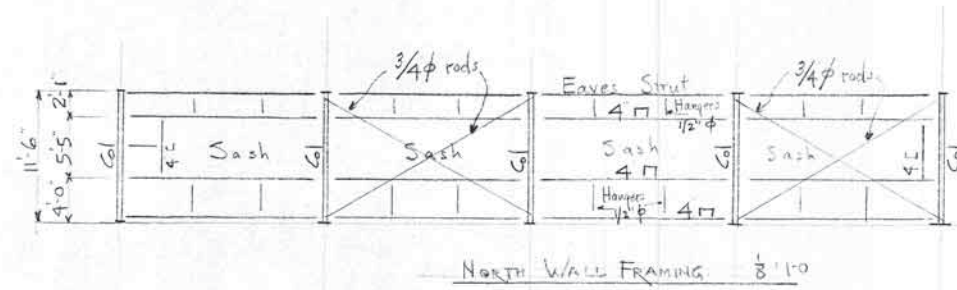




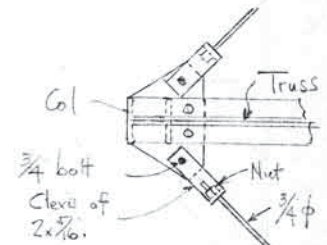
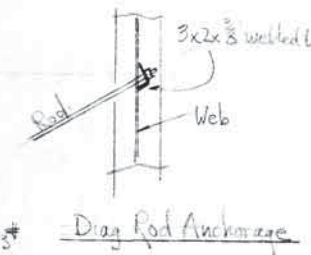
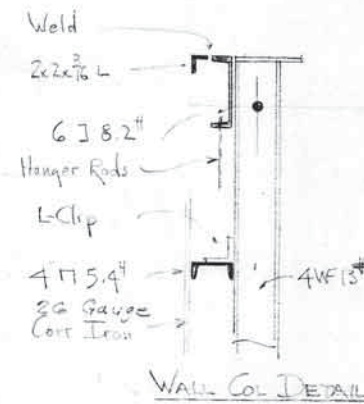
STEEL BLDG.  
Ryan Aeronautical Co.  
San Diego

STANLEY BURNE  
STRUCTURAL ENGINEER  
2375 LA JOLLA AVENUE SAN DIEGO 16, CALIFORNIA

Sheet  
1



At wall 16' in from West end,  
1/2 bolts @ abt 4'-0", bottom girt  
to floor. Spacers to suit.



Horiz Truss rods to Truss at Col.  
At center similar detail. (Rods 4 ways)

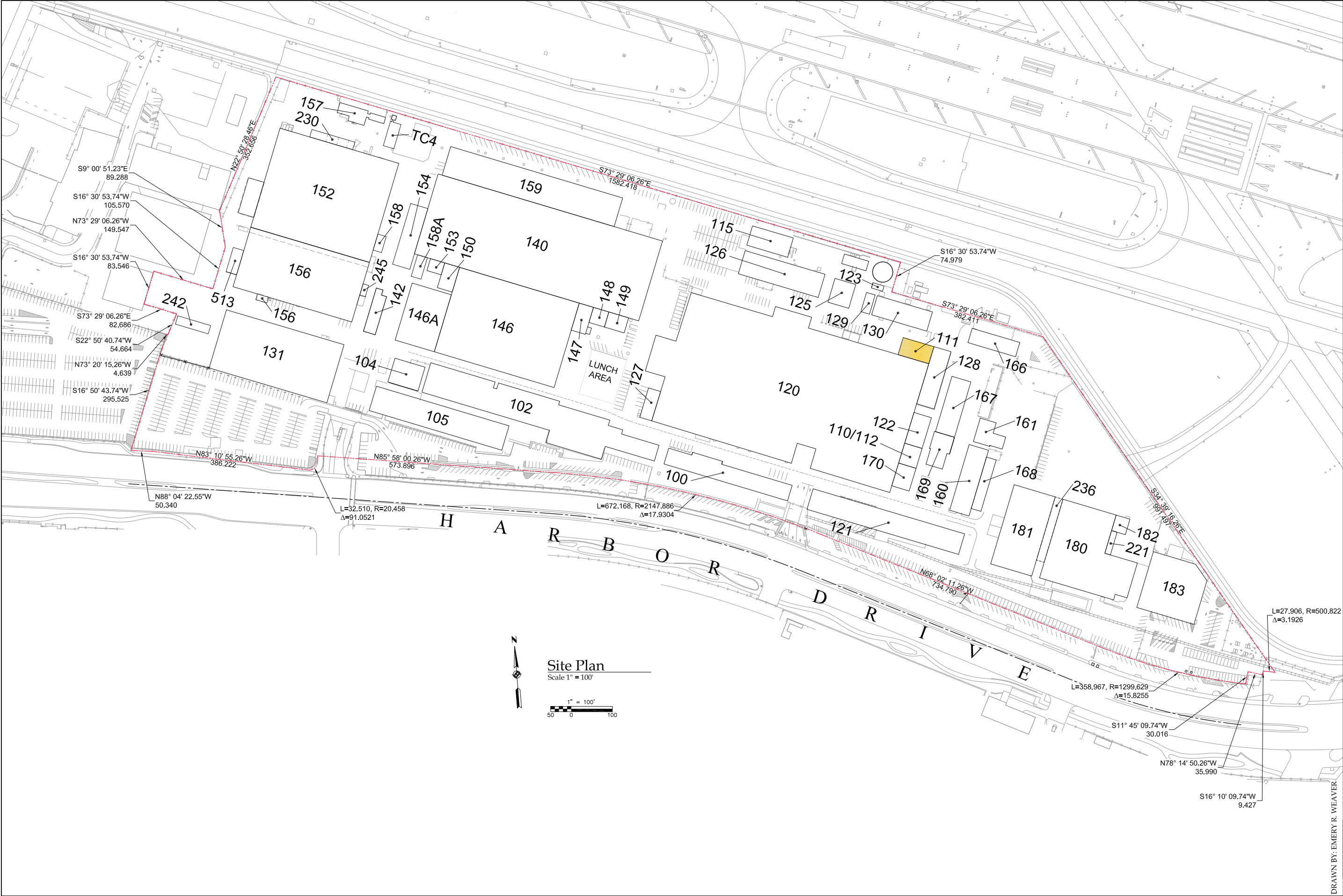
STEEL BLDG.  
Ryan Aeronautical Co.  
San Diego.

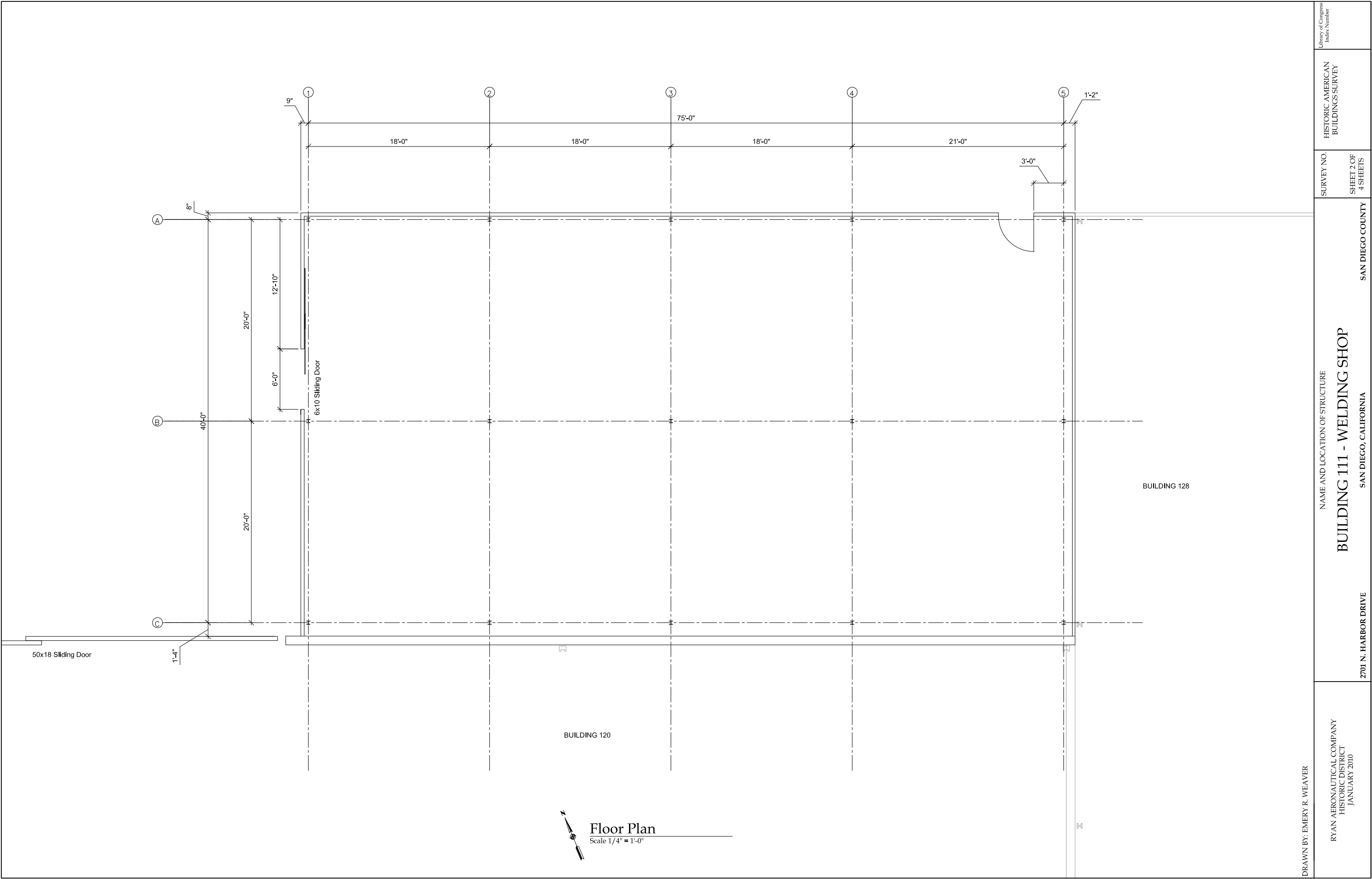
STANLEY BURNE  
STRUCTURAL ENGINEER  
2375 LA JOLLA AVENUE SAN DIEGO 16, CALIFORNIA

Date  
Aug 52

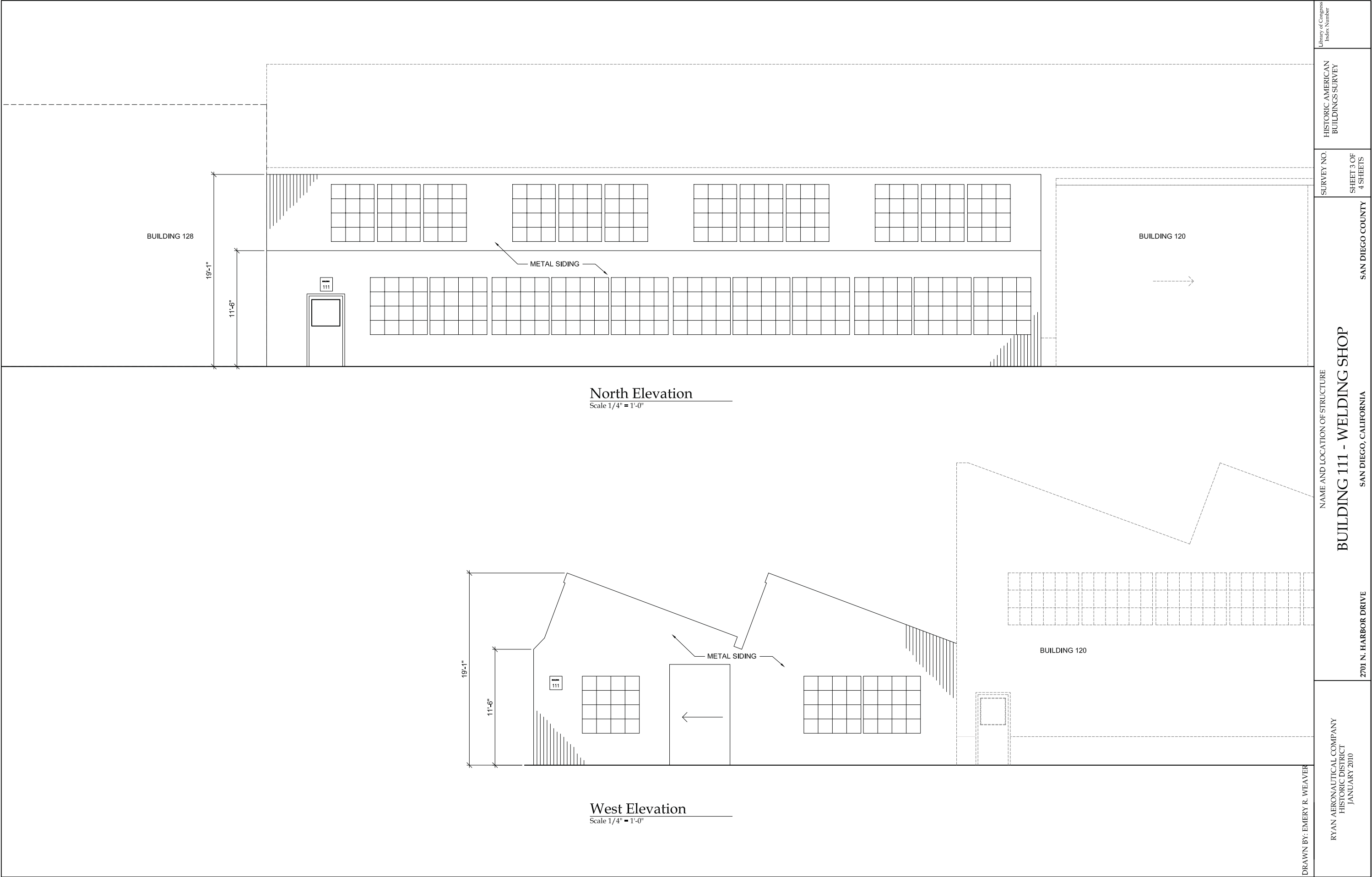
Sheet  
4

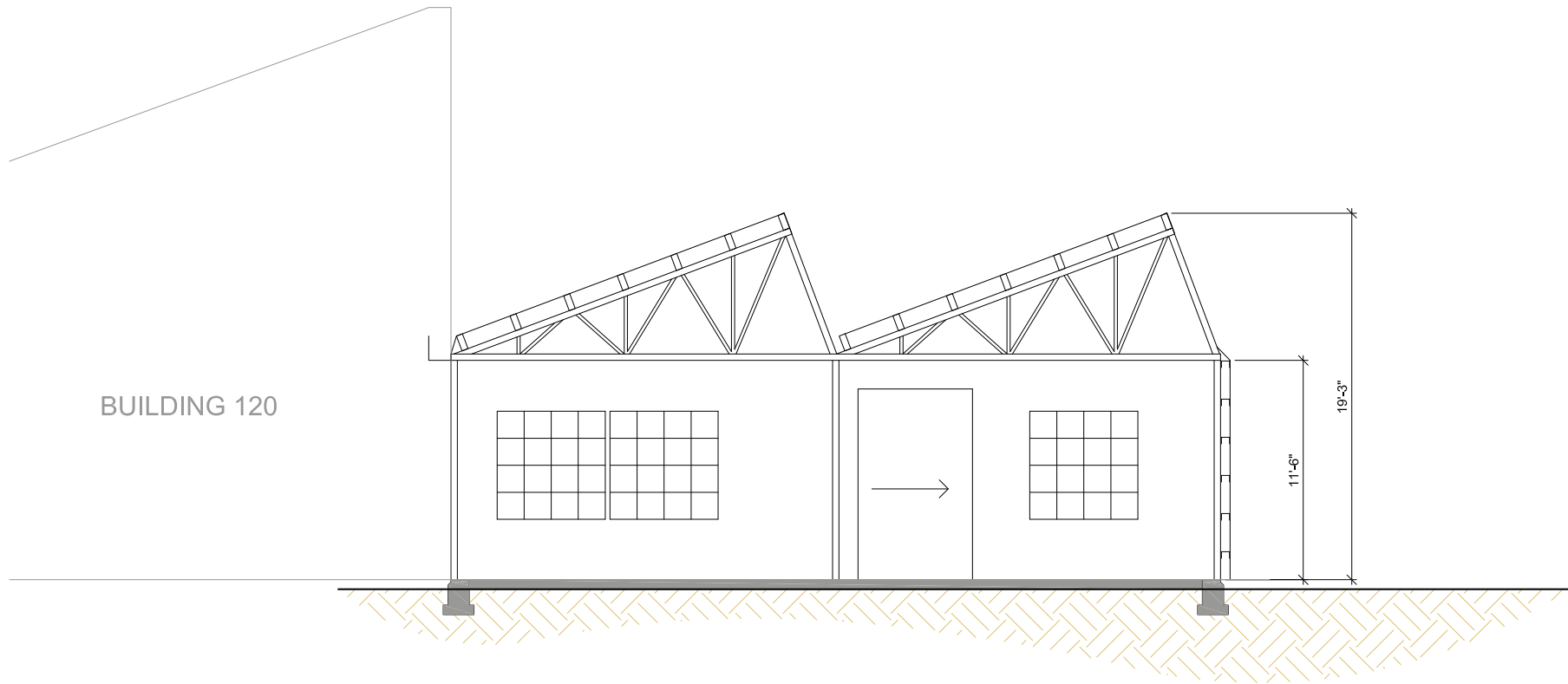












Section  
Scale 1/4" = 1'-0"

DRAWN BY: EMERY R. WEAVER

RYAN AERONAUTICAL COMPANY  
HISTORIC DISTRICT  
JANUARY 2010

NAME AND LOCATION OF STRUCTURE  
**BUILDING 111 - WELDING SHOP**  
SAN DIEGO, CALIFORNIA

2701 N. HARBOR DRIVE

SAN DIEGO COUNTY

SURVEY NO.  
SHEET 4 OF  
4 SHEETS

HISTORIC AMERICAN  
BUILDINGS SURVEY

Library of Congress  
Index Number