

**STAFF REPORT** 12-11-2019 MEETING  
**APPLICATION NUMBER:**19-6586  
**ADDRESS:** 2001 PARK AVENUE  
**HISTORIC DISTRICT:** GRAND CIRCUS PARK  
**APPLICANT:** BRIAN REBAIN  
**DATE OF COMPLETE APPLICATION:** 12/4/2019  
**DATE OF STAFF SITE VISIT:** 12/4/2019

**PREPARED BY:** J. ROSS

**SCOPE:** REHAB BUILDING

### **EXISTING CONDITIONS**

As per the applicant:

The building located at 2001 Park Avenue is known as the Park Avenue Building. The structure was designed by Albert Khan Associates and was constructed in 1922 as a speculative commercial office building. The building fills the 80' x 100' lot at the northwest corner of Park Avenue and Adams Avenue. It is twelve stories tall and built using reinforced concrete and steel-frame construction. The Park Avenue Building is faced with brick, cast concrete, and limestone. The brick is buff-colored and laid in a running-bond pattern. Most of the decorative cornice at the top of the building is gone, however, a portion of the original denticulated cornice remains. The masonry has had previous emergency stabilization under this owner. The Adams and Park Avenue facades are identical in composition and are symmetrically arranged. The Adams Avenue elevation is vertically divided into five bays by brick pilasters. The first floor of the Park Avenue Building originally contained storefront windows in each bay of the building. The storefront-level windows have since been altered. The building is faced with a base of pink and grey flecked granite. At the Park Avenue facade, the southern storefront (at the corner) has an infill brick storefront wall approximately four feet in height. Currently the storefront facades on both Park Avenue and Adams Avenue are entirely boarded and/or bricked over. The second story on both facades features large limestone segmental arch window surrounds. Above each arch are limestone spandrel panels featuring three figural plaques. The transoms above the windows at the twelfth floor are completed in a round arch. A circular medallion is centered between each pair of arched windows. The western elevation is hidden from view by the Briggs Houze Apartment building (114 West Adams) but a light court runs down this side of the building from the second floor through twelfth. The northern (back) elevation faces onto the alley and has one bay (the eastern-most bay) ornamented in the same manner as the Park Avenue facade. The remainder of the northern (back) facade is devoid of ornamentation. A very deteriorated fire escape runs down the alley facade, from floors twelve through five. A portion of the fire escape was removed in the emergency stabilization. The roof of the building is flat. A very deteriorated, collapsing elevator penthouse is at the northwest corner of the roof.

### **PROPOSAL**

The current project proposes a complete rehabilitation of the property. Specific work items proposed for this project includes the following:

#### **Masonry Restoration (Throughout)**

- All damaged, deteriorating, or spalling masonry units are to be removed and replaced with new material to match original units. Missing units are to be replaced to match the remaining adjacent materials and new brick will match the existing as closely as possible in size, color, texture, and

compressive strength. Any salvaged brick will be reused where replacement is needed before new brick is used.

- The deteriorated original speckled granite base found at the first-floor will be removed and replaced with a new stone in a black multi-color.

## **East Elevation**

### *Windows*

- At stories 3-10, replace existing 1/1 wood-sash units (and non-historic transom infill) with new 1/1, double-hung, aluminum sash units. to match the original existing window dimensions of the individual elements including but not limited to lugs, muntins, head, sill, panes, jambs, sash, and overall depth. There will be no screens or screen rail additions.
- At story 10, replace existing 1/1 wood sash units with new 1/1, double-hung, aluminum sash units and replace existing wood frame transoms with new aluminum transoms to match the original existing window dimensions of the individual elements including but not limited to lugs, muntins, head, sill, panes, jambs, sash, and overall depth. There will be no screens or screen rail additions.
- The second story windows are original arched steel windows with cast iron twisted rope detailing. These windows are mostly boarded over although a few glazed units remain in some areas and the remaining steel frames and mullions are significantly rusted, broken, or missing entirely. Each unit includes casement units which are topped with fixed lights. These windows will be removed and replaced with fixed aluminum units replaced to match the original existing window dimensions of the individual elements including but not limited to lugs, muntins, head, sill, panes, jambs, sash, and overall depth. The existing twisted rope mullioned detailing/pieces will be taken off the existing frame, rehabbed, and placed back onto the new frame. Any twisted rope pieces that are damaged beyond repair will be new cast iron pieces made to replicate the historic/existing

### *New Storefronts*

- Replace the existing non-historic storefront infill and associated historic transoms new aluminum storefront systems. Doors will be added as needed for the ground floor tenants, these doors will be integrated into the storefront window pattern. The lugs on the existing transoms will be retained and incorporated into the designs for the new storefronts. The twisted rope cast iron mullioned transoms pieces will be taken off the existing frame, rehabbed, and placed back onto the new frame. Any twisted rope pieces that are damaged beyond repair will be new cast iron pieces made to replicate the historic element

### *Exterior Lighting*

- Lighting will be installed at the pocket above the first-floor storefronts, at the base of the second-floor window, and on the pilasters between each set of windows on the twelfth-floor. Finally, it is proposed that downlights be added to the underside of the canopy above the Park Avenue entrance.

## *Canopies*

The ca. 1950s existing metal canopy over the Park Avenue entrance will be removed and replaced with a new unit to match the historic canopy that used to be located at this entrance; it will be extended out further than the current canopy.

- Remove the decorative metal awning enclosures between the transom windows and the storefront windows. Decorative metal trim was on the face of the awning enclosures. A few are in fair condition, but most are in poor condition with significant corrosion with missing and bent pieces. Previous fabric awnings were hidden under these metal enclosures and a few remaining fragments of the dowel and awning fabric remain but are in extremely poor condition. The decorative metal awning enclosures will be removed and replaced to match with replicated decorative trim. All remaining remnants of the fabric awning equipment and fittings will be removed and replaced with new fixed awnings.

## *Signage*

- At each second story, arched window transom, install new signs. Note, that details regarding design, materiality, dimensions and mounting method has not been provided.
- Above each new awning, first story, install new signs. Note, that details regarding design, materiality, dimensions and mounting method has not been provided.
- At southernmost pilaster, first floor, install a new sign. Note, that details regarding design, materiality, dimensions and mounting method has not been provided.

## **South Elevation**

### *Windows*

- At stories 3-10, replace existing 1/1 wood-sash units (and non-historic transom infill) with new 1/1, double-hung, aluminum sash units. to match the original existing window dimensions of the individual elements including but not limited to lugs, muntins, head, sill, panes, jambs, sash, and overall depth. There will be no screens or screen rail additions.
- At story 10, replace existing 1/1 wood sash units with new 1/1, double-hung, aluminum sash units and replace existing wood frame transoms with new aluminum transoms to match the original existing window dimensions of the individual elements including but not limited to lugs, muntins, head, sill, panes, jambs, sash, and overall depth. There will be no screens or screen rail additions.
- The second story windows are original arched steel windows with cast iron twisted rope detailing. These windows are mostly boarded over although a few glazed units remain in some areas and the remaining steel frames and mullions are significantly rusted, broken, or missing entirely. Each unit includes casement units which are topped with fixed lights. These windows will be removed and replaced with fixed aluminum units replaced to match the original existing window dimensions of the individual elements including but not limited to lugs, muntins, head, sill, panes, jambs, sash, and overall depth. The existing twisted rope mullioned detailing/pieces will be taken off the existing frame, rehabbed, and placed back onto the new frame. Any twisted rope pieces that are damaged beyond repair will be new cast iron pieces made to replicate the historic/existing

### *New Storefronts*

- Replace the existing non-historic storefront infill and associated historic transoms new aluminum storefront systems. Doors will be added as needed for the ground floor tenants, these doors will be integrated into the storefront window pattern. The lugs on the existing transoms will be retained and incorporated into the designs for the new storefronts. The twisted rope cast iron mullioned transoms pieces will be taken off the existing frame, rehabbed, and placed back onto

the new frame. Any twisted rope pieces that are damaged beyond repair will be new cast iron pieces made to replicate the historic element

### *Exterior Lighting*

- Lighting will be installed at the pocket above the first-floor storefronts, at the base of the second-floor window, and on the pilasters between each set of windows on the twelfth-floor. Finally, it is proposed that downlights lights be added to the underside of the canopy above the Park Avenue entrance.

### *Canopies*

- Remove the decorative metal awning enclosures between the transom windows and the storefront windows. Decorative metal trim was on the face of the awning enclosures. The applicant has stated that a few are in fair condition, but most are in poor condition with significant corrosion with missing and bent pieces. Previous fabric awnings were hidden under these metal enclosures and a few remaining fragments of the dowel and awning fabric remain but are in extremely poor condition. The decorative metal awning enclosures will be removed and replaced to match with replicated decorative trim. All remaining remnants of the fabric awning equipment and fittings will be removed and replaced with new fixed awnings.

### *Signage*

- At each second story, arched window transom, install new signs. Note, that details regarding design, materiality, dimensions and mounting method has not been provided.
- Above each new awning, first story, install new signs. Note, that details regarding design, materiality, dimensions and mounting method has not been provided.
- At northernmost pilaster, first floor, install a new sign. Note, that details regarding design, materiality, dimensions and mounting method has not been provided.

## **North Elevation**

### *Windows*

- At stories 3-10, replace existing 1/1 wood-sash units (and non-historic transom infill) with new 1/1, double-hung, aluminum sash units. to match the original existing window dimensions of the individual elements including but not limited to lugs, muntins, head, sill, panes, jambs, sash, and overall depth. There will be no screens or screen rail additions.
- At story 10, replace existing 1/1 wood sash units with new 1/1, double-hung, aluminum sash units and replace existing wood frame transoms with new aluminum transoms to match the original existing window dimensions of the individual elements including but not limited to lugs, muntins, head, sill, panes, jambs, sash, and overall depth. There will be no screens or screen rail additions.
- At the second story, there is one original arched steel window with cast iron twisted rope detailing. This window will be removed and replaced with fixed aluminum units replaced to match the original existing window dimensions of the individual elements including but not limited to lugs, muntins, head, sill, panes, jambs, sash, and overall depth. The existing twisted rope mullioned detailing/pieces will be taken off the existing frame, rehabbed, and placed back onto the new frame. Any twisted rope pieces that are damaged beyond repair will be new cast iron pieces made to replicate the historic/existing
- At first story, install three new fixed aluminum windows



### *New Storefront Window*

- At easternmost bay, remove brick infill (at former opening) and existing historic transom and install a new aluminum storefront window and transom. The lugs on the existing transoms will be retained and incorporated into the designs for the new storefronts. The twisted rope cast iron mullioned transoms pieces will be taken off the existing frame, rehabbed, and placed back onto the new frame. Any twisted rope pieces that are damaged beyond repair will be new cast iron pieces made to replicate the historic element

### *Exterior Lighting*

- Lighting will be installed at the pocket above the new first-floor window, at the base of the new second-floor arched window, and on the pilasters between each set of windows on the twelfth-floor.

### *Canopy*

- At the easternmost bay/one remaining transom at the first floor, remove the decorative metal awning enclosure and replace to match with replicated decorative trim. All remaining remnants of the fabric awning equipment and fittings will be removed and replaced with new fixed awnings.

### *Fire Escape*

- A single fire escape runs down the face of the north façade from floors twelve through five; it is made of black metal and, according to the applicant, is in very poor condition with significant corrosion and structural damage. The fire escape from floors 4 through 2 and the ladder/cage to roof were removed in previous façade stabilization. The existing fire escape is to be retained and rehabilitated or replaced as a means of egress from the building. The missing sections from floors 2-4 and ladder/cage will be rebuilt from new materials to match the existing as much as feasible. Connections to the building shall be rehabilitated as necessary to ensure structural stability. Any loose or spalling masonry units shall be repaired and reinstalled as necessary.

### *Brick Infill*

- At first story, brick in window and door openings as per elevation drawing (detailing not provided)

### *Exterior Doors*

- At first story, install a new single hinged metal door and a set of painted metal doors
- At fire escape, where existing historic metal doors exist and door openings are infilled with plywood, remove and install new single hinged doors and new sidelites. Type and material of door not specified
- At fire escape, at transoms over doors, remove and replace with metal louvers

### *Lightwells (north, west, and south)*

- Remove existing historic steel 2/2, double-hung windows with new 2/2, double-hung aluminum windows

### *Roof*

- The existing roofing will be removed and replaced with a new rubber membrane roof system. All flashing, parapets, and coping will be inspected for damage and repaired or replaced with new.
- The existing penthouse will be rebuilt to accommodate a new elevator stop at the roof (for ADA access). Specifically, it will be rebuilt. The penthouse itself will be made slightly taller: it is

currently 8'-10" (from top of the roof deck to the top of the penthouse parapet) and it will be 11' after work is completed on it for an increase of 2'-2" in total. The footprint will remain the same

- A roof deck will be added at the south side and will be accessed via the penthouse. A glass guardrail with black supports will encompass the roof deck and walkway.
- New mechanical equipment will be added to the north/middle side of the roof and a black metal perforated screen wall will be added in between the roof deck and the mechanical units.

### **STAFF OBSERVATIONS AND RESEARCH**

- Regarding the proposed signage, note that the application merely refers to location, it does not specify materiality, design, or method of installation
- Details surrounding the new north elevation doors and sidelights at the fire escape have not been provided
- Regarding the proposed windows replacement, the applicant has provided photographic evidence in addition to a condition assessment from Blackberry Windows Systems which note that the windows are deteriorated beyond repair throughout and recommends that they be replaced. Staff does accept Blackberry's professional opinion regarding the condition of the windows.

### **ISSUES**

- The applicant has provided photos of the windows proposed for replacement in addition to a condition assessment from Blackberry Windows. Blackberry Windows recommends that the windows be replaced wholesale, but note the following:
  - The wood windows are located on the 3rd thru 10th floors on the North, South and, East Facades, feature distinctive decorative "dog lug" detailing. It is not clear if this detailing can be replicated
  - Regarding the second story arched windows, Blackberry notes that it will be difficult to identify an aluminum replacement product to match the radius shape of the existing steel windows
  - Regarding the historic steel windows at the lightwells, Blackberry does note that they are deteriorated beyond repair. However, they note that they have not found new replica products that will meet the sightline and profile requirements of these existing windows.
  - See the provided details of the existing vs the proposed for the new windows. It does not appear clear to staff the new windows will closely replicate the detail of the existing

### **RECOMMENDATION**

It is staff's opinion that the historic exterior elements that are proposed for replacement are deteriorated beyond repair. The Secretary of the Interior's Standards for Rehabilitation requires that these elements be replaced with new to match the old in design, color, texture and, where possible, materials. Staff therefore recommends that the Commission issue a Certificate of Appropriateness (COA) for the proposal because it meets the Secretary of the Interior's Standards for Rehabilitation. However, staff does recommend that the Commission issue this COA with the following conditions:

- All new replacement windows shall match the old in dimension and detailing to include the lugs, muntins, head, sill, panes, jambs, sash, and overall depth. The applicant shall provide details of the existing and proposed windows which clearly demonstrate that the new windows adequately match the design and detailing of the old to HDC staff for review and approval. If staff determines that the new windows do not adequately replicate the old, they will forward the work item to the Commission for review at a future meeting

- The applicant shall provide details of all proposed new signage to staff for review and approval. If staff determines that the signage does not conform to the Standards, they will forward the work item to the Commission for review at a future meeting
- The applicant shall afford staff the opportunity to review and approve the proposed new storefronts and exterior doors to staff for review and approval. If staff determines that the new storefronts and exterior doors do not conform to the Standards, they will forward the work item to the Commission for review at a future meeting.

October 28, 2019

Ms. Jennifer Ross  
City of Detroit  
Historic District Commission  
2 Woodward Avenue, Suite 808  
Detroit, Michigan 48226

RE: General Necessities Building/Park Avenue Building- HDC Submission

Dear Ms. Ross:

Kraemer Design Group (KDG) is writing to submit information to the Detroit Historic District Commission (HDC), on behalf of Infinity Homes & Co. regarding the proposed rehabilitation of the Park Avenue Building located at 2001-2017 Park Avenue. The proposed exterior work at the Park Avenue Building will include: masonry cleaning and restoration of the exterior; new storefronts; new exterior doors; replacement canopy over the Park Avenue entrance; new exterior lighting; fire escape repair; new signage in keeping in character with the historic signage; new windows; new roofing, rooftop mechanical equipment and new rooftop deck. The proposed use will be R-2 apartments, with mixed use tenants in the first-floor south half, second floor, and, possibly, the basement.

The Park Avenue Building was constructed in 1922 as a speculative commercial office building. It opened on July 1, 1923 and was designed by the Detroit architectural firm of Albert Kahn Inc. The Park Avenue Building was renamed the General Necessities Building from November 23, 1923 to February 20, 1930. The General Necessities Company was a wholesale supplier of re-screened coal and Solvay coke for heating fuel, as well as household ice. The building fills the 80' x 100' lot at the northwest corner of Park Avenue and Adams Avenue. It is twelve stories tall and built using reinforced concrete and steel-frame construction. The Park Avenue Building is faced with brick, cast concrete, and limestone. The brick is buff-colored and laid in a running-bond pattern. Much of the masonry is collapsing from the structure due to years of water infiltration. Most of the decorative cornice at the top of the building is gone, however, a portion of the original denticulated cornice remains. The masonry has had previous emergency stabilization under this owner.

The Adams and Park Avenue facades are identical in composition and are symmetrically arranged. The Adams Avenue elevation is vertically divided into five bays by brick pilasters. The first floor of the Park Avenue Building originally contained storefront windows in each bay of the building. The storefront-level windows have since been altered. The building is faced with a base of pink and grey flecked granite. At the Park Avenue facade, the southern storefront (at the corner) has an infill brick storefront wall approximately four feet in height. Currently the storefront facades on both Park Avenue and Adams Avenue are entirely boarded and/or bricked over.

The second story on both facades features large limestone segmental arch window surrounds. Above each arch are limestone spandrel panels featuring three figural plaques. The transoms above the windows at the twelfth floor are completed in a round arch. A circular medallion is centered between each pair of arched windows. The western elevation is hidden from view by the Briggs Houze Apartment building (114 West Adams) but a light court runs down this side of the building from the second floor through twelfth. The northern (back) elevation faces onto the alley and has one bay (the eastern-most bay) ornamented in the same manner as the Park Avenue facade. The remainder of the northern (back) facade is devoid of ornamentation. A very deteriorated fire escape runs down the alley facade, from floors twelve through five. A portion of the fire escape was removed in the emergency stabilization. The roof of the building is flat. A very deteriorated, collapsing elevator penthouse is at the northwest corner of the roof.

The following is a detailed description of the proposed work and its historic implications:



## Masonry Restoration

The brick, cast concrete, and limestone masonry on the exterior of the building are all in poor condition overall due to years of water infiltration, the freeze thaw cycle, and deferred maintenance. The masonry will be cleaned and inspected for damage. All damaged, deteriorating, or spalling masonry units are to be removed and replaced with new material to match original units. Missing units are to be replaced to match the remaining adjacent materials and new brick will match the existing as closely as possible in size, color, texture, and compressive strength. Any salvaged brick will be reused where replacement is needed before new brick is used. The cleaning will be done according to the Secretary of Interior Standards, and NPS Technical Preservation Briefs 1, 2 & 6. The speckled granite found at the first-floor will be removed and replaced with a new stone in a black multi-color. Please see attached drawings and photographs for additional details.

## Storefronts

The first level storefronts have been significantly altered over time and are now in poor condition and boarded over—several of the storefronts on the Park Avenue façade are bricked halfway up the height of the storefront opening. The storefront at the northern most bay on the Park Avenue façade and the sole storefront located on the north facade are both bricked up entirely. All ground floor exterior storefronts are to be removed and replaced with new storefront systems designed to complement the historic character of the building without appearing falsely historic. All new storefronts are to be consistent in look, style, and materials. Doors will be added as needed for the ground floor tenants, these doors will be integrated into the storefront window pattern. The lugs on the transoms will be incorporated into the designs for the new storefronts while the twisted rope mullioned transoms pieces will be taken off the existing frame, rehabbed, and placed back onto the new frame. Any twisted rope pieces that are damaged beyond repair will be new cast iron pieces made to replicate the Please see attached drawings for additional details.

## Exterior Doors

The main entrance into the building was historically found on the Park Avenue façade in the second bay. There is a security CMU infill and wood door that was placed into this bay by a prior owner. It does not attach to the building. The Park Avenue entrance into the main lobby will be replaced with a new black aluminum double door unit that complement the historic character of the building.

The fire escape doors will be removed and replaced with new units that will be compatible with the historic character of the building. The sidelights and doors will be recreated while the transoms will be replaced with a louvered panel.

On the first floor of the north façade, there are two access doors on the alley façade. These doors will be replaced with new units to complement the historic character of the building. One will be a double hollow metal service door and the other a black aluminum entrance door with sidelight.

There are currently two entrance doors on the Adams Street façade: one leads to the southern-most retail space and one leads to a staircase to the second floor. These doors will be removed, and a new single door will be installed in this location. Please see drawings for additional details.

## Exterior Metal Canopy at Park Avenue Entrance



There is a very deteriorated metal canopy over the Park Avenue entrance that likely dates from the 1950s. This canopy will be removed and replaced with a new unit to match the historic canopy that used to be located at this entrance; it will be extended out further than the current canopy. Please see attached drawings for details.

#### Exterior Lighting

Currently there is no lighting on the exterior, but this project proposed to place lighting at the pocket above the first-floor storefronts, at the base of the second-floor window, and on the pilasters between each set of windows on the twelfth-floor. Finally, it is proposed that downlights lights be added to the underside of the canopy above the Park Avenue entrance. Lighting of planters at each pilaster. Please see drawings and cut sheets for additional details.

#### Exterior Decorative Storefront Awning Enclosures

On both primary façades, decorative metal awning enclosures are found between the transom windows and the storefront windows. Decorative metal trim was on the face of the awning enclosures. A few are in fair condition, but most are in poor condition with significant corrosion with missing and bent pieces. Previous fabric awnings were hidden under these metal enclosures and a few remaining fragments of the dowel and awning fabric remain but are in extremely poor condition. The decorative metal awning enclosures will be removed and replaced to match with replicated decorative trim. All remaining remnants of the fabric awning equipment and fittings will be removed and replaced with new fixed awnings.

#### Fire Escape

A single fire escape runs down the face of the north façade from floors twelve through five; it is made of black metal and is in very poor condition with significant corrosion and structural damage. The fire escape from floors 4 through 2 and the ladder/cage to roof were removed in previous façade stabilization. The fire escape is accessible by egress doors on each floor, which are located in the third bay. The existing fire escape is to be retained and rehabilitated or replaced as a means of egress from the building. The missing sections from floors 2-4 and ladder/cage will be rebuilt from new materials to match the existing as much as feasible. Connections to the building shall be rehabilitated as necessary to ensure structural stability. Any loose or spalling masonry units shall be repaired and reinstalled as necessary.

#### Exterior Signage

Historically, the building had large signage on rooftop grillage, on the limestone lintel above each storefront window, a plaque at the southeast corner, on the glazed window units of the 1<sup>st</sup> -3<sup>rd</sup> stories, and on the metal canopy above the Park Avenue entrance.

This project proposes to add signage to the building in the basic locations indicated on the attached drawings. To summarize, it is proposed that signage will be located at: signage on the metal canopy above the Park Avenue entrance, a plaque at the southeast corner on the east and south facades, signage on the band above the 1<sup>st</sup> floor transoms, within the second floor window arch and signage on some of the glazed units of the 1<sup>st</sup>-3<sup>rd</sup> floor. Signage will be submitted for review in these locations on a case by case basis. See historic photos attached.

#### Windows

On both primary facades, floors three through eleven contain pairs of double-hung wood windows in each bay. These are double hung windows and they are in poor condition with most units missing or boarded over. Many of



these windows have been modified over the years to include a makeshift transom to reduce the size of the window opening and to provide a space to insert a window air conditioning unit. The twelfth story also contains pairs of double-hung windows, but these units have transoms above the windows that are completed in a rounded arch, also in poor condition. The second story on both primary facades features large limestone arch window surrounds with steel windows that are in poor condition: the second story windows are mostly boarded over although a few glazed units remain in some areas and the remaining steel frames and mullions are significantly rusted, broken, or missing entirely. The side segments were noted to be casements. Overall, the north façade windows are in poor condition with most of the glazed units missing with the windows covered with plywood or scrap materials. On the west façade, the lightwell windows are two over two steel double hung windows.

All windows will be replaced with new black aluminum windows to match the original existing window dimensions of the individual elements including but not limited to lugs, muntins, head, sill, panes, jambs, sash, and overall depth. There will be no screens or screen rail additions.

#### Roof and Roof Deck Scope

The roof is currently a built-up roof and is in poor condition. A brick elevator and equipment penthouse is located on the northwestern portion of the roof. The structure is in very poor condition with walls collapsing, missing, cracked and spalled masonry units, broken windows, and heavily corroded elevator equipment.

The existing roofing will be removed and replaced with a new rubber membrane roof system. All flashing, parapets, and coping will be inspected for damage and repaired or replaced with new. No new damage will be done to the parapets. The existing penthouse will be rebuilt and heightened slightly to accommodate a new elevator stop at the roof (for ADA access).

A occupiable roof deck will be added at the south side and will be accessed via the penthouse. A glass guardrail with black supports will encompass the roof deck and walkway. New mechanical equipment will be added to the north/middle side of the roof and a black metal perforated screen wall will be added in between the roof deck and the mechanical units. Per code, venting must extend 7' above the roof when a roof is occupied. The elevator penthouse, mechanical units, and roof deck will be only minimally visible from the public right of way—please see attached sightline study regarding the visibility of these rooftop work items.

If you have any questions regarding this submission, please don't hesitate to contact me at (313) 965-3399 extension 215.

Sincerely,

Kraemer Design Group



Brian Rebain  
Principal



December 6, 2019

City of Detroit  
Historic District Commission  
2 Woodward Ave. Suite 808  
Detroit, MI 48226

Dear Ms. Ross,

It is our understanding that the Historic District Commission needs more information in order to process our application. In order to complement the initial submission Kraemer Design Group made on 10/28/19 we are now submitting the additional requested information:

- **Light fixtures:** all non-historic light fixtures found throughout the building will be removed and replaced with new units. The notation on the drawing that was submitted —stating that the light fixtures would be removed, rehabilitated, and re-installed—that were submitted on 10/28/19 is incorrect.
- **Windows:** Kraemer Design Group proposed removing and replacing all twelve windows found on the west façade due to the extreme deterioration of these units. We have included additional photographs of these windows. We are also including additional detail photos of the window units on the north façade at the first and second floor that we intend to replace.
- **Exterior Doors:** The Park Avenue set of double doors will be removed and replaced with new door units and new hardware, but they will be fitted within the existing frame. The door on Montcalm will be replaced with a new unit and new hardware and the glazed panel in the door will be a divided light to match the sidelights.
- **Window boxes:** The existing window boxes are constructed of black painted panels with wood blocking. These will be replaced with new black painted units that will match existing boxes. The existing dimensions vary for each window box unit—please refer to the drawings—but they will be replicated with new materials to be the same size as what currently exists.
- **Canopies:** We are providing additional details in the attached renderings and drawings.
- **Rooftop Mechanical:** We are submitting additional information about the rooftop mechanical units. Attached here you will find cut sheets of the units our client intends to install.

We trust this information addresses your concerns and we look forward to hearing from you on this. Thank you in advance for your time and consideration of these additional HDC materials.

Sincerely,



Cassandra M. Talley  
Historic Preservation Specialist  
(313) 965-3399 x239





03/14/19

Laura Cunningham  
Attn: Kraemer Design Group  
1420 Broadway  
Detroit, MI 48226  
Email: [laura.cunningham@thekraemeredge.com](mailto:laura.cunningham@thekraemeredge.com)

Job Name: Park Avenue Building  
Job Location: Detroit, MI

## HISTORIC WINDOW SITE REVIEW: BUDGET PRICING

The following is the written Historic Window Site Review for the existing wood and steel windows for 2001 Park Avenue, Detroit, MI. This information is based on a physical site visit, inspection of the existing windows, and preliminary elevations. Our review considers the National Park Service guidelines for restoration and replication as provided in the NPS Wood Window Preservation Brief #9 and NPS Steel Window Preservation Brief #13. Likewise, in providing our recommendations for the restoration or replacement, we are adhering to the guidelines that meet NPS and SHPO standards. Please note this review is our opinion based on over 25 years of historic window restoration and replication experience; however, you must have written approval from NPS, SHPO, or the Detroit Historic District Commission to be assured of the projects' tax credit approval (if applicable) or historic district compliance.



### I. Existing Conditions: (319) Wood Double Hung Windows @ (11,034 Sq. ft.):

The existing windows are original to the Park Avenue Building. The windows are in very poor condition and are one of the key architectural features to the building's exterior façade. The wood windows are located on the 3rd thru 10<sup>th</sup> floors on the North, South and, East Facades. All the existing windows appear to have gone years without exterior repair or maintenance. Many of these windows are not operating because the sash balances have failed, the ropes have been cut or deteriorated, and/or the sashes have been caulked and painted shut. At least 30% of the window sashes have been removed and unsalvageable.



The window components that do remain have very little paint remaining on the exterior and for the most part down to bare wood, that cracked, broken, weathered, and checked.

The typical window components are all most likely second growth white pine including 2 ¼" thick sash, ½" x ½" parting bead, 1 ½" x ½" sash trim, 7/8" x ½" blind stop, and ¼" clear float glass. The exposed site line dimensions include 2" side stiles, 4 ½" bottom rail, 1 ¾" meeting rail, and 2" top rail. The exterior sill face is 2 ½", Both the exterior upper sash and the lower interior sash have a wood "dog lug" measuring 3 ½" x 1 ¾"; these will most likely will have to be replicated to get approval by any historical review required. There are a few mullied windows and the vertical mullion is 9 ½". As with most windows of this era and condition we assume the perimeter exterior caulk and glazing compound will test positive for asbestos, the Haz-Mat testing and report should include the windows.

## II. Existing Condition: (31) Wood Double-Hung Window with Half Round Transoms @ (1,612 Sq. Ft.):

These windows are original to the structure and are located on the top floor of the East, South and North Elevation. These windows are in poor condition and exhibit rot and deterioration at critical areas on the frames and sashes to the same degree as the rectangular head double hungs. The horizontal mullion separating the lower double hung and the top half round is 5 ¼" high.

## III. Existing Condition: (191) Cold Rolled Steel Double Hung Windows @ (2,620 Sq. ft.):

These windows are original to the structure and are located in interior of the building in the light well and stair wells from the 3<sup>rd</sup> floor through the 10<sup>th</sup> floor. They are fire rated with ¼" wire glass and interior screw applied metal glazing stops. They are galvanized steel but are in fair to poor exterior condition and many not operable. The double hung windows use a chain, pulley, and weight system similar to their wood counterpart. The design was to mimic a wood double hung but



made of steel to meet the fire rating on the required elevations. Note these steel windows do not match the site line dimensions of the wood windows original to the exterior façades. The following dimensions are for the typical components, exposed sitelines; 1" sash rails, 2 ¾" bottom rail, 1 ½" meeting rail, 1 ¾" muntin, and 1 ½" sill face. Even if we were able to strip and clean the exposed surface rust the internal rust and corrosion found inside the jamb wall cavity and sashes, make the potential for restoration futile. This will continue and make the effort and work of no value. Much of the galvanized surfaces are rusted from years without painting.

The perimeter caulking has failed and allowing water to penetrate the masonry façade. Likewise, approximately 75% of the windows are inoperable. We have not found any new replica products that will meet the site line and profile requirements of these existing windows. We are aware of products that maybe approved but not within the (+) or

(-) 1/8" tolerance. Typically, we are asked to match the new replica windows to the primary façade windows by SHPO and NPS. So, there is a possibility the same window would be approved for this replication as on the exterior elevations.

**Recommendation: Complete Removal and Replication of all existing window types:**

BlackBerry recommends the full replacement of the existing wood and steel windows based on the overall poor condition of the components and the fact that approximately 30-40% of the Wood Double-hung windows have been altered or replaced with a window of smaller dimension and the transom area filled in with board up. The extensive damage to the wood and steel components will not allow for the restoration of these window frames and sashes. Products are available that have been in the past approved by NPS and SHPO for similar historic tax credit projects. A key element will be the replication of the interior and exterior "dog lug" that exists on all the original wood double hung windows. BlackBerry has supplied and installed many projects requiring the use of such a replica window; the challenge is the design engineering and cost so the product can get approval for the profiles and sitelines. The final determination will come down to the review by SHPO, NPS, or the local historic district commission.

**Replication of the Wood Double-Hung and Steel Double-Hung Windows:**

The Custom Aluminum Double Hung Replica option would be based on the use of a window equal to the Quaker H500 Single Hung Series which has been used on many similar NPS approved projects. This would include custom exterior panning and sill system, custom mullion covers, interior snap trim, insulated glass with low-e/argon, site line adapters, and AAMA 2605 painted finish. The estimated supplied and installed price for all openings:

**Budget Pricing \$1,641,090.00**

**IV. Replacement of (12) Large Radius Windows with Storefront and Restoration of Existing Cast Ornamental Exterior Trim @ (1,385 Sq. ft.):**



The first-floor original storefront openings are fully boarded up, and from the interior side over 80% of the original components have been removed or altered over the past years. The second-floor openings are fully deglazed and partially boarded up. The evidence to fully determine the first-floor storefront original design and construction will have to be verified by photographic evidence since there such a lack of clarity based on existing physical evidence.

The second-floor openings still have the original steel fixed and casement window assembly, while in very poor condition the existing sitemlines are approximately 2" at the head, sill, and jambs. These steel frames are not restorable, and the steel is heavily corroded, with failed joinery. The cast ornamental exterior trim is a rope design approximately 1", this material is fastened to the original window assembly.

**Recommendation: Replacement of existing steel windows assembly and restoration of cast ornamental exterior trim.**

The windows can be replaced with an aluminum thermally broken Storefront System or a thermally broken aluminum Fixed Replica Window System. The biggest issue to be determined is the availability of either type of product to match the radius shape of the existing steel windows. Details will have to be created and sent to manufacturers to determine the fabrication limitations and cost. The cast metal can be removed, and shop restored, and then re-installed to the new window system. Please note we are not addressing the first-floor storefront openings since we need more direction as to the assumed design of the original components.

**2<sup>nd</sup> Floor Window/Storefront Budget Pricing \$185,000.00**

**2<sup>nd</sup> Floor Cast Metal Restoration \$ 74,000.00**

Our budget pricing is based on the over 30 years' experience in completing historic restoration and replication projects. I would caution that this is budget pricing and not final pricing, final specifications and plans would be required once your client has approvals from NPS, SHPO, and the local historic district to provide accurate pricing. To establish accurate pricing we would need accurate design parameters and firm quotations from manufacturers for our materials. Our budget pricing allows for the design, fabrication, and material, tax on material, labor (non-union/non-prevailing wage), employment, staging, delivery, shop drawings, and supervision. Note Bonding, Traffic Control, and Permits are not included.





Additional Photos:

Interior View of Wood Double-Hung: Deteriorating Side Rail and Bottom Rail



Wood Double Hung: Sash Pocket, Blind Stop and Parting Bead



Exterior View of Wood Double-Hung Windows







RPM  
TY313



raffinonlarna

RPM  
TY313

RPM  
TY313  
2K15!

TY313

RPM  
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Handwritten graffiti in white and blue on the brick wall.

Large black graffiti tag on the brick wall.

Pink and red graffiti markings on the brick wall.







ROMA

ROMA

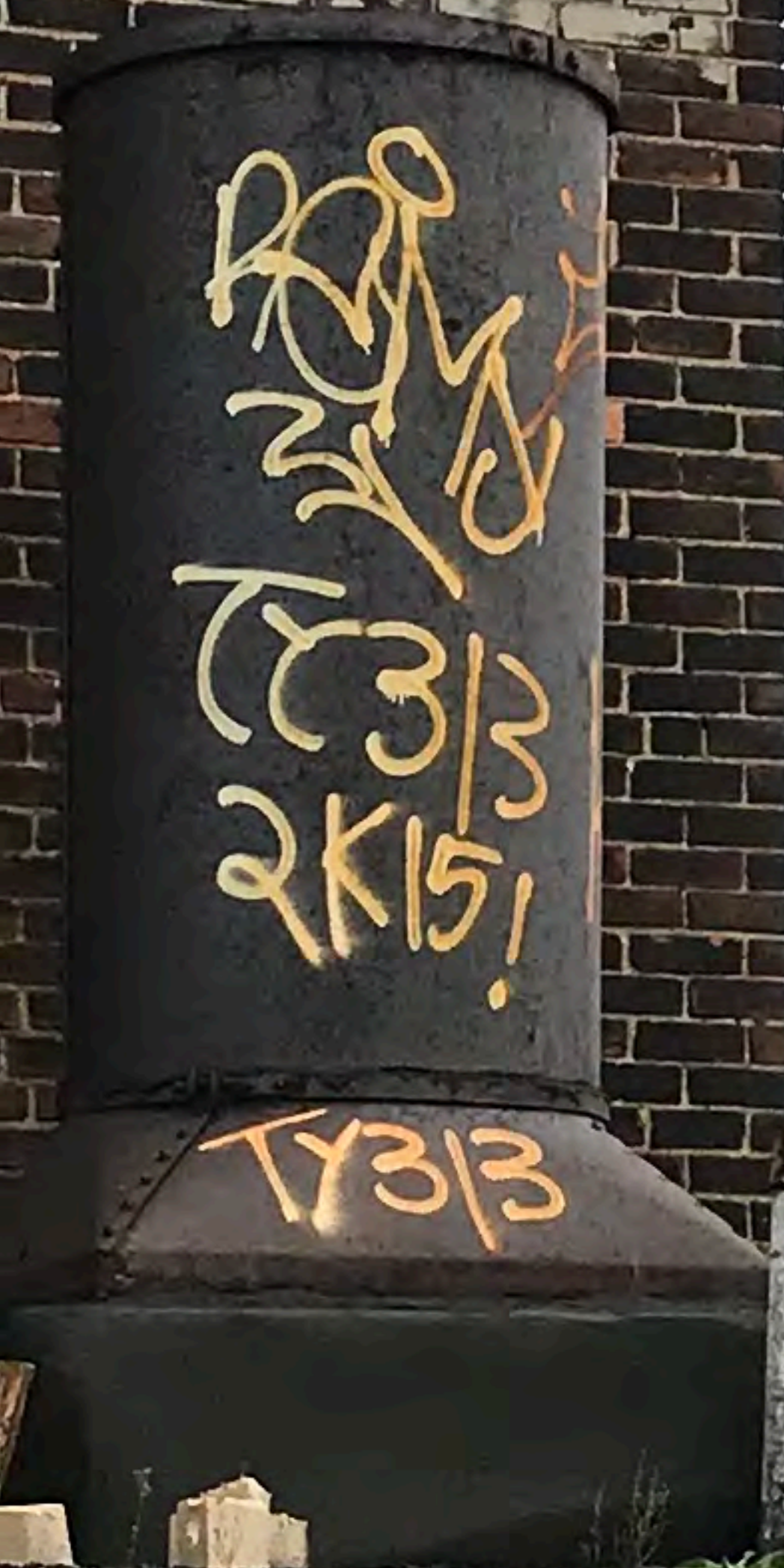
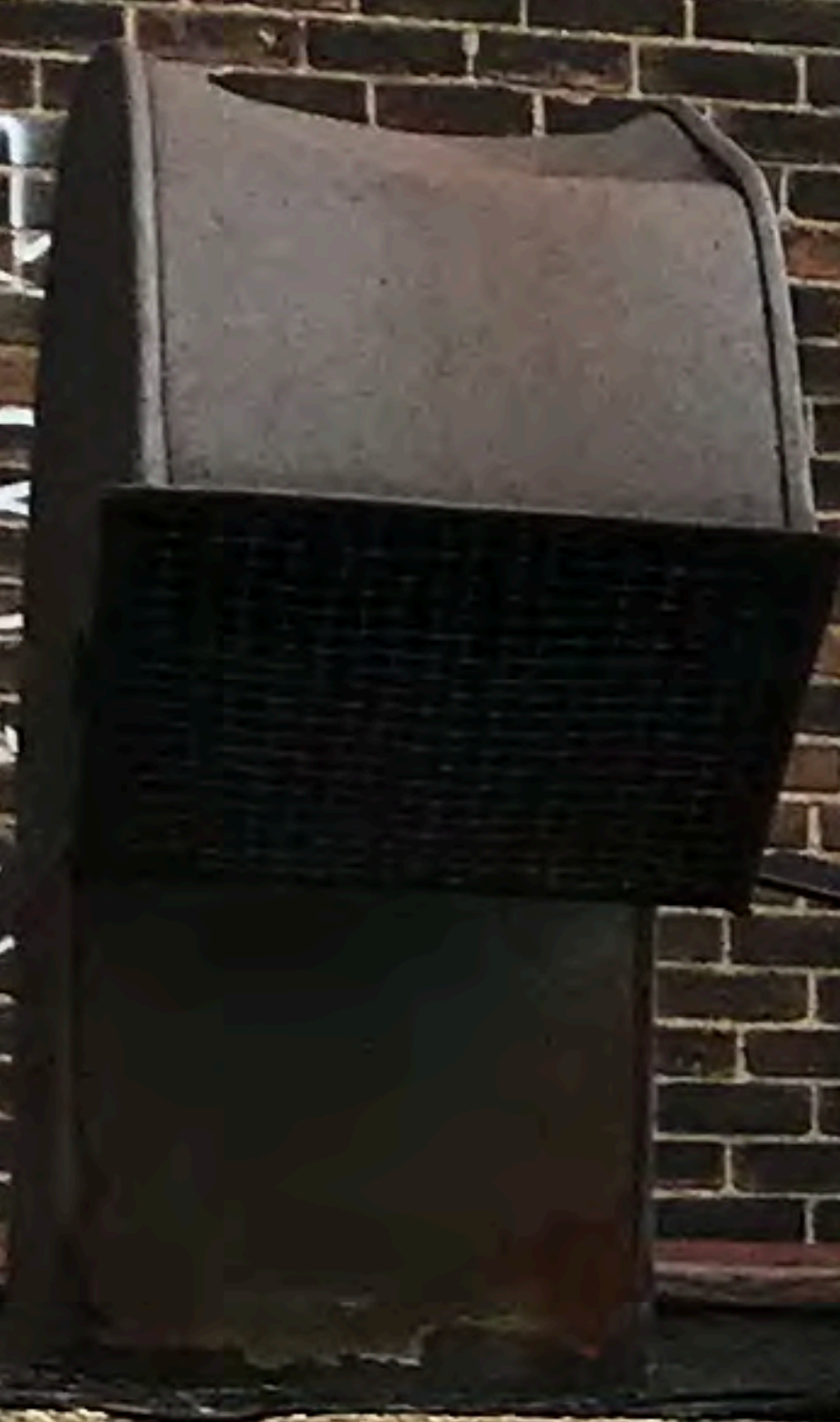
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IS  
HARD



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Interior View Steel Double-Hung: Side Rail and Bottom Rail



Interior View Steel Double-Hung: Head and Mullion



Exterior View of Large Radius Window with Decorative Rope Detail

















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NORTH ELEVATION  
SCALE: 1/8" = 1'-0"

EXTERIOR ELEVATION MATERIAL LEGEND

- 3/4 HR FIRE PROTECTIVE OPENING
- WATER CURTAIN
- CONCRETE MASONRY UNIT

RESTORATION GENERAL NOTES

- A. ALL ELEVATIONS SHALL UNDERGO COMPLETE BRICK, STONE, AND TERRA COTTA CLEANING FROM PARAPET TO GRADE. SEE MASONRY CLEANING SPECIFICATION SECTIONS FOR DETAILS ON APPROVED CLEANING PROCEDURES, PRODUCTS, AND MANUFACTURERS.
- B. CLEAN FACADE USING GENTLEST MEANS POSSIBLE TO ACHIEVE SATISFACTORY RESULTS WITHOUT CHANGING THE SURFACE OF THE MASONRY. PAY SPECIAL ATTENTION TO AREAS OF EXCESSIVE SOILING. CONTRACTOR SHALL CONDUCT TEST PATCHES TO ENSURE THE BEST AND MOST ECONOMICAL MEANS OF CLEANING. ALL MASONRY AND TERRA COTTA CLEANING SHALL MEET THE SECRETARY OF INTERIOR STANDARDS FOR REHABILITATION AS WELL AS ALL APPLICABLE NATIONAL PARK SERVICE TECHNICAL BRIEFS.
- C. CLEAN ALL STONE THAT IS TO REMAIN & LET WEATHER FOR TWO WEEKS BEFORE ANY REPLACEMENT OR PATCHING IS TO OCCUR - REPLACEMENT STONE & PATCHED AREAS TO MATCH EXIST 'CLEANED' COLOR.
- D. RESTORATION CONTRACTOR SHALL INSPECT ALL EXISTING MASONRY, INCLUDING BOTH SIDES OF PARAPET FULL HEIGHT, FOR STRUCTURAL STABILITY PRIOR TO BID. REINSPECT AFTER INITIAL CLEANING OF MASONRY.
- E. REPLACE/RESET LOOSE MASONRY UNITS AND REPOINT DAMAGED MORTAR JOINTS AS REQUIRED. IF NECESSARY, RECOMMEND FURTHER REHABILITATION TO ENSURE STABILITY OF EXTERIOR WALL AND PARAPET CONSTRUCTION. SEE MASONRY RESTORATION SPECIFICATIONS FOR DETAILS ON APPROVED RESTORATION PROCEDURES, PRODUCTS, AND MANUFACTURERS. ALL MASONRY RESTORATION WORK SHALL MEET THE SECRETARY OF INTERIOR STANDARDS FOR REHABILITATION AS WELL AS ALL APPLICABLE NATIONAL PARK SERVICE TECHNICAL BRIEFS.
- F. INSPECT ALL TERRA COTTA UNITS FOR DAMAGE, SPALLING OR CRAZING.
- G. WHERE TERRA COTTA GLAZING HAS SPALLED AND THE CLAY SUBSTRATE IS IN GOOD CONDITION, COAT RAW CLAY WITH APPROVED BREATHABLE SEALER TO MATCH COLOR OF EXISTING GLAZING.
- H. WHERE TERRA COTTA UNITS HAVE SPALLED SIGNIFICANTLY, PATCH DAMAGED AREAS WITH APPROVED MASONRY REPAIR MORTAR AS REQUIRED BY DEPTH OF DAMAGED AREA. COAT PATCHED AREA WITH APPROVED BREATHABLE SEALER TO MATCH COLOR OF EXISTING GLAZING.
- I. WHERE TERRA COTTA HAS DETERIORATED BEYOND REPAIR, REMOVE AFFECTED TERRA COTTA UNITS AND PROVIDE NEW TERRA COTTA UNITS TO MATCH EXISTING PROFILE, COLOR AND FINISH.
- J. SEE TERRA COTTA RESTORATION SPECIFICATIONS FOR APPROVED RESTORATION PROCEDURES, PRODUCTS, AND MANUFACTURERS. ALL TERRA COTTA RESTORATION WORK SHALL MEET THE SECRETARY OF INTERIOR STANDARDS FOR REHABILITATION AS WELL AS ALL APPLICABLE NATIONAL PARK SERVICE TECHNICAL BRIEFS.
- K. REMOVE MISC. ELECTRICAL BOXES, WIRING, CONDUIT.

CONSTRUCTION KEYNOTES (###)

- 200 NEW STOREFRONT ENTRANCE, ANNOXIDIZED BLACK ALUMINUM.
- 201 DASHED OUTLINE INDICATES BASEMENT BEYOND.
- 202 DUE TO REMOVAL PER UNSAFE CONDITIONS, RECONSTRUCT FIRE ESCAPE SECTIONS TO MATCH EXISTING. SEE STRUCTURAL.
- 203 REHAB FIRE ESCAPE TO MATCH EXISTING. SEE STRUCTURAL.
- 204 DUE TO REMOVAL PER UNSAFE CONDITIONS, RECONSTRUCT FIRE ESCAPE LADDER AND CAGE TO MATCH EXISTING. SEE STRUCTURAL.
- 205 DUE TO REMOVAL PER UNSAFE CONDITIONS, RECONSTRUCT PULL DOWN COUNTERBALANCED STAIR. SEE STRUCTURAL.
- 206 NEW ROOF DECK AND RAILING.
- 209 SHADED AREA INDICATES AREA OF BRICK INFILL. REMOVE AND REPLACE WITH MATCHING BRICK AND MORTAR.
- 210 SHADED AREA INDICATES AREA OF DAMAGED LIMESTONE. REMOVE, CAST NEW TO MATCH PROFILES, REPLACE.
- 212 ROPE MOLDING INDICATED BY DIAGONAL HATCH - REPAIR/REPLICATE AS REQUIRED BASED ON DETAIL 4/SHEET A322.
- 213 EYEBROW CROWN MOLDING - REPAIR/REPLICATE AS REQUIRED BASED ON DETAIL 4/SHEET A322.
- 214 EYEBROW BRACKET - REPLICATE BASED ON DETAIL 4/SHEET A322.
- 215 CANOPY BRACKET - REPLICATE BASED ON DETAIL 1/SHEET A321.
- 222 PROPOSED LOCATIONS OF NEW TENANT SIGNAGE, BASED ON HISTORIC SIGNAGE LOCATIONS.
- 223 NEW LOUVRE IN TRANSOM LOCATION.
- 224 HATCHED AREA INDICATES AREA OF CONCRETE MASONRY UNITS. REMOVE AND REPLACE WITH MATCHING BRICK AND MORTAR.
- 225 GRANITE BASE - REMOVE EXISTING AND REPLACE WITH NEW GRANITE.
- 226 SHADED AREA INDICATES AREA OF BRICK INFILL. REMOVE EXISTING WINDOW AND REPLACE WITH MATCHING BRICK AND MORTAR RECESSED ONE COURSE BASED ON DETAIL 8/SHEET A331.

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 2001-2017 PARK AVENUE  
 DETROIT, MI

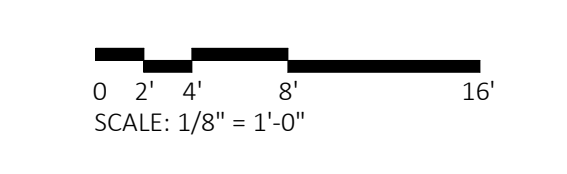
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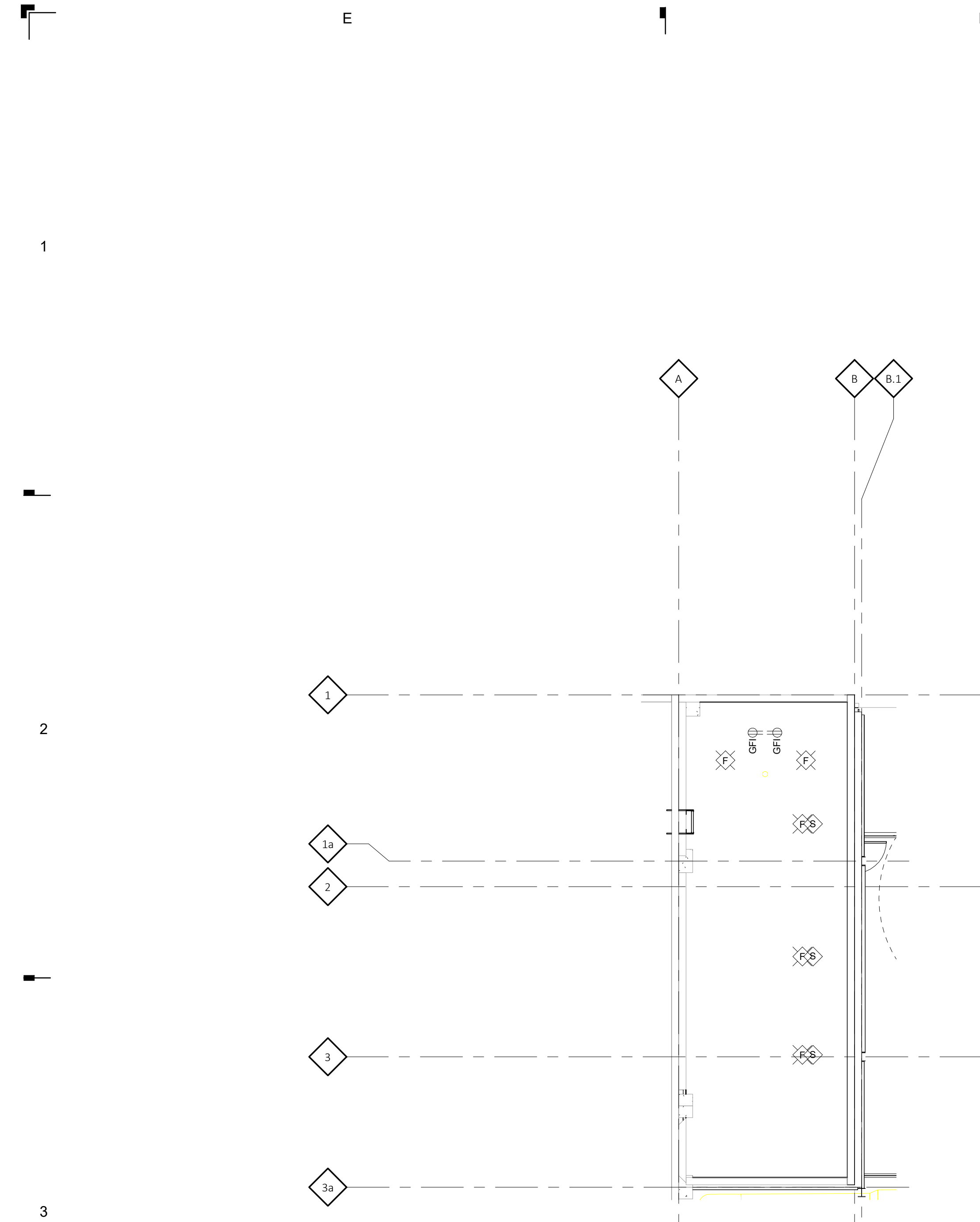
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DD OWNER REVIEW	09-12-19
SD OWNER REVIEW	10-19-18
Revision	Date
Date	
Project Number	2018063
Sheet Title	EXTERIOR ELEVATION - NORTH
Sheet Number	A204

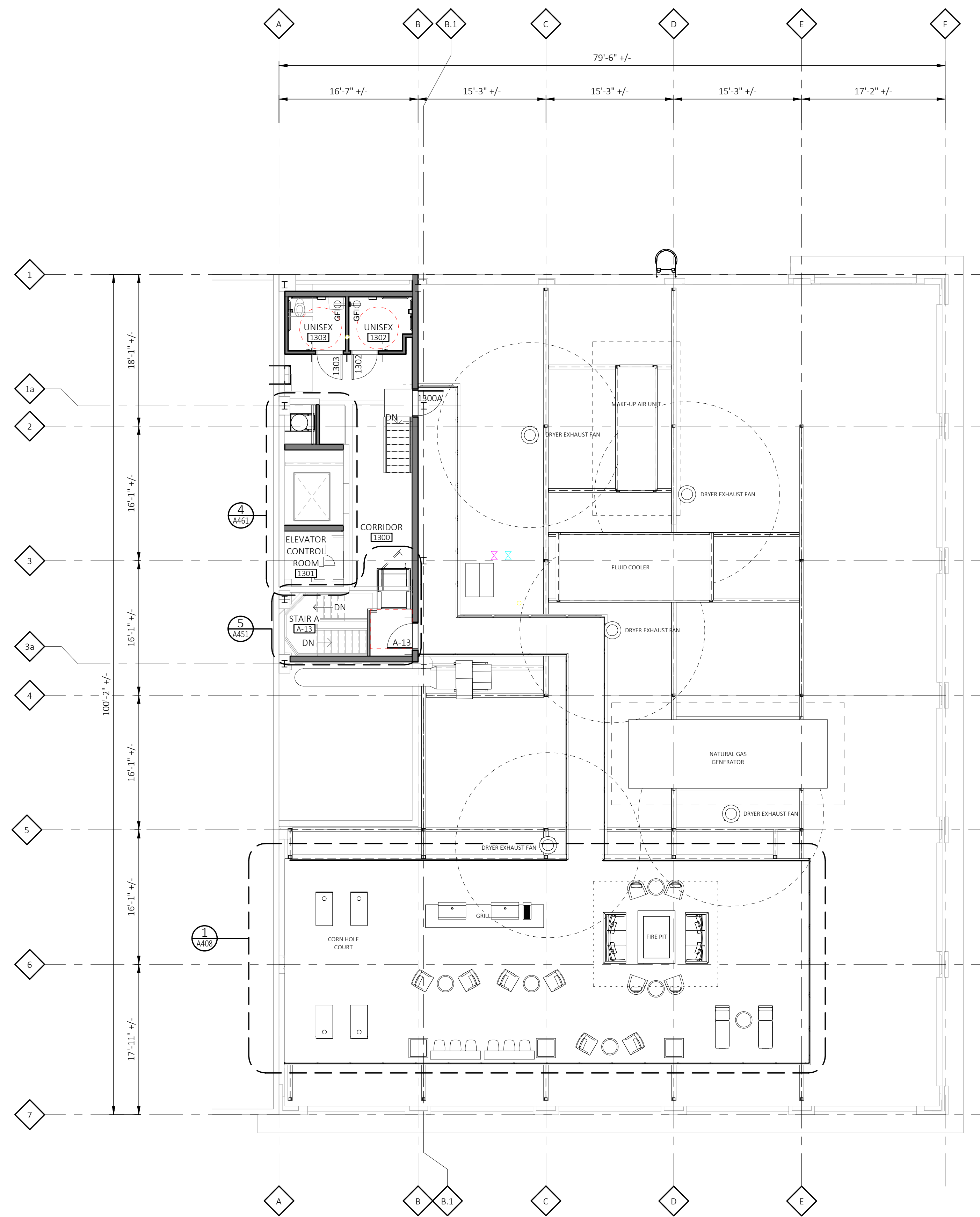








**PENTHOUSE ROOF**  
SCALE: 1/8" = 1'-0"



**ROOF AND PENTHOUSE PLAN**  
SCALE: 1/8" = 1'-0"

**GENERAL NOTES**

- A WHERE SLAB ON GRADE REMOVAL IS REQUIRED FOR UTILITY PLACEMENT REFER TO TYPICAL CONCRETE SLAB INFILL DETAIL ON SHEET A-1.
- B PATCH AND REPAIR WALLS AND FLOOR TO ENSURE EVEN SURFACE TO RECEIVE FINISH MATERIAL. COORDINATE WITH ROOM FINISH AND COLOR SCHEDULE.
- C FIRESTOPPING: PROVIDE FIRESTOPPING ASSEMBLIES AT ALL PENETRATIONS AND INTERRUPTIONS TO FIRE RATED ASSEMBLIES WHICH PROVIDE THE SPECIFIED FIRE RATING OR PARTITION OR FLOOR. SEE SPECIFICATIONS.
- D FIRE RATED PARTITIONS SHALL BE CONTINUOUS FROM FLOOR TO STRUCTURE ABOVE AND SHALL BE FIRE STOPPED TIGHTLY TO STRUCTURE PER CODE (U.L. SYSTEM).
- E WHERE NEW GYPSUM BOARD PARTITIONS ARE A CONTINUATION OF AN EXISTING PARTITION OR COLUMN ENCASEMENT, THE FACE OF THE NEW GYPSUM BOARD SHALL BE ALIGNED WITH THE FACE OF THE EXISTING SURFACE. WHERE A NEW GYPSUM BOARD PARTITION IS SHOWN INTERSECTING A COLUMN ENCASEMENT THE CENTERLINE OF THE WALL SHALL BE CENTERED ON THE COLUMN ENCASEMENT.
- F WHERE NEW OR INFILL PARTITION ABUTS EXISTING PARTITION, FACE OF PARTITIONS SHALL ALIGN, UNLESS NOTED OTHERWISE.
- G PARTITIONS WITH EXISTING FRAMING MAY REQUIRE REWORK TO ACCOMMODATE NEW OPENINGS, ETC.
- H WHERE NEW FINISHES ARE SPECIFIED ON THE FINISH PLAN REMOVE ALL EXISTING FINISHES - PATCH AND REPAIR WALLS AND FLOOR - PREPARE THEM TO ACCEPT NEW SCHEDULED FINISH PER MANUFACTURER'S INSTRUCTIONS. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- I LOCATE DOOR FRAMES 6" FROM INSIDE CORNER TO DOOR OPENING, UNLESS NOTED OTHERWISE.
- J ALL INTERIOR GLAZING INCL. DOORS, SIDELITES, & BORROWED LITES SHALL BE CLEAR LAMINATED SAFETY GLASS OR CLEAR TEMPERED SAFETY GLAZING. UNLESS NOTED OTHERWISE.
- K CONTRACTOR SHALL PROVIDE AND INSTALL CORNER GUARDS (CG) AS IDENTIFIED ON PLANS. CG SHALL BE FULL HEIGHT FROM TOP OF BASE TO CEILING. TYP. EXCEPT AT WWC - INSTALL FROM TOP OF WWC TO CLG.
- L SEMI-RECESSED FIRE EXTINGUISHER (FE) - REFER TO SHEET A501 FOR TYPICAL DETAILS. FINAL LOCATION OF FIRE EXTINGUISHERS SHALL BE REVIEWED IN FIELD WITH BUILDING OFFICIAL PRIOR TO INSTALLATION ROUGH-IN.
- M RECESSED ITEMS (GREATER THAN 16 SQ. IN.) IN RATED AND/OR SMOKE WALLS, INCLUDING ELEC PANELS, ELEC DUCTS, MED GAS VALVE BOXES, FIRE EXT CABINETS, ETC. SHALL BE BACKED WITH 5/8" TYPE 'X' GYPSUM BOARD TO MAINTAIN RATING FIRE WALL.
- N TELEPHONE AND ELECTRICAL PANEL BOARDS: PROVIDE AND INSTALL 4' X 8' X 3/4" THICK, PLYWOOD, FIRE RETARDANT TREATED.

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Revision \_\_\_\_\_ Date \_\_\_\_\_

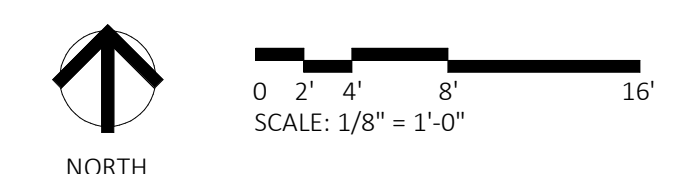
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Project Number 2018063

Sheet Title  
**ROOF AND  
PENTHOUSE PLAN**

Sheet Number

**A110**

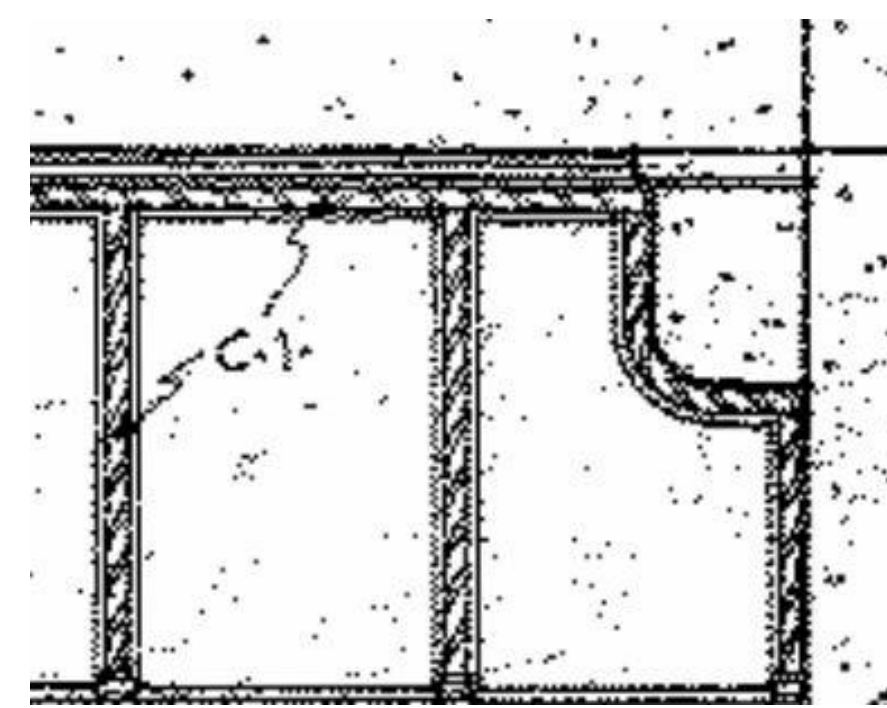






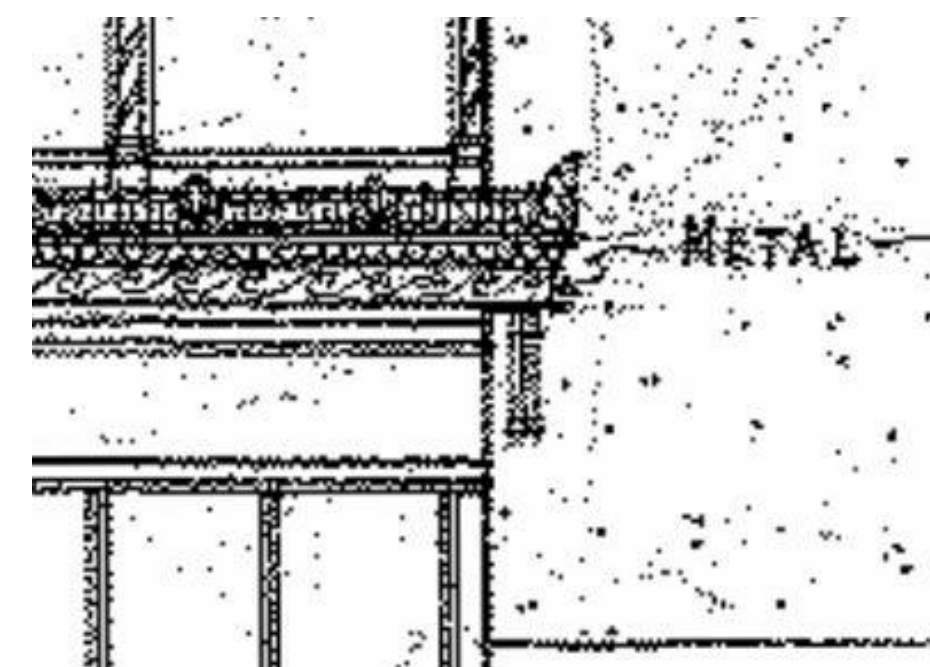


RESTORATION TRIM PROFILES



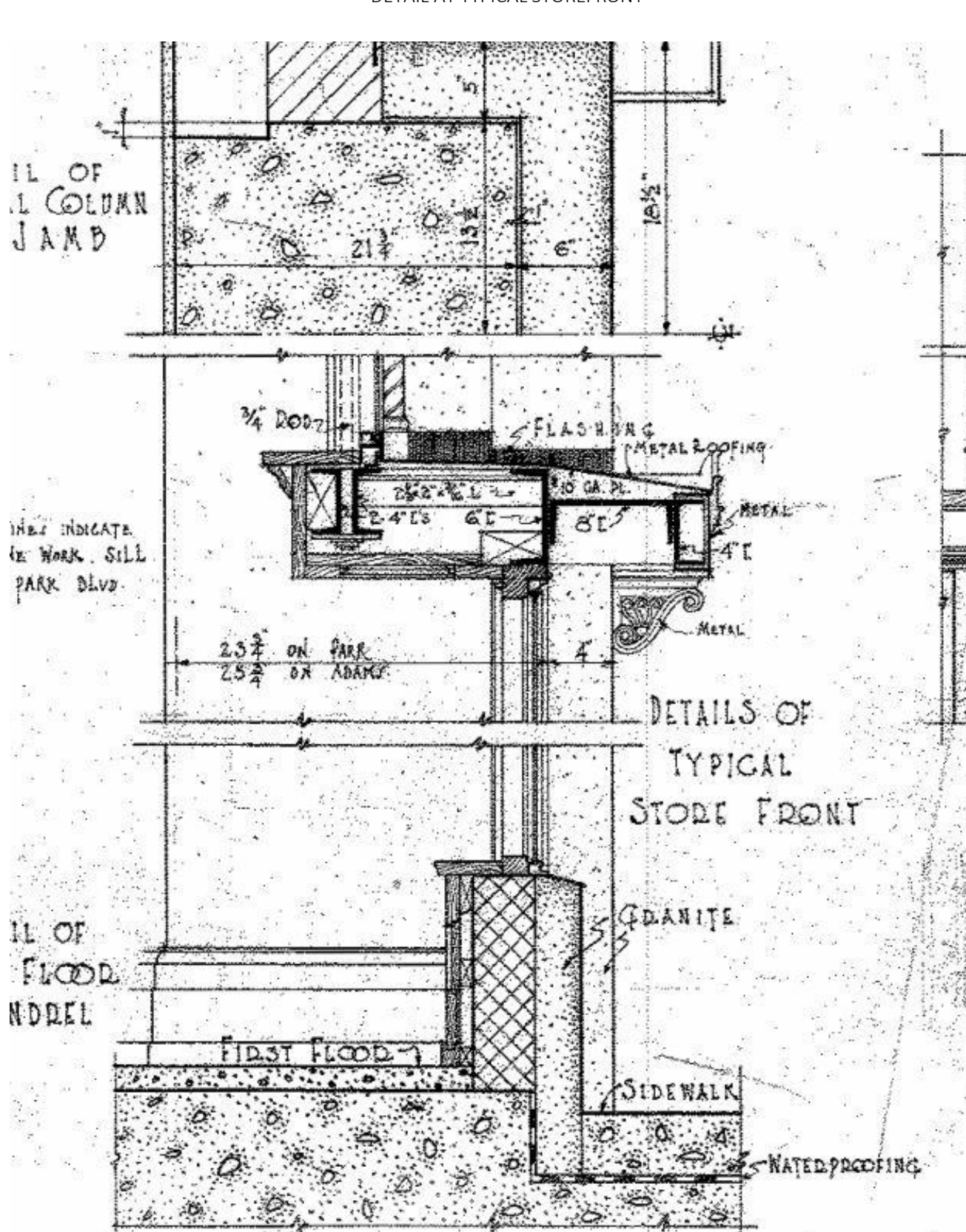
A

1 3/4" X 3/4" TWISTED RECTANGULAR BAR - REMOVE, REHABILITATE, AND REPAIR AS REQUIRED. SCRAPE CLEAN OF PAINT AND PREPARE FOR NEW PAINTED FINISH. REINSTALL ON NEW STOREFRONT SYSTEM. PROVIDE NEW CAST REPLICA TO MATCH EXIST IN AREAS WHERE DAMAGED BEYOND REPAIR OR MISSING. PROVIDE VISUALLY SEAMLESS TRANSITIONS BETWEEN NEW AND REHABILITATED MATERIALS.



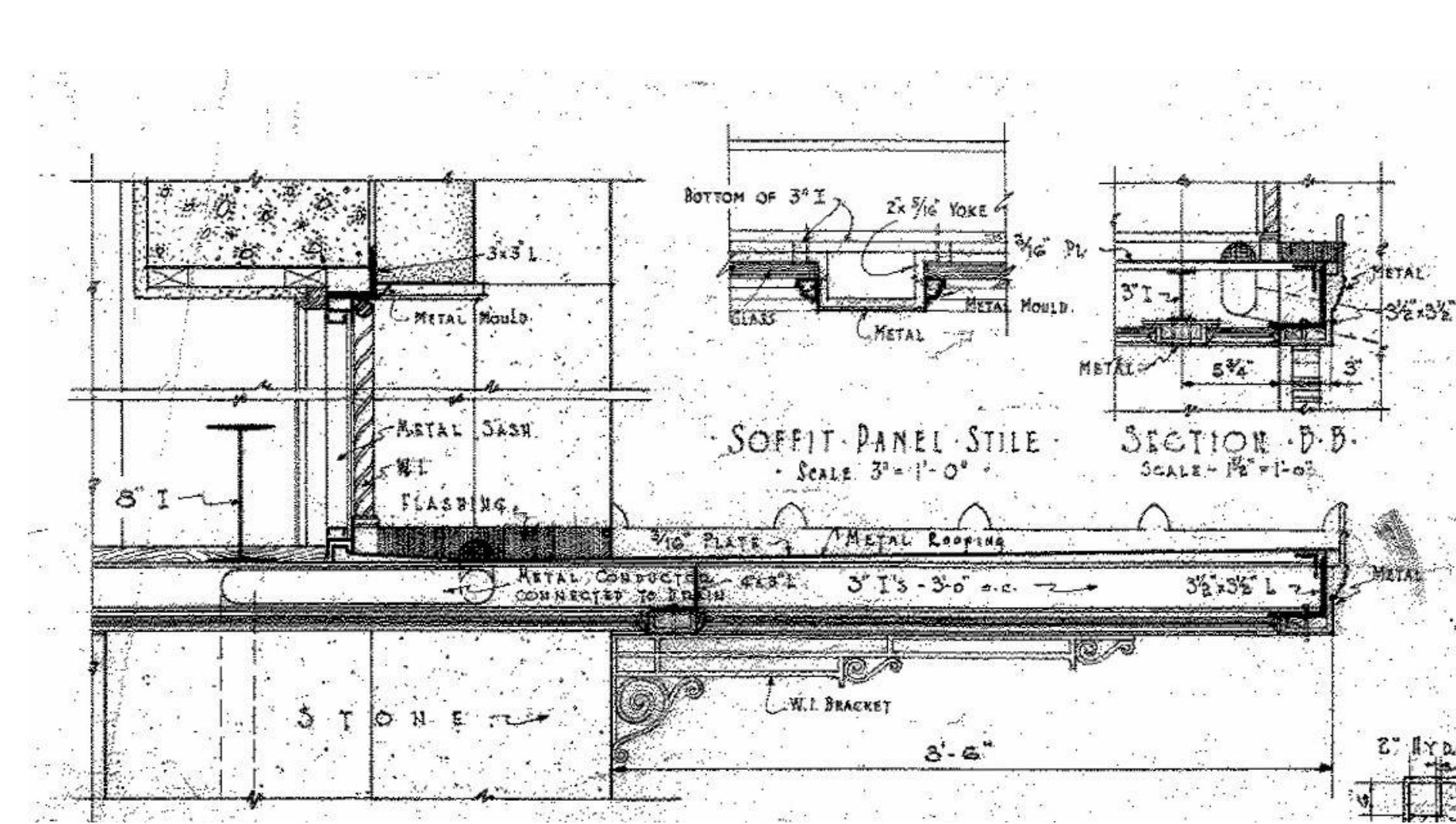
B

EBROW CROWN MOLDING - SALVAGE WHERE POSSIBLE. SCRAPE CLEAN OF PAINT, AND USE TO CAST NEW REPLICA EYEBROW CRWON MOLDING TO BE REINSTALLED ON NEW STOREFRONT SYSTEM. PROVIDE SLOPE AT CANOPY TO ALLOW FOR DRAINAGE.



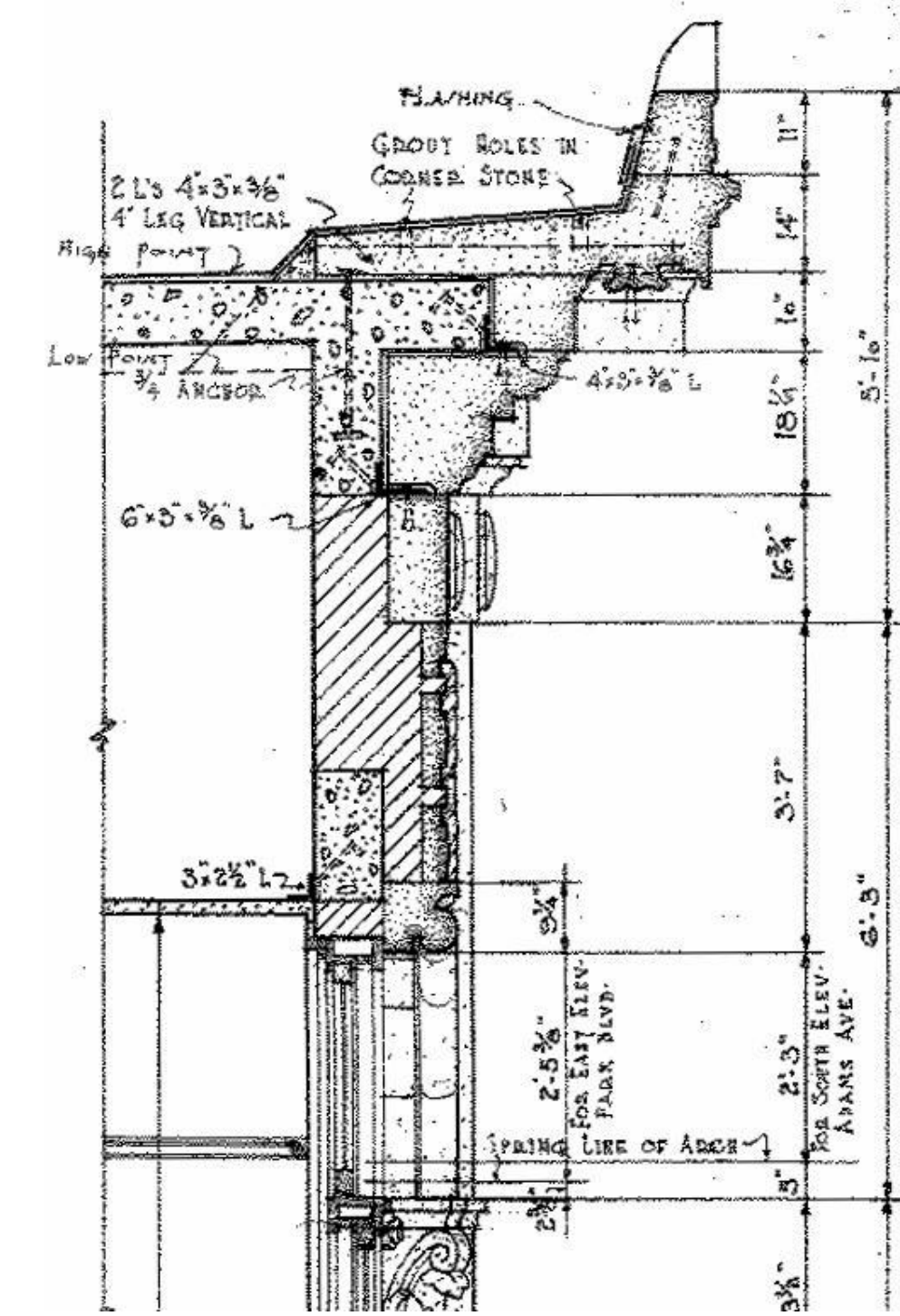
C

EBROWY BRACKET - SALVAGE WHERE POSSIBLE. SCRAPE CLEAN OF PAINT, AND USE TO CAST NEW REPLICA EYEBROW BRACKET TO BE REINSTALLED ON NEW STOREFRONT SYSTEM.



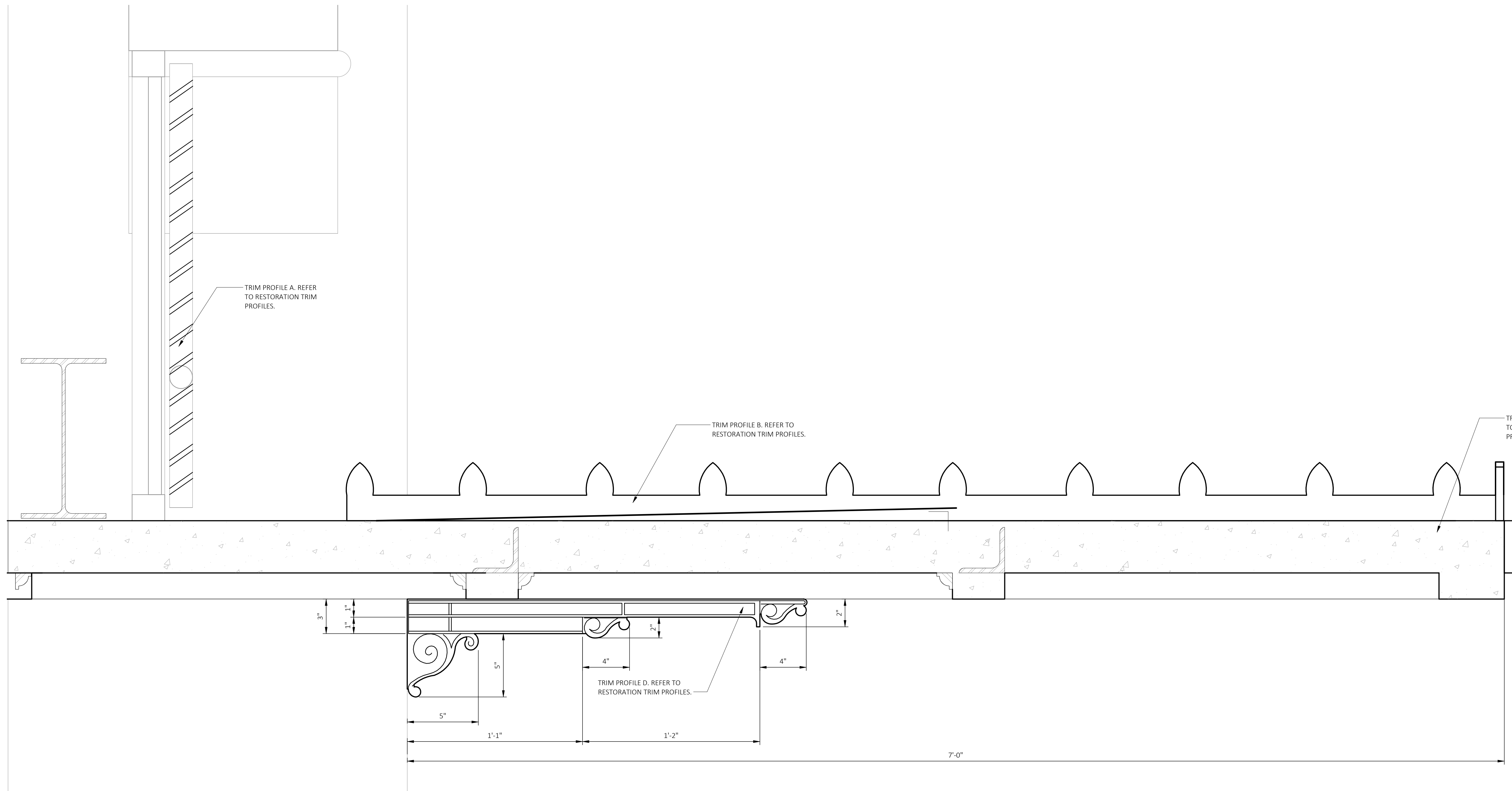
D

CANOPY BRACKET - NO ORIGINAL EYEBROW CREST REMAINS. REPLICATE NEW BRACKET BASED ON HISTORIC DRAWINGS.

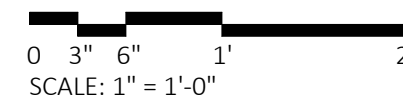


E

CORNICE - SALVAGE WHERE POSSIBLE.



1 CANOPY DETAIL  
SCALE: 3" = 1'-0"  
REFERENCE LOCATIONS: A311



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Revision Date

Date

Project Number 2018063

Sheet Title  
WALL SECTION  
DETAILS

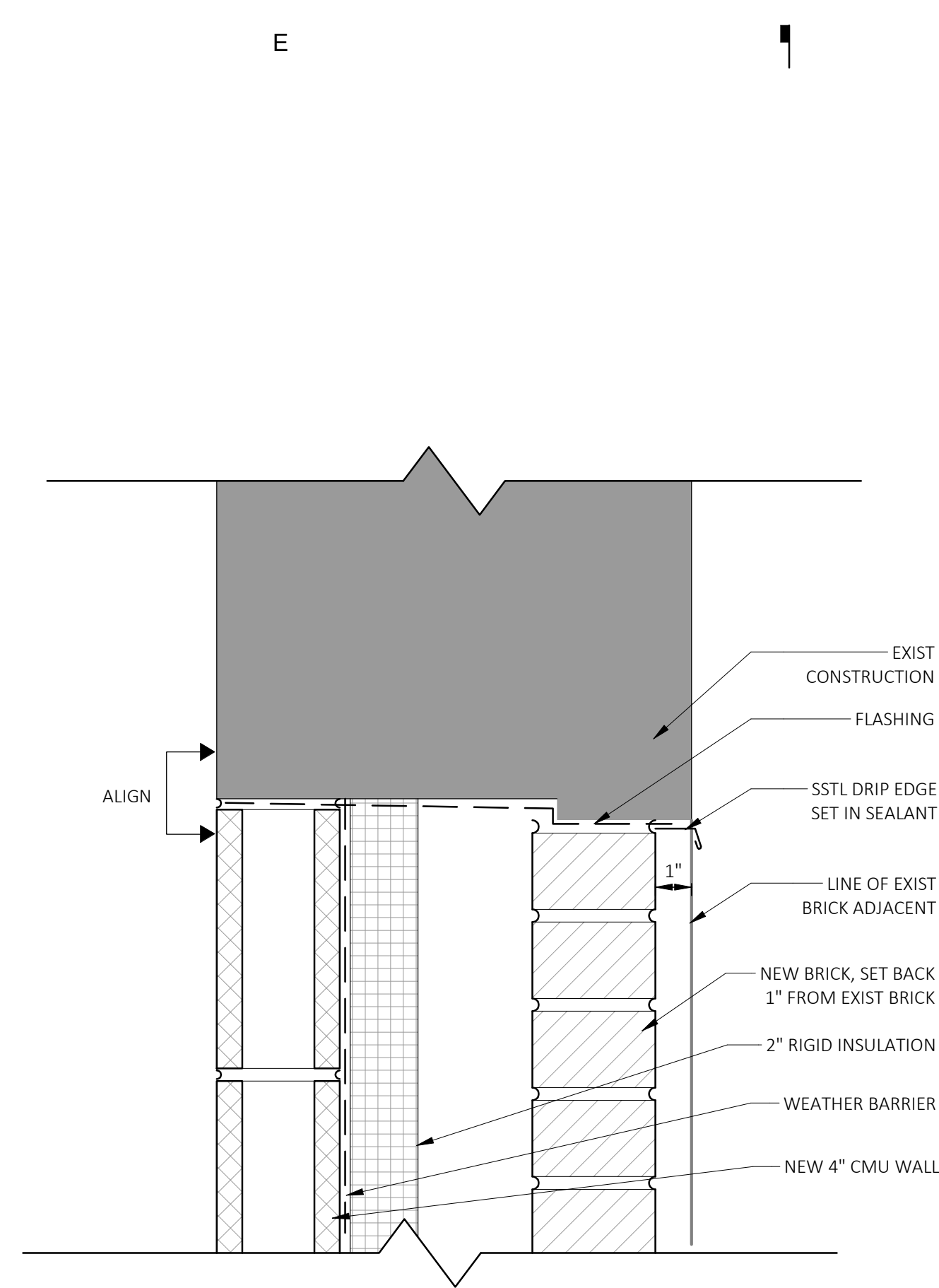
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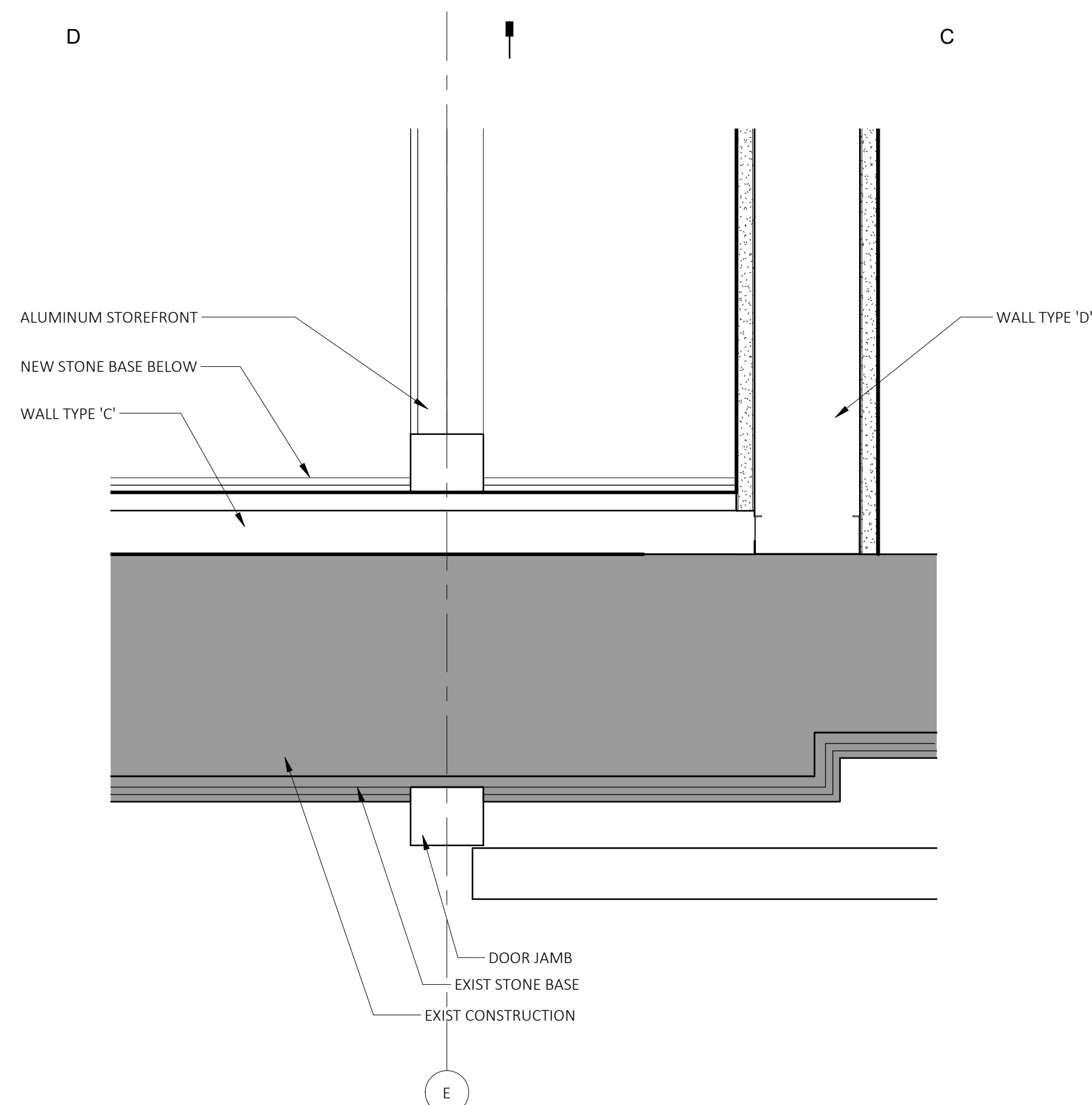
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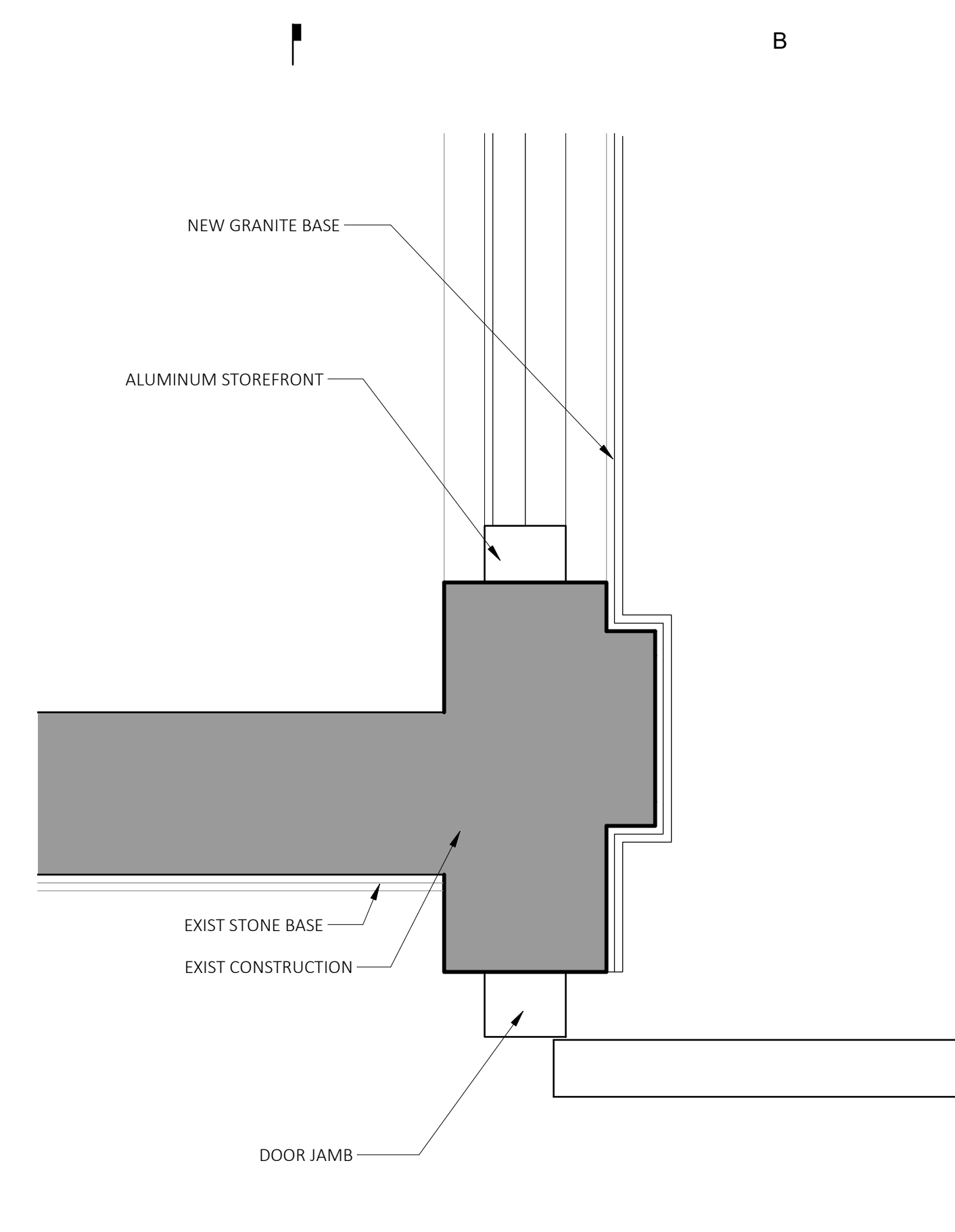
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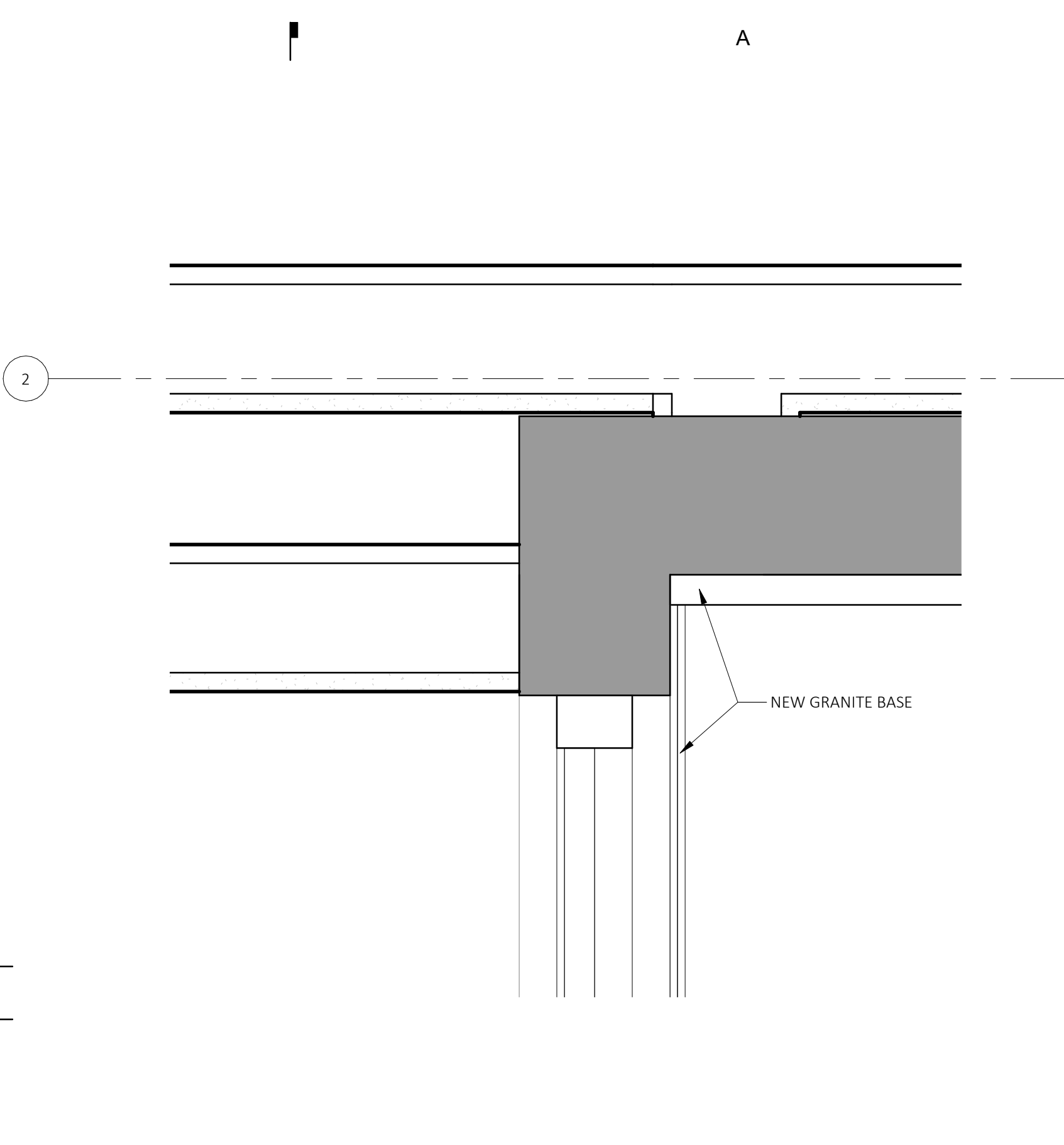
8 TYP HEAD @ WINDOW INFILL  
A331 SCALE: 3" = 1'-0"  
REFERENCE LOCATIONS: A204



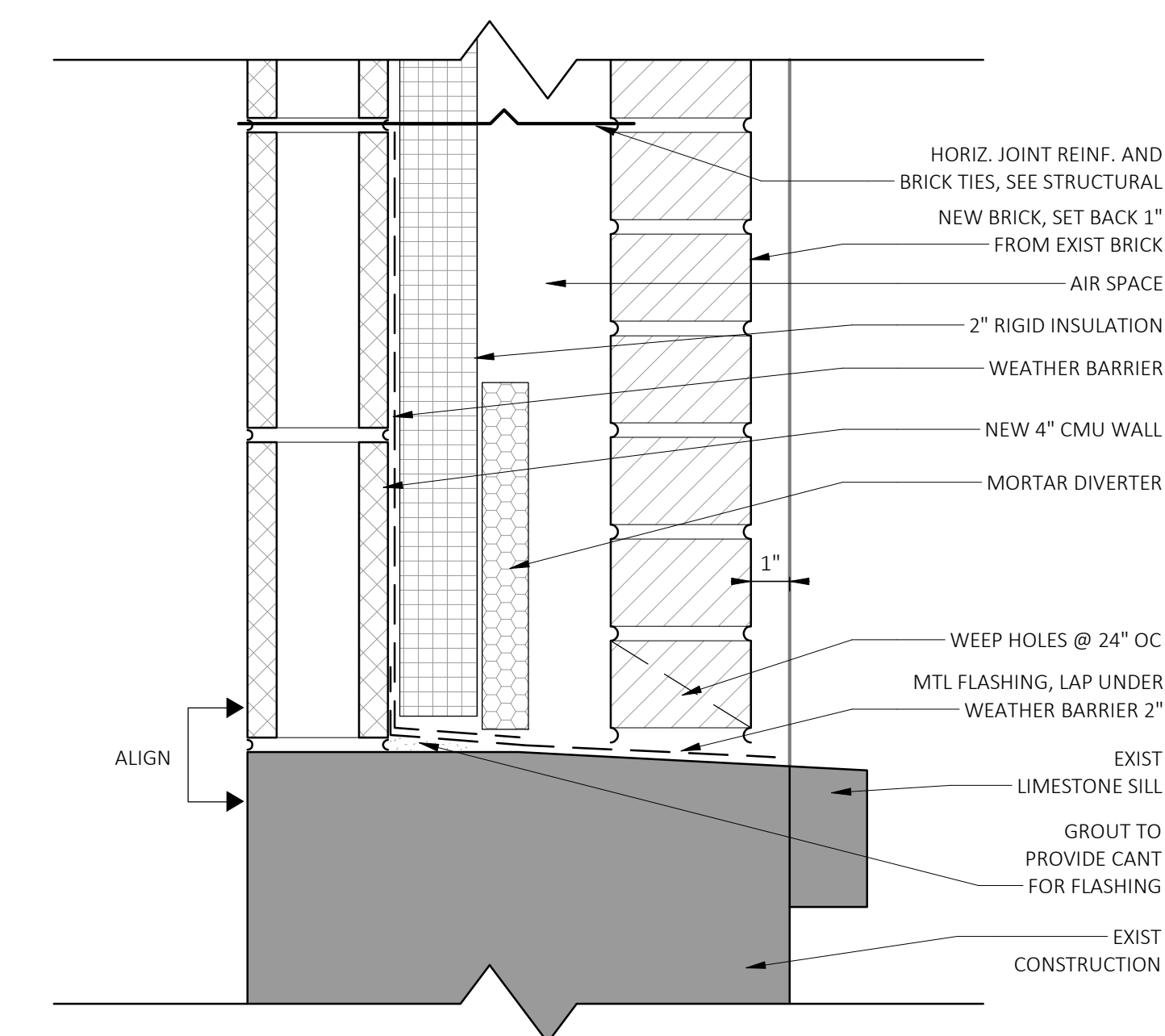
6 VESTIBULE STOREFRONT AT JAMB 01  
A331 SCALE: 3" = 1'-0"  
REFERENCE LOCATIONS: A401



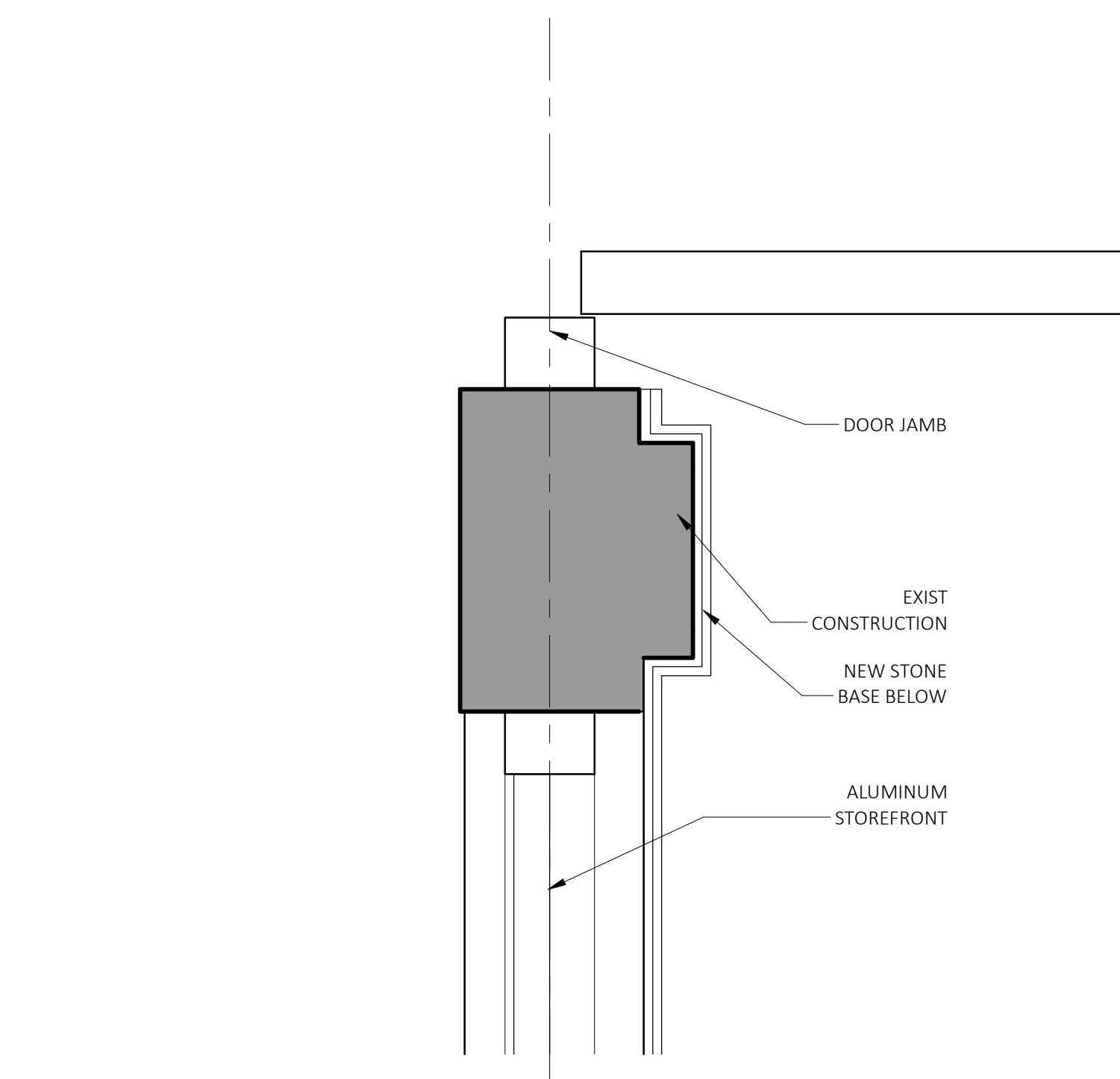
3 EXTERIOR STOREFRONT AT JAMB 01  
A331 SCALE: 3" = 1'-0"  
REFERENCE LOCATIONS: A401



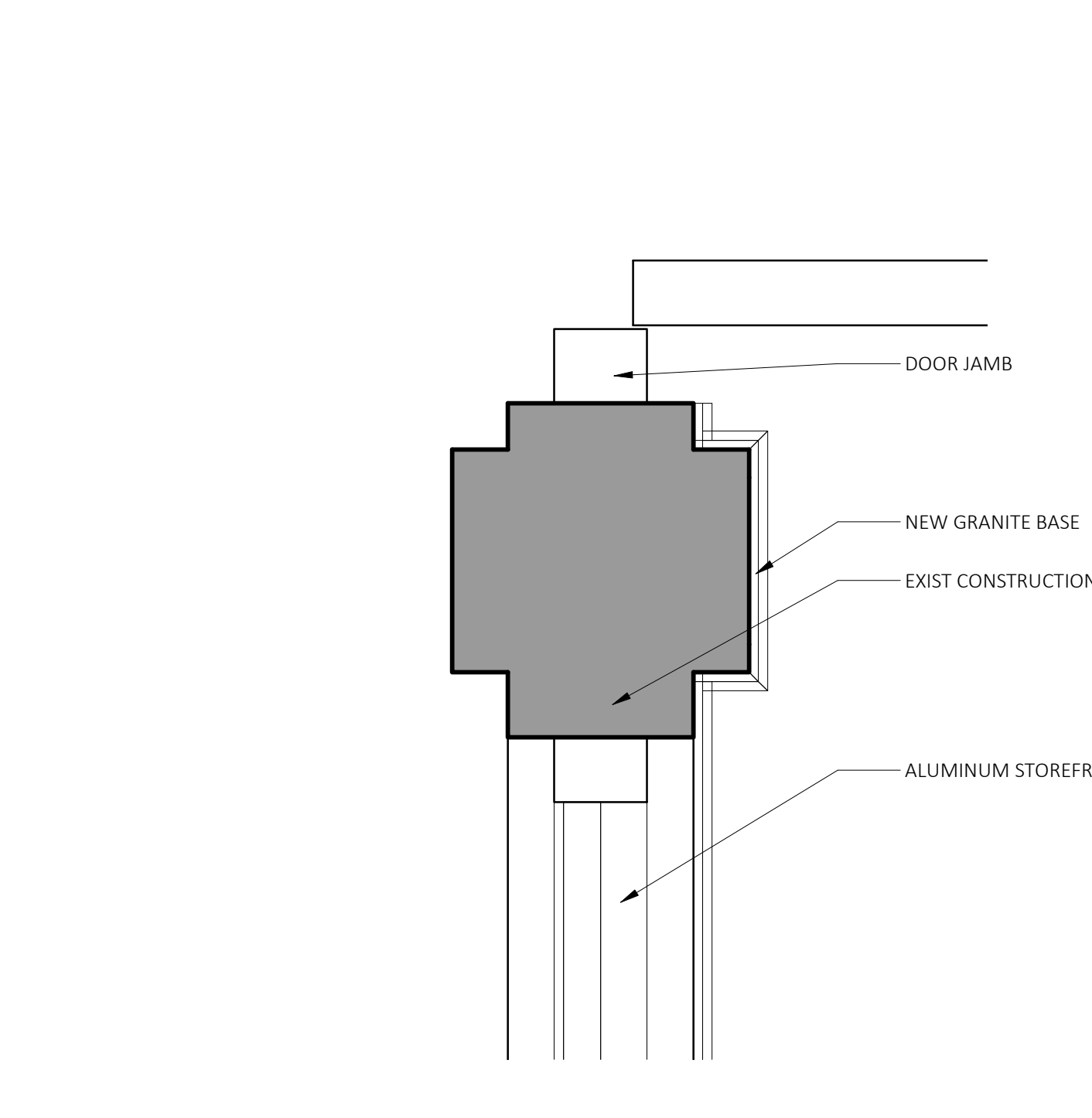
1 STOREFRONT AT JAMB 01  
A331 SCALE: 3" = 1'-0"  
REFERENCE LOCATIONS: A401



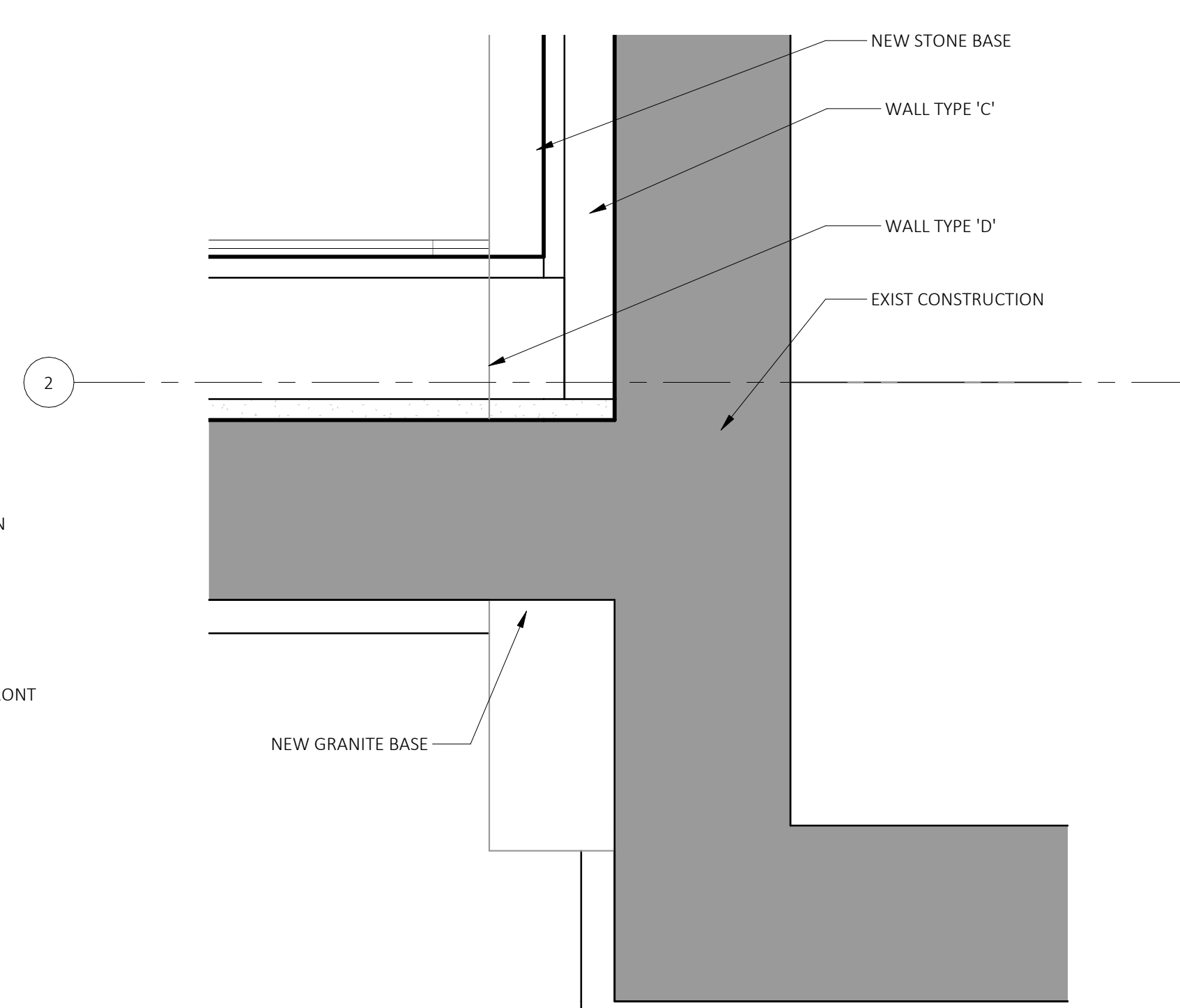
9 TYP SILL @ WINDOW INFILL  
A331 SCALE: 3" = 1'-0"  
REFERENCE LOCATIONS: A204



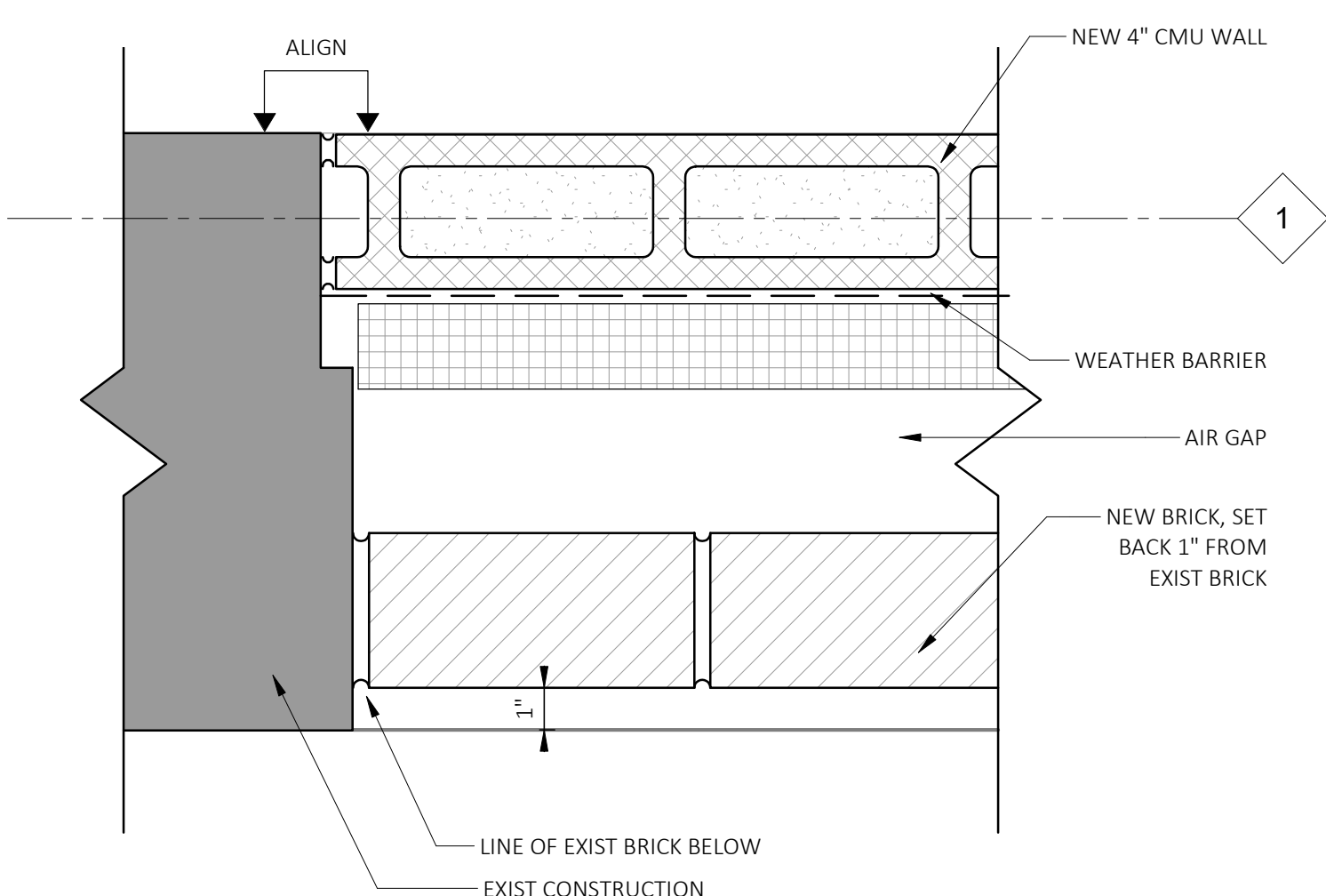
7 VESTIBULE STOREFRONT AT JAMB 02  
A331 SCALE: 3" = 1'-0"  
REFERENCE LOCATIONS: A401



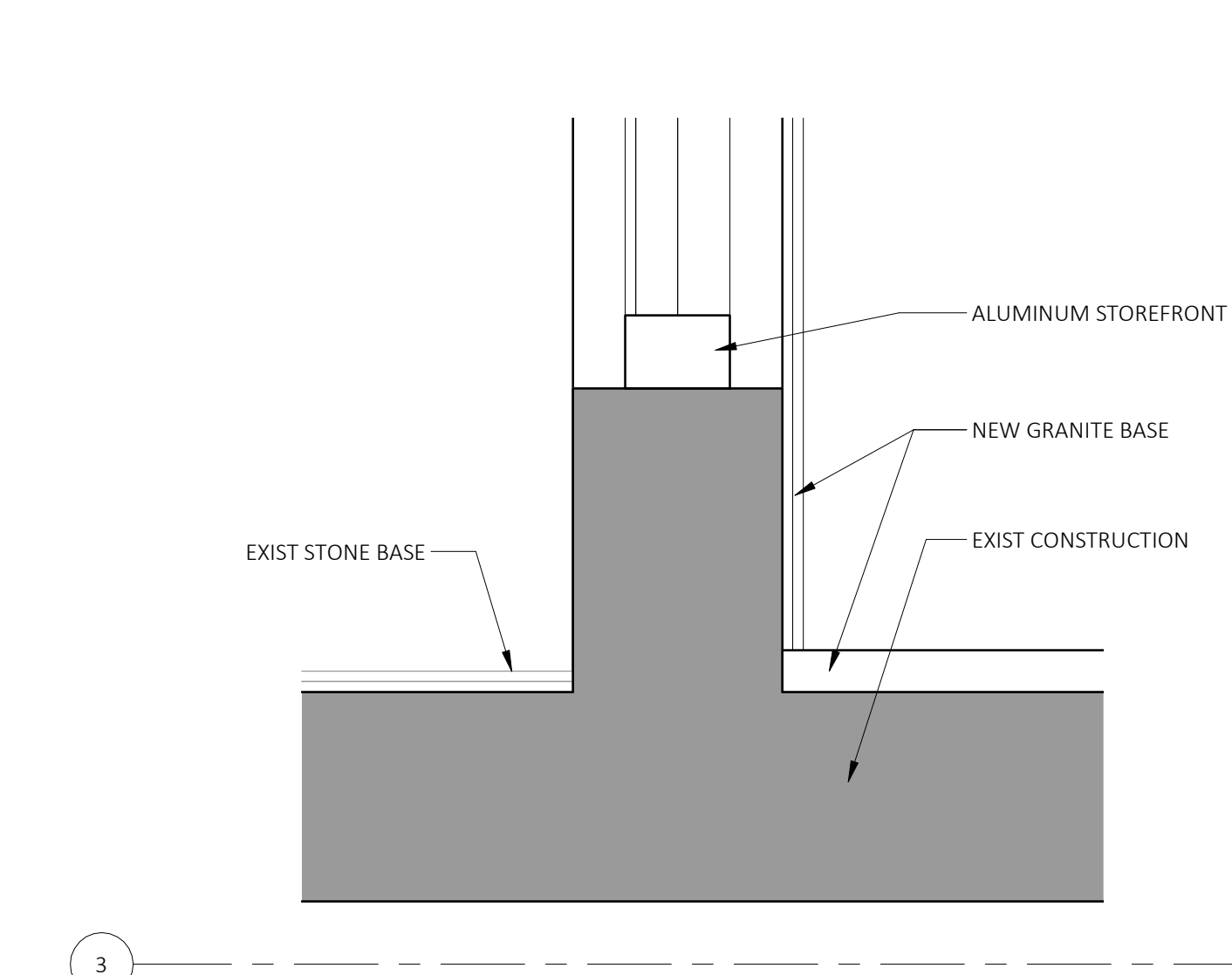
4 EXTERIOR STOREFRONT AT JAMB 02  
A331 SCALE: 3" = 1'-0"  
REFERENCE LOCATIONS: A401



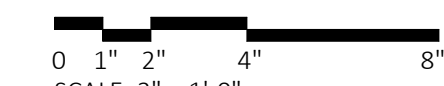
2 STOREFRONT COLUMN  
A331 SCALE: 3" = 1'-0"  
REFERENCE LOCATIONS: A401



10 TYP JAMB @ WINDOW INFILL  
A331 SCALE: 3" = 1'-0"  
REFERENCE LOCATIONS: A402



5 STOREFRONT AT JAMB 02  
A331 SCALE: 3" = 1'-0"  
REFERENCE LOCATIONS: A401



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NOVI, MI 48375

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Owner

---

PARK AVENUE BUILDING  
2001-2017 PARK AVENUE  
DETROIT, MI

---

Project

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DD OWNER REVIEW	09-12-19
Revision	Date
Project Number	2018063
Sheet Title	EXTERIOR DETAILS
Sheet Number	A331



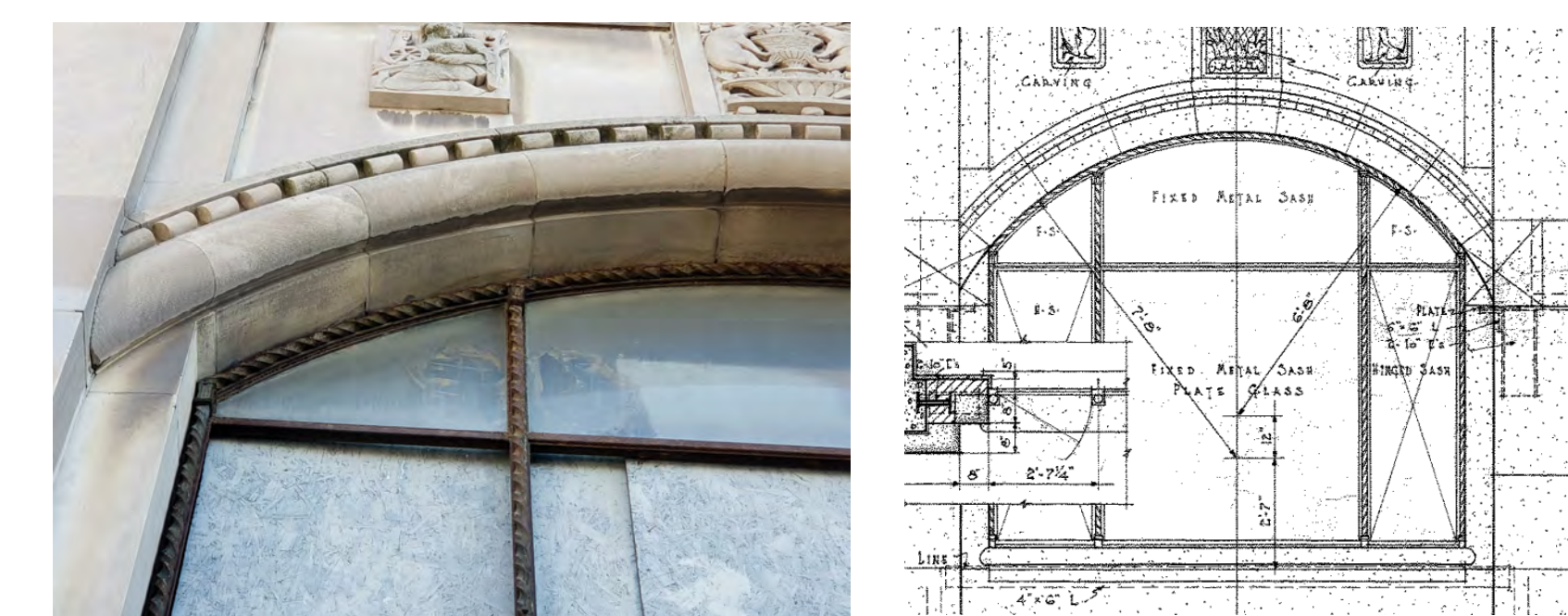
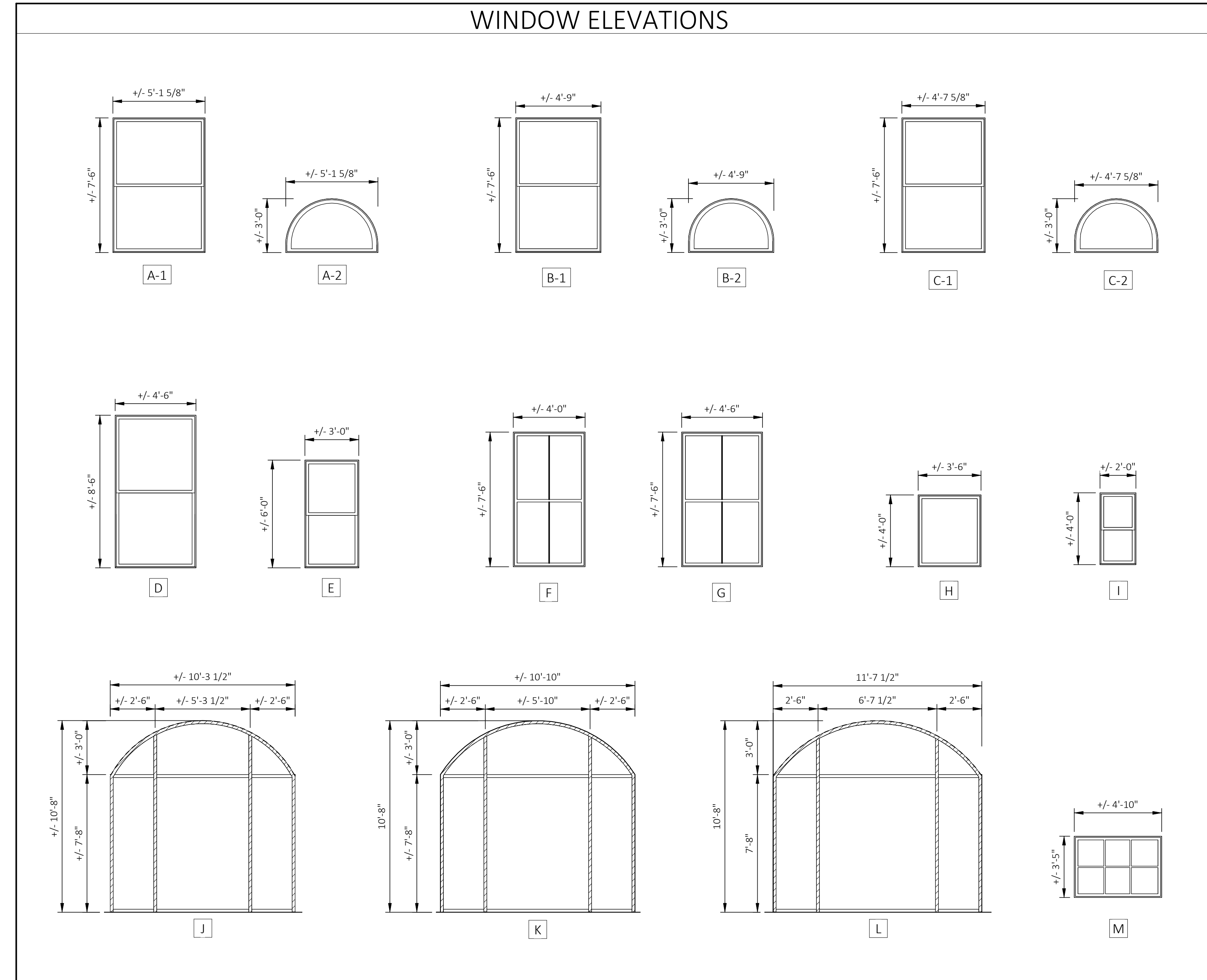


### GENERAL NOTES

- 1 WINDOWS TO HAVE OPERABLE SASHES. PROVIDE RESTRICTORS FOR ALL WINDOWS, ALLOW 4" OPENING ON WINDOWS AT FLOORS 3 - 14 AND 0" OPENING (FULL LENGTH RESTRICTORS) ON WINDOWS AT FLOORS 2 AND 3.
- 2 PROVIDE IN-GLASS SPACERS AT ALL MUNTINS.
- 3 WINDOW TYPE B TO HAVE ARCHED TOP FRAME, GLASS PANE TO FOLLOW CURVE.

### A600 - WINDOW SCHEDULE

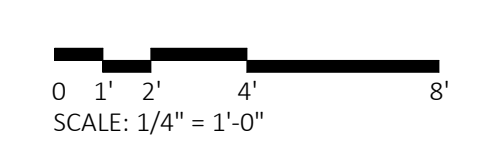
MARK	HEIGHT	WIDTH	FRAME MATL INT	FRAME MATL EXT	FINISH INT	GLASS TYPE	COMMENTS
A-1	7'-6"	5'-1 5/8"	BLACK ANODIZED ALUMINUM	BLACK ANODIZED ALUMINUM	BLACK ANODIZED ALUMINUM		
A-2	3'-0"	5'-1 5/8"	BLACK ANODIZED ALUMINUM	BLACK ANODIZED ALUMINUM	BLACK ANODIZED ALUMINUM		
B-1	7'-6"	4'-9"	BLACK ANODIZED ALUMINUM	BLACK ANODIZED ALUMINUM	BLACK ANODIZED ALUMINUM		
B-2	3'-0"	4'-9"	BLACK ANODIZED ALUMINUM	BLACK ANODIZED ALUMINUM	BLACK ANODIZED ALUMINUM		
C-1	7'-6"	4'-7 5/8"	BLACK ANODIZED ALUMINUM	BLACK ANODIZED ALUMINUM	BLACK ANODIZED ALUMINUM		
C-2	3'-0"	4'-7 5/8"	BLACK ANODIZED ALUMINUM	BLACK ANODIZED ALUMINUM	BLACK ANODIZED ALUMINUM		
C-2	3'-0"	4'-6"	BLACK ANODIZED ALUMINUM	BLACK ANODIZED ALUMINUM	BLACK ANODIZED ALUMINUM		
D	8'-6"	4'-6"	BLACK ANODIZED ALUMINUM	BLACK ANODIZED ALUMINUM	BLACK ANODIZED ALUMINUM		
E	6'-0"	3'-0"	BLACK ANODIZED ALUMINUM	BLACK ANODIZED ALUMINUM	BLACK ANODIZED ALUMINUM		
F	7'-6"	4'-0"	BLACK ANODIZED ALUMINUM	BLACK ANODIZED ALUMINUM	BLACK ANODIZED ALUMINUM		
G	7'-6"	4'-6"	BLACK ANODIZED ALUMINUM	BLACK ANODIZED ALUMINUM	BLACK ANODIZED ALUMINUM		
J			BLACK ANODIZED ALUMINUM	BLACK ANODIZED ALUMINUM	BLACK ANODIZED ALUMINUM		RESTORE CAST ORNAMENTAL BRAIDING TRIM AND ATTACH TO NEW WINDOW SYSTEM
K			BLACK ANODIZED ALUMINUM	BLACK ANODIZED ALUMINUM	BLACK ANODIZED ALUMINUM		RESTORE CAST ORNAMENTAL BRAIDING TRIM AND ATTACH TO NEW WINDOW SYSTEM
L			BLACK ANODIZED ALUMINUM	BLACK ANODIZED ALUMINUM	BLACK ANODIZED ALUMINUM		RESTORE CAST ORNAMENTAL BRAIDING TRIM AND ATTACH TO NEW WINDOW SYSTEM
M	3'-5"	4'-10 3/8"	BLACK ANODIZED ALUMINUM	BLACK ANODIZED ALUMINUM	BLACK ANODIZED ALUMINUM		



**CAST ORNAMENTAL BRAIDING TRIM ON WINDOWS J-L**

SCALE: 1" = 1'-0"

BID ALT NO. 2:  
WINDOWS



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DD OWNER REVIEW 09-12-19

Revision \_\_\_\_\_ Date \_\_\_\_\_

Date \_\_\_\_\_

Project Number 2018063

Sheet Title  
**WINDOW  
ELEVATIONS AND  
SCHEDULE**

Sheet Number \_\_\_\_\_

**A621**







# HISTORIC DISTRICT COMMISSION PROJECT REVIEW REQUEST

CITY OF DETROIT  
PLANNING & DEVELOPMENT DEPARTMENT  
2 WOODWARD AVENUE, ROOM 808, DETROIT, MI 48226

DATE: \_\_\_\_\_

## PROPERTY INFORMATION

ADDRESS: \_\_\_\_\_ AKA: \_\_\_\_\_

HISTORIC DISTRICT: \_\_\_\_\_

## APPLICANT IDENTIFICATION

Property  
Owner/  
Homeowner

Contractor

Tenant or  
Business  
Occupant

Architect/  
Engineer/  
Consultant

NAME: \_\_\_\_\_ COMPANY NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_ CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

PHONE: \_\_\_\_\_ MOBILE: \_\_\_\_\_ EMAIL: \_\_\_\_\_

## PROJECT REVIEW REQUEST CHECKLIST

Please attach the following documentation to your request:

**Photographs** of ALL sides of existing building or site

**Detailed photographs** of location of proposed work (photographs to show existing condition(s), design, color, and material)

**Description of existing conditions** (including materials and design)

**Description of project** (including an explanation as to why replacement--rather than repair--of existing and/or construction of new is required)

**Detailed scope of work** (formatted as bulleted list)

**Brochure/cut sheets** for proposed replacement material(s) and/or product(s)

### NOTE:

Based on the scope of work, additional documentation may be required  
See [www.detroitmi.gov/hdc](http://www.detroitmi.gov/hdc) for scope-specific requirements

**SUBMIT COMPLETED  
REQUESTS TO: [HDC@DETROITMI.GOV](mailto:HDC@DETROITMI.GOV)**

# PARK AVENUE BUILDING

Proposed Exterior Granite Base Replacement

October 28, 2019







EXISTING CONDITION OF GRANITE AT SOUTH FACADE



EXISTING CONDITION OF GRANITE AT EAST FACADE



EXISTING CONDITION OF GRANITE, TYPICAL BELOW STOREFRONT SILL



EXISTING CONDITION OF GRANITE, TYPICAL CONDITION WITH GRAFFITI

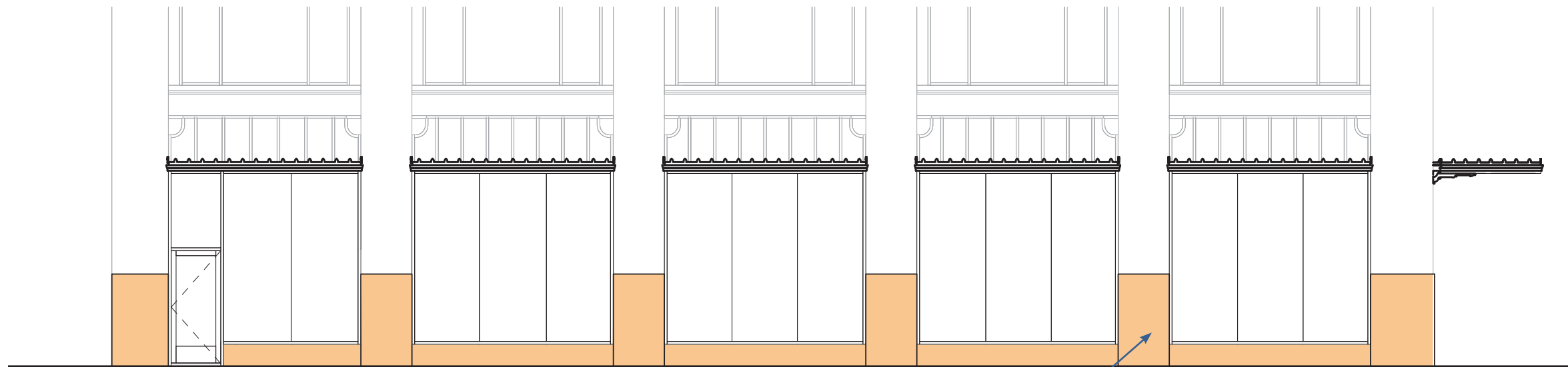






PROPOSED EAST STOREFRONT

LOCATION OF EXISTING  
GRANITE BASE, PROPOSED  
LOCATION FOR NEW  
GRANITE BASE



PROPOSED SOUTH STOREFRONT

LOCATION OF EXISTING  
GRANITE BASE, PROPOSED  
LOCATION FOR NEW  
GRANITE BASE



PROPOSED GRANITE BASE: DWYER MARBLE IN  
"TITANIUM"





Figure #1: Exterior, South Façade, Looking north. 9/11/2018

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI





Figure #2: Exterior, East and South Facades, Looking Northwest. 9/11/18

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI





Figure #3: Exterior, North Façade, Looking south. 9/11/2018

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI





Figure #4: Exterior, East and South Facades, Looking northwest. 9/11/2018



Figure #5: Exterior, looking west. 10/5/2018

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI





Figure #6: Exterior, north façade, looking east. 9/11/2018



Exterior #7: Exterior, Adams façade, looking northwest. 9/11/2018

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI





Figure #8: Exterior, looking southwest. 9/11/2018



Figure #9: Exterior, looking west. 9/11/2018

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI



Figure #10: Exterior, looking north. 9/11/2018

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI



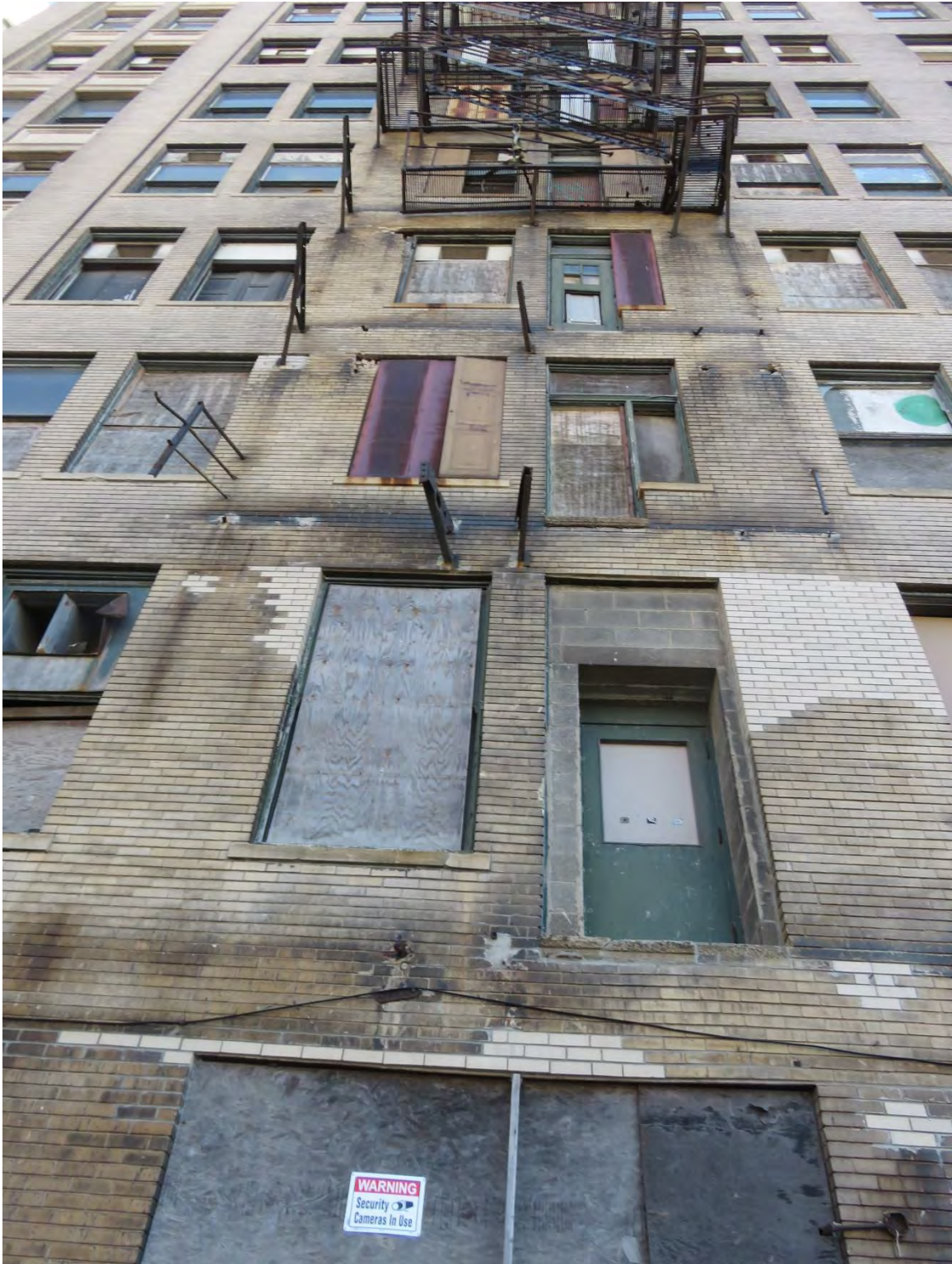


Figure #11: Exterior, looking south (and up). 9/11/2018

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI





Figure #12: Exterior, primary facades, corner of Park and Adams. 4/29/18

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI





Figure #13: Exterior, South Façade, Looking Northeast. 2/25/19



Figure #14: Exterior, Transom Detail. 2/25/19

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI





Figure #15: Exterior, window detail, looking west. 9/11/2018



Figure #16: Exterior, canopy detail, looking southwest. 9/11/2018

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI





Figure #17: Exterior, metal awning enclosure detail. 9/26/2018



Figure #18: Exterior, canopy and awning enclosure detail. 9/26/18

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI





Figure #19: Exterior, window detail, looking southwest. 9/11/2018

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI





Figure #20: Exterior, window detail, looking northwest. 4/29/2018

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI





Figure #21: Exterior, window detail, looking north. 9/11/2018



Figure #22: Exterior, window and carving detail, looking west. 9/11/2018

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI





Figure #23: Exterior, South Façade, Entrances, Looking North. 9/11/2018

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI





Figure #24: Exterior, North façade, Service Door. 9/11/18

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI





Figure #25: Exterior, Fire Escape, Looking South. 6/27/19

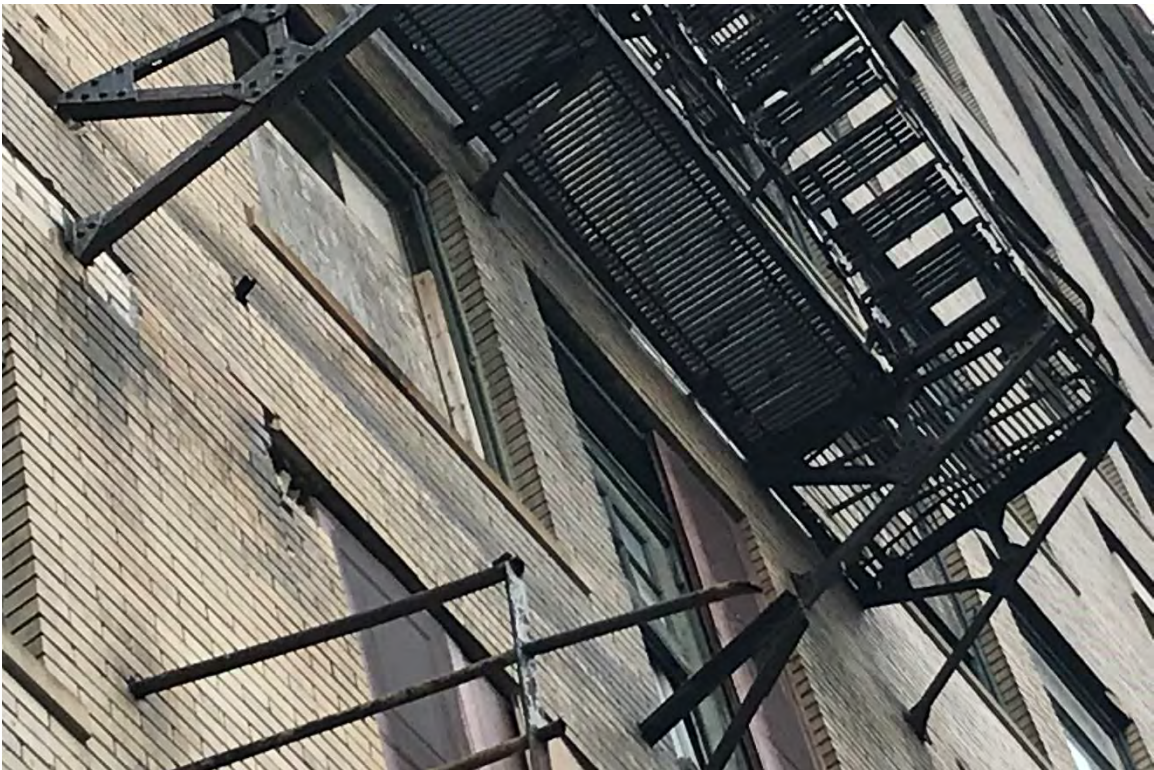


Figure #26: Exterior, Fire Escape Detail, Looking Up. 7/15/19

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI





Figure #27: Exterior, Bottom of Lightwell, Looking Southwest. 7/15/19

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI





Figure #28: Interior, Window Detail. 2/4/19



Figure #29: Interior, Transom Detail. 2/4/19

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI





Figure #30: Interior, 2<sup>nd</sup> Floor Window Detail. 2/4/19

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI





Figure #31: Interior, 2<sup>nd</sup> Floor, Window Detail. 2/5/19



Figure #32: Interior, 3<sup>rd</sup> Floor, Window Detail. 2/5/19

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI





Figure #33: Interior, 5<sup>th</sup> Floor, South lightwell window, looking north. 9/5/18

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI





Figure #34: Interior, 5<sup>th</sup> Floor, Window Detail. 2/4/19

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI





Figure #35: Interior, 7<sup>th</sup> Floor Lightwell Window, Looking West. 2/4/19

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI





Figure #36: Interior, 8<sup>th</sup> Floor, Window Detail. 2/4/2019

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI





Figure #37: Interior, 8<sup>th</sup> Floor, Window, Looking North. 2/4/19

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI





Figure #38: Interior, 6<sup>th</sup> floor, Window, Looking East. 2/4/19

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI





Figure #39: Interior, 11<sup>th</sup> floor, Fire Escape Door, Looking North. 2/4/19

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI





Figure #40: Interior, 11<sup>th</sup> floor, Window Detail. 2/4/2019

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI





Figure #41: Interior, 12<sup>th</sup> Floor, Window Detail, Looking Southeast. 2/4/19

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI





Figure #42: Interior, 12<sup>th</sup> Floor, Window Detail. 2/25/19

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI





Figure #43: Exterior, roof, looking south. 9/5/2018



Figure #44: Exterior, roof, looking west. 9/5/2018

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI





Figure #45: Exterior, parapet next to lightwell, looking southwest. 9/5/2018



Figure #46: Exterior, lightwell, looking down. 9/5/2018

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI





Figure #47: Exterior, roof, looking northeast. 9/5/2018

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI



# City of Detroit – Historic District Commission



Figure #48: Exterior, roof, looking southeast. 9/5/2018



Figure #49: Exterior, roof, looking north. 9/5/2018

## **Park Avenue Building** 2001-2017 Park Avenue, Detroit MI





Figure #50: Exterior, historic photo from 1925

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI





Figure #51: Exterior, historic photo from 1926

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI





Figure #52: Close up of Photo 51 showing historic awnings at each storefront. Circa 1926

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI





Figure #53: Exterior, historic photo from 1923

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI





Figure #54: Historic Photo, Close Up of Park Avenue Canopy. 1925



Figure #55: Historic Photo, Close up of Signage. Approx. 1920s or 1930s

**Park Avenue Building**  
2001-2017 Park Avenue, Detroit MI



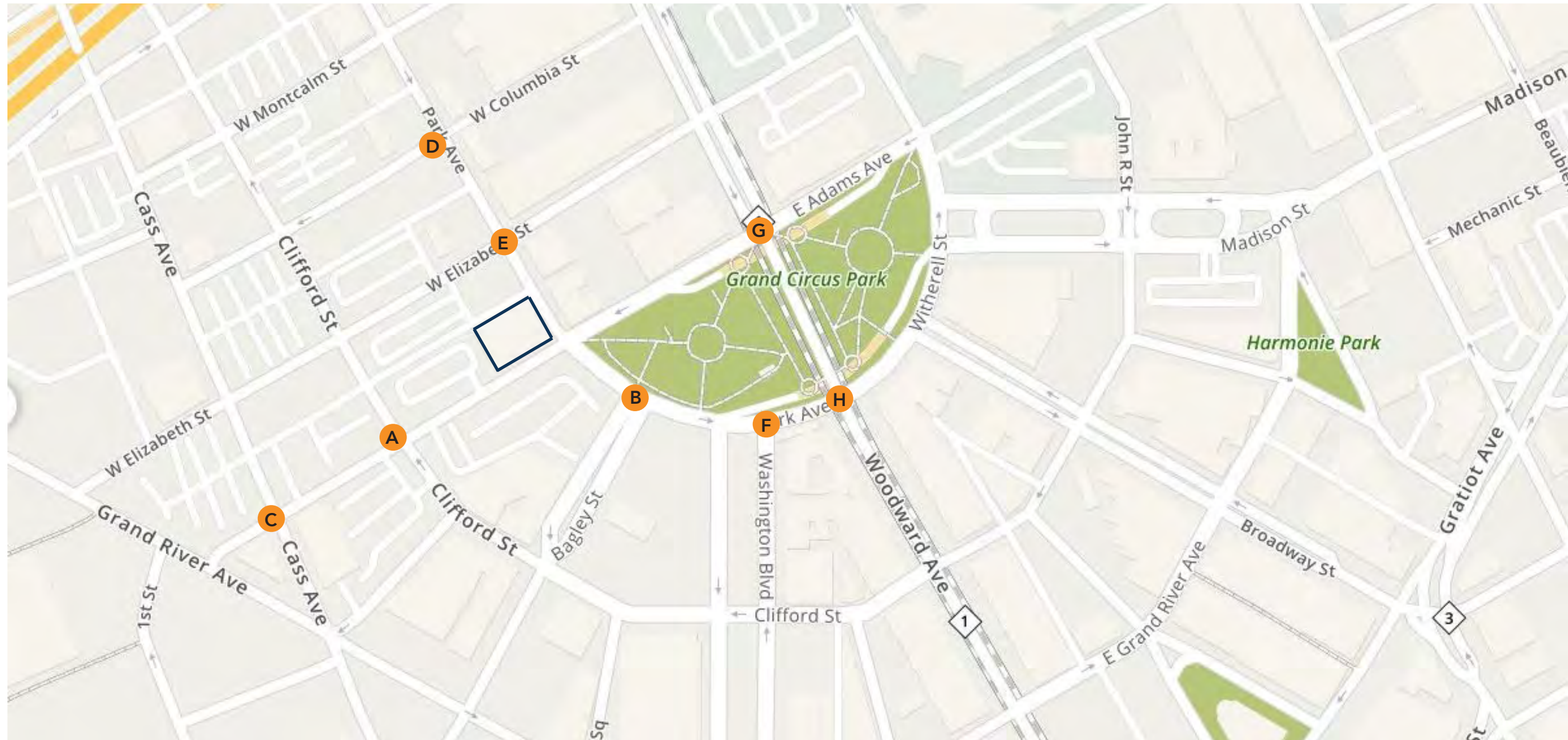
# PARK AVENUE BUILDING

Sight Line Study  
October 28, 2019





SIGHT LINE LOCATION MAP





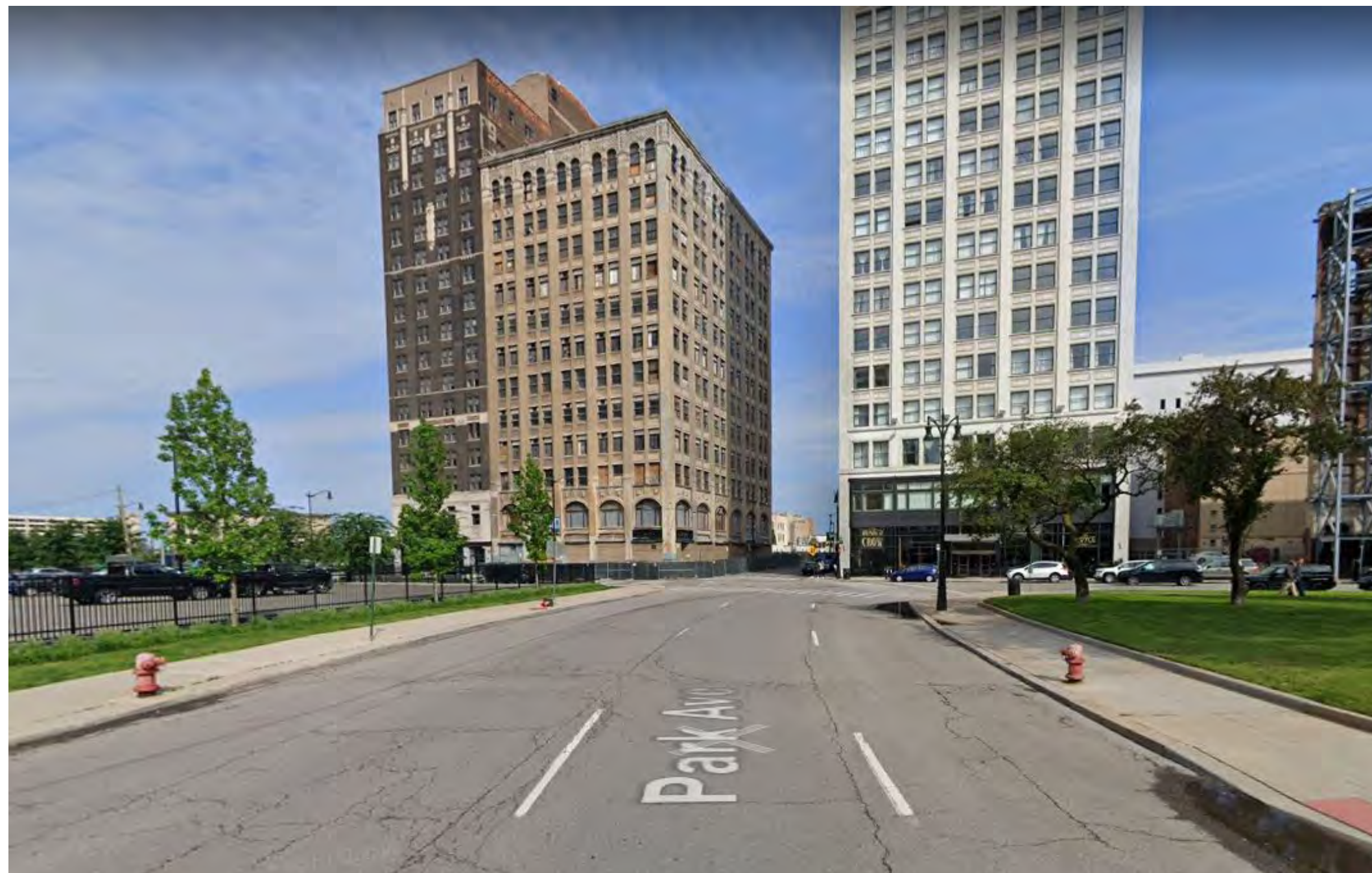
A. ADAMS AND CLIFFORD ST INTERSECTION

No visible sightlines. Blocked by existing buildings.





B. BAGLEY AND PARK AVE INTERSECTION  
No visible sightlines



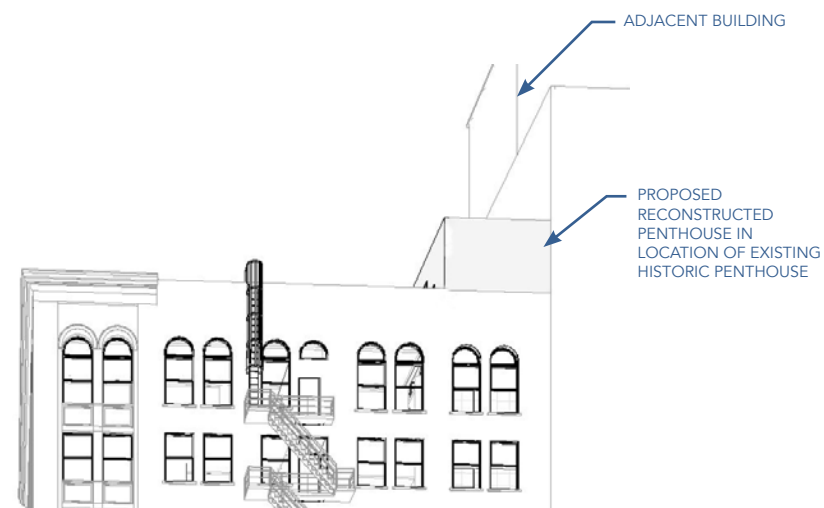


C. CASS AND ADAMS INTERSECTION  
No visible sightlines. Blocked by existing buildings.



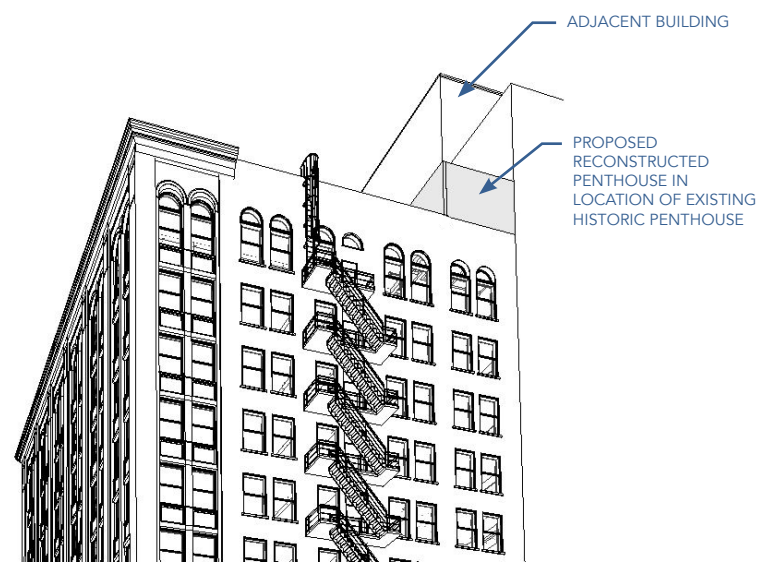


D. COLUMBIA AND PARK AVE INTERSECTION  
Visibility of reconstructed penthouse





E. ELIZABETH AND PARK INTERSECTION  
Visibility of reconstructed penthouse





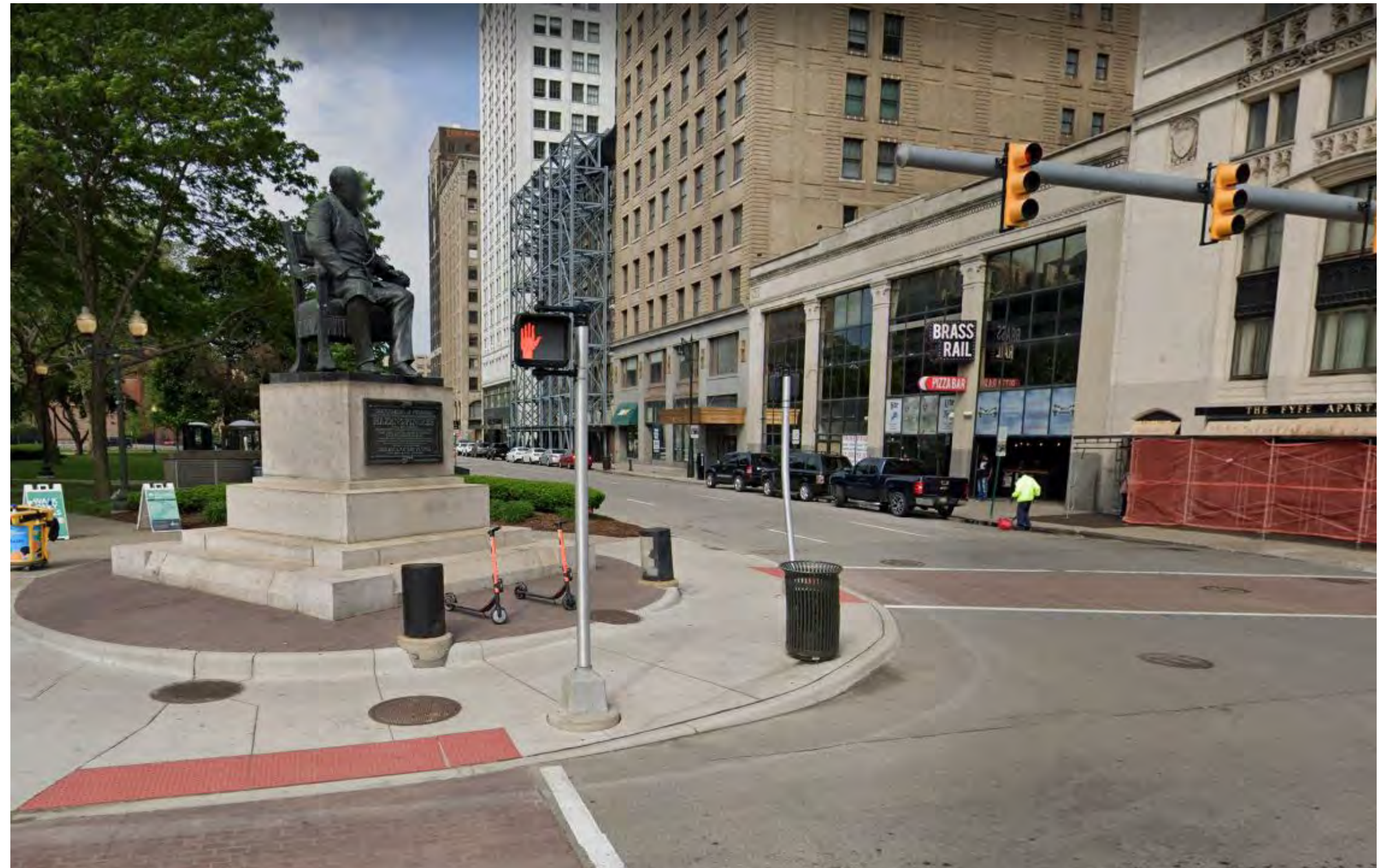
F. WASHINGTON AND PARK AVE INTERSECTION  
No visible sightlines





G. WOODWARD AND ADAMS INTERSECTION

No visible sightlines. Blocked by existing buildings.



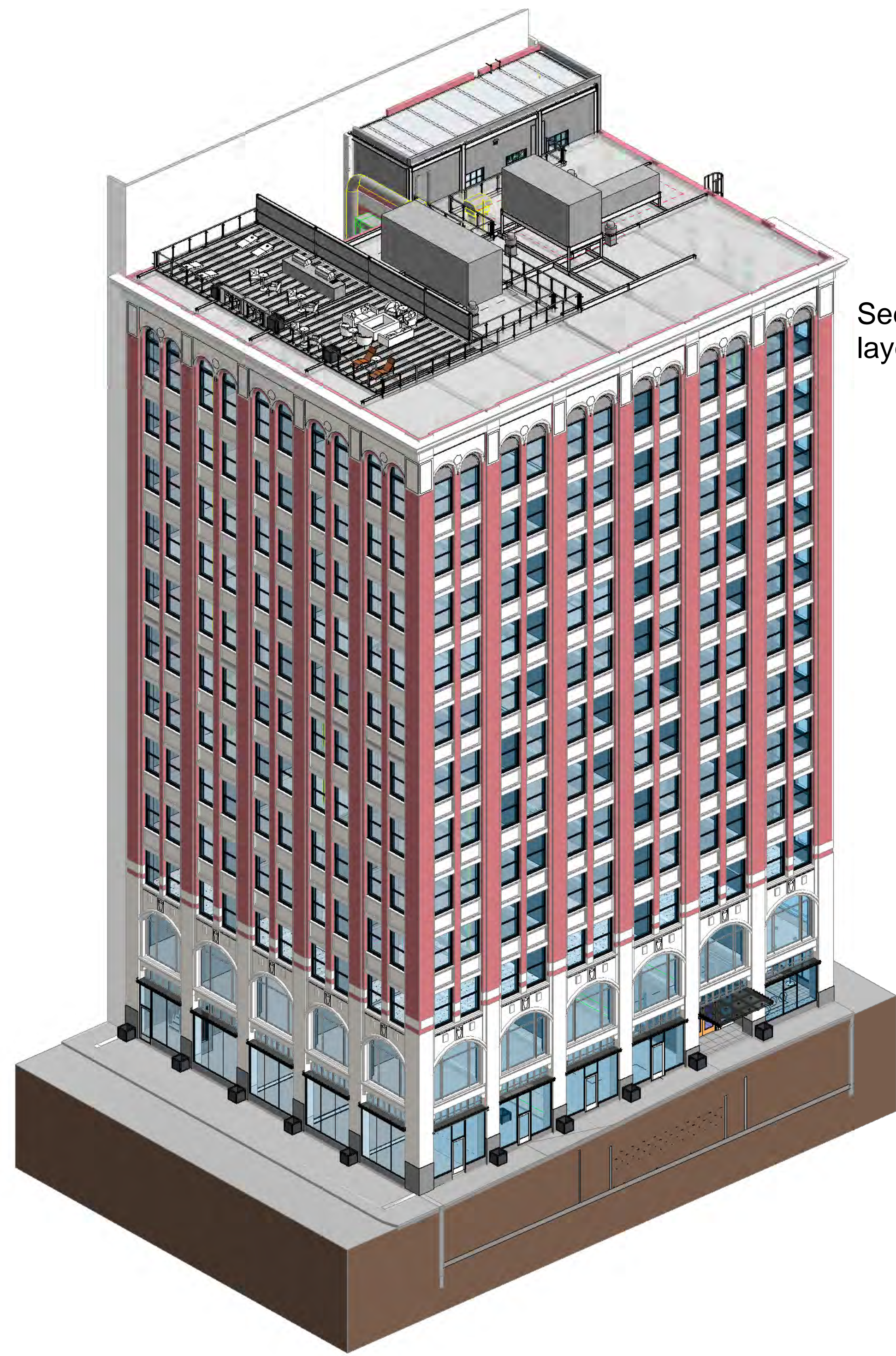


H. WOODWARD AND PARK AVE INTERSECTION

No visible sightlines. Blocked by Grand Circus Park foliage and existing buildings.







See Architectural Sheets for updated roof layout

**STRUCTURAL ABBREVIATIONS**

CONT	CONTINUOUS
CT	CARRYING TRUSS
DH	DOOR HEADER
DJ	DOOR JAMB
EOD	EDGE OF DECK
EQ SP	EQUALLY SPACED
EXP JT	EXPANSION JOINT
EXIST	EXISTING
FDN	FOUNDATION
FT	FEET, FOOT, FLOOR TRUSS
HP	HIGH POINT
IN	INCH
JT	JOINT, JACK TRUSS
k	KIP (1000 LB)
K-FT	KIP-FOOT (FEET)
LLBB	LONG LEG BACK-TO-BACK
LP	LOW POINT
MC	MOMENT CONNECTION
MDO	MAN DOOR OPENING
PL	PLATE
REBAR	REINFORCING STEEL BARS
SFRC	STEEL FIBER REINFORCED CONCRETE
SLBB	SHORT LEG BACK-TO-BACK
SOG	SLAB ON GRADE
TDO	TRUCK DOOR OPENING
TC	TOP CHORD
UOD	UNDERSIDE OF DECK

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 NOVI, MI 48375

Owner  
**PARK AVENUE BUILDING**  
 2001-2017 PARK AVENUE  
 DETROIT, MI

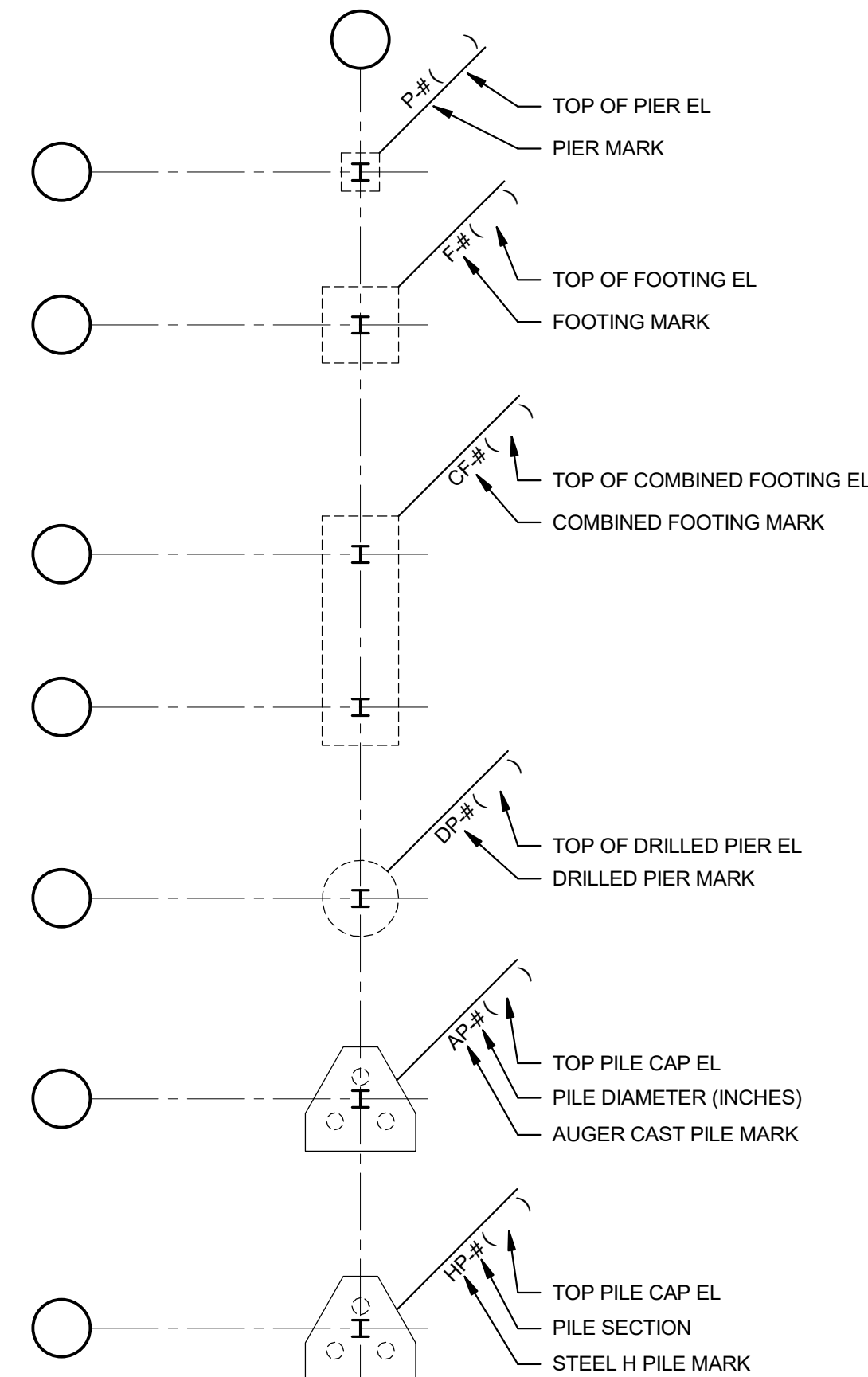
Project

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Revision	Date
Date	Issue Date
Project Number	2018063

Sheet Title  
**STRUCTURAL COVER SHEET**  
 Sheet Number  
**S001**

**Foundation Plan Symbols and Designations**



**Foundation Wall Designations**

- GB-# ( ) GRADE BEAM MARK (TOP OF GRADE BEAM EL)
- RW-# RETAINING WALL MARK
- WF-# WALL FOOTING MARK

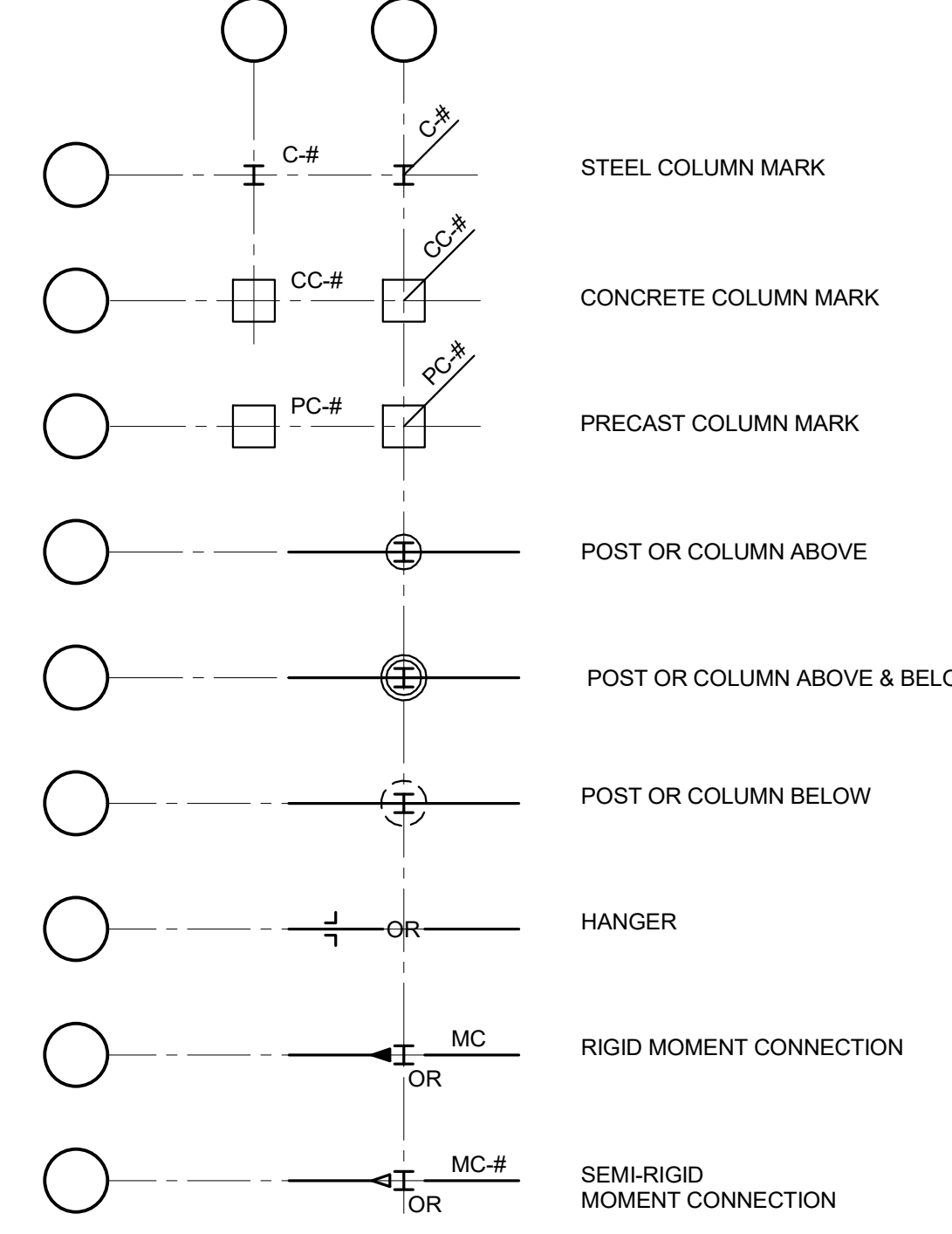
**Slab on Grade Symbols and Designations**

- THICKNESS IN INCHES
- SOG-# SLAB ON GRADE MARK (SOG-6)
- SOG CHANGE IN ELEVATION (+/- FROM ESTABLISHED ELEVATION)

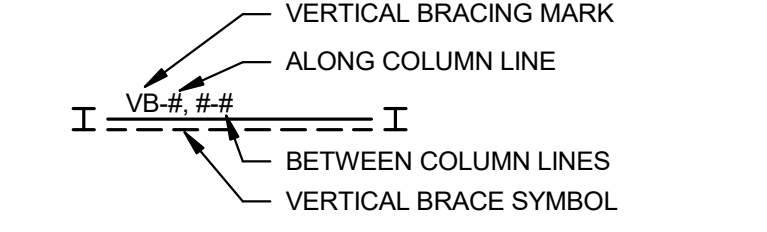
**Miscellaneous Symbols**

- SB-# SOIL BORING MARK
- TB-# TEST BORING MARK
- WATERSTOP (DUMBELL, PVC UON)
- WATERSTOP (SELF-EXPANDING WATERSTOP)

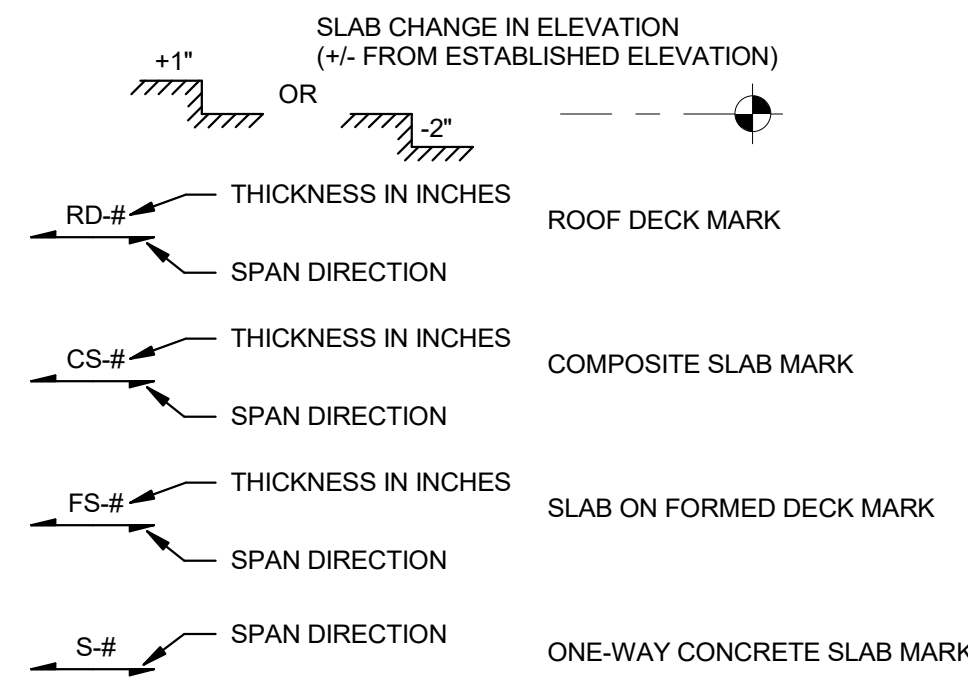
**Structural Column Plan Symbols and Designations**



**Vertical Bacing Symbols and Designations**

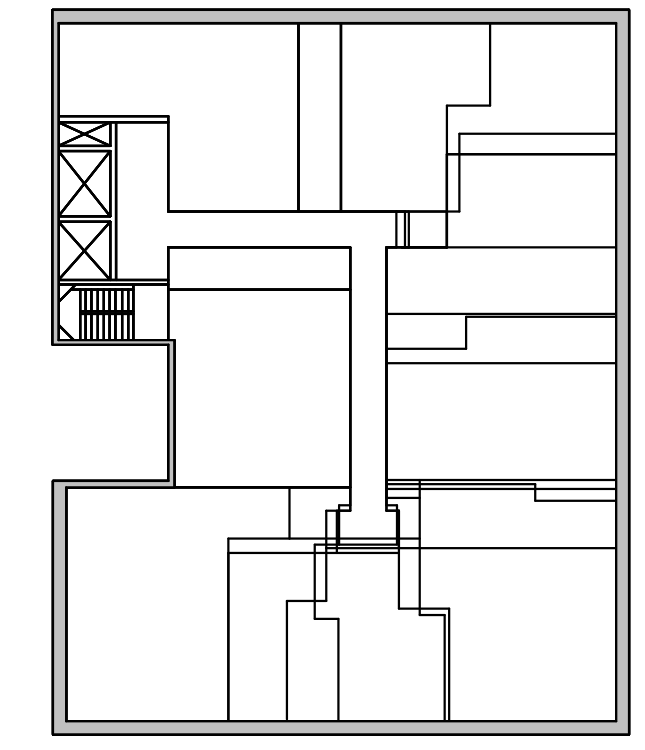


**Deck and Slab Symbols**



**Beam Designations**

- XW18x35 EXISTING MEMBER DESIGNATION
- W18x35 (#) NUMBER OF 3/4" DIA STUDS
- W18x35 (+/-#) TOS EL (+/- ESTABLISHED ELEVATION)
- W18x35 C = # BEAM CAMBER
- END PLATE CONNECTION
- BEARING PLATE CONNECTION
- EMBEDDED PLATE CONNECTION
- H=#K HORIZONTAL DESIGN FORCE (KIPS)
- M=#FT-K BEAM DESIGN MOMENT (FOOT-KIPS)
- R=#K BEAM DESIGN REACTION (SHEAR) (KIPS)
- RA=#K BEAM DESIGN REACTION (AXIAL) (KIPS)



30 x 42 | PLOTTED ON 10/23/2019 4:35:40 PM | C:\Users\linder\Documents\190445\STRUCT19-Park\_Avenue\_bethanie\AXW89.rvt



**FIREPROOFING STRUCTURAL STEEL**

- Refer to the architectural drawings for minimum hourly values of steel fire protection for determining the thickness of spray applied fireproofing.
- The structural steel frame consists of all structural steel members sized, identified or located on the structural drawings.
- All structural steel beams and columns shown on the structural drawings shall be considered primary members UNO. Braces in brace frames shall be considered secondary members UNO.
- All structural framing shall be considered as restrained.

**COLD FORMED METAL FRAMING NOTES**

- Cold Formed Metal Framing to be designed, manufactured, detailed and erected in accordance with AISI 'Specification for Design of Cold Formed Steel Structural Members'.
- CMFM members shall be cold formed with a minimum yield strength of 33ksi for 18ga and thinner or 50ksi for 16ga and thicker.
- CMFM shall be galvanized per ASTM A653 - G90.
- Welds shall be with metal diameter less than or equal to 1/2" ASTM A53 type E or S, grade B, Fy = 35 ksi or ASTM A500, grade B, Fy=42ksi.
- CMFM design and detailing is a delegated design responsibility. CMFM contractor to submit signed and sealed calculations for CMFM members and connections.
- CMFM supporting exterior finishes shall be a minimum of 18ga and 16ga for studs backing up brick veneer. Deflection of studs backing up brick veneer shall be limited to span/600 under 10 year wind pressure.
- Studs shall have bridging lines installed at a maximum spacing of 4'-0" o.c.

**DESIGN-BUILD COMPONENTS**

- Building components that have been defined as design-build components per the drawings and/or project specification include but are not limited to the following:
  - Precast concrete elements
  - Exterior glazing and cladding
  - Interior metal stud partitions
  - Interior glazing walls
  - Attachment of exterior stone to metal stud partitions and concrete walls.
  - Stairs handrail and stair cladding attachment
  - Handrails and balustrades
  - Elevators (cabs, rails, brackets, hoist system, etc.)
  - Support and bracing of ducts, pipes, conduit, cable, tray, etc.
- The Contractor is required to submit drawings and calculations (stamped and signed by a licensed engineer) for all such composite beams to the Building Official for approval. These components shall not be installed until the component design has been approved by the Building Official.
- The component designer shall be responsible for that component's conformance to the Code and all design criteria indicated in the construction documents and all necessary sections not specifically show in the structural and architectural drawings.
- Prior to submittal of component design to the Building Official, component design shall be submitted to the design team for review of general conformance with design criteria. Submittals to the design team shall be stamped and signed by a licensed Professional Engineer and shall include the following:
  - Drawing which indicate the magnitude, direction, and location of all loads imposed on the primary structure.
  - Connection details that show how the component is connected to the primary structure.
  - Design calculation demonstrating conformance with code requirements and design criteria. Calculations shall clearly indicate a complete load path for both the vertical and lateral loads to the primary structure.
- All Design-Build components shall be designed to accommodate the movements shown in the Movement and Tolerence Report.

**DESIGN-BUILD METAL STAIRS AND RAILINGS**

- Design build stairs and railing structural calculations and drawings shall be stamped and signed by a registered Professional Engineer, licensed in the state of Michigan. Design build stairs shall clearly indicate a complete load path for both lateral and vertical loads to the primary structural elements shown in these drawings. The calculations and drawings shall show the magnitude, location and direction of all loads imposed by the stair structural elements onto the primary structure.
- Design build stairs shall be designed to meet all relevant Code requirements and design criteria. Calculations shall clearly indicate a complete load path for both the vertical and lateral loads and deformation compatibility. The stair framing elements and their connections shall be designed and detailed to be adequate to maintain support of the design dead plus live partitions during the design event. Design stairs to accommodate the seismic drift displacements given in DESIGN CRITERIA.
- Shop drawings and calculations of stairs and railings shall be approved by the Engineer prior to start of fabrication.

**DESIGN-BUILD MODULAR SYSTEMS**

- All modular wood elements on buildings are to be Contractor Design-Build. This includes but is not limited to the following:
  - Corridors and Exit Ways from Hotel Rooms to Stairs and Elevators
- Structural calculations and drawings for design build modular systems shall be stamped and signed by a registered Professional Engineer, licensed in the state of Michigan. The design of the modular system shall clearly indicate a complete load path for both lateral and vertical loads to the primary structural elements shown in these drawings. The calculations and drawings shall show the magnitude, location and direction of all loads imposed by the cladding system onto the primary structure.
- Design build modular systems shall be designed to meet all relevant Code requirements including gravity, wind, and seismic forces.
- Shop drawings and calculations of cladding systems shall be approved by the Engineer prior to start of fabrication.

**DEFERRED STRUCTURAL SUBMITTALS**

- Structural systems which have been designated as vendor-designed or design-build components per the drawings and/or project specification are deferred submittal components which have not been permitted under the base building application. The Contractor is required to submit documents (stamped and signed by a licensed engineer) for all such components to the Building Official for approval. Deferred submittals shall not be installed until the submittal items have been approved by the Building Official.
- The component designer shall be responsible for that component's conformance to the Code and all design criteria indicated in the construction documents and all necessary connections not specifically show in the structural and architectural drawings.
- Prior to submittal to the Building Official, all deferred submittal items shall be submitted to the design team for review of general conformance with design criteria. Submittals to design team shall be stamped and signed by a licensed engineer and shall include the following:
  - Drawing which indicate the magnitude, direction, and location of all loads imposed on the primary structure.
  - Connection details that show how the component is connected to the primary structure.
  - Design calculation demonstrating conformance with code requirements and design criteria. Calculations shall clearly indicate a complete load path for both the vertical and lateral loads to the primary structure.
- Deferred Structural Submittal Components include, but are not limited to the following:
  - Exterior cladding (including curtain wall and exterior metal studs)
  - Interior Metal Stud Systems
  - Mesh stairs in Buildings
  - Elevators

**ARCHITECTURALLY EXPOSED STRUCTURAL STEEL (AESS)**

- Steel defined as AESS on project shall be fabricated and constructed in accordance with all provisions of Specification-Section 05 12 00.
- Steel to be AESS shall include but not limited to:
  - Exposed steel in canopies.
- See Architectural drawing for other miscellaneous steel to be AESS

**ELEVATORS**

- Elevator machine beams, hoist beams, rails, sills, door supports and connections to the primary structure and design-build components to be designed by the Elevator Manufacturer. Refer to the Section "Deferred Structural Submittals" for Deferred Submittal requirements. In addition, the following shall apply:
  - The Contractor shall be shall be responsible for providing additional information necessary for any penetrations through the machine room floor not shown on the structural drawings.
  - Submitted documents shall include the location, direction, and magnitude of all loads imposed on the primary structure.

**CONCRETE REPAIR BONDING AGENT AND PATCH MATERIALS**

- The following are product recommendations, contractor may submit equivalent alternative products for review and approval.
- Bonding Agents. Comply with the following minimum parameters:
  - Flexural Strength at 28days: 1,400psi
  - Splitting Tensile Strength at 28days: 500psi
  - Slant Shear Strength at 28days: 60psi
  - Pull-Out Resistance, adhesion to mechanically prepared concrete: 350psi
- Products:
  - SikaArmatec 1C
  - SikaArmatec 110 EpoCem
- Trowel Applied Mortar. Comply with the following minimum parameters:
  - Compressive Strength (ASTM C109) at 7 days: 4,000psi
  - Flexural Strength at 28days >1,400psi
  - Tensile Bond Strength at 28days >1,000psi
  - Slant Shear Strength at 28days: 1,500psi
  - Volume change less than -0.15%
- Products:
  - Plantop XS
  - SikaTop 122 Plus
  - SikaBonduratio G2
- Form and Pour. Comply with the following minimum parameters:
  - Compressive Strength (ASTM C109) at 7 days: 4,000psi
  - Flexural Strength at 28days >1,000psi
  - Silica Fume: 10% of concrete content.
  - Tensile Bond Strength at 28days: 250psi
  - Slant Shear Strength at 28days: 2,500psi
  - Volume change less than -0.075%
  - Air Content: 6%
- Products:
  - King MS-S10 SCC CI
  - Sikacrete - 211 CUI

**STRUCTURAL STEEL**

- Refer to the architectural drawings for design fabrication and erection shall be in accordance with American Institute of Steel Construction, AISC 360 - Specification for Structural Steel Building and Steel Construction Manual, UNO.
- Structural steel shall be as follows:
  - Structural steel rolled shapes:
    - ASTM A992, grade 50, Typical UNO.
    - Structural steel plates and bars:
      - ASTM A36, Fy= 36 ksi, UNO
  - Structural steel channels and angles: ASTM A36, Fy= 36 ksi, UNO
  - Structural steel beams and bars:
    - ASTM A36, grade 36, UNO
    - Structural steel continuity plates and splice plates for connections to AISC 360, Fy= 50 ksi shall be ASTM A572 or 43
    - Square or rectangular steel tubes: ASTM A500, grade B, Fy=40ksi.
    - Round steel tubes: ASTM A500, grade B, Fy=42ksi.
  - Steel pipe with metal diameter less than or equal to 12": ASTM A53 type E or S, grade B, Fy = 35 ksi or ASTM A500, grade B, Fy=42ksi.
- Structural Steel Fabricator shall be AISC Certified or have a AISC equivalent Quality Assurance program verified by a qualified independent testing agency. Non-Certified Fabricators shall comply with additional Special Inspection requirements per CODE.
- Detailing of connections and framing shall be performed using national engineering principles in accordance with Contract Documents. Typical details shown do not indicate the correct number of bolts, weld or plate sizes unless specifically noted.
- Connections shall be designed by a Professional Engineer registered in the State in which the project is constructed, for connections not specifically detailed in the drawings. Submit signed and sealed calculations for review.
- Shop drawings detailing fabrication and field erection details shall be submitted and reviewed by the architect/engineer prior to fabrication.
- The contractor shall be responsible for the following:
  - Coordination of selection of optional details shown on the structural drawings.
  - All erection aids, including but not limited to: erection angles, lift holes, and other aids.
- Steel connections shall be detailed on the shop drawings in conformance with the details shown on the structural drawings.
- Shear connections shall be AISC approved connections and capable of end rotation.
- Non-composite beams shall be designed to support minimum of 50% of the Maximum Total Uniform Load per AISC Steel Construction Manual unless noted otherwise on drawings.
- All exterior and architectural steel exposed to weather shall be painted per specifications.
- Dimensional tolerances for built up members shall be per AWS D1.1.
- Steel beams are equally spaced between dimensioned points, UNO
- Where AESS is indicated on drawings, detail and finish steel in conformance with the AESS section of the general notes and specifications.
- Fabrication and erection tolerance of brick frames shall conform to AISC 303, Section 10 - Architecturally Exposed Structural Steel.
- Reference Architectural/MEP drawings for miscellaneous members and plates not shown on Structural Drawings.
- Beams shall be fabricated with natural camber up. Provide additional camber as noted on drawings.
- Field verify all existing condition before submitting shop drawing for review.
- Thoroughly clean existing steel surfaces to interior steel.
- Comply with the following shoring and underpinning requirements, UNO:
  - SSPC-SP3 and one coat of shop primer for all review steel.
  - SSPC-SP6 and hot dipped galvanized G90 for exterior steel exposed to exterior conditions.
  - SSPC-SP8 and one coat of shop primer minimum for AESS.
- Anchor rods, base plates and bearing plates shall be pre-set prior to concrete or grout placement.
- Provide adjustable channel seats for masonry anchors at steel columns and lintels at 24" o.c. when elapsed in masonry.
- The contractor shall provide minimum 4" concrete cover around all steel members or components adjacent to and exposed to soil. Minimum reinforcement in concrete cover shall be #3 at 12" o.c.
- Non-shrink grout shall meet the requirements of ASTM Standard C1107, and shall also meet the requirements of ASTM F1554, grade 36. Anchor bolts for all brace frame and moment frame columns shall be ASTM F1554 grade 55. Anchor bolts for ledgers to concrete or CMU wall shall be ASTM A307 or A36.

**STRUCTURAL STEEL BOLTING**

- High strength bolts shall be Grouped A (ASTM A325/F1552) and Group B (ASTM A490/F2280) where specified. See details and schedules for bolt diameters and bolt types. Bolt tensioning requirement shall be as follows, UNO:
  - Bolts in moment connections or brace frames with oversized, long slotted or short slots parallel to force connections - Slip Critical (Type SC) UNO
  - Bolts to shear connections with long slotted holes - Snug Tight (Type X) UNO
  - Weld plate washers per AISC UNO
  - Weld plate washers per AISC UNO
  - Weld plate washers per AISC UNO
  - Machine bolts shall conform to ASTM A307, grade A.
  - All bolt holes shall be standard size holes (1/16" larger than bolt). UNO
  - Anchor bolts for non-frame columns shall be ASTM F1554, grade 36. Anchor bolts for all brace frame and moment frame columns shall be ASTM F1554 grade 55. Anchor bolts for ledgers to concrete or CMU wall shall be ASTM A307 or A36.

**STRUCTURAL STEEL WELDING**

- All welding shall be performed by AWS certified welders in accordance with AWS D1.1 structural welding code, latest edition.
- Structural steel shop drawings shall show all welding with AWS A2.4 symbols.
- All welds shall be made using low-hydrogen electrodes with minimum tensile strength of 70ksi. See specifications for further requirements.
- Welds that have been defined by the contract documents as "Demand Critical Welds" (DCW) require higher standards for welding, testing, and inspection per AISC 341-05 section 7.3.
- The contractor is responsible for the following, but not limited to:
  - Joint preparations and welding procedures including, but not limited to: welding procedures, required root openings, root face dimensions, groove angles, backing bars, cones, surface roughness values, and welding tapers of unequal parts.
  - Sequencing and procedures of welding to minimize the effect of shrinkage, residual stresses, and to maintain erection tolerances.
  - Project specific welding procedure specifications (WPS) for all field and shop welds on the project shall be submitted for review & acceptance prior to starting field or shop erection. These shall be submitted to owner, Testing Lab for review and acceptance prior to being submitted to the architect.
  - Filllet weld sizes shown on the drawings are minimum sizes. Increase weld size to AWS minimum sizes, based on plate thickness. The minimum size weld shall be 3/16".
  - Filllet weld lengths shown on the drawings are the net effective length, and other safety related issues.
  - Where length of weld is shown it shall be full length of joint.
  - All groove and butt welds shall be complete joint penetration (CJP) welds, UNO. Joint configuration for all CJP welds is steel fabricator option. All full joint penetration groove weld sizes shown on the drawings refer to effective throat thickness.
  - All steel exposed to the weather shall have additional seal welding to protect the members (pipes, tubes, bulks) and the connections from moisture infiltration. These additional seal welds shall be shown on the shop drawings unless specifically noted to be field or shop welds.

**SHEAR STUDS AND DEFORMED BAR ANCHORS**

- Shear studs shall be AWS D1.1 "type B" headed studs per ASTM A108. Provide granular flux-filled Nelson shear connector 3SL or Nelson headed concrete anchor HHL, or approved equal.
- Threaded studs shall be AWS D1.1 "type A" threaded studs per ASTM A108. Provide Nelson partially threaded stud CPL or approved equal.
- Deformed bar anchors (DBA) shall be stud type per ASTM A496, cold finished low-carbon steel, minimum tensile strength of 80,000 psi. Provide nelson deformed bar concrete anchors DZL or equal.
- All shear stud and deformed bar anchors shown on drawings shall be welded to steel members attached to per manufacturer's requirements to obtain full tensile strength.

**DECK**

- Steel deck types shall be the products shown in the deck schedule or approved equal. All steel decking may have a current ICC certification.
- Steel deck shall be fabricated and erected in accordance with Steel Deck Institute - SDI specifications.
- Deck manufacturer shall be a certified member of SDI.
- Material for steel deck and accessories shall be ASTM A653 - SS designation, grade 53, minimum yield strength 58 ksi, with zinc coating in accordance with ASTM A653, G60 for floor deck and G90 for roof deck, U.N.O.
- Touch-up damaged galvanized surfaces after erection with zinc rich paint. Refer to architectural drawings for fireproofing requirements.
- Submit the following prior for review and acceptance prior to fabrication:
  - Deck shop drawings showing deck gage, layout, fastening, closures, shoring requirements, beam shear stud layouts, etc.
  - ICC report for decking
  - Written verification of structural conformance.
- Deck units shall be connected to steel supports per schedule on drawings.
- Deck subcontractor shall indicate on the shop drawings whether deck shoring is required for all deck conditions. These shoring requirements shall be reviewed and approved by the general contractor prior to submittal to the architect and engineer.
- All welding shall be per AWS D1.1.
- Minimum bearing of decking on supports shall be 2-inch, parallel or perpendicular to span. Provide 2-inch bearing and required fastening for deck units.
- Units shall be continuous over three or more spans, except where framing does not permit. In these locations deck supplier shall span capacity.
- No loads are permitted to be hung from roof deck.
- Design and provide edge forms, flashing, closure plates, and incidental support at wall ends for all deck units, around columns, and at all perimeter locations requiring closure. Coordinate all closures with elevator, stair and other architectural details.

**CONCRETE BLOCK MASONRY**

- Refer to the architectural drawings for design and erection shall be in accordance with ACI 303.
- Compressive strength of masonry CMU construction 1"m shall be 2000 psi.
- All hollow concrete masonry units shall conform to ASTM C90, moisture cured, controlled block, lightweight classification, compression strength of block shall be 1800 psi to achieve f'm of 2500 psi; 13% maximum absorption for exposure to weather units. Use open ended bond beam units where possible.
- Compressive strength of the grout shall be 2000 psi. Maximum size of aggregate in grout shall be per CODE.
- Mortar shall conform to CODE with strength of 2500 psi.
- F m shall be justified by preconstruction prism tests and prism tests during construction as specified in CODE.
- In addition to prism testing, material testing shall be conducted on the block, grout, and mortar to check for compliance with minimum specified strength.
- All cells shall be filled solid with concrete grout.
9. Lay all units in running bond with fully mortared head joints
- Horizontal joint reinforcing shall be "solder type" with 1/2" diameter longitudinal bars. Provide 3/16" diameter longitudinal bars at walls be brick veneer.
- Provide minimum #5 vertical bars at 48" o.c. and horizontal joint reinforcing at 16" o.c. unless indicated otherwise on drawings.
- Provided minimum (2) #5 vertical bars additional at each side of openings or control joint unless noted otherwise.
- Bond beam reinforcing shall be continuous unless noted otherwise.
- Provide minimum lap and splice lengths per ACI 530.
- Reinforcing shall be held in place with approved spacing system embed in mortar joints.
- Provide control joints in wall at a maximum spacing of 25' feet on center per detail provided on the drawings. See architectural drawings for control joint locations.
- Pipes and conduits shall not be embedded in any masonry unless approved by architect & structural engineer.
- Grout fillings of cores shall be in accordance with "low lift grouting" per ACI303.
- Grout lifts shall be keyed "I" into lower masonry course below.
- High lift grouting shall be in conformance with the CODE. Contractor shall submit a high lift grout procedure for review and approval by the architect/engineer and Testing Lab.
- Grout masonry below grade solid.

**POST-INSTALLED ANCHORS IN CONCRETE**

- Expansion Anchors shall be per CODE requirements
- Expansion Anchors shall be: Kwik-Bolt TZ (ESR-1917) by Hilli, Power-Stack S2 (ESR-2502) by Power Fasteners, Strong Bolt (ESR-1771) by Simpson, TruBolt® (ESR-2427) by ITW Red Head or approved equal.
- For interior condition use carbon steel anchors and for exterior condition use stainless steel anchors
- Tension test 50% of all expansion anchors to test load provided by manufacturer
- Adhesive anchors
  - Comply with CODE requirements.
  - Adhesive anchors shall be: HIT-HY 200 (ESR-1387) by Hilli, HIT-RE 500 SD (ESR-2732) by Hilli, Seal-XP (ESR-2503) by Simpson, or approved equal.
  - For interior condition use carbon steel anchors and for exterior condition use stainless steel anchors
  - Tension test 50% of all expansion anchors to test load provided by manufacturer

**UNDERPINNING**

- Underpinning shown on the drawings is conceptual. Contractor shall be responsible for the final design, including methods of construction, transfer of loads through to foundation, sequence of work and phasing with the existing structure reinforcement and new construction.
- Underpinning shall be performed by a Contractor with minimum 5 years demonstrated experience in similar size and scope of shoring, bracing and underpinning projects.
- Underpinning shall be designed by a Professional Engineer registered in the State of the Project with minimum 5 years demonstrated experience in similar size and scope of shoring, bracing and underpinning projects. Design loads and methods shall conform to applicable codes. Soil strengths shall be verified by tests.
- Contractor shall submit drawings and calculations sealed and signed by the Contractor's Professional Engineer showing complete design including temporary conditions, final conditions and sequence of work.
- Before starting work, Contractor shall perform condition survey of the existing building structure, exterior facade and interior finishes, including photographic documentation and submit survey to the Owner for record.
- Slabs and Walls
  - Keep the existing and new construction in a safe condition.
  - Provide necessary shoring, bracing and underpinning.
  - Continuously monitor existing and new construction to detect any signs of distress or deformation.
  - Take immediate steps to prevent distress, deformation or damage.
  - After completion of shoring, bracing and underpinning operations, Contractor shall repair any damage to the existing and new construction, without any cost to the Owner and to the satisfaction of the Owner and Architect/Structural Engineer.

**SECTION NOTES**

- The drawings indicate the structure in its final condition. The contractor is fully responsible for all temporary measures necessary for erection prior to the structure's final condition.
- The contractor is responsible for means and methods, scheduling, sequencing of construction or compliance with OSHA provisions.
- The contractor shall coordinate with other trades in determining the erection sequence so that the erection sequence and associated conditions do not adversely impact or damage work by other trades or previously erected structure.
- Deflection and movement of structure:
  - Floor beams, trusses, transfer girders, and cantilevers will continue to deflect as additional loads are applied during construction. Although deflection may be shown to account for the theoretical dead load deflection, this may not occur until all dead load is on the member.
  - The contractor shall coordinate the attachment of any items to the structure so that typical lateral movements of adjacent floors in any direction are accommodated by the attachments. The lateral movement of adjacent floors is 1/160 the floor height.

**SHORING AND BRACING**

- Contractor shall provide temporary shoring and bracing of existing construction, new construction and underground utilities as follows:
  - Where shown or noted on the Drawings.
  - Where existing construction is to be altered or disturbed until permanent support is in place.
  - Where existing construction is not undergoing alteration and is to remain undisturbed but is disturbed as a result of the work of this contract.
  - As required for safe erection, installation of new construction, equipment, etc.
  - When needed for Contractor's "means and methods" of construction, and other safety related issues.
- Shoring and bracing shown on the Drawings is conceptual. Contractor shall be responsible for verifying existing conditions, shoring and bracing calculations, methods of installation, transfer of loads through to final load support, and work sequence phasing with new construction.
- Shoring and bracing shall be performed by a Contractor with minimum 5 years demonstrated experience in similar size and scope of shoring and bracing projects.
- Shoring and bracing shall be designed by a Professional Engineer registered in the State of the Project with minimum 5 years demonstrated experience in similar size and scope of shoring and bracing projects. Design loads and methods shall conform to applicable codes. Soil and material strengths shall be verified by tests, unless conservative estimates that do not affect deflections and deformations are approved by the Architect/Structural Engineer.
- Contractor shall submit drawings and calculations sealed and signed by the Contractor's Professional Engineer showing complete design including temporary conditions, final conditions and sequence of work.
- Before starting work, Contractor shall perform condition survey of the existing building structure, exterior facade and interior finishes, including photographic documentation and submit survey to the Owner for record.
- Slabs and Walls
  - Keep the existing and new construction in a safe condition.
  - Monitor existing and new construction to detect any signs of distress or deformation.
  - Take immediate steps to prevent distress, deformation or damage.
  - Contractor shall continuously monitor the shoring and bracing system.
- After completion of shoring and bracing operations, Contractor shall repair any damage to the Contractor's design and issuing approval for inspection of the work by the Testing Agency.
- Reinforcing steel, shoring and bracing and completion of work requiring shoring and bracing, Contractor shall repair any damage to the existing and new construction, without any cost to the Owner, and to the satisfaction of the Owner and Architect/Structural Engineer.

**CONCRETE FORMWORK AND JOINTS**

- Design and construction of formwork is the responsibility of the contractor and shall be in conformance with ACI 301.
- The contractor shall determine the need for shoring and re-shoring. Design and construction of shoring /reshoring, including analysis of the structure, is the responsibility of the contractor. Submit proposed shoring and reshoring plans, conforming to ACI 301, to the engineer for record only.
- All construction joints shall be constructed in accordance with the typical construction joint details shown on the structural drawings. All construction joints shall be coordinated and constructed in accordance with architectural finishes and treatments.
- The maximum length of pours shall be as follows:
  - Slab-on-grade and topping slabs: 120 feet
  - Concrete beams: 120 feet
  - Concrete fill in metal deck: 120 feet
  - Architectural Topping Slabs: 120 feet
  - Walls: 80 feet
- The contractor shall submit the proposed locations of construction joints to the architect/engineer and receive approval prior to fabrication of formwork. Clean and roughen to 1/2" amplitude, all horizontal construction joint surfaces against which concrete is to be placed. All construction joints shall be wetted and standing water removed immediately before new concrete is placed.
- For existing concrete, mechanically roughen to 1/4" amplitude, clean and de-grease existing concrete before placing concrete adjacent to existing concrete. Apply bonding agent prior to placing concrete. Bonding agent shall be cementitious or epoxy based bonding agent approved by Structural Engineer.
- Chamber exposed concrete corners per the architectural drawings.
- Provide water-stops in all construction joints in elements exposed to weather, soil or liquid on one side. Refer to architectural drawings and specifications for waterproofing and damp-proofing requirements.
- Joints shall be prepared and sealed with joint sealant.
- Provide pockets in concrete as required for structural steel columns, beams. Coordinate size and locations with steel shop drawings. Fill pockets with concrete after steel erection.

**EXISTING CONSTRUCTION**

- Before submitting a proposal for work, and/or preparing shop drawings for this work each Bidder, Contractor and Sub-Contractor shall visit the site and become fully acquainted with the existing conditions, temporary construction required, type of equipment required to perform the work.
- Field verify all existing dimensions, conditions, member sizes and elevations with the information provided on the drawings. Information provided on drawings is based on limited field observations and available existing drawings which may not reflect actual conditions. Discrepancies to be noted and immediately brought to the attention of the Structural Engineer. Provide temporary shoring and bracing as required before, during and after construction as required until all materials have reached the required strength and stability.
- Existing construction not undergoing alteration is to remain undisturbed. Where such construction is disturbed as a result of the operations of this contract, Contractor shall repair or replace as required and to the satisfaction of the Architect/Structural Engineer and Owner's Representative.
- Verify the existence, location and elevation of existing utilities, sewers, drains, etc. in demolition areas and adjacent to new work before proceeding with the work. All discrepancies shall be documented and reported, do not proceed with work until discrepancies have been resolved.
- Provide fire safety precautions during field cutting and welding operations, meeting the Owner's requirements.
- Provide temporary protection of existing equipment during execution of work, satisfying the Owner's requirements.
- Provide proper protection to prevent damage from the weather and vandalism.
- Coordinate work with the Owner's personnel to avoid any interference in their normal operations.
- Refer to "SHORING AND BRACING" notes for additional requirements.

**CONCRETE**

- Mixing, batching, transporting, and placing of all concrete and selection of concrete materials shall conform to ACI 301 specification for structural concrete for buildings, UNO.
- Each mix design listed below shall be submitted, with current supporting data, and be approved by architect/structural engineer and the testing laboratory prior to use. Concrete mix designs shall be stamped and signed by a civil or structural engineer licensed in the state of Michigan. Submittal shall include the following:
  - Concrete type and source.
  - Normal weight concrete (150 pcf).
  - Cement and fine aggregate source and grading.
  - Admixture data sheets.
  - Use of calcium chloride ions or other salts in concrete mix is prohibited.
- The schedule below indicates the minimum concrete design mix requirements. Some design mix properties may need to exceed minimum requirements in order to make other properties meet minimum requirements.
  - Type A - Foundation: Footings, Grade Beams, Pier Caps, Dilated Piers,
    - Normal weight concrete (150 pcf)
    - Strength - f'c = 4000 psi (at 28 days)
    - Finish / cement ratio = 50 percent
    - Normal weight concrete (150 pcf)
    - Strength - f'c = 5000 psi (at 28 days)
    - Finish / cement ratio = 15 percent
    - Shrinkage limit = 0.040%
  - Type B - Walls, Columns, Beams, Suspended Slabs
    - Normal weight concrete (150 pcf)
    - Strength - f'c = 5000 psi (at 28 days)
    - Max w/c ratio = 0.40
    - Finish / cement ratio = 50 percent
    - Shrinkage limit = 0.040%
  - Type C - Slab-on-grade (including curbs and pads)
    - Normal weight concrete (150 pcf)
    - Strength - f'c = 4000 psi (at 28 days)
    - Max w/c ratio = 0.40
    - Finish / cement ratio = 50 percent
    - Shrinkage limit = 0.040%
  - Type D - Topping Slabs
    - Normal weight concrete (150 pcf)
    - Strength - f'c = 4000 psi (at 28 days)
    - Max w/c ratio = 0.40
    - Finish / cement ratio = 50 percent
    - Shrinkage limit = 0.040%
  - Type E - Lean Concrete Fill (beneath footings and conduit encasement)
    - Normal weight concrete (150 pcf)
    - Strength - f'c = 500 psi (at 28 days)
- Concrete exposed to freeze/thaw cycles including foundation walls shall be air-entrained 6% + 1%.
- Minimum concrete cover over reinforcing steel shall be as follows (UNO):
  - Concrete in Steel Deck - 1" clear from top of slab
  - Slabs and Walls
    - Interior Faces - 3/4" (#11 and smaller)
    - Exposed to Weather - 1.5" (#6 and smaller) & 2" (#6 & larger)
  - Column / Plasters
    - Interior Faces - 1.5"
    - Exposed to Weather - 1.5" (#6 and smaller) & 2" (#6 & larger)
    - Exposed to earth - 2"
  - Footings or Grade Beams
    - Cast Against Earth - 3"
    - Exposed to Earth - 2"
  - Slab on Grading Earth - 2" from bottom
- The contractor shall provide minimum 4" reinforced concrete cover around all steel members or components (WF, TS, plates, bolts, etc.) adjacent to and exposed to soil.
- Do not place conduits or other elements exceeding 25% of the depth of the concrete slab or wall. No conduit is allowed in columns or beams unless reviewed and approved by Structural Engineer.
- Anchor rods, leveling plates, bearing plates and other structural steel embeds shall be secured in place within a 1/8" tolerance in any direction prior to placing concrete.
- Aluminum products are prohibited embed or directly attached to concrete.

**REINFORCING STEEL**

- Steel reinforcement shall be as follows:
  - ASTM A615 grade 60 UNO
  - ASTM A706 for 60 for bars to be welded, coupled and where noted on drawings.
- Reinforcing bars shall be lap spliced per the lap splice schedule. Lap splices are to be securely tied at all side and end laps. Splice reinforcing where indicated on the drawings.
- Mechanical splices, if used at contractor's option, shall be ICC approved and be capable of developing 125% of specified minimum yield strength of bar in tension or compression.
- Welded wire fabric shall conform to ASTM A185.
- Welded wire fabric shall be lap spliced 8" or one full mesh spacing plus 2", whichever is greater.
- Welding of reinforcing steel shall be in accordance with AWS D1.4. Weld reinforcing bars only where noted on the drawings. Tack welding or welding of bars to plates, templates, etc. is prohibited, unless specifically shown on the drawings.
- Reinforcing steel location, spacing, lengths and bends.
- Location, spacing and number of bars.
- Methods and details of support to maintain specified cover.
- Locations of construction joints.
- Location and length of all splices.
- Contractor shall investigate and coordinate reinforcing steel placement in congested areas and provide templates, reinforcing bar coupling, or bar welding where necessary to maintain bar placement.
- Bars shall not be bent or twisted in the field, unless specifically detailed on the structural drawings.
- Securely tie all reinforcing in-place with iron wire. Support all reinforcing in place with acceptable chairs.

**DESIGN CRITERIA**

- Design is in accordance with CODE
- Floor live loads:
  - Residential: 40 psf + 15 psf partitions
  - Stairs and landings & corridors: 100 psf
  - Mechanical rooms and mechanical areas on the roof: 125 psf live load or actual equipment weights, if larger
- Roof 20 psf
- Storage: 125 psf
- Roof Terrace: 100psf
- Design Load:
  - Ground Snow Load (Pg): 3.0 psf
  - Snow Exposure Factor (Ce): 1.0
  - Snow Thermal Factor (Ct): 1.0
  - Snow Importance Factor (Is): 1.0
  - Flat Roof Snow Load (Psf): 25 psf (min)
  - Additional snow drift at elevation changes per Code, as shown on roof plan.
- Wind loading:
  - Design Wind Speed: 115 mph
  - Deflection Wind Speed: 75 mph
  - Exposure Category: B
  - Wind Directionality Factor (Kd): 0.85
  - Topographical Factor (Kt): 1.0
  - Height Factor (Kz): 0.70
  - Gust Factor (G): 1.0
  - Internal Pressure Coefficient (Cp): +0.18/-0.18
  - Enclosed Building Components and cladding loading per CODE
- Seismic Design Criteria
  - EQ Lateral Load is based on CODE and the following building specific coefficients:
    - Seismic Design Category = B
    - Site Class: C
    - S & S1 Short Period Spectral Response Accel. = 0.066g
    - S1 + 1 Sec Period Spectral Response Accel. = 0.047g
    - S1S = Design Short Period Spectral Response Accel. = 0.160g
    - SDC = Design Short Period Spectral Response Accel. = 0.109g
    - Analysis method used for code design of Primary Lateral System - Equivalent Lateral Forces
    - EQ Design Coefficients for Each Structure Type
    - Structural steel not specifically detailed for seismic: R=3, Omega=3, Cd=3
    - Seismic loads on non-structural appendages shall be based on Fp
    - Use appropriate area and ty values from table in AISC-E-10.
  - Building design displacements
  - Seismic lateral drift shall be limited to:
    - Wind drift at Deflection Wind Speed = 2/400

**GENERAL NOTES**

- Governing Design Code: 2015 Michigan Rehabilitation Code with local jurisdiction amendments (hereafter referred to as "CODE")
- All construction shall be in accordance with the following:
  - CODE
  - Drawings and Specifications
- The structural drawing notes are intended to work together and be complementary with the project specifications. Consult the specifications for additional requirements. Information for information not shown, including but not limited to the following:
  - Setting out dimensions and angles of all grid lines
  - Stairing and bracing of exterior walls and wall openings that are not shown on the structural drawings.
  - Slab geometry that includes the following:
    - Location and geometry of slab perimeter
    - Edge of slab location at interior openings
    - Location and geometry of slab depressions and slopes (depressions in concrete shall be structurally reinforced and shall be indicated graphically on the structural drawings shall be reviewed by SEOR)
    - Concrete curb locations, height and width
    - Interior partitions as follows:
      - Interior metal stud partitions (size, location and detailing)
      - Interior glazed walls (location and detailing)
      - Interior CMU partition (location and openings)
    - Exterior non-bearing wall construction. This includes:
      - Exterior metal studs (size, location, and detailing)
      - Curtain wall and lower details
      - Aluminum trusses (size and detailing)
    - Anchorage and bracing of building contents
    - Concrete chaffers, grooves, and protrusions, etc.
    - Architectural (non-structural) topping slabs - location and detailing</



STATEMENT OF SPECIAL INSPECTIONS - STRUCTURAL STEEL					
INSPECTION TASK	INSPECTION FREQUENCY		REFERENCED STANDARD	IBC REFERENCE	RESPONSIBLE AGENT
	CONTINUOUS	PERIODIC			
1. INSPECTION OF STEEL FABRICATED ITEMS SHALL BE PERFORMED ON PREMISES DURING FABRICATION.		X	AISC QUALITY CERTIFICATION	1704.2.5	SI
A. EXCEPTIONS: SPECIAL INSPECTIONS DURING FABRICATION NOT REQUIRED WHERE THE FABRICATOR IS REGISTERED AND APPROVED IN ACCORDANCE WITH SECTION 1704.2.5.1					
2. SPECIAL INSPECTION AND NONDESTRUCTIVE TESTING OF STRUCTURAL STEEL ELEMENTS IN BUILDINGS, STRUCTURE AND PORTIONS THEREOF SHALL BE IN ACCORDANCE WITH THE QUALITY ASSURANCE INSPECTION REQUIREMENTS OF...	X	X	AISC QUALITY CERTIFICATION	1705.2.1	SI
A. SPECIAL INSPECTION OF RAILING SYSTEMS COMPOSED OF STRUCTURAL STEEL ELEMENTS SHALL BE LIMITED TO WELDING INSPECTION OF WELDS AT THE BASE OF CANTILEVERED RAIL POSTS.		X	AISC QUALITY CERTIFICATION	1705.2.1	SI

QUALITY CONTROL (QC) SHALL BE PROVIDED BY THE FABRICATOR AND ERECTOR. QUALITY ASSURANCE (QA) SHALL BE PROVIDED BY OTHERS WHEN REQUIRED BY THE AUTHORITY HAVING JURISDICTION, APPLICABLE BUILDING CODE, PURCHASER, OWNER, OR ENGINEER OF RECORD.

INSPECTION TASK	INSPECTION FREQUENCY		REFERENCED STANDARD	IBC REFERENCE	RESPONSIBLE AGENT
	CONTINUOUS	PERIODIC			
INSPECTION OF BOLTING					
1. INSPECTION TASKS PRIOR TO BOLTING:					
A. MANUFACTURER'S CERTIFICATIONS AVAILABLE FOR FASTENER...	O	P			
B. FASTENERS MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS.	O	O			
C. PROPER FASTENERS SELECTED FOR THE JOINT DETAIL (GRADE, TYPE, BOLT LENGTH IF THREADS ARE TO BE EXCLUDED FROM SHEAR...	O	O	AISC 360, SECTION N5, TABLE N5.6-1	1705.2	SI/TA
D. PROPER BOLTING PROCEDURE SELECTED FOR JOINT DETAIL.	O	O			
E. CONNECTING ELEMENTS, INCLUDING THE APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET APPLICABLE...	O	O			
F. PRE-INSTALLATION VERIFICATION TESTING BY INSTALLATION PERSONNEL OBSERVED AND DOCUMENTED FOR FASTENER ASSEMBLIES AND...	P	O			
G. PROPER STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS AND OTHER...	O	O			
2. INSPECTION TASKS DURING BOLTING:					
A. FASTENER ASSEMBLIES, OF SUITABLE CONDITION, PLACED IN ALL HOLES AND WASHERS (IF REQUIRED) ARE POSITIONED AS REQUIRED.	O	O			
B. JOINT BROUGHT TO THE SNUG-TIGHT CONDITION PRIOR TO THE PRETENSIONING OPERATION.	O	O	AISC 360, SECTION N5, TABLE N5.6-2	1705.2	SI/TA
C. FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTING FROM ROTATING.	O	O			
D. FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH THE RCSC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID POINT TOWARD THE FREE EDGES.	O	O			
3. INSPECTION TASKS AFTER BOLTING:					
A. DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS.	P	P	AISC 360, SECTION N5, TABLE N5.6-3	1705.2	SI/TA

O. OBSERVE THESE ITEMS ON A RANDOM BASIS. OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS.  
P. PERFORM THESE TASKS FOR EACH BOLTED CONNECTION.

INSPECTION TASK	INSPECTION FREQUENCY		REFERENCED STANDARD	IBC REFERENCE	RESPONSIBLE AGENT
	CONTINUOUS	PERIODIC			
INSPECTION OF WELDING:					
1. INSPECTION TASKS PRIOR TO WELDING:					
A. WELDING PROCEDURE SPECIFICATIONS (WPSs) AVAILABLE.	P	P			
B. MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE.	P	P			
C. MATERIAL IDENTIFICATION (TYPE/GRADE).	O	O			
D. WELDER IDENTIFICATION SYSTEM.	O	O			
E. FIT-UP OF GROOVE WELDS (INCLUDING JOINT GEOMETRY): - JOINT PREPARATION - DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL), - CLEANLINESS (CONDITION OF STEEL SURFACES), - TACKING (TACK WELD QUALITY AND LOCATION), - BACKING TYPE AND FIT (IF AVAILABLE).	O	O	AISC 360, SECTION N5, TABLE N5.4-1	1705.2	SI/TA
F. CONFIGURATION OF FINISH AND ACCESS HOLES.	O	O			
G. FIT-UP OF FILLET WELDS: - DIMENSIONS (ALIGNMENT, GAPS AT ROOT), - CLEANLINESS (CONDITION OF STEEL SURFACES), - TACKING (TACK WELD QUALITY AND LOCATION).	O	O			
H. CHECK WELDING EQUIPMENT.	O	-			
2. INSPECTION TASKS DURING WELDING:					
A. USE OF QUALIFIED WELDERS.	O	O			
B. CONTROL AND HANDLING OF WELDING CONSUMABLES: - PACKAGING, - EXPOSURE CONTROL.	O	O			
C. NO WELDING OVER CRACKED TACK WELDS.	O	O			
D. WPS FOLLOWED: - SETTINGS ON WELDING EQUIPMENT. - TRAVEL SPEED, - SELECTED WELDING MATERIALS, - SHIELDING GAS TYPE/FLOW RATE, - PREHEAT APPLIED, - INTERPASS TEMPERATURE MAINTAINED (MIN./MAX.), - PROPER POSITION (F, V, H, OH).	O	O	AISC 360, SECTION N5, TABLE N5.4-2	1705.2	SI/TA
E. WELDING TECHNIQUES: - INTERPASS AND FINAL CLEANING - EACH PASS WITHIN PROFILE LIMITATIONS, - EACH PASS MEETS QUALITY REQUIREMENTS.	O	O			
3. INSPECTION TASKS AFTER WELDING:					
A. WELDS CLEANED.	O	O			
B. SIZE, LENGTH AND LOCATION OF WELDS.	P	P			
C. WELDS MEET VISUAL ACCEPTANCE CRITERIA: - CRACK PROHIBITION - WELD/BASE-METAL FUSION, - CRATER CROSS SECTION, - WELD PROFILES, - WELD SIZE, - UNDERCUT, - POROSITY.	P	P	AISC 360, SECTION N5, TABLE N5.4-3	1705.2	SI/TA
D. ARC STRIKES.	P	P			
E. K-AREA.	P	P			
F. BACKING REMOVED AND WELD TABS REMOVED (IF REQUIRED).	P	P			
G. REPAIR ACTIVITY.	P	P			
H. DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR...	P	P			

O. OBSERVE THESE ITEMS ON A RANDOM BASIS. OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS.  
P. PERFORM THESE TASKS FOR EACH WELDED JOINT OR MEMBER.

O. OBSERVE THESE ITEMS ON A RANDOM BASIS. OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS.  
P. PERFORM THESE TASKS FOR EACH STEEL ELEMENT.

SPECIAL INSPECTION REQUIREMENTS - FIRE RESISTANT MATERIALS					
TASK	INSPECTION FREQUENCY		REFERENCED STANDARD	IBC REFERENCE	RESPONSIBLE AGENT
	CONTINUOUS	PERIODIC			
1. SPRAYED FIRE RESISTANT MATERIALS:					
A. SURFACE CONDITIONS	X	-	MANUFACTURER'S REQUIREMENTS	1705.13.2	SI/TA
B. APPLICATION	-	X	MANUFACTURER'S REQUIREMENTS	1705.13.3	
C. THICKNESS	X	-	ASTM E605	1705.13.4	
D. DENSITY	-	X	ASTM E605	1705.13.5	
E. BOND STRENGTH	-	X	ASTM E736	1705.13.6	
2. MASTIC AND INTUMESCENT FIRE-RESISTANT COATINGS.					
	-	X	AWCI 12-B	1705.14	SI/TA

STATEMENT OF SPECIAL INSPECTIONS - CONCRETE CONSTRUCTION					
TASK	INSPECTION FREQUENCY		REFERENCED STANDARD	MBC REFERENCE	RESPONSIBLE AGENT
	CONTINUOUS	PERIODIC			
1. INSPECT REINFORCEMENT, INCLUDING POST-TENSIONED CABLES, AND VERIFY PLACEMENT.	-	X	ACI 318: Ch. 20, 25.2, 25.3, 26.6.1-26.6.3	1908.4	SI
2. REINFORCING BAR WELDING:					
A. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706	-	X	AWS D1.4 ACI 318: 26.6.4	-	SI
B. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16"	-	X			
C. INSPECT ALL OTHER WELDS	X	-			
3. INSPECT ANCHORS CAST IN CONCRETE.	-	X	ACI 318: 17.8.2	-	SI / TA
4. INSPECT ANCHORS POST-INSTALLED IN HARDENED MEMBERS.					
A. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS.	X	-	ACI 318: 17.8.2.4		
B. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.A.	-	X	ACI 318: 17.8.2		
5. VERIFY USE OF REQUIRED DESIGN MIX.	-	X	ACI 318: Ch. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3	SI / TA
6. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	-	ASTM C172 ASTM C31 ACI 318: 26.4, 26.12	1908.10	SI / TA
7. INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	-	ACI 318: 26.5	1908.6, 1908.7, 1908.8	SI
8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	-	X	ACI 318: 26.5.3-26.5.5	1908.9	SI
9. INSPECT PRESTRESSED CONCRETE FOR:					
A. APPLICATION OF PRE-STRESSED FORCES	X	-	ACI 318: 26.10	-	SI / SE
B. GROUTING OF BONDED PRESTRESSING TENDONS	X	-			
10. INSPECT ERECTION OF PRECAST CONCRETE MEMBERS.	-	X	ACI 318: Ch. 26.8	-	SI / SE
11. VERIFY IN-SITU CONCRETE STRENGTH PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS.	-	X	ACI 318: 26.11.2	-	SI / SE / TA
12. INSPECT FORMWORK FOR SHAPE, LOCATION, AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	-	X	ACI 318: 26.11.1.2(b)	-	SI / SE / TA

### SPECIAL INSPECTION REQUIREMENTS - MASONRY: LEVEL A QUALITY ASSURANCE

**MINIMUM TESTS**

VERIFICATION OF SLUMP FLOW AND VISUAL STABILITY INDEX (VSI) AS DELIVERED TO THE PROJECT SITE IN ACCORDANCE WITH SPECIFICATION ARTICLE 1.5 B.1.b.3 FOR SELF-CONSOLIDATING GROUT.

VERIFICATION OF  $f_m$  IN ACCORDANCE WITH SPECIFICATION ARTICLE 1.4 B PRIOR TO CONSTRUCTION.

TASK	INSPECTION FREQUENCY		REFERENCE CRITERIA			RESPONSIBLE AGENT
	CONTINUOUS	PERIODIC	MBC SECTION	TMS 402	TMS 602	
1. VERIFY COMPLIANCE WITH THE APPROVED SUBMITTALS.	-	X	-	-	ART. 1.5	SI
2. AS MASONRY CONSTRUCTION BEGINS, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:						
A. PROPORTIONS OF SITE-PREPARED MORTAR.	-	X	-	-	ART. 2.1, 2.6A	SI
B. CONSTRUCTION OF MORTAR JOINTS.	-	X	-	-	ART. 3.3B	
D. LOCATION OF REINFORCEMENT, CONNECTORS, AND ANCHORAGES.	-	X	-	-	ART. 3.4, 3.6A	
3. PRIOR TO GROUTING, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:						
A. GROUT SPACE.	-	X	-	-	ART. 3.2D, 3.2F	SI/TA
B. GRADE, TYPE, AND SIZE OF REINFORCEMENT AND ANCHOR RODS, AND NCHORS.	-	X	-	SEC. 6.1	ART. 2.4, 3.4	
C. PLACEMENT OF REINFORCEMENT, CONNECTORS, AND ANCHORS.	-	X	-	SEC. 6.1, 6.2.1, 6.2.6, 6.2.7	ART. 3.2E, 3.4, 3.6A	
E. CONSTRUCTION OF MORTAR JOINTS.	-	X	-	-	ART. 3.3B	
4. VERIFY DURING CONSTRUCTION:						
A. SIZE AND LOCATION OF STRUCTURAL ELEMENTS.	-	X	-	-	ART. 3.3F	SI/TA
B. TYPE, SIZE, AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES, OR OTHER CONSTRUCTION.	-	X	-	SEC. 1.2.1(e), 6.1.4.3, 6.2.1	-	
C. WELDING OF REINFORCEMENT.	X	-	-	SEC. 8.1.6.7.2, 9.3.3.4(c), 11.3.3.4(b)	-	
D. PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40°F) OR HOT WEATHER (TEMPERATURE ABOVE 90°F).	-	X	-	-	ART. 1.8C, 1.8D	
5. OBSERVE PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR PRISMS.	-	X	-	-	ART. 1.4 B.2.a.3, 1.4 B.2.b.3, 1.4 B.2.c.3, 1.4 B.3, 1.4 B.4	SI/TA

MBC REFERENCE SECTION 1705.1 AND TABLE 3.1.2 TMS 402/ACI 530/ASCE 5

### SPECIAL INSPECTIONS

- PERFORM SPECIAL INSPECTIONS IN ACCORDANCE WITH THE 2015 MICHIGAN BUILDING CODE CHAPTER 17 AND AS MODIFIED IN THE MATERIAL SPECIFIC STATEMENTS OF SPECIAL INSPECTION.
- DESIGNATION OF RESPONSIBLE AGENT AND THEIR QUALIFICATIONS  
SI SPECIAL INSPECTOR QUALIFIED WITH DEMONSTRATED COMPETENCE DOCUMENTED BY CERTIFICATIONS FROM RECOGNIZED AGENCIES SUCH AS AWS, ACI, MASONRY INSTITUTE OF MICHIGAN (MIM), ETC., AS SUBMITTED AND APPROVED BY THE BUILDING OFFICIAL. SPECIAL INSPECTOR MAY BE A FIRM WITH MULTIPLE SPECIALISTS AND A PROJECT MANAGER PROVIDING REPORTS.  
TA TESTING AGENCY QUALIFIED TO TEST AND INSPECT MATERIALS AND ASSEMBLIES. TESTING AGENCY SHALL BE UNDER THE SUPERVISION OF THE SPECIAL INSPECTOR.  
GE GEOTECHNICAL ENGINEER WHO PROVIDED THE ORIGINAL PROJECT GEOTECHNICAL SOILS INVESTIGATION REPORT.  
SE SPECIALTY ENGINEER RESPONSIBLE FOR DESIGNING ASSEMBLIES SUCH AS PRECAST CONCRETE, STEEL JOINTS, COLD FORMED FRAMING ASSEMBLIES, ETC. SPECIALTY ENGINEER SHALL PROVIDE OBSERVATION OF FABRICATED AND INSTALLED ITEMS OF THEIR DESIGN IN ADDITION TO THE SPECIAL INSPECTION.
- TA, GE AND SE SHALL SUBMIT RECORDS OF THE INSPECTION RESULTS TO THE SI. THE SI SHALL COMPARE AND SUBMIT INSPECTION RECORDS TO THE ARCHITECT/ENGINEER AND BUILDING OFFICIAL. RECORDS SHALL INCLUDE STATEMENTS OF TESTS, WHETHER INSTALLED/FABRICATED ITEM COMPLIES WITH CONTRACT DOCUMENTS, REMEDIAL WORK PERFORMED, RETESTS.
- SI SHALL PROVIDE A DAILY REPORT OF ANY DISCREPANCIES FROM THE CONTRACT DOCUMENTS FOUND ON THE SAME DAY OF THE INSPECTION TO THE ENGINEER OF RECORD. FORMAL REPORTS OF COMPLIANCE CAN FOLLOW BY A MAXIMUM OF 2 WEEKS. SI SHALL PROVIDE AND SIGN FINAL REPORT WITH A SUMMARY OF ALL TESTS PERFORMED AND RESULTS TO THE ENGINEER OF RECORD AND BUILDING OFFICIAL, IN ACCORDANCE WITH SECTION 1704.2.4.
- SI, TA & GE SHALL BE PAID BY THE OWNER IN COMPLIANCE WITH THE MICHIGAN (INTERNATIONAL) BUILDING CODE.
- WHERE FABRICATION OF STRUCTURAL LOAD-BEARING OR LATERAL LOAD-RESISTING MEMBERS OR ASSEMBLIES IS BEING CONDUCTED ON THE PREMISES OF A FABRICATOR'S SHOP, SPECIAL INSPECTIONS OF THE FABRICATED ITEMS SHALL BE PERFORMED DURING FABRICATION. SPECIAL INSPECTIONS DURING FABRICATION ARE NOT REQUIRED WHERE THE FABRICATOR MAINTAINS APPROVED DETAILED FABRICATION AND QUALITY CONTROL PROCEDURES THAT PROVIDE A BASIS FOR CONTROL OF THE WORKMANSHIP AND THE FABRICATOR'S ABILITY TO CONFORM TO APPROVED CONSTRUCTION DOCUMENTS AND THE GOVERNING BUILDING CODE. APPROVAL SHALL BE BASED UPON REVIEW OF FABRICATION AND QUALITY CONTROL PROCEDURES AND PERIODIC INSPECTION OF FABRICATION PRACTICES BY THE BUILDING OFFICIAL. SPECIAL INSPECTIONS ARE NOT REQUIRED WHERE THE FABRICATOR IS REGISTERED AND APPROVED IN ACCORDANCE WITH SECTION 1704.2.5.1.
- REFER TO MATERIAL SPECIFIC STATEMENTS OF SPECIAL INSPECTION AND GENERAL STRUCTURAL NOTES FOR ADDITIONAL QUALITY CONTROL TESTING AND INSPECTIONS.

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Sheet Title  
SPECIAL INSPECTION REQUIREMENTS

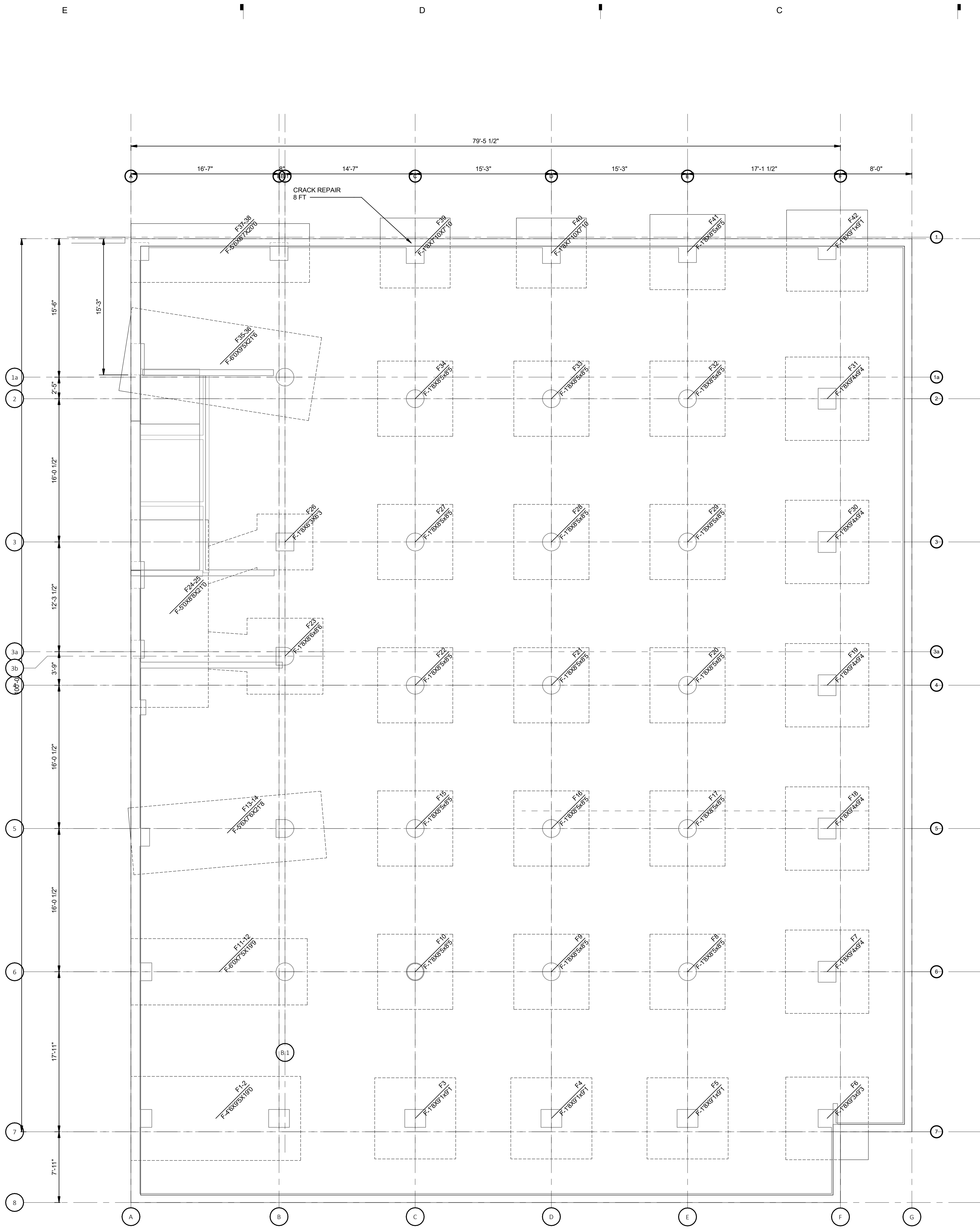
Sheet Number

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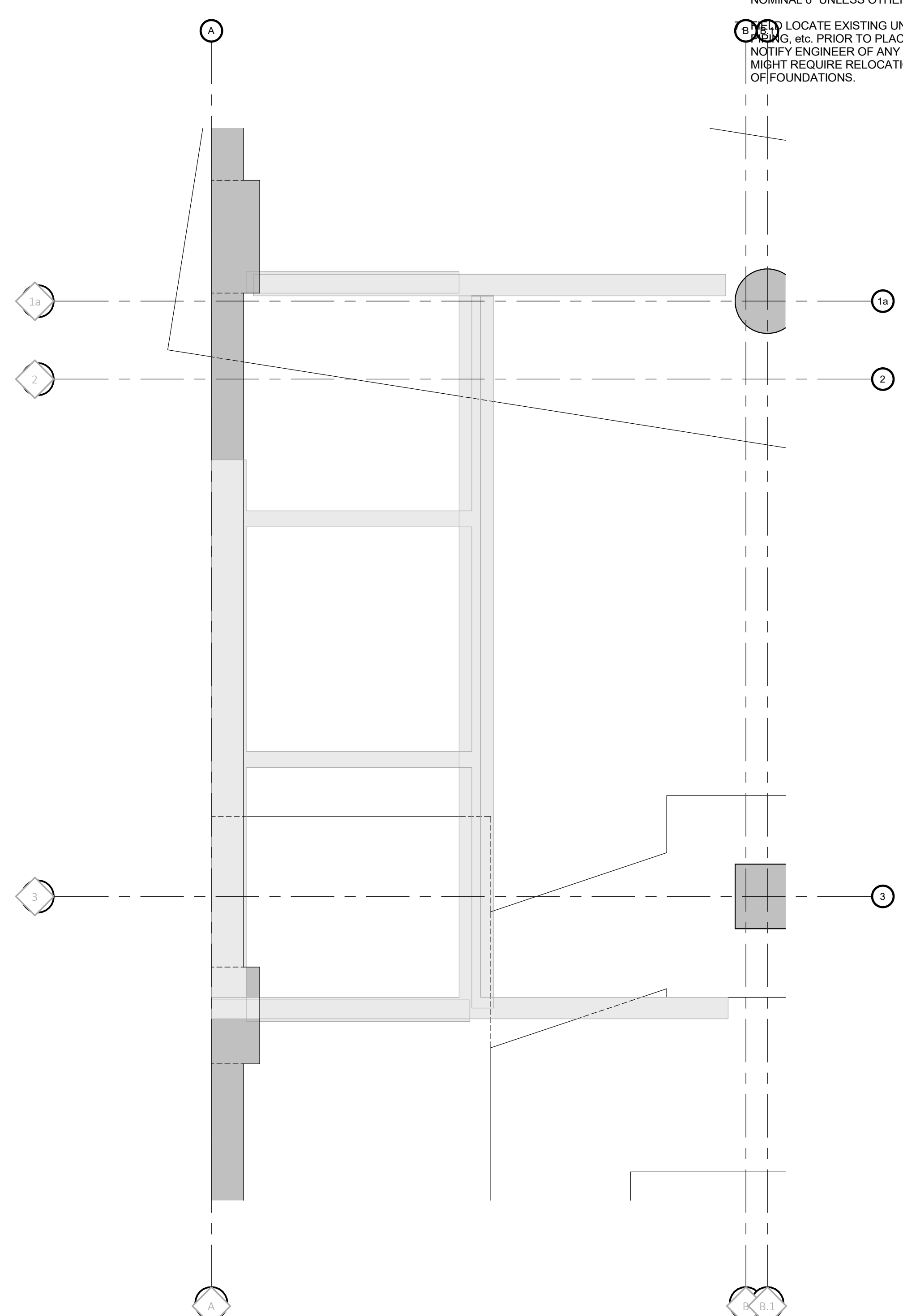
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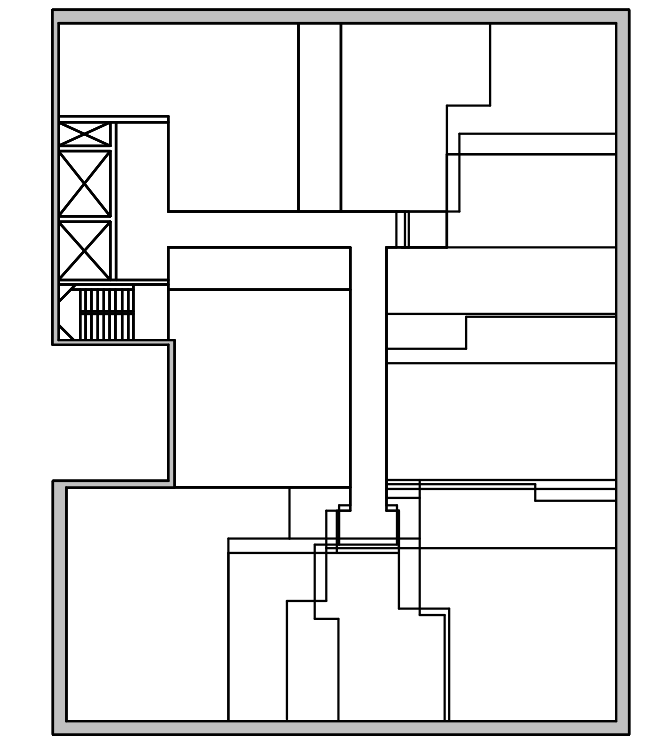
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**FOUNDATION PLAN**  
SCALE: 3/16" = 1'-0"



**ELEVATOR PIT**  
SCALE: 3/8" = 1'-0"



KEY PLAN



- \*EDIT NOTES PER PROJECT REQUIREMENTS\***  
**FOUNDATION/SLAB ON GRADE NOTES:**
- REFERENCE ELEVATION 100'-0" = USGS DATUM  
 ELEVATION ESTABLISHED ELEVATIONS:  
 FINISH FIRST FLOOR EL. UON.  
 TOP OF PIER EL. UON.  
 TOP OF FOOTING EL. UON.  
 TOP OF DRILLED PIER EL. UON.  
 TOP OF GRADE BEAM EL. UON.  
 TOP OF CONCRETE CURB EL. UON.
  - SLAB ON GRADE TYPES:  
 SOG-1 - CONCRETE SLAB ON GRADE WITH  
 WWF ON MIN. COMPACTED GRANULAR FILL  
 SOG-2 - SRF/C SLAB ON GRADE WITH A  
 MINIMUM DOSAGE RATE OF SEE SPECIFICATIONS  
 FOR FIBER TYPE AND MINIMUM POST CRACK  
 EQUIVALENT FLEXURAL STRENGTH.
  - REFER TO THE FOLLOWING FOR ADDITIONAL INFORMATION:  
 S00-00-02 FOR GENERAL STRUCTURAL NOTES.  
 S07-00-01 FOR FOUNDATION SCHEDULES AND TYPES.  
 S07-00-01 FOR PIER SCHEDULE AND TYPES.  
 SF2-00-XX FOR BRACE FRAME ELEVATIONS.  
 SF7-00-01 FOR COLUMN KEY PLAN AND SCHEDULES.
  - REFER TO ARCHITECTURAL, MECHANICAL AND  
 ELECTRICAL DRAWINGS FOR HOUSEKEEPING AND/OR  
 EQUIPMENT PADS, CURB SIZES AND LOCATIONS. SIZES  
 AND LOCATIONS OF PADS SHALL BE VERIFIED  
 W/APPROVED MANUFACTURERS EQUIPMENT SHOP  
 DRAWINGS PRIOR TO FABRICATION.
  - DIMENSIONS INDICATED THUS (V) SHALL BE VERIFIED  
 W/APPROVED MANUFACTURERS EQUIPMENT SHOP  
 DRAWINGS PRIOR TO FABRICATION.
  - FOUNDATION DRAINAGE PIPE DIAMETER TO BE  
 NOMINAL 6" UNLESS OTHERWISE NOTED.

**GENERAL NOTE:**  
LOCATE EXISTING UNDERGROUND UTILITIES,  
E.G., etc. PRIOR TO PLACEMENT OF FOUNDATIONS.  
NOTIFY ENGINEER OF ANY INTERFERENCE WHICH  
MIGHT REQUIRE RELOCATION AND/OR MODIFICATION  
OF FOUNDATIONS.

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Revision Date

Date Issue Date

Project Number 2018063

Sheet Title  
**BASEMENT AND**  
**FOUNDATION**  
**PLAN**

Sheet Number

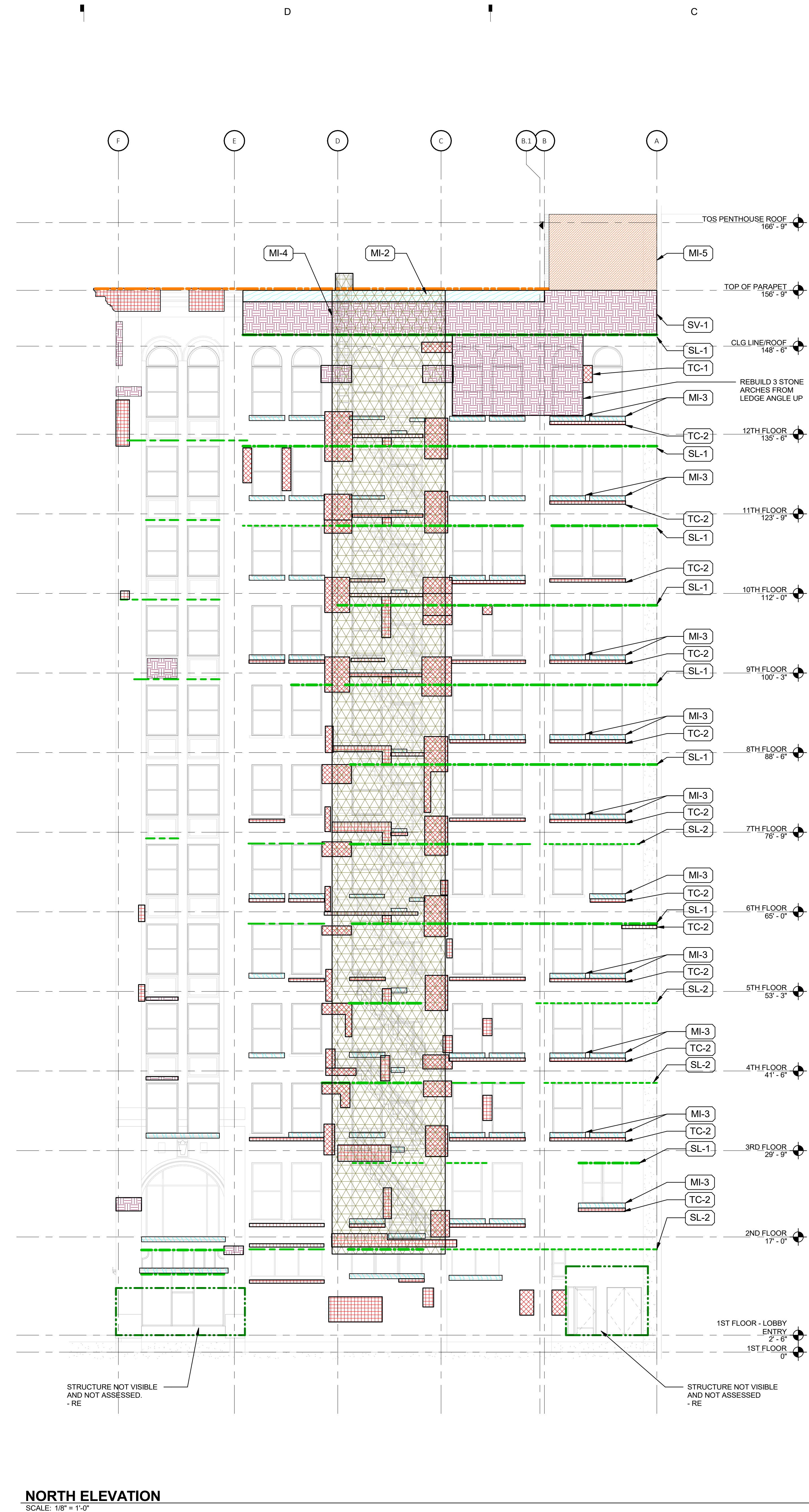
**S100**







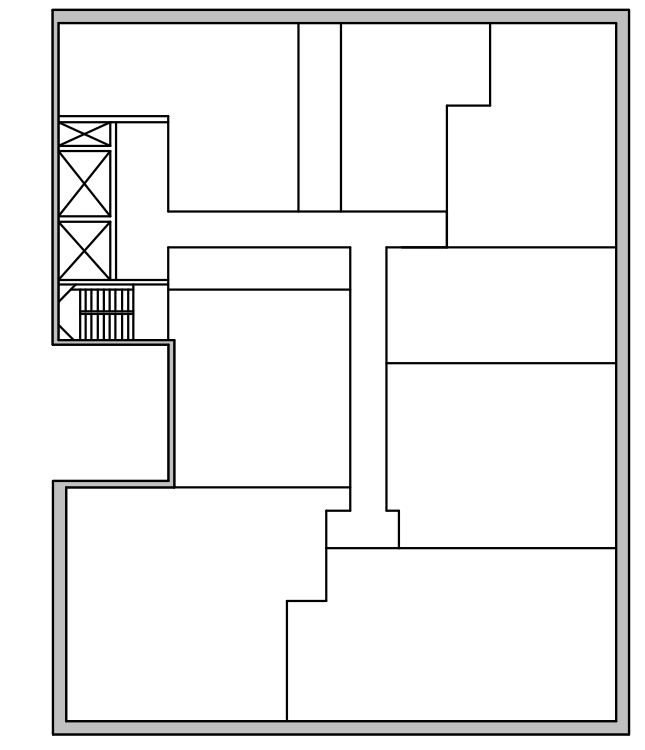
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**NORTH ELEVATION**  
SCALE: 1/8" = 1'-0"

HATCH PATTERN / LINE TYPE	TAG	REPAIR TYPE	NO OF LOCATIONS	TOTAL QUANTITY
<b>1.0 TERRA COTTA</b>				
[Hatch]	TC-1	REMOVE TERRA-COTTA. REPLACE/REPAIR CORRODED STEEL SHELF ANGLE AND LATERAL TIES. INSTALL FLASHING AND WEEPS. REPLACE NEW TERRA-COTTA REPLICA.		
[Hatch]	TC-2	REPAIR OR REPLACE CRACKED AND DAMAGED TERRA-COTTA PIECES.		
<b>2.0 BRICK VENEER</b>				
[Hatch]	BR-1	REMOVE DAMAGED BRICK OR PREPARE BACKUP WALL WHERE BRICK IS MISSING. REPLACE/REPAIR CORRODED STEEL SHELF ANGLE AND LATERAL TIES. INSTALL FLASHING AND WEEPS. REPLACE BRICK.		
[Hatch]	BR-2	REMOVE DAMAGED/DETERIORATED BRICK. REPAIR CORRODED STEEL SHELF ANGLE AND LATERAL TIES. INSTALL FLASHING AND WEEPS. REPLACE NEW OR SALVAGED BRICK.		
[Hatch]	BR-3	REPAIR DAMAGED BRICK. REPAIR CRACKS AND DAMAGED MORTAR JOINTS.		
<b>3.0 STONE</b>				
[Hatch]	SV-1	REMOVE DAMAGED/DETERIORATED STONE VENEER. REPLACE/REPAIR CORRODED STEEL SHELF ANGLE AND LATERAL TIES. INSTALL FLASHING AND WEEPS. REPLACE NEW STONE TO MATCH.		
[Hatch]	SV-2	REPLACE/REPAIR CORRODED STEEL SHELF ANGLE AND LATERAL TIES. INSTALL FLASHING AND WEEPS. REPLACE STONE VENEER.		
[Hatch]	SV-3	REPAIR CRACKED AND DETERIORATED STONE VENEER.		
<b>4.0 STEEL SUPPORT</b>				
[Hatch]	SL-1	REMOVE BRICK/TERRA-COTTA. REPLACE CORRODED STEEL SHELF ANGLE AND LATERAL TIES. INSTALL FLASHING AND WEEPS. REPLACE NEW OR SALVAGED BRICK/TERRA-COTTA OR STONE. REMOVE AND REPLACE MIN 4 COURSES.		
[Hatch]	SL-2	REMOVE BRICK/TERRA-COTTA. CLEAN CORRODED STEEL SHELF ANGLE AND COAT. INSTALL FLASHING AND WEEPS. REPLACE NEW OR SALVAGED BRICK/TERRA-COTTA OR STONE. REMOVE AND REPLACE MIN 4 COURSES.		
[Hatch]	SL-3	REMOVE BRICK/TERRA-COTTA. GRIND OUT EXISTING JOINT. COAT EXPOSED STEEL AND INSTALL WEEPS. REMOVE AND REPLACE MIN 4 COURSES.		
<b>5.0 MISCELLANEOUS</b>				
[Hatch]	MI-1	REPAIR/REPLACE COPING STONES.		
[Hatch]	MI-2	REPAIR/REPLACE PARAPET WALL. REPLACE ALL DETERIORATED MASONRY AND MASONRY JOINTS.		
[Hatch]	MI-3	REPAIR/REPLACE WINDOW SILL.		
[Hatch]	MI-4	REMOVE AND RECONSTRUCT STEEL FIRE ESCAPE AND SUPPORTS TO STRUCTURE. RECONSTRUCT STAIR TO MEET CURRENT FIRE ESCAPE REQUIREMENTS PER CODE.		
[Hatch]	MI-5	REMOVE AND RECONSTRUCT PENTHOUSE WALLS, PARAPET AND COPING STONES.		

- ADDITIONAL WORK ITEMS AND NOTES:**
- TUCK AND REPOINT MASONRY, TERRA-COTTA AND STONE JOINTS AS REQUIRED TO RESORE ALL JOINTS.
  - REMOVE ALL GULK AND SEALANT FROM FACADE. REPLACE UPPER SIDE HORIZONTAL AND VERTICAL SEALANT JOINTS. DO NOT INSTALL SEALANT ON SOFFIT JOINTS OR JOINTS THAT DRAIN WATER FROM CAVITY.
  - REMOVE PAINT/GRAFFITTI AND WASH ALL MASONRY, TERRA-COTTA AND STONE SURFACES.
  - CLEAN AND REMOVE RUST FROM ALL EXPOSED STEEL SURFACES, PRIME AND EPOXY COAT.
  - INCLUDE AN ALLOWANCE FOR 1,000 (TOTAL FOR ALL SIDES) STAINLESS STEEL HELIFIX ANCHORS TO BE DRILLED AND INSTALLED THROUGH MORTAR JOINT AND INTO CONCRETE COLUMN ENCASEMENT, TO PROVIDE LATERAL SUPPORT OF VENEER AT COLUMNS WHERE NO TIES WERE ORIGINALLY PROVIDED.
  - REFER TO SPECIFICATIONS AND GENERAL NOTES FOR OTHER REQUIREMENTS FOR ALL RESTORATION WORK.



KEY PLAN



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2001-2017 PARK AVENUE  
DETROIT, MI

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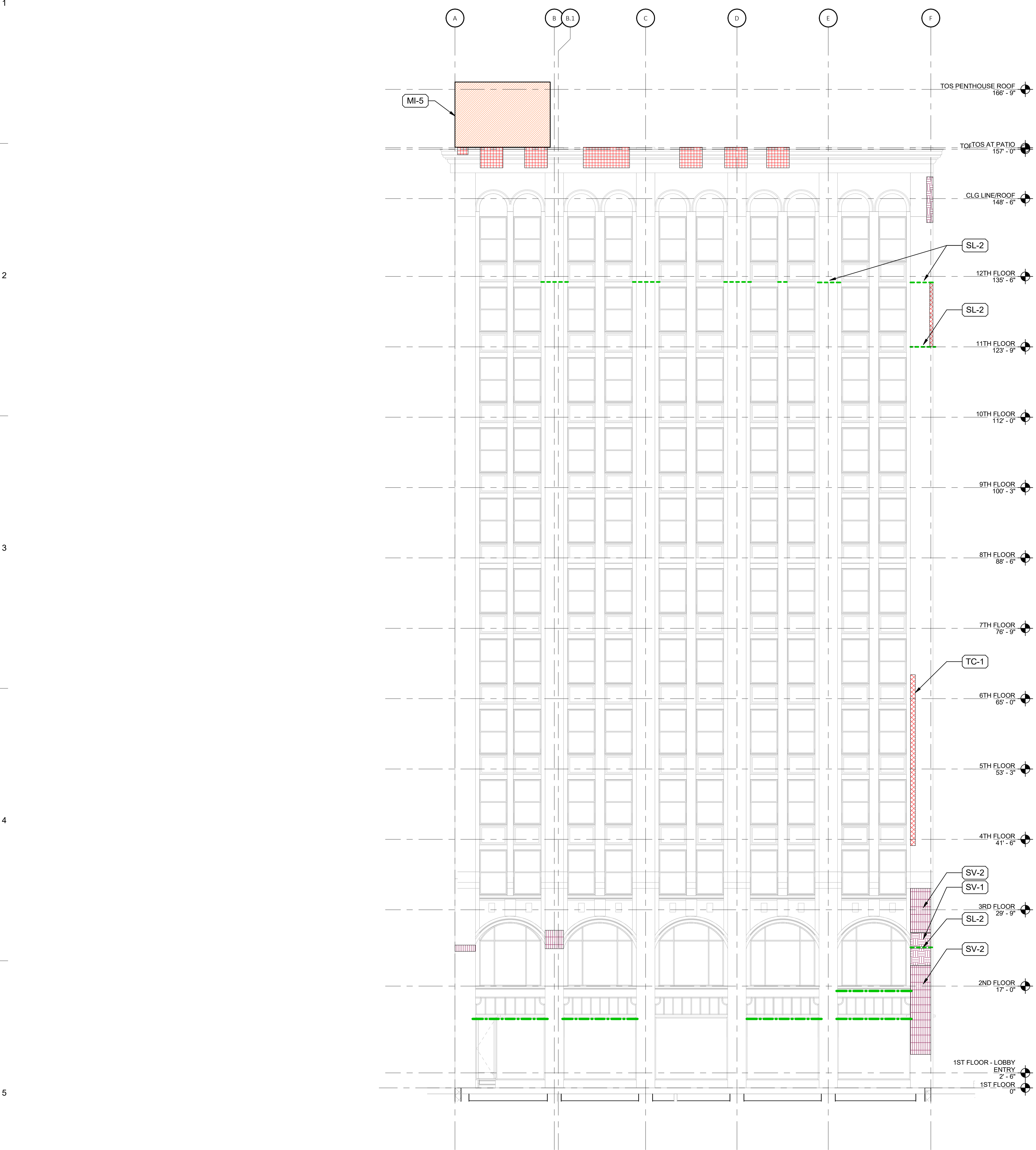
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Sheet Title  
**NORTH ELEVATION**

Sheet Number  
**S201**



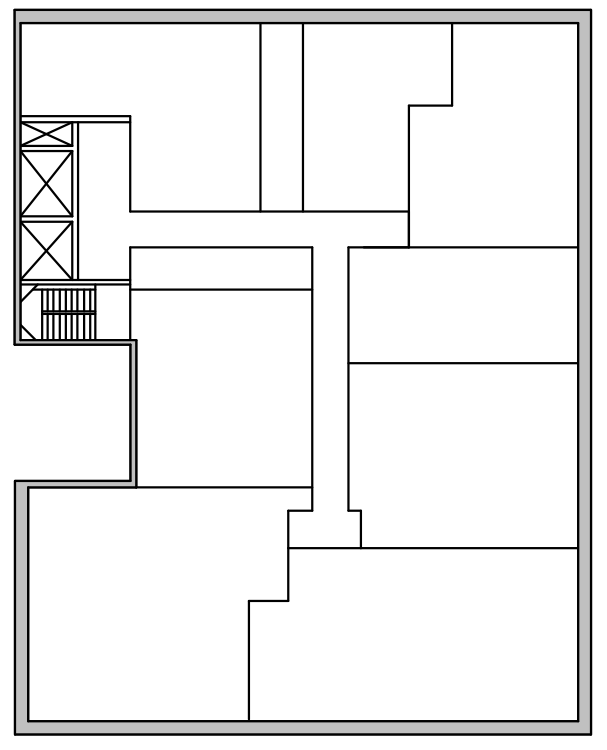
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**SOUTH ELEVATION**  
SCALE: 1/8" = 1'-0"

HATCH PATTERN / LINE TYPE	TAG	REPAIR TYPE	NO OF LOCATIONS	TOTAL QUANTITY
<b>1.0 TERRA COTTA</b>				
[Red cross-hatch]	TC-1	REMOVE TERRA-COTTA. REPLACE/REPAIR CORRODED STEEL SHELF ANGLE AND LATERAL TIES. INSTALL FLASHING AND WEEPS. REPLACE NEW TERRA-COTTA REPLICA.		
[Red cross-hatch]	TC-2	REPAIR OR REPLACE CRACKED AND DAMAGED TERRA-COTTA PIECES.		
<b>2.0 BRICK VENEER</b>				
[Blue diagonal hatch]	BR-1	REMOVE DAMAGED BRICK OR PREPARE BACKUP WALL WHERE BRICK IS MISSING. REPLACE/REPAIR CORRODED STEEL SHELF ANGLE AND LATERAL TIES. INSTALL FLASHING AND WEEPS. REPLACE BRICK.		
[Blue diagonal hatch]	BR-2	REMOVE DAMAGED/DETERIORATED BRICK. REPLACE CORRODED STEEL SHELF ANGLE AND LATERAL TIES. INSTALL FLASHING AND WEEPS. REPLACE NEW OR SALVAGED BRICK.		
[Blue diagonal hatch]	BR-3	REPAIR DAMAGED BRICK. REPAIR CRACKS AND DAMAGED MORTAR JOINTS.		
<b>3.0 STONE</b>				
[Pink cross-hatch]	SV-1	REMOVE DAMAGED/DETERIORATED STONE VENEER. REPLACE/REPAIR CORRODED STEEL SHELF ANGLE AND LATERAL TIES. INSTALL FLASHING AND WEEPS. REPLACE NEW STONE TO MATCH.		
[Pink cross-hatch]	SV-2	REMOVE STONE VENEER. REPLACE/REPAIR CORRODED STEEL SHELF ANGLE AND LATERAL TIES. INSTALL FLASHING AND WEEPS. REPLACE STONE VENEER.		
[Pink cross-hatch]	SV-3	REPAIR CRACKED AND DETERIORATED STONE VENEER.		
<b>4.0 STEEL SUPPORT</b>				
[Green dashed line]	SL-1	REMOVE BRICK/TERRA-COTTA. REPLACE CORRODED STEEL SHELF ANGLE AND LATERAL TIES. INSTALL FLASHING AND WEEPS. REPLACE NEW OR SALVAGED BRICK / TERRA-COTTA OR STONE. REMOVE AND REPLACE MIN 4 COURSES.		
[Green dashed line]	SL-2	REMOVE BRICK/TERRA-COTTA. CLEAN CORRODED STEEL SHELF ANGLE AND COAT. INSTALL FLASHING AND WEEPS. REPLACE NEW OR SALVAGED BRICK / TERRA-COTTA OR STONE. REMOVE AND REPLACE MIN 4 COURSES.		
[Green dashed line]	SL-3	REMOVE BRICK/TERRA-COTTA. GRIND OUT EXISTING JOINT. COAT EXPOSED STEEL AND INSTALL WEEPS. REMOVE AND REPLACE MIN 4 COURSES.		
<b>5.0 MISCELLANEOUS</b>				
[Orange dashed line]	MI-1	REPAIR/REPLACE COPING STONES.		
[Light blue diagonal hatch]	MI-2	REPAIR/REPLACE PARAPET WALL. REPLACE ALL DETERIORATED MASONRY AND MASONRY JOINTS.		
[Light blue diagonal hatch]	MI-3	REPAIR/REPLACE WINDOW SILL.		
[Green cross-hatch]	MI-4	REMOVE AND RECONSTRUCT STEEL FIRE ESCAPE AND SUPPORTS TO STRUCTURE. RECONSTRUCT STAIR TO MEET CURRENT FIRE ESCAPE REQUIREMENTS PER CODE.		
[Orange cross-hatch]	MI-5	REMOVE AND RECONSTRUCT PENTHOUSE WALLS, PARAPET AND COPING STONES.		

- ADDITIONAL WORK ITEMS AND NOTES:**
- TUCK AND REPOINT MASONRY. TERRA-COTTA AND STONE JOINTS AS REQUIRED TO RESORE ALL JOINTS.
  - REMOVE ALL CAULK AND SEALANT FROM FACADE. REPLACE UPPER SIDE HORIZONTAL AND VERTICAL SEALANT JOINTS. DO NOT INSTALL SEALANT ON SOFFIT JOINTS OR JOINTS THAT DRAIN WATER FROM CAVITY.
  - REMOVE PAINT/GRAFFITI AND WASH ALL MASONRY, TERRA-COTTA AND STONE SURFACES.
  - CLEAN AND REMOVE RUST FROM ALL EXPOSED STEEL SURFACES. PRIME AND EPOXY COAT.
  - INCLUDE AN ALLOWANCE FOR 1,000 (TOTAL FOR ALL SIDES) STAINLESS STEEL HELIFIX ANCHORS TO BE DRILLED AND INSTALLED THROUGH MORTAR JOINT AND INTO CONCRETE COLUMN ENCASMENT. TO PROVIDE LATERAL SUPPORT OF VENEER AT COLUMNS WHERE NO TIES WERE ORIGINALLY PROVIDED.
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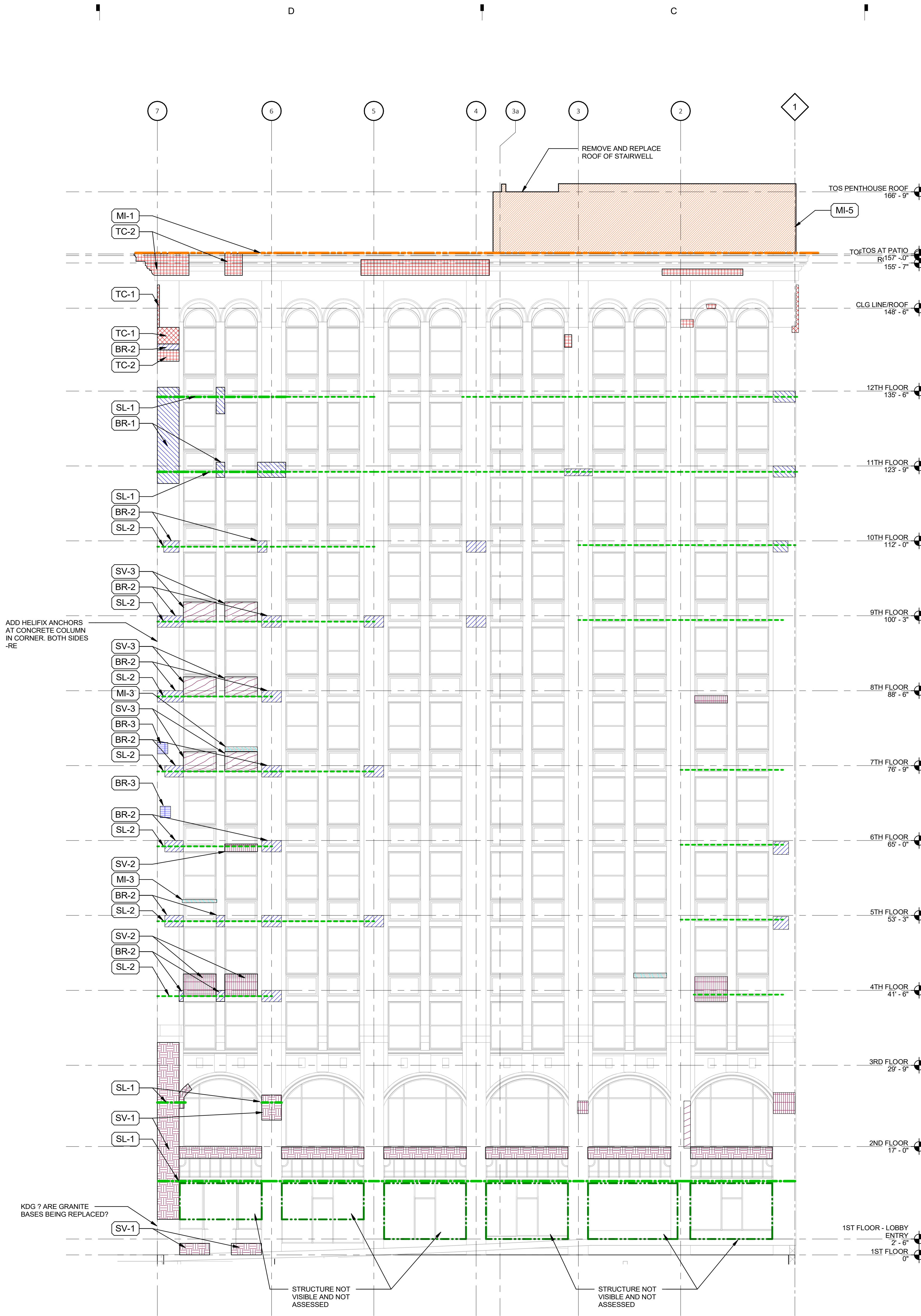
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Sheet Title  
**SOUTH ELEVATION**

Sheet Number  
**S202**





**EAST ELEVATION**  
SCALE: 1/8" = 1'-0"

HATCH PATTERN / LINE TYPE	TAG	REPAIR TYPE	NO OF LOCATIONS	TOTAL QUANTITY
<b>1.0 TERRA-COTTA</b>				
[Hatched Pattern]	TC-1	REMOVE TERRA-COTTA, REPLACE/REPAIR CORRODED STEEL SHELF ANGLE AND LATERAL TIES, INSTALL FLASHING AND WEEPS, REPLACE NEW TERRA-COTTA REPLICA.		
[Hatched Pattern]	TC-2	REPAIR OR REPLACE CRACKED AND DAMAGED TERRA-COTTA PIECES.		
<b>2.0 BRICK VENEER</b>				
[Hatched Pattern]	BR-1	REMOVE DAMAGED BRICK OR PREPARE BACKUP WALL WHERE BRICK IS MISSING, REPLACE/REPAIR CORRODED STEEL SHELF ANGLE AND LATERAL TIES, INSTALL FLASHING AND WEEPS, REPLACE BRICK.		
[Hatched Pattern]	BR-2	REMOVE DAMAGED/DETERIORATED BRICK, REPAIR CORRODED STEEL SHELF ANGLE AND LATERAL TIES, INSTALL FLASHING AND WEEPS, REPLACE NEW OR SALVAGED BRICK.		
[Hatched Pattern]	BR-3	REPAIR DAMAGED BRICK, REPAIR CRACKS AND DAMAGED MORTAR JOINTS.		
<b>3.0 STONE</b>				
[Hatched Pattern]	SV-1	REMOVE DAMAGED/DETERIORATED STONE VENEER, REPLACE/REPAIR CORRODED STEEL SHELF ANGLE AND LATERAL TIES, INSTALL FLASHING AND WEEPS, REPLACE NEW STONE TO MATCH.		
[Hatched Pattern]	SV-2	REMOVE STONE VENEER, REPLACE/REPAIR CORRODED STEEL SHELF ANGLE AND LATERAL TIES, INSTALL FLASHING AND WEEPS, REPLACE STONE VENEER.		
[Hatched Pattern]	SV-3	REPAIR CRACKED AND DETERIORATED STONE VENEER.		
<b>4.0 STEEL SUPPORT</b>				
[Dashed Line]	SL-1	REMOVE BRICK/TERRA-COTTA, REPLACE CORRODED STEEL SHELF ANGLE AND LATERAL TIES, INSTALL FLASHING AND WEEPS, REPLACE NEW OR SALVAGED BRICK / TERRA-COTTA OR STONE, REMOVE AND REPLACE MIN 4 COURSES.		
[Dashed Line]	SL-2	REMOVE BRICK/TERRA-COTTA, CLEAN CORRODED STEEL SHELF ANGLE AND COAT, INSTALL FLASHING AND WEEPS, REPLACE NEW OR SALVAGED BRICK / TERRA-COTTA OR STONE, REMOVE AND REPLACE MIN 4 COURSES.		
[Dashed Line]	SL-3	REMOVE BRICK/TERRA-COTTA, GRIND OUT EXISTING JOINT, COAT EXPOSED STEEL AND INSTALL WEEPS, REMOVE AND REPLACE MIN 4 COURSES.		
<b>5.0 MISCELLANEOUS</b>				
[Orange Hatched]	MI-1	REPAIR/REPLACE COPING STONES.		
[Light Blue Hatched]	MI-2	REPAIR/REPLACE PARAPET WALL, REPLACE ALL DETERIORATED MASONRY AND MASONRY JOINTS.		
[Light Blue Hatched]	MI-3	REPAIR/REPLACE WINDOW SILL.		
[Cross-hatched]	MI-4	REMOVE AND RECONSTRUCT STEEL FIRE ESCAPE AND SUPPORTS TO STRUCTURE, RECONSTRUCT STAIR TO MEET CURRENT FIRE ESCAPE REQUIREMENTS PER CODE.		
[Orange Hatched]	MI-5	REMOVE AND RECONSTRUCT PENTHOUSE WALLS, PARAPET AND COPING STONES.		

**ADDITIONAL WORK ITEMS AND NOTES:**

- TUCK AND REPOINT MASONRY, TERRA-COTTA AND STONE JOINTS AS REQUIRED TO RESORE ALL JOINTS.
- REMOVE ALL CAULK AND SEALANT FROM FACADE, REPLACE UPPER SIDE HORIZONTAL AND VERTICAL SEALANT JOINTS, DO NOT INSTALL SEALANT ON SOFFIT JOINTS OR JOINTS THAT DRAIN WATER FROM CAVITY.
- REMOVE PAINT/GRAFFITI AND WASH ALL MASONRY, TERRA-COTTA AND STONE SURFACES.
- CLEAN AND REMOVE RUST FROM ALL EXPOSED STEEL SURFACES, PRIME AND EPOXY COAT.
- INCLUDE AN ALLOWANCE FOR 1,000 (TOTAL FOR ALL SIDES) STAINLESS STEEL HELIFIX ANCHORS TO BE DRILLED AND INSTALLED THROUGH MORTAR JOINT AND INTO CONCRETE COLUMN ENCASEMENT, TO PROVIDE LATERAL SUPPORT OF VENEER AT COLUMNS WHERE NO TIES WERE ORIGINALLY PROVIDED.
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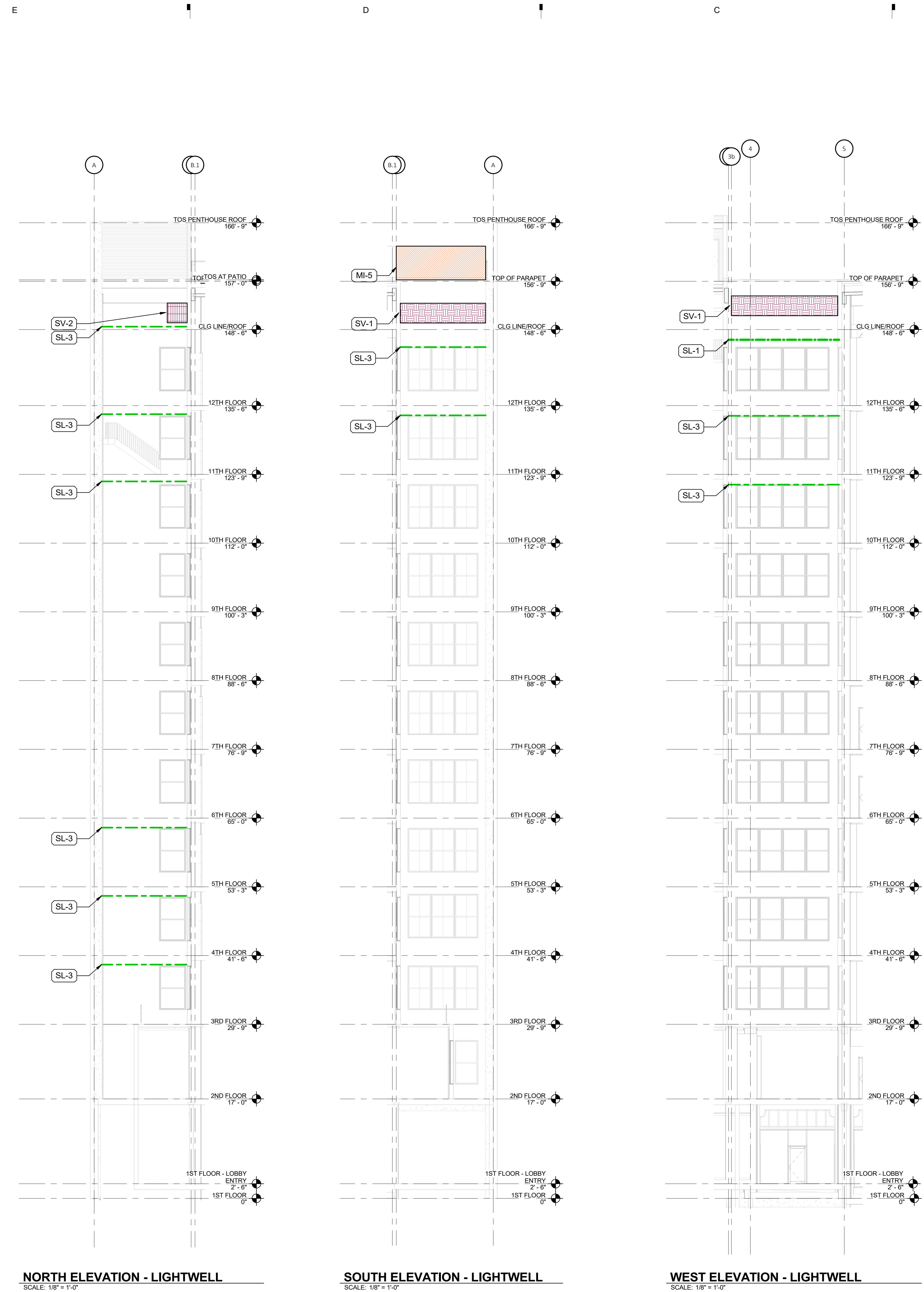
Sheet Title  
**EAST ELEVATION**

Sheet Number

**S203**



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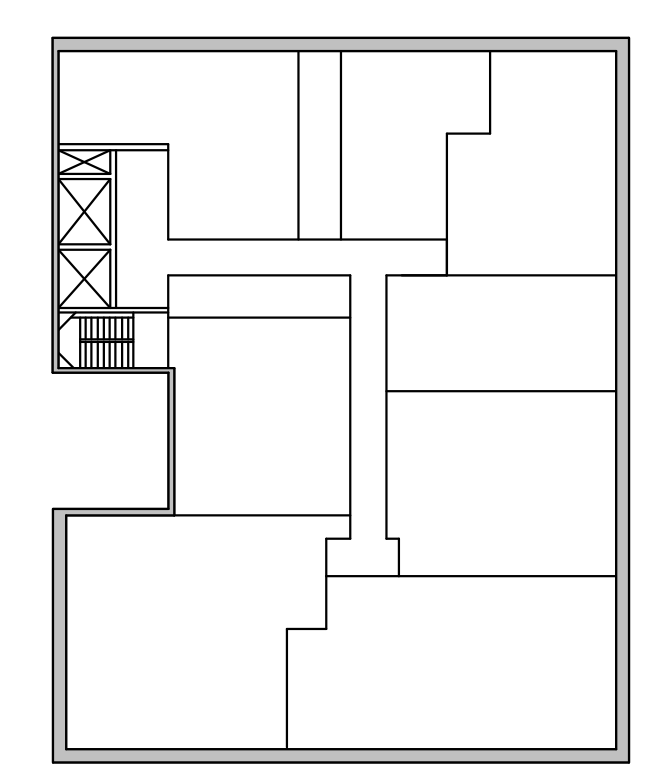
**NORTH ELEVATION - LIGHTWELL**  
SCALE: 1/8" = 1'-0"

**SOUTH ELEVATION - LIGHTWELL**  
SCALE: 1/8" = 1'-0"

**WEST ELEVATION - LIGHTWELL**  
SCALE: 1/8" = 1'-0"

HATCH PATTERN / LINE TYPE	TAG	REPAIR TYPE	NO OF LOCATIONS	TOTAL QUANTITY
<b>1.0 TERRA COTTA</b>				
[Red Hatched]	TC-1	REMOVE TERRA-COTTA. REPLACE/REPAIR CORRODED STEEL SHELF ANGLE AND LATERAL TIES. INSTALL FLASHING AND WEEPS. REPLACE NEW TERRA-COTTA REPLICA.		
[Red Hatched]	TC-2	REPAIR OR REPLACE CRACKED AND DAMAGED TERRA-COTTA PIECES.		
<b>2.0 BRICK VENEER</b>				
[Blue Hatched]	BR-1	REMOVE DAMAGED BRICK OR PREPARE BACKUP WALL WHERE BRICK IS MISSING. REPLACE/REPAIR CORRODED STEEL SHELF ANGLE AND LATERAL TIES. INSTALL FLASHING AND WEEPS. REPLACE BRICK.		
[Blue Hatched]	BR-2	REMOVE DAMAGED/DETERIORATED BRICK. REPLACE CORRODED STEEL SHELF ANGLE AND LATERAL TIES. INSTALL FLASHING AND WEEPS. REPLACE NEW OR SALVAGED BRICK.		
[Blue Hatched]	BR-3	REPAIR DAMAGED BRICK, REPAIR CRACKS AND DAMAGED MORTAR JOINTS.		
<b>3.0 STONE</b>				
[Pink Hatched]	SV-1	REMOVE DAMAGED/DETERIORATED STONE VENEER. REPLACE/REPAIR CORRODED STEEL SHELF ANGLE AND LATERAL TIES. INSTALL FLASHING AND WEEPS. REPLACE NEW STONE TO MATCH.		
[Pink Hatched]	SV-2	REMOVE STONE VENEER. REPLACE/REPAIR CORRODED STEEL SHELF ANGLE AND LATERAL TIES. INSTALL FLASHING AND WEEPS. REPLACE STONE VENEER.		
[Pink Hatched]	SV-3	REPAIR CRACKED AND DETERIORATED STONE VENEER.		
<b>4.0 STEEL SUPPORT</b>				
[Green Dashed]	SL-1	REMOVE BRICK/TERRA-COTTA. REPLACE CORRODED STEEL SHELF ANGLE AND LATERAL TIES. INSTALL FLASHING AND WEEPS. REPLACE NEW OR SALVAGED BRICK / TERRA-COTTA OR STONE. REMOVE AND REPLACE MIN 4 COURSES.		
[Green Dashed]	SL-2	REMOVE BRICK/TERRA-COTTA. CLEAN CORRODED STEEL SHELF ANGLE AND COAT. INSTALL FLASHING AND WEEPS. REPLACE NEW OR SALVAGED BRICK / TERRA-COTTA OR STONE. REMOVE AND REPLACE MIN 4 COURSES.		
[Green Dashed]	SL-3	REMOVE BRICK/TERRA-COTTA. GRIND OUT EXISTING JOINT, COAT EXPOSED STEEL, AND INSTALL WEEPS. REMOVE AND REPLACE MIN 4 COURSES.		
<b>5.0 MISCELLANEOUS</b>				
[Orange Dashed]	MI-1	REPAIR/REPLACE COPING STONES.		
[Blue Wavy]	MI-2	REPAIR/REPLACE PARAPET WALL. REPLACE ALL DETERIORATED MASONRY AND MASONRY JOINTS.		
[Blue Wavy]	MI-3	REPAIR/REPLACE WINDOW SILL.		
[Grey Grid]	MI-4	REMOVE AND RECONSTRUCT STEEL FIRE ESCAPE AND SUPPORTS TO STRUCTURE. RECONSTRUCT STAIR TO MEET CURRENT FIRE ESCAPE REQUIREMENTS PER CODE.		
[Orange Hatched]	MI-5	REMOVE AND RECONSTRUCT PENTHOUSE WALLS, PARAPET AND COPING STONES.		

- ADDITIONAL WORK ITEMS AND NOTES:**
- TUCK AND REPOINT MASONRY, TERRA-COTTA AND STONE JOINTS AS REQUIRED TO RESORE ALL JOINTS.
  - REMOVE ALL CAULK AND SEALANT FROM FACADE. REPLACE UPPER SIDE HORIZONTAL AND VERTICAL SEALANT JOINTS. DO NOT INSTALL SEALANT ON SOFFIT JOINTS OR JOINTS THAT DRAIN WATER FROM GAVITY.
  - REMOVE PAINT/GRAFFITTI AND WASH ALL MASONRY, TERRA-COTTA AND STONE SURFACES.
  - CLEAN AND REMOVE RUST FROM ALL EXPOSED STEEL SURFACES. PRIME AND EPOXY COAT.
  - INCLUDE AN ALLOWANCE FOR 1,000 (TOTAL FOR ALL SIDES) STAINLESS STEEL HELFIX ANCHORS TO BE DRILLED AND INSTALLED THROUGH MORTAR JOINT AND INTO CONCRETE COLUMN ENCASEMENT. TO PROVIDE LATERAL SUPPORT OF VENEER AT COLUMNS WHERE NO TIES WERE ORIGINALLY PROVIDED.
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Sheet Title  
**WEST AND LIGHT WELL ELEVATIONS**

Sheet Number  
**S204**



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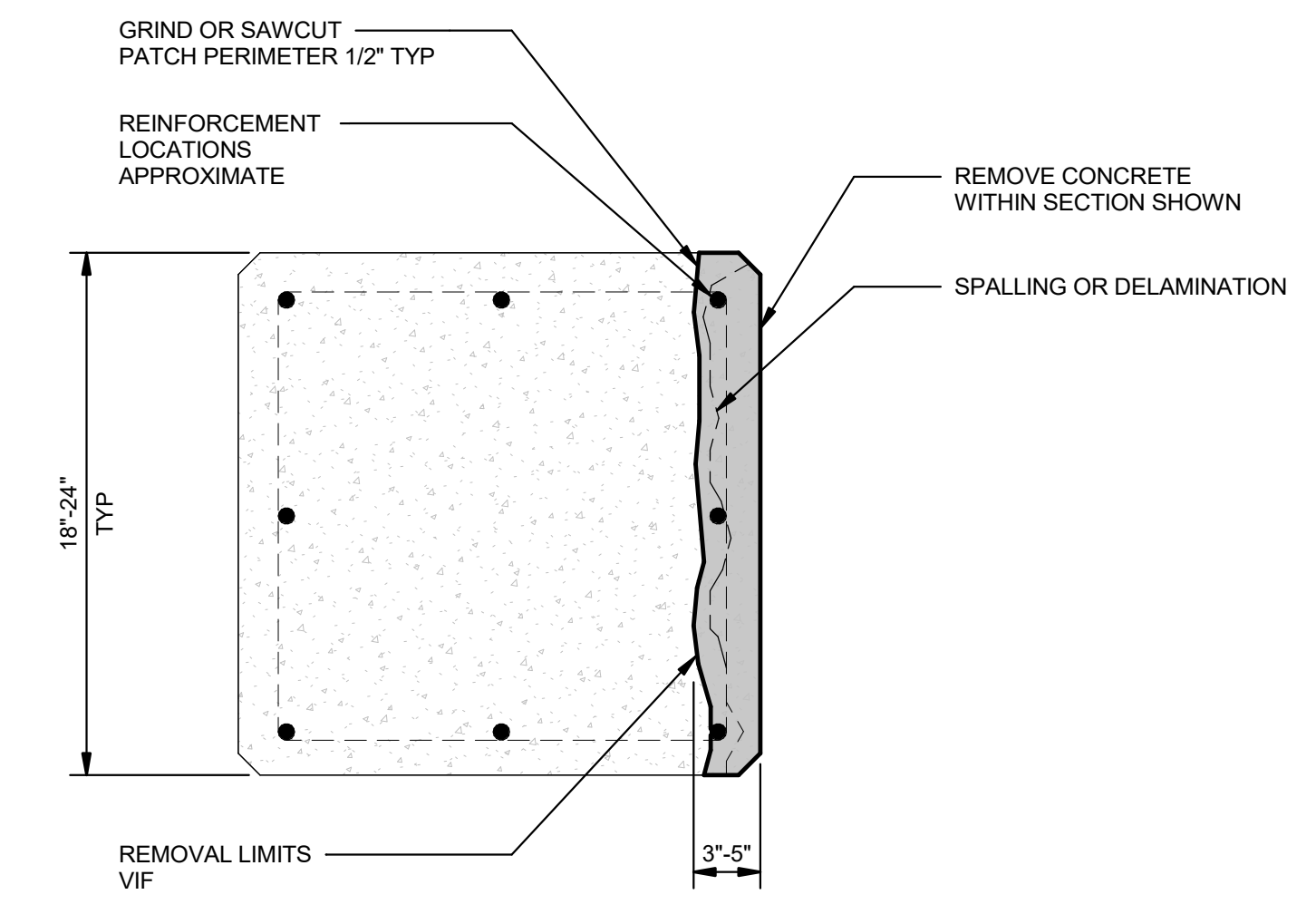
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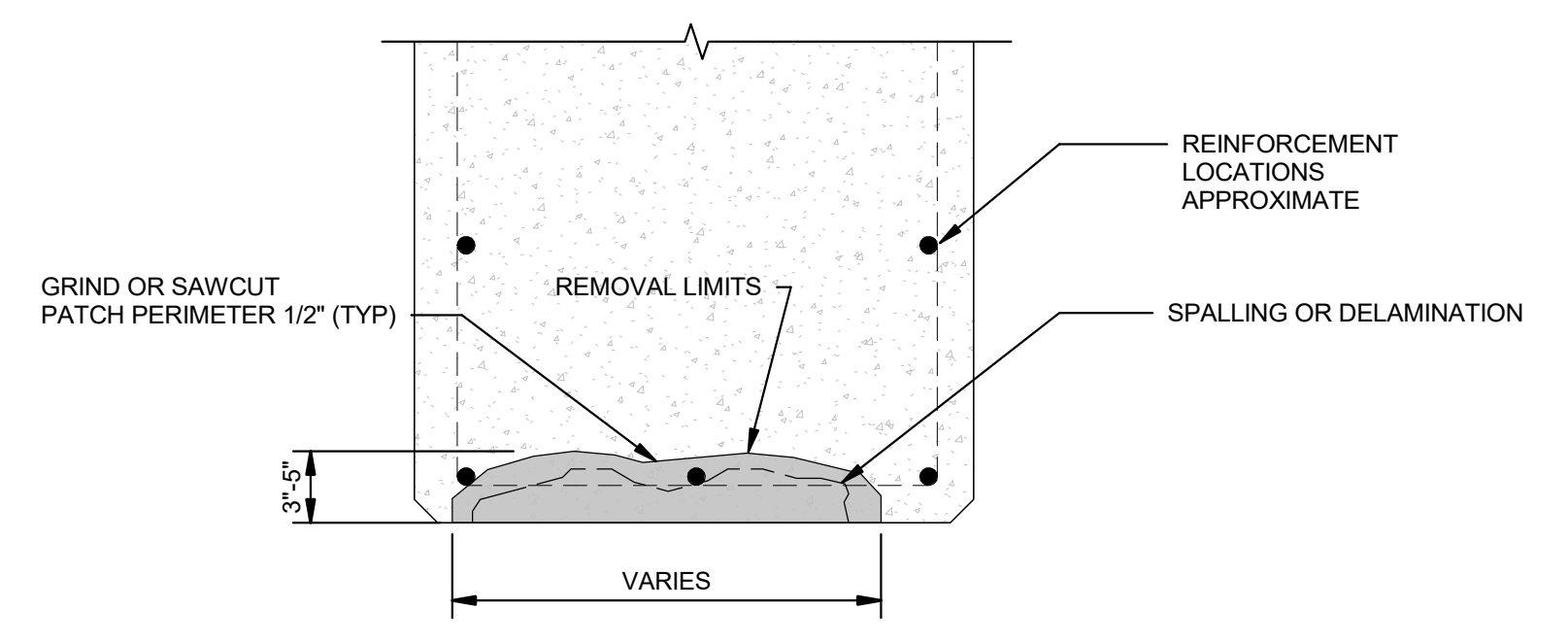
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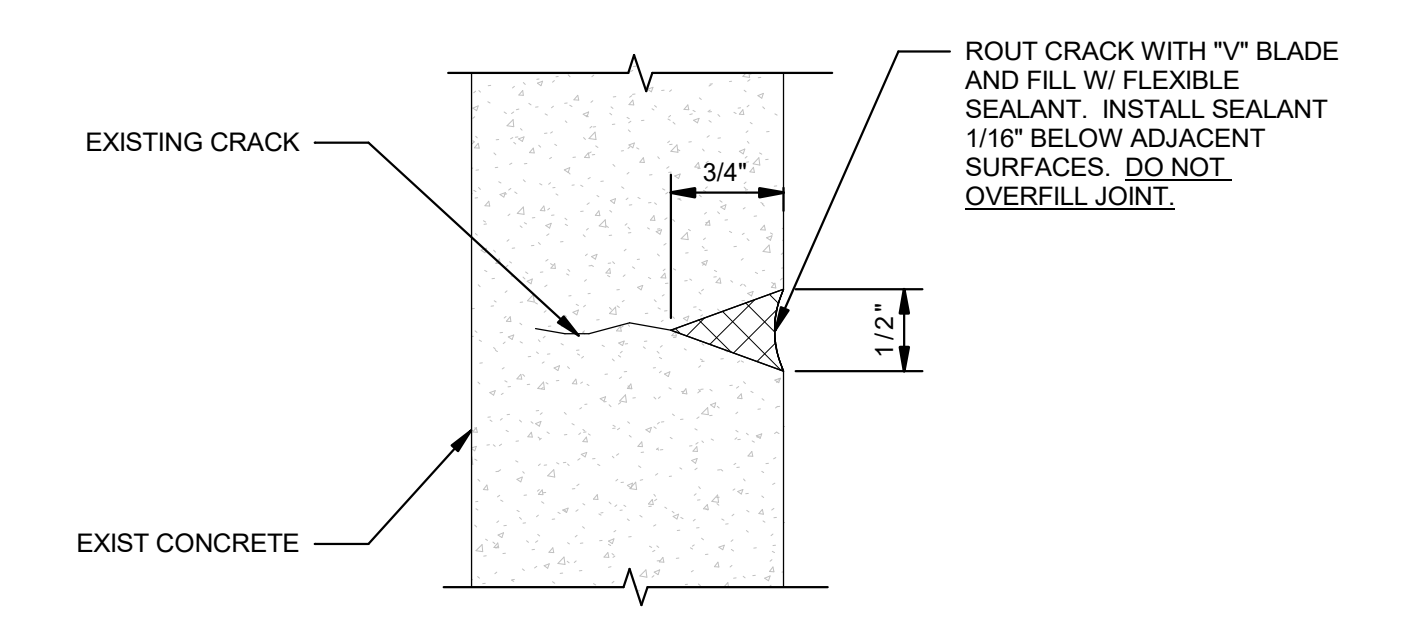
- NOTES:
1. COLUMN TIES WHICH HAVE LOST MORE THAN 15% OF ORIGINAL CROSS SECTIONAL AREA SHALL BE SUPPLEMENTED AS ENGINEER DIRECTS.
  2. CLEAN AND EPOXY COAT ALL EXPOSED REINFORCEMENT. PROVIDE 3/4\"
  3. NUMBER AND LOCATION OF REINFORCEMENT SHOWN MAY DIFFER FROM ACTUAL FIELD CONDITIONS.

**A2 CONCRETE COLUMN REPAIR**  
SCALE: 1 1/2\"

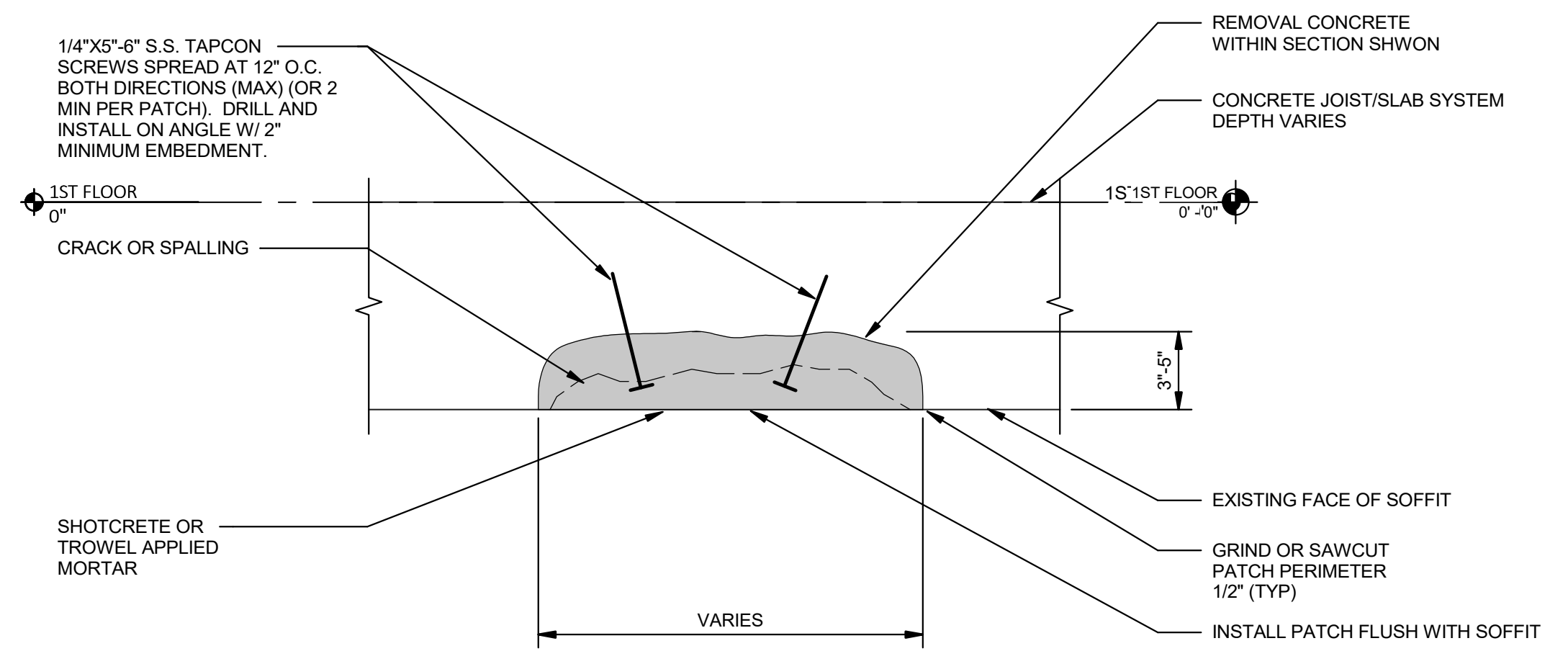


- NOTES:
1. CLEAN AND APPLY CORROSION INHIBITING PRIMER/BONDING AGENT TO ALL EXPOSED REINFORCEMENT.
  2. PROVIDE 3/4\"
  3. NUMBER AND LOCATION OF REINFORCEMENT SHOWN MAY DIFFER FROM ACTUAL FIELD CONDITIONS.

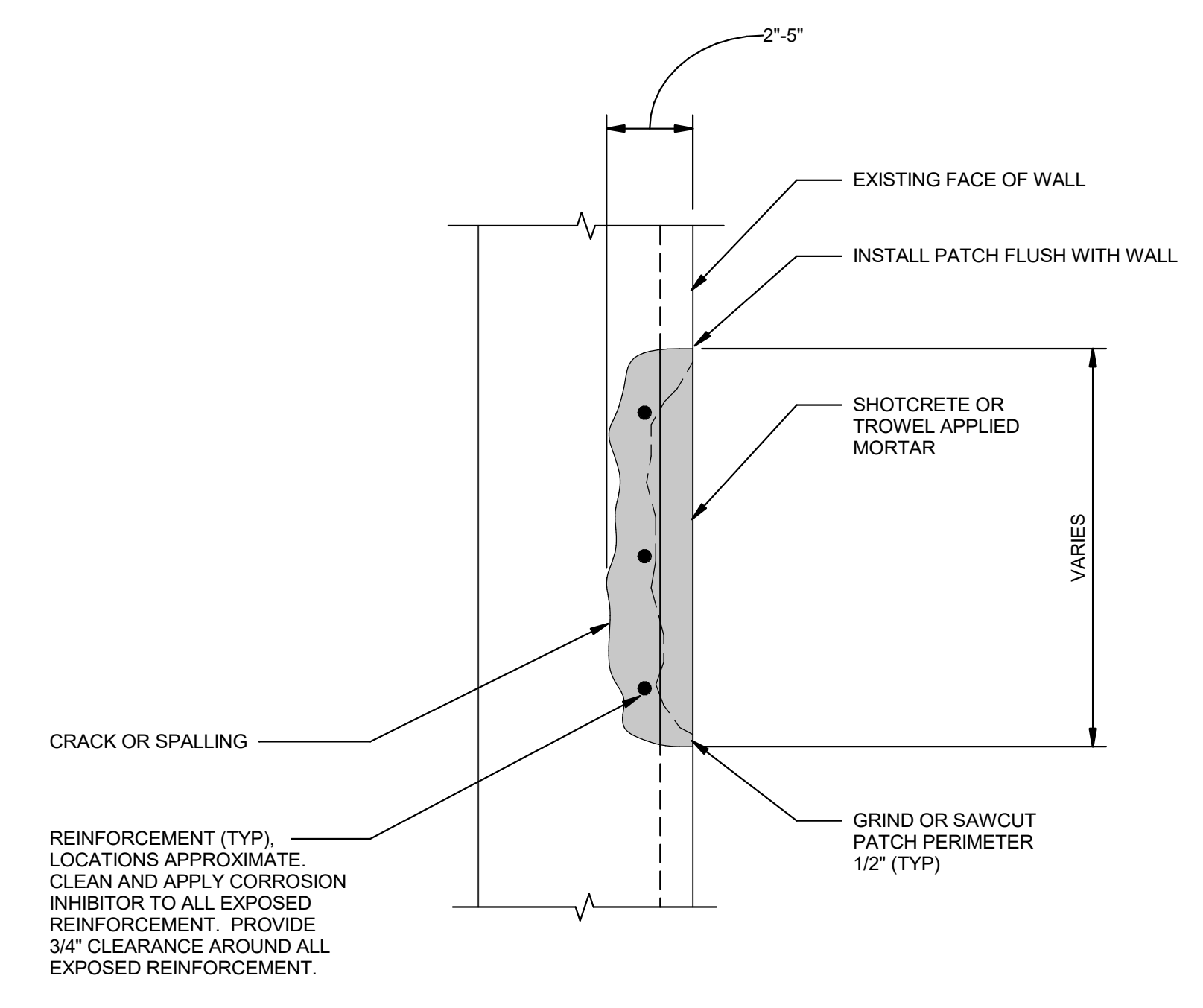
**C4 CONCRETE BEAM REPAIR**  
SCALE: 1 1/2\"



**A4 SEAL CRACKS & JOINTS**  
SCALE: 1 1/2\"



**C5 SOFFIT REPAIR**  
SCALE: 1 1/2\"



**A5 CONCRETE WALL REPAIR**  
SCALE: 1 1/2\"

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2001-2017 PARK AVENUE  
DETROIT, MI

Project

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Seal

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DD 09-12-2019

Revision Date

Date Issue Date

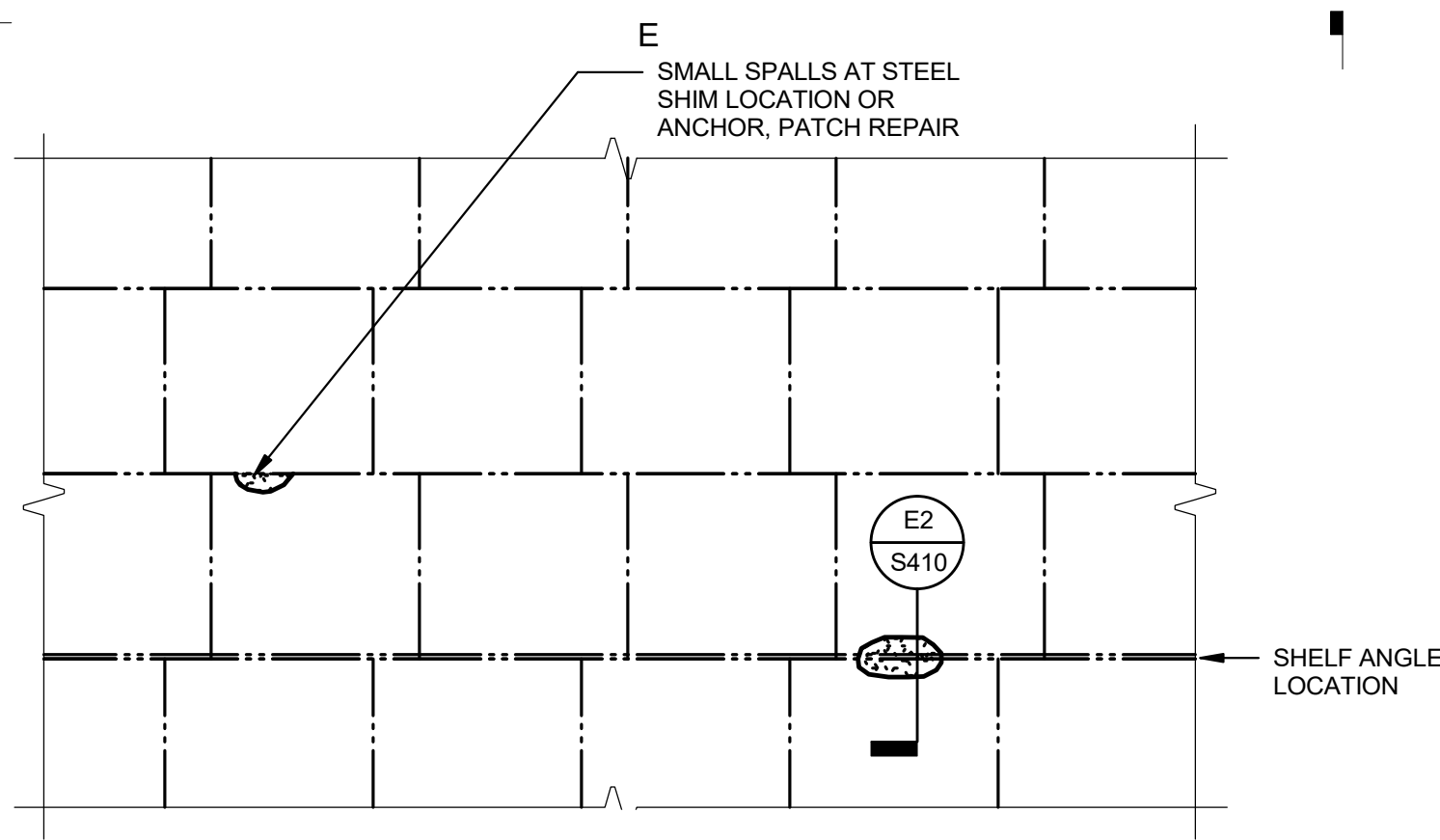
Project Number 2018063

Sheet Title  
**CONCRETE REPAIR DETAILS**

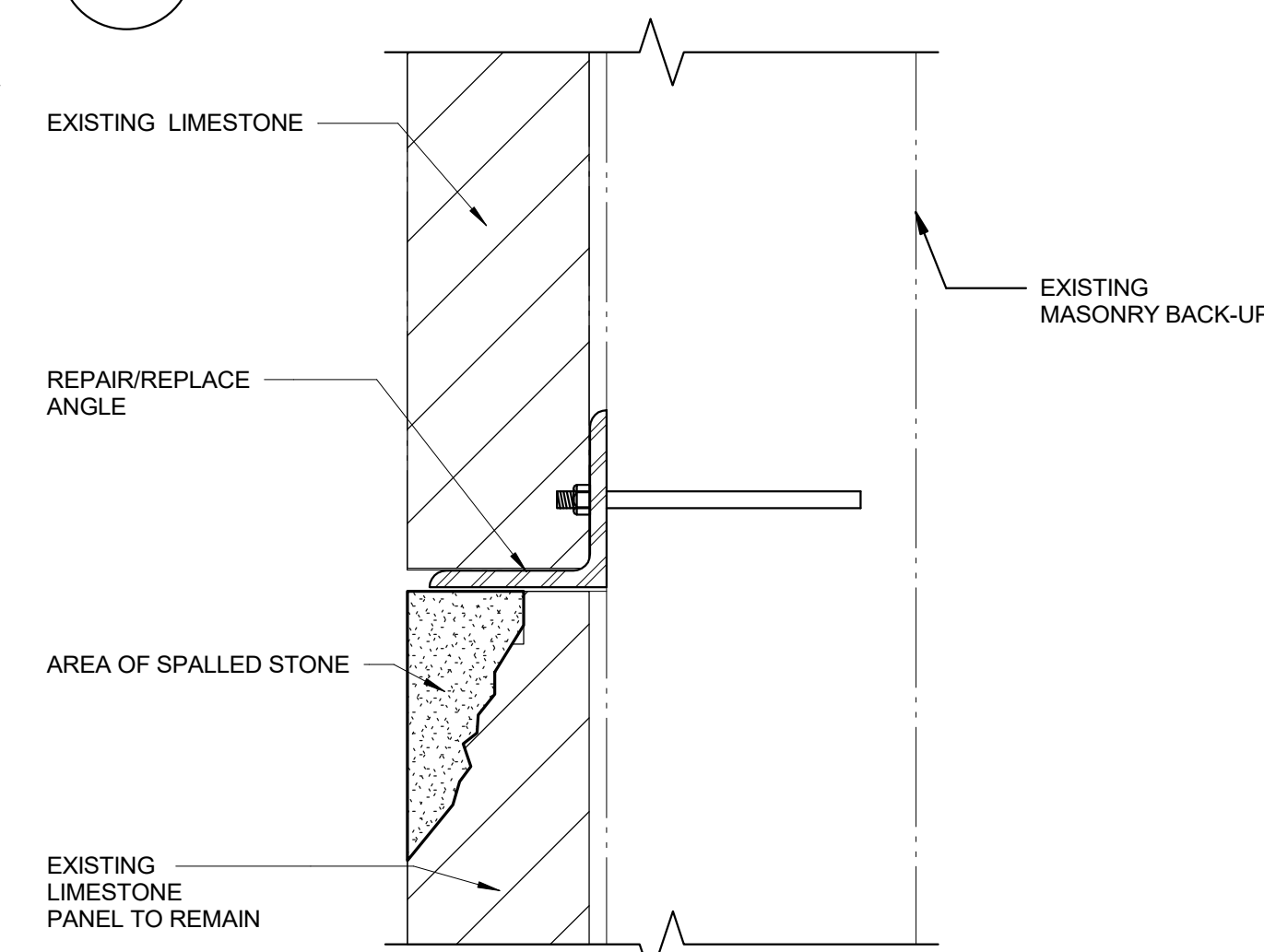
Sheet Number

**S310**

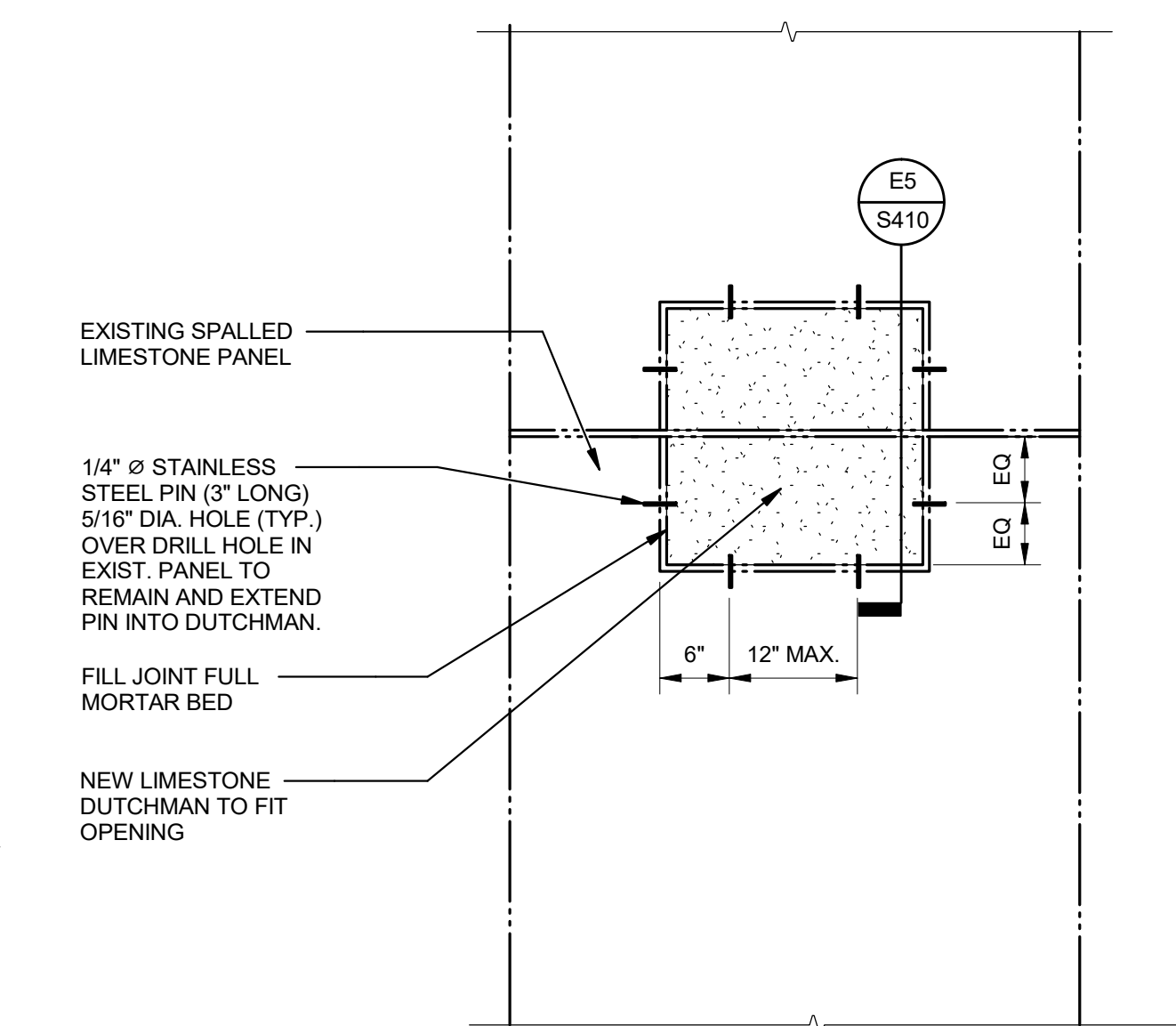




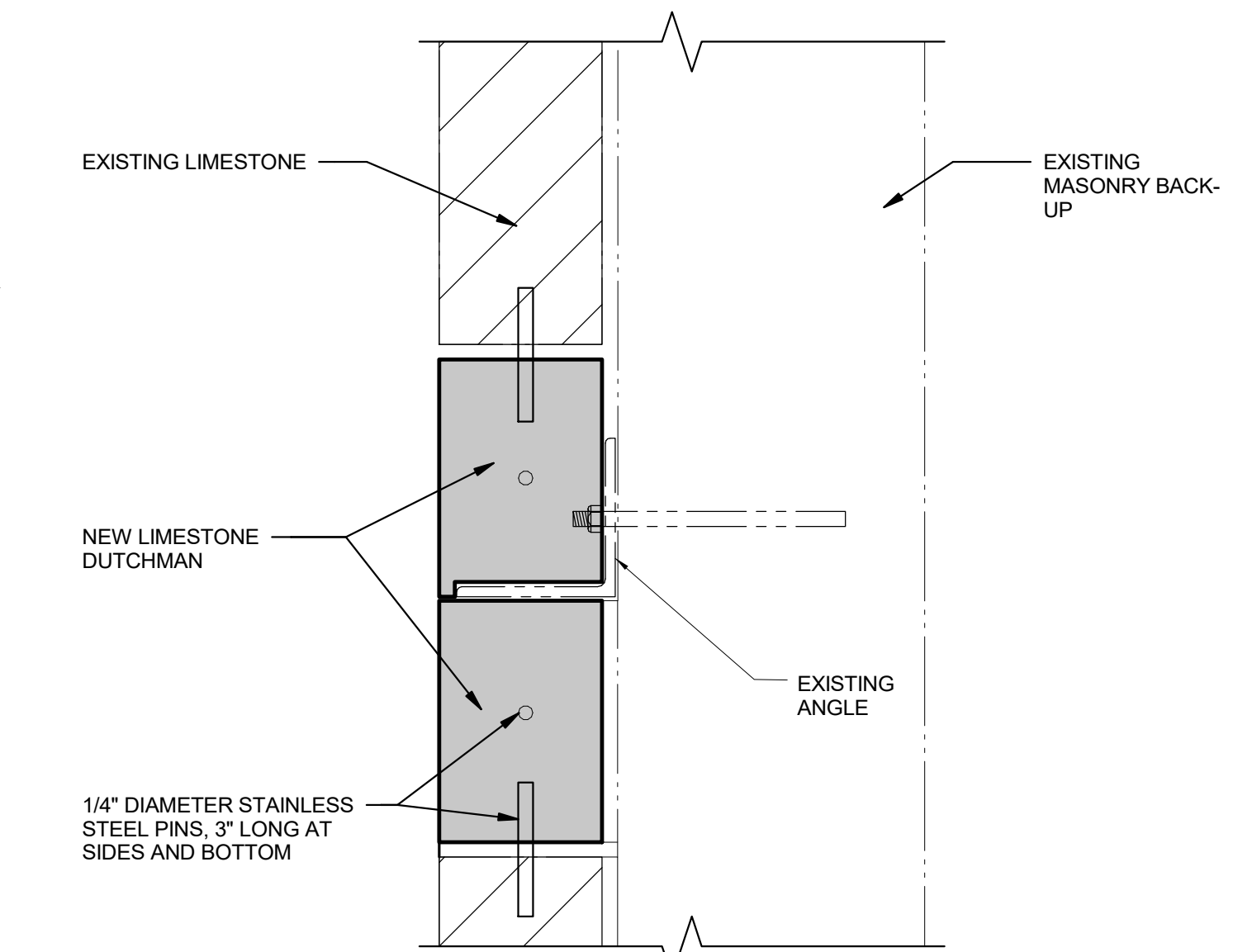
**E1 Limestone Repairs**  
SCALE: 3" = 1'-0"



**E2 Limestone Spall at Shelf Angle Repair**  
SCALE: 3" = 1'-0"



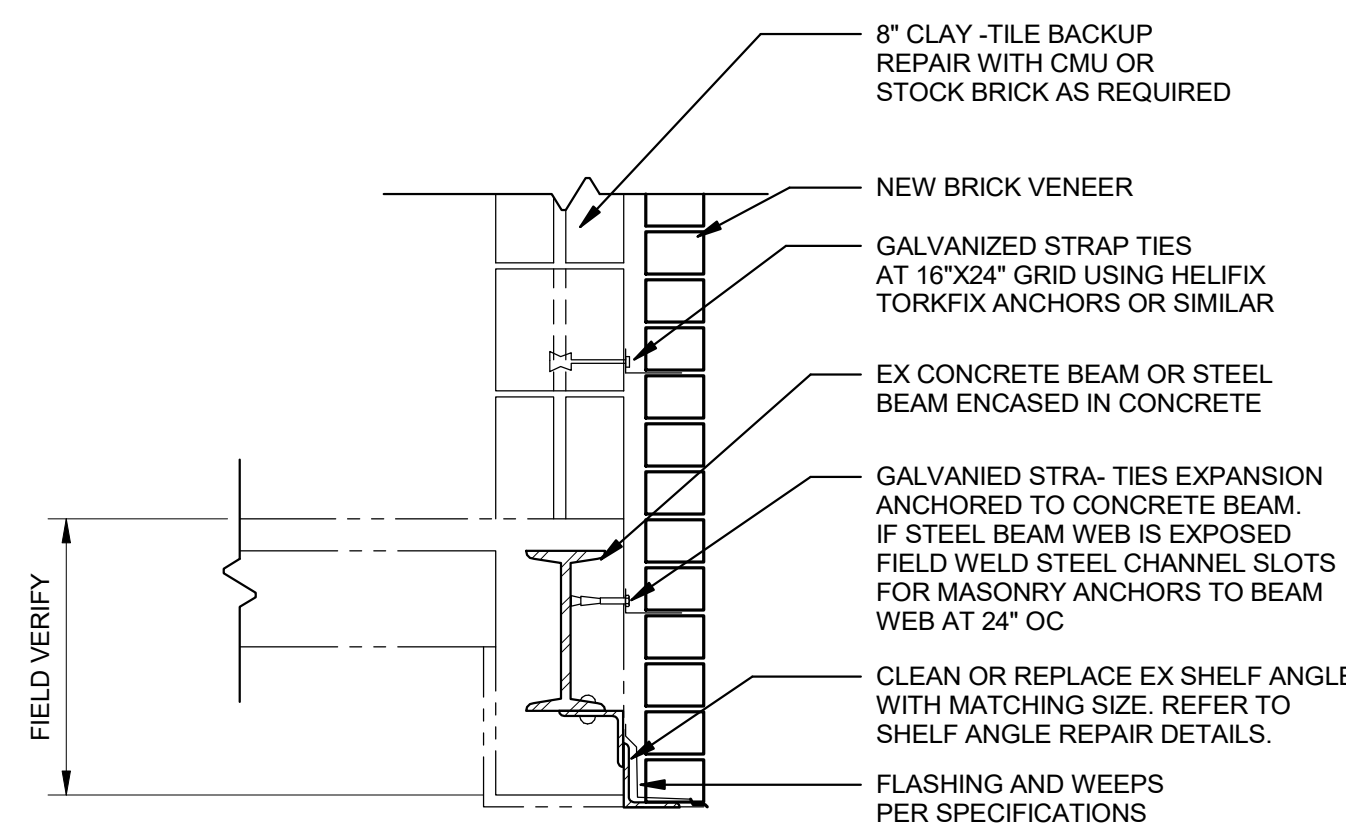
**E4 Limestone Dutchman Repair - Large Spall**  
SCALE: 3" = 1'-0"



**E5 Limestone Spall Repair**  
SCALE: 3" = 1'-0"

SEALANT CHART	
W	D
1/4 IN.	1/4 IN.
1/4 TO 1/2 IN.	1/4 IN.
1/2 TO 1 IN.	W/2

**D1 SEALANT JOINT GUIDELINES**  
SCALE: 3/4" = 1'-0"



**D2 SECTION - BRICK REPLACEMENT**  
SCALE: 1" = 1'-0"



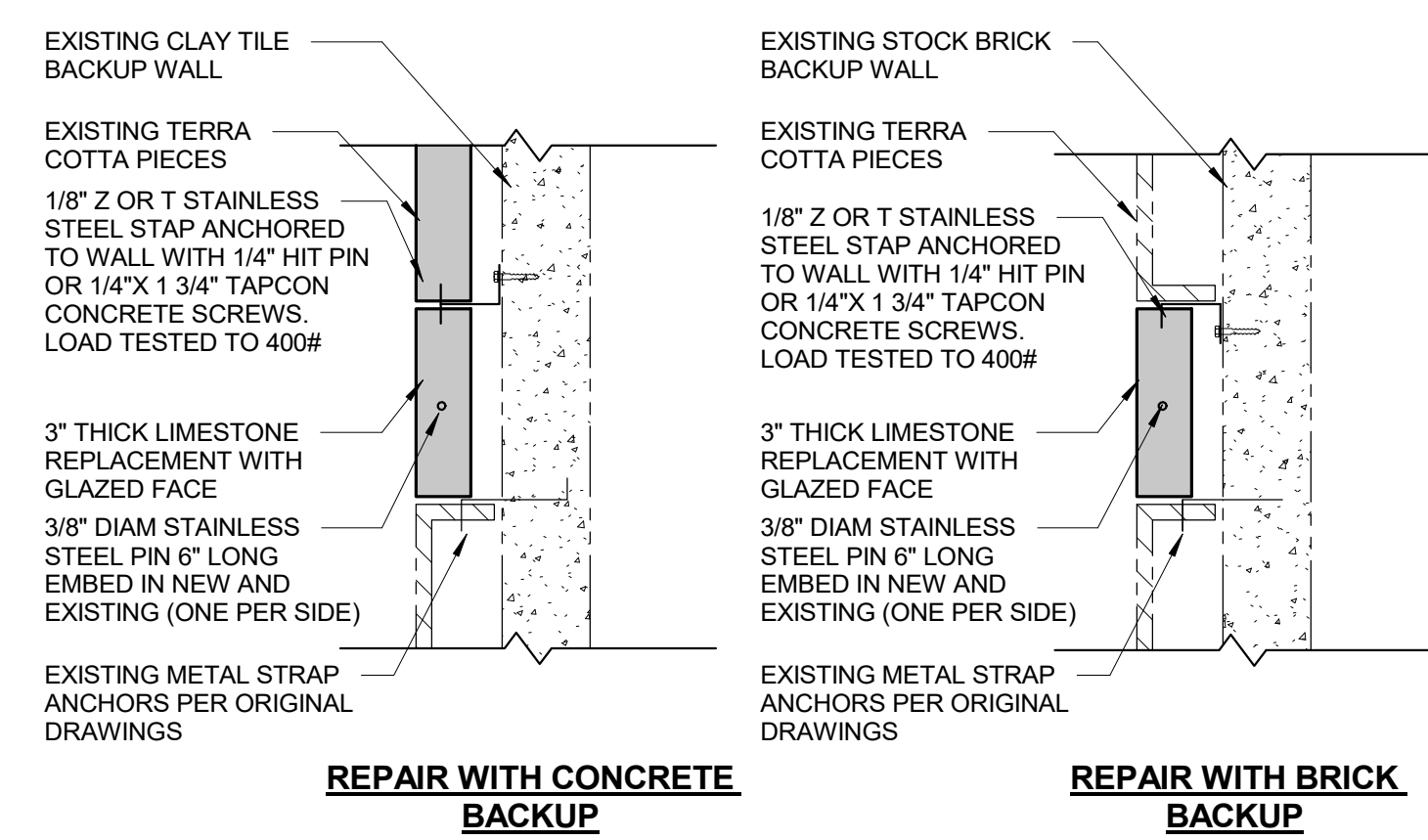
**D3 TYP. - COVE SEALANT JOINT**  
SCALE: 3" = 1'-0"

**DC3 TYP. - BUTT SEALANT JOINT**  
SCALE: 3/4" = 1'-0"

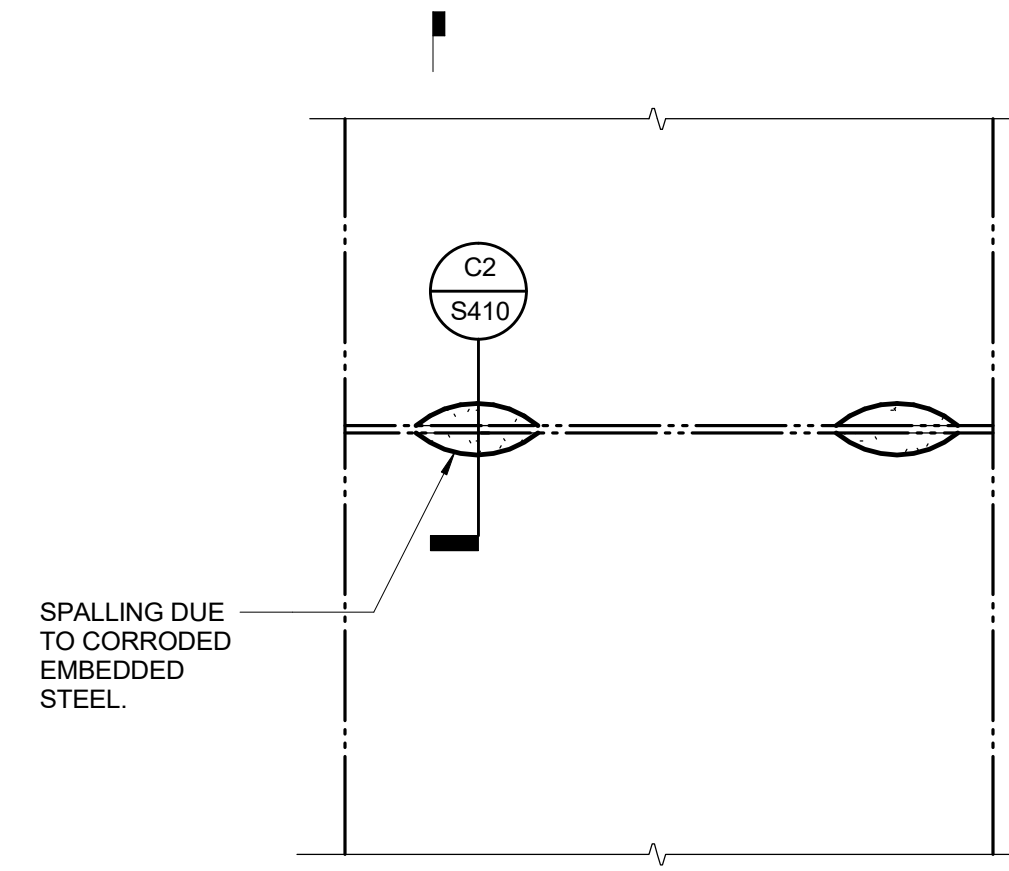
PIECE SIZE	WIND PRESSURE	STRAP ANCHOR TOTAL #	SIDE PINS TOTAL NO#
12"x12"	100#	1 PER (2) PIECES	2
12"x18"	150#	1	2
12"x24"	200#	2	2
12"x30"	250#	2	2
18"x24"	300#	2	2
18"x30"	375#	2	2
24"x24"	400#	4	4
24"x30"	500#	4	4

- NOTES:**
- HALF OF TOTAL NUMBER PROVIDED ON EACH PARALLEL FACE.
  - MAXIMUM HORIZONTAL ANCHOR SPACING IS 2'-0"

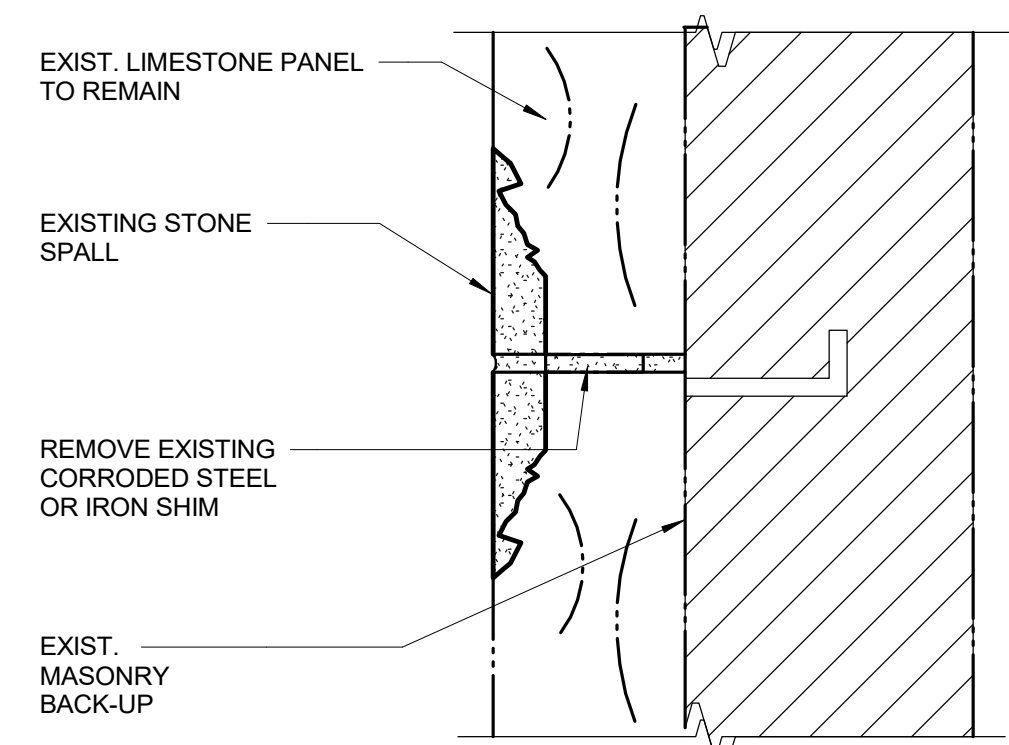
**D4 TERRA COTTA REPAIR ANCHOR QUANTITIES**  
SCALE: 1" = 1'-0"



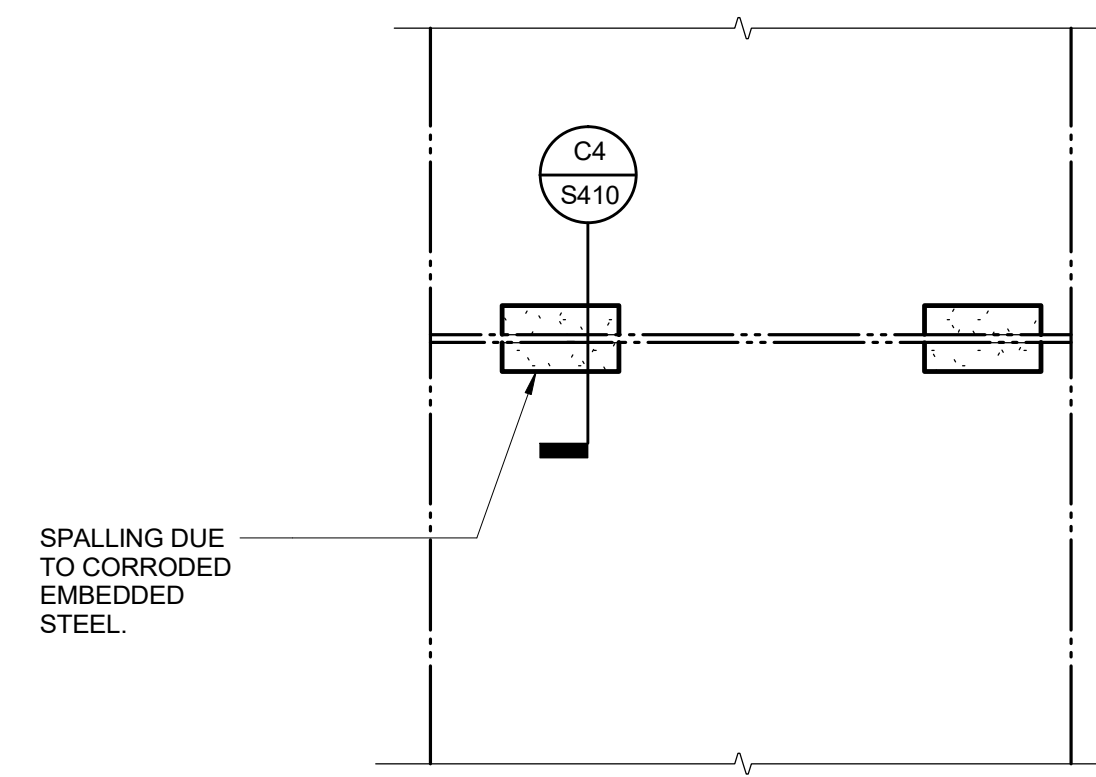
**D5 TERRA COTTA REPAIR AT CONCRETE BACKUP**  
SCALE: 1" = 1'-0"



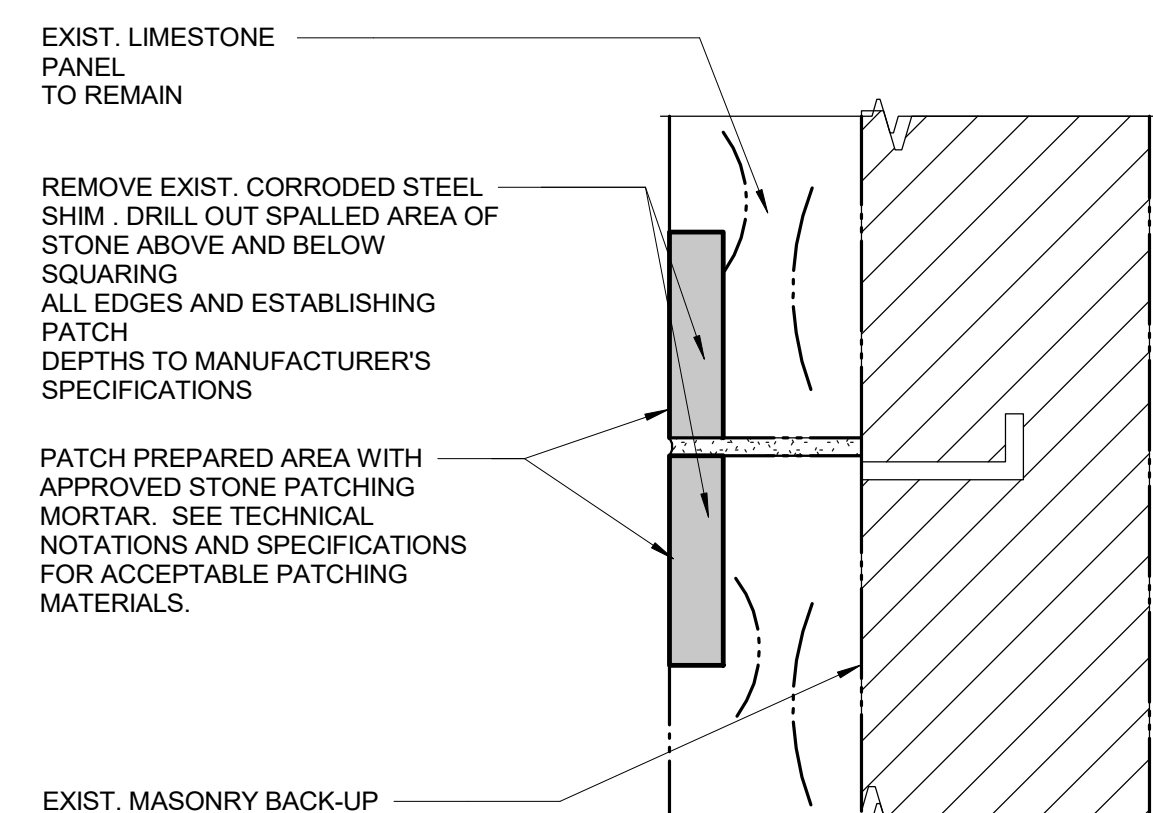
**C1 LIMESTONE STEEL SHIM/STRAL SPALL CONDITION**  
SCALE: 3" = 1'-0"



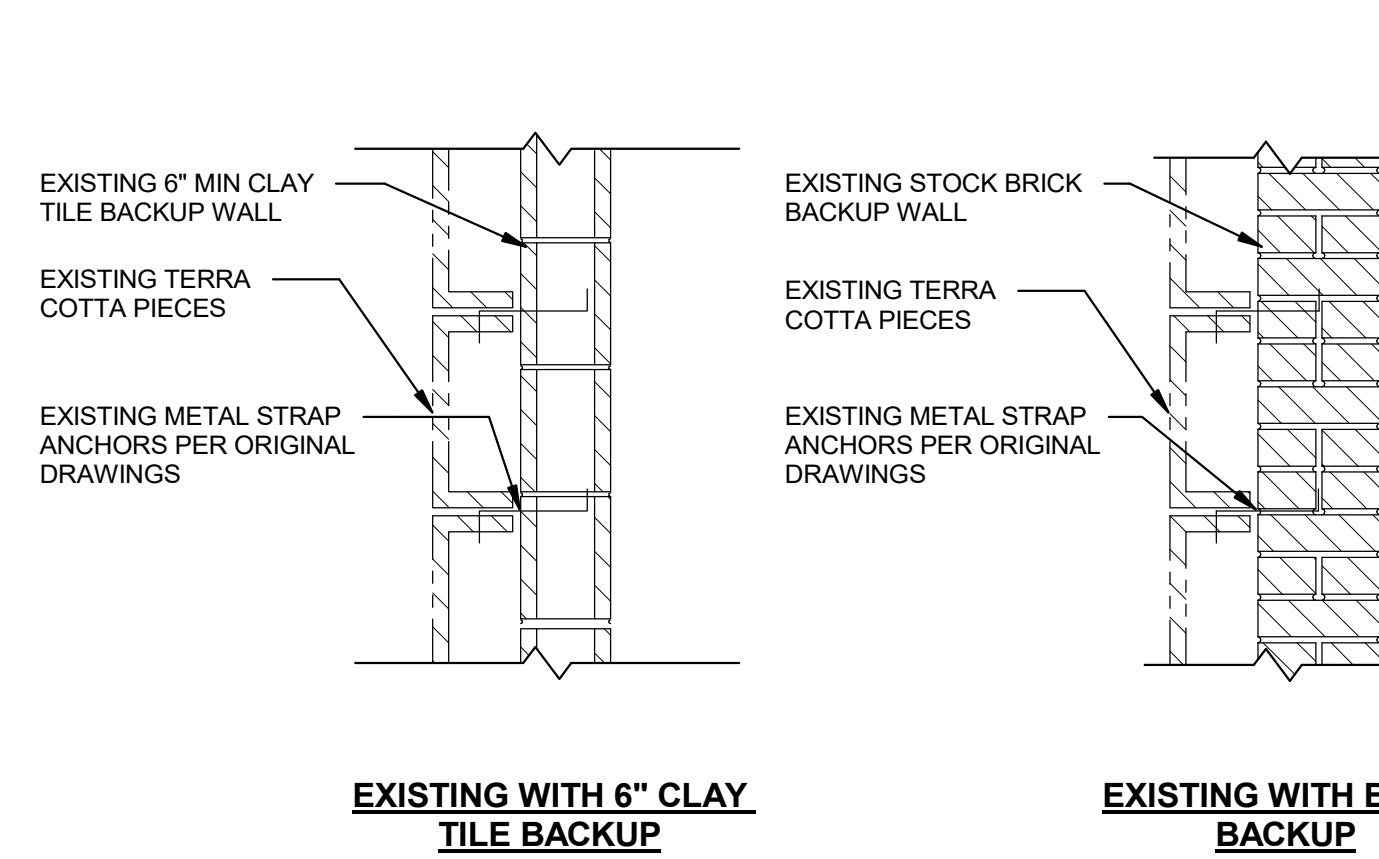
**C2 EXIST. LIMESTONE PANEL SPALL**  
SCALE: 3" = 1'-0"



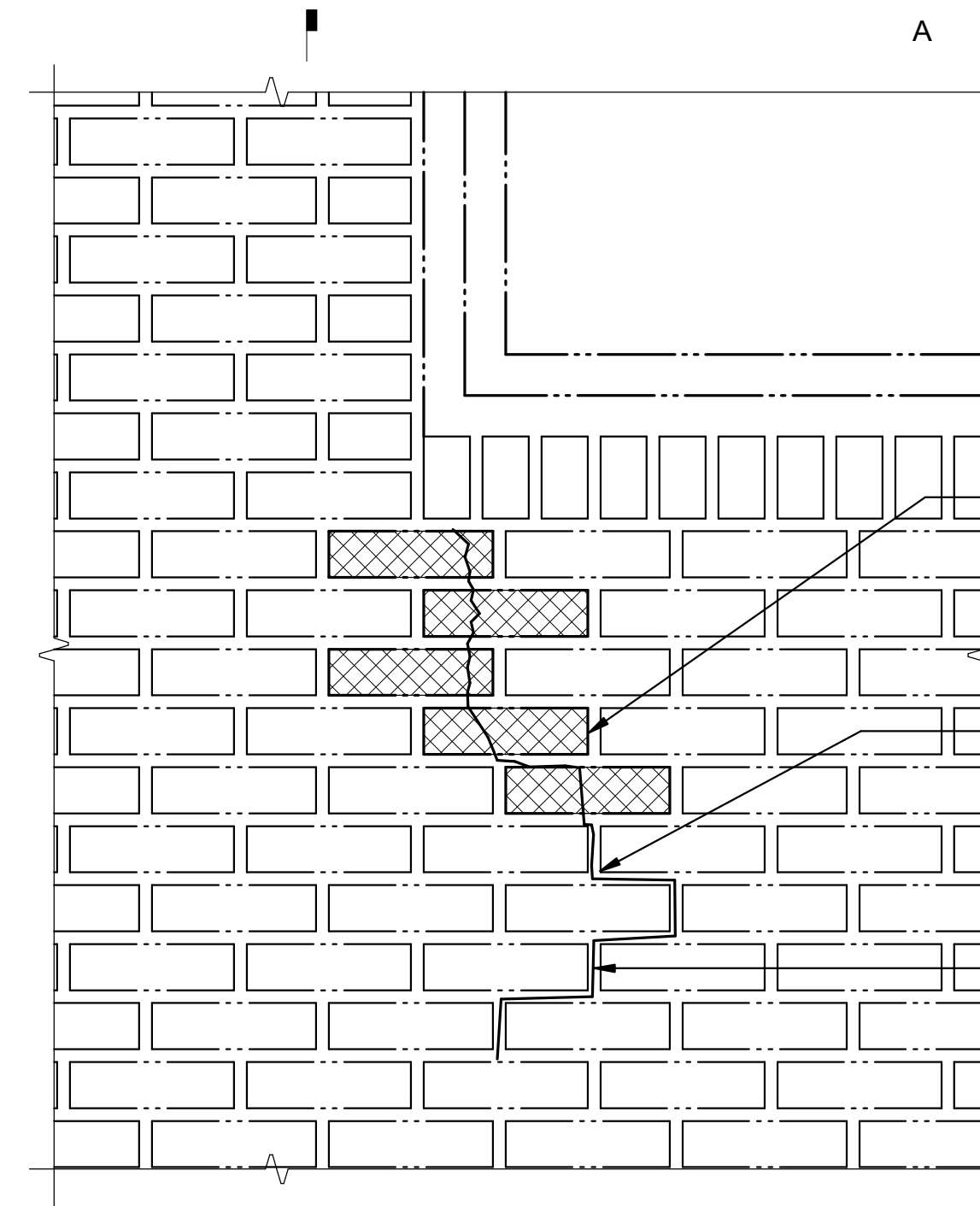
**C3 LIMESTONE PATCH REPAIR - SMALL SPALLS**  
SCALE: 3" = 1'-0"



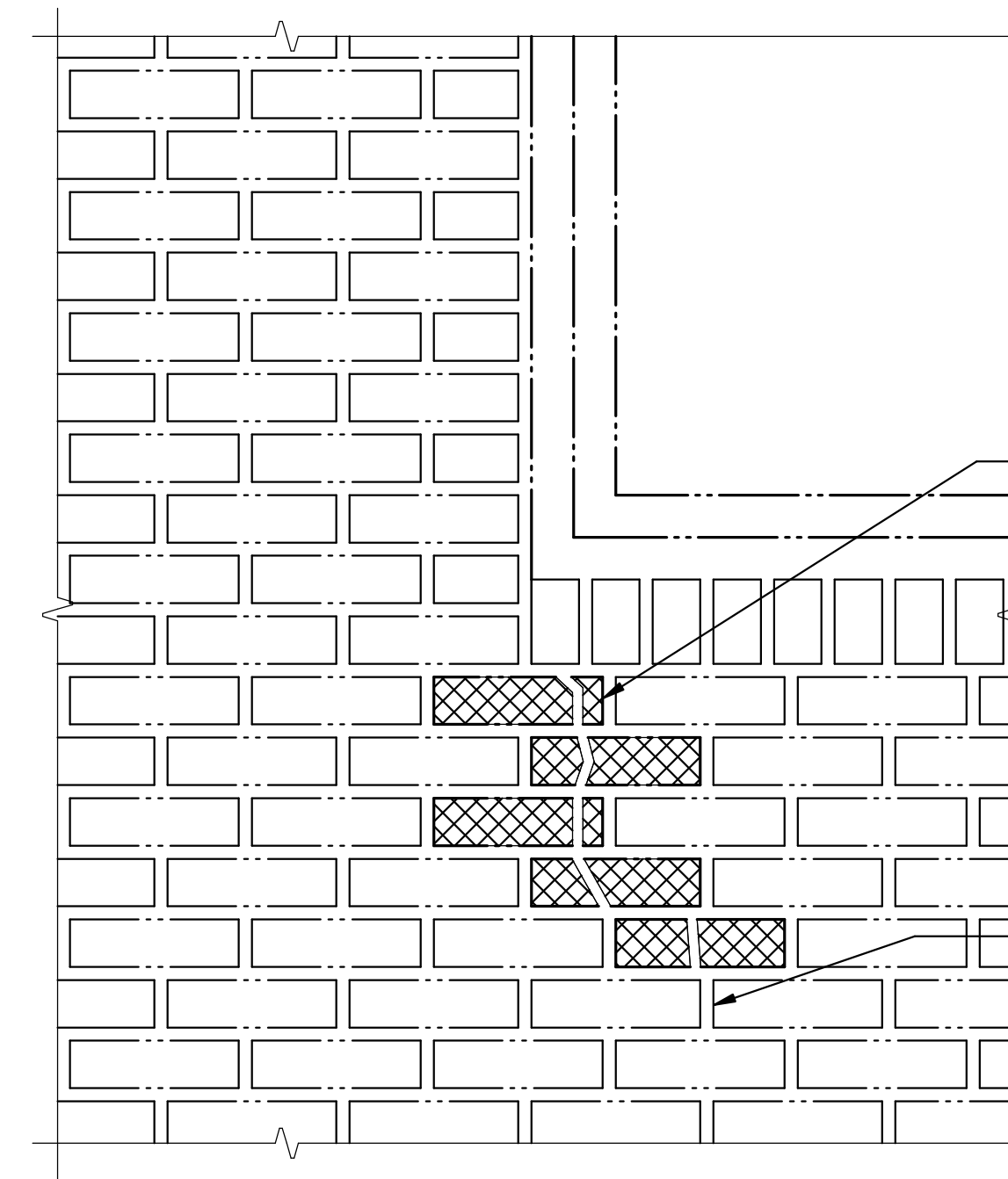
**C4 REPAIR TO EXIST. LIMESTONE PANEL SPALL**  
SCALE: 3" = 1'-0"



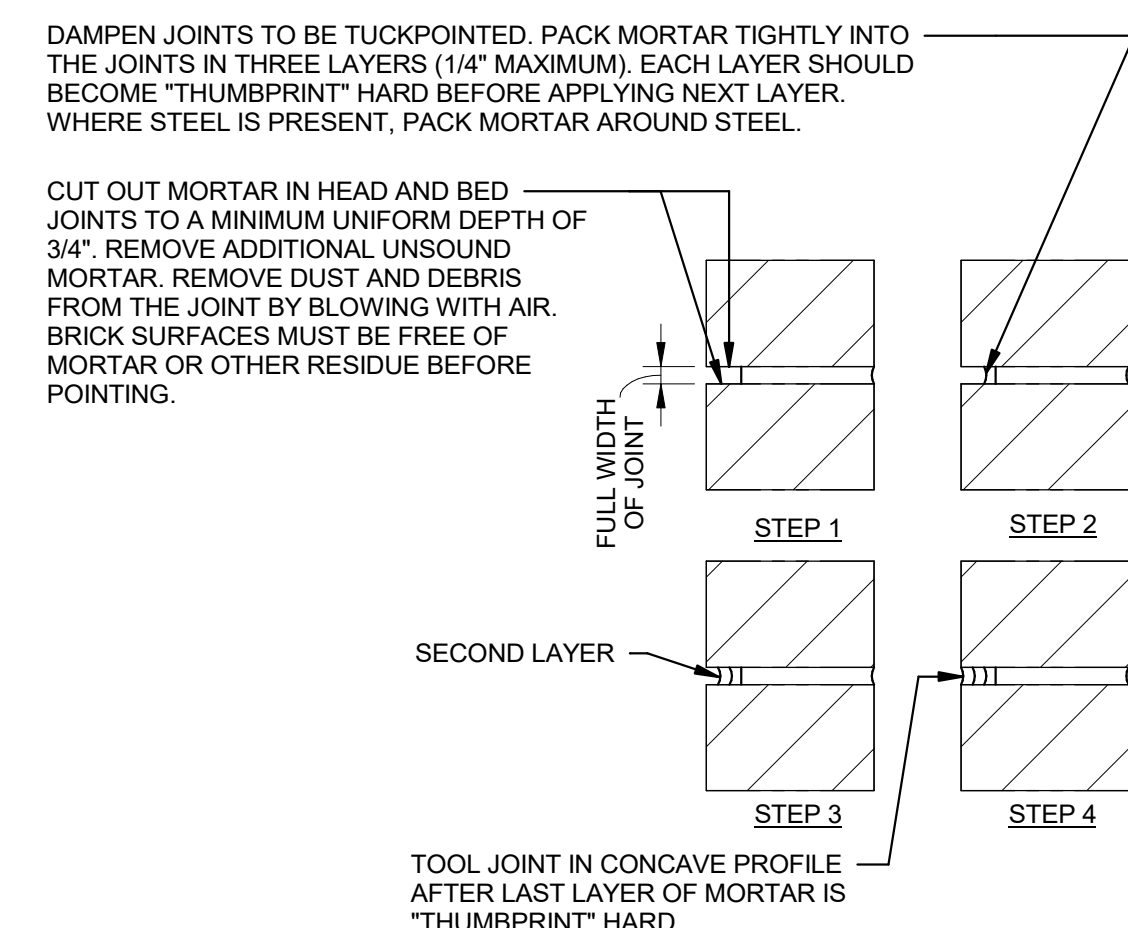
**C5 TERRA COTTA REPAIR WITH GLAZED LIMESTONE**  
SCALE: 1" = 1'-0"



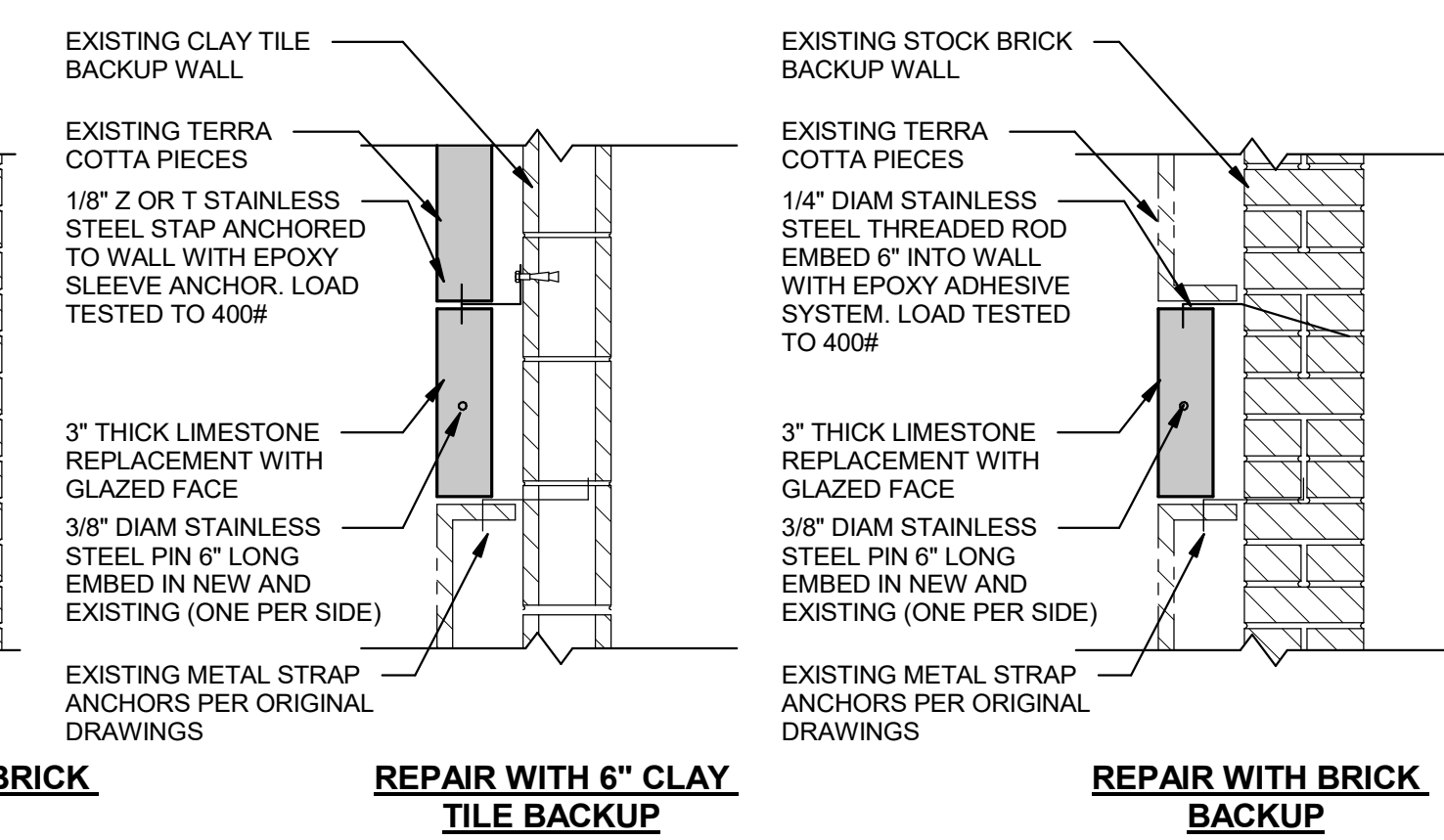
**B2 SPANDREL CRACK DETAIL - EXISTING**  
SCALE: 1 1/2" = 1'-0"



**B3 SPANDREL CRACK DETAIL - REPAIR**  
SCALE: 1 1/2" = 1'-0"



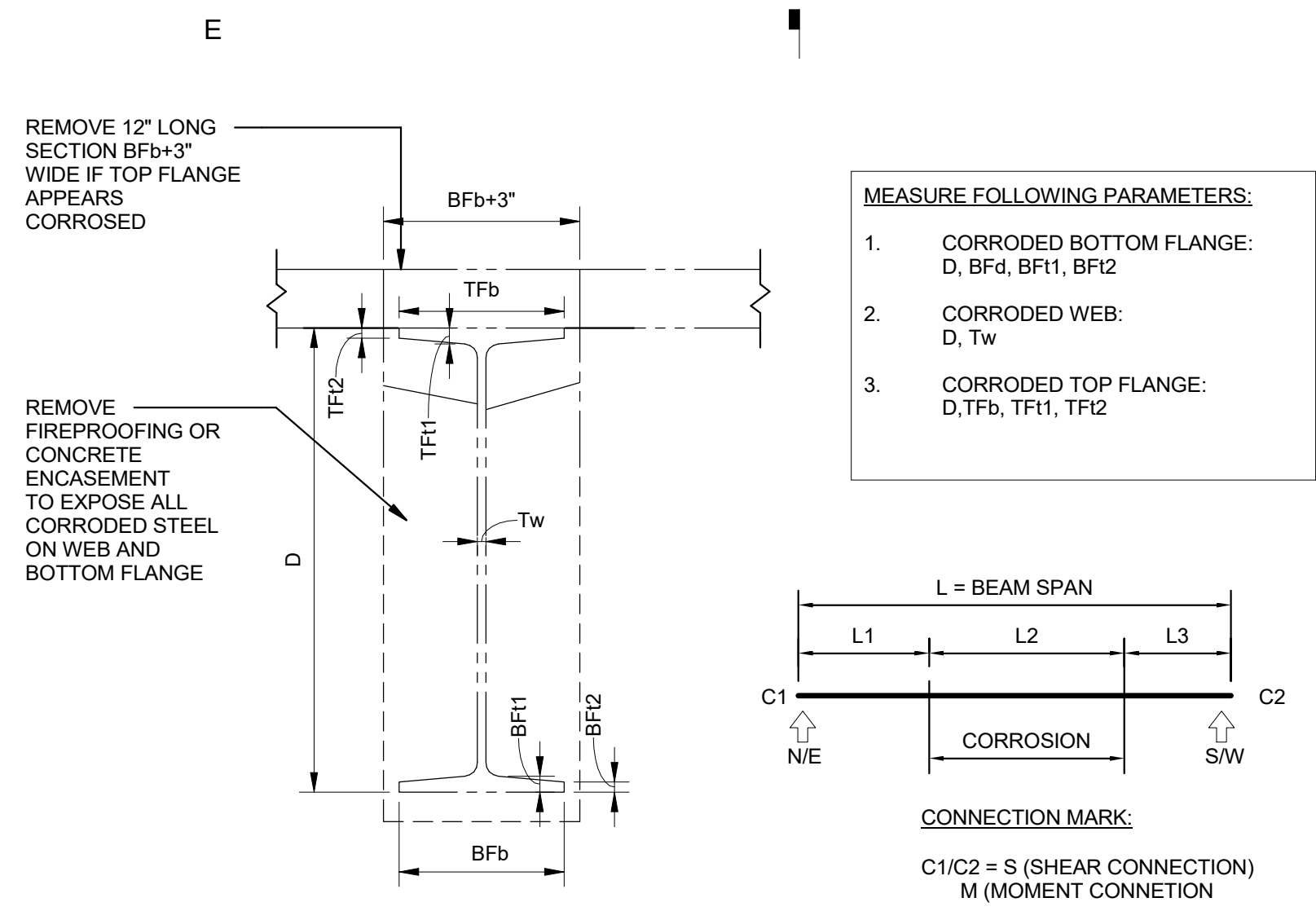
**B4 TYP. - MASONRY TUCK POINTING DETAIL**  
SCALE: 3/4" = 1'-0"



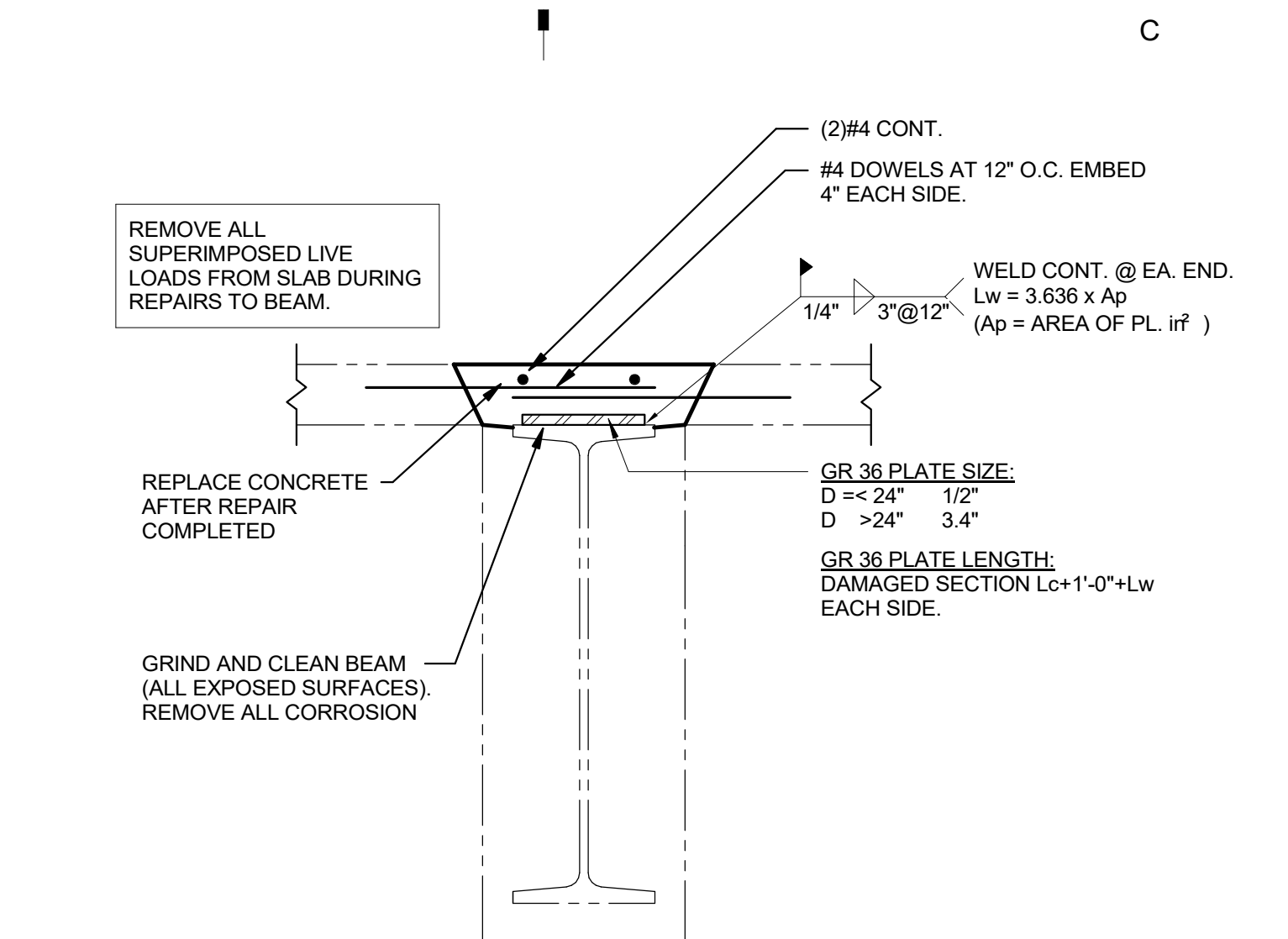
**B5 TERRA COTTA REPAIR WITH GLAZED LIMESTONE**  
SCALE: 3/4" = 1'-0"

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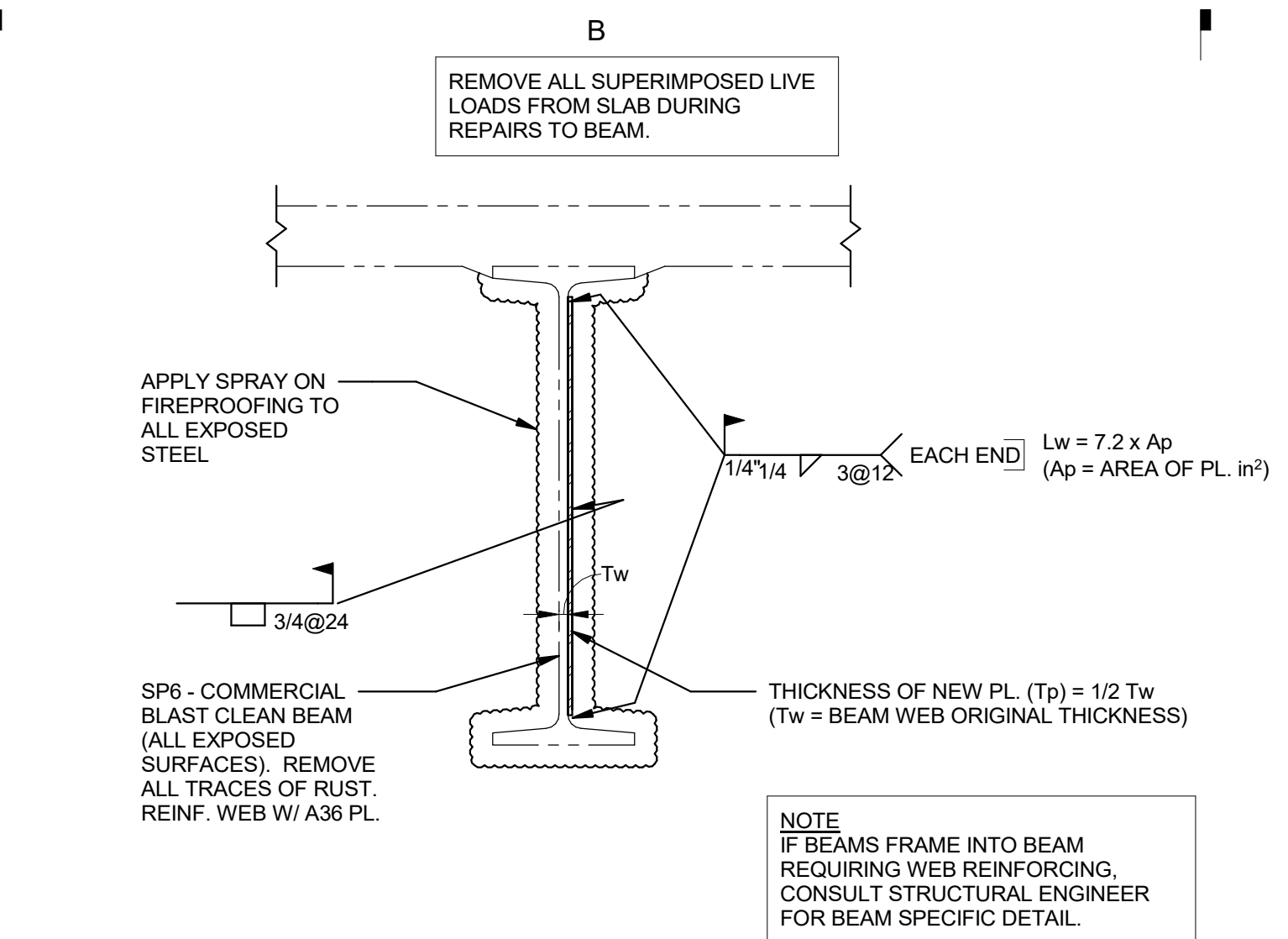




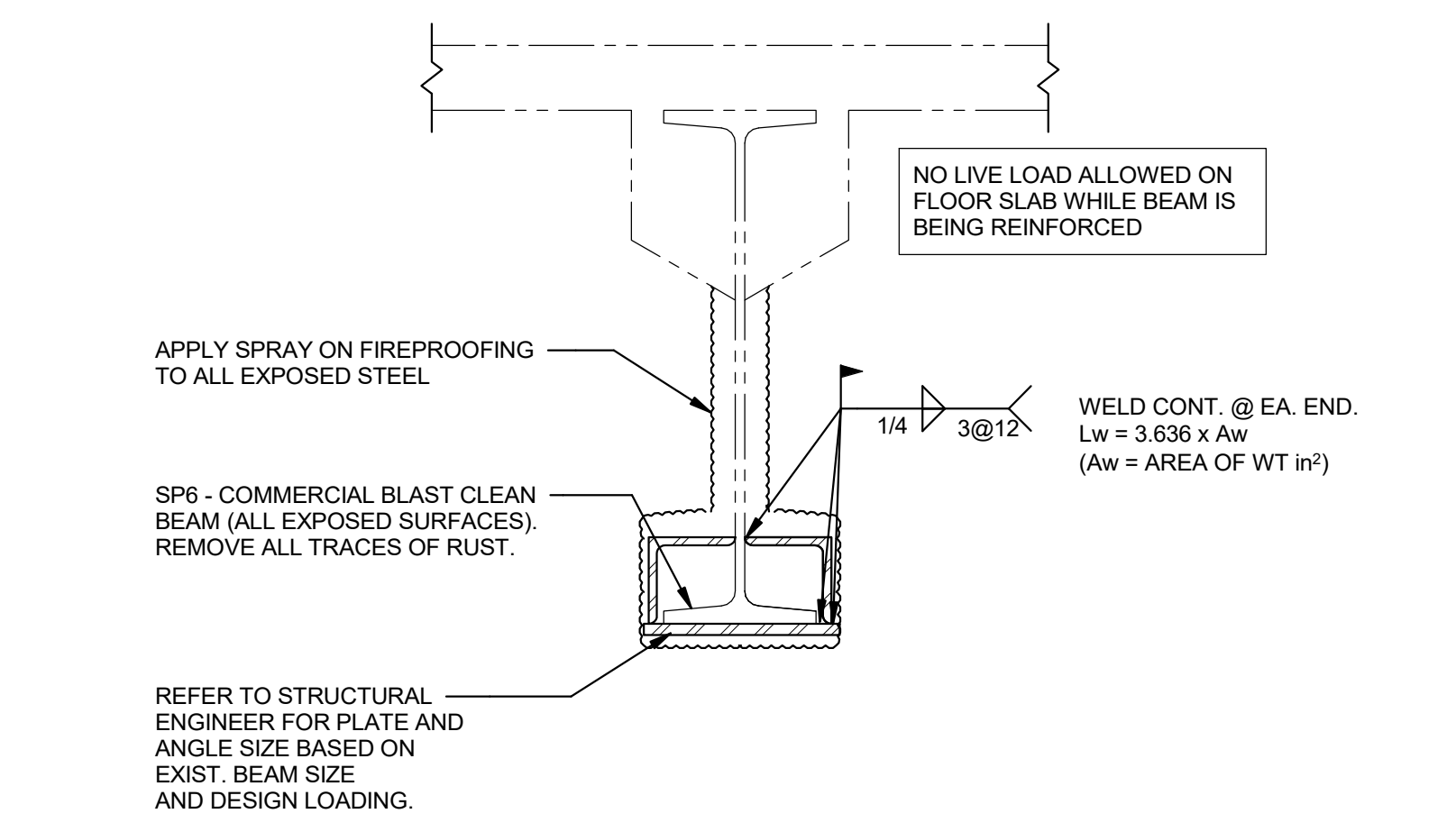
**E2 CORRODED BEAM TEST (STEP 1)**  
SCALE: 1 1/2" = 1'-0"



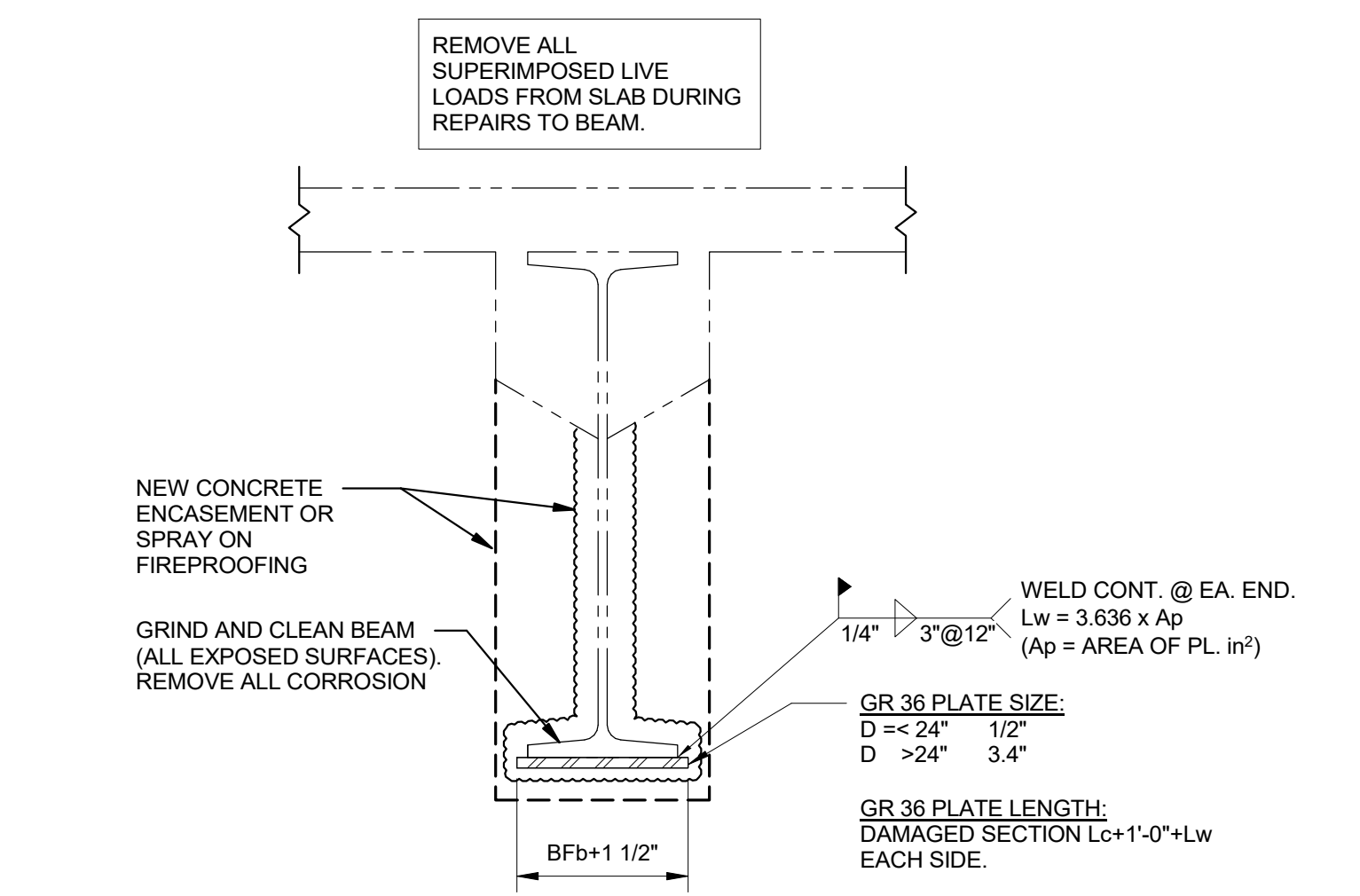
**D2 TOP FLANGE REPAIR A (5% TO 15%)**  
SCALE: 1 1/2" = 1'-0"



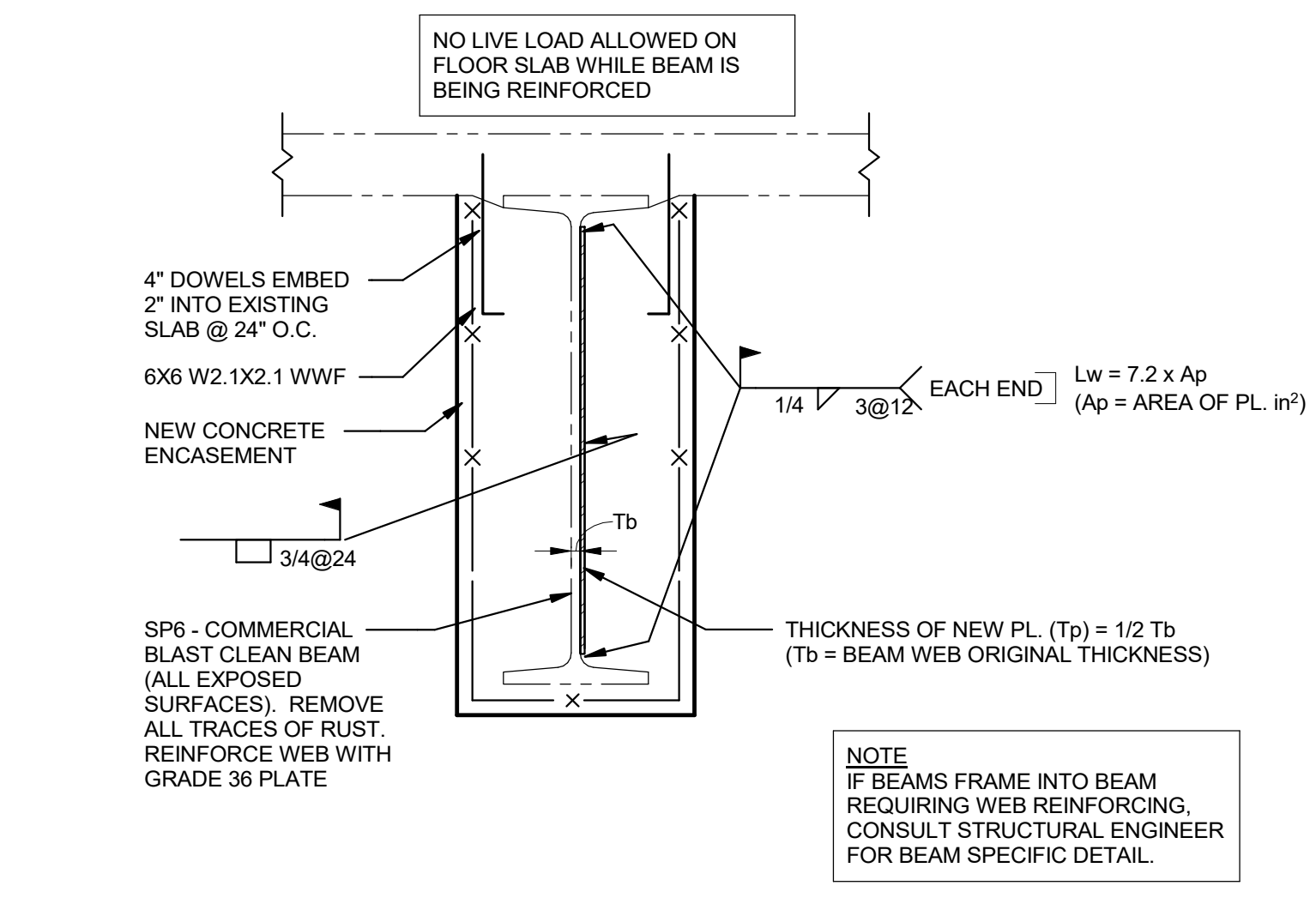
**B2 WEB REPAIR (5% THRU 35%)**  
SCALE: 1 1/2" = 1'-0"



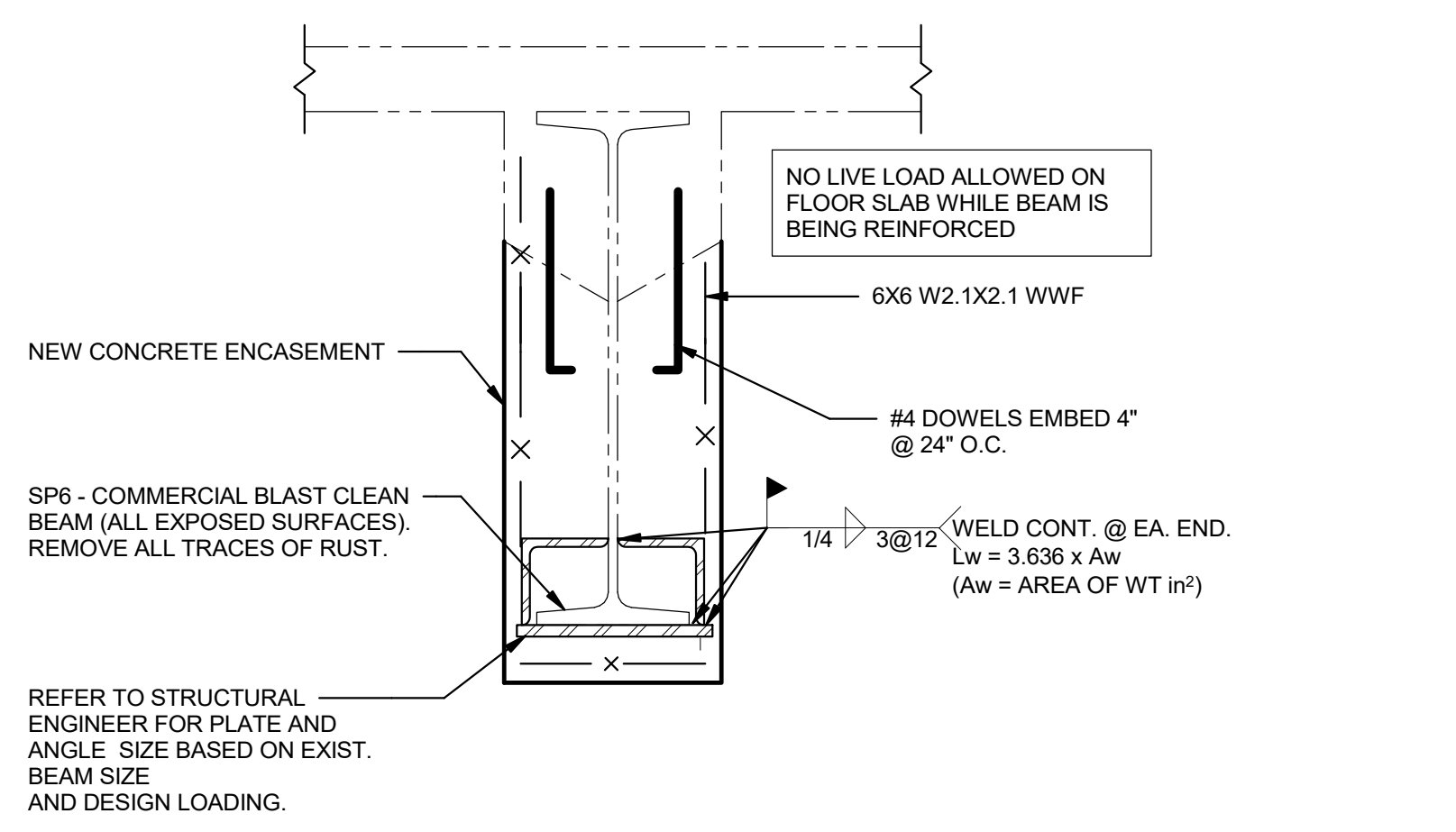
**E3 BEAM BOTTOM FLANGE REPAIR 2 (STEP 2)**  
SCALE: 1 1/2" = 1'-0"



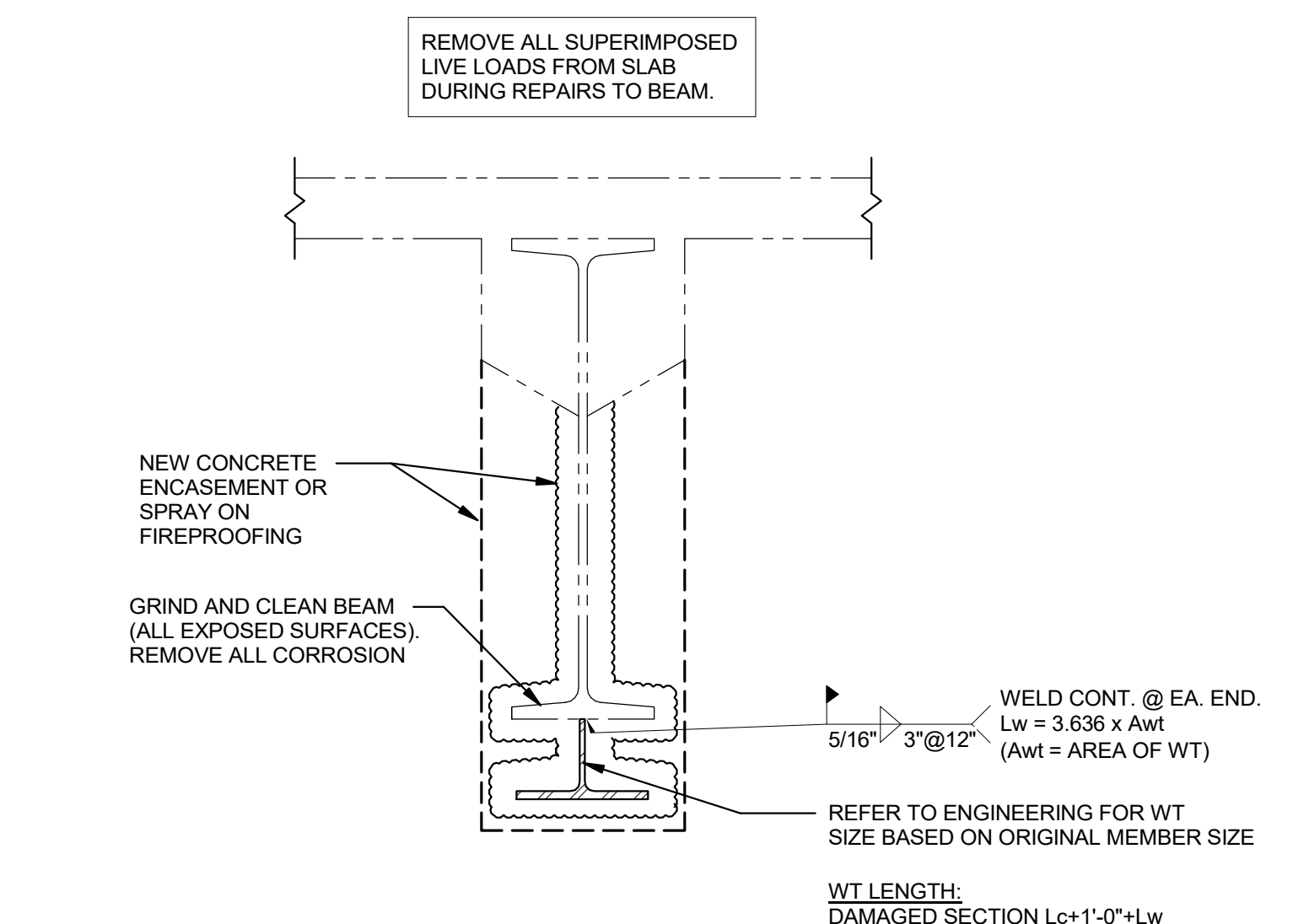
**D3 BOTTOM FLANGE REPAIR A (5% TO 15%)**  
SCALE: 1 1/2" = 1'-0"



**B3 BEAM WEB REPAIR (STEP 2) ENCASEMENT OPTION**  
SCALE: 1 1/2" = 1'-0"



**E4 BEAM BOTTOM FLANGE REPAIR 2 (STEP 2) ENCASEMENT OPTION**  
SCALE: 1 1/2" = 1'-0"



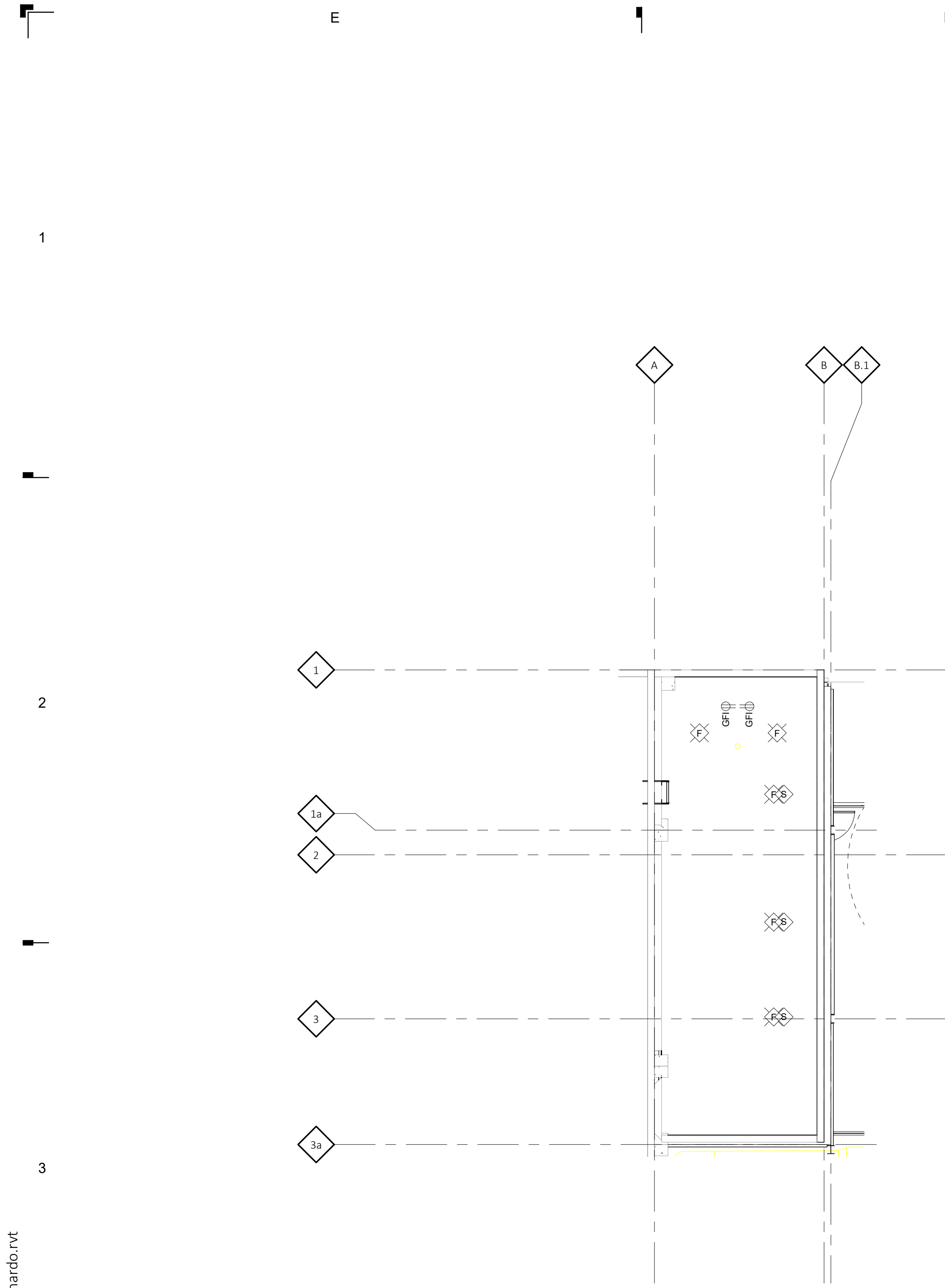
**D4 BOTTOM FLANGE REPAIR B (15% TO 25%)**  
SCALE: 1 1/2" = 1'-0"

- BASED ON CORROSION TEST RESULTS PROCEED AS FOLLOWS:**
- IF MEASURED SECTION LOSS IS < 5% OF ORIGINAL THICKNESS, CLEAN STEEL, COAT WITH CORROSION INHIBITING PRIMER AND APPLY FIREPROOFING MATERIAL AS REQUIRED.
  - IF BOTTOM FLANGE CORROSION > 5% AND < 15% REFER TO BOTTOM FLANGE REPAIR TYPE A.
  - IF BOTTOM FLANGE CORROSION > 15% AND < 25% REFER TO BOTTOM FLANGE REPAIR TYPE B.
  - IF TOP FLANGE CORROSION > 5% AND < 10% REFER TO TOP FLANGE REPAIR TYPE A.
  - IF TOP FLANGE CORROSION > 10% AND < 20% REFER TO EOR FOR DETAIL.
  - IF WEB CORROSION > 5% AND < 35% REFER TO WEB REPAIR DETAIL.
  - COMPLETE REPAIRS TO ONE OR ALL PARTS OF BEAM REQUIRING REPAIR.
  - IF FLANGE OR WEB CORROSION EXCEEDS ABOVE LIMITS REMOVE AND REPLACE BEAM.

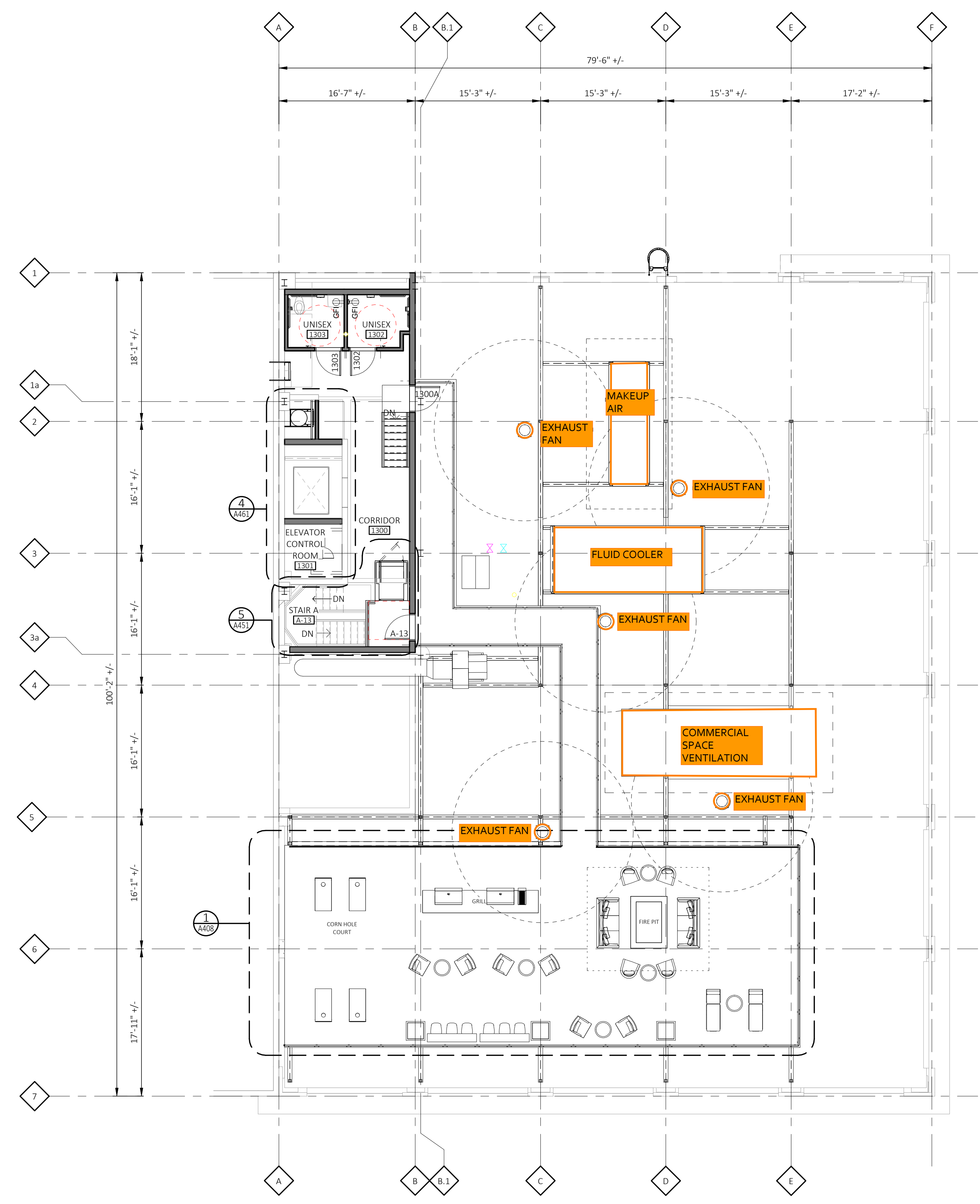


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**PENTHOUSE ROOF**  
SCALE: 1/8" = 1'-0"



**ROOF AND PENTHOUSE PLAN**  
SCALE: 1/8" = 1'-0"

**GENERAL NOTES**

- A WHERE SLAB ON GRADE REMOVAL IS REQUIRED FOR UTILITY PLACEMENT REFER TO TYPICAL CONCRETE SLAB INFILL DETAIL ON SHEET A-1.
- B PATCH AND REPAIR WALLS AND FLOOR TO ENSURE EVEN SURFACE TO RECEIVE FINISH MATERIAL. COORDINATE WITH ROOM FINISH AND COLOR SCHEDULE.
- C FIRESTOPPING: PROVIDE FIRESTOPPING ASSEMBLIES AT ALL PENETRATIONS AND INTERRUPTIONS TO FIRE RATED ASSEMBLIES WHICH PROVIDE THE SPECIFIED FIRE RATING OR PARTITION OR FLOOR. SEE SPECIFICATIONS.
- D FIRE RATED PARTITIONS SHALL BE CONTINUOUS FROM FLOOR TO STRUCTURE ABOVE AND SHALL BE FIRE STOPPED TIGHTLY TO STRUCTURE PER CODE (U.L. SYSTEM).
- E WHERE NEW GYPSUM BOARD PARTITIONS ARE A CONTINUATION OF AN EXISTING PARTITION OR COLUMN ENCASUREMENT, THE FACE OF THE NEW GYPSUM BOARD SHALL BE ALIGNED WITH THE FACE OF THE EXISTING SURFACE. WHERE A NEW GYPSUM BOARD PARTITION IS SHOWN INTERSECTING A COLUMN ENCASUREMENT THE CENTERLINE OF THE WALL SHALL BE CENTERED ON THE COLUMN ENCASUREMENT.
- F WHERE NEW OR INFILL PARTITION ABUTS EXISTING PARTITION, FACE OF PARTITIONS SHALL ALIGN, UNLESS NOTED OTHERWISE.
- G PARTITIONS WITH EXISTING FRAMING MAY REQUIRE REWORK TO ACCOMMODATE NEW OPENINGS, ETC.
- H WHERE NEW FINISHES ARE SPECIFIED ON THE FINISH PLAN REMOVE ALL EXISTING FINISHES - PATCH AND REPAIR WALLS AND FLOOR - PREPARE THEM TO ACCEPT NEW SCHEDULED FINISH PER MANUFACTURER'S INSTRUCTIONS. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- I LOCATE DOOR FRAMES 6" FROM INSIDE CORNER TO DOOR OPENING, UNLESS NOTED OTHERWISE.
- J ALL INTERIOR GLAZING INCL. DOORS, SIDELITES, & BORROWED LITES SHALL BE CLEAR LAMINATED SAFETY GLASS OR CLEAR TEMPERED SAFETY GLAZING. UNLESS NOTED OTHERWISE.
- K CONTRACTOR SHALL PROVIDE AND INSTALL CORNER GUARDS (CG) AS IDENTIFIED ON PLANS. CG SHALL BE FULL HEIGHT FROM TOP OF BASE TO CEILING. TYP. EXCEPT AT WWC - INSTALL FROM TOP OF WWC TO CLG.
- L SEMI-RECESSED FIRE EXTINGUISHER (FE) - REFER TO SHEET A501 FOR TYPICAL DETAILS. FINAL LOCATION OF FIRE EXTINGUISHERS SHALL BE REVIEWED IN FIELD WITH BUILDING OFFICIAL PRIOR TO INSTALLATION ROUGH-IN.
- M RECESSED ITEMS (GREATER THAN 16 SQ. IN.) IN RATED AND/OR SMOKE WALLS, INCLUDING ELEC PANELS, ELEC DUCTS, MED GAS VALVE BOXES, FIRE EXT CABINETS, ETC. SHALL BE BACKED WITH 5/8" TYPE 'X' GYPSUM BOARD TO MAINTAIN RATING FIRE WALL.
- N TELEPHONE AND ELECTRICAL PANEL BOARDS: PROVIDE AND INSTALL 4' X 8' X 3/4" THICK, PLYWOOD, FIRE RETARDANT TREATED.

Architect

Consultant

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2001-2017 PARK AVENUE  
DETROIT, MI

Project

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SD OWNER REVIEW 10-19-18

Revision \_\_\_\_\_ Date \_\_\_\_\_

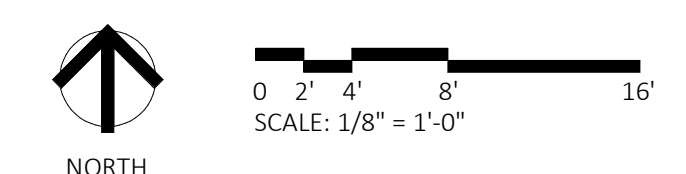
Date \_\_\_\_\_

Project Number 2018063

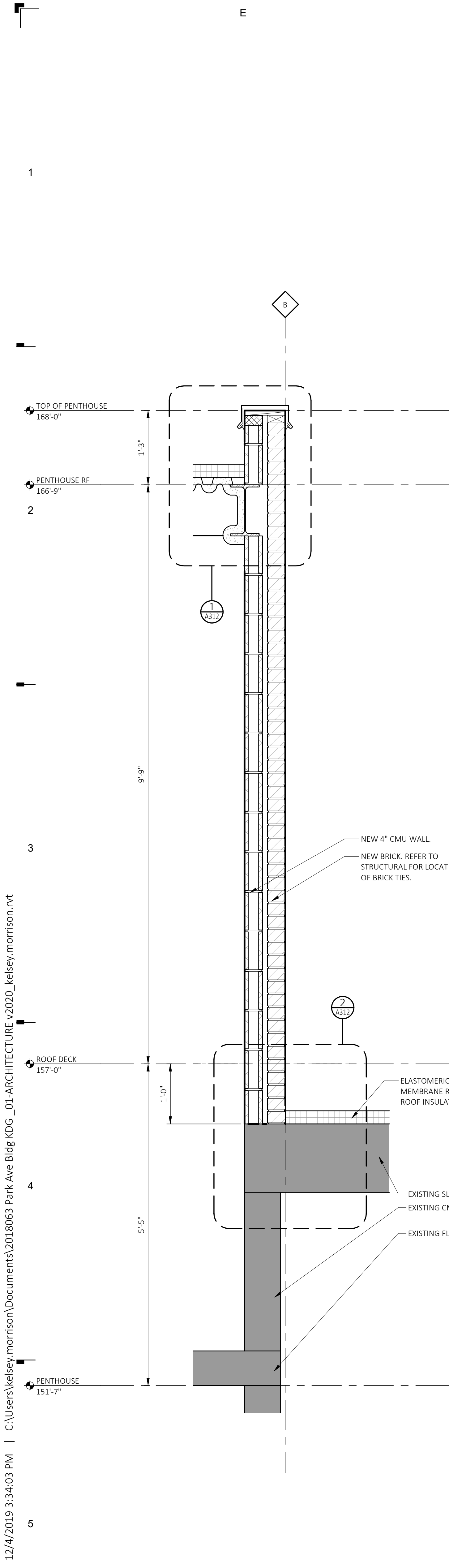
Sheet Title  
**ROOF AND  
PENTHOUSE PLAN**

Sheet Number

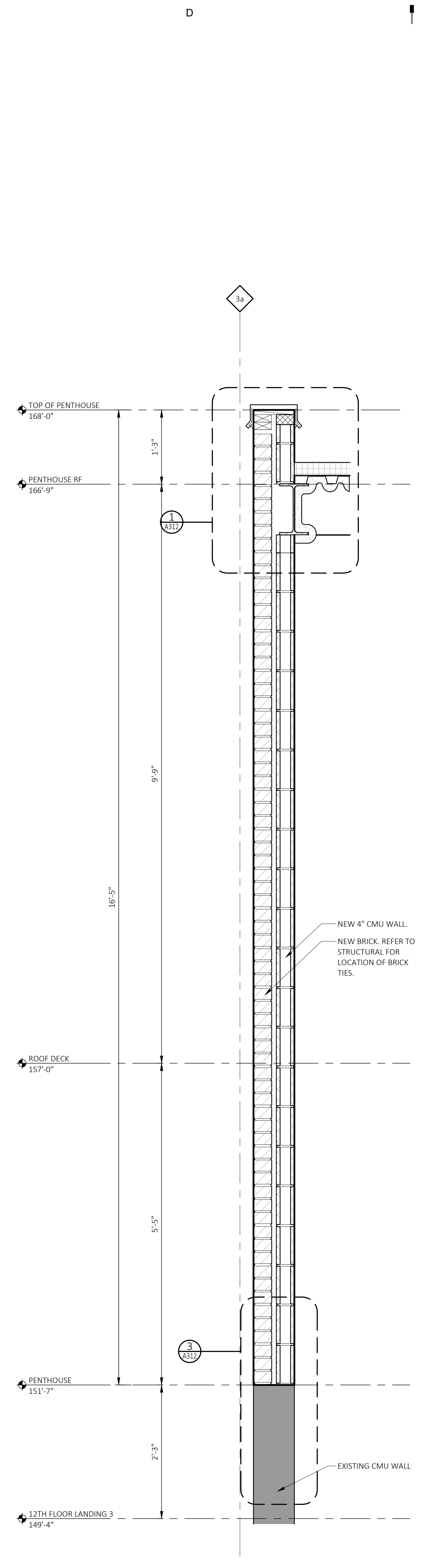
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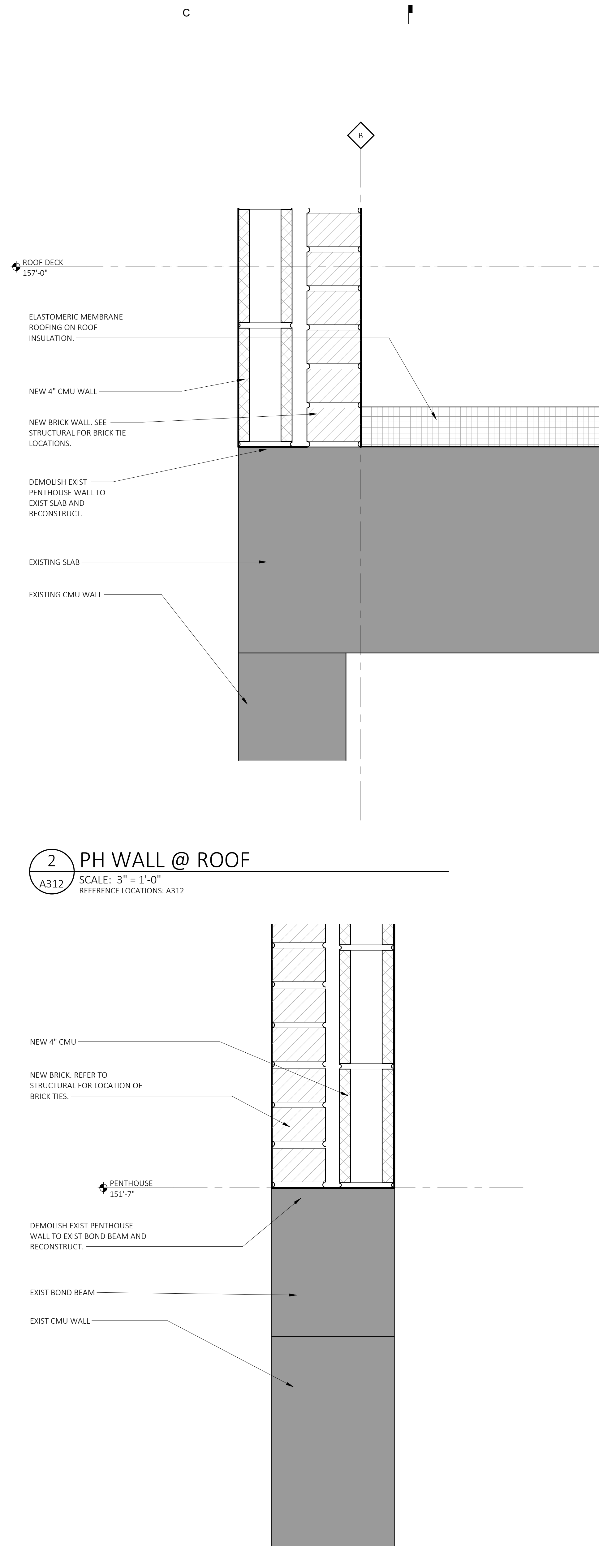




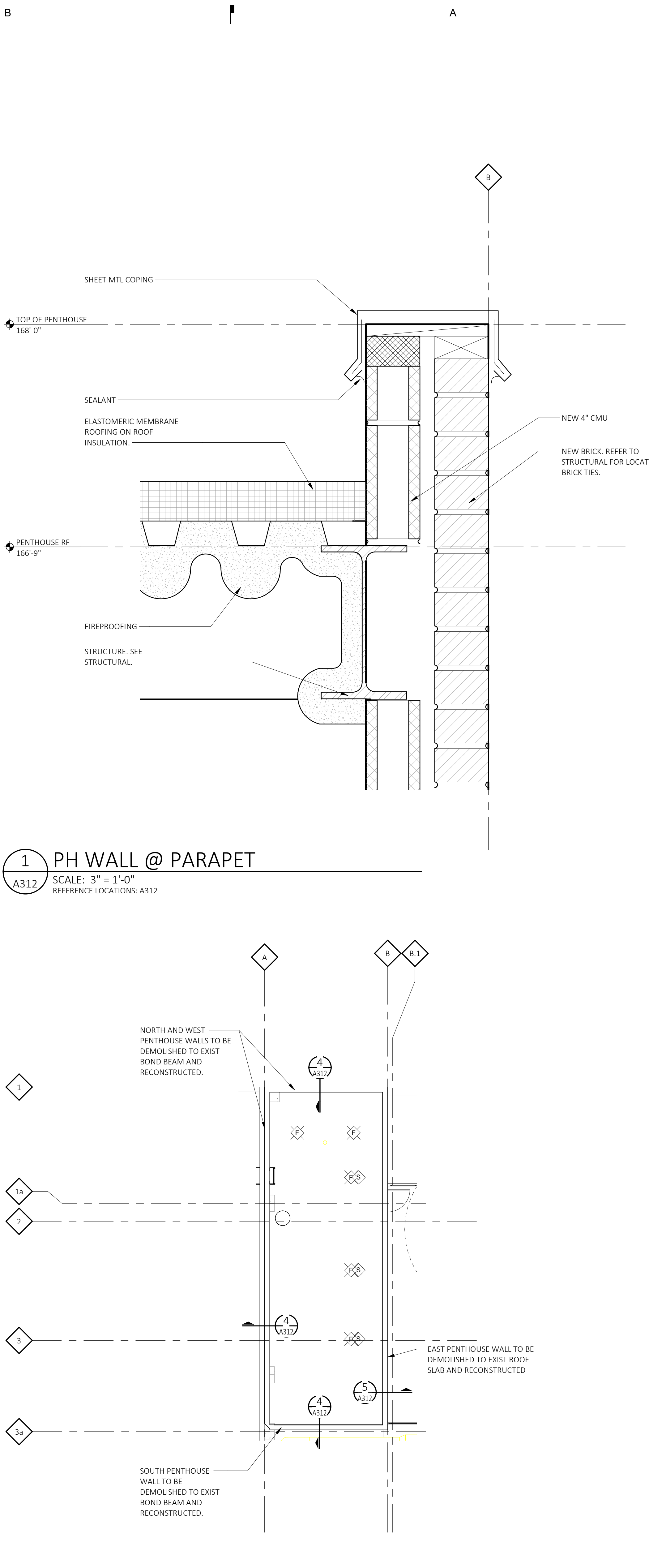
**5 PENTHOUSE WALL SECTION**  
 A312 SCALE: 1" = 1'-0"  
 REFERENCE LOCATIONS: A110



**4 PENTHOUSE WALL SECTION**  
 A312 SCALE: 1" = 1'-0"  
 REFERENCE LOCATIONS: A109



**3 PH WALL @ BOND BEAM**  
 A312 SCALE: 3" = 1'-0"  
 REFERENCE LOCATIONS: A312



**6 PH ROOF PLAN**  
 A312 SCALE: 1/8" = 1'-0"  
 REFERENCE LOCATIONS: A201

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 Architect

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 Consultant

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DD OWNER REVIEW 09-12-19  
 Revision \_\_\_\_\_ Date \_\_\_\_\_  
 Project Number 2018063  
 Sheet Title  
**WALL SECTIONS AND DETAILS**  
 Sheet Number

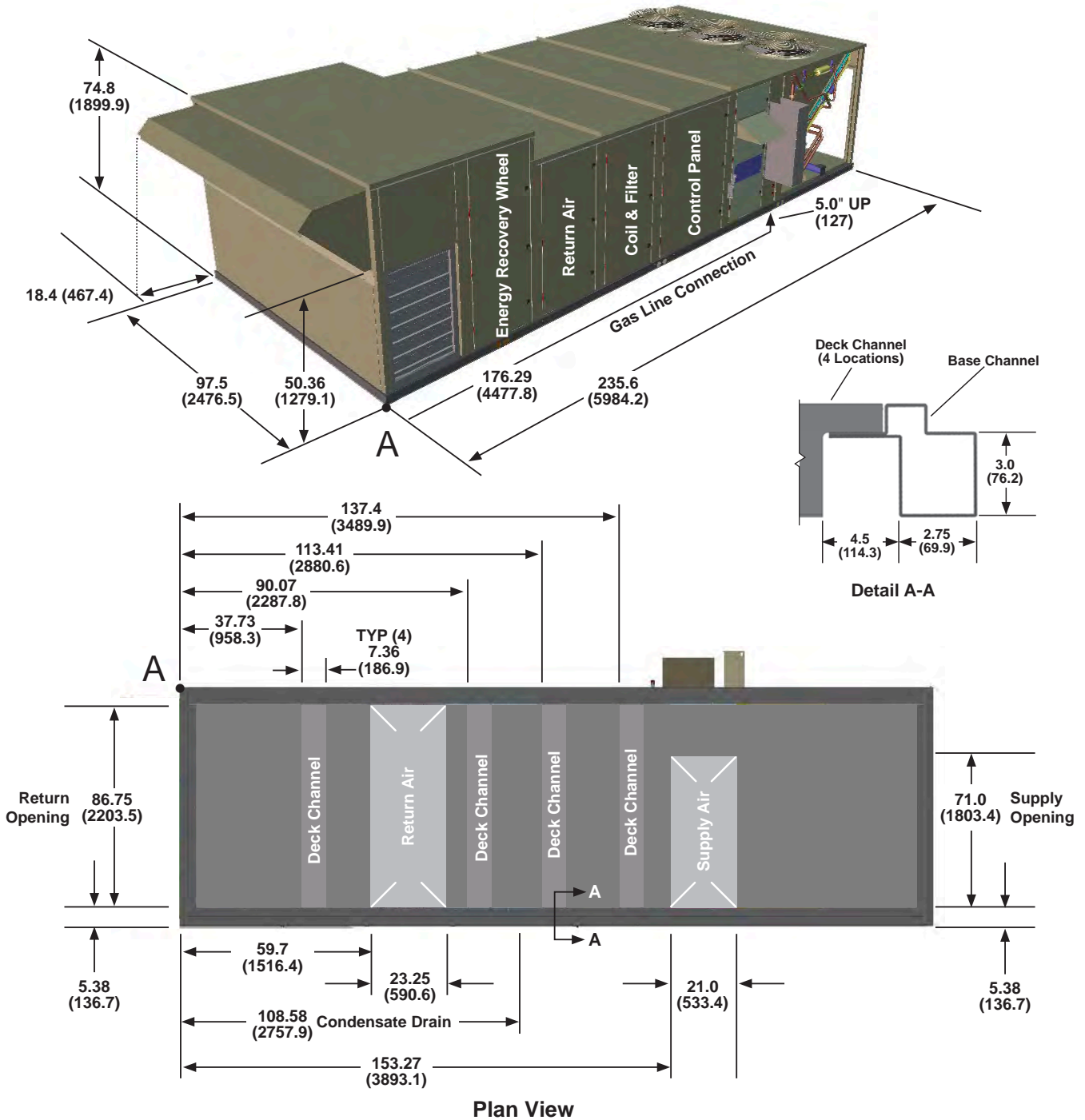
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A312

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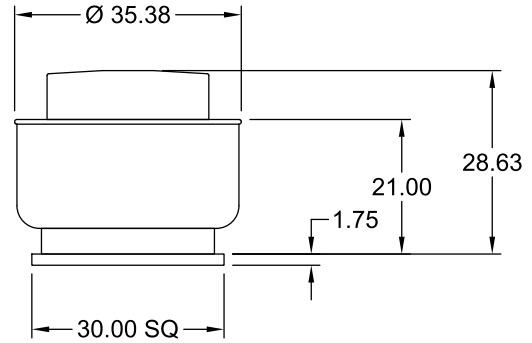
Figure 60: MPS 026–035 Gas Heat, Large Diameter Energy Recovery Wheel





# Model: CUBE-200-10

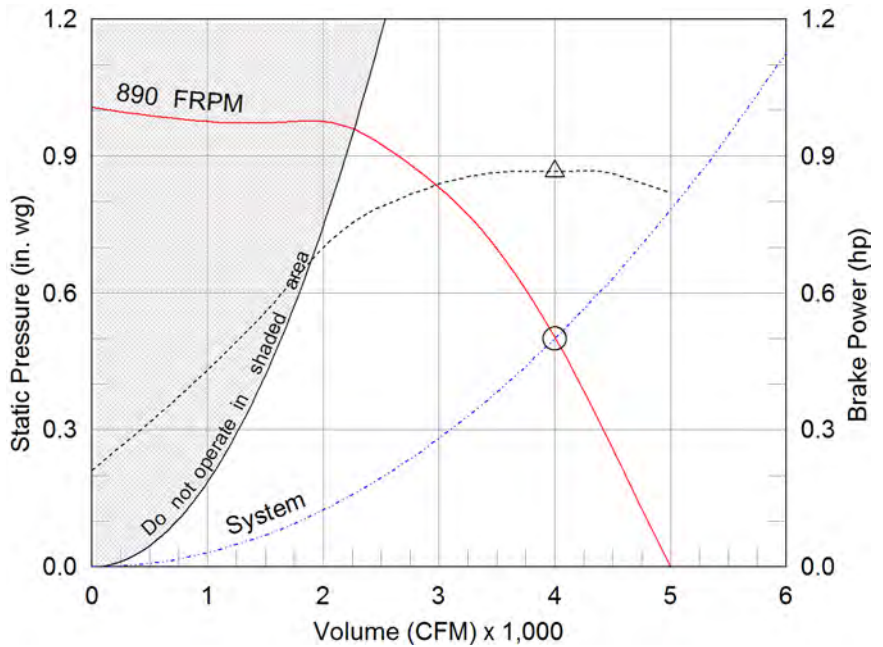
Belt Drive Upblast Centrifugal Roof Exhaust Fan



OVERALL HEIGHT MAY BE GREATER DEPENDING ON MOTOR.

Dimensional	
Quantity	1
Weight w/o Acc's (lb)	108
Weight w/ Acc's (lb)	112
Max T Motor Frame Size	184
Roof Opening (in.)	20.5 x 20.5

Performance	
Requested Volume (CFM)	4,000
Actual Volume (CFM)	4,000
Total External SP (in. wg)	0.5
Fan RPM	890
Operating Power (hp)	0.87
Elevation (ft)	663
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.073
Drive Loss (%)	6.5
Tip Speed (ft/min)	4,979
Static Eff. (%)	39



- △ Operating Bhp point
- Operating point at Total External SP
- Fan curve
- - - System curve
- - - Brake horsepower curve

Motor	
Motor Mounted	Yes
Size (hp)	1
Voltage/Cycle/Phase	208/60/3
Enclosure	ODP
Motor RPM	1725
Windings	1
NEC FLA* (Amps)	4.6

### Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	78	84	81	74	65	66	61	55	77	65	14.2

### Notes:

All dimensions shown are in units of in.  
\*NEC FLA - based on tables 430.248 or 430.250 of National Electrical Code 2014. Actual motor FLA may vary, for sizing thermal overload, consult factory.  
LwA - A weighted sound power level, based on ANSI S1.4  
dBA - A weighted sound pressure level, based on 11.5 dB attenuation per Octave band at 5 ft - dBA levels are not licensed by AMCA International  
Sones - calculated using AMCA 301 at 5 ft





---

## Model: CUBE-200-10

### Belt Drive Upblast Centrifugal Roof Exhaust Fan

#### Standard Construction Features:

- Aluminum housing - Backward inclined aluminum wheel - Curb cap with prepunched mounting holes - Motor and drives isolated on shock mounts - Drain trough - Ball bearing motors - Adjustable motor pulley - Adjustable motor plate - Fan shaft mounted in ball bearing pillow blocks - Bearings meet or exceed temperature rating of fan - Static resistant belts - Corrosion resistant fasteners - Internal lifting lugs

#### Selected Options & Accessories:

Switch, NEMA-1, Toggle, Shipped with Unit  
Junction Box Mounted & Wired  
Unit Warranty: 1 Yr (Standard)

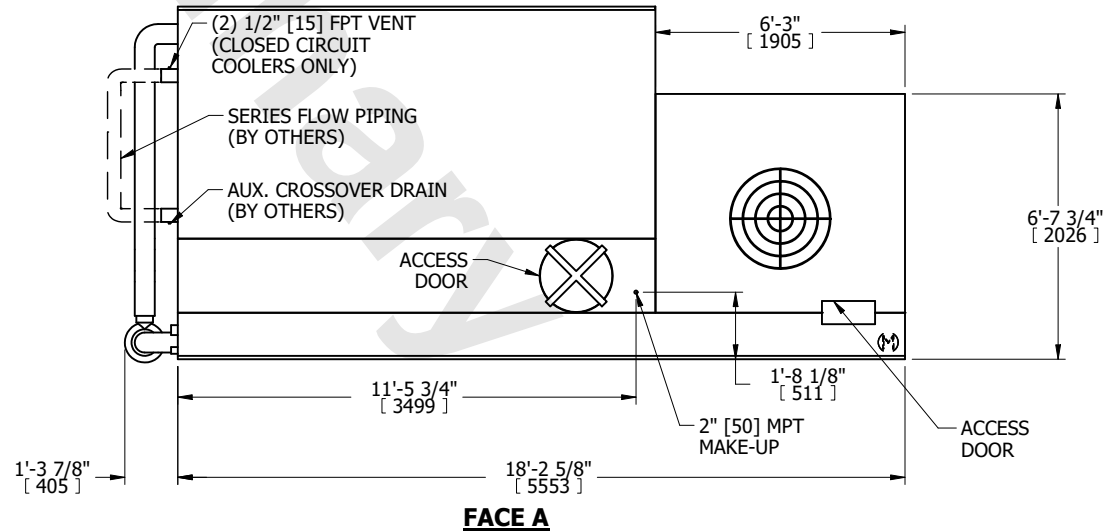
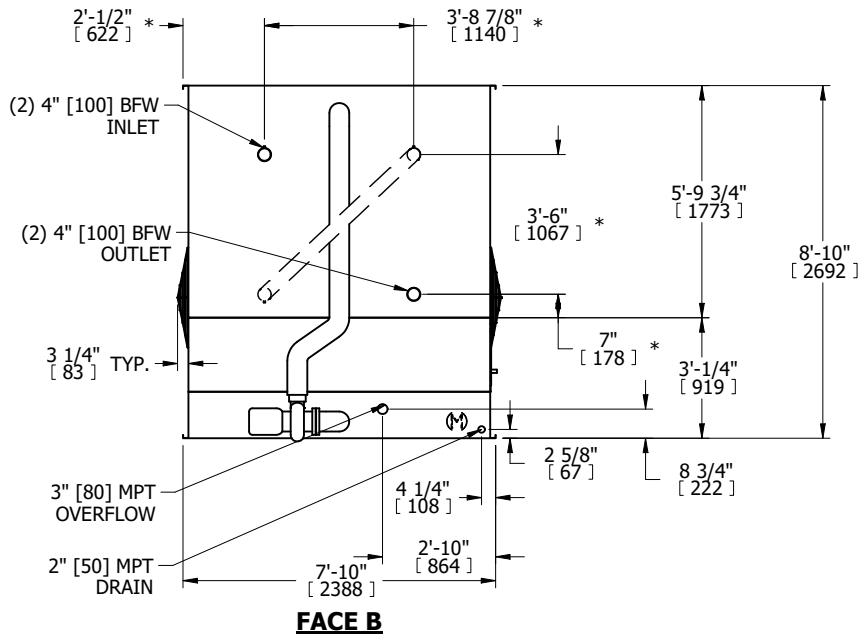
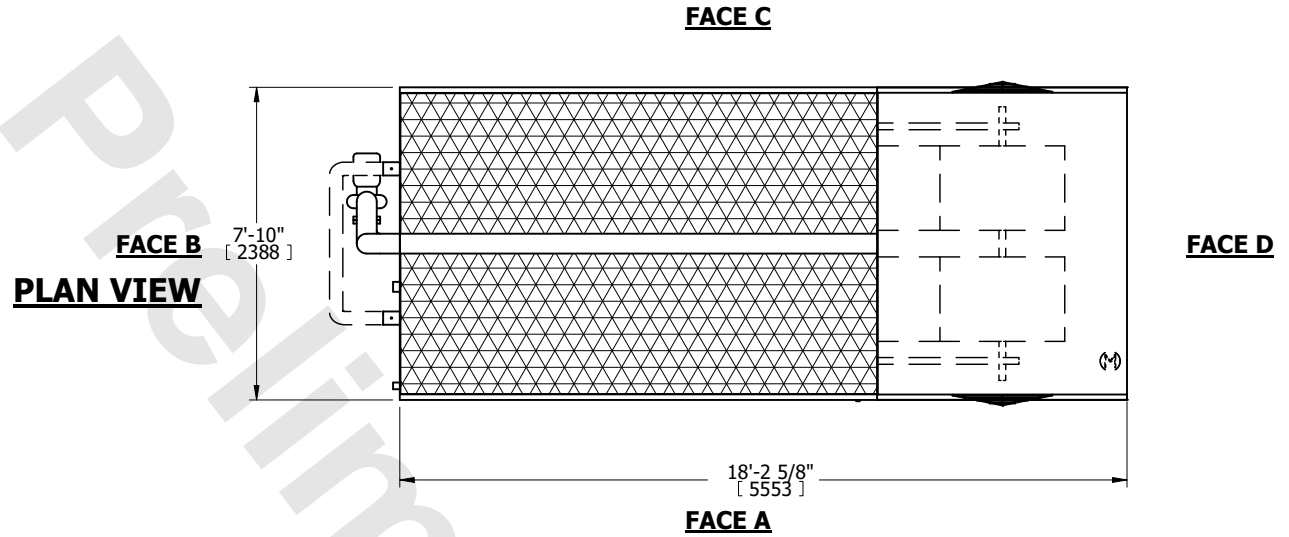


UNIT	
MODEL #	LRWB 8-6M12-Z
SCALE	NTS

# EVAPCO, INC.

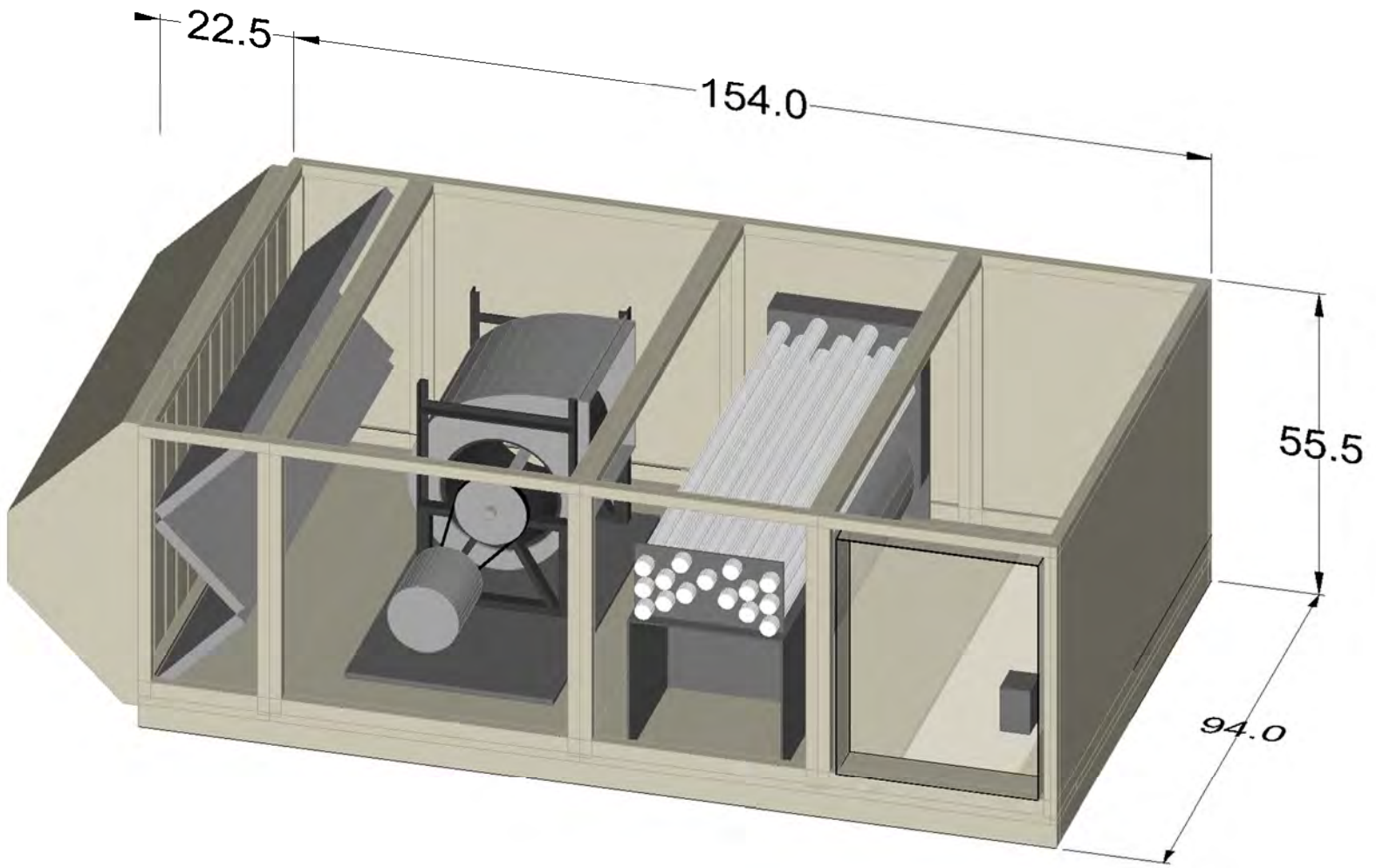
DWG. #	WV081212-DRD-SF	REV.	
SERIAL #		DATE	11/28/2016

- NOTES:
- (M)- FAN MOTOR LOCATION
  - MPT DENOTES MALE PIPE THREAD  
FPT DENOTES FEMALE PIPE THREAD  
BFW DENOTES BEVELED FOR WELDING  
GVD DENOTES GROOVED  
FLG DENOTES FLANGE
  - +UNIT WEIGHT DOES NOT INCLUDE ACCESSORIES (SEE ACCESSORY DRAWINGS)
  - 3/4" [19mm] DIA. MOUNTING HOLES. REFER TO RECOMMENDED STEEL SUPPORT DRAWING
  - DIMENSIONS LISTED AS FOLLOWS: ENGLISH FT IN [METRIC] [mm]
  - \* - APPROXIMATE DIMENSIONS DO NOT USE FOR PRE-FABRICATION OF CONNECTING PIPING.
  - MAKE-UP WATER PRESSURE  
20 psi [137 kPa] MIN, 50 psi [344 kPa] MAX
  - SERIES FLOW PIPING AND AUX. CROSSOVER DRAIN ARE BY OTHERS
  - VENT PROVIDED ON CLOSED CIRCUIT COOLERS ONLY



SHIPPING WEIGHT	14530 lbs[6595] kg	OPERATING WEIGHT	22740 lbs[10315] kg	HEAVIEST SECTION WEIGHT	14530 lbs[6595] kg	NO. OF SHIPPING SECTIONS	1	DRAWN BY:	TLS
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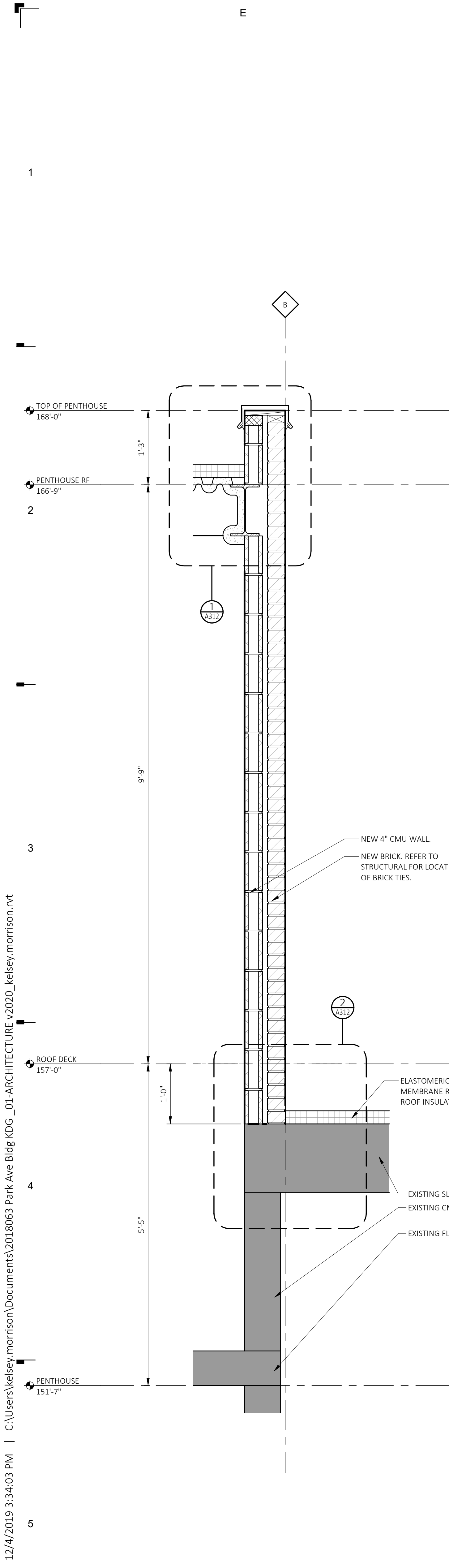




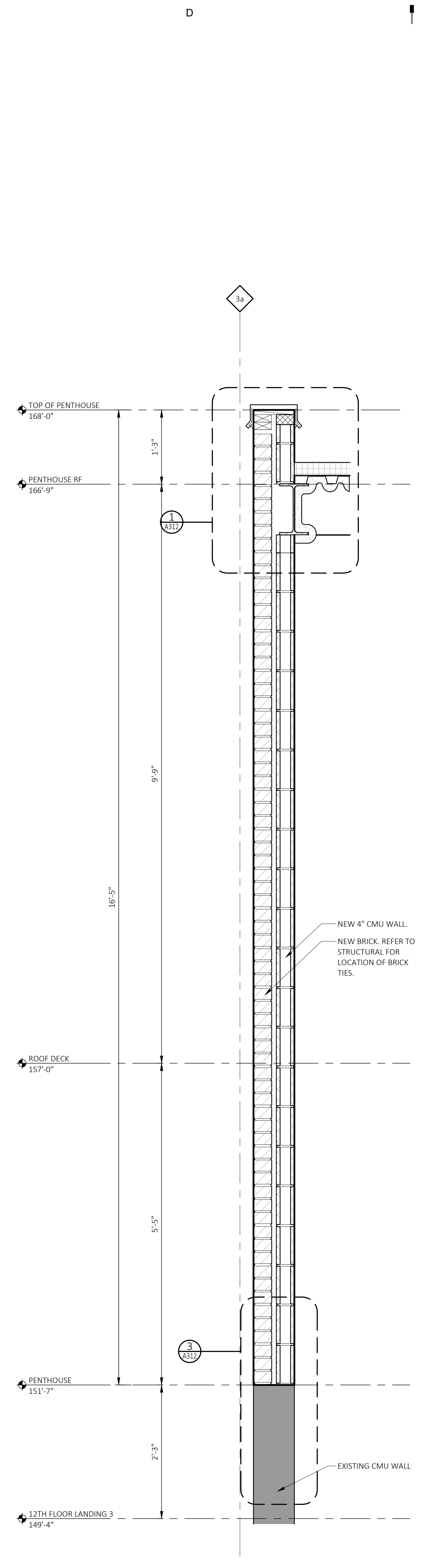




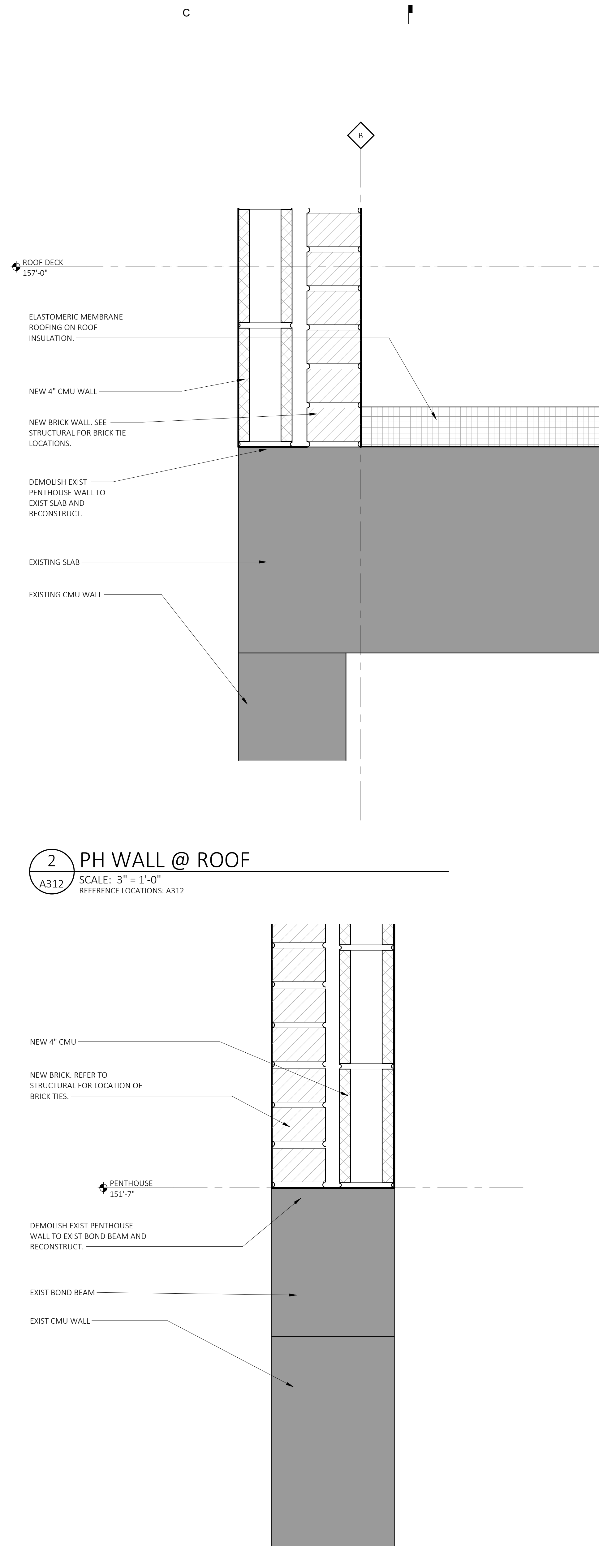




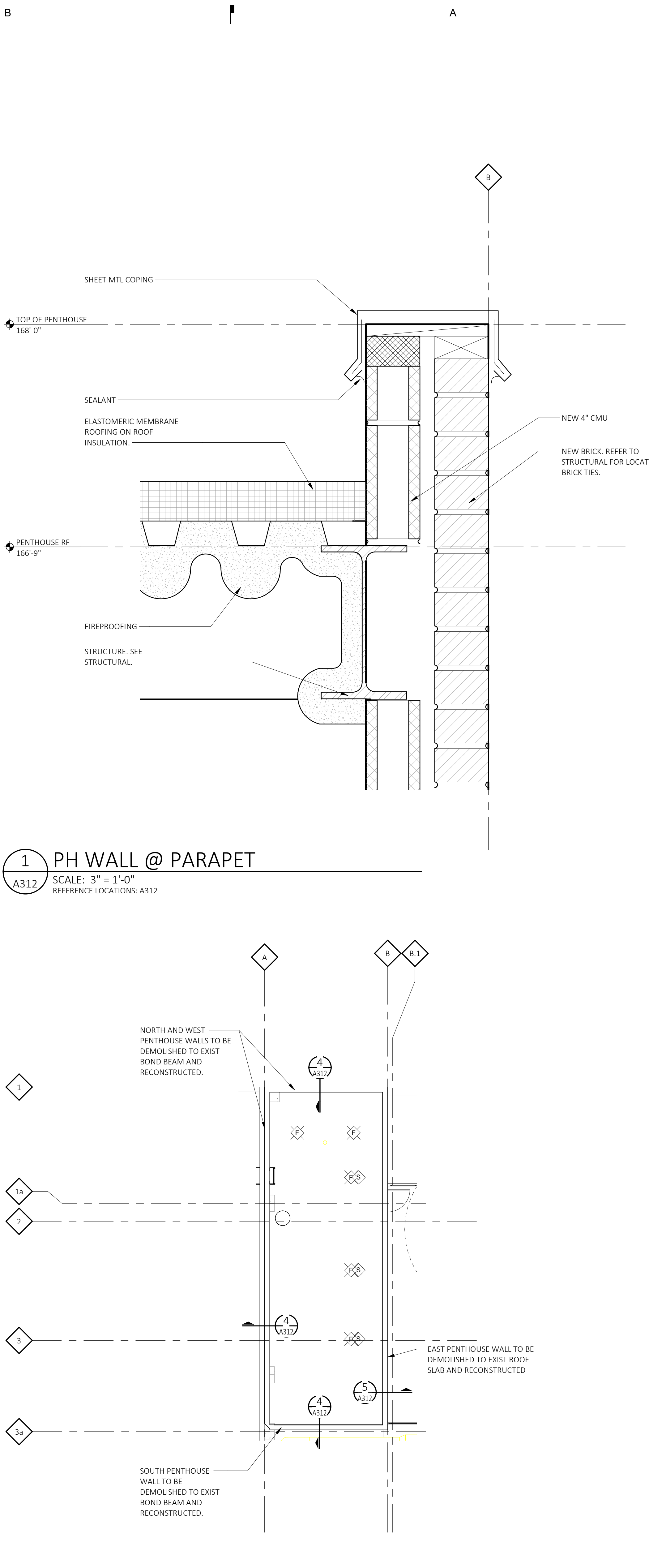
**5 PENTHOUSE WALL SECTION**  
 A312 SCALE: 1" = 1'-0"  
 REFERENCE LOCATIONS: A110



**4 PENTHOUSE WALL SECTION**  
 A312 SCALE: 1" = 1'-0"  
 REFERENCE LOCATIONS: A109



**3 PH WALL @ BOND BEAM**  
 A312 SCALE: 3" = 1'-0"  
 REFERENCE LOCATIONS: A312



**6 PH ROOF PLAN**  
 A312 SCALE: 1/8" = 1'-0"  
 REFERENCE LOCATIONS: A201

**KraemerDesignGroup**  
 1420 Broadway | Detroit, MI 48226 | (313) 965-5399 | (313) 965-3555  
 www.kraemerdg.com  
 Architect

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**INFINITY-PARK AVE, LLC**  
 42400 GRAND RIVER, SUITE 112  
 NOVI, MI 48375  
 Consultant

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**PARK AVENUE BUILDING**  
 2001-2017 PARK AVENUE  
 DETROIT, MI  
 Owner

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**PRELIMINARY NOT FOR CONSTRUCTION**

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DD OWNER REVIEW 09-12-19  
 Revision \_\_\_\_\_ Date \_\_\_\_\_  
 Project Number 2018063  
 Sheet Title  
**WALL SECTIONS AND DETAILS**  
 Sheet Number

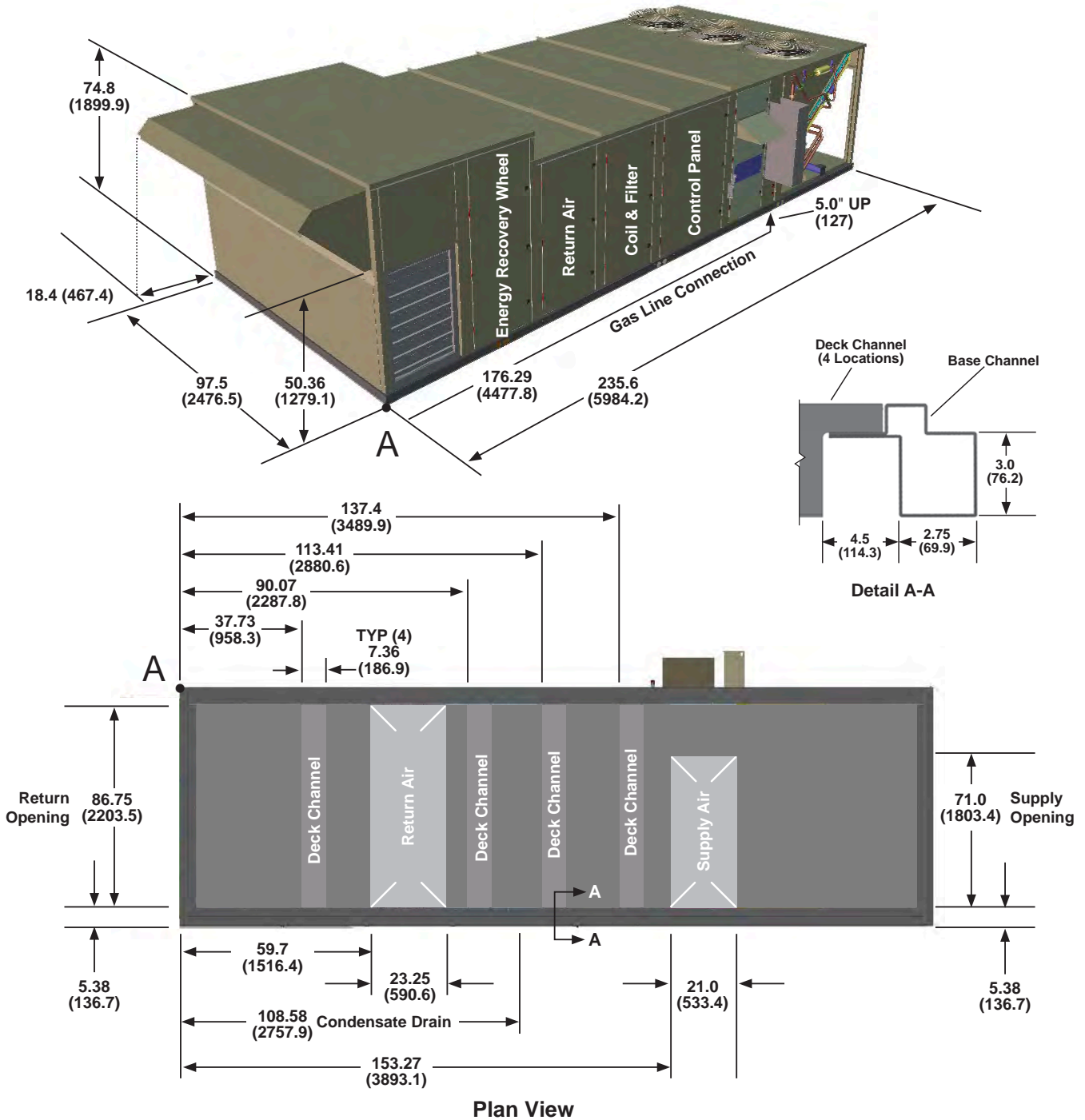
**A312**

NORTH  
 SCALE: 1/8" = 1'-0"

30 x 42 | PLOTTED ON 12/17/2019 3:34:03 PM | C:\Users\velsey.morrison\Documents\2018063 Park Ave Bldg\_KDG\_01-ARCHITECTURE\_V2020\_kelsey.morrison.rvt



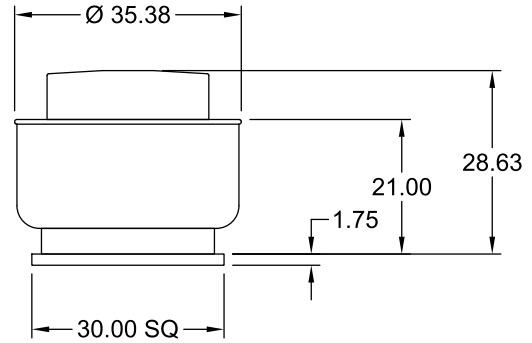
Figure 60: MPS 026–035 Gas Heat, Large Diameter Energy Recovery Wheel





# Model: CUBE-200-10

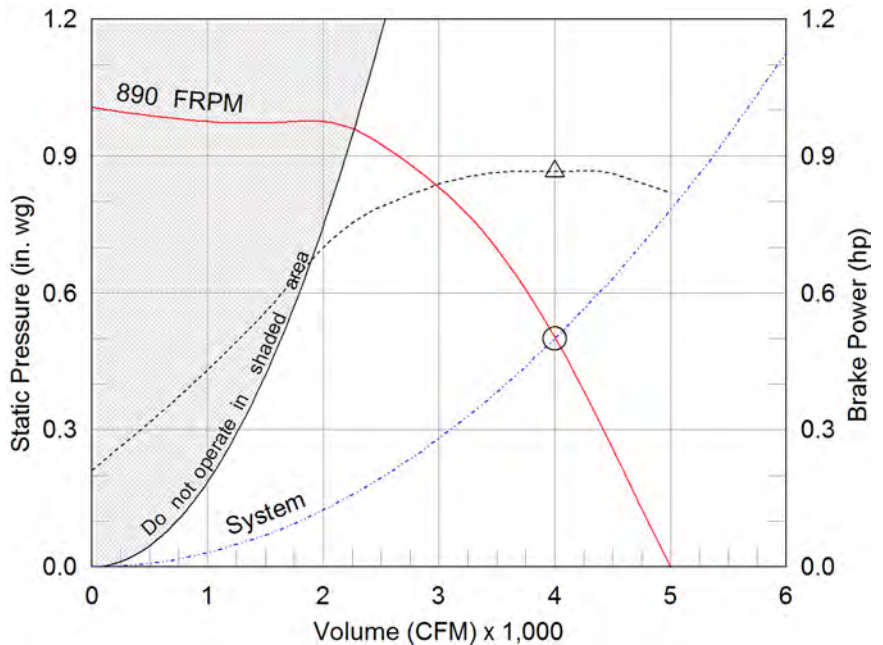
Belt Drive Upblast Centrifugal Roof Exhaust Fan



OVERALL HEIGHT MAY BE GREATER DEPENDING ON MOTOR.

Dimensional	
Quantity	1
Weight w/o Acc's (lb)	108
Weight w/ Acc's (lb)	112
Max T Motor Frame Size	184
Roof Opening (in.)	20.5 x 20.5

Performance	
Requested Volume (CFM)	4,000
Actual Volume (CFM)	4,000
Total External SP (in. wg)	0.5
Fan RPM	890
Operating Power (hp)	0.87
Elevation (ft)	663
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.073
Drive Loss (%)	6.5
Tip Speed (ft/min)	4,979
Static Eff. (%)	39



- △ Operating Bhp point
- Operating point at Total External SP
- Fan curve
- - - System curve
- - - Brake horsepower curve

Motor	
Motor Mounted	Yes
Size (hp)	1
Voltage/Cycle/Phase	208/60/3
Enclosure	ODP
Motor RPM	1725
Windings	1
NEC FLA* (Amps)	4.6

### Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	78	84	81	74	65	66	61	55	77	65	14.2

### Notes:

All dimensions shown are in units of in.  
\*NEC FLA - based on tables 430.248 or 430.250 of National Electrical Code 2014. Actual motor FLA may vary, for sizing thermal overload, consult factory.  
LwA - A weighted sound power level, based on ANSI S1.4  
dBA - A weighted sound pressure level, based on 11.5 dB attenuation per Octave band at 5 ft - dBA levels are not licensed by AMCA International  
Sones - calculated using AMCA 301 at 5 ft





## Model: CUBE-200-10

### Belt Drive Upblast Centrifugal Roof Exhaust Fan

#### Standard Construction Features:

- Aluminum housing - Backward inclined aluminum wheel - Curb cap with prepunched mounting holes - Motor and drives isolated on shock mounts - Drain trough - Ball bearing motors - Adjustable motor pulley - Adjustable motor plate - Fan shaft mounted in ball bearing pillow blocks - Bearings meet or exceed temperature rating of fan - Static resistant belts - Corrosion resistant fasteners - Internal lifting lugs

#### Selected Options & Accessories:

Switch, NEMA-1, Toggle, Shipped with Unit  
Junction Box Mounted & Wired  
Unit Warranty: 1 Yr (Standard)



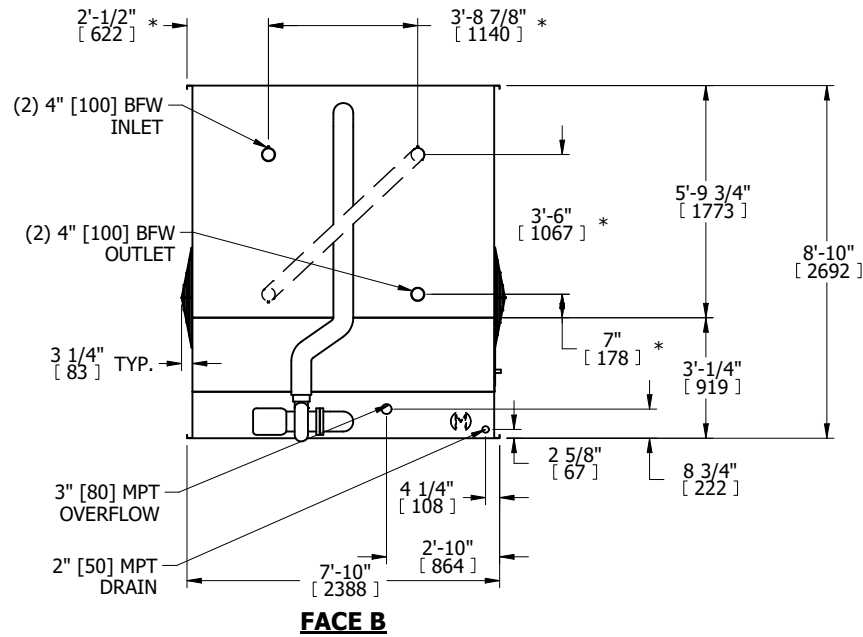
UNIT	
MODEL #	LRWB 8-6M12-Z
SCALE	NTS

# EVAPCO, INC.

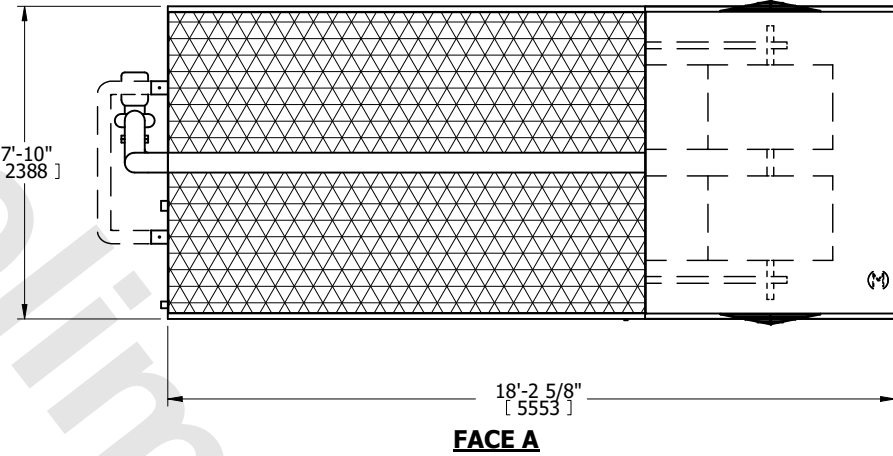
DWG. #	WV081212-DRD-SF	REV.	
SERIAL #		DATE	11/28/2016

- NOTES:
- (M)- FAN MOTOR LOCATION
  - MPT DENOTES MALE PIPE THREAD  
FPT DENOTES FEMALE PIPE THREAD  
BFW DENOTES BEVELED FOR WELDING  
GVD DENOTES GROOVED  
FLG DENOTES FLANGE
  - +UNIT WEIGHT DOES NOT INCLUDE ACCESSORIES (SEE ACCESSORY DRAWINGS)
  - 3/4" [19mm] DIA. MOUNTING HOLES. REFER TO RECOMMENDED STEEL SUPPORT DRAWING
  - DIMENSIONS LISTED AS FOLLOWS: ENGLISH FT IN [METRIC] [mm]
  - \* - APPROXIMATE DIMENSIONS DO NOT USE FOR PRE-FABRICATION OF CONNECTING PIPING.
  - MAKE-UP WATER PRESSURE  
20 psi [137 kPa] MIN, 50 psi [344 kPa] MAX
  - SERIES FLOW PIPING AND AUX. CROSSOVER DRAIN ARE BY OTHERS
  - VENT PROVIDED ON CLOSED CIRCUIT COOLERS ONLY

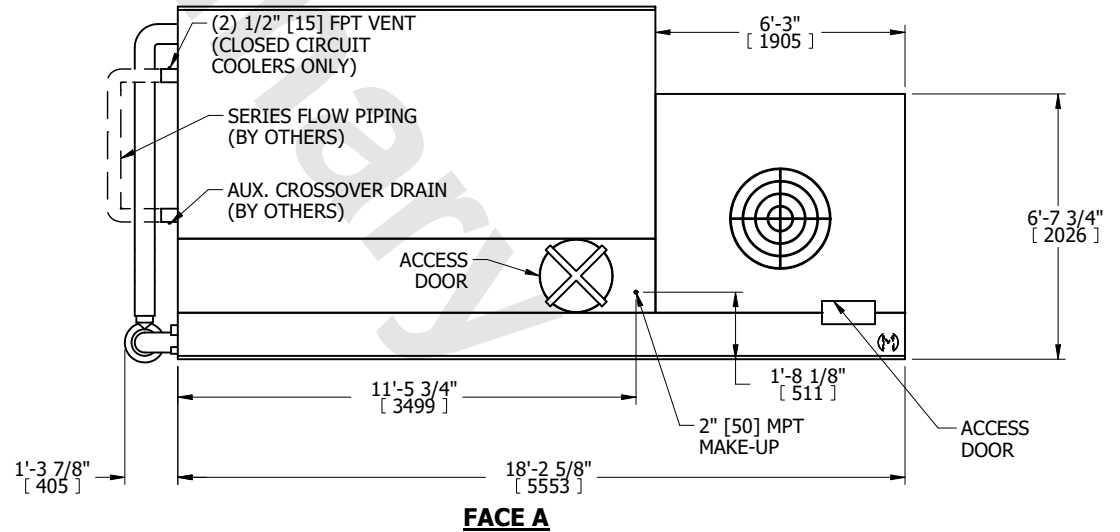
**FACE B**  
**PLAN VIEW**



**FACE C**



**FACE D**



SHIPPING WEIGHT	14530 lbs[6595] kg	OPERATING WEIGHT	22740 lbs[10315] kg	HEAVIEST SECTION WEIGHT	14530 lbs[6595] kg	NO. OF SHIPPING SECTIONS	1	DRAWN BY:	TLS
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