United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

National Register of Historic Places
Date listed 12/31/2008
NRIS No. 08001263
Oregon SHPO

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in *How to Complete the National Register of Historic Places Registration Form* (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

Historic name Pacific Hardware & Steel Company Warehouse

Other names/site number

2. Location

street & number 2181 NW Nicolai Street ☐ not for publication

city of town Portland ☐ vicinity

State Oregon code OR county Multnomah code 051 zip code 97210

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this _X_ 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 _X_ meets __ does not meet the National Register Criteria. I recommend that this property be considered significant __ nationally __ statewide _X_ locally. (__ See continuation sheet for additional comments.)

Signature of certifying official/Deputy SHPO

11·17·08
Date

Oregon State Historic Preservation Office
State or Federal agency and bureau

In my opinion, the property __ meets __ does not meet the National Register criteria. (__ See continuation sheet for additional comments.)

Signature of certifying official/Title Date

State or Federal agency and bureau

4. National Park Service Certification

I, hereby, certify that this property is: Signature of the Keeper Date of Action

__ entered in the National Register
__ See continuation sheet

__ determined eligible for the National Register
__ See continuation sheet

__ determined not eligible for the National Register

__ removed from the National Register

__ other (explain:)

5. Classification

Ownership of Property
(Check as many boxes as apply)

- X private
- ___ public - Local
- ___ public - State
- ___ public - Federal

Category of Property
(Check only one box)

- X building(s)
- ___ district
- ___ site
- ___ structure
- ___ object

Number of Resources within Property
(Do not include previously listed resources in the count.)

Contributing	Non-Contributing	
1		buildings
		sites
		structures
		objects
1	0	Total

Name of related multiple property listing
(Enter "N/A" if property is not part of a multiple property listing)

N/A

Number of contributing resources previously listed in the National Register

None

6. Function or Use

Historic Functions
(Enter categories from instructions)

INDUSTRY: Industrial Storage
COMMERCE/TRADE: Business

Current Functions
(Enter categories from instructions)

COMMERCE/TRADE: Business / Warehouse

7. Description

Architectural Classification
(Enter categories from instructions)

LATE 19TH AND EARLY 20TH CENTURY
AMERICAN MOVEMENTS:
Commercial Style

Materials
(Enter categories from instructions)

foundation: CONCRETE
walls: BRICK
roof: OTHER: Built-up Roof
other:

Narrative Description
(Describe the historic and current condition of the property on one or more continuation sheets)

8. Statement of Significance

Applicable National Register Criteria
(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing)

___ A Property is associated with events that have made a significant contribution to the broad patterns of our history.

___ B Property is associated with the lives of persons significant in our past.

X C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.

___ D Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations
(Mark "x" in all the boxes that apply)

Property is:

___ A owed by a religious institution or used for religious purposes.

___ B removed from its original location.

___ C a birthplace or grave.

___ D a cemetery.

___ E a reconstructed building, object, or structure.

___ F a commemorative property.

___ G less than 50 years old or achieving significance within the past 50 years.

Areas of Significance
(Enter categories from instructions)

ARCHITECTURE
ENGINEERING

Period of Significance

1910

Significant Dates

N/A

Significant Person
(Complete if Criterion B is marked above)

N/A

Cultural Affiliation

N/A

Architect/Builder

Bennes & Hendricks

Narrative Statement of Significance
(Explain the significance of the property on one or more continuation sheets)

9. Major Bibliographical References

Bibliography (Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets)

Previous documentation on file (NPS):

___ preliminary determination of individual listing (36 CFR 67 has been requested
___ 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:

___ State Historic Preservation Office
___ Other State agency
___ Federal agency
___ Local government
X University
X Other
Name of repository: Owner (original plans)

10. Geographical Data

Acreage of Property 1.08 acres

UTM References
(Place additional UTM references on a continuation sheet)

	Zone	Easting	Northing		Zone	Easting	Northing
1	10	523753	5042954	3			
2				4			

Verbal Boundary Description
(Describe the boundaries of the property on a continuation sheet)

Boundary Justification
(Explain why the boundaries were selected on a continuation sheet)

11. Form Prepared By

name/title Jessica Engeman

organization Venerable Group, Inc. date 31 June 2008

street & number 70 NW Couch Street, Suite 207 telephone (503) 224-2446

city or town Portland state OR zip code 97209

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets

Maps: A USGS map (7.5 or 15 minute series) indicating the property's location.
A Sketch map for historic districts and properties having large acreage or numerous resources.

Photographs: Representative **black and white photographs** of the property.

Additional items: (Check with the SHPO or FPO for any additional items)

Property Owner

name Nicolai Bldg., LLC c/o Doug Bean & Associates, Attn: Dann Wonser

street & number 1211 SW 5th Avenue., Suite 1440 telephone (503) 478-4898

city or town Portland state OR zip code 97204

National Register of Historic Places Continuation Sheet

SUMMARY

The Pacific Hardware & Steel Company (PHSC) Warehouse is located at 2181 NW Nicolai Street in Portland, Oregon. Built in 1910, the south-facing building is a four-story (plus full basement) masonry structure with heavy-timber posts and beams. It features cement ornamentation, a belt course between the third and fourth stories, and a three-story frame around the main entry. The building is rectangular in shape with a chamfered corner and is 103,172 square feet.

The firm of Bennes & Hendricks executed the design, as noted on a partial set of original plans retained by the owner.[1] A sketch of the building was published in a 1910 promotional booklet on the works of Bennes & Hendricks and helps confirm the high level of historical integrity this building maintains today (see Exhibit A).[2]

A concrete warehouse building located at 2211 NW Nicolai Street and built at the same time as the subject property, shares a party wall on the north side. Historically this warehouse served as a stock shed for the Pacific Hardware & Steel Company—one of several ancillary structures on the site in 1910. This warehouse is not part of the property being nominated, primarily due to multiple additions made by subsequent owners that have greatly diminished its historical integrity. Furthermore, it was determined not critical to conveying the historical significance of the nominated warehouse, which was the flagship building for Pacific Hardware & Steel's Portland offices in 1910.

LOCATION

The Pacific Hardware & Steel Company Warehouse sits on a one-acre urban lot at 2181 NW Nicolai Street in Portland, Oregon. The building occupies approximately the southeast corner of the block bounded by NW Sherlock and the railroad right-of-way to the east, NW Yeon to the west, and NW Suffolk to the north.

The subject property is located in a long-established industrial area in northwest Portland. Immediately surrounding the warehouse are several buildings dating to the W. P. Fuller & Company's ownership of the site beginning in 1918. Fuller constructed a three-story paint factory at 2526 NW Yeon in 1923. A one-story concrete garage was constructed at 2245 NW Nicolai in the late 1940s or early 1950s (the permit record is not clear). The warehouse adjacent to the subject property has three large additions that were made beginning in 1929.

In the blocks immediately surrounding the building are newer one- and two-story warehouses, vacant land, and two power plants directly to the south on NW Nicolai. The subject property appears to be the oldest of the industrial buildings in this immediate area. During the weekdays, the area is dominated with the sights and sounds of truck and train traffic, as this is still a working industrial district.

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[1] Only floor plans for floors two through four are retained by the owner. These plans are stored in the building.

[2] *Work of Bennes & Hendricks, Architects,* (Portland, OR. 1910.)

The lot has no trees or landscaping. There is a sidewalk on NW Nicolai. It is concrete until just west the building's main entrance. For almost the remaining length of the lot, Belgian pavers are used at the same grade as the street and this has become a parking area.

THE BUILDING EXTERIOR IN GENERAL

Overall, the Pacific Hardware & Steel Company Warehouse does not clearly fall into any particular style. It does, however, feature some cement ornamentation that is Art Nouveau in flavor. This is seen particularly in the ornamental pendants, cement frame surrounding the main entry, and the absence of a strong cornice.

This building has a concrete foundation. The grade generally slopes down to the northeast and the foundation becomes increasingly more prominent with this slope.

The facades of this warehouse share many common elements and there is great continuity from façade to façade. The primary building material for this warehouse is a deep red brick laid in an American bond pattern. Decorative brick accents are used sparingly; however, brick pilasters mark the corner bays in a manner that is evocative of masonry quoins. The building's parapet also features some decorative patterning in the brick. A cement belt course wraps around the three main building façades at the fourth-floor sill line. The fourth (top) floor is slightly recessed from the rest of the structure and the parapet is capped with cement coping. The only regularly applied ornamentation consists of geometric pendants at the cement belt course line and at the parapet.

The metal-sash fire windows are primarily grouped in pairs and are centered in each bay, establishing a strong rhythmic order to the facades. There are wide brick spandrels between the bays of windows and the third floor window pairs are within brick segmental arches (except for those windows on the main entry facade, which are not within arches). Single windows are typically located at the building's corners or in the bays where elevator shafts are located. The windows are painted hollow-metal fire windows with brick sills coated in cement. The windows are single-hung two-over-two and most have wire glass. The majority of the windows are intact. Any alterations or modifications to the windows will be discussed below.

The roof is flat and features three original elevator overruns, visible as tower-like projections. Two are on the southwest façade and one on the east facade. The 1910 sketch of the building shows that these overruns were intended to be fully enclosed in brick with cement coping at the tops of the walls and rectangular brick belt courses. Today the overruns appear as a brick false front. From inspecting them on the roof, it appears they were not built as the sketch indicates. The sidewalls are made of brick (now covered in galvanized sheet metal), but are pulled in and do not adjoin the "false front" wall at its edges as shown on the sketch.

An original brick chimney protrudes from the roof in the west corner. Like the brick elevator overrun walls, the chimney also has two brick belt courses and is capped with cement coping. The chimney is slightly shorter than the elevator penthouses and therefore is only visible when is standing at the west end of the building

looking at the southwest façade. A large white, metal water tank sits atop a stair/elevator penthouse in the center of the roof. It is not known if this 28,000-gallon tank is original.

ENTRY/SOUTH FAÇADE

The design of the warehouse takes advantage of a change in the street alignment where NW Nicolai cuts a diagonal across the corner of the block. The architect situated the main entry where the diagonal begins, creating a prominent chamfered corner. The entry is made even more significant with a three-story cement frame surrounding the main door that meets the cement belt course at the fourth-floor sill level. Such a monumental entry is somewhat atypical for a warehouse; however, given that this building also housed the regional offices for the Pacific Hardware & Steel Company, there was reason for such an architectural statement.

At this main entry one enters the building at grade. The 1910 sketch shows that the architects intended that there be double doors with relites. A modification to the entry doorway was made at a date unknown, though likely by 1945[3], during which time glass blocks filled the doorway to surround a single wood door with a large glass lite. The door is slightly recessed and the glass blocks curve in from the face of the building to meet the door. A sign with the letters "CBI" (for Coffee Bean International—the current tenant) is located above the door.

The windows on this entry façade are all grouped in pairs. Originally there were three pairs on floors two, three, and four, with two of these being within the cement entry frame. The two ground floor window pairs—one on either side of the entry door—are larger than those on the upper floors due to transoms above the two-over-two sashes. The ground floor window to the west of the door was replaced with a second entry door probably around 1923.[4] The doorway was surrounded by green structural glass with a thin metal frame—a common building material in Art Deco buildings of the 1920s. The structural glass extends as high as the second story windowsills and is confined to the brick facade area between the cement entry frame and the quoin-like brick pilasters. The area above the doorway reads "Fuller & Co.," and this was likely an entry to a small retail branch that sold paint and other products manufactured by Fuller & Co. At a date unknown, the door was removed and this opening was converted to a glazed window display.

The corners of this chamfered entry façade feature pilasters of repeated brick courses that extend to the outer edges of the windows and corner keying.

As mentioned earlier, there is a cement belt course that adjoins the sills of the fourth-floor windows. At each end of the belt course there are two geometric pendants. They are comprised of a square placed on the belt course, with a narrow rectangle extending downward.

[3] The permit record indicates the offices were remodeled in 1945.

[4] W.P. Fuller & Co. purchased the property in 1918 and began doing extensive improvements in 1923.

Above the fourth floor windows are three brick belt courses that run the length of this entry façade and continue around the corners into the first bay on either side. The combination of the chamfered corner, the brick pilasters, and the belt courses help unify the three south-facing facades and they transition seamlessly from one to another.

The top of the parapet wall is capped with cement coping. There are four large, evenly spaced pendants that extend down from the coping. They are about twice the size of the smaller pendants below and are more prominent and three-dimensional with three stacking geometric shapes rather than two.

SOUTHEAST FAÇADE

The southeast façade of the warehouse fronts NW Nicolai Street. The grade slopes gradually to the northeast. This façade is comprised of six bays, five of which have window pairs. The third-floor pairs are located within segmental-arched openings. The western edge of the facade features a bay of single windows—one per floor. These windows are placed between the quoin-like brick pilasters at the corner and a second pilaster immediately to the northeast.

The two northeastern-most ground floor windows have been infilled with glass blocks, likely within the last thirty years.

On the second-to-last bay, there are metal fire escape stairs on the second and third floor windows. A ladder extends from the second floor to the ground.

There are three pairs of the large and small cement pendants on this façade. One pair is at the southwestern end and two at the northeastern.

On the parapet above the fourth-floor windows are brick belt courses that had the original purpose of framing signage that advertised the Pacific Hardware & Steel Company.

SOUTHWEST FAÇADE

The southwest façade is where the shipping and receiving from trucks occurs, though, at the time the building was constructed this would have been primarily horse and wagon traffic. The façade is comprised of ten bays, eight of which have window pairs. There is a concrete loading dock that extends almost the entire length of this façade. Truck traffic enters off of NW Nicolai, near the intersection with NW Yeon St., and proceeds through a parking lot to reach the loading dock. The dock was originally made of wood and was replaced in 1937.

On this façade, there were originally five roll-up loading dock doors and two freight elevator doors at the loading dock level. The original doors have been replaced with newer metal doors. All of the loading door openings have transoms above (the same hollow metal fire windows as the rest of the building). One of the

roll-up door openings was recently infilled with drywall, but the transom is still intact. The roll-up doors are directly in alignment with the window bays above, though it is somewhat difficult to read this from the ground due to a large metal awning that covers the loading dock. The awning is secured to the building with thin metal brackets along the roof. The historical sketch of the building shows a similar metal cover was part of the design. The age of the present awning is not known. The south end of the awning has been enlarged in order to cover large dumpsters—a modification done by the current tenant.

At the northwestern-most bay, there is a small one-story projection at the end of the loading dock. It is the same depth as the loading dock and is original to the building. The same building materials are used, including two metal windows and the quoin-like brick pilasters at the corners. It may have functioned as a boiler room orginally; however, any equipment has been removed and the room is now used for storage.[5]

Above the loading dock level, the southwest façade is very similar to the southeast façade. The southern corner (which is adjacent to the entry façade) features the same bay of single windows located between brick pilasters. There are nine full-sized bays that, for the most part, repeat the pattern of window pairs and, on the third floor, segmental-arched openings. One exception is in the two bays where the elevators are located; these have single windows, not pairs.

This façade also features the sign area above the fourth-floor windows, framed with a brick belt course. However, it is substantially longer than the area on the southeast façade.

There are original or older metal rain scuppers at each end of this façade that feed into newer metal drains. The historical sketch shows these scuppers pulled two bays in from their present location and of a slightly different design. Nevertheless, it appears that this modification may have been done in the field when the building was being constructed, as there is no evidence that the scuppers were ever located where the designers placed them in the 1910 sketch.

NORTHEAST FACADE

The northeast façade fronts the railroad right-of-way and NW Sherlock Street (which runs parallel to the tracks). This façade is very similar to the west façade in that it also had shipping and receiving functions; in this case they were related to the railroad. The original floor plans indicate a railroad spur once ran parallel to the northeast side of the warehouse and entered an adjacent stock shed. The spur continued across the property in an arc, ending at the paint factory building on NW Yeon. The spur no longer exists and a concrete loading dock—built at a date unknown—now extends across 11 of the 12 bays on this façade. The dock gradually ramps up over two bays. At the north end of the façade, there are five metal roll-up doors and one door accessing the freight elevator. Originally all of the dock doors had transoms above (the same metal fire

[5] Sanborn Fire Insurance Maps, 1908-1950.

proof window system), but some have been removed and louvered vents put in their places. The doors are older and may be original to the building.

This façade continues the same pattern of windows as is seen on the southeast façade. The ground floor window openings are larger than those on the second, third, and fourth floors. All of these windows, except for half of one pair, have been removed and filled in with glass blocks. It is not known when the windows were lost, but the glass blocks do not appear to be particularly old.

All other details are largely identical to the southwest façade, including the brick belt courses, signage area above the fourth-floor windows, the placement of the decorative pendants, the rain scuppers, and the bay of single windows in alignment with the elevator overrun. There is a fire escape in the center of the façade.

NORTHWEST FAÇADE & ADJACENT STRUCTURE

The northwest wall of the warehouse is shared with an adjacent concrete warehouse structure historically referred to as the "stock shed." The upper two floors of this northwest wall are visible above the party wall, but have no windows, belt courses, or ornamentation.

Although the warehouse and stock shed were both designed by Bennes & Hendricks in 1910, the stock shed is not included in this nomination, primarily due to its lack of historical integrity. Originally the stock shed was used by PHSC for the storage of large pipes and steel bars. It is evident from the architects' published design sketch, as well as newspaper articles covering the buildings' construction, that the brick warehouse—both in terms of design and function—was meant to be the primary building on this site. The stock shed was entirely utilitarian and devoid of any ornamentation or stylistic references.

When constructed in 1910, the stock shed had gable ends facing east and west, and two rooftop light monitors. The building was designed as an open warehouse two stories in the clear. The original design featured three roll-up doors on the southeast façade, perpendicular to the subject property's southwest loading dock. Two more roll-up doors and four window groupings were on the southwest gable-ends. It is not known what the northwest and northeast façades originally looked like. A clerestory of multi-light windows that exists on the northeast end is likely original. This façade has been covered with new metal siding, so further indications of the original design are not readily visible.

From the late 1920s to the late 1940s several major modifications and additions were made to the stock shed by the property's subsequent owner—W. P. Fuller & Company. Fuller purchased the entire site (including the subject warehouse) in 1918 with the intent to consolidate their Portland paint plants and warehouses. In 1929, Fuller & Co. made an addition to the southwest end of the building, increasing the square footage of the shed by 50 percent. The original south façade of the building was also modified at this time, with industrial steel sash windows added above the roll-up doors. A mezzanine was added to the building—a change that likely occurred when the windows were added. At a later date, two more reinforced concrete additions were made to the northwest side of the building to serve as a mirror factory, lead glass works, and a sash and door factory.

The additions have visually blended with the stock shed so that the structure reads as one large industrial building. The continued use of concrete and the lack of ornamentation throughout have kept this structure visually separate and subservient to the taller and more ornamented brick warehouse.

INTERIOR

The interior of the Pacific Hardware & Steel Company Warehouse is divided in a one-third/two-thirds configuration by a transverse masonry wall. On the ground floor, the "one-third" area to the southeast of the wall is comprised of the entrance, reception lobby, and offices. The remainder of the building is open warehouse/manufacturing space. Within the last twenty years, the current tenant has built some partitioned rooms throughout the building and added large pieces of equipment to facilitate their coffee roasting and distribution business.

Because of the functional nature of this building, there are many features that are consistent throughout all the floors. Except for the offices, the wood post and beam structure and the masonry walls are exposed. Girders run north-south and joists run east-west on all floors except the fourth (which has north-south girders only). They are attached to the columns with iron post caps and joist and girder hangers. The floor structure is 2" by 6" decking laid on edge and spiked directly to the beams, except for the basement floor, which is concrete. The masonry walls are corbelled where they intersect with beams. Sanborn Maps note that the masonry wall thickness is 20 inches on the ground floor, 16 inches on floors two and three, and 12 inches on the fourth floor. All plumbing, electrical, and fire sprinklers are visible.

There are four freight elevators enclosed in masonry shafts. Two of the elevators are paired with a stairwell. The pairs appear in the west corner of the building and in the middle of the southeast transverse wall. The single elevators are located in the southwest corner and midway along the northeast wall. The stairs are utilitarian and made entirely of wood. All openings have tin-clad fire doors, which a building plan notes are "to be to the underwriter's standard." There is a shaft along the southeast transverse wall than runs continuously from basement to fourth floor. There is a metal access door on each floor. It originally functioned as a dumbwaiter. The metal-sash windows are painted and most feature wire glass.

GROUND FLOOR OFFICES

As mentioned earlier, the original design for this building included an office component for the Pacific Hardware & Steel Company's regional headquarters in Portland. It appears that some older—perhaps original—fabric remains in this area of the building. However, subsequent tenants have made substantial changes to suit these offices to their own needs. The permit record notes that the offices were remodeled in 1945. Later remodels, probably dating to the 1960s and 1980s, are also apparent.

The office area has two distinct areas. The entry, reception, and conference room area is centrally located, more public in nature, and retains the most historic fabric. The most apparent historic features include the use of wainscoting and large clerestory windows above some offices. Surrounding this "core" area is a series of

corridors, small private offices, and workrooms. There is little to no historic fabric in terms of walls, doors, hardware, and trim in this area. The walls on many of the private offices are not full ceiling height.

As stated in the description of the exterior, one enters the building through a single wood door that is not original. Immediately inside the building is a small entry vestibule. There is a second door that opens into the reception lobby. Based on the hardware and trim, it is likely this door is original. It is wood with a large glass light. Above the door is a small pediment and surrounding it is molding with an egg-and-dart pattern. Originally the door likely had sidelights. These have been converted to glass display cases within the last 30 years.

Directly across from the entry vestibule is a pair of double swinging doors. The lights in these doors have wire glass. The sidelights and transoms have a modern translucent glass. These doors lead into an office area that has been substantially remodeled over the years.

The wall containing these double doors extends to the right (northeast). What were once likely plate glass windows along the wall have been infilled with glass blocks and trophy-type display cases with sliding glass doors. A reception counter (not historic) and waiting area are located here. Directly across from the reception counter along the southeast wall is a conference room. One wall of the conference room has older wainscot and trim, while the other walls have newer, less detailed trim, which was added by Coffee Bean International. The glass has been removed from the clerestories. Behind this conference room to the northeast is an open "bull pen" office area. Directly across from the bull pen (to the northwest) is a conference room with wainscot, plate glass windows, and clerestories with glass intact.

Throughout the offices the columns have been enclosed, plastered, and painted. The beams and ceiling structure are covered in painted acoustical tile. The HVAC ducting is exposed and the light fixtures and ceiling fans are modern additions. The flooring is wood in the reception area and carpet throughout the majority of the remainder.

An area to the northeast—on the opposite side of the transverse masonry wall—contains the bathrooms and a large vault.

There are two doors that give access to the warehouse area on the first floor from the offices. One is directly in line with the double doors near the entry. The other is toward the back corner of the offices. Both of these doors are metal-clad fire doors.

GROUND FLOOR WAREHOUSE

The ground floor area is open with only a few partitions. The columns measure 17 inches by 18 inches. It is difficult to determine the floor-to-ceiling height without a section drawing, but on the first floor it appears to be about 14 feet. There are a variety of flooring types used. In some areas, it is two layers of wood floor (one

being diagonal) over the planking. In other areas it is plywood and sometimes asphalt. Metal panels are attached to the floors in areas that are used by forklifts and other heavy machinery.

There is a small dock manager's office adjacent to the southwest elevator. Directly to the north are the metal roll-up doors, which are not historic. As mentioned earlier, one opening was sheetrocked and a man door added. A spiral metal chute is located near the northwest elevator—an addition made by the current tenant.

The roll-up doors along the northeast façade are older and perhaps original to the building. Coffee-related machinery is located just southeast of the elevator on this façade. There are ducts that allow the equipment to vent out of the louvers above the doors.

SECOND FLOOR

The second floor is all open warehouse except for a few non-historic partitions added by the current tenant. In the southeast corner is a lunchroom and coffee-packaging facilities.

The width of columns on this floor is 16 inches square. The girders are 20 inches square and the joists are 14-by-18 inches. The floor-to-ceiling height is several feet shorter than the ground floor.

A double rolling metal fire door separates the two warehouse spaces. The flooring material is two layers of wood on top of the planking. Metal panels are attached to the floors in areas that are used by forklifts and other heavy machinery.

THIRD FLOOR

The third floor is all open warehouse except for several non-historic partitions constructed along the northeast wall. These were built by the current tenant and are used as coffee and tea blending rooms.

The width of columns on the third floor is 13½ inches square. Girders and joists are the same dimensions as the second floor. The floor-to-ceiling height is also the same as the second floor—several feet shorter than the ground floor. A double rolling metal fire door separates the two warehouse spaces. The flooring material is two layers of wood on top of the planking. Metal panels are attached to the floors in areas that are used by forklifts and other heavy machinery.

FOURTH FLOOR

The fourth floor is all open warehouse except for several non-historic partitions constructed along the northeast wall. These were built by the current tenant for their coffee-roasting operations. The roasting machine is centrally located along the northeast wall and has several large venting stacks on the roof.

The width of columns on the fourth floor is 10 inches square and the girders are 10-by-12 inches. The floor-to-ceiling height is similar to the ground floor. The roof slopes toward the second column lines in from the north and the south, creating two valleys. There is one skylight located in the northwest quadrant of the ceiling. A double rolling metal fire door separates the two warehouse spaces. The floor material is two layers of wood on top of the planking. Metal panels are attached to the floors in areas that are used by forklifts and other heavy machinery.

BASEMENT

The PHSC Warehouse has a full basement that is used for storage. The wood columns measure 20-inches square and are placed in 30-inch square base plates. The girders measure 24 by 20 inches and the joists 20 by 14 inches. The distance from the floor to bottom-of-beam is about 7.5 feet.

Some original fire sprinkler equipment is located in the basement and is dated 1909. W. P. Fuller & Company upgraded this system, as evidenced by fire-sprinkler blueprints posted in the basement (not dated).

ALTERATIONS

Most alterations are described above in the floor-by-floor summaries. However, the City of Portland's permit records documents some additional alterations. In March 1935 some partitions in the warehouse were removed and replaced with new ones. The location was not specified on the permit card. In June of that same year, the four freight elevators were replaced with new 200-volt elevators. In 1937, the southwest wood loading platform was replaced with reinforced concrete. In November 1945, the offices and restrooms were remodeled, with no further details given on the permit card. The following month a restroom was constructed on the second floor. In March 1946 a door was cut through the firewall and a concrete lintel built as part of the installation of a required insurance underwriter's fire door. In December 1983, tenant improvements for Coffee Bean International were executed by Hewlett, Jamison, Atkinson & Luey Architects. Some fire damage on the fourth floor was repaired in November 1984 and the building was reroofed in August 1988.

INTRODUCTION

The Pacific Hardware & Steel Company (PHSC) Warehouse located at 2181 NW Nicolai in Portland, Oregon was built in 1910 and designed by the firm of Bennes & Hendricks. This building is being nominated to further establish Bennes & Hendricks as a firm who made significant contributions to Portland's growth and development after the turn of the century.

The architectural legacy of John Bennes, in particular, is undisputed, with 20 buildings designed by him and/or with partners now listed in the National Register of Historic Places. Bennes and Hendricks are probably best known today as a firm that designed beautiful residences, hotels, and theaters. However, an examination of their warehouse designs also demonstrates their capability in creating cutting-edge architecture meant to serve the industrial powerhouses of Portland's then-booming economy. The Pacific Hardware & Steel Company Warehouse is the best example of their industrial architecture still standing today.

This warehouse is also being nominated as an outstanding example of slow-burning mill construction in Portland—a construction method that was in favor for industrial buildings during the late 1800s and early 1900s because of its cost-effective, fire-resistant technology. Insurance underwriters were heavily involved in the specifications for these mill construction buildings and when compared to the most stringent specifications for its time, the PHSC Warehouse goes beyond the basic requirements, with nearly every recommended fire-prevention measure outlined for this type of construction present in the building at its completion.

PORTLAND'S POST-EXPOSITION BUILDING BOOM

Following the Lewis and Clark Exposition, Portland experienced a tremendous economic upswing, including a record increase in population and consequent expansion of the built environment. Railroad companies also made great efforts to promote Portland as a business and tourism terminus, further attracting thousands to the city. Between 1905 and 1910, Portland's population doubled—from 90,426 to 207,214. Subsequently, the value of building permits also experienced a dramatic increase—from $4,183,368 to $20,886,202 during this same time period.[1]

In the book Frozen Music, authors Gideon Bosker and Lena Lencek capture the importance of this era in Portland's architectural history:

> "Portland was in the midst of an unprecedented business boom, spurred in large measure by the strong dose of civic confidence the Lewis and Clark Exposition has administered to the city. The national attention garnered by this centennial celebration had not only attracted an influx of commercial interest, but also a veritable flood of newcomers ready to invest in the city's future.

[1] Carl Abbott, *The Great Extravaganza* (Portland, OR: Oregon Historical Society, 1981): 59

> Thus Portland's population in 1910 stood at 207,214, following a demographic swell that created a demand for an entirely new class of structures."[2]

The purpose of the Exposition was not just a revenue-generating entertainment event, but to promote Portland's economic strengths and spur further economic development. The city's location at the confluence of the Willamette and Columbia rivers was ideal for transportation of goods, and consequently Portland had experienced almost 50 years of economic superiority in the Pacific Northwest region. The growth of neighboring cities such as Seattle, was motivation for Portland to maintain its position as the region's economic leader and the Lewis & Clark Exposition became a way to tout the city's great potential.

Planning for the fair began as early as 1900 with many local business owners providing financing. During the five and a half months it was open in 1905, the Exposition not only brought over 1.5 million visitors to Portland, but attracted outside real estate developers and industrial entrepreneurs.

In the booming post-fair years, Portland's citizenry was largely concerned with the economic strength of the city.[3] City leaders and many citizens advocated for a plan to continue growing the city's industrial areas. This resulted in the filling of Guild's Lake—a swampy area in northwest Portland where the fair had been located—for an industrial area using gravel and sand that had been dredged from the Willamette River.[4] This area would eventually become Portland's chief industrial area.[5]

From 1905 through 1911, every economic indicator reflected extraordinary prosperity in Portland.[6] Outside purchases of Portland land and buildings triggered a flow of funds from previously cautious Portland property owners. Real estate values advanced between 25 and 50 percent during 1906. The value of building permits increased by 458 percent. Also in 1906, work commenced on the North Bank Railroad from Pasco to Portland, Swift & Company built a huge meat packing plant, and Eastern capital was invested in the newly consolidated Portland Railway Light and Power Company. However, these times of growth and prosperity would not last forever. The boom peaked and began to fade in 1912 and 1913[7]—a time of national recession and just a few short years after the PHSC Warehouse was completed.

POST-EXPOSITION INDUSTRIAL EXPANSION AND WAREHOUSE BUILDING IN PORTLAND

Already an important regional commercial and shipping center, Oregon experienced significant industrial gains in the early part of the 20th Century. This was largely due to the seemingly unlimited supply of raw materials, excellent transportation facilities, and inexpensive power. Extensive new railroad construction was a big factor

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[2] Gideon Bosker and Lean Lencek, *Frozen Music: A History of Portland Architecture* (Portland, OR: Western Imprints, 1985): 36-37.

[3] Abbott: 61.

[4] Karin Dibling, "Guild's Lake Industrial District" *Oregon Historical Quarterly* vol. 107, issue 1, 2006: 94.

[5] Located on the fringe of in the Guild's Lake industrial area, the PHSC Warehouse is only about a quarter-mile from the fair's site. This area is still heavily industrial to this day.

[6] Abbott: 59.

[7] Ibid.

in opening up previously isolated areas and providing direct markets for the state's raw materials. Many new businesses located in the city because of these growing transportation facilities.

Portland experienced an approximately 35 percent increase in growth in the number of industries and in capitalization from 1907 to 1909.[8] In 1907, the *Oregonian* summarized this rapid industrial progress:

> "...there never was a time when so many outside capitalists were seeking to locate manufacturing plants in this city. Dozens of inquiries are being made of the local commercial organizations and sites along the waterfront and along trackage facilities are in constant demand. The sales of this class of property have been a very noticeable feature of the heavy real estate activity of the past year."[9]

The newspaper reported that most major manufacturing plants in Portland had more than doubled their capacity in the last two years.[10] Citywide, the assessed values in warehouse districts were rapidly increasing—up to 400 percent in some areas between 1906 and 1907.[11] Portland's eastside experienced the most dramatic warehouse development at this time. Previously, many of the warehouses on the east bank of the Willamette River were of frame construction and erected when sites were cheap and the owners did not feel justified in making the necessary outlay for more substantial structures.[12] With the value of this area of the city now established, owners began building modern, fire-resistant buildings.

For many years, one of Portland's major industrial handicaps was the fact that local businesses would sell raw materials to manufacturers across the country, with other Pacific Northwest businesses buying back the finished product with the cost of manufacturing and freight twice across the country added in.[13] The industrial expansion in Portland after the Exposition began to rectify this problem. The building of the Union Stockyards by Swift & Company—one of the largest meat-packing businesses in the United States at the time—is an excellent example. This huge meatpacking plant was completed in Portland's Kenton neighborhood in 1909, employing some 3,000 people. The economy in manufacturing all of the raw material already available in Portland for shipment from the West Coast resulted in a great savings in freight and, naturally, more competitive prices.

While more beef was being butchered in Portland's Kenton site than any other city in the Northwest, Portland also established itself as the primarily distribution point for iron and steel products in the region. The local iron works industry displayed tremendous growth at this time. Both Willamette Iron & Steel Works and Columbia Iron Works both made significant expansions around 1906.[14] Smith & Watson Iron Works built three large

[8] "Growth as center of manufacturing," *Oregonian*, 24 August 1907: 5.
[9] Ibid.
[10] Ibid.
[11] "Increase in valuation of Portland warehouse district shows growth of city," *Oregonian*, 9 August 1907: 10.
[12] "New warehouses tell their story," *Oregonian*, 2 September 1906: 8.
[13] "Coming industrial expansion," *Oregonian*, 20 March 1906: 8.
[14] "New warehouses tell their story," 8.

buildings at the expense of $250,000 and covering three-quarters of an acre in 1910.[15] Demand for steel in the Pacific Northwest was increasing with the expanding manufacturing and extensive railroad development. Large steel pieces were typically made to order. The Pacific Hardware & Steel Company was one of a few major manufacturers in Portland during the early part of the century with a rolling mill and warehouses that worked to fill these orders, as well as supply an array of hardware items such as nails and other wire products.[16]

PACIFIC HARDWARE & STEEL COMPANY

Headquartered in San Francisco, the Pacific Hardware & Steel Company opened its first branch in Portland, Oregon in 1903.[17] The company faced a problem that was common to manufacturing firms at this time: Freight rates were prohibiting their products manufactured in San Francisco to be sold at a profit in the Northwest. The Portland branch was opened in an effort to establish a vital distribution point in this region—a place where top-notch rail transportation and cheap power allowed for competitive pricing in a market where steel products where in high demand. By the time the subject building was under construction, the Portland branch was reportedly as large and doing more business than the parent house, employing more than 200 people in the rolling mill alone.[18]

The company manufactured rolled steel, bars, nails, iron, tin-ware, galvanized iron, piping, and other hardware products.[19] It is not known who its major customers were, but as a wholesaler, the company likely did business with local hardware retailers. Large orders for steel would have been made on site and shipped via rail to a final destination. Raw materials were likely imported from other parts of the country; however, little is known about company's exact processes for making their products and from where the materials originated.

Prior to PHSC taking ownership of the site, the property was used by J. M Arthur & Company. Sanborn Fire Insurance Maps from 1901 show several one-story buildings on the four-acre site. Seven years later—in 1908—the maps show these buildings have been removed and a complex of buildings constructed in their place for the PHSC. They included a warehouse, stock shed, rolling mill, foundry, machine shop, office, and a few ancillary structures. Most of the structures were one story and all were wood framed.[20]

In February 1910, the *Oregonian* published an article announcing that "one of the largest warehouses in the city will be erected in the immediate future."[21] The new building complex was to replace the one-story, wood-framed warehouse and stock shed (of approximately the same size footprint), which were built sometime between 1903 and 1908. They were to function with the rolling mill operations on the western portion of the

[15] "Payroll mounting up," *Oregonian*, 27 February 1920: 8.

[16] Lewis McArthur, "The U.S. Steel Corporation in Portland, 1901-1941," *Oregon Historical Quarterly*, volume 107, no. 3, 2006: 415.

[17] *Polk's Portland City Directories*, 1903.

[18] "Giant warehouse will be erected," *Oregonian*, 27 February 1910: 8.

[19] "Giant warehouse will be erected," *Oregonian*, 27 February 1910: 8.

[20] *Sanborn Fire Insurance Maps for Portland, Oregon,* 1908.

[21] "Giant warehouse will be erected," 8.

site. The *Oregonian* noted that the buildings "...through giving greater capacity, will enable the plant to increase its output materially."[22] The company planned to have the new warehouse and stock shed in service within four months of demolishing the existing buildings. In this article, Bennes, Hendricks, & Thompson were noted as the architects and the project costs were estimated at $150,000.

The project consisted of two buildings—the main building being the subject of this nomination. As described in Section 7, the warehouse is four stories with a full basement and constructed of masonry and heavy timbers. The purpose of this building was primarily for general warehouse use, but was also to be the Portland office and Pacific Northwest regional headquarters for the San Francisco company. The "absolutely fireproof" nature of the warehouse was also considered vitally important.[23] A newspaper article noted that the building was to be equipped with a sprinkler system, metal windows with wire glass, fireproof elevator shafts, and rolling metal doors on all outside openings.[24] It was to have four high-speed electric freight elevators. The load-bearing capacity of this warehouse was also an important feature, with the ground floor being able to carry 500 pounds per square inch. This building was intended to be a truly state-of-the-art facility.

The second building was a stock shed—a tall single-story building built perpendicular to the warehouse. The buildings were once connected with a fireproof rolling door. When ownership changed in the 1960s, this connection was closed. The stock shed was built of reinforced concrete and corrugated galvanized iron. Its purpose was for storing long steel pipes and bars, which could be moved by traveling cranes. Both buildings had railroad-track access from the Northern Pacific switches to the northeast. A rail spur ran parallel to the main warehouse and entered the southeast end of the stock shed.

The site originally included its own power plant, which ran the large rolling mills, as well as supplied lighting, heat, and powered machinery such as cranes and elevators in the other buildings. The power plant was demolished at an unknown date.

On June 5, 1910, after construction had commenced, the *Oregonian* published a second article on the project.[25] The cost was now estimated at $210,000 for the buildings and $50,000 for completing the offices and adding other equipment. The new structures were touted as the largest of their kind in Portland. Bennes & Hendricks were noted as the architects in this article. The final construction documents also note the architects as Bennes & Hendricks.

The project took nearly a year to complete with the final sign-offs on the building permit coming in March 1911. Just a few months later in July, the *Oregonian* reported that a merger of several West Coast steel companies would result in the relocation of PHSC to "the suburbs" in order to allow for an increase in production.[26] The nomination preparer's research did not reveal any further articles or information about the relocation of PHSC.

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[22] Ibid.
[23] Ibid.
[24] Ibid.
[25] "Warehouse set for record size," 5.
[26] "Plant will be rebuilt," *Oregonian*, 17 July 1911: 9.

The company remained in Portland at the 2181 NW Nicolai address through 1915, though they were listed only as a wholesale general hardware dealer.[27] The property was subsequently leased to the Columbia Wool Warehouse Company for the storage of wool.[28]

In 1918, a front-page article in the *Telegram* announced the sale of the four-acre parcel to W. P. Fuller & Company for $250,000.[29] This company specialized in paints, doors and sashes, mirrors, brushes, and art glass. The newspaper article noted that Fuller purchased the property with the intent to consolidate their Portland paint plants and warehouses at a future date. Permit records indicate that Fuller began making major improvements to the site in 1923. The rolling mill, machine shop, and other structures were demolished at a date unknown, though likely by 1923. Fuller built a paint factory in the northwest corner of the site in 1923 and in 1929, a major addition to the stock shed was underway. Subsequent additions to the stock shed included a mirror factory and lead glass works to the southwest and a sash and door factory along the northwest side. Fuller owned the property until the early 1960s.

Today most of the buildings are held in separate ownership. The current tenant of the warehouse is Coffee Bean International. They have been doing business there since 1982. The present owner is Nicolai Bldg, LLC.

BENNES & HENDRICKS

John Virginius Bennes was a principal architect in the firm Bennes and Hendricks from 1907 to 1913—an architecture firm that left a lasting impression on the city of Portland. Unfortunately, there is little known about his partner Eric W. Hendricks except that Hendricks was a practicing architect in Portland in 1904 and disappeared from the City Directory listings after 1913.

Key events in Bennes' early life history are not established with absolute certainty. It is believed he was born in Bohemia in 1867, but moved to the United States early in his childhood, where he grew up in Peru, Indiana. At some point he moved to Chicago, where he completed his public school education. It is unclear exactly where Bennes received his architectural training. Some historians indicate he attended the University of Chicago, while others suggest he returned to Bohemia where he trained at the School of Fine Arts in Prague.[30] In her book Last of the Handmade Buildings, Virginia Ferriday suggests that Bennes' father was also an architect and that the younger Bennes worked with his father prior to opening his own office in Chicago.[31] Historians have established that Bennes was certainly residing in Chicago in 1890.[32] No doubt he was aware, if not influenced by the World's Columbian Exposition that occurred in Chicago in 1891-93.

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[27] *Polk's Portland City Directories*, 1911-1915.
[28] *Polk's Portland City Directories*, 1916-1918.
[29] "Fuller pays $250,000 for local site," *Telegram*, 29 June 1918: 1.
[30] Richard E. Ritz, "John Virginius Bennes" in *Architects of Oregon* (Portland, OR: Lair Hill Publishing, 2002): 36.
[31] Virginia Ferriday, *Last of the Handmade* Buildings (Portland, OR: Mark Publishing Co, 1984): appendix.
[32] Ritz: 36.

In 1899, he married Annice Smalley of Hoopeston, Illinois. The following year they left Chicago and headed west to Baker City, Oregon. Attracted by the stories of gold discovery in the area, Bennes invested his savings in a gold mine and also started his own architectural practice in Baker City. His business was a successful one and he received commissions for many houses and commercial buildings in the area, including the Elks Lodge, the Geyser Grand Hotel, and the Hot Lake Resort and Sanatorium.

In 1906, Bennes moved to Portland—a time when Portland's population was exploding due to the successful marketing of the city via the Lewis & Clark Exposition. In Portland he practiced architecture for the next 36 years. Bennes formed several partnerships with other Portland architects, including Eric W. Hendricks, Willard Tobey, Lewis Irvine Thompson, and Harry A. Herzog. There were also long periods when he practiced on his own, as the following timeline indicates:

1907-1909 – Bennes, Hendricks, & Tobey
1910 – Bennes, Hendricks & Thompson
1911-1913 – Bennes & Hendricks
1914-1925 – practiced independently
1926-1931 – Bennes & Herzog
1933-1943 – practiced independently

Alone and with his various partners, Bennes designed a large volume of work, primarily in Portland and on the Oregon Agricultural College campus (now Oregon State University) in Corvallis. Over 70 buildings in Oregon have been associated with his name. In 1907, he began his life-long association with the college, designing virtually every campus building between 1915 and 1935, including the Agricultural Hall (1909-1913), Kidder Hall Library (1917), Weatherford Hall (1928), and a variety of agricultural buildings, including six barns and the Incubator House (1908). Bennes was involved in the design of some 48 buildings on the college campus.

Bennes initially made his mark in Portland with his residential designs. He is considered by many to be the city's principal exponent of the Prairie School style with his designs for the Marcus J. DeLahunt House (1909), his own residence in Arlington Heights (1911), and the Aaron H. Maegly house (1914). Bennes' training and practice in Chicago no doubt led to an appreciation of the work of Frank Lloyd Wright and other important architects of the Midwest. However, as was typical of Bennes, he drew from a wide range of historical styles. For his residential designs, Bennes not only worked in the Prairie Style, but also Tudor, Georgian, Mediterranean, Shingle Style, Craftsman, and others.

During his early years in partnership with Hendricks, Tobey and Thompson, Bennes was also prolific in producing a number of hotels, commercial buildings, and warehouse/manufacturing buildings. At least 13 hotels were designed, with the Cornelius Hotel being the oldest and perhaps most notable. Designed in 1908 by Bennes, Hendricks, & Tobey, the hotel is in the French Renaissance style and is listed in the National Register. The period between 1912 and 1913 was prolific for Bennes & Hendricks in terms of their hotel designs. At least six were built in downtown Portland, typically in the American Renaissance or Classical Roman style.

The diversity of Bennes's work, both in terms of types of structures and architectural styles, has been noted previously by architectural historians. The authors of *Frozen Music* describe Bennes as a versatile and hard-to-pin-down stylist.[33] Bennes' work demonstrates his level of skill with the revival styles. Through the teens, his non-residential work was still heavily influenced by the Beaux-Arts tradition. Bosker and Lencek note that Bennes' work would undergo an "architectonic shift" upon partnering with Harry Herzog—Portland's "Deco King"—in 1924.[34] From that point on, Bennes would permanently turn away from the Prairie Style and revival styles of his early years in favor of Art Deco architecture. Bennes' important later works include the landmark Hollywood Theater of 1923 and several Art Deco apartments in Portland done in the early 1930s.

Bennes' status as a prominent architect in Oregon is confirmed by his membership in the Oregon Chapter of the American Institute of Architects. In particular, he served as vice-president in 1920-21 and president in 1922. He was also a member of the Oregon State Board of Architect Examiners from 1923 to 1937, serving as vice-president in 1923 and 1935, and as president from 1924-1933.[35]

Bennes retired to Los Angeles, California in 1943. He died there a few months later of illness on November 29, 1943 at the age of 76. He is buried in Hoopeston, Illinois.

WAREHOUSES OF BENNES & HENDRICKS

John Bennes was involved in the design of at least four warehouse buildings in the first six years he practiced in Portland with Hendricks (and briefly with Tobey and Thompson as well). Today, only the Pacific Hardware & Steel Company Warehouse remains with excellent historical integrity. For purposes of comparative analysis, this section describes the other warehouses of Bennes & Hendricks, and specifically highlights any information about their engineering and fire-prevention technologies when known, as these aspects of the PHSC Warehouse will be discussed in depth in the following section

The earliest known building in the warehouse repertoire of Eric Hendricks was the Clarke Woodward Drug Company Building. The building was listed in the National Register prior to its demolition. Built in 1906, the warehouse was located at 911 NW Hoyt Street in Portland and was designed by Hendricks & Tobey. The building was included in a promotional book published in 1910 on the works of Bennes & Hendricks, though Bennes was most likely not involved in the design.[36] The warehouse was a six-story, quarter-block unreinforced brick building with wood posts and beams, noted as mill construction on Sanborn Fire Insurance maps.[37] The building had tripartite massing and a heavy classical cornice. Sanborn Maps note the wall thicknesses as 24, 20, 16, 16, 16, and 12 inches in ascending order. The double-hung wood sash windows that were grouped in pairs appear to have mostly wire glass in an early photograph.[38] The east and south

[33] Bosker and Lencek: 60.
[34] Ibid.
[35] Ritz: 37.
[36] *Work of Bennes & Hendricks, Architects* (Portland OR: 1910).
[37] Sanborn Fire Insurance Map, 1908-1950.
[38] *Work of Bennes & Hendricks, Architects* (Portland OR: 1910).

facades had one fire escape each. A 5,000-gallon water tank sat atop the roof and the building also featured automatic sprinklers and a fire alarm.[39] One vertical standpipe and hose was centrally located in the building. One freight elevator and stairwell enclosed in brick were located in the northeast quadrant of the building and the boiler was in the southeast corner.

Two years later in 1908, Bennes, Hendricks & Tobey designed the Blumauer Frank Drug Company Building for the Labbe Family (also known as the Labbe Estate Warehouse) at the corner of NW 8th Avenue and NW Everett Street in Portland.[40] This building shared many similarities to the Clarke Woodward building in that it was six stories and also had tripartite facades topped with a heavy cornice. Sanborn Fire Insurance Maps note that the building is constructed of reinforced concrete with a brick curtain wall. Wall thicknesses were noted as 12 inches. The original windows were double-hung wood sashes with clear glass—primarily grouped in threes. The building featured cement coping, belt courses, sills, and cornice. A photo of the building taken just after its completion indicates that the masonry was either stuccoed or parged.[41] The smooth facades were virtually devoid of ornamentation. The south and west facades had one fire escape each. Inside, the building had two brick-enclosed freight elevators—one paired with a staircase. Automatic sprinklers were present, as was a 15,000-gallon rooftop tank. No vertical standpipes were noted on the Sanborn maps. In the late 1990s the building was converted to condominiums and lost its historical integrity with a multi-story rooftop addition, new windows, and other alterations.

A year later Bennes, Hendricks & Thompson designed the Gaar Scott Building for the Page Investment Company. Now demolished, the 20,000 square-foot building was located at SE 1st Avenue and Belmont in Portland. Only two stories tall, this handsome brick building was used for the sale of farm and agricultural equipment. The exterior featured finely articulated brickwork, as well as cement cornices, coping, and other details. A loading dock fronted the railroad tracks on First Avenue and was used for the shipping and receiving of farm machinery. The double-hung wood windows were grouped in threes and had clear glass. The building's interior had wood posts and beams, wood partitions, and no special fire prevention equipment.

Although never built, Bennes & Hendricks designed a large and complex warehouse for the Mitchell, Lewis & Staver Company Warehouse sometime between 1911 and 1913. The building was to cover an entire block on NW 9th between NW Flanders and NW Glisan in Portland.[42] It was planned to be five stories on NW Flanders and eight stories on NW Glisan. The main entrance was to be on Flanders where one would enter at grade; the railroad track level on Glisan was shown as being at the sub-basement level—three stories below the Flanders entrance. An elevation drawing indicates a much higher level of design than any of the previous warehouses mentioned, with the upper story having brick rowlock arches surrounding window triplets, ornamented capitals and cornices made of galvanized iron, and a main entry featuring an elaborate door with a heavily ornamented pediment above. Information on the building's engineering and any intended fire-prevention technologies is not known.

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[39] Since the Sanborn Map includes changes through 1950, it is not known if these features were original to the building.
[40] Drawings are dated 1908; however, Sanborn Maps state this warehouse was built in 1910.
[41] Ibid.
[42] Cachot Therkelsen Collection at the University of Oregon's Special Collections.

Although not a warehouse, it is worth mentioning Bennes & Hendricks' 1910 design for the Lowengart & Company Building—a seven-story structure located in a triangular plot at SW Broadway and W Burnside in Portland. Bennes & Hendricks were working on the design of this building at the same time as the PHSC Warehouse. The retail/office building is notable as Portland's first reinforced-concrete office building. The Trussed Concrete Steel Company is listed on the drawings as the consulting engineers. This building has been heavily altered over the years, including a major remodel by Martin Schacht in 1930.

Between the designs for the Gaar Scott and Mitchell, Lewis & Staver warehouse was the Pacific Hardware & Steel Company Warehouse, begun in early 1910 when Lewis Thompson was still a member of the firm. Combined with the stock shed, this was the largest and most complex warehouse the firm had yet designed. The architects were tasked with designing a structure that could not only carry the enormous weight of the steel being stored in the building, but also one that was "fireproof" and met the stringent insurance specifications for slow-burning mill construction.

Both John Bennes and Eric Hendricks had gained experience engineering large warehouses with fire-prevention requirements in their work on Clarke-Woodward and Blumauer Frank; however, their design for the Pacific Hardware & Steel Company Warehouse would challenge them further in terms of the size of the building, the load requirements, and high level of fire-prevention technologies. Furthermore, this building exhibits more creativity and signature styling on the exterior facades than their previous warehouses. This is seen in the prominent, chamfered entry facade and the use of restrained cement detailing and ornamentation that gives this building a modern flare evocative of the Art Nouveau style. In this building, Bennes & Hendricks successfully meet the client's need for a strong, functional, state-of-the-art warehouse that is also a signature regional headquarters for their fast-growing company.

ENGINEERING AND FIRE PREVENTION FOR THE PACIFIC HARDWARE & STEEL COMPANY WAREHOUSE

The Pacific Hardware & Steel Company Warehouse is additionally significant as an outstanding example of mill construction, also called "slow-burning construction" during its heyday around the turn of the century. PHSC had a strong desire to replace the frame buildings that previously existed on the site with structures that would be "fireproof." While the interior is still made of combustible materials, mill construction—with its exterior masonry shell and heavy, "slow-burning" timber structure—was looked at as a practical and cost-effective solution to fire resistance in industrial buildings. With timber being inexpensive and plentiful during this time period in the Pacific Northwest, a fully-sprinkled building of slow-burning construction in Portland could be more than 25% cheaper than a truly fireproof building.[43] Additionally, insurance rates in Portland for well-designed mill construction buildings were very competitive with their fireproof counterparts.[44]

[43] Oliver Goss, *Structural Timber Handbook on Pacific Coast Woods* (Seattle: The West Coast Lumbermen's Association, 1916): 253.

[44] Ibid.

As will be explained in further detail below, insurance underwriters were heavily involved in the specifications for these mill construction buildings. When compared to the most stringent specifications for its time, the PHSC Warehouse goes beyond the basic requirements, with nearly every recommended fire-prevention measure outlined for this type of construction present in the building at its completion. Not only was this building an engineering marvel in terms of the timber dimensions and load-carrying capacity, but it also is a model of mill construction.

Nationwide there was a movement toward fire prevention of buildings that gained increased momentum after the great fires in Chicago and Boston in 1871 and 1872, respectively. The devastation caused by these fires brought about a search for better building technologies that would prevent conflagration. In 1893, the National Board of Fire Underwriters established its own laboratory at the Armour Institute of Chicago, where fire tests recreated conditions in order to learn about the combustibility of materials. In 1905, the Board published the first edition of its *Recommended Building Code* (later called the *National Building Code*), which was a first attempt to create uniformity in construction that would help control fire hazards.[45]

It was not until the earthquake and fire in San Francisco in 1906, which destroyed 500 city blocks, that the Board became convinced of the need for more comprehensive standards and codes relating to the design, construction, and maintenance of buildings. At this time there was a widespread effort by engineers to accumulate information on fire hazards in building construction and manufacturing processes, and much of this information became the basis for the early standards and codes. In the early 1900s and 1910s, a number of books were written on the theory and practice of fire prevention and protection in buildings, many of which offered construction details to assist architects and contractors.

In the 1890s, building owners and insurance companies found in New England "mill construction" an attractive model of affordable fire-resistant construction. "Mill #1" in the Bernon Mill complex in Woonsocket, Rhode Island, built in 1827, is one of the earliest known examples of a mill built according to basic "slow burning" principles—noncombustible walls, heavy timber posts and beams, and plank floors. Fire-resistant specifications for this type of construction were developed by the Associated Factory Mutual Fire Insurance Companies (AFM) in the 1890s and made features such as fire sprinklers, stairways isolated from floor areas, and exterior access ladders, required items for insurance coverage.[46]

The AFM regarded this "slow-burning" construction a superior method to achieve a maximum of fire protection at a minimum cost. Given that timber was less expensive than concrete at this time, a thoroughly fire-resistant building was prohibitively expensive for most users. Owners and developers found mill construction to be so efficient from the standpoint of cost, maintenance, and security that by the end of the 19th century, uniform, rectangular mill structures had become the norm for many industries.[47] Eventually concrete would become

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[45] Percy Bugbee, *Principles of Fire Protection*(National Fire Protection Association, 1988): 322.

[46] Sara Wermiel, *The Fireproof Building: Technology and Public Safety in the Nineteenth-Century American City*. (Baltimore: Johns Hopkins University Press, 2000): 105.

[47] Amy Slaton, *Reinforced Concrete and the Modernization of American Building*(Baltimore: Johns Hopkins University Press, 2001): 130.

more cost-effective than heavy timbers and allow for more flexible designs, resulting in the preference for reinforced-concrete industrial buildings during much of the 20th century. However, mill construction still meets building code today.

In Joseph Kendall Freitag's book *Fire Prevention and Fire Protection*, mill construction, though comprised of combustible materials, was considered to be slow-burning because "*intelligent use* and *sufficient mass* have greatly lessened the chance of the rapid spread of fire," as well as the fact that serious structural damage could often be brought under control through equipment or fire protection devices when accompanied with this type of construction.[48] The idea was to buy enough time for the fire department to extinguish the fire before major structural damage or collapse occurred. Even if the replacement of timbers was necessary after a fire, the hope was that the masonry shell would be left standing.

While certainly combustible, timber posts were found to be more reliable under fire tests than unprotected iron or steel columns. Although the heavy timber post might char an inch or more in a fire, the remaining diameter would often still be strong enough to carry the structural loads if the fire was successfully extinguished. The Chicago and Boston fires mentioned earlier changed the then-current perception that cast iron was a "fireproof" material. There were instances in these catastrophic fires where cast-iron fronts expanded, buckled, and fell to the streets due to the intense heat radiating from burning buildings across the street—long before their own interiors had caught fire.[49] Cast iron was also known to fail in fires when suddenly cooled by hose streams.

Mill construction gets its "slow-burning" characteristics from erecting the timbers in "heavy solid masses as to expose the least number of corners or ignitable projections to fire, to the end also that when fire occurs it may be most readily reached by water from sprinklers or hose."[50] Timbers with large dimensions are slow to ignite and do not burn rapidly due to a lack of oxygen. Specifications required that timbers (sometimes call "sticks") be no less than six inches in width. When large timbers were not available, two small timbers could be bolted together, ensuring that no air or dust could get between them. This was not usually necessary in the Pacific Northwest where huge timbers were readily available. In the case of the PHSC Warehouse, the largest posts and beams (in the basement) measure 20 inches square and 24 by 20 inches, respectively. The smallest posts are on the fourth floor, measuring 10 inches square.

In slow-burning construction, beams rested on cast-iron or steel post-caps on the columns, with the first set of columns being secured in base plates.[51] The side plates of each post-cap formed a tie for the posts and beams, which were fastened by lag-screws. Such post-caps are evident through the PHSC Warehouse, as are metal hangers supporting the girders and joists.

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[48] Joseph Kendall Freitag, *Fire Prevention and Fire Protection* (New York: John Wiley & Sons, 1912): 69-70.

[49] Donald Friedman, *Historical Building Construction* (New York: W. W. Norton, 1995): 57.

[50] Freitag: 75; see also Henry S. Jacoby, *Structural Details or Elements of Design in Heavy Framing* (New York: John Wiley & Sons, 1909): 295-299 for discussion of slow-burning construction specifications.

[51] Frank E. Kidder, *Building Construction and Superintendence* (New York: Williams T. Comstock Co., 1920): 726-727.

It was considered good practice for floor beams and girders be beveled at the end, so as to be self-releasing from the walls.[52] The reason for this was that if the wood structure failed, it would release from the wall without taking the masonry down with it. Without a full set of original plans for this building, it is difficult to know if this detail was executed, but it is presumed so, given that this was standard practice for mill construction.

To render the construction and particularly the beams as slow-burning, it was important there are no voids existed between the upper surface of the beams and flooring. Avoiding concealed spaces was critical to reducing horizontal and vertical fire spread. Plank floors—four inches or more in thickness, spiked directly to the floor timbers—were considered an optimal floor structure, as a thick wood floor is difficult to ignite.[53] A double top floor—the lower one of soft wood laid diagonally on the plank and the upper one laid lengthwise—was also recommended for the finish floor.[54] As described in Section 7, the PHSC Warehouse has a plank floor consisting of 2x6 boards laid on edge, "well-spiked," according to the original plans. On the ground floor there were some worn spots where this double top floor was evident.

The shell of a slow-burning building was specified as brick—at least 12 inches thick, with insurance underwriters preferring 16 inches.[55] The PHSC Warehouse met that requirement with 20-inch brick walls on the ground floor, reducing to 12 inches on the fourth floor.

A flat roof was also considered essential—preventing the tendency for fire to travel up pitched roofs and towers. A parapet wall 2½ feet above the roof and caped with vitrified coping laid in Portland cement mortar was recommended.[56] These are both features of the subject warehouse.

Slow-burning construction also aimed to prevent the spread of fire using of solid brick interior walls to separate major uses, stairs and elevators shafts encased in brick, and tin-clad fire doors to close off all passages. All interior partitions were to be made with incombustible materials such as metal lath and plaster. Wire glass was recommended for windows. Experts strongly suggested that boiler rooms be located in a one-story building separated from the rest of the building by a firewall.[57] The PHSC Warehouse followed these specifications with a masonry wall separating the offices and warehouse space, brick enclosures around elevators and stairs, tin-clad doors throughout, metal lath and plaster used in the bathrooms (later partitions would be of wood), metal sash fire windows with wire glass, and what appears to be a separate boiler room.

Other safeguards, such as automatic sprinklers, standpipes, hydrants, pumps, hoses, fire pails, and a night watchman's service were considered essential for a building of mill construction.[58] Sanborn Fire Insurance Maps indicate the subject property minimally had full automatic sprinklers and seven vertical standpipes with

[52] Ibid: 724.
[53] Freitag: 77-78.
[54] Ibid.
[55] Freitag: 82.
[56] Ibid: 85.
[57] Ibid: 82.
[58] Ibid: 70.

hoses available for firefighting. The building probably had a rooftop water tank when completed; however, it is not known if the present 28,000-gallon metal tank is the original.

Experts did not recommend mill construction for highly congested areas and four stories was considered a prudent height limit due to firefighters' hose streams being inefficient beyond that point. Nevertheless, heavy-timber buildings exist as tall as eight stories.[59] The PHSC Warehouse follows the four-story recommendation.

CONCLUSION

The Pacific Hardware & Steel Company Warehouse was constructed in Portland during a time of unprecedented population growth and industrial expansion. Following the 1905 Lewis & Clark Centennial Exposition, Portland strengthened its position as an important regional commercial and shipping center, attracting new businesses with an abundant supply of raw materials, superior transportation facilities, and inexpensive power. PHSC was a growing manufacturer of steel looking to take advantage of strong markets in the Pacific Northwest. The strength of their business and the greater economy is evidenced in the construction of this warehouse.

This building is particularly significant as the best example of a warehouse designed by Bennes and Hendricks—a young Portland firm that demonstrated its capability in executing buildings with complex engineering requirements. John Bennes' significance in the history of Oregon's architecture is well established with his diverse portfolio of building types and styles. He has been best known for his contributions to residential architecture in Portland and his educational facilities at the Oregon State University campus. However, a review of Bennes and Hendricks' warehouse architecture indicates this firm was capable of engineering technologically-advanced industrial buildings in addition to designing beautiful homes, fancy downtown hotels, and stately university halls. The PHSC Warehouse combines the practical considerations of a working industrial building with the aesthetic requirements of a regional headquarters office for an expanding San Francisco company. The successful execution of this warehouse and the fact that it is the only example by Bennes and Hendricks with high historical integrity make this building worthy of preservation.

Furthermore, this nomination has demonstrated that the Pacific Hardware & Steel Company Warehouse is significant as an example of an important turn-of-the-century building technology. The advent of slow-burning construction was important to the development of industry in this country and marks a technological advance in the nationwide effort toward fire prevention in buildings. The PHSC Warehouse is also a uniquely Pacific Northwest example, featuring massive timbers that would not be found in warehouses of the Midwest or East Coast. In addition to the masonry shell and the large timbers required in this type of construction, the building exhibits numerous fire-prevention technologies including metal-sash fire windows, a masonry wall dividing office and warehouse uses, automatic sprinklers, vertical standpipes and fire hoses, a parapet capped with cement coping, and other fire-resistance strategies advanced by the fire insurance industry. In this building,

[59] Ibid: 77.

Bennes and Hendricks exhibit their engineering skills along with their ability to design a regional headquarters building within the well-defined parameters of modern, slow-burning mill construction.

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National Register of Historic Places Continuation Sheet

VERBAL BOUNDARY DESCRIPTION

The Pacific Hardware & Steel Company Warehouse is a tract in the northwest one-quarter of Section 28, Township 1 North, Range 1 East of the Willamette Meridian, in the City of Portland, County of Multnomah and State of Oregon, described as follows:

Beginning at a point that is North 80° 00' 10" East 79.67 feet from the intersection of the northeasterly right of way line of NW Yeon Avenue and the northerly right of was line of NW Nicolai Street;
Thence North 80° 00' 10" East along said right of way of NW Nicolai Street 324.70 feet;
Thence North 41° 52' 10" East along said right of way of NW Nicolai Street 91.67 feet;
Thence North 41° 52' 10" East along said right of way of NW Nicolai Street 15.79 feet;
Thence North 48° 42' 12" West, 199.43 feet;
Thence South 41° 02' 10" West, 15.77 feet;
Thence South 41° 02' 10" West, 132.30 feet;
Thence South 48° 35' 50" East 0.55 feet;
Thence South 41° 24' 10" West 68.31 feet;
Thence North 48° 35' 50" West 0.55 feet;
Thence South 41° 24' 10" West 98.88 feet;
Thence South 48° 02' 10" West 46.09 feet to the point of beginning.

BOUNDARY JUSTIFICATION

The nominated area of 1.08 acres includes the 1910 brick and heavy-timber warehouse, east and west loading docks, and the driveway giving access to the building.

The easterly 132.30 feet of the northwest wall of this building is recorded as a party wall with the adjacent structure—historically known as the "stock shed." Although designed at the same time as the brick warehouse in 1910 by Bennes & Hendricks, the stock shed has had three major additions and changes in fenestration, resulting in a major loss of historic integrity. Furthermore, the stock shed was designed to be functionally and visually subservient to the masonry warehouse and is therefore not critical to establishing the significance of the subject property.

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National Park Service

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Section number Photographs Page 1

PHOTOGRAPHS

Photographer: Jessica Engeman

Date of Photographs: July 2008

Location of negatives: Digital

Paper and Ink: Hewlett-Packard 100 Gray Photo Cartridge and HP Premium Plus Paper (high gloss)

1 of 23. Entry/south façade. View to N.
2 of 23. South and southwest façade. View to N.
3 of 23. South façade and southeast façade. View to NW.
4 of 23. Southwest façade. View to NE.
5 of 23. Northeast façade. View to NW.
6 of 23. Northeast façade and surrounding neighborhood. View to NW.
7 of 23. Southwest façade and adjacent building. View to N.
8 of 23. Southwest façade: loading dock. View to NW.
9 of 23. Southwest façade: parapet, chimney, and elevator overrun detail. View to NE.
10 of 23. First floor: office lobby. View to S.
11 of 23. First floor: double doors in office. View to NW.
12 of 23. First floor: office reception area. View to SE.
13 of 23. First floor: office conference room. View to NW.
14 of 23. First floor: rear offices. View to NW.
15 of 23. First floor: warehouse. View to NW
16 of 23. First floor: warehouse fire door. View to SE.
17 of 23. Second floor: warehouse. View to NW.
18 of 23. Second floor: detail of post and beam connection.
19 of 23. Third floor: warehouse View to W.
20 of 23. Fourth floor: warehouse. View to S.
21 of 23. Basement: warehouse. View to SW
22 of 23. Basement: sprinkler equipment. View to SE.
23 of 23. Warehouse stair.

Photo 1of 23: Entry/south façade. View to N.

Photo 2 of 23: South and southwest façade. View to N.

Photo 3 of 23: South façade and southeast façade. View to NW.

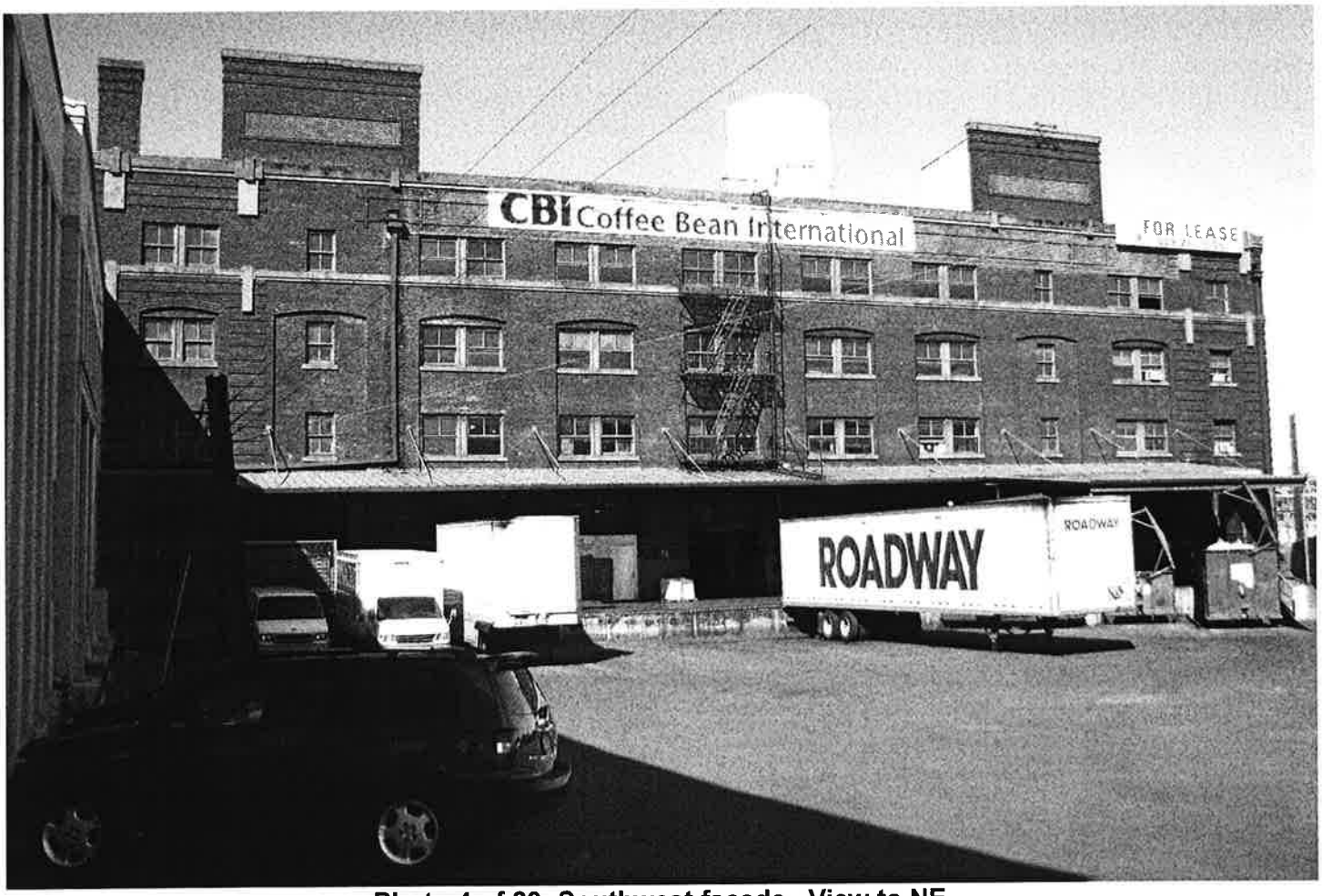

Photo 4 of 23: Southwest façade. View to NE.

Photo 5 of 23: Northeast façade. View to NW.

Photo 6 of 23: Northeast façade and surrounding neighborhood. View to NW.

Photo 7 of 23: Southwest façade and adjacent building. View to N.

Photo 8 of 23: Southwest façade: loading dock. View to NW.

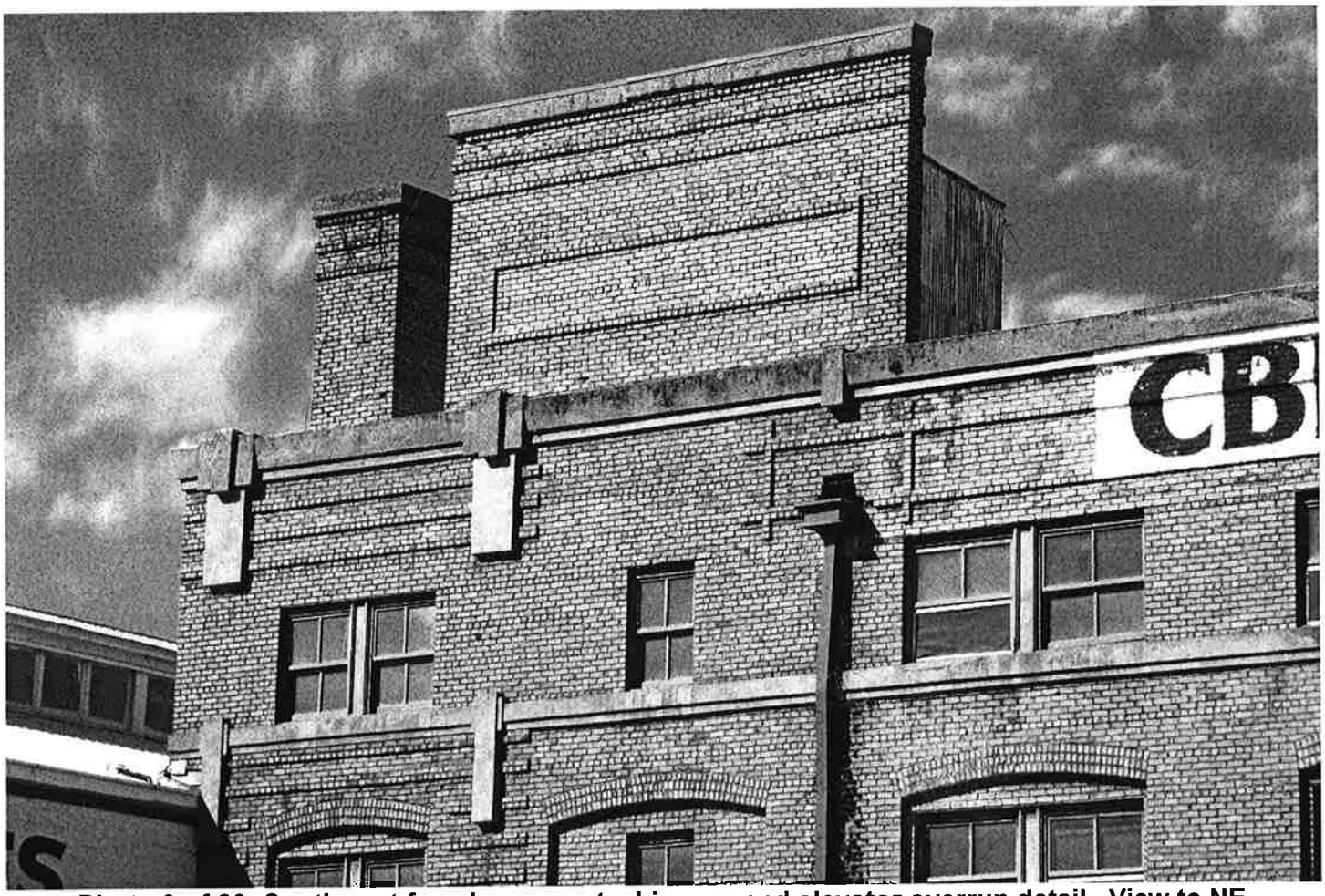

Photo 9 of 23: Southwest façade: parapet, chimney, and elevator overrun detail. View to NE.

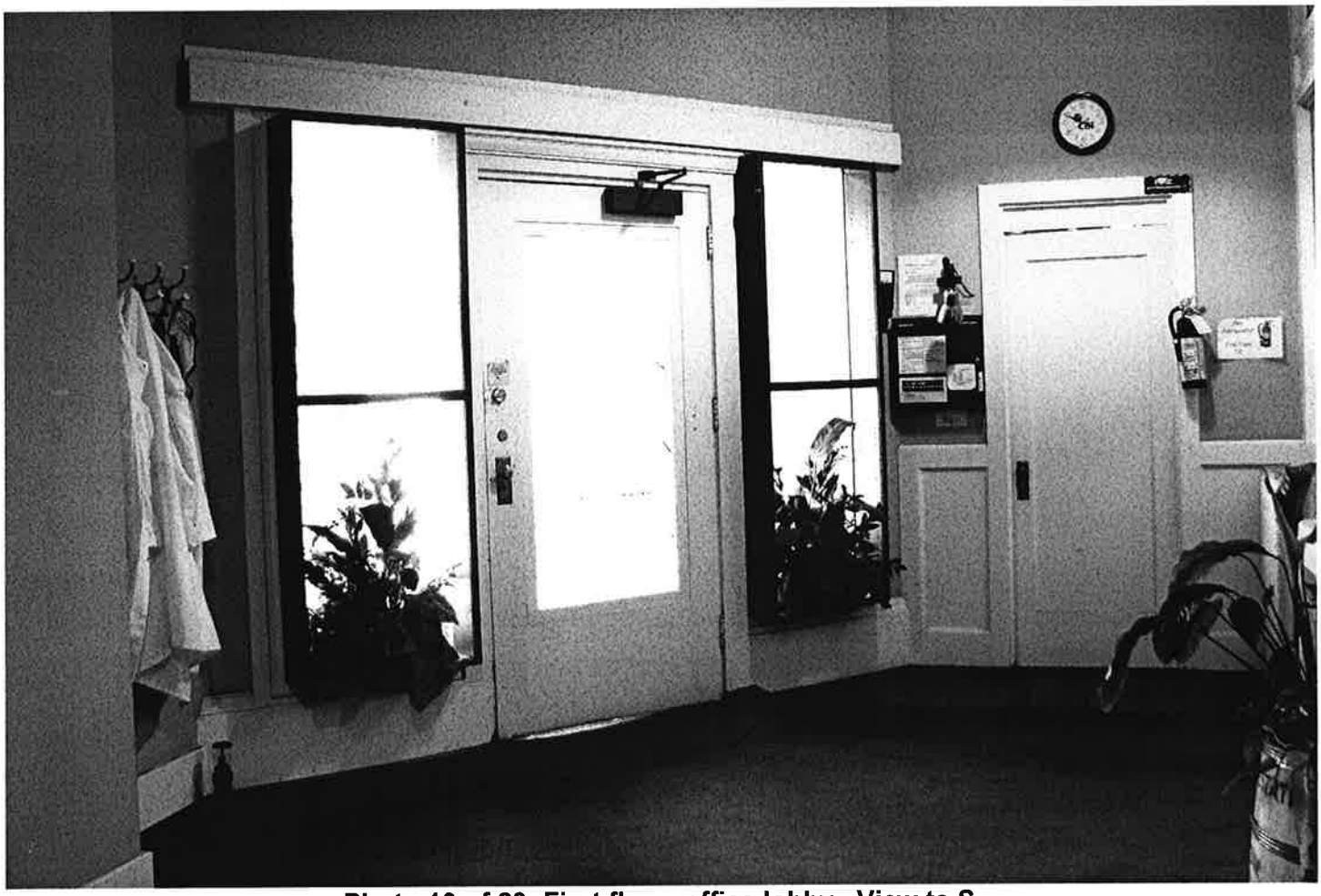

Photo 10 of 23: First floor: office lobby. View to S.

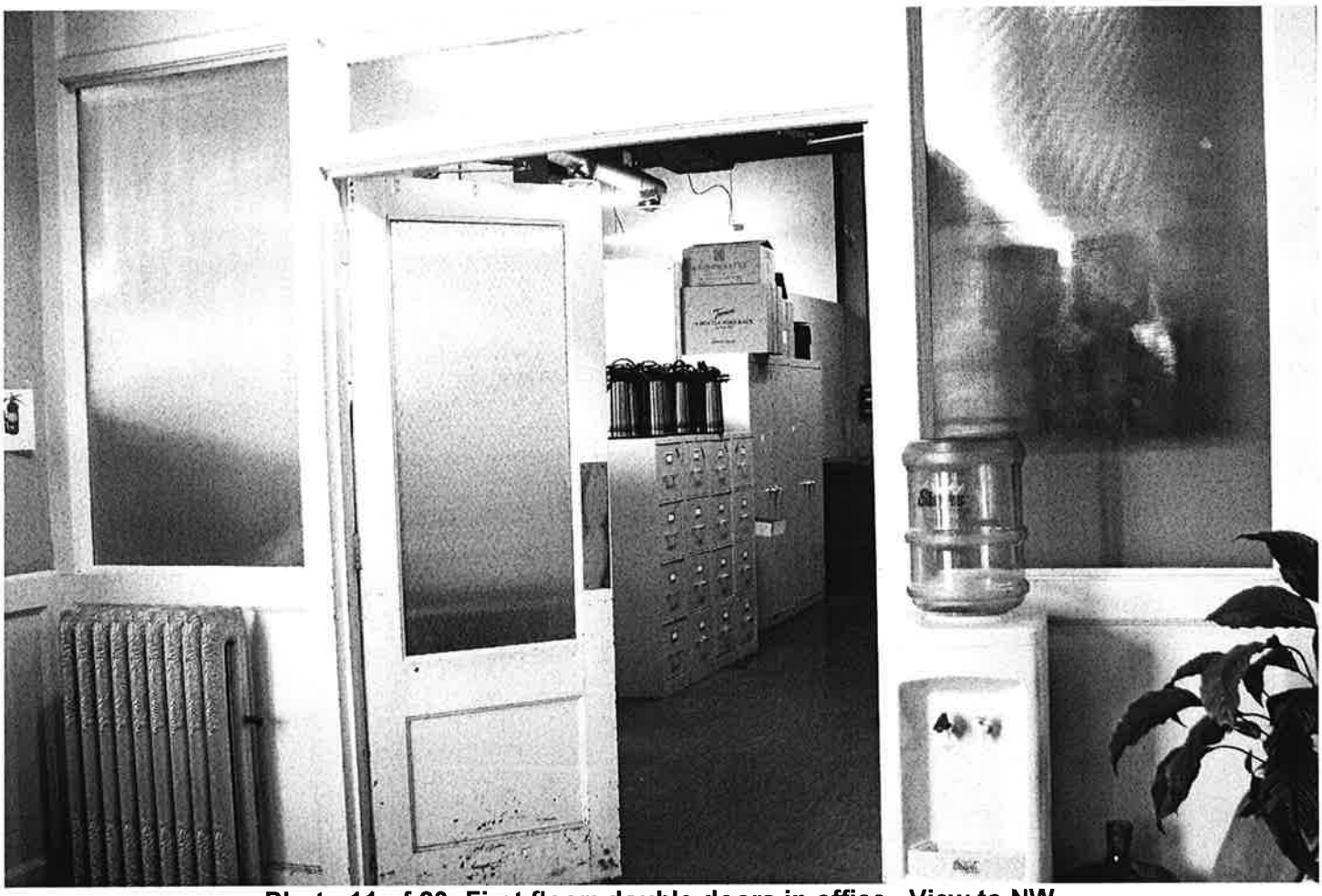

Photo 11 of 23: First floor: double doors in office. View to NW.

Photo 12 of 23: First floor: office reception area. View to SE.

Photo 13 of 23: First floor: office conference room. View to NW.

NPS Form 10-900-a

OMB Approval No. 1024-0018

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National Park Service

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Section number Photographs Page 15

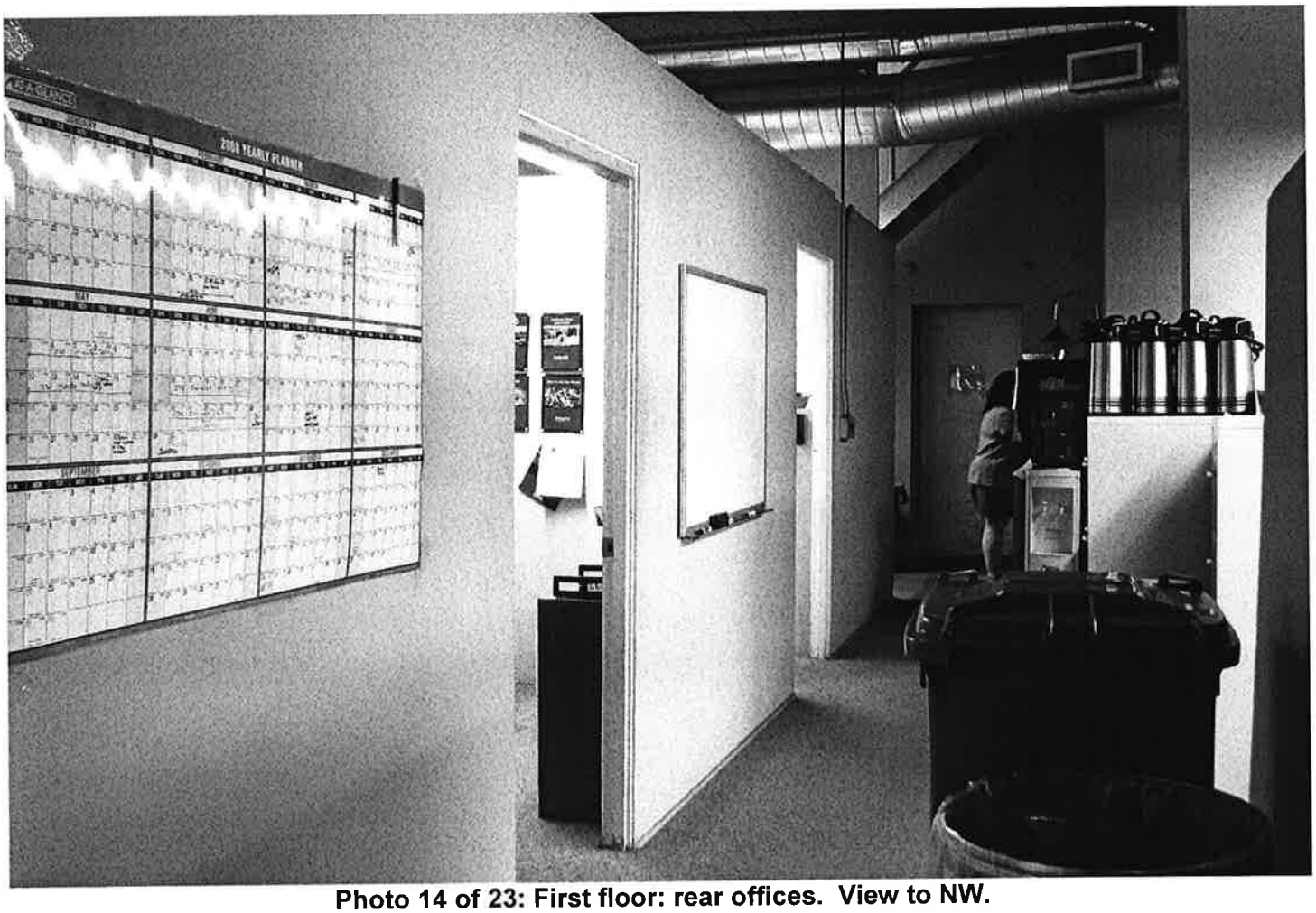

Photo 14 of 23: First floor: rear offices. View to NW.

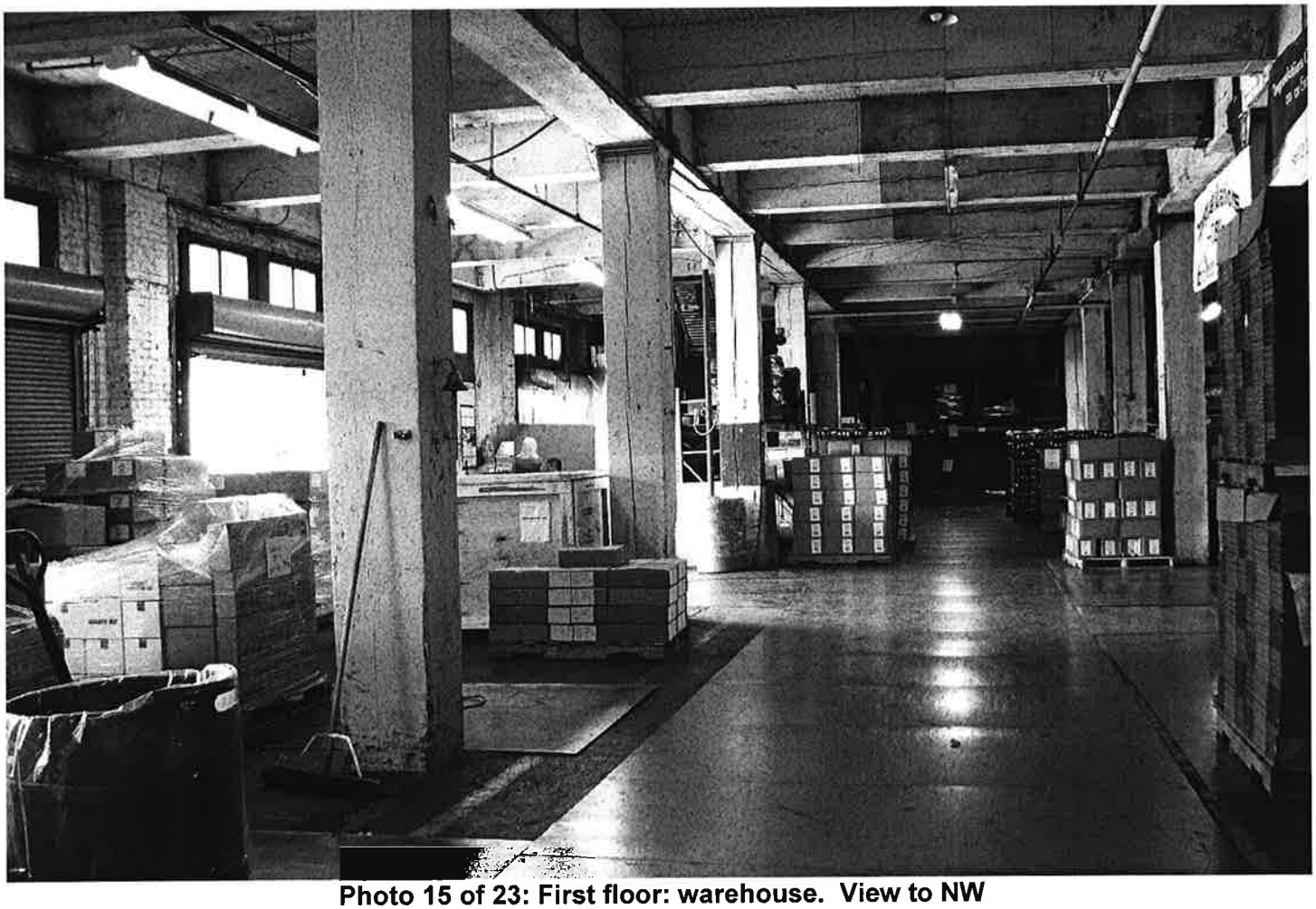

Photo 15 of 23: First floor: warehouse. View to NW

Photo 16 of 23: First floor: warehouse fire door. View to SE.

Photo 17 of 23: Second floor: warehouse. View to NW.

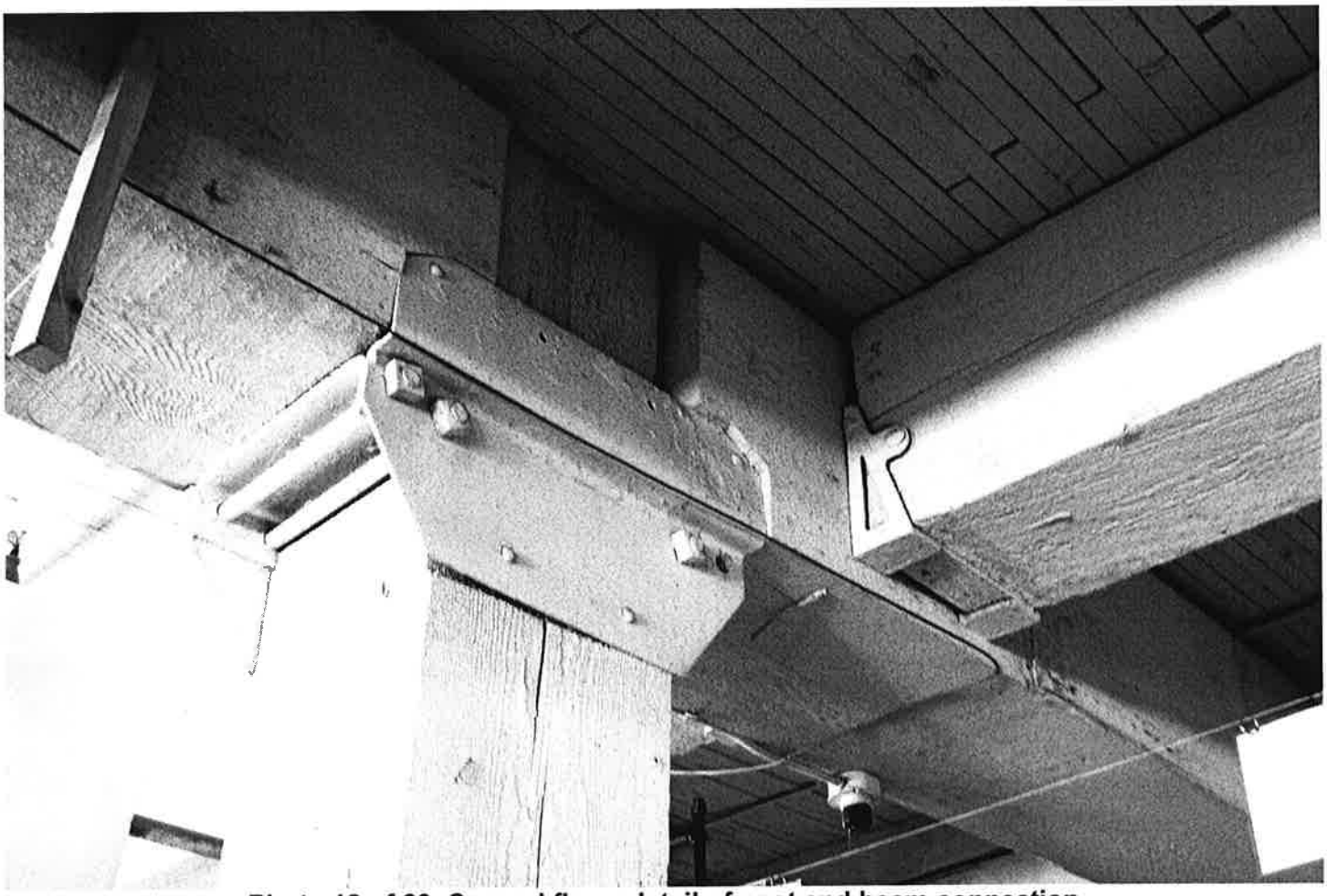

Photo 18 of 23: Second floor: detail of post and beam connection.

Photo 19 of 23: Third floor: warehouse View to W.

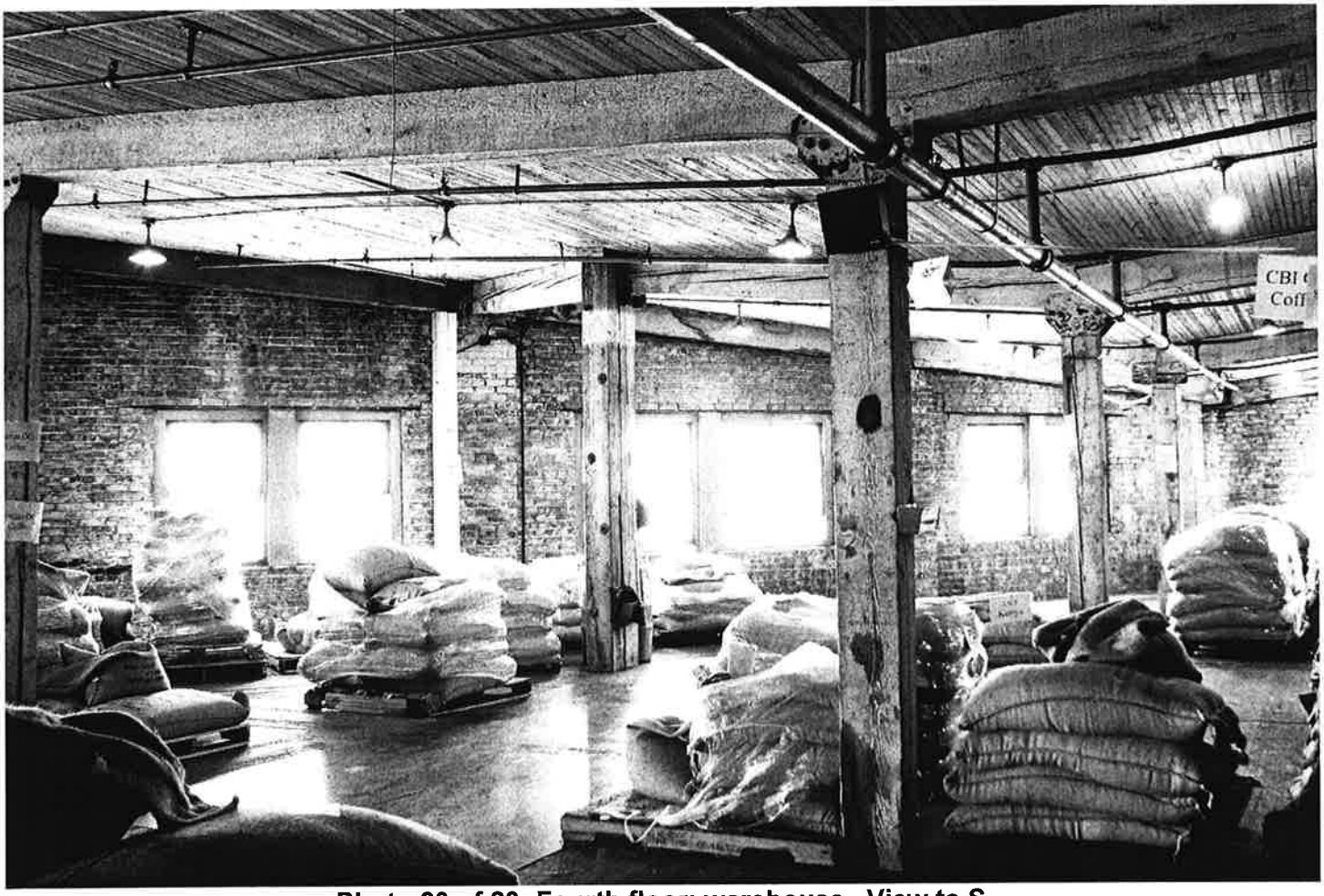

Photo 20 of 23: Fourth floor: warehouse. View to S.

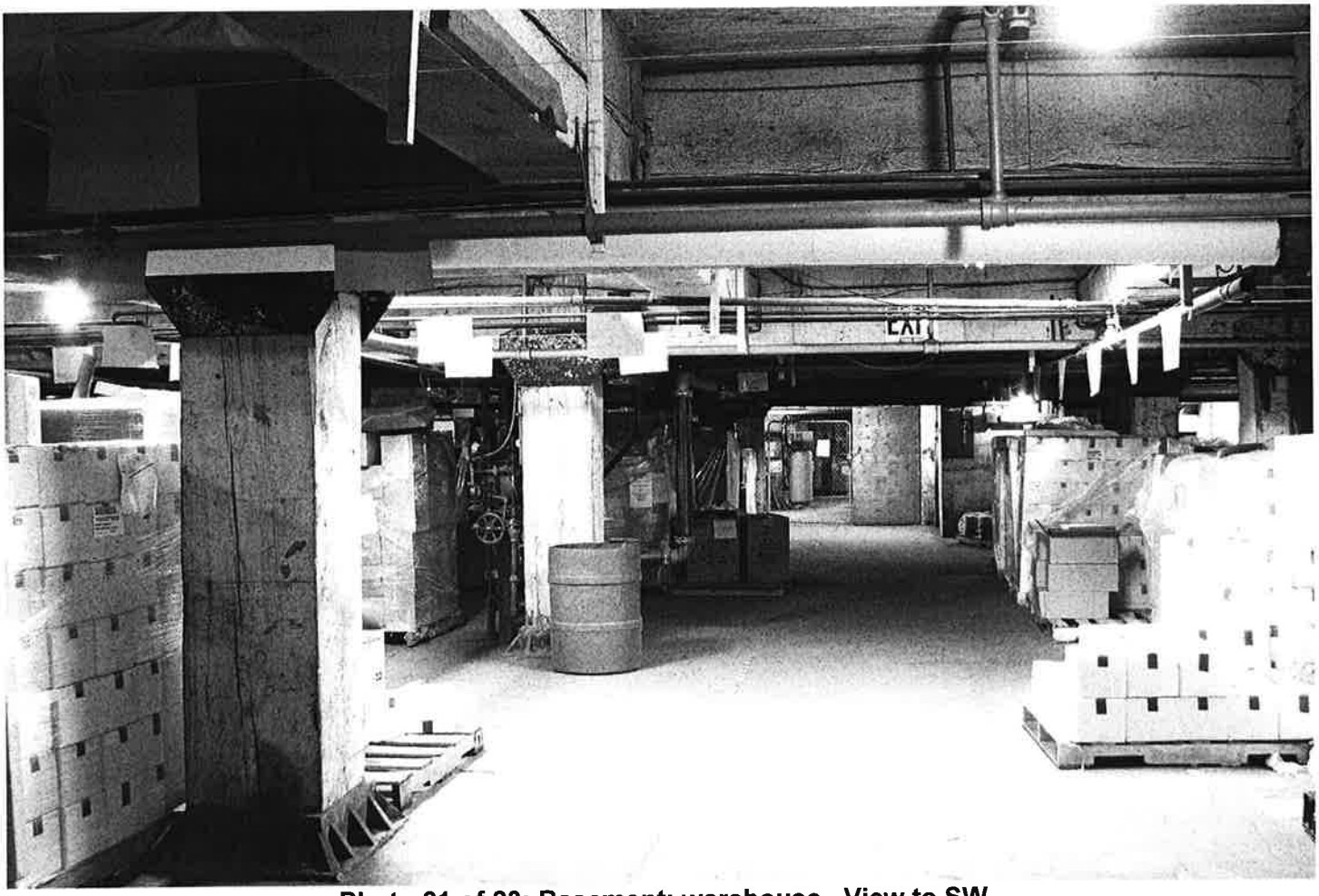

Photo 21 of 23: Basement: warehouse. View to SW

Photo 22 of 23: Basement: sprinkler equipment. View to SE.

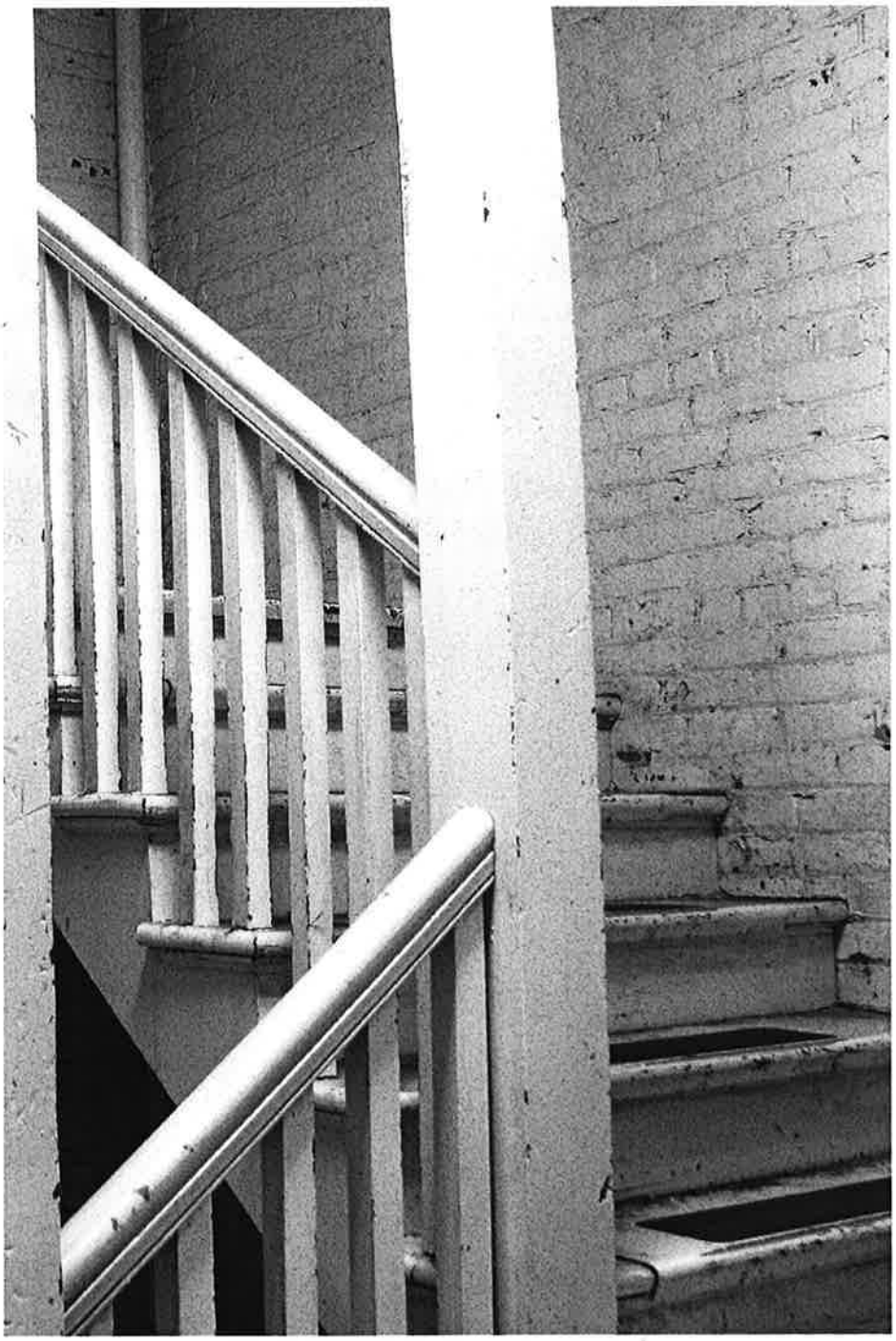

Photo 23 of 23: Warehouse stair.

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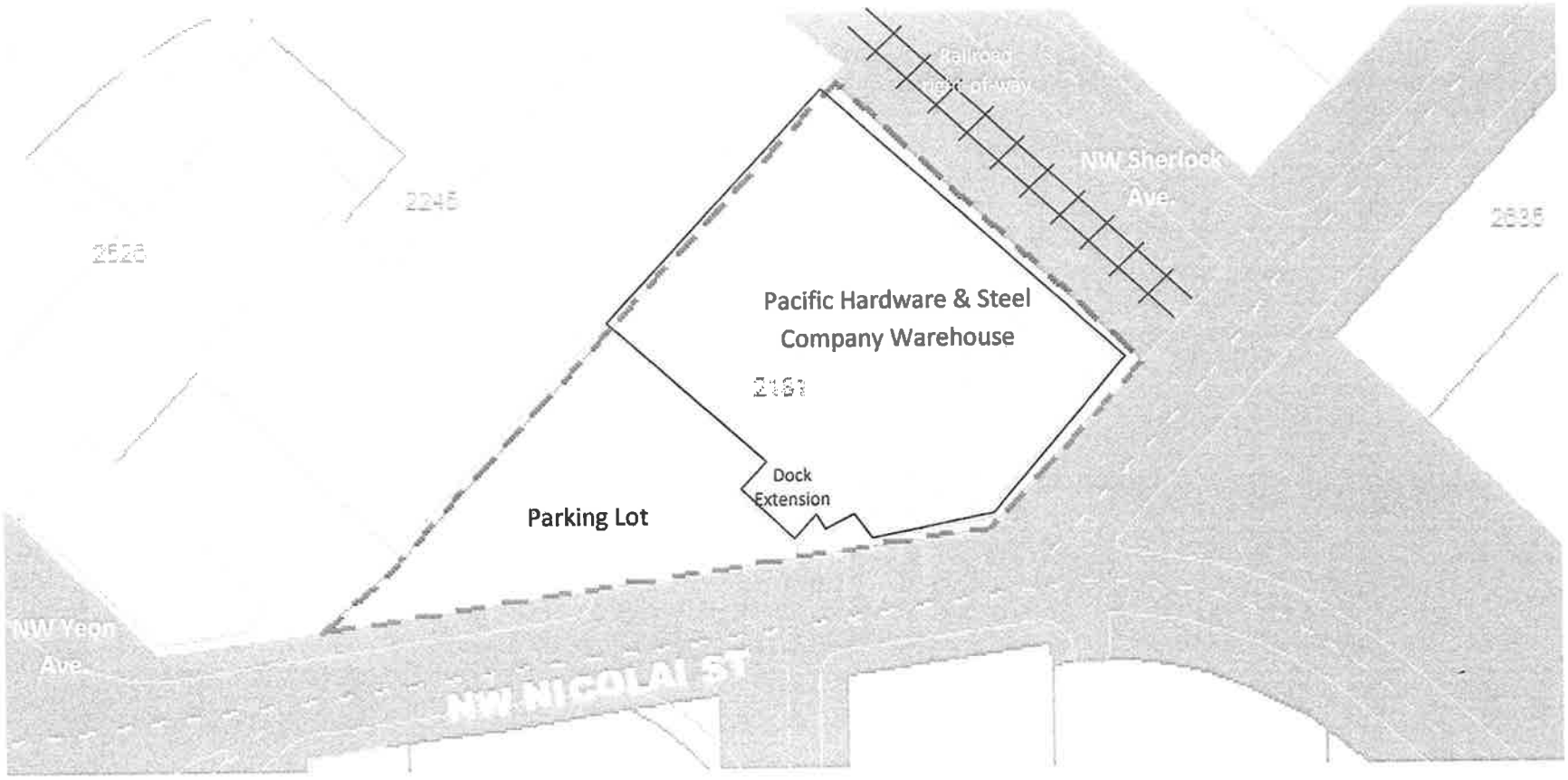
DOCUMENTS

1. Site plan and location map
2. Pacific Hardware & Steel Company Warehouse Floor Plans, 5 sheets
3. Exhibit A: Sketch of Pacific Hardware & Steel Co. Warehouse
4. Exhibit B: Sanborn Fire Insurance Map, Portland, 1908
5. Exhibit C: Sanborn Fire Insurance Map, Portland, 1908-1950

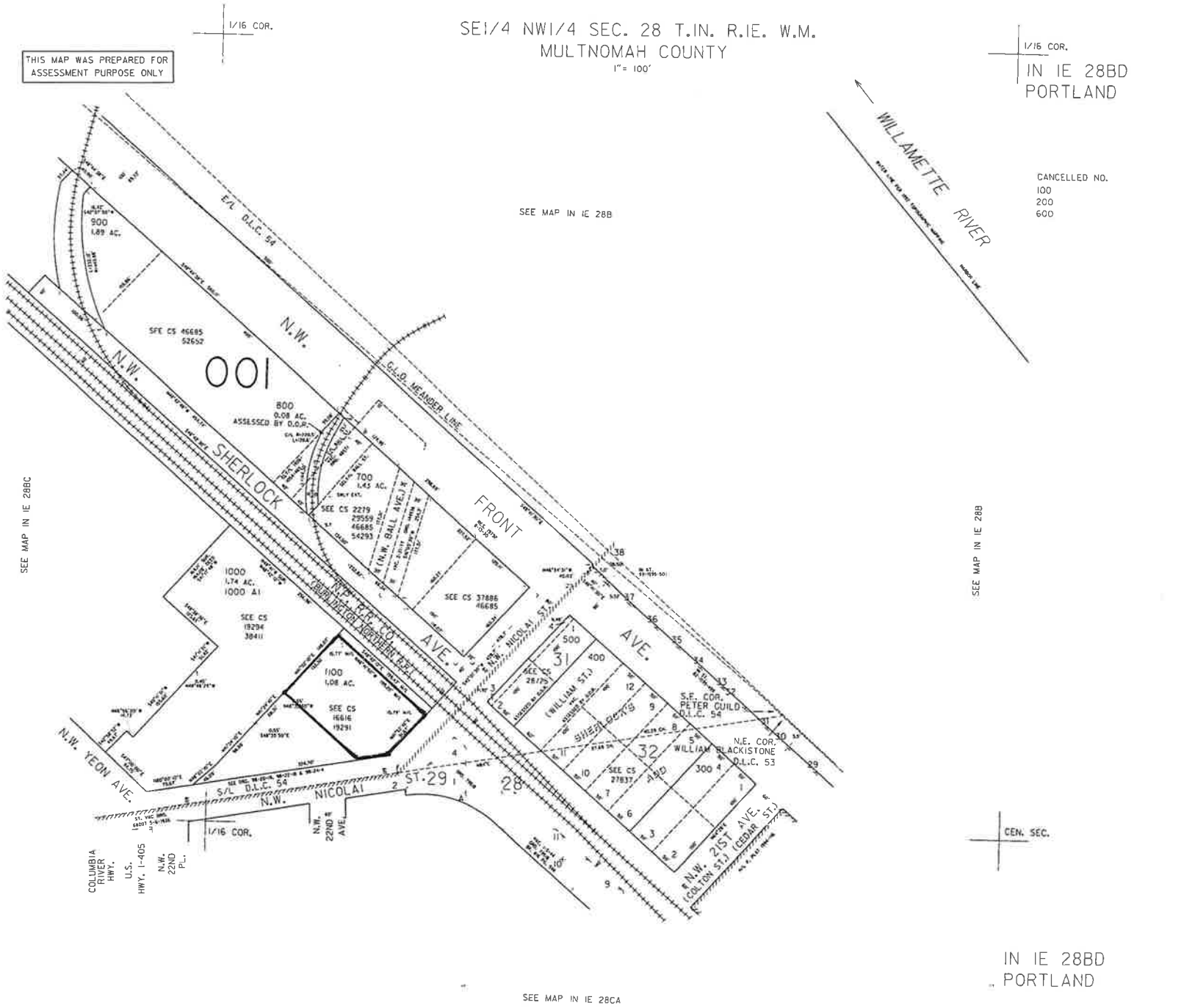
Site Plan

Pacific Hardware & Steel Company Warehouse

2181 NW Nicolai Street, Portland, Multnomah County, Oregon



Pacific Hardware & Steel Company Warehouse
Multnomah Co., OR



Pacific Hardware & Steel Company Warehouse
Multnomah Co., OR

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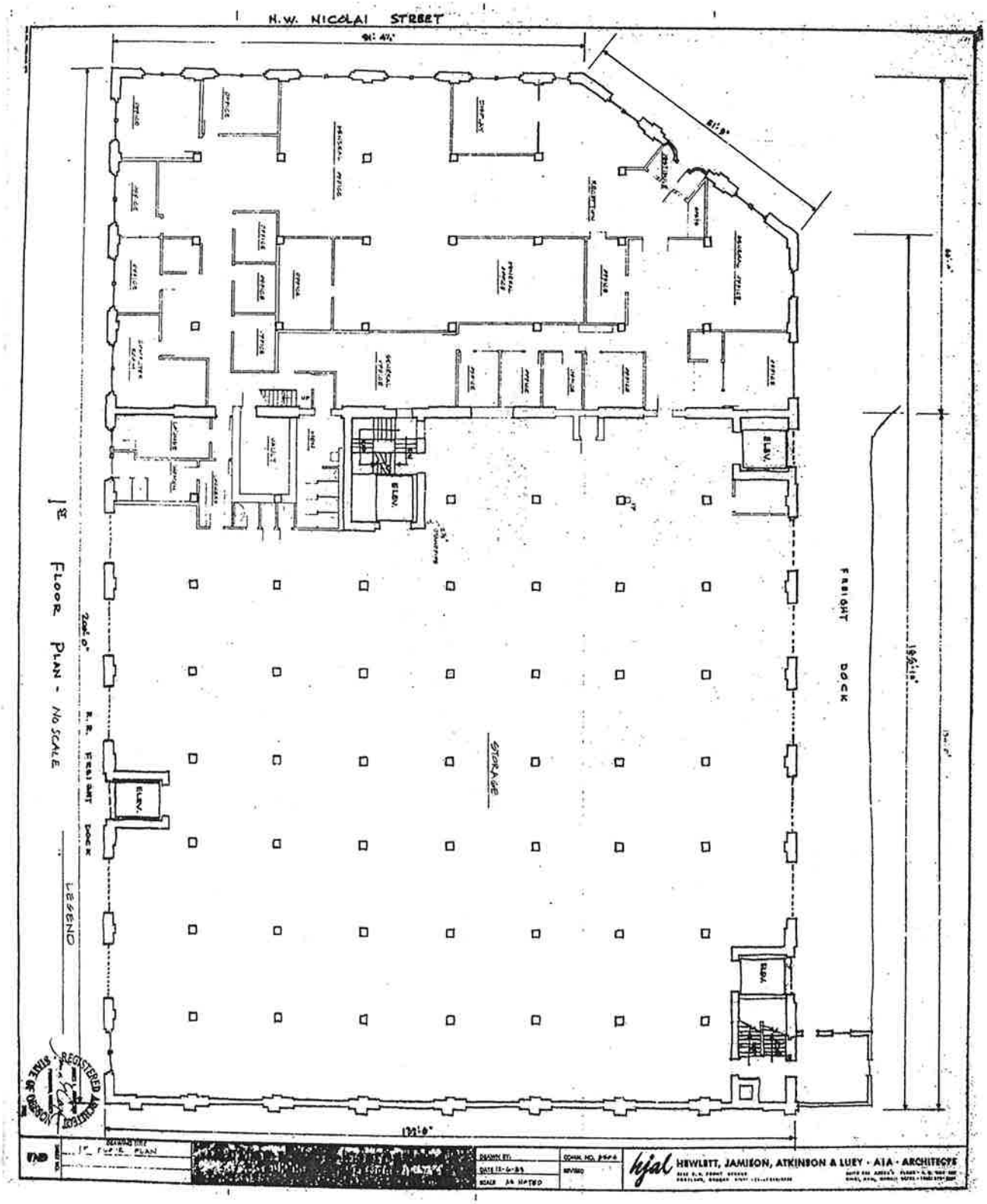
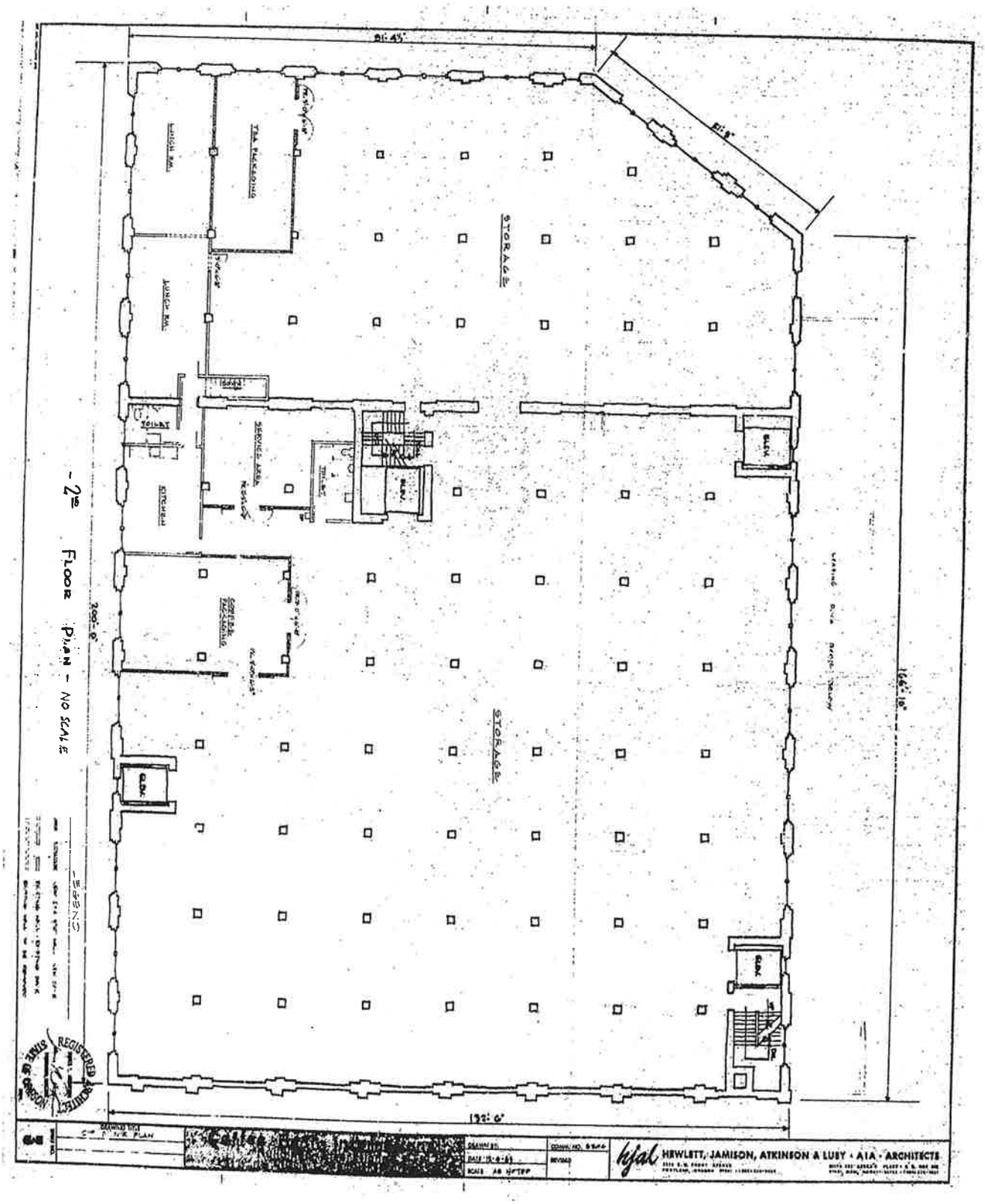
Pacific Hardware & Steel Company Warehouse – Floor Plans



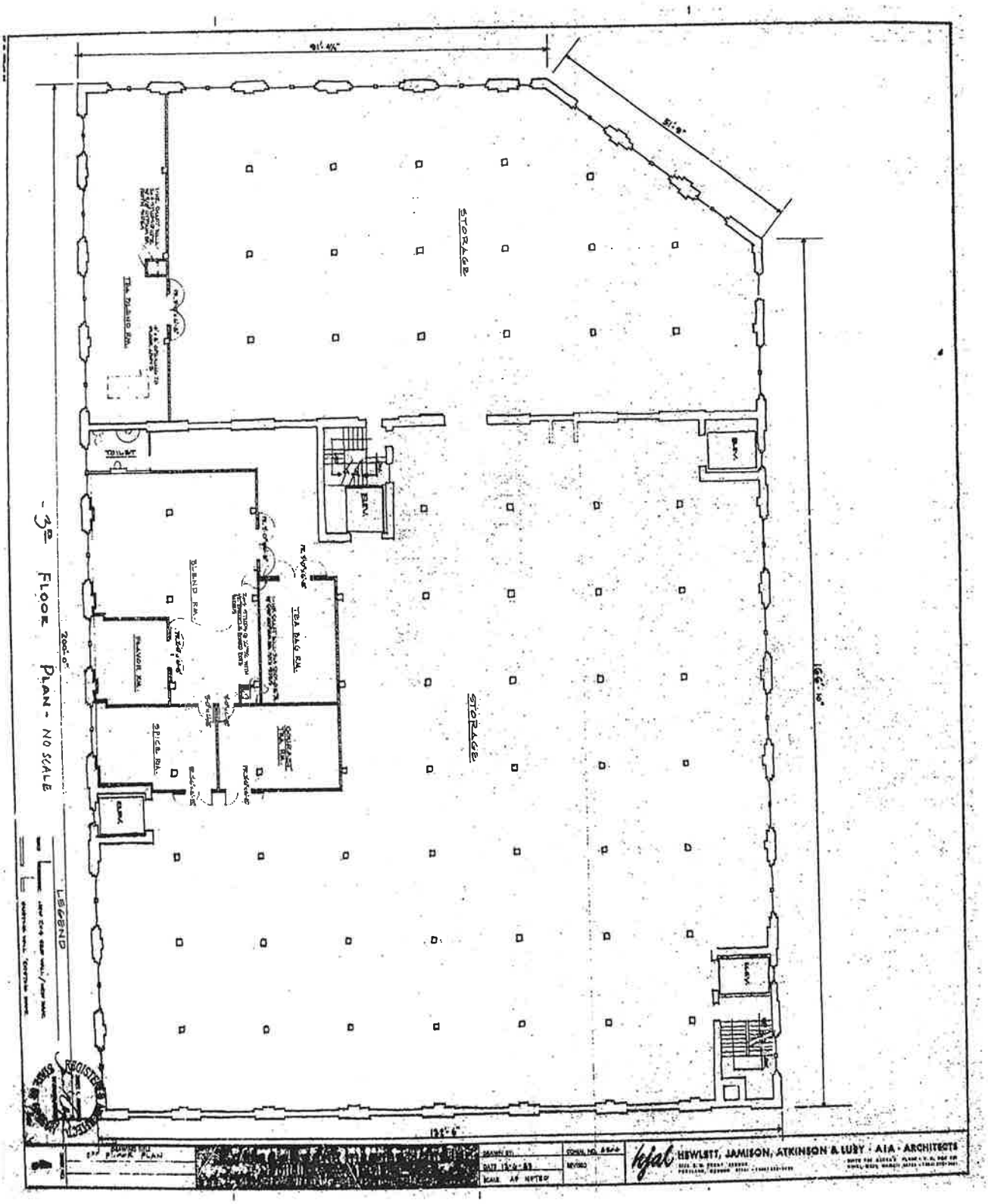
Pacific Hardware & Steel Company Warehouse
Multnomah Co., OR

Pacific Hardware & Steel Company Warehouse – Floor Plans



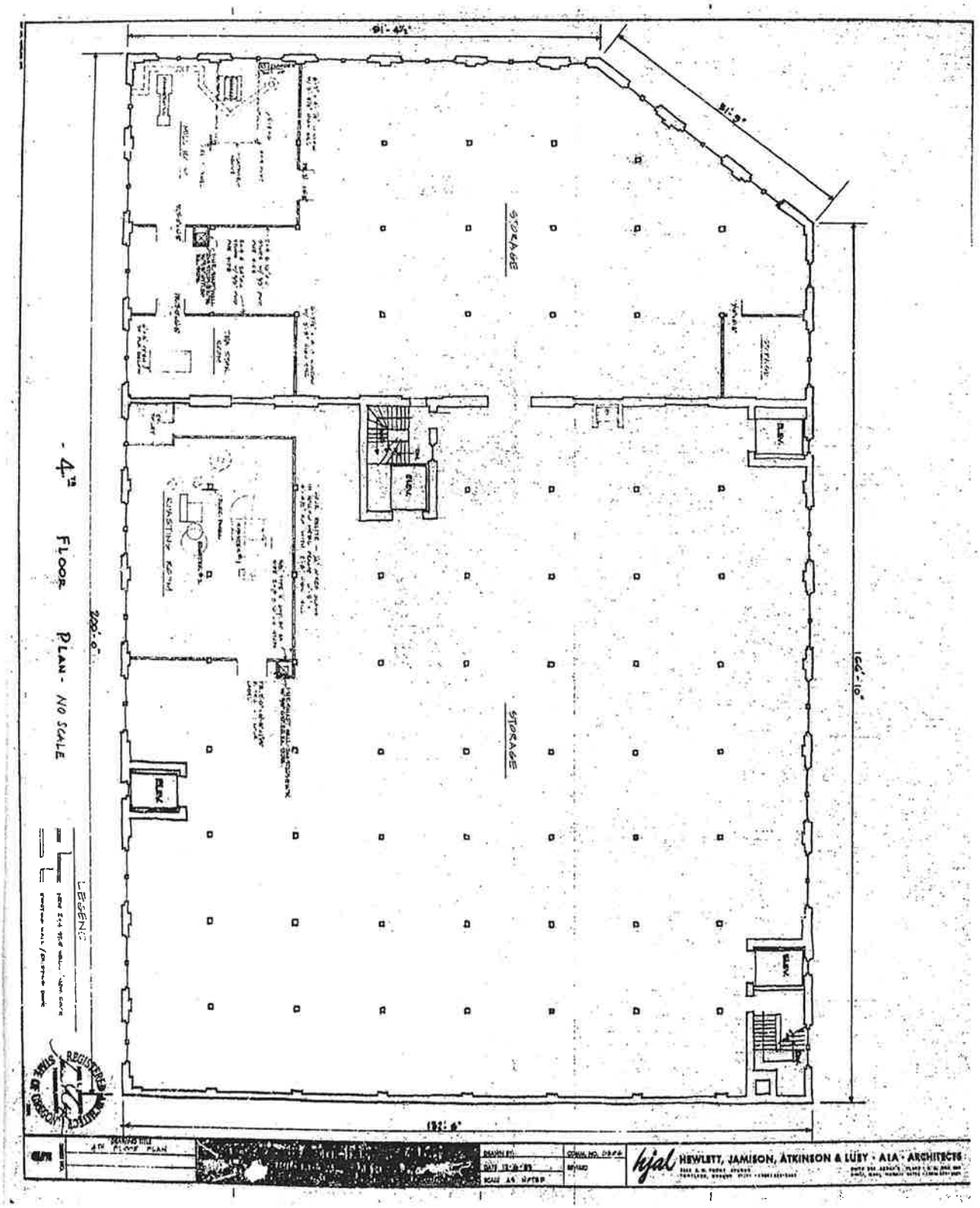
Pacific Hardware & Steel Company Warehouse
Multnomah Co., OR

Pacific Hardware & Steel Company Warehouse – Floor Plans



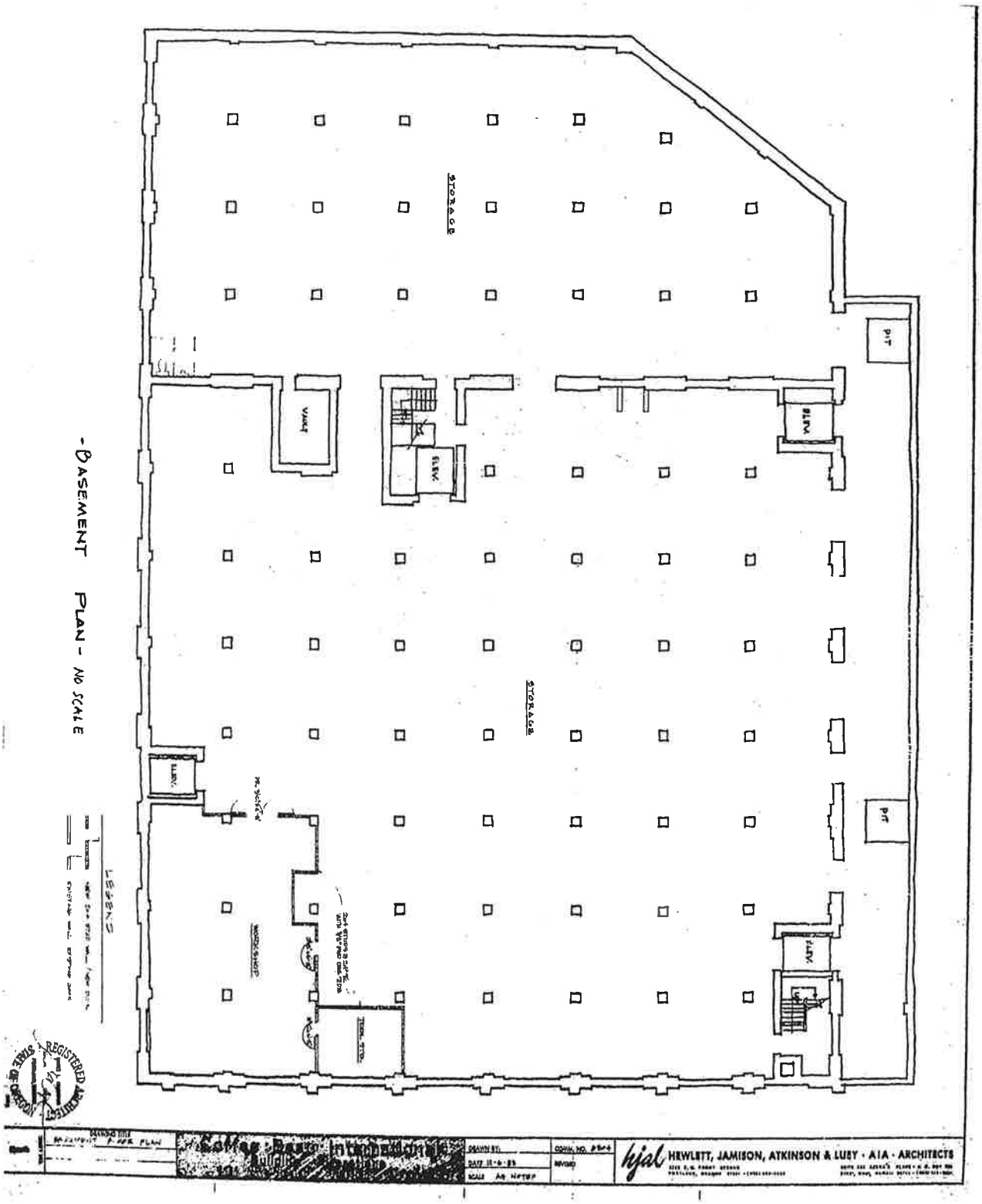
Pacific Hardware & Steel Company Warehouse
Multnomah Co., OR

Pacific Hardware & Steel Company Warehouse – Floor Plans



Pacific Hardware & Steel Company Warehouse
Multnomah Co., OR

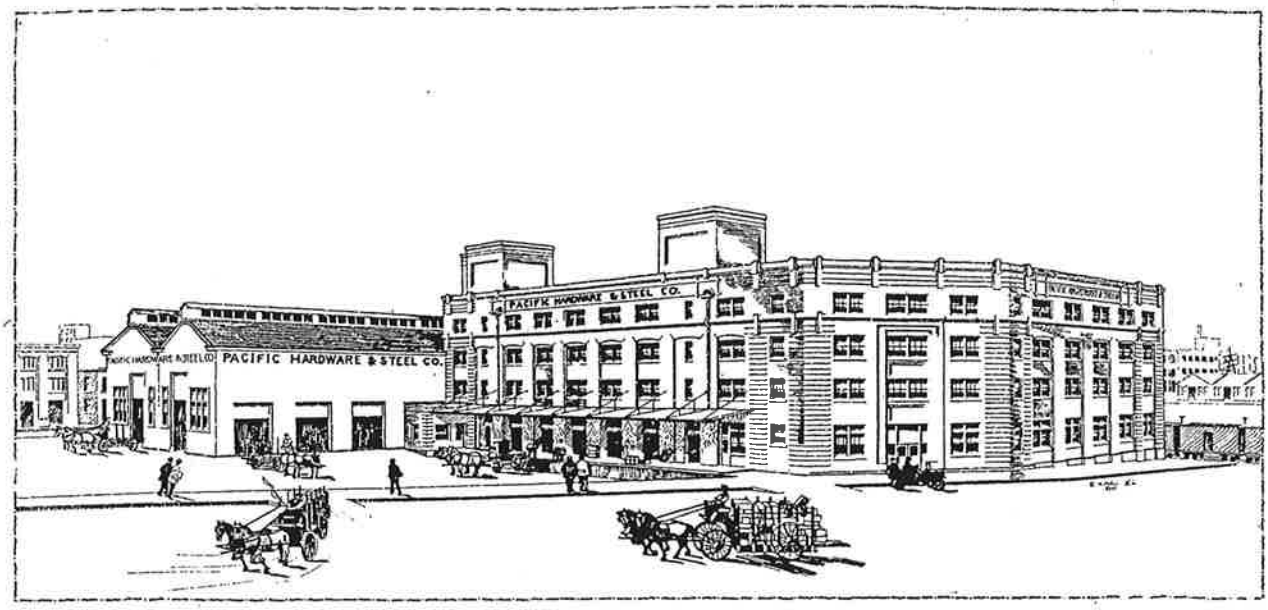
Pacific Hardware & Steel Company Warehouse – Floor Plans



Pacific Hardware & Steel Company Warehouse
Multnomah Co., OR

Exhibit A

Sketch included in promotional booklet called *Work of Bennes & Hendricks, Architects*
Published 1910

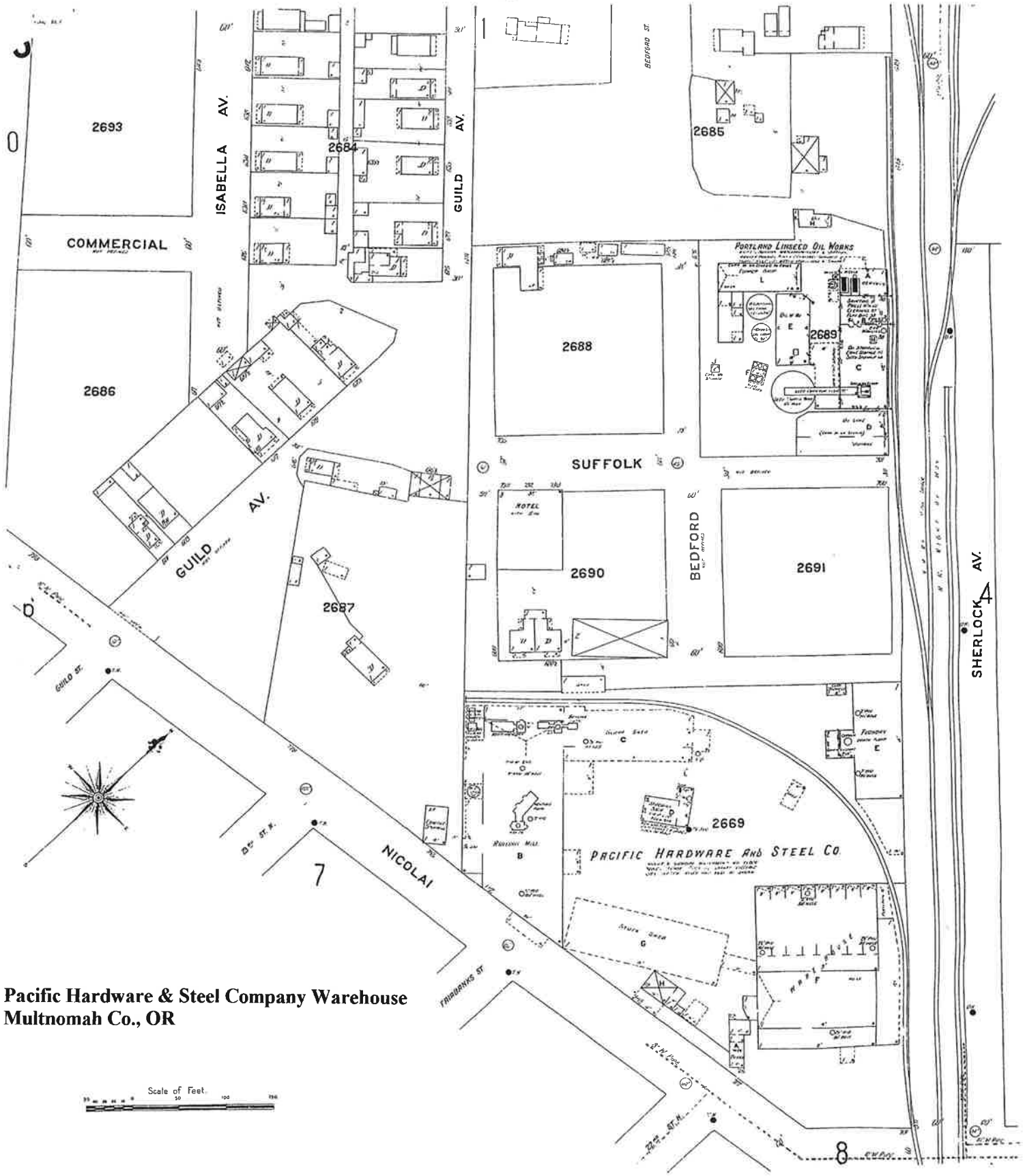


PACIFIC HARDWARE AND STEEL CO. WAREHOUSE

Pacific Hardware & Steel Company Warehouse
Multnomah Co., OR

Exhibit B

Sanborn Fire Insurance Map
Portland, 1908



Pacific Hardware & Steel Company Warehouse
Multnomah Co., OR

Pacific Hardware & Steel Company Warehouse
Multnomah Co., OR

Exhibit C

Sanborn Fire Insurance Map
Portland, 1908-1950