Thornton Tomasetti
Building Solutions

Project

The Consumers Building
220 South State Street
Building IL0315ZZ
Chicago, Illinois
2021 Critical Examination Report – South, East, and Partial North Elevations
TT Project No. C20178.00

Prepared For

United States General Services Administration
Great Lakes Region 5

General Services Administration
230 South Dearborn Street
Chicago, Illinois 60604

Prepared By

Thornton Tomasetti Inc.
330 North Wabash Avenue
Suite 1500
Chicago, IL 60611-7622
Phone: 312.596.2000
Fax: 312.596.2001

Submission Date
February 23, 2022

Thornton Tomasetti

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APPENDICES

1.00 EXECUTIVE SUMMARY

This is a report on the critical examination of the south, east, and east portion of the north exterior elevation of The Consumers Building located at 220 South State Street in Chicago, Illinois. The report is being submitted for compliance with Section 34 (13-196-031) through 34 (13-196-039) of the Municipal Code of the City of Chicago for the Maintenance of Exterior Walls and Enclosures Ordinance and was prepared in accordance with the City of Chicago's ordinance dated November 12, 2007, and Rules and Regulations governing the examination of exterior walls and enclosures effective as of March 1, 2016. This report and related project documentation shall be maintained in a permanent building file at the property.

Based upon our observations and close-up review, the facade appears to vary in condition from fair to poor depending upon the element under consideration. No imminently hazardous conditions were present at the conclusion of the critical examination.

The east elevation is classified by Thornton Tomasetti, Inc. (TT) as "Safe with a Repair and Maintenance Program" condition. The repairs recommended to be performed (refer to the Recommendations Section for more detailed explanations and timelines for repairs) include, but are not limited to:

- Repairs at the exterior walls including parapets, belt courses, water tables, window heads, windowsills, columns, mullions, ashlar units, and building corners
- Repairs at horizontally exposed surfaces
- Repointing of mortar joints
- Removal and replacement of failed sealant joints
- Commencement of a comprehensive window repair or replacement project
- Commencement of a comprehensive facade evaluation and repair project to include all portions of the exterior elevations

Thornton Tomasetti recommends that the existing sidewalk and plaza protection currently in place remain in place until long-term repairs are completed, and the facades re-examined. TT recommends that the canopy extend a safe distance beyond the building corners in order to provide adequate coverage.

This critical examination shall be considered to be submitted for the year 2021. The report and related project documentation shall be maintained in a permanent building file.

Should the Owner elect to submit the report to the City of Chicago, two copies of this report must be submitted to the address listed below along with the receipt of payment from the City of Chicago Department of Revenue. The $75 filing fee payment must be made at the City of Chicago Department of Revenue prior to submitting the report. Two printed copies of the report should be submitted to the following address:

Department of Buildings
Exterior Wall Program
Attn: Allison Sullivan
2045 W. Washington Blvd., 3rd Floor
Chicago, Illinois 60612
T 312.743.3522

2.00 INTRODUCTION

2.01 BUILDING CATEGORIZATION

The Rules and Regulations for the facade ordinance require that each building elevation be categorized based on the type of building components that are used for the facade. The categories determine when future examinations are required. The following are the definitions according to the regulations:

- Category I Buildings – those buildings constructed with exterior walls and enclosures that are primarily reinforced with, or are in direct contact with, non-corrodible metal.
- Category II Buildings – those buildings constructed with exterior walls and enclosures that are primarily reinforced with, or are in direct contact with: (i) corrosion resistant metal; or (ii) corrodible metal that is protected by flashing and corrosion-resistant metal anchors.
- Category III Buildings – those buildings constructed with exterior walls and enclosures that are primarily reinforced with, or are in direct contact with, corrodible metal.
- Category IV Buildings – those buildings constructed with exterior walls and enclosures that are primarily secured to the substrate by adhesive bond or with masonry headers.

The south, east, and north elevations at the 220 South State Street Building can be classified as Category III, because they are primarily reinforced with or are in direct contact with corrodible metals and have carbon steel shelf angles, lintels, and lateral ties. 220 South State Street is a vacant building. The Facade Ordinance requires that vacant buildings must have a critical examination submitted every four years, regardless of the Category (Rule 2.1). It shall be noted that TT was only engaged by the Client to perform an examination at the facades noted in this report.

Thornton Tomasetti, Inc. performed a critical facade examination of the building in 2015 and at that time classified the condition of the subject facades of the building as “Safe with Repair and Maintenance”. Thornton Tomasetti also performed a critical facade examination of the building in 2013 with the same classification.

2.02 CONTACT INFORMATION

A. ENGINEER

Name and business address of Professional preparing report:

Rachel Michelin, AIA, LEED AP BD+C
Associate Principal
Thornton Tomasetti, Inc.
330 North Wabash Avenue
Suite 1500
Chicago, IL 60611
T: 312.596.2000

B. CONTRACTOR

Access, labor, rigging and restoration services were provided by:

Restoration Contractor:
Berglund Construction Company
8410 S. South Chicago Avenue
Chicago, IL 60617
Telephone: 773-374-1000

2.03 GENERAL BUILDING INFORMATION

A. BUILDING NAME AND ADDRESS:

The Consumers Building
220 South State Street
Chicago, IL 60604

B. NUMBER OF STORIES:

21 Stories, plus 2 mechanical penthouses

C. PRINCIPAL BUILDING OCCUPANCIES:

Floor 1 (Ground) – Floor 21: Vacant

D. OWNER'S AGENT:

Ms. Laura Rusiniak
Property Manager
General Services Administration
219 South Dearborn Street, Room 200
Chicago, Illinois 60604
Telephone: 312.279.9570

Mr. Marco Lopez
Lead Property Manager
General Services Administration
219 South Dearborn Street, Room 200
Chicago, Illinois 60604
Telephone: 312.353.2846

E. BUILDING HEIGHT:

Approximately 285 feet

F. PLAN DIMENSIONS:

Approximately 144 feet (North and South) by 62 feet (East and West)

G. BUILDING AGE:

Approximately 109 years old; The building was constructed circa 1912.

H. BUILDING DESCRIPTION:

The Consumers Building, also referred to as the 220 South State Street building or 2 Quincy Court, was designed by the Chicago-based architecture firm Jenney, Mundie and Jensen Architects in 1911 (Photos 1 through 3). The building is a 21-story structure constructed with steel structural framing and clad in historic terra cotta and glazed brick masonry. The building is bound by State Street to the east, Quincy Court (previously Quincy Street) to the south, an access drive to the west, and a 4-story building to the north. Refer to the Site Plan shown in "Part I" below.

The steel structural framing includes the use of rolled shapes and built-up shapes by riveting steel shapes together for the columns and beams, typical of early steel construction. The exterior masonry is typically supported at each floor level by steel angles, which are riveted back to the structural steel.

The proportions of the building are typical of the “Chicago School of Architecture,” which was popular in the late 19th century. Chicago School skyscrapers were typically divided vertically into proportions that resemble the three parts of a classical column. For the Consumers Building, the first four stories function as a base, the fifth through the 17th floors act as the shaft of the column, and the top four floors, which were originally topped with an ornamental cornice, represent the capital of the column. The original cornice was removed on an unknown date.

Elements of neoclassical architecture were typically used in the ornamentation of Chicago School skyscrapers. This is evident on the primary or street elevations of the building, which are adjacent to State Street (east elevation) and Quincy Court (south elevation). The building is clad with terra cotta, except at locations where the terra cotta was removed and replaced with a white glazed face brick. At the primary elevations, architectural elements include simple belt courses and water tables at the second, fifth, sixth, and 18th floors. At the 21st floor, an ornamented water table exists. At the spandrels below the third, 4th, 19th, and 20th floors, a rectangle is flanked by ornamented terra cotta diamond shapes. At the remainder of the spandrels, a rectangular shape exists below each window. At the east and south elevations, the historic terra cotta cornice and the parapet walls have been removed and reconstructed with glazed face brick but would have originally been enhanced by ornamental terra cotta. They are now capped with a limestone coping.

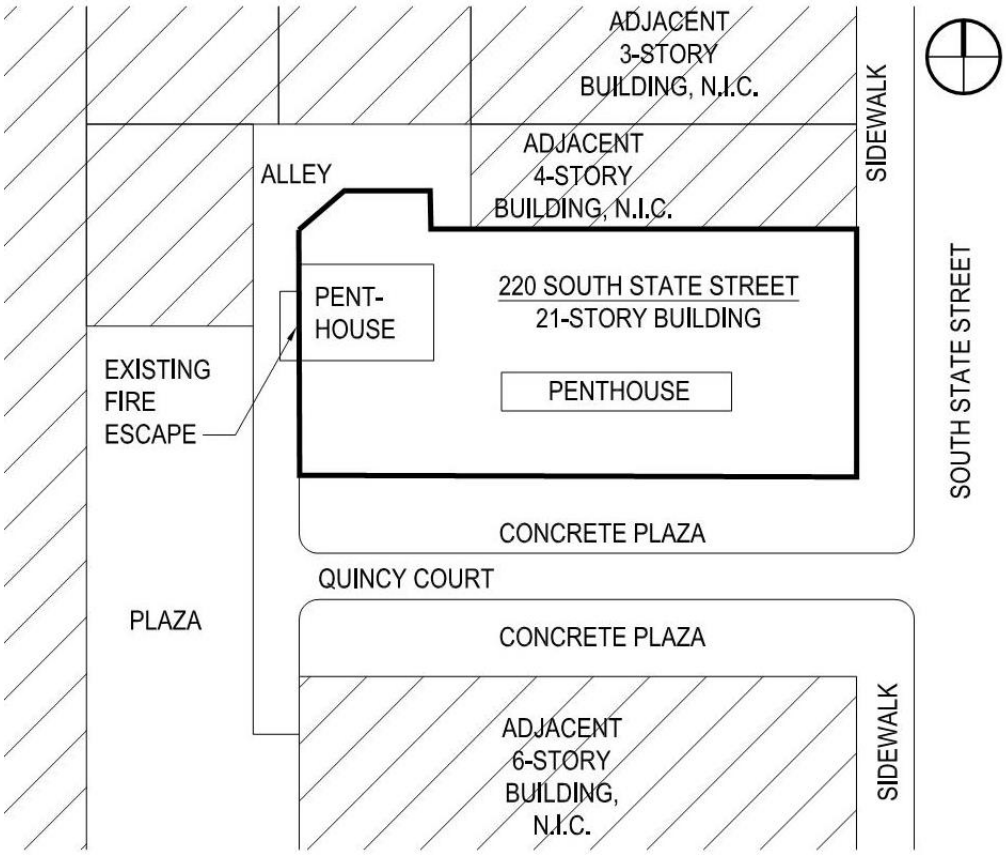
The west elevation and west end of the north facade of the building are adjacent to an access drive. The east end of the north elevation is adjacent to another building. These elevations are clad with ashlar terra cotta units, except at locations where the terra cotta was removed and replaced with a white glazed face brick or cementitious parge coats. The design motifs of the primary street elevations (east and south) originally wrapped around the northeast and southwest corners. However, at the northeast corner, these elements were completely removed, and at the southwest corner, most of the elements were removed. A metal fire escape exists at the center of the west elevation.

At the east and south elevations, the windows at floors two through four are replacement aluminum clad Chicago style windows with a large center fixed pane flanked on either side by an operable single hung window. At floors five through twenty-one, the masonry openings are infilled with a pair of replacement aluminum clad single hung windows. Between the windows is a narrow terra cotta mullion. At isolated locations on the south

elevation, the original wood window is still in place. At the west and north elevations, steel-framed single hung windows are present.

Through the years, the building facade has undergone several alterations, the most significant being the removal of the original terra cotta cornice and replacement with glazed brick and the removal of the terra cotta at the northeast and southwest corners of the building and replacement with glazed brick. Other changes have included but are not limited to the following: window replacement, terra cotta repairs, terra cotta removal and replacement with glazed brick or cementitious parge coats, infilled windows, crack repairs, and other maintenance items. Specific dates when the modifications and repairs occurred are unknown.

I. SITE PLAN:



3.00 EXAMINATION

3.01 DOCUMENT REVIEW

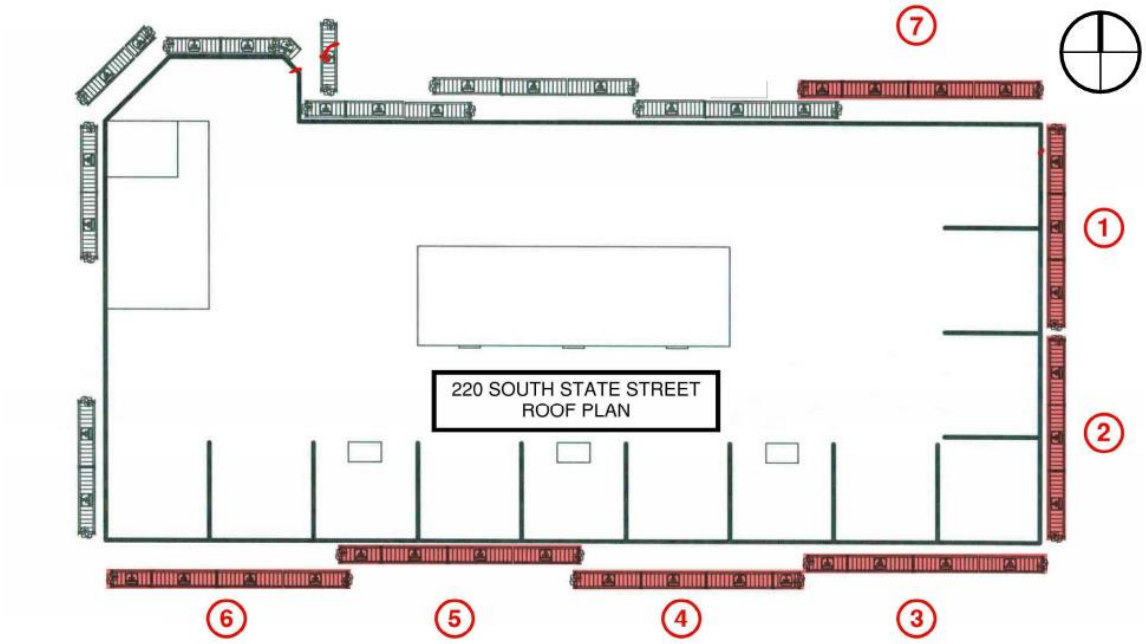
TT requested that the Owner provide any available drawings and facade-related reports for review. The following is a list of the documents reviewed:

- "2015 Critical Examination Report for the Consumers Building, 220 South State Street, Chicago, Illinois," dated October 30, 2015, and prepared by Thornton Tomasetti, Inc.
- "2013 Critical Examination Report for the Consumers Building, 220 South State Street, Chicago, Illinois," dated October 20, 2014, revised February 24, 2015, and prepared by Thornton Tomasetti, Inc.
- "Critical Examination of Exterior Walls and Enclosures for 220 South State Street, Chicago, Illinois," dated July 22, 2002; prepared by Kolbjorn Saether and Associates, Inc.
- Partial set of the original building drawings for "Office Building N.W. cor. State and Quincy Sts. for Mr. Jacob L. Kesner Chicago, Illinois," dated April 20, 1912; prepared by Jenney, Mundie and Jensen Architects.

3.02 PHYSICAL EXAMINATION PROCEDURES

The examination involved accessing the facade from suspended "swing-stage" scaffolds provided by the contractor. The south and east elevations were inspected from full-height "drops" from a swing-stage scaffold to visually cover approximately 100% of those elevations (refer to Drop Plan below). One drop was performed at the east end of the north elevation due to its proximity to public sidewalk on State Street. Each "drop" location was from the top of the parapet to the canopy level, or top of adjacent building. The examinations were performed from October 2020 through May 2021. Additional observations were made from the ground level through December 2021. Documentation consisted of photographic images, field notes, and sketches.

DROP PLAN:



Thornton Tomasetti's observations were limited to up-close visual examinations performed at arm's length with the aid of hammer or mallet devices utilized for sounding terra cotta and glazed brick. No destructive material testing was performed.

New individual probe openings were not performed as a part of this Critical Examination. However, the backup conditions at locations of previously removed terra cotta units were observed. Refer to Exploratory Probe Openings Section 3.04 herein for observations. Temporary stabilization repairs were implemented at areas of the building found to be critical in regard to condition and safety. Refer to the Stabilization Repairs Section 3.05 herein.

3.03 BUILDING FACADE DESCRIPTIONS AND OBSERVATIONS

The following is a brief description of the building's south, east, and partial north facade components along with TT's observations (refer to Appendix A for representative photographic documentation and Appendix B for elevation drawings). Refer to Section 3.05 for a discussion of locations that were temporarily stabilized during the critical examination and are in need of permanent repairs. Repair recommendations are discussed in Section 4.0 Recommendations.

A. TERRA COTTA

The original terra cotta cornice and parapet wall has been previously removed and replaced with glazed brick masonry cladding and a limestone coping at an unknown date. This is further discussed below under "Brick Cornice."

Terra cotta is used to clad the south and east elevations. Specific details include the lower portion of the original cornice that remains above the 21st floor windows, belt courses and water tables, including the associated window sill units, at the 2nd, 5th, 6th, 18th and 21st floors; window head units at window locations beneath the cornice, belt courses, and water tables; spandrel units below each window bay (not at belt course or water table locations), including the associated window heads and sills; mullion units between windows at the 5th through 21st floors; and columns clad with terra cotta units in the form of vertical bead, cove, and ashlar pieces.

In general, deterioration of the components has progressed at an increased rate since the 2015 Critical Examination due to the lack of a comprehensive repair and maintenance program. At the conclusion of observations at each vertical "drop" location, temporary stabilization repairs were provided by Berglund at areas of noted distress, which are further discussed in Section 3.05.

1. Lower Portion of Cornice

Above the 21st floor window head, two courses of the original terra cotta cornice and parapet wall remain. These two courses include a large half round profile unit with a congee profile below (Photo 4). In general, widespread distress was observed within this area and included open joints, failed mortar and sealant joints, horizontal cracks, and small to medium sized spalls (typically less than 0.25 square feet) observed at the half round units. At skyward facing unglazed portions of the half round profile units, metal flashing is provided. The flashing caps are fastened with anchors. Most of the flashing pieces were observed to be loose and inadequately fastened, with two flashing

caps entirely missing on the south elevation (Photos 5 through 7). Loose material was removed or secured by the contractor as a part of the critical examination.

Above the terra cotta is the glazed brick parapet wall, which is discussed below under "Brick Cornice."

2. Belt Courses and Water Tables

Belt courses are located at the 2nd and 6th floors. and water tables (larger belt course) are located at the 5th, 18th and 21st floors. The top unit of the belt courses and water tables has a skyward facing horizontal face that is slightly sloped away from the building. Raised terra cotta joint edges exist at each unit. A windowsill unit sits directly above this course and has similar skyward facing elements. The 21st floor water table is more ornamented than the others. The second course is a torsade (in profile a twisted rope) (Photo 8). Below is a course with decorative shields capping each column and a flat circular medallion at the midpoint of each window bay (Photo 9).

Prior to TT's involvement with this building, at the northeast corner of the building, the belt courses and water table were removed completely (Photo 10). At these locations, glazed brick masonry infills the areas formerly terra cotta. Additional previous repairs include crack repairs, installation of pins, removal of loose or spalled material and the installation of a cementitious patch material.

Deterioration of the components have significantly progressed and worsened since the 2015 Critical Examination due to the lack of a comprehensive repair and maintenance program.

The most commonly observed deterioration at the belt courses and water tables includes widespread cracking (Photo 11) or spalling at the raised terra cotta joints, failed sealant or mortar at previous crack repair locations and at joints, loose mortar, and cracks in the skyward facing portion of the top course (Photos 12 and 13). A significant amount of previous repair work was in poor condition. Loose material was removed by the contractor as a part of the critical examination. These deteriorated areas, particularly spalls on up-facing surfaces and open terra cotta joints at the water tables, become vulnerable areas for water infiltration, which leads to accelerated corrosion of the steel and subsequent cracking, spalling, and delaminating of the terra cotta.

At the east elevation, TT observed extensive cracking along with spalling of the raised terra cotta "nose" joints along the 5th floor belt course and 6th floor water table (Photos 14 through 16). Upon removal of spalled terra cotta material at the 6th floor water table, TT discovered a foam-filler type material that was previously injected as a repair at an unknown date. It is unconfirmed whether this material expands due to moisture. A combination of ongoing corrosion of existing steel and expansion of this foam material may have led to the extensive cracking observed.

At the east elevation, a portion of the terra cotta torsade course was observed to be spalled. At this location, a heavily corroded steel lateral tie was observed near the back of the portion remaining in the wall (Photos 17 through 19). Additionally at the east elevation, many portions of the water table elements sounded hollow based on mechanical sounding though no visible signs of distress were noted. It is likely that there

may be cracking at the embedded portion of such units, which would not be visually apparent.

3. Window Heads beneath the Cornice, Belt Courses and Water Tables

Window heads, or window lintels clad in terra cotta, at window locations beneath the cornice, belt courses and water tables are similar to the profile of the columns. There is a horizontal bead directly above the window, a cove profile, and a flat transition to the projecting elements above. This occurs at the 4th, 5th, 17th, 20th and 21st floors.

Previous repairs include pin repair, crack repair with sealant (Photo 20), removal of small spalls and installation of patch material. Loose material was removed and sealed. In general, previous sealant repairs were in fair to poor condition. At various locations, previous pin repairs (installed prior to 2015) were observed to be poorly installed and at these locations supplemental pin stabilization repairs were performed.

At the 4th, 5th, 17th and 20th floor window heads, the deterioration includes cracking (Photo 21), failed mortar joints, incipient terra cotta spalls, and small areas of failed previous patch material. At isolated locations, unsound units required installation of stainless steel straps for stabilization and crack repair. When sounded using a hammer or mallet, many units were found to be hollow. Stabilization repairs included stainless steel mesh installation, crack repair and removal of loose material.

4. Spandrels

Spandrels exist below all window openings except at locations of belt courses and water tables. The spandrels consist of a sill course, decorative courses forming simple flat rectangles or ornamented diamond shapes, and a window head course. At the spandrels below the 3rd, 4th, 19th and 20th floors, a rectangle is flanked by ornamented diamond shaped terra cotta (Photo 22).

Similar to the sills at the belt courses and water tables, windowsills have skyward facing horizontal surfaces. Deterioration observed is also similar, including cracking, spalling of the raised terra cotta sill “nose” joints (Photo 23), failed sealant, and failed mortar at both previous crack repair locations and joints. Several units sitting beneath a terra cotta mullion were severely cracked and spalled (Photo 24). At these locations, the terra cotta unit was removed, and a plywood enclosure was installed to cover and protect the void.

Overall, the decorative courses of the spandrels were observed to be in good condition. Observed distress in the terra cotta includes hairline cracking, small surface glazing chips or spalls, a few areas of cracked mortar joints, and isolated open joints, however at isolated locations spalls were larger (approximately 1 square foot), typically with a corroded steel structural element adjacent to the deterioration (Photo 25).

Exposed surfaces of the window head units within the spandrels are unadorned, flat, rectangular shapes. These window head units are generally in fair condition (Photo 26).

Mortar joints within the spandrels were typically in fair to poor condition with some cracking and erosion of the mortar observed.

5. Mullions

Terra cotta mullions exist between windows at the 5th through 21st floors. The units are rectilinear with a flat or low profile (Photo 27). Previous repairs were observed at several locations including previous pin or mesh repairs and sealant repairs.

The condition of the mullion units varies greatly. Some units exhibit minimal deterioration or only hairline cracks. At many locations, units were severely cracked or delaminated (Photo 28) and required the installation of stainless steel mesh. In several locations, cracks were oriented vertically and were noted at the side of the unit. Additional newer cracks originated and passed through previous pin repairs (Photo 29). At locations where severely cracked mullion units were removed, the existing vertical steel member was observed with widespread moderate surface corrosion without discernable section loss (Photo 30).

6. Columns

At the columns, terra cotta units project forward from the face of the spandrels and window jambs with a vertical bead profile, a cove profile and a second vertical bead profile.

Previous repairs were observed at numerous locations including removal of the terra cotta and replacement with glazed brick masonry or plywood covering, pinning, meshing, patch repairs, crack repairs, mortar repairs and sealant repairs (Photo 31).

At many locations, previous repairs have failed and required stabilization repairs, including pinning, meshing, and crack repairs. Deterioration observed included cracking, spalling, incipient terra cotta spalls, outward displacement, bowing of units (Photos 31 and 32) and delamination. Often, the recessed joint adjacent to the vertical cove bead is cracked (Photo 33). In general, the mortar joints are in very poor condition at the columns. Extensive areas of cracked or loose mortar and open joints were observed. The extent and severity of the conditions varies widely, with some areas in stable condition and others required stabilization repairs. Loose material was removed by the contractor as a part of the critical examination.

7. Mortar and Sealant Joints

As discussed above, the skyward facing joints were found to have aged with deteriorated sealant or mortar materials. A variety of generations of mortar and sealant was observed in the joints. Most of the joints have some degree of deterioration.

Mortar joints on vertical surfaces, specifically the cornice, belt courses, and water tables, and at corners of the building, were found to be open, cracked, or eroded, allowing water infiltration (Photo 34). The remainder of the joints have aged with varying degrees of deterioration.

B. BRICK MASONRY

Typical deterioration of the components has progressed at an increased rate since the 2015 Critical Examination due to the lack of a comprehensive repair and maintenance program. At the conclusion of observations at each vertical “drop” location, temporary

stabilization repairs were provided by Berglund at areas of noted distress, which are further discussed in Section 3.05.

White glazed brick was previously used to reconstruct locations where terra cotta units were removed; the most notable of locations includes the original cornice and parapet walls, the northeast building corner, and portions of the southwest building corner. Glazed brick is also used as a replacement material at columns and isolated sill, mullion and spandrel locations. Face brick exists at the roof side of the parapet wall. The majority of the face brick has been covered with flashings of the roof system.

In general, the glazed brick masonry construction was typically observed to be in poor condition. Typical deterioration included cracked brick and eroded mortar joints.

1. Parapet Walls

At the east and south elevations, the original terra cotta cornice and parapet walls were removed and reconstructed with glazed brick masonry. In 2013, temporary wood stabilization shoring with stainless steel wire mesh was installed across the full width and height of the parapet wall (Photo 35). The wood components were painted at that time. This temporary stabilization was intended to last no more than five years. Efflorescence and spalled brick were observed behind the stainless steel mesh. Wood components were generally in fair condition.

At the roof side of the parapet walls, the majority of the face brick is covered with flashings of the roof system and therefore not exposed. However, it should be anticipated that repairs will be required at the same time as repairs to the glazed brick masonry parapet wall.

2. Northeast Corner of the Building

Similar to the parapet wall, the original terra cotta masonry was removed at an unknown time and the exterior wall was reconstructed with glazed face brick masonry at the northeast corner of the building. At the roof level, the face brick continues along the north parapet wall towards the west for several feet.

In 2013, approximately 50 square feet of the glazed brick masonry collapsed from around the seventh floor at the north side of the northeast building corner. Subsequently, this area of masonry and adjacent deteriorated brick masonry was reconstructed with new structural elements and brick masonry (Photo 36). This area of reconstructed masonry was observed in good condition.

Also in 2013, a portion of the parapet wall and brick masonry at the north side of the northeast building corner at the 21st floor was removed due to extensive deterioration. A temporary painted plywood enclosure was installed to provide weather protection (Photo 37). The plywood of this temporary stabilization repair was found to be in good condition and well anchored.

Vertical cracking at various locations was observed on the east elevation for the full height of the northeast building corner. Cracks either stair-step within the mortar joints or propagate directly through the brick units. Some cracks are minor while others are wider (Photos 38 and 39). Slight displacement of the masonry was observed at isolated

locations. The brick masonry at the north elevation at the northeast building corner was noted to be in fair condition. While extensive cracking was not noted, widened mortar joints and slightly widened vertical sealant joint between the brick and adjacent terra cotta cladding was observed.

3. Miscellaneous Areas of Brick Infill

At various locations across the south and east elevation, glazed brick was previously used to replace terra cotta units. This occurs primarily at columns and spandrels. Glazed brick is also used to infill a few locations of previously removed windowsills.

In general, these areas of brick masonry are in fair to poor condition with minimal cracks in the brick units and mortar joints (Photo 40).

C. STOREFRONT

The first floor of the building is clad with a storefront window system at the east elevation. Access to the vacant commercial spaces located at the east portion of the ground floor is incorporated into the replacement storefront system along the east elevation.

Typical deterioration of the components has progressed since the 2015 Critical Examination due to the lack of a comprehensive repair and maintenance program. The cladding materials are in fair condition with failed joints being the most commonly observed type of distress.

D. FIRE ESCAPE STRUCTURE

TT walked the fire escape at the west elevation to document the condition of the facade in order to develop temporary stabilization repair recommendations and to review the condition of the steel fire escape in order to develop repair recommendations as part of a separate project. The west elevation is not included in this critical examination. The fire escape structure itself is outside of the scope of this report, and our full recommendations for repair have been provided in a separate budget pricing document.

In general, TT observed deteriorated or failed coatings and extensive corrosion through the fire escape structure. TT noted a wide range of deterioration at select components, including missing or failed anchors and significant section loss at components that do not drain water well, such as posts and inverted angles. Loose components were removed or secured by the Contractor as a as part of a separate scope of work.

E. WINDOWS

At the south and east elevations on floors two through four, replacement aluminum clad Chicago style windows exist. Above the 4th floor, replacement aluminum clad single hung windows exist at openings. Steel framed windows exist at the north and west elevations.

Deterioration of the components has progressed since the 2015 Critical Examination due to the lack of a comprehensive repair and maintenance program. Windows on the south and east elevation appeared to be in fair to good condition with wear due to age and weathering. In most cases, the sealant joints of these windows are aged, cracked, and debonded and are past their serviceable life (Photo 41). Windows at the north elevation

have various levels of corrosion along with deteriorated coatings. The sealant joints of the windows are in poor condition and are past their serviceable life.

F. MORTAR JOINTS:

Mortar joints have been mentioned above as they relate to the respective component; general notes on the condition of the mortar are noted here.

Deterioration of the components has progressed since the 2015 Critical Examination due to the lack of a repair and maintenance program. Mortar joints in general were found to be largely deteriorated at the columns and mullions, in poor condition at projecting terra cotta elements, in fair condition at the spandrels, and fair to poor condition at locations of the glazed brick masonry (Photo 42). Areas where significant cracking and damage exist are more susceptible to water infiltration.

G. SEALANT JOINTS:

Sealant joints have been mentioned above as they relate to the respective component; general notes on the condition of the sealants are noted here.

Deterioration of the components has progressed since the 2015 Critical Examination due to the lack of a repair.

Sealant is located at window perimeter joints and skyward facing joints at the lower portion of the cornice, windowsills, belt courses and water tables. In general, most areas have aged sealant, resulting in cracking, debonding, or gaps in the sealant. Sealants in the horizontally exposed joints are in poor condition. Overall, sealants are past their service life.

3.04 EXPLORATORY PROBE OPENINGS

A probe opening is defined by the City of Chicago Rules and Regulations for Exterior Wall Maintenance as “examination of the substrate of typical wall areas with no externally visible distress.” The regulations state that no less than one examination opening per elevation shall be required for buildings that meet all three of the following criteria:

- The building is fifty (50) years or older;
- Component and cladding of the building is comprised of masonry, stone, or terra cotta;
- The material is affixed to the building with concealed corrodible or corrosion-resistant metal fasteners.

The south, east, and the east end of the north facades at the Consumers Building meets the above criteria; however, new probe openings were not created as part of this critical examination report. In lieu of new openings, TT reviewed the backup conditions at locations of deteriorated terra cotta identified for removal or at locations of previously removed terra cotta to better understand the construction and conditions of the building. Below is a review of observations made at each exploratory opening:

- Exploratory opening at 18th floor, South Elevation: A cracked and spalled mullion terra cotta unit was removed as part of the temporary stabilization repair. Behind the terra cotta,

a steel WT-shaped member was observed with extensive surface corrosion but without discernable section loss. Additionally, a steel lateral tie was observed with rust jacking near the top and in contact with the mullion unit resulting in the cracking and spalling of the unit (Photos 43 and 44).

- Exploratory opening at 14th floor, South Elevation: Cracked glazed brick previously used as a replacement material at the southwest building corner column was removed as part of the temporary stabilization repair. Behind the glazed brick, poorly constructed masonry backup and steel components of the built-up column were observed. Exposed steel was observed with extensive surface corrosion and widespread pitting (Photos 45 and 46).
- Exploratory opening at 8th floor, South Elevation: An existing plywood covering was removed over previously removed terra cotta at a column location. Components of the steel built-up column were encased in cinder concrete. The steel was observed with widespread surface corrosion and some pitting (Photos 47 and 48).
- Exploratory opening at 8th floor, South Elevation: Existing plywood coverings were removed over the full height of a mullion along with a portion of the steel built-up spandrel beam directly below the mullion. The steel WT-shape member spanning vertically at the mullion was observed with widespread minor to moderate surface corrosion. The built-up spandrel beam contained isolated locations of mild surface corrosion. Most of the steel was unpainted and in good condition (Photos 49 and 50).
- Exploratory opening at 8th floor, South Elevation: An existing plywood covering was removed over previously removed terra cotta at a column location. The steel built-up column was encased with backup brick and cinder concrete. Steel connections and spandrel beams were observed at each side of the column. Surface corrosion on steel components ranged from minor to extensive at localized areas (Photos 51 and 52).
- Exploratory opening at 14th floor, East Elevation: The existing plywood covering was removed over severely cracked terra cotta units at the northeast building corner column. Only the horizontal leg of a steel bracket was observed, and it had severe surface corrosion and moderate rust jacking. Ongoing corrosion may have led to the observed deterioration of adjacent terra cotta at this location (Photos 53 and 54).
- Exploratory opening at 7th floor, East Elevation: Existing plywood coverings were removed over the full height of a mullion along with a portion of the steel built-up spandrel beam directly below the mullion and its connection to a steel built-up column. The steel WT-shape member was observed with severe surface corrosion with minor section loss occurring at isolated locations. The built-up spandrel beam was generally in good condition with the exception of the top flange which was observed with extensive surface corrosion. Although the built-up columns were covered by backup brick, steel brackets that are part of connections to the spandrels were observed with extensive surface corrosion and significant rust jacking at the southwest building corner column. Existing brick steel ties within the backup brick were observed with complete section loss due to corrosion (Photos 55 and 56).
- Exploratory opening at 6th floor, East Elevation: As previously discussed in Section 3.03, removal of spalled terra cotta at the 6th floor water table, revealed that the cells of the terra cotta water table units were previously filed with a foam-filler material. Within the injected foam material, TT observed an historic horizontal steel rod, that laterally supports the

raised terra cotta units across the water table, with significant section loss due to corrosion (Photos 57 and 58).

- Exploratory opening at 13th floor, North Elevation: Removal of spalled terra cotta units located across the top portion of a steel built-up spandrel beam revealed extensive surface corrosion throughout the top flange which supports the terra cotta units. The remaining terra cotta had efflorescence indicating moisture infiltration occurring at this and other similar locations of the north elevation (Photos 59 and 60).

3.05 TEMPORARY STABILIZATION REPAIRS

In conjunction with the critical examination, temporary stabilization repair work was performed by the Contractor between October 2020 through May 2021. The fire escape structure, discussed above, is located on the west elevation, which is not included in this critical examination. As part of a separate project, TT surveyed the fire escape structure and adjacent facade to develop a repair scope of work, which TT understands will be completed as part of a separate project and are not included in this Section.

Refer to Appendix C for a complete list of locations and temporary stabilization repair recommendations. Commencement of permanent repairs are recommended to begin in 2022, or measures taken to inspect them in 2022 unless otherwise specifically stated. The most critical areas that were stabilized during the facade evaluation include the following:

A. SOUTH ELEVATION:

Throughout the parapet wall, existing wood studs that secure the existing mesh were replaced. Directly below the parapet, existing flashing caps were fastened or replaced where missing.

A significant number of crack repairs and joint sealant replacements were performed at the belt courses/water tables at the 5th, 5th, 18th, and 21st floors in an effort to reduce the amount of water infiltration. Below the 21st floor, all existing plywood coverings were replaced, painted, and resealed to prevent further water infiltration. Cracked terra cotta units were routed and sealed. Small areas of spalled material were removed and sealed. At locations involving more than 1 square foot of unsound material or an entire terra cotta unit, spalled and material was removed and covered with sealant and then encased with a plywood enclosure.

Stainless steel mesh, anchored into adjacent sound material, was installed at one location of cracked terra cotta window head units at the top of the 21st floor. Additionally, localized mortar joint pointing was performed at cracked or missing mortar joints along the columns.

B. EAST ELEVATION:

Due to the similarities between the facades at the south and east elevations, similar temporary stabilization repairs were performed throughout the east elevation.

Installation of stainless steel mesh anchored into adjacent sound material was installed at many deteriorated terra cotta mullions as well as at many locations at the northeast building corner column. Stainless steel straps and mesh were installed at a significant portion of the water tables at the east elevation as a temporary stabilization repair.

C. EAST END OF THE NORTH ELEVATION:

At the single drop performed on the east end of the north elevation, crack repairs and addressing terra cotta distress was common. Portions of spalled or loose terra cotta were removed and covered with new plywood coverings. Loose or spalled terra cotta is visible towards the center and west end of the north elevations; however, these locations were not included in the 2021 Critical Examination. TT recommends they be further evaluated in 2022. Above the 5th and 6th floors, unsound cementitious parge material was replaced.

4.00 RECOMMENDATIONS

The following is a summary of TT's recommendations based on our observations during the critical examination. Recommendations are organized into the following prioritized conditions, based on the City of Chicago Facade Ordinance. A definition of each condition based on the City of Chicago Rules and Regulations for Exterior Wall Maintenance is included, as follows:

- Unsafe and Imminently Hazardous Condition – a condition in an exterior wall or enclosure that has no reliable means of structural support, and that is dangerous to people or property.
- Safe with a Repair and Maintenance Program Condition – a condition in an exterior wall and enclosure that is considered by the professional not to be in an "Unsafe and Imminently Hazardous Condition" at the time the critical examination is performed, but requires repair and maintenance within a time period designated by the professional in order to prevent its deterioration into an "Unsafe and Imminently Hazardous Condition."
- Safe Condition – a condition in an exterior wall and enclosure that exhibits neither an "Unsafe and Imminently Hazardous Condition" nor a "Safe with a Repair and Maintenance Condition" at the time of the critical examination.

4.01 UNSAFE AND IMMINENTLY HAZARDOUS CONDITION

Any imminently hazardous conditions that were observed were removed when encountered. These conditions generally included to spalled and/or loose terra cotta.

4.02 SAFE WITH A REPAIR AND MAINTENANCE PROGRAM CONDITION

The south, east and east end of the north elevation can be considered as "Safe with a Repair and Maintenance Program" condition. During the course of the examinations, TT observed the following conditions that, in TT's opinion, were safe with a repair and maintenance program. These recommended long-term repairs shall be completed within the time frame shown below. If this cannot be accomplished, TT recommends that a program of close-up examinations and temporary repairs be designed and implemented within the time frame shown below.

Thornton Tomasetti recommends that the existing sidewalk and alley protection currently in place remain in place until long-term repairs are completed, and the facades re-examined. TT recommends that the canopy extend a safe distance beyond the building corners in order to provide adequate coverage.

Temporary repairs will not continue to be effective for more than a few years. Long-term repairs are required, including repairs to steel support elements and replacement of anchorages.

A. TERRA COTTA REPAIRS

1. Lower Portion of Cornice

TT recommends repointing mortar joints and replacement of sealant at skyward facing joints and at other locations within the next 12 months. TT also recommends repair of the metal flashings within the next 12 months.

TT recommends replacement of temporary patch materials such as parge coats and sealant with more durable repair material within the next 12 months. Coping units should be closely monitored every year.

2. Belt Courses and Water Tables

TT recommends repointing of mortar joints and replacement of sealant at skyward facing joints and at other locations within the next 6 months. TT also recommends replacement of temporary patch materials such as parge coats and sealant with more durable repair material within the next 6 months.

TT recommends water tables be dis-assembled, underlying conditions (such as corroded steel structural elements) repaired, the terra cotta units repaired, and the water tables reconstructed within the next 18 months.

3. Window Heads beneath Cornice, Belt Courses, Water Tables

TT recommends repointing of mortar joints, replacement of sealants and crack repairs within the next 6 months. TT also recommends replacement of temporary patch materials such as sealant or cementitious mortar with more durable repair material within the next 6 months and distressed terra cotta units repaired within the next 12 months.

TT recommends replacing severely cracked or missing terra cotta units and repairing underlying conditions (such as corroded steel structural elements) within the next 6 months.

4. Building Corners

TT recommends repointing of mortar joints, replacement of sealants and crack repairs within the next 12 months. TT also recommends replacement of temporary patch materials such as sealant or mortar with more durable repair material within the next 12 months. TT also recommends repairing distressed units within the next 12 months.

TT recommends replacing severely cracked or missing terra cotta units and repairing underlying conditions (such as corroded steel structural elements) within the next 6 months.

5. Spandrels

TT recommends repointing of mortar joints and replacement of sealant at skyward facing joints and at other locations within the next six months. Some patching will be required in addition to removal of existing joint material and the installation of

sealant. TT also recommends replacing severely cracked or missing terra cotta units and repairing underlying conditions (such as corroded steel structural elements) within the next 6 months.

Window head units (excluding those discussed in Item #3 above) are in fair condition. TT recommends repointing of mortar joints and replacement of sealant within the next 12 months. TT also recommends repairing cracks and locations of spalls with durable repair materials compatible with historic construction within the next 12 months.

6. Mullions

TT recommends repointing of mortar joints and replacement of sealant joints within the next 6 months. TT also recommends replacing severely cracked or missing terra cotta units and repairing underlying conditions (such as corroded steel structural elements) within the next 6 months. Those units that have not cracked should be monitored and repaired as necessary.

7. Columns

TT recommends repointing of mortar joints and replacement of sealant at skyward facing joints and at other locations within the next 6 months. TT also recommends replacement of temporary patch materials such as plywood infill pieces with more durable repair material within the next 6 months. TT recommends replacing severely cracked or missing terra cotta units and repairing underlying conditions (such as corroded steel structural elements) within the next 6 months.

8. Mortar and Sealant Joints

TT recommends repointing mortar joints and replacing existing sealant joints within the next 6 months.

B. BRICK MASONRY

1. Parapet Walls

TT recommends the temporary stabilization components implemented at the south, east and north parapet walls be replaced with new components within 2 years. TT further recommends that at that time, a long-term repair solution to address the deterioration of the parapet walls be designed and implemented.

2. Northeast Corner of the Building

TT recommends reconstruction of the corner brick masonry for the full height of the building, including installation of new steel shelf angles, within the next 2 years. Until that repair is implemented, TT recommends the brick masonry of the northeast building corner be closely monitored and annually inspected to detect further deterioration.

3. Miscellaneous Areas of Brick Infill

TT recommends repointing mortar joints and replacing existing sealant joints within the next 12 months. TT also recommends replacing cracked brick units within 12 months.

C. STOREFRONT

TT recommends replacing existing sealant joints within the next 2 years.

D. WINDOWS

TT recommends failed sealant joints be repaired within 12 months. TT also recommends cleaning and coating steel windows and frames within 12 months.

E. MORTAR JOINTS

TT recommends mortar joints not specifically discussed above be repointed within the next 12 months.

F. SEALANT JOINTS

TT recommends sealant joints not specifically discussed above be replaced within the next 12 months.

4.03 ADDITIONAL RECOMMENDATIONS

The following items are not critical but may help the long-term durability of the building facade and would be a more durable program treatment selection:

A. MAIN ROOF

Although the roof is generally outside of the scope of a Critical Examination, current failures in the roof system are a source of water infiltration into the building and façade elements. The previously observed deterioration has worsened since 2015 and TT continues to recommend that repairs be performed. Water ponding in large areas was observed on the roof and existing skylights appear to be in poor condition. Implementing repairs or replacement to roofing components will add years of serviceable life to the structure if implemented with other recommended parapet repairs. TT recommends replacement of the roofs at the upper mechanical penthouses and repair of the main roof, including proper flashings and terminations within the next 12 months.

B. REPLACEMENT TERRA COTTA

Beyond the repair recommendations above, it would give the facade more years of serviceable life if previous repairs that are in poor condition are removed and replaced with new terra cotta units.

C. PENTHOUSES

The penthouse elevations were not included in the 2021 Critical Examination. The Owner has reported that no comprehensive repairs have been performed since the 2015 critical examination. TT anticipates that the previously observed deterioration has worsened and continues to recommend that repairs be performed.

4.04 FUTURE EXTERIOR EXAMINATIONS

Based on the current Facade Ordinance, the following examinations are required by the Facade Ordinance and recommended by Thornton Tomasetti to be completed:

A. ONGOING FACADE EXAMINATIONS

Required every 2 years in between the 4-year requirement of critical examinations, and are due by November 1. Provided that 220 South State Street building is vacant, ongoing examinations cannot be performed every two years in lieu of a critical examination.

B. CRITICAL FACADE EXAMINATIONS

Required every 4 years because the building is vacant (Rule 2.2). The next critical examination will be due four years from the due date of this examination.

C. ARCHITECTURAL AND STRUCTURAL IRON INSPECTION

TT performed observations of the fire escape in 2021; however, we were not retained to complete a City of Chicago Architectural and Structural Iron Inspection Report. This Report is required every 5 years by City ordinance. It is not known when the last report was prepared for the City of Chicago. Because of this, TT recommends to complete a report as soon as practical.

5.00 LIMITATIONS AND SIGNATURES

1. This report shall not be construed to warrant or guarantee the building and/or any of its components under any circumstances. Thornton Tomasetti, Inc. (TT) shall not be responsible for latent or hidden defects that may exist, nor shall it be inferred that all defects have been either observed or recorded.
2. This report is based upon information obtained from visual observations of representative items made at the time of TT's site visit(s) and from TT's review of the information available at the time. TT's findings and conclusions are subject to change based upon the receipt of additional or updated information.
3. Conditions noted in this report are as of the time of examination only. It can be expected that the subject building will undergo changes and additional deterioration subsequent to that date.
4. TT's visual observations include no specific knowledge of concealed construction or subsurface conditions at the subject property. Comments pertaining to concealed construction or subsurface conditions are professional opinion of TT based on relevant experience, judgment and current standards of practice, however the actual concealed conditions at the subject property may vary from TT's expectations.
5. TT's professional services have been performed in accordance with the standards of skill and care generally exercised by other professional consultants acting under similar circumstances and conditions at the time the services were performed. TT's findings, conclusions and opinions are based on TT's review of the available documents, visual observations, professional experience, and sound investigation practices. No other warranty, expressed or implied, is made as to the findings presented in this report.
6. This report has been prepared by TT at the request of its Client and is exclusively for its Client's use. This report is not intended for use by any third parties and no third party has

any right to rely on any of the analysis or conclusion set forth herein. No responsibility or liability to any third party is accepted for any loss or damage whatsoever arising out of the use of or reliance on this report by any third party.

7. This report has been prepared by TT at the request of its Client and is exclusively for its Client's use for the sole purpose of assisting the Client with meeting its obligations under the City of Chicago Facade Ordinance, and not for any other purpose.
8. Without limiting any of the above, TT's liability, whether under the law of contract, tort, statute, equity or otherwise, is limited as set out in the terms of TT's engagement with the Client.

A copy of this report has been given to the owner/agent of the building, and the owner/agent has been informed of all the observed conditions requiring maintenance and repair work.

This report was prepared under the direction of Rachel Michelin, AIA, LEED AP BD+C, Associate Principal of Thornton Tomasetti, 330 North Wabash Avenue, Suite 1500, Chicago, IL 60611, Telephone: 312.596.2000.

Respectfully submitted,

THORNTON TOMASETTI, INC.

Tara Toren-Rudisill
Senior Associate

Rachel Michelin, AIA, LEED AP BD+C
Associate Principal

SEAL
Expires: November 30, 2022

Appendix A: Photographic Documentation

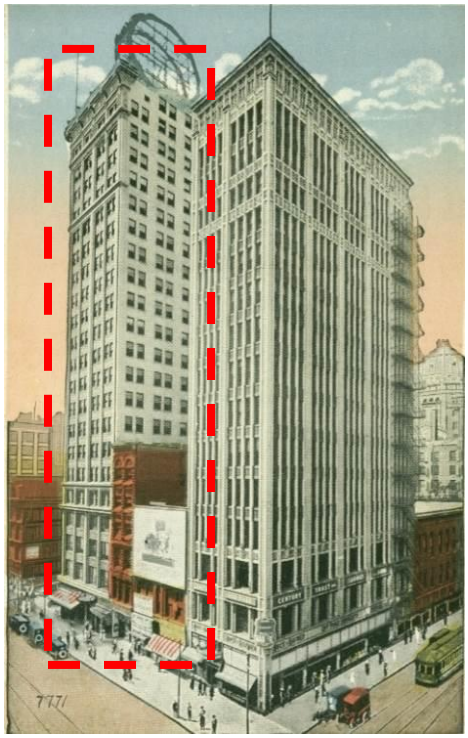


Photo 1. Historic rendering of building (red dashed rectangle) circa 1920.

Photo 2. East and north elevations.

Photo 3. South and east elevations.

Photo 4. Typical cornice throughout east and north elevations.

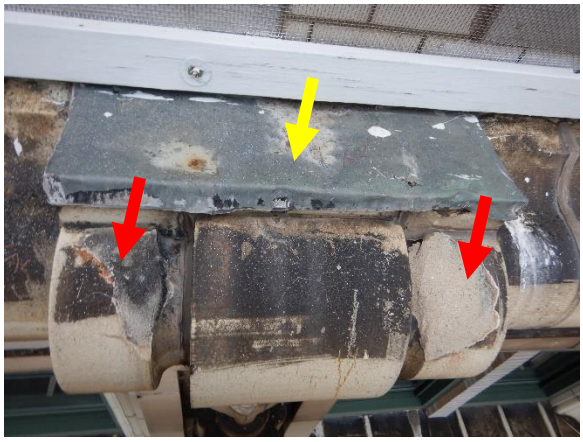


Photo 5. Medium sized spalls (red arrows) and loose metal flashing (yellow arrow) at cornice.

Photo 6. Typical missing metal flashing cap over column terra cotta unit.

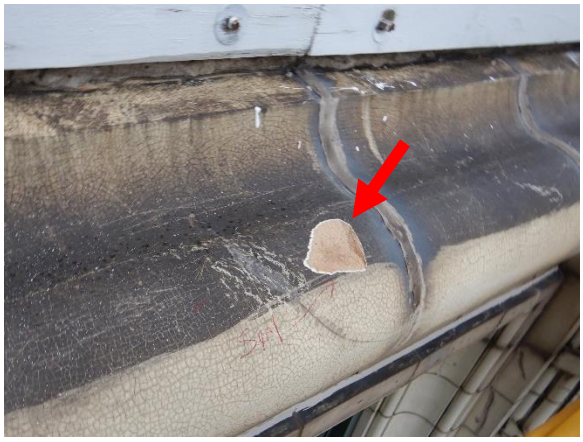


Photo 7. Recent spalls typically observed throughout half round profile units of cornice.

Photo 8. Terra cotta torsade with loose material at 21st floor water table.

Photo 9. Terra cotta capping (with new crack) at columns below 21st floor water table.

Photo 10. Previously removed portion at end of 21st floor water table.

Photo 11. Widespread cracking observed throughout topside of south and east elevation water tables.

Photo 12. Failed previous mortar repairs at water table skyward facing joints.

Photo 13. Removed loose terra cotta material at water table skyward facing joints.

Photo 14. Extensive cracking along 5th floor belt course and 6th floor water table.

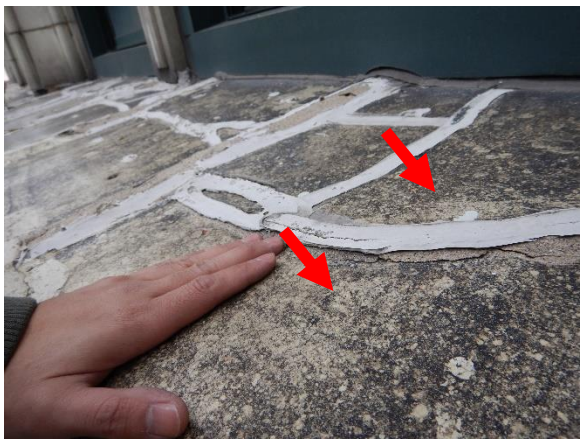


Photo 15. Slight vertical displacement at projecting sill units noted at top of 6th floor water table.

Photo 16. Foam-filler material observed under removed loose material. Note corroded steel rod.

Photo 17. 21st floor water table with missing terra cotta portion.

Photo 18. 21st floor water table with missing terra cotta portion.

Photo 19. Corroded steel tie observed behind missing terra cotta portion.

Photo 20. Previous crack repairs at window heads.

Photo 21. Typical new cracks observed at window heads.

Photo 22. Typical decorated spandrels.

Photo 23. Cracked terra cotta "nose" joint at window sills.

Photo 24. Terra cotta window sill unit to be removed due to deterioration observed.

Photo 25. Severely spalled terra cotta spandrel unit (loose material removed prior to when photo was taken).

Photo 26. Typical terra cotta window head unit observed in poor condition.

Photo 27. Typical terra cotta mullion, with crack noted by red arrow.

Photo 28. Typical cracked terra cotta mullion units.

Photo 29. Crack passing through previous pinning repairs, existing pins noted by red arrows.

Photo 30. Existing steel observed with surface corrosion at bottom of mullion.

Photo 31. Previous terra cotta repairs at column units in poor condition.

Photo 32. Cracked brick at replaced terra cotta column units.

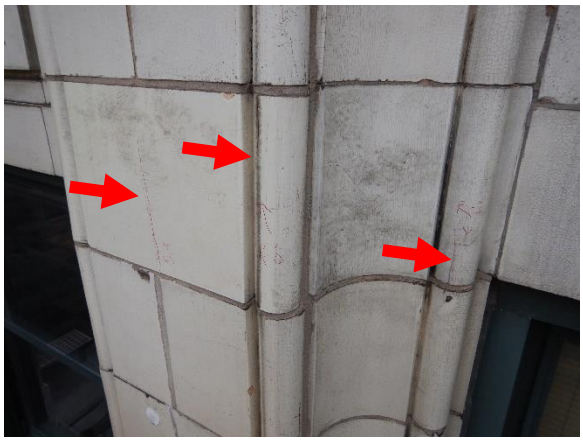


Photo 33. Typical cracked recessed joints and terra cotta column units.

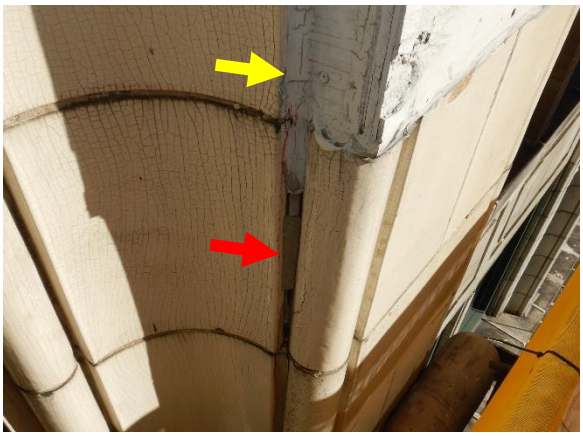


Photo 34. Typical deteriorated sealant (yellow arrow) and mortar joint (red arrow) observed.

Photo 35. Existing condition of stainless steel mesh and wood shoring at parapet wall.

Photo 36. Reconstructed glazed brick masonry at northeast building corner.

Photo 37. Temporary plywood protection at the parapet of the northeast building corner.

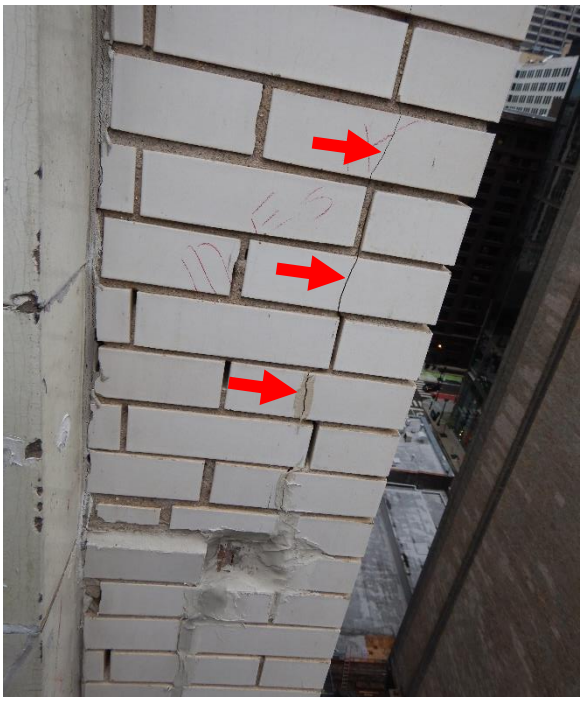


Photo 38. Typical new cracks throughout north edge of northeast building corner

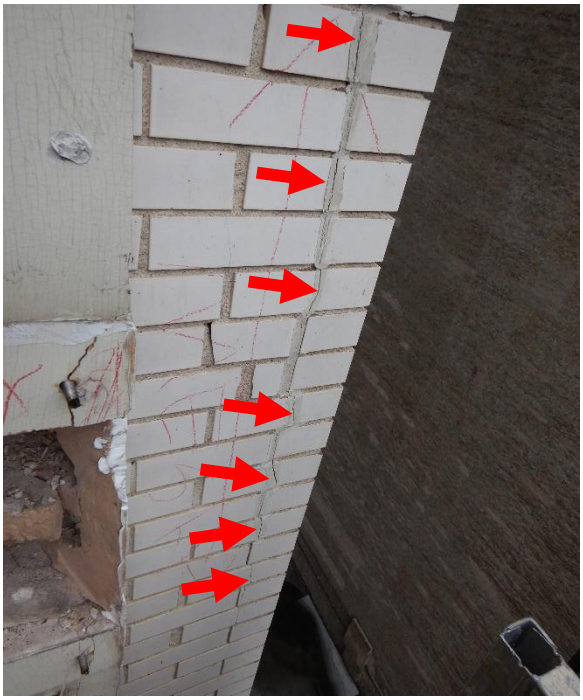


Photo 39. Typical new cracks through previous crack repair at northeast building corner.

Photo 40. Typical condition of previous glazed brick infills.

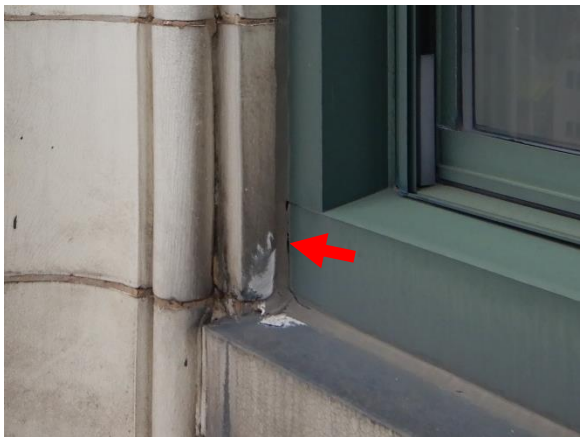


Photo 41. Typical failed sealant noted at perimeter of windows.

Photo 42. Typical cracked and missing mortar joint.

Photo 43. Mullion steel member with extensive surface corrosion.

Photo 44. Corroded steel rod (red arrow) observed at surface of spalled mullion terra cotta.

Photo 45. Exploratory opening at cracked glazed brick on the 14th floor, south elevation.

Photo 46. Steel connection member at column observed with extensive surface corrosion and pitting.

Photo 47. Exploratory opening at existing plywood covering over column at 8th floor, south elevation.

Photo 48. Steel built-up column observed with surface corrosion and some pitting.

Photo 49. Exploratory opening at existing plywood covering over spandrel beam and mullion at 8th floor, south elevation.

Photo 50. Exploratory opening at existing plywood covering over spandrel beam and mullion at 8th floor, south elevation.

Photo 51. Exploratory opening at existing plywood covering over column at 8th floor, south elevation.

Photo 52. Existing connection of spandrel beam to built-up column, surface corrosion noted throughout.

Photo 53. Exploratory opening at existing plywood covering over column at 14th floor, east elevation.

Photo 54. Steel bracket observed with severe corrosion.

Photo 55. Exploratory opening at existing plywood covering over spandrel beam, mullion, and column at 7th floor, east elevation.

Photo 56. Significant rust jacking observed at existing steel bracket.

Photo 57. Exploratory opening at spalled terra cotta sill unit of the 6th floor water table, east elevation.

Photo 58. Existing steel rod with section loss due to corrosion and foam material observed underneath spalled terra cotta sill unit.

Photo 59. Exploratory opening at spalled terra cotta units over spandrel beam flange at 13th floor, north elevation.

Photo 60. Extensive surface corrosion observed at top flange of steel built-up spandrel beam.

Appendix B: Elevation Drawings

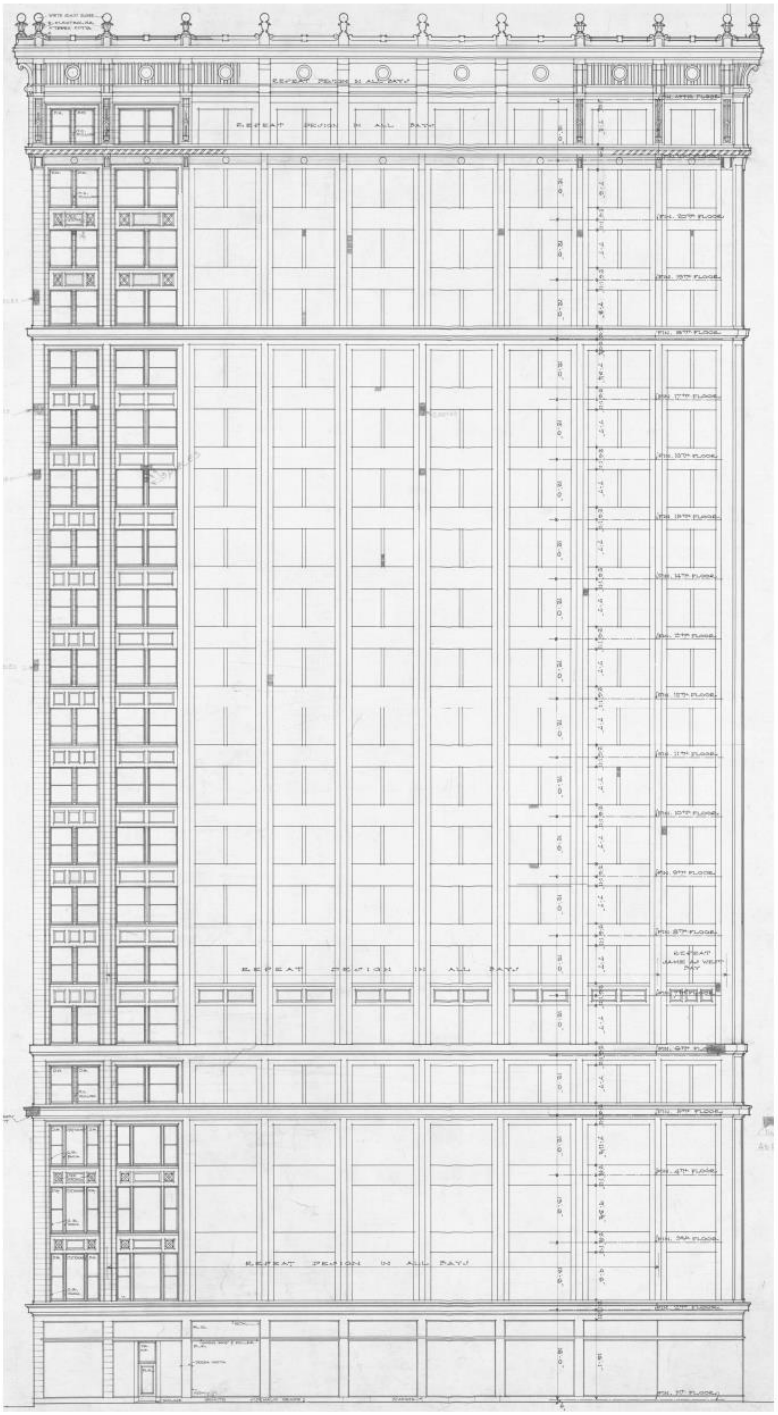


Figure 1 - South Elevation

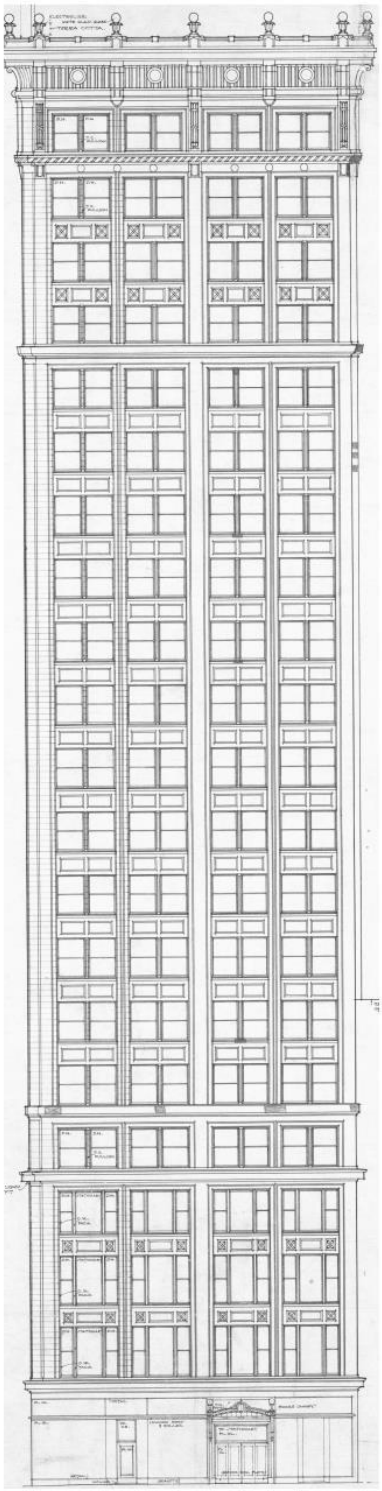


Figure 2 – East Elevation

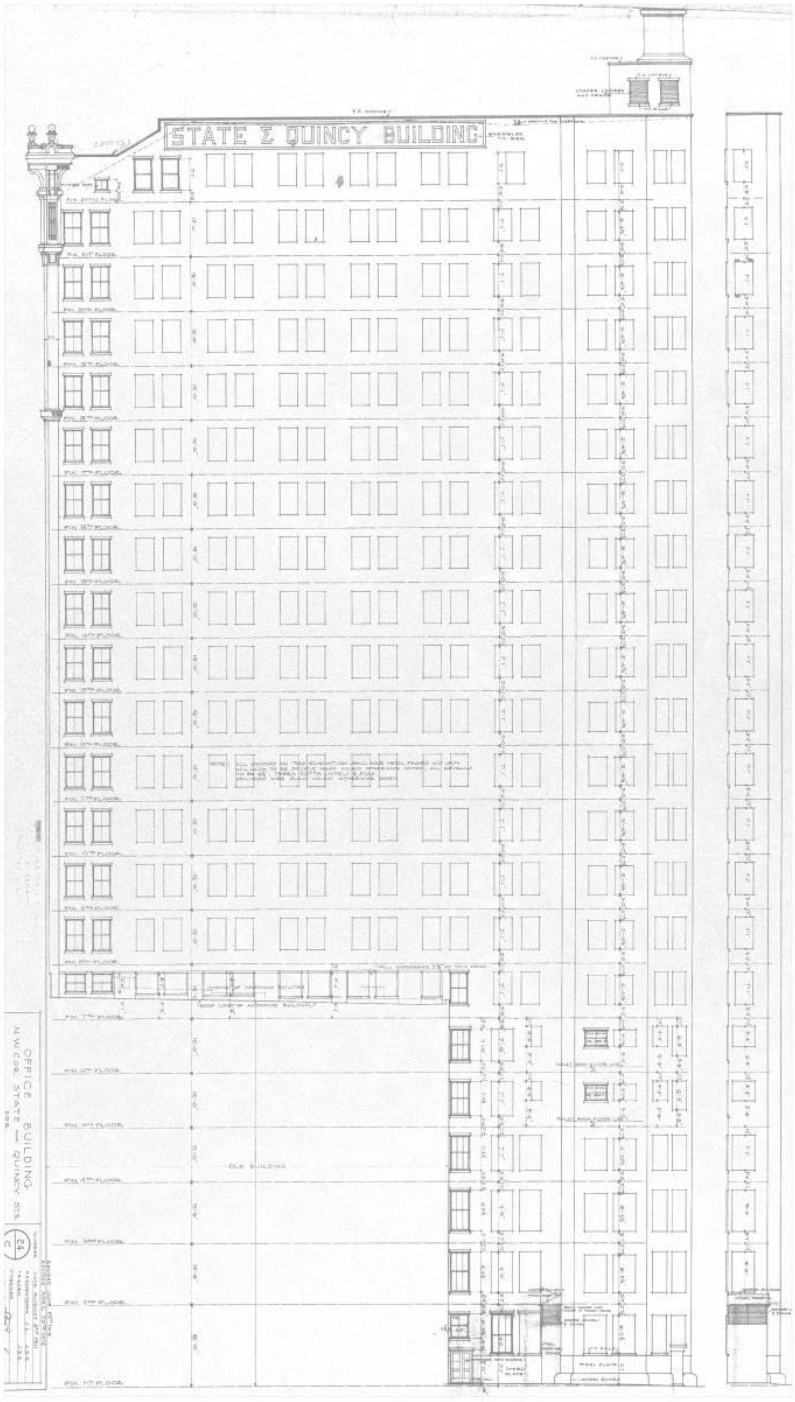


Figure 3 – North Elevation