

United States Department of the Interior  
National Park Service

# National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in National Register Bulletin, *How to Complete the National Register of Historic Places Registration Form*. 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 certification comments, entries, and narrative items on continuation sheets if needed (NPS Form 10-900a).

## 1. Name of Property

Historic name Midwest Terminal Building

Other names/site number US Aeronautical Chart Plant (St. Louis), Illinois Terminal System Building, St. Louis Globe Democrat

Name of related Multiple Property Listing N/A

## 2. Location

Street & number 700-720 North Tucker Blvd (AKA 1110-46 Convention Plaza, 700 Hadley) N/A not for publication

City or town St. Louis N/A vicinity

State Missouri Code MO County (St. Louis (Independent City)) Code 510 Zip code 63101

## 3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended,

I hereby certify that this  nomination  request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60.

In my opinion, the property  meets  does not meet the National Register Criteria. I recommend that this property be considered significant at the following level(s) of significance:

national  statewide  local

Applicable National Register Criteria:  A  B  C  D

Toni M. Prawl

DEC 19 2016

Signature of certifying official/ Title Toni M. Prawl, Ph.D., Deputy SHPO

Date

Missouri Department of Natural Resources  
State or Federal agency/bureau or Tribal Government

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

Signature of commenting official

Date

Title

State or Federal agency/bureau or Tribal Government

## 4. National Park Service Certification

I hereby certify that this property is:

entered in the National Register

determined eligible for the National Register

determined not eligible for the National Register

removed from the National Register

other (explain:)

Signature of the Keeper

Date of Action

Midwest Terminal Building  
Name of Property

St. Louis (Independent City), Missouri  
County and State

**5. Classification**

**Ownership of Property**  
(Check as many boxes as apply.)

**Category of Property**  
(Check only **one** box.)

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

<input checked="" type="checkbox"/>	private
<input type="checkbox"/>	public - Local
<input type="checkbox"/>	public - State
<input type="checkbox"/>	public - Federal

<input checked="" type="checkbox"/>	building(s)
<input type="checkbox"/>	district
<input type="checkbox"/>	site
<input type="checkbox"/>	structure
<input type="checkbox"/>	object

<u>Contributing</u>	<u>Noncontributing</u>	
1		buildings
		sites
		structures
		objects
1		<b>Total</b>

**Number of contributing resources previously listed in the National Register**

0

**6. Function or Use**

**Historic Functions**

(Enter categories from instructions.)

DEFENSE/Supply/Manufacturing

INDUSTRY/Manufacturing Facility

Other:

COMMERCE/TRADE/Warehouse

COMMERCE/TRADE/Business

COMMERCE/TRADE/Specialty Store

TRANSPORTATION/Rail-Related

**Current Functions**

(Enter categories from instructions.)

COMMERCE/TRADE/Business

COMMERCE/TRADE/Warehouse

COMMERCE/TRADE/Specialty Store

VACANT

**7. Description**

**Architectural Classification**

(Enter categories from instructions.)

MODERN MOVEMENT/Art Deco

**Materials**

(Enter categories from instructions.)

foundation: Concrete

walls: Brick

Concrete

roof: Asphalt

other: Steel

Terra Cotta

**NARRATIVE DESCRIPTION ON CONTINUATION PAGES**

Midwest Terminal Building  
Name of Property

St. Louis (Independent City), Missouri  
County and State

**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.
- 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 Owned 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.

STATEMENT OF SIGNIFICANCE ON CONTINUATION PAGES

**Areas of Significance**

MILITARY  
INDUSTRY  
TRANSPORTATION

**Period of Significance**

1932-1946

**Significant Dates**

1943

**Significant Person**

(Complete only if Criterion B is marked above.)

N/A

**Cultural Affiliation**

N/A

**Architect/Builder**

Mauran, Russell & Crowell (architects)  
Kaplan-McGowan Co. (contractors)  
Brussell & Viterbo (engineers)  
Spearl, Becker & Falvey (architects/engineers)

**9. Major Bibliographical References**

**Bibliography** (Cite the books, articles, and other sources used in preparing this form.)

**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 # \_\_\_\_\_
- recorded by Historic American Landscape Survey # \_\_\_\_\_

**Primary location of additional data:**

- State Historic Preservation Office
- Other State agency
- Federal agency
- Local government
- University
- Other

Name of repository: Landmarks Association

Historic Resources Survey Number (if assigned): N/A

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**10. Geographical Data**

**Acreeage of Property** 2.3 acres

**Latitude/Longitude Coordinates**

Datum if other than WGS84: \_\_\_\_\_

(enter coordinates to 6 decimal places)

1 38.632594 -90.195667 3 \_\_\_\_\_  
Latitude: Longitude: Latitude: Longitude:

2 \_\_\_\_\_ 4 \_\_\_\_\_  
Latitude: Longitude: Latitude: Longitude:

**UTM References**

(Place additional UTM references on a continuation sheet.)

\_\_\_\_\_ NAD 1927 or \_\_\_\_\_ NAD 1983

1 \_\_\_\_\_  
Zone Easting Northing

3 \_\_\_\_\_  
Zone Easting Northing

2 \_\_\_\_\_  
Zone Easting Northing

4 \_\_\_\_\_  
Zone Easting Northing

**Verbal Boundary Description** (On continuation sheet)

**Boundary Justification** (On continuation sheet)

**11. Form Prepared By**

name/title Matt Bivens/Historic Preservation Director

organization Lafser & Associates date 2/16/16;3/28/16;6/1/16F;12/1/16NPS

street & number 1215 Fern Ridge Parkway, Suite 110 telephone 314-560-9903

city or town St. Louis state MO. zip code 63141

e-mail msbivens@lafser.com

**Additional Documentation**

Submit the following items with the completed form:

- **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. Key all photographs to this map.
- **Continuation Sheets**
- **Photographs**
- **Owner Name and Contact Information**
- **Additional items:** (Check with the SHPO or FPO for any additional items.)

**Paperwork Reduction Act Statement:** This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C.460 et seq.).

**Estimated Burden Statement:** Public reporting burden for this form is estimated to average 18 hours per response including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Office of Planning and Performance Management. U.S. Dept. of the Interior, 1849 C. Street, NW, Washington, DC.

Midwest Terminal Building  
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## Photographs

Submit clear and descriptive photographs. The size of each image must be 1600x1200 pixels (minimum), 3000x2000 preferred, at 300 ppi (pixels per inch) or larger. Key all photographs to the sketch map. Each photograph must be numbered and that number must correspond to the photograph number on the photo log. For simplicity, the name of the photographer, photo date, etc. may be listed once on the photograph log and doesn't need to be labeled on every photograph.

## Photo Log:

Name of Property: Midwest Terminal Building

City or Vicinity: St. Louis

County: (Independent City) State: Missouri

Photographer: Matt Bivens

Date  
Photographed: 5-2016

Description of Photograph(s) and number, include description of view indicating direction of camera:

- 1 of 20: Primary elevation (right) and portion of north wall (left); camera southeast.
- 2 of 20: Primary elevation entry detail; camera southeast.
- 3 of 20: Primary elevation entry detail; camera east.
- 4 of 20: Primary elevation; camera east.
- 5 of 20: Primary elevation left wing; camera northeast.
- 6 of 20: North elevation (left); camera southeast.
- 7 of 20: Rear, east elevation; camera southwest.
- 8 of 20: Rear, east elevation; camera northwest.
- 9 of 20: Rear, east elevation "H"; camera southwest.
- 10 of 20: South side elevation; camera northeast.
- 11 of 20: South side elevation; camera northwest.
- 12 of 20: South side elevation plaque; camera north.
- 13 of 20: Interior 1<sup>st</sup> floor vestibule and lobby; camera due west.
- 14 of 20: Interior 1<sup>st</sup> floor vestibule detail; camera due north.
- 15 of 20: Interior storefront at southwest corner; camera southwest.
- 16 of 20: Interior loading docks along rear; camera northeast.
- 17 of 20: Basement level; camera angle west.
- 18 of 20: Third floor elevator hall; camera north.
- 19 of 20: Third floor open floor area (room 312) with NE stair and elevator; camera northeast.
- 20 of 20: Fifth floor former drafting area; camera north.

Photo Key is on Page 67: Source- Levine Associates, 2000. Not to Scale.

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**Figure Log:**

**Figures 1A and B** (page 3; top to bottom): Figure 1A is main lobby geometric marble wall slabs (and ceiling detail); Figure 1B is an example of the cast iron transom panels at the main entry. Source: Matt Bivens, 2014-2016.

**Figures 2A and B** (page 4; clockwise starting at right): Figure 2A is the original U.S. mail box; and Figure 2B contains 2 examples of the ornamental metal grilles in the lobby. Source: Matt Bivens, 2014-2016.

**Figures 3A and B** (page 5; top to bottom): Figure 3A shows one of the original elevator bays; Figure 3B is the original directory board. Source: Matt Bivens, 2014-2016.

**Figures 4A and B** (page 6; top to bottom): Figure 4A illustrates the exposed concrete columns, floors, and monumental ceilings, Figure 4B is the first floor wood block flooring installed within the rear warehouse portions. Source: Matt Bivens, 2014-2016.

**Figure 5A** (page 7; clockwise from top right: current rooms 221 on 2<sup>nd</sup> floor, 503 on 5<sup>th</sup>, and an open plan in 504, Source: Matt Bivens, 2014-2016.

**Figure 5B** (page 8; clockwise from top right): the 5<sup>th</sup> floor vault showing original door, open space on 5<sup>th</sup> floor showing wall locations, and current 317A on 3<sup>rd</sup> floor (top left).

**Figure 6** (page 9): Site within context of larger city, demarked by a shaded square and arrow pointing downward. Source: Google Earth, 2016.

**Figure 7** (page 14): 1<sup>st</sup> floor hall looking west towards North Tucker Boulevard. Original terrazzo floor is intact beneath metal floor veneer; vertical lighting is removable but provides light in an otherwise dark corridor. Source: Matt Bivens photograph, 2015.

**Figure 8** (page 15): Photograph of lower level ground showing metal covering over original rail track. Source: Matt Bivens, 2-2016.

**Figure 9** (page 15): Underground design. Source: Mauran, Russell & Crowell drawings, 1931.

**Figure 10** (page 18): 1<sup>st</sup> floor plan. Source: Levine Associates, 2000. Not to Scale.

**Figure 11** (page 19): 2<sup>nd</sup> floor plan. Source: Levine Associates, 2000. Not to Scale.

**Figure 12** (page 20): 3<sup>rd</sup> floor plan. Source: Levine Associates, 2000. Not to Scale.

**Figure 13** (page 21): 4<sup>th</sup> floor plan. Source: Levine Associates, 2000. Not to Scale.

**Figure 14** (page 22): 5<sup>th</sup> floor plan. Source: Levine Associates, 2000. Not to Scale.

**Figure 15** (page 23): Roof plan. Source: Levine Associates, 2000. Not to Scale.

**Figure 16** (page 26): "The New Midwest Terminal Building, St. Louis." Midwest Industrial Terminal Company brochure cover page, circa 1930.

**Figure 17 (top right)** (page 27): First floor plan and covered truck loading areas. Source: "The New Midwest Terminal Building, St. Louis." Midwest Industrial Terminal Company brochure, circa 1930.

**Figure 18 (bottom left)** (page 27): Typical floor plan illustrating the open design which could be altered to suit needs. Source: "The New Midwest Terminal Building, St. Louis." Midwest Industrial Terminal Company brochure, circa 1930.

**Figure 19** (page 28): Location of building in green. Source: "The New Midwest Terminal Building, St. Louis." Midwest Industrial Terminal Company brochure, circa 1930.

**Figure 20** (page 30): Original design of the building. Source: The proposed "Midwest Terminal Building," St. Louis. Company brochure, circa 1930.

**Figure 21** (page 31): Photograph of site standing on Lucas Avenue between 12<sup>th</sup> and 11<sup>th</sup> Streets facing north, August 21, 1930. The exposed foundation is a portion of the former freight house. Source: Collection of Dale Jenkins, Illinois Traction Society.

**Figure 22** (page 32): Photograph of building construction site facing southwest towards Washington Avenue and 12<sup>th</sup> Street with steel framework of the terminal building raised above ground on July 4, 1931 (top). At the far left side is the Carleton Building (since demolished) and to its right is the Ferguson-McKinney Dry Goods Store and Warehouse (NR listed Washington Avenue Historic District 2-12-1987). The smaller image at the bottom left

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shows the men whom sunk down below surface to hand dig the piers for the structural columns. Source: TOP-Collection of Dale Jenkins, Illinois Traction Society; BOTTOM-Collection of Missouri Historical Society.

**Figure 23** (page 34): Site plan showing tracks and associated buildings and streets during the historic use. Source: Illinois Traction Society Flyer, Spring 2010, pages 30-31. Building is identified with dotted line at left side.

**Figure 24** (page 35): Photograph of construction, 1932. Source: Collection of Dale Jenkins, Illinois Traction Society.

**Figure 25** (page 36): Photographs of completed construction, 1932. The larger image is the primary elevation; the smaller image is the rear, east elevation (left side) with a portion of the north elevation (right side). Source: Collection of Dale Jenkins, Illinois Traction Society.

**Figure 26** (page 38): Right side is the primary entrance, clockwise bottom is view of steam equipment, then exterior view looking northeast. Source: Union Electric Light and Power Company. *Union Electric Magazine*. "The New Midwest Terminal Building: Modern Distribution Methods Demand Modern Facilities." December, 1932, pages 12-13. Eagle poles are extant today; the original ITS name is also intact behind the 1959 St. Louis Globe-Democrat sign above the entry.

**Figure 27** (page 43): October 1942 photograph of the Midwest Terminal Building, view to northeast. Source: Aeronautical Chart Maintenance Project, St. Louis, Missouri. Exhibit A, 10-24-1942.

**Figure 28** (page 44): October 1942 photographs of the Midwest Terminal Building, view to southwest (top) and along Lucas alley (bottom) showing loading facilities (color photo is today view, Matt Bivens, 2016). Source: Aeronautical Chart Maintenance Project, St. Louis, Missouri. Exhibits B and C, 10-24-1942.

**Figure 29** (page 46): Official dedication of the new facility; Director Karo is in back at left. Source: Family of Vice Admiral H. Arnold Karo.

**Figure 31** (page 47): Employee at work on measuring points and transcribing information at the building. Source: NGA St. Louis archives.

**Figure 30** (page 48): Second floor plan as built, January 1943. Source: Aeronautical Chart Maintenance Facility plans- Spearl, Becker & Falvey, architects and engineers.

**Figure 32** (page 50): Third floor plan as built, January 1943. Source: Aeronautical Chart Maintenance Facility plans- Spearl, Becker & Falvey, architects and engineers.

**Figure 34** (page 51): Employee at work on developing and cleaning color plates for charts at the building. Source: NGA St. Louis archives.

**Figure 33** (page 53): Fourth floor plan as built, January 1943. Source: Aeronautical Chart Maintenance Facility plans- Spearl, Becker & Falvey, architects and engineers.

**Figure 35** (page 54): Fifth floor plan as built, January 1943. Source: Aeronautical Chart Maintenance Facility plans- Spearl, Becker & Falvey, architects and engineers.

**Figure 36** (page 55): The Midwest Terminal Building printing facility production between 1944 and 1946. Source: History of the Aeronautical Chart Service. Section D, St. Louis. Web [http://www.escape-maps.com/escape\\_maps/history\\_aeronautical\\_chart\\_service.htm](http://www.escape-maps.com/escape_maps/history_aeronautical_chart_service.htm).

**Figure 37** (page 56): The staff hard at work, floor unknown. Source: NGA archives.

**Figures 38A-C** (page 58): Examples of charts produced in the St. Louis plant: World Aeronautical Charts (top is section of France and bottom right is Placentia Bay on southeast coast of Newfoundland, Canada); bottom left is section of California. Base map for France was drawn in 1941 and updated in 1944; other two base maps were completed in September 1943 and updated in 1944. Source: Collection of Matt Bivens.

**Figure 39** (page 66): "Midwest Terminal Building Boundary Map." Source: Google Earth, MSB, 2015.

**Figure 40** (page 67): Photo Key. Levine Associates, 2000. Not to Scale. Floors 1 (top), 3 (bottom left), 5 (bottom right).

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Midwest Terminal Building
Name of Property St. Louis (Independent City), Missouri
County and State N/A
Name of multiple listing (if applicable)

**ARCHITECTURAL DESCRIPTION**

**Summary**

The Midwest Terminal Building located at 700 North Tucker Boulevard in St. Louis (Independent City), Missouri is a seven-story, Modern Movement building completed in 1932 as a freight and passenger terminal combining high design elements of the Art Deco with pure industrial utilitarianism. The building is capped with a five-story, central elevator and stair penthouse—a remnant of the original design intent to provide a total of twelve floors as conceived (not built). Constructed with a steel frame, concrete cladding and floors, concrete paneled ceilings, and a buff brick veneer, the entire first floor and two-story, central entry bay are dressed in smooth limestone blocks. Built to contain massive loads, especially given the fact that it was designed to contain five additional stories, the building is monumental in scale. Designed with primary elevation store fronts facing west along North Tucker Blvd., underground rails (since removed), and side elevations (north and south) with multiple loading docks for ground transportation of goods (extant), the building continued to serve its original purpose as a warehouse and distribution center combined with office and retail space long after the subway traffic ceased and continues to be used for this purpose today. A style generally rare in St. Louis commercial construction between the 1920s and 1940s, the nominated building embodies the Modern Movement in architecture with elemental verticality, building setbacks at the upper stories, a highly stylized decorative limestone entrance surround as well as geometric ornamentation within the first floor lobby—all elements typical of the Art Deco subtype. The spare buff brick cladding, flat parapets, and factory windows illustrate the building's industrial nature.

Built in 1931-32 by local contractors, the Kaplan-McGowan Company, from designs by the prominent architectural firm of Mauran, Russell and Crowell, both the exterior and interior retain integrity. The majority of the original Fenestra steel sash windows are intact and operable; glass block windows on portions of the second and the fourth floor are intact from the period of military occupation during the period of significance. Few bays on secondary elevations have been bricked in but the fenestration patterns are intact and brick recessed. Storefront transoms are original while lower storefront window framing is newer but in keeping with the original design intent. The stone-clad vestibule, hall, and main lobby contain original geometric marble wall slabs (Figure 1), cast iron transom panels (at two sections within an airlock vestibule; Figure 2), ornamental metal grilles (Figure 3), U.S. mail box (Figure 4), and coved ceilings; terrazzo flooring is intact underneath a removable metal veneer. Further back into the main lobby area are intact elevator bays (Figure 5), the original directory board (Figure 6),

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County and State N/A
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and other details. Beyond the public circulation space, the first floor contains exposed concrete columns and monumental ceilings (Figure 7), original wood block flooring (Figure 8), concrete flooring, and exposed brick walls. The interior has some open floors as well as those which have been divided into office spaces. Since the building no longer supports rail-related transportation below ground level these two areas have been converted to parking and storage as well as mechanical shaft access points. The exterior ground truck loading docks are still active and correspond to the historic shift in method of transportation of goods.

Those floors that supported the historic tenant (two through five) contain familiar spaces which were present during the period of significance. Although floors were generally divided up to provide a separation of function, it was the intent of the tenant to construct low walls which were more temporary in order to set up shop in an expeditious method. Evidence of historic walls is extant at the floor and ceiling level; doorway locations to offices are visible (Figure 9). The methods and processes which occurred within the building in association with the significant occupant were tied to equipment which sat upon the floor and has since been removed—however the feeling and association within is still very strong. The building is now referred to as the Globe Building and it currently serves as retail, office, and storage space with an active data center occupying several floors.

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Midwest Terminal Building
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County and State
N/A
Name of multiple listing (if applicable)

**Figures 1A and B** (top to bottom): Figure 1A is main lobby geometric marble wall slabs (and ceiling detail); Figure 1B is an example of the cast iron transom panels at the main entry. Source: Matt Bivens, 2014-2016.

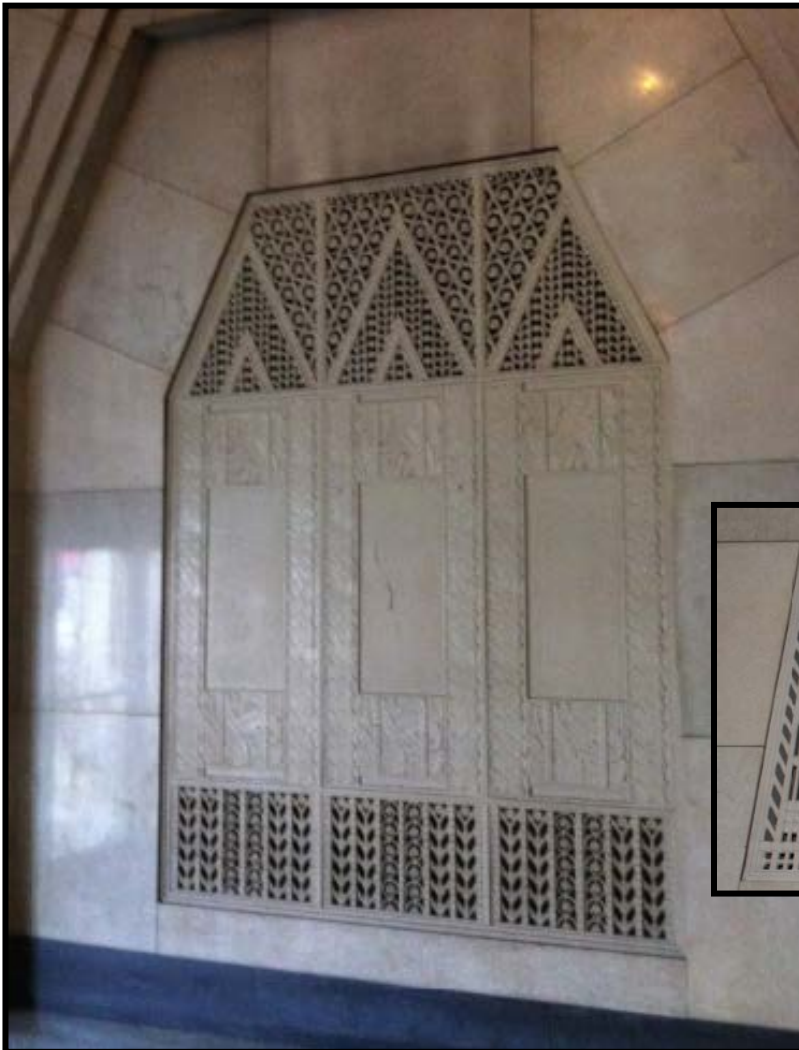


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Midwest Terminal Building
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N/A
Name of multiple listing (if applicable)

**Figures 2A and B** (clockwise starting at right): Figure 2A is the original U.S. mail box; and Figure 2B contains 2 examples of the ornamental metal grilles in the lobby. Source: Matt Bivens, 2014-2016.



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Midwest Terminal Building

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**Figures 3A and B** (top to bottom): Figure 3A shows one of the original elevator bays; Figure 3B is the original directory board. Source: Matt Bivens, 2014-2016.



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Name of multiple listing (if applicable)

**Figures 4A and B** (top to bottom): Figure 4A illustrates the exposed concrete columns, floors, and monumental ceilings, Figure 4B is the first floor wood block flooring installed within the rear warehouse portions. Source: Matt Bivens, 2014-2016.



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Midwest Terminal Building
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**Figure 5A** (clockwise from top right: current rooms 221 on 2<sup>nd</sup> floor, 503 on 5<sup>th</sup>, and an open plan in 504, Source: Matt Bivens, 2014-2016.



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N/A

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**Figure 5B** (clockwise from top right): the 5<sup>th</sup> floor vault showing original door, open space on 5<sup>th</sup> floor showing wall locations, and current 317A on 3<sup>rd</sup> floor (top left).



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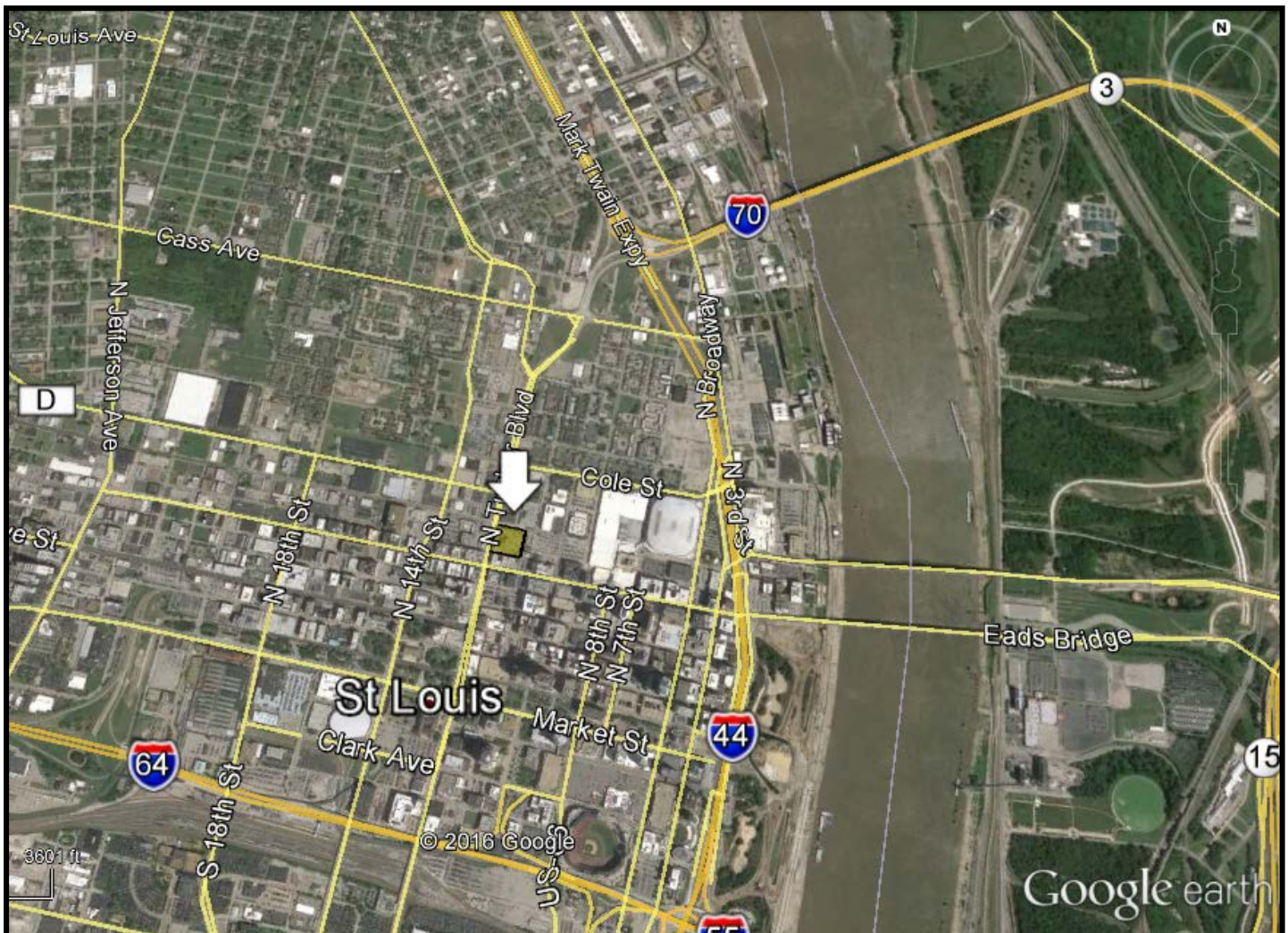
Midwest Terminal Building
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County and State
N/A
Name of multiple listing (if applicable)

**Site**

The building has a primary elevation which faces west along a major North-South traffic corridor named North Tucker Boulevard (Figure 6). Occupying an entire city block, the north elevation faces Convention Plaza (a renamed street), the east elevation faces a paved parking lot, and the south elevation is adjacent to an historic alley as well as the rear elevations of several historic Washington Avenue commercial buildings. The latter buildings are included within the Washington Avenue: East of Tucker District (NRHP 3-24-1987); a second Washington Avenue Historic District is immediately west across North Tucker Boulevard (NRHP 2-12-1987). The underground subway has recently been removed; a figure of the original track systems is included in Figures 9 and 22. The streets and sidewalks were since repoured during renovation of Tucker Boulevard.

**Figure 6:** Site within context of larger city, demarked by a shaded square and a row pointing downward.

Source: Google Earth, 2016.



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Name of multiple listing (if applicable)

**Exterior**

The Midwest Terminal Building (Midwest Terminal) is generally square in footprint with a lower central entrance bay framed by an “H” shaped mass rising seven stories (Photo 1). The primary elevation faces west along North Tucker Boulevard. Divided into three bays, the central entrance plain (Photo 2) is flanked by four original store front bays at both sides; transoms contain original metal framing while lower store front bays have newer framing (respectful to the original design). The entire first floor and two-story entry bay are clad in smooth limestone block with geometric carved ornament at the entry. This central portion contains a wide, recessed entrance comprised of plate glass with two pairs of double doors set under a cast iron, ornamental transom bar (Figure 2) with geometric framed transom glass. Above the entry is intact St. Louis Globe Democrat signage dating from 1959; an original steel sash window bay is above at the second story (Photo 4). The recessed entrance is framed with geometric stone which is intricately carved. A formal geometric block extends upward with a stepped parapet which crowns the entry bay and contains a carved cartouche representing the Illinois Traction System—a street car flanked by a worker and rider grasping hands set under an eagle with inscribed Roman numerals “MCXXXI” corresponding to the construction start of 1931 (Photo 3). Also intact are the original flag poles with cast metal eagles flanking the entry (Photo 3). Opposite the entry bay is a store front window (left side) and a store front with entrance bay (right side); new framed store fronts contain original geometric frame transoms above. At the second story is a multi-light *Fenestra* steel sash window at both sides. *Fenestra*, a brand of steel frame windows, was manufactured by the Detroit Steel Products Company of Michigan as an alternative to wood windows beginning in the 1920s; this type of material was especially suited for large commercial and industrial building types allowing plenty of unobstructed natural light into buildings as well as having portions which were operable for air flow. The Midwest Terminal has at least 60 variations of *Fenestra* windows—all original to the building.

Above the stone-clad entry bay, and recessed back three window bays into the building, is the base of the “H” which is clad in buff brick veneer. Five floors above the stone first floor contain three window bays per floor; windows are divided into four sash sections per window bay with either central or upper and lower operators. The parapet above the seventh floor is flat with a terra cotta cap (Photo 4).

Flanking the central entrance bay at both sides are four additional store fronts with either a single or double-wide entrance (Photo 5). Again, store fronts contain original

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geometric frame transoms above. Storefronts have non-historic canvas awnings overhead which are currently being removed. Above the left, northernmost building wing are two wide *Fenestra* steel sash window bays from the second floor through the seventh; windows are divided into four sash frames composed of multiple lights with central operators. Flanking the two central window bays is a paired, similar window assembly at both sides. The side bays are vertically-framed by recessed pilasters (or brick flutes) that give the illusion that these bays are slightly projecting. Windows have limestone sills and brick headers laid on end. The parapet above the seventh floor is flat with a terra cotta cap. All of the windows are original with the exception of one bricked-in bay (with small vent projecting) at the second floor; a glass block infill bay was installed historically, also on the second floor to the left of the bricked bay. Below each window bay and centered is a steel plate which slightly projects from the façade; these plates correspond to tie rods running through the building within the concrete floors. Surface corrosion resulted in rust penetrating the brick and stone at the façade.

The right, southernmost building wing is identical to the left with the exception of the fourth floor window bays being historically in-filled with glass block (Photo 4). The return walls which face north and south above the central entry at within the base of the "H" contain two equal size window bays divided into four sash sections per window bay with either central or upper and lower operators. Nearest the building's primary façade is a single smaller width window bay with similar sash, from the third through the seventh floors. These edge bays are vertically-framed by recessed pilasters similar to the primary elevation and again give the illusion that these bays are slightly projecting. Windows have limestone sills and brick headers laid on end. The parapet above the seventh floor is flat with a terra cotta cap. Tie rod plates are identical to the elevation's left-side portion.

The north, side elevation faces Convention Plaza and contains a total of eleven window bays, ten of which are similar to each other (Photo 6). The only exception is within the fourth and fifth bays from the right side where a wide window is slightly smaller with a brick pier separating it from a smaller window (Photo 6 under the streetlight). At the ground floor are three storefronts located nearest the northwest building corner; they are similar to the primary elevation storefronts but without access doors. The building grade drops from the west edge down this elevation to the east. The first floor is entirely clad in limestone which continues from the primary elevation. Starting at the fourth bay from the right side there is a deeply-recessed loading dock, a

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ramp leading down into the basement, four additional deeply-recessed loading docks, and another ramp which allows exit from the basement (Photo 6). Closest to the building's northeast corner is a pair of rectangular-cut window bays and a pedestrian door. Separating the end bays of the elevation are similar recessed (fluted) brick detail identical to the primary elevation: vertically-framed by recessed "pilasters," the elements again give the illusion that these bays are slightly projecting. While the right side bays contain paired *Fenestra* steel sash windows similar to the primary elevation edge windows on each of the six floors, the left side bay has no fenestration and extends above the roof line into a penthouse projection (Photo 6, far left). Besides the aforementioned window bays at the northwest corner, each floor contains ten additional window bays composed of four *Fenestra* metal sash frames with multiple lights and central operators. Windows have limestone sills and brick headers laid on end. The parapet above the seventh floor is flat with a terra cotta cap. Tie rod plates are identical to the primary elevation. Four window bays at the second floor nearest the primary elevation were historically infilled with glass blocks (Photo 6, right side).

At the rear, east-facing elevation are nine loading dock bays with flat awnings and a row of transoms above; mechanical equipment is set immediately behind the building (Photo 7). A one-story mechanical addition (date unknown) is clad with limestone nearest the northeast corner. The building has a three-bay central portion at the second floor above which the building is then set back two window bays to form the base of the "H." These windows and those set back up to the seventh floor are comprised of four *Fenestra* metal sash frames per opening with multiple lights and central operators. Three fourth floor windows are infilled with recessed brick (Photo 8). Return walls which face north and south within the "H" contain one double-width and one four-part window per floor; historic glass block windows are on the fourth floor (Photo 9). Flanking the central opening, the building elevations contain three bays of windows comprised of a single bay with paired window (framed by the recessed vertical brick found at the building edges) and two bays with four-part windows at both sides; windows are similar to those already described with two bays at the fourth floor (per side) are infilled with brick or metal panels. Windows have limestone sills and brick headers laid on end. The parapet above the seventh floor is flat with a terra cotta cap. Tie rod plates are identical to the primary elevation. At the building edges the brick rises above the roofline nearly two stories; these "towers" contain a small metal sash window per floor as well as the recessed vertical brick aforementioned. Smaller, more narrow bays (some containing nine-light sash and others without sash)

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correspond to the interior staircases and access halls; metal screens cover window-less openings (Photo 8, left side).

The south elevation faces an alley and contains an elevation similar to the north but with one storefront nearest the primary elevation at the southwest corner (Photo 10, bottom left). Where the north elevation has two additional storefronts the south façade has five rectangular-cut windows and a pedestrian entrance. These portions are clad in stone which continues from the primary elevation. A total of seven, deeply-recessed loading bays are at the first floor (Photo 11). Nearest the east elevation is a pair of metal sash, rectangular-cut windows. A total of eleven window bays similar to the other elevations rise up to the seventh floor. The fourth floor windows are infilled with either recessed brick or glass block—again a historic treatment. The parapet above the seventh floor is flat with a terra cotta cap. The rod plates are identical to the primary elevation. The westernmost window bay is framed with the vertical, recessed brick. The southwest edge of the elevation contains the original Midwest Industrial Development Company (MIDC) bronze plaque (Photo 12).

Visible in Photo 4 above the buff-colored brick is a five-story red brick penthouse which contains elevator and stair systems. The original intent of the owners was to construct a much larger building but ultimately it was reduced in scale and constructed with seven finish floors (above ground) with the ability to add five additional floors in the future to provide twelve total floors (Photo 4). Windows are punctured through the brick elevations. Additional one and two-story brick penthouses rise from each corner of the roofline (no photo).

**Interior**

Through the primary elevation glass doors one enters an interior airock with a second set of glass doors set within a glass wall (Figure 10 floorplan and Photo 13). An ornamental metal transom bar (Figure 1B) supports a geometric frame transom comprised of angular shaped glass (Photo 14, right side). This vestibule area has stone clad walls cut in geometric patterns which create tiered frames (Figures 1A and 2B); within the side wall frames are cast ornamental panels with grilles (Figure 2B) which correspond to the air circulation system (Photo 14). The base is black marble while the walls are clad in grey marble or Carthage stone which is highly polished. The ceiling has white-painted ornamental plaster which steps back to form a tiered effect. The floor has a modern replacement stainless steel veneer which is highly polished and reflective which “floats” above the original terrazzo floor. If removed, the veneer

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would not hurt the terrazzo beneath. The veneer floor continues into the long lobby which runs half of the length of the building (Figure 7). The stone-clad walls and ceiling are similar to the reception. Modern LED vertical lighting accents the walls. The lobby terminates at a wall which contains the original building's cast metal directory (Figure 3B); three elevator doors allow access to upper and lower floors (Figure 3A). Doors allow access into the offices, maintenance closets, and the warehouse space. Otherwise all of the original historic fabric is highly visible.

**Figure 7:** 1<sup>st</sup> floor hall looking west towards North Tucker Boulevard. Original terrazzo floor is intact beneath metal floor veneer; vertical lighting is removable but provides light in an otherwise dark corridor. Source: Matt Bivens photograph, 2015.



Office spaces are mostly newer remodels set within the original wide open and therefore adjustable interior floor plates. Within the front storefronts, a variety of new businesses have modified the spaces to suit their specific needs; some spaces are currently vacant (Photo 15). The warehouse space, accessed by the north, east, and south elevations, has a wooden block floor (Figure 4B), exposed or painted masonry or clay tile walls, and dry wall partitions (Photo 16). Concrete ceilings are exposed as are concrete structural columns (Figure 4A). Multiple freight elevators are large enough to

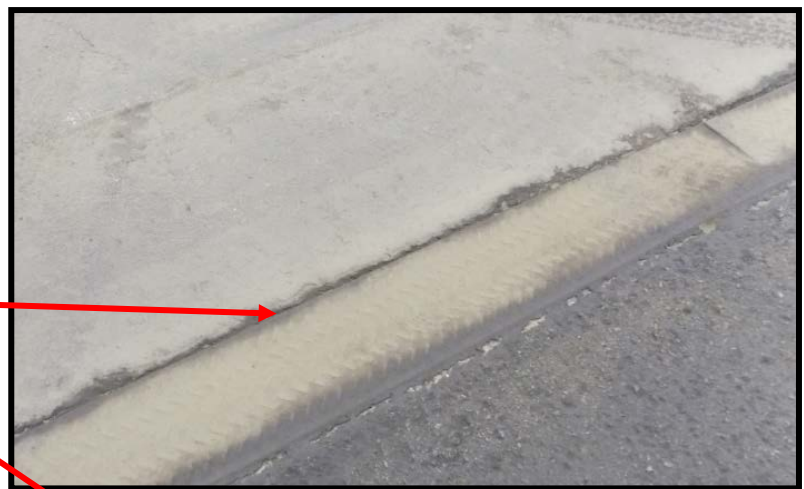
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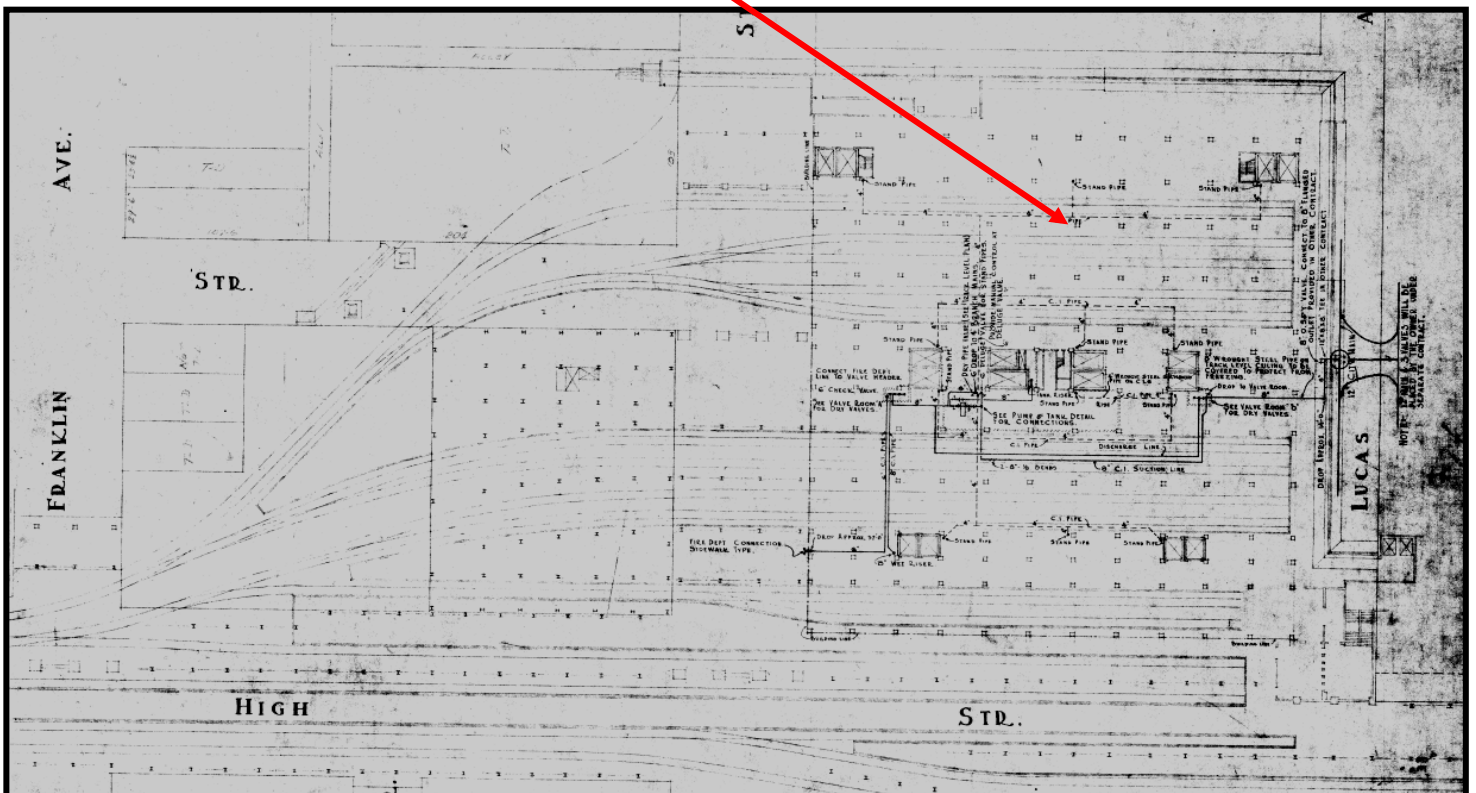
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carry an automobile. The first floor allows access to the loading dock areas; overhead doors are original or early (Photo 16). The basement and sub-basement levels contain interior parking (Photo 17). Rail tracks were long-removed and covered with asphalt; few signs of their location are still extant in the form of raised rails embedded in the asphalt (Figure 8). Former openings underground which led into the subway have recently been infilled during repair and reconstruction of Tucker Boulevard (Federal Project No. DP-5603[602]) and removal of the entire below-ground tunnels (Figure 9).

**Figure 8:** Photograph of lower level ground showing metal covering over original rail track. Source: Matt Bivens, 2-2016.



**Figure 9:** Underground design. Source: Mauran, Russell & Crowell drawings, 1931.



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The interior was originally open, later modified, and is now divided into varied-sized rooms (Figures 10-14 and 19-20, 22-23; and Photo 18). Multiple spaces remain open with exposed construction details including coffered concrete ceilings (Figures 4A and 5A and B) and smooth concrete floors (some painted or carpeted), concrete mushroom columns (Figures 4A and 5A), brick/concrete block/concrete walls, as well as metal and wood frame divisions with gypsum or plaster board walls (Photos 19 and 20). The main building roof supports mechanical equipment as well as a number of elevator penthouses; the middle shaft extends five floors upward and contains stairs, elevators, and mechanical rooms (Photo 4, top center)—the final five floors were never constructed (Figure 33). Half of the building is currently unoccupied and awaiting new tenants.

Historic military occupation occurred on floors two through five (Figures 10-14 [current] and Figures 30, 32, 33, and 35 [historic 1943-1946]). Based on the architect's designs, it appears that the bulk of the walls were built to a specification to just under seven feet in height and thus not "permanent" construction. It is thought that the lighting played a role in this decision; coupled with the necessity to get the facility up and running it seems plausible that the spaces created on those floors were meant to remain flexible as needs arose. The major historic fabric present during the period of significance and extant today are the exposed concrete floors, columns, and ceilings, in addition to the metal sash and glass block windows. Skylights were also used to provide essential lighting in specific spaces. These floors retain a sense of time and space which recalls the historic activities which occurred there despite the removal of equipment. On each floor there are walls which correspond to the historic occupant; there is also historic lighting extant that was used by the U.S. Military. Changes in floor heights and inclusion of internal wiring conduits left over from the military occupation are also evidence of the historic tenant. An explanation of the historic function of floors two through five is included in Section 8 beginning on page 45.

**Integrity**

The Midwest Terminal Building looks much as it did after it was completed in 1932 and as it did during the occupation of its most significant historic tenant during the 1940s. Brick and stone are in excellent condition, as is the Art Deco exterior ornamentation. Storefronts are in their original locations with new glass however the framing respects the original design; upper storefront transoms are original. The primary entry bay is intact and original signage preserved under 1959 signage; cast metal poles topped with eagles flanking the entry are original. Side elevations still contain operable garage

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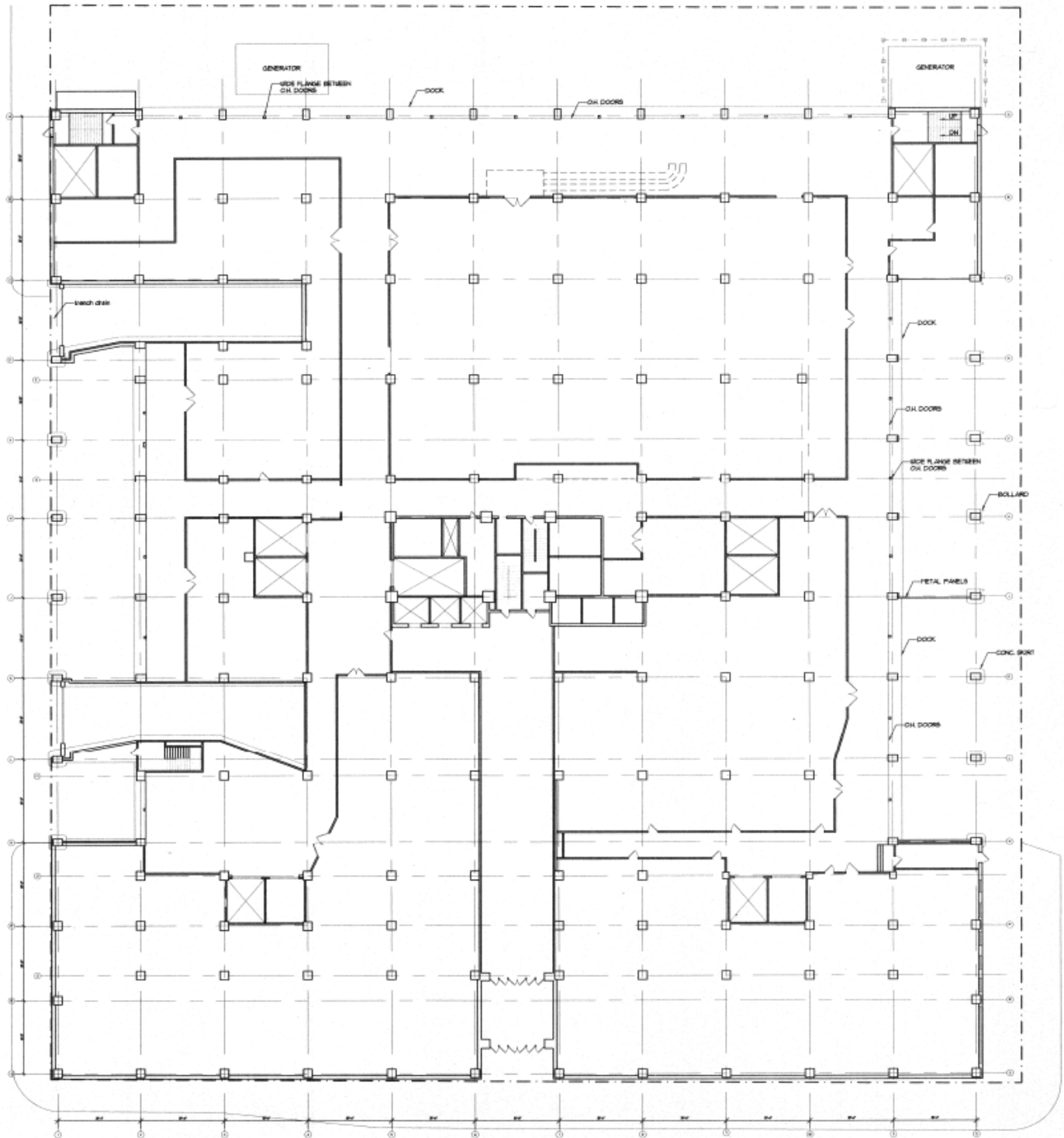
bays for ground transportation of goods and access to the underground is achieved via the same ramps. Where the rail lines once sat is now an asphalt parking area; however in areas the metal rails are visible under worn surface. Nearly all of the original *Fenestra* windows are intact and many are still operable; glass block infill was historic. The interior is also surprisingly intact with Art Deco details and materials in excellent condition. The open floor plans, the original design intent, are also intact on several floors—while other floors were built-to-suit as the owners anticipated. The building continues to reflect its historic appearance during the period of significance and thus retains integrity of location, design, materials, workmanship, feeling, setting and association. The loss of the underground tracks does not negatively impact the integrity of the building because although raw materials were often shipped to the significant tenant during the period of significance via the underground, it was the historical activities which took place within the occupied portion of the building that tell the story of the building. In addition, the finished goods, a product of the important industry within the building, were shipped via ground transportation by trucks loading from the exterior bays along the north and south elevations. Again, an explanation of the historic function of floors two through five is included in Section 8 beginning on page 45.

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Figure 10: 1<sup>st</sup> floor plan. Source: Levine Associates, 2000. Not to Scale.

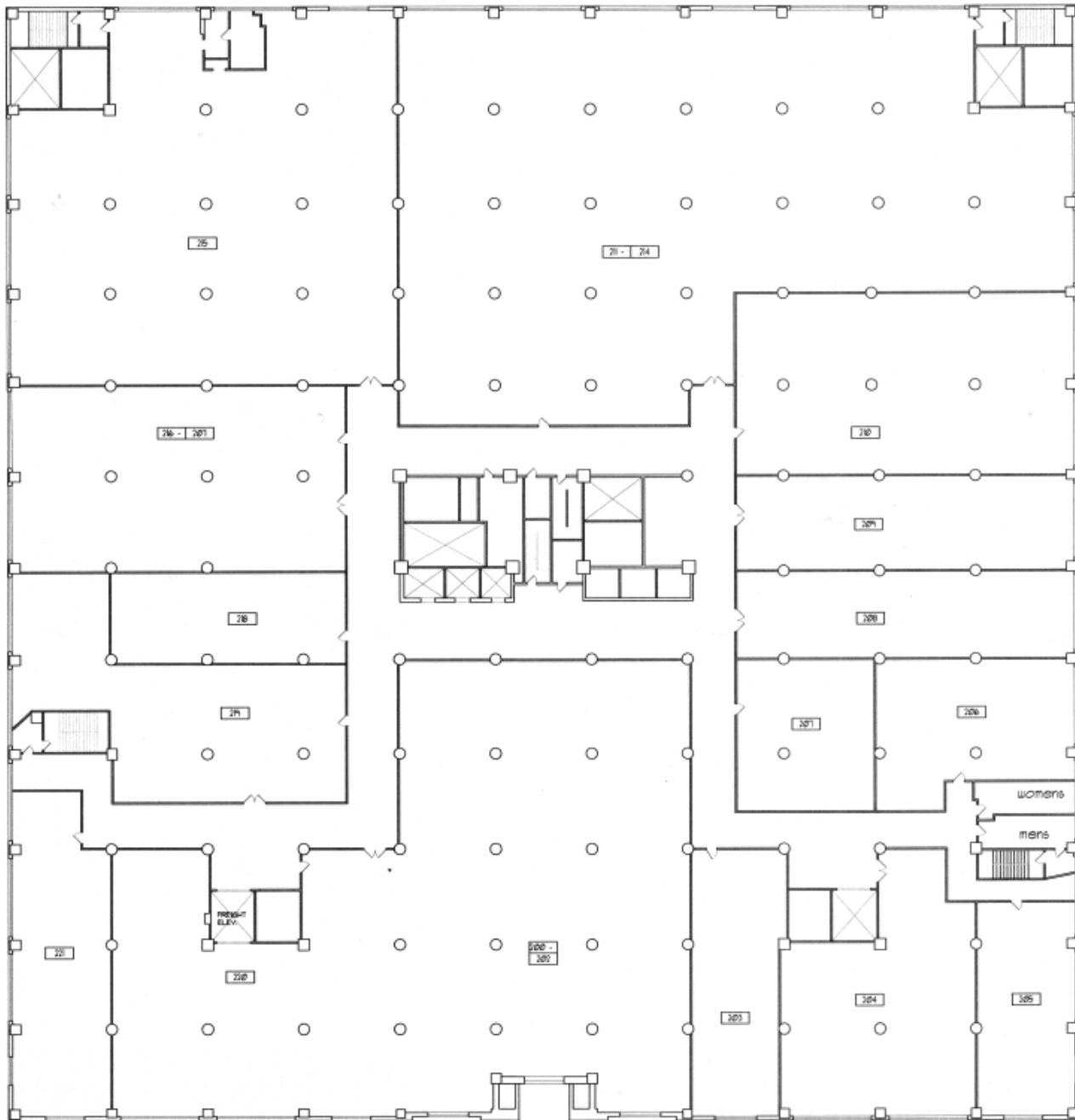


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Figure 11: 2<sup>nd</sup> floor plan. Source: Levine Associates, 2000. Not to Scale.

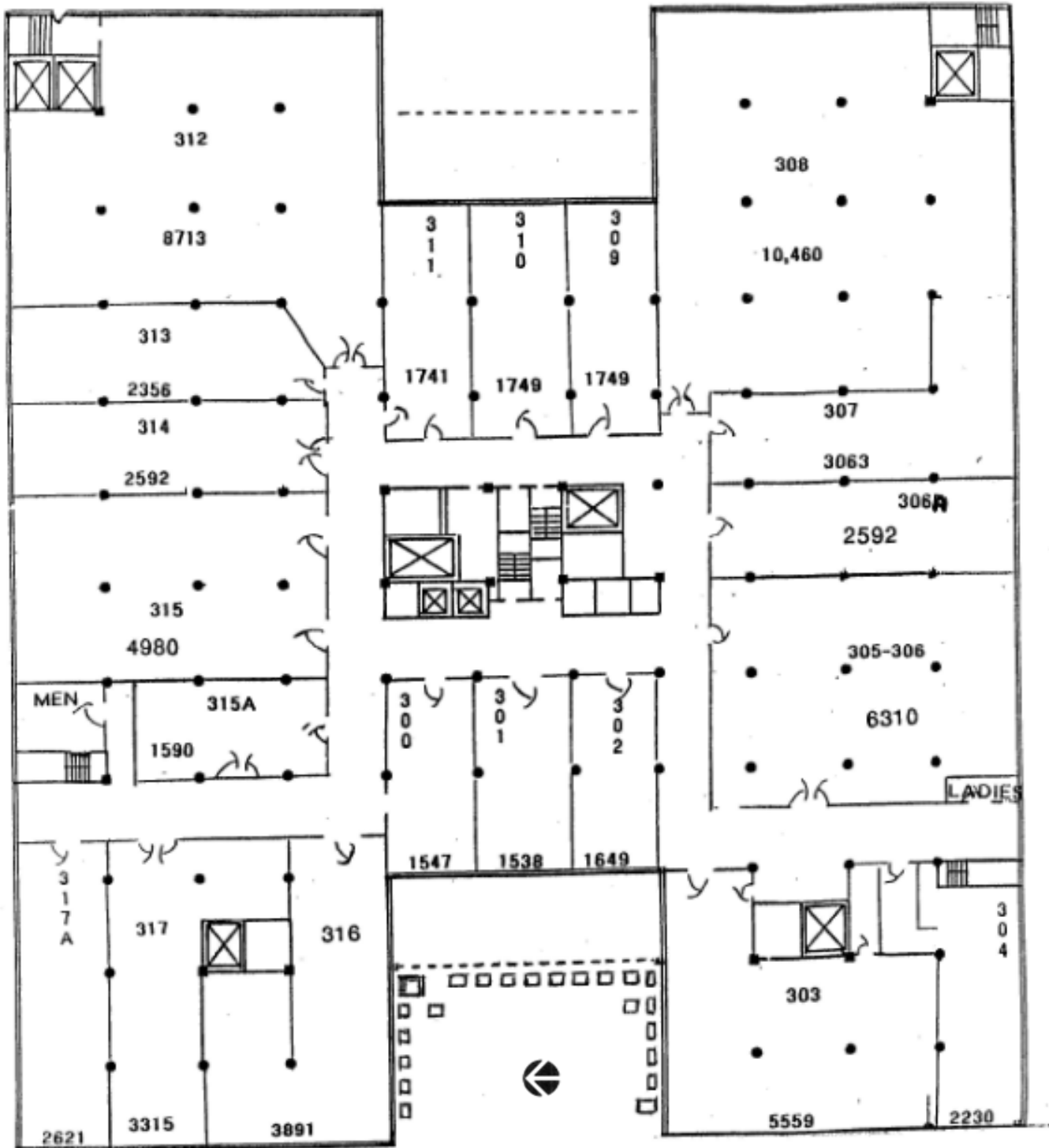


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Figure 12: 3<sup>rd</sup> floor plan. Source: Levine Associates, 2000. Not to Scale.

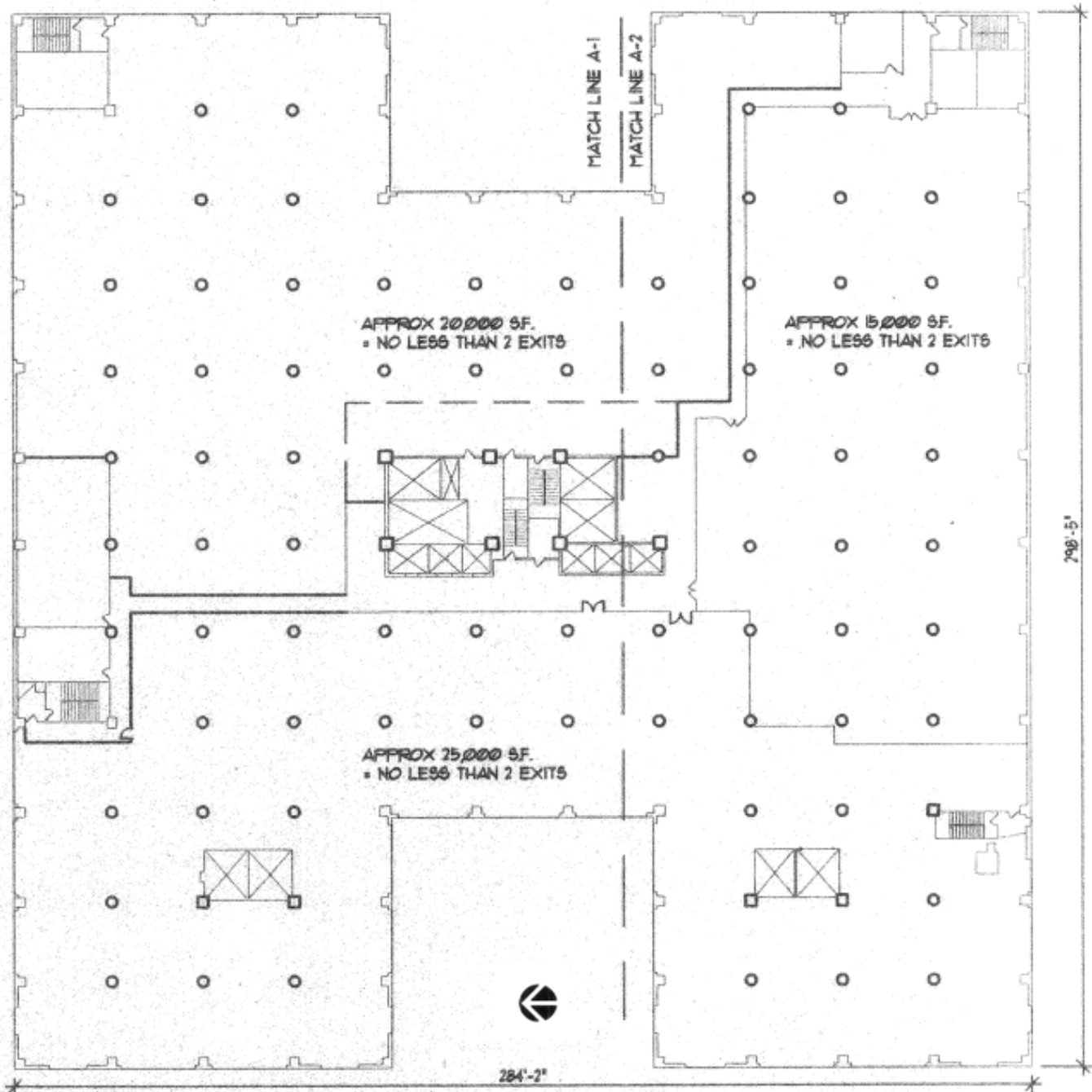


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Figure 13: 4<sup>th</sup> floor plan. Source: Levine Associates, 2000. Not to Scale.

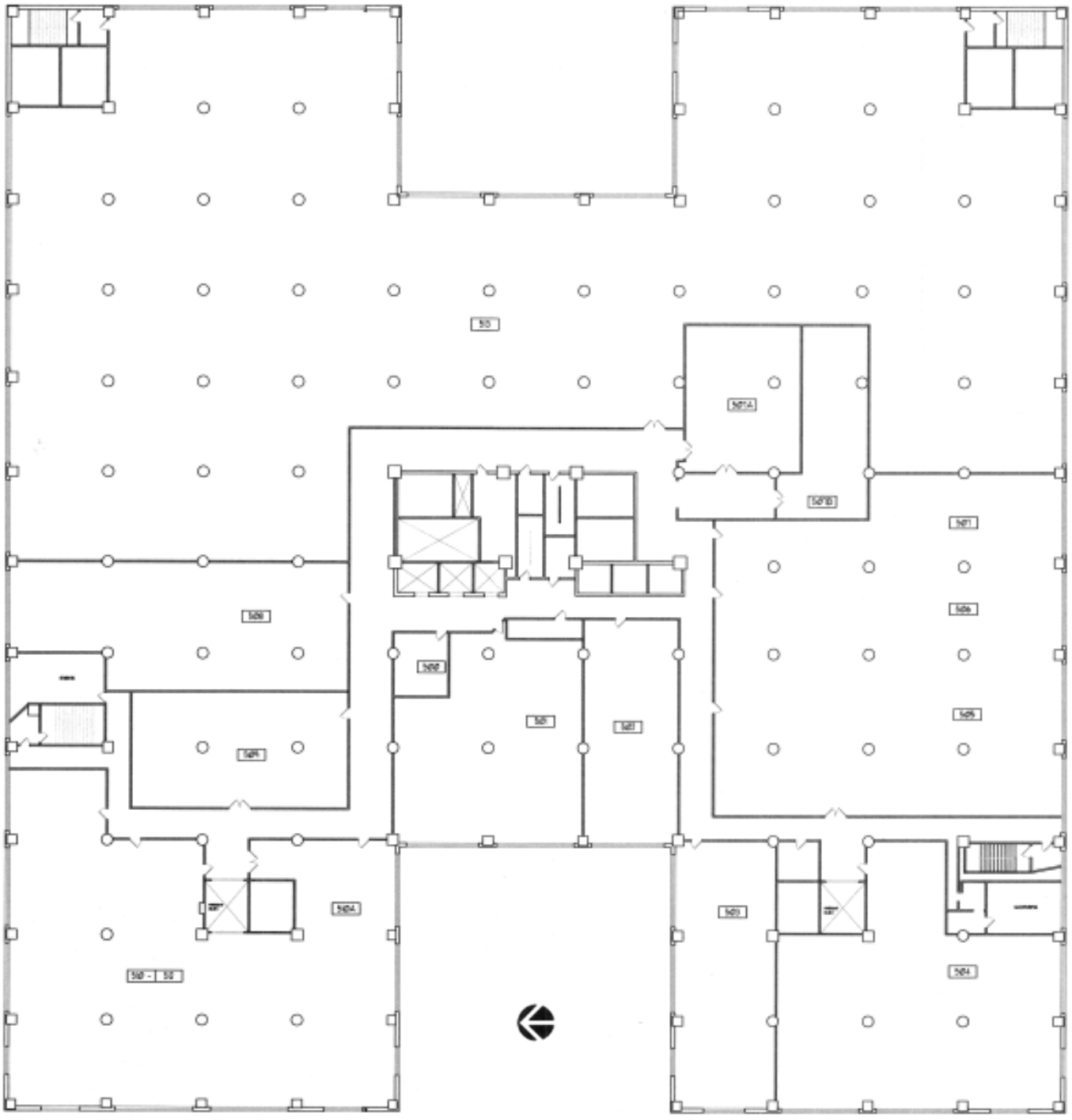


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Figure 14: 5<sup>th</sup> floor plan. Source: Levine Associates, 2000. Not to Scale.

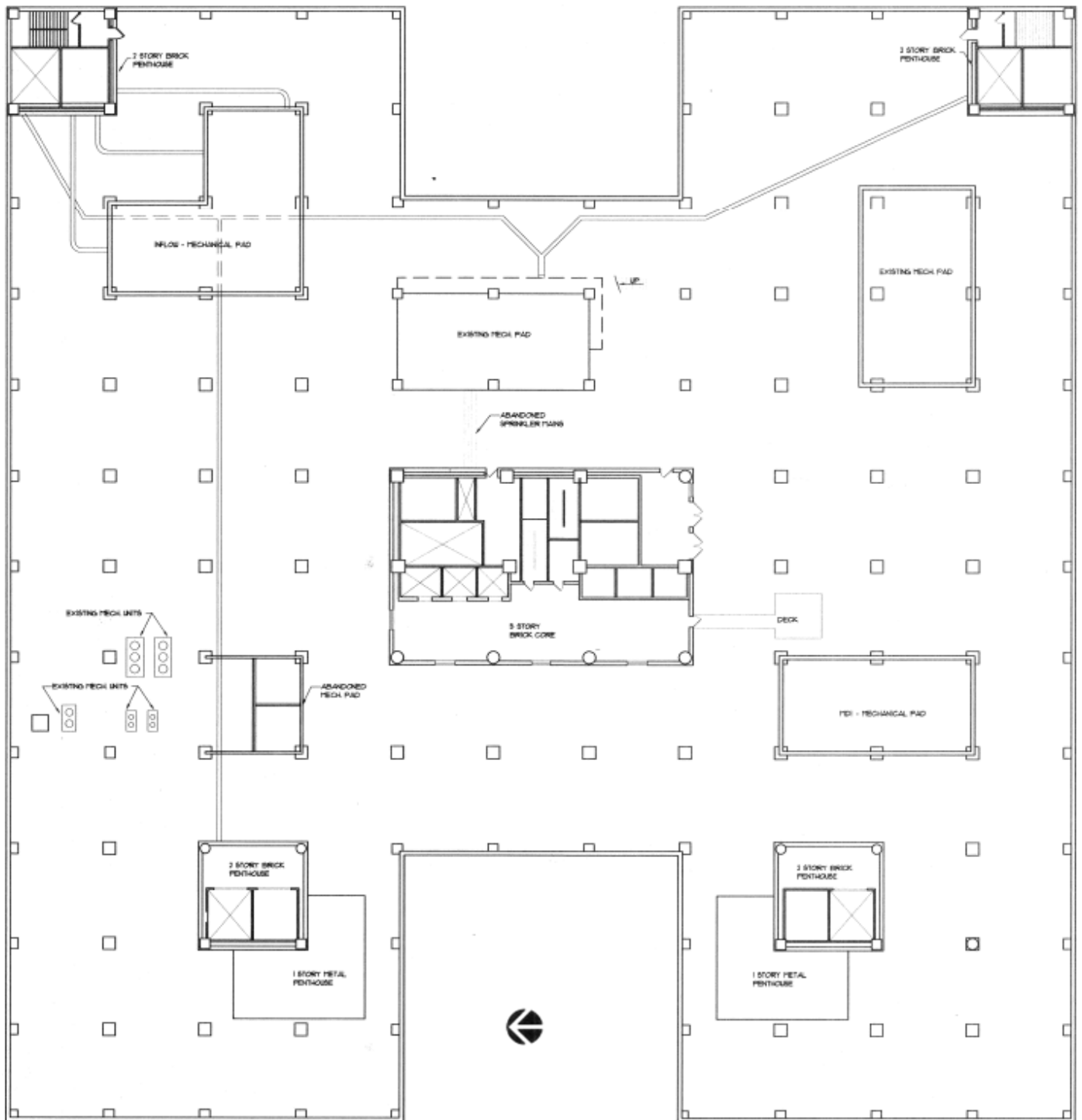


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Figure 15: Roof plan. Source: Levine Associates, 2000. Not to Scale.



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**STATEMENT OF SIGNIFICANCE**

**Summary**

Constructed in 1932, the Midwest Terminal Building at 700 North Tucker Boulevard in St. Louis [Independent City], Missouri, is eligible for local listing in the National Register of Historic Places (NRHP) under Criterion A in MILITARY and INDUSTRY relative to historically significant production of aeronautical mapping and aids to navigation implemented there that directly aided Allied and United States military aviation during World War II. The property is primarily significant in the context of World War II Aviation as an excellent example of a "Production Plant" (as identified by the National Park Service) which was the only one in Missouri and one of a few in active duty in the United States associated with aviation mapping. The building is notable in association with the advancement of photogrammetry—the science of transferring data compiled through aerial photographs to accurate charts which were produced here. Aeronautical Charts were made in the building for the United States and Allied forces between 1943 and 1946; in 1944 it was the only Aeronautical Chart plant in the country. Such charts were essential in locating "Aids to Navigation" as well as airports, runways, radio signals, military installations, restricted zones, and strategic points—without them, pilots would have flown blindly and the result of the war could have been much different. This monumental, multi-story buff brick building with elaborate, Art Deco limestone detailing was designed by the prominent local architectural firm of Mauran, Russell & Crowell and built by the Kaplan-McGowan Company of St. Louis. Begun in 1931 and completed in 1932 as the main terminus of the Illinois Terminal Railroad System and meant to extend St. Louis's reach into the southwest, the building provided "the most up-to-date efficient and economical facility for the storage and distribution of goods" in the metropolitan area at the time. Thus, the Midwest Terminal Building has additional significance under TRANSPORTATION relative to its original and long-time use as both a railroad terminal and ground transportation truck hub for the movement and trade of goods. The use of the building in association with TRANSPORTATION began in 1932 and then continued through the period of significance associated with the Aeronautical Chart Division; these and other physical characteristics (open storage, easy movement, and building strength to name a few) drew the US military to occupy and convert the building for wartime production. The period of significance spans 1932-1946 and corresponds directly to the start of general transportation operations within the building (1932) through the active use of the Aeronautical Chart Maintenance Project (1946).

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**Background - Rise of the Midwest Terminal Building**

The conception of the nominated building was a result of strategic planning on behalf of the Illinois Terminal Railroad System (IIRS) during the latter half of the 1920s. The IIRS was seeking westward expansion of its lines into St. Louis and contemplated a new terminal station to strategically be constructed there. The IIRS began to purchase land in St. Louis along then Morgan Street (later Delmar Boulevard and then Convention Plaza) between 11<sup>th</sup> and 12<sup>th</sup> Streets to provide a large enough site.<sup>1</sup> In St. Louis, the City Plan Commission began discussion with IIRS and out of the negotiations rose the new Midwest Industrial Terminal Company (MIIC) which would operate the future terminal building—a building combining transportation and storage of goods as well as flexible office space. Meanwhile, IIRS made plans to use a portion of the ground floor of the 12-story Carleton Building (since demolished) at the northwest corner of 12<sup>th</sup> Street and Washington Avenue for a temporary passenger station.<sup>2</sup> In addition to the new terminal, plans included construction of a 10-story loft building at the southwest corner of 16<sup>th</sup> and Morgan Streets four blocks west (never constructed).<sup>3</sup> As part of the plan, new buildings for the *St. Louis Star* and *St. Louis Globe-Democrat* were to be constructed north of the terminal and “interconnected” via underground rail lines.

Heavily publicized by the operator, the MIIC published an informational booklet illustrating the new terminal to be constructed and illustrated its distinctive qualities (Figure 16). The building would house railroad and shipping facilities, provide efficient storage and distribution of goods, as well as modern, flexible office spaces—many are intact today. The first floor offered commercial store space along Twelfth (later Tucker) Boulevard as well as shipping and transfer platforms and service access; truck loading areas were included at the north and south elevations under a protective roof, set back from the street (Figure 17).

<sup>1</sup> *St. Louis Post-Dispatch*. “I.T.S. Completes Site For New Freight Station.” December 16, 1928.

<sup>2</sup> *Ibid.*

<sup>3</sup> *Ibid.* This 10-story building designed by Sam B. Goldman was proposed to cost \$750,000. Although there is no known physical evidence to date, it is highly likely that the plan was abandoned in order to construct the nominated building, a larger and more technically-advanced building at 12<sup>th</sup> Street and Washington Avenue in 1930. Most importantly the latter building was directly tied to rail transport.

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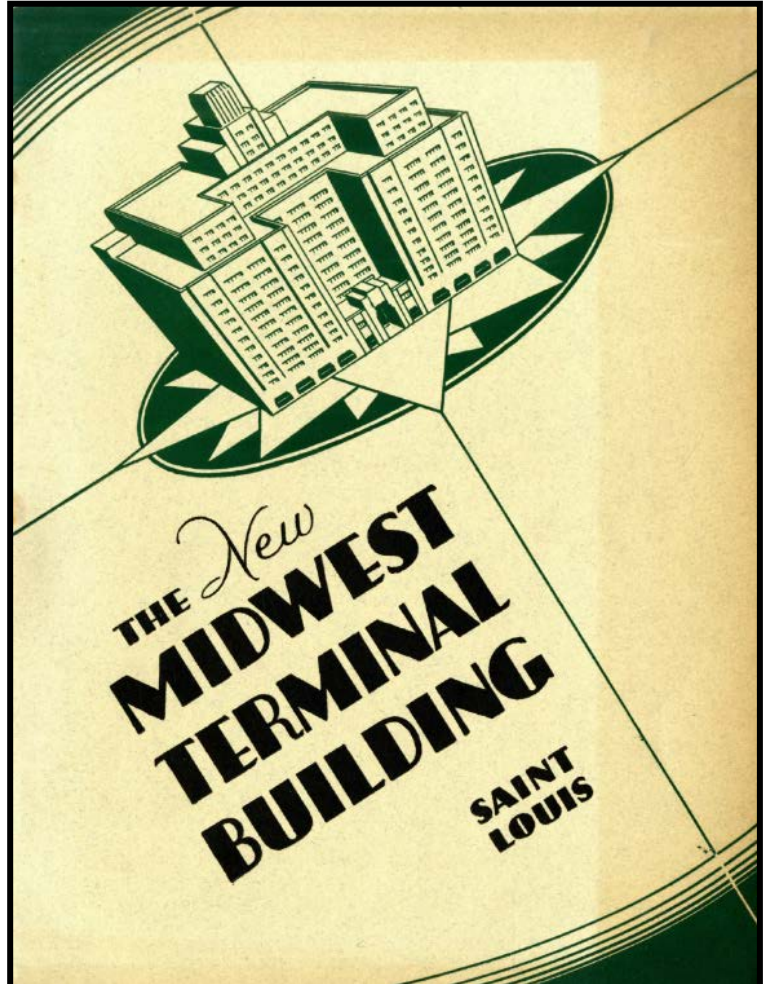
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**Figure 16:** “The New Midwest Terminal Building, St. Louis.” Midwest Industrial Terminal Company brochure cover page, circa 1930.

The typical floor plan of the building offered approximately 75,000 square feet of floor space that could be divided to suit—a characteristic still extant today (Figure 18). St. Louis already achieved status as the “Gateway to the West,” but with this new terminal it was proposed to become the “Gateway to the Southwest” according to its promoters.<sup>4</sup> When completed, the building would be “a perfect coordination of every necessary facility for economical distribution of merchandise.”<sup>5</sup>

Served by the IIRS which entered St. Louis over its own McKinley Bridge, physical connections would be made between all of the Eastern, Western, and ultimately the Southwestern trunk lines entering St. Louis—thus making their vision a reality. Shipping charges were drastically reduced to the flat St. Louis rates resulting in building tenants saving all cartage charges on this class of freight. General merchandise warehousing and distribution would be efficiently organized per the tenant’s preference including collateral services.<sup>6</sup> Finally, the floor plan allowed for maximum natural light and avoided wasted or undesirable spaces with upper floors to provide high grade offices and display rooms.



<sup>4</sup> Midwest Industrial Terminal Company. “The New Midwest Terminal Building: St. Louis.” Company brochure, 1931.

<sup>5</sup> *Ibid.*

<sup>6</sup> *Ibid.*

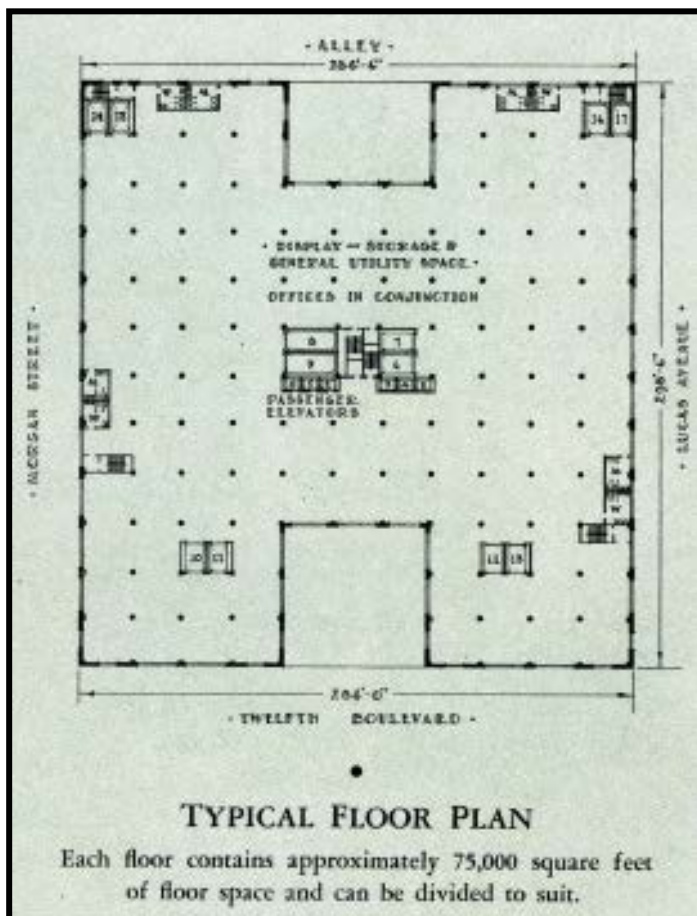
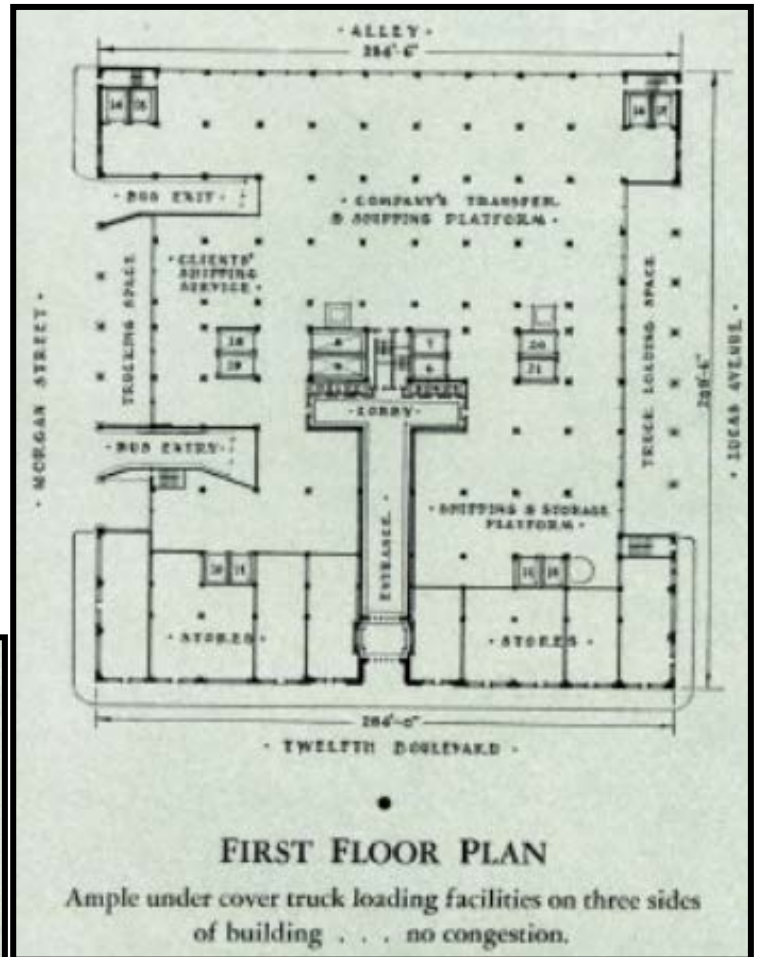
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**Figure 17 (top right):** First floor plan and covered truck loading areas. Source: "The New Midwest Terminal Building, St. Louis." Midwest Industrial Terminal Company brochure, circa 1930.

**Figure 18 (bottom left):** Typical floor plan illustrating the open design which could be altered to suit needs. Source: "The New Midwest Terminal Building, St. Louis." Midwest Industrial Terminal Company brochure, circa 1930.



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The building would be located at one of the “choicest points” in the city (Figure 19), immediately north of the central business district along the newly-widened 12<sup>th</sup> Street—accessible by street car, bus, train, or automobile—as well as provide over 1,230,300 square feet of modern floor space when completed.<sup>7</sup>

**Figure 19:** Location of building in green. Source: “The New Midwest Terminal Building, St. Louis.” Midwest Industrial Terminal Company brochure, circa 1930.



<sup>7</sup> *Ibid.*

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As the building brochure explained:

“Modern distribution methods compel equally modern facilities. The time has passed when industry can afford to utilize antiquated warehouse buildings and inadequate transportation facilities—high insurance rates—located in congested or inaccessible districts—poorly equipped as to elevators, trucking, and shipping platforms—floor space badly arranged and poorly lighted—in short, buildings which have become obsolete even though they may still be structurally sound.”<sup>8</sup>

The MIDC intended for the new terminal to embody every feature that experience had “proven to be desirable for the quick and economical handling of merchandise.”<sup>9</sup> Widened streets completed in the 1920s allowed for ideal trucking conditions for quick ground distribution of goods. The building would provide a significant amount of high-grade office and display space for the convenience of those tenants who preferred to combine office and stock room under the same roof.

As originally designed, the main portion of the building was to be set at fifteen stories in height but with the penthouse and subterranean levels it would bring the total height to nineteen stories (Figure 20). Deviating from the initial plans, potentially due to construction costs, the building was built to have seven stories above ground with a five story penthouse above to provide additional floors in the future (not built). A seventy-five foot “Alleghany” metal clad tower crowning the structure was envisioned but never topped the building. Constructed of steel frame and reinforced concrete, the building was originally to be faced with glazed buff brick and terra cotta; it would ultimately have buff face brick with limestone cladding at the first floor. The modernity of the design blended seamlessly with the new buildings already under construction or planned for the *St. Louis Star* and *St. Louis Globe-Democrat* newspaper companies, which sat just north of the site.

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<sup>8</sup> *Ibid.*

<sup>9</sup> *Ibid.*

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**Figure 20:** Original design of the building. Source: The proposed "Midwest Terminal Building," St. Louis. Company brochure, circa 1930.

Demolition of the old station and other extant buildings began in August and September of 1930 (Figure 21) and continued into the early months of 1931.<sup>10</sup> Then on April 24, 1931, a construction permit was issued to parent company MIDC



(Midwest Industrial Development Company) for a nineteen-story brick office building estimated to cost \$3,100,000.<sup>11</sup> The plan to construct a subway, surface and elevated tracks in conjunction with several massive buildings including a terminal, warehouse, and other structures was implemented. Underground work commenced immediately while the elevated and surface portions of the new transit line were completed ahead of schedule and placed in operation in June of 1931; about one-half of the subway was finished and under roof at the end of the month.<sup>12</sup> Much of the digging was completed by hand and construction took time but by July, and in tandem with the track work, progress on the new MIDC "universal warehouse" was advancing steadily with general contracting overseen by the Selden-Breck Construction Company (St. Louis, Louisville, Omaha); costs were now reassessed at approximately \$5 million.<sup>13</sup> Partial sections of steel framework beginning thirty feet below grade (Figure 22) spanned the subway. When operational, freight received at the lowest level would be immediately unloaded and lifted by elevators (still extant) and conveyors (since

<sup>10</sup> City of St. Louis Building Division. Building Permit # F9347 issued 9-25-1930. Permit was issued to site representative B. Adams.

<sup>11</sup> *Ibid.* Building Permit # G1330 issued 4-24-1931.

<sup>12</sup> Hugh C. Sexton. "New Illinois Terminal Subway Half-Roofed, Cut Nearly Finished." *St. Louis Globe-Democrat*. "Progress." July 12, 1931, real estate section, page 1.

<sup>13</sup> *Ibid.*

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removed) to upper floors of the building for storage; other freight scheduled for delivery would be sent to ground level loading docks for truck distribution (still extant and utilized to day).<sup>14</sup>

**Figure 21:** Photograph of site standing on Lucas Avenue between 12<sup>th</sup> and 11<sup>th</sup> Streets facing north, August 21, 1930. The exposed foundation is a portion of the former freight house. Source: Collection of Dale Jenkins, Illinois Traction Society.



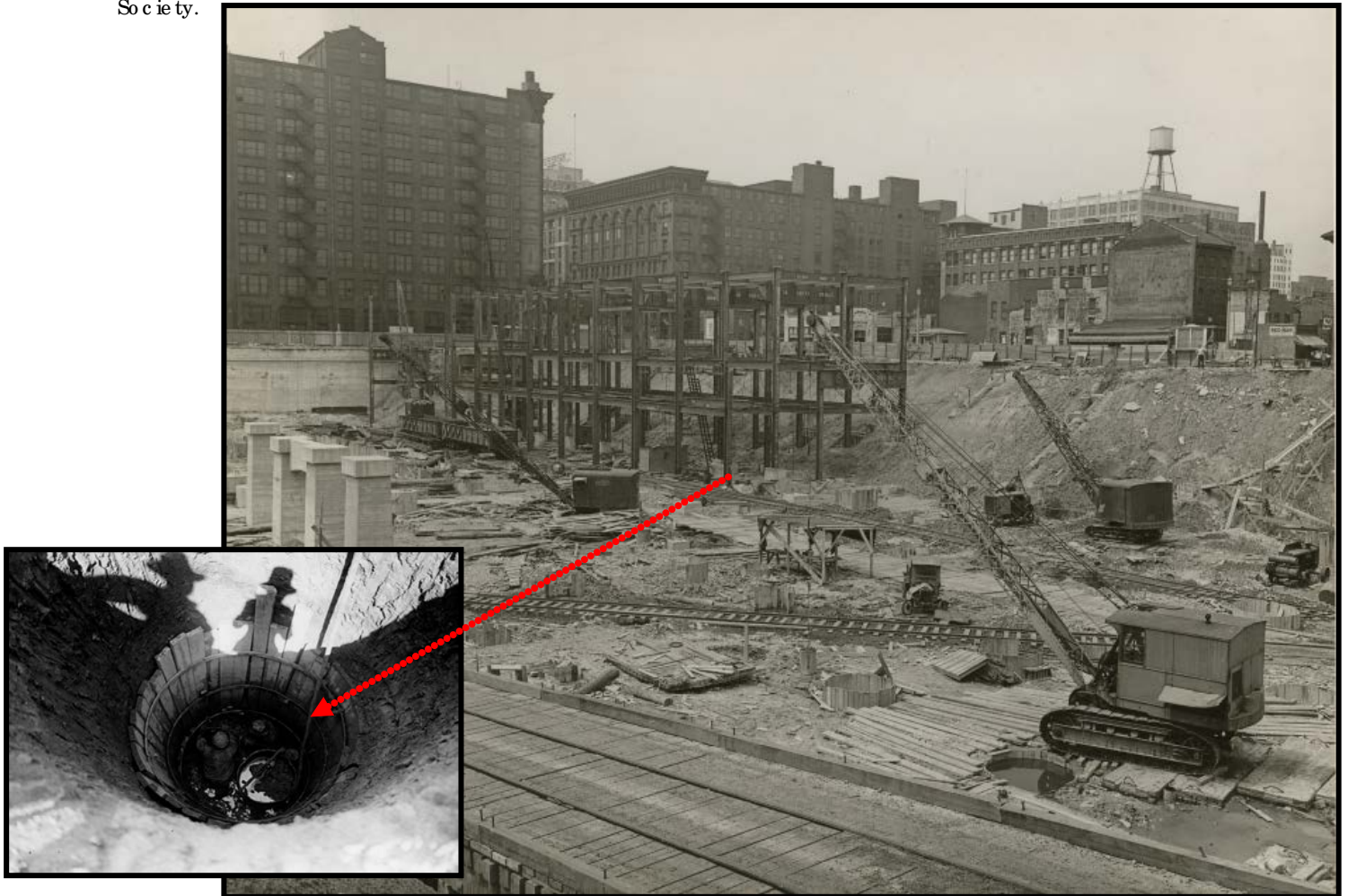
<sup>14</sup> *Ibid.*

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**Figure 22:** Photograph of building construction site facing southwest towards Washington Avenue and 12<sup>th</sup> Street with steel framework of the terminal building raised above ground on July 4, 1931 (top). At the far left side is the Carleton Building (since demolished) and to its right is the Ferguson-McKinney Dry Goods Store and Warehouse (NR listed Washington Avenue Historic District 2-12-1987). The smaller image at the bottom left shows the men whom sunk down below surface to hand dig the piers for the structural columns. Source: TOP-Collection of Dale Jenkins, Illinois Traction Society; BOTTOM-Collection of Missouri Historical Society.



Meanwhile, the Industrial Bureau of the Industrial Club of St. Louis (IBIC) emphasized the impact of the new terminal building. Recapping the May 1931 national publication announcements of the project in *Traffic World*, *Sales Management*, and *Advertising & Selling*, IBIC touted the project as “St. Louis’s Latest Facility for Merchandise Distribution.”<sup>15</sup> IBIC exclaimed that the terminal was the ideal headquarters for

<sup>15</sup> Industrial Bureau of the Industrial Club of St. Louis. “The New Industrial Terminal Building.” (St. Louis: Industrial Club, 1931). Published advertising.

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merchandise dissemination throughout the “whole mid-west territory” as well as being a provider to the official opening of an industrial territory “not heretofore served by rail transportation.”<sup>16</sup>

On Sunday morning, September 27, 1931, Illinois Terminal Railroad Company Vice-President A. P. Titus announced that the Illinois Terminal building projects were going forward as planned with two of the buildings expected to be completed by June of 1932.<sup>17</sup> Demolition of the Carleton Building at Twelfth Boulevard and Washington Avenue was now underway with only six floors left to remove. Meanwhile, the subway was completely under roof and the steel framework of the nominated building was wholly completed to one floor above street level. Construction continued through late November of 1931, with great progress on the substructure for the *St. Louis Star* Building, continued structural work on the Midwest Terminal Building, as well as steel decking for Morgan and Franklin Streets.<sup>18</sup>

By December of 1931 news of the massive project filled the national papers. Discussing the general financial wherewithal of the North American Light & Power Company (NALPC) as well as its active projects then underway, the *Wall Street Journal* focused in on St. Louis and the efforts of the NALPC subsidiary, the Illinois Terminal Railroad Company (IIRC).<sup>19</sup> IIRC's railroad portion of the development was progressing rapidly with both the elevated and subway portions near complete and a new interchange yard for the Terminal Railroad Association of St. Louis in the works. Meanwhile, construction of the nominated building continued. Also related to the project, a track yard with the capacity to serve sixty train cars was being built in the center of the freight producing area (location currently unknown but likely just north and slightly west of the site), attracting several new industries to locate near the terminal.<sup>20</sup>

<sup>16</sup> *Ibid.*

<sup>17</sup> *St. Louis Globe-Democrat*, September 27, 1931. *Real Estate* section, page 1.

<sup>18</sup> *Ibid.* “Star Building Construction, Church and Parish Buildings Completed.” November 22, 1931, section 4, page 1. Paid for by the Midwest Industrial Development Company, the fourth and final building to be served by the IIC was leased to the *St. Louis Star* with access to the underground tunnels in order to receive newsprint supply. The Star Building was estimated to cost \$1,500,000 with equipment; architect Frank D. Chase, Inc. of Chicago planned five stories with 120 feet along High Street by 168 feet along Morgan Street.

<sup>19</sup> *Wall Street Journal*. “N.A.L. & P. Work on Schedule: Construction on Various Projects to be Completed in Accordance with Program.” December 2, 1931, page 6, from Chicago Bureau.

<sup>20</sup> *Ibid.*

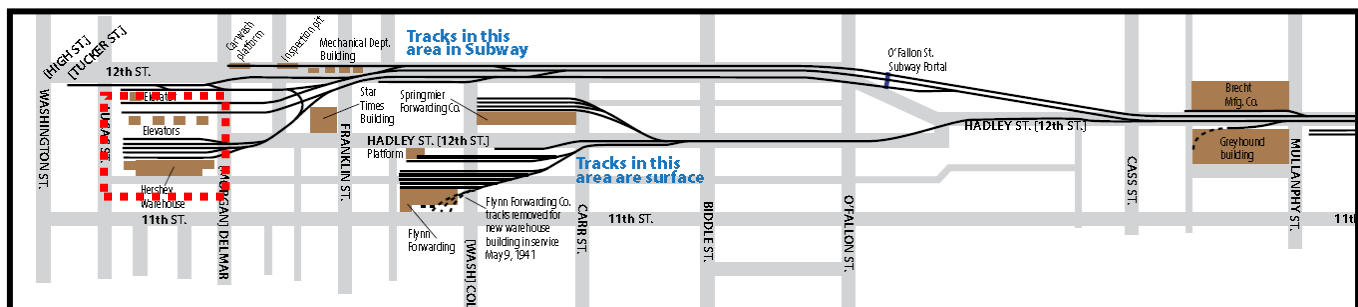
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On Sunday morning, February 7, 1932, the *St. Louis Globe-Democrat* announced construction status of the buildings and two streets over a subway.<sup>21</sup> Reporter Edward C. Schneider exclaimed “Midwest Building now Four Floors Above Street Level!” Schneider explained that the concrete work on the building had been completed up to the four above-ground floors, with three additional to follow.<sup>22</sup> Accordingly, the caisson work was commencing on its sister building at the northeast corner of Washington Avenue and High Street<sup>23</sup> (now Tucker Blvd.), the North American Building (NAB—named for the North American Company, a holding concern of the IIRC)—which was planned as the Illinois Terminal passenger station as well as an office. The NAB was planned to reach twenty floors and its foundations were built with this in mind.<sup>24</sup> Work on the nearby *St. Louis Star Building* included a steel substructure at the northeast corner of High and Morgan Streets. The Illinois Terminal trains were able to go within a short distance of what would be the southern terminus at High Street (now Tucker Blvd.) and Washington Avenue; passing over the elevated and surface systems of the railroad southward from the McKinley Bridge, trains were able to go underground at Cass Avenue and continue beneath High Street.<sup>25</sup> (Figure 23) Work continued for weeks on the new building and the upper framing was nearly finished in early 1932 (Figure 24).

**Figure 23:** Site plan showing tracks and associated buildings and streets during the historic use. Source: Illinois Traction Society Flyer, Spring 2010, pages 30-31. Building is identified with dotted line at left side.



<sup>21</sup> Edward C. Schneider. “Midwest Building now Four Floors Above Street Level! Work on North American and Star Structures Going Forward.” *St. Louis Globe-Democrat*. February 7, 1932, section 6, page 1.

<sup>22</sup> *Ibid.*

<sup>23</sup> Streets in the subject area have changed names during the development phases and include: original name, changed name, 2010 name as follows: High Street, 12th Street, Tucker Boulevard; 12th Street, Hadley Street, Hadley Street; Morgan Street, Delmar Boulevard, Convention Plaza; Franklin Avenue, Franklin Avenue, Martin Luther King Drive; Wash Street, Cole Street, Cole Street.

<sup>24</sup> Edward C. Schneider. The NAB was touted as the first building in the city in which it was planned to provide an “electrically powered apparatus” to provide the ENTIRE building with cooled air. This would require the windows to be fixed in place for best results.

<sup>25</sup> *Ibid.*

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Figure 24: Photograph of construction, 1932. Source: Collection of Dale Jenkins, Illinois Traction Society.



Three months later, on May 29, 1932 local newspapers announced that the brickwork for the new Midwest Terminal Building was completed up to seven stories above ground and construction of a five-story penthouse was underway.<sup>26</sup> By September the building was completed and placed in service (Figure 25). Several months later, on Sunday morning, October 16, 1932 the *St. Louis Globe-Democrat* announced “ITS. Plans Moving Offices to Midwest Terminal Building.” Then occupying about 8,000 square feet within the nearby Shell Building (NR 6-9-2015), permanent offices for the IIRS would expand to include 30,000 to 35,000 square feet of space along the south-facing wall on the sixth floor.<sup>27</sup>

<sup>26</sup> *St. Louis Globe-Democrat*. May 29, 1932, Real Estate section, page 1.

<sup>27</sup> Edward C. Schneider.

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**Figure 25:** Photographs of completed construction, 1932. The larger image is the primary elevation; the smaller image is the rear, east elevation (left side) with a portion of the north elevation (right side). Source: Collection of Dale Jenkins, Illinois Traction Society.



Preparations were extensive in order to convert the former raw warehouse space into offices and the move was scheduled after the first of the year. Construction on a temporary passenger station for the Illinois Terminal on the ground floor in addition to one below the ground was in progress and expected to be complete by November of 1932.<sup>28</sup> Just north of the main entrance along Twelfth Street (now Tucker Boulevard) would be the ticket office and waiting room (space is extant commercial space with

<sup>28</sup> *Ibid.*

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benches and ticket counter since removed). A stairway allowing passengers to descend from the waiting room to three tracks below ground was in progress; use of an interior elevator would also assist passenger movement. Come Monday morning, October 17, 1932, it was declared that the freight station would be open. Then occupying the building was the General Electric Company servicing department and warehouse (using about half of the second floor and the R. G. Dunn Company, a national commercial rating organization.<sup>29</sup> During the beginning, bus lines manned offices as well as transportation links at the building and included Central Bus Depot, Great Eastern Stages, Jacksonville Bus Lines, and Mohawk Stages.<sup>30</sup>

In December of 1932, Union Electric (UE) Magazine published a short report entitled "Modern Distribution Methods Demand Modern Facilities" in which it touted the new Midwest Terminal Building.<sup>31</sup> Used first as a means to advertise itself since UE was ultimately supplying the steam heat to the building, UE's industrial sales engineer exaggerated the influence of the building. Explaining that the MIDC "erected at its terminus in St. Louis an industrial terminal building in which is embodied every feature that experience has proved to be desirable for the quick and economical handling of merchandise," the author continued to say that the building contained a reasonable amount of "desirable" office and display space catered to those tenants who preferred to combine office and stock room under the same roof without sacrificing location or suitable service to the trade.<sup>32</sup> The "build-to-suit" design of the floorplates allowed streamlined modification of spaces to suit present and future needs of the tenants; these features are extant today. To further emphasize its efficient handling of merchandise, the author plugged the covered loading facilities (still extant) on three sides of the building thus eliminating any congestion of trucks coming and going. Photographs of the exterior and the steam equipment were provided (Figure 26).

In 1935, floors two through four were vacant; the sixth floor housed the general offices of the Illinois Terminal Railroad System (the freight office and sleeping car department was accessed via Lucas) in addition to Houghton Elevator & Machine Company

<sup>29</sup> *Ibid.* Official news of the contract let to the Stone & Weber Engineering Corporation for the construction supervision for the completion of the building to be leased to the Star-Chronicle Publishing Company (*St. Louis Star and Times*) spread to New York. *New York Times*. "Stone & Weber Contract." September 20, 1933, page 3.

<sup>30</sup> *Gould's St. Louis Directory*. 1932-1935.

<sup>31</sup> Union Electric Light and Power Company. *Union Electric Magazine*. "The New Midwest Terminal Building: Modern Distribution Methods Demand Modern Facilities." December, 1932, pages 12-13.

<sup>32</sup> *Ibid.*

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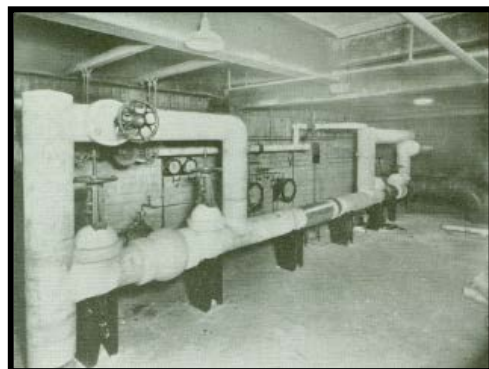
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(original 601), Juvenile Shoe Corporation of America (original 603), Kelvinator Sales Corporation (original 604), Anaconda Wire & Cable Company (original 606), Mound City Chemical Company (original 608), and mercantile company Dun & Bradstreet (original 610).<sup>33</sup> While mostly vacant, the seventh floor housed the Terminal Cleaners (original 715) while the fifth provided factory space for Edison Brothers Shoe Company. The Central Terminal Company parking garage was accessed along Delmar (ramps extant today); William Mack operated a transfer company from the Delmar side.<sup>34</sup>

Three years later in 1938, many of the earlier tenants remained in the building and shared the site with Hershey Chocolate, Union News Company, and Pratt & Whitney (original 613); the seventh floor was vacated.<sup>35</sup> Companies associated with transferring goods remained and thrived.

**Figure 26:** Right side is the primary entrance, clockwise bottom is view of steam equipment, then exterior view looking northeast. Source: Union Electric Light and Power Company. *Union Electric Magazine*. "The New Midwest Terminal Building: Modern Distribution Methods Demand Modern Facilities." December, 1932, pages 12-13. Eagle poles are extant today; the original IIS name is also intact behind the 1959 St. Louis Globe-Democrat sign above the entry.



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The same was true in the building into the early 1940s, and many new tenants joined, including Owens-Illinois Can Company, Garlock Packing Company, Minnesota Mining & Manufacturing Company, and Bendix-Westinghouse Automotive Air Brake Company.<sup>36</sup> The building continued to function as a transfer and forwarding center for goods and warehousing and was a little over half-occupied. Companies such as the Industrial Transfer & Forwarding Company, Central Terminal Company, the International Carloading Company, and the International Forwarding Company of Illinois found the facility's ground loading truck bays, multiple heavy freight elevators, and vast open interior storage spaces unmatched elsewhere in the metropolitan area.<sup>37</sup> Prior to the onset of a Second World War, this and several other local buildings drew the attention of the United States military as production sites. This building in particular combined production with transportation and storage capabilities and would soon be chosen as the center of support for the Aeronautical Chart Maintenance Program during the War. Beginning in 1943, the primary historic occupant associated with the period of significance, occupied floors two through five.

**Background – St. Louis Prepares for War**

Announcement that the Japanese had bombed Pearl Harbor on December 7, 1941 signaled that the United States was about to enter World War II. Although not actively engaged in the war until that time, America initiated mobilization beginning in 1939.<sup>38</sup> Mobilization in the form of preparedness (1939-1941) and wartime (1942-1945) resulted in multiple St. Louis companies converting their plants for military production. Many of these manufacturing facilities were adapted during 1939 to provide support for the Allied forces: the Curtiss-Wright Aeroplane plant (National Register pending) had been churning out fighter planes, car companies mobilized to produce tanks, clothing companies converted to make military uniforms, stove companies began making bomb shells, and many local buildings were occupied as branch offices for military departments.<sup>39</sup> While existing facilities offered the best opportunity for conversion, many plants were expanded and many new ones were constructed. Several of these local plants benefited from government incentives for building, expanding, and

<sup>36</sup> Gould's *St. Louis Directory*. 1938-1942.

<sup>37</sup> *Ibid.*

<sup>38</sup> Maury Klein. "A Call to Arms: Mobilizing America for World War II" (New York: Bloomsbury Press, 2013). Electronic version, July 2013, page 10.

<sup>39</sup> Burnett, Betty. "St. Louis at War: The Story of a City, 1941-1945." (St. Louis: The Patrice Press, 1987), general index illustrating the company involvement.

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converting their factories as well as for producing war goods.<sup>40</sup> The Midwest Terminal Building, centrally located in downtown St. Louis and with immediate access to rail and ground transportation (as well as being in close proximity to river traffic), was an excellent candidate for housing wartime operations. On the verge of a second world war, departments of the United States military began to occupy floors of several downtown buildings in 1941-1942.<sup>41</sup> It was just a matter of time and the Midwest Terminal Building drew the attention of the United States military in early 1942. It was here that the Army-Air Forces set up shop to house one of its more significant divisions—what would become the Aeronautical Chart Maintenance Program beginning in 1943.

**United States Army-Air Forces Occupy the Midwest Terminal Building (1942-1946)**

Created in 1941 to provide the air arm of the United States military greater autonomy, the combined Army-Air Forces (AAF) was active during and immediately following World War II (WWII).<sup>42</sup> A component of the United States Army, the AAF administered all parts of military aviation, including but not limited to controlling installations, supporting personnel, and creating visual aids for pilots and ground troops. With the onset of WWII and the increase of armed air forces, aeronautical charts showing terrain, military installations, hazards, flight paths, and general restricted information became essential in order to complete effective missions and ultimately succeed in battle. This service ultimately evolved into the Aeronautical Chart Maintenance Project (ACMP) in 1941.

Aeronautical chart production during the early 1940s required constant updating and reprinting as new airfields, navigational aids, radios, signals, and other military installations required accuracy.<sup>43</sup> With AAF main headquarters in Washington, D.C. and five regional offices in Atlanta, Georgia; San Antonio, Texas; and Oakland, California (*existence of these offices is currently unverified*), St. Louis was chosen to house its primary Aeronautical Chart Plant.<sup>44</sup> St. Louis was a strategic location and had been a

<sup>40</sup> Marilyn H. Harper, et. al. "World War II & the American Home Front: A National Historic Landmarks Theme Study." (Washington, D. C.: National Historic Landmarks Program, U. S. Department of the Interior, 2007), page 12.

<sup>41</sup> *Gould's St. Louis Directory*. 1941-1942.

<sup>42</sup> From Wikipedia. [https://en.wikipedia.org/wiki/United\\_States\\_Army\\_Air\\_Forces](https://en.wikipedia.org/wiki/United_States_Army_Air_Forces) accessed November, 2015.

<sup>43</sup> History of the Aeronautical Chart Service. Section D, St. Louis. Web [http://www.escape-maps.com/escape\\_maps/history\\_aeronautical\\_chart\\_service.htm](http://www.escape-maps.com/escape_maps/history_aeronautical_chart_service.htm) accessed 7-8-2015. Much of the information was taken from Alford H. Burton (editor). "Conquerors of the Airways: A Brief History of the USAF-ACIC and Aeronautical Charts." (St. Louis: US Air Force Aeronautical Chart and Information Center, June 1953).

<sup>44</sup> United States Army/Air Forces. "AAF Regulation No. 20-37." (Washington, D. C., April 26, 1944). Earlier regulations superseded were 95-1 on May 19, 1942 and 95-4 on February 15, 1943).

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regional military office since 1923; it had produced and distributed basic airport information since that time but would now be granted a distinctive role during WWII accurately compiling and publishing navigational aids for the AAF and Allied forces. Two of the key reasons to locate the main facility in St. Louis was due to its advantages of being centrally located within the country in addition to its immediate access to ground and rail transportation—the exact conditions which led to the original planning and construction of the Midwest Terminal Building in 1931, future home of the Aeronautical Chart Plant.<sup>45</sup>

Prior to WWII, and as far back as World War I, there were no navigational aids and pilots had to rely on whatever maps could be located.<sup>46</sup> Pilots and navigators plotting their courses from engineer ground maps or other sources were entirely dependent on their own knowledge and familiarity with the terrain over which they were flying; flight was limited based on weather and low-light conditions.<sup>47</sup> In fact, still by 1923 there were no air navigation maps or charts published in the United States for use by aviators.<sup>48</sup> Enter the Training and War Plans Division of the Army Air Service in 1922. Charged with compiling information on military air routes, locations for radio aids to navigation, and the preparation of airport bulletins and locations, the Division compiled a series of Air Navigation Strip Maps that would set the stage for later aeronautical charts.<sup>49</sup> With the passing of the Air Commerce Act in 1926, a civilian agency was established to correlate aeronautical matters between the mapping reproduction agencies and the military air arm and by 1927, a series of 52 strip maps covering the routes to be flown by military aircraft, had been published.<sup>50</sup> The Air Service established a separate unit called the “Map Unit” and between 1928 and 1935, the unit had procured U. S. Sectional Charts, U. S. Regional Charts and Rand McNally Aviation Maps.<sup>51</sup> Compilation and printing had been done at the Engineer Reproduction Plant, later known as the Army Map Service. By 1930, air navigations charts, then known as

<sup>45</sup> Ibid.

<sup>46</sup> “Viewpoint: How WWI Changed Aviation Forever.” Internet source, <http://www.bbc.com/news/magazine-29612707>. From Magazine section, 20 October 2014.

<sup>47</sup> History of the Aeronautical Chart Service, Section I.

<sup>48</sup> Ibid. The few maps that could be used at the time included nautical charts of coastal areas (Geodetic Survey & Hydrographic Office), Geological Survey state maps, Post Office Department route maps, Rand McNally state maps, and National Geographic Society maps. However, none of these contained aeronautical information useful to pilots.

<sup>49</sup> Ibid. Production of said maps was authorized by the Chief of the Air Service in 1923.

<sup>50</sup> Ibid. Section II.

<sup>51</sup> Ibid.

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“Sectional Air Navigational Charts,” were being prepared by the U. S. Coast and Geodetic Survey.<sup>52</sup> In time, mapping had improved, coverage had spread, and accurate information had been disseminated to America’s pilots.

After December 7, 1941, coinciding with the entry of the United States into World War II, requirements for worldwide coverage of aeronautical charts catapulted to a position of major importance.<sup>53</sup> Come January, 1942, the Map Section was moved to the Air Traffic Services section and renamed the Map-Chart Division and then was immediately charged with the preparation, procurement, compilation, reproduction, maintenance, and general distribution of aeronautical charts-- the resulting effort saw about 5,000 cartographers and lithographers joining forces to accomplish one of the most extensive charting programs up to that time.<sup>54</sup> A component of this new program was to establish a new, centrally-located, primary facility to lead in the nation’s production.

Planning for this new facility began in February of 1942 with funds appropriated from the 1942 fiscal year and approved by Congress.<sup>55</sup> Initially new construction was proposed but due to the scarcity of building materials during the war coupled with an immediate need to secure such a facility immediately, it was deemed necessary to lease an existing structure. The Midwest was suggested as an ideal location for such a lease and St. Louis—at the center of a nation-wide distribution network—would become the host city. The process took time and during May of 1942, the Director of Photography created exhibits of all potential building candidates with the Continental Can Company (CCC; 5221 Natural Bridge Boulevard and 7140 North Broadway Avenue) at the top of the list.<sup>56</sup> However, the CCC building was under consideration by the Navy Department, Quartermaster Corps, Ordnance Department, and the Air National Command. After closer inspection it was determined that the building was not capable of housing the amount of space needed for efficient production and distribution.<sup>57</sup> Months passed and red-tape discussions examining the requirements for an aeronautical chart facility ultimately resulted in a decision on September 8, 1942 stating the exact details of such a facility. Concerns of keeping up with the constant demand for aeronautical charts continued into December when it was decided to

<sup>52</sup> *Ibid.* Section III

<sup>53</sup> *Ibid.* Section IV, A.

<sup>54</sup> *Ibid.*

<sup>55</sup> *Ibid.*

<sup>56</sup> *Ibid.*

<sup>57</sup> *Ibid.* Section IV, D.

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locate the facility in the Midwest Terminal Building (Figures 27-28); remodeling was scheduled for completion and total occupancy by March 1, 1943.<sup>58</sup>

**Figure 27:** October 1942 photograph of the Midwest Terminal Building, view to northeast. Source: Aeronautical Chart Maintenance Project, St. Louis, Missouri. Exhibit A, 10-24-1942.



<sup>58</sup> Ibid.

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**Figure 28:** October 1942 photographs of the Midwest Terminal Building, view to southwest (top) and along Lucas alley (bottom) showing loading facilities (color photo is today view, Matt Bivens, 2016). Source: Aeronautical Chart Maintenance Project, St. Louis, Missouri. Exhibits B and C, 10-24-1942.



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The Midwest Terminal Building was built to last. The strength of the building's steel frame and concrete structure allowed for massive floor weight loads; internal elevators (extant) supporting multiple tons each allowed equipment, materials, and finished goods quick movement within the building. Storage of heavy equipment and goods was possible. Underground rails (now buried or removed) and ground loading docks (extant) allowed for handling/shipping/receiving of raw materials and finished goods.

The Aeronautical Chart Plant (ACP) in St. Louis was activated on June 15, 1943 (Figure 29); the beginning of the period of significance, its massive presses began to run as promised.<sup>59</sup> Present at the dedication was Colonel H. Arnold Karo, the first commanding officer of the plant; after the war, Karo returned to his original post at the Coast and Geodetic Survey and was appointed as its director with the rank of Rear Admiral by President Eisenhower in 1955.<sup>60</sup> In 1943, a series of World Aeronautical Charts was authorized with over \$9 million in funds appropriated.<sup>61</sup> Because this information was previously lacking in coverage, the AAF initiated the most extensive program of aerial photography ever attempted; the process included new technology associated with the Time-trogen System.<sup>62</sup>

Also in 1943, the Aids to Navigation Branch (ANB) was moved into the Midwest Terminal Building; in the beginning, ANB was responsible for recording air information on reference data cards as well as training in this relatively new field.<sup>63</sup> Their scope included screening and recording radio navigation aids and editing aeronautical overlays. With a staff of 83 civilians and three officers, operations continually increased until after the war.

<sup>59</sup> *Ibid.*

<sup>60</sup> *Ibid.*, Section IV, D.

<sup>61</sup> *Ibid.*, Section IV, A.

<sup>62</sup> This was a system that employed the use of three cameras: one pointed vertically downward in the conventional manner; the other two were mounted obliquely, pointed in opposite directions, perpendicular to the line of flight. The two obliquely mounted cameras were placed to photograph both horizons and a small part of the area covered by the vertical camera. From these aerial photographs, planimetric and topographic compilations were made for photogrammetric bases, preliminary bases, re-compilation overlays and mosaics.

<sup>63</sup> History of the Aeronautical Chart Service, Section IV, D.

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Specifically, responsibility of the facility included:

1. Compilation of aeronautical overlays on Standard & Special Chart series;
2. Radio Facility Sheets depicting current radio facility information on specified world routes;
3. Revisions to the Airport Directory of the U.S.;
4. Compilation of the Chart Correction Notice; and
5. Receiving, recording, evaluating and maintaining worldwide aerodrome, radio facility and other aeronautical information.<sup>64</sup>

**Figure 29:** Official dedication of the new facility; Director Karo is in back at left. Source: Family of Vice Admiral H. Arnold Karo.



#### The Building's Function Under the AAF

Rehabilitated in late 1942 and ready for production in early 1943, the nominated building housed the AAF through late 1946. Modifications to meet the war program were contracted with architects and engineers Spear, Becker & Falvey and appear to have mostly been comprised of mostly "temporary" wall divisions meant to separate the processes and storage necessities associated with chart production.

<sup>64</sup> Ibid.

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Designs for the second floor were completed in January of 1943 (Figure 30, page 48). Radiating from the core elevator and stair blocks at the building center, former tiled or plastered partition walls were demolished and relocated (many walls present today) with new plastered or concrete block walls. Most of the new walls were only to be about 7 feet tall and not meant to be permanent.<sup>65</sup> While the bulk of the southern (rear) half of the building and portions of the north and south interior were left as open space, the area to the west near the front of the building was walled off to create the base supply room (original # 209; now 200-02), a photogrammetry room (original # 205; now 200-02), a projection room (original # 204; now 220), and an assistant photogrammetrist's room (original # 203; now 221). A pair of large freight elevators served this portion and bathrooms and storage areas were included.

Photogrammetry was a key component to creating the aeronautical maps produced within the building; it is the science of making measurements from photographs, especially for recovering the exact positions of surface points (Figure 31).<sup>66</sup> Accuracy was essential. Here on the second floor, aerial photographs were projected in room 204 (now room 220) to a specific scale and pertinent information was precisely transferred to maps within the main room (original 205; now 200-02). In the field, cameras mounted on aircraft were pointed vertically toward the ground; multiple overlapping photos of the ground were acquired as the aircraft flew along a specific flight path. These photographs allowed the photogrammetrist to compile true conditions essential in identifying landing strips, bases, military installations, hazards, etc. Today the photogrammetry room remains mostly open space. The size of the base supply room was massive and contained over a dozen, double-sided, six foot-plus high metal shelving units. Today, much of this floor remains open space with former low wall locations clearly evident—some still in place. Some ceilings still retain period lighting. All of the windows are intact and some of the shelving is still in use. The space evokes the feeling and association with the ACP's occupation.

**Figure 31:** Employee at work on measuring points & transcribing information at the building. Source: NGA St. Louis archives.



<sup>65</sup> Spear drawing A-1/A-c, January 13, 1943.

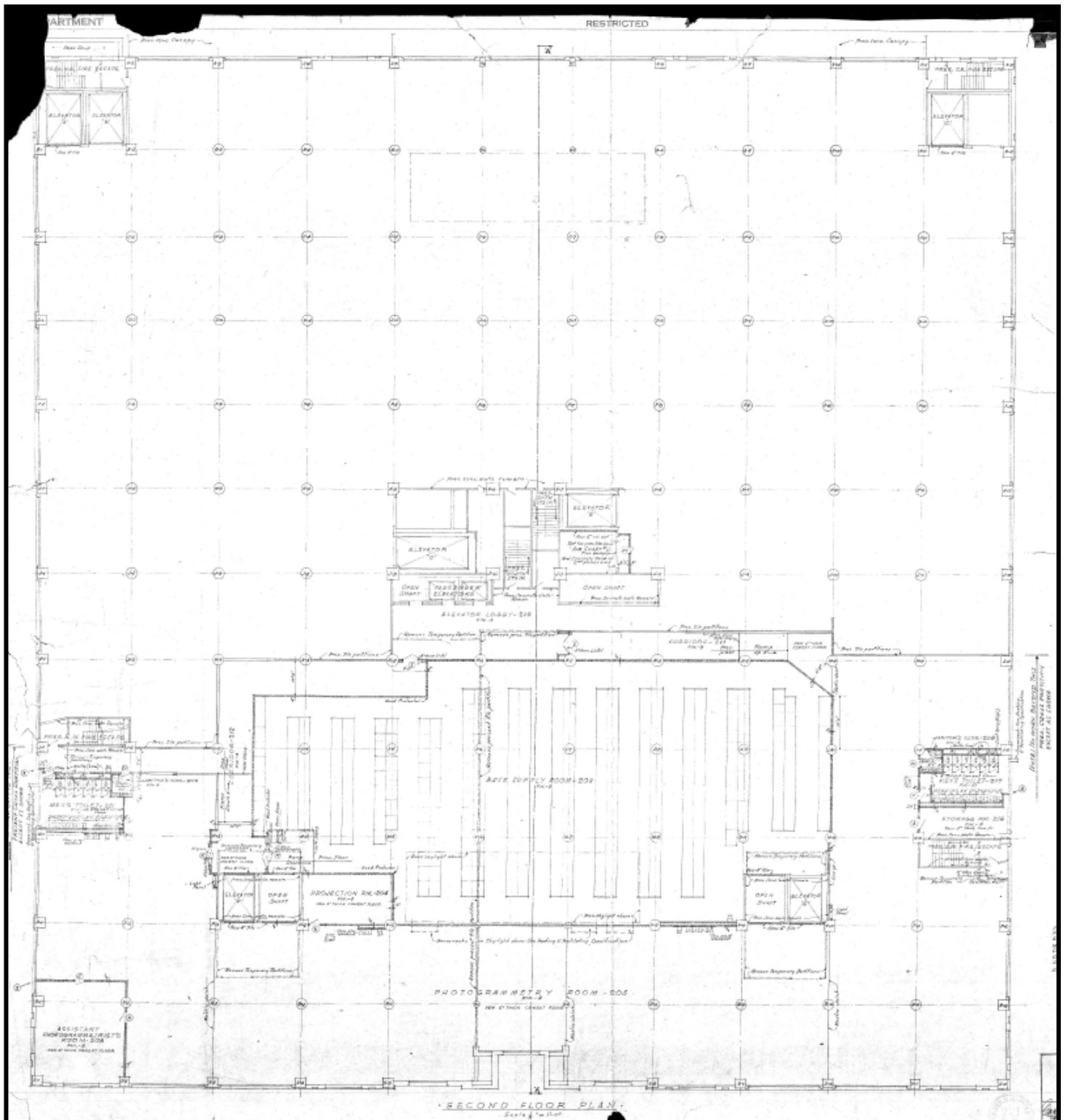
<sup>66</sup> Website source from <https://en.wikipedia.org/wiki/Photogrammetry>. Accessed 3-23-16.

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Figure 30: Second floor plan as built, January 1943. Source: Aeronautical Chart Maintenance Facility plans-Spearl, Becker & Falvey, architects and engineers.



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The third floor was reserved primarily for supply storage (original room 322; today covers most of floor) with dozens of stock storage shelves built to suit specific types of products (Figure 32).<sup>67</sup> A number of offices<sup>68</sup> were placed along the perimeter walls. Within original office 319 (now 316) was a temporary facility for a war department office as well as the primary AAF architect and engineer's office; constructed of wood partitions, it was meant to be changed as needs arose. A vault (original 321, now 315A) with stock shelving was north of the supply room; today its concrete block walls and sliding fire door are intact. A small field hospital (AKA "treatment room") with office, ante room, and recovery room was located along the north wall adjacent the vault (original 311-15, currently a hall). Situated at the rear, northeast building corner was a receiving room and associated office (original 327 and 328, now 312) immediately adjacent the freight elevators.

Opposite, at the southeast building corner, was the carpenter, machine, and paint shops (original 326, 323, 325, now 308). Bathrooms and associated janitor's closets were adjacent elevator and fire escape stairwells similar to the second floor. Again, low partition walls were built to a little over 7 feet high—not meant to be permanent. Of interest on this floor was a private bed room (original 301, now 315) complete with a private bathroom and lounge area—essential for "all-nighters" during the war. Again, much of this floor evokes the feeling and association with the ACP's occupation. The vault is intact as is its original steel fire door. Many of the office walls were left in place and simply extended to the ceiling. Former low wall locations are clearly evident—some still in place. Some ceilings still retain period lighting. All of the windows are intact and some of the shelving is still in use.

<sup>67</sup> Spearl drawing A-2/A-c, January 13, 1943.

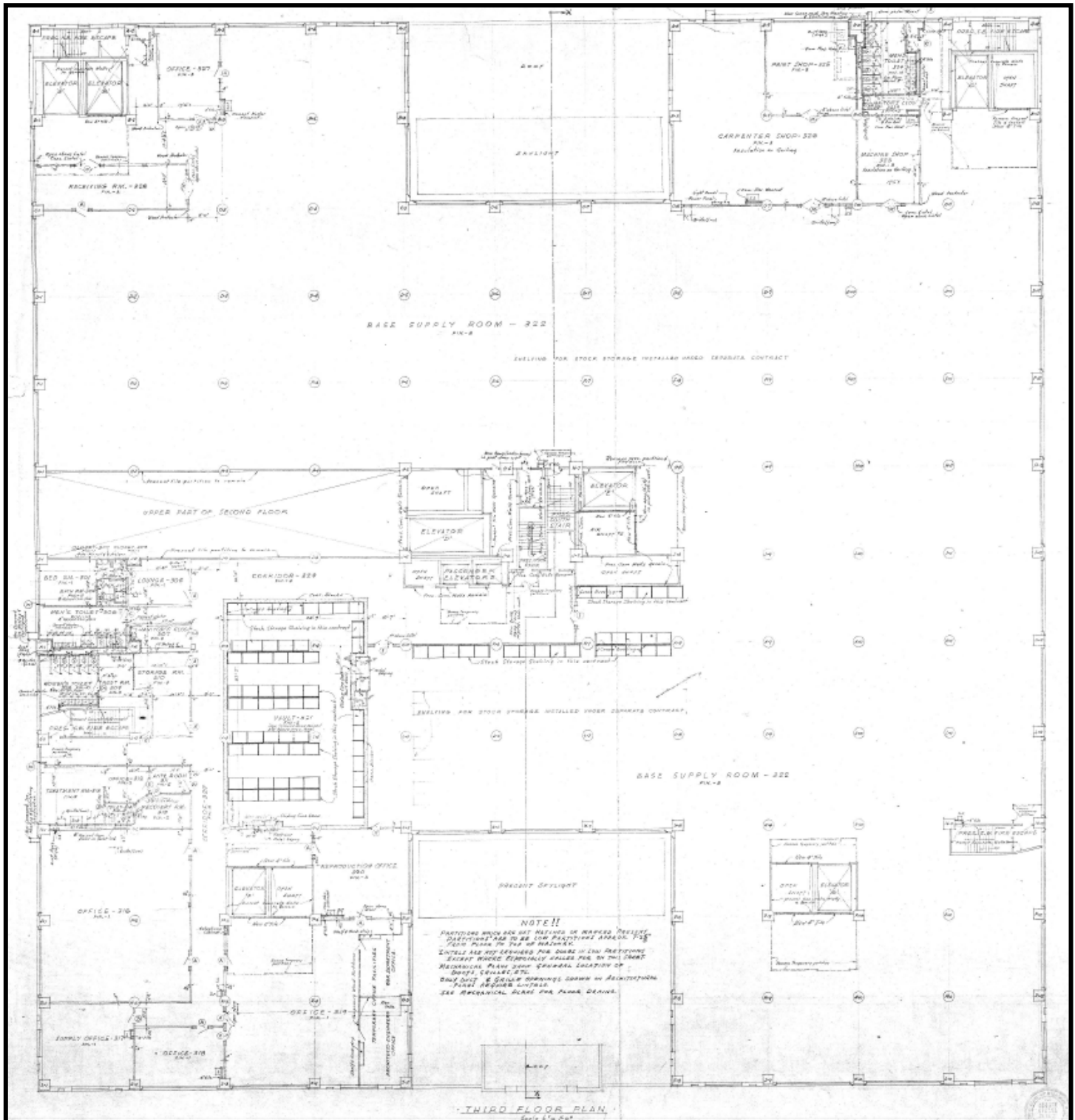
<sup>68</sup> Original # 316/current # 317A, original # 317/current # 317A, original # 318/current # 317, original # 319/current # 316, and original # 320/current # 316.

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Figure 32: Third floor plan as built, January 1943. Source: Aeronautical Chart Maintenance Facility plans-Spearl, Becker & Falvey, architects and engineers.



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The fourth floor contained the primary printing press room (original 451, now 420) and associated developing and printing processes (A-3/A-C; January 18, 1943). The bulk of the light-sensitive procedures for producing components of aeronautical maps occurred here (Figure 33, page 53); glass block windows (intact today) provided natural, yet indirect light that could be easy to control. In proximity to the press room was a dark room (original 444, now 420) and projection room (original 445, now 420). Paper was conditioned on racks (original 452, now 420) and then bound in the bindery (original 442, now 410); waste was handled in the shredding and baling room (original 443, now 420). Also on this floor was the film storage room (original 403, now 400), a refrigerated storage room (original 415, now 400), a transfer & plate finishing room (Figure 34; original 436, now 410), and a glass negative storage room (original 430, now 400). The primary lithographic artist room (original 431, now 400) sat adjacent the reproduction operations office (original 433, now 400). Multiple dark rooms were carved out of the space (original 419, 424-428, now 400) and separate rooms provided space for contact sheet printing (original 420-422, now 400 and 410). Separate rooms with blown air for drying negatives and prints flanked circulation halls (original 434, 439, 453, 457, now 400 and 410). Also stock storage and regional store rooms were situated on the floor (original 401-402, now 420). Bathrooms, janitor closets, elevator access and other associated spaces occupied the floor.

**Figure 34:** Employee at work on developing and cleaning color plates for charts at the building. Source: NGA St. Louis archives.

Options for various printing techniques with capability to reproduce multiple types of images on the fourth floor included: revolute printing (a blueprint finishing machine; original 446-447, now 410)—a machine that washed, dried, and ironed blueprints either in sheets or continuous rolls;<sup>69</sup> autoradiograph printing—an



<sup>69</sup> *Engineering News*. February 26, 1914, page 470

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image was produced on a photographic film or plate by the emissions from a radioactive substance in an object which was in close contact with the emulsion (original 406-407, now 400);<sup>70</sup> and ozalid printing—a massive (often 10'x10') machine with a duplication process based on a type of paper sensitive to ammonia which emitted an awful stench (original 405, now 400).<sup>71</sup> Photostat (an early type of copy machine; original 413, now 400) and Monotype camera (a large lens camera; original 423, now 400 and 410) capabilities were also in place on the floor. Technology in tandem between the war effort and camera evolution saw color film for aerial photography being developed by Eastman Company during WWII; this film was developed and printed in the building. High contrast film was used to decipher ground details from high altitude.<sup>72</sup>

The fifth floor provided additional space for photogrammetry (see second floor description on page 47) behind the central elevator core and occupying nearly half of the building (Figure 35; original 533, now 513). Accessible from the two corner elevator bays, the photogrammetry room included a small office as well as access to a drafting room along the northern wall (original 501, now 513). Executive, administrative, production, guard, clerical, reception, personnel, division, and general offices were also located on this floor. An exhibit room (original 509, now 510-12) and library/research room (original 530, now 513) occupied the floor. The Aids to Navigation (ATN) department was situated at the southwest corner (original 523, now 504). ATN was relocated to St. Louis when the plant opened in 1943; the division was essential to the war effort and ultimately verified approximately 26,500 airfields and 14,000 radio facilities throughout the world by 1944.<sup>73</sup> Aeronautical overprints on charts constantly required new editions and any delays in reprinting updated strategic data could cause the American military to suffer or much worse, lose the war.

Finish schedules for the floors included leaving the concrete ceilings and columns as is or painted (extant). The original concrete floors were used and where needed a second floor was poured over (extant) in order to bury the electric conduits and some piping. Asphalt or asbestos floor tile was used in the offices (some extant). Walls were either left exposed masonry, plastered and painted, wainscoted, or concrete block

<sup>70</sup> Website source (<http://www.merriam-webster.com/dictionary/autoradiograph>). Associated with the techniques of mapping and reconnaissance photography which was established during WWII.

<sup>71</sup> *The Draftsman: A Journal for the Drafting Room*. Volume 5, 1946, page 16.

<sup>72</sup> *Popular Photography* (Chicago: Ziff-Davis Pub. Co.), volume 28, number 3, March 1951, page 107.

<sup>73</sup> History of the Aeronautical Chart Service. Section IV, D.

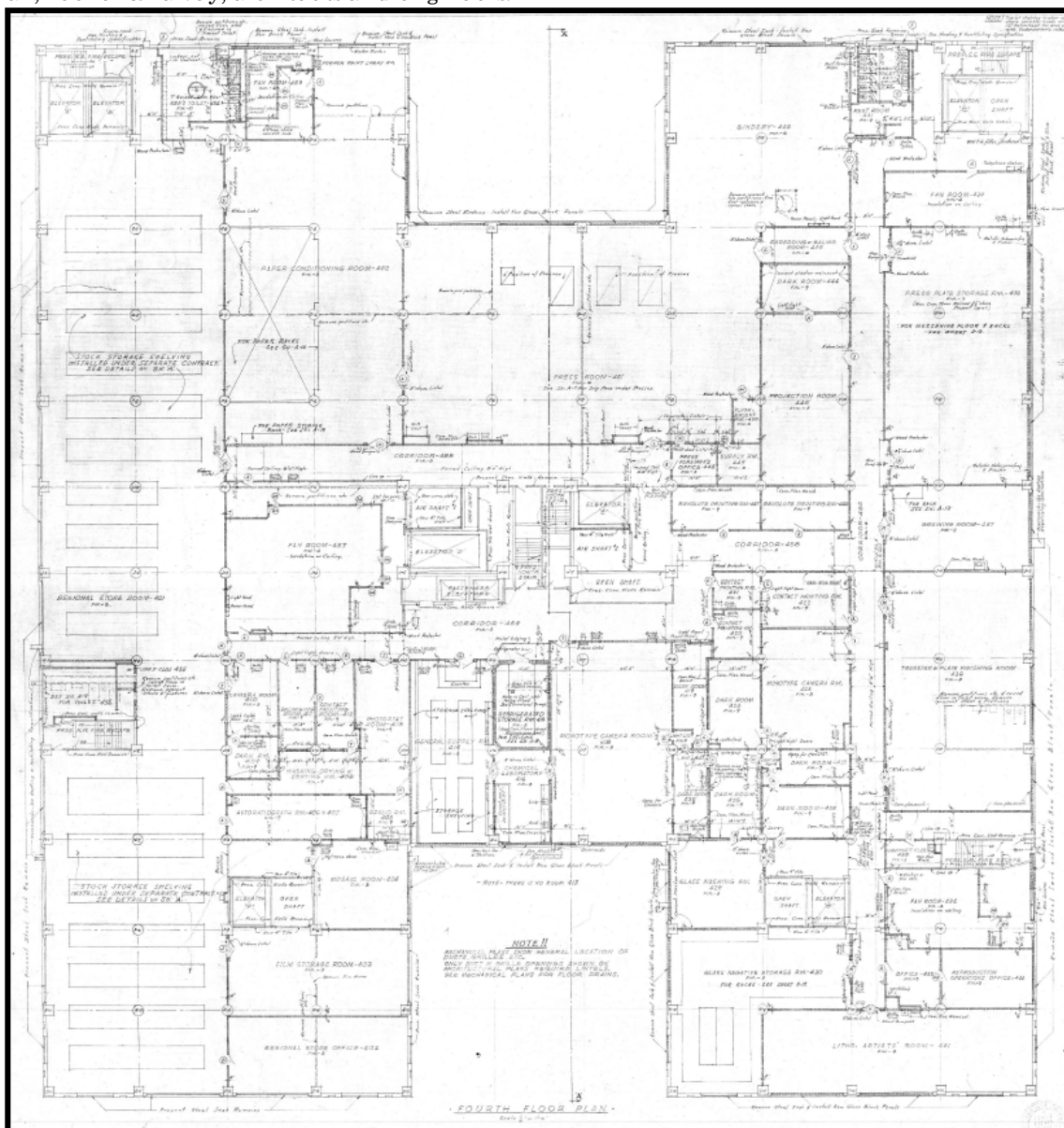
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(many examples extant).<sup>74</sup> Similar to the other floors, much of this floor evokes the feeling and association with the ACP's occupation. Many of the office walls were left in place and simply extended to the ceiling. Former low wall locations are clearly evident—some still in place. Some ceilings still retain period lighting. All of the windows are intact and some of the shelving is still in use.

**Figure 33:** Fourth floor plan as built, January 1943. Source: Aeronautical Chart Maintenance Facility plans—Spearl, Becker & Falvey, architects and engineers.



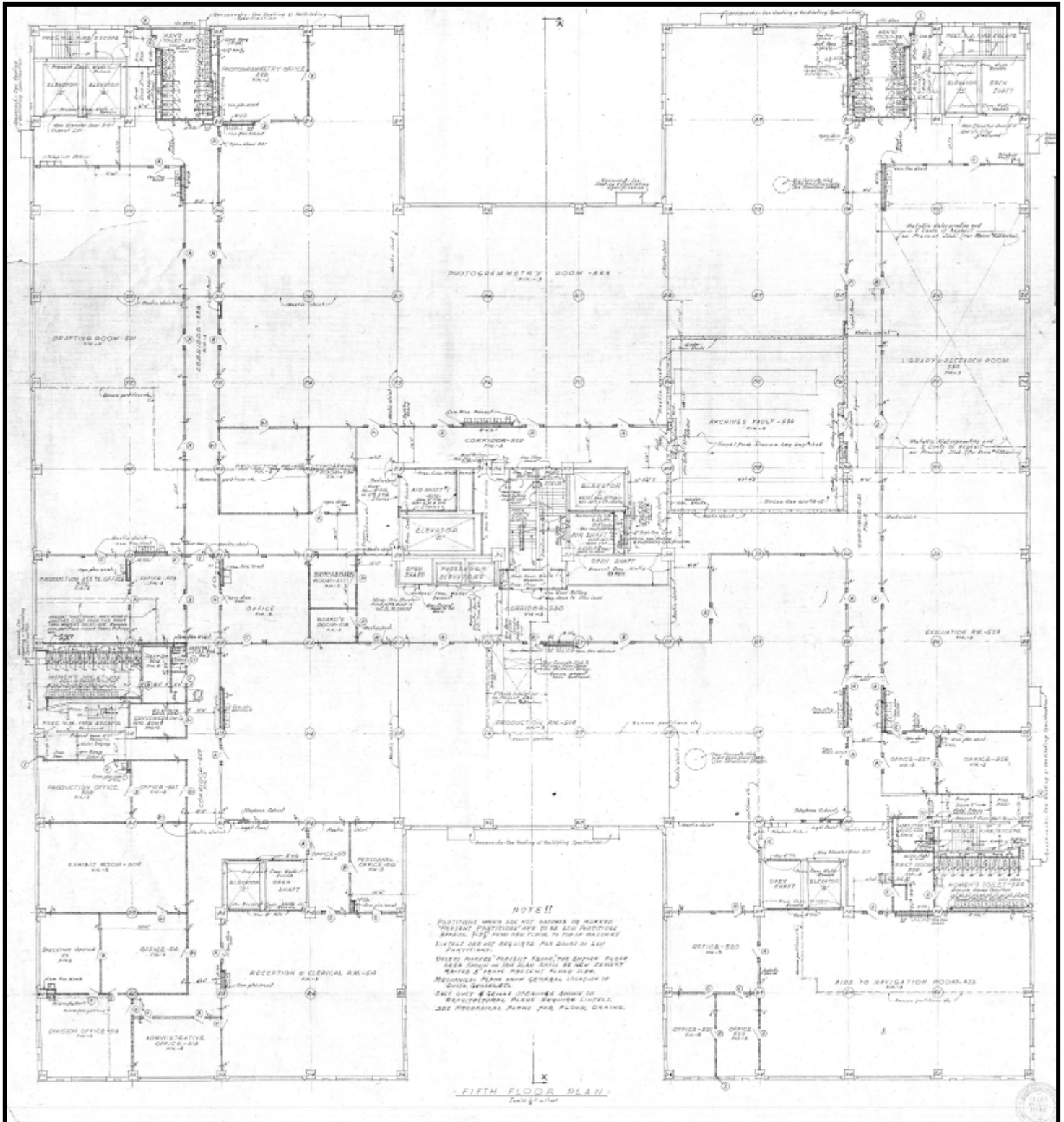
<sup>74</sup> Spearl drawing A-2/A-c, January 13, 1943. "Finish Schedule."

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Figure 35: Fifth floor plan as built, January 1943. Source: Aeronautical Chart Maintenance Facility plans-Spearl, Becker & Falvey, architects and engineers.



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Other significant accomplishments of the facility included: a complete revision of the Airport Directory in December 1943 including re-compilation of information on 2,929 airfields; 125 Chart Correction Notices and 1,633 aeronautical overlays were compiled here during the period July 1943 to June 1944; new information was available on approximately 26,500 airfields and 14,000 radio facilities throughout the world. Wartime printing workload of the St. Louis plant was tremendous with at least 500 personnel at work each year (Figure 36).

**Figure 36:** The Midwest Terminal Building printing facility production between 1944 and 1946. Source: History of the Aeronautical Chart Service. Section D, St. Louis. Web [http://www.escape-maps.com/escape\\_maps/history\\_aeronautical\\_chart\\_service.htm](http://www.escape-maps.com/escape_maps/history_aeronautical_chart_service.htm)

July 1943–June 1944	July 1944–June 1945	July 1945–June 1946
12,356,577	21,004,849	13,507,983

Announcement of the invaluable contributions of the Aeronautical Chart Maintenance Project in St. Louis hit the February 6, 1944 edition of the *St. Louis Globe-Democrat*; where it was declared “14 million charts for air forces made in St. Louis.”<sup>75</sup> Designed, printed, and shipped from the Midwest Terminal Building in mass quantities to all parts of the world, the St. Louis office was noted in association with the advancement of photogrammetry—the science of transferring data compiled through aerial photographs to accurate charts which were then produced here.<sup>76</sup> Responsible for accurately illustrating over 1,000,000 square miles of territory, the St. Louis plant processed the aerial photographs and then matched them in true position with proper proportion and scale with a base chart. The volume of the project was immense and the St. Louis plant ensured that the information was accurate and up-to-date. Prior to completion, the St. Louis staff (comprised of 28 officers and 500 employees in 1945; Figure 37) included updated locations of radio range beacons, airports and data on magnetic variations—each intrinsic to the Allied cause. Finished charts were then

<sup>75</sup> *St. Louis Globe-Democrat*. “14 million charts for air forces made in St. Louis.” February 2, 1944.

<sup>76</sup> *Ibid.*

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shipped from the ground floor loading docks associated with truck transportation—and were sent all over the country and around the world (Figures 38A through C).

**Figure 37:** The staff hard at work, floor unknown. Source: NGA archives.



Earlier during 1942, the main printing office in Washington D.C. supplied the five regional stores (St. Louis, Atlanta, San Antonio, Oakland, and Spokane) with printed matter which was then sold for a nominal fee to pilots. The first edition of the Catalogue of Aeronautical Charts and Related Publications was issued in March of that year and contained some 6,000 total charts.<sup>77</sup> During active duty within the nominated building, the Aeronautical Chart Service was reorganized during April of 1944.<sup>78</sup> The order officially established the AAF Aeronautical Chart Service with the following functions:

1. Responsibility for the preparation of specifications and technical instructions governing the compilation and reproduction of all official AAF aeronautical charts;
2. For the procurement, compilation, and reproduction, maintenance, supply, and distribution of aeronautical charts (AR 300-15) as well as:
  - A. certain specified publications;
  - B. other special maps and charts required by the AAF in the Zone of the Interior;

<sup>77</sup> History of the Aeronautical Chart Service. Section IV, A.

<sup>78</sup> AAF Regulation No. 20-37. "Organization: Aeronautical Chart Service." (Washington, DC: Army Air Forces), April 26, 1944.

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3. Responsibility for the initial supply of aeronautical charts required in the theater of operations and the maintenance and supply of such charts as cannot be maintained or produced with field facilities available to the theater commander;
4. The service was to maintain direct contact in the Zone of the Interior with the War, Navy, and other Governmental agencies on all matters pertaining to compilation, reproduction, and supply of all official AAF aeronautical charts;
5. Distribution of aeronautical chart service publications is accomplished in the United States through the regional stores and in foreign theaters by facilities designated by the theater commanders.<sup>79</sup>

Official designation of the management of the service included the Washington D. C. headquarters, the Aeronautical Chart Plant at St. Louis, and five regional stores including: Washington D. C.; Atlanta, Georgia; San Antonio, Texas; Oakland, California; and St. Louis, Missouri. Ultimately after the war the Aeronautical Chart Service was withdrawn from Headquarters Army-Air Forces and placed under the command of the Air Transport Command in April of 1946.<sup>80</sup> It was in this year that the period of significance ends—in association with the historic occupancy and activities of the Aeronautical Chart Service. Multiple department and division changes as well as relocation out of the building by 1947 (based partly on a change of directorship), the Aeronautical Chart Service became part of the Defense Mapping Agency in 1972, then part of the National Imagery and Mapping Agency in 1996, and finally, the National Geospatial Intelligence Agency (NGA) by 2003.<sup>81</sup> NGA continues to have a strong presence in St. Louis.

<sup>79</sup> Ibid.

<sup>80</sup> History of the Aeronautical Chart Service. Section IV, D.

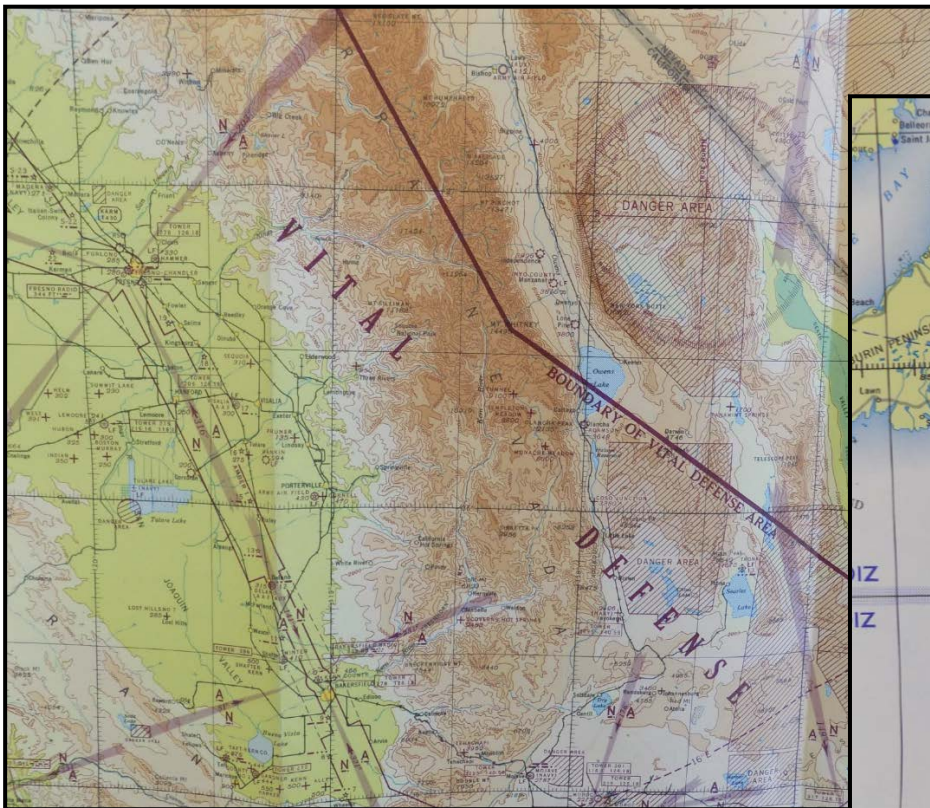
<sup>81</sup> Ibid.

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**Figure 38A-C:** Examples of charts produced in the St. Louis plant: World Aeronautical Charts (top is section of France and bottom right is Placentia Bay on southeast coast of Newfoundland, Canada); bottom left is section of California. Base map for France was drawn in 1941 and updated in 1944; other two base maps were completed in September 1943 and updated in 1944. Source: Collection of Matt Bivens.



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**Later History: 1950s to 1970s**

The International Shoe Company established its machinery, warehouse, and power department on multiple floors in the building in 1943 during military occupation—ISC was converted, like other local companies, to produce products for the war effort and in this location had made combat boots military shoes, submarine sandals, and other products for the home front.<sup>82</sup> The metal slides the company used to deliver parts and products are extant within one of the air shafts adjacent the central elevator core. Later, between 1959 and 1986, the *St. Louis Globe-Democrat* newspaper company occupied the building; competition with the *St. Louis Post-Dispatch* and *St. Louis Star* was fierce but eventually the *Globe* and *Star* lost to the *Post-Dispatch* and closed up their shops. During the 1960s a restaurant located on the first floor of the building was closed and then modified for an office in 1962.<sup>83</sup> Downtown parking necessities prompted the building owner to provide public parking on site as early as 1965.<sup>84</sup> Interior build outs for specialized clients continued into the 1970s and by 1977 over \$4 million dollars in improvements and technology upgrades were completed.<sup>85</sup> Such tenants as the International Shoe Company (tenant since the early 1940s), Color Process, and the *St. Louis Globe Democrat* (a tenant since 1959) converted open interior spaces to suit their needs during this decade. The famous electrified *St. Louis Globe Democrat* exterior sign (approved via permit on August 17, 1976) had remained until 1995.<sup>86</sup>

**Conclusion**

The building which was designed and completed during the early 1930s saw new life as the central facility for the United States military Aeronautical Chart Maintenance Program during World War II. With very specific requirements and a lack of time to construct a new facility, the Midwest Terminal Building—offering a massive concrete structure with open floor plans and high ceilings, multiple ground-level loading docks and internal freight elevators, a central location within the country with access to

<sup>82</sup> Mauran, Russell & Crowell drawings in storage at the former Midwest Terminal Building. War data from Betty Burnett, page 166.

<sup>83</sup> City of St. Louis Building Division. Building Permit # a239, issued 6-13-1962, \$6,500 to 12<sup>th</sup> & Delmar Realty.

<sup>84</sup> *Ibid.* Building Permit # PS101, Star Service & Parking.

<sup>85</sup> *Ibid.* Building Permit # I15859 issued on 10-21-1977 to owner Illinois Terminal for tenant Computer Environments, Inc. It appears that office build outs comprising frame walls with wall board surfaces were installed primarily on the 6<sup>th</sup> floor but similar period construction appears on other floors.

<sup>86</sup> *Ibid.* Building Permit # I-1008. The sign had a total square foot area of 425 and had 39 feet of interior fluorescent lights. The sign was being dismantled for removal in January of 1995. Source: Phyllis Brasch Librach. "Name Drop." In *St. Louis Post-Dispatch*. January 4, 1995.

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water, air, rail, and ground transport and then having available vacant space—allowed for immediate mobilization and production of essential wartime aviation maps and charts which would be supplied to both the Allied and American forces in the effort to win World War II. No other building in the city of St. Louis or state of Missouri provided this significant, specific service, and only a few in the country took part in the program during World War II.

An icon of its time and a beacon today, the Midwest Terminal Building represents a period when St. Louis was modernizing to keep pace with competition in national markets. This solid steel, concrete, and masonry structure has stood the test of time, serving the likes of the world-famous International Shoe Company, General Electric, the *St. Louis Globe-Democrat*, and ultimately the United States Government (the primary significant historic tenant). Whether drawn by its monumental appearance or by its interior potential, historically-significant tenant, the Aeronautical Chart Service made immense contributions in the development, production, and dissemination of aeronautical charts during World War II and is locally significant under Criterion A: Military and Industry because of this series of actions. The building was also noted for its significant association with the advancement of photogrammetry—the science of transferring data compiled through aerial photographs to accurate charts which were produced here.

The building retains much of its historic character which was present during the period of significance, 1932-1946—it has functioned as it was originally intended since construction in 1932 as a transportation terminus and facility for the distribution and storage of goods. Today, the garage bays still open to truck delivery and shipping of goods across the country. The Midwest Terminal Building continues to stand as a major St. Louis downtown landmark building and clearly illustrates its significant history in association with the United States Military Aeronautical Chart program.

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"Viewpoint: How WWI Changed Aviation Forever." Internet source, <http://www.bbc.com/news/magazine-29612707>. From Magazine section, 20 October 2014.

Wall Street Journal. "N.A.L. & P. Work on Schedule: Construction on Various Projects to be Completed in Accordance with Program." December 2, 1931, page 6, from Chicago Bureau.

National Register of Historic Places  
Continuation Sheet

Section number   9   Page   65  

Midwest Terminal Building
Name of Property St. Louis (Independent City), Missouri
County and State N/A
Name of multiple listing (if applicable)

Website source (<http://www.merriam-webster.com/dictionary/autoradiograph>).

Associated with the techniques of mapping and reconnaissance photography which was established during WWII.

Wikipedia. [https://en.wikipedia.org/wiki/United\\_States\\_Army\\_Air\\_Forces](https://en.wikipedia.org/wiki/United_States_Army_Air_Forces) accessed November, 2015.

National Register of Historic Places  
Continuation Sheet

Section number 10 Page 66

Midwest Terminal Building
Name of Property
St. Louis (Independent City), Missouri
County and State
N/A
Name of multiple listing (if applicable)

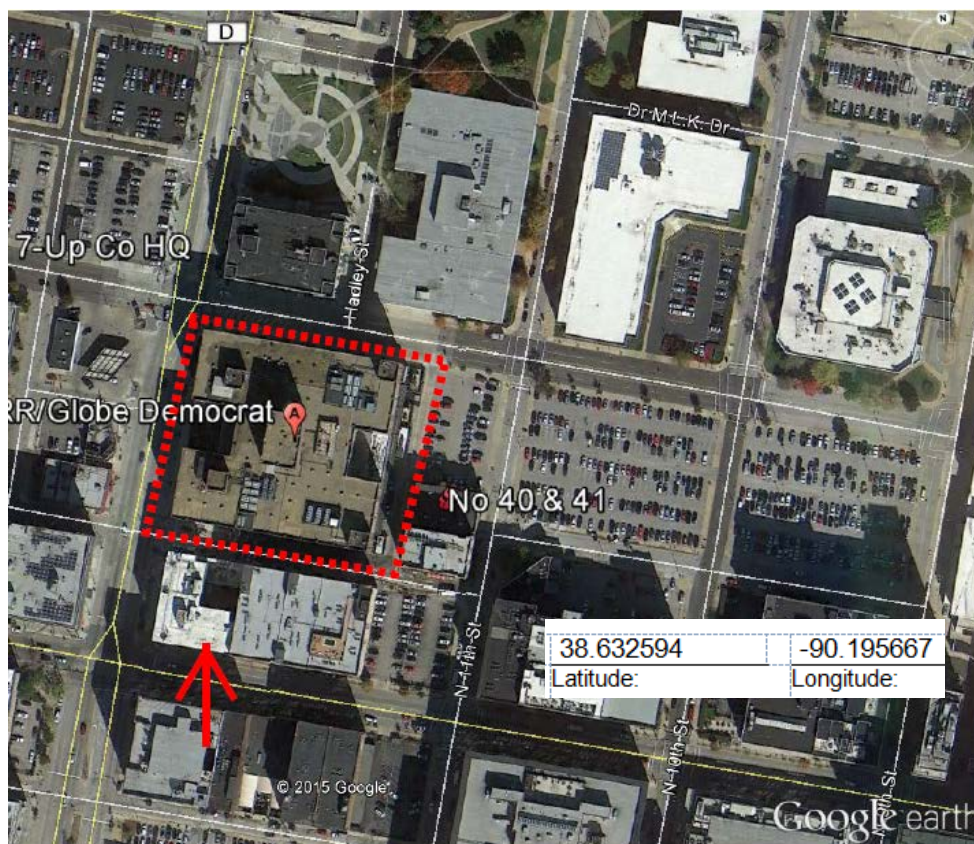
**Verbal Boundary Description**

The Midwest Terminal Building located at 710 North Tucker Boulevard in St. Louis [Independent City], Missouri, is comprised of three legal parcels as follows: Parcel 1 is addressed as 700-720 North Tucker Blvd. located on City Block 841 and contains a ground area of 33,459 square feet and is legally known by the Assessor's Office as parcel number 0841-00-0010-0; Parcel 2 is addressed as 1120 Convention Plaza located on City Block 825 and contains a ground area of 27,323 square feet and is legally known by the Assessor's Office as parcel number 0825-00-0010-0; Parcel 3 is addressed as 700 Hadley Street located on City Block 531 and contains a ground area of 37,000 square feet and is legally known by the Assessor's Office as parcel number 0531-00-0010-0. Parcel 1 was historically part of the Churchill and Taylor Addition to St. Louis, Parcel 2 was part of the Churchill Hill Addition, and Parcel 3 was part of Christy's Addition to St. Louis. A dashed line on the accompanying map (Figure 39) entitled "Midwest Terminal Building Boundary Map" indicates the boundary of the nominated property.

**Boundary Justification**

The nominated parcel includes the building footprint.

**Figure 39:** "Midwest Terminal Building Boundary Map." Source: Google Earth, MSB, 2015.

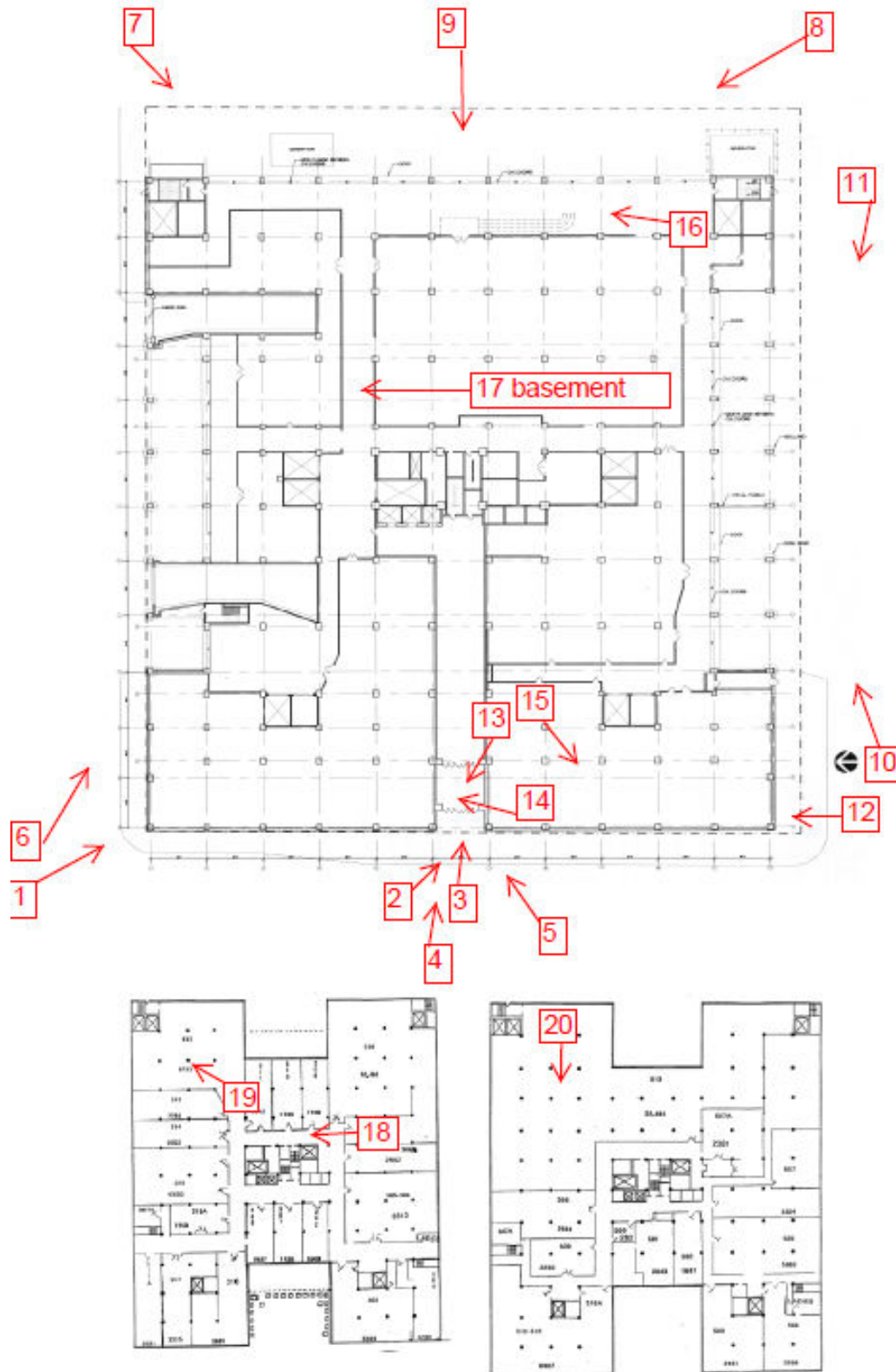


National Register of Historic Places  
Continuation Sheet

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Midwest Terminal Building
Name of Property
St. Louis (Independent City), Missouri
County and State
N/A
Name of multiple listing (if applicable)

Figure 40: Photo Key. Levine Associates, 2000. Not to Scale. Floors 1 (top), 3 (bottom left), 5 (bottom right).



HARNESS  
THE SPEED  
OF FIBER  
AT THE  
SOURCE

GLOBEBUILDING.COM

Scalable  
Office Space  
with Gigabit  
Speeds

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BIG SPACE BIG POWER BIG FIBER

N. Tucker Blvd

Convention Plaza

PARKING

FRESH IMAGE



Regular 149 9/10  
Plus 169 9/10  
V-Power 189 9/10

Food Mart

Check Cashing Money Order  
ATM EBT Card



Convention Plaza

FRESH IMAG

714

708

NO PARKING  
TOW AWAY ZONE  
EXCEPT AS SHOWN  
HEREIN

OPEN  
FRESH

FRESH IMAG

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MCMXXXI



GLOBE BUILDING.COM

FRESH IMAGE

St. Louis Globe-Democrat

STOP

15 MINUTE PARKING

YJ7-V8X



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N. Tucker Blvd

PARKING

PARKING  
\$5.00

720

GLOBE CLEANERS







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Faster than ever.  
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UNLIMITED.





CINTAS

STOP

NO PARKING  
FIRE LANE

THE SPACE BETWEEN THIS BUILDING AND THE PROPERTY  
LINE OF THE MIDWEST INDUSTRIAL DEVELOPMENT COMPANY  
TO THE SOUTH IS FOR PRIVATE USE OF THE OWNER AND  
TENANTS OF THIS BUILDING. THE PUBLIC IS PERMITTED  
TO USE THE SAID STRIP SO LONG AS SUCH USE DOES NOT  
INTERFERE WITH THE PRIVATE USE THEREOF BY THE OWNER  
OF THIS BUILDING AND THE TENANTS THEREIN. THIS PER-  
MISSION MAY BE WITHDRAWN AT ANY TIME.

MIDWEST INDUSTRIAL DEVELOPMENT COMPANY.



PUSH TO EXIT







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22



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