SAN FRANCISCO
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| | |
|---|---|
| **DATE:** | November 9, 2011 |
| **TO:** | Historic Preservation Commission |
| **FROM:** | Rich Sucré, Historic Preservation Technical Specialist, (415) 575-9108 |
| **REVIEWED BY:** | Tim Frye, Preservation Coordinator, (415) 575-6822 |
| **RE:** | **Review and Comment**<br>**850-870 Brannan Street**<br>**Case No. 2011.0583B** |

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**BACKGROUND**

The Planning Department seeks the advice of the Historic Preservation Commission on the proposed project at 850-870 Brannan Street. As described in detail below, the proposed project entails a change in use and office allocation from jewelry showroom to office on the first, second and fifth floors, pursuant to Planning Code Section 803.9(c), which states:

> (c) **Preservation of Historic Buildings within and UMU Districts.** The following rules are intended to support the economic viability of buildings of historic importance within the UMU District.
>
> > (1) This subsection applies only to buildings that are a designated landmark building, or a building listed on or determined eligible for the California Register of Historical Resources by the State Office of Historic Preservation.
> >
> > (2) All uses are permitted as of right, provided that:
> >
> > > (A) The project does not contain nighttime entertainment.
> > >
> > > (B) Prior to the issuance of any necessary permits, the Zoning Administrator, with the advice of the Landmarks Preservation Advisory Board, determines that allowing the use will enhance the feasibility of preserving the building.
> > >
> > > (C) Residential uses meet the affordability requirements of the Residential Inclusionary Affordable Housing Program set forth in Section 315.1 through 315.9.
> >
> > (3) The Landmarks Preservation Advisory Board shall review the proposed project for compliance with the Secretary of the Interior's Standards, (36 C.F.R. § 67.7 (2001)) and any applicable provisions of the Planning Code.

The proposed project qualifies for this Planning Code section, since the subject building at 870 Brannan Street is listed in the California Register of Historical Resources by virtue of its designation in the National Register of Historic Places.

**PROPERTY DESCRIPTION**

The project site contains two internally-connected buildings on four parcels:

- 870 Brannan Street,[1] a four-story, reinforced-concrete building that is fourteen bays wide on Brannan Street and fifteen bays wide on 8th Street, and occupies three parcels (Lots 006, 007, and 007A); and,
- 850 Brannan Street,[2] a two-story, concrete building that is five bays wide on Brannan Street, and occupies one parcel (Lot 072).

Designed by architect/engineer Maurice Couchot in 1917, the National Carbon Company Building at 870 Brannan Street was originally constructed as a four-story, concrete-frame industrial building facing 8th Street. In 1918, a square tower was added to the roof to enclose the gravity tanks for the sprinkler systems. In 1920, a nine-bay addition was added to the existing five-bays along Brannan Street, and a one-story clerestory addition was added to a portion of the building. Overall, the subject building is dominated by an extensive amount of industrial, steel-sash windows, which occupy the majority of the bays on each floor along the 8th and Brannan Street facades. The rear facades, facing Decatur and Bryant Street, are functional in appearance with no ornamentation. Overall, the building is rendered in a Classical Revival architectural style, as evidenced by ornamental corner entries, which feature shields and medallions with the initials "N C" and crossing flashlights. In 1982, the subject building was converted into a wholesale showroom, and was listed in the National Register of Historic Places, as part of a Federal Historic Preservation Tax Incentive project.

Designed circa 1920, 850 Brannan Street was likely a one-story storage building for the Gilmore Steel & Supply Company.[3] Information on the original date of construction and architect is unknown. Today, 850 Brannan Street is a two-story, steel-frame building with a simple stucco and concrete façade facing Brannan Street. The building features a prominent cornice and a shaped parapet at the northernmost corner. The property has been extensively altered and is not a historic resource, as determined by the San Francisco Planning Department.

**PROPOSED PROJECT DESCRIPTION**

The proposed project includes a lot merger, exterior alterations, and use conversion from a Gift and Jewelry Showroom (classified as PDR - Production, Distribution and Repair) to Office and Integrated PDR. In 2010, the Planning Commission authorized a change in use on the third and fourth floors to accommodate a total of 138,580 sf of office use at 850 and 870 Brannan Streets. As part of the proposed project, an additional 92,854 gsf on the first, second and fifth floors would be converted from showrooms to office. In addition, ninety-five accessory parking spaces, thirty-six bicycle parking spaces, six showers, and eight lockers would be constructed within the building

[1] This is also known as 866-870 Brannan Street (Lot 006), 870 Brannan Street (Lot 007), and 545-599 8th Street (Lot 007A).

[2] This is also known as 850-860 Brannan Street (Lot 072).

[3] This determination is based upon the earliest available building permit information from 1944.

(accessed from Decatur Street). Therefore, the proposed project would result in the following uses:

- Office = 236,644 sf
- PDR (Gift and Jewelry Showroom) = 96,381 sf
- Integrated PDR = 28,675 sf
- Retail = 3,705 sf

As part of the proposed project, the exterior of 870 Brannan Street would be rehabilitated as follows:

- Preservation and rehabilitation of the historic steel-sash windows on the ground floor of the 8th Street façade;
- Rehabilitation of the historic steel-sash window frame and replacement of the existing glazing for a micro-rub corrugated glass in northernmost tower (second, third and fourth floors) of the 8th Street façade;
- Preservation and rehabilitation of the historic steel-sash windows in the fifth and thirteenth bays (from the left) of the ground floor of the Brannan Street façade;
- Rehabilitation of the historic steel-sash window frame and replacement of the existing glazing for a micro-rub corrugated glass in the easternmost tower (second, third and fourth floors) of the Brannan Street façade;
- Replacement of the existing historic window system on the ground floor level of the westernmost tower for a new fully-glazed storefront on the Brannan Street façade. This historic window would be reinstalled within the southernmost tower of the 8th Street façade;
- Replacement of the existing non-historic door on the ground floor level of the easternmost tower for a new fully-glazed storefront on the Brannan Street façade;
- Removal of the existing canopy, addition of a new canopy, and renovation of the existing storefront within the six, seven, and eighth bays of the ground floor of the Brannan Street façade;
- Addition of new glazed storefront entry in the tenth bay of the Brannan Street facade;
- Replacement of the steel-sash windows with a new compatible, substitute aluminum system (Custom Windows Series 8300) on the second, third and fourth floors of the 8th and Brannan Street facades;
- Replacement of the steel-sash windows with a new compatible, substitute aluminum system (Custom Windows Series 8300) on the second, third, fourth, and fifth floors of Decatur Street facade;
- Addition of new mechanical screens on the fifth floor; and
- Replacement of the existing windows on the north façade (facing Bryant Street) with new steel-frame windows with insulated glazing.

No exterior work is planned for 850 Brannan Street.

To assist in the evaluation of the proposed project, the Project Sponsor has submitted the following consultant reports:

- Page & Turnbull, *850 and 870 Brannan Street (aka 888 Brannan Street) Historic Resource Evaluation, San Francisco, California* (August 12, 2011; Prepared for SKS Investments); and.
- Page & Turnbull, *Historic Window Treatment Study* (March 5, 2010; Prepared for Scanlan Kemper Bard Companies).

**STAFF ANALYSIS**

The Department would like the HPC to consider the following information:

**Proposed Rehabilitation:**
Rehabilitation is the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features that convey its historical, cultural, or architectural values.

The following is analysis of the proposed project pursuant to the Secretary of the Interior's Standards for Rehabilitation (Rehabilitation Standards):

In April 2010, the Planning Department previously evaluated the replacement of the steel-sash windows for the proposed aluminum-sash window system. The Department determined that the proposed aluminum system is a compatible substitute system. As noted and evaluated by the Planning Department:

- Based on review of the existing window condition survey documented in the consultant reports as well as a site visit, Planning Department staff concur that the majority of existing windows are deteriorated beyond repair. When viewed from the exterior, little of the severe deterioration is visible with the exception of the warped operable ventilators in the majority of windows. However, from the interior, substantial deterioration including steel corrosion, concrete spalling around window frames, broken window panes, and warping of the steel frames and ventilators is extensive and appears to be consistent at both the Brannan and 8th Street façades. Where character-defining features are deteriorated beyond repair, the *Secretary of the Interior's Standards for Rehabilitation* (*Secretary's Standards*) allow for replacement in-kind or with a compatible substitute material.

- The project proposes replacement of a majority of the existing deteriorated steel-frame windows with an aluminum-frame, insulated glass window system (Custom Windows Series 8300) that will closely match the original in pane configuration, muntin profile, and general proportions. The proposed replacement window system appears to constitute a compatible substitute in conformance with the *Secretary's Standards*.

- The project proposes to retain and repair original steel-frame windows remaining at the ground floor of the building (as noted in Sheet A4.0, and Section 080152.93 – Historic Treatment of Steel Windows). These windows will be stripped of paint and repaired and repainted. Existing painted/translucent, corrugated glazing will be replaced with clear glass (or micro rib corrugated glass for portions of the corner towers) and deteriorated concrete around the openings will be repaired. Retention and repair of these windows, which are in somewhat better condition than windows on upper floors, will preserve original materials at that portion of the building most accessible to the public.

- The proposed project will retain and repair a limited number of original steel-frame windows, thereby preserving historic fabric and materials, and will replace the majority of severely deteriorated original windows with a compatible aluminum-frame window system, in conformance with the *Secretary's Standards*.

To further analyze the other aspects of the project, including the ground floor alterations, per the *Secretary's Standards*:

> ***Standard 1.***
> *A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.*

The proposed project would convert the subject building into office use. To accommodate this new use, the project would rehabilitate and replace the majority of the existing steel-sash windows, which are severely deteriorated, as noted above. The project would replace the steel-sash windows with a compatible substitute window system, and would assist in restoring portions of the historic window system on the ground floor level. Further, incompatible alterations, including the non-historic canopy on Brannan Street, would be removed, in order to reinforce historic features on Brannan Street, such as the rail spur opening in the sixth bay (from the left). The new office use would assist in maintaining the defining characteristics of the subject building at 870 Brannan Street.

Therefore, the proposed project complies with Rehabilitation Standard 1.

> ***Standard 2.***
> *The historic character of a property will be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property will be avoided.*

The proposed project maintains the historic character of the subject property, as defined by its character-defining features, including the reinforced concrete construction, four-to-five-story massing, classical revival ornamentation (door surroundings, brackets, pediments, medallions, and spandrel panels), and industrial steel-sash windows and fenestration pattern on the 8th and Brannan Street facades. Although the project will replace the majority of the steel-sash windows, the replacement system has been classified as a compatible, substitute system. The other

character-defining features, including the reinforced concrete construction, classical revival ornamentation, and massing, would be preserved.

Therefore, the proposed project complies with Rehabilitation Standard 2.

> ***Standard 3.***
> *Each property will be recognized as a physical record of its time, place and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.*

The proposed project does not include the addition of conjectural elements or architectural features from other buildings. New work does not create a false sense of historical development.

Therefore, the proposed project complies with Rehabilitation Standard 3.

> ***Standard 4.***
> *Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.*

The proposed project does not involve alterations to the subject building, which have acquired significance in their own right. The proposed project would maintain the addition added in 1920, which includes the nine-bay addition along Brannan Street, the four-story addition on the east façade, and the one-story clerestory.

Therefore, the proposed project complies with Rehabilitation Standard 4.

> ***Standard 5.***
> *Distinctive features, finishes, and construction techniques or examples of fine craftsmanship that characterize a property will be preserved.*

The proposed project would preserve distinctive features, finishes and construction techniques, including the historic steel-sash windows, rail spur openings, and corner tower window system. As mentioned previously, the steel-sash windows on the ground floor level of the 8th Street facade will be preserved and rehabilitated, as would the two remaining bays of historic steel-sash windows on the Brannan Street facade. Currently, the rail spur opening on the Brannan Street façade is obscured by a non-historic canopy. This canopy would be removed, and the rail spur opening, including its curved wall, would become more visible. On the ground floor, the Brannan Street corner tower window system would be relocated onto the 8th Street façade, thus preserving original historic fabric.

Therefore, the proposed project complies with Rehabilitation Standard 5.

> ***Standard 6.***

*Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacements of a distinctive feature, the new feature will match the old in design, color, texture and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.*

As noted above, the proposed project would replace the majority of the historic steel-sash windows, which are severely deteriorated. These windows would be replaced with a compatible, substitute aluminum-sash windows system. This system matches the historic windows in design, color and visual quality. The project sponsor has submitted appropriate documentation to record the condition of these windows.

Therefore, the proposed project complies with Rehabilitation Standard 6.

***Standard 7.***
*Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.*

The proposed project does not involve any chemical or physical treatments that may cause damage to historic materials. The project does involve the repair of the concrete frame surrounding the existing steel-sash windows; however, this work will be undertaken with sensitivity towards the historic concrete, as noted in the Project Specifications - Section 080152.93: Historic Treatment of Steel Windows. Concrete surrounding the steel-sash windows will be repaired and patched, as necessary.

Therefore, the proposed project complies with Rehabilitation Standard 7.

***Standard 8.***
*Significant archaeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures will be undertaken.*

The proposed project does not include any excavation or below grade work; thus, the project would not appear to have the potential to impact or disturb any archaeological resources. Therefore, the proposed project complies with Rehabilitation Standard 8.

***Standard 9.***
*New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.*

In addition to the window replacement, the other exterior alterations of the proposed project include: a new entryway in the tenth bay (from the left) of the Brannan Street façade; a new metal canopy and glazed storefront on the Brannan Street façade; and new glazed doorways in the corner towers of the Brannan Street façade. In general, the new work is sufficiently differentiated from the historic building, but is compatible in size, scale, material, and design.

On the Brannan Street façade, the new entryway would be located within a bay that currently possesses a non-historic entryway. This new entryway would be demarcated by a thin glass canopy and would be similar in design to the new glazed storefronts proposed for the sixth, seventh, and eighth bays of the Brannan Street façade. All of these new storefronts would be simple in character and would feature a butt-glazed window system that strongly relates to the building's glazed character. Further, these new glazed storefronts would be recessed from the plane of the front façade, thus differentiating them from the historic ground-floor features. In addition to the new glazed storefronts, the new main entryway would be demarcated by a new metal canopy, which would project at an angle approximately four feet from the face of the building. This new metal canopy is simple in form and extends around the columns between the sixth, seventh and eights bays. This canopy relates to the industrial aesthetic of the overall building in design, material and form, and allows for a better expression of the historic rail spur opening in the sixth and seventh bays, since the existing canopy would be removed. Currently, the existing canopy interrupts the historic rail spur openings. The new glazed doorways planned for the ground floor entries in the corner towers of the Brannan Street façade would be similar to the new glazed storefronts occurring at the ground floor level, and relate to the overall character of the building in material and design. The new glazed doorways would not impact the surrounding classical revival ornamentation, and relate to the overall glazed appearance of the subject building. Overall, these exterior alterations are considered compatible, since they assist in maintaining the integrity of the subject property.

Therefore, the proposed project complies with Rehabilitation Standard 9.

> ***Standard 10.***
> *New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.*

The proposed project does not include any new additions or significant new construction. The proposed project maintains the essential form and integrity of the subject property, as well as its character-defining features.

Therefore, the proposed project complies with Rehabilitation Standard 10.

**RECOMMENDATIONS**

The Department finds the proposed project to be in compliance with the Secretary of the Interior's Standards for Rehabilitation. Further, the Department finds that the proposed project would

enhance the feasibility of preserving the building by repairing deteriorated aspects of the subject building and installing new features (such as windows and doors), which are compatible with the building's historic character. The project would rectify serious material issues, including the painted glazing and window sashes, and rust jacking evident around the window frames. In addition, the project would remove a non-historic canopy and also restore the sense of the original rail spur opening along the Brannan Street façade. The building's new uses would provide for the repair and rehabilitation of the exterior, while maintaining the building's historic integrity and eligibility for listing in the National Register of Historic Places.

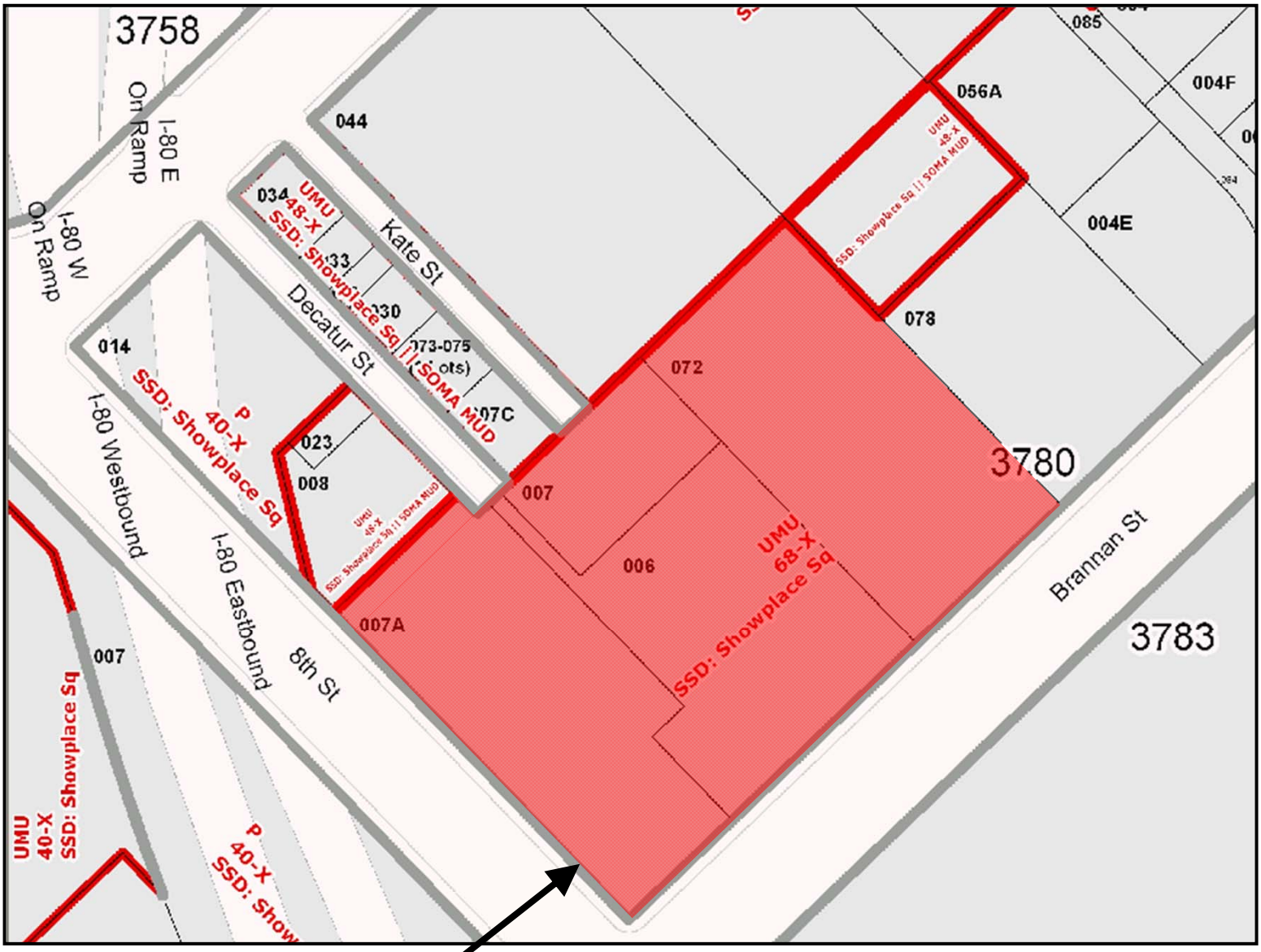
**REQUESTED ACTION**

The Department is requesting adoption of a resolution from the Historic Preservation Commission regarding the proposed project and its ability to enhance the feasibility of preserving the historic building, in order to assist the determination by the Zoning Administrator pursuant to Planning Code Section 803.9(c). In addition, the Department seeks confirmation on the project's compliance with the Secretary of the Interior's Standards for Rehabilitation.

**ATTACHMENTS**

- Exhibits, including Parcel Map, 1998 Sanborn Fire Insurance Map, Zoning Map, Aerial Photograph, and Site Photos
- Draft Resolution
- Proposed Project Renderings and Drawings, Gensler (dated October 18, 2011).
- Historic Resource Evaluation, Page & Turnbull (dated August 12, 2011; electronic only)
- Historic Windows Treatment Study, Page & Turnbull (dated March 5, 2010; electronic only)

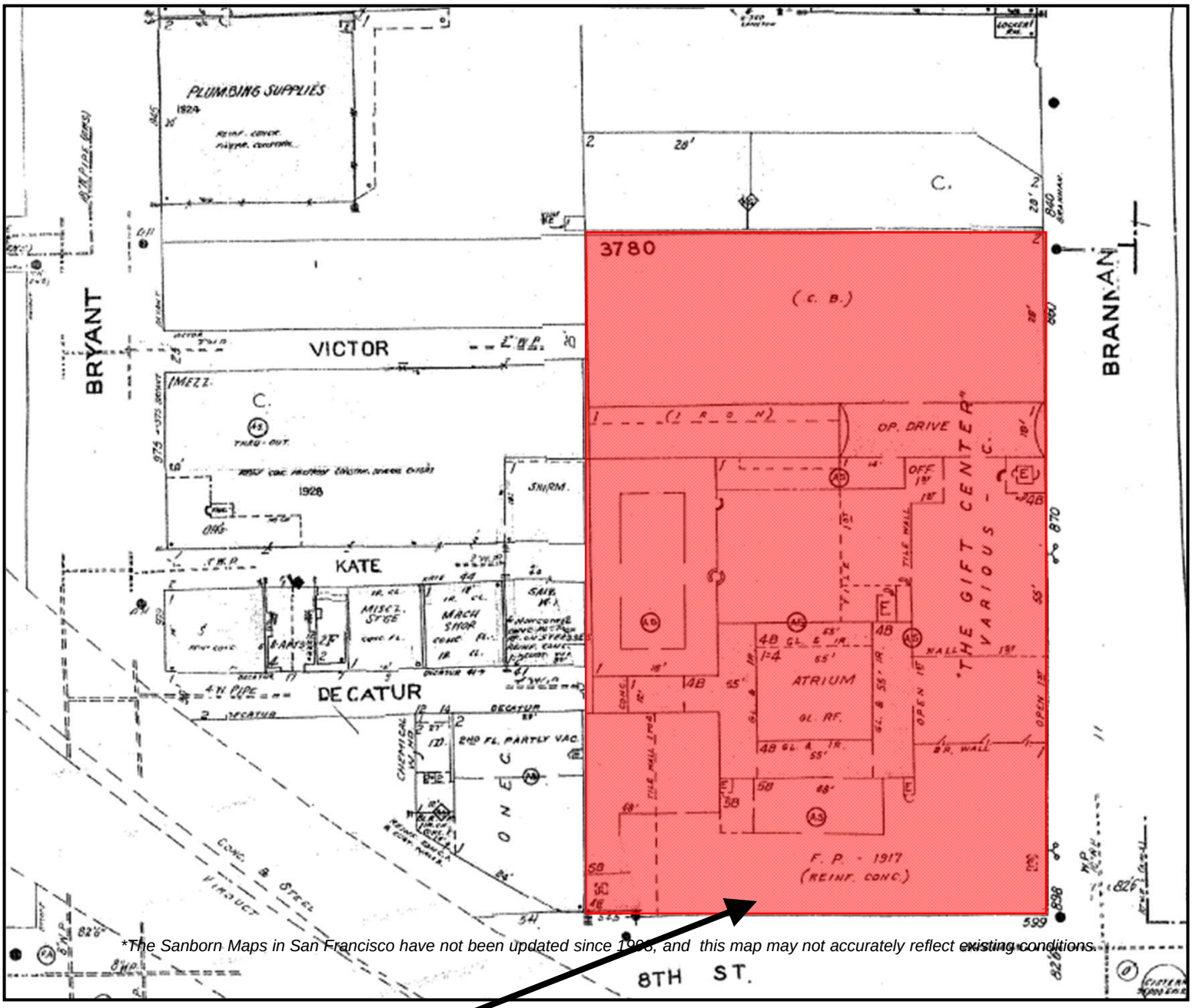
# Parcel Map




Review and Comment
**Case Number 2011.0583B**
850-870 Brannan Street

SAN FRANCISCO
**PLANNING DEPARTMENT**

# Sanborn Map*




*The Sanborn Maps in San Francisco have not been updated since 1998, and this map may not accurately reflect existing conditions.

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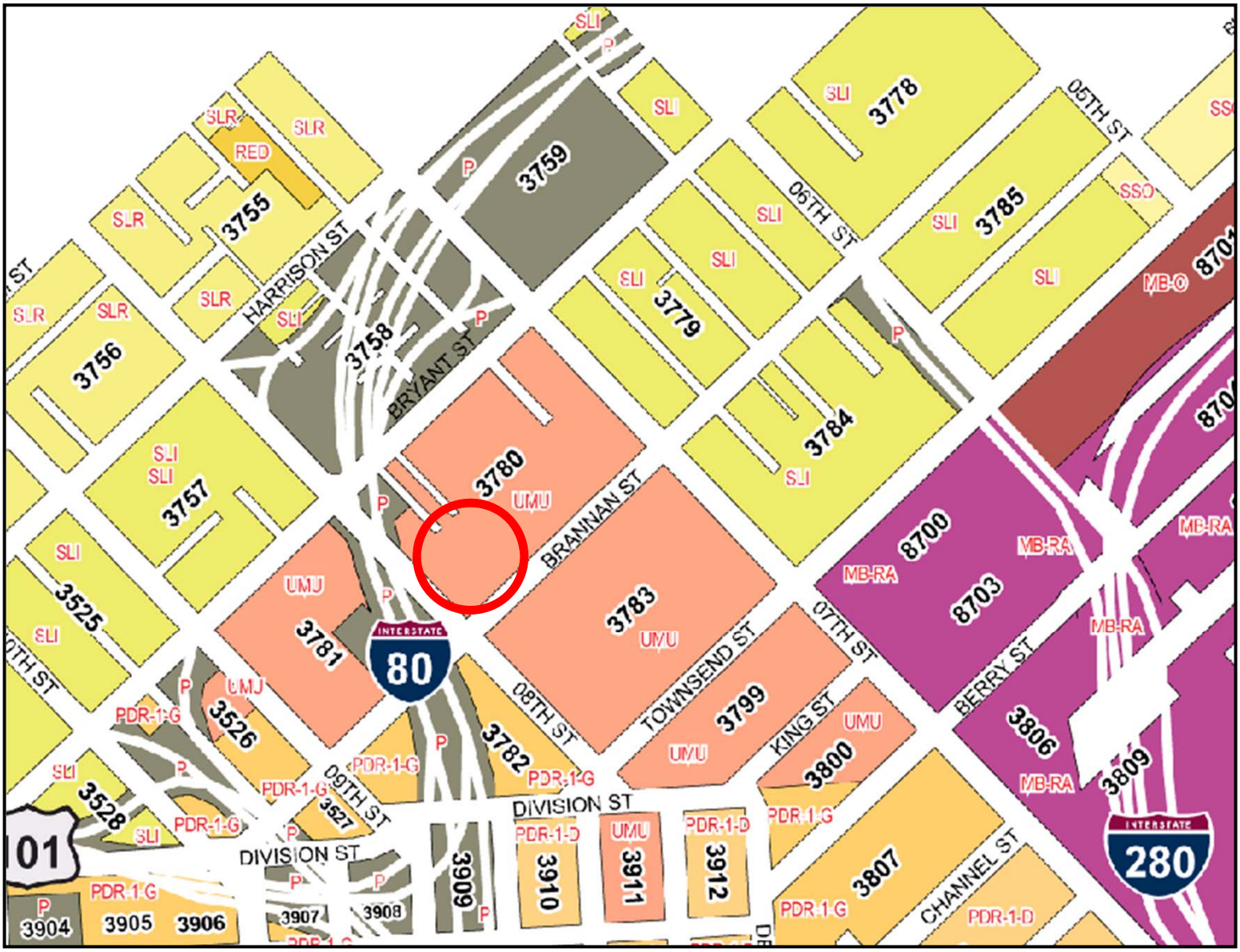
# Zoning Map

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850-870 Brannan Street

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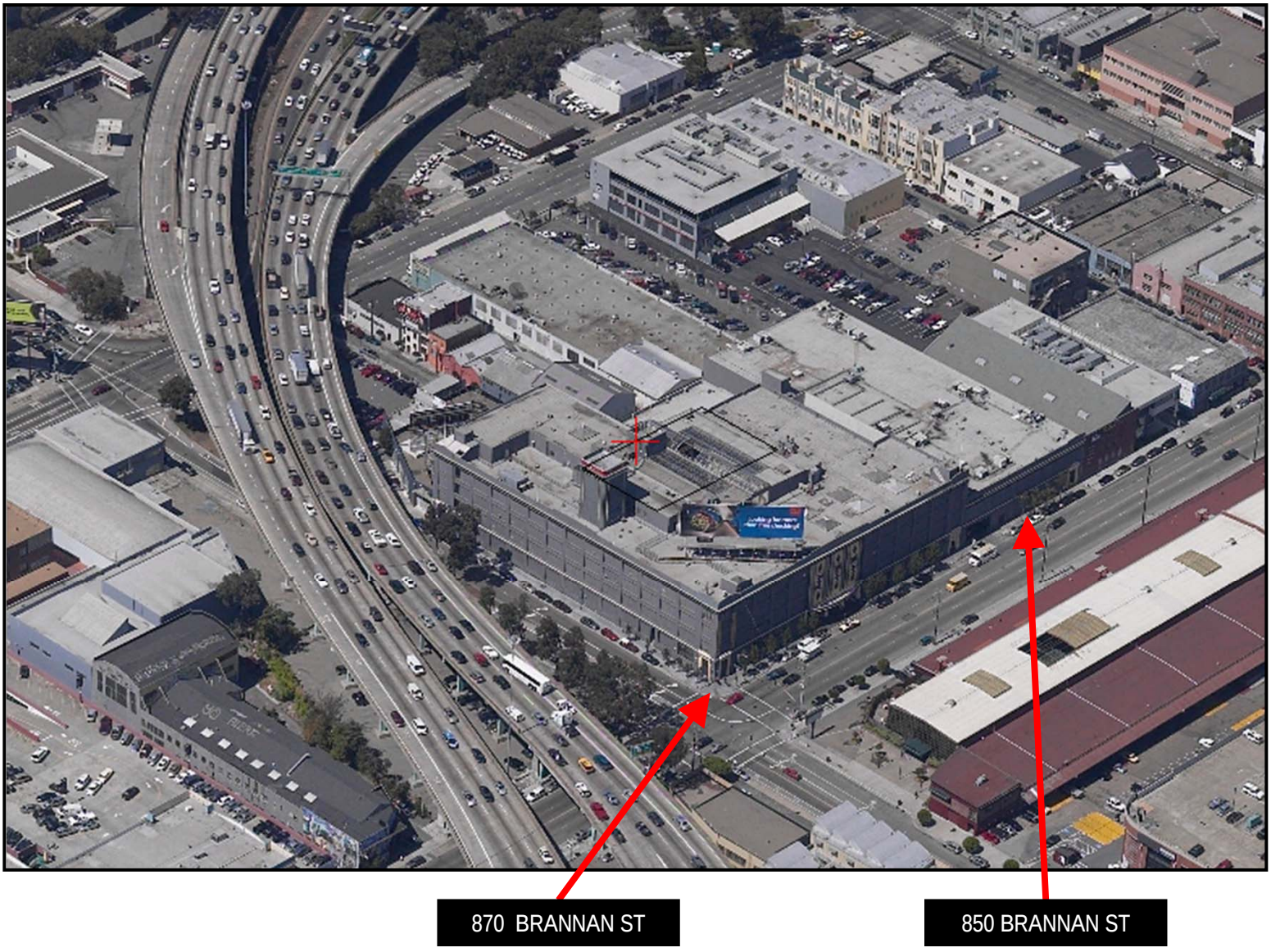
# Aerial Photo

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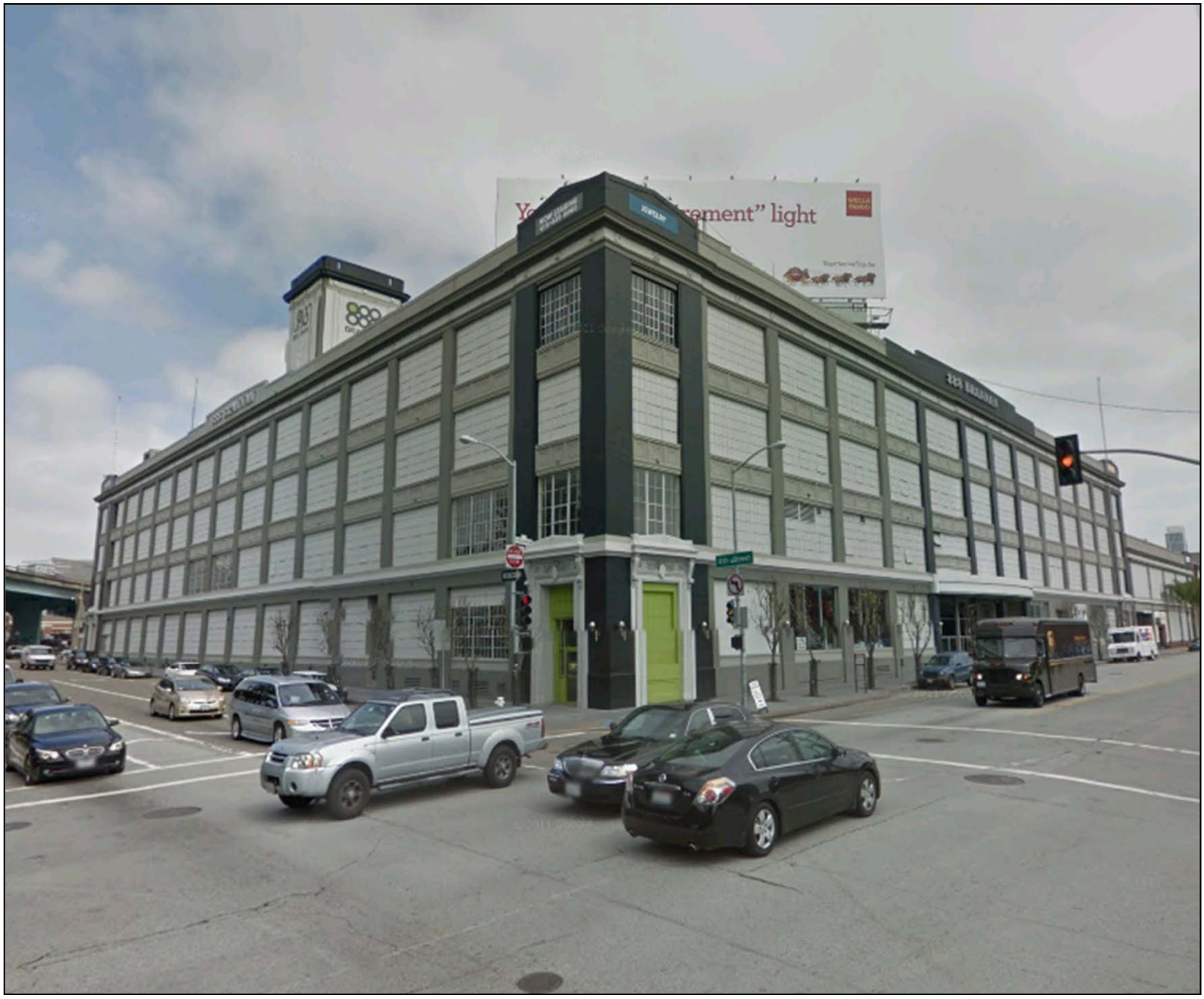
850-870 Brannan Street

# Site Photo



870 Brannan Street, View of 8th and Brannan Street Facades

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# Site Photo


870 Brannan Street, 8th Street Facade

Review and Comment
**Case Number 2011.0583B**
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# Site Photo


870 Brannan Street, 8th Street Facade

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# Site Photo


870 Brannan Street, View of Ground Floor at corner of 8th and Brannan Streets

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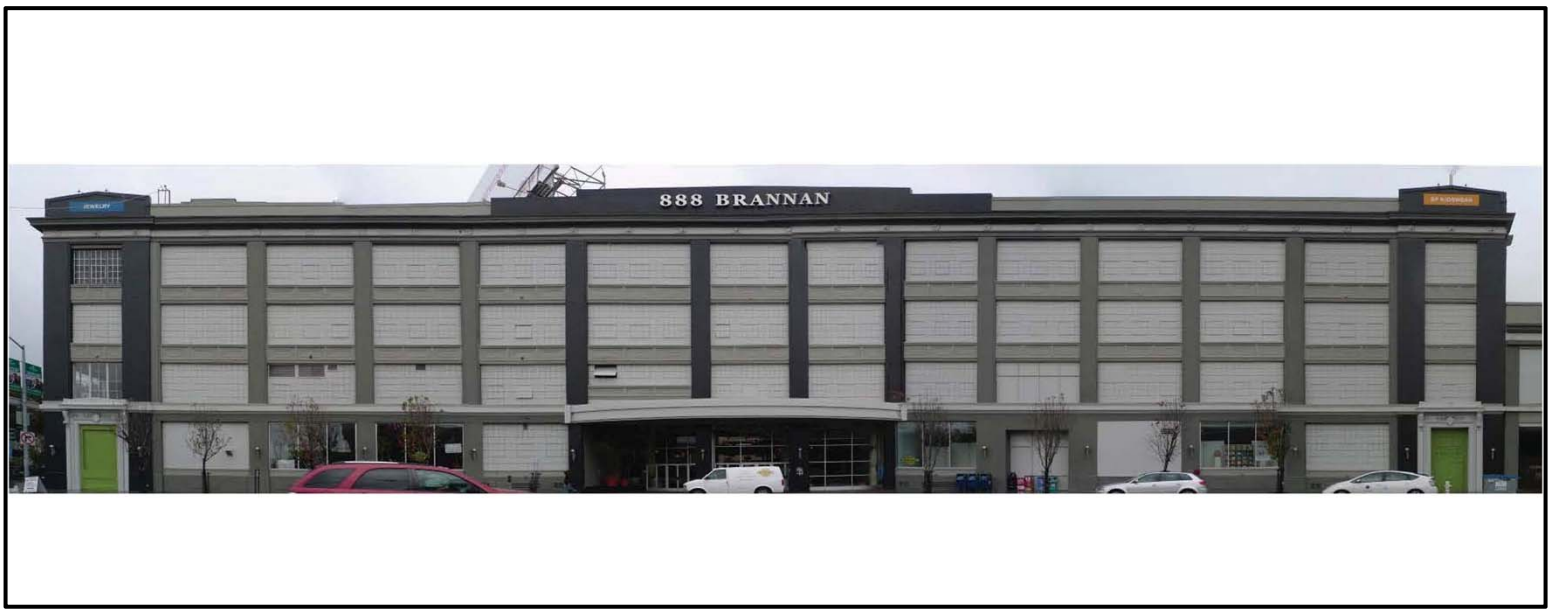
850-870 Brannan Street

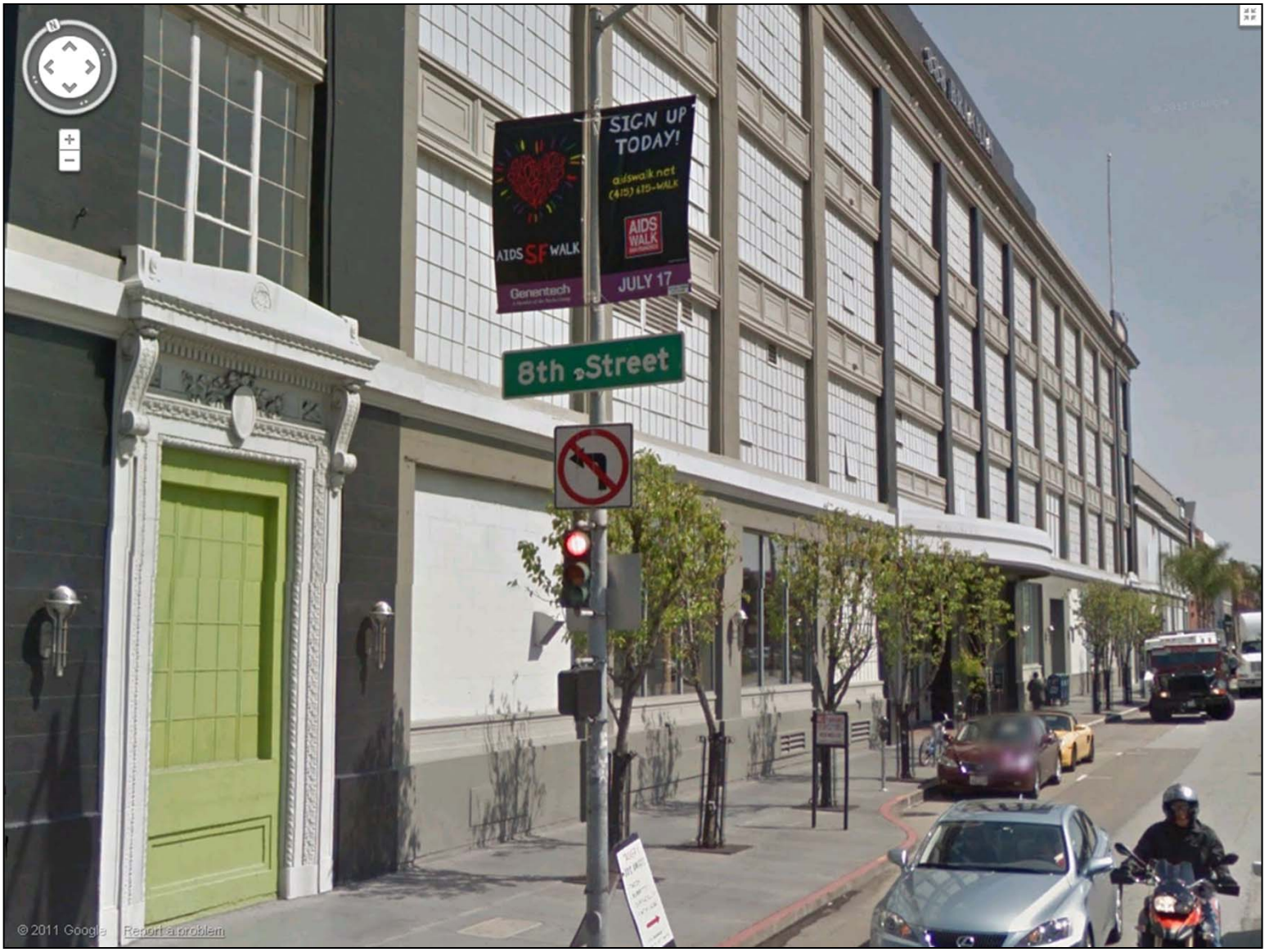
# Site Photo




870 Brannan Street, View of Brannan Street Facade

Review and Comment
**Case Number 2011.0583B**
850-870 Brannan Street

# Site Photo




870 Brannan Street, Brannan Street Façade, Ground Floor (View looking East)

Review and Comment
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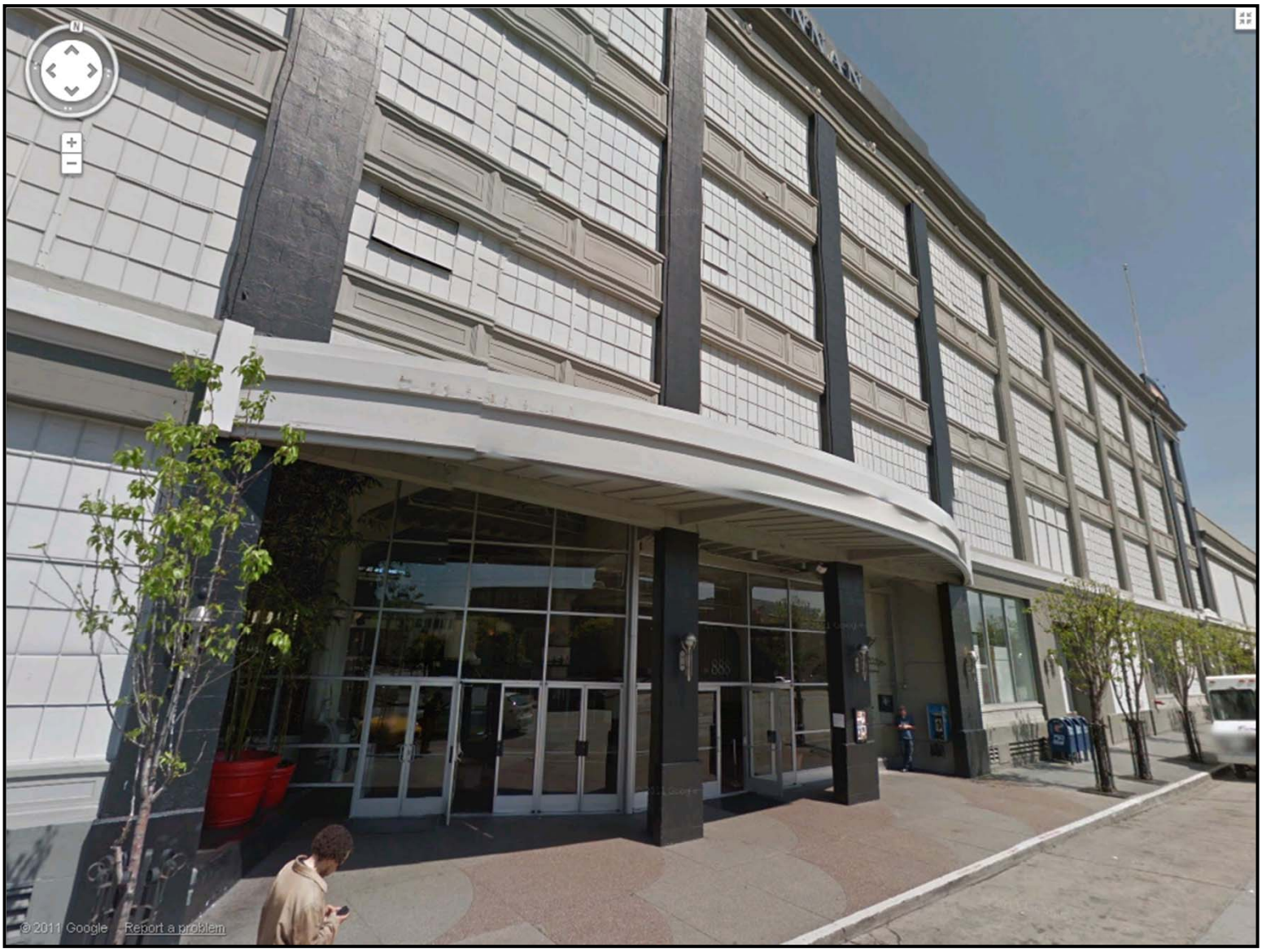
850-870 Brannan Street

# Site Photo




870 Brannan Street, Brannan Street Façade, Main Entry

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# Site Photo


870 Brannan Street, Brannan Street Façade, Ground Floor (View looking West)

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# Site Photo


850 Brannan Street, Brannan Street Façade

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# Historic Preservation Commission
# Resolution No. XXXX

HEARING DATE: November 16, 2011

| | |
|---|---|
| *Date:* | November 16, 2011 |
| *Case No.:* | **2011.0583B** |
| *Project Address:* | **850-870 Brannan Street** |
| *Zoning:* | UMU (Urban Mixed Use) Zoning District |
| *Block/Lot:* | 3780/006, 007, 007A and 072 |
| *Project Sponsor:* | 888 Brannan LP c/o SKS Investments |
| *Staff Contact:* | Richard Sucré – (415) 575-9108<br>richard.sucre@sfgov.org |
| *Reviewed By:* | Tim Frye, Preservation Coordinator<br>tim.frye@sfgov.org |

ADOPTING FINDINGS FOR THE PROPOSED PROJECT AT 850-870 BRANNAN STREET (ASSESSOR'S BLOCK 3780, LOT 006, 007, 007A AND 072), LOCATED WITHIN UMU (URBAN MIXED USE) ZONING DISTRICT.

## PREAMBLE

1. WHEREAS, on June 30, 2011, the Project Sponsor (888 Brannan LP) filed an Office Allocation Application with the San Francisco Planning Department for 850-870 Brannan Street (Block 3780, Lots 006, 007, 007A, and 072).

2. WHEREAS, the proposed project intends to utilize Planning Code Section 803.9(c) to allow office use on the first, second and fifth floors of 870 Brannan Street. Pursuant to Planning Code Section 803.9(c), the following provision is intended to support the economic viability of buildings of historic importance within the UMU District:

   (1) This subsection applies only to buildings that are a designated landmark building, or a building listed on or determined eligible for the California Register of Historical Resources by the State Office of Historic Preservation.

   (2) All uses are permitted as of right, provided that:

      (A) The project does not contain nighttime entertainment.

      (B) Prior to the issuance of any necessary permits, the Zoning Administrator, with the advice of the Landmarks Preservation Advisory Board, determines that allowing the use will enhance the feasibility of preserving the building.

(C) Residential uses meet the affordability requirements of the Residential Inclusionary Affordable Housing Program set forth in Section 315.1 through 315.9.

(3) The Landmarks Preservation Advisory Board shall review the proposed project for compliance with the Secretary of the Interior's Standards, (36 C.F.R. § 67.7 (2001)) and any applicable provisions of the Planning Code.

3. WHEREAS, City Charter 4.135 established the Historic Preservation Commission. All duties and responsibilities of the Landmarks Preservation Advisory Board ("LPAB") are under the purview and responsibility of the Historic Preservation Commission.

4. WHEREAS, on November 16, 2011, the Department presented the proposed project to the Historic Preservation Commission. The Commission's comments on the compliance of the proposed project with the Secretary of the Interior's Standards for Rehabilitation and the ability of the proposed project to enhance the feasibility of the historic resource would be forwarded to the Zoning Administrator for consideration under Planning Code Section 803.9(c).

**THEREFORE BE IT RESOLVED** that the Historic Preservation Commission has reviewed the proposed project at 850-870 Brannan Street, on Lots 006, 007, 007A, and 072 in Assessor's Block 3780, and this Commission has provided the following comments:

- 

**BE IT FURTHER RESOLVED** that the Historic Preservation Commission hereby directs its Recording Secretary to transmit this Resolution, and other pertinent materials in the Case File No. 2011.0583B to the Zoning Administrator.

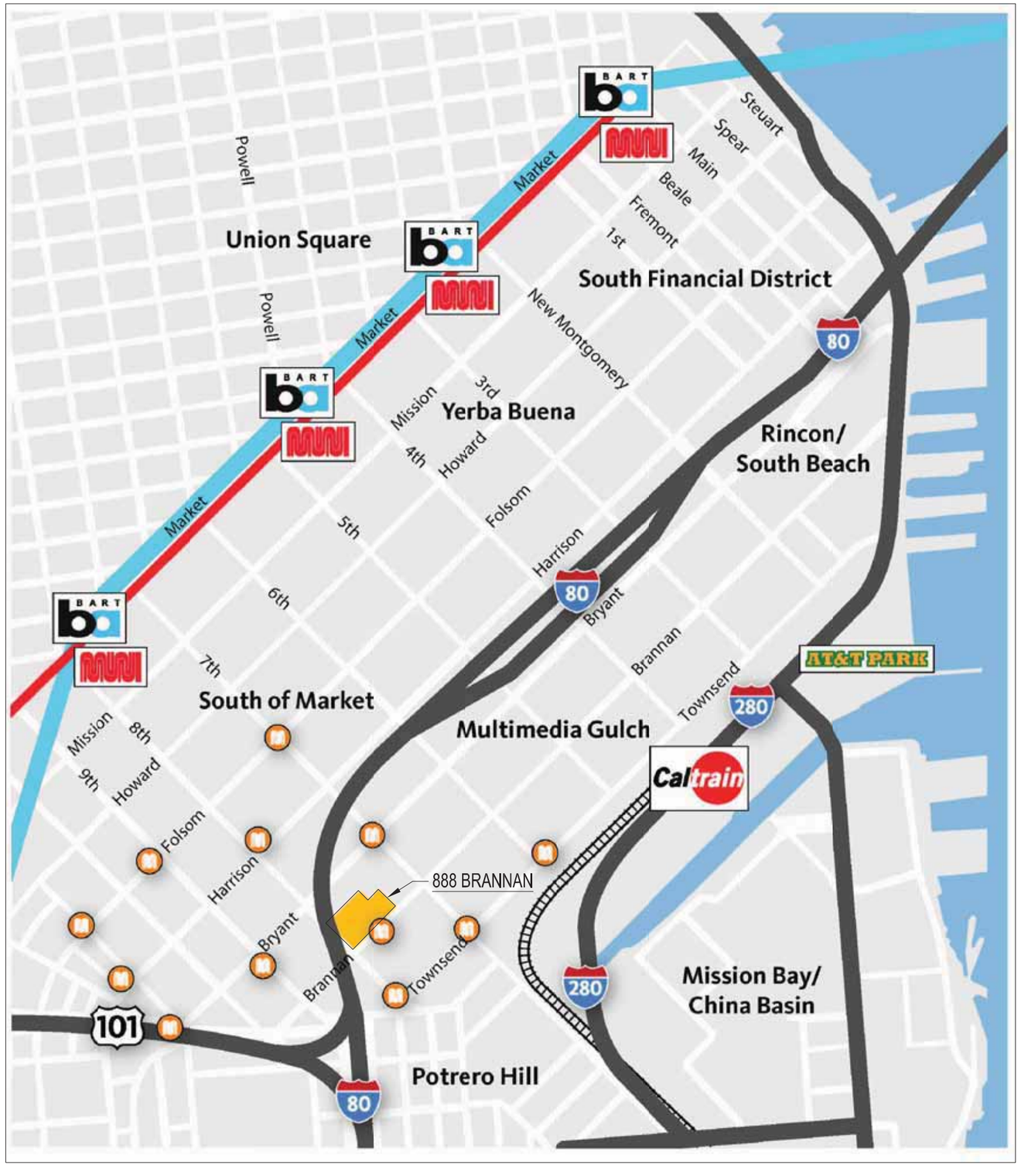
I hereby certify that the foregoing Resolution was ADOPTED by the Historic Preservation Commission at its regularly scheduled meeting on November 16, 2011.

Linda D. Avery
Commission Secretary

PRESENT:

ABSENT:

ADOPTED: November 16, 2011


Union Square
South Financial District
Yerba Buena
Rincon/
South Beach
South of Market
Multimedia Gulch
Mission Bay/
China Basin
Potrero Hill
888 BRANNAN
Powell
Market
Steuart
Spear
Main
Beale
Fremont
1st
New Montgomery
3rd
Mission
4th
Howard
5th
Folsom
6th
Harrison
Bryant
7th
8th
9th
Brannan
Townsend
AT&T PARK
Caltrain
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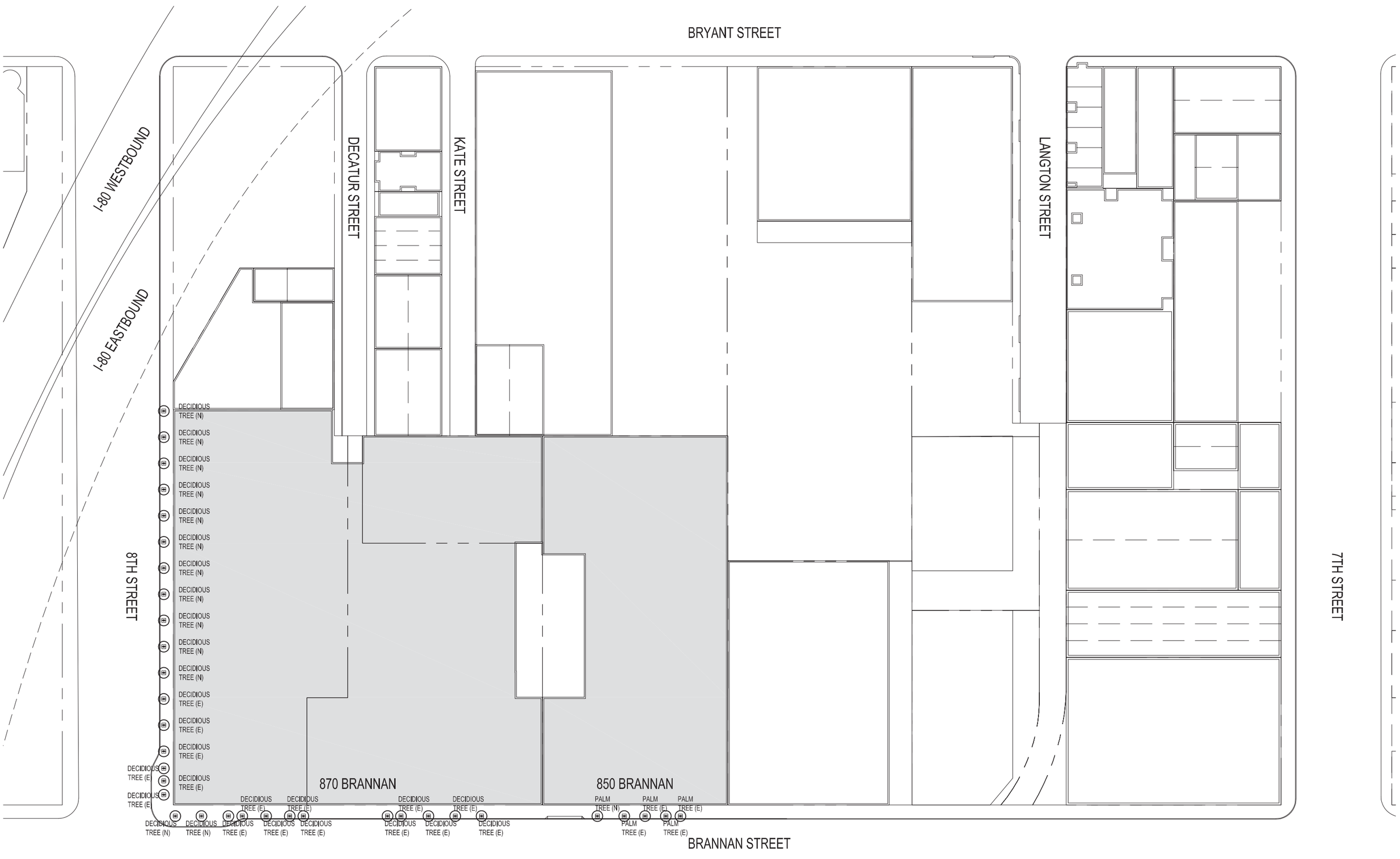
280
101
BART
MUNI




**888 Brannan Street**

*SITE PLAN*

*EEA/ SECTION 321 APPLICATION*

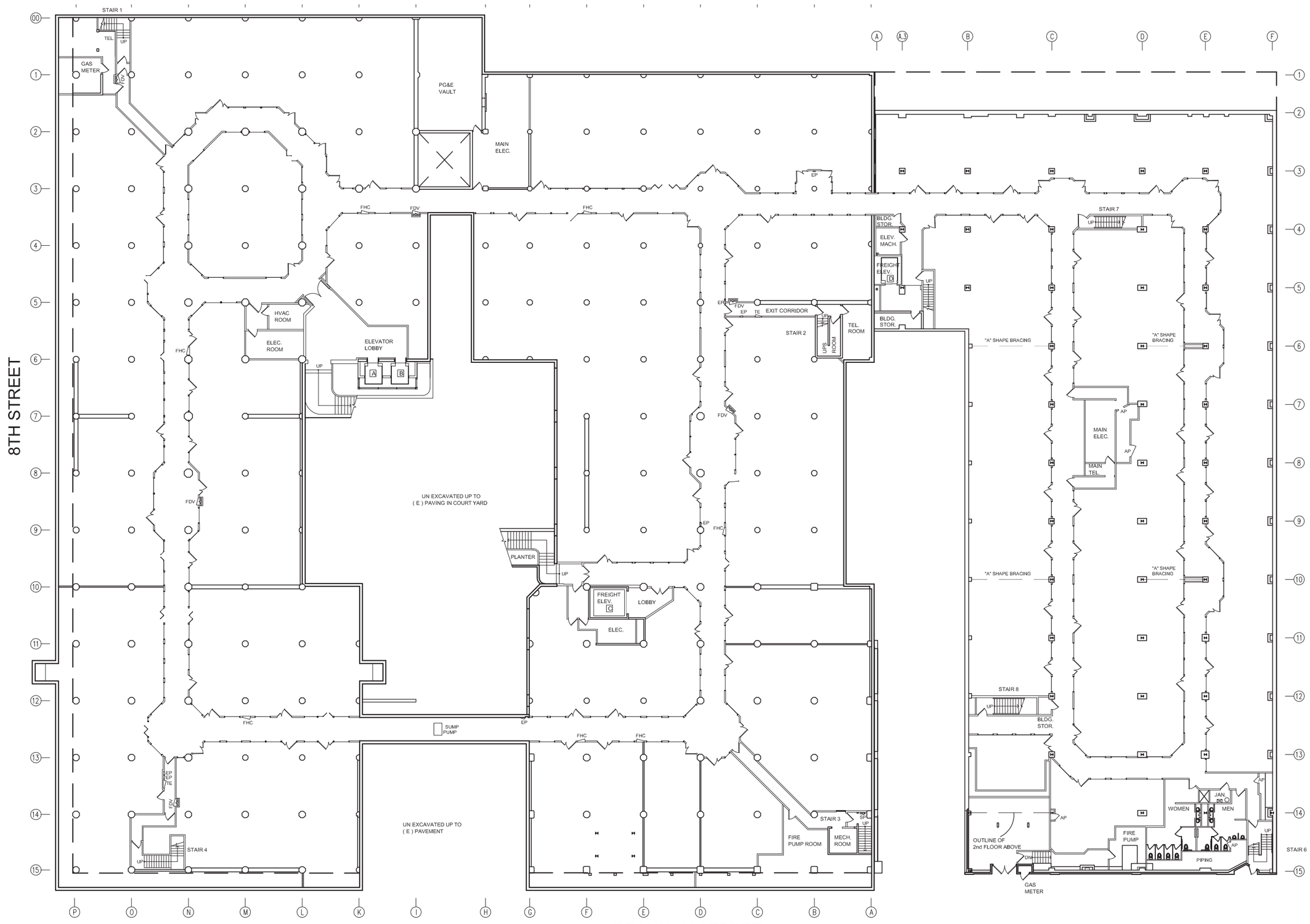
*OCTOBER 18, 2011*

*Scale: 1/64" = 1'-0"*

Ref. North

A0.2

Gensler




**888 Brannan Street**

*EXISTING FLOOR PLAN - LEVEL B01*

*EEA/ SECTION 321 APPLICATION*

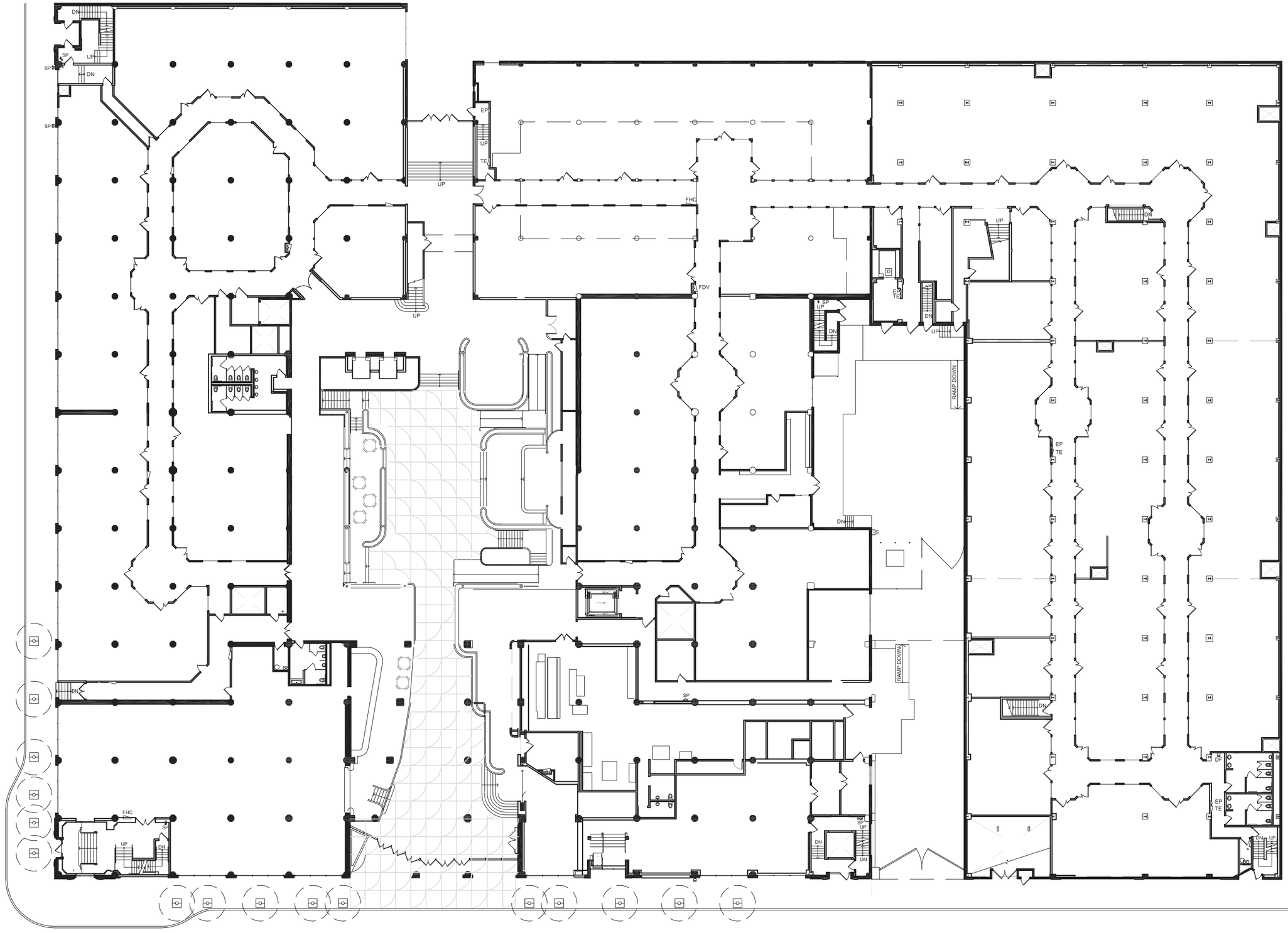
*OCTOBER 18, 2011*

*Scale: 1/32" = 1'-0"*

Ref. North

A1.B

Gensler




**888 Brannan Street**

*EXISTING FLOOR PLAN - LEVEL 01*

*EEA/ SECTION 321 APPLICATION*

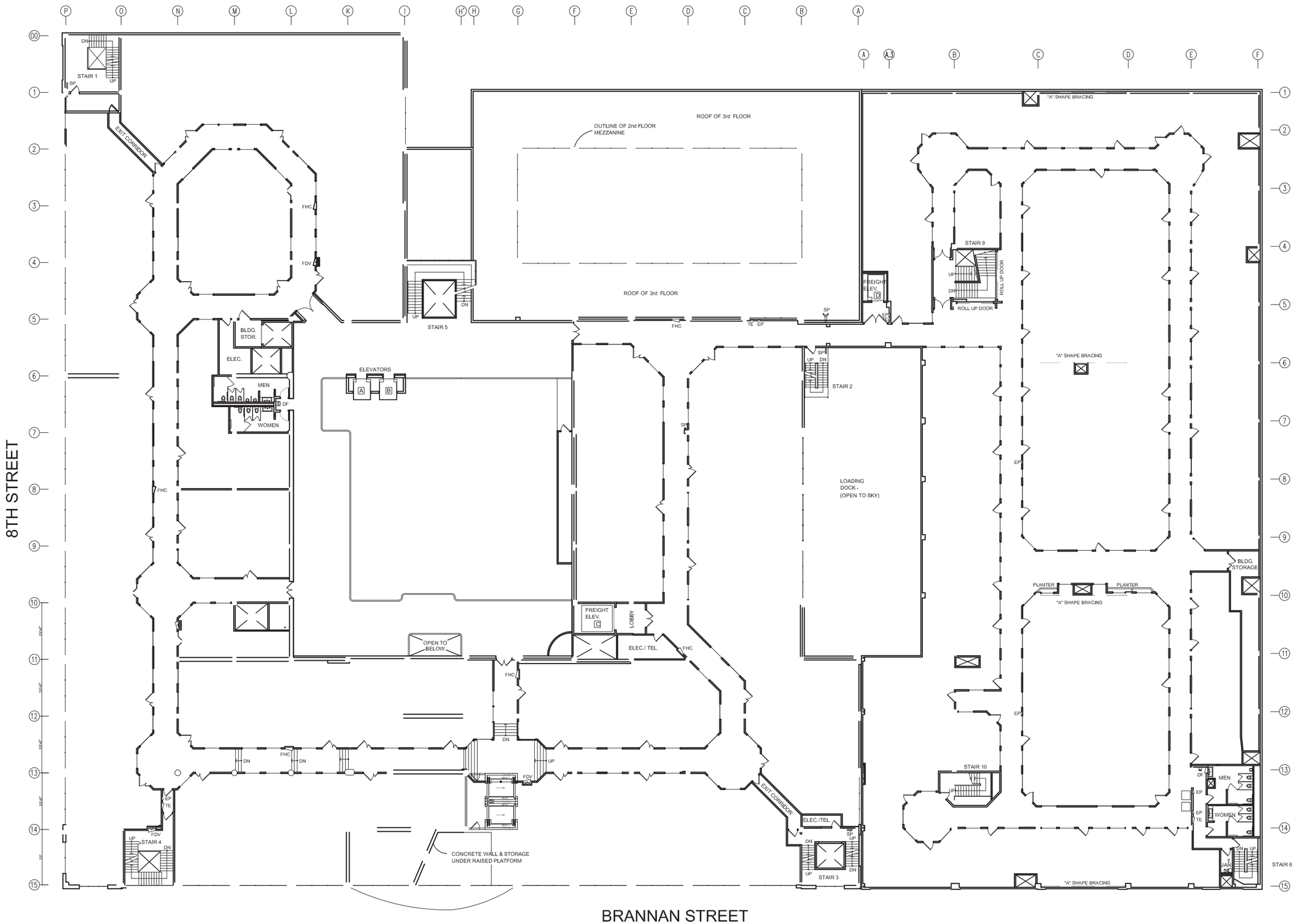
*OCTOBER 18, 2011*

*Scale: 1/32" = 1'-0"*

Ref. North

A1.1

Gensler




**888 Brannan Street**

*EXISTING FLOOR PLAN - LEVEL 02*

*EEA/ SECTION 321 APPLICATION*

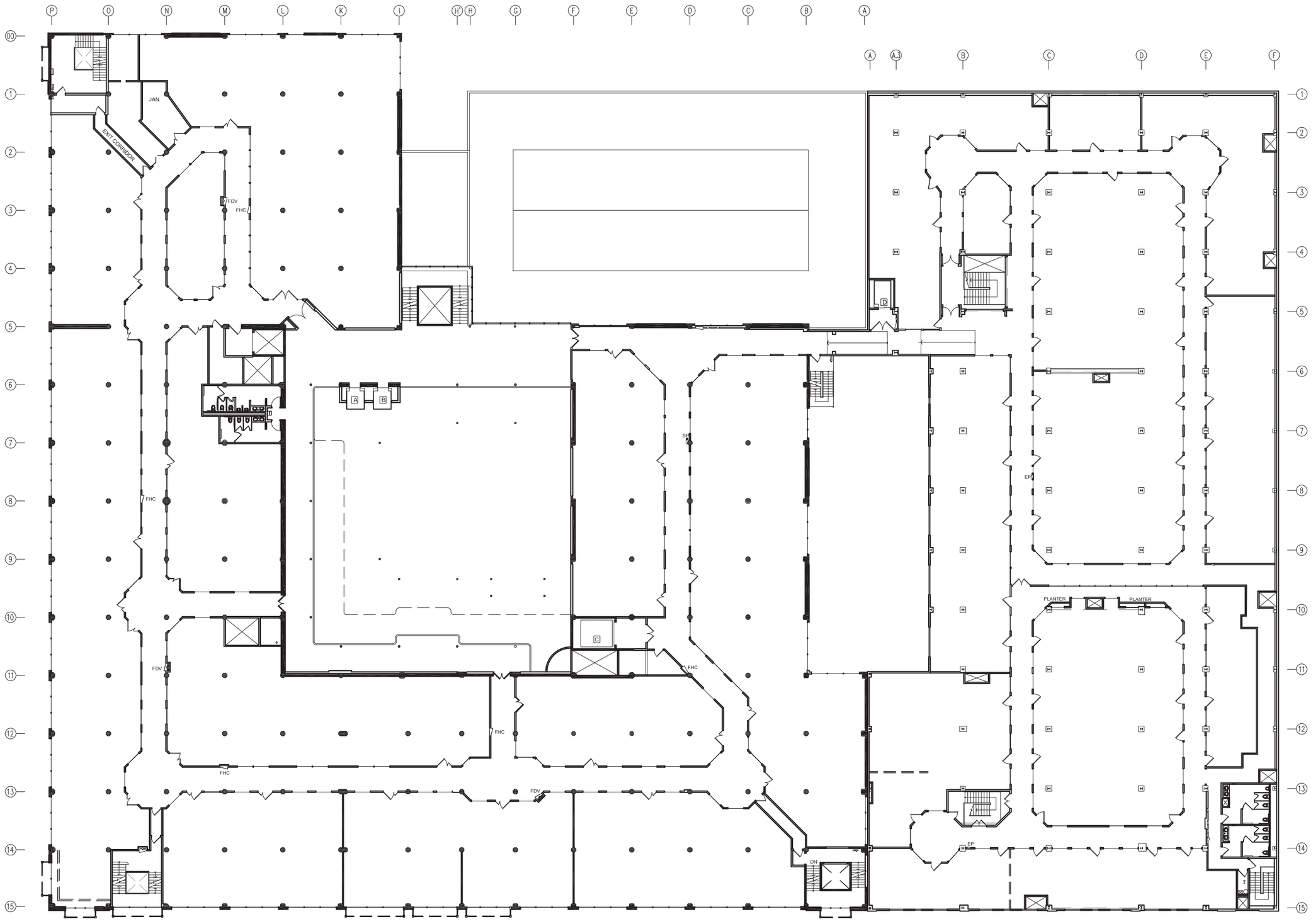
*OCTOBER 18, 2011*

*Scale: 1/32" = 1'-0"*

Ref, North

A1.2

Gensler




**888 Brannan Street**

*EXISTING FLOOR PLAN - LEVEL 03*

*EEA/ SECTION 321 APPLICATION*

*OCTOBER 18, 2011*

*Scale: 1/32" = 1'-0"*

Ref, North

A1.3

Gensler

P O N M L K J H' H G F E D C B A

A A.3 B C D E F

00 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

8TH STREET

STAIR 1 UP DN SP

EXIT CORRIDOR

FHC

FDV

ROOF OF 3RD FLOOR

ROOF OF 3RD FLOOR
MEZZANINE

ROOF OF 3RD FLOOR

DN UP UP DN

FREIGHT ELEV. D

EP

EP TE EXIT CORRIDOR

DN

BLDG. STOR.

ELEC.

(E) MEN

DF

(E) WOMEN

ELEVATORS

A B

FHC

SP DN

STAIR 2

SP

LOADING DOCK-
(OPEN TO SKY)

ROOF

FREIGHT ELEV. C

LOBBY

ELEC./ TEL.

F1 F1

FHC

FHC

FHC

FDV

FDV

EP TE

STAIR 4 FDV

UP DN DN UP

EXIT CORRIDOR

SP UP

DN UP

STAIR 3

BRANNAN STREET

**888 Brannan Street**

*EXISTING FLOOR PLAN - LEVEL 04*

*EEA/ SECTION 321 APPLICATION*

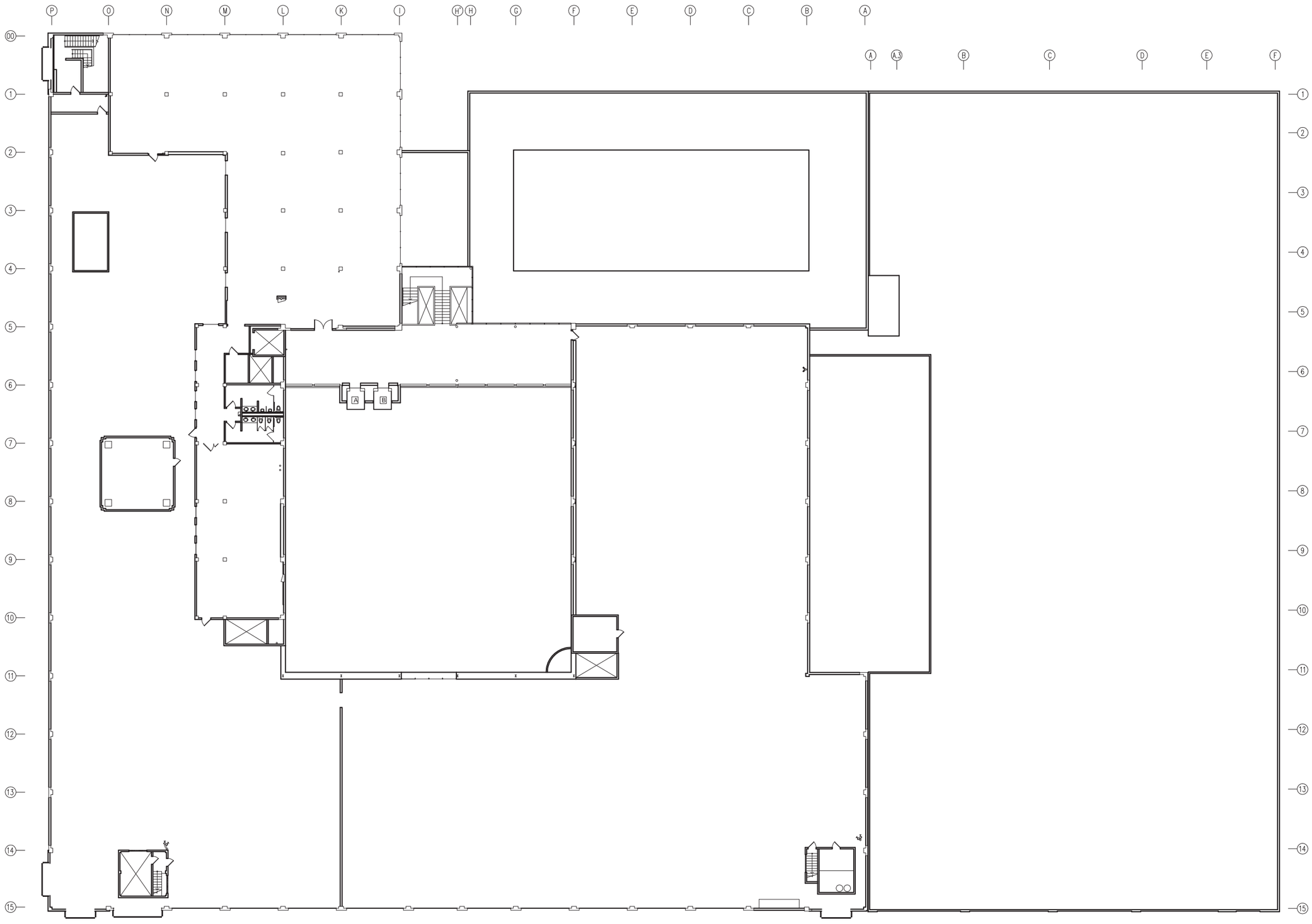
*OCTOBER 18, 2011*

*Scale: 1/32" = 1'-0"*

Ref. North

A1.4

Gensler




**888 Brannan Street**

*EXISTING FLOOR PLAN - LEVEL 05*

*EEA/ SECTION 321 APPLICATION*

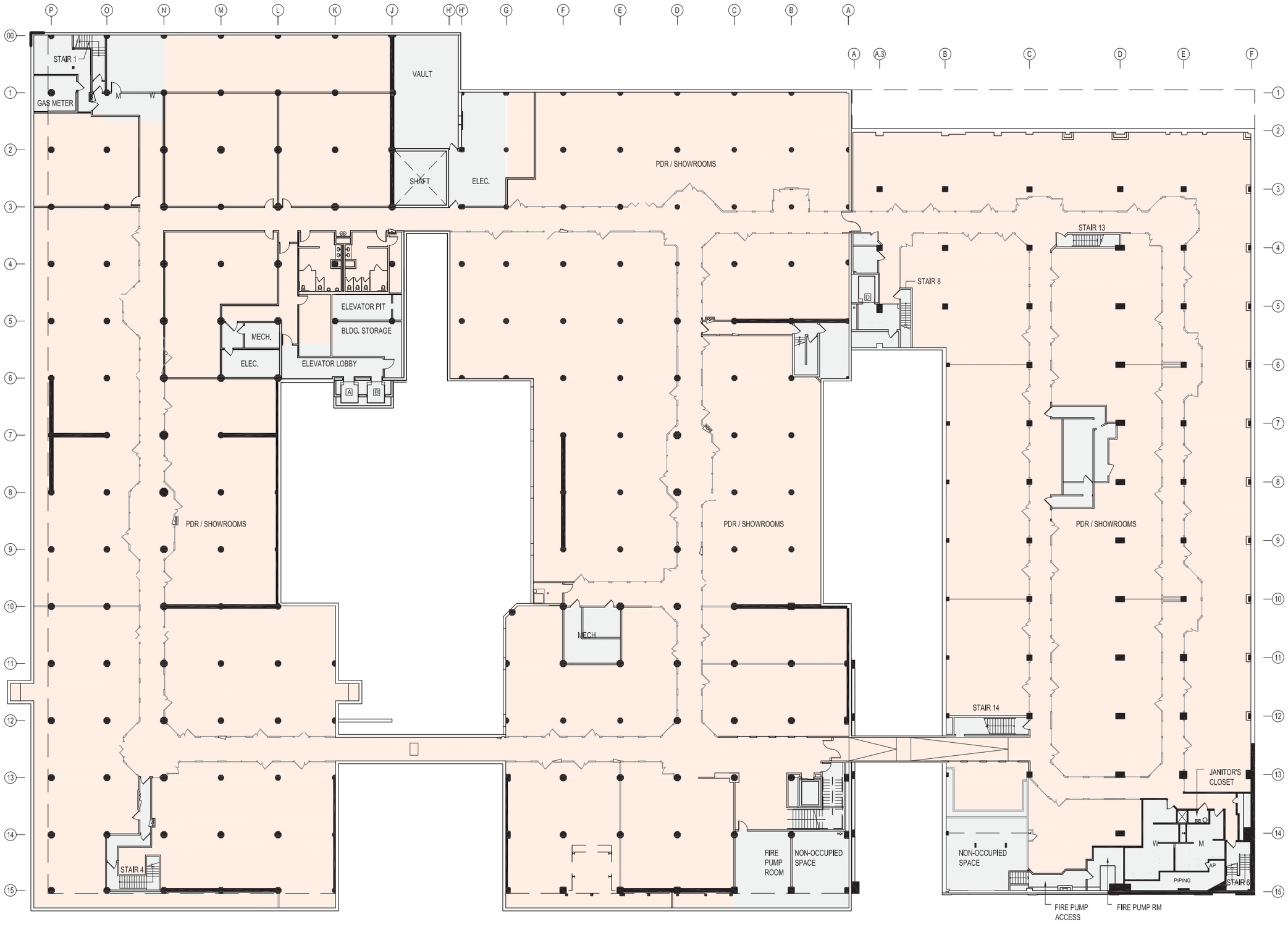
*OCTOBER 18, 2011*

*Scale: 1/32" = 1'-0"*

Ref. North

A1.5

Gensler




**888 Brannan Street**

*FLOOR PLAN - LEVEL B01*

*EEA/ SECTION 321 APPLICATION*

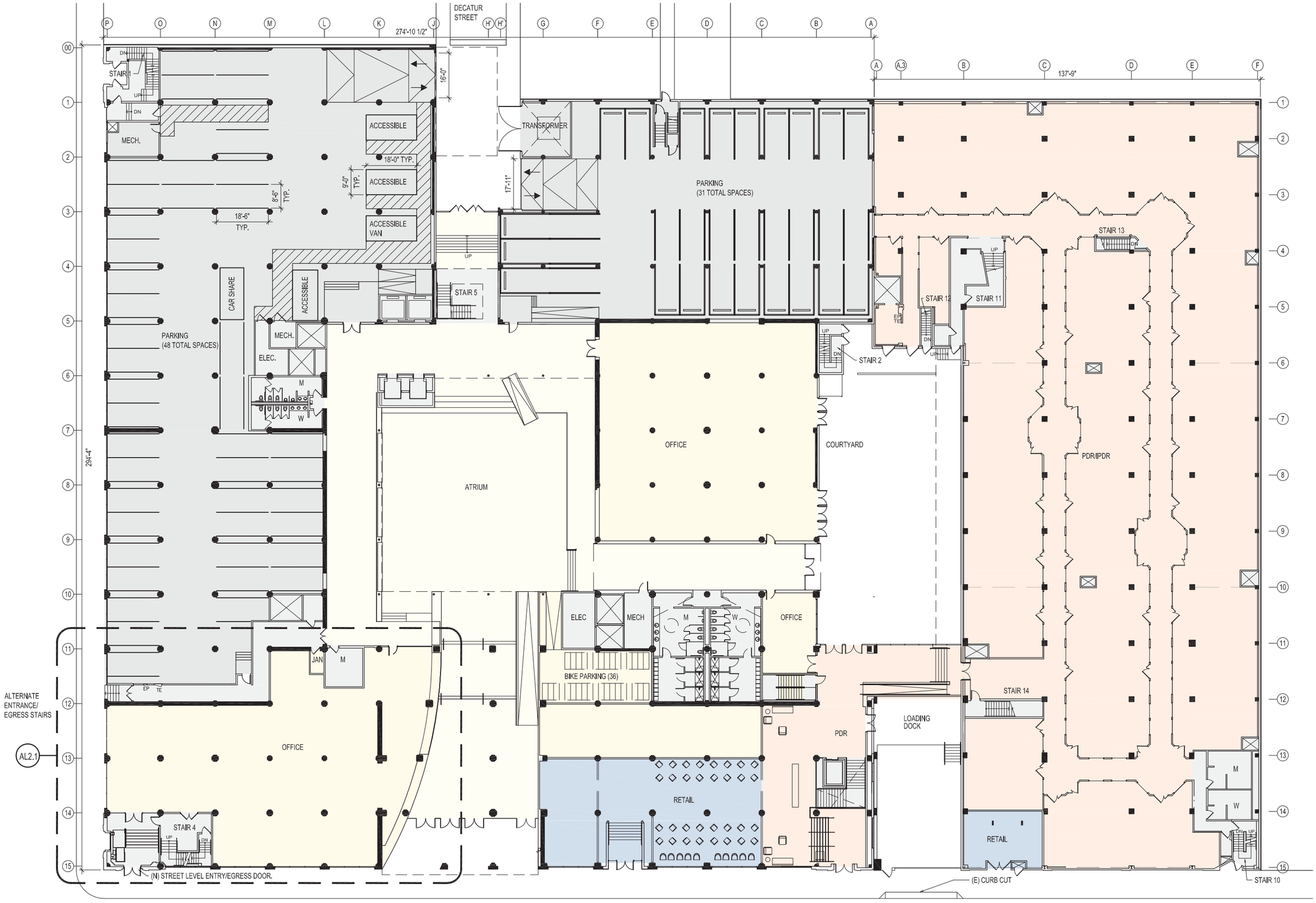
*OCTOBER 18, 2011*

*Scale: 1/32" = 1'-0"*

Ref. North

A2.B

Gensler




**888 Brannan Street**

*FLOOR PLAN - LEVEL 01*

*EEA/ SECTION 321 APPLICATION*

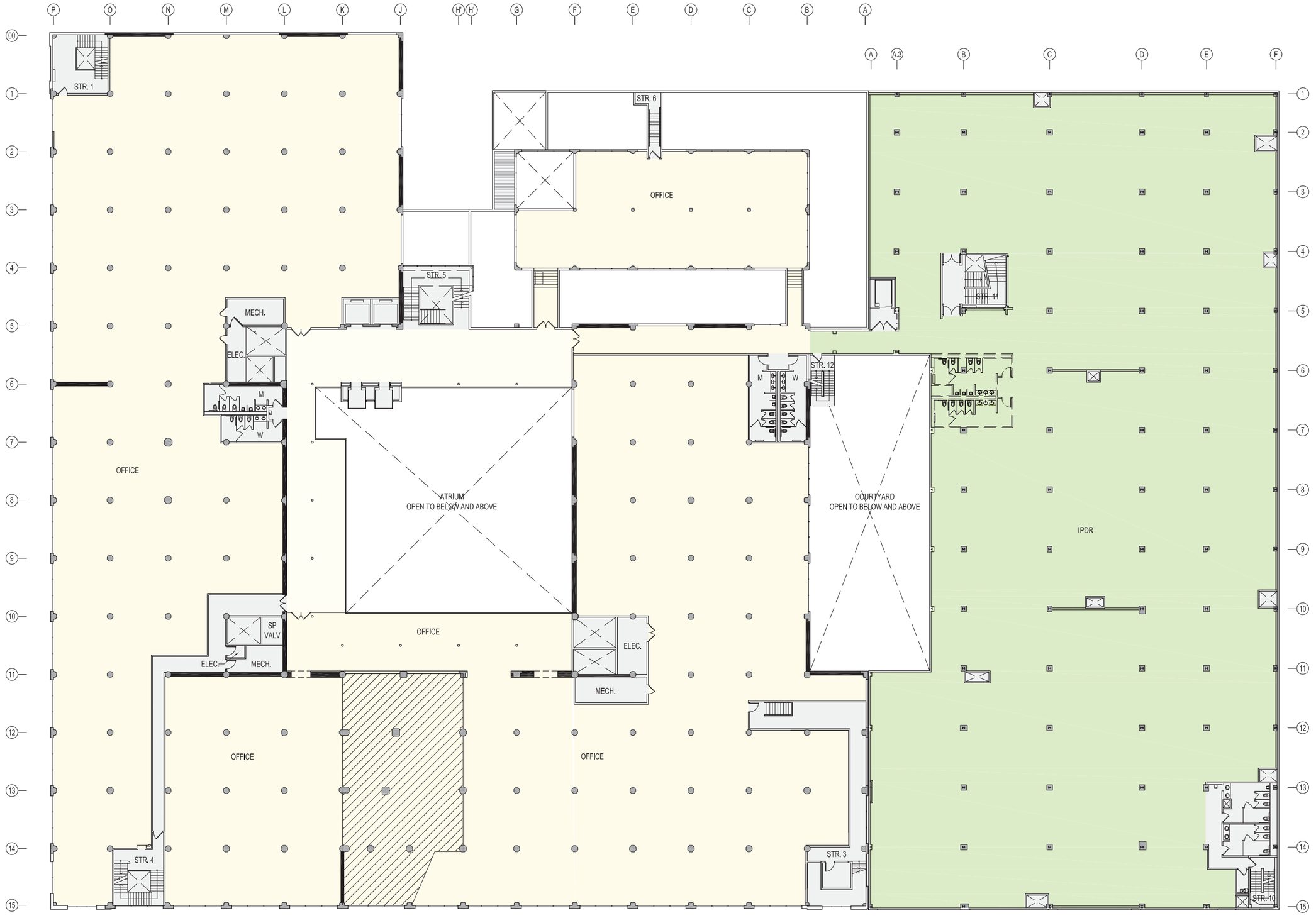
*OCTOBER 18, 2011*

*Scale: 1/32" = 1'-0"*

Ref. North

A2.1

Gensler




**888 Brannan Street**

*FLOOR PLAN - LEVEL 02*

*EEA/ SECTION 321 APPLICATION*

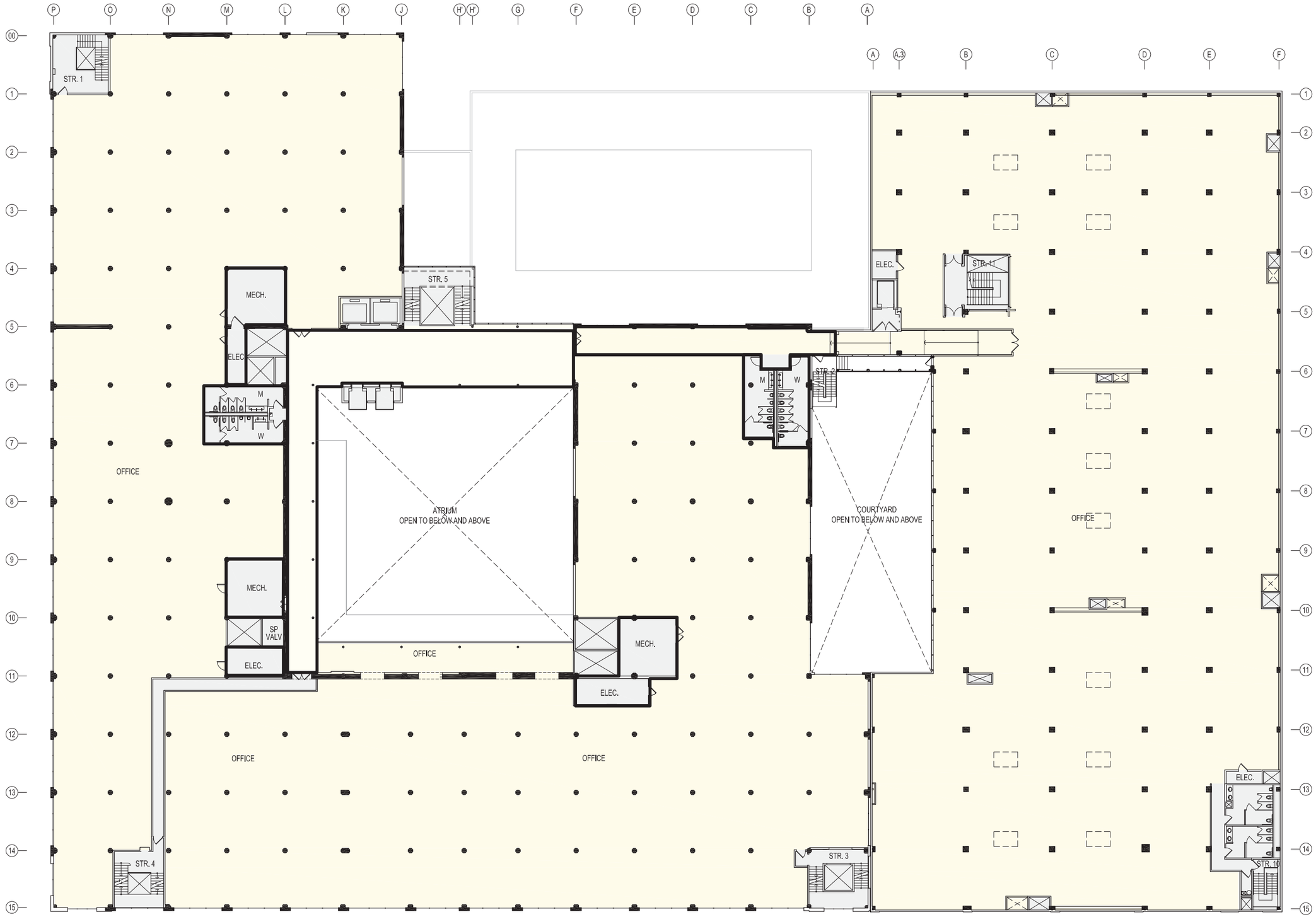
*OCTOBER 18, 2011*

*Scale: 1/64" = 1'-0"*

Ref. North

A2.2

Gensler




**888 Brannan Street**

*FLOOR PLAN - LEVEL 03*

*EEA/ SECTION 321 APPLICATION*

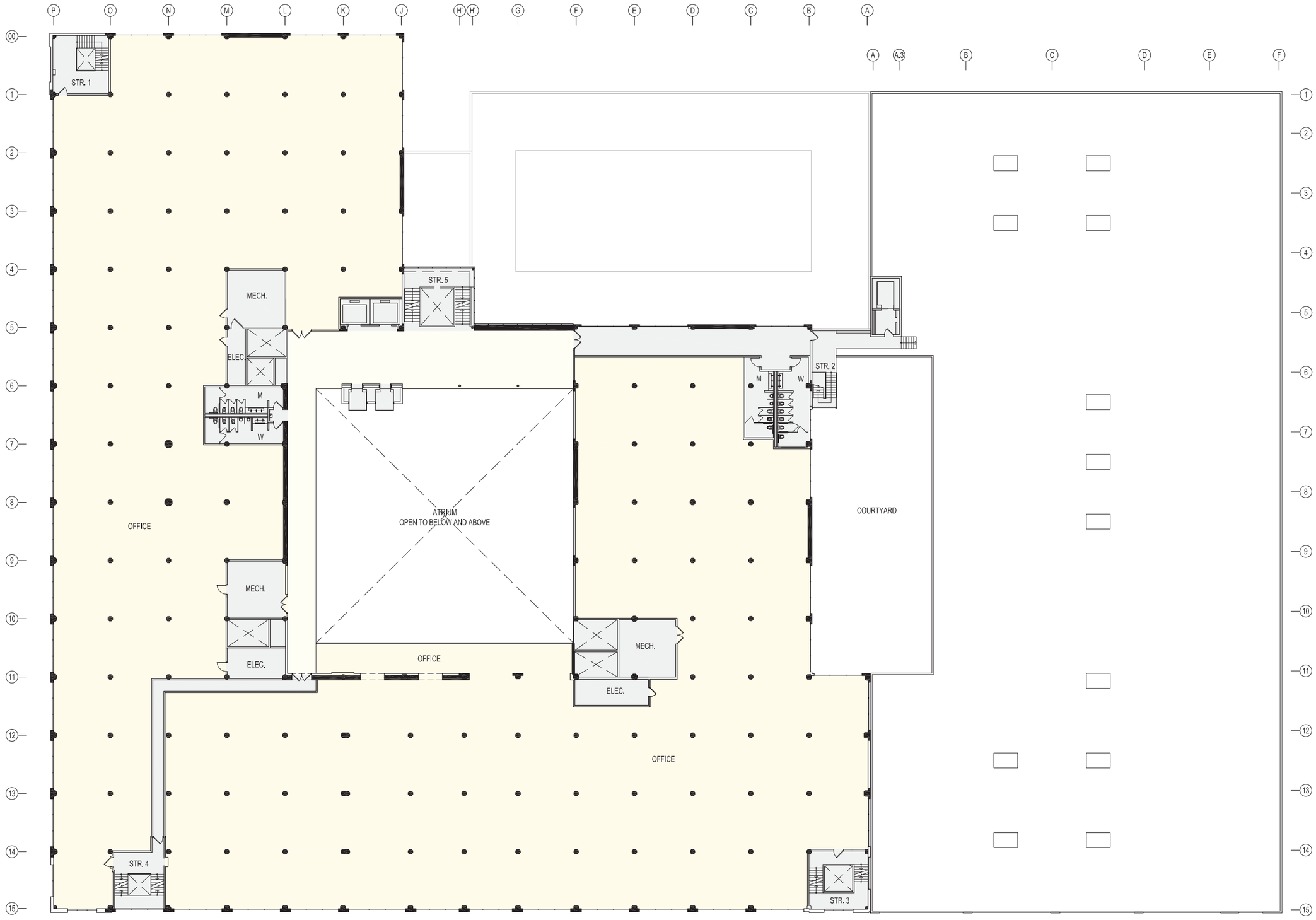
*OCTOBER 18, 2011*

*Scale: 1/32" = 1'-0"*

Ref. North

A2.3

Gensler




**888 Brannan Street**

*FLOOR PLAN - LEVEL 04*

*EEA/ SECTION 321 APPLICATION*

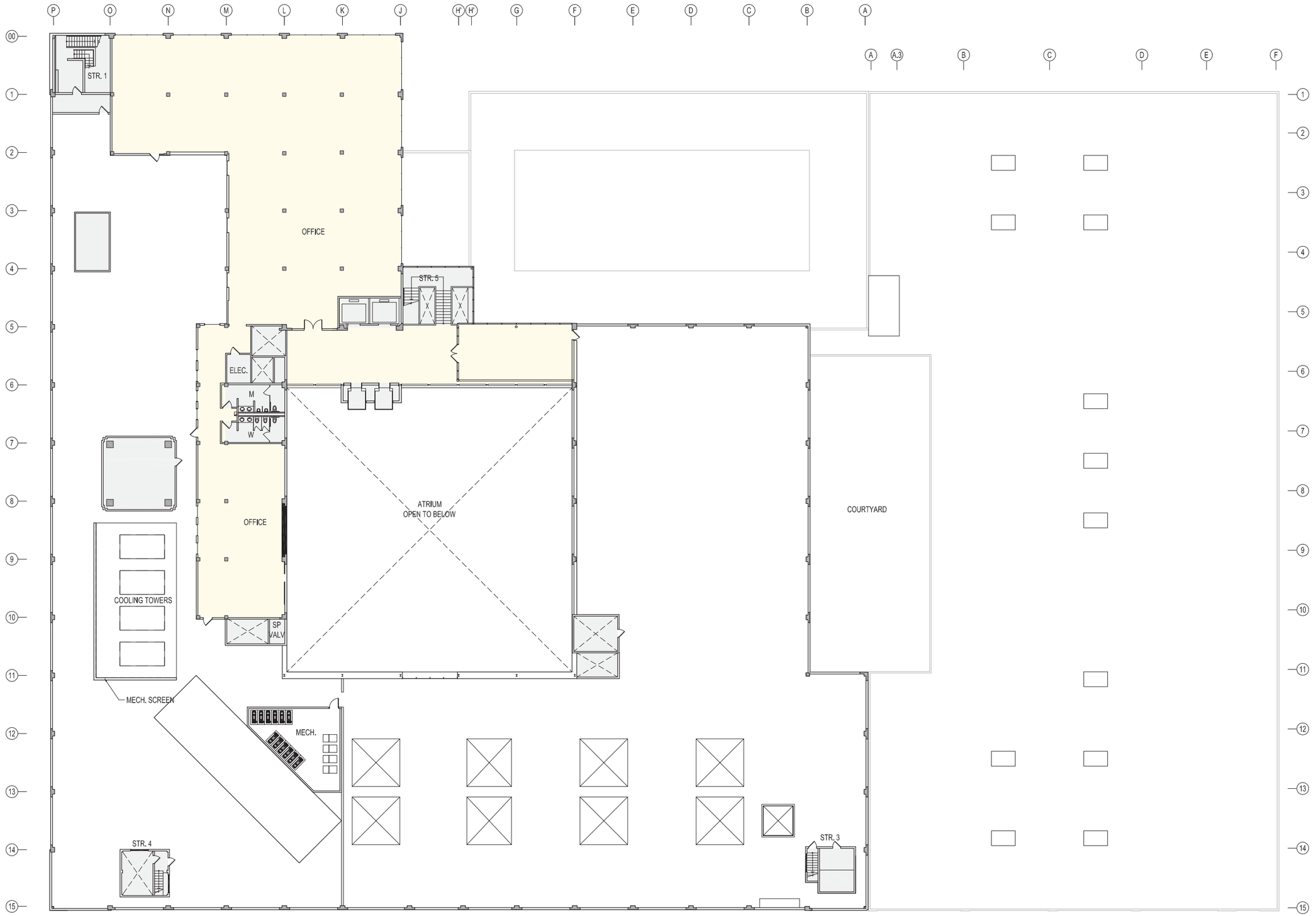
*OCTOBER 18, 2011*

*Scale: 1/32" = 1'-0"*

Ref. North

A2.4

Gensler




**888 Brannan Street**

*FLOOR PLAN - LEVEL 05*

*EEA/ SECTION 321 APPLICATION*

*OCTOBER 18, 2011*

*Scale: 1/32" = 1'-0"*

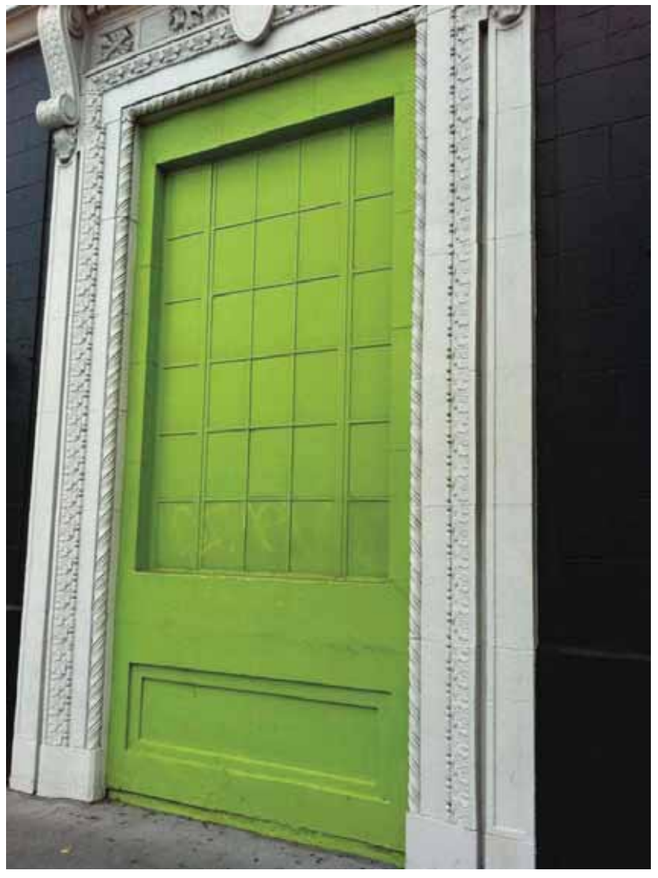
Ref. North

A2.5

Gensler


888 BRANNAN
JEWELRY
NY HOSIERY

*EIGHTH STREE EXIT PORTICO*



*BRANNAN STREET WESTERN PORTAL*

*BRANNAN STREET  EASTERN PORTICO*


BLAKE, MOFFITT & TOWNE
PAPER
PAPER

**WEST AND SOUTH FACADE** 4
SCALE: NTS


**SOUTH FACADE** 2
SCALE: NTS

**EAST FACADE** 3
SCALE: NTS


**NORTH FACADE** 1
SCALE: NTS

LEGEND:

REPAIR ORIGINAL FRAME AND INSTALL MICRO RIB CORRUGATED GLASS (OPTION 1A)

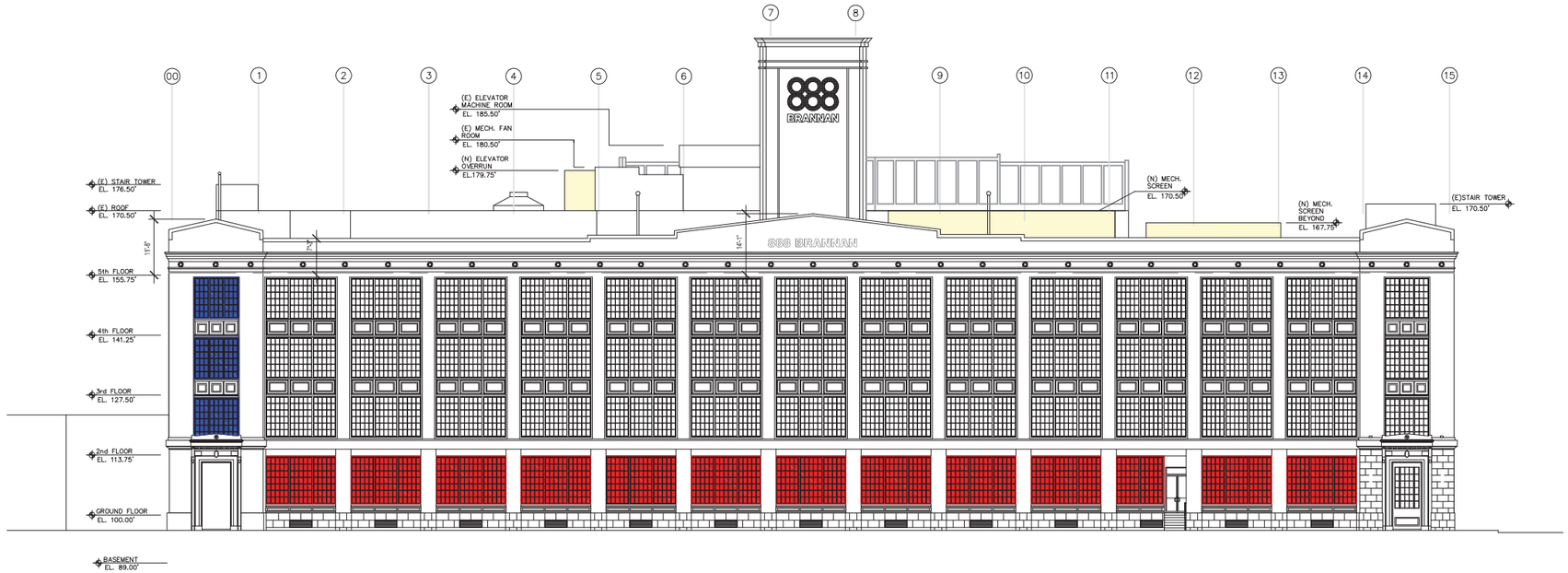
REPAIR ORIGINAL STEEL FRAME AND INSTALL NEW CLEAR GLAZING (OPTION 1B)

NEW 5TH LEVEL MECHANICAL SCREENS

* REMAINING WINDOWS TO BE REMOVED AND REPLACED WITH NEW ALUMINUM UNITS WITH MATCHING LAYOUT AND FRAME PROFILE (OPTION 3A)

COVERED BY PREVIOUS ADDITIONS OR SURROUNDING BUILDINGS.

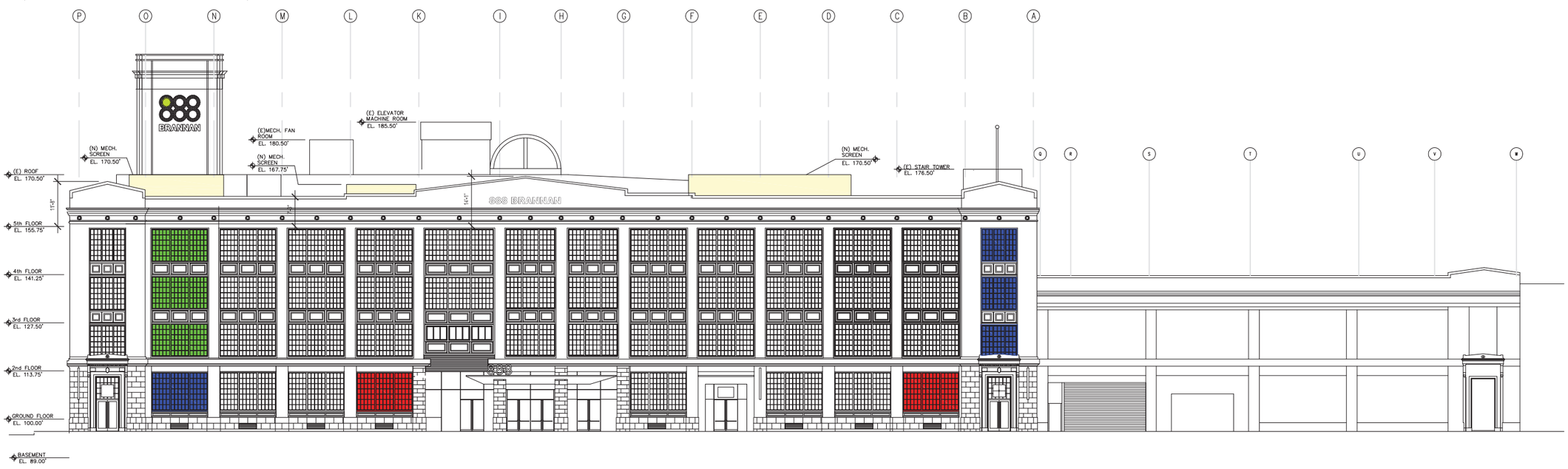
WINDOW TO BE REMOVED AND REPLACED WITH NEW ALUMINIUM UNITS WITH MATCHING LAYOUT AND FRAME (NON-VISION MICRO RIB GLASS)




## ELEVATION - EIGHTH STREET

SCALE: 1/32" = 1'-0"

2




## ELEVATION - BRANNAN STREET

SCALE: 1/32" = 1'-0"

1

**888 Brannan Street**

*ELEVATION: ALTERNATE "B" CORNER TENANT ENTRANCE*

*EEA/ SECTION 321 APPLICATION*

*OCTOBER 28, 2011*

*Scale: 1/32" = 1'-0"*

A4.0

Gensler

LEGEND:

REPAIR ORIGINAL FRAME AND INSTALL MICRO RIB CORRUGATED GLASS (OPTION 1A)

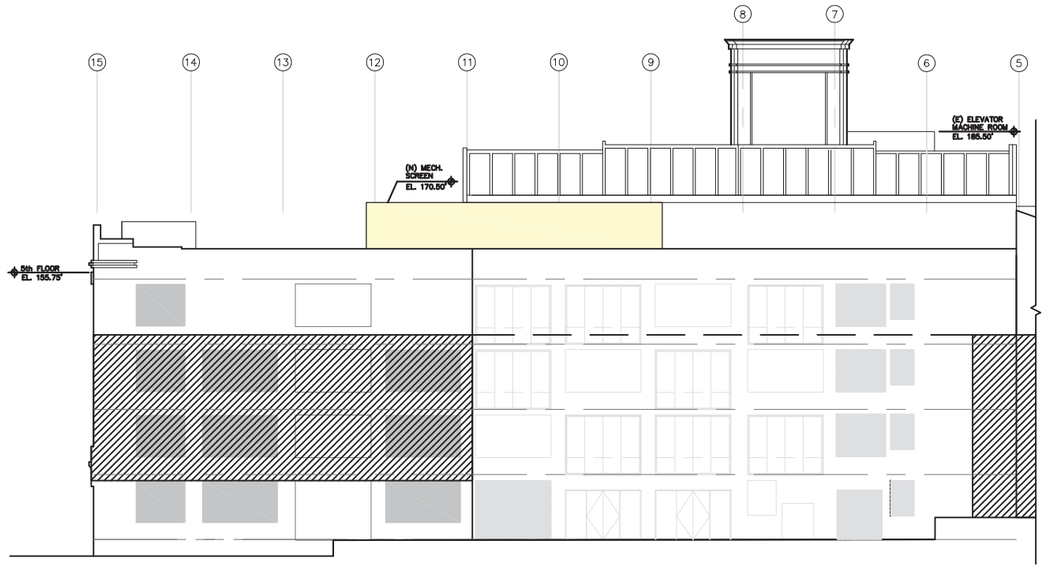
REPAIR ORIGINAL STEEL FRAME AND INSTALL NEW CLEAR GLAZING (OPTION 1B)

NEW 5TH LEVEL MECHANICAL SCREENS

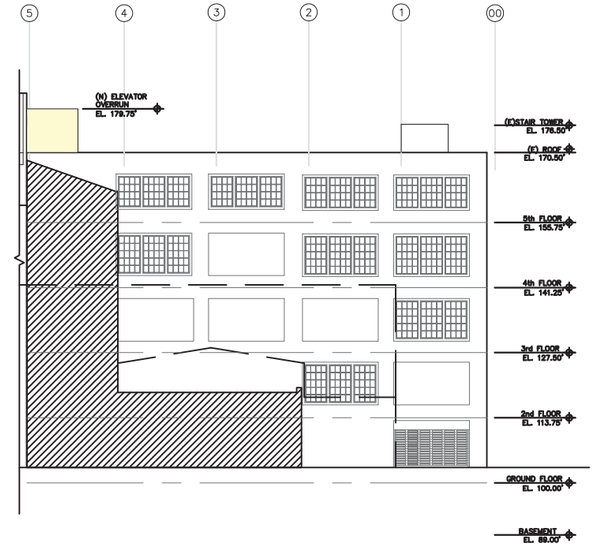
REPLACE EXISTING WINDOWS WITH NEW STEEL FRAMED WINDOWS WITH INSULATED GLAZING @ NORTH ELEVATION/ ZERO LOT LINE

* REMAINING WINDOWS TO BE REMOVED AND REPLACED WITH NEW ALUMINUM UNITS WITH MATCHING LAYOUT AND FRAME PROFILE (OPTION 3A)

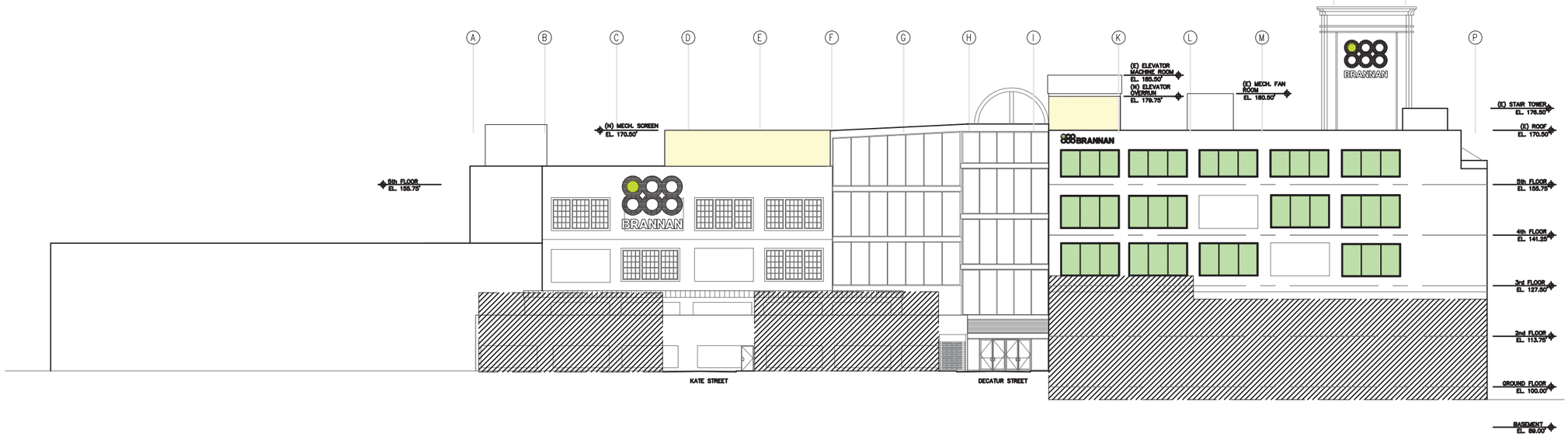
COVERED BY PREVIOUS ADDITIONS OR SURROUNDING BUILDINGS.



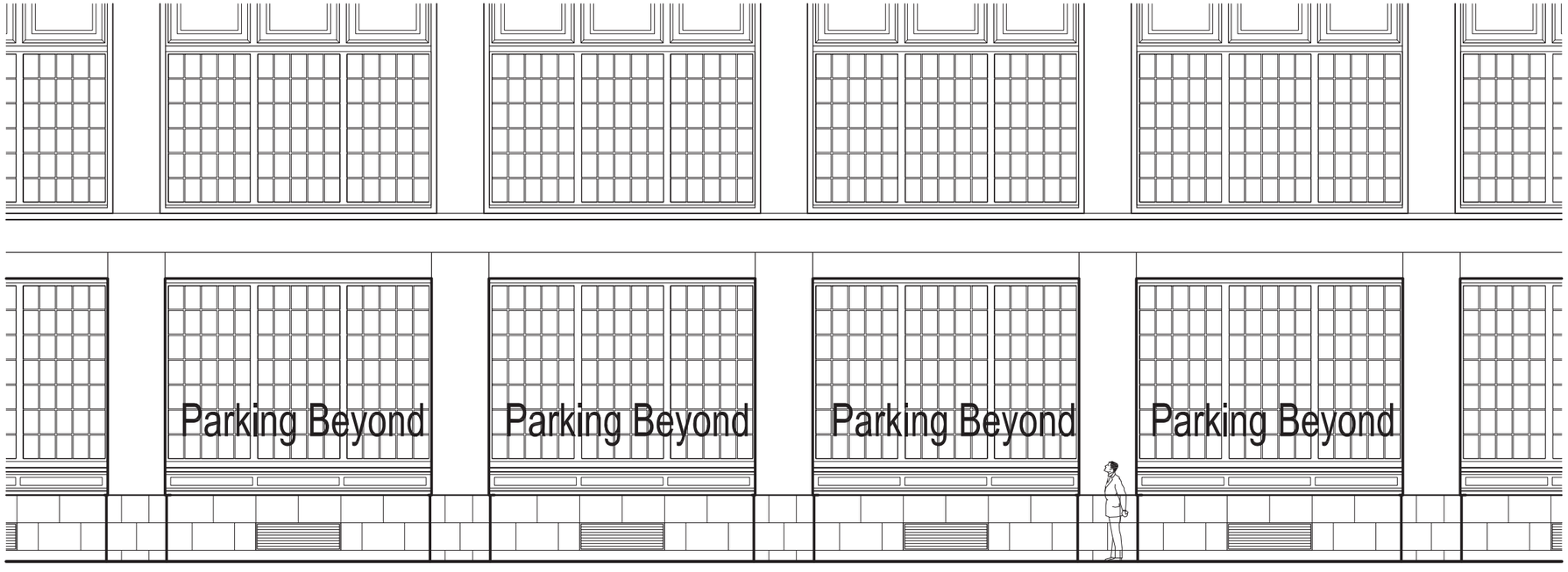

**EAST ELEVATION - @ COURTYARD** 3
SCALE: 1/32" = 1'- 0"

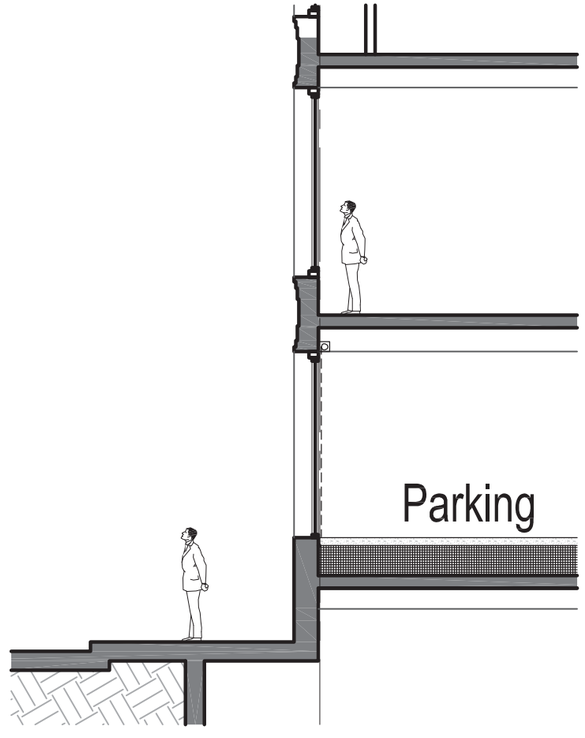


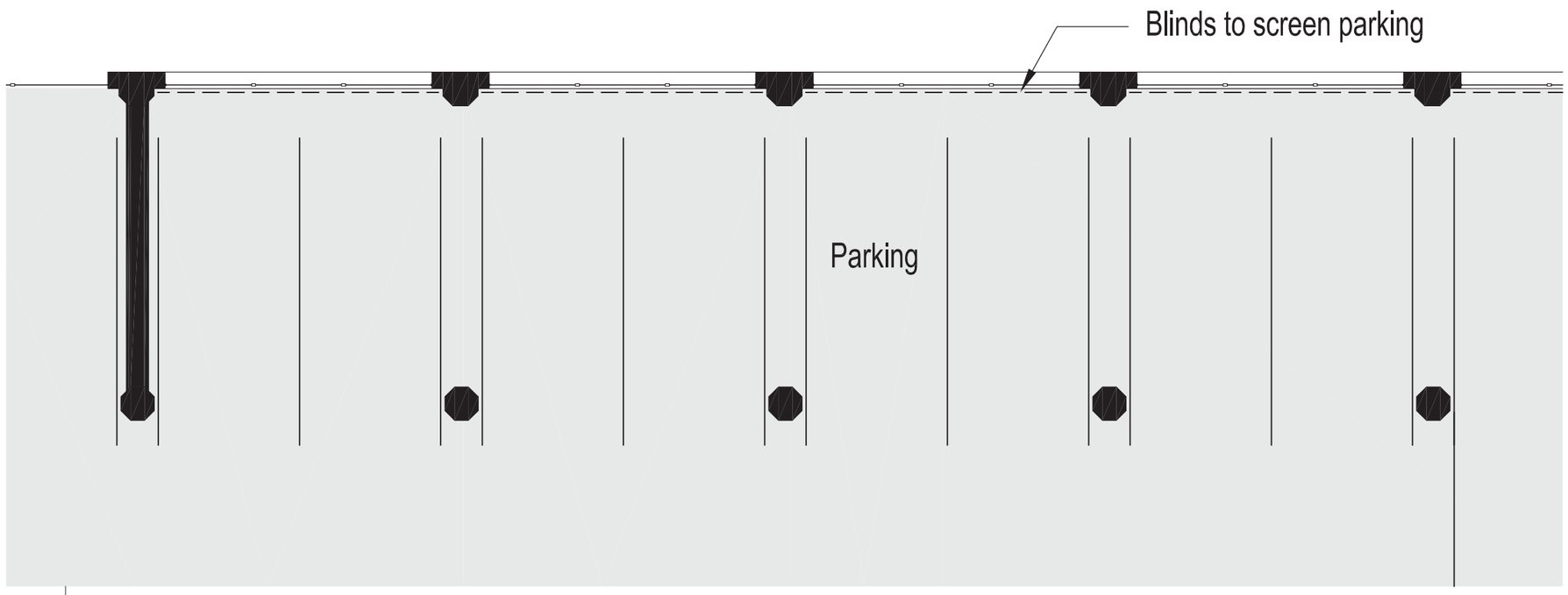

**EAST ELEVATION - @ DECATUR ST** 2
SCALE: 1/32" = 1'- 0"

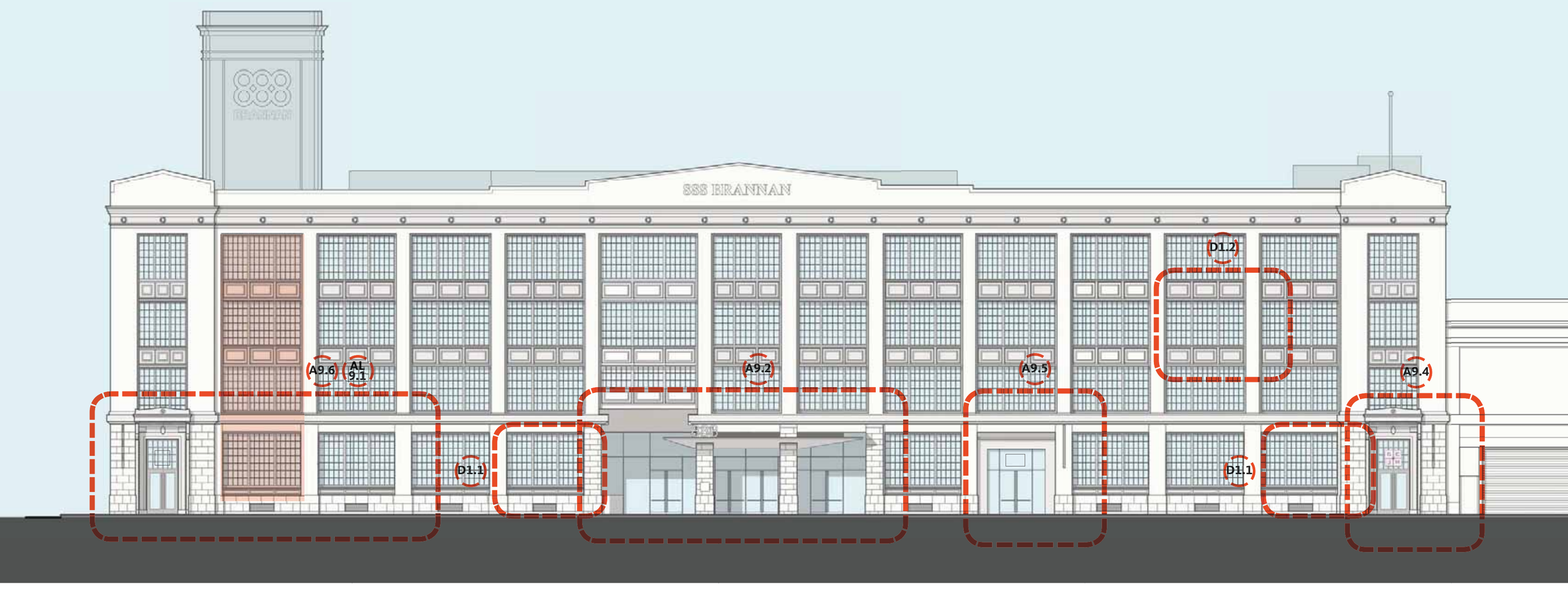


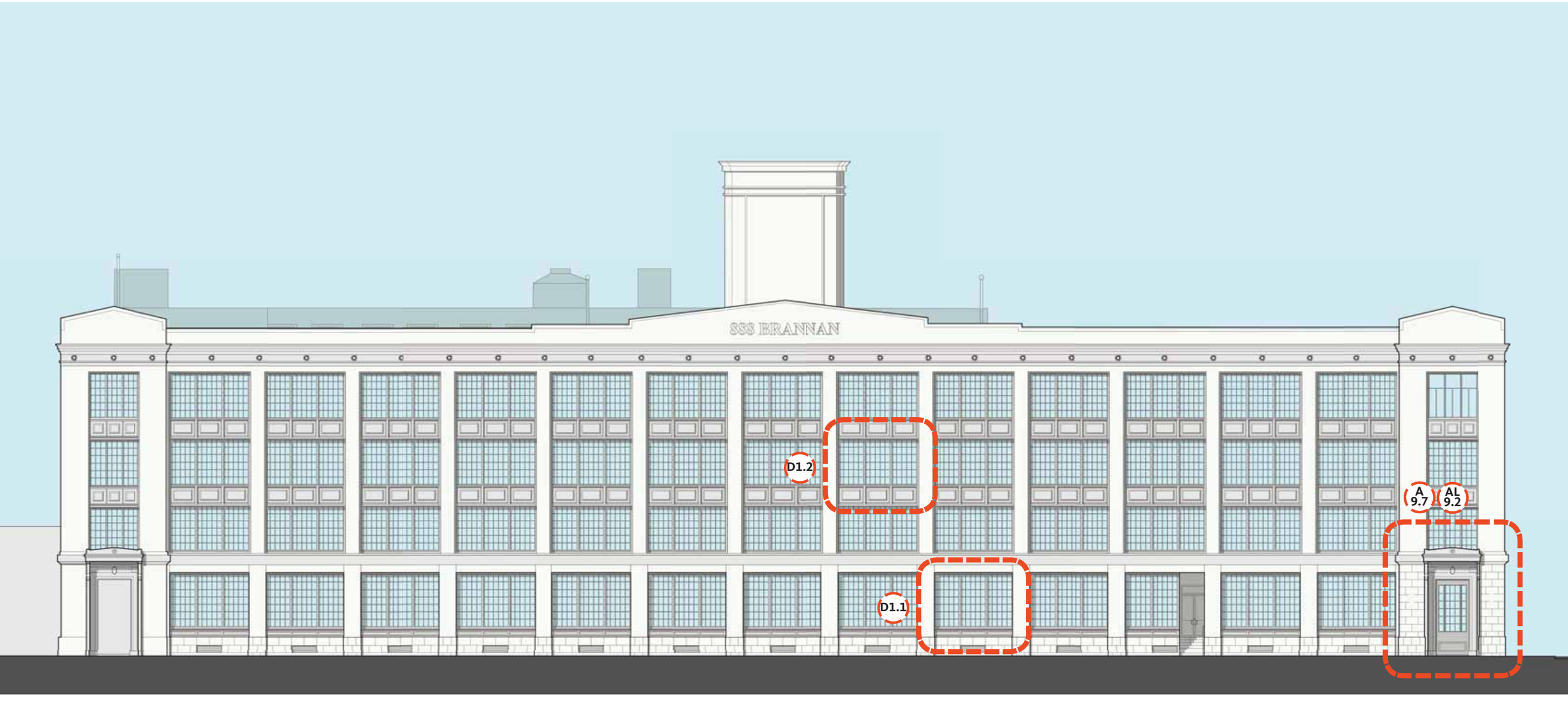

**NORTH ELEVATION - BRYANT STREET** 1
SCALE: 1/32" = 1' - 0 "

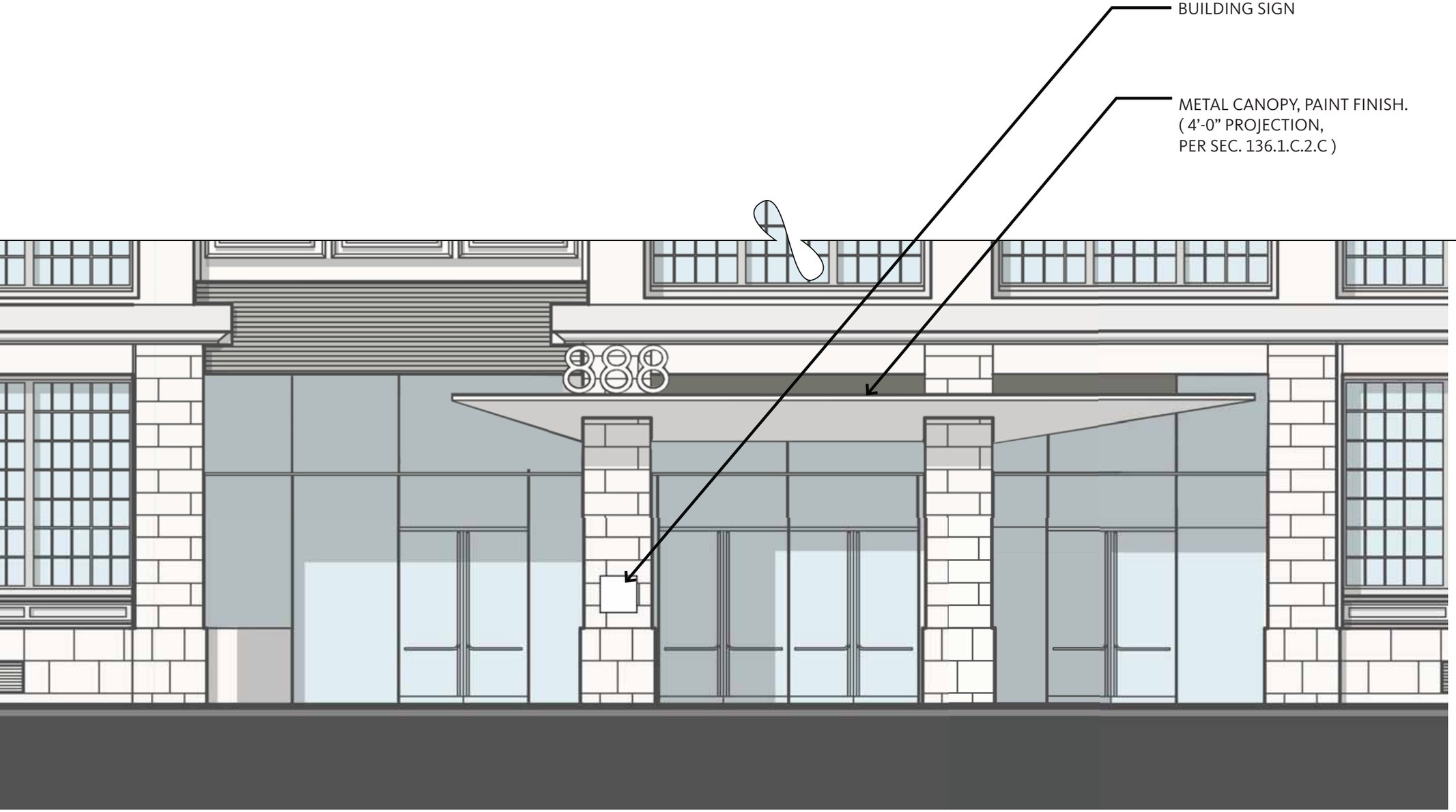

Parking Beyond
Parking Beyond
Parking Beyond
Parking Beyond

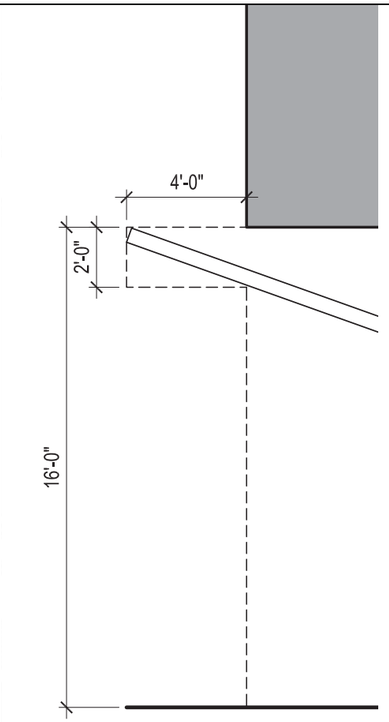

Parking


Blinds to screen parking
Parking


888 BRANNAN
A9.6
AL 9.1
D1.1
A9.2
A9.5
D1.2
D1.1
A9.4


888 BRANNAN
D1.2
D1.1
A 9.7
AL 9.2

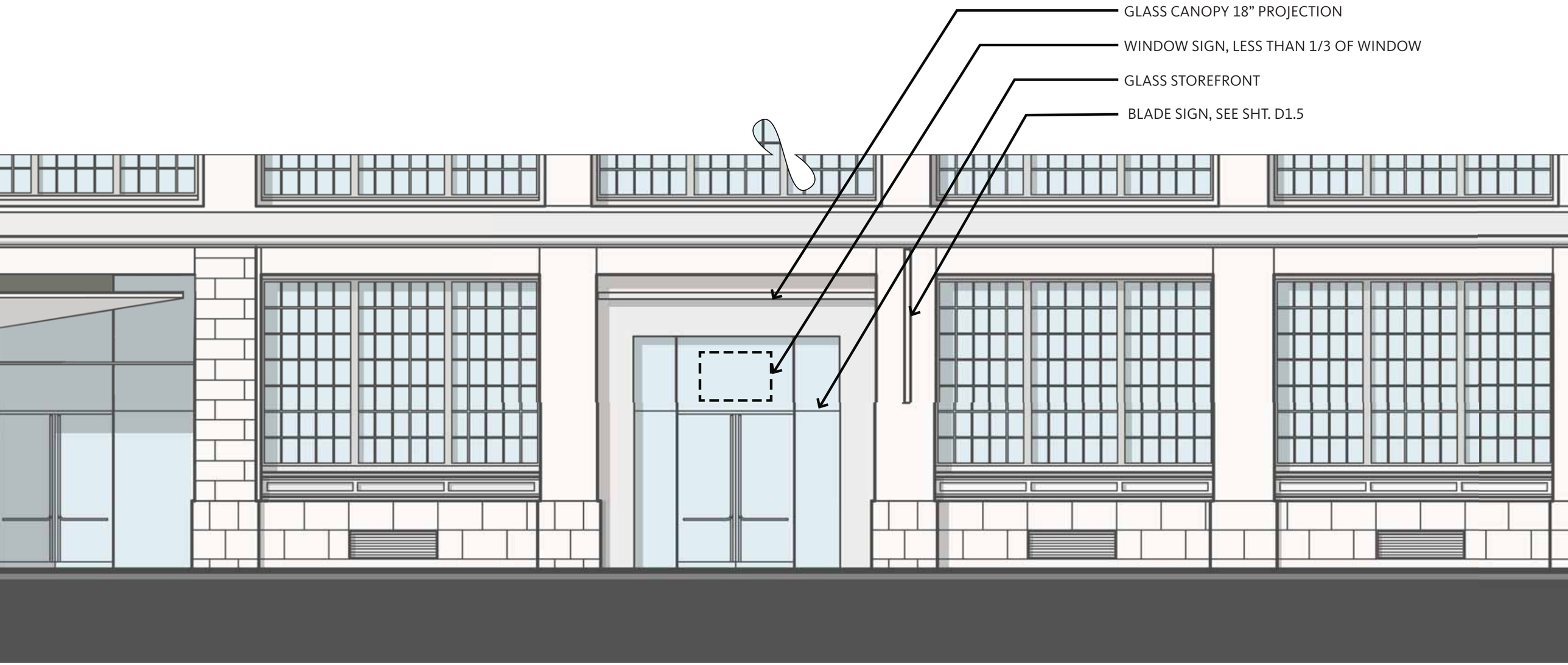

BUILDING SIGN
METAL CANOPY, PAINT FINISH.
( 4'-0" PROJECTION,
PER SEC. 136.1.C.2.C )
888

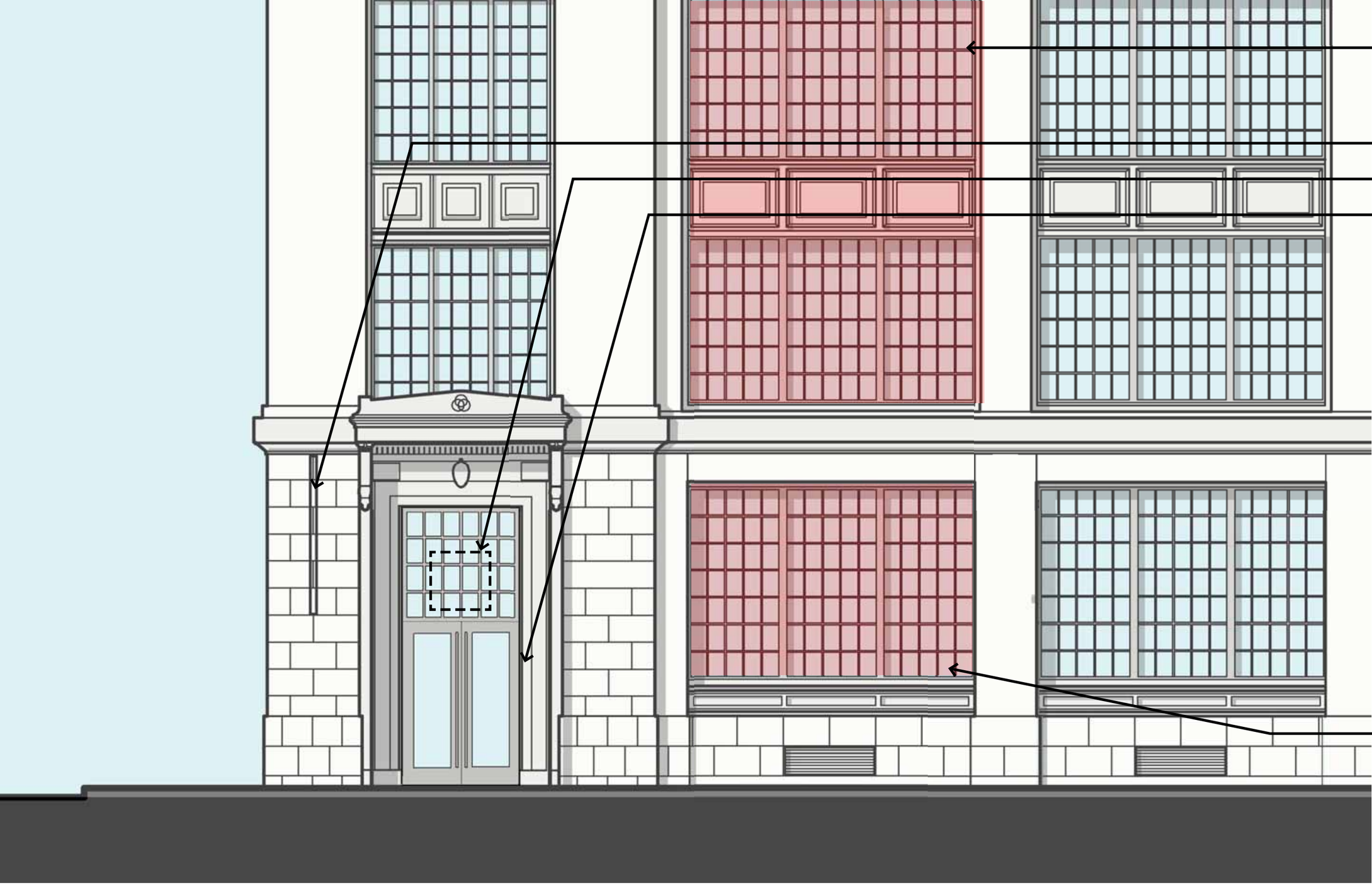

4'-0"
2'-0"
16'-0"

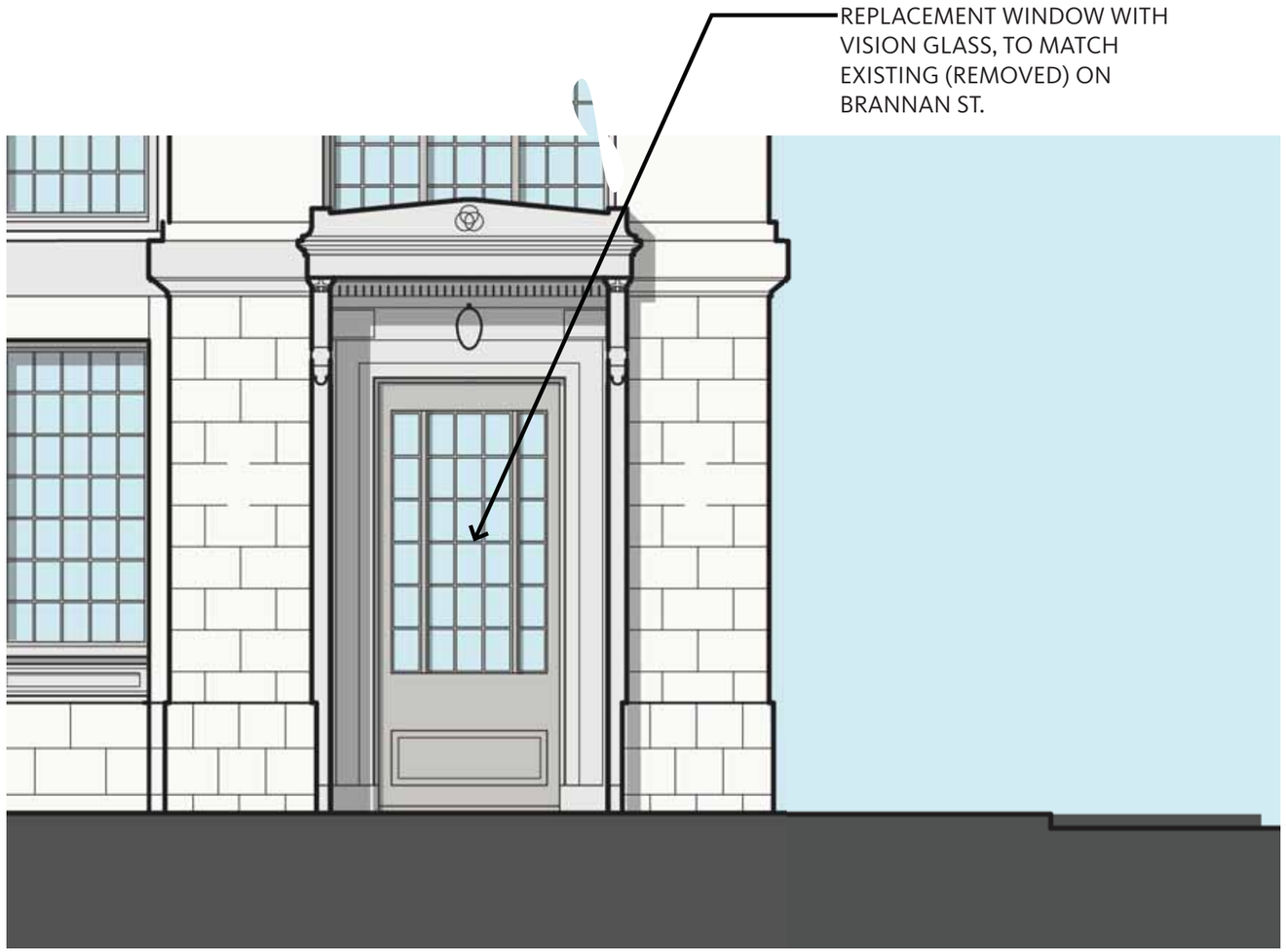

888

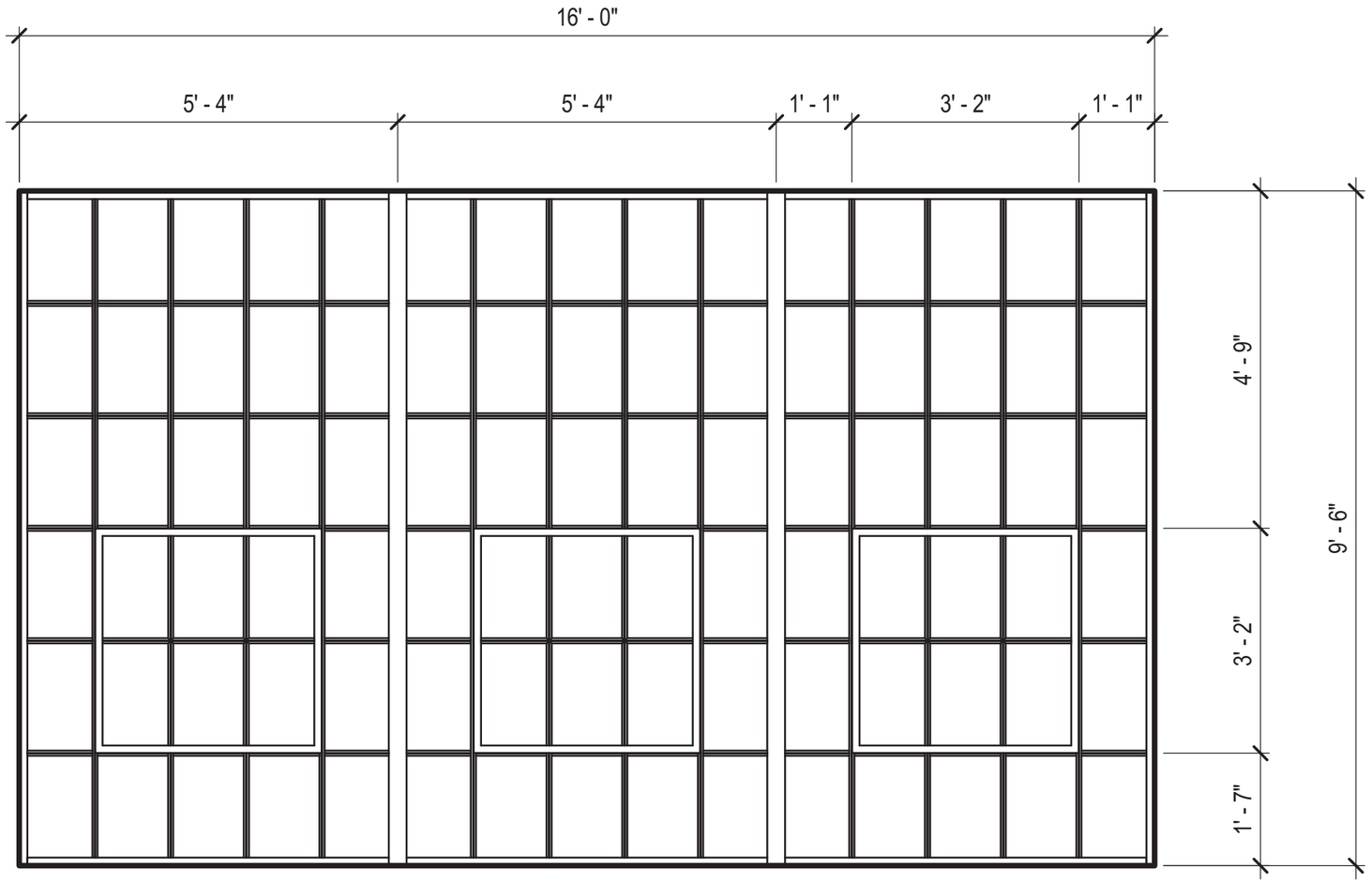

888


WINDOW SIGN, LESS THAN 1/3 OF WINDOW
DARK NICKEL FRAMED DOOR WITH DIVIDED TRANSOM LITE ABOVE
BLADE SIGN, SEE SHT. D1.5
ROLL UP DOOR AT NEW LOADING DOCK
G C
J M


GLASS CANOPY 18” PROJECTION
WINDOW SIGN, LESS THAN 1/3 OF WINDOW
GLASS STOREFRONT
BLADE SIGN, SEE SHT. D1.5


NEW ALUMINUM W/ CORRUGATED GLASS
BLADE SIGN, SEE SHT. D1.5
WINDOW SIGN, LESS THAN 1/3 OF WINDOW
DARK NICKEL FRAMED DOOR WITH DIVIDED TRANSOM LITE ABOVE
RENOVATED W/ CORRUGATED GLASS


REPLACEMENT WINDOW WITH VISION GLASS, TO MATCH EXISTING (REMOVED) ON BRANNAN ST.

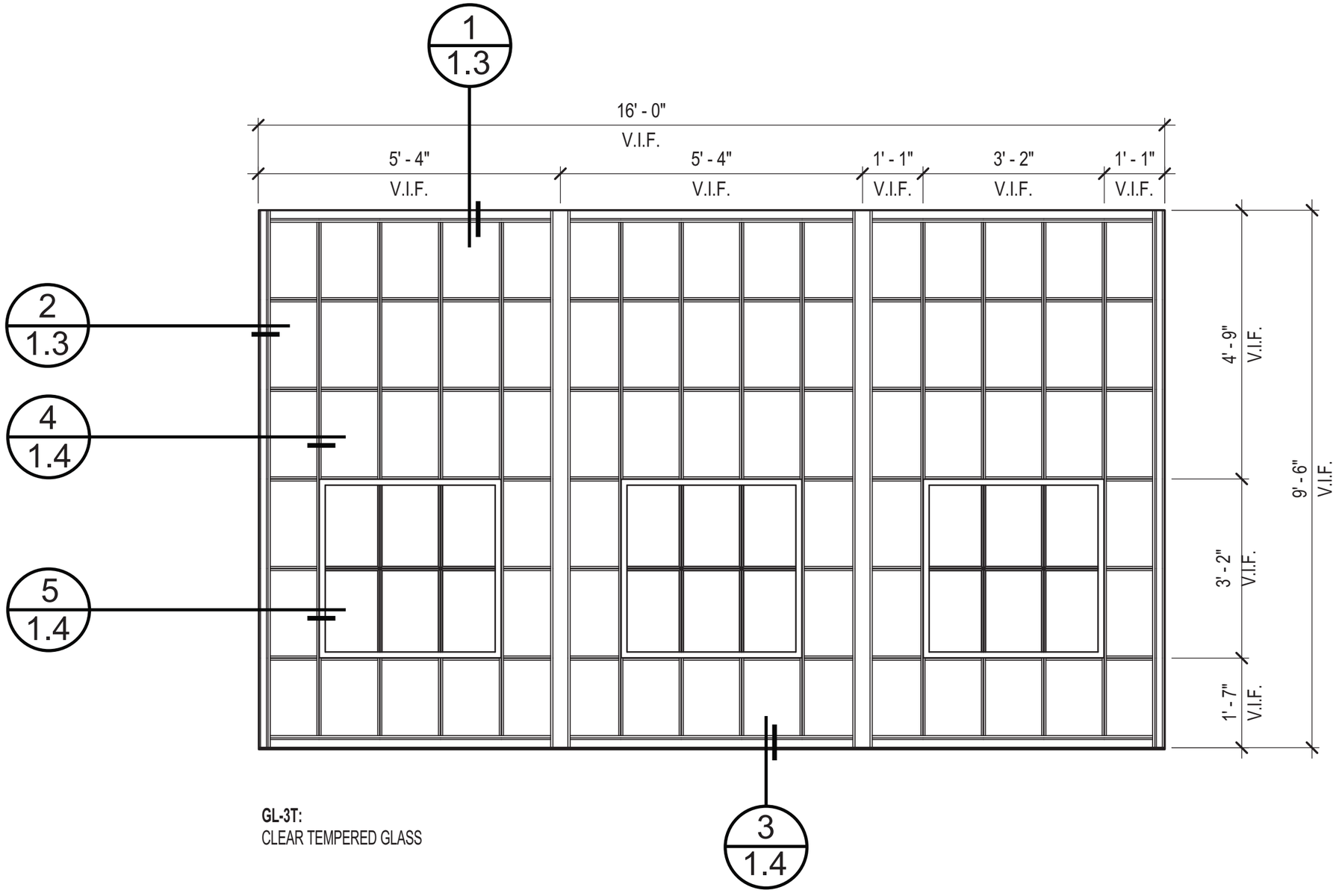



**GL-3T:**
CLEAR TEMPERED GLASS

# RESTORED WINDOW - TYPICAL - ELEVATION

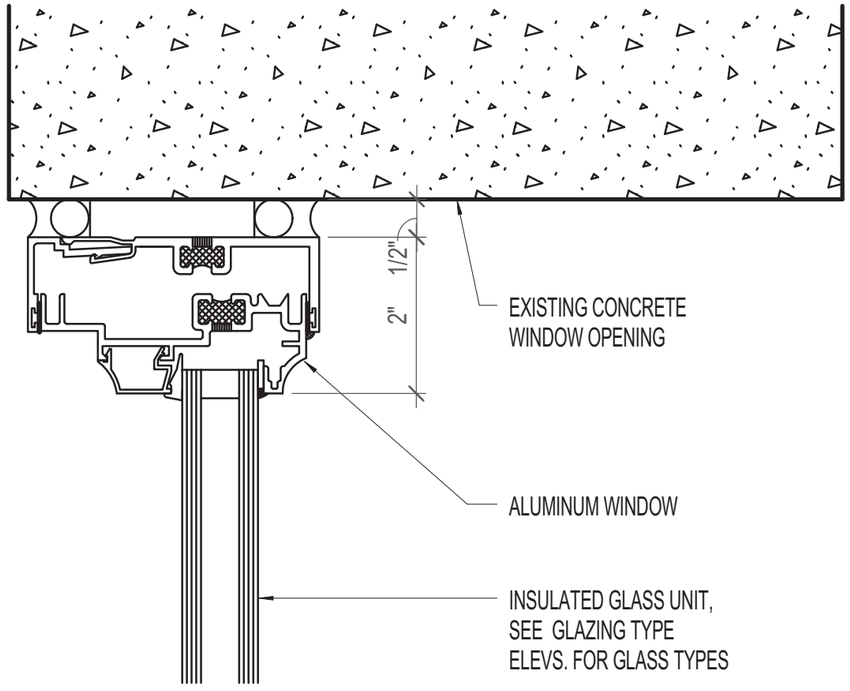
SCALE: 1/2" = 1'-0"

*TYPICAL EXISTING WINDOW*



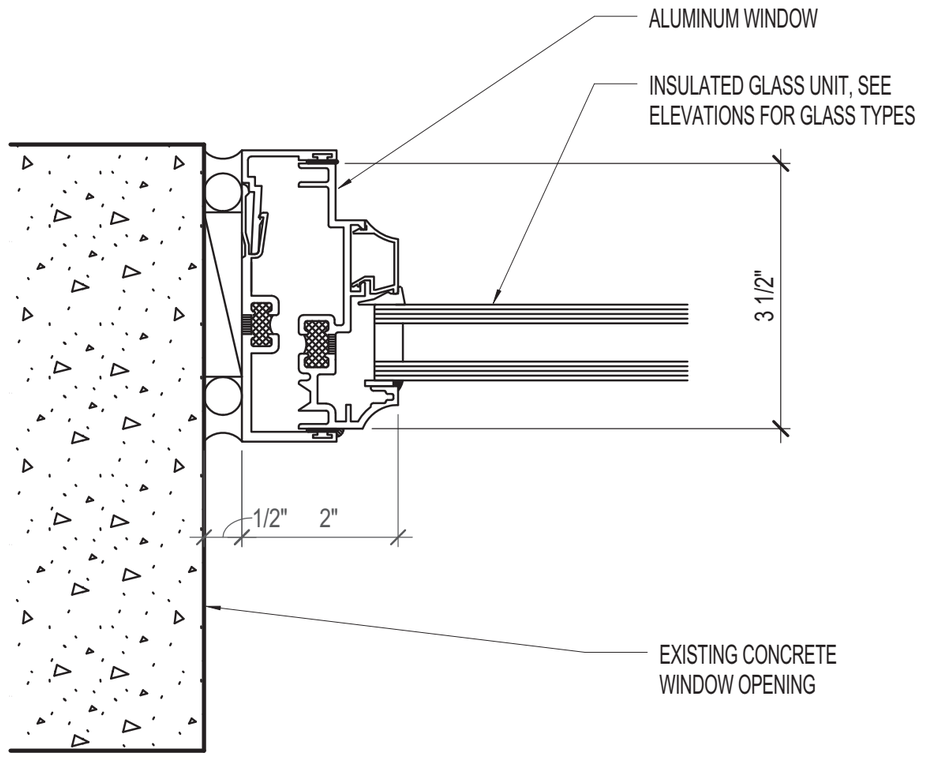

# ALUMINUM REPLACEMENT WINDOW - TYPICAL - ELEVATION

SCALE: 1/2" = 1'-0"



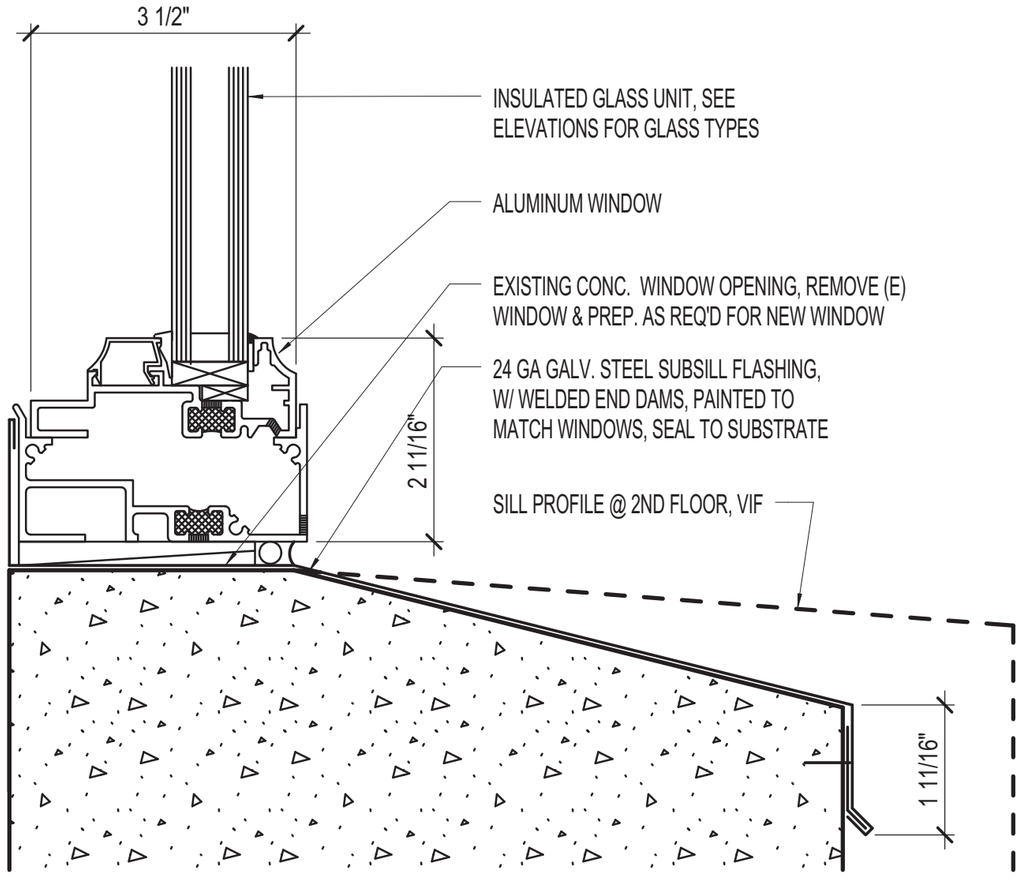

## TYPICAL WINDOW HEAD 1

SCALE: 6" = 1'-0"



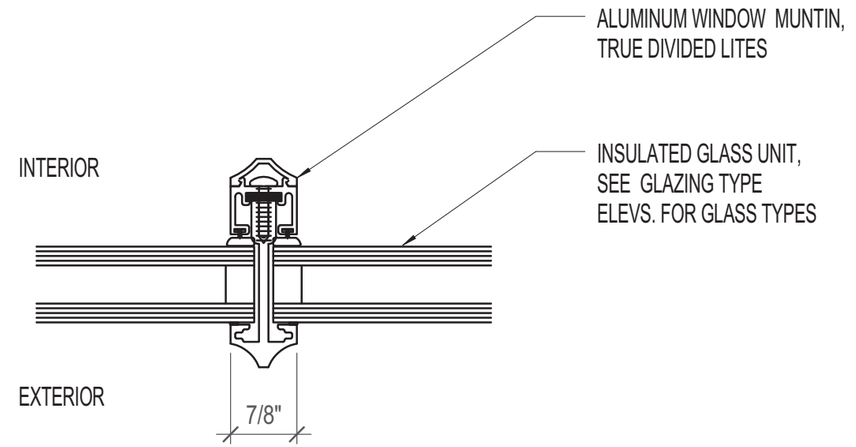

## TYPICAL WINDOW JAMB 2

SCALE: 6" = 1'-0"



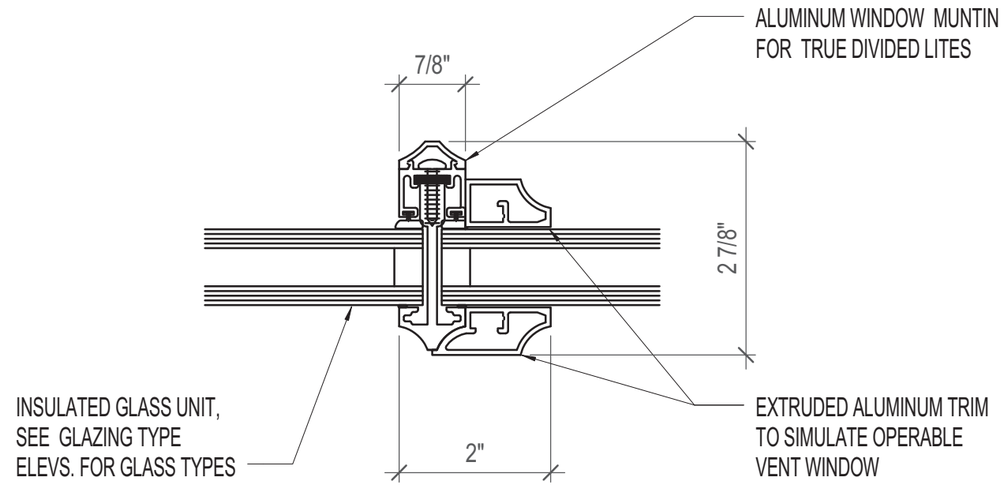

## TYPICAL WINDOW SILL 3

SCALE: 6" = 1'-0"



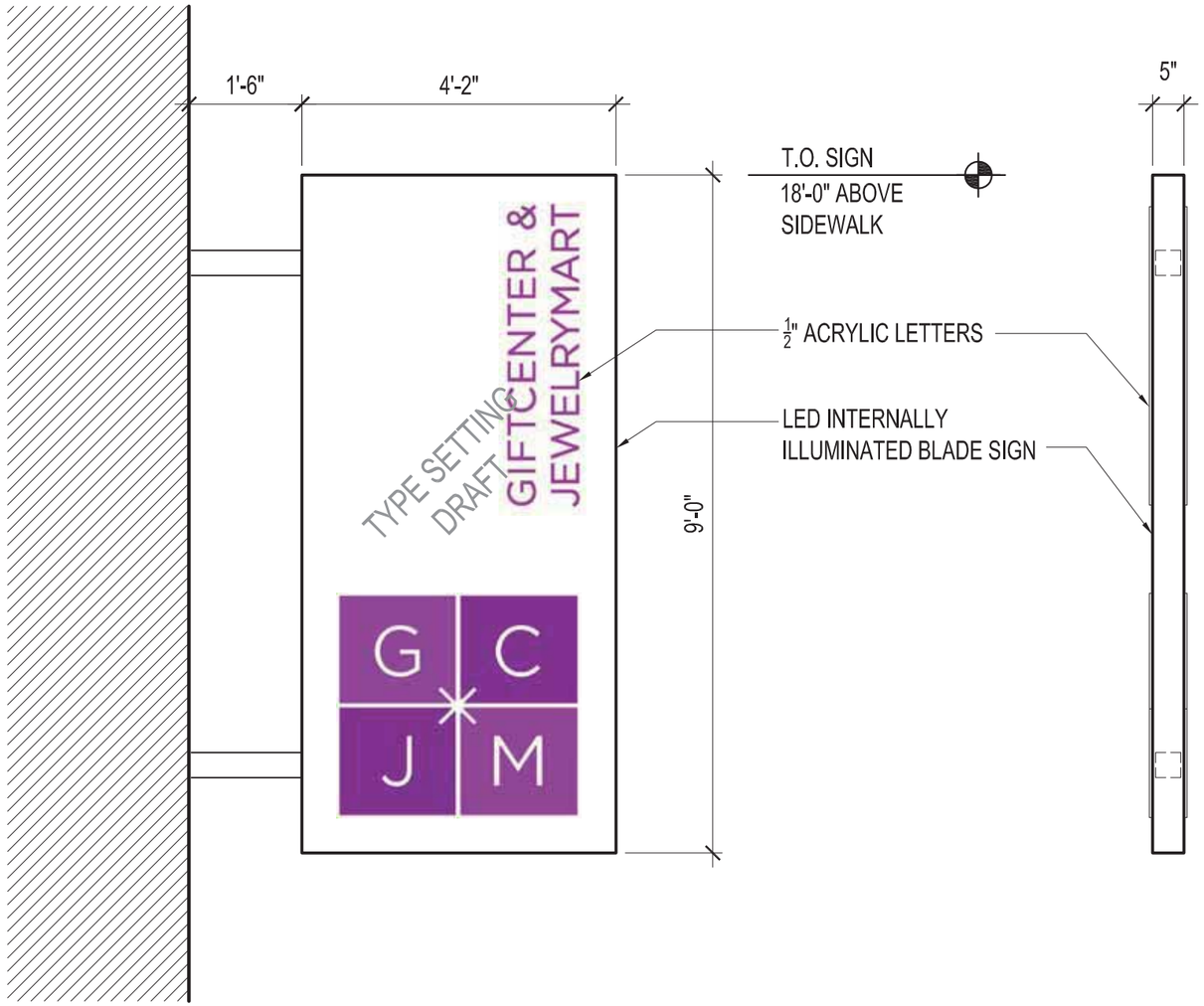

## TYPICAL WINDOW MUNTIN 4

SCALE: 6" = 1'-0"



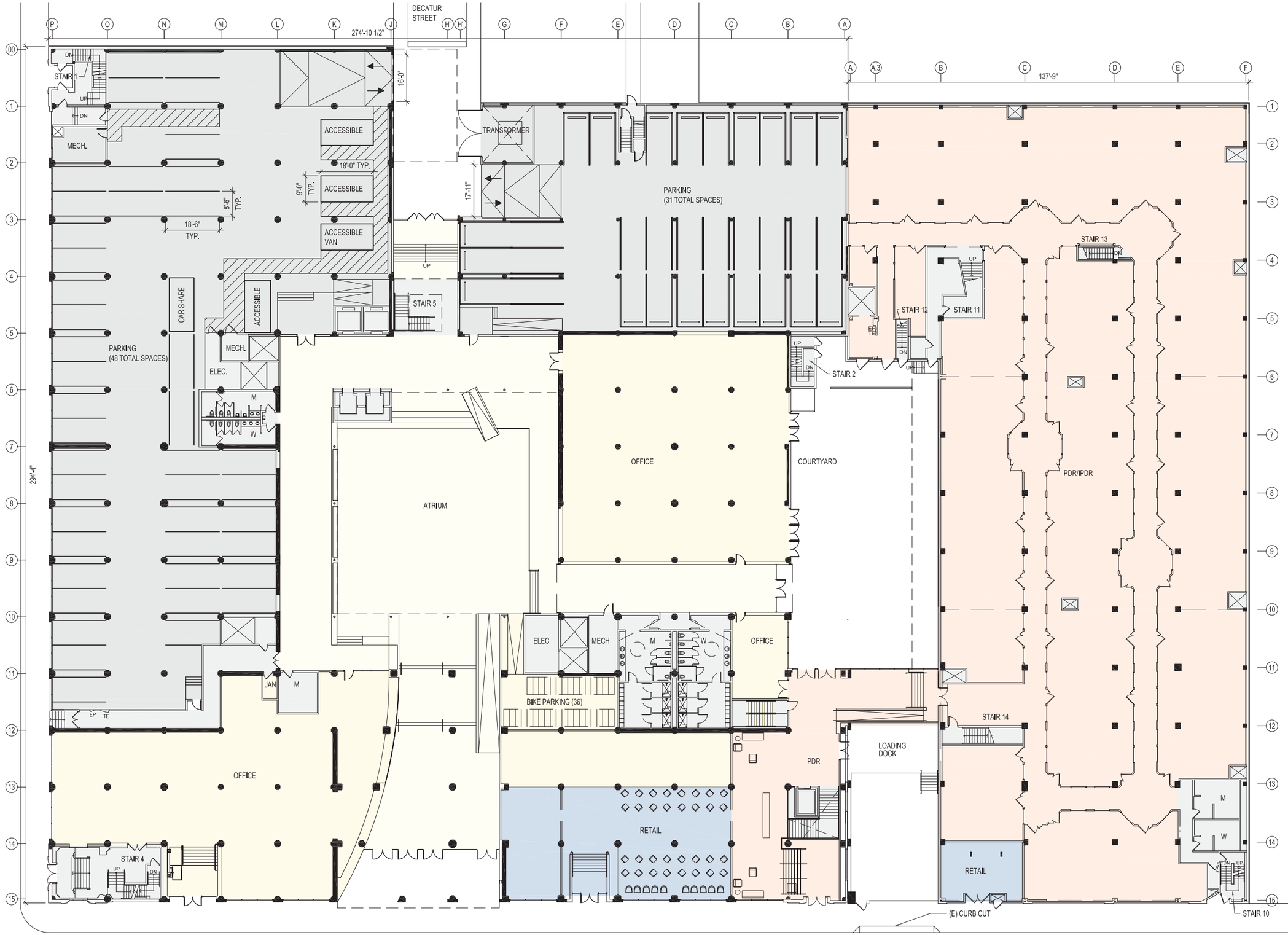

## MUNTIN @ SIMULATED OPERABLE VENT 5

SCALE: 6" = 1'-0"




**SIDE ELEVATION - BLADE SIGN** **2**
SCALE: 1/2" = 1'-0"

**FRONT ELEVATION - BLADE SIGN** **1**
SCALE: 1/2" = 1'-0"




**888 Brannan Street**

*LEVEL 01 FLOOR PLAN - ALTERNATE*

*EEA/ SECTION 321 APPLICATION*

*OCTOBER 18, 2011*

*Scale: 1/32" = 1'-0"*

Ref. North

AL2.1

Gensler

LEGEND:

REPAIR ORIGINAL FRAME AND INSTALL MICRO RIB CORRUGATED GLASS (OPTION 1A)

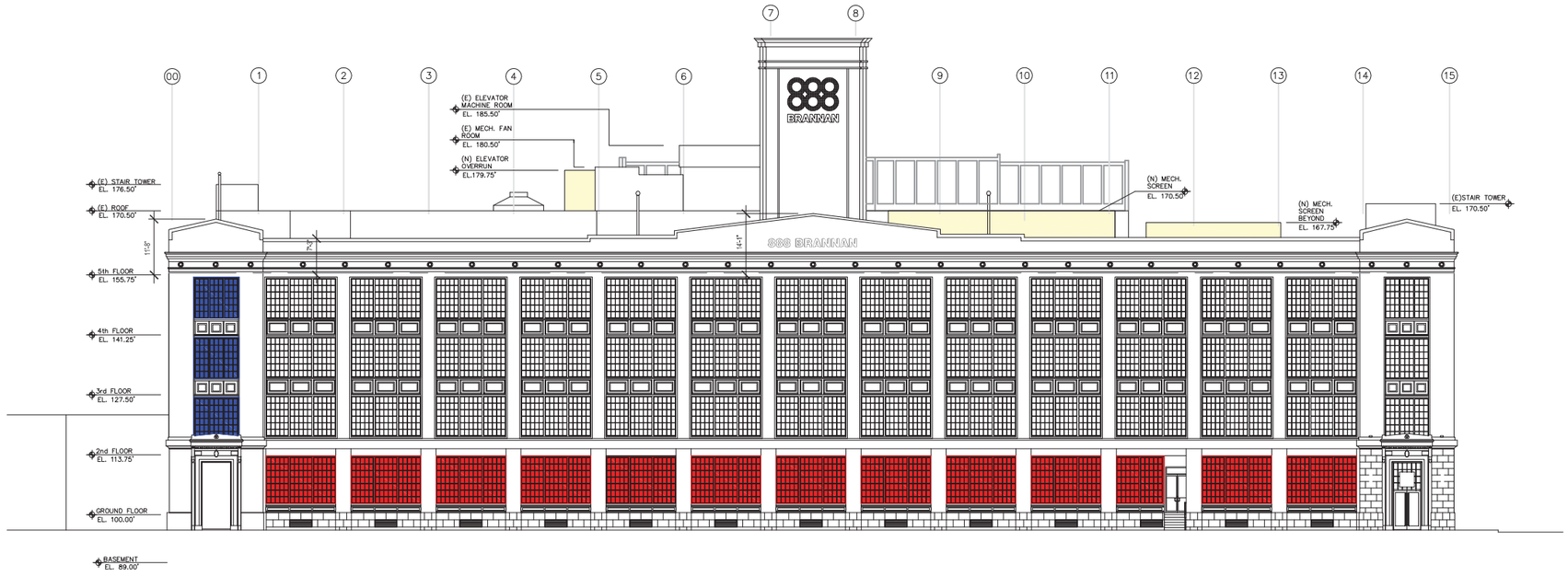
REPAIR ORIGINAL STEEL FRAME AND INSTALL NEW CLEAR GLAZING (OPTION 1B)

NEW 5TH LEVEL MECHANICAL SCREENS

* REMAINING WINDOWS TO BE REMOVED AND REPLACED WITH NEW ALUMINUM UNITS WITH MATCHING LAYOUT AND FRAME PROFILE (OPTION 3A)

COVERED BY PREVIOUS ADDITIONS OR SURROUNDING BUILDINGS.

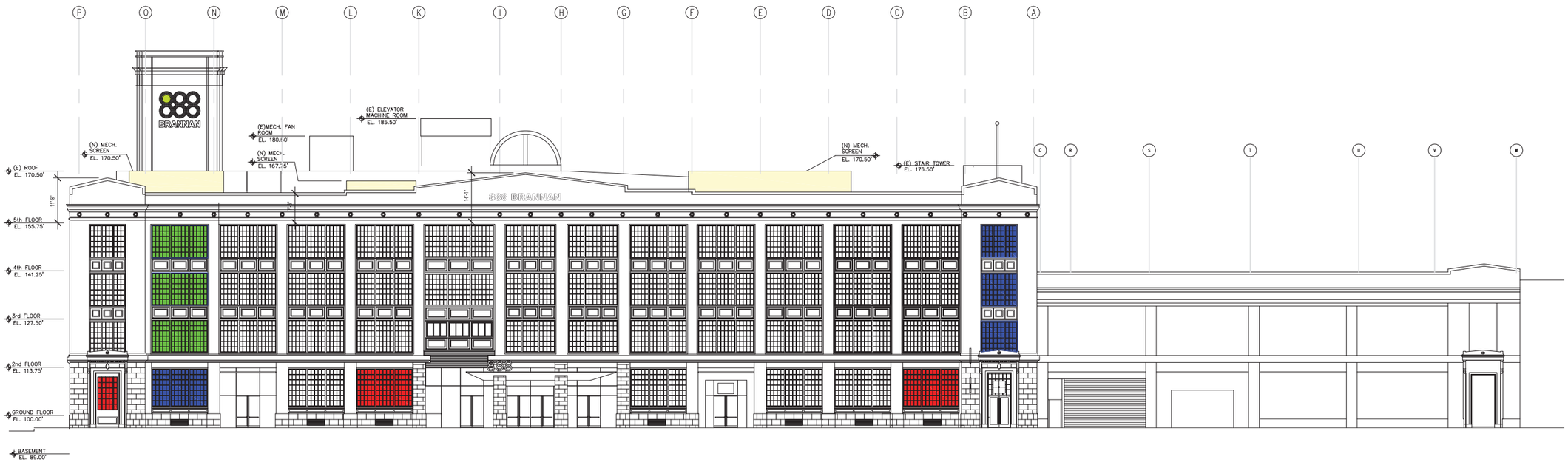
WINDOW TO BE REMOVED AND REPLACED WITH NEW ALUMINIUM UNITS WITH MATCHING LAYOUT AND FRAME (NON-VISION MICRO RIB GLASS)




## ELEVATION - EIGHTH STREET

SCALE: 1/32" = 1'-0"

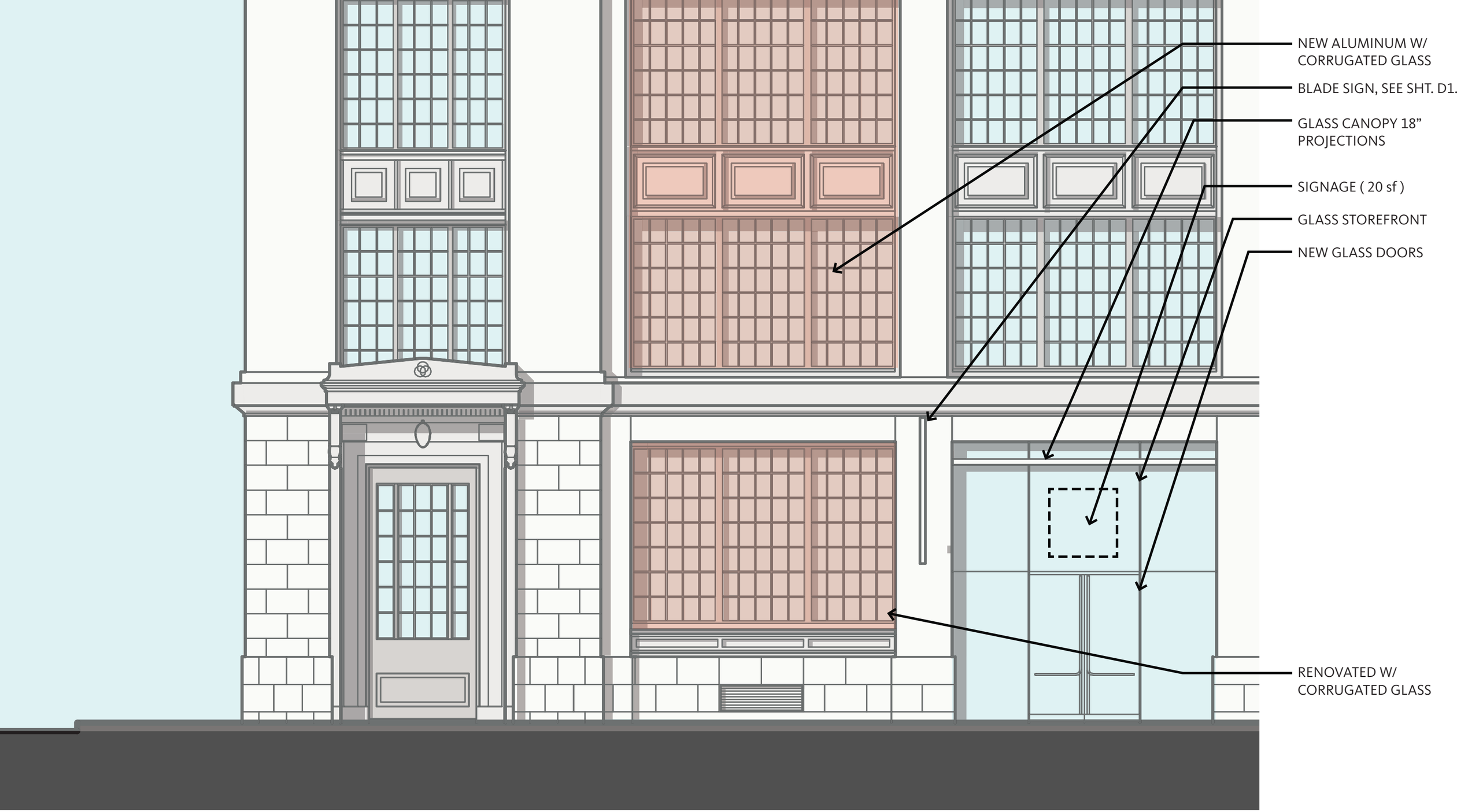
2

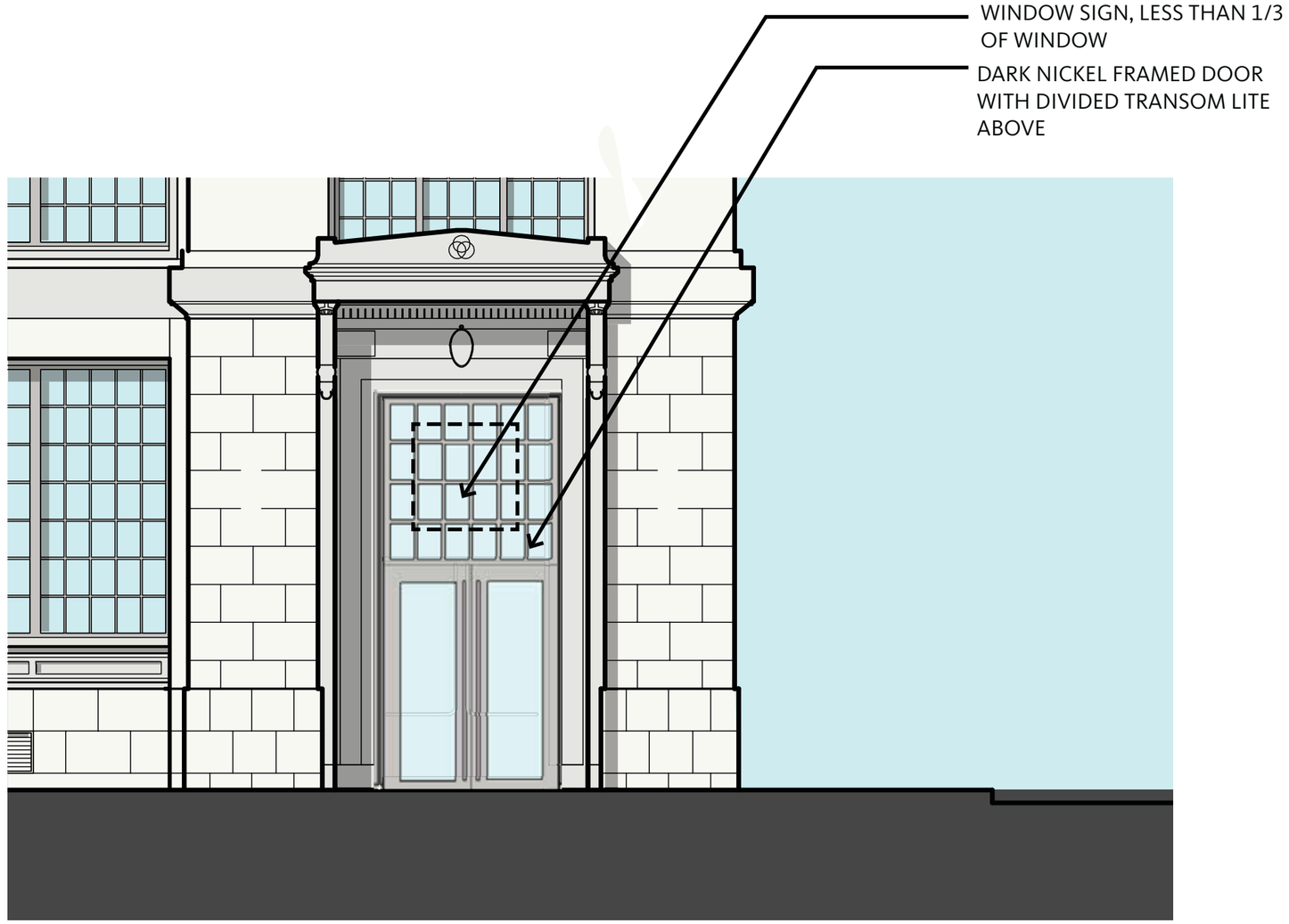



## ELEVATION - BRANNAN STREET

SCALE: 1/32" = 1'-0"

1


NEW ALUMINUM W/ CORRUGATED GLASS
BLADE SIGN, SEE SHT. D1.5
GLASS CANOPY 18” PROJECTIONS
SIGNAGE ( 20 sf )
GLASS STOREFRONT
NEW GLASS DOORS
RENOVATED W/ CORRUGATED GLASS


WINDOW SIGN, LESS THAN 1/3 OF WINDOW
DARK NICKEL FRAMED DOOR WITH DIVIDED TRANSOM LITE ABOVE

SECTION 080152.93 – HISTORIC TREATMENT OF STEEL WINDOWS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Steel window repair.
2. Reglazing.
3. Securing existing operable vents in a fixed position.
4. Removal of existing paint and rust layers in preparation for painting.

1.2 PRECONSTRUCTION TESTING

A. Preconstruction Testing Service: Engage a qualified historic treatment specialist to perform preconstruction testing on historic steel windows.

1. Select sizes and configurations of existing work to adequately demonstrate capability of products to comply with requirements.
2. Test historic treatment methods for effectiveness and compliance with specified requirements.
3. Notify Architect seven days in advance of the dates and times when testing will be performed.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples: For each exposed product and for each color and texture specified.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified historic treatment specialist.

B. Preconstruction Test Reports: For historic treatment of steel windows.

1.5 QUALITY ASSURANCE

A. Historic Treatment Specialist Qualifications: A qualified historic steel window specialist.

B. Mockups: Build mockups to demonstrate aesthetic effects and set quality standards for materials and execution and for fabrication and installation. Prepare mockups so they are inconspicuous or reversible.

1. Locate mockups on the building where directed by Architect.
2. Steel Window Repair: Prepare one entire window unit to serve as mockup to demonstrate sample repairs of steel window members including frame, glazing, repair and securing of operable vents.

C. Preinstallation Conference: Conduct conference at Project site.

## PART 2 - PRODUCTS

### 2.1 REPLACEMENT STEEL MATERIALS

A. Steel: ASTM A36 steel or comparable used on existing windows.

### 2.2 STEEL REPAIR MATERIALS

A. Steel cleaner: rust remover and surface sealer used to repair surfaces that have deteriorated due to weathering and decay and designed specifically to enhance the bond of steel-patching compound to existing steel.

B. Steel-Patching Compound: Two-part epoxy-resin steel-patching compound; knife-grade formulation as recommended by manufacturer for type of steel repair indicated, tooling time required for the detail of work, and site conditions. Compound shall be designed for filling voids in damaged steel materials that have deteriorated due to weathering and decay. Compound shall be capable of filling deep holes and spreading to feather edge.

C. Steel repair products shall comply with all applicable environmental regulations.

### 2.3 GLAZING MATERIALS

A. Glass and Glazing Materials: See Drawings and Section 088000 "Glazing."

B. Glazing System: Primer as recommended by glazing material manufacturer, with sealant glazing according to Section 088000 "Glazing."

## PART 3 - EXECUTION

### 3.1 PREPARATION

A. Protect adjacent materials from damage by historic treatment of steel windows.

B. Remove existing glazing as indicated on Drawings.

3.2 HISTORIC TREATMENT PROCEDURES, GENERAL

A. General: Have historic treatment of s windows directed and performed by a qualified historic treatment specialist. Ensure that historic treatment specialist's field supervisors are present when historic treatment of wood windows begins and during its progress.

1. Apply each product according to manufacturer's written instructions unless otherwise indicated.
2. Stabilize and repair steel windows to reestablish structural integrity and weather resistance while maintaining the existing form of each item.
3. Contractor to propose means and methods for removal of all existing paint and rust layers, leaving only the remaining bare metal, in preparation for painting. Methods used shall not remove excessive material nor leave a visible texture on the surface.
4. All materials removed shall be collected and disposed per applicable environmental regulations.
5. Repair existing operable vents as required for fixing them in a fully closed position.
6. Tack weld the operable vents in a closed position and seal the perimeter with caulk.

B. Hardware: Remove existing operable vent hardware.

3.3 GLAZING

A. Remove cracked and damaged glass and glazing materials from openings and prepare surfaces for reglazing.

B. Remove existing glass and glazing where indicated on Drawings and prepare surfaces for reglazing.

C. Set glass in a continuous sealant bed on the outside surface and provide putty at the inside surface. Remove any excess exposed sealant. Putty surfaces shall be smooth, even and consistent. Remove any excess putty.

D. Disposal of Removed Glass: Remove from Owner's property and legally dispose of it.

3.4 STEEL WINDOW PATCH-TYPE REPAIR

A. Indicate on Drawings where wood windows are to be patched; otherwise, the historic treatment specialist will generally decide.

B. General: Patch steel members that are damaged and exhibit depressions, holes, or similar voids, and that have limited rotted or decayed steel.

1. Treat steel members with steel patching compound prior to application of patching compound. Allow treatment to harden before filling void with patching compound.
2. Remove rotted or decayed steel down to sound steel.

C. Apply steel-patching compound to fill depressions, nicks, cracks, and other voids created by removed or missing steel.

1. Apply patching compound in layers as recommended by manufacturer until the void is completely filled.
2. Finish patch surface to match contour of adjacent steel member. Sand patching compound smooth and flush, matching contour of existing steel member.

## 3.5 STEEL WINDOW MEMBER-REPLACEMENT REPAIR

A. General: Replace parts of or entire steel window members at locations indicated on Drawings and where damage is too extensive to patch.

1. Remove broken, rusted, and decayed steel down to sound steel.

B. Repair remaining depressions, holes, or similar voids with patch-type repairs.

END OF SECTION 080152.93

# 850 AND 870 BRANNAN STREET (AKA 888 BRANNAN STREET) HISTORIC RESOURCE EVALUATION

SAN FRANCISCO, CALIFORNIA
[11080]

Prepared for
SKS INVESTMENTS

PAGE & TURNBULL
imagining change in historic environments through design, research, and technology

AUGUST 12 2011

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# I. INTRODUCTION

This Historic Resource Evaluation (HRE) has been prepared at the request of 888 Brannan LP for 888 Brannan, which is comprised of two buildings addressed 850 and 870 Brannan Street. The buildings presently comprise four parcels: APN 3780-006, 3780-007, 3780-007A, and 3780-072 in San Francisco's Showplace Square neighborhood. 850 Brannan Street was constructed ca. 1920. 870 Brannan Street was constructed in 1917 with an addition in 1920. 870 Brannan Street is listed in the National Register and California Register, and is considered a "historical resource" by the City of San Francisco as defined in CEQA. Historical resources are defined in *California Public Resources Code* (hereinafter *PRC*) Section 21084.1 as:

> a resource listed in, or determined eligible for listing in, the California Register of Historical Resources. Historical resources included in a local register of historical resources..., or deemed significant pursuant to criteria set forth in subdivision (g) of Section 5024.1, [is] …presumed to be historically or culturally significant for purposes of this section, unless the preponderance of the evidence demonstrates that the resource is not historically or culturally significant.

This report was prepared to comply with requirements in the California Environmental Quality Act (CEQA) Because the subject property is considered a historical resource for the purposes of CEQA, it is necessary to evaluate the proposed project for conformance with *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings.*[1]

The proposed project includes the replacement of deteriorating windows, which is based upon window treatments that were previously approved by the San Francisco Planning Department and Planning Commission (2009.1026E HRER). The proposed treatment of the windows at 870 Brannan Street largely follows the recommendations in the "Historic Windows Treatment Study," dated March 5, 2010, prepared by Page & Turnbull. The project also consists of alterations to entrances, including entrance awnings above historic entrances and insertion of new entrances; signage; rooftop mechanical equipment and screens; and interior modifications.

[1] Kay D. Weeks and Anne E. Grimmer *The Secretary of the Interior's Standards for The Treatment of Historic Properties With Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings* (Washington, D.C.: U.S. Department of the Interior, National Park Service, 1995).


**Figure 1. 888 Brannan Street highlighted in red.**
**(Source: © 2010 NAVTEQ, © 2011 Microsoft Corporation, © 2010 Pictrometry International Corp; edited by author)**

## METHODOLOGY

This report follows San Francisco Preservation Bulletin No. 16 CEQA Review Procedures for Historic Resources Evaluations. It includes information on past evaluations of the subject property, building description, historic context, historic resource evaluation, sections on context and relationship, project-specific impacts, cumulative impacts, recommended mitigation and conclusions. Any proposed alterations to the buildings will be considered by the San Francisco Planning Department as part of the CEQA review process.

Page & Turnbull prepared this report using research collected at various local repositories, including San Francisco Architectural Heritage, San Francisco Assessor, San Francisco Department of Building Inspection, San Francisco Public Library, San Francisco Public Library Historical Photograph Collection, Online Archive of California, and the California Historical Society.

# II. CURRENT HISTORIC STATUS

The following section briefly examines the national, state, and local historical ratings currently assigned to 850 and 870 Brannan Street.

## NATIONAL REGISTER AND CALIFORNIA REGISTER

The National Register of Historic Places (National Register) is the nation's most comprehensive inventory of historic resources. The National Register is administered by the National Park Service and includes buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archaeological, or cultural significance at the national, state, or local level.

The California Register of Historical Resources (California Register) is an inventory of significant architectural, archaeological, and historical resources in the State of California. State Historical Landmarks and National Register-listed properties are automatically listed in the California Register. Properties can also be nominated to the California Register by local governments, private organizations, or citizens.

- 850 Brannan Street is not listed in the National Register or California Register.
- 870 Brannan Street, including the 1917 construction and 1920 additions, is listed in the National Register of Historic Places (1983). It is therefore listed in the California Register. The National Register Nomination form uses the address 599 8th Street.

## SAN FRANCISCO CITY LANDMARKS

San Francisco City Landmarks are buildings, properties, structures, sites, districts and objects of "special character or special historical, architectural or aesthetic interest or value and are an important part of the City's historical and architectural heritage."[2] Adopted in 1967 as Article 10 of the City Planning Code, the San Francisco City Landmark program protects listed buildings from inappropriate alterations and demolitions through review by the San Francisco Landmarks Preservation Advisory Board. These properties are important to the city's history and help to provide significant and unique examples of the past that are irreplaceable. In addition, these landmarks help to protect the surrounding neighborhood development and enhance the educational and cultural dimension of the city.

- 850 and 870 Brannan Street are not designated as a San Francisco City Landmark or Structure of Merit, nor are they included in a designated historic district.

## PREVIOUS SURVEYS

### San Francisco Architectural Heritage

San Francisco Architectural Heritage (Heritage) is the city's oldest not-for-profit organization dedicated to increasing awareness and preservation of San Francisco's unique architectural heritage. Heritage has completed several major architectural surveys in San Francisco, the most important of which was the 1977-78 Downtown Survey. This survey, published in publication *Splendid Survivors* in 1978, forms the basis of San Francisco's Downtown Plan. Heritage ratings, which range from "D" (minor or no importance) to "A" (highest importance), are analogous to Categories V through I of Article 11 of the San Francisco Planning Code, although the Planning Department did use their own methodology to reach their own findings. In 1984, the original survey area was expanded from the Downtown to include the South of Market area in a survey called "Splendid Extended."

- 850 Brannan Street was not surveyed by Heritage.

[2] San Francisco Planning Department, *Preservation Bulletin No. 9 – Landmarks.* (San Francisco, CA: January 2003).

- 870 Brannan Street was surveyed by Heritage and given a rating of "B."

### 1976 Department of City Planning Architectural Quality Survey

The 1976 Department of City Planning Architectural Quality Survey (1976 DCP Survey) is what is referred to in preservation parlance as a "reconnaissance" or "windshield" survey. The survey looked at the entire City and County of San Francisco to identify and rate architecturally significant buildings and structures on a scale of "-2" (detrimental) to "+5" (extraordinary). No research was performed and the potential historical significance of a resource was not considered when a rating was assigned. Buildings rated "3" or higher in the survey represent approximately the top two percent of San Francisco's building stock in terms of architectural significance. However, it should be noted here that the 1976 DCP Survey has come under increasing scrutiny over the past decade due to the fact that it has not been updated in over twenty-five years. As a result, the 1976 DCP Survey has not been officially recognized by the San Francisco Planning Department as a valid local register of historic resources for the purposes of the California Environmental Quality Act (CEQA).

- 850 Brannan Street was not included in the 1976 DCP Survey.
- 870 Brannan Street was included in the 1976 DCP Survey and given a rating of "2."

### Here Today

*Here Today: San Francisco's Architectural Heritage* (*Here Today*) is one of San Francisco's first architectural surveys, undertaken by the Junior League of San Francisco and published in book form in 1968. Although the Here Today survey did not assign ratings, it did provide brief historical and biographical information about what the authors believed to be significant buildings.

- 850 and 870 Brannan Street are not included in *Here Today*.

### Showplace Square/Northeast Mission Historic Resource Survey

The Showplace Square/Northeast Mission Survey is being conducted by Planning Department staff in conjunction with the local form of Kelley and VerPlanck as one of several planning studies that will be used to inform the implementation of the Showplace Square and Mission Area Plans. The Survey includes documentation and assessment of more than 600 individual properties that are located within the area that is bounded approximately by Duboce Avenue and Bryant Street to the north, 20th Street to the south, 7th and Pennsylvania Streets to the east, and Shotwell and Folsom Streets to the west. The Survey is scheduled to be completed and presented to the Historic Preservation Commission for adoption in June 2011.

- 850 and 870 Brannan Street were surveyed. 850 Brannan Street has preliminarily been designated a California Historic Resource Status Code of 6Z, which means "Found ineligible for NR, CR or local designation through survey evaluation." 870 Brannan Street already has a Status Code of 1S, which means "Individual property listed in NR by the Keeper. Listed in the CR." Neither is located in a proposed historic district.

## III. ARCHITECTURAL DESCRIPTION

The project site contains two buildings on four parcels: 870 Brannan Street is a four-story plus penthouse, reinforced concrete building that is fourteen bays wide on Brannan Street and fifteen bays wide on 8th Street. It occupies three parcels on Block 3780: Lots 006, 007, and 007A.[3] 850 Brannan Street is a two-story concrete building that is five bays wide on Brannan Street and occupies Lot 072.[4] The two buildings are connected internally.

850 Brannan Street features a beltcourse that divides the two stories, as well as a terminating cornice and parapet. The eastern bay features an entrance and pointed parapet that mimics the more elaborate doors and parapets at the corners of 870 Brannan Street. The wide garage opening in the western bay leads to an open air courtyard/loading dock that is located between 850 and 870 Brannan Street.

The two principal facades of 870 Brannan Street along 8th and Brannan streets are nearly identical. The 8th Street façade is fifteen bays long with full-size, multi-light industrial windows at each bay and simple spandrels dividing the floor levels. The Brannan Street façade has the same composition, but is fourteen bays long. At each end of these facades are matching doorways with high style Classical detailing that give the building a formal, symmetrical appearance. The National Register Nomination explains: "Ornamentation above the doorways includes a shield with the initials "N C" and cross flashlights. Above the fourth story windows, a row of concrete medallions provide decoration and above that, a parapet repeating the shape of the doorway pediments lines the top of the building. A square tower at the center of the roof of the Brannan Street elevation was added in 1918 to enclose the gravity tanks for the sprinkler system."[5]

The center of 870 Brannan Street contains an interior atrium covered with a barrel-vaulted skylight. The interior, which was originally an open and unfinished storage space, has been remodeled into offices.

**Figure 2. West façade of 870 Brannan Street, looking north on 8th Street. (Source: Page & Turnbull, 2009)**

[3] 870 Brannan Street is also known as 866-870 Brannan Street (Lot 006), 870 Brannan Street (Lot 007) and 549-599 8th Street (Lot 007A).
[4] 850 Brannan Street is also known as 850-860 Brannan Street (Lot 072).
[5] Anne B. Frej, "National Register of Historic Places Inventory—Nomination Form for National Carbon Company Building" (January 1983) 5.

**Figure 3. West façade of 870 Brannan Street, looking south down 8th Street.**
**(Source: Page & Turnbull, 2009)**


**Figure 4. South façade of 850 Brannan Street (partial view to the right) and 870 Brannan Street, looking east down Brannan Street.**
**(Source: Page & Turnbull, 2009)**

**Figure 5. South façade of 850 Brannan Street (partial view) and 870 Brannan Street, looking west. (Source: Page & Turnbull, 2009)**


**Figure 5. South (primary) façade of 850 Brannan Street, looking northwest. (Source: Page & Turnbull, 2009).**

**Figure 6. East and north rear facades of 850 Brannan Street, looking southwest. (Source: Page & Turnbull, 2009).**

# IV. HISTORIC CONTEXT

## EARLY SAN FRANCISCO HISTORY

European settlement of what is now San Francisco took place in 1776 with the simultaneous establishment of the Presidio of San Francisco by representatives of the Spanish Viceroy, and Mission Dolores by the Franciscans. In 1821, Mexico declared independence, taking with it the former Spanish colony of Alta California. During the Mexican period a small village grew up around a plaza (today called Portsmouth Square) above a cove in San Francisco Bay. This village, which was called Yerba Buena, served as a minor trading center inhabited by a few hundred people of diverse nationalities. In 1839, a few streets were laid out around the Plaza and settlement expanded up the slopes of Nob Hill. Not long after the Americans seized California in 1846, a surveyor named Jasper O'Farrell extended the original street grid, while also laying out Market Street from what is now the Ferry Building to Twin Peaks. Blocks north of this then imaginary line were laid out in small 50 vara square blocks whereas blocks south of Market were laid out in larger 100 vara blocks.[6] The following year the village was renamed San Francisco to take advantage of the name's association with the bay.

The discovery of gold at Sutter's Mill in 1848 brought explosive growth to San Francisco, with thousands of would-be gold-seekers making their way to the isolated outpost on the edge of the North American continent. Between 1846 and 1852, the population of San Francisco mushroomed from less than one thousand people to almost 35,000. The lack of level land for development around Portsmouth Square soon pushed development south to Market Street, eastward onto filled tidal lands, and westward toward Nob Hill. At this time, most buildings in San Francisco were concentrated downtown, and the outlying portions of the peninsula remained unsettled throughout much of the late nineteenth century.

With the decline of gold production in 1855, San Francisco's economy diversified to include agriculture, manufacturing, shipping, construction, and banking.[7] Prospering from these industries, a new elite of merchants, bankers, and industrialists arose to shape the development of the city as the foremost financial, industrial and shipping center of the West.

## SHOWPLACE SQUARE IN THE SOUTH OF MARKET

850 and 870 Brannan Street are located in Showplace Square at the southwest end of the South of Market District. According to the 1887 Sanborn Fire Insurance map, the Showplace Square area was sparsely populated prior to the twentieth century. At the north end, the area contained several large-scale industrial parcels intersected by tightly knit residential properties. South toward Potrero Hill, however, the area contained portions of unfilled marshland, ungraded streets and large, concentrated landholdings.[8] Development of the area began in earnest around the turn of the century, as the warehouse and industrial facilities of South of Market began spilling over into adjacent districts.

The completion of the Pacific Hardware and Steel Company building (later occupied by Baker & Hamilton) in 1905 initiated the development of the surrounding neighborhood as a "wholesale district." The area was well suited to the purpose, being served by a system of railroad spur lines which ran from Potrero Hill north through Showplace Square and on into the South of Market. Materials from the warehouses and manufacturing facilities were transported in this way to the piers.[9]

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[6] *Vara* is derived from an antiquated Spanish unit of measurement
[7] Rand Richards, *Historic San Francisco. A Concise History and Guide* (San Francisco: Heritage House Publishers, 2001), 77.
[8] KVP Consulting, *Showplace Square Historic Context Statement, Showplace Square Survey, San Francisco, California*: 25-26.
[9] "Community Plan Area Profiles- Showplace Square, Potrero Hill and Central Waterfront," Webite accessed on 24 February 2009 from: http://www.sfgov.org/site/uploadedfiles/planning/communityplanning/pdf/chapter_6-3.pdf


**Figure 5. 9th and Brannan Streets, 1906.**
**(Source: San Francisco Historical Photograph Collection, AAC-3200).**

Construction activity was heaviest between 1906 and 1913. Metal and glass manufactories were among the most important industries in Showplace Square at the time. Industrial development slowed down briefly after 1913, but picked up again during the First World War as demand increased for American-made machinery and weapons. By the end of the war, concrete-frame construction became the norm in San Francisco for industrial architecture, due to its strength, durability, cost, and flexibility. As the core of the city's industrial district, the Showplace Square area remained vital to the region's prosperity from the 1920s on through the Great Depression and World War II, when San Francisco's industrial employment was almost at full capacity.[10] The industries in Showplace Square and Potrero Hill only slowed in the 1950s, as local industrialists began moving their operations to fast-growing industrial suburbs like South San Francisco, San Leandro, and Richmond.[11]

Beginning in the 1970s, many warehouses in the Showplace Square area were renovated to provide wholesale and design space for furniture makers, designers, and contractors.

## 850 BRANNAN STREET HISTORY

850 Brannan Street was constructed ca. 1920. Prior to construction, in 1913, the site was occupied by the United Railroads Repair Department storage yard, which included an open storage shed at 850 Brannan Street and an enclosed storage building at 860 Brannan Street. No original building permit exists, and the original architect or builder is unknown.

The earliest building permit available for the subject property is dated 28 September 1944. The owner was Gilmore Steel & Supply, who used the building for storage. By 1949, the Sanborn Fire Insurance map shows a large, rectangular, one-story warehouse with a steel frame and truss roof. The 1989 Sanborn Fire Insurance map shows the building as a two-story building, labeled "(C.B.)" for "concrete block." This indicates that the original steel frame structure was essentially demolished and a new structure built in its place. This appears to coincide with information found on building

[10] KVP Consulting, *Showplace Square Historic Context Statement, Showplace Square Survey, San Francisco, California*: 37-39, 52.
[11] Ibid, 56-57.

permits issued in 1984 and 1985, which record the demolition of the roof and trusses, structural elements and metal siding, and the "renovation" of the building to add a new roof and new exterior surfaces. If this is the case, then the construction date of 1986 given by the San Francisco Planning Department's parcel database is generally accurate, as little of the original building appears to remain.

## CONSTRUCTION CHRONOLOGY: 850 BRANNAN STREET

1920s: A one-story steel frame and steel truss building is likely constructed during this decade. No original building permit exists, so the original architect and/or builder is unknown.

28 September 1944: Two story, steel frame, corrugated and stucco siding on wood frame alteration for Gilmore Steel & Supply Co. (Permit #77594)

20 September 1984: Demolition to remove existing roof and trusses, crane track beams and supporting columns, metal siding, roll-up doors, steel bracing and concrete curb walls. (#8410210)

19 April 1985: Renovation of existing warehouse building, including addition of two floors, new exterior surfaces and new roof. (#08412196)

6 June 1985: Revised mechanical air support, scope of beam fireproofing. (#8505866)

29 May 1986: Construction of new entry and elevator lobby off Brannan Street. Elevator to service lobby, floors 3 and 4, new ramp to first floor. (#554997)

30 October 1986: Alterations to install new non-required stairs and revise layout at upper two floors. Alterations to handicapped ramp at basement and reconfiguration of entry doors off street. (#565243)

18 August 1987: Sign installed. (#8710807)

18 September 1987: New partitions creating wholesale exhibition showroom, storage and toilet areas, lowering part of floor slab by 6", extension of mechanical and electrical systems, and modification of sprinkler system. (#565244)

3 May 1988: Alterations to basement to revise showroom layout and add restrooms. (#591778)

11 October 1988: Construct new bearing partitions and soffit. (#599190)

25 October 1988: Build one wall for office with window. (#8816618)

3 May 1989: Create multiple wholesale merchandise showrooms on third and fourth floors in place of single showroom, new stair connecting three floors, new non-required stair connecting third and fourth floors, new tenant spaces on first and second floors in place of elevator, non-required stair and remap and street level entry. (#631836)

5 April 1990: Remove 8-feet of existing wall, frame new walls, relocate sink, relocate sprinkler heads, add plugs, drop in fluorescent fixtures, paint and carpet. (#641465)

14 May 1990: Construct 7-feet of wall with case D opening (#9009181)

16 August 1990: Construct 19' partition, 8'-6" high with metal studs, with 5/8" sheetrock on both sides. (#651710)

4 December 1990: Patch and repair ceiling and walls, paint. (#660642)

6 September 1991: Move last run of one stair (10 steps total). (#688115)

24 January 1996: Rebuild non-load bearing partition walls, which were partially removed by the tenant. Reinstall electrical outlets as per original design. (#9601223, plans available)

4 May 2000: Tenant development for Diamond Imports Showroom, including new non-bearing partition walls and doors. (#20005049122, plans available)

3 November 2006: Tenant improvements to existing vacant space – drywall partitions, acoustic ceilings, electrical. (#200608149391)

12 June 2008: Roof maintenance – unclog roof drains, reseal cracks, coat roof with emulsion and paint. (#200810174466)

## 870 BRANNAN STREET HISTORY

Designed by architect/engineer Maurice Couchot, the National Carbon Building at 870 Brannan Street is a large-scale industrial warehouse structure overlaid with classical details. The building was built in multiple phases with the original 1917 building facing 8th Street. The 1917 building was four stories tall above street level with a small fifth story section at the northern end. In 1920, a four-story, nine-bay extension of the building was added along Brannan Street. Also added to the complex was the four-story building along the east facade and a one-story structure with a clerestory. The building was commissioned by the Eveready (battery) Division of the National Carbon Company, which became a unit of Union Carbide in 1917. In 1937, the original (8th Street) portion of the building was acquired by Blake, Moffit, and Towne Company, an early San Francisco paper distribution company. In 1950, Blake, Moffit, and Towne occupied the remainder of the complex, which was used as their headquarters and warehouse until 1981. In 1982, the complex was converted into wholesale showrooms and has remained that use until the present. The 1982 rehabilitation reportedly took advantage of the Federal Historic Preservation Tax Credit incentives. This was when the building was added to the National Register of Historic Places.[12]

[12] Page & Turnbull, "Historic Windows Treatment Study"(March 5, 2010).


**Figure 6. 870 Brannan Street, 1937.**
**(Source: San Francisco Historical Photograph Collection, AAC-6415)**

The Brannan Street elevation originally had its three central bays dedicated to vehicular entranceways. The western entranceway was taller, which is reflected in the short windows at the second floor above. These vehicular entranceways were removed and replaced with aluminum-framed storefronts during the 1982 rehabilitation project.


**Figure 7. 870 Brannan Street, 1976.**
**(Source: DCP 1976 Survey form for 599 8th at Brannan)**

When originally constructed, the building featured the latest technology and materials, including a reinforced-concrete construction, a forced-air ventilation system, a sprinkler system, intercom telephones, pneumatic tubes, and spiral chutes (for moving material and goods). Similarly, the steel-framed windows represented the latest technology as "rolling" of steel bars into shaped sections and advancements in glass technology (wire glass) allowed for the manufacture of relatively lightweight, fire-resistant, operable windows well-suited for industrial buildings.

## CONSTRUCTION CHRONOLOGY: 870 BRANNAN STREET

The following provides a timeline of the history of 870 Brannan Street, focusing on exterior and structural alterations (i.e. does not include interior tenant improvements).

8 April 1982: Alterations to reinforced concrete-framed building to include demolition of interior partitions and utility system and removal of three existing elevators. New construction to bring building up to present code requirements, including rehabilitation of two existing stair enclosures, conversion of one stairs to a smokeproof tower, and construction of one new exterior stair. New passageways and exit corridors to be built. An existing courtyard to be enclosed with a skylight roof. New electrical, plumbing, and mechanical systems to be installed. New reinforced concrete shear walls to be added to resist lateral loads. (#105257)

31 August 1990: Install a blade sign for the Gift Center and Jewelry Mart (#652003).

17 June 1992: Relocate door and windows, reswitch lighting system and suspension ceiling in unknown location (permit addressed 888 Brannan Street) (#9209991)

21 October 1992: Reinforce parapet walls with steel bracing along the perimeter (permit addressed 888 Brannan Street). (#708543)

11 April 1994: Construct new steel-framed stairs in existing atrium from 2nd floor to 5th floor. Work involves reconfiguration of existing aluminum-framed glazing and raising the existing skylight. (#513996)

13 July 1994: Install three new signs for Gift Center (permit addressed 888 Brannan Street). (#750917)

3 August 1994: Install marquee and other rehabilitation work to exterior of existing building only. Install new exterior lighting to better illuminate the exterior at night (permit addressed 888 Brannan Street). (#751553)

18 August 1994: Install two more signs for Gift Center- one that is 12"x 16' and another that is 30' x 19' and is an existing sign to be painted and re-installed (permit addressed 888 Brannan Street ) (#752530)

27 October 2000: Install one single face wall-mounted changeable message sign 11' x 17' on 8th Street façade. (#925076)

22 March 2007: Seismic repair, work at first floor below street level, second floor at street level, third and fourth floors. Strengthen existing concrete columns with fiber wrap and infill new shear wall panels. (#200703227009)

7 August 2008: General roof maintenance with acrylic roof surfacing applied. Combined work on shared roof with 850 Brannan. (#200808078648)

7 November 2008: Install five 10'6" x 2'6" painted tenant identity signs in various graphics (addressed 888 Brannan Street) (# 1171368) and five illuminated address signs reading "888 Brannan" (#1171364).

# V. CONTEXT & RELATIONSHIP

850 and 870 Brannan Street are located in a primarily light industrial neighborhood. Many of the light industrial buildings have been converted to office use in recent years. Buildings in this area date from after the 1906 Earthquake and Fire, and many were constructed in the 1910s and 1920s during the reconstruction period of the South of Market/Showplace Square. Many buildings have since been demolished to make way for the construction of the Highway 80 overpass, larger modern buildings, and surface parking lots. Today, the buildings in the neighborhood feature various footprints and massing, and range from approximately two to four stories in height.

At four stories, 870 Brannan Street is taller than the immediately adjacent buildings. Its repetitive fenestration and Classical ornamentation dominate the west end of the block.

The Showplace Square/Northeast Mission Survey was conducted by Planning Department staff in conjunction Kelley and VerPlanck in 2009, and identified a potential California Register historic district in the Showplace Square area called the "Showplace Square Heavy Timber and Steel-frame Brick Warehouse and Factory District." The discontinuous district is located, at a minimum, over a block away from 850 and 870 Brannan Street. At this distance, alterations to 850 and 870 Brannan Street would likely not affect the context of the properties within the proposed historic district.

# VI. EVALUATION

## CALIFORNIA REGISTER OF HISTORICAL RESOURCES

The California Register of Historical Resources (California Register) is an inventory of significant architectural, archaeological, and historical resources in the State of California. Resources can be listed in the California Register through a number of methods. State Historical Landmarks and National Register-listed properties are automatically listed in the California Register. Properties can also be nominated to the California Register by local governments, private organizations, or citizens. The evaluative criteria used by the California Register for determining eligibility are closely based on those developed by the National Park Service for the National Register of Historic Places.

In order for a property to be eligible for listing in the California Register, it must be found significant under one or more of the following criteria:

- *Criterion 1 (Events)*: Resources that are associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States.

- *Criterion 2 (Persons)*: Resources that are associated with the lives of persons important to local, California, or national history.

- *Criterion 3 (Architecture)*: Resources that embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of a master, or possess high artistic values.

- *Criterion 4 (Information Potential)*: Resources or sites that have yielded or have the potential to yield information important to the prehistory or history of the local area, California, or the nation.

According to the San Francisco Planning Department's *Historic Resource Evaluation Response* (Case No. 2009.1026E, 26 April 2010):

870 Brannan Street is listed on the National and California Registers under Criterion C (architecture) with a period of significance of 1917 and 1920. 850 Brannan Street, originally constructed circa 1920 and substantially altered in 1985, does not appear eligible for the California Register under any criterion.

### 870 Brannan Street

***Criterion 1:*** The subject building does not appear to be associated with significant events under criterion 1.

***Criterion 2:*** It does not appear that the subject building is associated with the lives of important persons in our past.

***Criterion 3:*** The subject property embodies the distinctive characteristics of a type and period and represents the work of a prominent local architect. The building is representative of the reinforced concrete industrial structures popular in San Francisco in the early 20th-century with the latest technology and materials and oversized classical ornament exhibited in the door surrounds, spandrel panels, and medallions. It is also representative of the work of prominent local architect, Maurice Couchot. Couchot, born and educated in France, practiced architecture in California for 25 years.3

An early advocate of reinforced concrete construction, Couchot often served as the consulting engineer on projects in both northern and southern California. From 1923, Couchot was in partnership with Kenneth MacDonald, Jr. in Los Angeles. During this period, Couchot and MacDonald designed the Broadway Arcade Building (contributor to National Register-listed historic district) and Southern Pacific Railroad Depot in Glendale (National Register-listed). In San Francisco, Couchot worked on the Bank of Italy building (Powell and Market Streets) and the Fine Arts and French Buildings for the Panama-Pacific International Exposition of 1915. The subject building was commissioned by the Eveready Division of the National Carbon Company and was used as a battery manufacturing facility. This company was organized in the late 1800s and became a unit of Union Carbide in 1917. In 1937, the building was acquired by the Blake, Moffit and Towne Company, an early San Francisco paper distributing company. The Blake, Moffit and Towne Company occupied the building until 1981.

***Criterion 4:*** It does not appear that the subject property is likely to yield information important to a better understanding of prehistory or history.[13]

### 850 Brannan Street

***Criterion 1:*** The subject building does not appear to be associated with significant events under criterion 1.

***Criterion 2:*** It does not appear that the subject building is associated with the lives of important persons in our past.

***Criterion 3:*** Sanborn Fire Insurance maps indicate that the subject property was occupied by the United Railroads Repair Department storage yard in the early 191Os. Subsequent construction appears to have occurred circa 1920 but no records have been located to document this period in the property's history. A Building Permit from 1944 indicates that an alteration was made by the Gilmore Steel & Supply Company, who used the building for storage. Building Permits from 1984 and 1985, record the demolition of the roof and trusses, structural elements and metal siding and the renovation of the building to add two floors (within the interior), a new roof and new exterior surfaces. The structure of the building may also have changed from steel frame to concrete block in the 1984-85 alterations. Based on this documentation, it appears that little of the earlier building remains intact. As an example of an industrial/commercial building that lacks distinction and historic integrity, the present building does not appear eligible under Criterion 3.

***Criterion 4:*** It does not appear that the subject property is likely to yield information important to a better understanding of prehistory or history.[14]

## INTEGRITY

In order to qualify as a resource for the purposes of CEQA, a property must possess significance and have historic integrity. Seven variables or aspects define integrity—location, design, setting, materials, workmanship, feeling and association. According to the *National Register Bulletin: How to Apply the National Register Criteria for Evaluation*, these seven characteristics are defined as follows:

> Location is the place where the historic property was constructed.
>
> Design is the combination of elements that create the form, plans, space, structure and style of the property.

[13] San Francisco Planning Department, *Historic Resource Evaluation Response* (Case No. 2009.1026E, 26 April 2010) 2-3.
[14] Ibid: 3-4.

Setting addresses the physical environment of the historic property inclusive of the landscape and spatial relationships of the building/s.

Materials refer to the physical elements that were combined or deposited during a particular period of time and in a particular pattern of configuration to form the historic property.

Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history.

Feeling is the property's expression of the aesthetic or historic sense of a particular period of time.

Association is the direct link between an important historic event or person and a historic property.

According to the San Francisco Planning Department's *Historic Resource Evaluation Response* (Case No. 2009.1026E, 26 April 2010), 870 Brannan Street retains integrity of location, design, setting, materials, workmanship, feeling, and association. "Although 870 Brannan Street has been altered with new entrance storefronts and some new windows, the property retains historic integrity and continues to convey its historical significance."[15]

850 Brannan Street does not retain any aspects of integrity. The Historic Resource Evaluation Response states that "evaluation of integrity is not applicable as the subject building has not been shown to be significant under California Register criteria. Should an assessment of integrity be required, staff believes that the subject property does not retain integrity."[16]

## CHARACTER-DEFINING FEATURES

For a property to remain a qualified historic resource, the essential physical features (or character-defining features) that enable the property to convey its historic identity must be evident. To be eligible, a property must clearly contain enough of those characteristics, and these features must also retain a sufficient degree of integrity. Characteristics can be expressed in terms such as form, proportion, structure, plan, style, or materials. The character-defining features for 888 Brannan Street, as defined by the National Register Nomination, include:

- Reinforced concrete construction;
- Massing and 4-story height of original building plus 1920 additions;
- Classical ornamentation, such as the high style door surrounds with brackets and pediments, spandrel panels, and medallions;
- Industrial steel-sash windows and fenestration pattern.

[15] San Francisco Planning Department, *Historic Resource Evaluation Response* (Case No. 2009.1026E, 26 April 2010) 4.
[16] Ibid.

# VII. PROJECT-SPECIFIC IMPACTS

This section analyzes the project-specific impacts of the proposed project at 850 and 870 Brannan Street (aka 888 Brannan Street on the environment, as required by the California Environmental Quality Act (CEQA).

## A. CALIFORNIA ENVIRONMENT QUALITY ACT (CEQA)

The California Environment Quality Act (CEQA) is state legislation (PRC Section 21000 et seq.), which provides for the development and maintenance of a high quality environment for the present-day and future through the identification of significant environmental effects.[17] CEQA applies to "projects" proposed to be undertaken or requiring approval from state or local government agencies. "Projects" are defined as "…activities which have the potential to have a physical impact on the environment and may include the enactment of zoning ordinances, the issuance of conditional use permits and the approval of tentative subdivision maps."[18] Historic and cultural resources are considered to be part of the environment. In general, the lead agency must complete the environmental review process as required by CEQA. In the case of the proposed project at 888 Brannan Street, the City of San Francisco will act as the lead agency.

According to CEQA, a "project with an effect that may cause a substantial adverse change in the significance of an historic resource is a project that may have a significant effect on the environment."[19] Substantial adverse change is defined as: "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historic resource would be materially impaired."[20] The significance of an historical resource is materially impaired when a project "demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance" and that justify or account for its inclusion in, or eligibility for inclusion in, the California Register.[21]

California Environmental Quality Act provides that the effects of projects found to be "consistent with" the *Secretary's Standards* "shall generally be considered mitigated below a level of significance and thus… *not significant*" under Section 15126.4(b)(1) (emphasis added). In addition, CEQA provides an exemption for projects "limited to…rehabilitation… in a manner consistent with" the *Secretary's Standards* under regulations in Section 15331.

Thus, a project may cause a substantial change in a historic resource but still not have a significant adverse effect on the environment as defined by CEQA as long as the impact of the change on the historic resource is determined to be less-than-significant, negligible, neutral or even beneficial.

## B. CITY AND COUNTY OF SAN FRANCISCO PLANNING DEPARTMENT CEQA REVIEW PROCEDURES FOR HISTORIC RESOURCES

As a certified local government and the lead agency in CEQA determinations, the City and County of San Francisco has instituted guidelines for initiating CEQA review of historic resources. The San Francisco Planning Department's "CEQA Review Procedures for Historical Resources" incorporates the State's CEQA Guidelines into the City's existing regulatory framework.[22] To facilitate the review

[17] State of California, California Environmental Quality Act, http://ceres.ca.gov/topic/env_law/ceqa/summary.html, accessed 31 August 2007.
[18] Ibid.
[19] CEQA Guidelines subsection 15064.5(b).
[20] CEQA Guidelines subsection 15064.5(b)(1).
[21] CEQA Guidelines subsection 15064.5(b)(2).
[22] San Francisco Planning Department, *San Francisco Preservation Bulletin No. 16: City and County of San Francisco Planning Department CEQA Review Procedures for Historic Resources* (October 8, 2004).

process, the Planning Department has established the following categories to establish the baseline significance of historic properties based on their inclusion within cultural resource surveys and/or historic districts:

- **Category A – Historical Resources is divided into two sub-categories:**

  - **Category A.1 – Resources listed on or formally determined to be eligible for the California Register**. These properties will be evaluated as historical resources for purposes of CEQA. Only the removal of the property's status as listed in or determined to be eligible for listing in the California Register of Historic Resources by the California Historic Resources Commission will preclude evaluation of the property as an historical resource under CEQA.

  - **Category A.2 – Adopted local registers, and properties that have been determined to appear or may become eligible, for the California Register.** These properties will be evaluated as historical resources for purposes of CEQA. Only a preponderance of the evidence demonstrating that the resource is not historically or culturally significant will preclude evaluation of the property as an historical resource. In the case of Category A.2 resources included in an adopted survey or local register, generally the "preponderance of the evidence" must consist of evidence that the appropriate decision-maker has determined that the resource should no longer be included in the adopted survey or register. Where there is substantiated and uncontroverted evidence of an error in professional judgment, of a clear mistake or that the property has been destroyed, this may also be considered a "preponderance of the evidence that the property is not an historical resource."

- **Category B - Properties Requiring Further Consultation and Review.** Properties that do not meet the criteria for listing in Categories A.1 or A.2, but for which the City has information indicating that further consultation and review will be required for evaluation whether a property is an historical resource for the purposes of CEQA.

- **Category C - Properties Determined Not To Be Historical Resources or Properties For Which The City Has No Information indicating that the Property is an Historical Resource.** Properties that have been affirmatively determined not to be historical resources, properties less than 50 years of age, and properties for which the City has no information.[23]

870 Brannan Street is classified under **Category A.1**. 850 Brannan Street is classified under **Category C.** Therefore, 870 Brannan Street considered by the City and County of San Francisco to be an historic resource as defined in CEQA, though 850 Brannan Street is not.

[23] San Francisco Planning Department, "San Francisco Preservation Bulletin No. 16 – CEQA and Historical Resources" (May 5, 2004) 3-4.

## C. THE SECRETARY OF THE INTERIOR'S STANDARDS FOR THE TREATMENT OF HISTORIC PROPERTIES

*The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* (Secretary's Standards) provide guidance for working with historic properties. The Secretary's Standards are widely used to evaluate proposed alterations to historic properties. The Secretary's Standards are a useful analytic tool for understanding and describing expected effects on historic resources. Compliance with the Secretary's Standards does not predetermine whether a project would result in a substantial adverse change in the significance of an historic resource. Rather, projects that comply with the Secretary's Standards benefit from a regulatory presumption under CEQA that they would have a less-than-significant adverse impact on an historic resource. CEQA provides an exemption for projects "limited to…rehabilitation… in a manner consistent with" the *Secretary's Standards* under regulations in Section 15331. Projects that do not comply with the Secretary's Standards may or may not cause a substantial adverse change in the significance of an historic resource.

The Standards offers four treatment approaches to historic properties: preservation, rehabilitation, restoration, and reconstruction. The distinct treatments are defined as follows:

> The Standards for Preservation "require retention of the greatest amount of historic fabric, along with the building's historic form, features, and detailing as they have evolved over time."
>
> The Standards for Rehabilitation "acknowledge the need to alter or add to a historic building to meet continuing new uses while retaining the building's historic character."
>
> The Standards for Restoration "allow for the depiction of a building at a particular time in its history by preserving materials from the period of significance and removing materials from other periods."
>
> The Standards for Reconstruction "establish a limited framework for re-creating a vanished or non-surviving building with new materials, primarily for interpretive purposes."[24]

Typically, one treatment is chosen for a project based on the property's historical significance, taking a number of other considerations into account. Because they allow the most change, the Standards for Rehabilitation are the most appropriate treatment for the project.

## D. PROPOSED PROJECT DESCRIPTION

This project description is based upon drawings for 888 Brannan Street by Gensler Architects, dated 31 May 2011. Refer to the **Appendix** for drawings. No exterior changes to 850 Brannan Street are proposed. The proposed project includes the replacement of deteriorating windows in 870 Brannan Street. The plan largely complies with the recommendations that were previously approved by the San Francisco Planning Department and Planning Commission (2009.1026E HRER).

[24] Kay D. Weeks and Anne E. Grimmer, *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings* (Washington, D.C.: U.S. Department of the Interior, 1995), 2.

### Exterior Façade Alterations

On the west-facing 8th Street façade, the original steel frames in the ground floor windows will be repaired and new clear glazing will be installed. Rather than the second bay of windows being restored, as illustrated in Page & Turnbull's May 2010 window report, the first (north) tower bay window frames will be restored and installed with obscure corrugated tempered glass to replicate the original obscure glass in the stairwells. This change from the previously approved plan results from the fact that the windows in the second bay have already been greatly altered and partially removed, and the new use behind that bay will be office space that requires clear glass rather than obscure glass. In effect, the type of glass that was previously recommended will be swapped between the first and second bays— obscure glass in the tower, and clear glass in the second bay, in keeping with the other bays. The remaining windows on the west façade will be removed and replaced with approved aluminum-sash units that match the layout and frame profile of the originals and are glazed with clear glass. Screens/blinds on the interior of the ground floor windows will prevent cars from being seen inside the parking garage from the street.

On the south-facing Brannan Street façade, all of the ground floor windows will replaced with multi-light aluminum sash or storefronts. Though Page & Turnbull's window report recommended restoring the remaining two original windows on the ground floor, all will be replaced so that the materials will be consistent. The window frames in the upper stories of the second bay and fifteenth (end) bay will be restored and installed with salvaged safety glass, if feasible. If it is not feasible to re-use the original glass, replacement glazing will match the color and texture of the original glass but will be tempered as required by code. The remaining windows on the south facade will be removed and replaced with approved aluminum-sash units that match the layout and frame profile of the originals.

The project also includes alterations to entrances, including entrance awnings above historic entrances and insertion of new entrances; signage; and interior modifications. On the south façade facing Brannan Street, an entrance with fully glazed double doors, transom, and flat projecting canopy will be inserted into the third bay from the west, replacing a current non-historic window. The entrance system in the center sixth through eighth bays (center bays) will be replaced with tall fully glazed double doors and transoms. The entrance system will be set back further than the existing system, emphasizing the former rail spur curve, which will continue into the lobby. The existing curved canopy will be replaced by a flat canopy and the numbers "888" under the raised windows in the sixth bay. An entrance identical to the one in the third bay will also replace the recessed doors in the tenth bay and a window in the fourteenth bay. A new fully glazed entry to match the others will replace the doors in the fifteenth (end tower) bay.

On the west 8th Street façade, the existing recessed vestibule in the north tower and two aluminum entrances in the twelfth and fifteenth (end tower) bays will not be altered.

The east façade on Decatur Street will remain in keeping with the previous window study, which recommends replacing all extant windows on this façade with aluminum-sash. A garage entrance will be inserted into the north end of the ground floor. Two windows will be infilled on the third and fourth floors, given that they are adjacent to an exit stair on the exterior and will contain new toilets on the interior.

The north façade will feature one new pedestrian door for use as a garage exit on Kate Street, and a small automobile garage entrance on Decatur Street. The windows on the east side of the north façade will follow the recommendations from Page & Turnbull's May 2010 window report, which states that the windows be replaced with clear insulated glass and aluminum frames with true divided lites that match the layout of the existing windows. The windows on the west end, at the zero lot

line, will be replaced with contemporary hollow metal steel-sash three-lite windows to improve upon the non-rated existing windows. The north façade is a secondary façade and is not fully visible behind an adjacent building and billboard on 8th Street. The National Park Service Bulletin, *Replacement Windows that Meet the Standards,* provides guidelines that state, "Replacement windows on secondary elevations that have limited visibility must match the historic windows in size, configuration and general characteristics, though finer details may not need to be duplicated and substitute materials may be considered." Though this window design deviates from the previously approved report, it adheres to the NPS guidelines by retaining the existing window openings and repetitive fenestration pattern.

### Interior Alterations

The interior alterations include renovating the atrium at 870 Brannan Street and providing an outdoor courtyard in the existing loading dock at 850 Brannan Street. Typical interior spaces will include office space, retail, and possibly a restaurant at the southwest corner of the ground floor; three open-plan tenant office spaces per floor on the second, third, and fourth floors; and jewelry showrooms in the basement.

### Rooftop Mechanical Equipment and Screens

New boilers and cooling towers will be installed on the roof. The boilers will be located near the southwest corner of the existing barrel-vaulted atrium skylight, and the cooling towers will be located immediately south of the existing tower near 8th Street. The boilers will be enclosed by 12' mechanical screens on all four sides, while the cooling towers will be enclosed 14.75' mechanical screens on the south and west sides. A fan room on the east side of the atrium skylight will have 14.75' mechanical screens on all four sides. The screens will be equal to or less than the height of the existing fifth floor penthouse, and will be partially hidden behind the original roof parapets, which are 7'3" to 14'1" tall. In addition, elevators will be added immediately north of the existing elevators toward the north end of the building, and a new elevator overrun will be 24' tall. According to line-of-sight photomontages prepared by the architect, the top of the cooling tower mechanical screen will be visible from the corner of Brannan and 8th streets. From 8th Street, the cooling tower screen will be visible from the I-80 overpass, but the parapet will largely block the view, as it does with the present penthouse.

## E. ANALYSIS OF PROPOSED PROJECT

### Standards for Rehabilitation

The following analysis is a review for conformance with the *Standards for Rehabilitation*, each standard is numbered and an explanation of the project's conformance follows the quoted standards.

> Rehabilitation Standard 1. *A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces and spatial relationships.*

888 Brannan Street was historically used as an industrial warehouse, but has been a multi-tenant commercial space for nearly 30 years. This use was acknowledged in the National Register Nomination from 1982. The proposed project will not change the use from commercial space, though offices and parking will be added. It will also not significantly change those characteristic features which convey the building's architectural significance as an industrial building, such as the fenestration pattern, fenestration type on the primary facades, general massing, scale, and reinforced concrete construction.

As designed, the proposed project is in compliance with Rehabilitation Standard 1.

> Rehabilitation Standard 2. *The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces and spatial relationships that characterize the property will be avoided.*

As proposed, the project will not significantly affect or remove the character-defining features of the property. The interior does not contribute to the historic significance of the building, as per the National Register Nomination, so interior changes will not affect the building's historic character. The massing and size of the building will not change. The mechanical equipment and screens will be partially hidden behind the existing parapets and will not detract from the industrial character of the building.

The exterior alterations will not affect any historic spaces or spatial relationships. Though many windows will be replaced due to poor condition, the fenestration pattern will be preserved and select windows, particularly at the 8th Street ground floor level, will be restored. The window alterations will vary from the plan that was previously approved in 2010, but these changes are in keeping with the intent of the earlier study or with NPS guidelines. Further, multi-lite windows will replace incompatible storefront windows on the ground floor of the Brannan Street façade, reintroducing a more unified industrial character at the street level. Entrances at the ground floor will generally replace previous intrusions to the original design. None of the original Classical Revival ornament will be removed. The proposed project will also emphasize some historic features that have since been obscured, such as highlighting the rail spur entrance on Brannan Street where trains would load and unload supplies. Therefore, the historic character of the building as a "large-scale reinforced concrete industrial building overlaid with classical details" will be retained. The building's significance as an example of an industrial building from early twentieth-century San Francisco will not be affected.

As designed, the proposed project is in compliance with Rehabilitation Standard 2.

> Rehabilitation Standard 3. *Each property will be recognized as a physical record of its time, place and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historical properties, will not be undertaken.*

The proposed entrances, canopies, and replacement windows will be differentiated from the historic fabric by their designs and/or materials (see Standard 9), so the proposed project will not create a false sense of historical development. No conjectural features or elements from other historical properties are proposed to be added, and restorations of windows will be based on historic documentation. The primary façade will read as an early twentieth-century industrial building with contemporary infill windows, doors, canopies, and signage.

As designed, the proposed project will be in compliance with Rehabilitation Standard 3.

> Rehabilitation Standard 4. *Changes to a property that have acquired significance in their own right will be retained and preserved.*

The additions to the subject property, which were constructed in 1920, will be retained. The additions are recognized as part of the historic property in the National Register Nomination. No other changes have acquired significance in their own right, including exterior signs, modern entry systems, and other intrusions to the original fabric.

As designed, the proposed project will be in compliance with Rehabilitation Standard 4.

> Rehabilitation Standard 5. *Distinctive materials, features, finishes and construction techniques or examples of craftsmanship that characterize a property will be preserved.*

The proposed project will preserve distinctive materials, features, finishes and construction techniques that characterize the property. The reinforced concrete construction and Classical Revival details will not be altered. Those windows that can be restored will be, though others will be replaced with compatible multi-light aluminum sash. The ground floor windows, which are more accessible to the public and in better condition, will be restored on the 8th Street façade. The ground floor level on Brannan Street has lost integrity due to numerous alterations, so the replacement of the two remaining original ground floor windows will not be a detriment to that façade; in fact, the replacement of incompatible storefront windows with multi-light sash will result in a net gain of multi-light sash and reintroduce a more industrial character to the ground floor level.

As designed, the proposed project will be in compliance with Rehabilitation Standard 5.

> Rehabilitation Standard 6. *Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.*

Deteriorated windows will be repaired, where possible, though many need to be replaced because they have deteriorated beyond repair (see Page & Turnbull's 5 March 2010 report and the SF Planning Department's Historic Evaluation Response 2009.1026E HRER). Original window materials will be replaced with a compatible aluminum-frame, insulated glass window material. The new windows on the primary facades will closely match the originals in pane configuration, muntin profile, and general proportion. Aside from the windows, no other historic features will be altered.

If the proposed project follows the guidelines outlined above, it will be in compliance with Rehabilitation Standard 6.

> Rehabilitation Standard 7. *Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.*

The proposed project, as currently designed, does not include any known chemical or physical treatments to the subject property. No sand or water blasting, or other harsh treatments are proposed.

As designed, the proposed project will be in compliance with Rehabilitation Standard 7.

> Rehabilitation Standard 8. *Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measure will be undertaken.*

The proposed project does not include excavation, and no archaeological resources are expected to be encountered. If any archaeological material should be encountered during this project, construction will be halted and the City will be notified.

If the proposed project follows the guidelines outlined above, it will be in compliance with Rehabilitation Standard 8.

> Rehabilitation Standard 9. *New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work*

> *shall be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and environment.*

The exterior alterations will not destroy features and spatial relationships that characterize the property. Although many of the industrial steel sash windows will be replaced, the present openings and repetitive fenestration pattern will not be affected. Except for the zero lot-line windows on the north façade, which will feature three vertical lites in the proportions of the original multi-lite windows, the new windows will feature industrial multi-lite sash. The proposed entrances and canopies will be differentiated from the historic fabric by their contemporary designs and materials, which include aluminum frames and full glazing. In their simplified design, they will be compatible with the historic fabric. The proposed project will include new mechanical equipment, screens, and elevator overrun on the roof. These additions will not alter any other historic materials, features, or spatial relationships that characterize the property.

As designed, the proposed project will be in compliance with Rehabilitation Standard 9.

> Rehabilitation Standard 10. *New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.*

The proposed changes could be removed in the future without affecting the essential character-defining features of the property.

As designed, the proposed project will be in compliance with Rehabilitation Standard 10.

## F. PROJECT-SPECIFIC IMPACTS UNDER CEQA

Because 870 Brannan Street is considered to be a historical resource under CEQA, the proposed project is evaluated herein for impacts on the site. According to CEQA, PRC Section 15126.4(b)(1), if a project complies with the Secretary's Standards, the project's impact "will generally be considered mitigated below a level of significance and thus is not significant." If a project does not comply with the Standards, it must be evaluated under CEQA to determine whether or not it will have a significant adverse impact on the historic resource.

As demonstrated in this analysis, the proposed project at 870 Brannan Street complies with the *Secretary of the Interior's Standards for Rehabilitation*.

## G. CUMULATIVE IMPACTS

CEQA defines cumulative impacts as follows:

> 'Cumulative impacts' refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.[25]

[25] *CEQA Guidelines, Article 20, subsection 15355.*

The primary cumulative impact concern in this category would be systematic demolition or alteration of historic resources, or systematic removal of a certain type of building or resource. While the proposed project alters a building completed more than 50 years ago, it was found to be in conformance with the *Standards for Rehabilitation*. Other adjacent projects and project areas are governed by environmental clearance documents that require mitigation measure commitments and some by explicit historic preservation policies. Under these circumstances where historic preservation policies and mitigation measures would occur in the future and/or are being implemented, there is little potential for systematic adverse cumulative effects on historic resources.

## H. MITIGATION MEASURES

According to Section 15126.4 (b) (1) of the Public Resources Code (CEQA): "Where maintenance, repair, stabilization, rehabilitation, restoration, preservation, conservation or reconstruction of the historical resource will be conducted in a manner consistent with the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings*, the project's impact on the historical resource will generally be considered mitigated below a level of significance and thus is not significant." Because the proposed project would not have a substantial adverse effect on a historic resource, no mitigation measures would be required.

# VIII. CONCLUSION

850 Brannan Street is not considered a historic resource, while 870 Brannan Street was listed on the National Register of Historic Places in 1982. The use of both buildings has changed to commercial space since the 1980s. Exterior alterations to 870 Brannan Street have been made in the past, including replacement entrances, canopies, and ground floor windows. The remaining windows have been painted. Nevertheless, the building retains significance as an early twentieth century industrial building that displays Classical Revival ornament. Because 870 Brannan Street is listed in the National Register, it is automatically listed on the California Register and is therefore considered a qualified historic resource for the purposes of CEQA.

The proposed project includes restoring and replacing windows (following guidelines that were previously accepted by the Planning Department and Planning Commission), inserting new glazed entrance systems and canopies, replacing signage in accordance with current San Francisco Planning Code, conducting interior renovations, and installing mechanical equipment and screens on the roof. It is the conclusion of this analysis that the proposed project as currently designed conforms to the *Secretary of the Interior's Standards*, and that the proposed project can be designed and implemented in such a way that it would conform to the Standards and would not result in a substantial adverse change in the significance of the historic resource or a significant effect on the environment as defined by CEQA.

The Class 31 exemption contained in CEQA Guidelines Section 15331 indicates that a project found to be in conformance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* is mitigated to a less than significant level or otherwise categorically exempt.

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# X. APPENDIX

## PROPOSED PROJECT DRAWINGS

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# Historic Windows Treatment Study

## 888 Brannan Street

San Francisco, California

5 March 2010

Prepared for
Scanlan Kemper Bard Companies
Portland, Oregon

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# INTRODUCTION

The Owner of the National Carbon Building (also known as the Blake, Moffit and Towne Warehouse), located at 888 Brannon Street in San Francisco, is applying to change the use of the subject building from wholesale showrooms/retail to office use. As part of the change-in-use, the Owner wishes to upgrade the industrial, steel-frame windows at the property. Because the property is on the National Register for Historic Places and the windows are a character-defining element of the qualified historic resource, any upgrades / modifications to the windows will need to be consistent with the Secretary of the Interior's Standards for the Rehabilitation of Historic Properties (the Standards). This report contains the following:

- Background information on the building's history, general construction, and window construction.
- A summary of our visual observations of as-built condition of the steel-frame windows.
- Criteria to consider in the evaluation of window treatments.
- Discussion and analysis of potential treatment options.
- Initial recommendations for treatment and next steps.

# BACKGROUND

Designed by architect/engineer Maurice Couchot, the National Carbon Building is a large-scale industrial warehouse structure overlaid with classical details. The building was built in multiple phases with the original 1917 building facing Eighth Street. The 1917 building was four-stories tall above street level with a small fifth story section at the northern end. In 1920 a four-story, nine-bay extension of the building was added along Brannan Street. Also added to the complex were a four-story building along the east elevation and a one-story structure with a clear story. The building was commissioned by the Eveready (battery) Division of the National Carbon Company, which became a unit of Union Carbide in 1917. In 1937 the original (Eighth Street) portion of the building was acquired by Blake, Moffit, and Towne Company, an early San Francisco paper distribution company. In 1950, Blake, Moffit, and Towne occupied the remainder of the complex, which was used as their headquarters and warehouse, until 1981. In 1982 the complex was converted into wholesale showrooms and has remained that use until the present. The 1982 rehabilitation reportedly took advantage of the Federal Historic Preservation Tax Credit incentives. This was when the building was added to the National Register of Historic Places.

The two principal elevations along Eight and Brannan Streets are nearly identical (as shown in Figures 1 and 2). The Eighth Street façade is fifteen bays long with full-size, multi-light industrial windows at each bay and simple spandrels dividing the floor levels. The Brannan Street façade has the same composition, but is fourteen bays long. At each end of these elevations are matching doorways with High Style classical detailing that give the building a formal, symmetrical appearance. The Brannan Street elevation originally had its three central bays dedicated to vehicular entranceways. The western entranceway was taller, which is reflected in the short windows at the second floor above. These vehicular entranceways were removed and replaced with aluminum-framed storefronts during the 1982 rehabilitation project.

Figure 1: Eight Street (Western) Elevation


Figure 2: Brannan Street (Southern) Elevation

When originally constructed, the building featured the latest technology and materials, including a reinforced-concrete construction, a forced-air ventilation system, a sprinkler system, intercom telephones, pneumatic tubes, and spiral chutes (for moving material and goods). Similarly, the steel-framed windows represented the latest technology as "rolling" of steel bars into shaped sections and advancements in glass technology (wire glass) allowed for the manufacture of relatively lightweight, fire-resistant, operable windows well-suited for industrial buildings.

## ORIGINAL WINDOWS

The original steel windows along the Brannan and Eighth Street elevations share the following features. A 1940's photograph of the building is shown in Figure 3.

- The window units typically consist of three (3) sash placed in a large rectangular window opening.
- The frame of the sash consists of a perimeter "L" or "U"-shaped rolled steel frame with intermediate "T"-shaped rolled steel mullions. The perimeter frame pieces appear to nest within another piece of steel affixed or embedded into the exterior concrete wall (select demolition is required to determine the exact anchoring system). The "legs" of the perimeter frame each appear to be approximately 1-1/4 inch long and the top of the mullion "T" is approximately 2-3/4 inches with the bottom leg narrow approximately 1-1/4 inch long.
- The sashes within a window opening are ganged together by bolting them together to a structural steel "T". The "T" is embedded into the concrete sill and head and provides structural stability.
- The windows are interior glazed, meaning that the glass could be replaced from inside the building.
- The glass is secured to the frame with wire clips (looped through drilled holes in the frame) and glazing putty.
- The exterior "nose" of the steel framing is "coved" or "fluted".
- The original glass appears to have been a translucent (not clear) wire glass. The interior face of the glass is corrugated while the exterior face is smooth (refer to Figure 4).
- Glass lights (pieces) are typically approximately 18 inches tall by 12 inches wide.
- Each sash typically had a horizontal pivot ventilator. The ventilators were typically three-to-four glass lights wide and two glass lights high. The ventilators were normally located within the bottom half of the windows.


Figure 3

Figure 4: Original glass.

There are a few minor variations to the original window layouts, resulting in the following five basic window types.

Type "A" The most common window type is found at the second through fourth floors along the central portions of both public elevations, the three sashes are each five lights wide by six lights tall. They occupy an opening approximately 16-feet wide by 9-feet tall. Originally there were 33 of these window types along Brannan Street and 39 along Eighth Street. One of the Type "A" windows along Brannan Street and three along Eighth Street have been modified. Refer to Figure 5 for a photograph of a typical Type "A" window.

Type "B" This window type is found at the ground floor and is similar to Type "A" with the exception that there is an additional row of glass lights (the three sashes are each five lights wide by seven lights tall). Originally there were 13 of these window types along Eight Street and 8 along Brannan Street. Only 2 remain at Brannan Street.

Type "C" This window type was present at the second through fourth floors at the corners of the building. Each sash is three lights wide and 6 lights high. The original windows remain at the east end of Brannan and at the third floor of the corner at Eight and Brannan. The other corner openings are either covered over or the windows have been replaced.

Type "D" This window type is present above what was a truck entranceway into the complex. At this location the bay is somewhat wider, Type "D" windows are similar to Type "A" with the exception that the 2 outer sash are six lights wide instead of five.

Type "E" Type "E" windows are located at the second floor above the truck entrance way described under Type "D". They are only two lights tall.

Type "F" Based upon a review of the photograph in Figure 3, the two steel-framed windows are older replacement units. Located on the second floor at the corner of Eight and Brannan, the units consist of three sash with each sash being two lights wide by four

lights tall. An awning-type ventilator is present in the center sash. The window layout and frame profiles vary from the other windows on the building.

Figure 5: Window Type "A"

# VISUAL OBSERVATIONS

## METHODOLOGY

When the building was converted to wholesale showrooms, the glass windows were painted out on both the interior and exterior of the building. Several additional coats of paint have been added to the exterior with the paint build-up approaching 1/16 inch at the steel frames. Additionally several of the windows located at showrooms on the interior have been finished over covering much of the window. However, these interior finishes frequently leave a framed opening around the ventilator to allow with operation of the window. Therefore a portion of these windows were accessible for the survey (refer to Figure 6). The paint and finishes make the windows difficult to visually inspect, even when standing up-close to the windows.

Figure 6: Interior finishes covering window except operable vents (Brannan St.)

Page & Turnbull was able to gain up-close interior access to 10 original windows at an empty showroom on the second floor along Eighth Street and 12 windows on the Brannan Street facade. Additionally, we performed up-close observations of original windows at grade along Eighth and Brannan Streets. Therefore, approximately 40-percent of the windows were observed up-close. The remaining windows were observed using binoculars at grade, but as noted above, the paint coatings obscured the subtleties of deterioration conditions noted below. A number of the original windows have been over-clad (or removed), modified, or replaced with non-matching windows. Additionally, the owner has performed mock-up repairs of four of the windows observed at the second floor. Refer to the attached SK1 sketch elevation diagram for more information regarding extent of the window observations.

As part of our review of the windows, a maintenance staff person was interviewed regarding the performance of the windows. The primary concern with the windows was the fact that the operable ventilators no longer function properly. They do not close securely and have contributed to water leakage within the building. A majority have been fixed and sealed shut. It was reported that during the repair mock-ups one of the ventilators fell out of the sash.

## VISUAL OBSERVATIONS

The following deterioration conditions were observed within the original window assemblies:

**Cracked Glass:** Despite being obscured with paint coatings, a high percentage of broken glass was observed throughout the building (refer to Figure 7). The proportion of cracked individual lights varies from window-to-window with the maximum number of cracked lights observed in an individual window was 16 (or 18-percent of glass panes) on the Brannan Street elevation and 13 (or 14 percent of glass panes) on the Eight Street elevation. We conservatively estimate that 5-percent of the glass lights are cracked or broken, which represents over 400 broken panes.

Figure 7

**Steel Corrosion and Warping of Steel Frame:** Steel corrosion varying from mild (or surface) to heavy is present on the window frames throughout the primary facades. The rust product of steel corrosion can take up to 10 times the volume of unaffected steel. Commonly called "rust jacking", this expansion can create significant stress levels within material adjacent to the corroding steel. At 888 Brannan Street, heavy corrosion of steel frame members is resulting in distortion and warping of the frame. This condition was frequently observed at the bottom rail of the operable ventilator (as shown in Figure 8) where rain water can collect if the window is not properly closed or sealed (refer to Figure 9). The warping frame makes it that much more difficult to close and seal the ventilator, exacerbating the problem. We estimate 50-percent of sashes are experiencing heavy levels of corrosion.

Figure 8; Corrosion leading to deformation of the steel window frame (Eight St.)

Figure 9: Warped ventilator no longer closes properly (Brannan St.)

**Steel Corrosion and Concrete Spalling:** Steel corrosion of the window frame and the vertical structural "T" section ganging the sashes has led to the cracking and spalling of the interior concrete sill below the frame (as shown in Figures 10 & 11). While the majority of the interior concrete sills are hidden by interior finishes, cracking and/or spalling of the concrete was observed at all exposed sills within our survey area. At several locations, it appeared as if previous repair attempts had been made to the concrete only to fail again. The concrete deterioration appears endemic to the building interior. The concrete deterioration was not observed at the building exterior.

Figure 10: Concrete spalling at structural steel "T" (Eight St.).

Figure 11: Concrete spalling due to steel "T" corrosion (Brannan St.).

**Deteriorated Window Putty:** The interior window putty is heavily cracked and deteriorated (as shown in Figure 12). Corrosion of the steel frame underneath the putty is likely accelerating the rate of deterioration. 100-percent of the observed putty requires removal and replacement. Occasionally putty had fallen away to reveal wire glazing clips

Figure 12

**Modifications to Operable Ventilators:** Over the years, the operable ventilators have been heavily modified. Some of the ventilators have been modified from horizontal pivot to awning-type operation. Original hinges and locks have been replaced. Often times the lock is missing preventing secure closure of the ventilator. As noted above, warping of the frame due to rust jacking has made it difficult to securely shut the operable ventilators.

**Missing Muntin Bars:** At five locations, steel muntin bars have been removed and larger glass panes were installed (as shown in Figure 10).

Figure 13

**Replacement Glass:** Despite the paint coatings in place over the windows, varying texture indicated that a variety of non-matching replacement glass has been installed throughout the building. This is expected with an older, industrial-type building.

## REHABILITATED WINDOWS

Prior to Page & Turnbull's involvement on the project, the Property Owner had retained a Contractor to rehabilitate select window units including three Type "A" units on the second floor of the Eighth Street elevation, two non-original Type "F" units at the second floor Brannan/Eighth Streets corner, and a portion of one Type "B" unit on the Eighth Street elevation (refer to the attached sketch SK1 for locations). The rehabilitation work performed on the windows varies somewhat and is best described as follows:

*Type "A" and Type "B" units to the south end of the Eighth Street elevation*

- Remove original painted, translucent, corrugated wire-glass.
- Remove paint from steel frame with chemical stripper.
- Remove surface corrosion from frame.
- Prime frame.
- Install new clear plate glass set in putty.
- Finish interior putty work.

*Type "F" units*

- Remove paint coatings from existing clear glass using chemical stripper and scraping with razor blade.
- Replace broken glass as required.
- Remove isolated sections of deteriorated putty and install new.

*Type "A" units to center of Eighth Street elevation*

- Remove original painted, translucent, corrugated wire-glass.
- Remove paint from steel frame with chemical stripper.
- Remove surface corrosion from frame.
- Install new clear plate glass set in silicone sealant (no finishing interior putty or sealant was installed).

## VISUAL OBSERVATIONS

We noted the following in regards to the rehabilitated window units:

- Rehabilitation work was performed several months ago and the portions of the putty had not yet set to "thumbprint" hardness.
- Putty work is generally sloppy (refer to Figure 14).
- Steel corrosion is on-going and new putty is already rust-stained (refer to Figure 15).
- It did not appear that any attempt was made to straighten deformed/warped steel framing (refer to Figure 16). Ventilators remain difficult to operate and close securely.
- No attempt was made to replace missing muntins.

Figure 14: Sloppy putty work.

Figure 15: Rust stained putty.

Figure 16: Deformed Frame.

# DISCUSSION

## EVALUATION OF EXISTING CONDITIONS

Based upon our visual observations, the existing windows appear to be in fair-to-poor condition. It appears that routine maintenance on the windows has been deferred, likely due to the fact the windows are typically covered (with paint and interior finishes) and are relatively inaccessible. The following are of particular concern:

**Structural Integrity of Glass:** Given the high percentage of cracked glass, deteriorated putty, and corroded steel frame; the attachment of the glass panes is questionable. Concerns exist that the pieces of glass could fall inward during a wind storm or earthquake. Existing glazing (glass)

would need to be removed and reset in order to adequately treat (prime and paint) the steel frame against corrosion and re-establish a proper seal between the glass and steel frame. This work is invasive and labor-intensive (costly).

**Structural Integrity of Window Units:** Given the deterioration of the concrete at the window perimeter, particularly at the embedded structural "T" section, concerns exist regarding the ability of the window units to resist a moderate earthquake. The condition should be reviewed by a structural engineer and the concrete repaired.

**Deformed/Warped Framing and Structural Integrity/Weather-tightness of Ventilators:** Approximately half of the ventilators do not appear to close properly, leading to leakage during rain. Deformation of the window frame appears to be manifesting itself in and around the ventilators – this is likely a cyclic problem with leakage accelerating the corrosion rate of the steel at the ventilators. Straightening of deformed framing is difficult and may require removal of the sash and/or installation of new pieces of frame. Additionally, the ventilators are likely allowing a high degree of air infiltration, impacting the building's energy efficiency. Again the repairs are labor-intensive (and costly). Fixing the ventilators in-place and permanently sealing the perimeter with silicone sealant would likely remediate water and air infiltration.

## EVALUATION OF REHABILITATION MOCK-UPS

The in-place rehabilitation mock-ups have some deficiencies, as noted in the observation section. We believe the mock-up represents a bare-minimum level of intervention. Repairs to the concrete perimeter frame would need to be incorporated into any rehabilitation treatment. Recommended improvements to the rehabilitation program include:

- Straightening or replacement of deformed window frame members.
- Replacement of missing window frame members.
- Better preparation of steel to remove surface corrosion and installation of high-performance, rust-inhibiting primers and coatings.
- Use of silicone sealant to set and finish the glass installation.
- Possible use of "Low E" laminated glass units (the existing frame should be readily able to accept ¼ inch thick glass panes).

## HISTORIC PRESERVATION CONSIDERATIONS

The building is a qualified historic resource, and as such Page & Turnbull took particular care to evaluate the windows in accordance with nationally recognized historic preservation standards and guidelines; as well as, the California State Historic Building Code.

### SECRETARY OF INTERIOR'S STANDARDS

Our review of the windows and recommendations were developed to be consistent with the recommended treatments outlined in the *Guidelines for Rehabilitating Historic Buildings - Exterior Features - Windows* that supplement the *Secretary of the Interior's Standards for Rehabilitation of Historic Buildings*. Generally, the following hierarchical process is followed for the treatment of historic materials and features in a Rehabilitation project.

**Priority 1: Identify, retain, and preserve** historic materials and features that are important in defining the buildings historic character.

**Priority 2: Protect and maintain** historic materials and features that are important and must be retained in the process of a Rehabilitation Project.

**Priority 3: Repair** historic materials and features when warranted due to physical deterioration.

**Priority 4: Replace** in kind an entire window that is too deteriorated to repair using the same sash and pane configuration and other design details. If using the same kind of material is not technically or economically feasible when replacing windows deteriorated beyond repair, then a compatible substitute material may be considered.

Given the level of deferred maintenance observed, treatment options to be evaluated will include Repair and Replacement.

### CALIFORNIA STATE HISTORIC BUILDING CODE (SHBC)

The SHBC allows for continued use, repair of or replacement in-kind of historic windows. The code does not mandate compliance with energy requirements. Specific sections of the code referring to this include:

**California Historical Building Code (CHBC) 2007, Chapter 8-9 Mechanical, Plumbing and Electrical Requirements, Section 8-901 Purpose, Intent, and Scope, 8-901.5 Energy Conservation.** *Qualified historical buildings or properties covered by this part are exempted from compliance with energy conservation standards. When new non-historical lighting and space conditioning system components, devices, appliances and equipment are installed, they shall comply with the requirements of Title 24, Part 6, The California Energy Code, except where the historical significance or character-defining features are threatened.*

**California State Energy Code, Subchapter 1 – General Provisions, Section 100 Scope (a) Buildings Covered, Exception 1 to Section 100 (a):** *Qualified historic buildings as defined in the State Historical Building Code.*

**CHBC - Chapter 8-8 Archaic Materials and Methods of Construction - Section 8-801Purpose, Intent, and Scope**
**801.2 Intent.** *It is the intent of the CHBC to provide for the use of historical methods and materials of construction that are at variance with specified code requirements or are not otherwise codified.*

**8-801.3 Scope.** *Any construction type or material that is, or was, part of the historical fabric of a structure is covered by this chapter. Archaic materials and methods of construction present in a historical structure may remain or be reinstalled or be installed with new materials of the same class to match existing conditions.*

## EVALUATION FACTORS

While this report is focused upon historic preservation issues, other performance and cost related issues were considered in full evaluation of the window system treatment. These issues are discussed and summarized below.

### PERFORMANCE UPGRADES AS PART OF THE CHANGE-IN-USE

The Property Owner has expressed interest with making improvements to the performance of the windows as part of the effort to change the use of the property. The Owner is also considering LEED-Silver Certification, which may require some energy efficiency upgrades to the windows that fall outside the exemptions of the SHBC. Further evaluation of overall building energy performance with a mechanical engineer is ongoing; however, treatment of the south and west facing windows will have an impact on the building's energy performance.

Performance upgrades being considered include:

- Access to daylight and views. This requires removal of the translucent glazing and installation of clear glass. This is critical if the building is to become an office use.
- Improved thermal transmittance (U-factor). This requires installation of insulated glass units or secondary glazing.
- Improved acoustics (Sound Transmission Coefficient or STC). Proximity to the highway creates a desire to control sound ingress. Similar to improving the thermal transmittance, a performance upgrade would require installation of insulated glass units or secondary glazing.
- Maintain low heat gain (Solar Heat Gain Coefficient or SGHC). Obviously, painted-out windows and translucent glass naturally have low heat gain. If the glazing is to be replaced with transparent glass, use of coatings or tints can reduce the heat gain. Given that the principal facades face west and south, controlling heat gain will be important.

### OTHER FACTORS

Other evaluation factors include:

- Initial construction cost.
- Long term maintenance costs.

## TREATMENT OPTIONS

The following Treatment Options are being considered for the windows at 888 Brannan Street:

- Option 1A: Repair windows maintaining original translucent, corrugated wire glass.
- Option 1B: Repair windows replacing original glazing with laminated clear glass incorporating solar heat gain reducing film.
- Option 2: Repair windows replacing original glazing with laminated clear glass incorporating solar heat gain reducing film and provide supplemental interior sash.
- Option 3A: Replace windows with aluminum frame and insulated glass units.
- Option 3B: Replace windows in-kind with steel frame and laminated clear glass incorporating solar heat gain reducing film.

A description of the work and pros and cons of the various options are provided below. Refer to window section sketches SK3, 4, and 5 at the end of the report for comparisons of window details.

OPTION 1A: REPAIR WINDOWS MAINTAINING ORIGINAL TRANSLUCENT, CORRUGATED WIRE GLASS.

*Description of work:*

- Remove paint coatings using chemical strippers.
- Remove and salvage corrugated wire-glass, discard non-matching and broken pieces.
- Straighten or replace deformed framing elements.
- Replace missing framing elements.
- Depending upon mechanical requirements, fix ventilators in-place or repair/replace hinges and locks.
- Cut back deteriorated concrete and install polymer-modified patching mortar.
- Epoxy inject cracks in concrete.
- Prepare and prime frame with high-performance coating.
- Reinstall salvaged glass, estimate 35 percent of new, matching corrugated wire-glass will be required.
- Set glass in silicone sealant, putty interior.
- Paint windows with high-performance coating.
- Install sealant at window perimeter.

*Pros:*

- Best historic preservation option.

*Cons:*

- Does not meet Owner's daylight and view requirement (interior office space would be muted and dull).
- Would not achieve any performance upgrades.
- Salvaging glass is highly labor intensive and new glass to match is expensive and has fire-code issues.
- Straightening frame is labor intensive (costly)
- Corrosion of steel is still a long-term maintenance issue, as is durability of original glass.

OPTION 1B: REPAIR WINDOWS REPLACING ORIGINAL GLAZING WITH CLEAR GLASS.

*Description of work:*

- Remove and dispose of corrugated wire-glass.
- Remove paint from frame with chemical strippers and/or mechanical abrasion.
- Straighten or replace deformed framing elements.
- Replace missing framing elements.
- Depending upon mechanical requirements, fix ventilators in-place or repair/replace hinges and locks.
- Cut back deteriorated concrete and install polymer-modified patching mortar.
- Epoxy inject cracks in concrete.
- Prepare and prime frame with high-performance coating.
- Install new laminated glass with integral Low E film.
- Set glass in silicone sealant, putty interior.
- Paint window frames with high-performance coating.
- Install sealant at window perimeter.

*Pros:*

- Preserves the original steel frame.

- Relatively cost effective.

*Cons:*

- Does not achieve thermal transmittance or acoustical upgrades.
- Straightening frame is labor intensive (costly)
- Corrosion of steel still a long-term maintenance issue.

OPTION 2: REPAIR WINDOWS REPLACING ORIGINAL GLAZING WITH CLEAR GLASS AND PROVIDE SUPPLEMENTAL INTERIOR SASH.

*Description of work:*

- Perform work described in Option 1B, operable ventilators to be fixed in-place.
- Install supplemental interior frame and glazing. Layout frame and sash to align with existing framing members, so that the supplemental system is not visible from the exterior.
- Supplemental interior sash to be removable to allow for cleaning of interstitial space between the units.

*Pros:*

- Preserves original steel frames.
- Allows Owner to make thermal transmittance or acoustical performance upgrades to the existing system.

*Cons:*

- Straightening frame is labor intensive (costly).
- Supplemental sash adds cost.
- Corrosion of steel still a long-term maintenance issue.
- Cleaning of interstitial space between systems is a long-term maintenance issue.

OPTION 3A: REPLACE WINDOWS WITH ALUMINUM FRAME AND INSULATED GLASS UNITS.

The replacement system would provide true-divided lites, match the layout of the existing windows, and the outer mullion and frame profiles are a close match to the existing. As with many of the existing ventilators, the pivot ventilator would be replaced with an awning ventilator. Depth of glass and framing will be increased to accommodate insulated glass (dual glazed) units. Windows manufactured by Custom Window (Series 8300) are being proposed; refer to Attachment 1 for shop drawings and Sketches SK3-5 for profile information. . The proposed clear, insulated glass would by Solarban 60 , manufactured by PPG.

*Description of work:*

- Remove and dispose of existing window units.
- Cut back deteriorated concrete and install polymer-modified patching mortar.
- Epoxy inject cracks in concrete.
- Install new window units.
- Install sealant at window perimeter.

*Pros:*

- Allows Owner to make thermal transmittance or acoustical performance upgrades to the existing system.
- Lower installation costs.
- Lower long-term maintenance requirements.

*Cons:*

- Loss of historic fabric.

OPTION 3B: REPLACE WINDOWS IN-KIND WITH STEEL FRAME AND CLEAR GLASS.

Steel window frames that match the original are still being manufactured by two east-coast companies: Bliss Nor-Am and A&S Windows. Refer to Sketches SK3-5 for profile information.

*Description of work:*

- Remove and dispose of existing window units.
- Cut back deteriorated concrete and install polymer-modified patching mortar.
- Epoxy inject cracks in concrete.
- Install new window units.
- Install sealant at window perimeter.

*Pros:*

- New system reduces long-term maintenance requirements.

*Cons:*

- Loss of historic fabric.
- Cost.
- Upgrade opportunities not fully captured.
- Concern regarding steel corrosion not mitigated.

## EVALUATION SUMMARY:

The following matrix provides a simple comparison of the evaluation criteria versus the Treatment Options:

| | *Treatment Option* | | | | |
|---|---|---|---|---|---|
| *Criteria* | *Option 1A* | *Option 1B* | *Option 2* | *Option 3A* | *Option 3B* |
| Historic Preservation | + | O | O | O | O |
| Daylight & Views | - | + | + | + | + |
| Thermal Transmittance | - | - | + | + | - |
| Acoustical | - | - | + | + | - |
| Heat Gain | + | O | O | O | O |
| Initial Cost | - | O | - | O | - |
| Maintenance | - | O | - | + | O |

**Key:**

- Poor (high cost)
O Fair
+ Good

# RECOMMENDATIONS

Based upon our visual observations, the majority of the existing windows are too deteriorated to repair in an economical fashion. The Standards allow us to use a compatible substitute material, if using the same kind of material is not technically or economically feasible when replacing windows deteriorated beyond repair. Given that the windows have been painted for almost 30 years, and that

the original glass in the windows was translucent, the depth of glass and window system was not evident from the public right-of-way. It is our opinion, that the proposed Custom Windows Series 8300 is a compatible substitute system. The window system was featured in National Park Service Preservation Tech Note Number 12, Aluminum Replacements for Steel Industrial Sash (attached as Appendix 1) and Preservation Tech Note Number 20, Aluminum Replacement Windows for Steel Projecting Units with True Divided Lights and Matching Profiles.

That stated, in order to balance historic preservation issues, we recommend incorporating more than one treatment option at targeted areas of the building. This is illustrated in elevation sketch SK-2. recommendations are as followings:

**Option 1A: Repair windows maintaining original translucent, corrugated wire glass** would be performed at the stairwells. Salvaged sashes would replace missing removed sash at the northern stair on Eighth Street. The existing wire-glass would satisfy fire-resistive requirements in the stairwell.

**Option 1B: Repair windows replacing original glazing with clear glass** would be performed at original windows remaining at the first floor. These windows are most accessible to the general public.

**Option 3A: Replace windows with aluminum frame and insulated glass units** would be performed at the remainder of the windows.
Note that the windows in the north elevation would be treated under Option 3A.

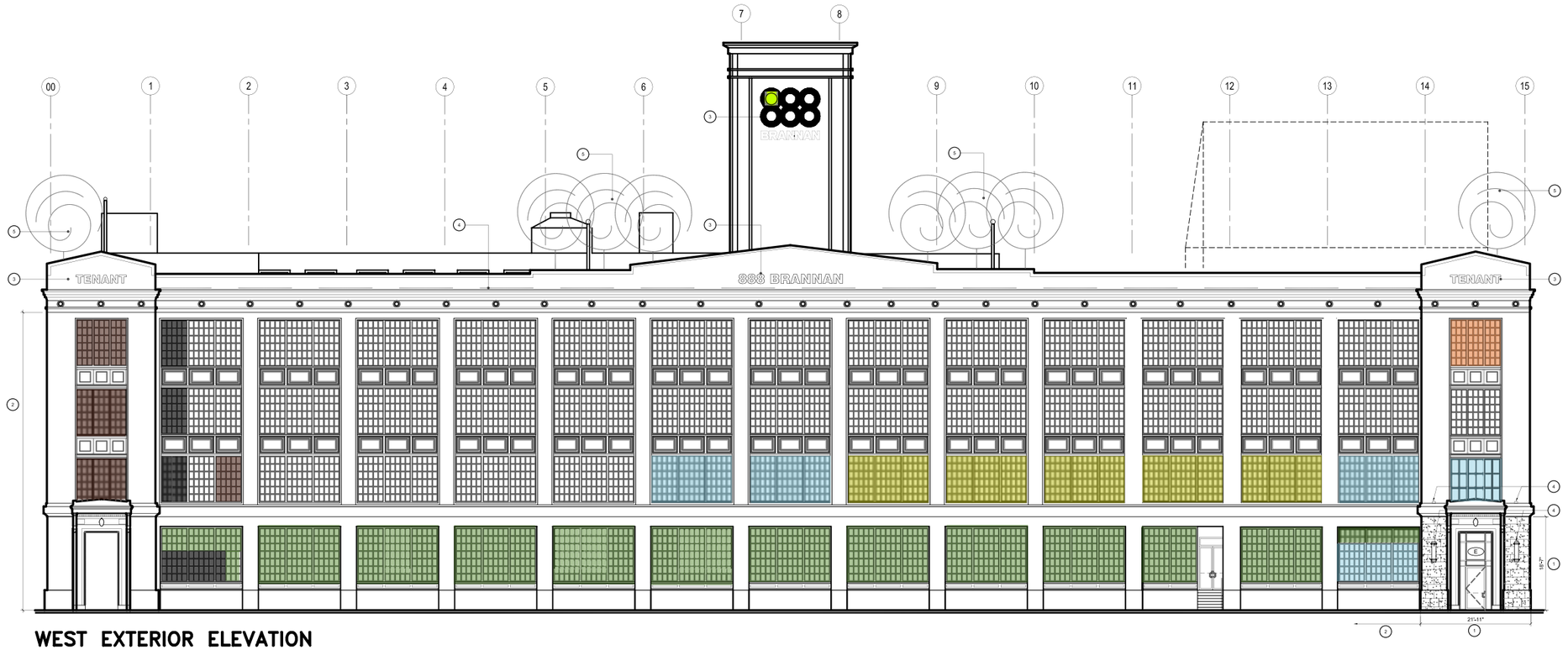
## PHASING

To keep the building in operation (and not interrupt cash flow), the treatment of the windows would be phased. The first Phase would be at the proposed restaurant location, between column lines "E" and "B" (replacement of two windows and repair of one). The remaining Phases would progress on a floor by floor basis as tenants leased the space (i.e. all of the floor would be treated).

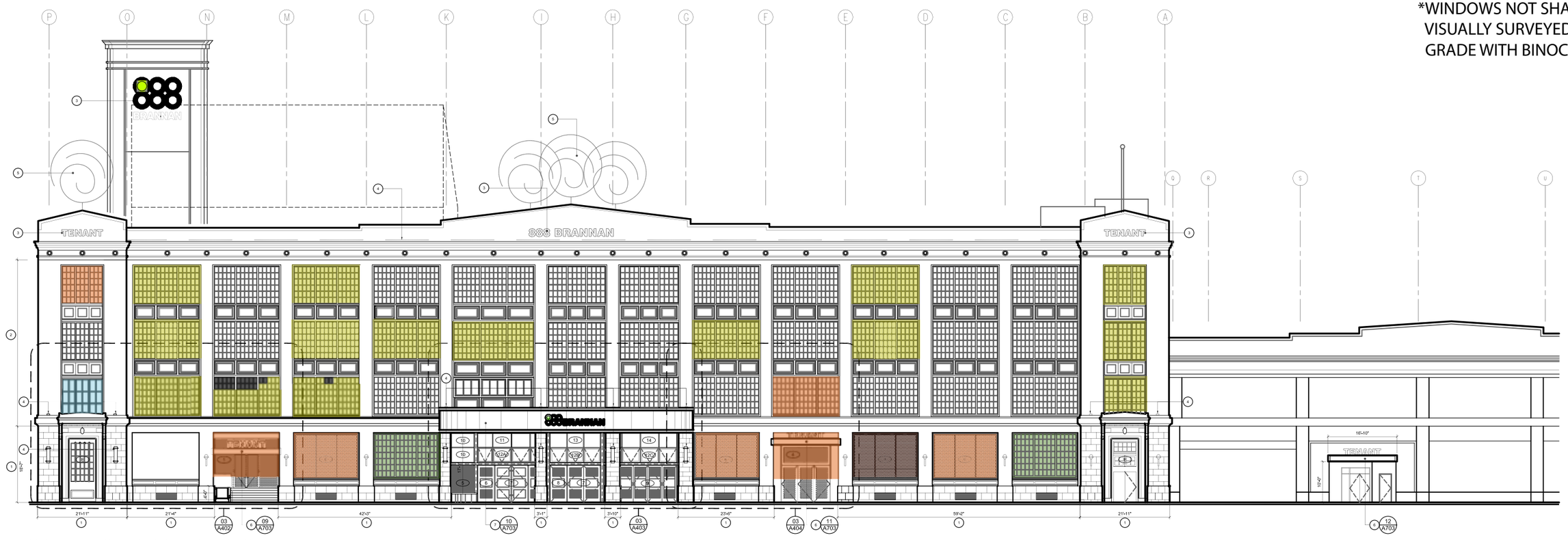
## NEXT STEPS

The following next steps are outside of this study, but are none-the-less recommended:

- Coordinate performance requirements with design team: design architect, mechanical engineer, and LEED consultant.
- Have structural engineer review concrete deterioration and existing window anchorage.
- If not already complete, perform hazardous materials testing of paint coatings and putty for lead and asbestos.




WEST EXTERIOR ELEVATION



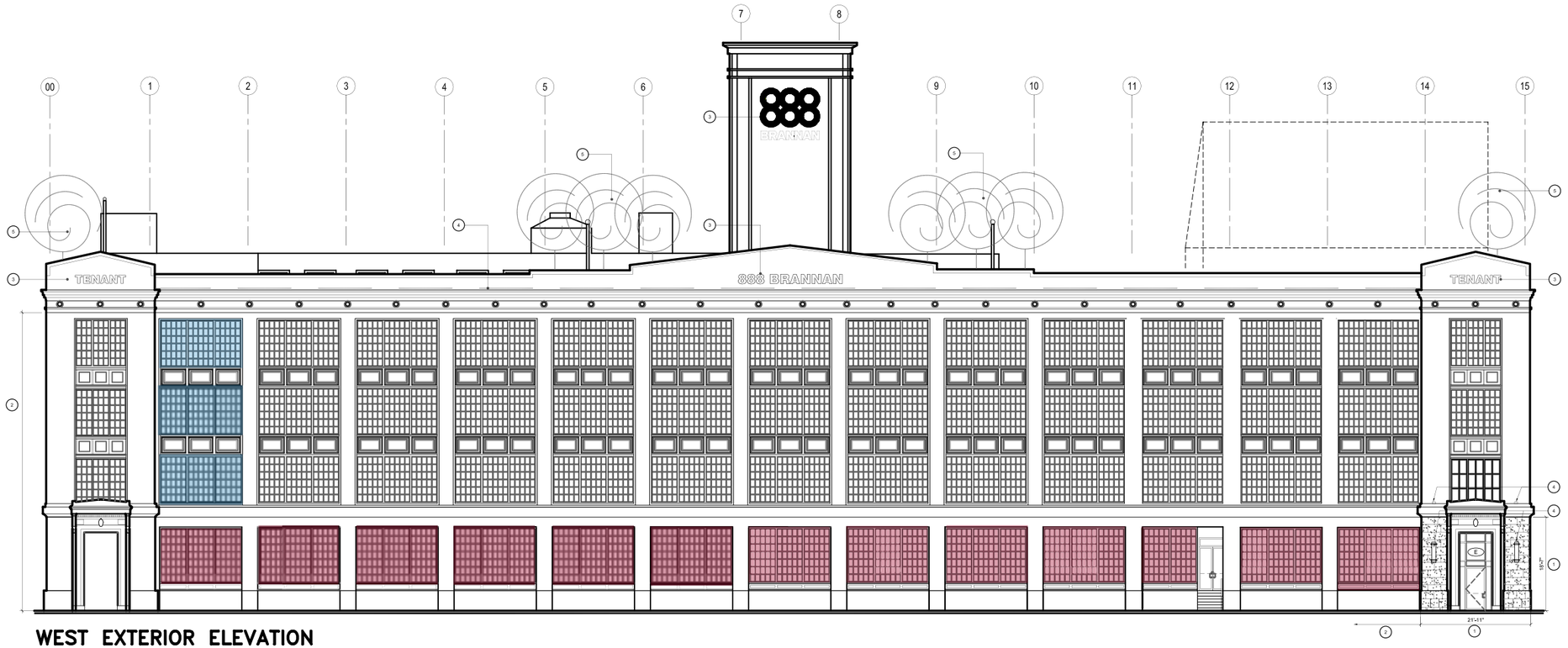

SOUTH EXTERIOR ELEVATION

| SK 1 | VISUAL SURVEY |
|---|---|

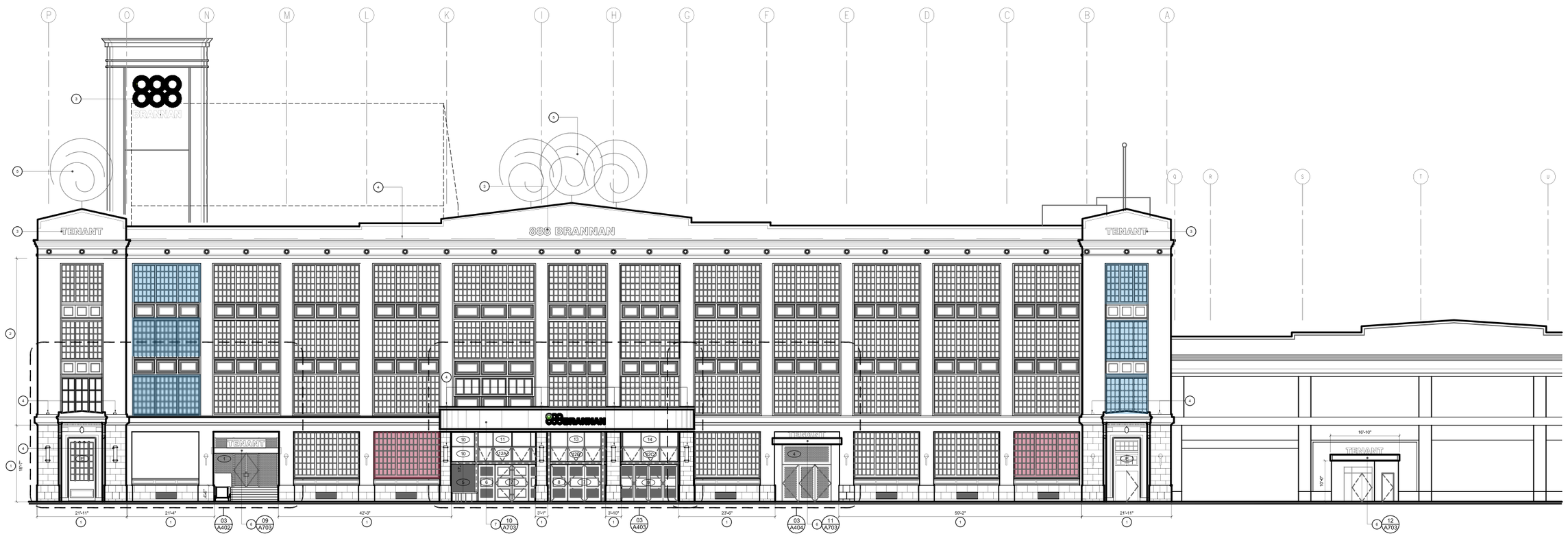
## LEGEND

- WINDOW VISUALLY SURVEYED UP CLOSE FROM INTERIOR.
- WINDOW VISUALLY SURVEYED UP CLOSE FROM EXTERIOR.
- WINDOW NOT VISIBLE FROM EXTERIOR - COVERED OVER.
- REPLACEMENT WINDOW.
- WINDOW OR PORTION OF WINDOW MISSING (OR REPLACED WITH LOUVER).
- PAINT STRIPPED AND CLEAR GLAZING INSTALLED.

*WINDOWS NOT SHADED VISUALLY SURVEYED FROM GRADE WITH BINOCULARS.




WEST EXTERIOR ELEVATION




SOUTH EXTERIOR ELEVATION

| SK 2 | PROPOSED ORIGINAL WINDOWS TO REMAIN |
|---|---|

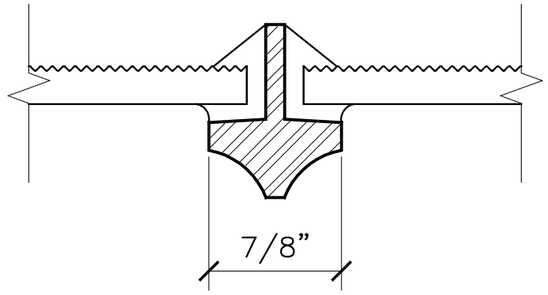
LEGEND

REPAIR ORIGINAL STEEL FRAME AND INSTALL NEW CLEAR GLAZING(OPTION 1B)

REPAIR ORIGINAL FRAME AND REINSTALL SALVAGED CORRUGATED WIRE GLASS (OPTION 1A)

*REMAINING WINDOWS TO BE REMOVED AND REPLACED WITH NEW UNITS WITH MATCHING LAYOUT AND FRAME PROFILE

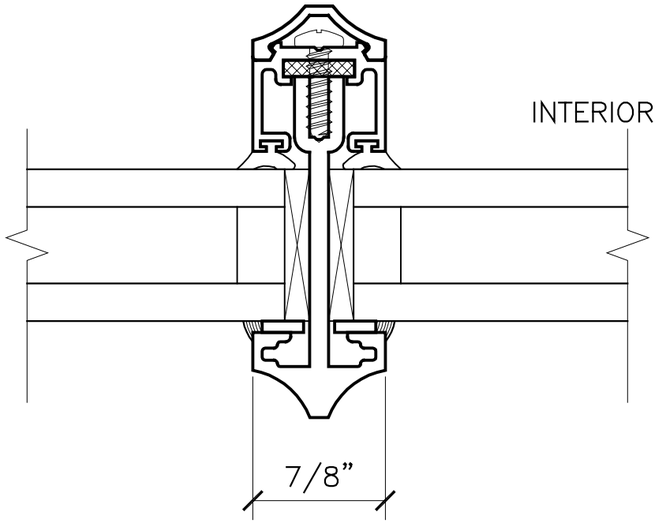
INTERIOR




EXTERIOR

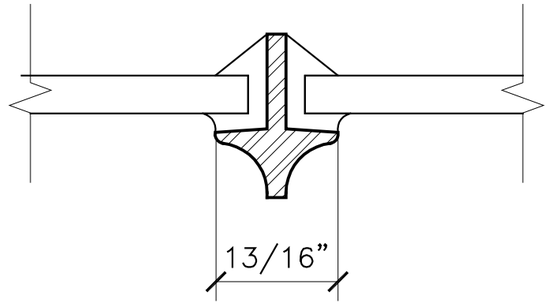
## 2C MUNTIN ORIGINAL

SCALE: 1" = 1'-0"




## 2B MUNTIN ALUMIMUN OPT. 3A

SCALE: 1" = 1'-0"



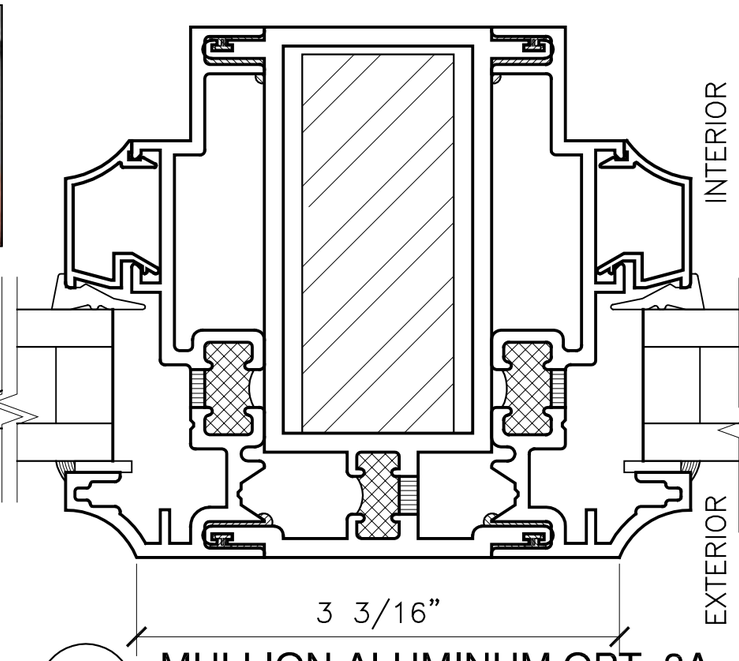

## 2A MUNTIN STEEL OPT. 3B

SCALE: 1" = 1'-0"



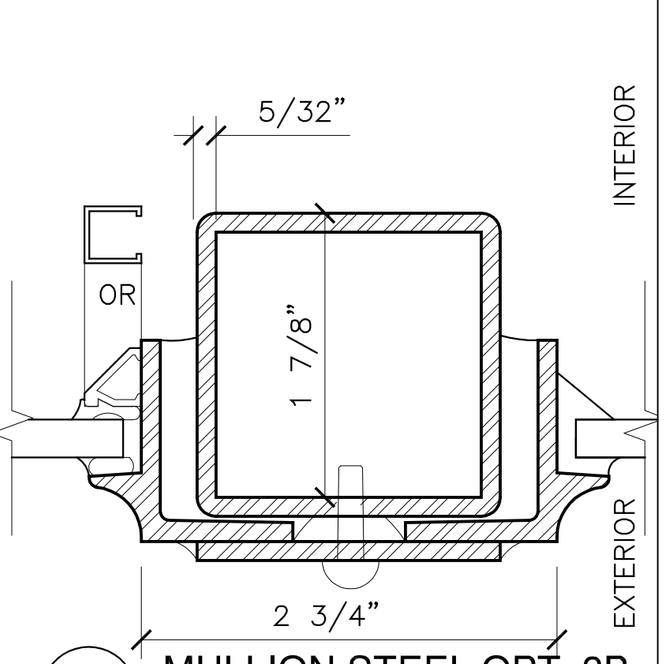

## 1C MULLION ORIGINAL

SCALE: 1" = 1'-0"




## 1B MULLION ALUMINUM OPT. 3A

SCALE: 1" = 1'-0"




## 1A MULLION STEEL OPT. 3B

SCALE: 1" = 1'-0"



**PROJECT**

HISTORIC WINDOWS TREATMENT STUDY

888 BRANNAN STREET
SAN FRANCISCO, CALIFORNIA

**ARCHITECT**

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**STRUCTURAL ENGINEER**

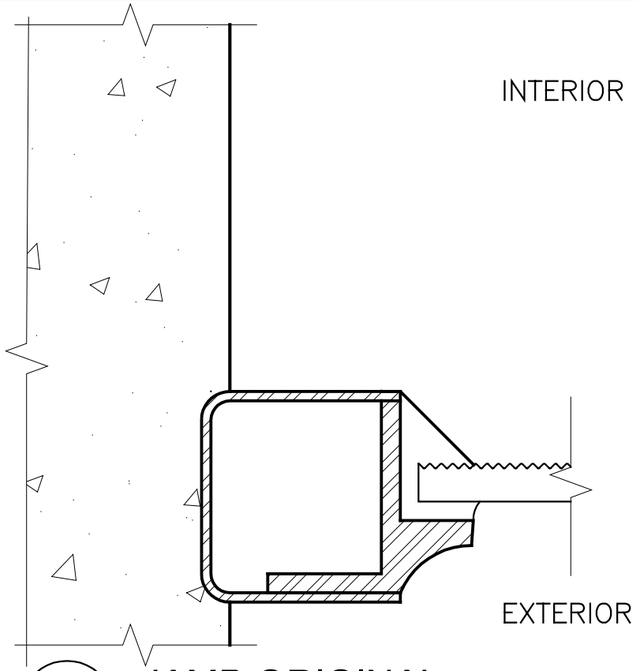
| | |
|---|---|
| DATE | 03/05/2010 |
| SCALE | AS NOTED |
| PROJ. NO. | 09411 |

**TITLE**

WINDOW DETAIL COMPARISON

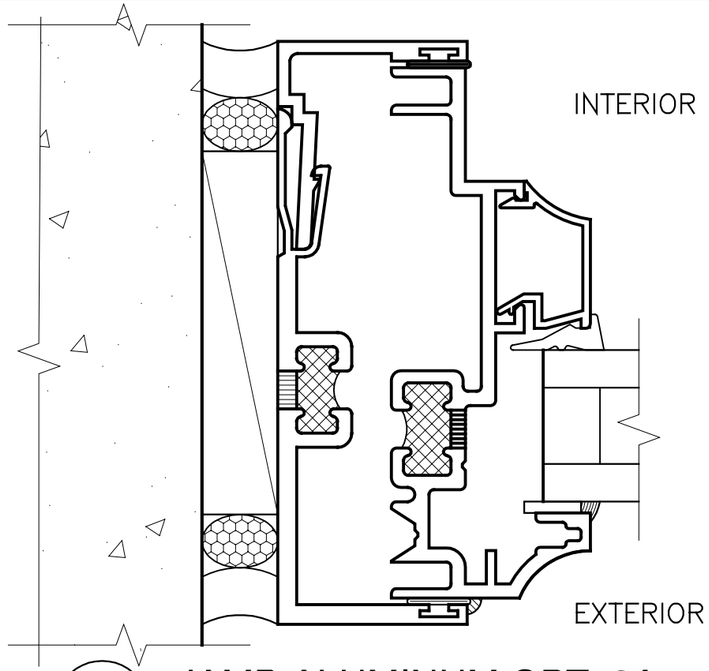
**SHEET**

SK3



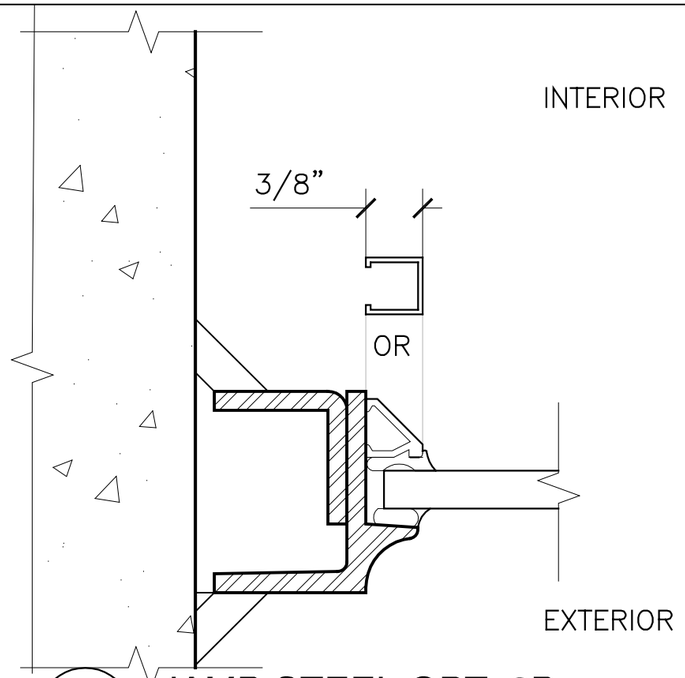

## 3C JAMB ORIGINAL

SCALE: 1" = 1'-0"



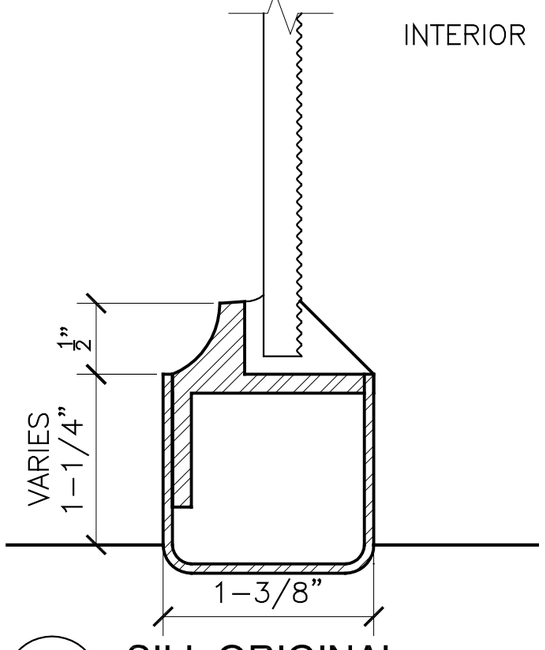

## 4A JAMB ALUMINUM OPT. 3A

SCALE: 1" = 1'-0"



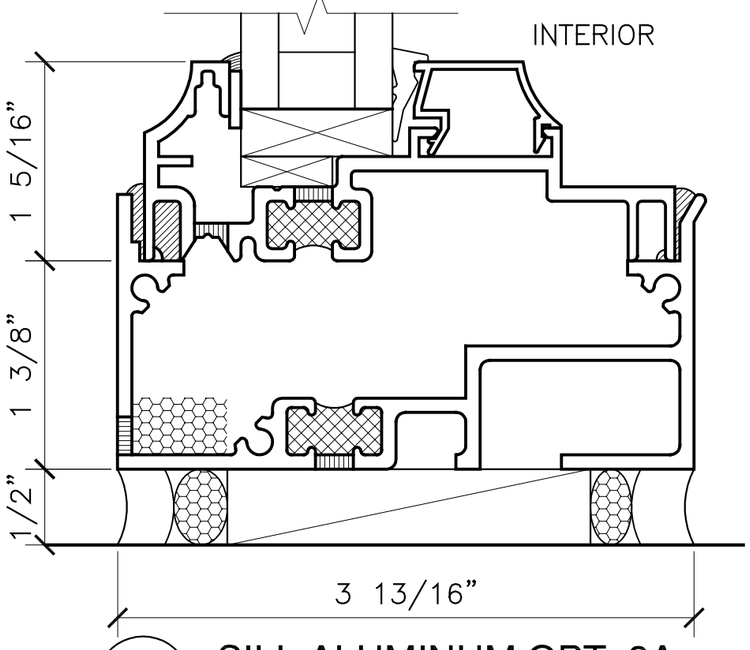

## 4A JAMB STEEL OPT. 3B

SCALE: 1" = 1'-0"



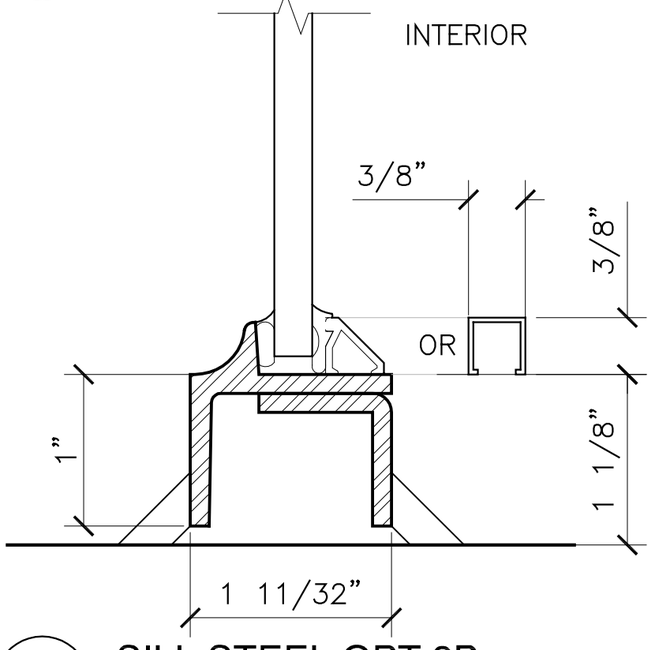

## 3C SILL ORIGINAL

SCALE: 1" = 1'-0"




## 3B SILL ALUMINUM OPT. 3A

SCALE: 1" = 1'-0"




## 3A SILL STEEL OPT 3B

SCALE: 1" = 1'-0"



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**STRUCTURAL ENGINEER**

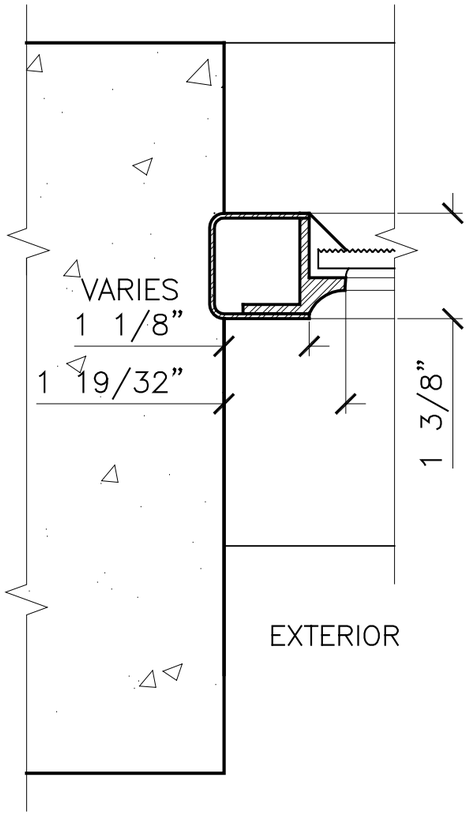
| | |
|---|---|
| DATE | 03/05/2010 |
| SCALE | AS NOTED |
| PROJ. NO. | 09411 |

**TITLE**

WINDOW DETAIL COMPARISON

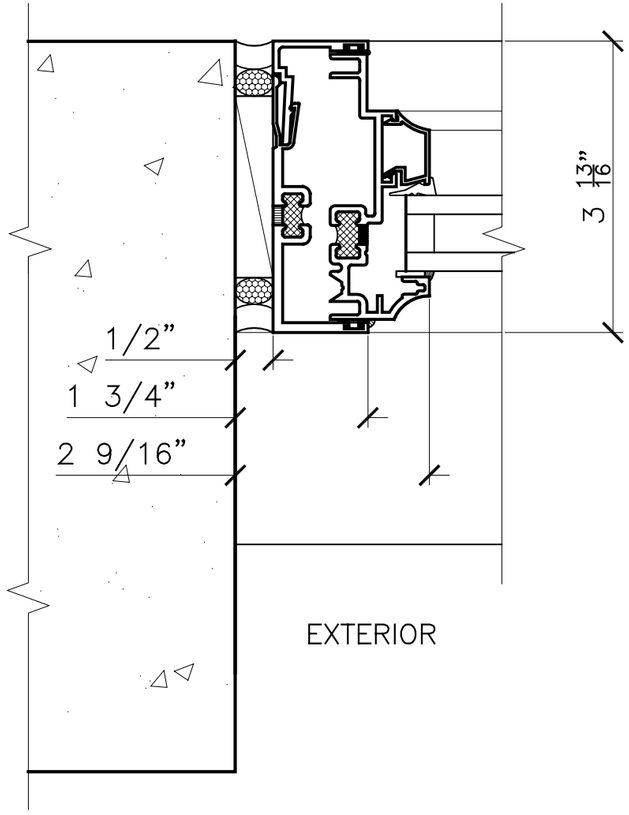
**SHEET**

SK4



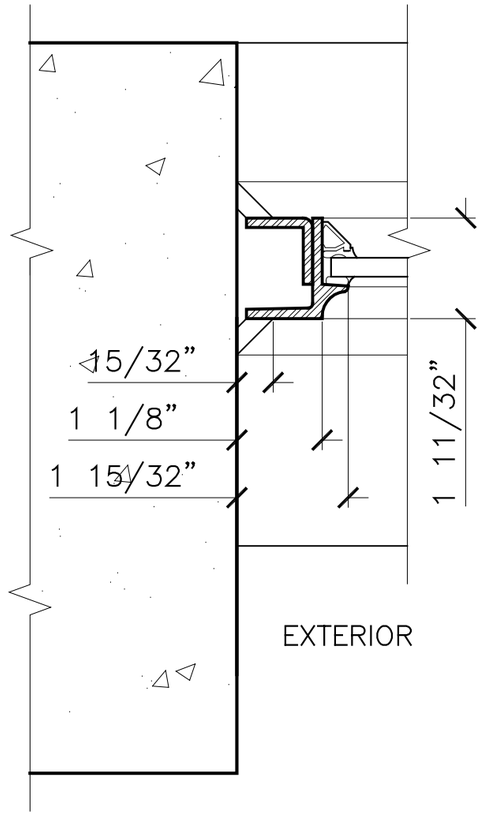

## 5C JAMB ORIGINAL

SCALE: 1/2" = 1'-0"




## 5B JAMB ALUMINUM OPT. 3A

SCALE: 1/2" = 1'-0"




## 5A JAMB STEEL OPT. 3B

SCALE: 1/2" = 1'-0"



**PROJECT**

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**STRUCTURAL ENGINEER**

| | |
|---|---|
| DATE | 03/05/2010 |
| SCALE | AS NOTED |
| PROJ. NO. | 09411 |

**TITLE**

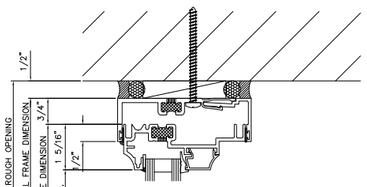
JAMBS COMPARISON IN RELATION TO EXISTING CONCRETE WALL

**SHEET**

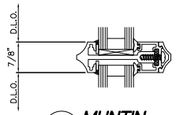
SK5

# Attachment 1

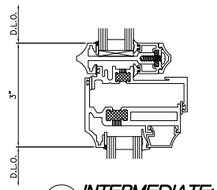
CONDITIONS SURROUNDING WINDOW PERIMETER ARE DRAWN FOR REFERENCE ONLY, AND NOT THE RESPONSIBILITY OF CUSTOM WINDOW.



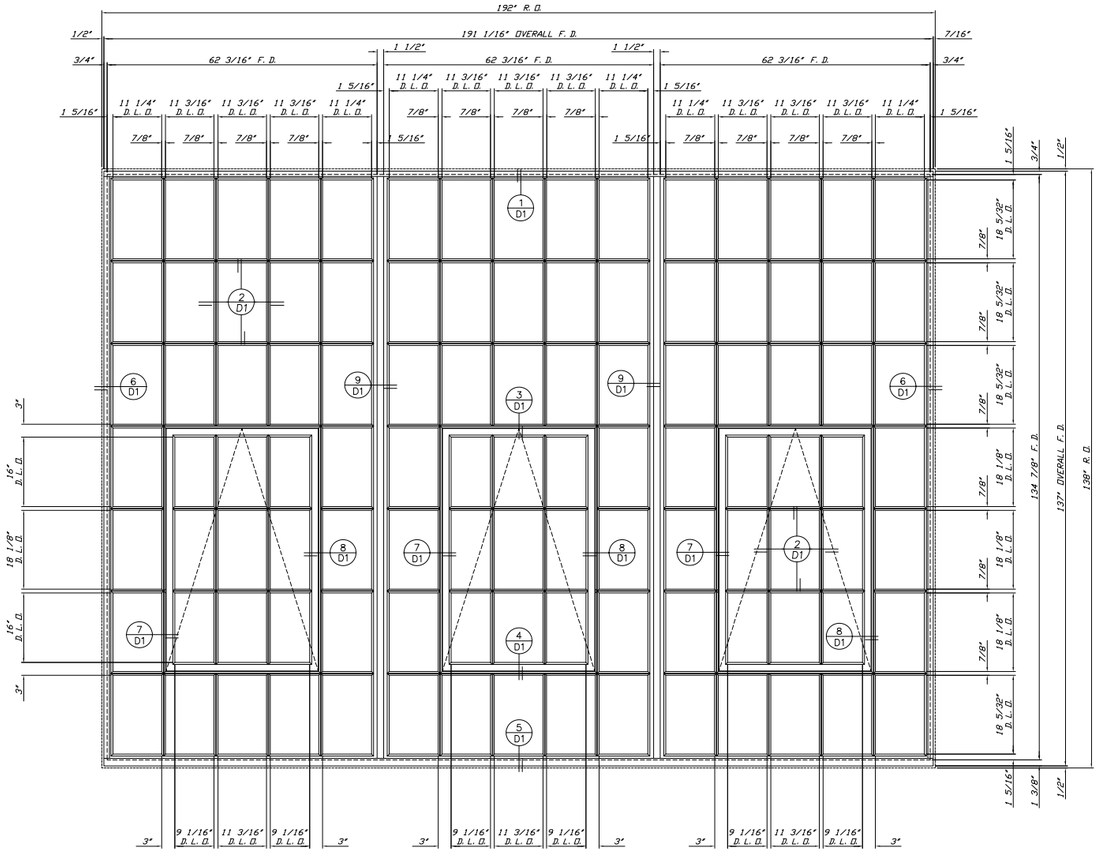

## 1 HEAD: FIXED
SCALE: 1/2" = 1"



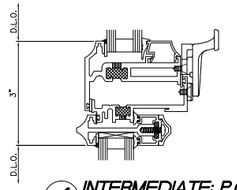

## 2 MUNTIN
SCALE: 1/2" = 1"



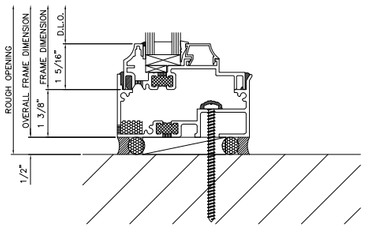

## 3 INTERMEDIATE: FIXED/P.O.
SCALE: 1/2" = 1"



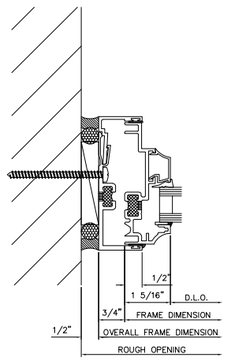

## A FRAME ELEVATION
SCALE: 3/4" = 1'-0"
QTY: 1 THUS
FABRICATED AS 3 FRAMES



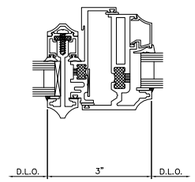

## 4 INTERMEDIATE: P.O./FIXED
SCALE: 1/2" = 1"



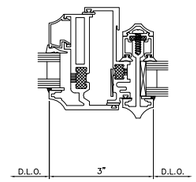

## 5 SILL: FIXED
SCALE: 1/2" = 1"



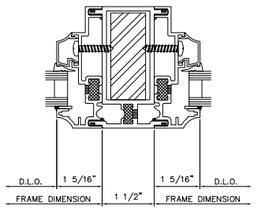

## 6 JAMB: FIXED
SCALE: 1/2" = 1"




## 5 INTERMEDIATE: FIXED/P.O.
SCALE: 1/2" = 1"




## 8 INTERMEDIATE: P.O./FIXED
SCALE: 1/2" = 1"




## 9 STACK: FIXED/FIXED
SCALE: 1/2" = 1"

PROJECT: 888 BRANNAN STREET
PAGE: D1
DRAWN BY: ROD
G:\SHOPS\PRELIM\888 BRANNAN ST
SUBMISSION: 1 ST
DATE: 25 FAB 10
BY: RT
GLAZING CONTRACTOR:
SCALE: 1/2" = 1"
ARCHITECT:
GENERAL CONTRACTOR:


custom window
2727 S. SANTA FE DR.
ENGLEWOOD, CO 80110
303 722 0822
FAX 722 1993
800 255 1820

# Appendix 1

PRESERVATION
Tech Notes
NATIONAL PARK SERVICE
U.S. DEPARTMENT OF THE INTERIOR
WASHINGTON, D.C.

WINDOWS
NUMBER 12

# Aluminum Replacements for Steel Industrial Sash

**Charles E. Fisher**
Preservation Assistance Division
National Park Service

**BUILDING 149**
**CONSTITUTION PARK**
**Boston Navy Yard**
**(Charlestown Navy Yard)**
**Boston, Massachusetts**

Building 149 is a 10-story 700,000 square foot reinforced concrete structure built during 1917-1919 for use as a naval warehouse and offices. It is located in the National Historic Landmark Boston Navy Yard, which was established in 1800 and which comprises approximately 130 acres and nearly 90 buildings associated with the naval shipyard operations. Portions of the installation now owned by the Boston Redevelopment Authority consist of sheltered shipways, warehouses, offices and residences. Vacant since the decommissioning of the shipyard in 1974, Building 149 recently has been renovated for use as offices and retail space by a private development firm under a long-term lease.

The building's fenestration — nearly 2000 steel window units set within 500 openings — was considered a very distinctive feature of the building. Through careful planning and attention to detail, an innovative aluminum replacement window system was developed by the project team that successfully maintained most of the distinguishing features of the original windows.

## Problems

The inside-glazed, historic green-painted windows had narrow ⅞" wide muntins with an exterior cove bead shape profile to the muntin. Most of the openings consisted of a bank of 4 side-by-side window units. Each of the middle two units consisted of 20 divided lites, including a 6-lite center hopper; the two end units were fixed and contained only 16 lites (see figure 1). Typical of pre-World War II steel windows, the glass panes had a narrower width than height. The vertical mullion connecting each unit was approximately 3" wide, noticeably dividing each opening into 4 window units.

The contractor's survey of the historic windows in the spring of 1984 revealed that extensive rusting of the frames had occurred and that many were racked. The severe rusting had also contributed to the spalling of sections of the concrete sills, jambs, and spandrels (see figure 2). Repair and upgrading options to maintain the historic windows were quite limited due to the size of the glazing bars. The shallow depth of the metal glazing bars (muntins) seemingly precluded the installation of sealed insulating glass within the existing lites, even if the windows could structurally support the additional weight. The only practical way of double-glazing would have involved the use of interior storms with units that were either operable or were removable for ease of cleaning. Even then, however, the severe deteri-

***Every reasonable effort should be made to match the historic windows when replacement windows are required.***

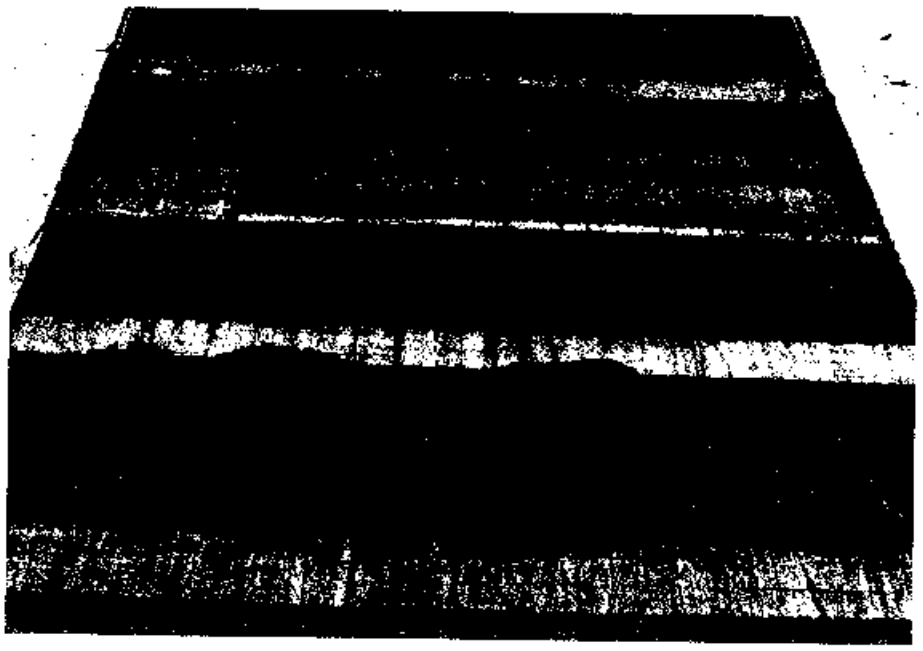


**Figure 1. Most of the openings consisted of a bank of 4 side-by-side steel window units. Each of the middle two units consisted of 20 divided lites, including a 6-lite center hopper; the two end units were fixed and contained only 16 lites. Photo: William MacRostie**

**Figure 2. Due to lack of maintenance, severe rusting of the steel frames had occurred, which contributed to the spalling of sections of the concrete sills, jambs, and spandrels. Photo: Charles Fisher**

oration of the steel windows still would have needed to be addressed. Considering the size of the bay openings, the decision was made to replace the windows.

Four replacement options were considered:

1. Replacement with matching steel units in combination with an operable interior storm window system.
2. Installation of large sheets of insulating glass, maintaining the principal 4-part division of each bay while eliminating the small multi-lite pattern which existed.
3. Installation of large insulating glass units, maintaining the principal 4-part division, and applying an exterior aluminum grid in an attempt to recapture the appearance of the historic multi-lite steel windows.
4. Development of an aluminum window system with true divided lites with insulating glass, maintaining as close as possible the profiles of the historic glazing bars and overall historic appearance.

The use of steel replacement windows was considered only briefly because a double-glazed system in such large openings would be high in cost, and would not be able to retain the narrow sight lines and profile of this particular type of steel window. The existing profile was available in a replacement steel window but could accommodate only single glazing, which was not considered adequate by the developer for energy purposes. Thus an interior storm window would have been necessary; however, the large size of the window openings would have required an expensive commercial storm window.

A mock-up of the second alternative was installed, consisting of a fixed aluminum window with large sheets of insulating glass. Each opening had three vertical mullions, dividing the opening into 4 parts; this matched the principal division of the historic windows. Since the glass was not divided further into smaller lites, there was a dramatic change in the appearance of the building, and this alternative was quickly dismissed.

The third alternative, however, was seriously considered since it provided for an addition of an exterior aluminum grid applied to the face of the fixed aluminum window described in the second alternative. The grid was intended to simulate the appearance of the historic windows. The extruded aluminum grid would duplicate the cove-bead profile of the exterior portion of the historic glazing bars and would be attached directly to the glass, using a special epoxy glazing tape. This system had been used recently by at least one developer on a similar project. The estimated fabrication and installation cost of this window solution was $1.1 million for the 500 openings.

The project director, Richard Graf of The Congress Group, Inc. (developer) and the Boston Redevelopment Authority (holders of the ground lease) both had reservations concerning the long-term performance of the exterior aluminum grid. In the late 1970s there had been a number of projects where wooden muntin grids had been glued directly to the glass and where subsequent failure had occurred. Besides the question of the performance of glued-on aluminum grids, there were some visual changes that would result from the exterior applied grid compared to the original glazing bars. The Boston Redevelopment Authority was also concerned over the growing use of false muntins in the rehabilitation of large industrial buildings within the historic navy yard and the negative impact it was having on the overall architectural character of the district.

These collective concerns and the need for rapid approval of the rehabilitation plans led to the decision by the developer in May, 1985 to choose a fourth alternative: an entirely new aluminum window system.

True divided lites with insulating glass would be used as part of the new system with muntin profiles and framing members that closely matched the historic design.

## Planning

The project architect and construction manager were responsible for preparing preliminary design guidelines for the new window system. Two local window contractors submitted bid proposals. One company proposed that the glass be exterior-glazed using inte-

gral muntins that were close to 1¼" in width. The other company showed an interior-glazed window and claimed that the integral muntin could be made as narrow as 1⅛". Since inside glazing would facilitate both installation and maintenance, the decision was made to work with this company in the design of the windows to be used in Building 149. The contractor's bid this window system was $1.4 million, which was approximately $300,000 more than the applied grid.

Further development of the window system was required and the window needed to be performance tested—all requiring fast track scheduling. A development and construction team for the window work was assembled consisting of the following parties: the developer, the project architect, the window contractor, the window fabricator in Denver working with the window contractor, a testing laboratory in Boston that would assist with the performance needs and design of the window, the general contractor, a preservation consultant and an independent testing laboratory in Dallas responsible for final testing.

The engineering and design of the new window systems required close and frequent coordination between the various team members because of the number of important issues which needed to be resolved, all within a very short time frame.

One of the first major design issues to be resolved concerned the need to match as closely as possible the shape and dimensions of the original ⅞" wide glazing bar (muntin) with its decorative cove-bead exterior profile to simulate the profile of the original steel window muntins. The project team concluded that in order to keep the muntin on the aluminum window as narrow as possible, the traditional cast thermal break (cast plastic) feature of most modern windows could not be used. Instead, a series of spacers and gaskets principally would be utilized to achieve a thermal break for energy conservation. By using this approach, the window fabricator would be able to use a 1⅛" wide integral cove-bead muntin. The only short circuit in the thermal break would be at the point where screws were used to connect the inner and outer portions of the muntin (see figure 3).

Besides the final detailing of the nonconventional thermal break, the representative from the local testing laboratory, was particularly concerned about water infiltration. A system was

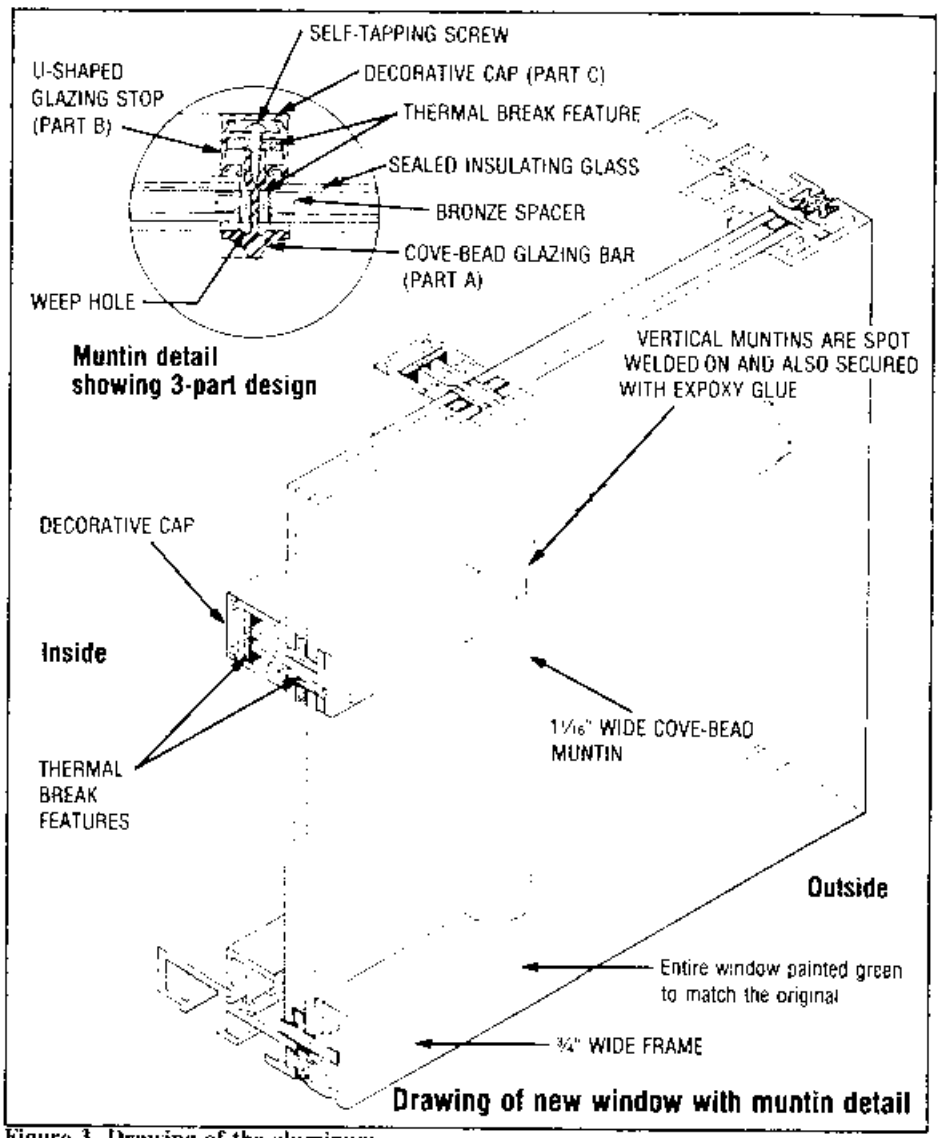



**Figure 3. Drawing of the aluminum replacement windows shows how the cove-bead muntin profile of the original steel windows was closely matched in the integral muntin system designed for the aluminum replacement window. A series of spacers and gaskets were used as the principal means of obtaining a thermal break in the window for energy purposes. Drawing: Peter Charles**

designed to ensure that moisture build-up behind the glazing tape would seep outside, rather than inside the building (see figure 3). A twenty-foot mockup was eventually constructed and successfully tested according to accepted industry standards.

A third important design consideration centered on how to keep the framing members and muntins narrow enough to maintain the thin profiles of the steel windows. The need for a thermal break in addition to the use of aluminum, which is structurally weaker than steel, necessitated some increases in sections and profiles. A technique more commonly found in skylight construction was used to hold the glass in place. This consisted of screwing members together rather than using snap-on aluminum sections to secure the glass. Snap-on sections would have required more metal and wider profiles.

A fourth design and engineering issue arose with the construction detailing of the muntin joints. The decision was reached to face glue the joint on the front and spot weld behind. The fifth issue concerned the visual impact of the spacer used in the insulating glass. The original plans called for an aluminum spacer that turned out to be too shallow in width to properly glaze the sealed insulating unit. Since the acceptable width required a slight encroachment beyond the edge of the muntin, there was a concern over the potential visual impact. By selecting a bronze spacer, the metallic reflection that would have occurred from the typical aluminum mill finish was avoided and the visible portion of the dark bronze spacer was not noticeable from the street below.

The sixth design issue, which ultimately was not resolved, concerned

operability of the windows for ventilation. While there were some advantages to having operable windows, they were not paramount considering the building's new use as offices. With aluminum frames, a 6-lite hopper or projecting section as existed in the historic windows was not considered practical at that time. The primary reason was the need to keep the aluminum sections as narrow as possible to match that of the original steel. Given the structural requirements of an aluminum window, it was considered possible to fabricate only smaller operable units (1-3 lites). With the tight construction schedule, the additional development time that would be required, and the higher construction costs, the decision was made to proceed with a fixed window. This meant that there would be a noticeable change in one feature of the historic windows as a result of deleting the hopper section in the middle of two window units. The overall appearance of the new window and the building itself was judged to be sufficiently close to that of the historic appearance, however, that a marked change in character would not result.

The seventh and last major design decision concerned the number of pane divisions to be provided in each of the four sections of the window openings. The relationship of solids to voids (frame to glass) was important to retain. Since the muntins were to be increased in width from ⅞" to 1⅛", discussions arose concerning possibly reducing the number of lites. Besides cost savings, changing the number of lites would help solve another problem stemming from plans to lower the sills due to the high sill height within the building. The lite pattern that was developed while reducing the number of lites, maintained the vertical orientation of the glass panes, and the proportion of solids to voids, further reducing any visual impact of the slightly wider aluminum muntins.

## Window Design

The basic aluminum window unit consisted of 9 different aluminum extrusions, including the decorative cove-bead muntin. The muntin assembly actually consisted of 3 extruded aluminum sections. The principal muntin section was the cove bead portion that had a long glazing channel with a receptor at the end (see figure 3). Attached to the interior-facing side of the muntin was a U-shaped glazing stop secured by self-tapping screws to the receptor on the cove-bead section. This stop secured the glass in place. For aesthetic purposes, the stop had a snap-on cover to hide the screws and create clean lines on the interior. Through the use of neoprene gaskets and plastic and neoprene spacers, a thermal break was achieved, broken only by the screws.

While the horizontal muntins were continuous across the window unit, the vertical muntins had mitre-joints where they intersected the horizontal muntins. The vertical muntins were secured through a combined use of epoxy glue and spot welding (see figure 4). A system of weep holes and channels was provided to ensure that any water trapped between the glazing tape and the glass and muntins would be diverted to the outside of the windows.

The overall window unit was not set into reglets as were the original steel windows but rather were bolted to the masonry because of the greater depth of the aluminum jambs. To keep the width of the frames sufficiently narrow to match the historic appearance, a ⅞" wide jamb was designed, narrower than standard window jambs (see figure 5). Due to high wind loading requirements for Boston, steel reinforcing bars were needed at certain corner windows, but otherwise, the aluminum window system was designed and successfully tested with the narrow jambs.

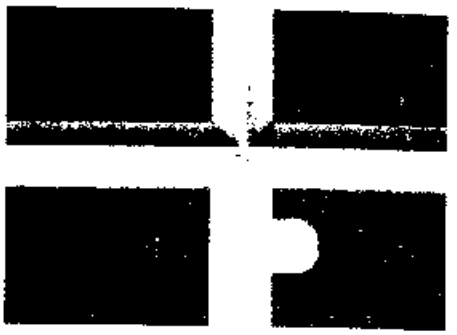
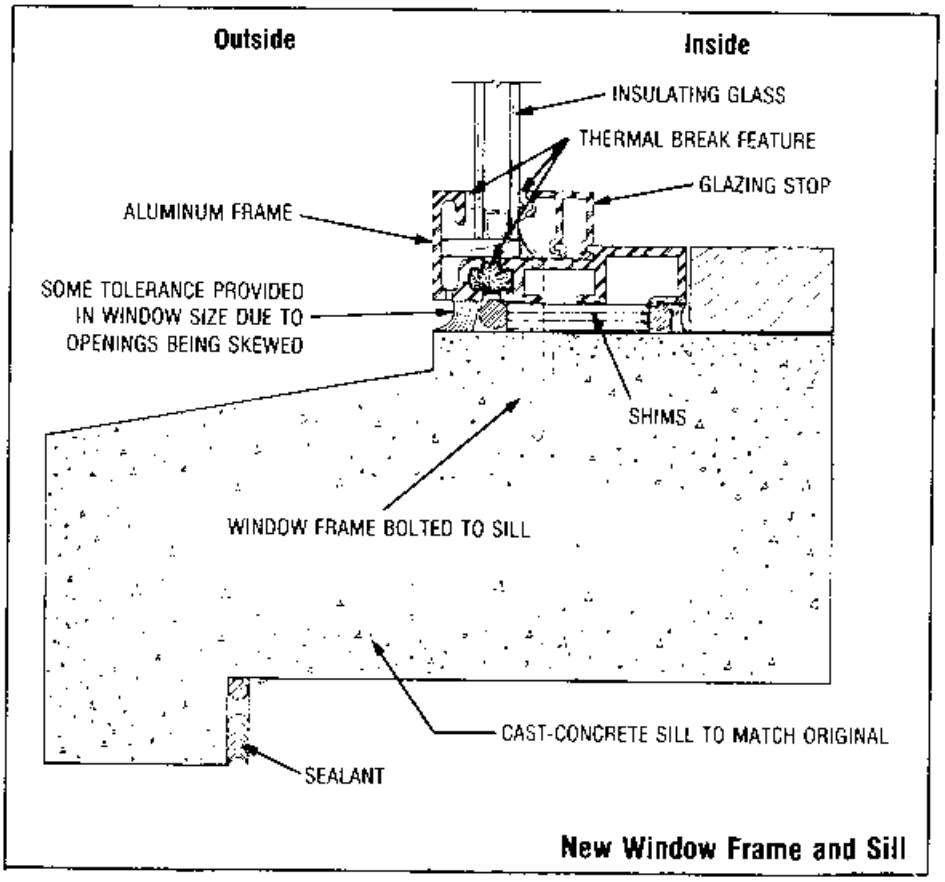


**Figure 4. The vertical muntins had mitre joints where they intersected the horizontal muntins and were secured through a combined use of epoxy glue and spot welding. Photo: Charles Fisher**

## Window Fabrication and Delivery

Through weekly meetings among the window project team, it was possible to provide for a rather complex manufacturing process for the overall windows that yielded cost savings and also met a very tight production schedule.

**Figure 5. The frame of each window unit was designed with a width of ⅞" in order to closely match that of the original windows. The frames were bolted to the face of the jambs, sill, and head of the masonry opening. Drawing: Peter Charles**



The 9 extrusions required for the aluminum windows were manufactured in Portland, Oregon, and painted the historic green color in Salt Lake City; both companies had worked before with the fabrication plant. Fabrication took place in a window plant in Denver that previously had done work for the Boston-based window contractor. The fabrication work was complicated by the fact that there were a number of size variations for each of the 9 different types of windows in the building, although approximately 500 of the 2000 window units were the same size. The greatest variation occurred in the height rather than the width of the windows (see figure 6). A maximum of ½" tolerance was allowed around the sides of the overall window units in each opening; such tolerance was necessary because many of the openings were skewed.

While the windows were being manufactured, the tempered glass, required by the Fire Department, was cut in a plant in Tennessee and shipped to Easton, Massachusetts, where the glass was made into insulating units. The window contractor helped to coordinate all this work and was responsible for insuring that the glass was properly sized and that the spacers in the insulating glass did not encroach more onto the visible glass area than was specified. A number of the units had to be sent back to the glass assembly shop in Easton due to inaccurate sizing or misalignment of the bronze spacer. This work involved the greatest problem and biggest expense, since the limited tolerance for encroachment onto the glass area required very careful work (see figure 7).

## Installation and Scheduling

While the windows were being assembled, the existing openings were being prepared. The work included the installation of all new cast concrete sills due to the lowering of the sill height. The windows were shipped to the site and installed unglazed.

The scheduling of the work reflected the fast track of the project as a whole. The decision to go with true muntins was made in May 1985; by June the general design of the window had been made and by July the final extrusion drawings were approved by the architect and consultant. By mid-August, the extrusion work was underway in Oregon and in September, the final testing by an independent laboratory in Dallas, Texas, was complete and the go-ahead for production was given. Fabrication started in September and the last of the windows were shipped from Denver in late December 1985. Installation of the windows began in January 1986 and final glazing was complete by June 1986, well in time to coordinate with the scheduled completion date.

The local window contractor was responsible for coordinating the extrusion and painting work, the window assembly, glass manufacturing and installation. Vital to the success of such complicated work was the close coordination and series of weekly meetings between the architect, developer, facade consultant, construction manager, and window contractor. During installation, the facade contractor—responsible for the rest of the exterior work—was also a participant.

**Figure 6. Fabrication and installation of the window units were complicated by the nine different types of windows in the building and by the considerable variations in the window heights for each type. Approximately 500 of the 2000 window units were the same size. Photo: Chuck Parrott**

**Figure 7. Despite the difficulty encountered with proper glass sizing and spacer alignment in the sealed insulating glass, the end result is an innovative window that is both aesthetically pleasing and closely matches the historic appearance of the original steel design. The slight encroachment of the bronze spacer onto the visible glass area is not readily detectable from general view.**
**Photo: Charles Fisher**

## Costs

The total cost of the window work was $1.4 million. It was hard to estimate the total development cost of the new window system, although design and testing cost somewhat in excess of $50,000. Despite the special work required and the complexity of the development and manufacturing work, the window system was only $300,000 more expensive than the grid system initially proposed and subsequently abandoned due to performance and aesthetics considerations. The resulting windows cost approximately $25 per square foot installed. Except for several changes at the building expansion joint, there were no cost overruns due to the window design. The window contractor, however, absorbed some unforeseen labor costs in this initial project.

## Evaluation

The window work at 149 Constitution Park was noteworthy in several ways. First, it represented a significant improvement over past attempts to recapture the distinctive qualities of a steel industrial window with narrow cove-bead glazing bars, using an aluminum replacement system with insulating glass (see figure 8). Equally important was the manner in which the new window system was developed for the project.

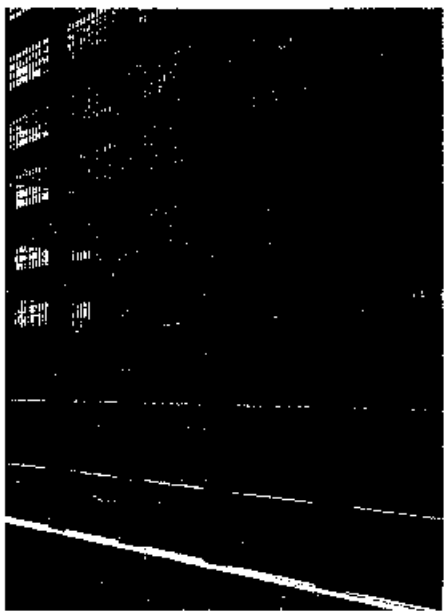
The risks that were inherent in developing a totally new window system for a large rehabilitation were minimized by the team of highly qualified people; who coordinated closely and who kept to a tight schedule. The additional costs incurred in the development of the new window was not excessive considering the massive size of the project; the manufacturing and installation of the new windows with true divided lites did, however, appreciably increase the cost of the window work. The results, however, are quite impressive and this innovative window system is commercially available for use in other projects.

This project shows just one way that significant improvements can be made on the quality of aluminum replacement windows used in historic buildings. The planning team involved in this project also identified further improvements that might be possible with this particular window system. While the new windows lack the hopper detail and altered the size and number of the muntins, many of the characteristics of the large steel industrial windows have been retained.

The project team were concerned not just with appearance but also with quality, engineering and high performance. This is important since poorly built windows, whether old or new, can lead to excessive maintenance and high energy costs. The assembled team brought together the different professions and perspectives needed to produce an energey-efficient, cost-effective and aesthetically acceptable product.

While the window work was on a fast track from planning to completion, the decision to address the window issues early in the overall planning of the project provided the necessary lead time. Too often, window issues are addressed late in the planning of a project, providing little time to fully explore available treatment options. Where an innovative solution is necessary, as with 149 Constitution Park, extensive planning is crucial to the successful execution of the work.

**Figure 8. The window work at 149 Constitution Park represented a significant improvement over past attempts to recapture the distinctive qualities of a steel industrial window with narrow-bead glazing bars, using an aluminum replacement system with insulating glass. Success was achieved through careful and well coordinated planning. Photo: Charles Fisher.**



### PROJECT DATA:

**Building:**
149 Constitution Park
Charlestown Navy Yard
Boston, Massachusetts

**Developer:**
The Congress Group, Inc.
Boston, Massachusetts

**Project Dates:** 1985-86

**Project Director:**
Richard Graf
The Congress Group, Inc.
Boston, Massachusetts

**Architect:**
Amir Man
Project Architect
Huygens and DiMella
Boston, Massachusetts

**Construction Manager:**
Morse/Diesel
Boston, Massachusetts

**Consulting Testing Laboratory:**
Thompson and Lichtner
Boston, Massachusetts

**Testing Laboratory:**
The Dallas Laboratories
Dallas, Texas

**Preservation Consultant:**
William MacRostie
Heritage Consulting Group
Washington, D.C.

**Windows:**
Custom Windows
Denver, Colorado

L. Rubin Glass and Aluminum, Inc.
Saugus, Massachusetts

**Project Costs:**
The total construction cost of the window work was $1.4 million or $25 per square foot of window. There were additional development costs for the design and testing of the window which were approximately $50,000.

This PRESERVATION TECH NOTE was prepared by the National Park Service in cooperation with the Center for Architectural Conservation, Georgia Institute of Technology. Charles E. Fisher, Preservation Assistance Division, National Park Service serves as Technical Coordinator for the PRESERVATION TECH NOTES. Information on the rehabilitation work at 149 Constitution Park was generously supplied by Richard Graf, Project Director, The Congress Group, Inc. Thanks also go to Peter Charles, Architect, Center for Architectural Conservation, for the drawings appearing in this Tech Note and to the following Preservation Assistance Division staff who contributed to the production: Michael Auer, Brenda Siler, Kay Weeks, and Theresa L. Robinson.

Cover photo: Charles E. Fisher

This and other Tech Notes on windows are included in "The Window Handbook: Successful Strategies for Rehabilitating Windows in Historic Buildings; a joint publication of the Preservation Assistance Division, National Park Services and the Center for Architectural Conservation, Georgia Institute of Technology. For further information write to The Center for Architectural Conservation, P.O. Box 93402, Atlanta, Georgia 30377.

PRESERVATION TECH NOTES are designed to provide practical information on practices and innovative techniques for successfully maintaining and preserving cultural resources. All techniques and practices described herein conform to established National Park Service policies, procedures and standards.

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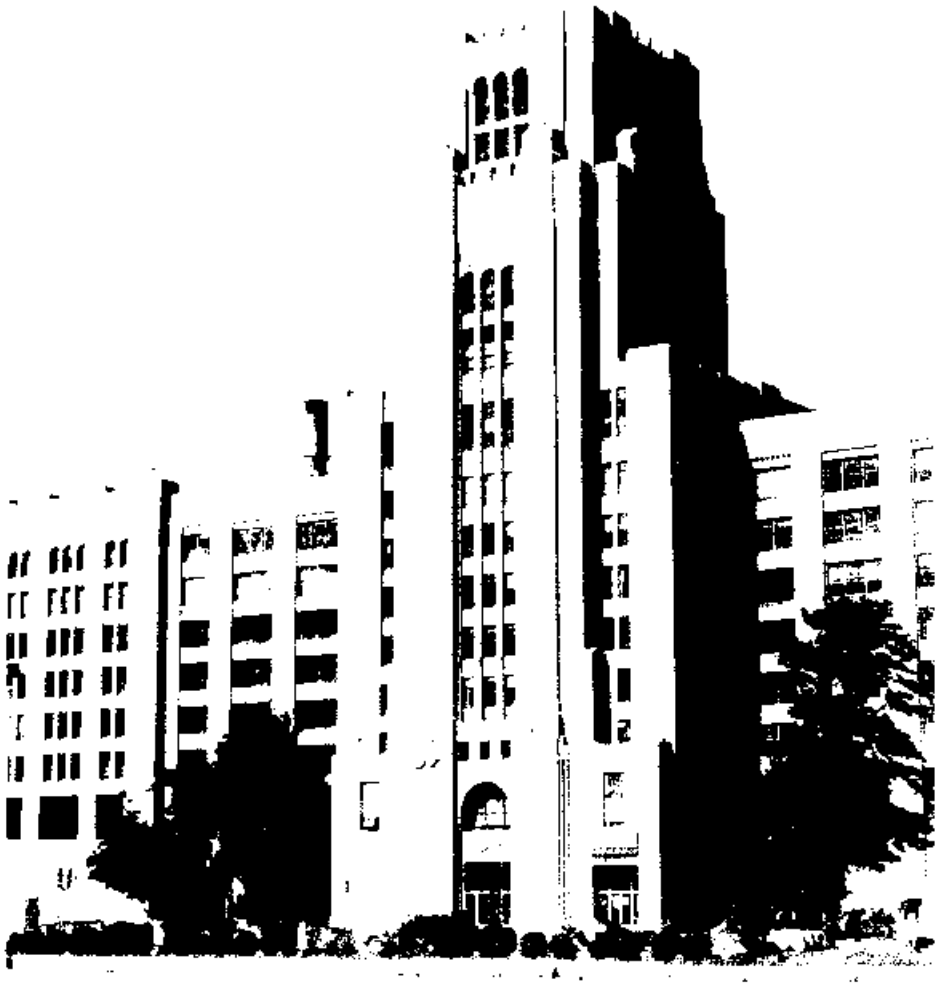
# Appendix 2

National Park Service
U.S. Department of the Interior
Technical Preservation Services

Preservation
# Tech Notes



## WINDOWS
**NUMBER 20**

# Aluminum Replacement Windows for Steel Projecting Units with True Divided Lights and Matching Profiles

**Chad Randl**
Technical Preservation Services

### Sears Roebuck and Company Mail Order Store (Landmark Center) Boston, Massachusetts

The Sears Roebuck and Company Mail Order Store was constructed in 1928 in the Fenway section of Boston. Designed to meet the needs of traditional catalog sales and the company's rapid expansion into urban retail markets, the eight-story brick clad structure combined one million square feet of warehouse and shopping space. Retail activity was concentrated on the lower levels, while the upper six floors were devoted to processing catalog sales and providing warehouse facilities. The reinforced concrete framed structure has modest Art Deco detailing that is particularly prominent on the eleven story central tower and flanking piers that project above the roof parapet. Over 1,100 steel industrial windows were original to the structure. Placed individually or in groupings of two or three, most featured either a single projecting ventilator or a pair of stacked ventilators set within the multi-light window. Each vent in turn was typically divided into two or three vertical lights.

After more than a decade of disuse, a $100 million rehabilitation was undertaken in the late 1990s to convert the building into a mixed retail-office complex called Landmark Center. Through a process of evaluating the surviving windows and experimenting with various treatment solutions and design proposals, the decision was made to replace the majority of the windows while retaining and repairing units in select locations. A new custom aluminum window featuring true divided lights and insulating glass was developed that replicated both the interior and exterior details of the original units.

### Problem

The design and placement of the original rolled steel industrial windows, manufactured by the now-defunct firm of David Luptonis Sons, contributed significantly to the historic character of the Sears building. Utilitarian yet distinctive, the windows reflected the dual function of the structure as warehouse and showroom. Of the buildingis seventeen window types, almost all shared some variation of the centrally located projecting ventila-

***Deteriorated architectural features should be repaired rather than replaced wherever possible. In the event replacement is necessary, the new windows should match the historic ones in design, color, size, configuration, reflective qualities, shadow lines, details and material. Only where it is not feasible to match the historic fabric should substitute window material be considered for use and only when it is shown through such means as mock-ups that it is possible to match closely both the detail and overall appearance of the historic windows.***

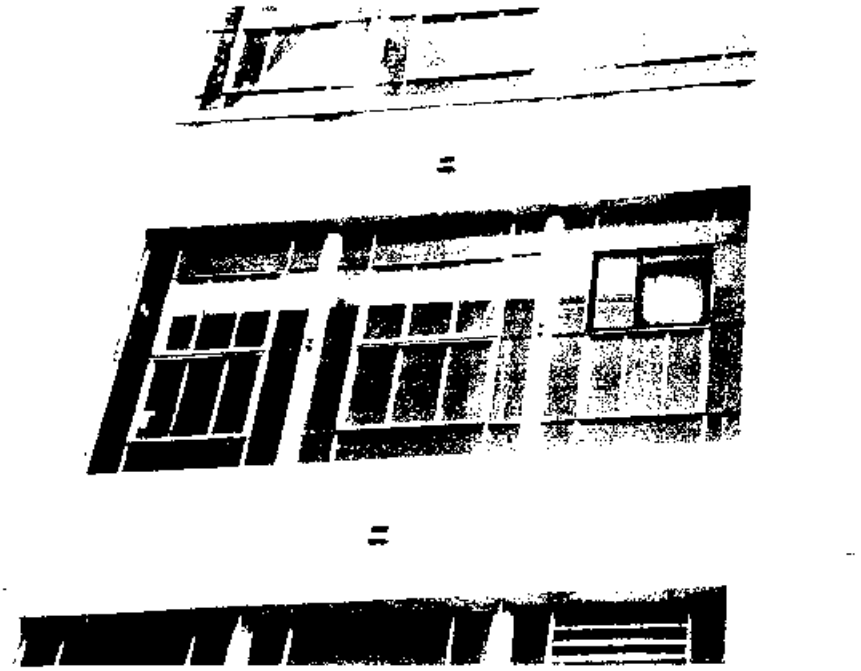


**Figure 1. Many of the original Lupton windows incorporated a pair of stacked ventilators that projected outward. The vents were centrally located within a multi-light frame each of which was set either individually or in groups of two or three. Photo: Bruner/Cott & Assoc., Inc.**

tor (or ventilators) framed by a group of fixed lights *(see figure 1)*. Details such as muntin patterns, muntin widths and profiles, and the profiles of the operable vent were integral to the look of the windows and the building as a whole *(see figure 2)*. Because of the distinctive character and prominence of the windows, any treatment plan required careful regard for the historic appearance of the original units.

A window inventory and condition survey was the first step in determining the most appropriate course of action. The assessment revealed that a majority of the original units had survived, though with varying degrees of wear, corrosion and other damage. Water penetration had led to deterioration along the interior glazing beads of the muntin in the ventilator. In some locations structural settlement had caused the window frames to rack and bend out of plumb making the vents inoperable. A number of windows had been altered to accommodate air conditioner units, including the removal of individual muntins. Accumulated layers of lead paint were common to all of the windows.

Beyond the condition of the existing windows, there were other factors that influenced the types of window treatment considered. Increased energy efficiency and aesthetics were two such considerations that were particularly important with the structure's function changing from primarily storage to office use. While the level of conducted heat flow through the existing single- glazed units was previously acceptable, the new office use required greater climate control. Additionally, the original units did not meet stringent state energy code requirements. The conversion to office use, in which workers would be in close proximity to the windows, also strengthened preferences that the interior profiles remain clean and as accurate to the original configurations as possible.

## Repair Options

From the outset, serious consideration was given to repairing the majority of the existing windows and upgrading the units for improved thermal performance. Any repair program had to be accomplished in situ, as the original window frames were embedded directly in the masonry surround without an intermediary subframe. Their removal for repairs or to salvage and substitute windows from one area of the building to another could only be achieved by cutting the frames free from the anchors, a process that would cause considerable damage.

If the windows were retained, energy efficiency could be increased by either of two alternative treatments: reglazing with insulating glass units, or installing interior storms. The former approach was quickly discarded when the thickness of the original steel muntin sections proved insufficient to support the added weight of new dual-paned glass units.

The second retrofitting option appeared more promising. To avoid obstructing the muntin arrangement of the historic windows, the proposed interior storm units had to be fashioned as single sheets extending from the head to the sill of each steel window. Installation of a mock-up, however, pointed out the limitations of the system. Because of the depth of their placement, the storm unit reflected the existing muntin pattern, creating a visually confusing appearance of two distinct grids.

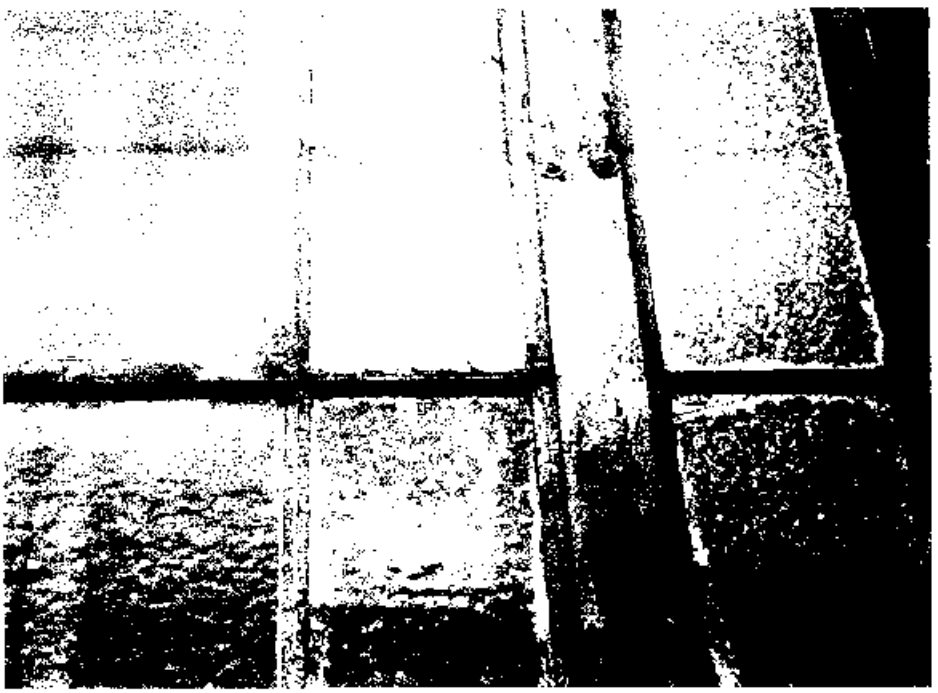


**Figure 2. Narrow sightlines, ventilator weathering flanges and mullion boltheads were all distinguishing features of the original steel windows. Photo: Bruner/Cott & Assoc., Inc.**

A mock-up of the applied muntin system was fabricated utilizing available extrusions and was temporarily installed in the Sears building. The flat profiles of the stock extrusions did not, in this case, successfully recreate the historic window appearance. Had the applied muntin approach been adopted, it would have been possible to match the outside and inside profiles of the original muntin and such details as the drip moldings and grooves along the operable ventilators through the use of custom extrusions. However, because of the importance of the windows to the building's historic character, it was determined that only a true divided light solution would adequately reproduce the visual qualities of the original windows.

## Solution

In the search for appropriate replacement units, an aluminum window manufacturer was contacted that had a track record of creating new systems for large historic renovations. The company was charged by the development team with providing an aluminum window that had true divided lights, matching profiles and sight lines, and insulating glass. The replacement system that was designed used a large number of new custom extrusions to replicate the dimensions, profiles and sightlines of the original windows *(see figure 3)*. Individual insulated glass lights provided increased energy efficiency while more accurately recreating the characteristic variations of the original glass panes.

Existing historic windows in areas that were not to be continuously occupied, such as common lobbies and fire stairwells, were retained and repaired in situ. In addition, all of the tall windows on the second level (which would be devoted to retail functions) were repaired and reglazed where needed with historic glass salvaged from other locations in the building *(see figure 4)*.

## Fabrication

A significant challenge to developing the Sears building replacement window was matching the original narrow muntins. Common industry practice for true divided light aluminum windows was to utilize wider muntins that conceal the spacer bar in the insulating glass unit and protect the edge sealant from light degradation. This approach would significantly encroach into the sightlines of the original windows as a result of the wider muntin and proportion changes to the window. In the case of the Sears building, however, the window manufacturer utilized a narrow spacer bar that permitted an accurate replication of the original 7/8" muntin *(see figure 5)*. Substituting a dark bronze anodize finish further reduced the visibility of the spacer making it appear as a shadow line when viewed from an angle.

Each replacement window developed for the Sears building was fabricated from over forty new aluminum extrusions. The large variety of custom designed elements allowed for a faithful reproduction of the original profiles. At the request of the developer, the replacement windows were not operable, yet their appearance suggested the functional nature of the original projecting ventilators. Tabs were added to resemble the weathering flange closed flush against the fixed outer frame, while drip caps shielded simulated hinges. The muntin, rail, head, sill and jamb profiles were also accurately reproduced. In order to replicate shadows cast on the original frames, the manufacturer included cosmetic bolt heads on the mullions running between each of the paired and tripartite window arrangements.

## The Inside Look

The inside appearance of the windows was important to the developer in marketing the new office space. A similar effort was made, therefore, to duplicate historic interior details and profiles. As was typical of multi-story warehouses, historic steel windows were glazed on the inside so that the individual panes could easily be replaced when broken. To simulate

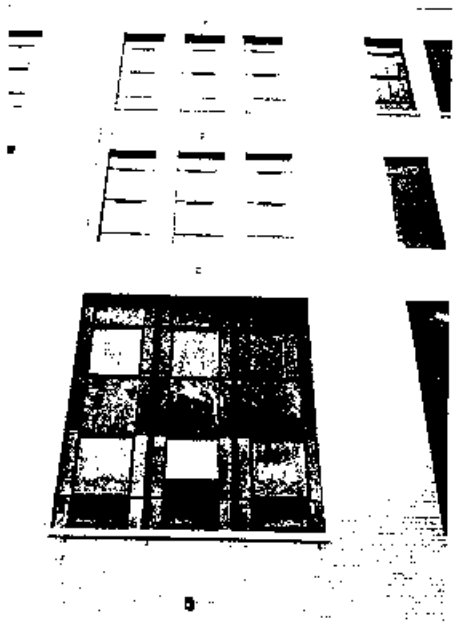


**Figure 4. Among the retained and repaired original windows were these large units on the second floor level. Photo: Bruner/Cott & Assoc., Inc.**

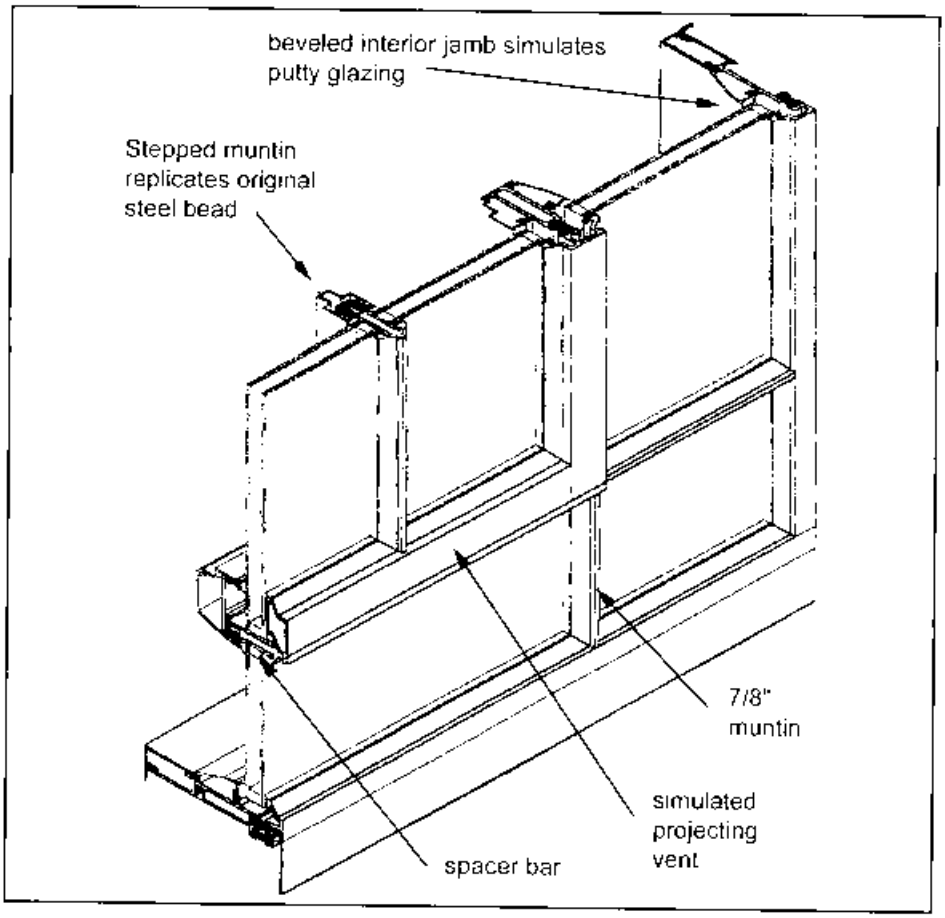



**Figure 3. Isometric drawing of aluminum replacement window. Drawing: Greg Gibson.**

the original interior putty profiles, the fixed-light muntins were tapered to the same 1 8" thickness of the original sections while stepped muntins were used in the central vent where steel beads had originally secured the glazing. Jambs in the replacement units were also beveled to recall the shape of the old glazing putty *(see figure 6)*.

## Testing and Installation

Being a new window system, the manufacturer had independent firms conduct standard performance tests on both the insulating glass and a mock-up of the complete window. In accordance with ASTM guidelines, tests on the complete window evaluated air infiltration, water resistance, and deflection and structural deformation under uniform load. With the test units meeting required specifications, window fabrication proceeded. Lengths of the new spacer were shipped to a glass fabricator where the insulating glass units were produced with a standard butyl and silicone dual-seal. Completed glass units were then shipped to the manufacturer for final assembly of each window.

While the new windows were being manufactured, a local contractor began the three month long process of stripping, repairing, repainting and reglazing the historic second floor windows and other retained units in stairwells and other non-office locations. As the new windows began to arrive in Boston, the general contractor removed the original units that were slated for replacement and a team of eight to ten workers started installing the new windows.

## Evaluation

Decisions involving the treatment of the original Sears building windows were reached after understanding the significance of the windows' historic appearance and by evaluating their condition and the requirements imposed by the rehabilitated building's new function. Various proposals were explored to determine how well they reconciled these factors. The process suggested that the most appropriate solution was to retain approximately 18% of the original windows while replacing the remainder with aluminum true divided light units that carefully matched the originals in both detail and general appearance *(see figure 7)*.

The replacement window system used on floors three through eight had two important advantages over earlier design proposals. First, it did not rely upon applied muntin grids that read less as individual glass 'panes.' Second, by developing new custom extrusions, the replacement window successfully matched the dimensions and sightlines of the original muntins.

The design of the Sears building windows demonstrates the degree to which aluminum windows with insulating glass units can accurately replicate historic windows. Attention to seemingly small details such

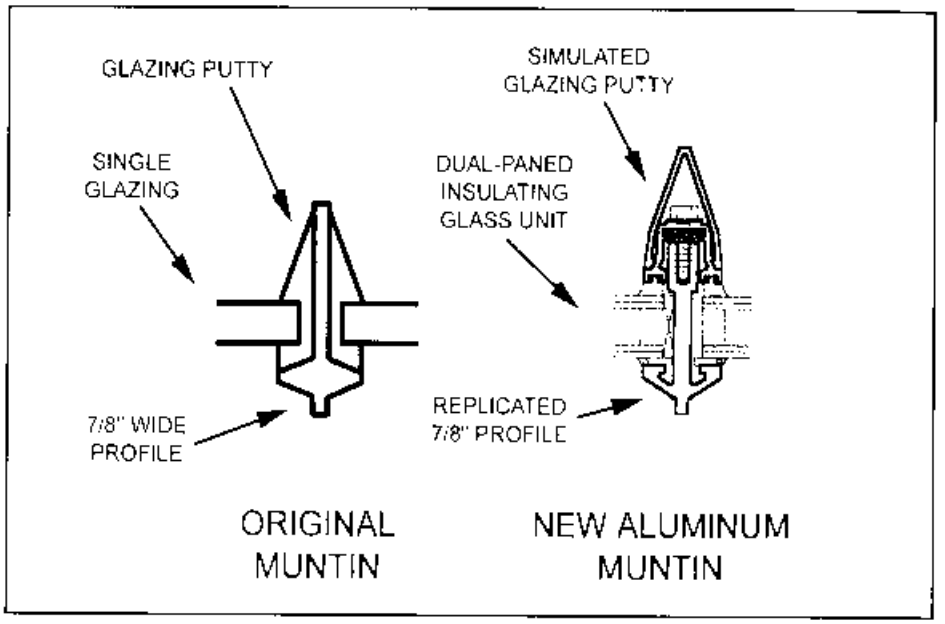



**Figure 5. The replacement aluminum muntin accurately replicated original profiles while accommodating insulating glass and thermal stops. Drawing: Bruner/Cott and Custom Window.**

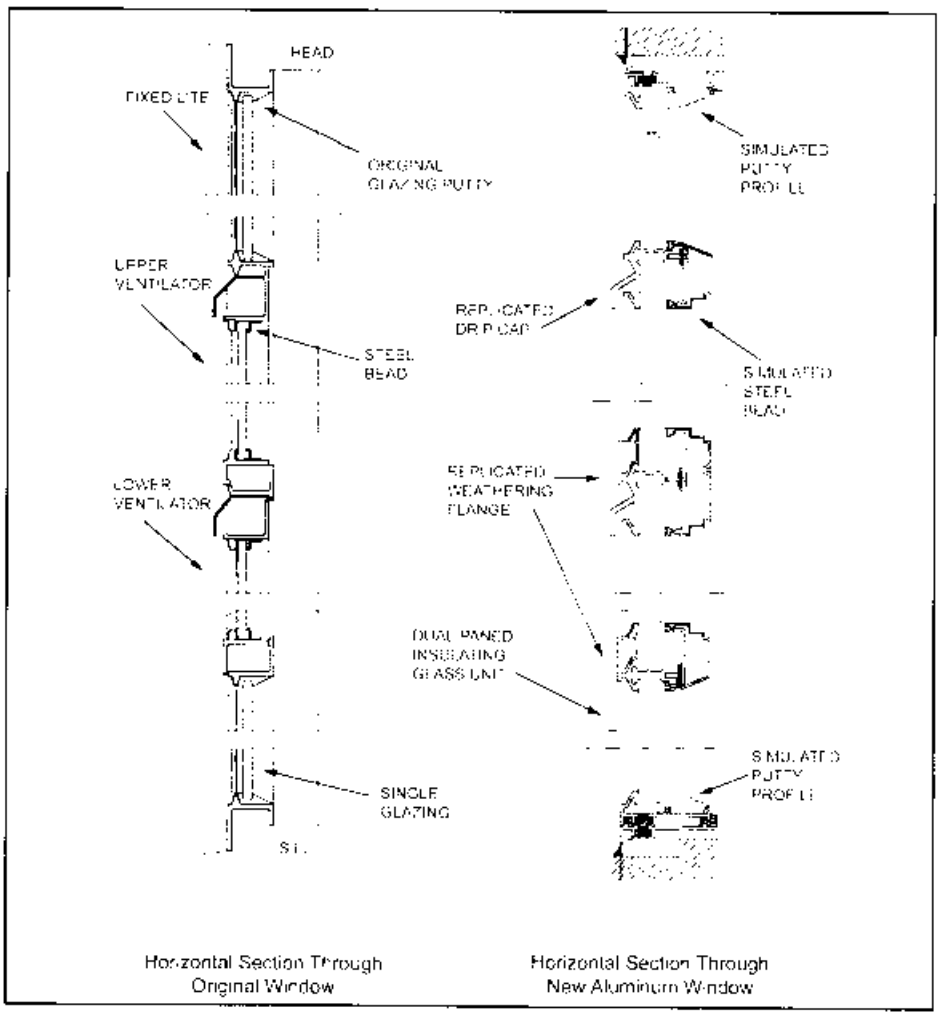



**Figure 6. Sections of original and replacement windows. Drawings: Bruner/Cott and Custom Window.**

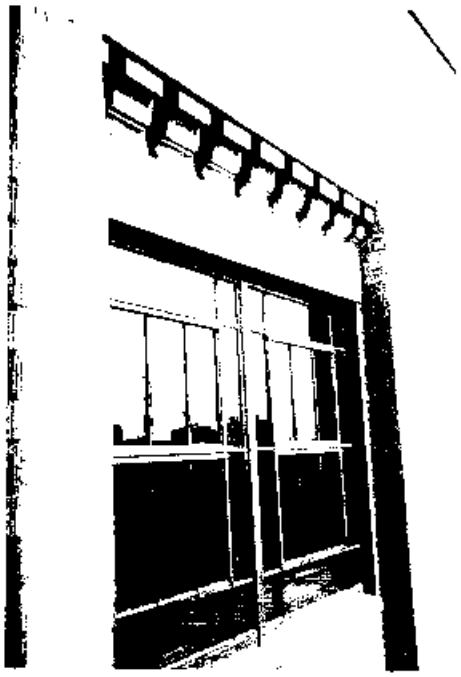


**Figure 7. Installed replacement window. Photo: Bruner/Cott & Assoc., Inc.**

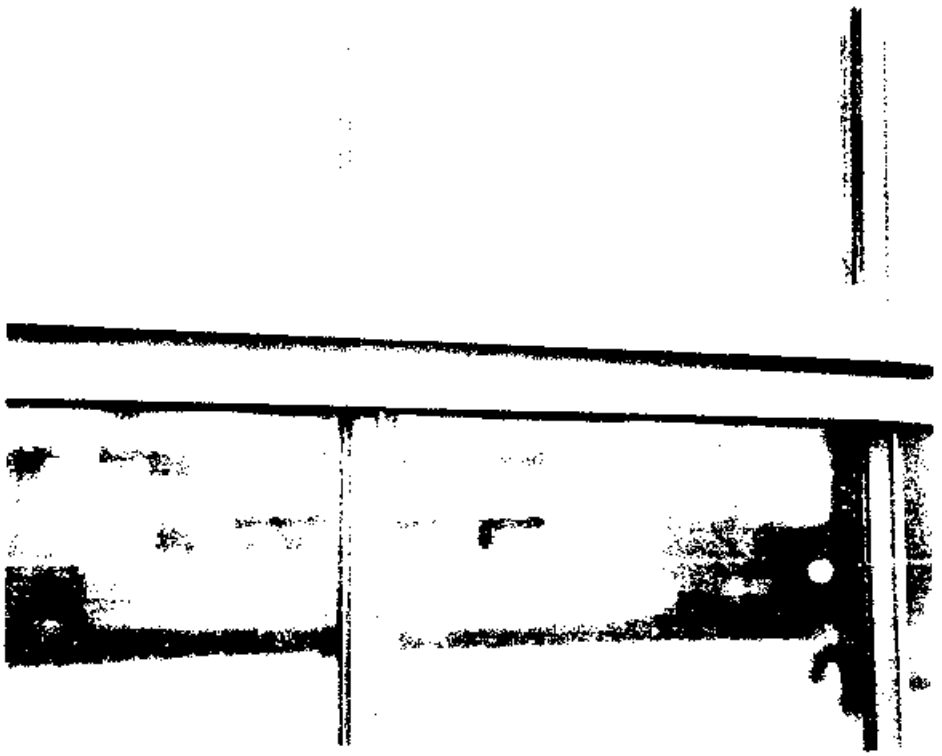


**Figure 8. A close up view of the replacement window showing the replicated ventilator drip cap and narrow muntins. Photo: Bruner/Cott & Assoc., Inc.**

as drip caps and the interior appearance of the window proved crucial to the success of the replication effort *(see figures 8 and 9)*. This understanding led to a new engineered window that met the challenge of combining narrow muntins with insulating glass units and true divided lights.

Although there were many advantages to the window scheme developed for the Sears building several drawbacks should also be acknowledged. One of the most significant disadvantages was the loss of historic material and integrity that accompanies any window replacement. In this case, the loss included steel frames and glazing that were removed as well as the functional nature of the once-operable projecting window.

While the replacement window frames are virtually indistinguishable from the original frames, the uniform, factory-produced nature of the units is in contrast to the look of historic steel windows that have aged over time. Also, the true divided lights, though superior in appearance to large insulating glass units with applied muntins, still have the reflective quality of modern insulating glass.

A final concern, relevant to all dual-glazed replacement windows, involved the integrity of the insulating glass unit seals. Although the dual-seal used in the Sears building replacement windows is currently state-of-the-art, the lifespan of insulating glass units in general has varied widely and is undoubtedly shorter than traditional monolithic glazing. The combined effects of the true divided light design and the narrow spacer bar suggest that the Sears building windows be periodically inspected. Small divided lights significantly increase the perimeter area that is sealed and thus vulnerable to degradation while the narrow spacer reduces the amount of sealant that can be accommodated along that perimeter. A ten-year warranty is currently being offered by the glass fabricator for the window system.

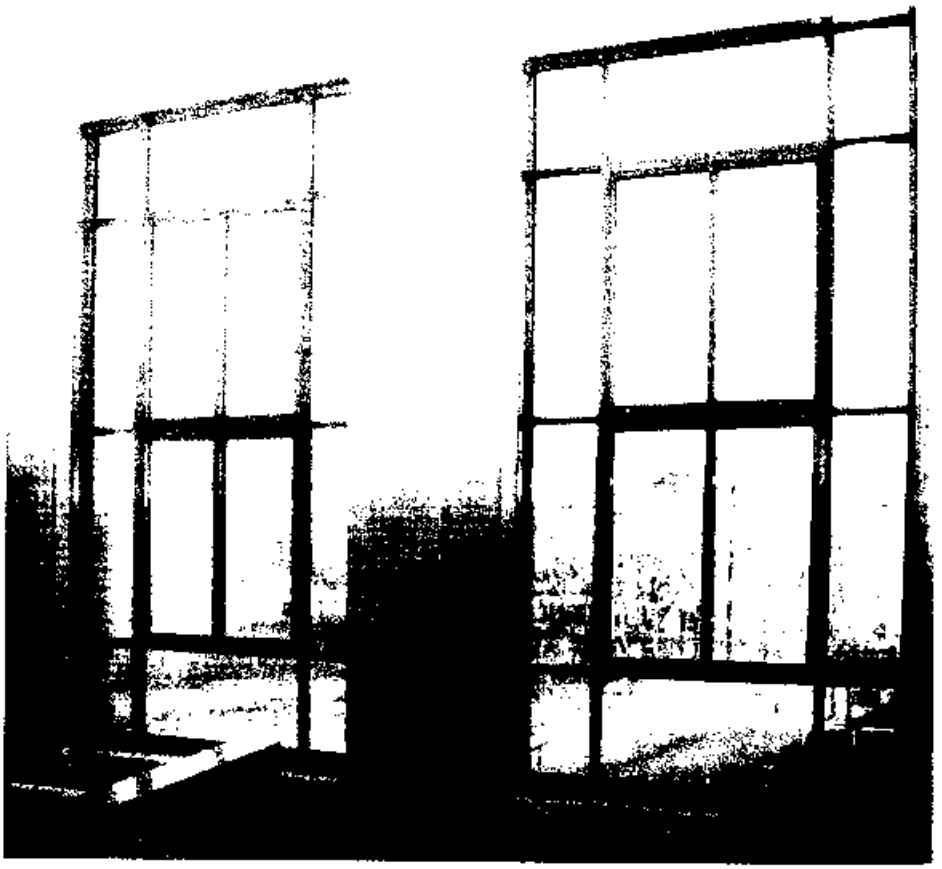


**Figure 9. The interior profiles of the original windows were accurately reproduced in the aluminum replacement units. Photo: Bruner/Cott & Assoc., Inc.**

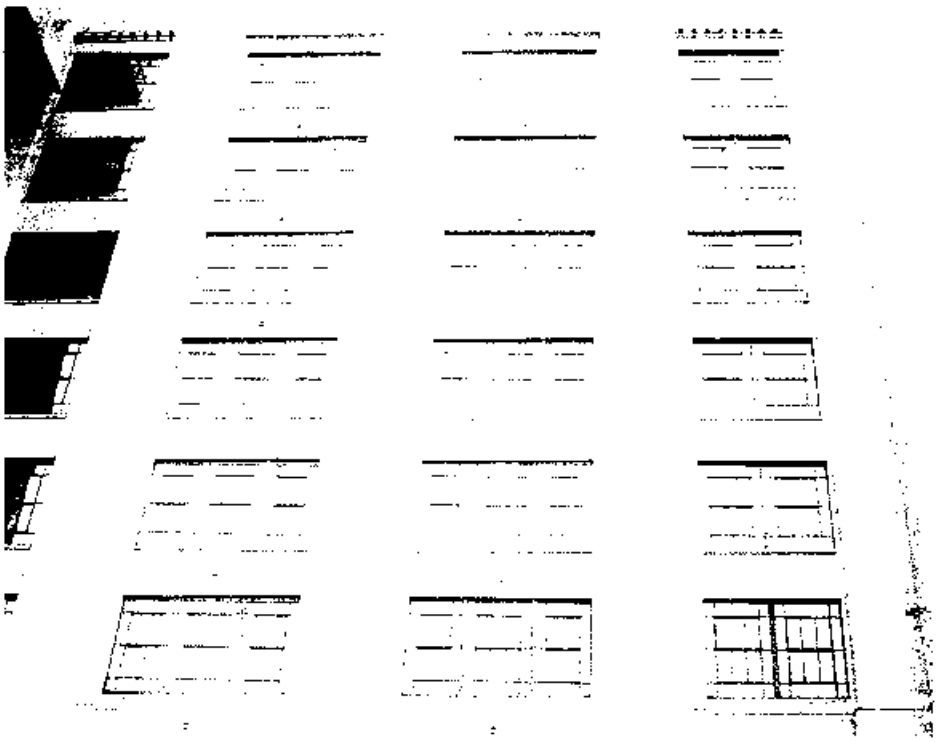


**Figure 10. The replacement windows designed for the Sears building rehabilitation met energy efficiency and aesthetic goals while providing for the continued historic appearance of the structure. Photo: Bruner/Cott & Assoc., Inc.**

## Conclusion

The Sears project illustrates that a combined approach of window repair and replacement with a custom window designed to match the historic unit is a viable alternative when large-scale building rehabilitation is undertaken *(see figure 10)*. Such a solution provides the opportunity to retain significant historic fabric and a wholly authentic original appearance in the most visible locations. In areas where the original windows have experienced significant deterioration, are in less prominent locations and where there are no suitable alternative means of enhancing thermal performance, replacement windows that are intended to match the originals in detail and appearance are acceptable. The window solution developed for the Sears building acknowledges modern demands for both a marketable aesthetic appearance and increased energy efficiency while retaining the historic visual appearance of the structure. Already the custom replacement window developed for the Sears building is being installed on other historic buildings with comparable windows that are deteriorated and in need of replacement.

## PROJECT DATA:

**Building:**
Sears Roebuck and Company Mail Order Building
(Landmark Center)
309 Park Dr. & 201 Brookline Ave.
Boston, MA 02215

**Owner:**
The Abbey Corporation
Boston, Massachusetts

**Project Date:** 1996-2000
**Project Architect:**
Bruner/Cott and Associates, Inc.
Boston, Massachusetts

**Restoration Consultant:**
Leslie Donovan
Tremont Preservation Services
Boston, Massachusetts

**Window Manufacturer:**
Custom Window
Denver, Colorado

**Window Contractor:**
JK Glass
Boston, MA

**Project Cost:**
The project's size and budget were sufficient to absorb the added expense of developing the new window system and its numerous custom extrusions. Engineering time and the cost of tooling and producing new extrusion dies for the Sears project totaled approximately $25,000. As additional $15,000 was spent on mockups and testing, bringing the development cost to approximately $45 per frame in 1998 dollars.
The total expenditure for replacement window work including all development costs, installation labor, perimeter caulking, dealer markup and the 890 window units themselves came to approximately $1.75 million, or $1,966 per window. This figure does not include expenses associated with removing the original units. Repairing and repainting the two hundred windows that were retained on the second floor and along the stairwells cost an additional $158,000, or approximately $800 per unit. The overall rehabilitation cost for the building was approximately $100 million.

THE PRESERVATION TECH NOTE was prepared by the National Park Service. Charles E. Fisher, Heritage Preservation Services, National Park Service, serves as the Technical Editor of the PRESERVATION TECH NOTES. Information on the window work at the Sears Mail Order Building was generously supplied by Leslie Donovan, Tremont Preservation Services; Henry Moss and Simon Tempest, Bruner/Cott Architects; Edward Bartlett, Custom Window Company; Jim Khoury, JK Glass; and Alan Aulson, Aulson Company. Thanks also go to Sharon Park and JoEllen Hensley of the National Park Service's Heritage Preservation Services for their review and comments.

PRESERVATION TECH NOTES are designed to provide practical information on traditional practices and innovative techniques for successfully maintaining and preserving cultural resources. All techniques and practices described herein conform to established National Park Service policies, procedures and standards. This Tech Note was prepared pursuant to the National Historic Preservation Act Amendments of 1980 which direct the Secretary of the Interior to develop and make available to government agencies and individuals information concerning professional methods and techniques for the preservation of historic properties.

Comments on the usefulness of this information are welcomed and should be addressed to PRESERVATION TECH NOTES, Technical Preservation Services, National Center for Cultural Resources, National Park Service, 1849 C Street, NW (2255), Washington, DC 20240.

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