NPS Form 10-900 OMB No. 1024-0018

United States Department of the Interior
National Park Service
National Register of Historic Places Registration Form

1. Name of Property

Historic Name: Cameron Iron Works
Other name/site number: Cameron Iron Works at 711 Milby Street
Name of related multiple property listing: NA

2. Location

Street & number: 711 Milby Street
City or town: Houston State: Texas County: Harris
Not for publication: ☐ Vicinity: ☐

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this ☑ nomination ☐ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property ☑ meets ☐ does not meet the National Register criteria.

I recommend that this property be considered significant at the following levels of significance:
☐ national ☐ statewide ☑ local

Applicable National Register Criteria: ☑ A ☐ B ☑ C ☐ D

Mark Wolfe State Historic Preservation Officer 12/16/19
Signature of certifying official / Title **Date**

Texas Historical Commission
State or Federal agency / bureau or Tribal Government

In my opinion, the property ☐ meets ☐ does not meet the National Register criteria.

Signature of commenting or other official **Date**

State or Federal agency / bureau or Tribal Government

4. National Park Service Certification

I hereby certify that the property is:

___ entered in the National Register
___ determined eligible for the National Register
___ determined not eligible for the National Register.
___ removed from the National Register
___ other, explain: _____

Signature of the Keeper **Date of Action**

5. Classification

Ownership of Property

x	Private
	Public – Local
	Public – State
	Public – Federal

Category of Property

x	building(s)
	district
	site
	structure
	object

Number of Resources within Property

Contributing	Noncontributing	
1	0	buildings
0	0	sites
0	0	structures
0	0	objects
1	0	total

Number of contributing resources previously listed in the National Register: NA

6. Function or Use

Historic Functions: INDUSTRY/PROCESSING/EXTRACTION: manufacturing facility, industrial storage

Current Functions: WORK IN PROGRESS

7. Description

Architectural Classification: EARLY MODERN/Art Deco
OTHER/Industrial, Warehouse

Principal Exterior Materials: BRICK, CONCRETE, METAL

Narrative Description (see continuation sheets 7 to 10)

8. Statement of Significance

Applicable National Register Criteria: A, C

Criteria Considerations: NA

Areas of Significance: INDUSTRY, INVENTION, ARCHITECTURE

Period of Significance: 1935 – 1946

Significant Dates: 1935, 1946

Significant Person (only if criterion b is marked): NA

Cultural Affiliation (only if criterion d is marked): NA

Architect/Builder: Truscon Steel Company (Builder)

Narrative Statement of Significance (see continuation sheets 11 to 18)

9. Major Bibliographic References

Bibliography (see continuation sheets 19 to 20)

Previous documentation on file (NPS):
- **x** preliminary determination of individual listing (36 CFR 67) has been requested. *Approved April 8, 2019.*
- _ previously listed in the National Register
- _ previously determined eligible by the National Register
- _ designated a National Historic Landmark
- _ recorded by Historic American Buildings Survey #
- _ recorded by Historic American Engineering Record #

Primary location of additional data:
- **x** State historic preservation office (*Texas Historical Commission*, Austin)
- _ Other state agency
- _ Federal agency
- _ Local government
- _ University
- **x** Other -- Specify Repository: Houston Metropolitan Research Center, Houston, Texas

Historic Resources Survey Number (if assigned): NA

10. Geographical Data

Acreage of Property: 1.4310 Acres

Coordinates

Latitude/Longitude Coordinates

Datum if other than WGS84: NA

1. Latitude: 29.744713°N Longitude: -95.339222°W

Verbal Boundary Description: Lots 1 through 12 and Tract 13 Block 13, Houston City Street Railway Section 1, Houston, Harris County, Texas.

Boundary Justification: The boundary includes the legal parcel historically associated with the property.

11. Form Prepared By

Name/title: Amanda Barry, with assistance from Anna Mod
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Date: March 2019

Additional Documentation

M**aps** (see continuation sheets 21 to 26)

Additional items (see continuation sheets 27 to 41)

Photographs (see continuation sheets 5-6, 42 to 62)

2019 Photographs

Name of Property:	Cameron Iron Works
City of Vicinity:	Houston
County:	Harris
State:	TX
Name of Photographer:	Amanda Barry
Date of Photographs:	February 2019
Location of Original Digital Files:	MacRostie Historic Advisors 20 N. Sampson Street, Suite 102 Houston, TX 77003

Photo 1
Exterior, site, west (front) elevation of Warehouse 2 and Warehouse 1 with styled office façade beyond, view northeast

Photo 2
Exterior, west (front) elevation of Warehouse 2, view east

Photo 3
Exterior, west (front) elevation of Warehouse 1 with styled office façade, view east

Photo 4
Exterior, north (side) elevation of Warehouse 1 and office, view southeast

Photo 5
Exterior, north (side) elevation of Warehouse 1, view southwest

Photo 6
Exterior, east (rear) elevation of Warehouse 1, view southwest

Photo 7
Exterior, east (rear) elevation of Warehouse 2, view west

Photo 8
Exterior, south (side) elevation of Warehouse 2, view northwest

Photo 9
Exterior, south (side) elevation of Warehouse 2, view northeast

Photo 10
Exterior, detail of central bay of styled office façade, view east

Photo 11
Exterior, south (side) elevation of Warehouse 2, detail of typical panels and windows, view north

Photo 12
Interior, first floor, office, view east

Photo 13
Interior, first floor, office, view northeast

Photo 14
Interior, first floor, office, view southeast towards Warehouse 2

Photo 15
Interior, second floor, office, original interior rear wall of office, view north

Photo 16
Interior, second floor, office, view south towards Warehouse 2

Photo 17
Interior, second floor, office, view southeast towards original interior rear wall

Photo 18
Interior, Warehouse 1, view east

Photo 19
Interior, Warehouse 1, view west towards office

Photo 20
Interior, Warehouse 2, view east

Photo 21
Interior, Warehouse 2, view west

Narrative Description

Cameron Iron Works (CIW) is located at 711 Milby Street in Houston, Texas. The property is an intact example of a as Series "B" – Type 3-M, an industrial commercial building manufactured by Truscon Steel Company.[1] The building is composed of two parallel, internally connected warehouses with a high-style administrative office façade on the older, northernmost building. The northernmost warehouse (Warehouse 1) dates to 1935 with the second, southernmost warehouse (Warehouse 2) was completed between 1940 and 1946.[2] The office façade on the western end of Warehouse 1 is characterized as a two-and-one-half-story, five bay, brick veneered façade with cast stone Art Deco-style detailing. In contrast, the primary elevation of Warehouse 2 is three bays wide with a central, two-story, obtuse gabled bay with flanking shed roofed wings arranged in a symmetrical A-B-A pattern. It is clad in a combination of Truscon interlocking panels and square metal panels. The other elevations are covered with a mixture of Truscon panels, other non-historic metal panels, and industrial multi-light windows. The building is approximately 2.17 miles east of downtown Houston in an area historically known as the Second Ward. This former light industrial area is currently transitioning to office, retail, and residential use. The property is bounded by Milby Street on the west, Rusk Street on the south, St. Joseph Street on the east and a railroad track (Greater Houston & Henderson) to the north.[3] The building has good historic integrity with minor alterations since its construction.

Site

Cameron Iron Works at 711 Milby Street is located in Houston's Second Ward neighborhood to the east of downtown Houston (see Maps 1-6 and Photo 1). While the city's wards were abandoned as voting precincts in the early twentieth-century, culturally the designations linger as identifiers of inner city neighborhoods. More recently, the area has been rebranded as "EaDo" for "East of Downtown" and is a transitioning former light industrial area with warehouses, early twentieth-century single family houses, a train service yard and round house, and a large industrial coffee roasting facility in the immediate vicinity. Construction of BBVA Compass Stadium in 2012 for the Houston Dynamo (MLS) was a major catalyst for this transformation, in addition to the construction of a Houston Metro lightrail line servicing the area.[4] The property is 0.41 miles SSE of the W-K-M Company, Inc. Historic District, another oil services warehouse and administrative complex listed in the National Register of Historic Places in 2018. Other National Register properties within a mile radius include the Houston Post (NRHP 2018) located 0.91 miles to the southwest at Emancipation and Polk, and the Schlumberger Well Surveying Corporation Building (NRHP 2018) located 0.94 miles to the west at the corner of Leeland and Delano. Cameron Iron Works is surrounded by sidewalks and has an active railroad track adjacent to the north. The building's northern and southern walls fall directly on the property line; the site is skewed slightly to accommodate the similarly angled street grid: Milby runs southwest to northeast. The building's façade faces "project west." The topography is relatively flat like most of Houston.

[1] "Truscon Buildings: Standardized for All Industrial Requirements," Truscon Steel Company Catalogue, 1930. The warehouses can be identified as Series "B" – Type 3-M in the 1930 Truscon catalogue.
[2] "Oil Equipment Industry Here Expands," *Houston Chronicle*, March 31, 1935. This article mentions that the facility was expanded by 32,000 square feet. The square footage of Warehouse 1 and attached office space is approximately 32,000 square feet. Harris County Building Assessments indicate that by 1940 Cameron Iron Works owned all lots on Block 13. The timeframe during which Warehouse 2 was built was established using these assessments, evidence that the warehouse was in use prior to becoming storage (see Figure 6), and secondary sources which state that CIW moved its headquarters in 1946.
[3] The site is skewed with Milby running southwest to northeast; assumed and project north is the railroad tracks.
[4] Hannah Curry-Shearouse and Lauren Maas, "Schlumberger Well Surveying Corporation Building," National Register of Historic Places, National Park Service, 2018, 13-14.

Exterior

The building at 711 Milby is comprised of two parallel, internally connected warehouses that can be identified as Series "B" – Type 3-M in the Truscon Steel Company catalogue.[5] The two warehouses are offset by one bay; the southernmost building (Warehouse 2) juts closer towards Milby and is a bay shorter on the rear (St. Joseph) elevation. The northernmost warehouse (Warehouse 1) measures 96.2 feet x 274 feet (total 26,359 square feet in plan) and is 3 x 14 bays; the southernmost measures 110.2 feet x 261.2 feet (28,784 square feet in plan) and is 3 x 13 bays (See Figures 13-15).

West (Front) Elevation – Office/Warehouse 1

The high style office façade on the western end of Warehouse 1 is characterized as a two-and-one-half-story, five bay, brick veneered façade with cast stone Art Deco-style detailing (see Photo 3).[6] The bays are defined by dominant square pilasters arranged in an A-B-C-B-A composition that form a stepped parapet in front of the obtuse gabled monitor and side shed roofs of the warehouse behind. The windows are grouped multi-light steel casement type that diminish in height with each floor. The sills of the ground floor windows are slightly notched into a tall cast stone water table. This subtle design element continues on the two floors above with the sills similarly notched into the cast stone belt courses. There is an additional belt course atop the attic floor windows. Continuous cast stone coping is atop the outer four bays punctuated by the decorative cast stone pilaster capitals. The brick veneer is a typical early twentieth-century palette with a range of purple, red, orange, tan, and brown bricks.

The three center bays project from the building plane enough to allow for narrow windows on the return elevations. The cast stone pilaster capitals in this area are slightly taller than the flanking bays giving prominence to the center entry. The capitals have a five-part A-B-C-B-A vertical composition that mimics the overall rhythm and building composition. The capitals rest atop a cast stone vertical band atop a stylized vertical chevron frieze (referencing Classical triglyphs) banded by a single column of header brick. At the cornice level, bays two and four have a brick frieze enframed by the cast stone belt course and coping. The center bay cornice is a stylized Art Deco crenellated composition of vertical bars rotated 45 degrees interspersed with vertical waves and stacks of round discs. There is a central monument keystone with a broken scroll pediment keystone.

The center bay has inset secondary pilasters with brick banded capitals and a stepped brick recess surrounding the aluminum framed entry door with flanking full height sidelights. Above the door is a cast stone base relief spandrel panel with "Cameron Iron Works" and "711" amidst stylized Art Deco waves and dentils (see Photo 10). Above the spandrel are five rows of the same industrial multi-light windows in alignment with others on the second floor.

West (Front) Elevation – Warehouse 2

The west elevation of Warehouse 2 is to the south and projects outward towards Milby (see Photo 2). It is three bays wide with a central, two-story, obtuse gabled bay with flanking shed roofed wings arranged in a symmetrical A-B-A pattern. The entirety of the elevation is covered with metal paneling installed at an unknown date though the location of the multi-light industrial type windows are clearly visible. The original glazing was removed for the rehabilitation. The panels are a combination of Truscon interlocking panels (see Figure 9) and square metal panels used to infill remaining window and door openings. The two outer bays have two windows and the center, larger bay has a central overhead opening (now filled in) flanked by similar windows. There are also two non-historic metal louvers in this bay at the second level.

[5] "Standardized for All Industrial Requirements," 9.
[6] Jim Parsons and David Bush, *Houston Deco: Modernistic Architecture of the Texas Coast* (Albany, Texas: Bright Sky Press, 2008), 108.

North and South (Side) Elevations

The north elevation faces the railroad tracks and is industrial vernacular in style with regularly spaced steel, multi-light windows and metal paneling – the same metal Truscon paneling found on the west (front) elevation of Warehouse 2 (see Photos 4 & 5). Each of the window bays have grouped three columns and four rows of multi-light, steel industrial type windows; the middle row has operable hopper sashes. The original glazing was removed for the rehabilitation. The fifth bay is an overhead door; the bays are defined by vertical concrete pilasters. The south elevation has a similar composition only thirteen bays wide without any door openings (see Photos 8 & 9).

East (Rear) Elevation

The east elevations show the two distinctive warehouses in separate planes with Warehouse 1 projecting closer to St. Joseph Street, the opposite of the building's alignment along Milby (see Photos 6 & 7). Both are symmetrical, three-part (A-B-A) compositions with a central obtuse gable end with flanking shed roofed wings. Warehouse 1 has a non-historic, metal clad, shed roofed addition to the south. Both are covered with a mixture of Truscon panels and other non-historic metal panels. The grouped industrial multi-light windows are visible in the second and third bays of Warehouse 1 and the second bay of Warehouse 2. The central entry bay of Warehouse 1 retains its original four-leaf metal door with solid metal panel lower portion and four rows of industrial multi-light windows above; there is a pedestrian entry door cut into the third leaf. The central entry bay of Warehouse 2 has a non-original metal overhead rolling door. Selective removal of the metal panels reveals the multi-light industrial windows below. This portion of the building has its clerestory exposed on each of the elevations. The original glazing was removed for the rehabilitation.

Interior

The interior of the warehouses is exposed metal framing, metal joists, and concrete floors (see Photos 18 – 21, Figures 13-15). The metal framing clearly divides the interiors into three distinct bays with the central bay taller and corresponding to the central obtuse gable seen on the exterior. The warehouses are internally connected through a full-height opening, approximately two bays wide, at a shared wall – the south wall of Warehouse 1 and the north wall of Warehouse 2.

The Warehouse 2 has an interior loading dock on the east end of the building just inside the rear doors. A sloped drive ramp is inset into the floor to accommodate truck unloading. The ramp measures approximately four feet at its lowest point. Both sides of the building have monitors, or clerestories, of continuous multi-light steel industrial windows.

The office portion of the building is at the western end of Warehouse 1 (see Photos 12 – 17). Selective demolition indicates that the configuration of the space has been slightly altered. The north wall of the office features the same industrial multi-light windows as the north elevation of the warehouse and continues uninterrupted through to the warehouse. The south wall of the office abuts Warehouse 2 and similarly features industrial multi-light windows that look out into the warehouse on the first floor. The office space was expanded at the rear at an unknown date. Selective demolition indicates the office's original interior rear wall was shiplap and had windows that looked out onto Warehouse 1. The interior addition includes a small room on the first floor, stairs to access the second floor, and a north-south corridor, expansion of office space, and a bathroom on the second floor.

Selective demolition has revealed that some of the historic interior finishes and features remain, such as small sections of crown molding, wood wainscoting, beadboard, and interior windows. Historic plaster walls have been retained intermittently.

Summary

Cameron Iron Works at 711 Milby Street retains a high degree of integrity with its location, setting, design, materials, workmanship, feeling, and association intact. It retains its integrity of workmanship, materials, and design as there have only been minor alterations to the interior and exterior of the building since its completion. The extant modular panels and multi-light steel casement windows on the warehouses are character defining features of Cameron Iron Works and are hallmarks of Truscon buildings. While the windows are intact, most of the original glazing has been removed with the exception of that on the primary elevation of Warehouse 1. In addition, some of the metal panels are non-historic and a small addition was added on the east (rear) elevation of Warehouse 1 at an unknown date. The Art Deco office façade is in excellent condition with the replacement of the original entry doors and the installation of canopies being the only discernable changes. The warehouse interiors have been minimally altered since their construction, with ancillary interior buildouts and additions located at the rear. Although the interior configuration of the office has been slightly altered over time, historic interior finishes and floorplans have been revealed through exploratory demolition. Cameron Iron Works sold the building to Kraft General Foods in 1989, but it still retains the association and feeling of an industrial space with an appended office space. The setting remains that of a light industrial area.

Statement of Significance

Cameron Iron Works at 711 Milby Street in Houston, Texas is an industrial commercial building with an appended high-style office façade manufactured by Truscon Steel Company. Cameron Iron Works (now known as Cooper International, a Schlumberger Company) is a Houston-based oil and gas company specializing in the service and manufacturing of oil equipment. At its peak, the company was involved in atomic and space technology, military, energy, petrochemical, and aerospace industries in addition to oil and gas, employing 12,300 workers in 38 countries.[7] Established by Harry S. Cameron and James S. Abercrombie in 1920, Cameron Iron Works contributed significantly to the development of the oil and gas industry through its invention and production of the first blow-out preventer. In 2003, the American Society of Mechanical Engineers recognized Cameron Iron Works' original "Blow-Out Preventer" as a Historic Mechanical Engineering Landmark for revolutionizing oil drilling by drastically improving safety.[8] Cameron Iron Works has been located at 711 Milby Street since its founding in 1920, although the original buildings have since been demolished. The building served as the headquarters for Cameron Iron Works from 1935, when Warehouse 1 was constructed, until 1946 when a new facility on Katy Highway was completed, after which 711 Milby served solely as a warehouse and tool shop.[9] Cameron Iron Works is nominated for listing in the National Register of Historic Places (NRHP) under Criterion A in the area of Industry and Invention at the local level of significance as the headquarters of Cameron Iron Works, a Houston-based company that revolutionized the development of the oil and gas industry through its invention and production of the blow-out preventer, and subsequent machinery that contributed to the success of the oil and gas industry nationally and internationally. The property is also nominated under Criterion C in the area of Architecture at the local level of significance as a remarkably intact example of a Series "B" – Type 3-M manufactured by Truscon Steel Company. The period of significance is 1935-1946.

Origins of the Oil and Gas Industry in Houston

The origins of today's oil and gas industry date to 1806 when brothers David and Joseph Ruffner constructed the first deliberate, tool-made well near what is now Charleston, West Virginia. In 1859, the first well was constructed in Titusville, Pennsylvania for the sole purpose of drilling commercial oil.[10] Spindletop, the January 1901 gusher, or "blow-out" just outside Beaumont, Texas, changed the course of Texas history, making Texas the nation's leader of petroleum output.[11] The Texas Company (later renamed and known world-wide as Texaco) paved the way for Houston to become the oil and gas capital of the southeast by moving their corporate headquarters to Houston in 1908. This led to an influx of commercial and industrial manufactures specializing in oil field equipment as well as petrochemical refineries along the Gulf Coast.[12]

Cameron Iron Works

Cameron Iron Works (now known as Cooper International, a Schlumberger Company) is a Houston-based oil and gas company specializing in the service and manufacturing of oil equipment. The origins of Cameron Iron Works

[7] *Handbook of Texas Online*, Diana J. Kleiner, "CAMERON IRON WORKS, HOUSTON," accessed January 22, 2019, http://www.tshaonline.org/handbook/online/articles/dkc06.
[8] American Society of Mechanical Engineers, "Cameron - First Ram-Type BOP: An ASME Historic Mechanical Engineering Landmark," July 14, 2003, 3.
[9] Patrick J. Nicholson, *Mr. Jim: The Biography of James Smither Abercrombie* (Houston: Gulf Publishing Company, 1983), 318.
[10] Hannah Curry-Shearhouse and Victoria Myers, "W-K-M Company, Inc. Historic District," National Register of Historic Places, National Park Service, 2018, 19.
[11] *Handbook of Texas Online*, Robert Wooster and Christine Moor Sanders, "SPINDLETOP OILFIELD," accessed January 22, 2019, http://www.tshaonline.org/handbook/online/articles/dos03.
[12] Anna Mod, "Texas Company Building," National Register of Historic Places, National Park Service, 2003, 13.

(CIW) can be traced to the early twentieth century, starting with The Cameron-Davant Company. In 1918, Harry S. Cameron and John Davant bought Humble Iron Works and changed the name to The Cameron-Davant Company (see Figures 1 & 2). Cameron-Davant advertised itself as a company of "Oil Field Machinists and Dealers in Oil Well Supplies," with an office downtown at 519 Washington Street, next to the Macatee Hotel, and a machine shop at 711 Milby Street. In addition to their Houston locations, Cameron-Davant also had shops in Humble and Goose Creek.[13]

James S. Abercrombie (or "Jim"), noted Houston oilman, civic leader, and philanthropist, knew Cameron to be a machinist of "high skill and inventive ability," interacting with him regularly in his business dealings.[14] In August 1920, Abercrombie bought controlling interest of Cameron-Davant, purchasing the Milby Street shop and land for $17,324.31.[15] Cameron Iron Works was chartered on August 21, 1920 with $25,000 in capital stock and J.S. Abercrombie, H.S. Cameron, and E.L. Lorehn listed as incorporators.[16] The initial $25,000 in capital stock was provided by Jim Abercrombie ($14,500) and Harry Cameron ($6,500), with Annie Abercrombie (sister), Vinnie Abercrombie (sister), Bob Abercrombie (brother), Edmond L. Lorehn, and Philip Davis collectively providing $4,000. The initial 250 shares of stock were valued at $100 each. Jim Abercrombie held 145 shares, Harry Cameron held 65 shares, Annie Abercrombie held 20 shares; and Vinnie Abercrombie, Bob Abercrombie, Ed Lorehn, and Philip Davis each held 5 shares. Jim Abercrombie was elected President and took no salary. Cameron was named Vice President and General Manager, a position which paid $300 a month. Ed Lorehn was named Business Manager and Secretary, a position which paid $175 a month. Philip Davis was named Bookkeeper, a position which paid $225 a month. Annie Abercrombie was named Treasurer and received no salary. By December 31, 1920, less than six months after incorporation, the company had gross sales of $27,741.94 and a net profit of $4,609.13.[17]

Invention of the Blow-out Preventer

In the early twentieth century, control of oil and gas pressure in wells was an ongoing problem. When oil was struck, deckhands would let oil and gas "blow-out" of the ground until the pressure was low enough to manually insert a pipe into the ground to redirect the flow. These gushers, or "blow-outs," were extremely dangerous, sometimes causing serious injury or loss of life.[18] Abercrombie himself experienced a blow-out while working on a well in Hull field in 1922.[19] Deeply affected by this experience, Abercrombie "came up with the idea for a ram-type preventer with the faces of rams (simple hydraulic pistons) closing on the drill stem to form a seal against the wall pressure. Abercrombie took his idea to Cameron and the two worked out the details of the design drawing on the dirt floor of Cameron's machine shop" at 711 Milby (see Figure 3).[20] Reportedly, Abercrombie told Cameron, "It probably won't work at all…I'm certainly no engineer." Cameron reportedly replied, "Well, engineers can prove that a bumblebee can't fly, because of the laws of aerodynamics; but nobody has told the bees yet."[21]

Cameron and Abercrombie's original patent for the "Blow-Out Preventer" (Patent No. 1,569,247) was filed on April 14, 1922 and issued on January 12, 1926 (see Figure 4). The purpose of the invention was plainly stated: "Our invention is adapted for use in preventing gas blow-outs during the drilling operations."[22] Cameron quickly filed a

[13] *Houston Post,* April 12, 1920, accessed January 7, 2019, http://www.newspapers.com; *Mr. Jim,* 218.
[14] Ibid., 218.
[15] "First Ram-Type BOP," 7.
[16] *Houston Post,* August 22, 1920, accessed January 7, 2019, http://www.newspapers.com.
[17] *Mr. Jim,* 219 and 223.
[18] "First Ram-Type BOP," 2.
[19] *Mr. Jim,* 231.
[20] "First Ram-Type BOP," 3; *1922 City of Houston Directory* p. 244 and 450, Houston Metropolitan Research Center, microfiche 3 and 5 of 17. The city directory places CIW at 711 Milby in 1922.
[21] *Mr. Jim,* 233.
[22] James S. Abercrombie and Harry S. Cameron (January 12, 1926), *United States Patent No. 1,569,247*, accessed January 27, 2019, https://patents.google.com/patent/US1569247.

second patent for "Packing Valves and Pistons" (Patent No. 1,498,610) on June 17, 1922 as an improvement on the original concept.[23]

The American Society of Mechanical Engineers describes the blow-out preventer as follows:

> A metal body with a vertical bore that was installed on top of the well casing. Two cylindrical-shaped bores intersected the vertical bore at right angles. The MO body and screws were made of steel, while the rams and heads were made of cast iron. The rams were closed manually by means of threaded stems attached to long extension socket wrenches. When the wrenches, which were extended under the derrick floor to a safe distance from the well, were turned, the rams closed the drill pipe. The BOPs were tested in the hop to hold 2000 psi pressure…The packing on the MO rams incorporated an ingenious V-shaped notch in one of the faces near a corner. This notch, when placed in the direction of the fluid pressure, opened, forcing the thin lip against the sealing surface. Cameron found that this cross sectional configuration allowed the MO packing to hold 15 to 100 times as much pressure without allowing seepage than with a regular square cross section. The MO was also the first BOP to hold 3000 psi of pressure, an industry record at the time.[24]

A 1922 advertisement for CIW's blow-out preventer trumpeted "Something New! The C.I.W. Blow-Out Preventer. Tested and Guaranteed to Hold 2000 Pounds Cold Water Pressure."[25]

The blow-out preventer revolutionized drilling for oil by drastically improving safety and provided tremendous financial success for CIW. After a brief economic recession between 1922 and 1925, CIW sales were up to $67,000 in 1926. CIW's customers included all major producers in southeast Texas, and even some in Mexico and Venezuela.[26] Sales and profits continued to climb, with sales increasing to $156,000 and profits increasing to $21,000 for Fiscal Year 1927. After Harry Cameron's untimely death in 1928, Ed Lorehn assumed the role as Vice President and General Manager, in which position he oversaw a continued increase in sales and profits: $288,000 in sales and $30,000 in profits for Fiscal Year 1929, and $479,000 in sales and $114,000 in profits in Fiscal Year 1930.[27] In 1931, a third patent was issued for a "Fluid Pressure Blow-Out Preventer" (Patent No. 1,834,922), a further improvement on Abercrombie and Cameron's original concept.

Depression and Wartime Effort

Cameron Iron Works was not immune from the effects of the Great Depression. Sales and profits plummeted to $234,000 and $6,000, respectively, in 1931. The fiscal crisis worsened as sales fell to $87,000 and a profit loss of $29,000 in 1932.[28] However, by 1935, conditions were improving. The *Houston Chronicle* reported that "During the past year, the oil field equipment industry in Houston…spent in excess of one million dollars in expansion made necessary by the rapid development of Houston as the oil capital of the Southwest."[29] Sales at CIW were up to $321,000 and profits up to $4,000 thanks to the introduction of the "SDA" (short double-acting) blow-out preventer and pressure operated gas valve. A new warehouse with attached office designed by Truscon Steel Company was

[23] Harry S. Cameron (June 24, 1924), *United States Patent No. 1,498,610*, accessed January 23, 2019, https://patents.google.com/patent/US1498610.
[24] "First Ram-Type BOP," 4.
[25] *Houston Post*, November 21, 1922, accessed January 7, 2019, http://www.newspapers.com.
[26] *Mr. Jim*, 233; "First Ram-Type BOP," 4.
[27] *Mr. Jim*, 251 and 259.
[28] *Mr. Jim*, 265.
[29] "Oil Equipment Industry Here Expands," *Houston Chronicle*, March 31, 1935, courtesy of Stephen Fox.

erected at 711 Milby in 1935 (see Figure 5). CIW purchased two adjoining 50 x 100 lots for future expansion purposes from W.J. Knight in 1936.[30]

In 1939, CIW joined the war effort and began manufacturing war time products. Because they were so successful, the military promoted CIW from subcontractor to direct supplier. In 1941, CIW procured a contract to build k-guns and arbor bombs. In 1942, CIW procured a contract to build .50 caliber gun barrels. The ingenuity of CIW engineers drastically cut production time for rifling and machining the barrels. CIW also built the Tiny Tim rockets that were used in the beach invasions by the Navy.[31] During this time, CIW continued to purchase adjoining land, with all lots to the south on the block purchased by 1940. The office was also remodeled by Brown Construction Company in 1940.[32]

Because of their outstanding work, CIW received the Navy "E" Award in 1941.[33] The award was given only to those facilities which were particularly outstanding in production for the War and Navy Departments, an estimated five percent of all plants. Quality and quantity of production were determining factors in granting the award. Others included: "(a) overcoming of production obstacles; (b) low rate of absenteeism; (c) avoidance of work stoppages; (d) maintenance of fair labor standards; (e) training of additional labor forces; (f) effective management; (g) record on accidents, health, sanitation, and plant protection; (h) utilization of sub-contracting facilities; (i) cooperation between management and labor as it affected production; and (j) conservation of crucial and strategic materials."[34]

In addition to the "E" award, CIW was also given six Star Awards. Star awards were given to plants which maintained an outstanding record of performance six months after receiving the original "E" award. The award was indicated with a white star on the plant's "E" flag. Stars were awarded at six-month periods until a plant received four starts, after which the interval was increased to one year. Of the 4,283 plants, only eights plants received six Star Awards. Only four of those eight, including Cameron Iron Works, retained their original Navy "E" Awards.[35]

Post War

Albeit a year late, CIW celebrated its twenty-fifth anniversary in 1946. In commemoration, CIW published its company philosophy:

> To offer the best and latest designs.
> To replace promptly all worn or obsolete manufacturing equipment with the best available.
> To seek constant improvement of product, aiming always at leadership in given field of equipment.
> To place major emphasis on sound management-employee relations, and to give employee welfare first consideration in company planning and policy-making.
> To provide plants of the best construction, properly maintained and equipped to assure employee safety, comfort and well-being.
> To maintain a continuing interest in every piece of equipment sold, standing back of it and maintaining it at maximum usefulness.[36]

[30] "Oil Equipment Industry;" "Standardization for All Industrial Requirements," and "Cameron Iron Works Busy 2 Adjoining Lots," *Houston Chronicle*, October 25, 1936.
[31] *Handbook of Texas Online*, David Littlefield, "ABERCROMBIE, JAMES SMITHER," accessed January 23, 2019, http://www.tshaonline.org/handbook/online/articles/fab05.
[32] "Harris County Building Assessment, Houston, Texas," 1940, Harris County Archives; "Construction Co. To Build Iron Sheds," *Houston Chronicle*, August 18, 1940.
[33] "CAMERON IRON WORKS, HOUSTON."
[34] Naval History and Heritage Command, "Army-Navy E Award," The Navy Department Library, accessed January 23, 2019, https://www.history.navy.mil/research/library/online-reading-room/title-list-alphabetically/a/army-navy-e-award.html.
[35] Ibid.
[36] *Mr. Jim*, 318.

In 1946, CIW constructed its second plant north of Katy Highway (not Katy Freeway), which officially became their headquarters. After construction of the Katy Plant, the original shop at 711 Milby was used as a storage warehouse and tool shop.[37] CIW sold the building to Kraft General Foods in 1989.[38]

Between 1945 and 1950, CIW focused heavily on research and development, a product of which was the new "QRC" (Quick Ram Change) blow-out preventer. Like the original blow-out preventer, the new QRC had a dramatic effect on sales. By 1946, sales increased to $10.3 million and profits increased to $40 million. Between 1950 and 1960, sales grew to $40 million. Employment grew from 700 to 2000. Herb Allen's (Vice President and General Manager) concept of split-die forging was responsible for almost fifty percent of all sales by 1960.[39]

After World War II, CIW continued its work as military contractors, establishing a guided missile plant in 1957. During the Korean War, CIW supplied armaments and were involved in power generation and manufacture of jet engines and airplane parts. Further expanding their reach, CIW opened a plant in Livingston, Scotland in 1963 for the purpose of constructing aircraft engines and power generators to supply the nuclear power and valve and tool industry. In 1965, CIW became involved with the military build-up for the Vietnam War. In 1966, CIW built a new plant in Cypress, Texas for high strength metal production. By 1972, CIW supplied pipelines for Russia and had a plant in Beziers, France. That same year, signaling the end of an era, Jim Abercrombie stepped down from Cameron Iron Works.[40]

Recent History

By 1980, Cameron Iron Works was described as a "Houston-headquartered, vertically integrated company that designs, manufactures, and markets a range of oil tools, ball valves, and forged products" through three operating divisions responsible for "sales, supply, and service." CIW was a one-stop-shop, providing its own metals, engineering, forgings, manufacturing, test facilities, and service staff. Sales reached over $697 million and net earnings over $78 million.[41] World-wide employment peaked at 12,300 in 1981.[42] In 1982, on the eve of the oil bust, CIW opened a new 154,000 square foot plant on N. Post Oak Road.[43]

The remainder of the 1980s proved an abysmal decade for the oil and gas industry, which hit Houston's economy very hard. CIW was not spared. Between 1982 and 1987, CIW closed five major plants. In 1984 alone, sales declined 46 percent. The company underwent major inventory reductions, asset sales, and expense controls. By 1985, CIW retained only 3,200 employees.[44] The introduction of CIW's "T" type blow-out preventer, designed for use both on and offshore and to control pressures up to 15,000 psi, kept CIW somewhat financially afloat.[45] In 1988, Lockheed Missiles and Space Co. and its subcontractor, CIW, were awarded a $20 million option on a contract to assemble bomb casings for the U.S. Airforce.[46] Still, CIW would not survive the bust. In what the *Houston Post* called a "$700 million marriage," Cooper Industries purchased Cameron Iron Works in 1989.[47] The deal was set in motion when

[37] "CAMERON IRON WORKS, HOUSTON;" *Mr. Jim*, 318. It is speculated that the Truscon interlocking panels were installed after this change in use since the warehouse did not require as much daylighting.
[38] Harris County Appraisal District, hcad.org
[39] *Mr. Jim*, 319-320 and 336.
[40] "CAMERON IRON WORKS, HOUSTON."
[41] "CAMERON IRON WORKS, HOUSTON."
[42] "Cost-cutting kept Cameron Iron afloat," *Houston Post*, September 25, 1989.
[43] "$32 million plant opened by Cameron Iron Works," *Houston Post*, September 10, 1982.
[44] "CAMERON IRON WORKS, HOUSTON."
[45] "New blowout preventer already paying off for the Oil Tool Division," *Houston Chronicle*, October 27, 1985.
[46] "Cameron to assemble military bomb casings," *Houston Post*, September 28, 1988.
[47] "$700 million marriage – Cooper Industries, Cameron Iron Works will merge," *Houston Post*, August 2, 1989.

Josephine E. Abercrombie's (Jim Abercrombie's daughter) two sons, Jamie and George Robinson, indicated they wanted to sell their stock. The trust owned 47.5 percent of Cameron stock and had the power to sell 40 percent.[48] In 1995, Cooper spun off their petroleum divisions into a new company, Cooper Cameron Corporation, which later became Cameron International Corporation (a Schlumberger Company). Cameron, which remains a leader in the business of manufacturing and selling blow-out preventers, manufactured the blow-out preventer that failed at Deepwater Horizon, a disaster that resulted in the massive oil spill and loss of life in the Gulf of Mexico in 2010. Cameron settled with BP for $250 million without claiming responsibility, citing ineffective maintenance of the equipment.[49]

Harry Sellers Cameron

Harry Sellers Cameron, son of W.S. and Estelle Mulkey Cameron, was born on July 9, 1872 in Indianapolis, Indiana. He attended high school in Washington, D.C. and attended Christian Brothers College in Memphis, Tennessee where he studied architectural and mechanical engineering. After college, he served as an apprentice at Bierce Hydraulic Compress Company in Little Rock, Arkansas. As an intern, he invented and patented the first hydraulic cotton baler. After Little Rock, Cameron moved to Dallas where he worked for a year at Portland Cement Company. In 1907, Cameron opened a small machine shop in Humble, where he quickly established himself as a skilled machinist who could fix equipment and make pieces. Shortly after moving to Humble, Cameron married Isabel Trahan. The couple had six children: Harold, Victor, Voorse, Estelle, Charlotte, and Frances. The Cameron family lived at 4524 Rusk Street (extant), near the machine shop at 711 Milby, and Cameron would walk to work every day. Cameron died prematurely in 1928, at the age of 56, after he succumbed to tuberculosis.[50] On Cameron's passing, *Oil Weekly* praised Cameron as a man "whose genius and energy have contributed materially to the progress of drilling and operating methods."[51]

Cameron's legacy lived on through his wife, his children, and their establishment of the Harry S. and Isabel Cameron Foundation. Established in 1966, the Foundation is a trust which is "devoted and used, exclusively for religious, charitable, education, scientific, or literary purposes." The Cameron Foundation has donated to numerous institutions and causes throughout Houston, including the Co-Cathedral of the Sacred Heart, the Children's Museum of Houston, and the University of St. Thomas – Cameron Business School.[52]

James Smither Abercrombie

James Smither Abercrombie, son of James Buford and Evalina Wood Abercrombie, was born on July 7, 1891 in Huntsville, Texas, the fourth of thirteen children. Abercrombie was fifteen years old when his family moved to Houston from Richmond, Texas and started a dairy farm. Abercrombie worked for his father until he was seventeen when he went to work in the oil fields to make extra money to hire more people for the farm. In 1909, Abercrombie's cousin, Charles Abercrombie, hired him to work as a roustabout (an unskilled deckhand on a drilling rig) for Goose Creek Production Company. By 1910, he was a driller. Abercrombie was popular on the rigs, reportedly because "he would never ask anyone to do anything he wouldn't do himself."[53] By his early twenties, he was a field superintendent for Crown Petroleum. In 1918, he bought his first well in Burkburnett, north of Wichita Falls, Texas partly with his

[48] "Cost-cutting kept Cameron Iron afloat."
[49] "Cameron International settle with BP on 2010 oil spill claims," Washington Post, December 16, 2011, accessed January 25, 2019, https://www.washingtonpost.com/business/economy/cameron-settles-with-bp-on-oil-spill-claims/2011/12/16/gIQAnXudyO_story.html?utm_term=.12b4d0908328.
[50] "First Ram-Type BOP," 7; *Harry S. & Isabel C. Cameron Foundation: 45 Years of Service* (Houston: Bayside Printing Company, 2012), 1-16.
[51] *Mr. Jim*, 251.
[52] *45 Years of Service*, 16 and 22-27.
[53] *Mr. Jim*, 213.

own money and partly with a loan. His personal ventures proved so profitable that he left Crown Petroleum to work on his own and established the James S. Abercrombie Company. In 1920, he became the unsalaried President of Cameron Iron Works – all before his thirtieth birthday.

Abercrombie met his wife, Lillie Frank, through his business ventures in Lake Charles, Louisiana. They were married in 1925 and had one daughter, Josephine, in 1926. In the 1920s, 30s, 40s, and 50s, Abercrombie continued to grow his empire, establishing such profitable companies as Harrison & Abercrombie, J.S. Abercrombie Interests, Inc., and J.S. Abercrombie Mineral Company. Throughout his career, Abercrombie's companies drilled wells in Texas, Louisiana, and internationally in the "neutral zone" between Kuwait and Saudi Arabia. In 1946, in a business venture which departed from oil, Abercrombie purchased a ranch on the Guadalupe River. Always interested in cattle and ranches, he invested money in agriculture, animal husbandry, and a feed factory. The Abercrombie family still owns the ranch today.

Abercrombie was also noted for his charitable work in Houston. In 1950, Abercrombie along with other prominent Houstonians, chartered Texas Children's Hospital. He gave $1 million of the $2.5 million construction budget. The money was given on the premise that "absolutely no restrictions be made on which sick children could be admitted." His other affiliations in Houston included the Masons, Old Colony Club, Houston Yacht Club, River Oaks Country Club, and The Houston Club. Abercrombie died on January 7, 1975 and is buried at Glenwood Cemetery.[54] Abercrombie's residence at 2221 River Oaks Boulevard (purchased in 1936 from Clarence O. Lamberth) is a City of Houston Protected Landmark.[55]

Truscon Steel Company

Established in 1904, Truscon Steel Company was a construction company that specialized in the manufacturing and erecting of pre-fabricated metal warehouses, shops, factories, etc. While Truscon advertised to "General Industry," they also advertised directly to the oil and gas industry and their growing need for warehouses, shops, and worker housing during the twentieth-century. Truscon had sixty offices in principal cities, three in Texas: Dallas, Houston (at 1701 Oliver Street), and San Antonio. Additionally, Truscon had two warehouses in Texas for "emergency supplies," one in Dallas and one in Houston.[56] Truscon advertised their buildings as efficient, yet inexpensive, with "proper ventilation, daylighting, convenient layout, sturdy construction, and durability" as basic features of Truscon buildings.[57] Truscon buildings were advertised as indestructible, but, due to their pre-fabricated modular components, easily deconstructed.

Because Truscon buildings were made of standard materials and parts, they could be arranged in numerous ways to meet client needs. Cameron Iron Works first contracted with Truscon in 1930 to construct an 86 foot x 120 foot addition at a cost of approximately $29,000.[58] Each of Cameron Iron Works' warehouses are Series "B" – Type 3-M (see Figure 7). Within this series and type there are several standard sizes, which were constructed lengthwise in multiples of 2 feet to accept various combinations of Truscon windows and panels. Warehouse 1 is most comparable to the standard size of 90 feet in total width, 24 foot wide side bays, and a 50 foot wide center bay. Warehouse 2 is

[54] "ABERCROMBIE, JAMES SMITHER."
[55] City of Houston Planning and Development Department, "Lamberth-Abercrombie House," Protected Landmark Designation Report, Archaeological and Historical Commission, 3.
[56] "Truscon Permanent Buildings: Standardized for the Oil Industry," Truscon Steel Company Catalogue, 1925, inside cover.
[57] "Standardized for the Oil Industry," 8.
[58] "Week Total $263,598 Here," *Houston Chronicle*, October 5, 1930. The building referenced in the article is neither of the extant warehouses on the property. The dimensions are not compatible. It is possible that the addition referenced in the article is the building pictured to the right of the original machine shop at 711 Milby seen in Figure 2. The form is consistent with Truscon Series "A" – Sawtooth Type.

most comparable to the standard size of 106 feet in total width, 28 foot wide side bays, and a 50 foot wide center bay.[59]

Both warehouses feature standard Truscon "Center Pivoted Windows," which are also referred to in their catalogues as "daylight panels" (see Figure 8).[60] These windows were interchangeable to any degree with Truscon "interlocking panels" (see Figure 9).[61] Although the interlocking panels found on the warehouses at Cameron Iron Works were installed on the warehouses at a later date (see Figure 6), they are a feature of Truscon designs. It is speculated that the Truscon interlocking panels were installed when less daylighting was required after the building's change in use (storage and a machine shop). Both warehouses are also three bays wide with a central, two-story, obtuse gabled bay with flanking shed roofed wings arranged in a symmetrical A-B-A pattern—visible at the rear elevation and the primary elevation of Warehouse 2 (see Figures 7-9).

In addition to their standard building materials, Truscon also advertised that it could deliver "special designs furnished to meet conditions not covered by standard construction."[62] Clients, including Cameron Iron Works, used this flexibility to commission Truscon architects and engineers to design styled office facades. Examples of Truscon buildings with styled facades could be found in their catalogues and included the Super Service Station (Louisville, KY), Jenks & Weltzien Building (Peekskill, NY), Virginia Blanket Machinery Works (Rosslyn, VA), and Slattery Iron Works (Washington, D.C.) (see Figures 10-12).[63]

Summary

Cameron Iron Works at 711 Milby Street in Houston, Texas is an industrial commerical building with an appended high-style office façade manufactured by Truscon Steel Company. The building is notable for being the headquarters of Cameron Iron Works from 1935 until 1946, when the headquarters was relocated to a facility off Katy Highway. Founded by James S. Abercrombie and Harry S. Cameron in 1920, Cameron Iron Works was active in the oil and gas industry for nearly seven decades, with its most significant contribution to the industry being the invention and production of the blow-out preventer. Today, Cameron remains a leader in the business of manufacturing and selling blow-out preventers as a subsidiary of Schlumberger. Cameron Iron Works is nominated for listing in the National Register of Historic Places (NRHP) under Criterion A in the area of Industry and Invention at the local level of significance as the headquarters of Cameron Iron Works, a Houston-based company that revolutionized the development of the oil and gas industry through its invention and production of the blow-out preventer, and subsequent machinery that contributed to the success of the oil and gas industry nationally and internationally. The property is also nominated under Criterion C in the area of Architecture at the local level of significance as a remarkably intact example of a Series "B" – Type 3-M manufactured by Truscon Steel Company. The period of significance is 1935-1946.

[59] "Standardized for the Oil Industry," 9.
[60] "Truscon Buildings: Standardized for All Industrial Requirements," Truscon Steel Company Catalogue, 1930, 14.
[61] "Standardized for All Industrial Requirements," 15.
[62] "Standardized for All Industrial Requirements," 11.
[63] "Standardized for All Industrial Requirements," 22, 26, and 27.

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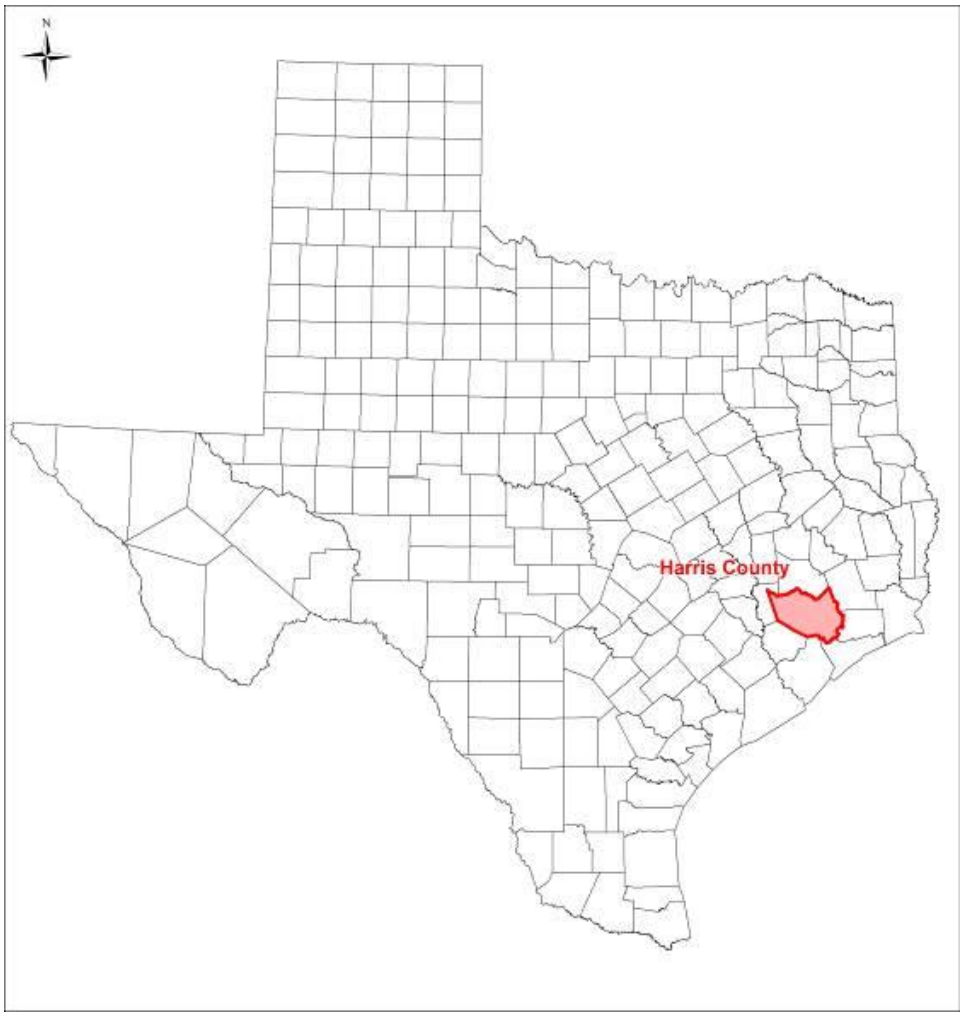
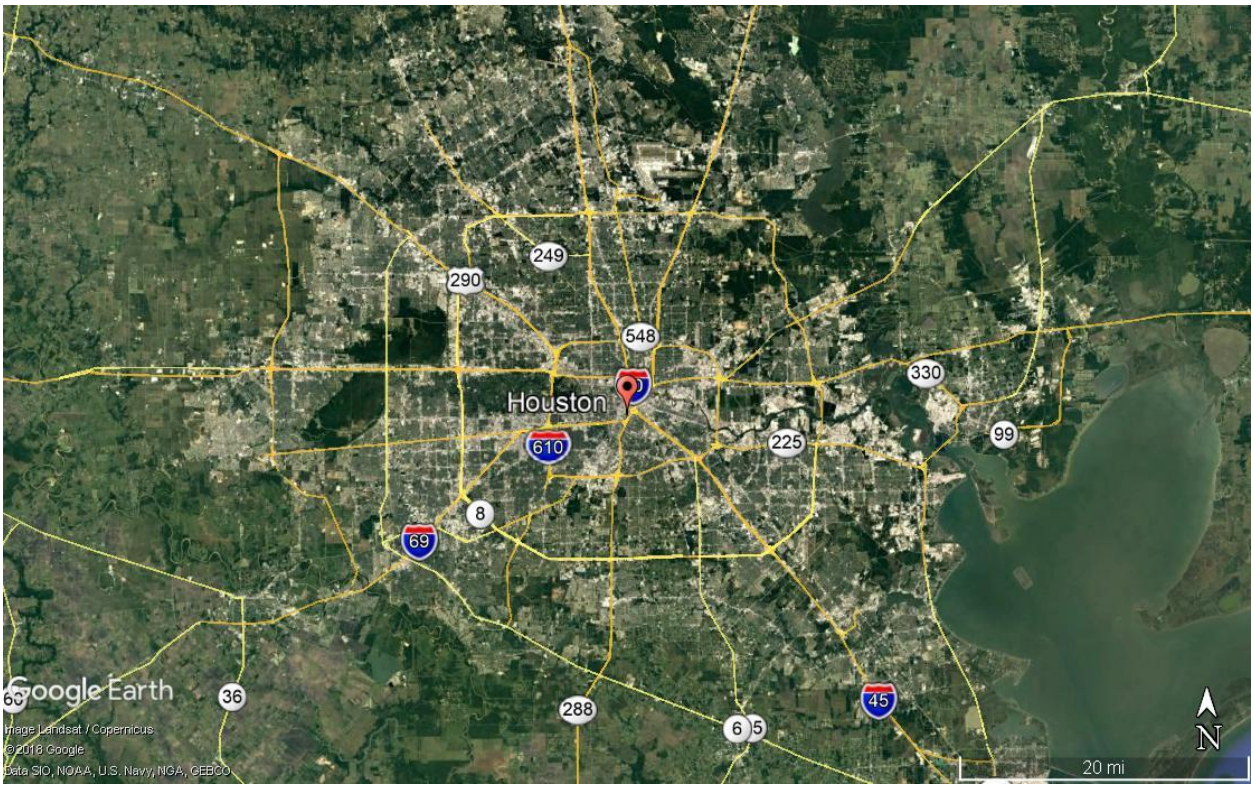
Washington Post

Map 1
Harris County, Texas

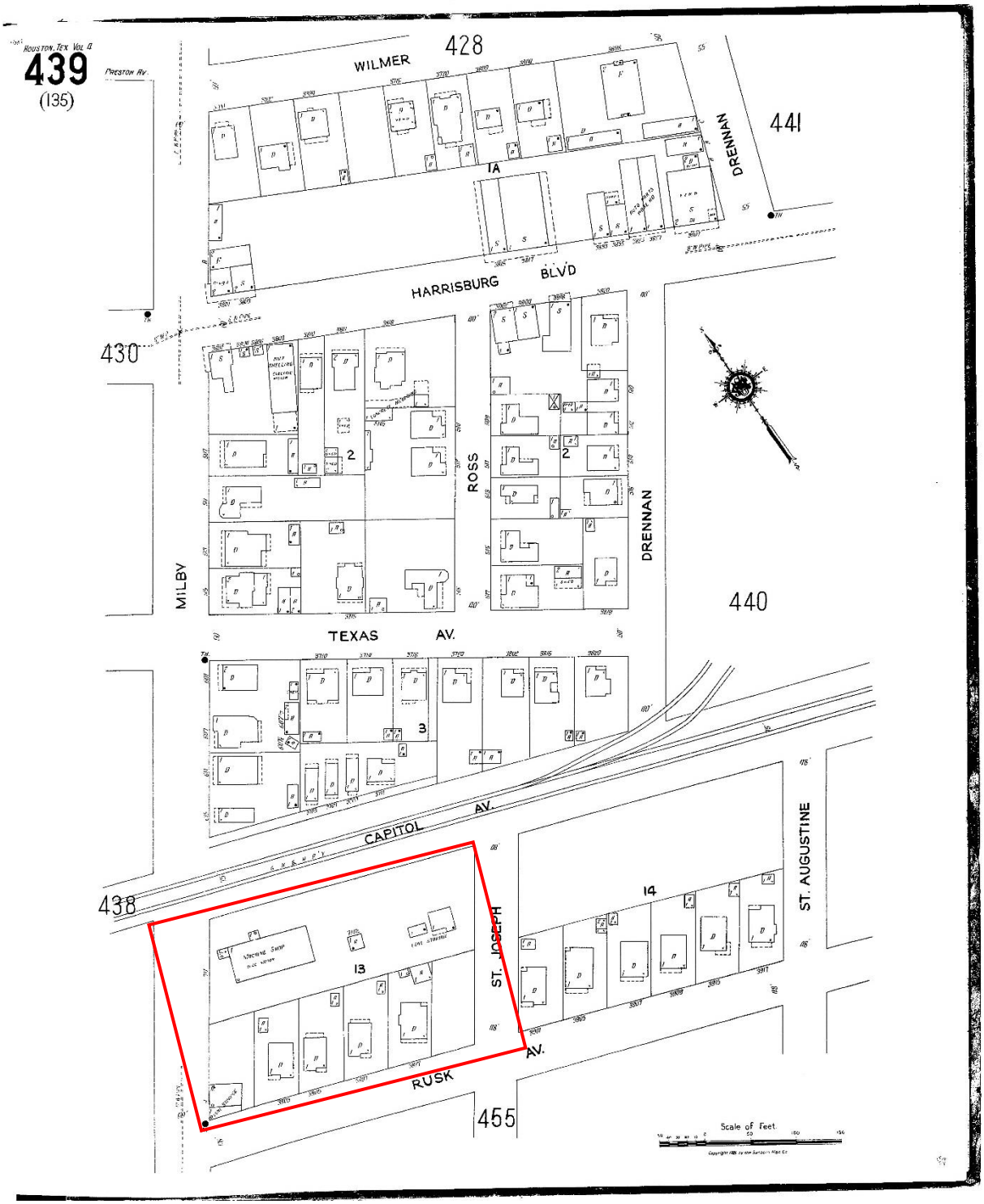


Map 2
Houston, Harris County, Texas

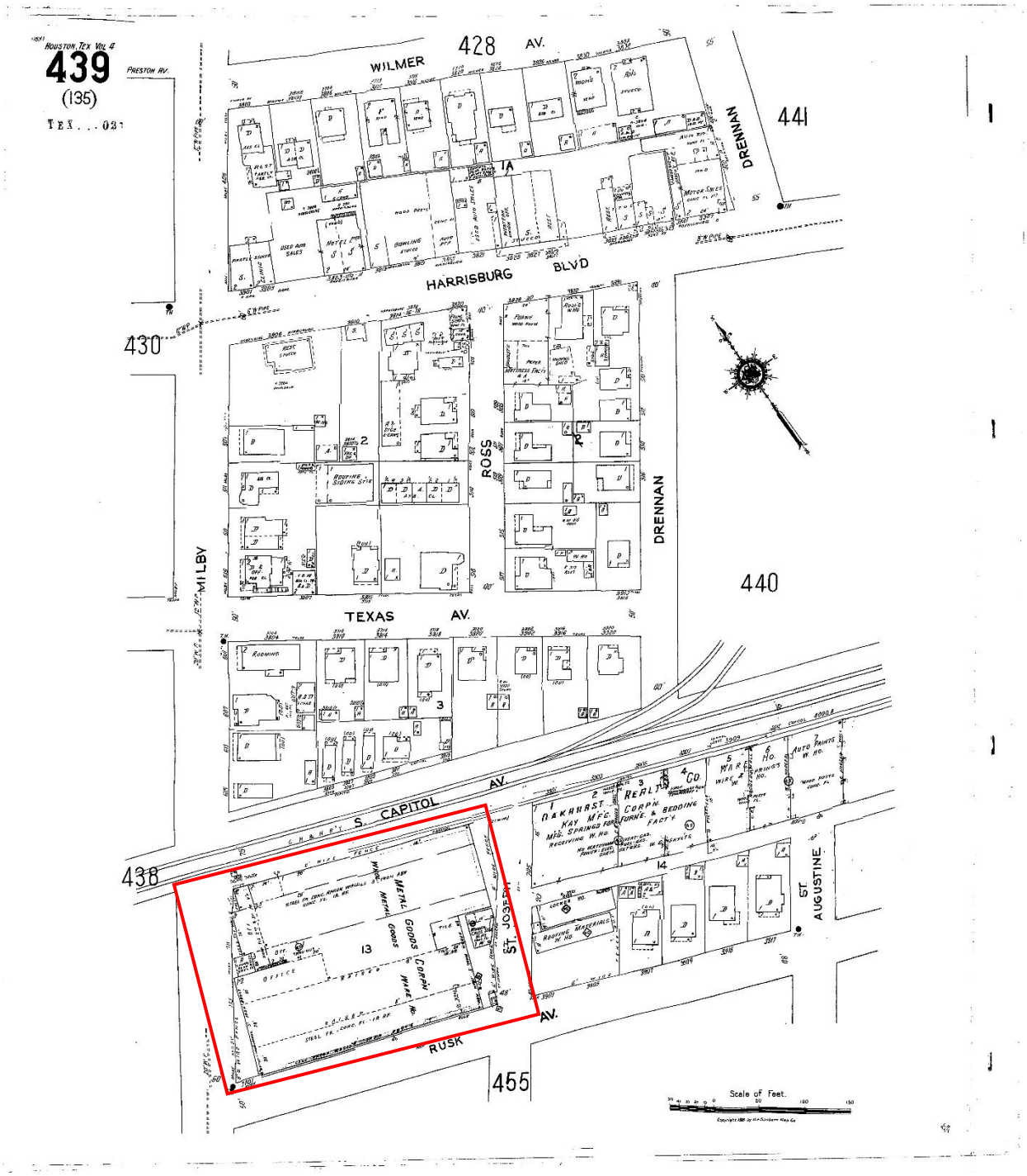


Map 3
Cameron Iron Works, 711 Milby Street, Houston, Harris County, Texas
Google Earth Map, accessed April 15, 2019

Map 4
1925 Sanborn Map, Volume 4, Sheet 439
Courtesy of ProQuest: Digital Sanborn Maps 1867 – 1970



Map 5
1951 Sanborn Map, Volume 4, Sheet 439
Courtesy of ProQuest: Digital Sanborn Maps 1867 – 1970



Map 6
1951 Sanborn Map, Volume 4, Sheet 439
Courtesy of ProQuest: Digital Sanborn Maps 1867 – 1970

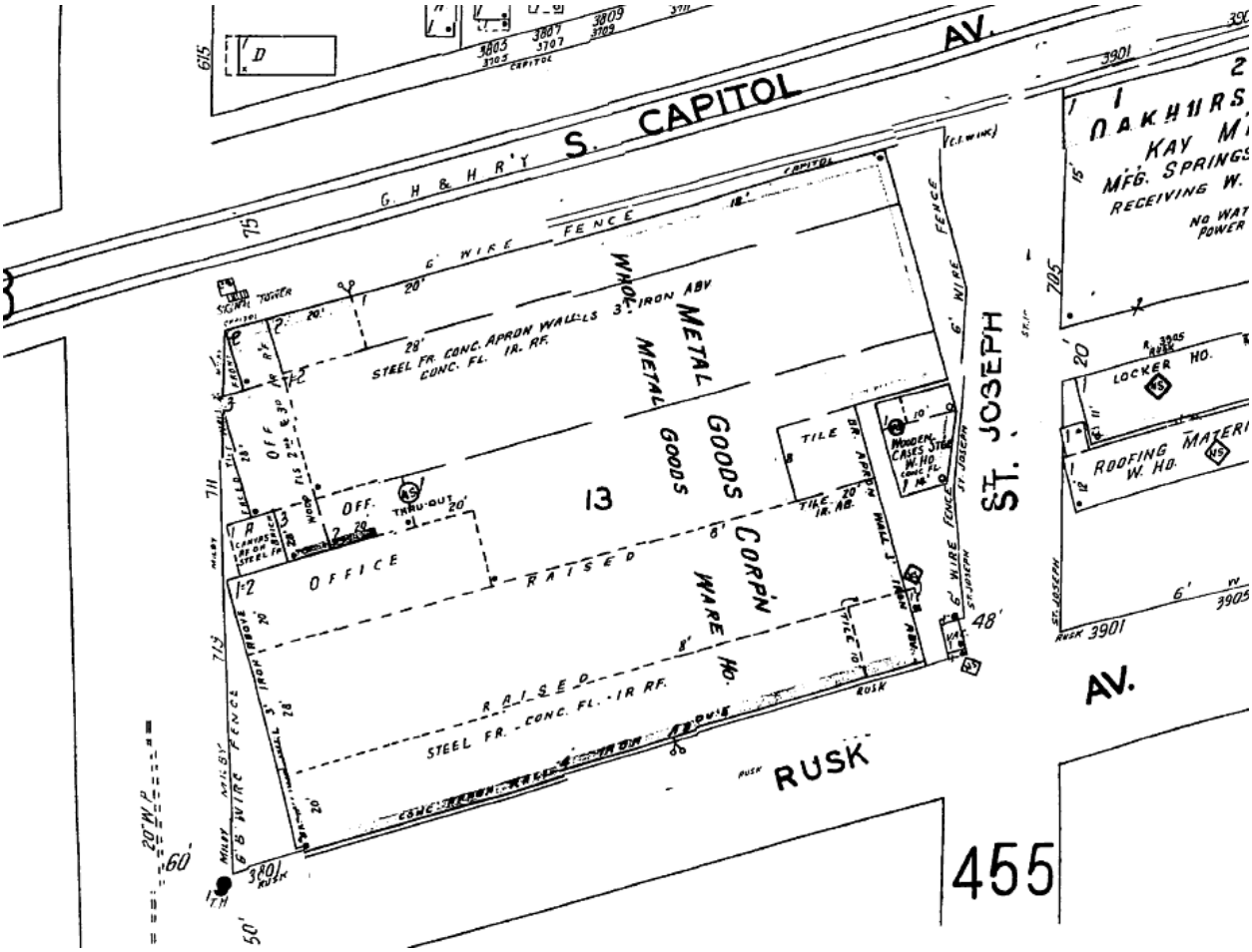


Figure 1
Cameron-Davant Company workers, predecessor of Cameron Iron Works, date unknown. Courtesy of Sylvia Cameron.

Figure 2
Old machine shop at 711 Milby at left, possible Truscon Series "A" – Sawtooth Type addition at right, date unknown. Courtesy of Sylvia Cameron.

Figure 3
Old machine shop at 711 Milby, staged photograph of blow-out preventer sketched on the dirt floor, date unknown. Courtesy of Sylvia Cameron.

Figure 4
Original "Blow-Out Preventer" patent, 1926. Courtesy of Google Patents.

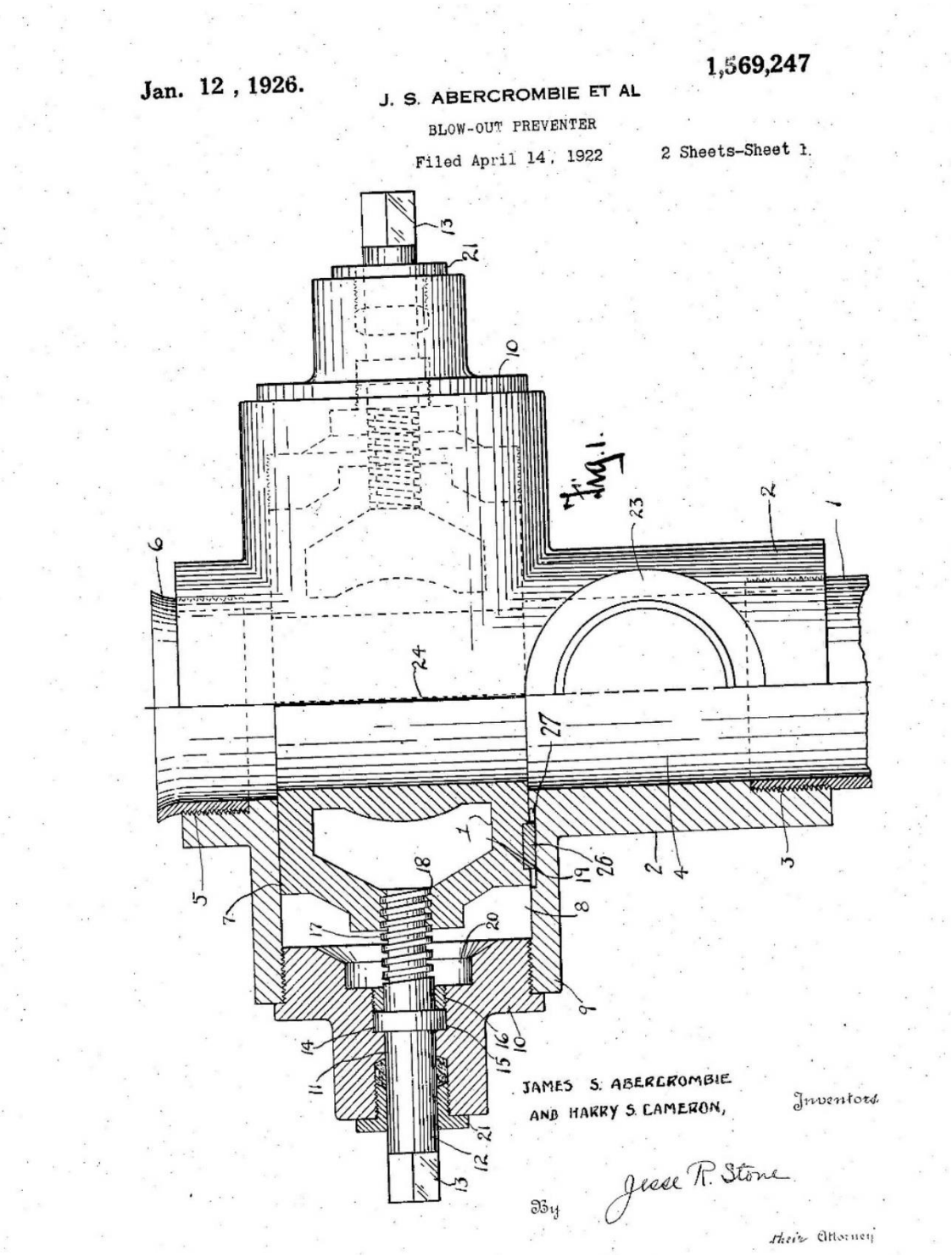


Figure 5
Styled office façade at 711 Milby, 1935. Courtesy of *Houston Chronicle* via GenealogyBank.

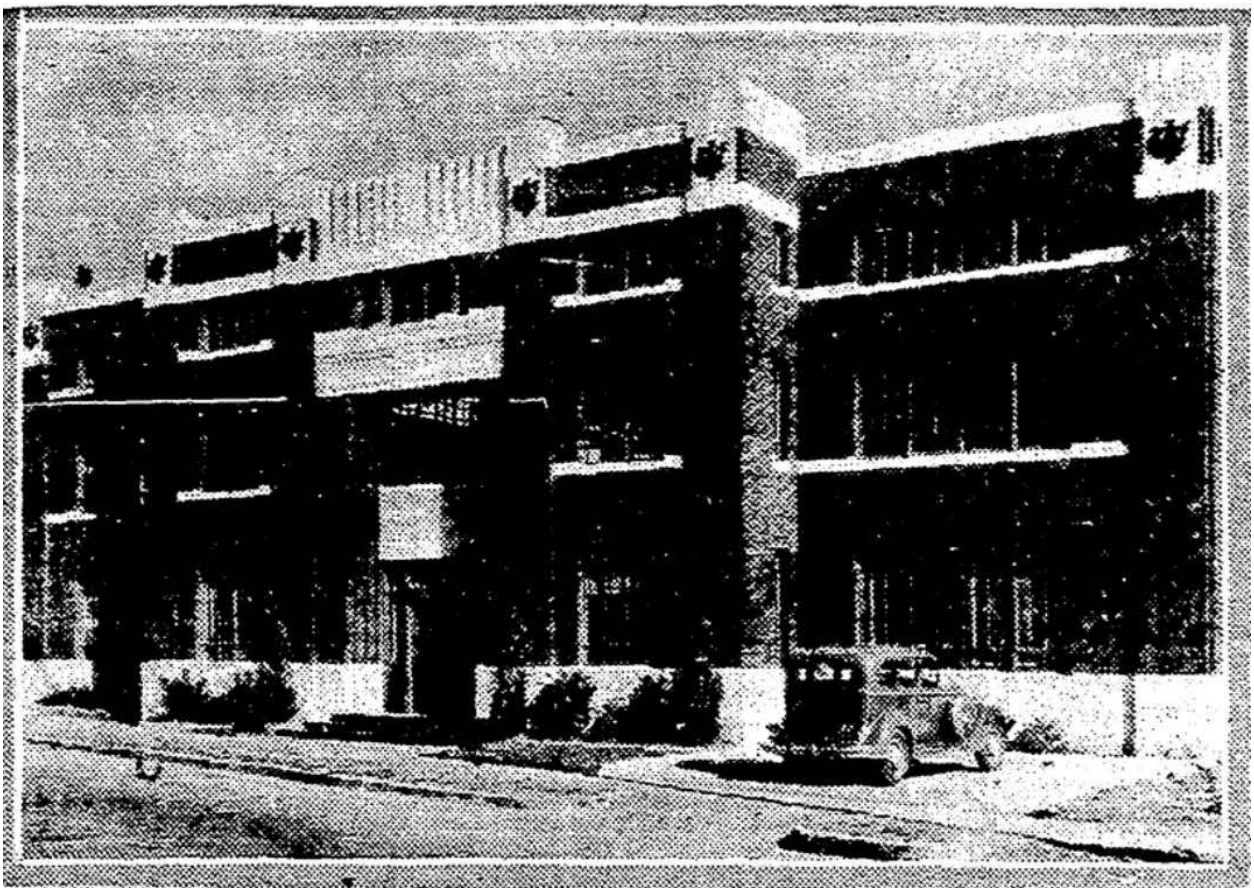


Figure 6
Interior, Warehouse 2 at 711 Milby, view southwest, date unknown. Courtesy of Houston Metropolitan Research Center.

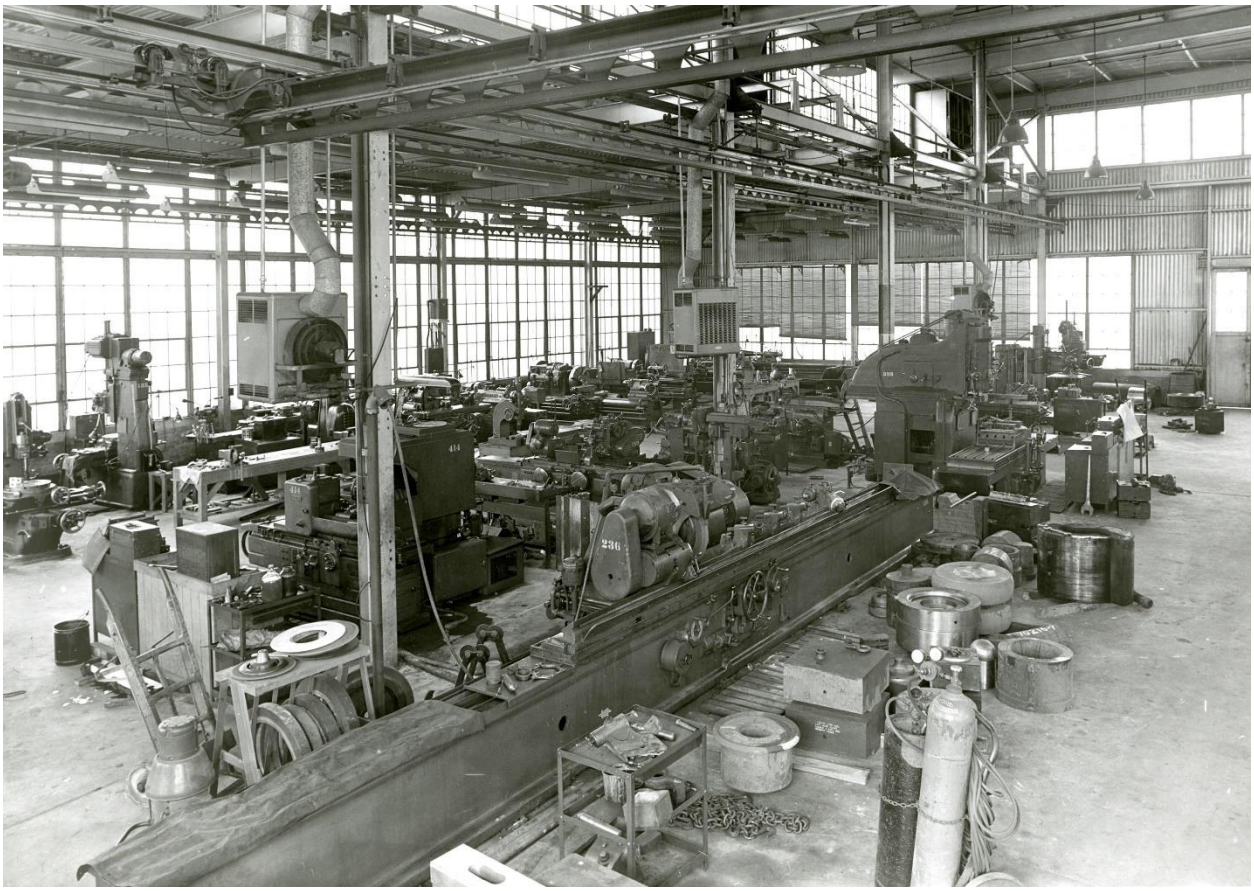
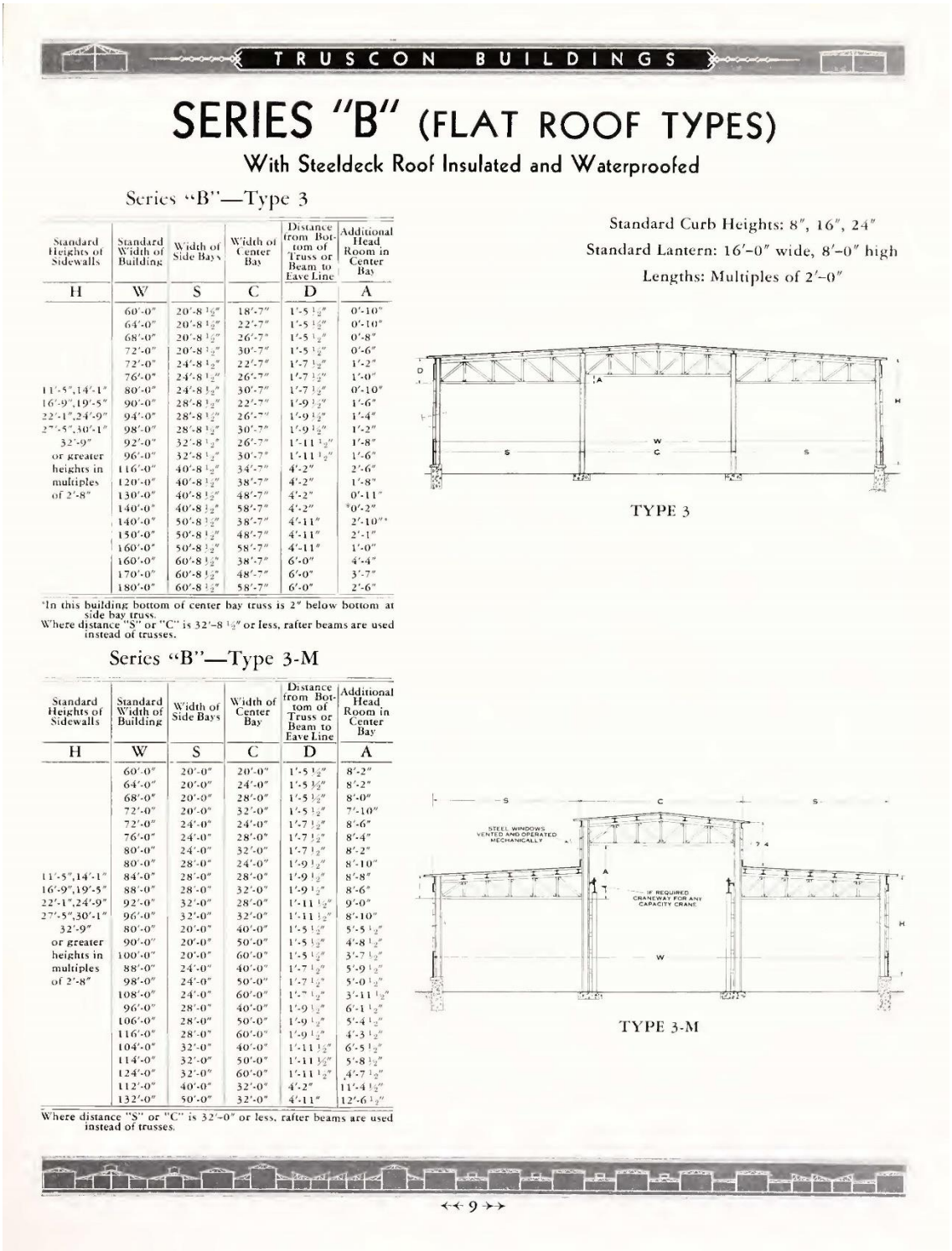


Figure 7
Series "B" (Flat Roof Types), page 9 of 1930 Truscon Steel Company catalogue. Courtesy of APT Building Technology Heritage Library hosted by Archive.org.



TRUSCON BUILDINGS

SERIES "B" (FLAT ROOF TYPES)

With Steeldeck Roof Insulated and Waterproofed

Series "B"—Type 3

Standard Heights of Sidewalls	Standard Width of Building	Width of Side Bays	Width of Center Bay	Distance from Bottom of Truss or Beam to Eave Line	Additional Head Room in Center Bay
H	W	S	C	D	A
	60′-0″	20′-8 ½″	18′-7″	1′-5 ½″	0′-10″
	64′-0″	20′-8 ½″	22′-7″	1′-5 ½″	0′-10″
	68′-0″	20′-8 ½″	26′-7″	1′-5 ½″	0′-8″
	72′-0″	20′-8 ½″	30′-7″	1′-5 ½″	0′-6″
	72′-0″	24′-8 ½″	22′-7″	1′-7 ½″	1′-2″
	76′-0″	24′-8 ½″	26′-7″	1′-7 ½″	1′-0″
11′-5″,14′-1″	80′-0″	24′-8 ½″	30′-7″	1′-7 ½″	0′-10″
16′-9″,19′-5″	90′-0″	28′-8 ½″	22′-7″	1′-9 ½″	1′-6″
22′-1″,24′-9″	94′-0″	28′-8 ½″	26′-7″	1′-9 ½″	1′-4″
27′-5″,30′-1″	98′-0″	28′-8 ½″	30′-7″	1′-9 ½″	1′-2″
32′-9″	92′-0″	32′-8 ½″	26′-7″	1′-11 ½″	1′-8″
or greater	96′-0″	32′-8 ½″	30′-7″	1′-11 ½″	1′-6″
heights in	116′-0″	40′-8 ½″	34′-7″	4′-2″	2′-6″
multiples	120′-0″	40′-8 ½″	38′-7″	4′-2″	1′-8″
of 2′-8″	130′-0″	40′-8 ½″	48′-7″	4′-2″	0′-11″
	140′-0″	40′-8 ½″	58′-7″	4′-2″	*0′-2″
	140′-0″	50′-8 ½″	38′-7″	4′-11″	2′-10″*
	150′-0″	50′-8 ½″	48′-7″	4′-11″	2′-1″
	160′-0″	50′-8 ½″	58′-7″	4′-11″	1′-0″
	160′-0″	60′-8 ½″	38′-7″	6′-0″	4′-4″
	170′-0″	60′-8 ½″	48′-7″	6′-0″	3′-7″
	180′-0″	60′-8 ½″	58′-7″	6′-0″	2′-6″

*In this building bottom of center bay truss is 2″ below bottom at side bay truss.
Where distance "S" or "C" is 32′-8 ½″ or less, rafter beams are used instead of trusses.

Standard Curb Heights: 8″, 16″, 24″
Standard Lantern: 16′-0″ wide, 8′-0″ high
Lengths: Multiples of 2′-0″

TYPE 3

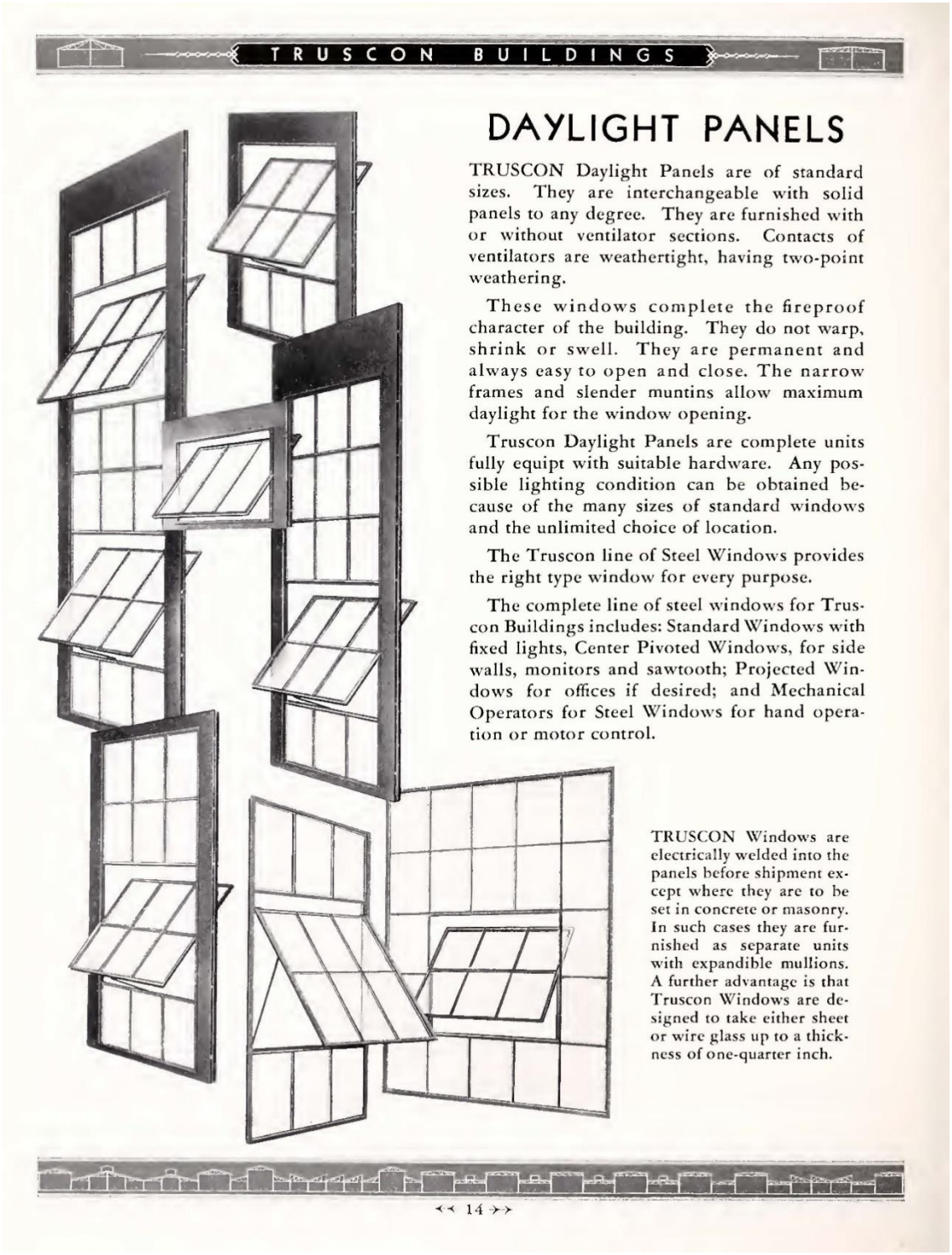
Series "B"—Type 3-M

Standard Heights of Sidewalls	Standard Width of Building	Width of Side Bays	Width of Center Bay	Distance from Bottom of Truss or Beam to Eave Line	Additional Head Room in Center Bay
H	W	S	C	D	A
	60′-0″	20′-0″	20′-0″	1′-5 ½″	8′-2″
	64′-0″	20′-0″	24′-0″	1′-5 ½″	8′-2″
	68′-0″	20′-0″	28′-0″	1′-5 ½″	8′-0″
	72′-0″	20′-0″	32′-0″	1′-5 ½″	7′-10″
	72′-0″	24′-0″	24′-0″	1′-7 ½″	8′-6″
	76′-0″	24′-0″	28′-0″	1′-7 ½″	8′-4″
	80′-0″	24′-0″	32′-0″	1′-7 ½″	8′-2″
	80′-0″	28′-0″	24′-0″	1′-9 ½″	8′-10″
11′-5″,14′-1″	84′-0″	28′-0″	28′-0″	1′-9 ½″	8′-8″
16′-9″,19′-5″	88′-0″	28′-0″	32′-0″	1′-9 ½″	8′-6″
22′-1″,24′-9″	92′-0″	32′-0″	28′-0″	1′-11 ½″	9′-0″
27′-5″,30′-1″	96′-0″	32′-0″	32′-0″	1′-11 ½″	8′-10″
32′-9″	80′-0″	20′-0″	40′-0″	1′-5 ½″	5′-5 ½″
or greater	90′-0″	20′-0″	50′-0″	1′-5 ½″	4′-8 ½″
heights in	100′-0″	20′-0″	60′-0″	1′-5 ½″	3′-7 ½″
multiples	88′-0″	24′-0″	40′-0″	1′-7 ½″	5′-9 ½″
of 2′-8″	98′-0″	24′-0″	50′-0″	1′-7 ½″	5′-0 ½″
	108′-0″	24′-0″	60′-0″	1′-7 ½″	3′-11 ½″
	96′-0″	28′-0″	40′-0″	1′-9 ½″	6′-1 ½″
	106′-0″	28′-0″	50′-0″	1′-9 ½″	5′-4 ½″
	116′-0″	28′-0″	60′-0″	1′-9 ½″	4′-3 ½″
	104′-0″	32′-0″	40′-0″	1′-11 ½″	6′-5 ½″
	114′-0″	32′-0″	50′-0″	1′-11 ½″	5′-8 ½″
	124′-0″	32′-0″	60′-0″	1′-11 ½″	4′-7 ½″
	112′-0″	40′-0″	32′-0″	4′-2″	11′-4 ½″
	132′-0″	50′-0″	32′-0″	4′-11″	12′-6 ½″

Where distance "S" or "C" is 32′-0″ or less, rafter beams are used instead of trusses.

TYPE 3-M

Figure 8
"Daylight Panels," page 14 of 1930 Truscon Steel Company catalogue. Courtesy of APT Building Technology Heritage Library hosted by Archive.org.



TRUSCON BUILDINGS

DAYLIGHT PANELS

TRUSCON Daylight Panels are of standard sizes. They are interchangeable with solid panels to any degree. They are furnished with or without ventilator sections. Contacts of ventilators are weathertight, having two-point weathering.

These windows complete the fireproof character of the building. They do not warp, shrink or swell. They are permanent and always easy to open and close. The narrow frames and slender muntins allow maximum daylight for the window opening.

Truscon Daylight Panels are complete units fully equipt with suitable hardware. Any possible lighting condition can be obtained because of the many sizes of standard windows and the unlimited choice of location.

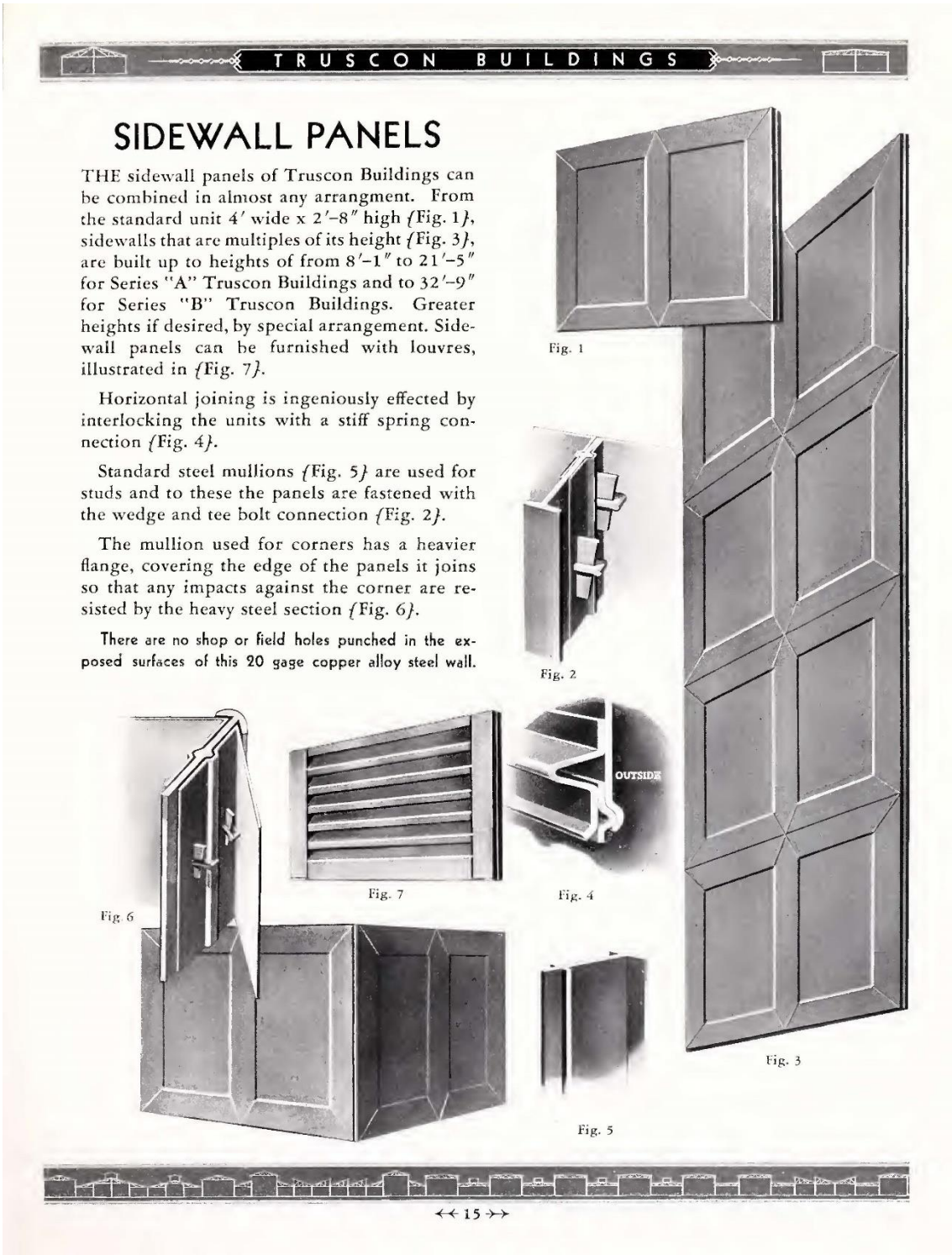
The Truscon line of Steel Windows provides the right type window for every purpose.

The complete line of steel windows for Truscon Buildings includes: Standard Windows with fixed lights, Center Pivoted Windows, for side walls, monitors and sawtooth; Projected Windows for offices if desired; and Mechanical Operators for Steel Windows for hand operation or motor control.

TRUSCON Windows are electrically welded into the panels before shipment except where they are to be set in concrete or masonry. In such cases they are furnished as separate units with expandible mullions. A further advantage is that Truscon Windows are designed to take either sheet or wire glass up to a thickness of one-quarter inch.

14

Figure 9
"Sidewall Panels," page 15 of 1930 Truscon Steel Company catalogue. Courtesy of APT Building Technology Heritage Library hosted by Archive.org.



TRUSCON BUILDINGS

SIDEWALL PANELS

THE sidewall panels of Truscon Buildings can be combined in almost any arrangment. From the standard unit 4′ wide x 2′–8″ high {Fig. 1}, sidewalls that are multiples of its height {Fig. 3}, are built up to heights of from 8′–1″ to 21′–5″ for Series "A" Truscon Buildings and to 32′–9″ for Series "B" Truscon Buildings. Greater heights if desired, by special arrangement. Sidewall panels can be furnished with louvres, illustrated in {Fig. 7}.

Horizontal joining is ingeniously effected by interlocking the units with a stiff spring connection {Fig. 4}.

Standard steel mullions {Fig. 5} are used for studs and to these the panels are fastened with the wedge and tee bolt connection {Fig. 2}.

The mullion used for corners has a heavier flange, covering the edge of the panels it joins so that any impacts against the corner are resisted by the heavy steel section {Fig. 6}.

There are no shop or field holes punched in the exposed surfaces of this 20 gage copper alloy steel wall.

Fig. 1

Fig. 2

Fig. 3

Fig. 4

OUTSIDE

Fig. 5

Fig. 6

Fig. 7

15

Figure 10
"Garages and Service," page 22 of 1930 Truscon Steel Company catalogue, examples of styled office facades. Courtesy of APT Building Technology Heritage Library hosted by Archive.org.

Figure 11
"Factories and Shops," page 26 of 1930 Truscon Steel Company catalogue, example of styled office façade. Courtesy of APT Building Technology Heritage Library hosted by Archive.org.

Figure 12
"Factories and Shops," page 27 of 1930 Truscon Steel Company catalogue, example of styled office façade. Courtesy of APT Building Technology Heritage Library hosted by Archive.org.

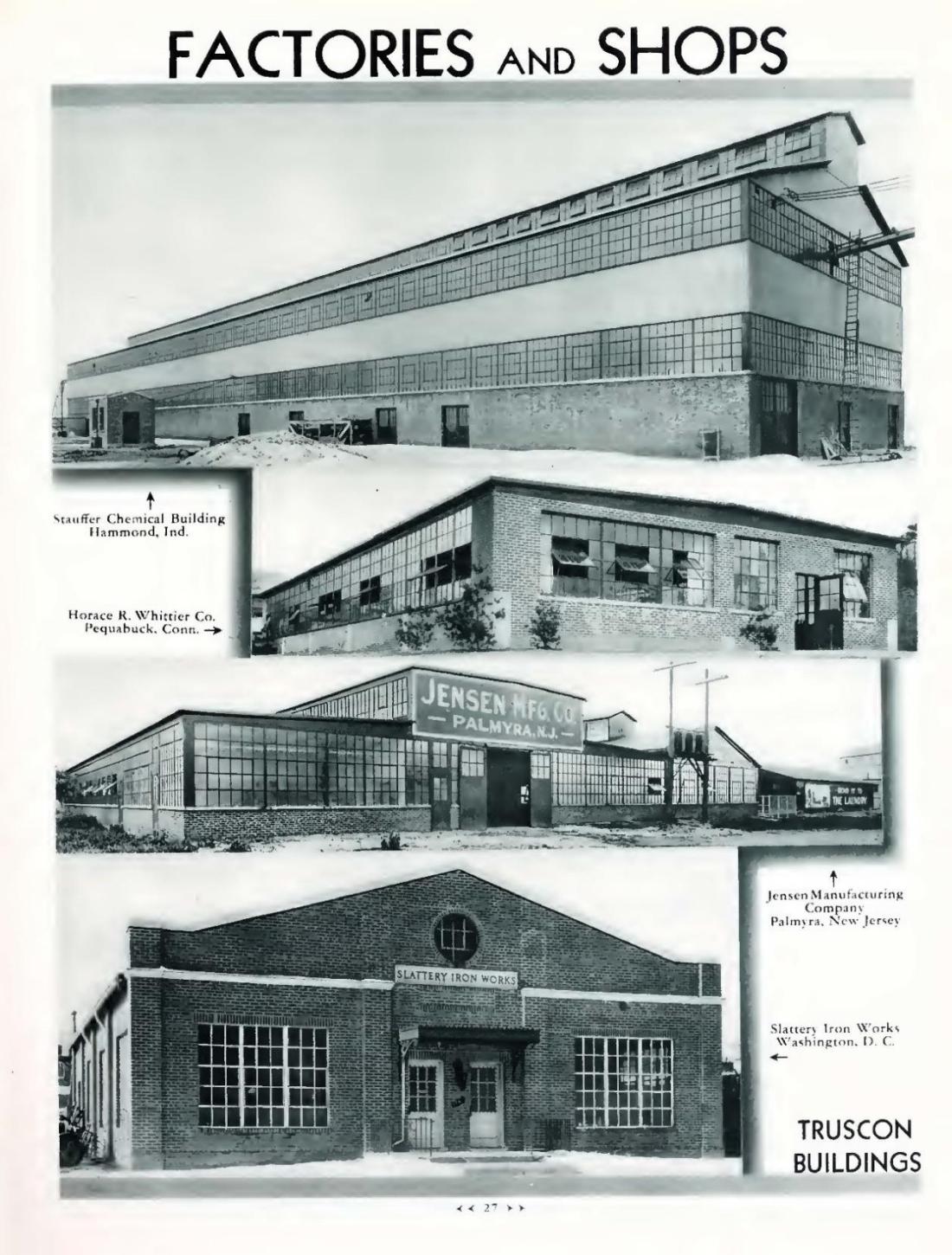
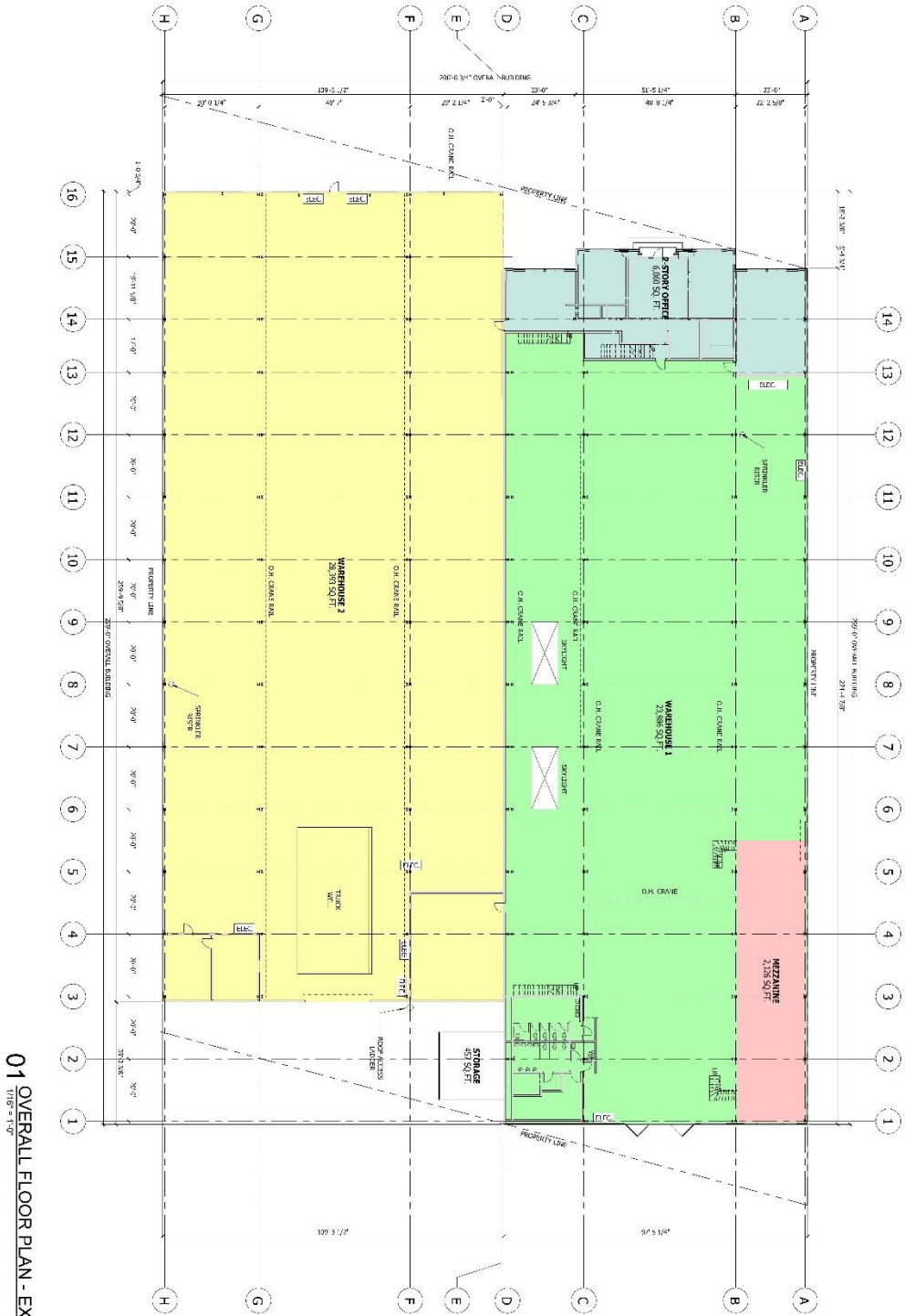
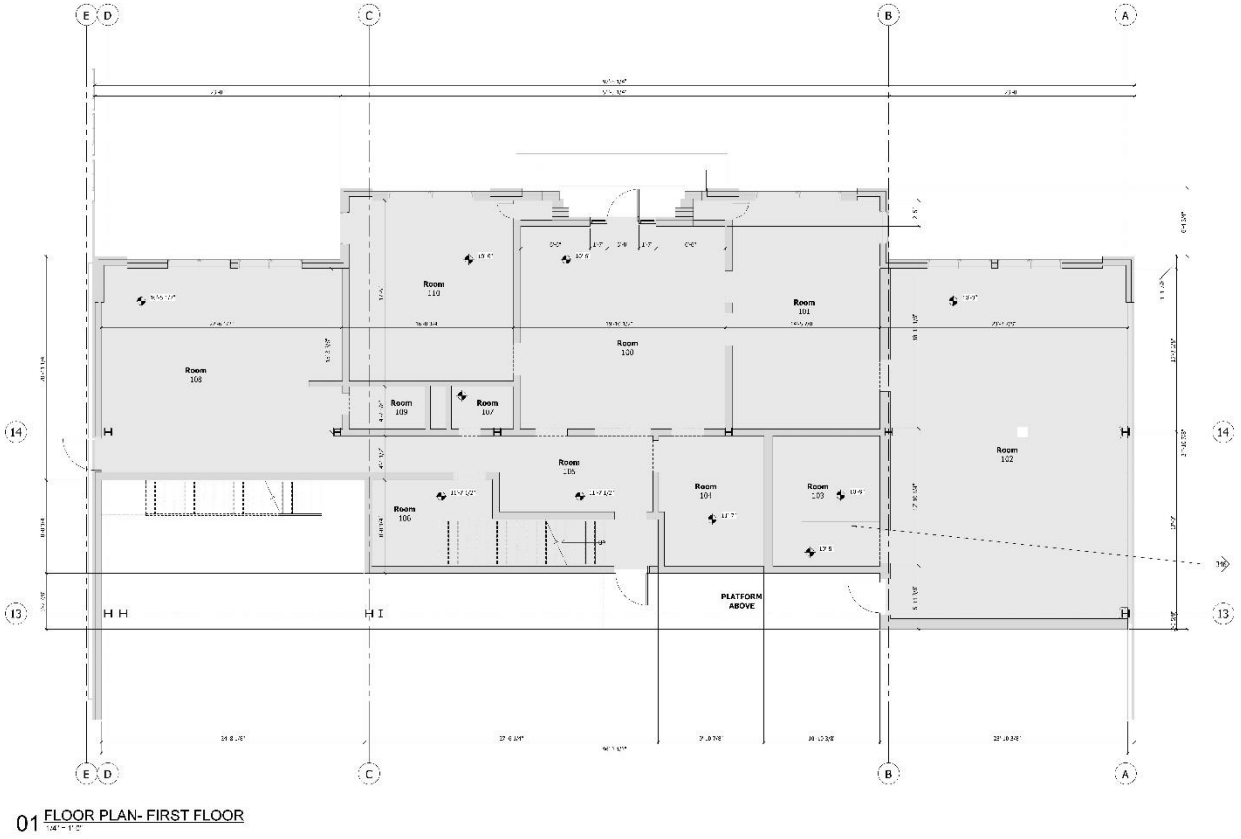


Figure 13
Architectural drawings, existing first floor plan



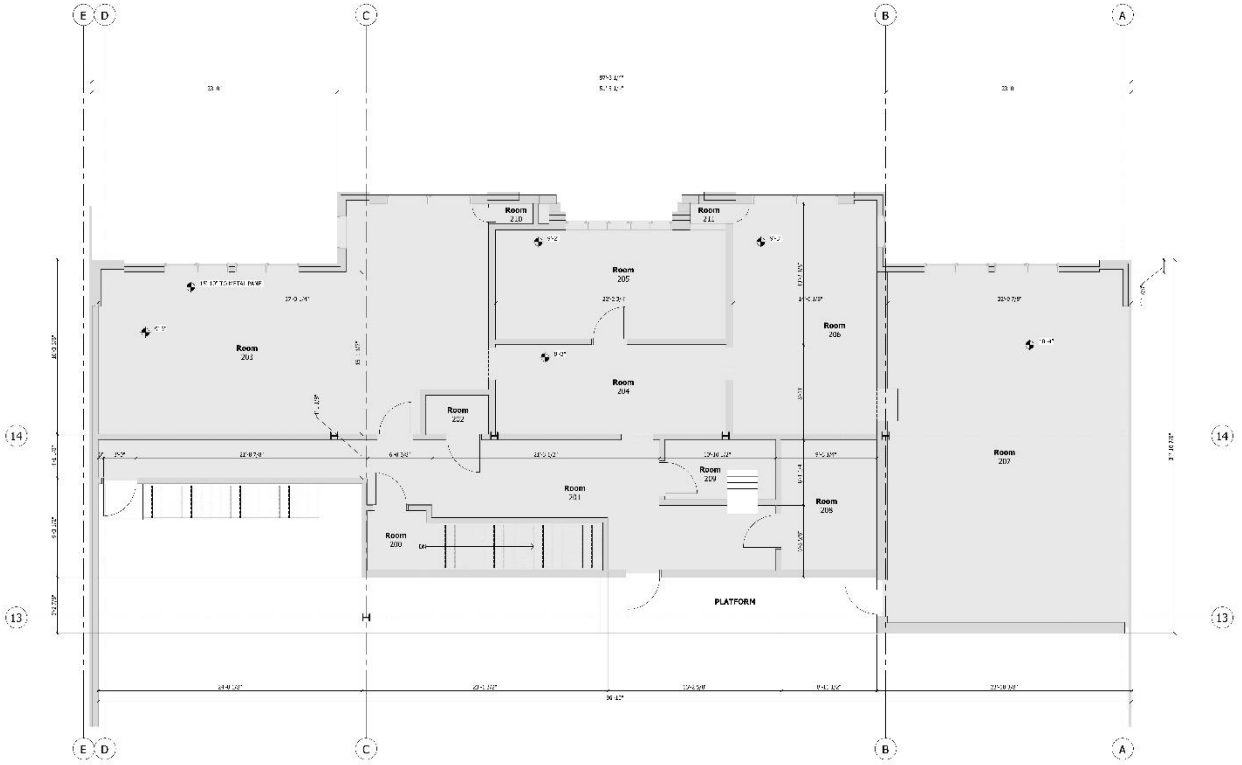
01 OVERALL FLOOR PLAN - EXISTING
1/16" = 1'-0"

Figure 14
Architectural drawings, existing first floor plan – office



01 FLOOR PLAN- FIRST FLOOR

Figure 15
Architectural drawings, existing second floor plan – office



01 FLOOR PLAN- SECOND FLOOR

Photo 1
Exterior, west (front) elevation of Warehouse 2 and Warehouse 1 with styled office façade beyond, view northeast

Photo 2
Exterior, west (front) elevation of Warehouse 2, view east

Photo 3
Exterior, west (front) elevation of Warehouse 1 with styled office façade, view east

Photo 4
Exterior, north (side) elevation of Warehouse 1 and office, view southeast

Photo 5
Exterior, north (side) elevation of Warehouse 1, view southwest

Photo 6
Exterior, east (rear) elevation of Warehouse 1, view southwest

Photo 7
Exterior, east (rear) elevation of Warehouse 2, view west

Photo 8
Exterior, south (side) elevation of Warehouse 2, view northwest

Photo 9
Exterior, south (side) elevation of Warehouse 2, view northeast

Photo 10
Exterior, detail of central bay of styled office façade, view east

Photo 11
Exterior, south (side) elevation of Warehouse 2, detail of typical panels and windows, view north

Photo 12
Interior, first floor, office, view east

Photo 13
Interior, first floor, office, view northeast

Photo 14
Interior, first floor, office, view southeast towards Warehouse 2

Photo 15
Interior, second floor, office, original interior rear wall of office, view north

Photo 16
Interior, second floor, office, view south towards Warehouse 2

Photo 17
Interior, second floor, office, view southeast towards original interior rear wall

Photo 18
Interior, Warehouse 1, view east

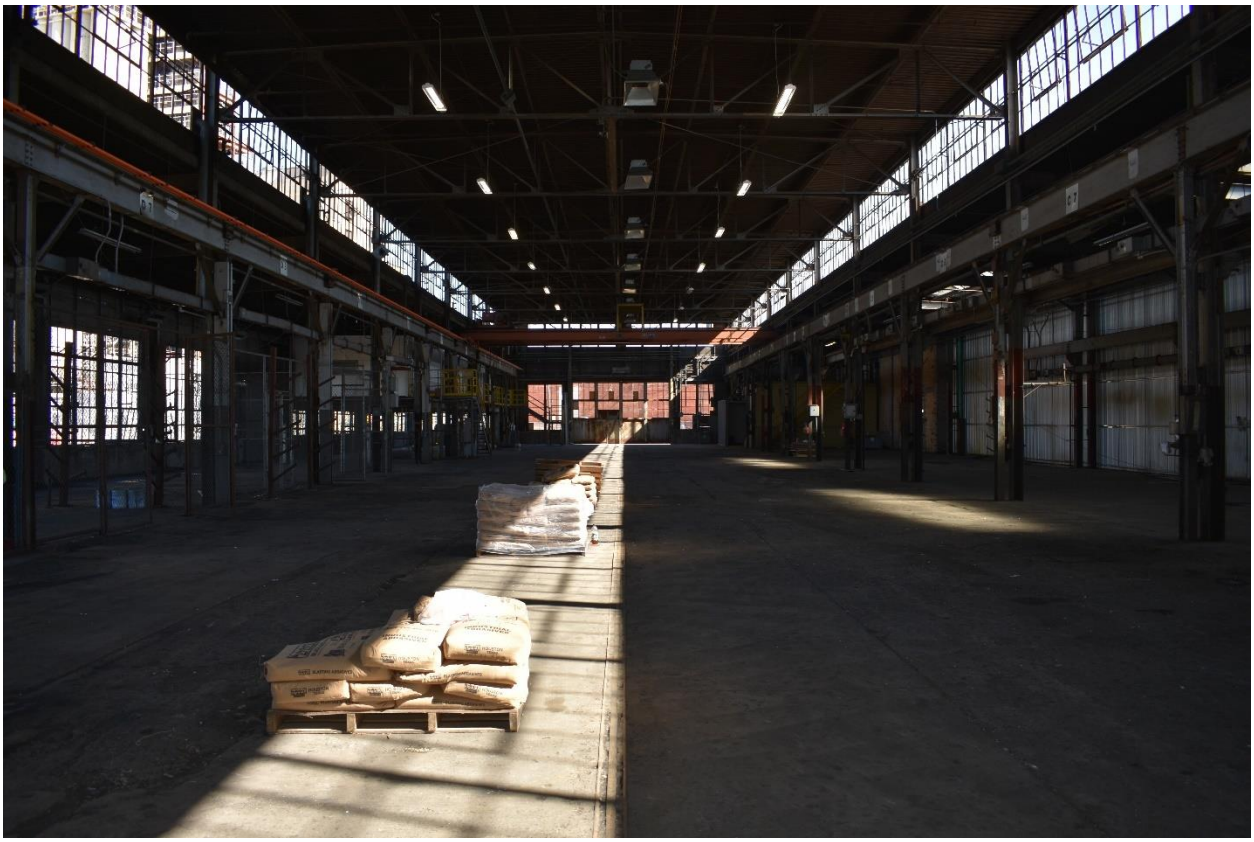


Photo 19
Interior, Warehouse 1, view west towards office

Photo 20
Interior, Warehouse 2, view east

Photo 21
Interior, Warehouse 2, view west