

---

*FINAL*

**Building 180  
Experimental/Receiving and  
Assembly Building**

**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 180 - EXPERIMENTAL/RECEIVING AND ASSEMBLY

<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 180 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 180 is a contributing resource to the Ryan Aeronautical Company Historic District under NRHP Criterion C/CRHR Criterion 3. Building 180 is one of the original factory buildings that constituted the Ryan Aeronautical Company’s first plant. Visually distinctive, these buildings are representative of shops typically constructed for the earlier phases of aircraft manufacturing. Building 180 resembles factory buildings from the industrial facility during its period of significance, 1939 through 1969.</p>

Historian: Jessica Feldman

PART I. HISTORICAL INFORMATION

A. Physical History:

*[Building 180 is comprised of two buildings, Building 180 and Building 180A, which constructed separately and in different years and were combined as one building in 1944. As such, both buildings are discussed on this form, but each will be described individually.]*

1. Date of erection: Building 180 was constructed in 1932. Building 180A was likely constructed circa 1936. Both were moved to their current location in 1944.
2. Architect: The National Iron Works, Frank L. Hope and Associates, Consolidated Vultee Aircraft Corporation
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 180 is a combination of two of the original hangars at the Ryan Airport, constructed on Pacific Highway on the west side of the Lindbergh Field Administration Building in 1932. Building 180 was reconstructed at the current site in 1944 as a one-and-a-half-story building with two wings. The main west wing is the original hangar constructed by Ryan and is referred to as Building 180. The east wing of is small hangar and is referred to as Building 180A. At the Pacific Highway location, Building 180A originally stood to the south of the Building 180.

Building 180 is rectangular in shape and has an open interior measuring approximately 140 feet by 200 feet. The east and south walls are constructed of poured concrete, reaching approximately 6 feet in height. These walls provide base support for the multi-paned steel-framed “curtain wall” windows that are below the roofline. The west wall, which is common with the west wall of Building 180A, is constructed of wood framing with 2-inch-by-4-inch studs and covered with stucco. The north half of the shared wall consists of a row of steel-framed multi-paned windows. The north elevation consists of steel-framed rolling hangar doors forming a multi-paned glass curtain wall.

The roof is supported by steel I-beam posts that are approximately 20 inches square, placed 20 feet apart along the east and west elevations. They support arched steel roof trusses that span the building’s width (140 feet) and 4-inch-by-12-inch joists that are covered with 2-inch-by-6-inch boards. The roof is clad with rolled asphalt roofing material. Mission Revival-style parapets form the visual roofline at the south elevation of the west wing and the north elevation of the east wing. A shield motif is cast in stucco on the crest of the southern parapet. The rectangular opening at the west end of the south elevation is equipped with a steel roll-up door and the rectangular opening along the east elevation provides access to Building 180A.

Building 180A sits on a poured concrete slab and measures approximately 65 feet by 100 feet. Five-inch-by-7 inch I-beam posts are placed approximately 12 feet apart around the perimeter of the building and support the wooden frame of 2-inch-by-4-inch studs which are covered with wooden siding. Exterior walls are covered with stucco. Steel posts are placed along the east and west elevations and support the arched steel roof trusses with 2-inch-by-12-inch roof joists covered with wooden sheathing and asphalt material on the exterior. A shield motif cast in stucco is located on the crest of the northern parapet. A solid single-entry door is located on the

south end of the east elevation. Two rows of steel-framed, multi-paned, rectangular windows were located along the south elevation; however, the lower row is now missing (URS Corporation, 2009).

5. Alterations and additions: Building 180 current consists of two wings (Building 180 on the west and Building 180A on the east), which were originally two separate buildings. These two buildings were combined when they were moved in 1944 from their original, but individual locations, to their current location. Building 182 was constructed on the east elevation (north of Building 180A) in the 1940s and Building 221 was added to the east elevation near the north elevation of Building 180 in the 1950s. Building 236 was constructed in the space between the west elevation of Building 180 and the east elevation of Building 181 previous to 1956.

The large hangar doors of Building 180 were moved from the south elevation to the north elevation when the building was moved in 1944. Photos from the 1930s indicate the building previously had squared piers at the wall junctions of the south elevation of the west wing and north elevation of the east wing. Many of the piers have been removed or altered and no longer have the Mission tile caps. The shield motif used in the original west wing is repeated at the crest of the north elevation of the east addition.

A shed roof addition with galvanized corrugated metal cladding was placed at the east elevation of Building 180A, although the date of construction is not known.

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 180 is one of the original three factory buildings that made up the Ryan Aeronautical Company’s first plant on Pacific Highway. The building has a shield cast in stucco at the crest of the roofline. The west wing of Building 180 is the original hangar built by Ryan on Pacific Highway. The smaller east wing is referred to as Building 180A, and is a hangar that originally stood to the south of the Building 180 at the Pacific Highway location. Building 180 is significant as a contributing element to the Ryan Aeronautical Company District and for the California Historic Register (URS Corporation, 2009).
- 2. Condition of Building Material: Building 180 is in good condition.

B. Description of Exterior:

- 1. Overall Dimensions: The west wing of Building 180 is approximately 140 feet by 200 feet and the east wing is approximately 65 feet by 100 feet.
- 2. Foundations: Building 180 sits on 5 inches of poured concrete in the main hangar area and 6 inches of poured concrete beneath the offices/ restrooms on the west elevation.

Building 180A also has a poured concrete foundation and flooring. The enclosed loading dock on the east elevation has a raised concrete block foundation with a concrete floor.

- 3. Walls: The east and south walls of Building 180 are composed of poured concrete walls approximately 6 feet in height and are accentuated with pilasters at the corners. The building has parapet walls located at the north and south elevations of the west and east wings.  
  
The more traditional parapets at the south elevation of Building 180 and the north elevation of Building 180A feature a shield motif cast in stucco at the crest of the parapet. The parapet wall at the south elevation of Building 180 is a crowstep parapet and the shaped parapet wall at the north elevation of the Building 180A reflects San Diego’s Mission Revival and Spanish Colonial Revival architectural heritage.

Building 180A may have stucco-on-brick walls below the sash on the south elevation, measuring approximately 5 foot, 8 inches high to the sills. The exterior is generally stucco with metal lathe.

The enclosed loading dock has corrugated metal cladding..

- 4. Structural System: Building 180 has steel-frame internal structure; plans show that the one-to two-story office and restroom section on the west elevation has a wood- and steel-frame structure. Building 180A has a steel-frame structural system. The structural system of the enclosed loading dock is not known.
- 5. Openings:
  - a. Doorways: Building 180 has steel-framed, sliding hangar doors forming a multi-paned glass curtain wall along the entire north elevation. The doors each have two sets of four-over-three light stacked vertically. A rectangular opening at the west end of the south elevation is equipped with a steel roll-up door. Single-entry doors leading to offices and restrooms are present along the interior of the west wall of the Building 180. A large rectangular opening on the east wall of the Building 180 near the south elevation leads into Building 180A.

Building 180A has sliding hangar doors on the north elevation featuring an upper row of rectangular steel-framed windows. Building 180A also has an open garage-door-sized opening at the south end of the east elevation, a roll-up metal garage door in the center of the south elevation and a single-entry metal personnel door to the left. On the north elevation of the Building 180A are remnants of the original continuous sliding hangar doors, with four sliding doors to the left of center and two to the right of center. Each door has three-over-three steel-framed sash in upper panel. At the center of the north elevation is a large opening, with a small, personnel door to the right.

The enclosed loading dock has a sliding metal door on the south elevation and a single-entry metal personnel door on the north elevation. Both of these are reached by a set of metal stairs.

- b. Windows: Building 180 has steel-framed curtain wall windows extending beneath the roofline to above the concrete wall along the south elevation. This continuous row of windows contains 14 sets of five-over-six lights; the panes are painted over. The north portion of the east elevation displays this type of window set between the support columns, totaling five sets of three multi-paned steel-framed sashes in each bay. Some of these windows are partially obscured by Building 221 on the east elevation. On the north section of the west elevation, north of the office wing, three bays contain steel-framed, multi-pane windows near the upper section of the wall. There are also sliding metal sash and wood frame hopper style windows on the second story of the office wing.

Building 180A has six windows with five-over-two lights on the south elevation. Three windows have pivoting or hopper-style center panels; a small vent has been installed in one pane. Below this continuous row of windows rectangular sections



of plaster and lathe have been removed or have disintegrated, leaving large areas of the wall open to exposure.

The enclosed loading dock does not have windows.

- 6. Roof: The roof of Building 180 is constructed of rolled asphalt roofing material over both sections. Both Building 180 and 180A have barrel-arch roof styles, with wood purlins and rafters. The roof over the west wing is a dropped shed with a low profile, clad in composition sheathing. The enclosed loading dock has a shed-style roof.

C. Description of Interior:

Floor Plans: Building 180 is actually comprised of two separate hangars that were combined onsite in 1944. Building 180 is located on the west and Building 180A is located on the east. A more recent shed/loading dock is located on the east elevation of Building 180A.

Building 180 has a rectangular footprint, and an open interior plan, with a one- to two-story office wing along the west elevation. The interior of the office wing of Building 180 has been partitioned several times. The restrooms are located in the second story of the west wing of Building 180.

Building 180A has a smaller footprint than Building 180, but is generally rectangular in shape. It is one-story high with an open interior plan. There is a smaller loading dock on the east elevation of Building 180A. This addition has a raised foundation and an open interior.

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 180 – Experimental/ Receiving and Assembly Building, Aerial view, Building 180 is in the lower portion of the image, San Diego, California, c. 1960. Annual Report 1960.



Building 180/ 180A – Experimental/ Receiving and Assembly Building, looking South/Southwest, San Diego, California, Date unknown. Teledyne-Ryan Archives.



Building 180 – Experimental/ Receiving and Assembly Building, North Elevation, San Diego, California, Date unknown. Teledyne-Ryan Archives.



Building 180 – Experimental/ Receiving and Assembly Building, North Elevation, San Diego, California, Date unknown. Teledyne-Ryan Archives.





Buildings 183, 180, and 181, context view, facing Southeast, San Diego, California, October 2009.



Building 180 – Experimental/ Receiving and Assembly Building, Northwest Oblique, San Diego, California, October 2009.



Building 180 – Experimental/ Receiving and Assembly Building, North Elevation, San Diego, California, October 2009.



Building 180 and 180A – Experimental/ Receiving and Assembly Building, South Elevation, facing Northwest, San Diego, California, October 2009.





Building 180A - Experimental/ Receiving and Assembly Building, South Elevation, San Diego, California, October 2009.



Building 180A - Experimental/ Receiving and Assembly Building, South Elevation, San Diego, California, October 2009.



Building 180A - Experimental/ Receiving and Assembly Building, South Elevation, San Diego, California, October 2009.



Building 180 - Experimental/ Receiving and Assembly Building, windows detail, South Elevation, San Diego, California, October 2009.





Building 180 – Experimental/ Receiving and Assembly Building, Ryan Crest detail on South Elevation, San Diego, California, October 2009.



Building 180A – Experimental/ Receiving and Assembly Building, door detail on North Elevation, San Diego, California, October 2009.



Building 180 – Experimental/ Receiving and Assembly Building Interior, south wall, San Diego, California, October 2009.



Building 180 – Experimental/ Receiving and Assembly Building Interior, facing Northwest, office space is on the other side of the wall, San Diego, California, October 2009.

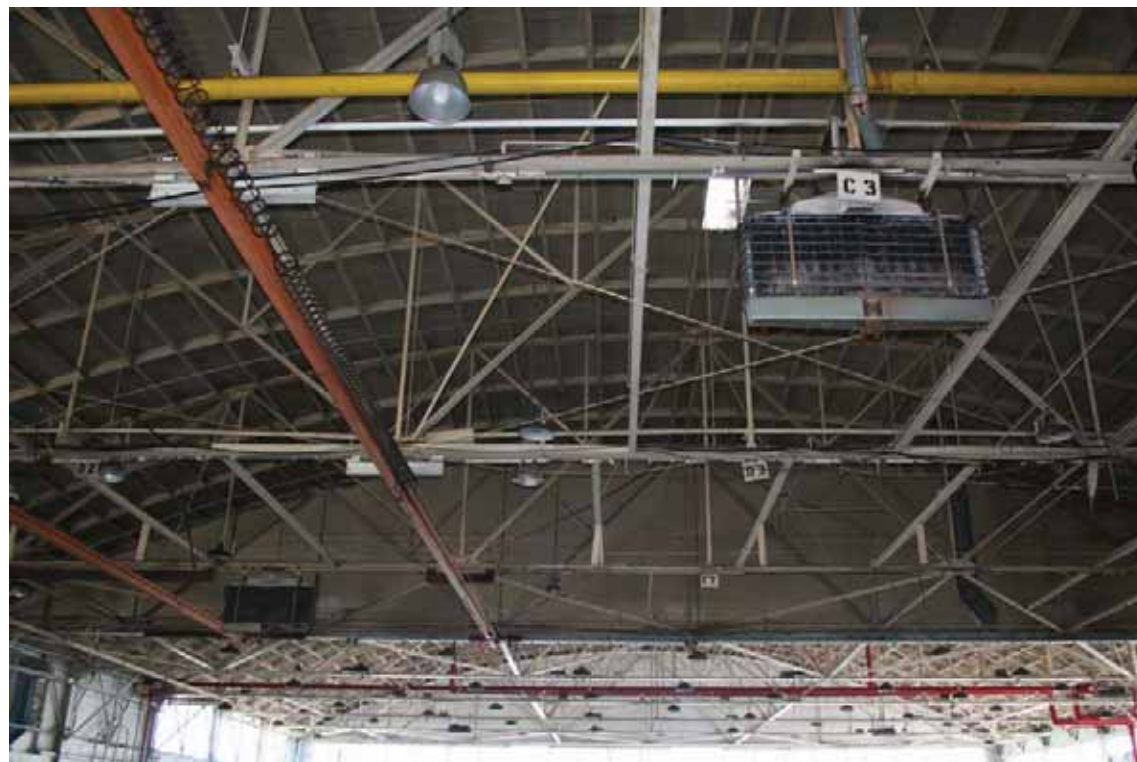




Building 180 – Experimental/ Receiving and Assembly Building Interior, office space detail, San Diego, California, October 2009.



Building 180 – Experimental/ Receiving and Assembly Building Interior, full-height entry doors on North elevation, San Diego, California, October 2009.



Building 180 – Experimental/ Receiving and Assembly Building Interior, ceiling detail, San Diego, California, October 2009.



Building 180A – Experimental/ Receiving and Assembly Building, Interior, facing East from Building 180A into an addition, San Diego, California, October 2009.

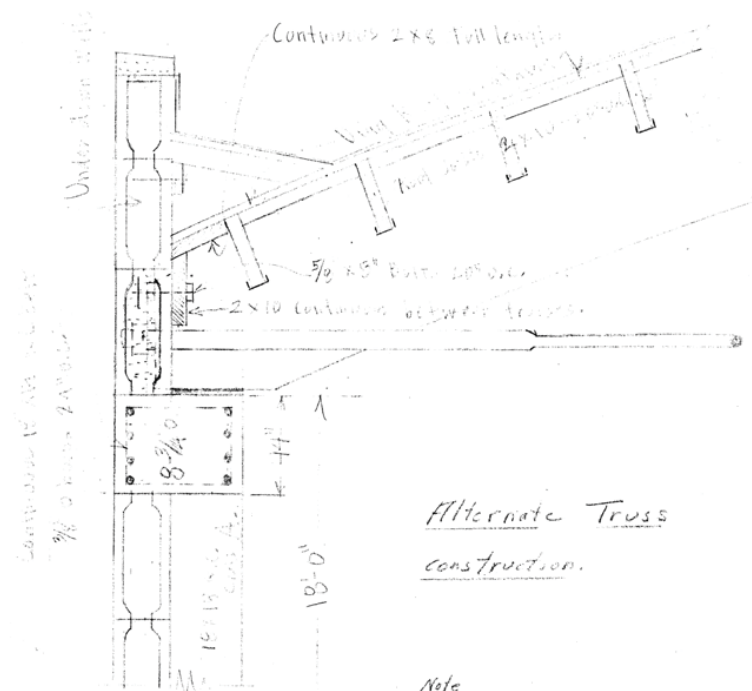




Building 180A – Experimental/ Receiving and Assembly Building, Interior, sliding, stacking doors on North elevation, facing North, San Diego, California, October 2009.



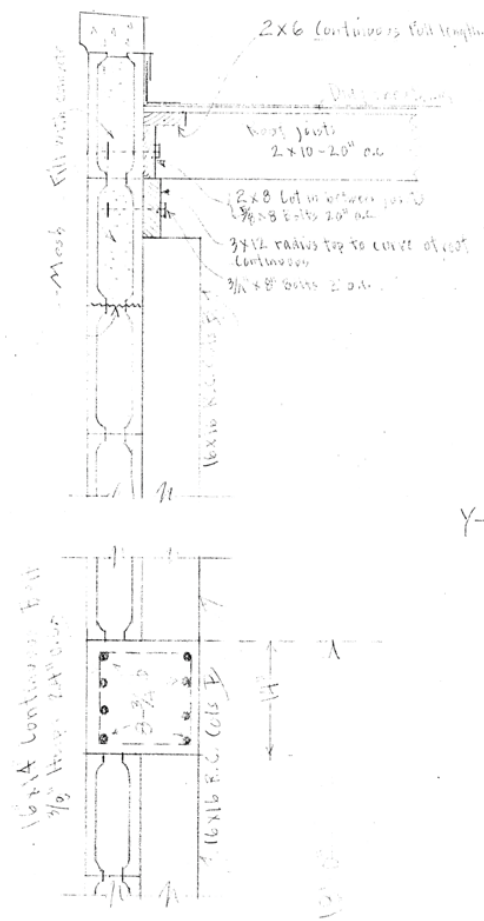
Building 180 – Experimental/ Receiving and Assembly Building Interior, track and wheel detail of entry doors at Northwest corner, San Diego, California, October 2009.



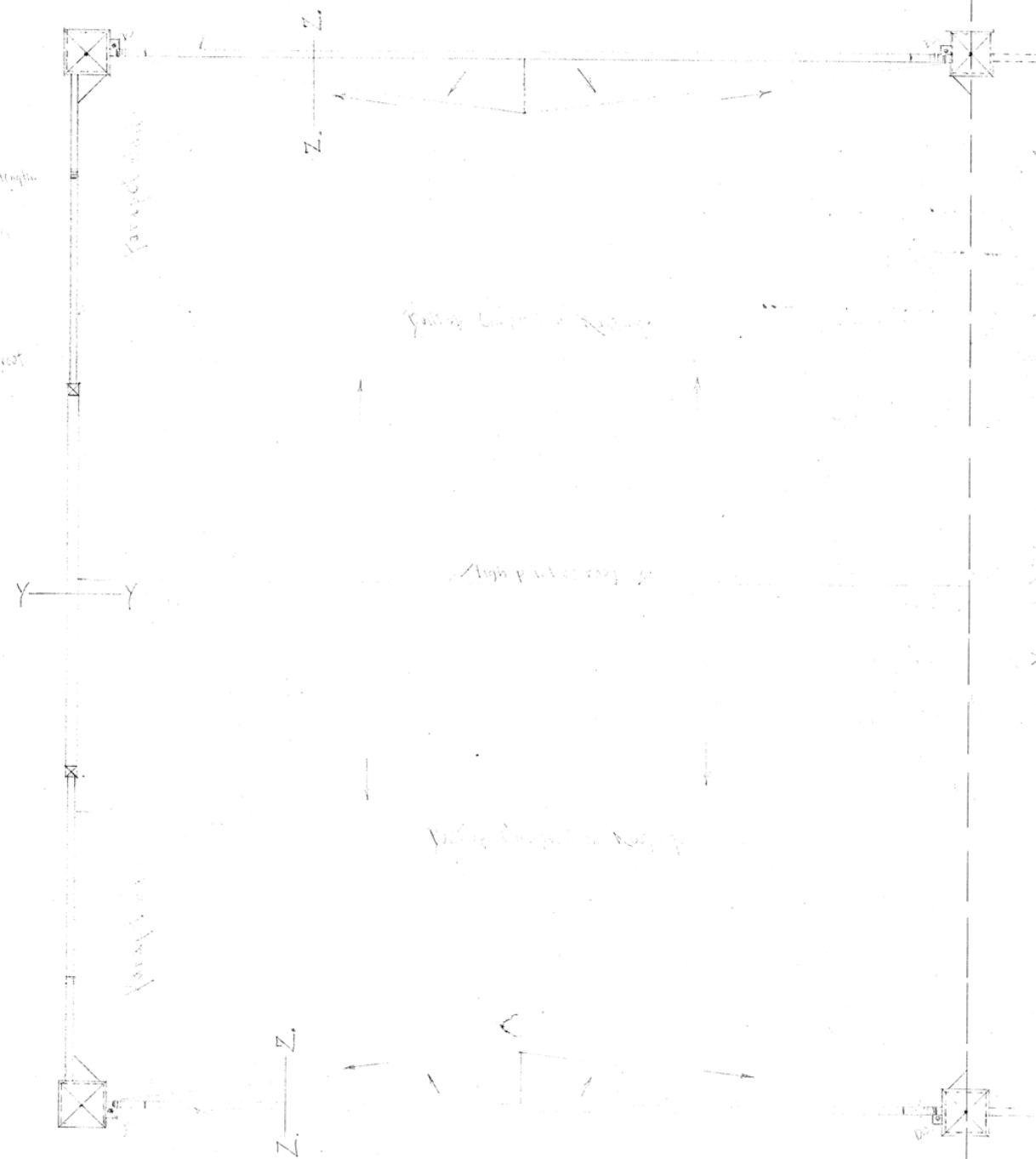
Alternate Truss construction.

Note  
If Steel trusses used detail will be same as present ones.

SECTION X-X



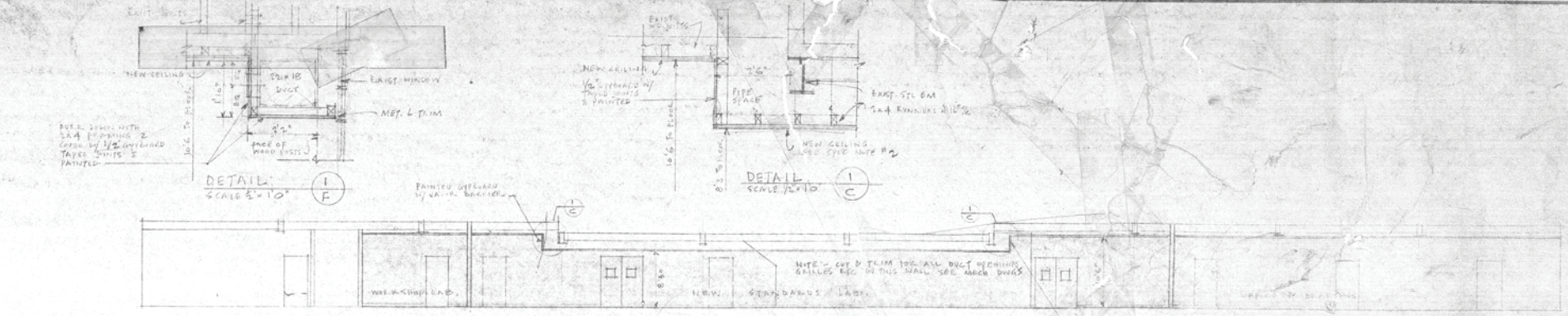
SECTION Y-Y



SECTION Z-Z



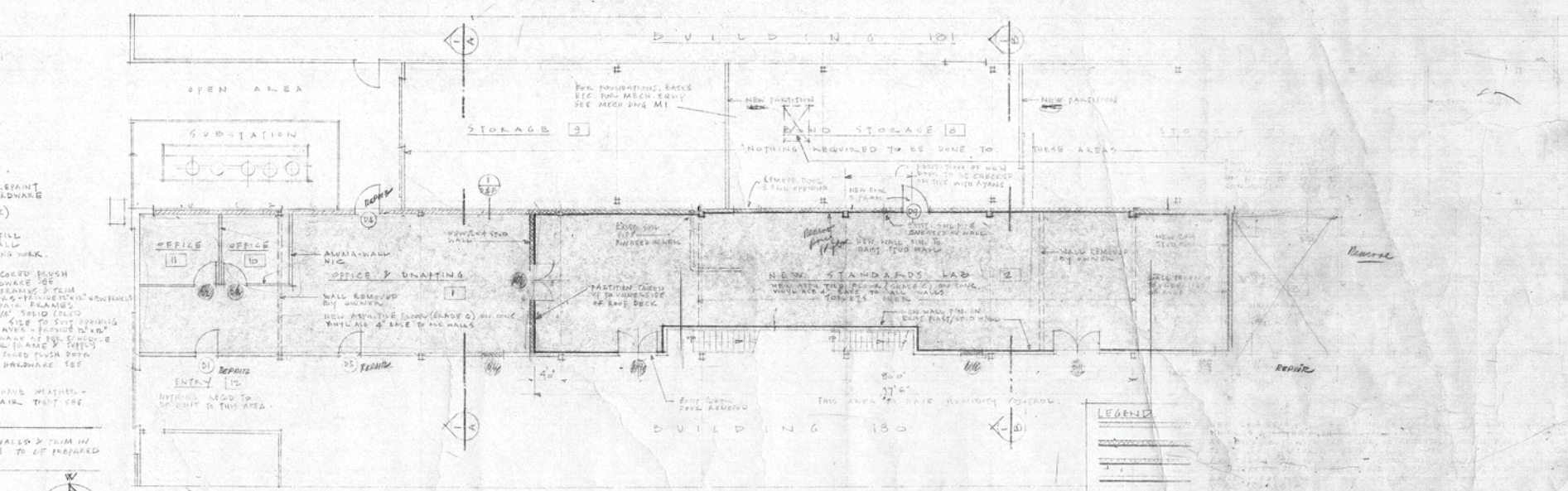
NOTES TO BUILDING CONTRACTORS, BUILDERS, ETC.  
 1. ALL WORK TO BE DONE IN ACCORDANCE WITH THE SPECIFICATIONS AND DRAWINGS.  
 2. ALL MATERIALS TO BE USED SHALL BE OF THE BEST QUALITY AND SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE ARCHITECT.  
 3. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE BUILDING CODES AND STANDARDS.  
 4. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE BUILDING CODES AND STANDARDS.



WALL ELEVATION LOOKING EAST

WALL ELEVATION LOOKING WEST

REFLECTED CEILING PLAN - SCALE 1/8" = 1'-0"



FIRST FLOOR PLAN - SCALE 1/8" = 1'-0"

CROSS SECTION A-A SCALE 1/4" = 1'-0"

CROSS SECTION B-B SCALE 1/4" = 1'-0"

DOOR SCHEDULE		HARDWARE	
Door #07 pair	pr.	Butts	TA 2714 AP
Door #03 pair	ea.	Lockset	640 S/8
Door #01 pair	ea.	Flush ext. bolt	298
Door #02 pair	ea.	Closer	500 M-3
Door #04 pair	ea.	Weatherstrip	#53J
Door #06 pair	ea.	Door bottom	#36
Door #08 pair	ea.	Astragal	#51M

DOOR SCHEDULE		HARDWARE	
Door #07 pair	pr.	Butts	TA 2714 AP
Door #03 pair	ea.	Lockset	640 S/8
Door #01 pair	ea.	Flush ext. bolt	298
Door #02 pair	ea.	Closer	500 M-3
Door #04 pair	ea.	Weatherstrip	#53J
Door #06 pair	ea.	Door bottom	#36
Door #08 pair	ea.	Astragal	#51M

NOTE #1 Vapor Barrier Wall Finish in Lab #2  
 Existing walls to be washed with trisodium phosphate dilute solution (one pound to 1 1/2 gal. of warm water) and thoroughly rinsed. Prime any metal with "Coro Check". Apply to all surfaces of new and existing walls, two coats of "Tyseal" followed by two of "Laminar X-500 Gloss Standard". Finish coats shall have a total thickness of three mils. All of the above products are manufactured by Magna Coating and Chemical Corporation, and distributed locally by Frazee Company.

NOTE #2 Ceiling Construction in Lab #2  
 Support 2 x 4 runners from joists above by #8 wires using Duo-Flex metal hangers. Space runners 16 inches o.c. and wire hangers 48 inches o.c. along each runner. Staple Norvair P. E. T. polyethylene plastic film membrane, six mils thick to underside of 2 x 4 runners making one continuous film. Secure film to all walls with tape or adhesive. Apply 1/2" V-joint gypsum board to underside of the plastic film nailing securely to 2 x 4 runners with 6" cement-coated nails at 6 inches o.c.. Secure Armstrong Textured Cushiontone 127-B, 12 inches square wood fiber tile or equal by adhesive.

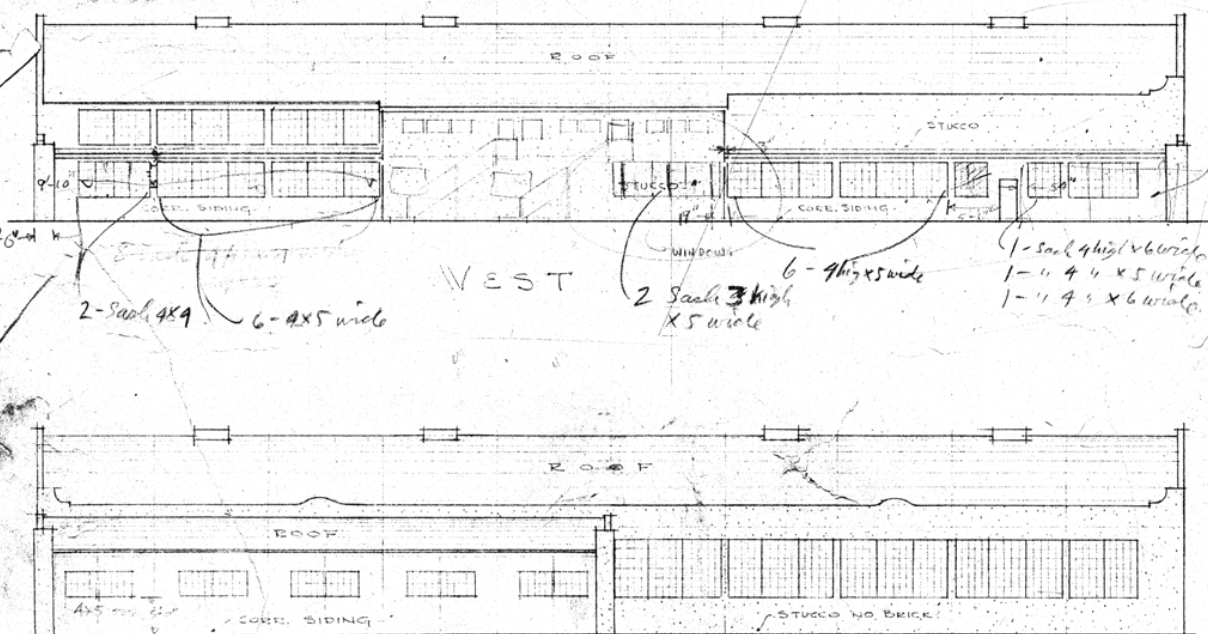
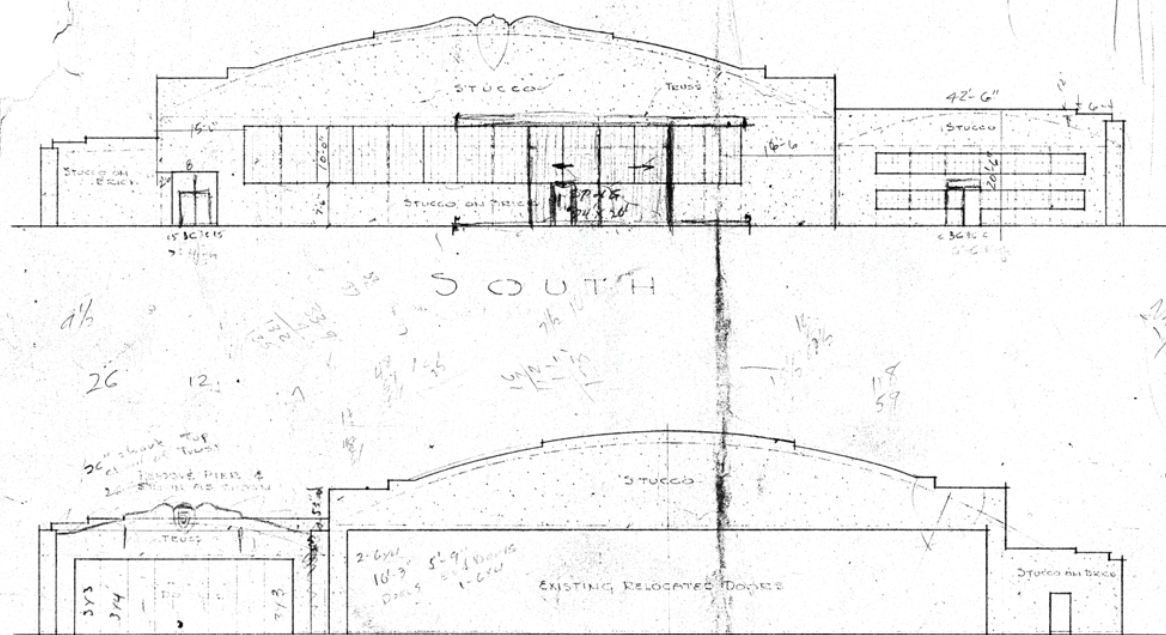


FRANK L. HOPE & ASSOCIATES  
 ARCHITECTS AND ENGINEERS

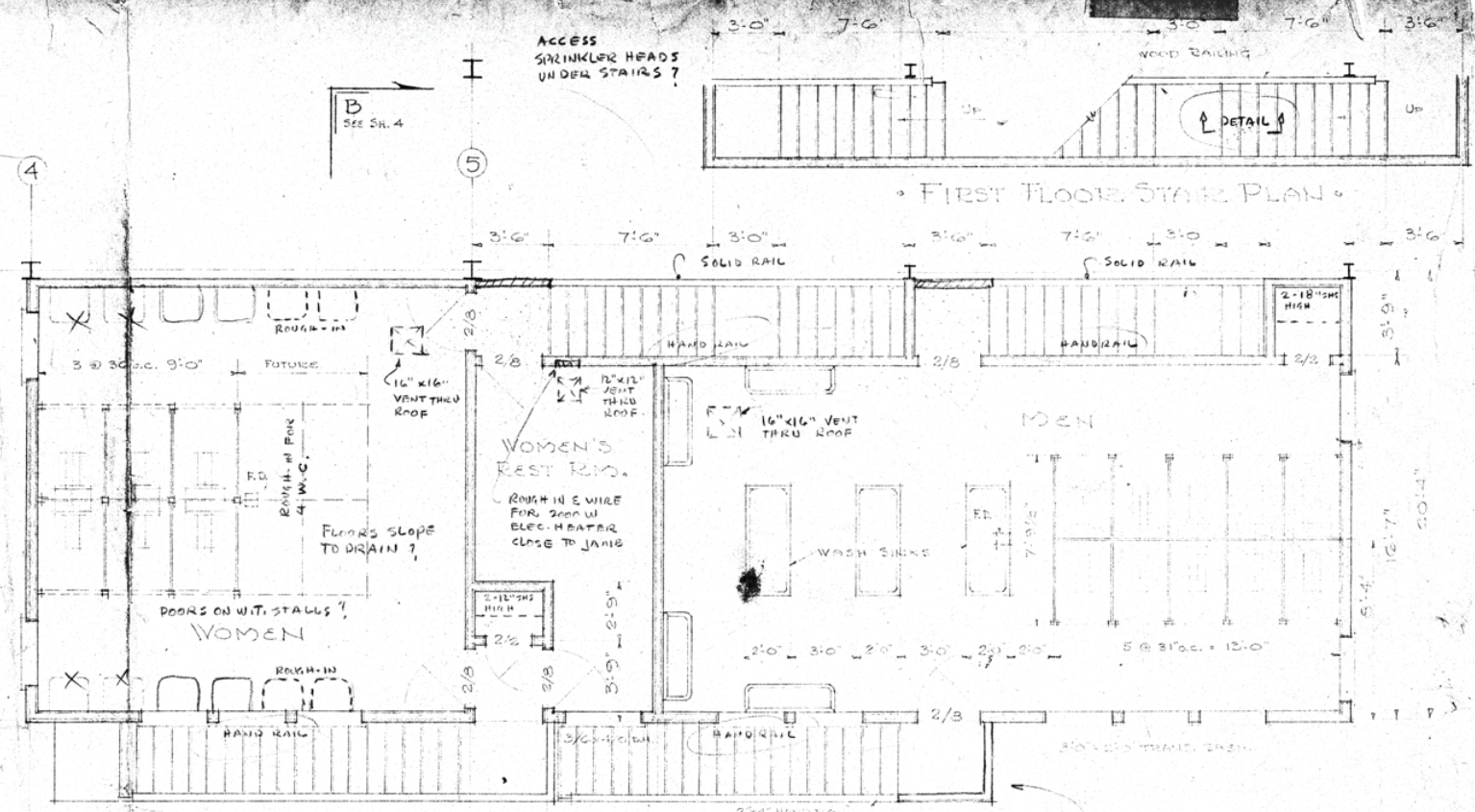
LEGEND

JOB NO.	100
DRAWN BY	KLH
CHECKED BY	KLH
DATE	10/1/50

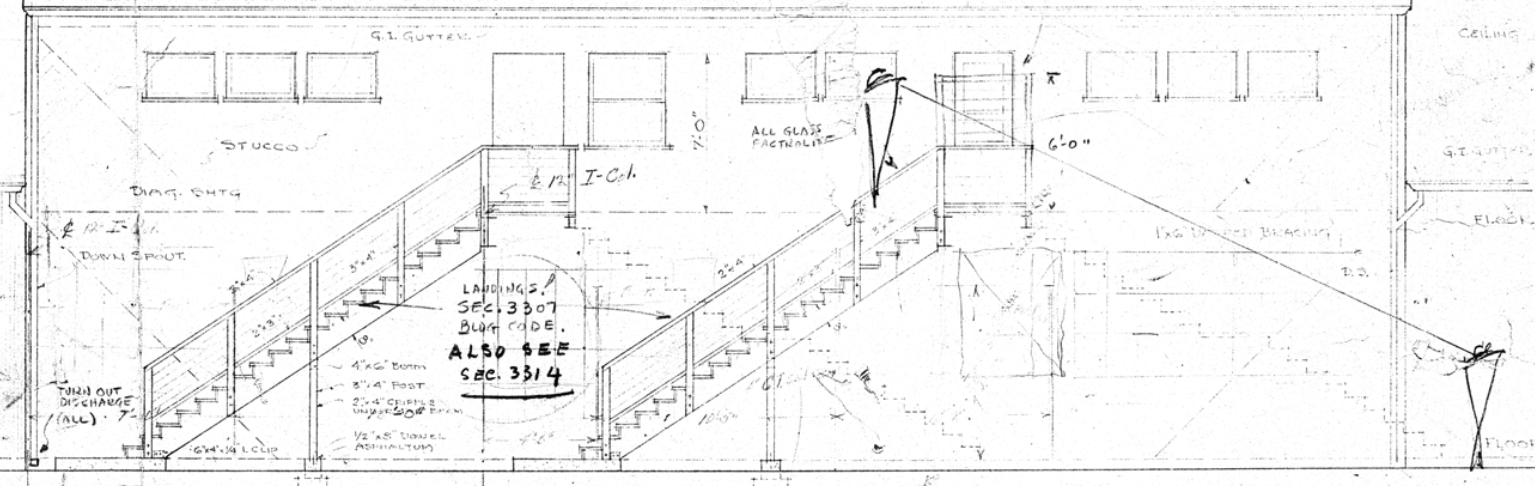




EAST  
• ELEVATIONS • SS 1/16" = 1'-0"



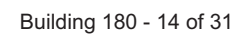
• 2ND FLOOR TOILET PLAN • SS 1/16" = 1'-0"



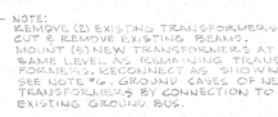
PART WEST ELEVATION • SS 1/16" = 1'-0"

180	
DATE	WORK
DESIGNED BY	CHANGED BY
CHECKED BY	APPROVED BY
CONSOLIDATED VULTEE AIRCRAFT CORPORATION PLANT ENGINEERING DEPT. SAN DIEGO DIVISION • 2ND FLOOR TOILET PLAN • • ELEVATION OF BLDG. 180 •	
DRAWN BY	NOTED BY
SCALE	DATE
5/4/44	4/7/44
9864	180









This technical drawing depicts a complex mechanical system, possibly a pump or engine component, shown in a side or cross-sectional view. The assembly is characterized by several large circular elements, likely cylinders or tanks, connected by a network of pipes and conduits. On the left side, there are three distinct vertical pipe sections, each equipped with a valve or fitting. The central part of the drawing shows a more intricate arrangement of pipes and structural supports. On the right side, there are three large circular components, each with a central vertical pipe and a horizontal pipe extending from its side. The entire assembly is supported by a series of vertical structural elements, possibly bolts or supports, which are shown in cross-section. The drawing is highly detailed, with numerous small lines and annotations indicating specific parts and connections. The overall layout is horizontal, with the main components arranged from left to right.

A diagram showing a vertical shaft with a central cable. A pulley system is mounted on the shaft, and a cable is shown passing over the pulley. The cable is labeled 'CABLE'.

Diagram illustrating a wall outlet configuration. A twist lock receptacle (Hubbell # 7502) is shown mounted on a wall. A surface mount box (1700) is connected to the twist lock receptacle. The twist lock receptacle is labeled "TWIST LOCK RECEPT. HUBBELL # 7502". The surface mount box is labeled "SURFACE MOUNT BOX FITTINGS, NATIONAL ELECTRIC # 1700". The twist lock receptacle is connected to a 120V. A.C. 10-400W receptacle (Hubbell # 7210-B). The twist lock receptacle is also connected to a 120V. A.C. 10-400W receptacle (Hubbell # 7210-B). The twist lock receptacle is connected to a 120V. A.C. 10-400W receptacle (Hubbell # 7210-B). The twist lock receptacle is connected to a 120V. A.C. 10-400W receptacle (Hubbell # 7210-B).

SECTION E1 NOT TO SCALE										E1 A					
BULLDOG PDS 12-84										FEED 110V 25A MFG. S&W					
PANEL "DB"															
LOCATION: 3															
										WATTAGE					
										A	B				
E	B	L70	REC	MIS	CH	SEA	A	B	REV	CH	MIS	REC	L70		LOCATION
500		1	1	20			1	2	10				1500		WATER HEATER
500		1	2				1	2	4	1			5400		STOVE
500		1	2				1	2	4				570		FILM
500		1	2				1	2	4				500		2500 WATT BULBS
500		1	2				1	2	10				500		SPACE
500		1	2				1	2	12				5400		WATT/FRIDGE

4 TO AMP 900000

IT NIPPLES

SURFACE PLUG & FITTINGS, NATIONAL ELECTRICAL #1700

120V. A.C. 115-400W. RECEPT. HUBBELL #7210-15

WALL

CONDUIT TREE

TWIST LOCK RECEPT. HUBBELL #7502

TO 120V. A.C. 400-800W. INVERTER

TO 120V. A.C. 400-500W. INVERTER

TO 120V. A.C. REGULATOR

JUNG, 90X

PANEL "PB"		FEED "LVS" SW	
LOCATION		MTG SURFACE	
LOC	WATTAGE	LOC	WATTAGE
1000	1000	1000	1000
8400	8400	8400	8400
270	270	270	270
400	400	400	400
500	500	500	500
2270	2270	2270	2270
6300	6300	6300	6300

1. ALL AIR CONDITIONING CONTROLS, DISCONNECTS, THERMOSTATS, POWER STAYS, ETC. ARE FURNISHED BY OTHERS, EXCEPT THE TWO FUSED DISCONNECT SWITCHES (SHOWN IN MECHANICAL ROOM) WHICH ARE FURNISHED & INSTALLED BY THIS CONTRACTOR.
2. ALL LINE VOLTAGE CONDUIT (220V. OR OVER) & WIRING FOR THE AIR CONDITIONING SYSTEM SHALL BE FURNISHED & INSTALLED BY THIS CONTRACTOR.
3. THIS CONTRACTOR SHALL FURNISH CONDUIT ONLY (UNDRERGROUND) AND WIRING FOR LOW VOLTAGE AIR CONDITIONING WIRING (UNDER 220V).
4. FURNISH & INSTALL ALL LIGHTING FIXTURES, CONVENIENCE OUTLETS, SWITCHES & WIRING AS SHOWN REQD.
5. FURNISH & INSTALL A COMPLETE SPECIAL VOLTAGE DISTRIBUTION SYSTEM, INCLUDING ALL WIRING, SWITCHES, THERMOSTATS, & CONTROLS REQUIRED FOR A COMPLETE OPERABLE SYSTEM.
6. FURNISH & INSTALL (1) 250 KVA DISTRIBUTION TRANSFORMER AS SHOWN, INCLUDING ALL STRUCTURAL FRAMEWORK REQUIRED FOR MOUNTING & CONNECTION.
7. ALL MATERIAL & WIRING SHOWN ON THIS PLAN IS NEW & EXCEPT WHERE SHOWN OTHERWISE IS IDENTIFIED OR CALLED OUT BY NOTE "A" ABOVE.
8. ALL ELECTRICAL MATERIAL SHALL BE NEW & CARRY THE UNDERWRITERS LABORATORIES LABEL, WHERE SUCH SERVICE IS REGULARLY FURNISHED. ALL CONDUIT SHALL BE RIGID, STEEL, BLACK OR GALV. UNLESS NOTED EXCEPT CONDUIT FOR LIGHTING CIRCUITS, LESS THAN 1/2" THROUGH SIZE WHICH MAY BE EMT. FINAL CONNECTIONS TO OUTDOOR LIGHTS SHALL BE MADE ON THIS PLAN. WIRING SHALL BE MADE WITH FLEXIBLE CONDUIT.
9. ALL WORK SHALL BE ACCOMPLISHED IN A NEAT WORKMANLIKE MANNER, IN STRICT ACCORDANCE WITH THE PROVISIONS OF THE ELECTRICAL CODE OF THE STATE OF CALIFORNIA & THE SAFETY ORDINANCES OF THE STATE OF CALIFORNIA.

[illegible]

SERIAL NO.	DESCRIPTION	WATTS	MFR. & CAT. NO.
①	FLUORESCENT SURFACE MOUNT, 4'-0" LONG, W/ PLASTIC COVER & SIDEG. (2) F40T12-G1 LAMPS & ETL-CBM BALLAST	400	LITHONIA = CTL-439
②	FLUORESCENT SURFACE MTR 4'-0" LONG, W/ PLASTIC COVER & SIDEG. (2) F40T12 (RNDI STAGT) LAMPS	200	LITHONIA = CTL-440

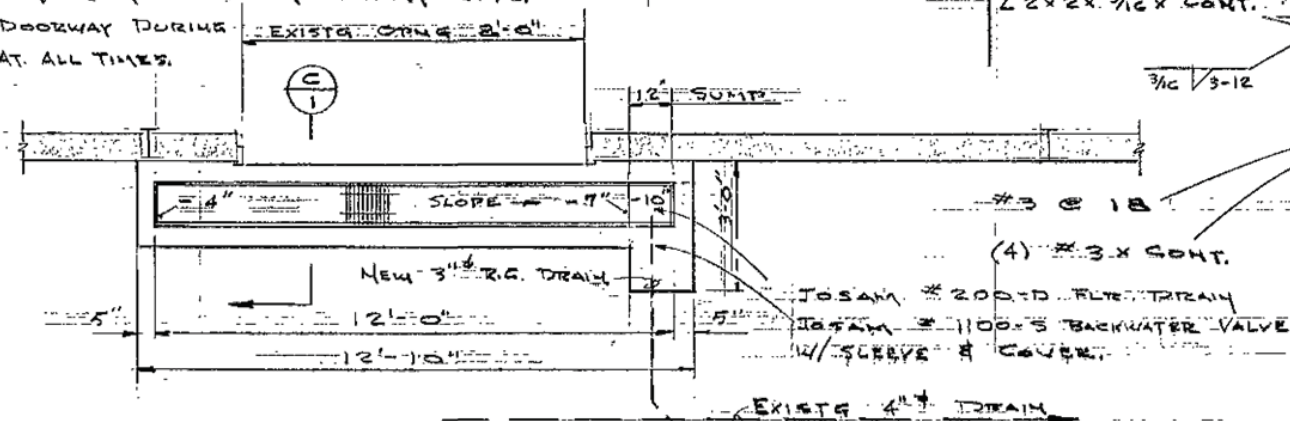
[illegible]

F R A N K L. H O P E & A S S O C I A T E S  
A R C H I T E C T S A N D E N G I N E E R S  
S A N D I E G O C A L I F O R N I A

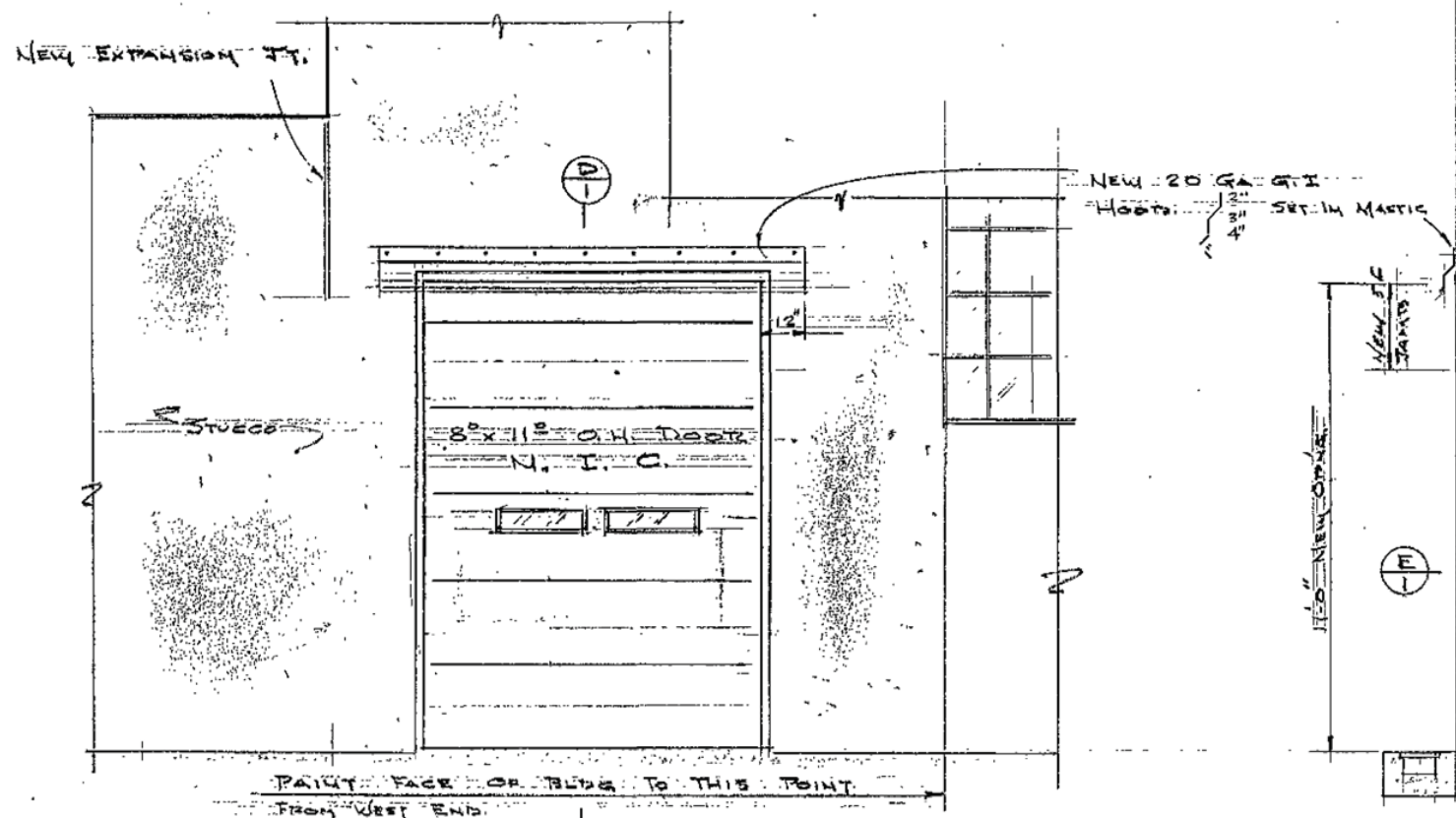
Building 180 - 15 of 31



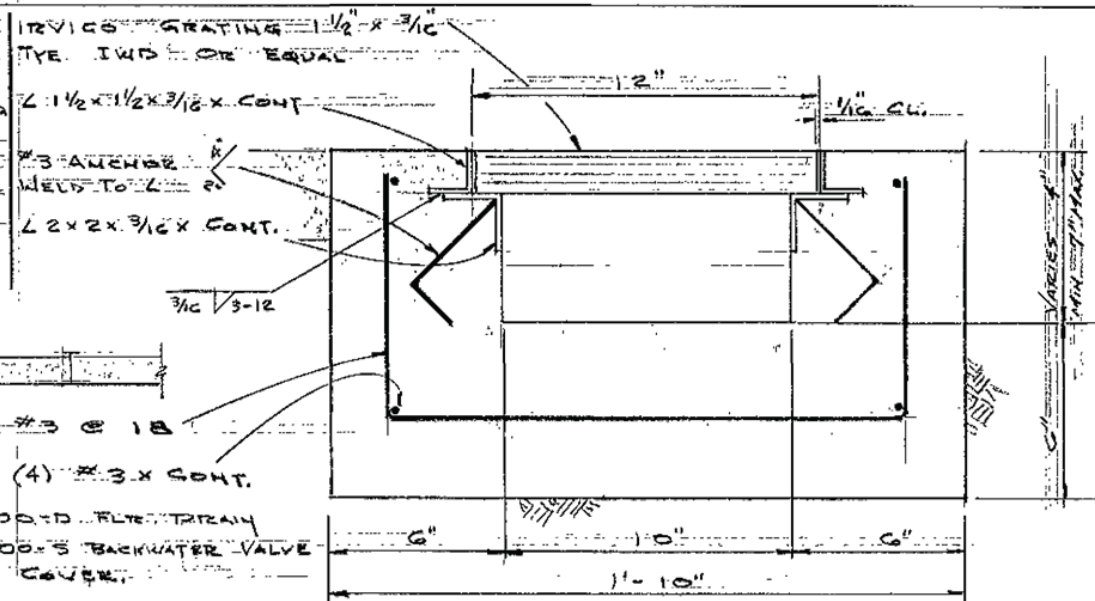
REMOVE EXISTG DOOR, TRACK & WOOD.  
BREAKOUT FOR 115" HIGH SPRUE & INSTALL JAMB & TRIM, PATCH CORN. & STUCCO.  
BREAKOUT & INSTALL TRENCH, GRATING, FLR DRAIN, BACKWATER VALVE & DRAIN LINE. PATCH & AS REQ.  
INSTALL EXPANSION JT. AND PATCH ALL HOLES IN FACE OF SOUTH WALL IN PAINTED AREA.  
PAINT EXTERIOR WALL & ALL NEW WORK TO MATCH EXISTG.  
OVERHEAD DOOR NOT IN CONTRACT.  
CLEAN UP RUBBLE & REMOVE FROM PLANT SITE.  
PROVIDE COVER FOR DOORWAY DURING  
INCLEMENT WEATHER AT ALL TIMES.



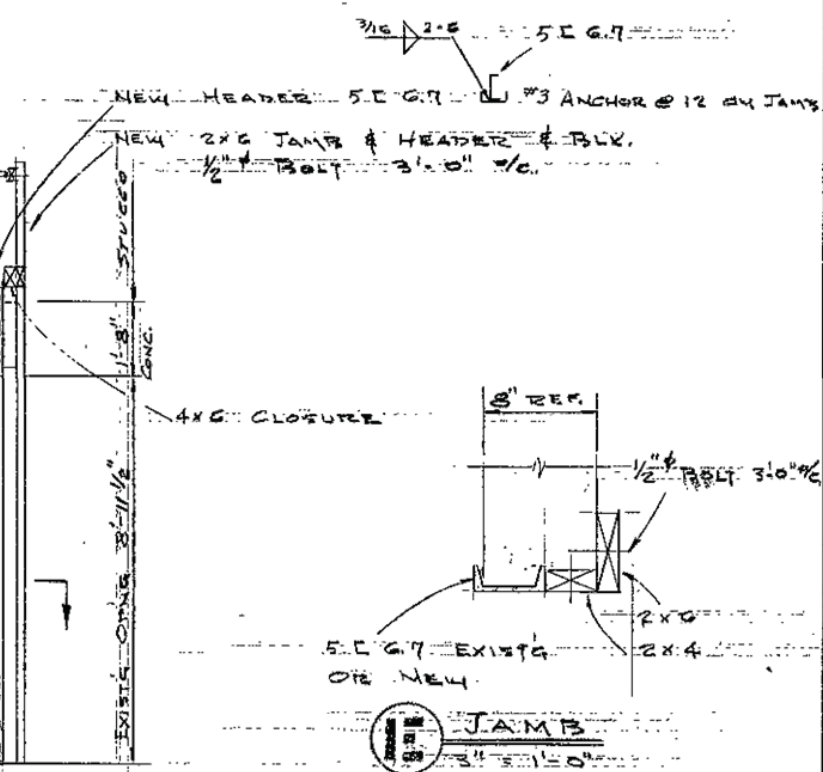
PLAN



13 ELEVATION  $\frac{3}{8}'' = 1.504$



SECTION TRENCH



1- JAMB  
34-1-0

SECTION

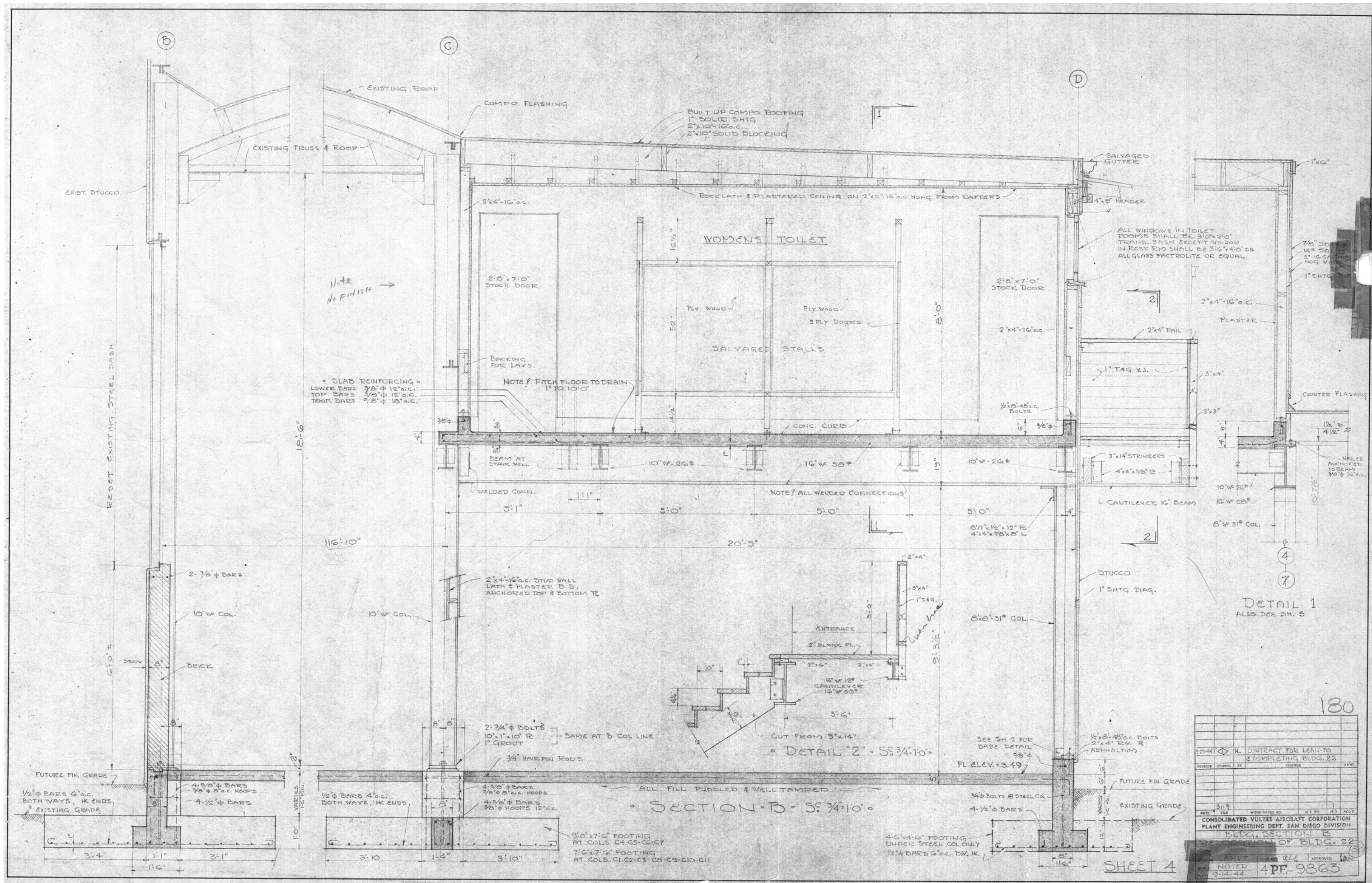
[illegible]

SUBASY	PART	DESCRIPTION	SIZE	MAT'L	REQ'D	CODE
BILL OF MATERIAL						NO. SHORTAGE REPORTS REQ'D.
RYAN AERONAUTICAL COMPANY PLANT ENGINEERING DEPARTMENT SAN DIEGO, CALIFORNIA						
SCALE	DATE	DRAFTSMAN	DESIGNER	CHECKED	APPROVED	DATE
NOTES	11-17-66	AYLWARD			<i>[Signature]</i>	11-19-66
ENLARGE DOORWAY ON SOUTH SIDE BLDG. 180 8'0" x 11'0"						50-30-3990 SHEET OF SHVS. DWG. SIZE 11" x 17"
UNLESS SPECIFICALLY NOTED TOLERANCES ARE TO BE FRACTION $\pm 1/16$ DECIMAL $\pm .005$ ANGULAR $\pm 3^\circ$				PART NO.		FILE NO.
BREAK ALL SHARP EDGES						1-2305







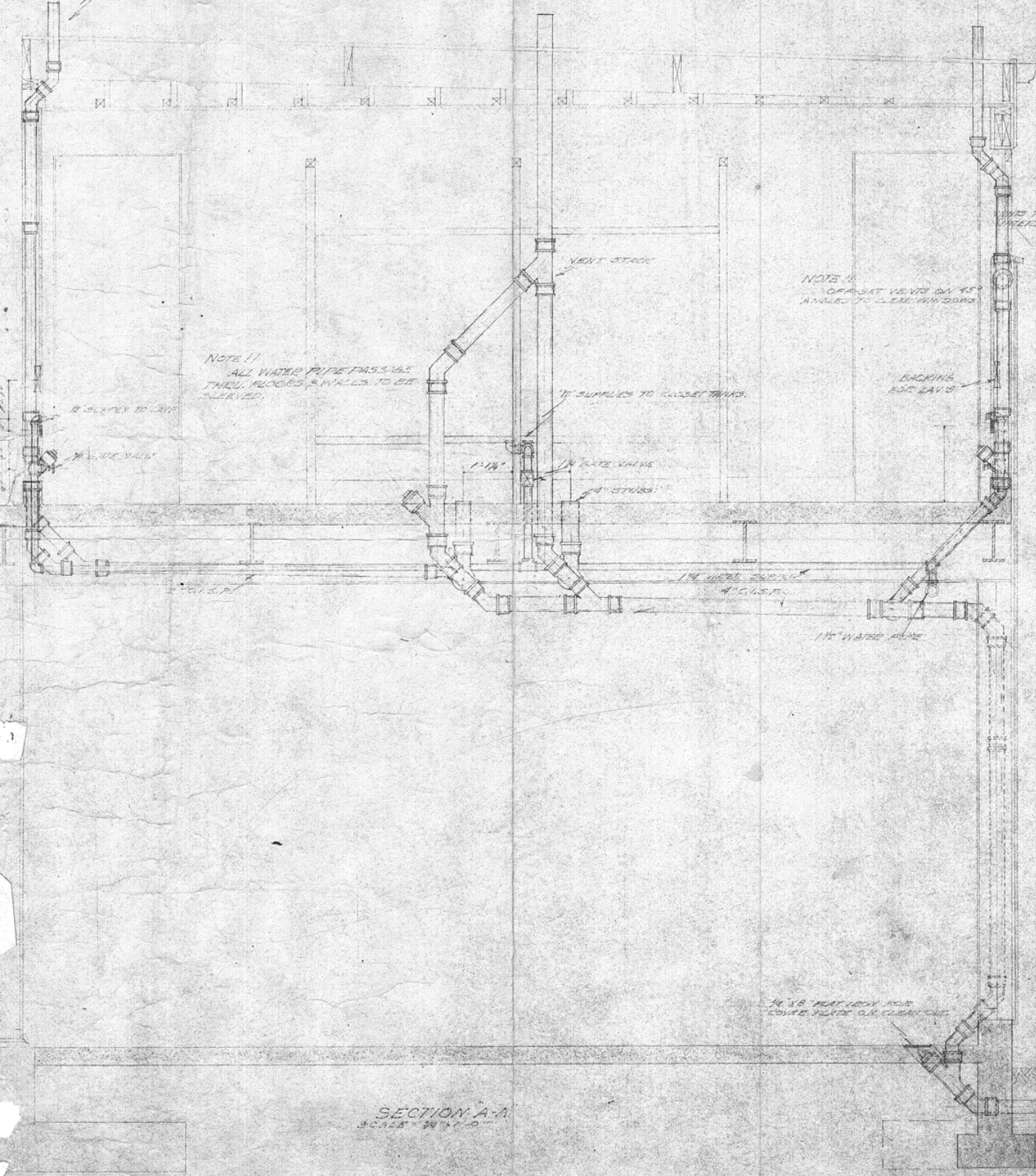


180

DATE	FILE	CONTRACT FOR LEAN-TO & COMPLETING BLDG. 22	BY	CHARGE	APPROV.
3/19					
CONSOLIDATED VULTEE AIRCRAFT CORPORATION PLANT ENGINEERING DEPT. SAN DIEGO DIVISION BLDG. SECTION B RELOCATION OF BLDG. 22					
DATE	FILE	WORK ORDER NO.	A.E. NO.	REV.	NOTED
3/19					
NOTED 4 PF. 9863					



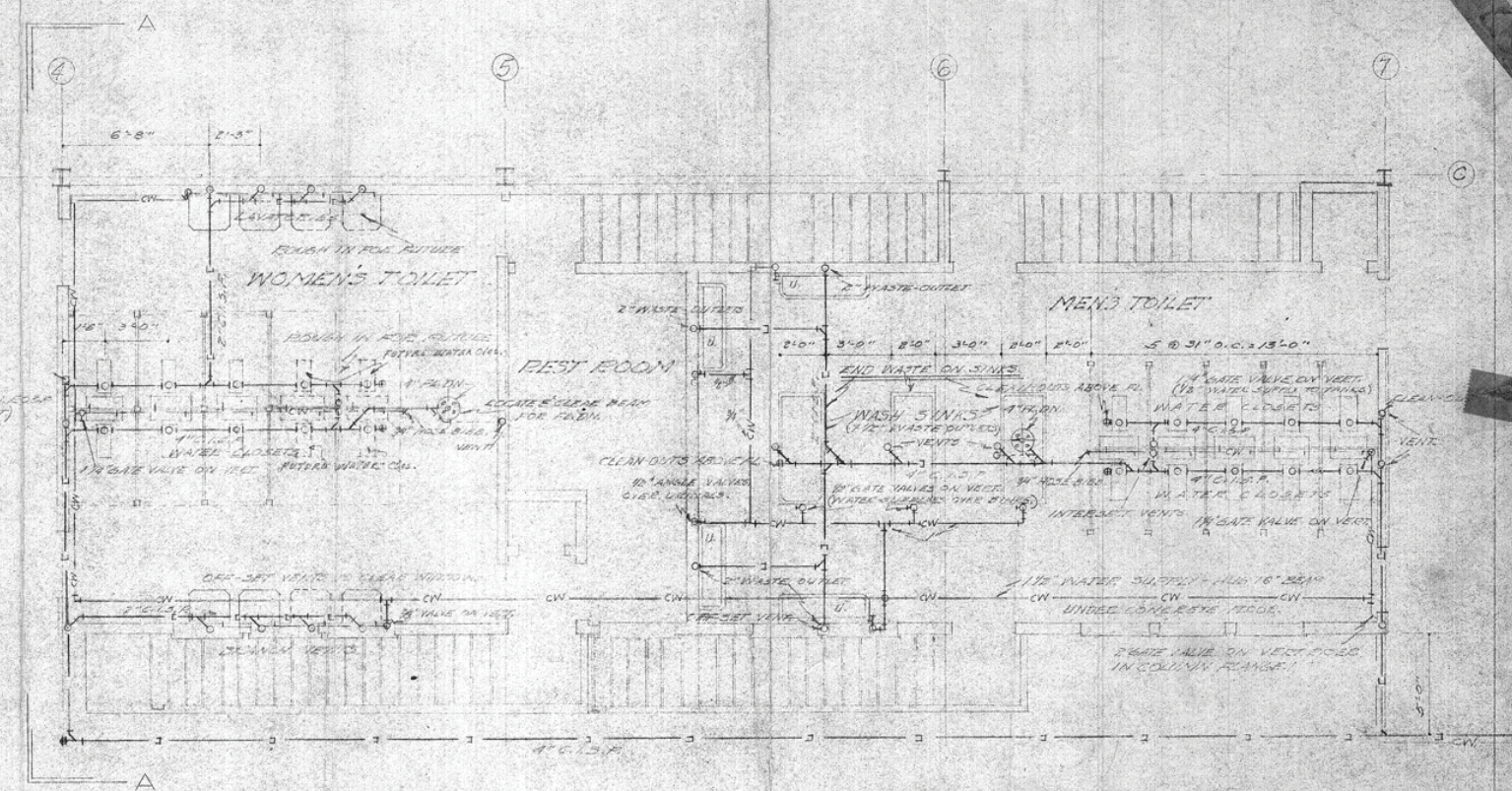
NOTE II  
 PROVIDE GAIN FROM PLUMBING  
 FOR ALL ROOF VENTS



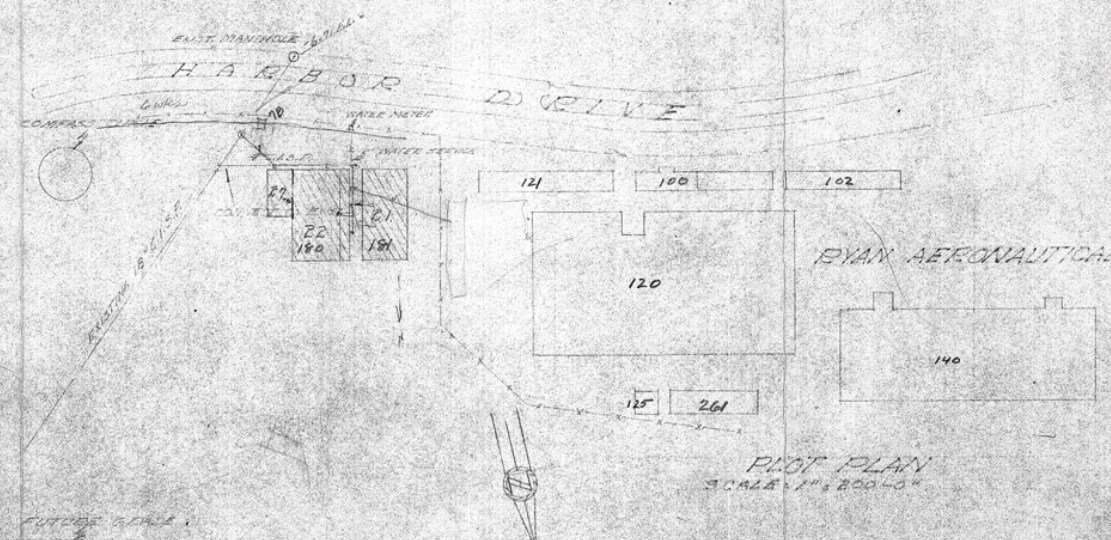
NOTE II  
 ALL WATER PIPE PASSING  
 THROUGH FLOORS & WALLS TO BE  
 FLANGED.

NOTE II  
 OFF-SET VENTS ON 45°  
 ANGLES TO CLEAR HANG DOWN

SECTION A-A  
 SCALE 1/4" = 1'-0"



SECOND FLOOR TOILET PLAN  
 SCALE 1/4" = 1'-0"  
 ALL PLUMBING SHALL CONFORM TO THE REQUIREMENTS OF THE  
 ORDINANCE OF THE CITY OF SAN DIEGO.

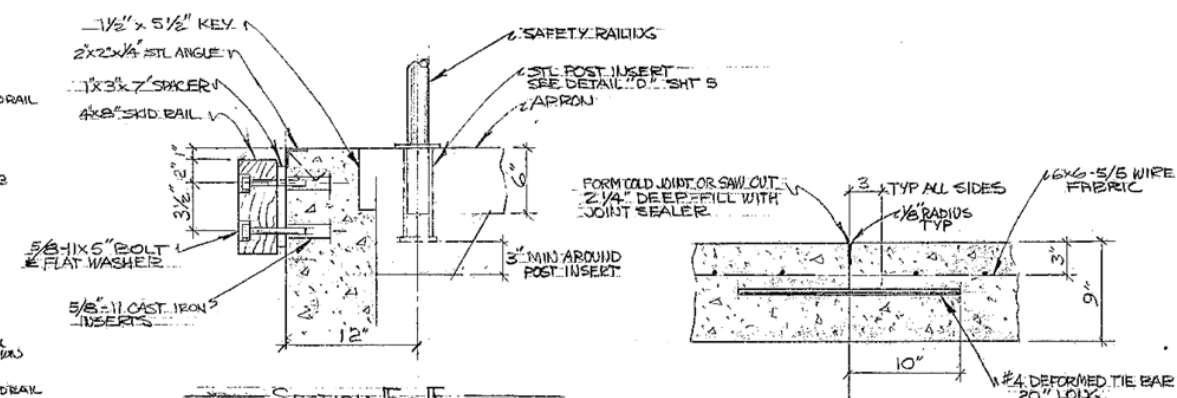
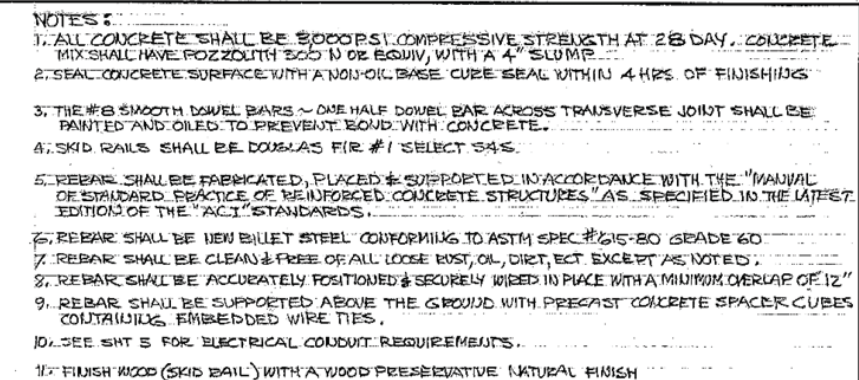


PLOT PLAN  
 SCALE 1/4" = 200'-0"

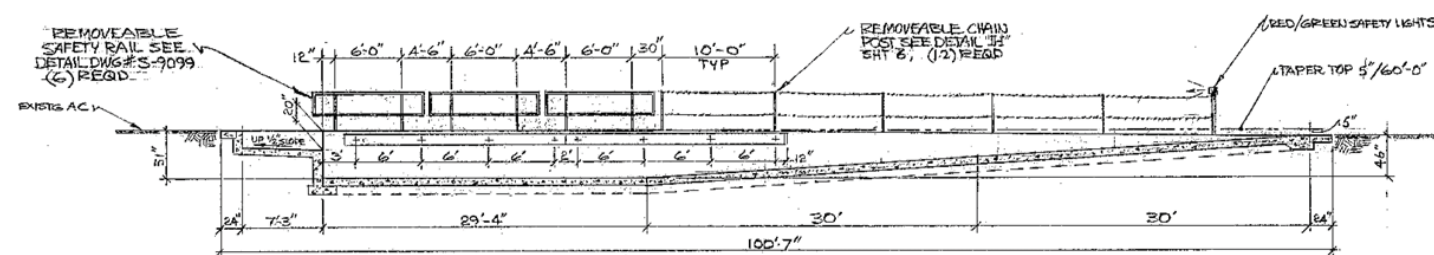
GENERAL NOTES II  
 THE DRAWINGS ARE PRELIMINARY BUT SHALL BE FOLLOWED  
 AS CLOSELY AS PRACTICAL CONSTRUCTION AND THE WORK  
 OF OTHER TRADES WILL BE MADE.  
 CHECK IN FIELD WITH OTHER TRADES FOR INTERFERENCE  
 BEFORE INSTALLATION.  
 TIE AND WRAP ALL UNDER GROUND WATER PIPE.  
 ORIGINAL PLUMBING MATERIALS IN BUILDING ARE TO BE RE-INSTALLED.  
 THESE MATERIALS ARE STORED ON SITE AT NEW LOCATION.  
 RE-USE ALL BOIL PIPE AND FITTINGS IN PLACE.

DRAWN BY		CHECKED BY	
DATE		DATE	
CONSOLIDATED VALVE & PIPE CO. INC.			
PLANT ENGINEERING DEPT. SAN DIEGO, CALIF.			
PLUMBING - MEN'S & WOMEN'S			
SECOND FLOOR TOILET			
PLAN OF BUILDING NO. 120			
DRAWN BY J. H. HARRIS			
SCALE 1/4" = 200'-0"			
DATE 12-26-44			

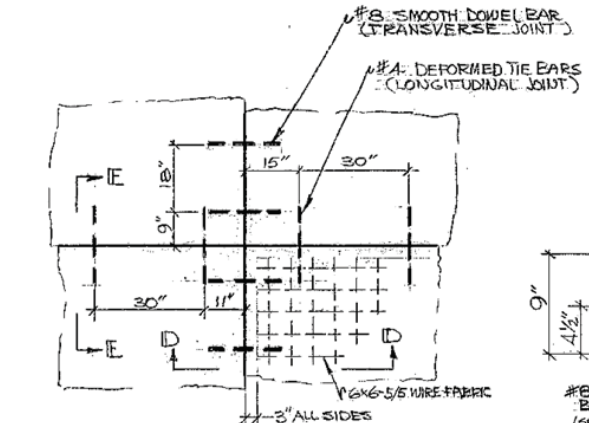




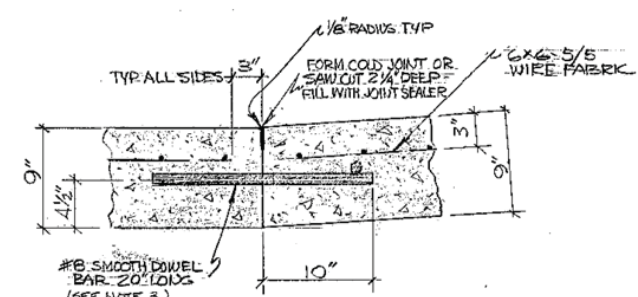
PLAN VIEW  
SCALE 1/8" = 1'-0"



(B) — ELEV. SECTION VIEW  
SCALE 1/8" = 1'-0"



VIEW C  
SCALE 1/4" = 1'-0"

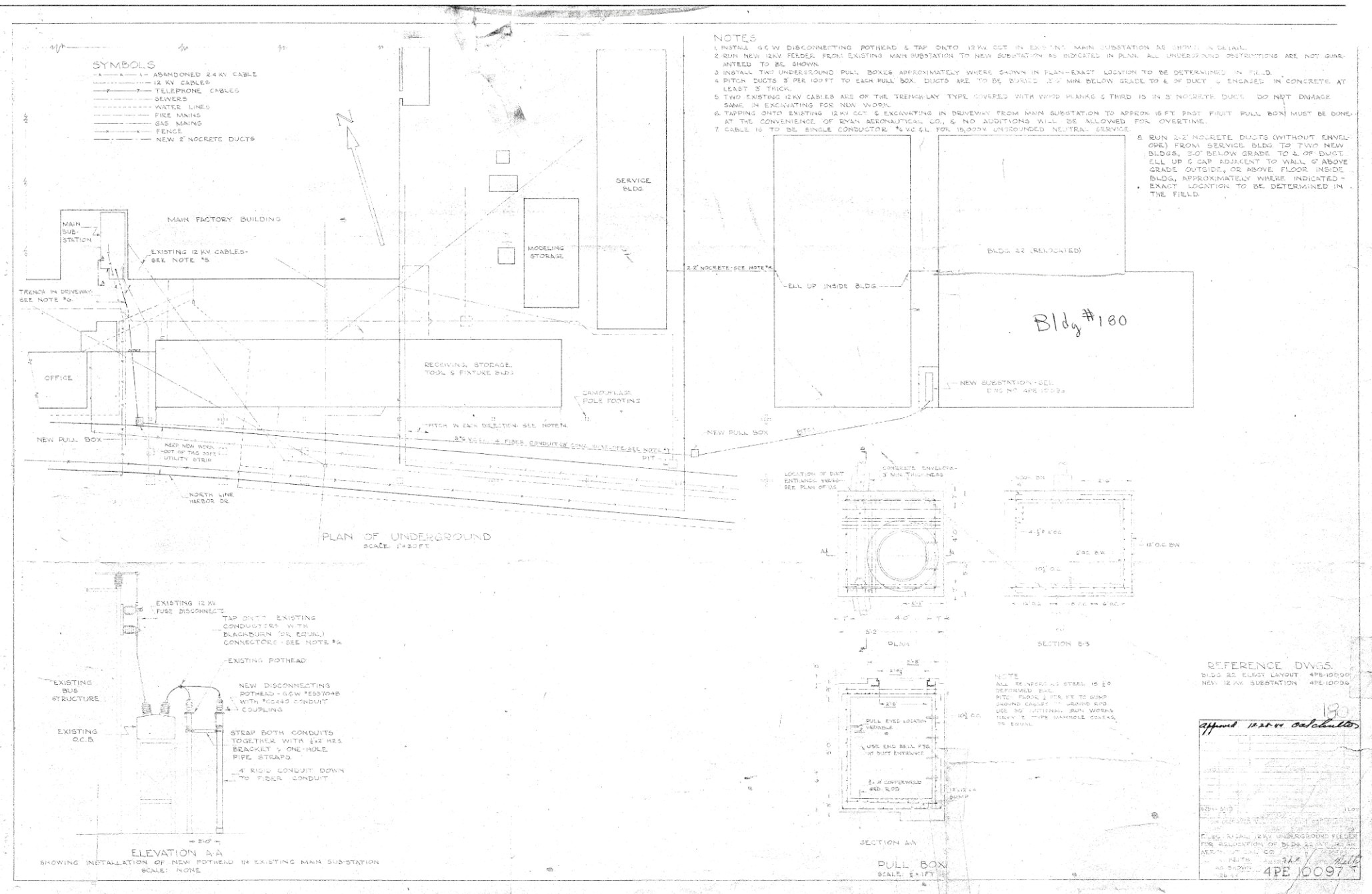


SECTION D-D  
SCALE  $1\frac{1}{2}" = 1'-0"$

SUBSIST. PART	DESCRIPTION	SIZE	MATL.	QTY.	CODE
BILL OF MATERIAL					
*TELETYPE RYAN AERONAUTICAL PLANT ENGINEERING DEPARTMENT 2701 HARBOR DRIVE, SAN DIEGO, CALIFORNIA 92112					
SCALE	DATE	DRAFTSMAN	DESIGNER	CHECKED	APPROVED
NOTED	3-20-64	E. EDMAN	J. MYERS	4-6-64	R.C.H. 294
LOADING DOCK FOR SHIPPING PLAN VIEW, ELEV. & DETAILS					I.W.O. 54-70-364 SHEET OF SHIS. DWG. SIZE D
UNLESS SPECIFICALLY NOTED TOLERANCES ARE TO BE FRACTION ± 1/16    DECIMAL ±    ANGULAR ±				PART NO./A.F.E.	FILE NO.
				B-14591	2757

REV.#	NATURE OF REVISION	D'FTSMAN	CHECKER	APPROVED	DATE
-------	--------------------	----------	---------	----------	------





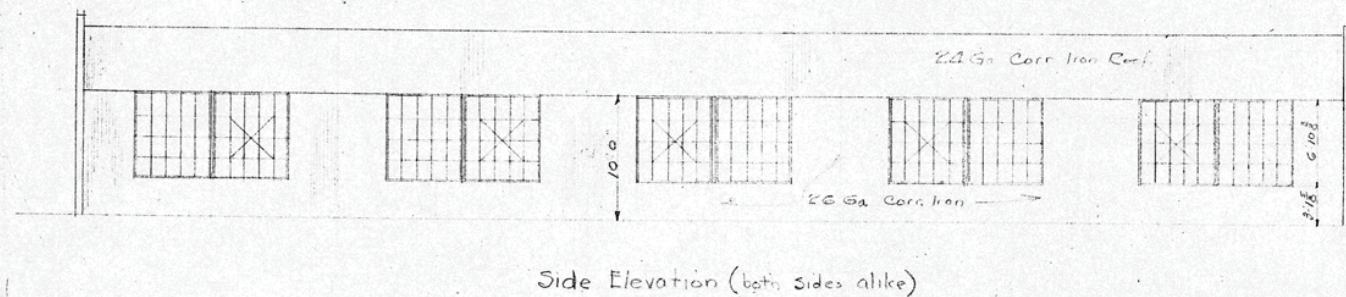
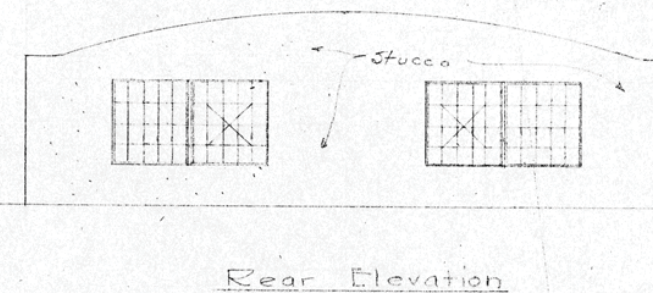
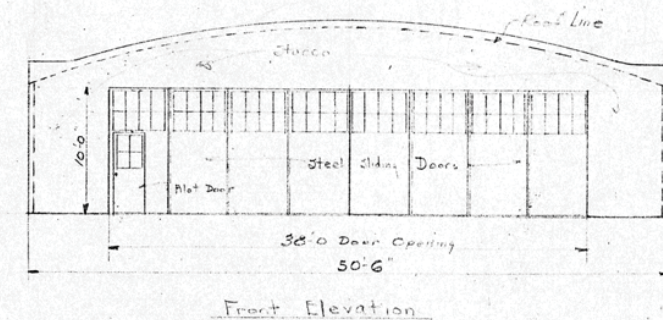
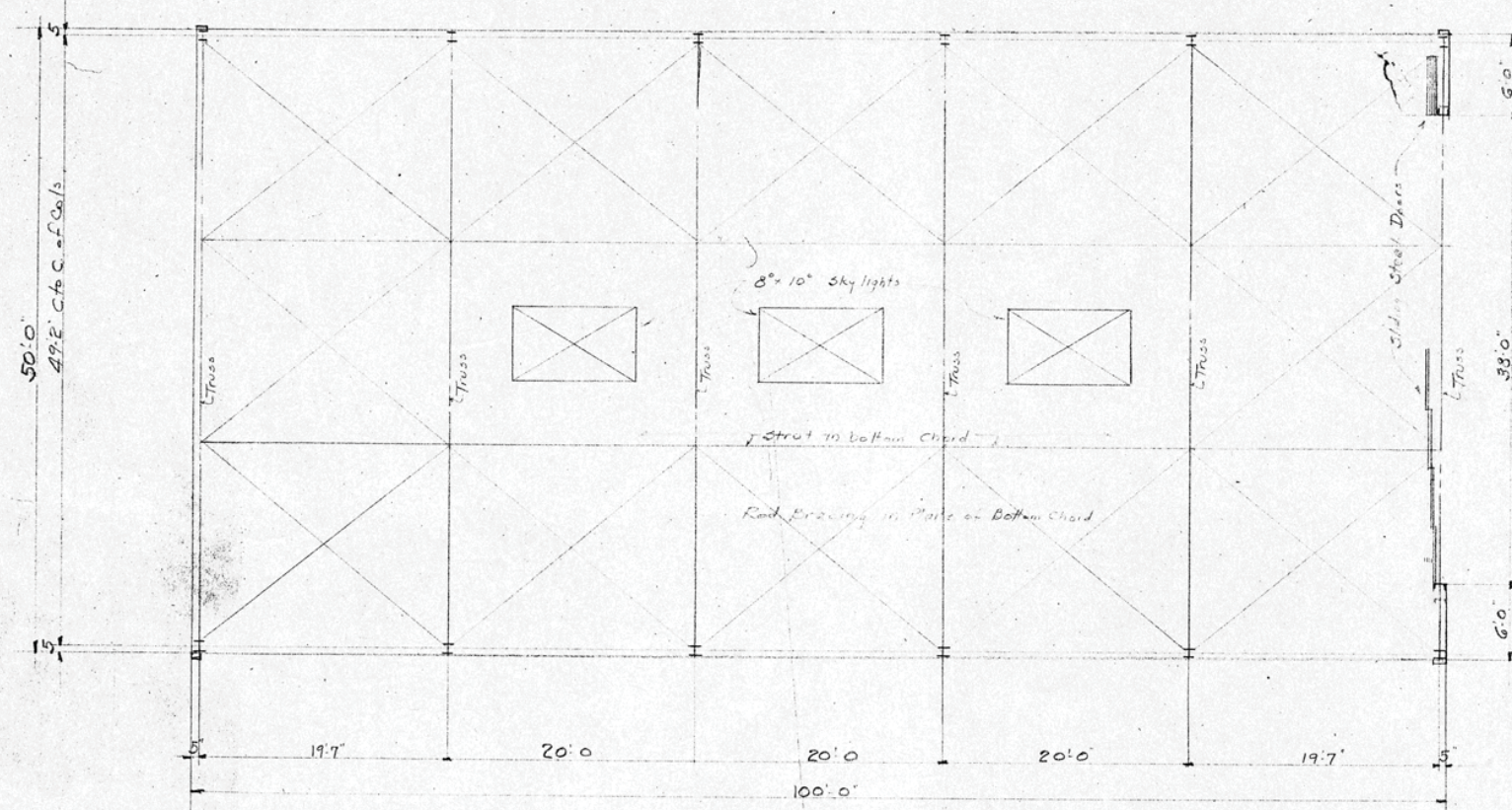








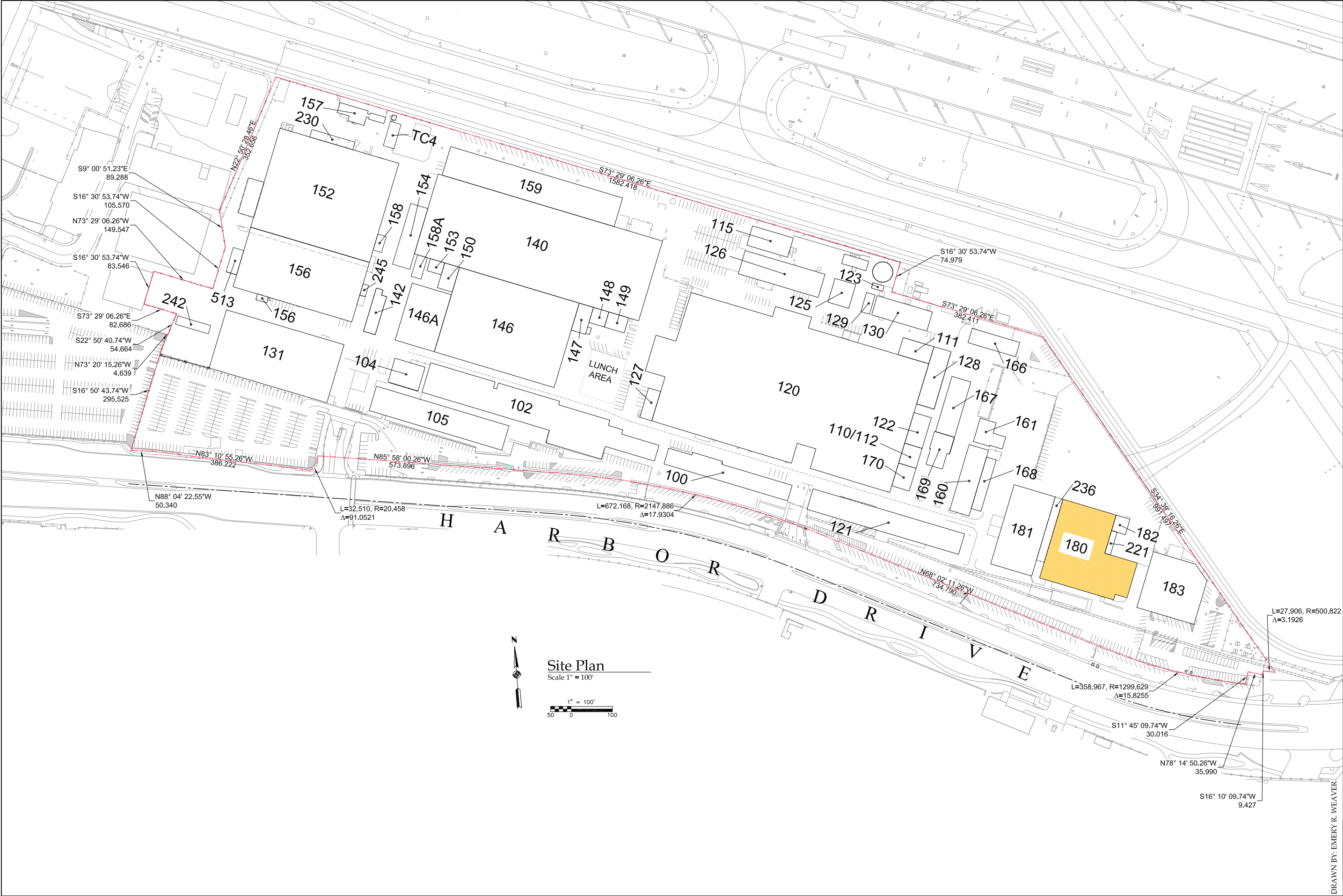




#100 East Add

NATIONAL IRON WORKS  
SAN DIEGO  
Proposed Shop Bldg. for  
Ryan School of Aeronautics.



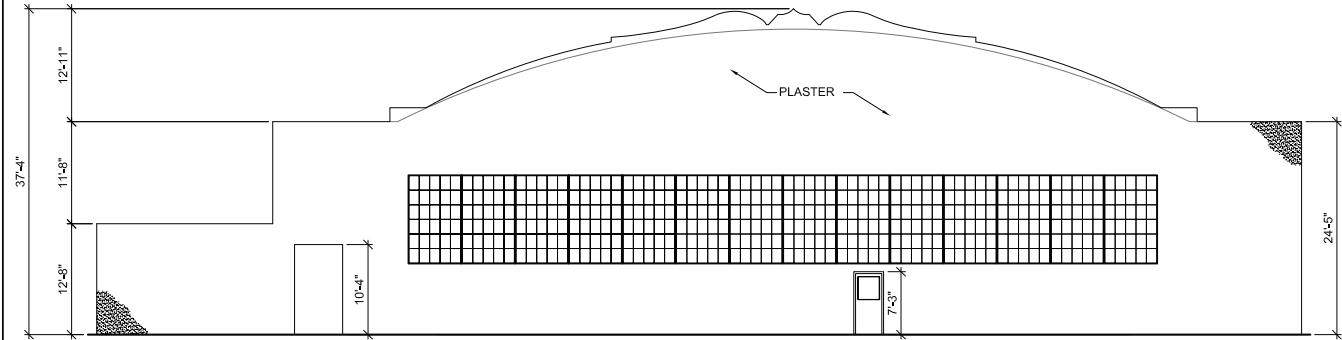


Library of Congress Index Number	HISTORIC AMERICAN BUILDINGS SURVEY	SURVEY NO.	SHEET 1 OF 4 SHEETS	SAN DIEGO COUNTY	NAME AND LOCATION OF STRUCTURE <b>BUILDING 180 - EXPERIMENTAL/RECEIVING AND ASSEMBLY BUILDING</b> SAN DIEGO, CALIFORNIA	2701 N. HARBOR DRIVE	DRAWN BY: EMERY R. WEAVER	RYAN AERONAUTICAL COMPANY HISTORIC DISTRICT JANUARY 2010

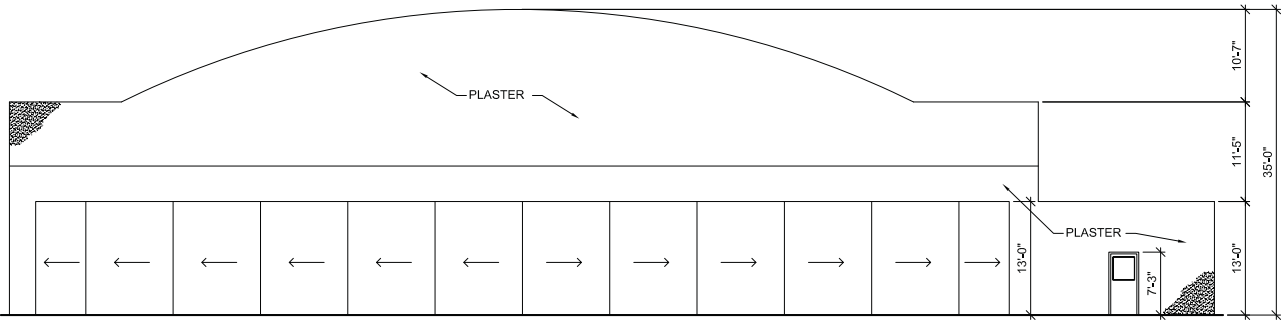




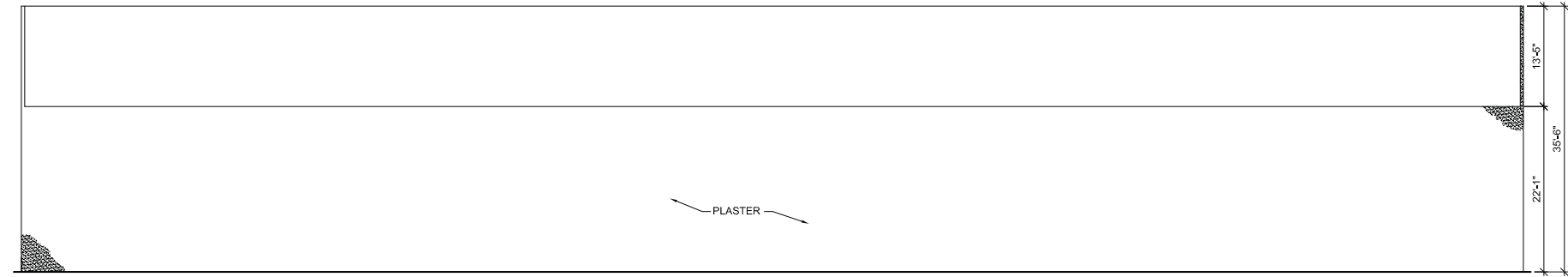




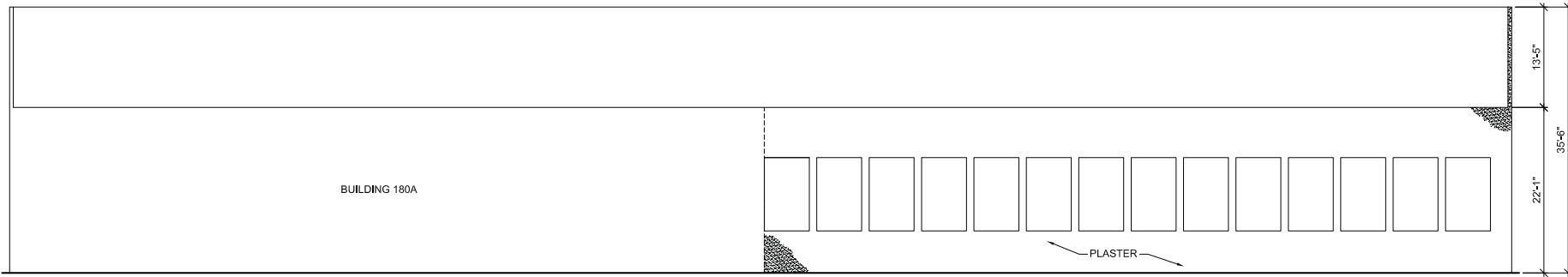
South Elevation  
Scale 1/8" = 1'-0"



North Elevation  
Scale 1/8" = 1'-0"



East Elevation  
Scale 1/8" = 1'-0"



West Elevation  
Scale 1/8" = 1'-0"

DRAWN BY: EMERY R. WEAVER

RYAN AERONAUTICAL COMPANY  
HISTORIC DISTRICT  
JANUARY 2010

BUILDING 180 - EXPERIMENTAL/RECEIVING  
AND ASSEMBLY BUILDING

2701 N. HARBOR DRIVE

SAN DIEGO, CALIFORNIA

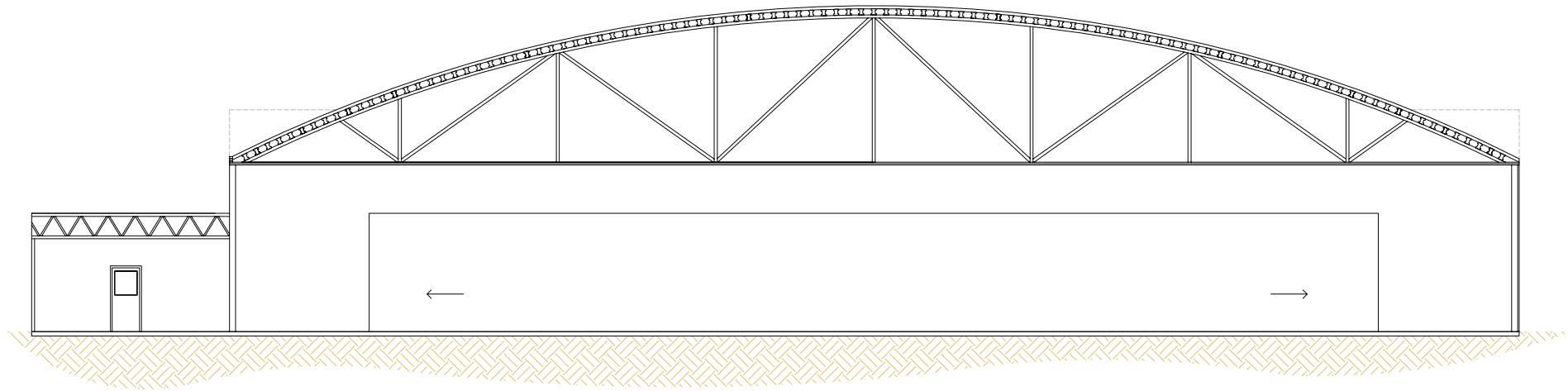
SAN DIEGO COUNTY

SURVEY NO.  
SHEET 3 OF  
4 SHEETS

HISTORIC AMERICAN  
BUILDINGS SURVEY

Library of Congress  
Index Number





Section  
Scale 1/8" = 1'-0"

DRAWN BY: EMERY R. WEAVER

RYAN AERONAUTICAL COMPANY  
HISTORIC DISTRICT  
JANUARY 2010

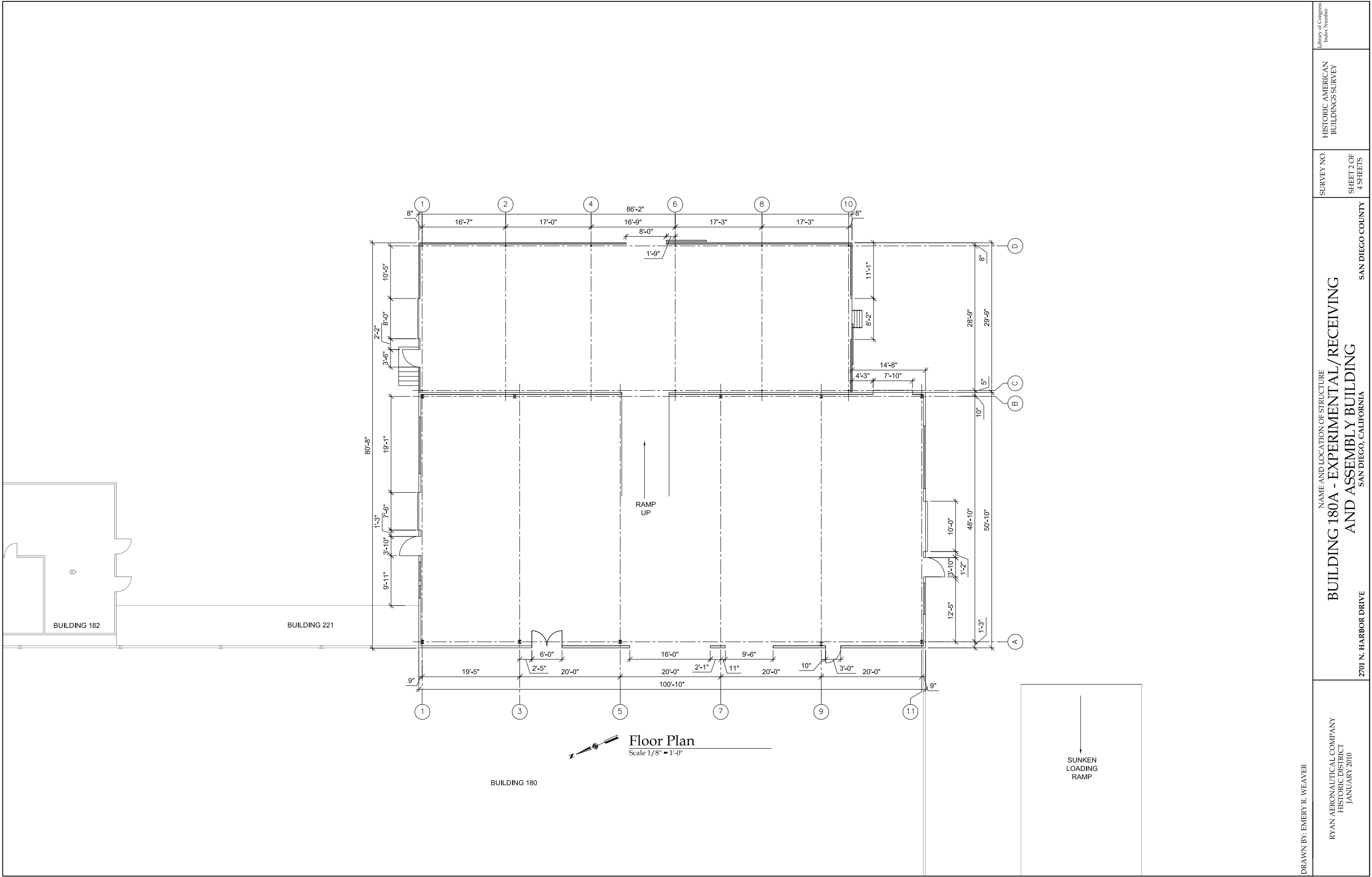
NAME AND LOCATION OF STRUCTURE  
**BUILDING 180 - EXPERIMENTAL/RECEIVING  
AND ASSEMBLY BUILDING**  
2701 N. HARBOR DRIVE      SAN DIEGO, CALIFORNIA      SAN DIEGO COUNTY

SURVEY NO.  
SHEET 4 OF  
4 SHEETS

HISTORIC AMERICAN  
BUILDINGS SURVEY

Library of Congress  
Index Number





DRAWN BY: EMERY R. WEAVER

RYAN AERONAUTICAL COMPANY  
HISTORIC DISTRICT  
JANUARY 2010

**BUILDING 180A - EXPERIMENTAL/RECEIVING  
AND ASSEMBLY BUILDING**

2701 N. HARBOR DRIVE

SAN DIEGO, CALIFORNIA

SAN DIEGO COUNTY

NAME AND LOCATION OF STRUCTURE

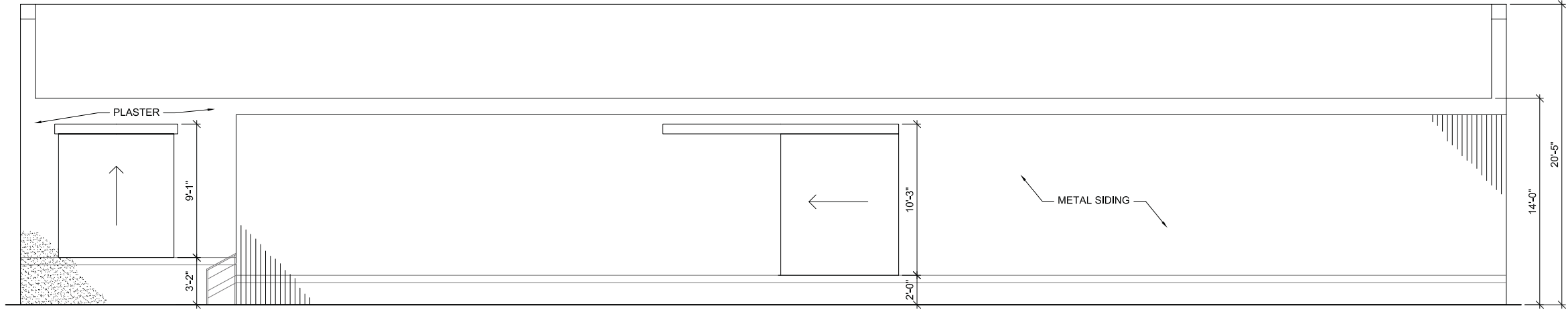
SURVEY NO.

HISTORIC AMERICAN  
BUILDINGS SURVEY

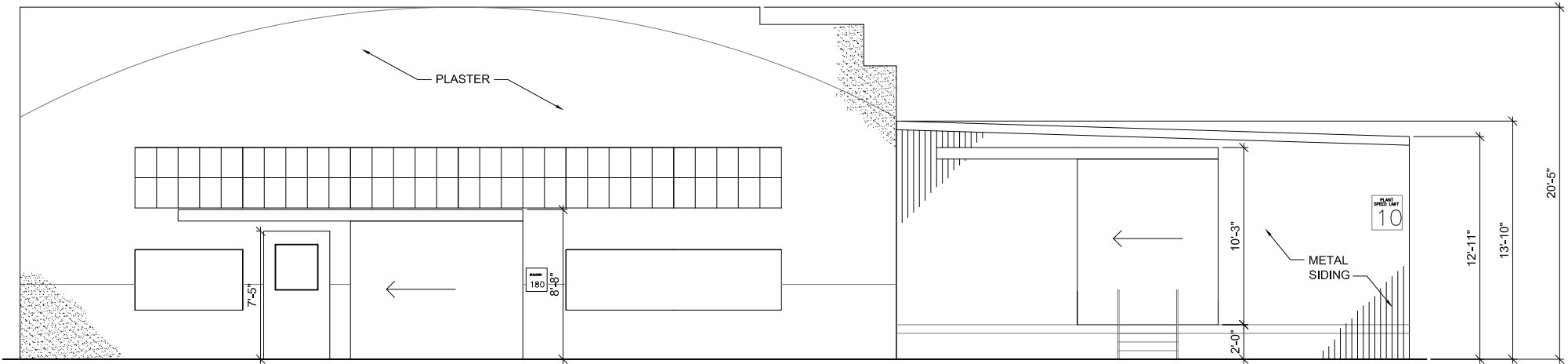
Library of Congress  
Index Number

SHEET 2 OF  
4 SHEETS

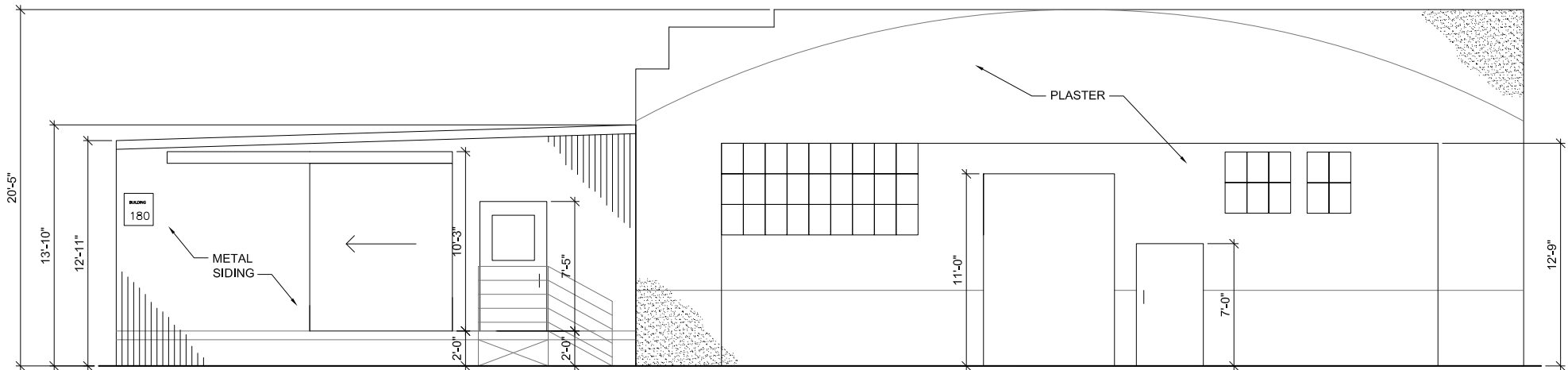




East Elevation  
Scale 1/4" = 1'-0"



South Elevation  
Scale 1/4" = 1'-0"



North Elevation  
Scale 1/4" = 1'-0"

DRAWN BY: EMERY R. WEAVER

RYAN AERONAUTICAL COMPANY  
HISTORIC DISTRICT  
JANUARY 2010

NAME AND LOCATION OF STRUCTURE  
**BUILDING 180A - EXPERIMENTAL/RECEIVING  
AND ASSEMBLY BUILDING**  
SAN DIEGO, CALIFORNIA

2701 N. HARBOR DRIVE

SAN DIEGO COUNTY

SURVEY NO.  
SHEET 3 OF  
4 SHEETS

HISTORIC AMERICAN  
BUILDINGS SURVEY

Library of Congress  
Index Number



DRAWN BY: EMERY R. WEAVER

RYAN AERONAUTICAL COMPANY  
HISTORIC DISTRICT  
JANUARY 2010

2701 N. HARBOR DRIVE

SAN DIEGO, CALIFORNIA

SAN DIEGO COUNTY

NAME AND LOCATION OF STRUCTURE  
BUILDING 180A - EXPERIMENTAL/RECEIVING  
AND ASSEMBLY BUILDING

SURVEY NO.  
SHEET 4 OF  
4 SHEETS

HISTORIC AMERICAN  
BUILDINGS SURVEY

Library of Congress  
Index Number

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

