NPS Form 10-900 OMB No. 1024-0018 (Expires 5/31/2012)

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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 Plymouth Building

other names/site number

2. Location

street & number 12 South Sixth Street N/A not for publication

city or town Minneapolis N/A vicinity

state Minnesota code MN county Hennepin code 053 zip code 55402

3. State/Federal Agency Certification

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

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

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

___ national ___ statewide _X_ local

Barbara Howard December 13, 2013
Signature of certifying official/Title Barbara Mitchell Howard, Deputy SHPO, MN Date

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:)

Joe Edson for Beall 2.5.14
Signature of the Keeper Date of Action

Plymouth Building
Name of Property

Hennepin County, MN
County and State

5. Classification

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

- [X] private
- [ ] public - Local
- [ ] public - State
- [ ] public - Federal

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

- [X] building(s)
- [ ] district
- [ ] site
- [ ] structure
- [ ] object

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

Contributing	Noncontributing	
1	0	buildings
		sites
		structures
		objects
1	0	**Total**

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

N/A

Number of contributing resources previously listed in the National Register

N/A

6. Function or Use

Historic Functions
(Enter categories from instructions.)

COMMERCE/TRADE / Department Store
COMMERCE/TRADE / Business

Current Functions
(Enter categories from instructions.)

COMMERCE/TRADE / Business

7. Description

Architectural Classification
(Enter categories from instructions.)

OTHER

Materials
(Enter categories from instructions.)

foundation: CONCRETE
walls: BRICK; STONE; CONCRETE
roof: ASPHALT
other: GRANITE

Narrative Description

(Describe the historic and current physical appearance of the property. Explain contributing and noncontributing resources if necessary. Begin with **a summary paragraph** that briefly describes the general characteristics of the property, such as its location, setting, size, and significant features.)

Summary Paragraph

See continuation sheet.

Narrative Description

See continuation sheet.

8. Statement of Significance

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

- [ ] A Property is associated with events that have made a significant contribution to the broad patterns of our history.
- [ ] B Property is associated with the lives of persons significant in our past.
- [x] C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- [ ] D Property has yielded, or is likely to yield, information important in prehistory or history.

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

Property is:

- [ ] A 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.

Areas of Significance
(Enter categories from instructions.)

ENGINEERING

Period of Significance

1911–1936

Significant Dates

1911

1929

1936

Significant Person
(Complete only if Criterion B is marked above.)

N/A

Cultural Affiliation

N/A

Architect/Builder

LONG, FRANKLIN B. (architect)

LONG, LOUIS L. (architect)

LAMOUREAUX, LOWELL A. (architect)

LARSON, ALBERT (architect)

McLAREN, DONALD (architect)

Period of Significance (justification)
1910–1936
See continuation sheet.

Criteria Considerations (explanation, if necessary)
N/A

Statement of Significance Summary Paragraph (Provide a summary paragraph that includes level of significance and applicable criteria.)

See continuation sheet.

Narrative Statement of Significance (Provide at least **one** paragraph for each area of significance.)

See continuation sheet.

Developmental history/additional historic context information (if appropriate)

Plymouth Building
Name of Property

Hennepin County, MN
County and State

9. Major Bibliographical References

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

See continuation sheet.

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
_X_Other
Name of repository: Document storage at Plymouth Building

Historic Resources Survey Number (if assigned): HE-MPC-1576

10. Geographical Data

Acreage of Property 0.85 acres
(Do not include previously listed resource acreage.)

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

	Zone	Easting	Northing		Zone	Easting	Northing
1	15	478489	4980633	3			
2				4			

Verbal Boundary Description (Describe the boundaries of the property.)
Lot 11, Auditor's Subdivision No. 82, City of Minneapolis

Boundary Justification (Explain why the boundaries were selected.)
These boundaries encompass the city lot on which the Plymouth Building was constructed.

11. Form Prepared By

name/title Stephanie K. Atwood and Charlene Roise
organization Hess, Roise and Company date August 2013
street & number 100 North First Street telephone (612) 338-1987
city or town Minneapolis state MN zip code 55401
e-mail roise@hessroise.com

name/title Meghan Elliott and Ryan Salmon
organization Preservation Design Works, LLC date August 2013
street & number 12 South Sixth Street telephone (612) 460-7860
city or town Minneapolis state MN zip code 55416
e-mail elliott@pvnworks.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**

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

Photographs:

Submit clear and descriptive photographs. The size of each image must be 1600x1200 pixels at 300 ppi (pixels per inch) or larger. Key all photographs to the sketch map.

See continuation sheet.

Plymouth Building
Name of Property

Hennepin County, MN
County and State

Property Owner:

(Complete this item at the request of the SHPO or FPO.)

name Historic Plymouth Building, LLC

street & number 15 South Fifth Street, #900 telephone (612) 359-8991

city or town Minneapolis state MN zip code 55402

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.

DESCRIPTION

Summary Paragraph

The Plymouth Building is a twelve-story, flat-roof commercial and office building. Located in the northwest area of downtown Minneapolis at the intersection of Hennepin Avenue and Sixth Street South, the building occupies the irregularly shaped Lot 11 of Auditor's Subdivision No. 82 of the City of Minneapolis. The block is situated in a commercial district. Notable is its frontage along Hennepin Avenue, which, at the turn of the century, was known as the city's "theater row." Across from the Plymouth Building on Hennepin Avenue are the Hennepin Center for the Arts, constructed as a Masonic temple, and the Cowles Center, originally the Sam S. Shubert Theatre.[1] Most of the historic buildings on the 100 block of South Sixth Street have been replaced with modern high-rise and commercial buildings. Access between the Plymouth Building and adjacent buildings is available through the city's skyway system. A large parking lot is north of the site.[2]

NARRATIVE DESCRIPTION

Exterior

At its first floor, the Plymouth Building has an almost rectangular footprint, except for its 176'-wide west facade, which is angled to follow Hennepin Avenue. The south facade fronts onto Sixth Street and is 234' wide. Both of these primary facades are decorative **(Photograph 1)**.

The exterior appearance of the primary facades and the southeast and northwest corners are a blend of the original construction and periods of remodeling. The height, massing, placement of openings, and general form of the design were established at the time of construction and have been maintained through later alterations. At the time of its construction in 1910, the building's facades had elaborate Beaux Arts ornamentation with a three-part design—a two-story base, nine-story shaft, and a tall, one-story, ornamental crown. The light-grey Vermont granite first floor had rectangular stone and jack-arch window openings, while the second floor and pavilions were faced in terra cotta. The tripartite design was also reflected in a vertical design of the "shaft." The outer bays on both primary facades and all bays at the northwest, southwest, and southeast corners were faced in terra cotta while the central bays were dark red brick in a Flemish bond. Window openings had jack arches and projecting sills. The "crown" was ornamented in terra cotta cartouches, dentils, volutes, and a cornice with an egg-and-dart band and topped with a terra cotta balustrade.

In 1936, the two primary facades were refaced with a modern style known as "Starved Classicism," resulting in the building's current appearance. The dark red brick between the third and eleventh floors was mostly maintained. The window sills were replaced with simple brick sills. The terra cotta detailing at the outer bays was removed and replaced with variegated brown brick set in a common bond with recessed header rows, creating a "quoin" effect. A single run of rowlock bricks created the new window sills. Decorative buff brick set at an angled soldier bond and limestone belt courses were placed

[1] The Shubert Theatre was originally located one block south of its current location but was moved to its new site in February 1999 to avoid demolition. Kevin Diaz, "Theater Inches Toward Its Future," *Minneapolis Star Tribune*, February 19, 1999.
[2] Hennepin Avenue and Sixth Street are not aligned on cardinal points. To simplify the discussion, this description assumes that Sixth Street runs east-west.

between the second and third floors, the eleventh and twelfth floors **(Photograph 9)**, and between the twelfth floor and cornice. Above the cornice was decorated with buff brick dentils, corbels of vertically oriented brown brick below the dentils, and panels of brown brick in an angled soldier bond between the twelfth floor windows. The decorative belt courses and dark brown brick wrap around the northwest corner of the building and cover the western two bays. The original granite cladding at the first floor dating from the time of construction was left in place.

The Hennepin Avenue facade is eight bays wide **(Photograph 7)**, while the Sixth Street facade is ten bays wide **(Photograph 8)**. The building's southwest corner is angled and one bay wide. At the first floor of the primary facades, the openings are historic but have been altered with nonhistoric infill by various occupants. The central storefront on the Sixth Street facade serves as the main entrance to the upper floors of the building and is fitted with three sets of entrance doors. The historic eighteen plate-glass windows at the second floor on both facades are paired; each have two fixed transom windows. Over four hundred wood frame, one-over-one, double-hung sash windows dating from the construction are on the third through twelfth floors of these facades. Most window openings are paired, while some interior bays have narrower windows in sets of three.

The first and mezzanine levels are full floors at the base of the building. Near the northwest corner of the mezzanine level is a historic, steel-frame skylight that is approximately 18' x 18' in size (Photograph 26). The skylight is revealed by the second floor, the west and east sides of which are set back. Above this, between the third and twelfth floors, the building has a C-shaped footprint. Because of C-shaped footprint, the three sections of the floors are referred to as wings by the buildings' occupants. The section fronting on Hennepin Avenue is the "Hennepin Wing," the south section is the "Sixth Street Wing," and the east section is the "Nicollet Wing." These wings create a large light well at the center and rear (north side) of the building. The north four bays of the light well's west wall are angled and follow the line of Hennepin Avenue. The wall straightens for the remaining eight bays and intersects with the light well's south wall. Anchors protrude from the concrete beams of the south wall. According to construction drawings, these were installed for a future building addition at the interior court. The east and west bays of the light well's south wall are curved outward. The light well's east wall is ten bays wide with a large, square brick chimney at its north end.

The east facade of the Nicollet Wing fronts onto an alley. The south four bays are bumped out, creating a one-bay-wide facade that faces north. This bump-out abuts an adjacent commercial building to the east at the Plymouth Building's first through third floors.

The building's north walls, the walls of the light well, and the east walls of the Nicollet Wing are secondary facades **(Photographs 2–5)**. The walls, save for the northwest and southeast corners, are exposed concrete skeleton frame structure with infill walls of yellow Chaska brick. The difference in the materials, however, has been made less visible as these facades have been painted light yellow. Most bays have two window openings but some have one, three, or four windows. Over five hundred historic metal-frame, three-over-three, double-hung windows have been maintained on these facades.

The Plymouth Building's flat roof has a short brick parapet around its perimeter **(Photograph 24)**. Sections of the parapet are covered in modern flashing. A penthouse at the center of the light well's south wall (Sixth Street wing) is above the building's bank of elevators **(Photograph 25)**. A circular

metal vent with a conical top is on its roof and a small historic skylight is to its west side. A second penthouse at the north end of the light well's east wall is not accessible from the roof.

Interior

The Plymouth Building has an interior structure of poured, reinforced-concrete configured in a slab-beam-girder system reinforced with "M/B Bars"[3]—square steel rods that have a twisted design. Most of the floor slab bays are roughly square and designed using two-way reinforcement so that the slab is spanning approximately equally in two directions to the four supporting edge beams. The floor beams and girders are continuously reinforced and integral with the floor slab and the top of the beam is concurrent with the top of the slab, while the beams and girders project below the bottom of the slab. Additional longitudinal reinforcement is located along the entire bottom of the beams and girders. Smooth bent steel stirrups oriented transverse to the longitudinal reinforcement are placed along beams and girders for shear reinforcement. Some of the beams and girders supporting the elevator shafts have additional spiral steel transverse reinforcement. Exterior spandrel beams that support the façade are reinforced similarly to the floor beams and girders. Columns are reinforced longitudinally with smooth steel bars that are spliced with sleeves. Steel spirals provide transverse reinforcement for the columns. The foundation and footings, which extend to limestone located around thirty-five feet below grade, are also constructed from reinforced concrete.

The building has a sub-basement, which includes storage rooms for tenants **(Photograph 10)** and maintenance staff, restrooms, showers, and shops. At its center is a one-and-one-half-story-high boiler room. In 1929, the basement and the northeast section of the first floor were remodeled into a parking garage, which is accessed via the northernmost bay of the Hennepin Avenue facade. A concrete ramp provides access between the two levels **(Photograph 12)**.

The upper floors of the Plymouth Building have mixed commercial and business use, including offices, restaurants, professional and retail spaces, and maintenance, storage, and vacant areas. The first floor of the Hennepin wing is subdivided, having been most recently used as a restaurant space. Two exterior doorways at the building's southwest corner open onto a corridor providing access to the restaurant space and second large commercial space along Sixth Street. The corridor leads to the building's west main stair and ends at the floor's main entrance. The remainder of the floor is occupied by two commercial spaces.

The main entrance at the center of the Sixth Street facade has a storefront with aluminum-framed glass doors and windows at the exterior and stainless steel revolving doors on the interior **(Photograph 14)**. The doors lead to an elevator lobby with most materials dating to a 1957 remodeling **(Photograph 13)**. The floor and small flight of stairs leading to the mezzanine level are terrazzo; the floor is laid in polychromatic geometric shapes. The lobby's walls are faced with two colors of marble wainscoting. West of the stairs is a glass mail chute running between all floors and an aluminum mailbox in the first-floor lobby. Six elevators carry passengers between the sub-basement or first floor and twelfth floor. The doors are decorative brass on the first floor, and painted metal with an inset panel design on the remaining floors. The interior of the elevators have a modern stainless steel and mirror finish.

[3] The M/B steel bar is described in Section 8 under the subheading, "A Feat of Modern Concrete Design."

The elevators bracket the terrazzo stairway, which leads to a stair terminating at the second floor. Its railing barriers, cap, and six-foot-high wainscot are faced with blue-grey marble and it has round, decorative brass railings **(Photograph 15)**.

The mezzanine level is located in primarily the central section and northeast corner of the building. Modern partitions subdivide the level into numerous office spaces and hallways. The hallways lead to the building's rear staircase, located at the northwest corner of the Nicollet Wing. At the northwest corner of the mezzanine, historic materials dating from the building's construction are visible, including crown molding, columns with ornate capitals, and a portion of a leaded glass laylight underneath the large skylight **(Photograph 16)**.

The second-floor lobby area, which roughly aligns with the footprint of the first-floor lobby, has a floor inlaid with modern square marble tiles of various colors set in a geometric pattern. Two large business spaces flank a corridor which connects to a skyway crossing over Sixth Street to the City Center, while a second skyway at the building's northeast corner extends to nearby Building 15.

A set of drawings dating to 1935 show that the public areas of the second through twelfth floors had similar floor plans. All floors had a central corridor in the Hennepin and Sixth Street wings. On each floor, the Sixth Street wing has an elevator lobby at its north wall **(Photograph 18)**. The second floor included a north-south corridor at the center of the floor which is still extant. Some floors also included a central corridor on the Nicollet wing **(Photograph 19)** but historic plans show that in various levels this wing was an open area. The corridors of the third through twelfth floors retain their historic marble flooring, which is composed of 10" x 20" blue-grey marble tile with an inset border of four-inch-wide slate strips. Elevator equipment rooms retain the original marble wainscoting. The fourth floor's corridor has been carpeted.

Many historic features, such as janitor's and elevator closets, and the location of restrooms have been retained. The historic interior doors are solid wood with a red cherry finish and cast-iron doorknobs and hardware and are extant in numerous locations. The historic doors come in a variety of styles. Some have a two thin, inlaid bands running around the perimeter, one with a dark finish, one with a lighter finish. Others have decorative trim creating a full- or two-panel design. Doors may include windows of half- or full- size. Historic glass is frosted with an etched border. Mail slots or a wood bulletin board are at the doors of some units. Some doors have been retrofitted with full-size windows, compartments for fire extinguishers, or have been painted.

Although the floor plans of the second through twelfth floors generally retain the historic layout **(Photograph 21)**, spaces have undergone some alterations over time due to the building's continuous use. Some walls within the office spaces have been removed or relocated. Doors along the corridor have been replaced, removed, or changed.

The building has two main stairs, located at the west **(Photograph 17)** and east **(Photograph 20)** ends of the Sixth Street wing. These enclosed stairs begin at the second floor elevator lobby and extend to the twelfth floor. The stairs have continuous curved concrete balustrades with varnished wood handrails, slate treads, blue-grey marble risers, marble stringers, marble tile landings at the main

floors, and solid slate landings in-between floors. An enclosed service stair at the northwest corner **(Photograph 22)** of the Nicollet wing has a continuous curved concrete balustrade with a rounded top, slate treads, concrete risers, and slate landings.

Adjacent to the service stair is a freight elevator, which runs between the sub-basement and the twelfth floor. Above the twelfth floor is a loft space which is not accessible to the public. Two historic steel-frame skylights roughly 4' x 8' in size on the building's main roof provide light to a crawlspace below the roof. At the top landing of the service stair is a two-story enclosed penthouse housing water tanks for the building's original sprinkler system. The top half of the penthouse projects above the roofline, making it inaccessible from the roof. A large, wood sliding door at the east side of the landing provides access to the building's "thirteenth floor," or loft space **(Photograph 23)**, located on the Nicollet Wing. Composed primarily of a long, narrow room with windows along its east wall, the space is unfinished but is equipped with plumbing and lighting. An opening cut into its south wall opens into the crawlspace above the Sixth Street wing and the penthouse containing elevator equipment.

INTEGRITY

As the Plymouth Building has not been moved, it retains integrity of **location**. The building's reinforced concrete frame has been maintained, and the majority of the original steel- and wood-frame windows on the second through twelfth floors are extant. No significant addition has been constructed on the exterior, and the corridors on the upper floors generally retain their historic dimensions, width, and marble flooring. Thus, the building has integrity of **materials** and **design**. The masonry work on the primary facades from the 1936 recladding as well as the steelwork and concrete of the interior structure give the property integrity of **workmanship**. Because there does not appear to be a significant and "direct link between an important historic event or person"[4] and the Plymouth Building, the property does not have integrity of **association**.

Most buildings adjacent to the Plymouth at the time of its construction have since been demolished and replaced with new development or their sites used as parking. Hennepin Avenue, however, continues to be a busy street through the downtown, while Sixth Avenue still has commercial development. The twelve-story Plymouth Building remains a prominent structure that visually brackets the Masonic Temple across the street. Because it is still a significant building at one of downtown Minneapolis's active intersections and because the local area remains a densely built commercial district, the Plymouth Building retains integrity of **setting** and **feeling**.

The Plymouth Building has six of the seven aspects of integrity—**location**, **materials**, **design**, **workmanship**, **setting**, and **feeling**.

[4] Patrick W. Andrus and Rebecca H. Shrimpton, *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation* (Washington, D.C.: Government Printing Office), 45.

STATEMENT OF SIGNIFICANCE

Summary

The Plymouth Building, completed in 1911, is locally significant under **Criterion C** in the area of **Engineering** as a representation of the development and acceptance of reinforced-concrete skeleton frame construction by the American building industry. The building's period of significance begins at the completion of its construction in 1911 and ends in 1936. The property reflects the statewide historic context "Urban Centers, 1877–1940."

Prior to the erection of the Plymouth Building, most reinforced-concrete construction in Minneapolis followed the tenets of local engineer Claude Allen Porter (C. A. P.) Turner. Many of the city's warehouse and factories dating from the early twentieth century had been erected using Turner's designs or similar designs. His work, however, relied on load-bearing walls at the building's exterior to support the structure laterally. Such walls were not needed in the reinforced-concrete "skeleton" frame, which uses structural members to resist both vertical and lateral loads. The Plymouth Building exemplifies the mature development of this design.[1]

A key feature of the Plymouth Building's concrete skeleton frame construction is a spandrel beam integrated into the exterior edge of the floor slab, which supports the exterior wall and allows for the attachment of a decorative masonry curtain wall system and large window openings. The ability to support a non-load-bearing curtain wall—one distinguishing feature of concrete skeleton frame design—was a system developed by renowned reinforced-concrete engineer Ernest Leslie Ransome. This feature, a capability of the Plymouth Building's structure noted at the time of its construction, allowed its facade to be rebuilt and modernized after a quarter of a century. The building remains substantially intact from this period of time. Thus, the period of significance begins with the completion of construction in 1911 and ends after the exterior was redesigned in 1936.

The property is also significant as an illustration of the contemporary advancements in concrete construction engineering knowledge and building practices, including the use of deformed reinforcing steel, an integrated contractor-engineering delivery model, and deep substructure construction. Employment of these methods was cutting-edge and enabled the construction of a building that to erect just a few years prior, would not have been cost-effective. This makes the Plymouth Building an important milestone in Minneapolis's engineering history.

NARRATIVE STATEMENT OF SIGNIFICANCE

A Pioneer of Reinforced Concrete

In his essay *The First Reinforced-Concrete Skyscraper*, Carl W. Condit traced the modern development of reinforced concrete during the nineteenth century, which he described as a continuous interchange of advancements. Early developments took place in Europe, but in America, a major step forward came in 1871 when William E. Ward designed and constructed his house in Port Chester, New York, which marked the first complete work of reinforced-concrete construction. In Europe, various

[1] Long, Lamoreaux, and Long, Plymouth Building Records (N 115a), Northwest Architectural Archives, Elmer L. Andersen Library, University of Minnesota, Minneapolis. Construction drawings and photographs show that the building utilizes a reinforced-concrete skeleton frame.

parties were involved in the development of the material, yet according to Condit, "with the exception of the Ward house, which remained an isolated phenomenon, the history of reinforced concrete in the United States until the end of the century was chiefly bound up with the work of Ernest L. Ransome of San Francisco."[2]

Born in Ipswich, Suffolk, England, in late 1844, Ransome's family was well-known in that city due to the establishment of the local iron foundry by his paternal grandfather, James Ransome. Ernest's father, Frederick, expanded the foundry's products to include concrete. Frederick went on to make a name for himself by developing a patent stone in which particulates were bound together with a cement of lime. The durable product, which could then be molded or chiseled to any shape, was primarily used for grindstones and building ornamentation. Frederick Ransome also applied for a patent that would lead to the improvement of a rotary kiln, "a contribution that greatly improved the quantity, quality, and uniformity of portland cement."[3]

Ernest immigrated to the United States in 1870, settling with his family in San Francisco where he sold his family's stone product under the name "The Pacific Stone Company." The concrete industry at the time was slow to develop, due to the high import cost of Portland cement. When concrete was incorporated into construction, Ransome later noted, the usage was spare and typically kept to foundations and arches between iron beams. A turning point in his career came when he was called upon to design "self-supporting sidewalks" for a Masonic hall in Stockton, California. The reinforcement had "upset" ends and used washers. Ransome found that this design was double the cost of plain rods and sought a cheaper alternative: "I looked around for means whereby a continuous tie or bond could be developed along the length of the rod, . . . when suddenly the idea of twisting a square or rectangular bar entered my head. I happened to have a rubber band in my pocket, and the spiral thread at once became evident when the rubber band was twisted in my hand." Although he would be granted a patent in 1884 for his twisted, or deformed, bars, the Technical Society of California initially scoffed at his work, telling him he had "injured the iron." Further testing, however, proved the merit of his design. A Professor Hesse even noted that the strength of the bars improved five or more days after the twisting process.[4]

Despite his accomplishments, Ransome's early work in reinforced concrete was on what he called "small and unimportant structures." Then in 1888, Ransome received his first major commission for a "mature form of reinforced-concrete construction" with the Bourn and Wise Wine Cellar in Saint Helena, California, in which one floor of the three-story masonry building was reinforced concrete

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[2] Carl W. Condit, "The First Reinforced-Concrete Skyscraper: The Ingalls Building in Cincinnati and Its Place in Structural History," *Technology and Culture 9* (January 1968): 3–4, 6.

[3] England and Wales birth records, available at Ancestry.com; Ernest L. Ransome, "Chapter 1: Personal Reminiscence," in *Reinforced Concrete Buildings*, Ernest L. Ransome and Alexis Saurbrey (New York: McGraw-Hill Book, 1912), 1–2; Howard Newlon, Jr., ed., *A Selection of Historic American Papers on Concrete, 1876–1926* (Detroit: American Concrete Institute, 1976), 285; Llewellyn Jewitt, *The Ceramic Art of Great Britain: From Prehistoric Times Down to the Present Day* (London: Virtue and Company, 1878), 1:162–165. According to Jewitt, the patent stone company began in Ipswich in 1844 and moved to Greenwich in 1866, filling a four-acre site. The demand for the product was international with patent stone being used as ornament on buildings in France, Holland, Egypt, Turkey, India, and Hong Kong.

[4] Ernest L. Ransome, et al., "Building Construction," United States Patent No. 305226, (Application filed May 1, 1884); Newlon, *A Selection of Historic American Papers on Concrete*, 285; Ernest L. Ransome, "Chapter 1: Personal Reminiscence," 3–5.

supported by iron columns. This was followed by the California Academy of Sciences in 1889. The innovative building's slab and beam design was cast as a monolith. Balconies cantilevered around a central light well contained Ransome's square twisted bars. Pioneering projects continued with the Borax Works at Palo Alto (1889) and its ribbed floor construction, a technique used for years afterwards. Ransome noted that "the columns were also of concrete, probably the first ever erected." Three years later, he designed the Leland Stanford, Jr. Museum in the same city, which was described by architect George W. Percy as "probably the largest and most important building in the world constructed entirely of concrete."[5]

Ransome's work was especially prolific around 1900 as he secured numerous patents, but a major contribution came in 1902, when he patented a new reinforced-concrete construction system. Ransome recalled: "In the years between 1900 and 1902, I developed a radical departure in the exterior construction of reinforced concrete factory buildings, consisting mainly in the exterior of the floor plate or slab over the exterior columns, forming a belt course on the outside of the building. Between the exterior piers upward and downward extensions were added; the former to be added after the next floor had been constructed, and the latter forming an integral portion of the floor proper."[6]

The first recognized applications of the concrete skeleton frame technology were four factory buildings built in different parts of the country in 1903. Ransome's company oversaw the construction of one of these buildings, the addition to the Pacific Coast Borax Factory in Bayonne, New Jersey. Ransome himself had designed the original section of the factory in 1898.[7]

In a history of industrial architecture in the United States, Betsy H. Bradley observed that, through his patent, "Ransome advanced American reinforced concrete construction to the skeletal forms used for decades." Within a few years, hundreds of factory buildings had adopted the concrete curtain-wall construction. The design was popular for industrial buildings where the exposed concrete frame was not an aesthetic problem and large window openings for maximum light were desired. Although the use of concrete skeleton framing for non-industrial buildings, such as offices and hotels, was initially limited, its adoption for such structures seemed inevitable. In his 1904 work, *Architect's and Engineers' Handbook of Re-inforced Concrete Constructions*, civil engineer and contractor L. J. Mensch predicted that this system would come into "universal use for high office buildings, hotels, ware-houses, etc." due to the economy it provided when compared to steel construction. He noted that when the exterior of these towering buildings were curtains walls, they were thinner, typically twelve inches or so in width, thus reducing costs.[8]

Competitors in Technology

Although the predominant methods of reinforcing utilized around the turn of the century followed the methods promoted by Ransome and Joseph Monier, who had patented another design in 1877, they did not hold a monopoly on reinforced-concrete design. The work of other engineers, including Claude

[5] Ibid., 285, 292–294; Condit, "The First Reinforced-Concrete Skyscraper," 6–7.
[6] Donald Friedman, *Historical Building Construction: Design, Materials, and Technology*, 2nd ed. (New York: W. W. Norton Company, 2010), 141.
[7] Ibid., 139, 141.
[8] Betsy H. Bradley, *The Works: The Industrial Architecture of the United States* (New York: Oxford University Press, 1999), 157; Friedman, *Historical Building Construction*, 141; L. J. Mensch, *Architects' and Engineers Hand-book of Re-inforced Concrete Constructions* (Chicago: Cement and Engineering News, 1904), 98, 111–112.

Allen Porter (C. A. P.) Turner, was gaining prominence. In 1904, he designed Building 4 of Minneapolis's Munsingwear Plant, the city's first entirely reinforced-concrete building constructed without the aid of steel beams.[9][10]

In Building 4, Turner experimented with various features that would lead to an innovative method of reinforced-concrete construction. Of particular note was his use of a streamlined column, girder, and slab system that eliminated the need to strengthen the slabs with ribbing. Soon after Building 4's construction, Turner introduced a new type of construction that revolutionized reinforced-concrete building methods. Called the Mushroom Flat-Slab Floor System, which featured a four-way reinforced-concrete flat slab supported directly on flared columns without beams and girders. The characteristic flared column capitals were "a conical spreading out of the cross-sectional area to reduce the concentration of shearing stress around the circular disc where the slab meets the column." It was particularly well-suited to heavy factory loads and buildings that required large open areas for storage and processing. Additionally, the elimination of beams and girders cut construction costs. In 1906, Turner designed Minneapolis's Johnson-Bovey Building, which is credited as the country's first flat-slab concrete building, and engineers quickly adopted his system.[11]

The Plymouth Company's New Building

In 1880, Hazen James (H. J.) Burton ventured into Minneapolis's wholesale clothing business. Two years later, he opened a retail clothing department for men's, women's, and children's apparel, which he named the Plymouth Clothing Company. Advertisements for the company appearing in the *Minneapolis Tribune* declared that the store had "New Styles, Large Sales, Small Profits" and was "The Largest Store, [with] The Largest Stock, [and] The Lowest Prices." Originally located at 129 Washington Avenue North, after eight years, the company moved to Nicollet and Third Street.[12] Ten years later, it relocated to Sixth Street and Nicollet. "Being a pioneer business house, each change in location followed the general trend of the business center," observed the *Minneapolis Tribune* in 1909. By World War I, Plymouth Clothing had become one of Minneapolis's largest retailers. The company was ready for a new, modern facility. Thus, in 1909, it signed a twenty-year lease for a first-floor space

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[9] Builder G. A. Wayss acquired the Germans rights to Monier's patents, which became known as the Monier-Wayss design. After collaboration and experimentation to "determine the capacity and behavior of reinforced concrete under load, the resistance of concrete to fire, and the corrosion resistance of the iron reinforcing," he published *Das System Monier*, which helped transformed Monier's "primitive system into a well-developed scientific technology." Condit, "The First Reinforced-Concrete Skyscraper," 3–5.

[10] Condit, "The First Reinforced-Concrete Skyscraper," 26; Jeffrey A. Hess and Collette Hyman, "Northwestern Knitting Company Factory," January 1983, National Register of Historic Places Registration Form, available at the State Historic Preservation Office, Minnesota Historical Society, Saint Paul, 8-3–8-4.

[11] Amy E. Slaton, Paul E. Gaudette, William G. Hime, and James D. Connolly, "Reinforced Concrete," in *Twentieth-Century Building Materials: History and Conservation* (Washington, DC: National Park Service, 1995), 96; Friedman, *Historical Building Construction*, 144, 225; Hess and Hyman, "Northwestern Knitting Company Factory," 8-4; C. A. P. Turner, "The Mushroom System as Applied to Bridges," *Cement Age* 10 (January, 1910): 7; Henry T. Eddy and C. A. P. Turner, *Concrete-Steel Construction* (Minneapolis: Published by the author, 1919), 21;; C. A. P. Turner, *Concrete Steel Construction* (Minneapolis: Farnham Printing and Stationary Company, 1909).

[12] When the store was in this location, Isaac Atwater stated: "The Plymouth clothing house occupies what is regarded as the most eligible corner in the city. . . . It is probably the largest general outfitting establishment for men and boys in the northwest. The stock comprises not only clothing, furnishings, hats and caps and shoes, but also the largest fur manufactory in this part of the country." Isaac Atwater, *History of the City of Minneapolis* (New York: Munsell and Company, 1893), 2:757, 770.

in what was promoted as "the largest and most elaborate office building in the Northwest." The new building, designed by the renowned Minneapolis architectural firm Long, Lamoreaux, and Long, would be located at the intersection of Hennepin Avenue, the city's "theater row," and South Sixth Street, part of its downtown business district.[13]

A description of the planned structure was provided in a July 1909 edition of the *Tribune*, which noted that the "extremely massive and imposing" building would have a 186-foot-long facade along Hennepin Avenue as well as impressive frontage along Sixth Street. Its highest point was around 160 feet above street level. Its "Gothic type" exterior would have "vertical lines to emphasize the design" that would be ornamented with glazed terra cotta and light granite. Additionally, the "general architectural plan will be ameliorated by an open parapet wall constructed along both fronts with terra cotta fineal [*sic*]."[14]

The ten-story edifice rested on an eighteen-foot-high sub-basement and a fourteen-foot-high basement. The Plymouth Clothing Store would occupy the underground floors and the first floor, minus office spaces fronting on Sixth Street. Along its street frontage, the store would have show windows measuring seventeen feet wide and fifteen feet high. Also planned was a mezzanine floor with a decorative staircase. "With a total floor space of 43,000 feet on the first floor, the new Plymouth will have as large a salesroom as there now is in Minneapolis." A partition-free design would give the retail space an open feeling.[15]

The building's second floor would be fourteen feet high **(Figure 12)**, while the remaining stories would each be twelve feet in height. Each of these upper floors would contain over one-and-one-half acres in floor space subdivided into seventy-five offices, totaling around seven hundred offices in the entire building. These offices would be accessed from a main central entrance on Sixth Street, which would open into a marble rotunda measuring forty feet wide by sixty feet long and decorated with electrically lit chandeliers. "High speed plunger elevators" and a stairway would lead to the upper floors **(Figure 11)**. The *Tribune* article also noted that the fireproof structure would be constructed of reinforced concrete. Completion of construction was estimated for June 1910.[16]

The property on which the new building would be constructed was owned by John E. Andrus, a wealthy New York investor. Andrus, who would also provide the financing, was deemed "the foremost builder of Minneapolis buildings." Showing "his faith in Minneapolis years ago, when he made large investments in downtown real estate," he had undertaken the construction of the Palace Building, the Ruble Building, the Andrus Building, and the Dyckman Hotel. His agents, the Thorpe Brothers, who had overseen the signing of the Plymouth Company's lease, were also heavily invested in the city, as they managed the investment of millions of dollars in local buildings and were "a great factor in creating the

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[13] Horace Bushnell Hudson, ed., *A Half Century of Minneapolis* (Minneapolis: The Hudson Publishing Company, 1908), 452; Atwater, *History of the City of Minneapolis*, 2:757, 770; Plymouth Company display advertisement, *Minneapolis Journal*, September 17, 1922; Plymouth Clothing Company advertisements, *Minneapolis Tribune*, April 14, 1882; "$1,500,000 Office Building Planned," *Minneapolis Tribune*, July 16, 1909; Minnesota Historical Society, "T. B. Walker and Family," http://www.mnhs.org/library/findaids/00093.xml (accessed March 11, 2013).

[14] "$1,500,000 Office Building Planned." This article notes that only one other office building in the country had comparable Gothic detailing as the planned Plymouth, but did not identify the building that was being referenced.

[15] Ibid.

[16] Ibid.

greater Minneapolis."[17]

Work Begins

By September 1909, work commenced on the building site. Test excavation was performed at the rear of the property to determine the depth of solid rock. The estimated depth was forty feet to bedrock. Once the necessary information was collected, bids for the site's excavation would be sought, with commencement of work anticipated by mid-October. By the final week of September, workers were clearing the site of billboards and structures, including six store buildings, four residences, and the Ronner livery stable.[18]

In late October, Long, Lamoreaux, and Long opened the bids for the building's general contractor. Numerous submissions were received, including those from Minneapolis contractors James Leck and C. F. Haglin, Saint Paul's Butler Brothers, as well as contractors from other cities, such as Selden-Breck Construction Company of Saint Louis, Thompson-Storett Company, Hilger and Company, and John M. Ewen Company, all of Chicago, and Ferro-Cane Construction of Cincinnati. It was Andrus's job to review the bids and make the selection. Other contractors bid on specialized work including plumbing, the electrical system, interior finishes, and ornamental ironwork.[19]

The awarding of both the excavation and construction contracts, however, was delayed, apparently because of a change in the building's plans. In late November, the *Tribune* reported that Long, Lamoreaux, and Long had traveled to New York to confer with Andrus and Burton regarding the design of the building. The ten-story structure would now be twelve stories in height. The exterior at the first two stories would have a granite or terra cotta cladding, the central nine floors would be faced in brick, while the top story would have a terra cotta facade, "giving the building a unique appearance." Although the building's height had increased and more ornamentation had been added to the exterior, its price was now estimated between $1.1 and $1.2 million, less than the $1.5 million that had been originally announced. By this time, it had been determined that the construction contract would likely be awarded to the John M. Ewen Company of Chicago.[20]

At the time of the Plymouth Building project, reinforced-concrete construction was increasingly being performed by firms that offered both contracting and engineering services. The expertise offered by in-house engineers familiar with reinforced-concrete construction resulted in increased economy through efficient design, as well as assurance of competency. Organizational changes also formalized guidelines and reporting procedures. In *Reinforced Concrete and the Modernization of American Building*, Amy Slaton describes three methods historically used to erect reinforced-concrete factory buildings. The first required building owners to employ their own forces for all construction work, enlisting an engineer or architect to create plans and subcontractors for specialized work, a method that had largely fallen out of favor by 1910. For the second approach, the owner solicited plans and specifications for a building from an engineering firm, then submitted them to general contractors for

[17] Ibid.; "Financing of Plymouth Done by John Andrus," *Minneapolis Tribune*, July 18, 1909.
[18] "Dig for Solid Rock Base," *Minneapolis Tribune*, September 19, 1909; "Plymouth Building Started," *Minneapolis Tribune*, September 28, 1909; "Financing of Plymouth Done by John Andrus"; Minneapolis Building Permit A10712 (dated October 4, 1909).
[19] "Lowest Bid was $489,000," *Minneapolis Tribune*, October 29, 1909.
[20] "Building Projects Reported Last Week," *Minneapolis Tribune*, November 28, 1909.

bids. The third option, which was showing the greatest increase in popularity at the time, was to hire firms that incorporated both an engineering and construction division to design and construct the building. Ransome advocated for large construction firms that integrated engineering and building, stating: "At the present time, there are reasons for believing that reinforced concrete contracts should be let on the 'cost plus profit bases.' Such contracts protect the owner against pooled bids and against extortionate charges for contingencies or profits. . . . It is believed that such contracts are usually given to contractors having an engineering department in their organization, and who, as a matter of fact are 'contracting engineers' whether so called or not."[21]

The Plymouth Building was engineered and constructed by the John M. Ewen Company of Chicago. The firm, which advertised as "Engineers and Builders," was an example of the third type of integrated delivery model. C. F. Haglin, a local company, which performed construction services and hired engineers like C.A.P. Turner to design buildings, followed the second delivery method described by Slaton. Prior to 1910, concrete construction in Minneapolis was generally done by local contractors without in-house engineering expertise. Although Haglin submitted the lowest bid ($489,000) on the project, the building contract was awarded to Ewen's company.[22]

Excavation for the building **(Figures 1 and 2)**, which began in the fall of 1909, was a complicated process due to the numerous buildings that were on or immediately adjacent to the site. The daily construction report reveals that a "chop suey restaurant" to the east was demolished to make way for the Plymouth Building, while an adjacent brewery and tavern required extensive shoring and underpinning during construction. The excavation work mostly likely used a method patented by John M. Ewen. Ewen, who had developed and patented innovative techniques for simultaneously excavating and constructing subgrade foundations and structures, wrote: "It has heretofore been the practice where the buildings are to be erected, to remove all the earth completing the excavation before building the foundations and retaining walls. . . . Ewen's method . . . contemplates leaving the earth unexcavated until such time as the superstructure is well along, the exact reverse of the present method."[23]

The *Tribune* reported in February 1910 that the excavation was nearing completion, but the work actually continued until the summer of that year. That September, the *Tribune* described how excavation was undertaken on the rear section of the building: "So rapidly was the work done, that the contractors did not wait to remove the entire portion of the earth from the basement before beginning the rearing of the building. Enough earth was removed at first to plant the rafts and moulds for the

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[21] Amy E. Slaton, *Reinforced Concrete and the Modernization of American Building, 1900–1930* (Baltimore: Johns Hopkins University Press, 2001), 139, 151–153; Ransome and Saurbrey, *Reinforced Concrete Buildings*, 203–204.

[22] "Contractors Submit Bids for Plymouth Building," *Minneapolis Morning Tribune*, October, 31, 1909; "Building Projects Reported Last Week"; "Large Manufacturing Plant under Construction," *The Cement Era* 8 (February 1910): 53. In a 1907 newspaper advertisement for his firm, Ewen's services are described as: "Co-operate with Architects and Owners to advantage of both. Erect Buildings for cost plus a fixed sum for services rendered. Have an experience of twenty-five years with office and commercial buildings." "John M. Ewen Company: Engineers and Contractors for Large Buildings," advertisement, *The Omaha Daily Bee*, April 1, 1907.

[23] Plymouth Building Daily Construction Log, in the possession of Historic Plymouth Building, LLC; "The Plymouth Building," *Minneapolis Morning Tribune,* September 4, 1910; John M. Ewen, *Ewen's Method of Sub-construction as Applied to Steel Buildings, Subways Etc.* (Chicago: Published by the author, 1905), 1; "The Upbuilding of Minneapolis," *Minneapolis Tribune*, February 1, 1910.

heavy concreting to support the walls and pillars, and then the toilers began to mount with the concrete. The excavating contractor proceeded as in railroad work, by laying tracks and using dump carts, and while the other workmen were piling up the moulds, the earth was being taken from beneath at the rate of 100 cubic yards a day."[24]

A Feat of Modern Concrete Design

In April 1910, the John M. Ewen Company took out a permit on behalf of Andrus to erect the Plymouth Building which noted that the twelve-story "brick and stone store and office building" would have reinforced-concrete construction. It had addresses on both facades[25] with a floor plate measuring 237 feet by 181 feet. Its twelve stories and attic space would rise 168 feet above street level. Its cost was estimated at $1 million and the date of completion as January 1, 1911.[26]

The construction of the Plymouth Building was well documented in the careful record-taking of the John M. Ewen Company. A detailed contractor's daily log was kept, which listed the daily temperature and weather as well as the work accomplished during the day. Issues and problems, whether with the workers, the materials, the site, or the neighborhood, were all noted. Extensive construction plans, which included various revisions, were also prepared. Most notably, the erection of the building was chronicled through dated photographs **(Figures 1–13)**, showing in great detail how the building was erected.[27]

In May, the *Tribune* highlighted the Plymouth Building in an article entitled "The Romance of Modern and Ancient Concrete," which described it as "an example of modern concrete construction," erroneously adding: "The new mushroom system of concreting invented by C. A. P. Turner, which is used extensively in the building, allows of [*sic*] more latitude in the form of construction combined with the acme of strength. Minneapolis now has more of this system being put in place than any other city in the country. More of the steel reinforcing will be used in the building than in any other in the northwest, to date."[28]

It was Turner's prominence in local engineering circles that led such sources to attribute him with the design of the Plymouth Building. While the structure may have incorporated concrete columns **(Figure 4)**—a building feature that was nearly synonymous in Minneapolis with Turner's designs, the columns lacked the characteristic flared capitals associated with Turner's mushroom system. Additionally, concrete girders ran between these columns, an element that Turner's flat-slab design had eliminated.[29]

In addition, plans for the building note that in the floor slab "all bars except as otherwise noted [are] M/B Cold Twisted Steel Bars" **(Figure 3)**. Thus, the Plymouth Building's reinforced-concrete infrastructure is a "Ransome-style system," incorporating twisted steel reinforcement and a slab-beam-

[24] "The Plymouth Building" (September 4, 1910).
[25] 515–531 Hennepin Avenue and 2–22 South Sixth Street.
[26] Minneapolis Building Permit A10917 (dated April 7, 1910).
[27] All of these materials are in the possession of Historic Plymouth Building, LLC and are housed at the Plymouth Building.
[28] "The Romance of Modern and Ancient Concrete," *Minneapolis Tribune*, May 15, 1910.
[29] "The Green and DeLaittre Wholesale Grocery Company Warehouse Historic Designation Study," April 19, 2010, prepared for the Minneapolis Heritage Preservation Commission; "New Buildings in the United States on the 'Mushroom' Reinforced Concrete System," *Concrete and Constructional Engineering* 11 (November 1907): 410.

girder configuration. In the December 1911 issue of *Cement Age*, an advertisement for the William B. Hough Company of Chicago stated that the world's largest reinforced-concrete building, the Montgomery Ward Building in Chicago, as well as the "the world's largest all-reinforced office building . . . the new Plymouth Building [of] Minneapolis," were both constructed exclusively with Hough's M/B Special Open Hearth Bars. The advertisement provided specific attributes of the product. The bars which were manufactured from a superior steel of "new billet stock." Capable of bending in half without fracturing, they were the "safest and cheapest known reinforcement for concrete." The use of the M/B bar in two of the largest reinforced-concrete office buildings in the country, the company claimed, was "the strongest possible endorsement of this particular reinforcing material." The bars were particularly notable for their fabrication by a cold twisted process, which gave the product an elastic limit of 60,000 pounds per square inch (psi). In contrast, Turner advocated for smooth, round reinforcement, which was almost exclusively used in the documented buildings that he designed and could be found throughout his Twin City commissions.[30]

This use of "deformed," (i.e., bent or twisted) reinforcement followed the approach pioneered by Ransome. Although initially balked at, it had since gained national acceptance. The Hough advertisement noted that the M/B bar alone was already in use in hundreds of buildings. A 1905 advertisement for the Ransome Concrete Company explained that the "basis of this system [was] the combination in such a manner as to give the concrete all the tensional strength of steel, and thereby fully utilize the immense compressive strength inherent in the concrete, . . . increasing the strength of the concrete 100-fold." The "ribs" formed by twisting the metal made a "continuous lock between it and the concrete," thus controlling the steel's ductility.[31] With this design, bars measuring only 1½ inches could be used even in the heaviest factory and warehouse floors. The Ransome advertisement added: "The system of concrete-iron construction is universal in its application, covering the entire field now occupied by stone, brick, and terra-cotta, and is unrivalled for stair, foundations, walls, floors, columns, partitions," and various other uses. In 1917, a publication entitled *The Ransome Book* provided another benefit of this type of reinforcement: "Deformed bars may be best . . . as a safeguard when the concrete has not everywhere been puddled or spaded to place around the bars, as it should be; also, when for any reason the consistency of the concrete is drier than would be best. In some cases mechanically deformed bars are a safeguard against slight variations in the workmanship or placing concrete." Still, it took a number of years to convince engineers of the benefits of this design. The American Concrete Institute did not acknowledge the superior bond strength associated with deformed

[30] William B. Hough company, advertisement, *Cement Age* 13 (December 1911): 29; Friedman, *Historical Building Construction,* 139, 150; Henry T. Eddy and C.A.P. Turner, *Concrete-Steel Construction*, 2nd ed. (N.p.: Minneapolis. 1919), 21. In the textbook he coauthored with Henry Eddy, a professor at the University of Minnesota, Turner argues that steel reinforcement is held in place by concrete due to shrinkage, and provides reasoning for the appropriateness of smooth reinforcement. An example of a building Turner-designed that incorporated smooth reinforcement was the Northwest Knitting Company Building, Minneapolis, described in the article "Reinforced Concrete Warehouse for Northwest Knitting Co., Minneapolis, Minn.," *Engineering News* (June 8, 1905): 593–594.

[31] The conclusion of Ransome's deformed bars was corroborated by Leonard Church Urquhart and Charles Edward O'Rourke in their 1940 book *Design of Concrete Structures*, which stated: "Plain round and square bars are sometimes used, the necessary bond strength being furnished by the steel and concrete. Plain flat bars are not desirable, and the adhesion between them and the concrete is considerably less than for round or square bars. Deformed bars have been devised to furnish a bond between the concrete and steel in addition to the normal surface adhesion. This is accomplished by providing projections or depressions or both on the surface of the bar. . . . On most reinforced concrete work of the present day some form on deformed bar is used." Urquhart and O'Rourke, *Design of Concrete Structures* (New York: McGraw Hill Company, 1940), 42.

bars until 1919.[32]

Another issue facing the use of concrete was Minneapolis's unforgiving climate. Maintaining the temperature of concrete during the curing process is vital to develop the concrete's strength. In a 1910 issue of *Industrial World*, J. H. Chubb, assistant inspecting engineer of the Universal Portland Cement Company, recalled that it was the "general practice a few years ago to bring all concrete work to an abrupt close at the approach of cold weather, and concrete structures that could have been completed and in use long before work was again resumed [were] permitted to remain in their incomplete condition throughout the winter." This kept concrete construction limited to warmer months when temperatures were above freezing, driving up labor demands and construction costs and delaying the national acceptance of concrete for structures. Recently, Chubb continued, new practices had allowed for concrete work to be successfully undertaken in cold months "during which a few years ago contractors were idle, and would have experienced considerable difficulties in obtaining permission to proceed with the work had they cared to do so."[33]

Various techniques could be used, but the most successful was to heat the concrete materials—aggregate, sand, cement, and water. A Portland Cement Association brochure from October 1919 entitled *Concreting in Cold Weather* stated that concrete construction could be undertaken at any time of year as "the requirements leading to the success of concrete work done when the temperatures are low have become . . . generally known." Although some earlier engineering articles promoted the use of salts as an additive to prevent the freezing of water, the brochure warned against the procedure: "Salt does not accomplish the one thing most desirable. It delays instead of hastens the hardening of the concrete. Salt is considered objectionable in reinforced concrete because it may corrode the reinforcing steel." It added that salt would lead to a whitish cast on the concrete known as efflorescence.[34]

The brochure noted the importance of heating both the aggregate and the water, ideally to a temperature of 150 degrees Fahrenheit. Steam was preferred for heating both products. Additionally, the brochure recommended that concrete forms be heated and cleared of snow or ice before the concrete was poured. *The Ransome Book*, published two years earlier, concurred that forms were to be heated, using steam or hot water, before the concrete was poured. The material should be protected after pouring for temperature control, using materials such as canvas, hay, straw, or sheathing. Small stoves or "salamanders" could provide a steady heat source in enclosed structures. The book also notes that the amount of time that the form should be left in place was dependent on the outside temperature. "No specific rule can be laid down for the time which must elapse before forms may safely be removed. This is something which only experience and good judgment can determine."[35]

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[32] Ransome and Saurbrey, *Reinforced Concrete Buildings*, 3–4; William B. Hough company, advertisement, *Cement Age*; H. G. Richey, *A Handbook for Superintendents of Construction, Architects, Builders, and Building Inspectors* (New York: John Wiley and Sons, 1905), 214; American Concrete Institute, *Proposed Standard Building Regulations for the Use of Reinforced Concrete* (n. p.; American Concrete Institute, 1919), 393; Henry Colin Campbell, *The Ransome Book: How to Make and How to Use Concrete* (New York: Ransome Concrete Machinery Company, 1917), 42–43.

[33] "Handling Concrete in Cold Weather," *Industrial World* 48 (November 28, 1910):1438; Slaton, *Reinforced Concrete and the Modernization of the American Building*, 225–226.

[34] *Concreting in Cold Weather* (n. p.: Portland Cement Association, October 1919), 3, 4–7, 10; R. K. Meade, "Prevention of Freezing in Concrete by Calcium Chloride," *Engineering Record* 55 (April 20, 1907): 501–502.

[35] *Concreting in Cold Weather*, 10; Campbell, *The Ransome Book*, 40, 55.

The contractor's daily log for the Plymouth Building noted that concrete heating methods were used during periods of cold weather to keep construction moving forward in a timely fashion. According to the Plymouth Building's construction log, mixing and pouring of the concrete began on February 7, 1910. Heating practices were necessary as temperatures for the following month remained below freezing, with the lowest recorded temperature being 2 degrees Fahrenheit on the sixteenth and seventeenth of that month. The entry for February 10 described the use of "tubes" as well as the bothersome smoke created by the heating instruments: "The smoke caused by the fire in the tubes with which we heat the concrete materials has been leaking out at the edge of the roof, adjoining the chinamen's restaurant and annoying the chinamen."[36]

Moving In While Work Continues Above

By mid May 1910, the sub-basement and basement were completed. "The columns and floors [were] rising as if by magic from the street level," the *Tribune* reported. Contemporary newspapers credited the speed of the project to the numerous workers engaged on the project, and oversight of them was compared to managing a small army. Yet, "so perfect is the organization that not one piece of work interferes with the other. The whole plan is a marvelous exhibition of what perfect engineering and management can accomplish, and all of it answering the complete and perfect act of figures, upon which the whole is based." Taking advantage of the temperate weather, work was rushed forward, with completion of the building planned for September 12.[37]

In June, the *Tribune* published an artist's rendering of the building, providing additional information on its new design. The first floor would be faced in light gray Vermont granite "polished 6 feet from the sidewalk." The second and twelfth floors as well as the southwest, northwest, and southeast corners were gray terra cotta that matched the granite. "A rough tapestry brick, with light colored mortar" would comprise the main sections of the Hennepin Avenue and Sixth Street facades.[38]

In August, a small uproar arose when claims were made that Andrus was attempting to add a thirteenth story to the Plymouth Building, thereby violating the city's building heights regulation. Some felt that "the millionaire congressman was 'putting one over' on the unsuspecting Minneapolis public.' " Andrus's rebuttal was that the extra height of the building was "only the roof" and that the additional space would be used for storage, not for office space.[39]

Although the building was not completed by September as anticipated, a newspaper article published early in that month provided a glimpse into the modern and efficient construction system used to erect the structure. Aggregate and sand were sent to the sub-basement while cement and water was kept on the main floor. Machines mixed the products "in the proper amounts to make adamantine rock," which was then lifted in dump boxes. On each floor, tracks for running "dump cars" were laid and concrete forms were erected. After the concrete piles were hardened, plasterers came in, followed by other crews and laborers.[40]

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[36] Plymouth Building Daily Construction Log, February 10, 1910.
[37] "The Romance of Modern and Ancient Concrete."
[38] "Facade of the New Plymouth Building," *Minneapolis Tribune*, June 5, 1910.
[39] "New Story for Plymouth Is But Loft under Roof," *Minneapolis Tribune*, August 9, 1910.
[40] "The Plymouth Building."

At times, upwards of seven hundred men per day worked to erect the building. "Both day and night . . . the men labored until the outer shell of the largest building in Minneapolis was in place." Continuous teams brought in brick and terra cotta to face the exterior.[41]

"A Small City within the Walls"

In the early autumn of 1910, as the building marched towards its completion **(Figures 5–10)** the *Tribune* noted that locals and visitors marveled at the skyscraper, calling it "something in the nature of a record breaker in structural operations, . . . which other cities cannot compare with." Boasting twelve stories towering over the surrounding structures and two wide facades at the prominent Hennepin Avenue and Sixth Street intersection, "it [was] the conspicuous building figure downtown." The Plymouth Clothing Company, the building's main tenant and namesake, was preparing to move in during September. Men worked at a feverish pace to ensure the deadline would be reached. They completed the company's storeroom on the first and second floors before "an army of wagons moved the mammoth Plymouth stock to the new building." The upper floors, however, were not ready for occupancy **(Figure 8)**. Tenants would move into the building on a gradual basis beginning later that fall. "When the building is finally occupied," wrote the *Tribune*, "there will be a small city within the walls of the new Plymouth building."[42]

The newspaper also noted that the construction of such a modern, sizeable office building in Minneapolis was indicative of the strength of its business trade and real estate market. "It seems only a few years ago that there were dubious faces when the New York Life building was erected on Second avenue south . . . and offices did not fill up very readily because of the 'ouside' [*sic*] location. Since then thousands of offices have been furnished. . . . The Plymouth is the latest and the largest." As the Plymouth Building neared completion **(Figure 13)**, it was already recognized as an architectural asset to the city. "Standing like a giant of modern architecture," the Plymouth along with other new construction, including additions to Dayton's Department Store and the Radisson Hotel, had "changed the skyline of Minneapolis" into that of a modern metropolis.[43]

In March 1911, it was reported that only 39 percent of the building's interior was incomplete, while the remainder of the building was rented and occupied. A compendium of building tenants published later that year reflected Minneapolis's growing professional class. Occupants included insurance and real estate agents, lumber dealers, architects, and lawyers **(Figure 14)**. The Plymouth Fur Company and the Plymouth Clothing House held the retail space at floor level. The notoriety and prominence of the building made its office space desirable. An advertisement called the building "the most central and conspicuous in the Twin Cities" as well as the "largest," "bested lighted," and "bested ventilated." It continued: "For any first-class business the cumulative advantages of an office in this great building are easily apparent. Its advertising value alone is worth the cost of the rent." A pamphlet stated that each day "3,220 streetcars pass . . . [this] largest office building in the Twin Cities" **(Figure 15).** A person renting space would enjoy its "wide corridors of Italian marble," **(Figure 18)** offices of "Honduras

[41] Ibid.
[42] Ibid.
[43] "The Plymouth Building," *Minneapolis Tribune*, September 4, 1910; "Building Operations Promise Big for 1911," *Minneapolis Tribune*, January 1, 1911.

mahogany," and elevator service throughout the day.[44]

The Plymouth Building, "metropolitan office headquarters of the Northwest of leading business firms, corporations, and individuals," put the construction bug into Andrus. Before even completing the Plymouth, Burton contemplated the construction of a medical professionals building by the Plymouth Building, between Sixth and Seventh Streets on Hennepin Avenue. The plan for the new building had arisen when "some 200 physicians and dentists expressed an interest in the offices of the new Plymouth building, which was designed especially for corporations and other commercial business offices."[45]

"Just Husked Like Corn"

Even while the Plymouth Building was under construction, the men involved in its creation had an eye towards its future growth. The building was designed to support a future expansion, and in 1927, the *Tribune* carried a story about a planned addition of a twenty-five-story tower. The architectural firm of Long and Thorshov designed the tower, which was to be built at the building's light well. Describing the development of the design, the *Tribune* explained: "The completed sketch conforms with the set-back of skyscrapers now being built in New York and other large cities. Plans for this building were ordered as a result of the passage of the new building ordinance increasing the height limit of Minneapolis buildings. . . . In accordance with the new building regulations, officials of the city planning commission have decided that the proposed structure would comply with the new rules." John Andrus, who apparently had advocated for the new ordinance, was "anxious for the removal of the building height restrictions so that he could feel free to enlarge his buildings here at some future time." The plans, which would have made the Plymouth the tallest building in the city, were never executed. That title would go to the Foshay Tower upon its completion in 1929.[46]

The Plymouth Building saw other changes in the late 1920s. In April 1929, the Plymouth Clothing House announced that it was going to vacate its namesake building upon the expiration of its lease. The company claimed that it needed more space and would be returning again to Nicollet Avenue. Shortly thereafter, the Thorpe Bros. Company, acting as agent for the building, announced that the vacated Plymouth space would be converted into fourteen shops along the Hennepin and Sixth Street facades. Additionally, the basement's 35,000 square feet and the north central section of the first floor would become a public garage. Its entrance would be on Hennepin and a concrete ramp would provide access between the garage's two floors. **(Figure 16)**. The company expected to complete the $75,000 project in July 1929. Work began in May when Thorpe Bros. took out a permit to remodel the Hennepin Avenue facade, to build the public garage on the two floors, and to make other interior alterations. Larsen and McLaren were the architects while Pike and Cook served as general contractors. The extensive interior changes required Minneapolis City Council permission, which was received on May

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[44] "Minneapolis—Tenants Crowd Offices Before Building is Done," *Minneapolis Tribune*, March 3, 1911; Plymouth Building display advertisement, *Minneapolis Tribune*, November 22, 1911; Plymouth Building display advertisement, *Minneapolis Tribune*, December 12, 1911.

[45] "Plymouth Building" booklet, undated, Minneapolis Collection, Hennepin County Central Library, Minneapolis. The pamphlet includes a "typical" floor plan from the third floor. "Upper Hennepin to See New $250,000 Block," *Minneapolis Tribune*, January 22, 1911; "$700,000 Block Proposed for the Stewart Corner," *Minneapolis Tribune*, February 21, 1911. This medical building was planned but never constructed.

[46] "Skyscraper of 25 Stories Planned Here," *Minneapolis Tribune*, April 3, 1927.

10.[47]

Although the loss of Plymouth Clothing and the installation of a garage were significant changes, an even more substantial change came when the building reached twenty-five years of age. This transformation would not only alter its appearance, but prove the capabilities of its concrete frame design.

At the time of the building's construction, a *Tribune* article titled "The Romance of Modern and Ancient Concrete" described a unique feature of the Plymouth's structure: "The frame of the building is built separate and distinct from the outside shell. The frame therefore will be good for centuries and could not be demolished except at fabulous expense. The outside, however, can be redressed time and again; just husked like corn every century or two, and a new exterior added." In 1936, this boast was put to the test when plans were made to redesign the exterior. That year, the *Minneapolis Journal* corroborated the statement about the building's capabilities: "Because it incorporated many design and structural features in buildings of more recent construction, the modernizing of the building necessitates fewer changes than might otherwise be necessary." In July, Thorpe Bros. received a permit to reface the Plymouth Building in stone and brick. Larson and McLaren were architects of the $100,000 project.[48]

The redesign was said to be "the largest alteration project ever attempted in the city." The work undertaken on the twelve-story building was extensive. The elaborate detailing on the primary facades **(Figure 14)** would be scrapped in favor of a modern, streamlined appearance. The stone at the outer bays and second floor was to be replaced with a dark brown brick and the second-floor's cornice converted into a stylized belt course. Most notably, the building's two stories of ornamentation at its roofline, including two decorative terra cotta cornices, shields, dentils, and a parapet wall, would be removed. In their place, simplified belt courses and stylized brick corbels would be installed **(Figure 17)**.[49]

By redesigning the exterior, the Plymouth Building's facade had been transformed from Beaux Arts, an ebullient, Classical-based architectural style, to a modern, austere form known as "Starved Classicism." The latter style was utilized widely in the 1930s in the design of public and institutional buildings and was born of two motivations—the increased size of government and population and the emergence of the modern or "International" Style. With such principles as "ornament is crime" and "less is more," the popularity of the style "alienated the Beaux-Arts-trained architects who [had] dominated the profession in America" during the early decades of the twentieth century. By comparison, the new buildings were streamlined with clean, modern designs, as the-up-and-coming architects adopted new technologies in materials and construction techniques. Thus, the Beaux Arts Classicism that dictated the design of both public and large buildings, including the Plymouth, at the turn of the century was replaced with its streamlined descendent, and the Plymouth Building followed

[47] "Shops to Go in Plymouth Building," *Minneapolis Star*, April 4, 1929; Minneapolis Building Permit A194415 (May 13, 1929); Minneapolis City Council Proceedings, July 1928–July 1929, page 1258.
[48] "The Romance of Modern and Ancient Concrete"; "To Modernize Loop Building," *Minneapolis Times*, June 4, 1936; Minneapolis Building Permit 22470 (dated July 8, 1936); "Plan Refacing of Plymouth Building Soon," *Minneapolis Journal*, June 4, 1936
[49] "To Modernize Loop Building."

suit.[50]

During the following decades, the exterior of the Plymouth remained relatively untouched while the interior of the building was altered to cater to the needs of the individual tenants. In 1957, the first-floor office lobby on Sixth Street was remodeled at a cost of $45,000 by Hanover Bank of New York **(Figures 19, 20, and 21)**. The bank's first-floor space was simultaneously remodeled. The work included facing the lobby's walls in marble and installing terrazzo floors with a geometric pattern. The entrance doors were also redesigned with a new five-door entrance and a free-standing lettered sign.[51]

Outside of the lobby, the majority of the alterations to the building were restricted to office interiors. Tenants, however, did alter the locations of doorways as they expanded and occupied adjacent office spaces. Other work took place within the commercial space and mechanical rooms. The orientation and dimensions of the corridors and other public spaces remained intact.[52]

[50] Lois A. Craig, *The Federal Presence: Architecture, Politics, and National Design* (Cambridge, Mass.: MIT Press, 1978), 282.
[51] Minneapolis Building Permit 32937 (dated September 9, 1957).
[52] Minneapolis Building Permits 35178 (dated March 26, 1963), 35630 (September 3, 1964), 35811 (dated April 18, 1965), 36071 (dated December 9, 1965), 36421 (dated September 2, 1966), 36731 (dated May 26, 1967), and 39243 (dated November 4, 1971).

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Figure 1. Excavation of the site taking place during January 1910. View to east. (Photograph from Plymouth Building owner)

Figure 2. Addition excavation has taken place. The flat slab floors of the building are visible (left) as well as the extensive formwork used in pouring the concrete frame structure, March 22, 1910. (Photograph from Plymouth Building owner)

Figure 3. An exposed section of the flat-slab floor prior to pouring concrete with the reinforcement exposed shows the use of M/B, or deformed steel, bars in the building's structural design, April 1, 1910. (Photograph from Plymouth Building owner)

Figure 4. Construction photograph of the building, showing the concrete skeleton frame structure, including the round columns, flat-slab floors, and intersecting concrete girders, June 1, 1910. (Photograph from Plymouth Building owner)

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Figure 10. View of exterior of Plymouth Building showing north facades and light well. The terra cotta parapet along the west facade (upper right) is clearly visible, and a decorative pennant on a flag pole waves over it. The skylights at the mezzanine level and second floor (center) are also visible. View to south, October 25, 1910. (Photograph from Plymouth Building owner)

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Figure 14. Early 1910s photograph showing the building completed and in use. Awnings have been placed over most of the windows and many tenants have painted signage on their windows. View to northeast. (Hibbard photograph, Minneapolis Collection, Hennepin County Central Library, Minneapolis)

Figure 15. Advertisement for the Plymouth Building, which depicts the building surrounded by automobiles, people, and streetcars, and calls the intersection of Hennepin and Sixth the "Travel Centre of this City." (*The Commercial West*, January 1, 1916, page 5)

Figure 16. The Plymouth Building, c. 1929–1935. Many of the awnings have been removed. A neon, arrow-shaped sign (left) indicates the entrance to the garage. View to northeast. (Minneapolis Collection, Hennepin County Central Library, Minneapolis)

Figure 17. The Plymouth Building is shown after the redesign and reconstruction of its exterior curtain walls. View to northeast, 1936. (Northwest Architectural Archives, Elmer L. Andersen Library, University of Minnesota, Minneapolis)

Figure 18. The third-floor corridor of the Sixth Street wing. View to southeast, c. 1930s. (Photograph from Plymouth Building owner)

Figure 19. People exit and walk in front of the Sixth Street office entrance of the Plymouth Building. View to north, c. 1930s. (Photograph from Plymouth Building owner)

Figure 20. The Sixth Street office entrance after a remodeling. This most likely took place with the changes made to the lobby in 1957. View to north. (Photograph from Plymouth Building owner)

Figure 21. The office lobby after the 1957 remodeling. View to east. (Photograph from Plymouth Building owner)

Figure 1.

Figure 2.

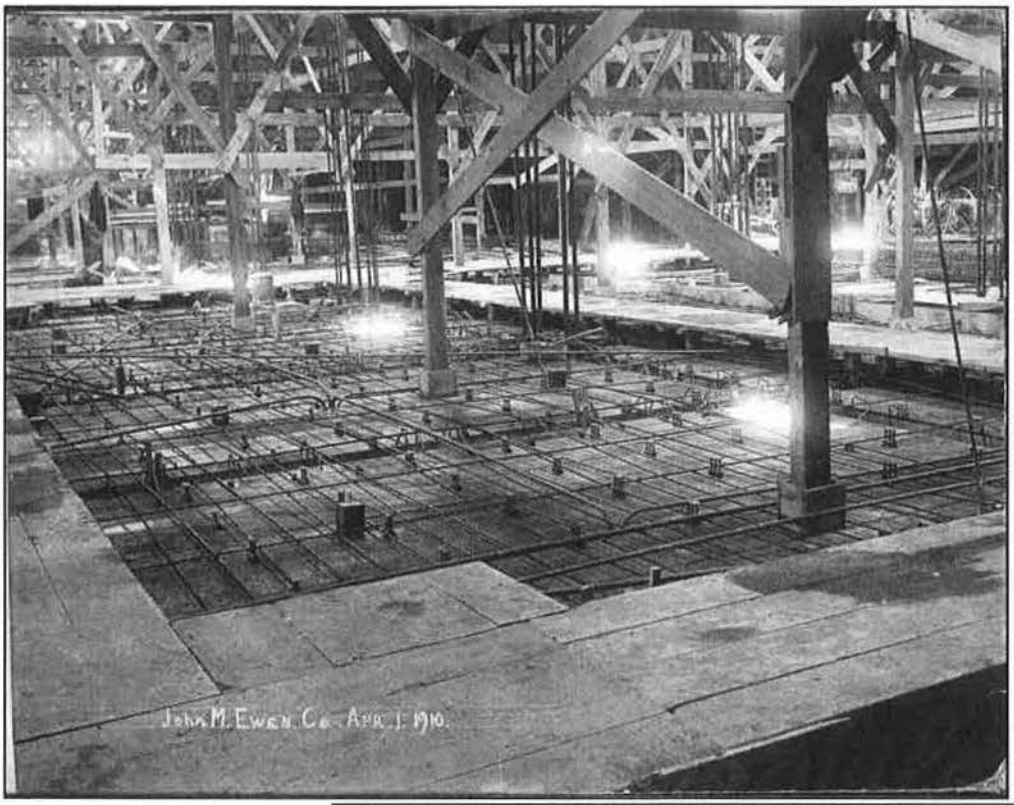

Figure 3.

Figure 4.

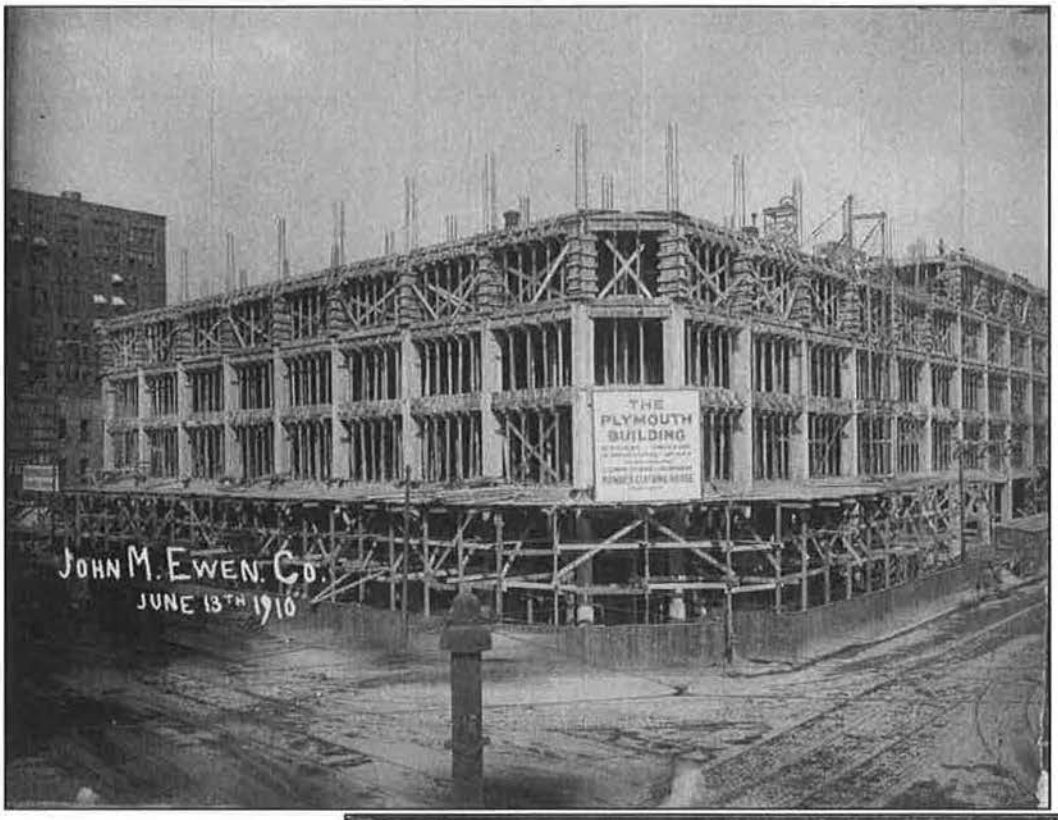

Figure 5.

Figure 6.


THE PLYMOUTH BUILDING
JOHN M. EWEN CO.
ENGINEERS & BUILDERS
AUG 10 1910

Figure 7.

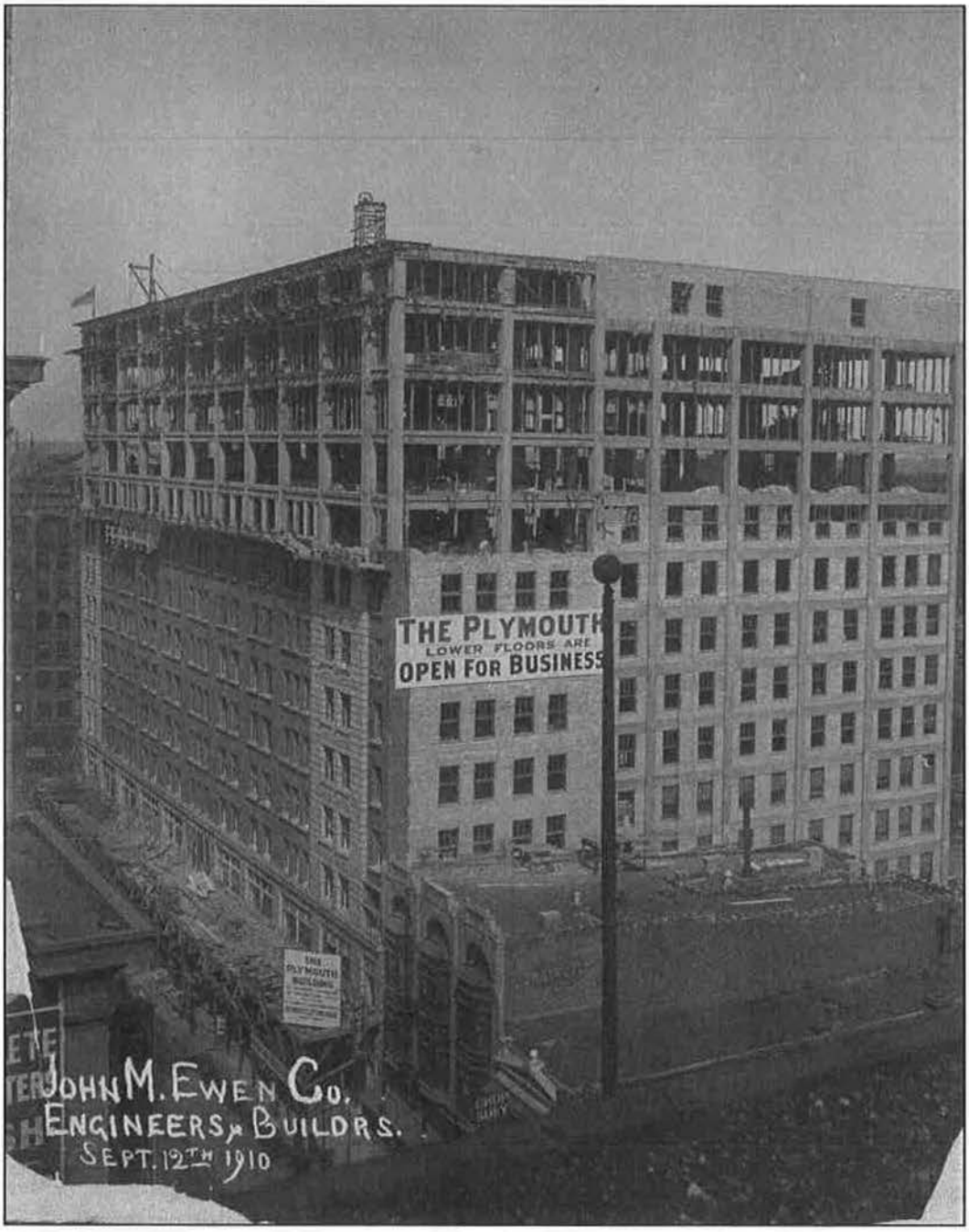
THE PLYMOUTH
LOWER FLOORS ARE
OPEN FOR BUSINESS
JOHN M. EWEN CO.
ENGINEERS & BUILDERS.
SEPT. 12TH 1910

Figure 8.

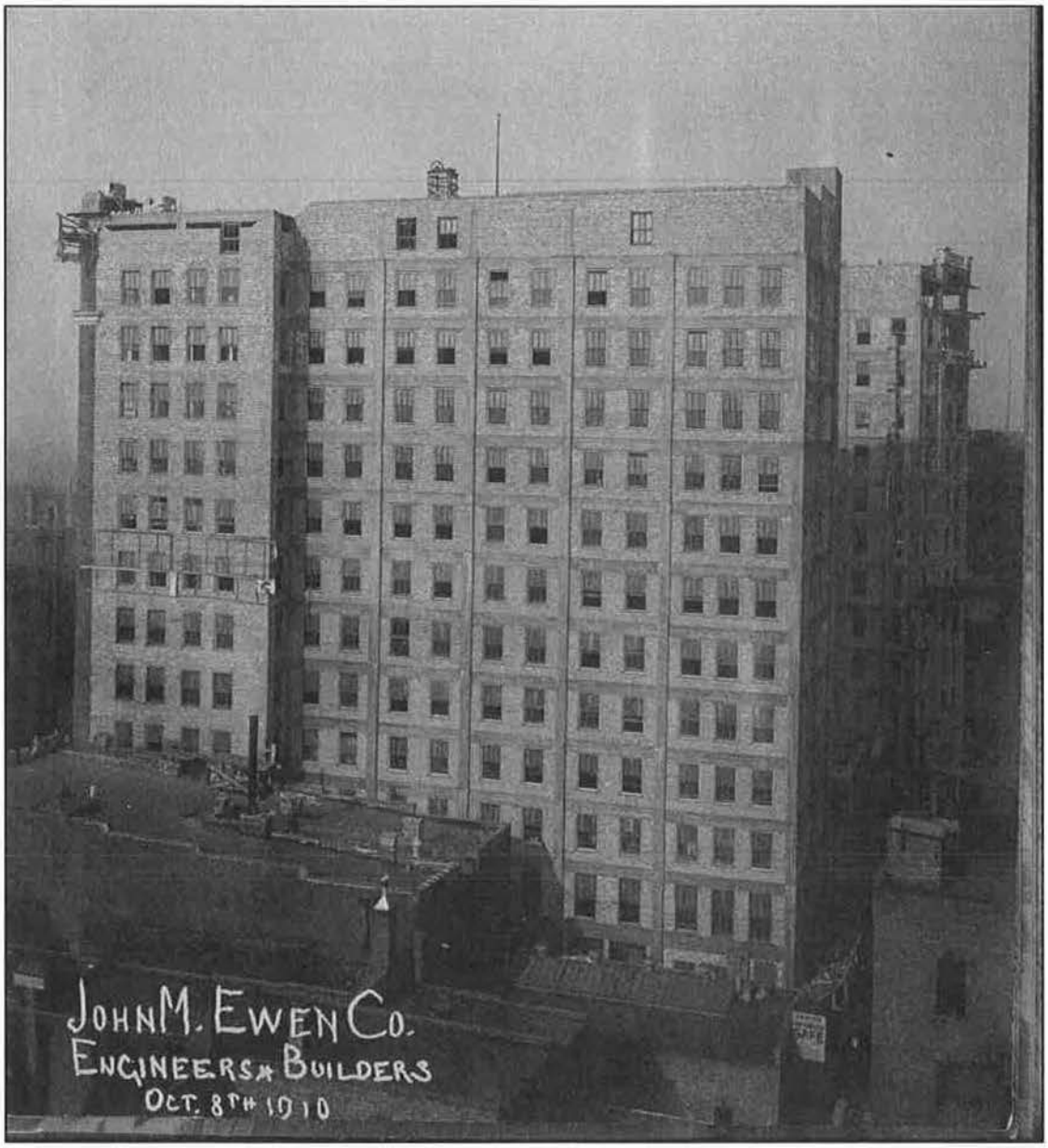

Figure 9.

Figure 10.

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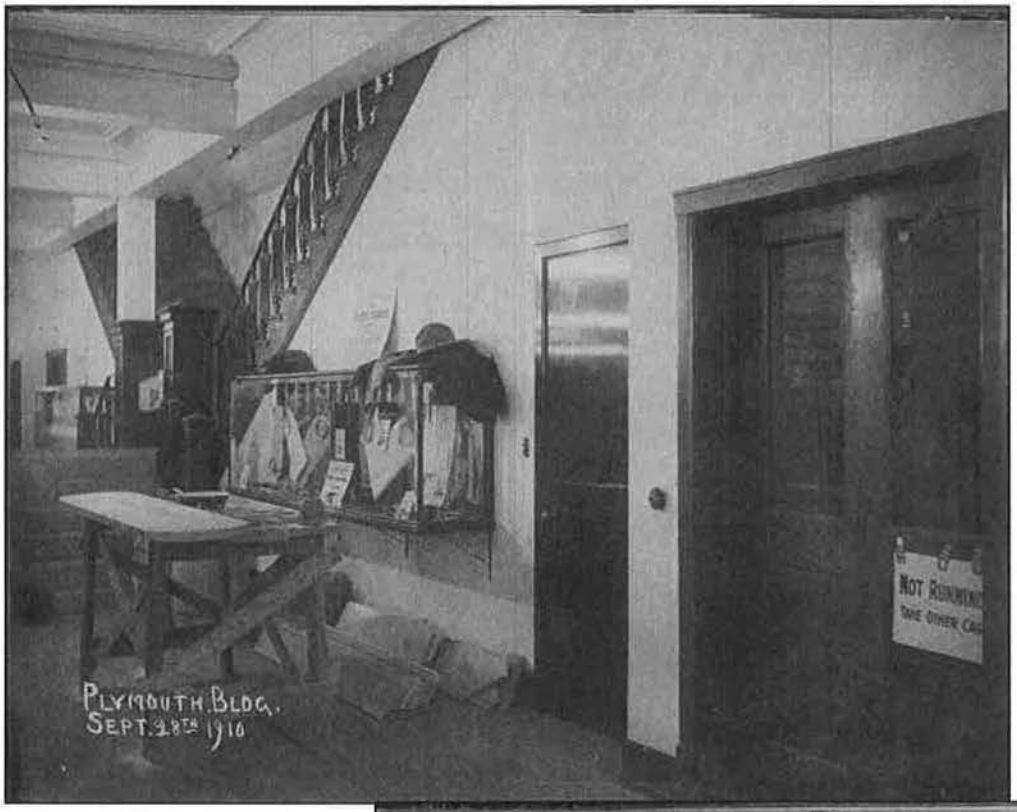

Figure 11.

Figure 12.

Figure 13.

Figure 14.

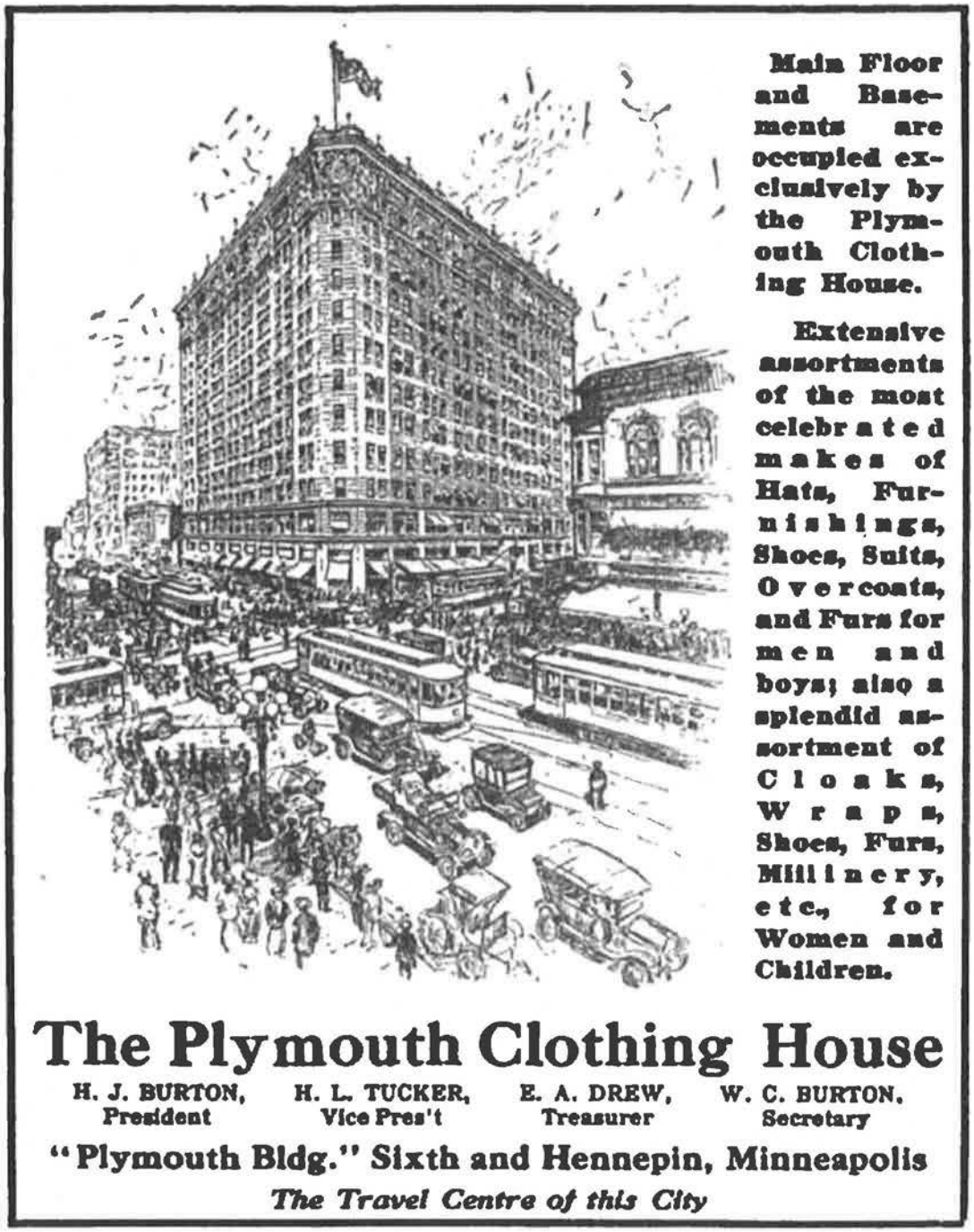
Main Floor and Basements are occupied exclusively by the Plymouth Clothing House.
Extensive assortments of the most celebrated makes of Hats, Furnishings, Shoes, Suits, Overcoats, and Furs for men and boys; also a splendid assortment of Cloaks, Wraps, Shoes, Furs, Millinery, etc., for Women and Children.
The Plymouth Clothing House
H. J. BURTON, President
H. L. TUCKER, Vice Pres't
E. A. DREW, Treasurer
W. C. BURTON, Secretary
"Plymouth Bldg." Sixth and Hennepin, Minneapolis
The Travel Centre of this City

Figure 15.

Figure 16.

Figure 17.

Figure 18.

Figure 19.

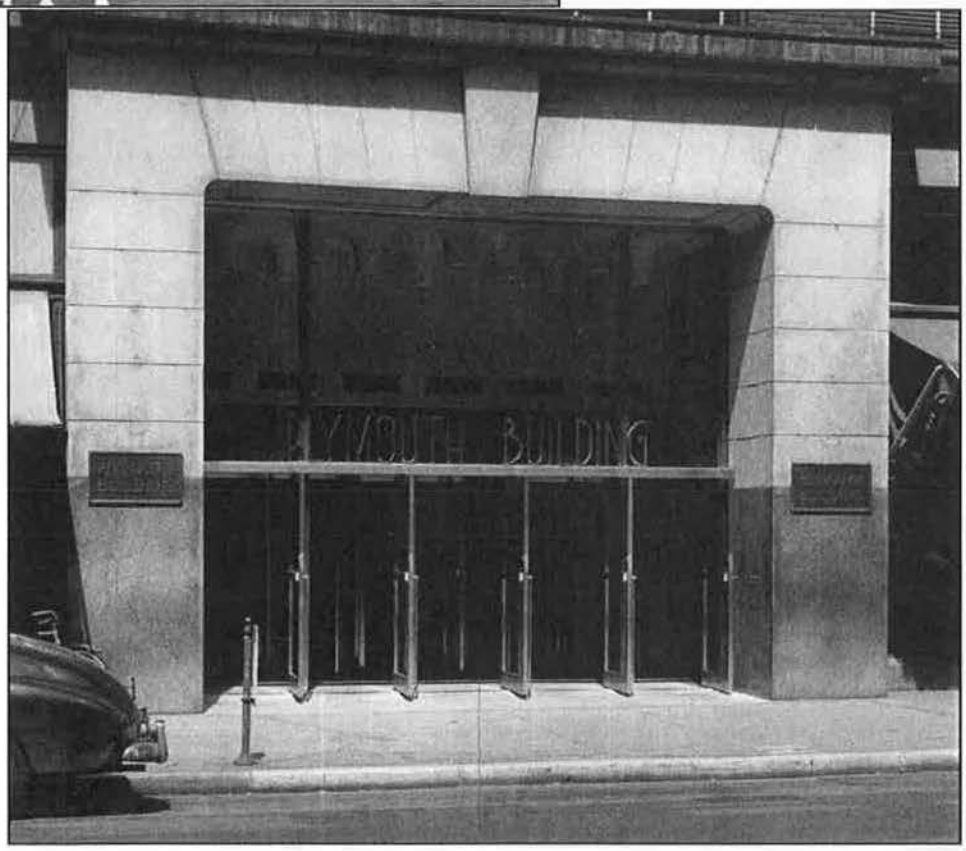

Figure 20.

Figure 21.

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Photographs:

Submit clear and descriptive photographs. The size of each image must be 1600x1200 pixels at 300 ppi (pixels per inch) or larger. Key all photographs to the sketch map.

Name of Property: Plymouth Building
City or Vicinity: Minneapolis
County: Hennepin County
State: Minnesota
Name of Photographer: Stephanie K. Atwood
Date of Photograph: May 2013

MN_HennepinCounty_PlymouthBuilding_0001
View to northeast from intersection of Hennepin Avenue and Sixth Street South showing (l-r) west and south facades.

Name of Property: Plymouth Building
City or Vicinity: Minneapolis
County: Hennepin County
State: Minnesota
Name of Photographer: Stephanie K. Atwood
Date of Photograph: May 2013

MN_HennepinCounty_PlymouthBuilding_0002
View to southeast from intersection of Hennepin Avenue and Fifth Street North showing (l-r) rear facade, central light well, and west facade.

Name of Property: Plymouth Building
City or Vicinity: Minneapolis
County: Hennepin County
State: Minnesota
Name of Photographer: Stephanie K. Atwood
Date of Photograph: May 2013

MN_HennepinCounty_PlymouthBuilding_0003
View to southwest from Fifth Street South showing (l-r) rear facades, central light well, and mezzanine level (below).

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Name of Property: Plymouth Building
City or Vicinity: Minneapolis
County: Hennepin County
State: Minnesota
Name of Photographer: Stephanie K. Atwood
Date of Photograph: May 2013

MN_HennepinCounty_PlymouthBuilding_0004
View to west from roof showing west wall of central light well.

Name of Property: Plymouth Building
City or Vicinity: Minneapolis
County: Hennepin County
State: Minnesota
Name of Photographer: Ryan Salmon
Date of Photograph: June 2012

MN_HennepinCounty_PlymouthBuilding_0005
View to southwest of (l-r) east and rear facades.

Name of Property: Plymouth Building
City or Vicinity: Minneapolis
County: Hennepin County
State: Minnesota
Name of Photographer: Stephanie K. Atwood
Date of Photograph: May 2013

MN_HennepinCounty_PlymouthBuilding_0006
View to northwest of (l-r) south and east facades.

Name of Property: Plymouth Building
City or Vicinity: Minneapolis
County: Hennepin County
State: Minnesota
Name of Photographer: Ryan Salmon
Date of Photograph: June 2012

MN_HennepinCounty_PlymouthBuilding_0007
View to northeast of first and second floors of west facade along Hennepin Avenue.

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Name of Property: Plymouth Building
City or Vicinity: Minneapolis
County: Hennepin County
State: Minnesota
Name of Photographer: Ryan Salmon
Date of Photograph: June 2012

MN_HennepinCounty_PlymouthBuilding_0008
View to north of first and second floors of south facade along Sixth Street South.

Name of Property: Plymouth Building
City or Vicinity: Minneapolis
County: Hennepin County
State: Minnesota
Name of Photographer: Ryan Salmon
Date of Photograph: June 2012

MN_HennepinCounty_PlymouthBuilding_0009
Detail of decorative brick work at eleventh and twelfth floors. View to east.

Name of Property: Plymouth Building
City or Vicinity: Minneapolis
County: Hennepin County
State: Minnesota
Name of Photographer: Stephanie K. Atwood
Date of Photograph: May 2013

MN_HennepinCounty_PlymouthBuilding_0010
View to west of tenant storage space on sub-basement level. Walls are constructed of concrete block stamped with "PLYMOUTH."

Name of Property: Plymouth Building
City or Vicinity: Minneapolis
County: Hennepin County
State: Minnesota
Name of Photographer: Ryan Salmon
Date of Photograph: June 2012

MN_HennepinCounty_PlymouthBuilding_0011
Detail of wall on sub-basement level constructed of concrete blocks stamped with "PLYMOUTH."

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Name of Property: Plymouth Building
City or Vicinity: Minneapolis
County: Hennepin County
State: Minnesota
Name of Photographer: Stephanie K. Atwood
Date of Photograph: May 2013

MN_HennepinCounty_PlymouthBuilding_0012
View to west of basement showing concrete columns and beams. Concrete parking ramp installed in 1927 is extant (rear).

Name of Property: Plymouth Building
City or Vicinity: Minneapolis
County: Hennepin County
State: Minnesota
Name of Photographer: Stephanie K. Atwood
Date of Photograph: May 2013

MN_HennepinCounty_PlymouthBuilding_0013
View to northeast of first-floor entrance lobby showing bank of elevators (left) and stair to second floor (center). Walls have marble wainscot and floor is terrazzo with a geometric design.

Name of Property: Plymouth Building
City or Vicinity: Minneapolis
County: Hennepin County
State: Minnesota
Name of Photographer: Stephanie K. Atwood
Date of Photograph: May 2013

MN_HennepinCounty_PlymouthBuilding_0014
View to southeast of first-floor entrance lobby with stainless-steel revolving doors (right) and recessed ceiling (above).

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Name of Property: Plymouth Building
City or Vicinity: Minneapolis
County: Hennepin County
State: Minnesota
Name of Photographer: Stephanie K. Atwood
Date of Photograph: May 2013

MN_HennepinCounty_PlymouthBuilding_0015
View to northwest of main stair between first and second floor with decorative marble wainscot and solid marble balustrade with brass handrails.

Name of Property: Plymouth Building
City or Vicinity: Minneapolis
County: Hennepin County
State: Minnesota
Name of Photographer: Stephanie K. Atwood
Date of Photograph: May 2013

MN_HennepinCounty_PlymouthBuilding_0016
View to northwest of historic materials on mezzanine level. Ceiling retains decorative trim and laylight with leaded glass.

Name of Property: Plymouth Building
City or Vicinity: Minneapolis
County: Hennepin County
State: Minnesota
Name of Photographer: Stephanie K. Atwood
Date of Photograph: May 2013

MN_HennepinCounty_PlymouthBuilding_0017
View to northwest of west stair showing marble risers, slate treads, and curved concrete balustrade with wood handrail.

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Name of Property: Plymouth Building
City or Vicinity: Minneapolis
County: Hennepin County
State: Minnesota
Name of Photographer: Stephanie K. Atwood
Date of Photograph: May 2013

MN_HennepinCounty_PlymouthBuilding_0018
View to northeast of sixth-floor elevator lobby. Metal and glass mail chute is at center. Floor has marble tiles and tall marble baseboard.

Name of Property: Plymouth Building
City or Vicinity: Minneapolis
County: Hennepin County
State: Minnesota
Name of Photographer: Stephanie K. Atwood
Date of Photograph: May 2013

MN_HennepinCounty_PlymouthBuilding_0019
View to south of tenth-floor corridor in Nicollet Wing showing historic placement of doorways, original wood doors, and marble floor tiles and baseboard.

Name of Property: Plymouth Building
City or Vicinity: Minneapolis
County: Hennepin County
State: Minnesota
Name of Photographer: Stephanie K. Atwood
Date of Photograph: May 2013

MN_HennepinCounty_PlymouthBuilding_0020
View to southwest of east stair showing marble risers, slate treads, and curved concrete balustrade with wood handrail.

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Plymouth Building
Name of Property **Hennepin County, Minnesota**
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Name of Property: Plymouth Building
City or Vicinity: Minneapolis
County: Hennepin County
State: Minnesota
Name of Photographer: Stephanie K. Atwood
Date of Photograph: May 2013

MN_HennepinCounty_PlymouthBuilding_0021
View to southwest of eleventh-floor office space. Historic wood office door with decorative inlay and half-height frosted glass (right) and narrow closet door with full-height inlay are extant. Acoustic tiles removed from dropped ceiling reveal original plaster walls, plaster ceiling, and dropped crown molding.

Name of Property: Plymouth Building
City or Vicinity: Minneapolis
County: Hennepin County
State: Minnesota
Name of Photographer: Stephanie K. Atwood
Date of Photograph: May 2013

MN_HennepinCounty_PlymouthBuilding_0022
View to west of service stair showing concrete risers, slate treads, and curved concrete baluster.

Name of Property: Plymouth Building
City or Vicinity: Minneapolis
County: Hennepin County
State: Minnesota
Name of Photographer: Stephanie K. Atwood
Date of Photograph: May 2013

MN_HennepinCounty_PlymouthBuilding_0023
View to north of thirteenth-floor loft space in Nicollet Wing.

Name of Property: Plymouth Building
City or Vicinity: Minneapolis
County: Hennepin County
State: Minnesota
Name of Photographer: Ryan Salmon
Date of Photograph: June 2012

MN_HennepinCounty_PlymouthBuilding_0024
General view of roof of Plymouth Building. View to northwest from City Center on south side of South Sixth Street.

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Name of Property: Plymouth Building
City or Vicinity: Minneapolis
County: Hennepin County
State: Minnesota
Name of Photographer: Stephanie K. Atwood
Date of Photograph: May 2013

MN_HennepinCounty_PlymouthBuilding_0025
View to northwest from southeast corner of roof showing (l-r) flagpole, historic metal and glass skylight, elevator penthouse, central light well, and exterior wall of water tank penthouse.

Name of Property: Plymouth Building
City or Vicinity: Minneapolis
County: Hennepin County
State: Minnesota
Name of Photographer: Ryan Salmon
Date of Photograph: May 2013

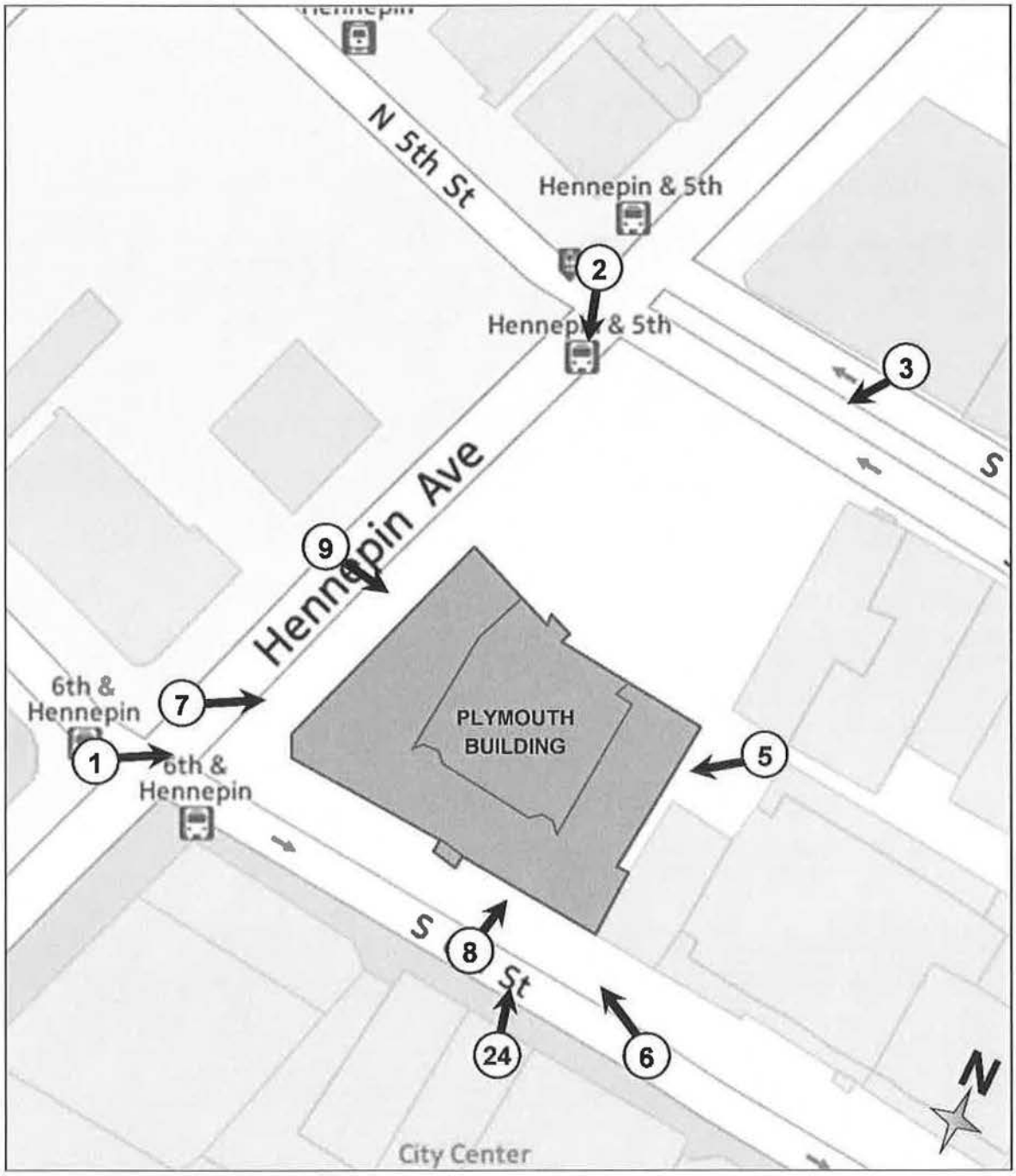
MN_HennepinCounty_PlymouthBuilding_0026
View to northwest from roof of historic metal and glass skylight at mezzanine level.

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Plymouth Building
Name of Property
Hennepin County, Minnesota
County and State
N/A
Name of multiple listing (if applicable)

Photo Key Sketch Map Page 1



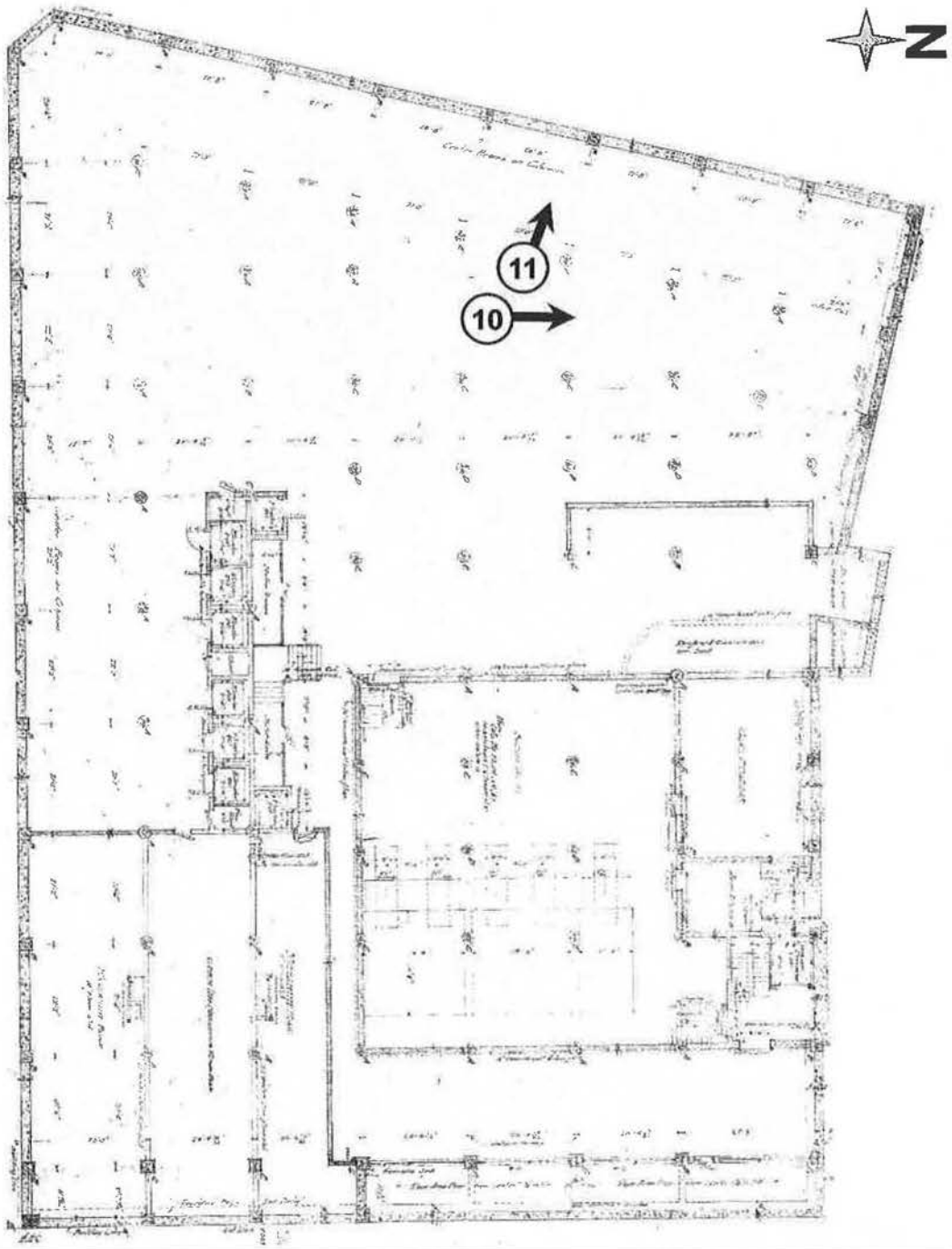
PLYMOUTH BUILDING (Exterior)
Minneapolis
Hennepin County
Minnesota
Photographers: Stephanie K. Atwood and Ryan Salmon
June 2012–May 2013

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

Plymouth Building
Name of Property **Hennepin County, Minnesota**
County and State **N/A**
Name of multiple listing (if applicable)

Photo Key Sketch Map Page 2



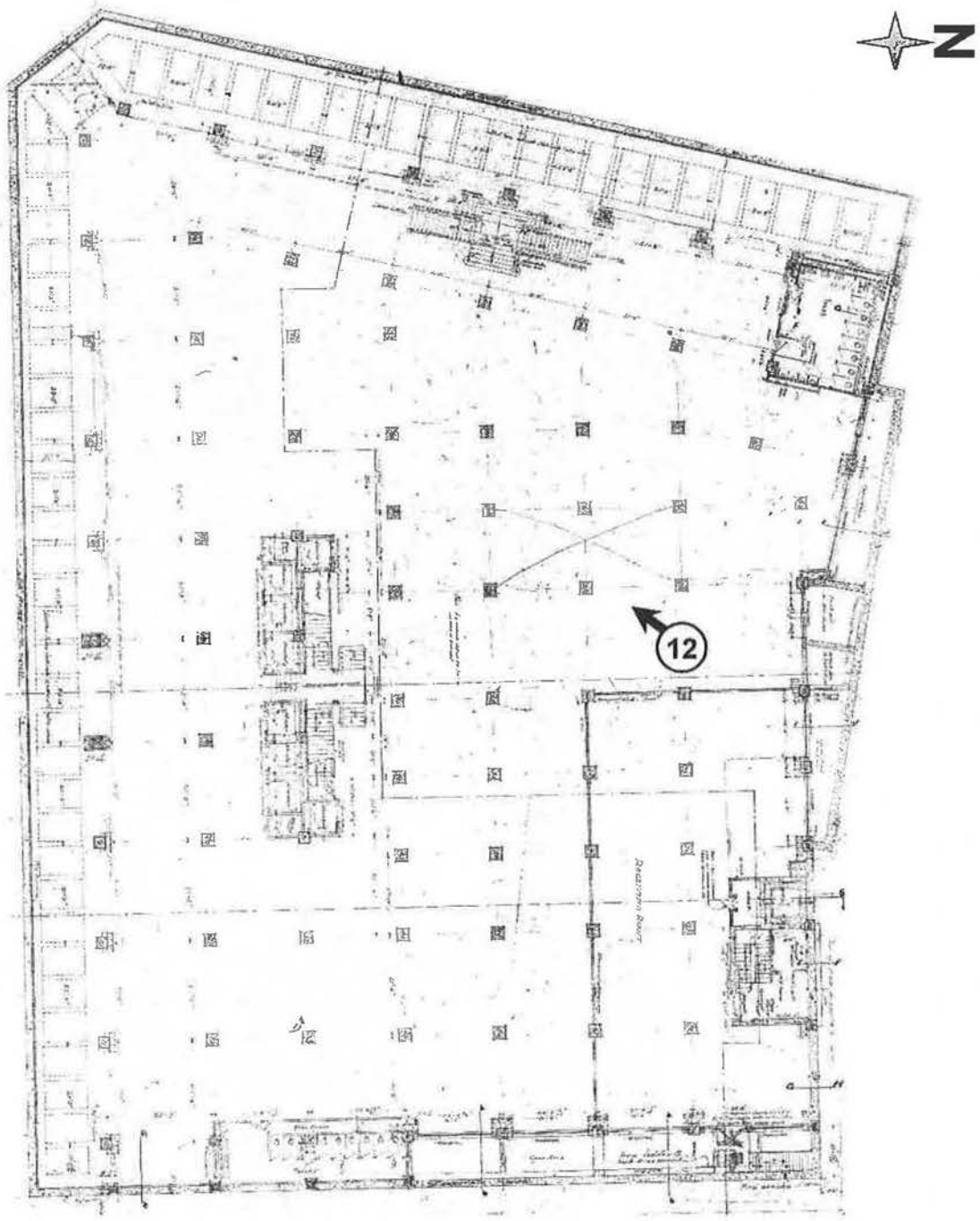
PLYMOUTH BUILDING (Sub-Basement)
Minneapolis
Hennepin County
Minnesota
Photographers: Stephanie K. Atwood and Ryan Salmon
June 2012–May 2013

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

Plymouth Building
Name of Property
Hennepin County, Minnesota
County and State
N/A
Name of multiple listing (if applicable)

Photo Key Sketch Map Page 3



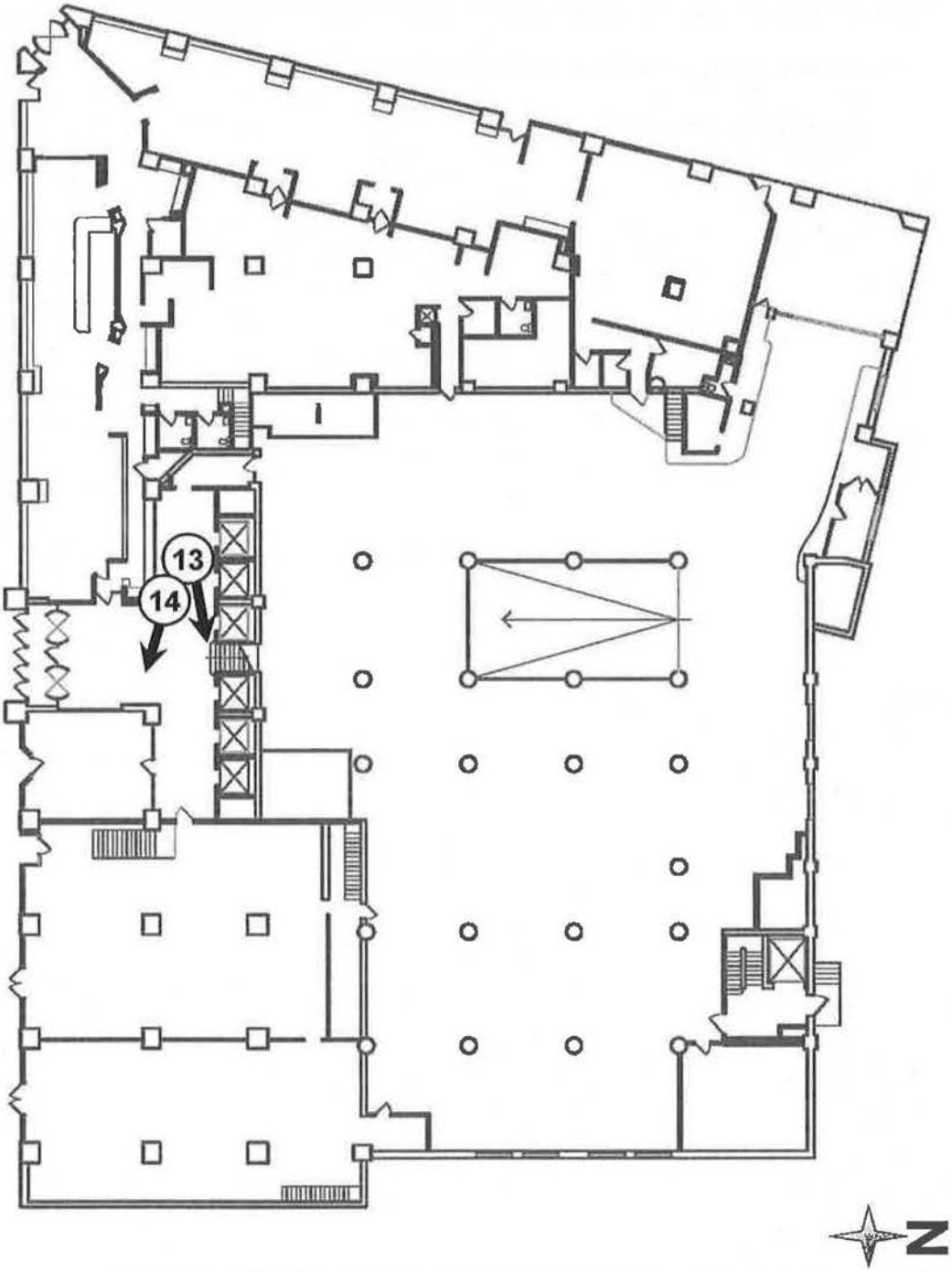
PLYMOUTH BUILDING (Basement)
Minneapolis
Hennepin County
Minnesota
Photographers: Stephanie K. Atwood and Ryan Salmon
June 2012–May 2013

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Plymouth Building
Name of Property
Hennepin County, Minnesota
County and State
N/A
Name of multiple listing (if applicable)

Photo Key Sketch Map Page 4



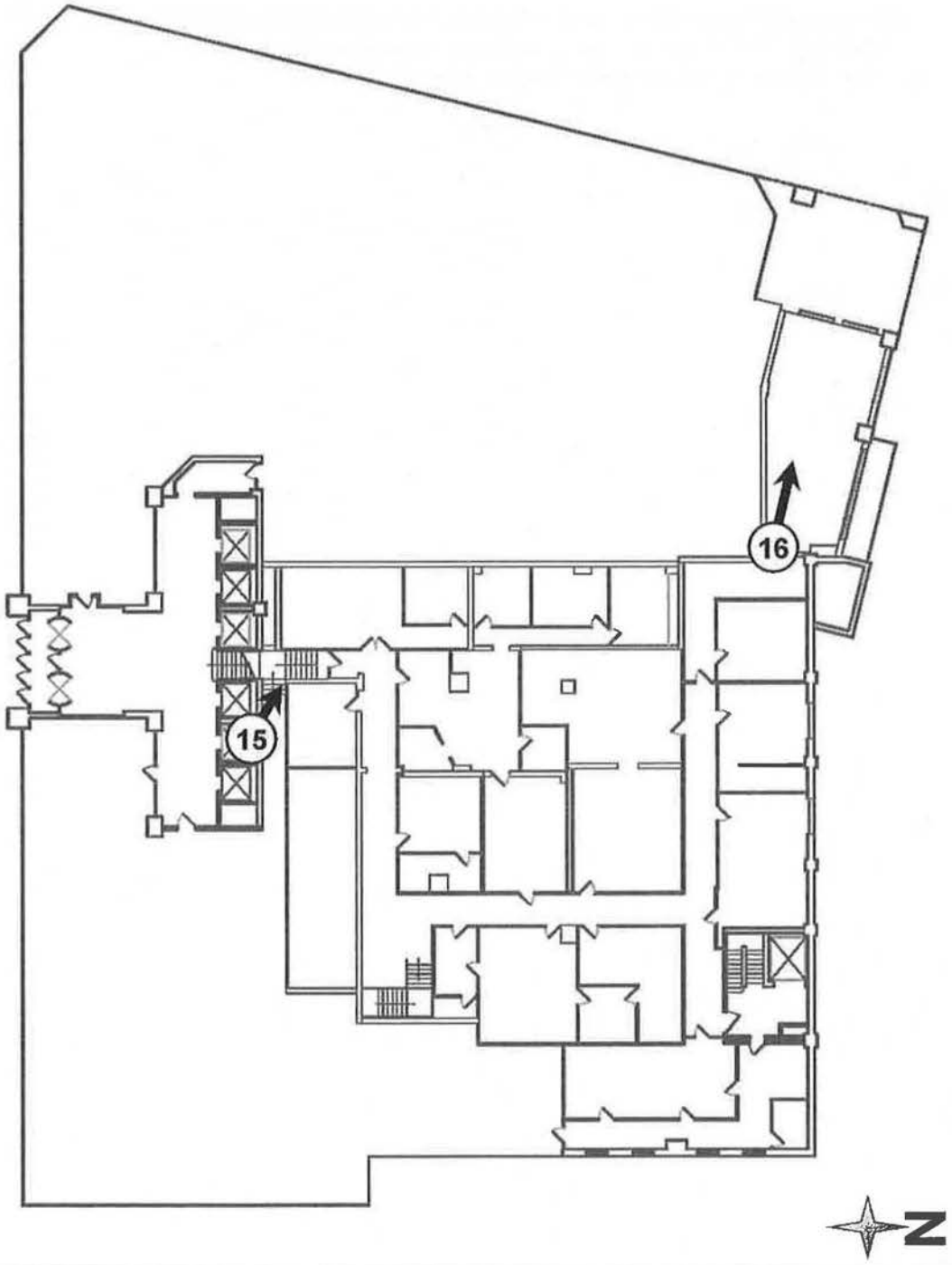
PLYMOUTH BUILDING (First Floor)
Minneapolis
Hennepin County
Minnesota
Photographers: Stephanie K. Atwood and Ryan Salmon
June 2012–May 2013

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Plymouth Building
Name of Property
Hennepin County, Minnesota
County and State
N/A
Name of multiple listing (if applicable)

Photo Key Sketch Map Page 5



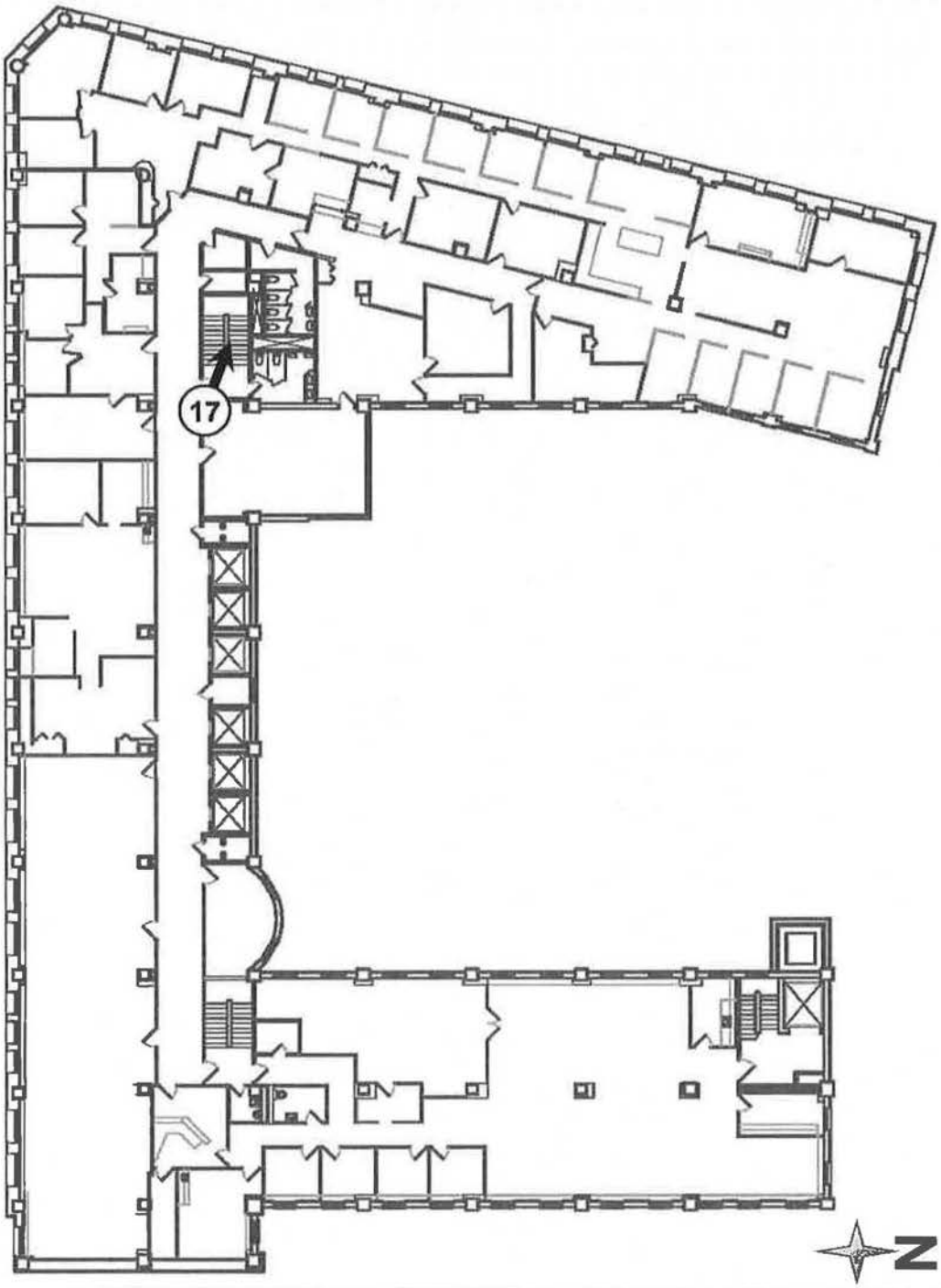
PLYMOUTH BUILDING (Mezzanine)
Minneapolis
Hennepin County
Minnesota
Photographers: Stephanie K. Atwood and Ryan Salmon
June 2012–May 2013

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

Plymouth Building
Name of Property
Hennepin County, Minnesota
County and State
N/A
Name of multiple listing (if applicable)

Photo Key Sketch Map Page 6



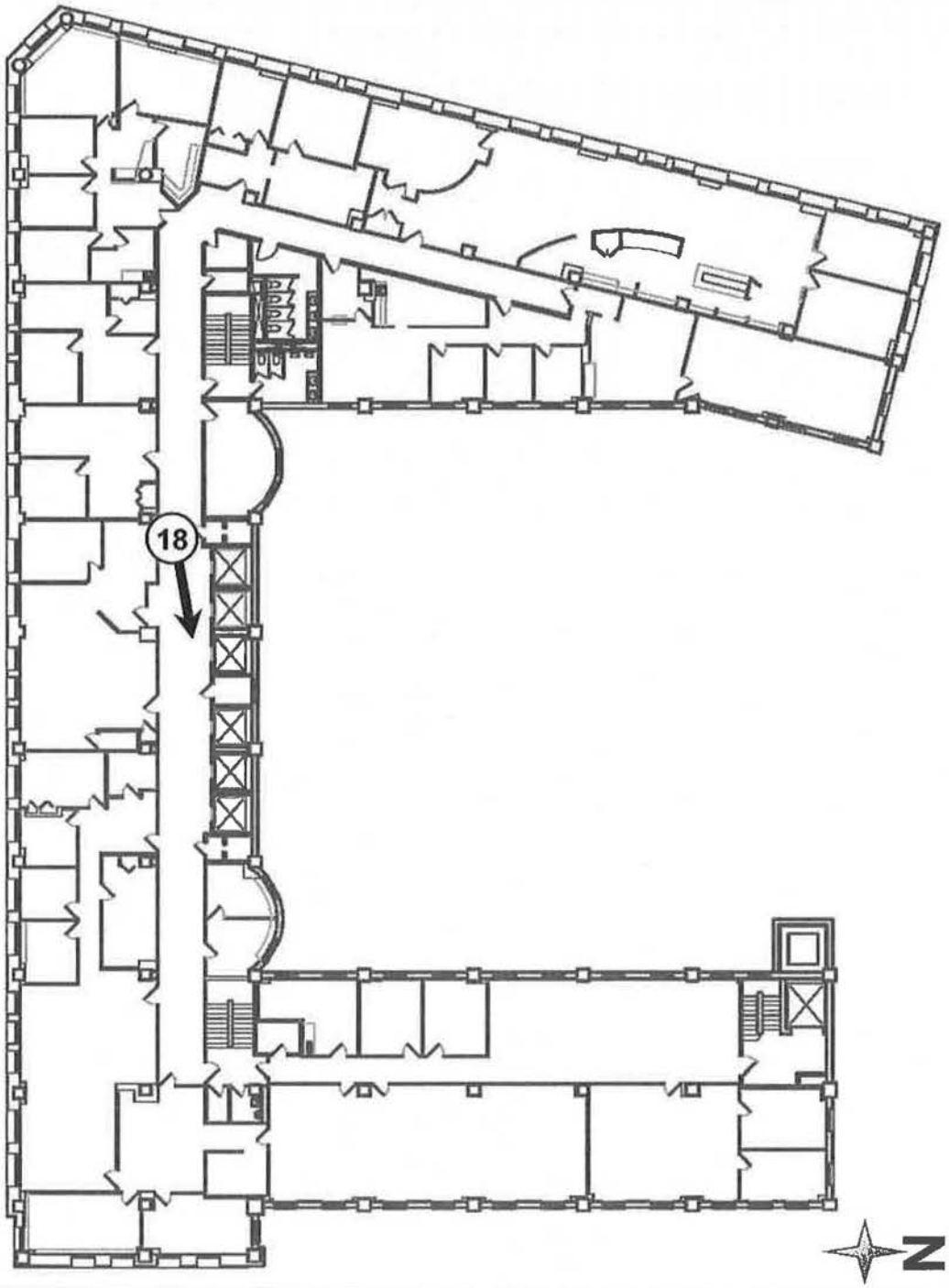
PLYMOUTH BUILDING (Third Floor)
Minneapolis
Hennepin County
Minnesota
Photographers: Stephanie K. Atwood and Ryan Salmon
June 2012–May 2013

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Plymouth Building
Name of Property
Hennepin County, Minnesota
County and State
N/A
Name of multiple listing (if applicable)

Photo Key Sketch Map Page 7



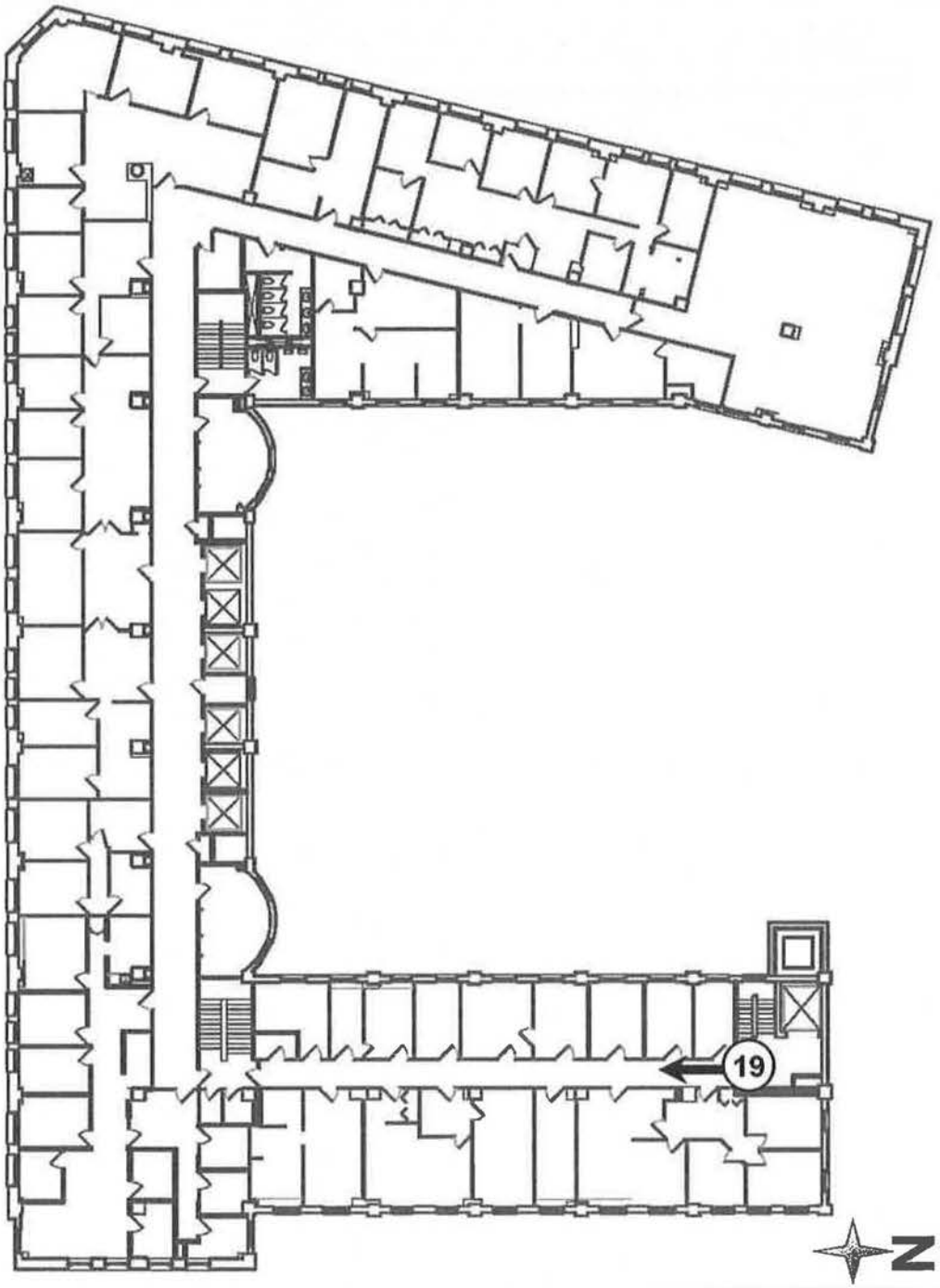
PLYMOUTH BUILDING (Sixth Floor)
Minneapolis
Hennepin County
Minnesota
Photographers: Stephanie K. Atwood and Ryan Salmon
June 2012–May 2013

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Plymouth Building
Name of Property
Hennepin County, Minnesota
County and State
N/A
Name of multiple listing (if applicable)

Photo Key Sketch Map Page 8



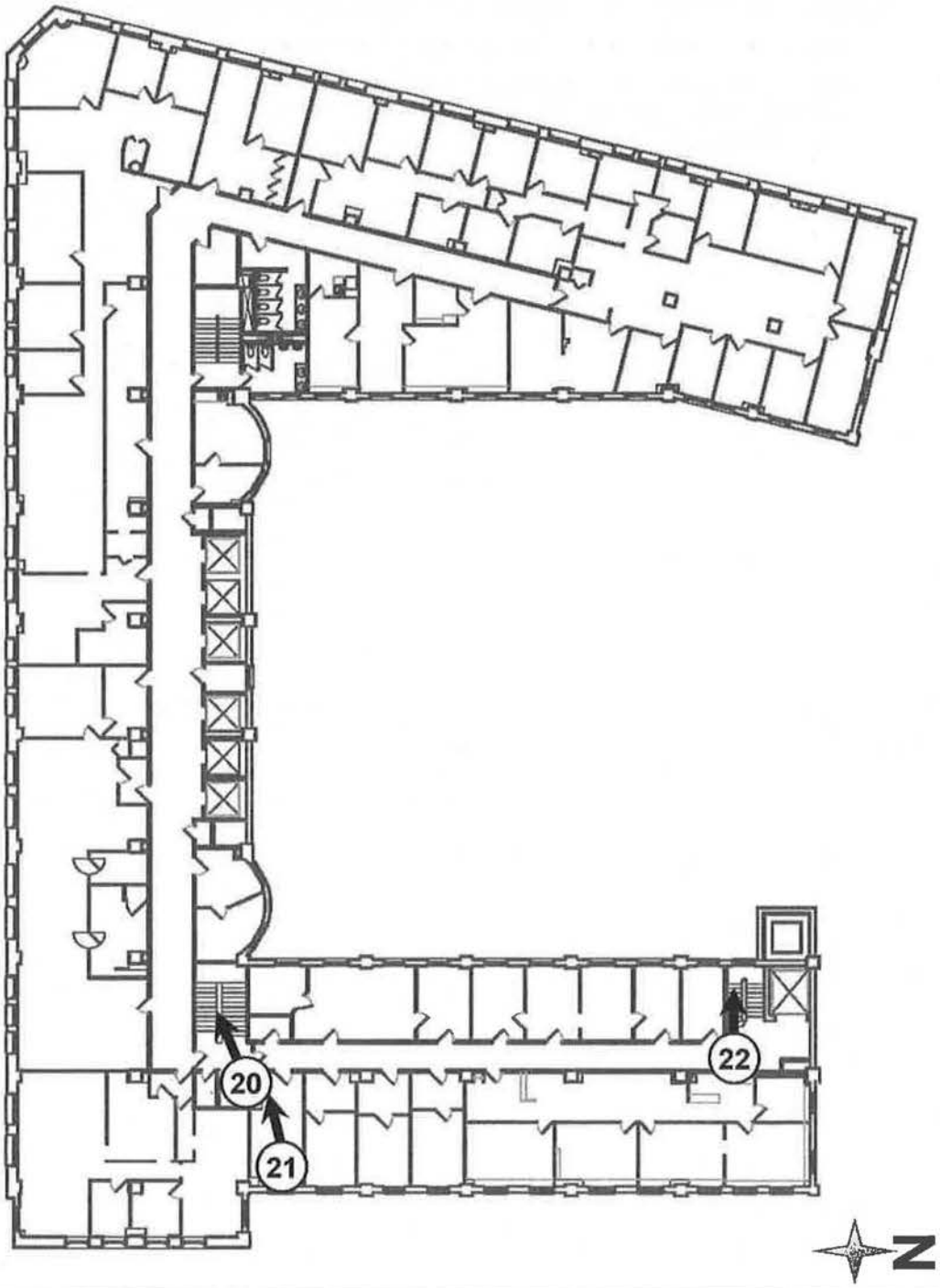
PLYMOUTH BUILDING (Tenth Floor)
Minneapolis
Hennepin County
Minnesota
Photographers: Stephanie K. Atwood and Ryan Salmon
June 2012–May 2013

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

Plymouth Building
Name of Property
Hennepin County, Minnesota
County and State
N/A
Name of multiple listing (if applicable)

Photo Key Sketch Map Page 9



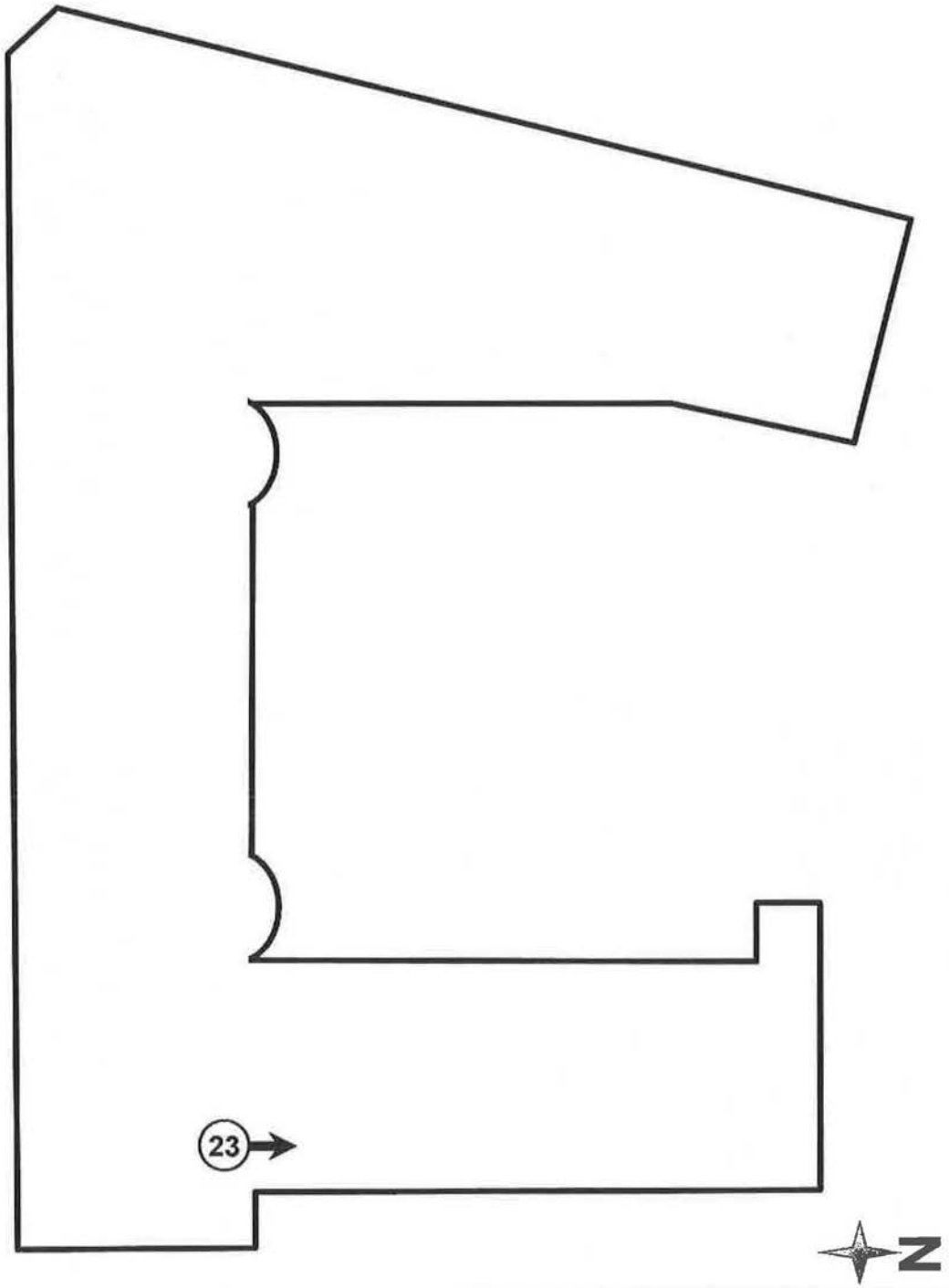
PLYMOUTH BUILDING (Eleventh Floor)
Minneapolis
Hennepin County
Minnesota
Photographers: Stephanie K. Atwood and Ryan Salmon
June 2012–May 2013

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

Plymouth Building
Name of Property
Hennepin County, Minnesota
County and State
N/A
Name of multiple listing (if applicable)

Photo Key Sketch Map Page 10



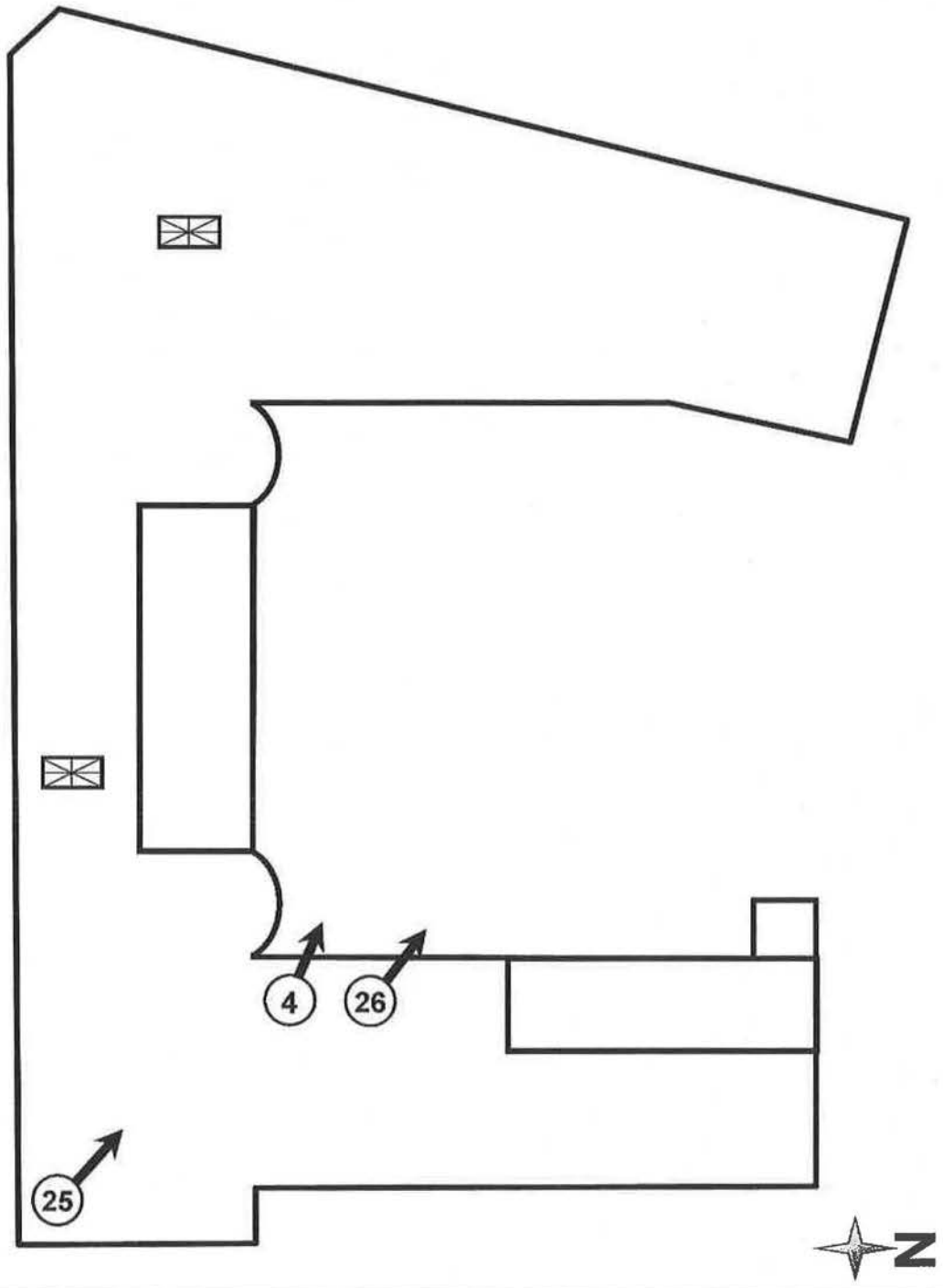
PLYMOUTH BUILDING (Loft Space/Thirteenth Floor)
Minneapolis
Hennepin County
Minnesota
Photographers: Stephanie K. Atwood and Ryan Salmon
June 2012–May 2013

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

Plymouth Building
Name of Property
Hennepin County, Minnesota
County and State
N/A
Name of multiple listing (if applicable)

Photo Key Sketch Map Page 11



PLYMOUTH BUILDING (Roof)
Minneapolis
Hennepin County
Minnesota
Photographers: Stephanie K. Atwood and Ryan Salmon
June 2012–May 2013

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

MINNEAPOLIS SOUTH QUADRANGLE

MINNESOTA-HENNEPIN CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

Plymouth Building
Minneapolis,
Hennepin County,
Minnesota
UTM REFERENCE
15:478489:4980633

Produced by the United States Geological Survey

Control by USGS, NOS/NOAA and USCE

Topography by photogrammetric methods from aerial photographs taken 1947. Field checked 1952. Revised from aerial photographs taken 1966. Field checked 1967. Map edited 1967

Hydrography compiled from information furnished by Minnesota Department of Natural Resources

Projection and 10,000-foot grid ticks: Minnesota coordinate system, south zone (Lambert conformal conic)
1000-meter Universal Transverse Mercator grid ticks, zone 15, shown in blue
1927 North American Datum (NAD 27)

North American Datum of 1983 (NAD 83) is shown by dashed corner ticks
The values of the shift between NAD 27 and NAD 83 for 7.5-minute intersections are given in USGS Bulletin 1875

Red tint indicates areas in which only landmark buildings are shown

UTM GRID AND 1993 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY
DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

QUADRANGLE LOCATION

ROAD CLASSIFICATION
Heavy-duty — Light-duty
Medium-duty — Unimproved dirt
Interstate Route — U.S. Route — State Route

Revisions shown in purple and woodland compiled in cooperation with State of Minnesota agencies from aerial photographs taken 1991 and other sources. This information not field checked. Map edited 1993

MINNEAPOLIS SOUTH, MINN.
44093-H3-TF-024

1967
REVISED 1993
DMA 7373 IV NE-SERIES V872


For Lease
952 837 3076
WONDROUS
AZIAN KITCHEN
PARK
DRINK
Grain Bel


PARK

Monthly Contract Parking Available

ENTER

NO STOPPING


Murray's
COCKTAIL
THE HOME OF
SILVER BUTTER KNIFE
Murray's
US.
FOODS
KEEPING KITCHENS COOKIN'
CARRIER


PARK
Hennepin Av
NO STOPPING


Tyon's Pub
LOON & EATERY
1.877.METROLOM

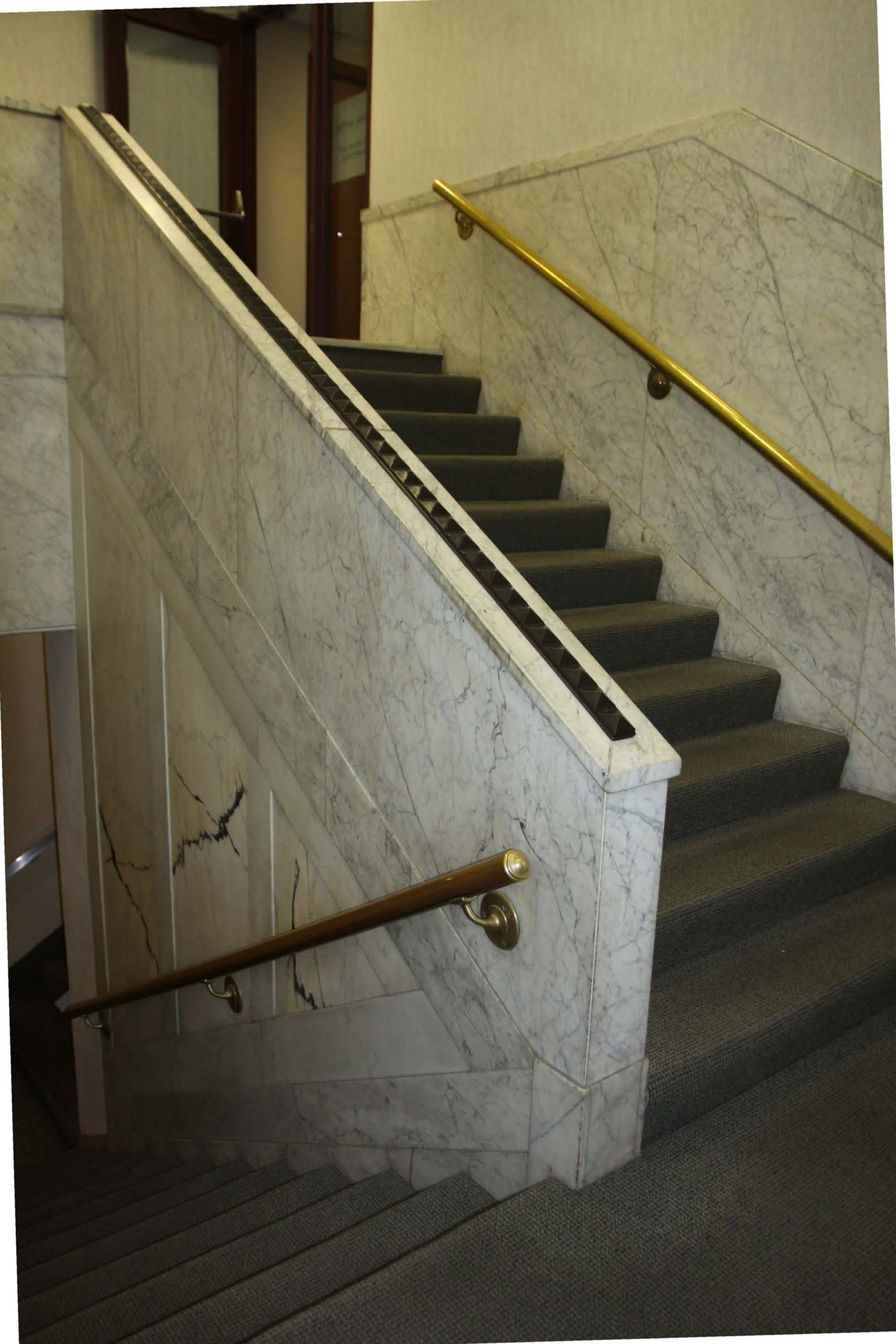

PLYMOUTH
39


PLYMOUTH
PLYMOUTH
PLYMOUTH


B9
B8
A6


LETTERS
U.S. MAIL
LETTER BOX
LYON'S PUB


LYON'S PUB
PLYMOUTH BUILDING



UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
EVALUATION/RETURN SHEET

REQUESTED ACTION: NOMINATION

PROPERTY NAME: Plymouth Building

MULTIPLE NAME:

STATE & COUNTY: MINNESOTA, Hennepin

DATE RECEIVED: 12/20/13 DATE OF PENDING LIST: 1/21/14
DATE OF 16TH DAY: 2/05/14 DATE OF 45TH DAY: 2/05/14
DATE OF WEEKLY LIST:

REFERENCE NUMBER: 13001146

REASONS FOR REVIEW:

APPEAL:	N	DATA PROBLEM:	N	LANDSCAPE:	N	LESS THAN 50 YEARS:	N
OTHER:	N	PDIL:	N	PERIOD:	N	PROGRAM UNAPPROVED:	N
REQUEST:	N	SAMPLE:	N	SLR DRAFT:	N	NATIONAL:	N

COMMENT WAIVER: N

✓ ACCEPT ___ RETURN ___ REJECT 2-5-14 DATE

ABSTRACT/SUMMARY COMMENTS:

Entered in
The National Register
of
Historic Places

RECOM./CRITERIA_____

REVIEWER_____ DISCIPLINE_____

TELEPHONE_____ DATE_____

DOCUMENTATION see attached comments Y/N see attached SLR Y/N

If a nomination is returned to the nominating authority, the nomination is no longer under consideration by the NPS.

Minneapolis
City of Lakes

Community Planning & Economic Development

Long Range Planning Division
105 5th Ave S – Room 200
Minneapolis MN 55401

Office 612-673-2597
Fax 612-673-2728
TTY 612-673-5154

November 8, 2013

Barbara Howard
Deputy State Historic Preservation Officer
345 Kellogg Blvd. W.
St. Paul, MN 55102

Re: National Register of Historic Places Nomination – Plymouth Building

Dear Ms. Howard,

The Minneapolis Heritage Preservation Commission considered the nomination of the Plymouth Building at 12 Sixth Street South for the National Register of Historic Places during a meeting on October 22, 2013. They voted to move forward the staff recommendation that is outlined here:

Recommended Motion: The Nominator has prepared a nomination that indicates their consideration of the subject property's contributions to the field of architecture and engineering patterns in Minneapolis. Staff recommends the Commission adopt this CPED report, **approve** the nomination, and direct staff to transmit the report and a letter summarizing the report to the State Historic Preservation Officer.

Action: The Heritage Preservation Commission adopted the staff findings and **approved** the nomination and directed staff to transmit the report and a letter summarizing the report to the State Historic Preservation Officer.

A copy of the staff memo presented to the Minneapolis Heritage Preservation Commission is attached to this letter. Please contact me with any questions that you have

Sincerely,

Joe Bernard, AICP
Senior City Planner
105 5th Ave S - Room 200
Minneapolis, MN 55401
(612) 673-2422
joseph.bernard@minneapolismn.gov

Community Planning & Economic Development
250 4th Street South, Room 300 PSC
Minneapolis, MN 55415

City of Minneapolis
Department of Community Planning & Economic Development - CPED

MEMORANDUM

TO: Heritage Preservation Commission

FROM: Joe Bernard, Senior Planner, CPED Long Range Planning, (612) 673-2422

REVIEWED BY: Jack Byers, Manager, CPED Long Range Planning, (612) 673-2634

DATE: October 22, 2013

RE: National Register of Historic Places Nomination – Plymouth Building

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Background

On September 16, 2013, the Minnesota Deputy State Historic Preservation Office (SHPO) sent the Minneapolis Heritage Preservation Commission a letter requesting comments on the nomination of the Plymouth Building, located at 12 6th Street South, to the National Register of Historic Places. As a Certified Local government, the Commission is required by federal law to participate in the National Register nomination process as follows:

- Afford the public a reasonable opportunity to comment on the nomination;
- Prepare a report as to whether or not the subject property is eligible for National Register listing; and
- Have a chief local elected official (the Mayor) submit this report and his/her recommendation to the Minnesota State Preservation Officer within sixty days of the notice from SHPO[1]

The Owner has retained Hess, Roise and Company and Preservation Design Works, LLC to nominate the subject property to the National Register of Historic Places as a step in seeking financial aid for a substantial rehabilitation of this property. Attachment A includes a copy of the nomination, prepared by the nominator, for your review and comment.

---

[1] More than a simple comment letter, this report provides the City with significant decision making power in the matter. If both the Commission and chief local elected official recommend that the subject property should not be nominated to the a National Register, the SHPO shall take no further action, unless within thirty days of the receipt of such recommendation by the SHPO an appeal is filed with the State. If such an appeal is filed, the State shall follow the procedures for making nomination pursuant to established procedures. Even then, the City's report and recommendations are included with the nomination submitted the State to the Keeper of the National Register.

Previous Reviews

The Plymouth Building has not previously been reviewed by the Heritage Preservation Commission. The property was not identified as a potential historic resource in any recently completed Section 106 reviews, Historic Resource Surveys, or in the City's database of potentially historic resources.

Nomination Review

To be eligible for listing on the National Register of Historic Places, a property must be significant within a given context and retain its integrity, defined as its ability to communicate that significance. The nomination identifies the Plymouth Building as significant under National Register Criteria C; the 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. As stated in the nomination, The Plymouth Building…

> *"…is locally significant under Criterion C in the area of Engineering as a representation of the development and acceptance of reinforced-concrete skeleton frame construction by the American building industry. The building's period of significance begins at the completion of its construction in 1911 and ends in 1936."*

The nomination cites several elements of the Plymouth Building that contribute to meeting National Register Criterion C:

1. The building exemplifies the mature development of the reinforced-concrete "skeleton" frame construction method.
2. The aforementioned engineering allowed for the use of a decorative masonry curtain wall system and large window openings. The non-load bearing nature of the curtain wall allowed for its replacement no more than 25 years after the buildings initial construction date.
3. This refined engineering approach occurred in an era that contributed to the cost-effectiveness of construction.

The period of significance established by the nomination identifies the years from construction (1911) to when decorative elements of the curtain wall were replaced (1936).

The architectural and engineering description in the nomination is thorough, highlighting the key stylistic features that remain intact from the original construction of the structure. The narrative also focuses heavily on the relationships and dynamics in international, national, and local reinforced concrete use.

In terms of meeting the significance criterion C, the nomination details the work of architects and engineers, and in particular their role in bringing innovation to reinforced concrete design and construction methods to Minneapolis. Several reports of considerable interest from the nomination include erroneous attribution of the design in the local paper to C.A.P. Turner and a trade magazine claim that the Plymouth Building was "the world's largest all-reinforced office building." The construction method also allowed for the possibility of future additions on top of the initial structure, at one point a planned addition would have topped out at 25 stories. Staff concurs with the nomination documents in that replacement of the curtain walls in 1936 makes this building an excellent working example of how

the intended engineering benefits can be utilized. Furthermore, as noted in the nomination, the relative scarcity of structures remaining on the east side of Hennepin Avenue from this era make the resource all the more important to preserve.

Staff Recommendation

The Nominator has prepared a nomination that indicates their consideration of the subject property's contributions to the field of architecture and engineering patterns in Minneapolis. Staff recommends the Commission **adopt** this CPED report, **approve** the nomination, and **direct** staff to transmit the report and a letter summarizing the report to the State Historic Preservation Officer.

Attachments

A. Plymouth Building National Register of Historic Places Nomination prepared by Hess, Roise and Company and Preservation Design Works, LLC.
B. Photographs

Minnesota Historical Society
State Historic Preservation Office
345 Kellogg Blvd West, St. Paul, Minnesota 55102
651/259-3451

TO: Carol Shull, Keeper
National Register of Historic Places

FROM: Denis P. Gardner

DATE: December 13, 2013

NAME OF PROPERTY: Plymouth Building

COUNTY AND STATE: Hennepin County, Minnesota

SUBJECT: National Register:

- ☒ Nomination
- ☐ Multiple Property Documentation Form
- ☐ Request for determination of eligibility
- ☐ Request for removal (Reference No.)
- ☐ Nomination resubmission
- ☐ Boundary increase/decrease (Reference No.)
- ☐ Additional documentation (Reference No.)

DOCUMENTATION:

- ☒ Original National Register of Historic Places Registration Form
- ☐ Multiple Property Documentation Form
- ☒ Continuation Sheets
- ☐ Removal Documentation
- ☒ Photographs
- ☒ CD w/ image files
- ☒ Original USGS Map
- ☒ Sketch map(s)
- ☒ Correspondence
  - ☐ Owner Objection

    The enclosed owner objections

    Do☐ Do not ☐ constitute a majority of property owners

STAFF COMMENTS: