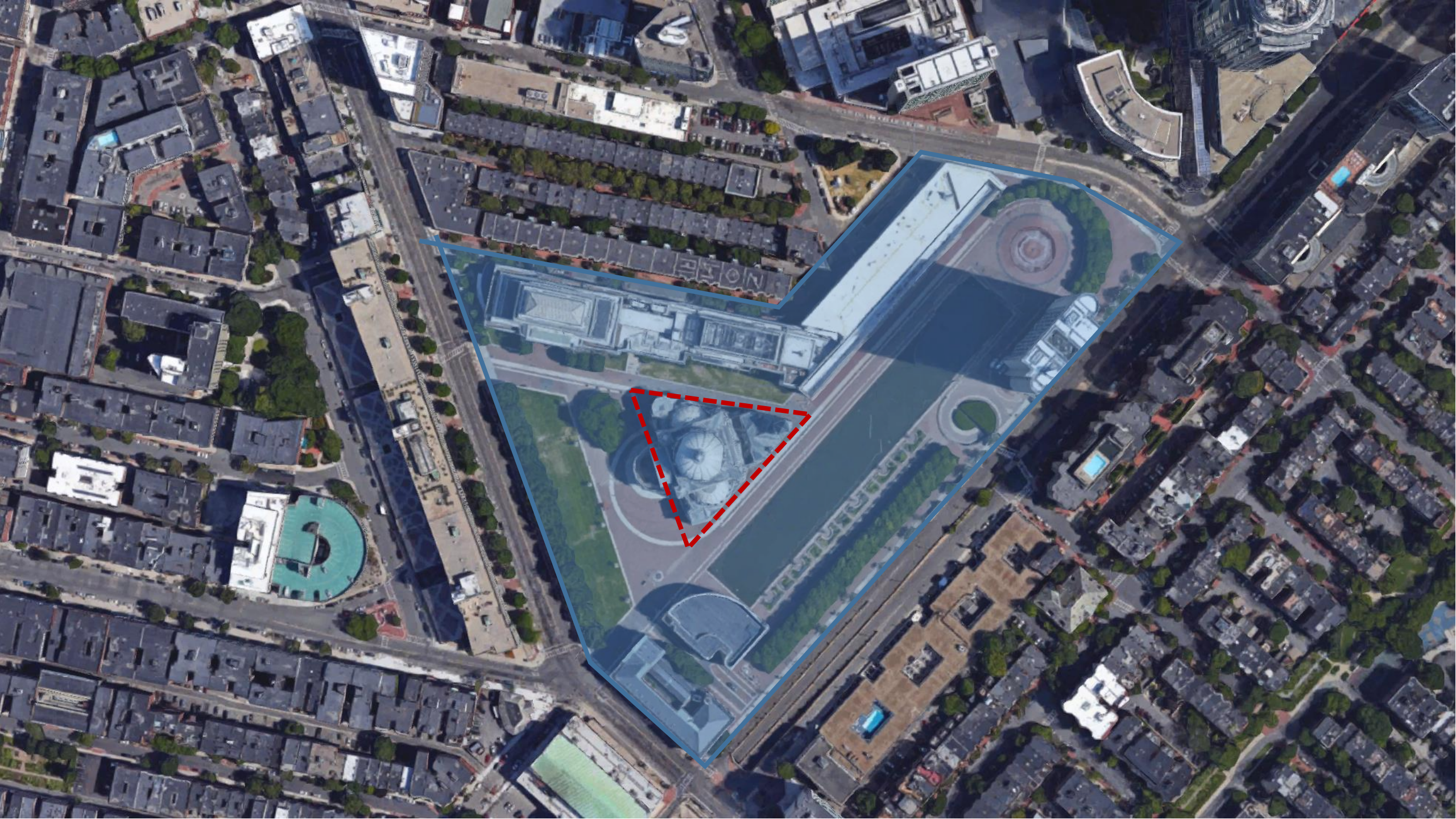
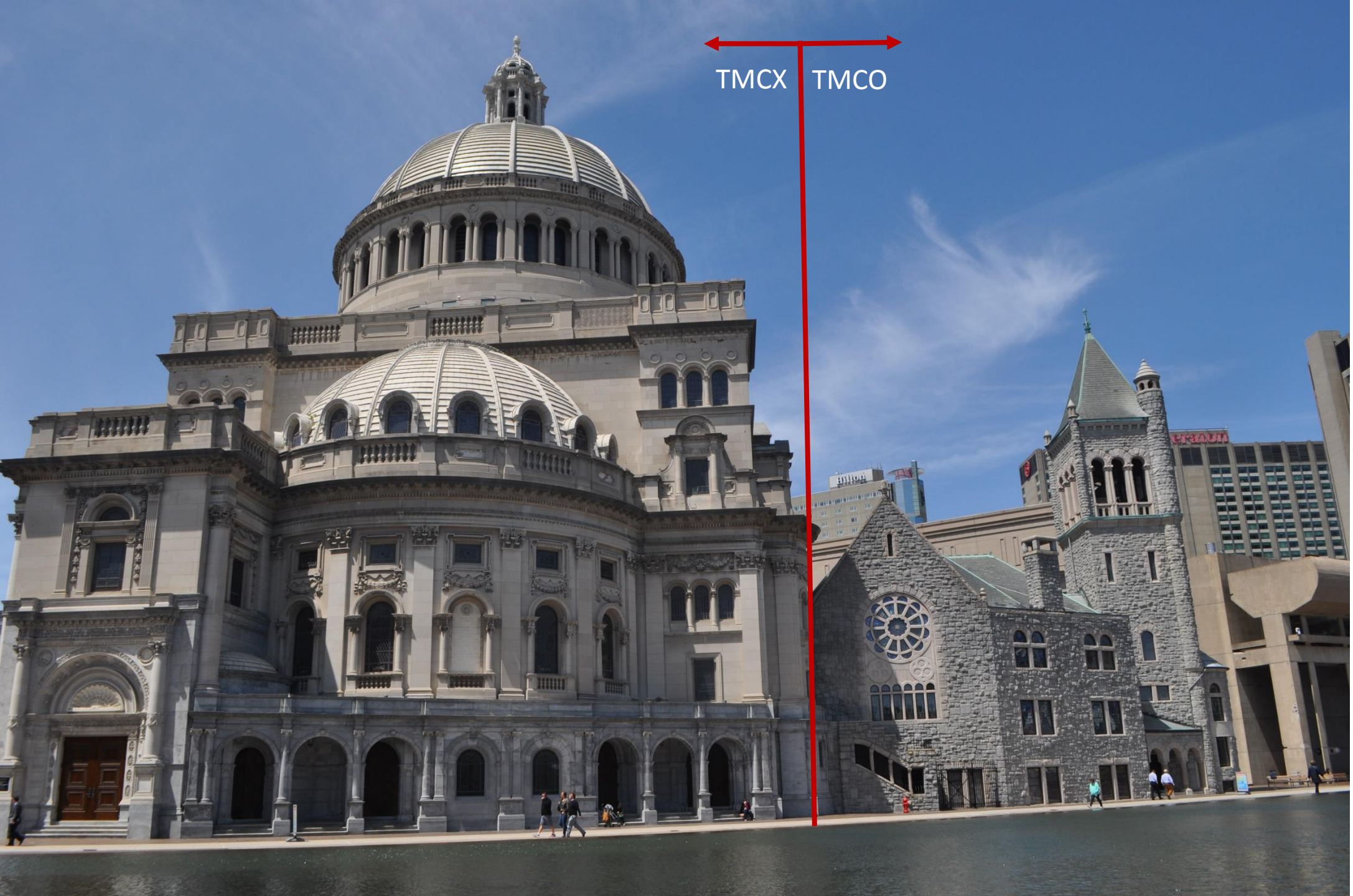
REPAIR AND RESTORATION OF THE MOTHER CHURCH

BLC PRESENTATION

28 FEBRUARY 2017

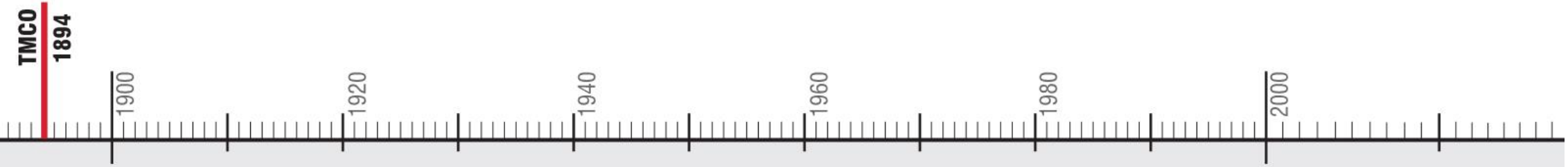




THE MOTHER CHURCH

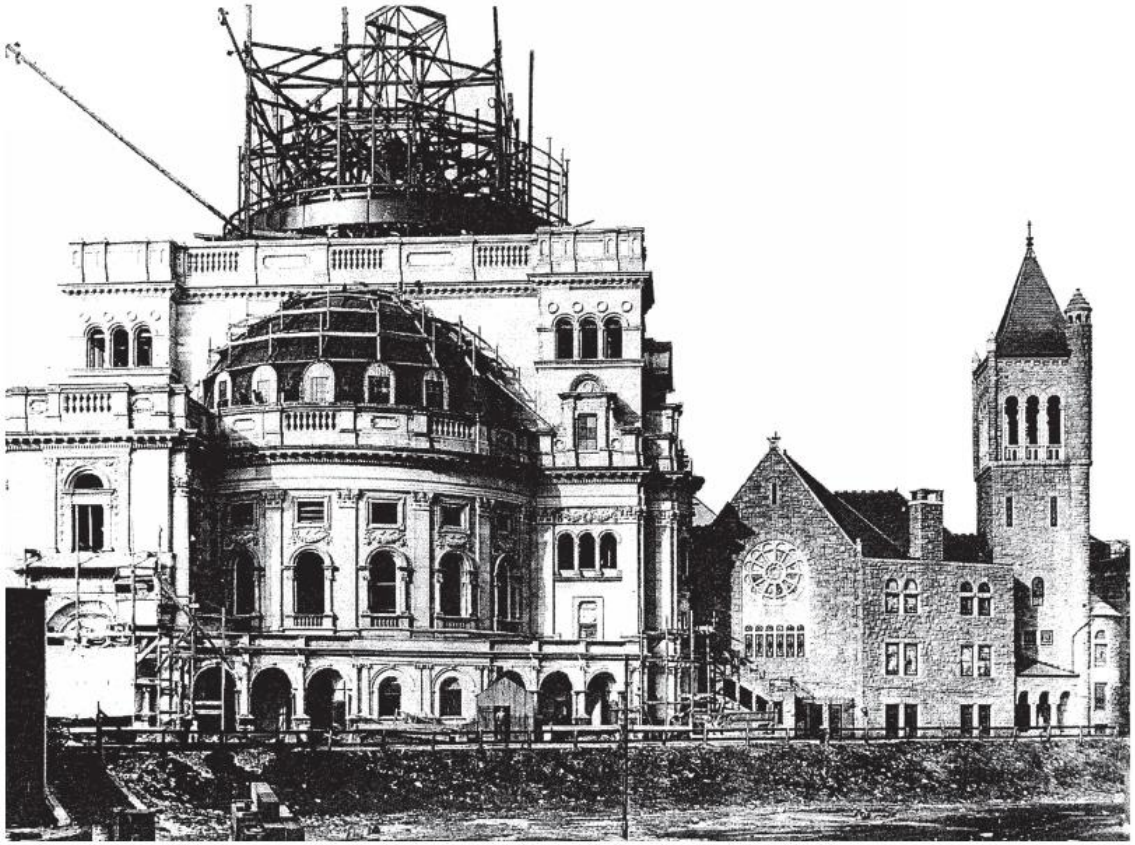
1894 Construction of The Original Mother Church (TMCO)

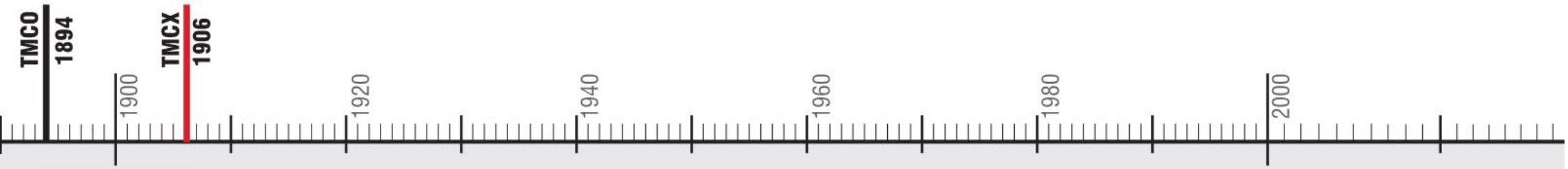
- Designed by Franklin Welch
- Romanesque Revival style
- New Hampshire granite exterior with slate roof
- Constructed in only 13 months



1906 Construction of The Mother Church Extension (TMCX)

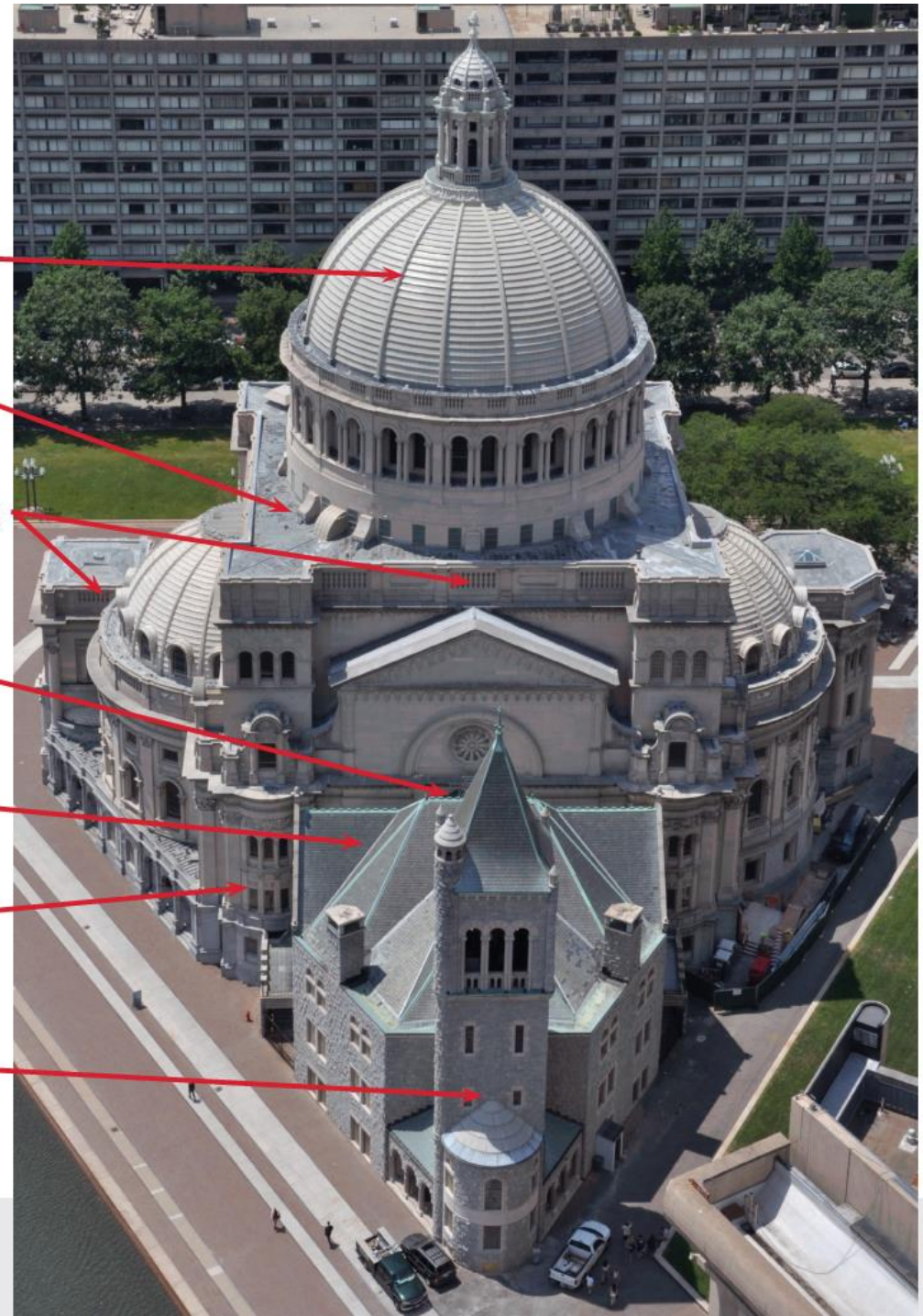
- Designed by Charles Brigham & Charles Covery of Boston and Solon Beman of Chicago
- Neoclassical style with Byzantine elements
- Limestone and granite exterior with terracotta
- Constructed in 23 months





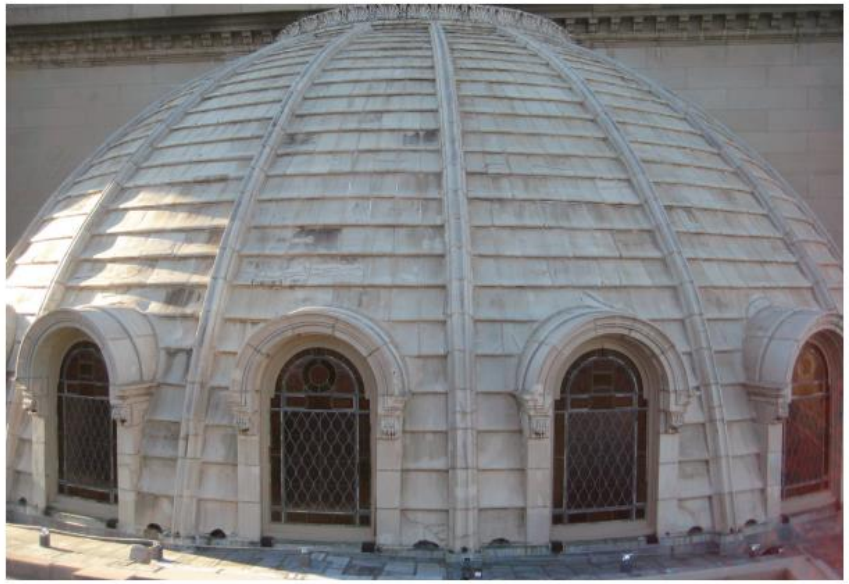
Building Materials

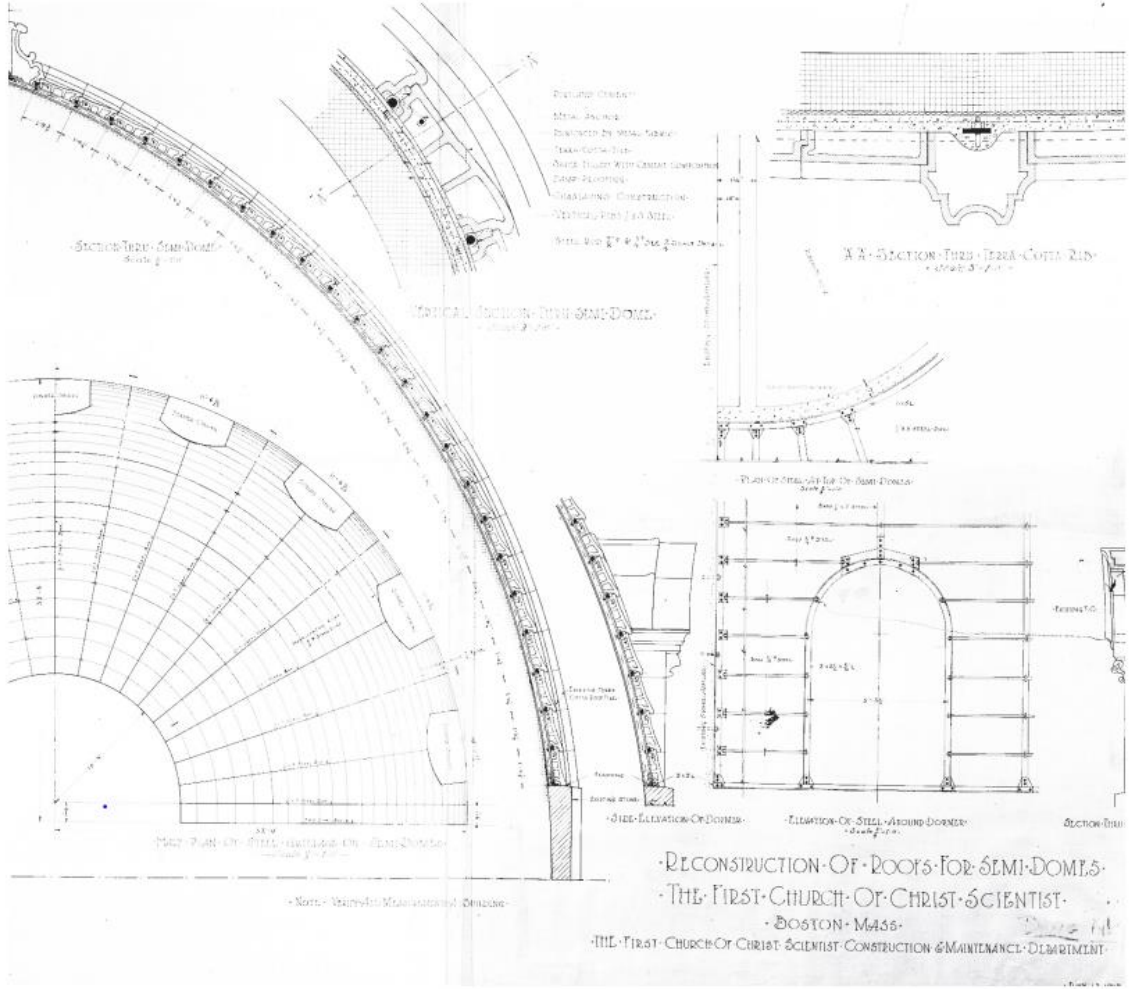
- Terracotta
- Membrane roofing
- Limestone Balustrades
- Copper flashing
- Slate
- Limestone
- Granite

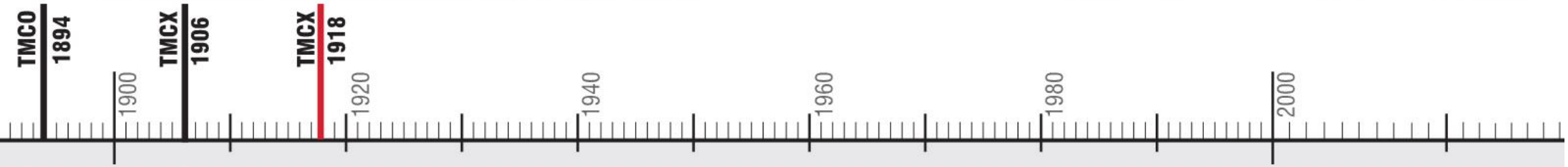


1918 TMCX Semi-Dome Restoration

- Significant leaks developed at both North and South Semi-Domes
- All terracotta on both semi-domes was removed and replaced

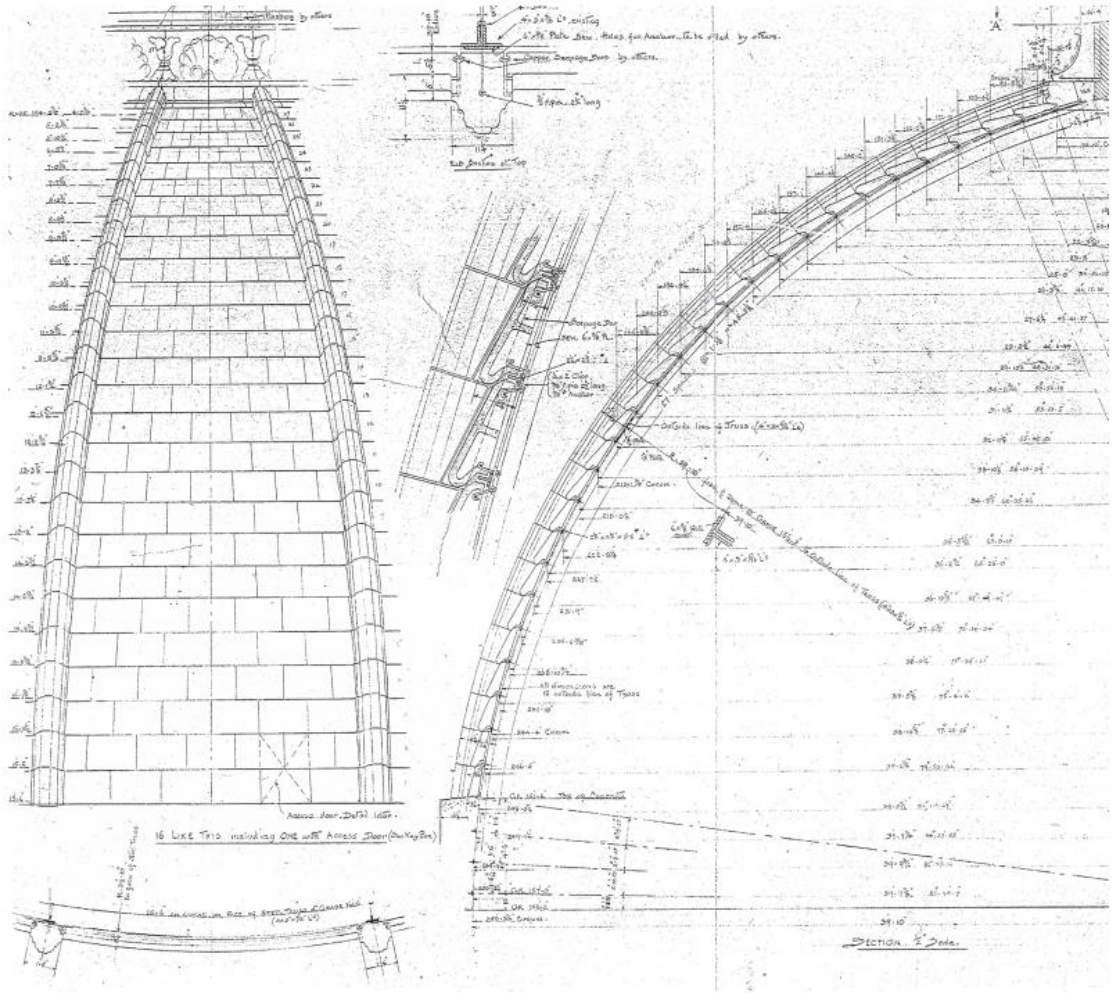


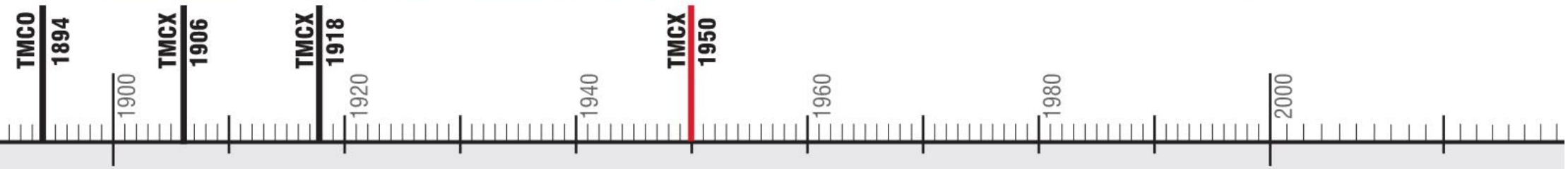




1950 TMCX Dome Restoration

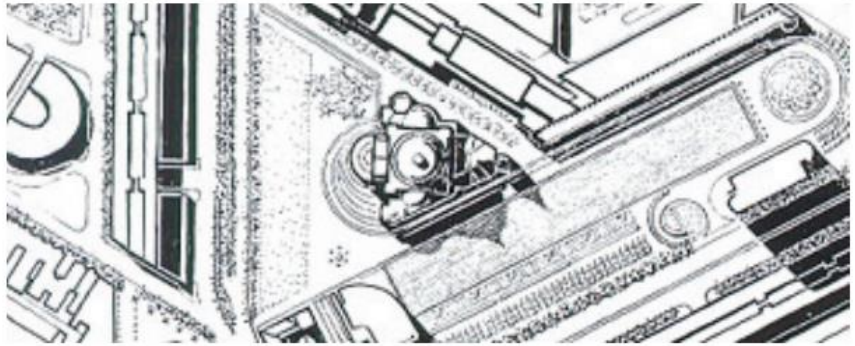
- The material of the terracotta cladding on the central TMCX dome systemically failed
- The cupola and all terracotta on the main dome were removed and replaced





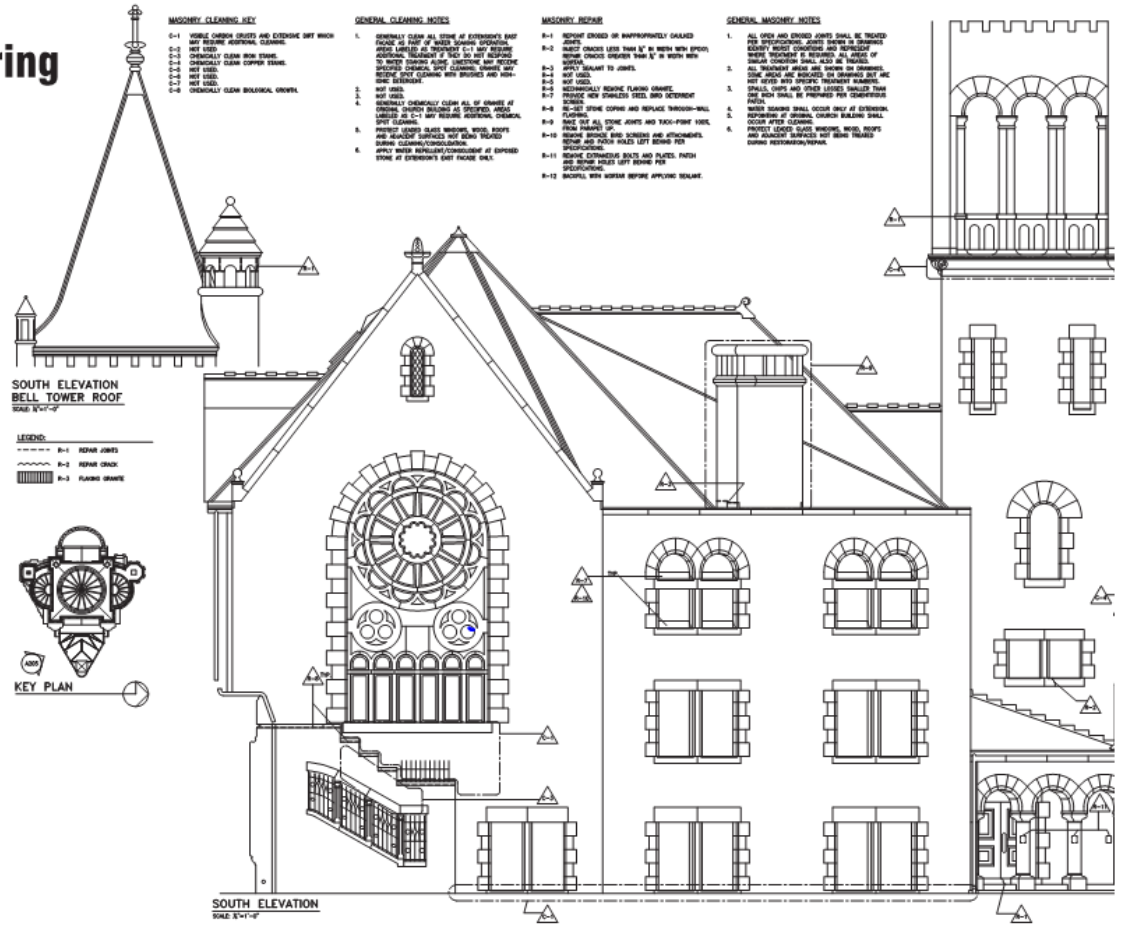
Master Plan and 1979 Stone Portico Addition

- Designed by Araldo Cossutta
- Part of the Pei Cobb Freed master plan to provide the world headquarters of the Christian Science Church with a more open and welcoming environment
- Creates grand entrance plaza in gap left by demolition of original Christian Science Publishing House.



1990-1996: Manual for Maintenance and Monitoring of Exterior Conditions at TMCO and TMCX

- Visual Inspection of complete envelope
- Limited destructive testing of masonry and roof materials and cleaning techniques
- 1990-1991: Roof repairs and restoration
- 1992-1993: North facade and semi-dome repairs
- 1994: TMCO masonry and roof flashing repairs
- 1994: South facade masonry repairs
- 1995: West facade and portico repairs, including removal of water staining
- 1995-1996: Central dome and cupola repair and repointing

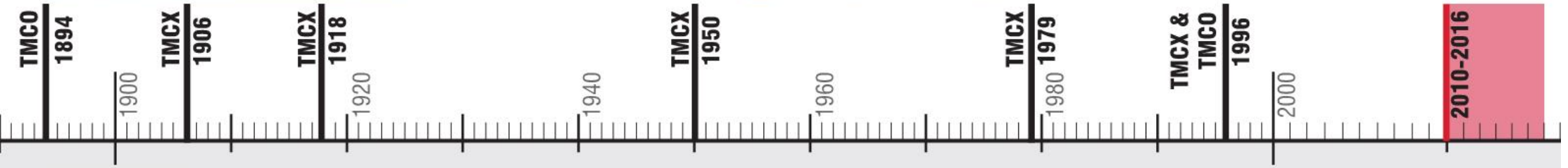


Example Projects Completed Since 2010

- Underpinning of TMCO Tower foundations

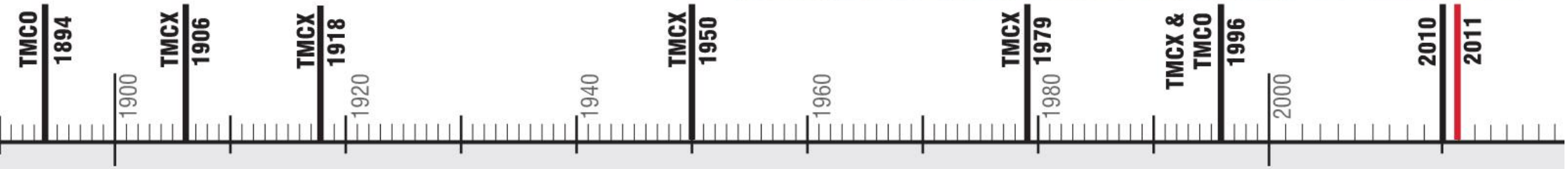
- Replacement of TMCO slate roof

- Yearly inspection and ongoing spall removal



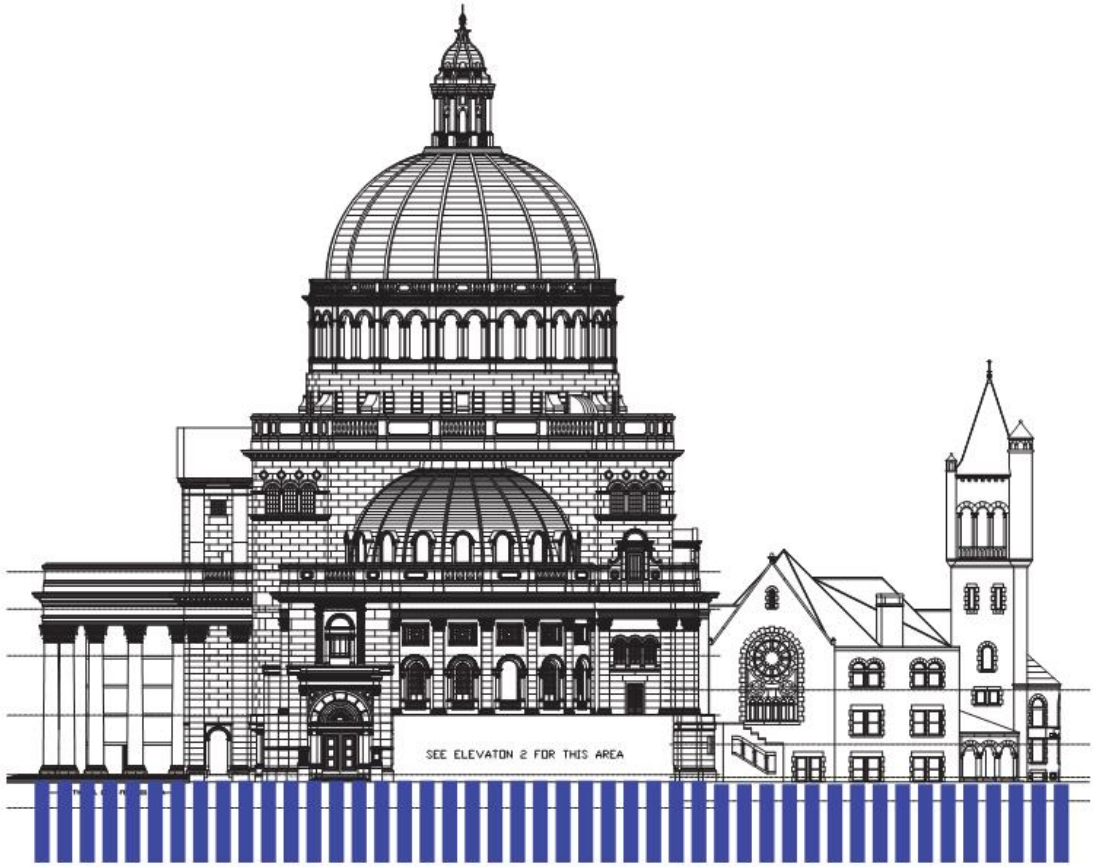
2011 Landmarks Designation

- The Christian Science Center is historically and architecturally significant at the local, state, and national levels as the headquarters of a worldwide religion
- Its association with several distinguished architects over the span of nearly a century
- It is a rare example of a monumental, modernist architectural design for an entire city block, and as a prominent open space for the Fenway, Back Bay, and South End neighborhoods

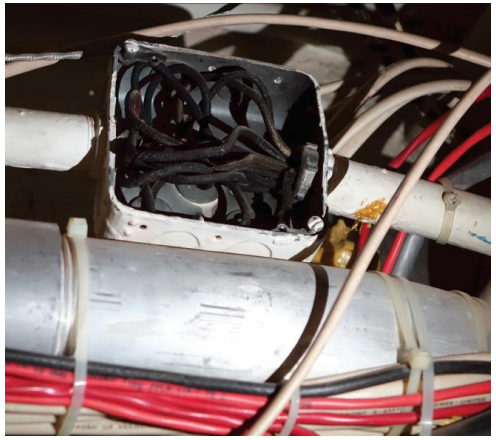


Foundation

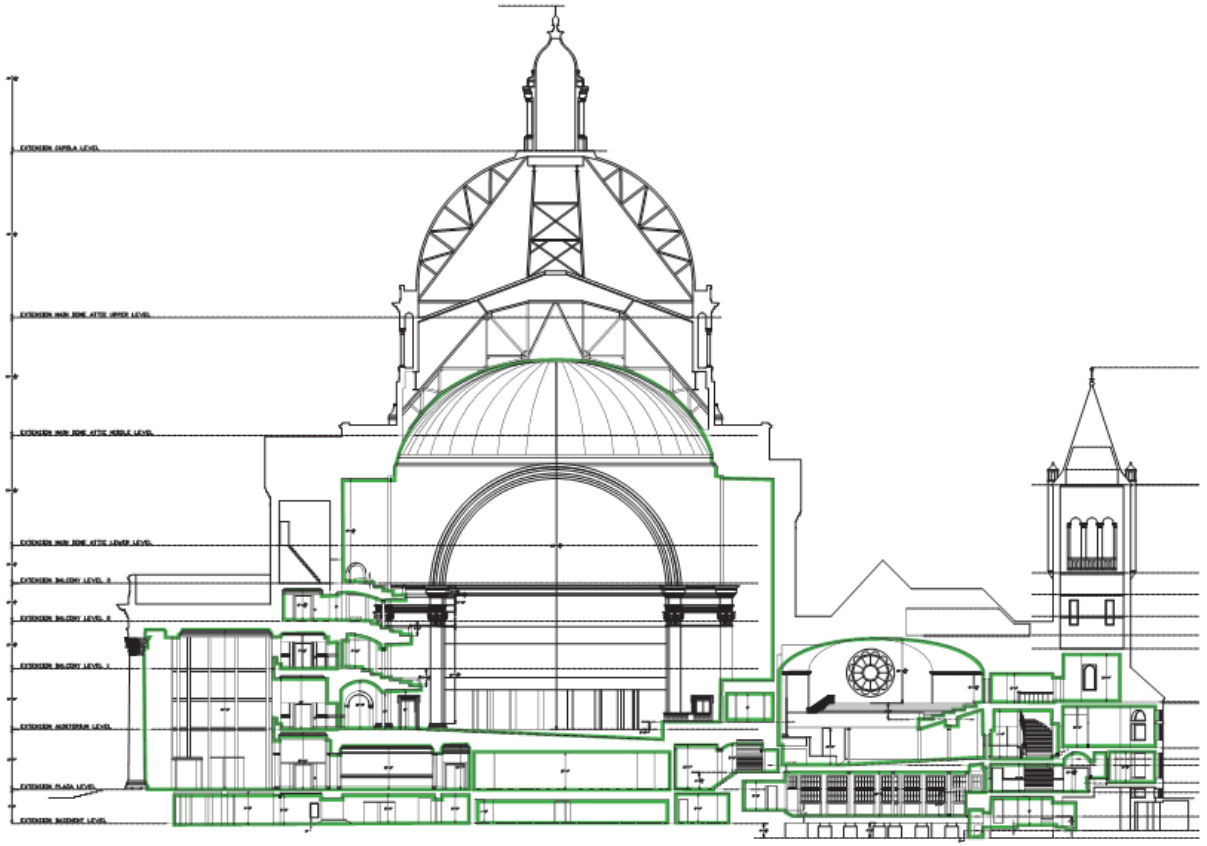
Repair and Restoration Scope

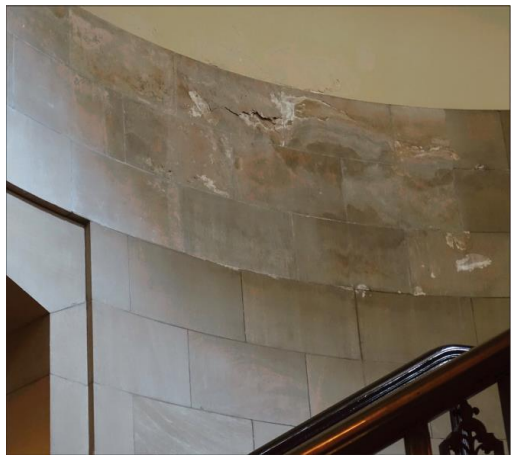


Repair and Restoration Scope



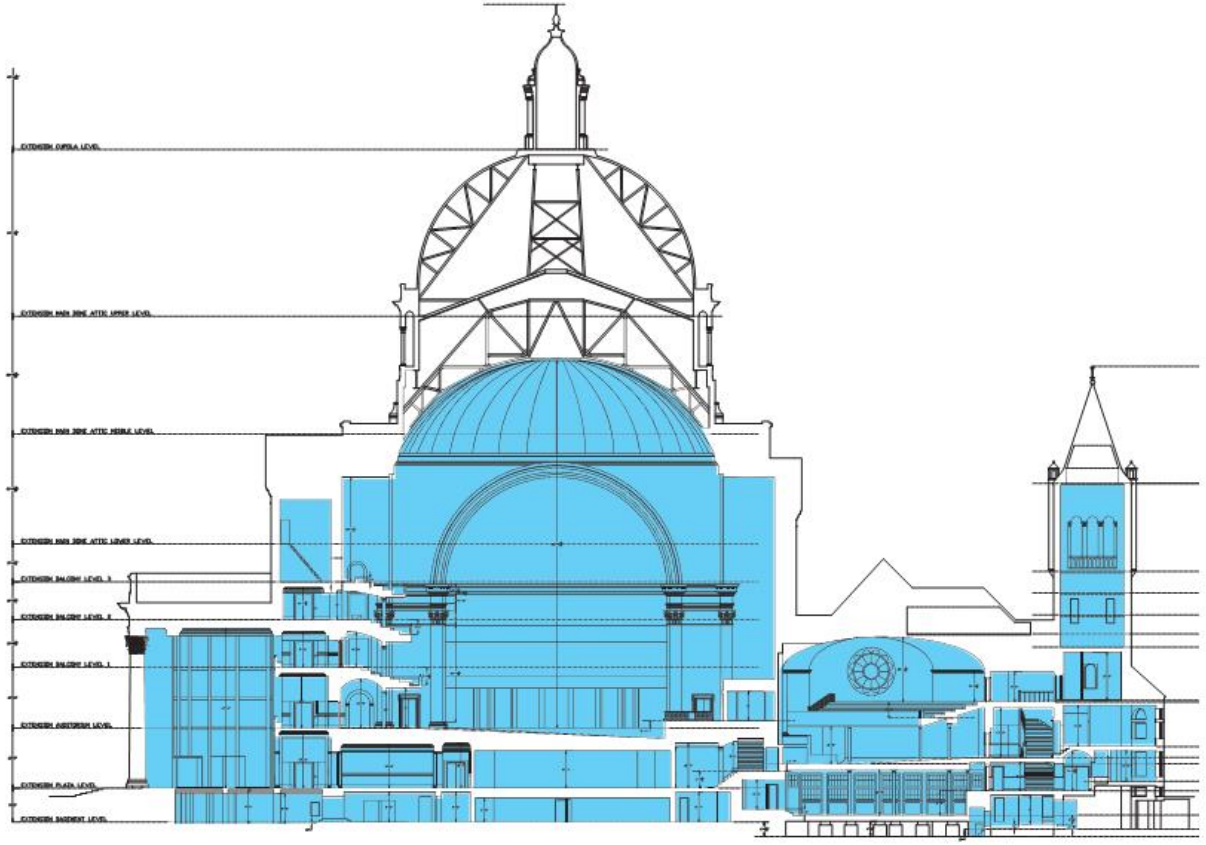
Code/Life Safety





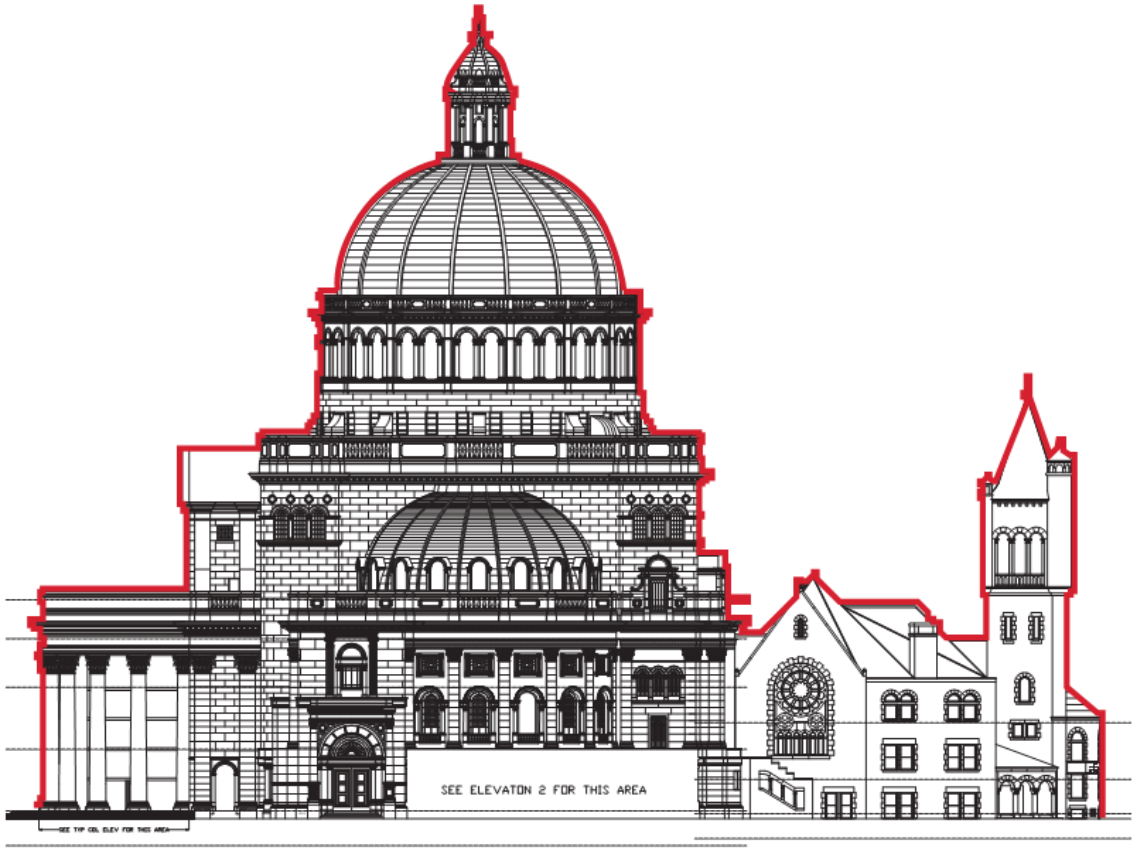
Interior

Repair and Restoration Scope

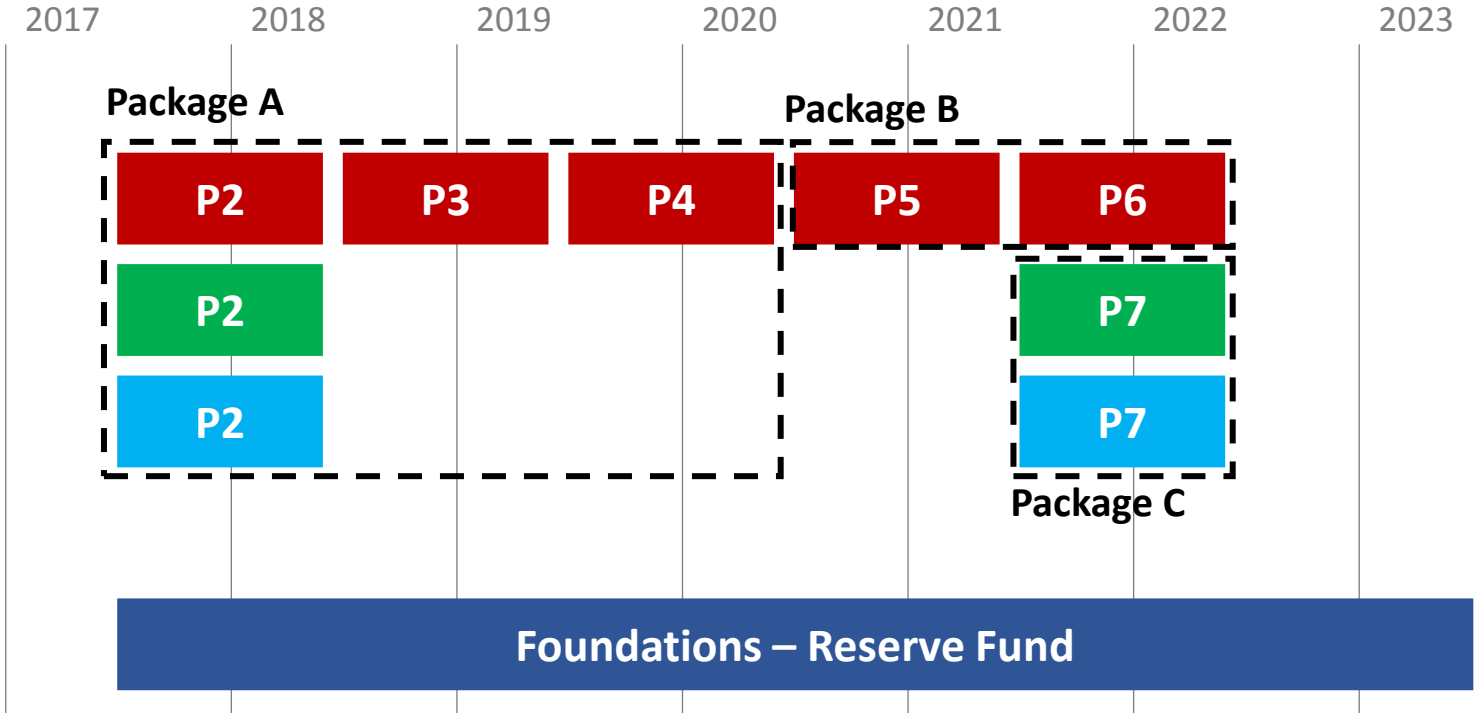


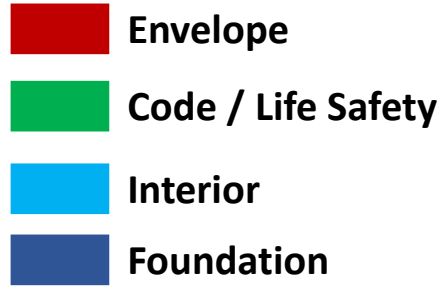
Envelope

Repair and Restoration Scope

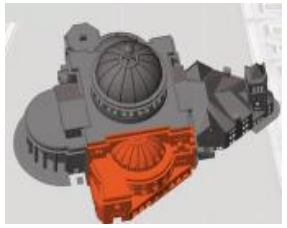


Project Phases

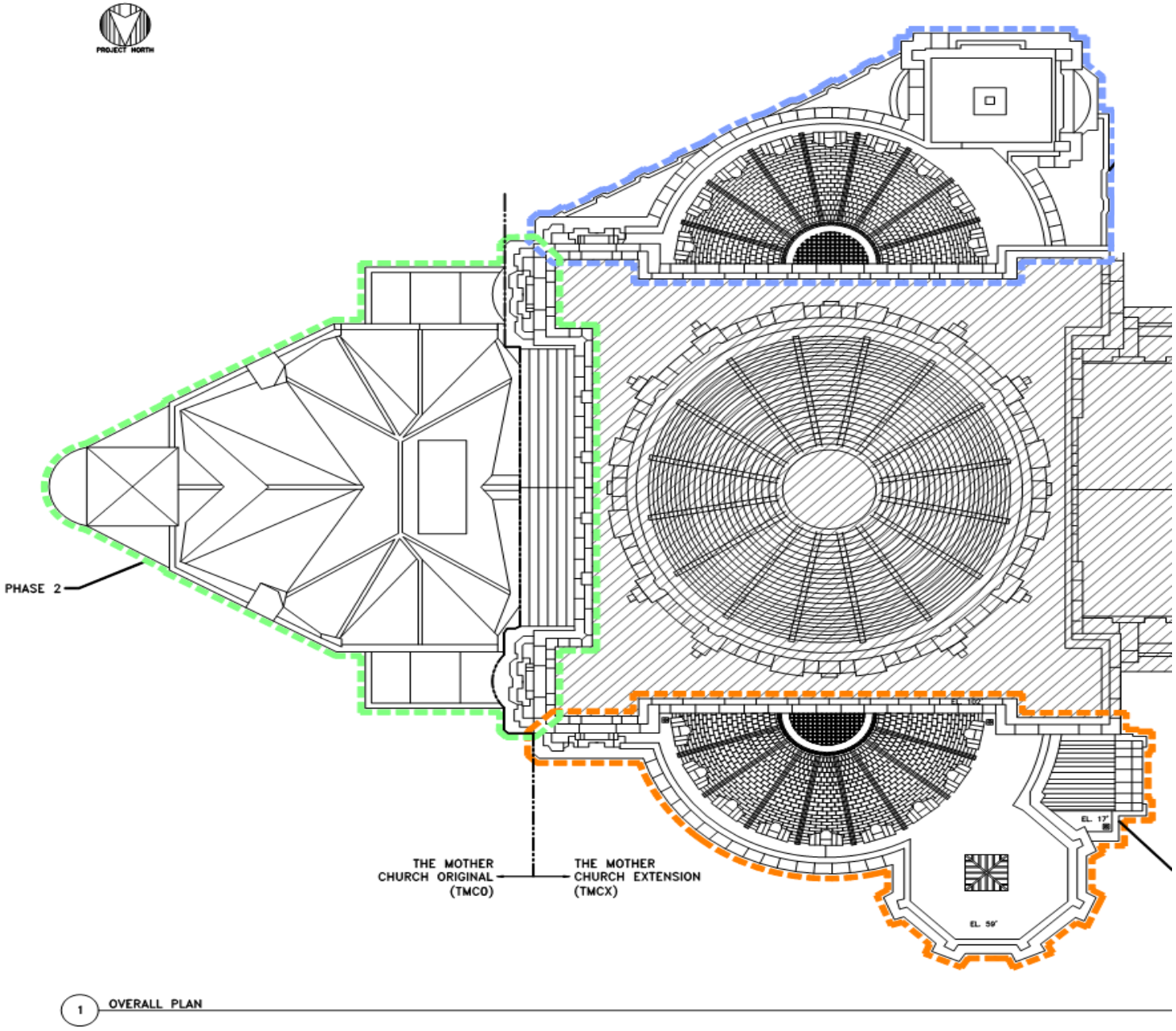




ONLY TMCX PHASING SHOWN, ALL TMCO WORK IN PHASE 2



ONLY TMCX PHASING SHOWN, ALL TMCO WORK IN PHASE 2

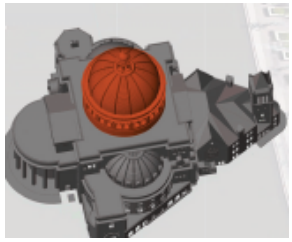


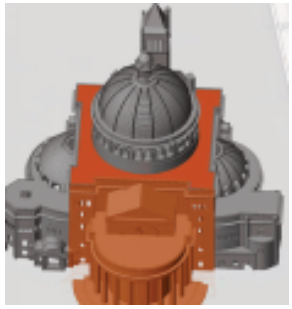
PACKAGE A

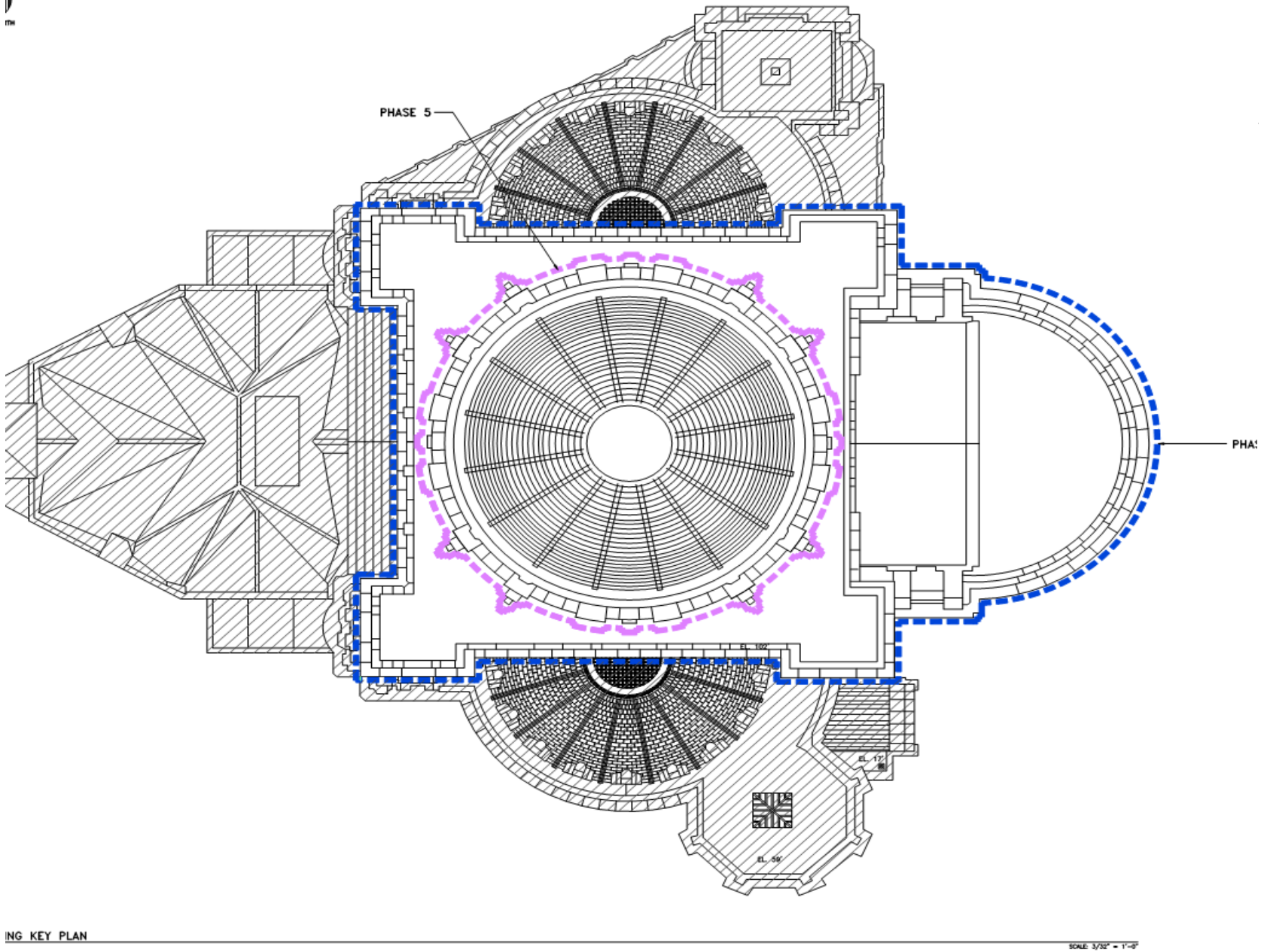
APPROX. 2017 - 2020

PACKAGE B

PPROX. 2020 - 2022







OVERALL PHOTOS

SOUTH AND WEST ELEVATIONS

SOUTH ELEVATION

SOUTH ELEVATION

SOUT AND EAST ELEVATIONS

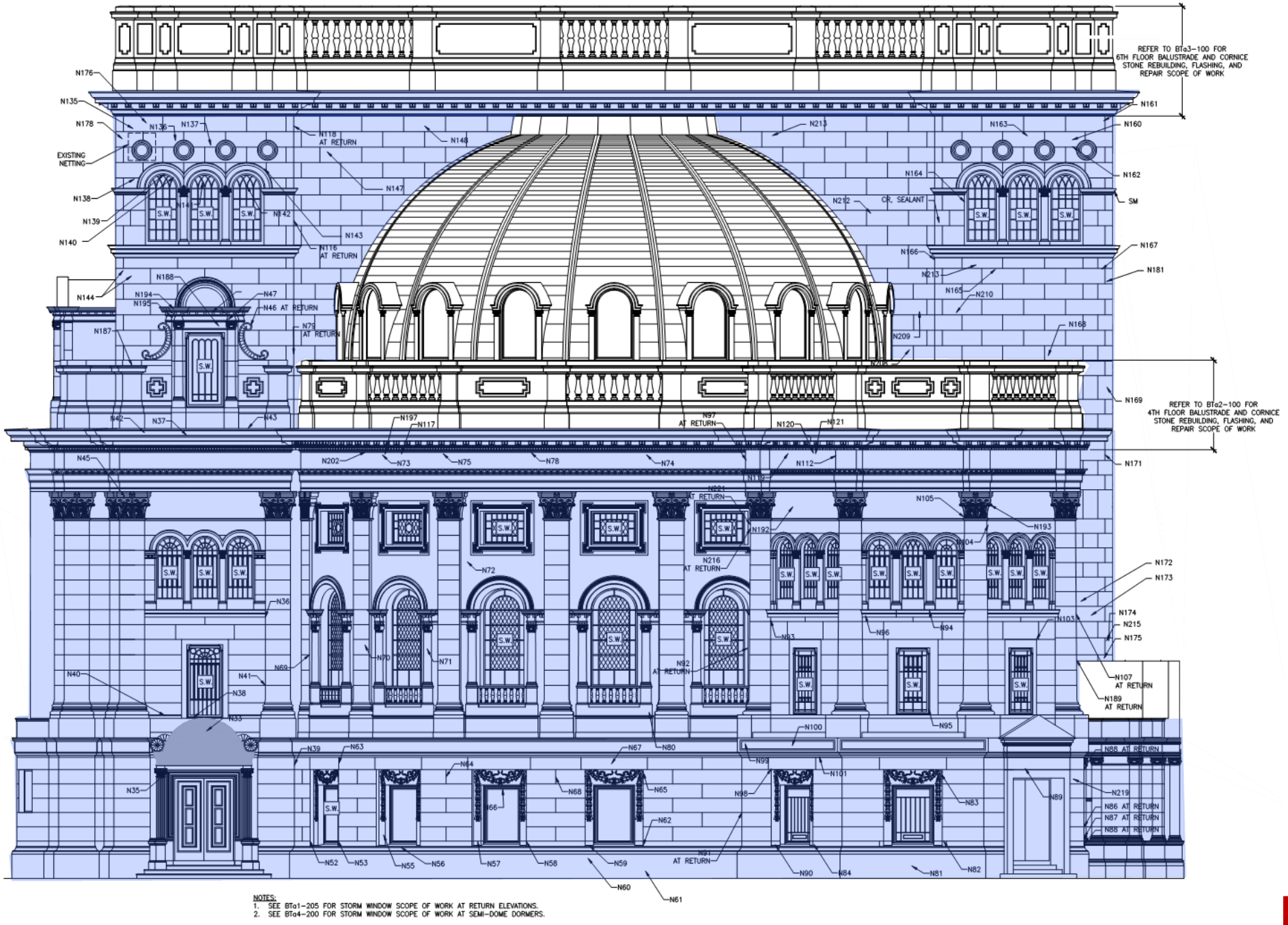
NORTH ELEVATION

NORTH ELEVATION

NORTHWEST CORNER

NORTH ELEVATION

OVERALL PHOTOS



TYPICAL FACADE

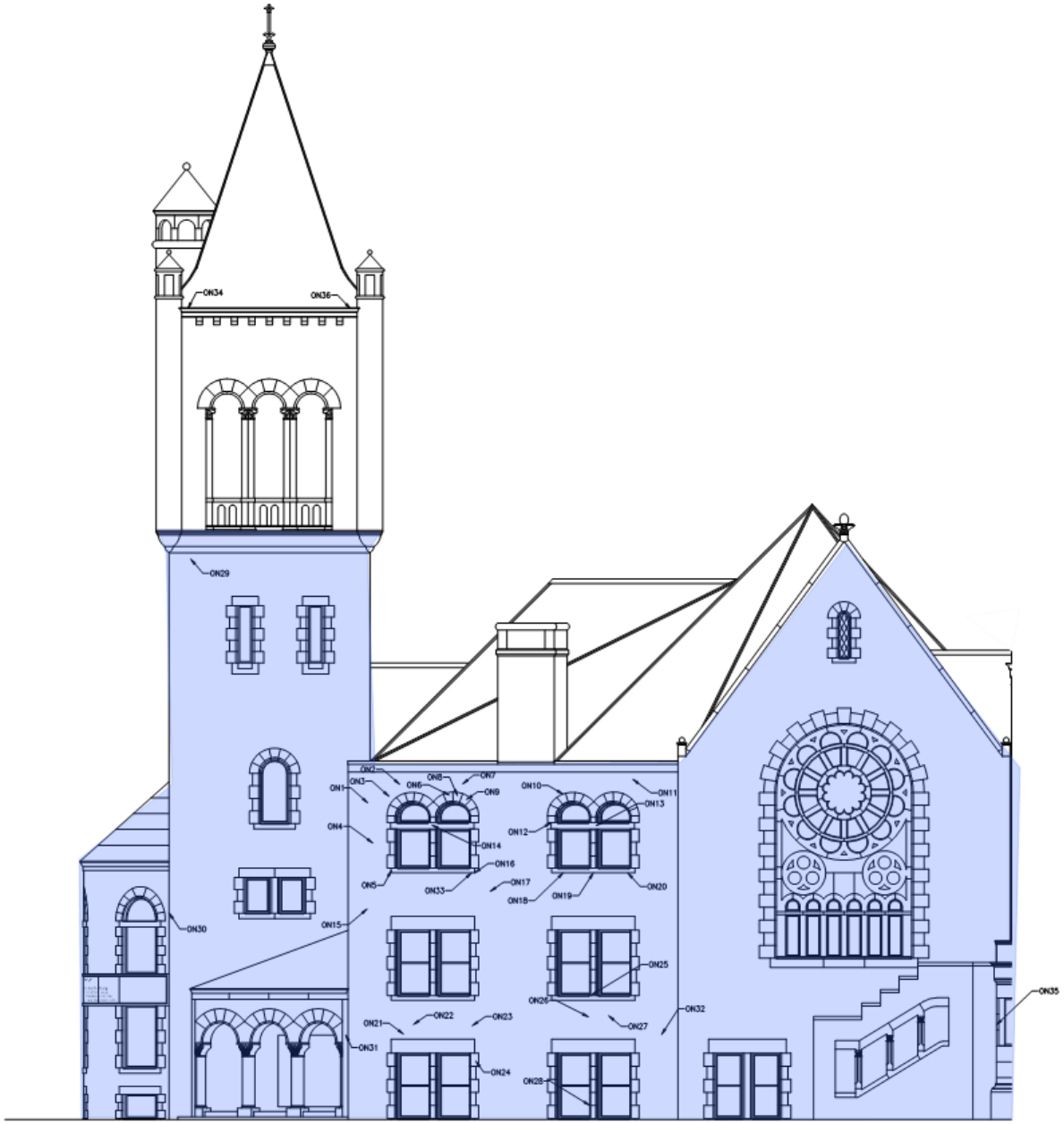
STONE REPAIRS

FLASHING

STONE CLEANING

NORTH ELEVATION (SIMILAR OTHER ELEVATIONS)

PACKAGE A



NORTH ELEVATION (SIMILAR OTHER ELEVATIONS)

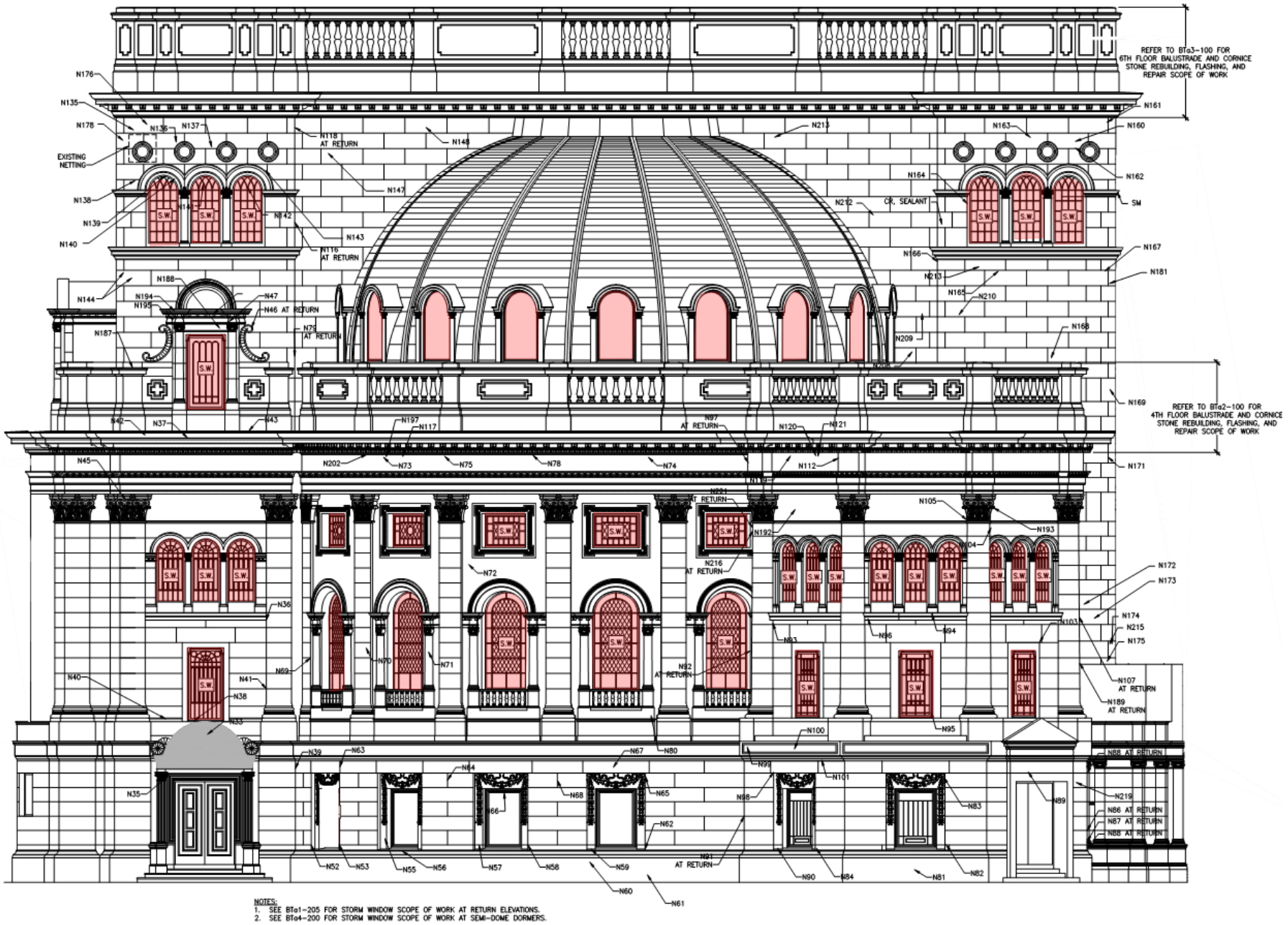
TYPICAL FACADE

STONE REPAIRS

FLASHING

STONE CLEANING

PACKAGE A



NORTH ELEVATION (SIMILAR OTHER ELEVATIONS)

PROTECTIVE GLAZING

PROVIDE PROTECTIVE GLAZING

PACKAGE A

Peeling Paint

Deteriorated Wood Frame

Failed Perimeter Sealant

Cracked and Missing Glazing Putty

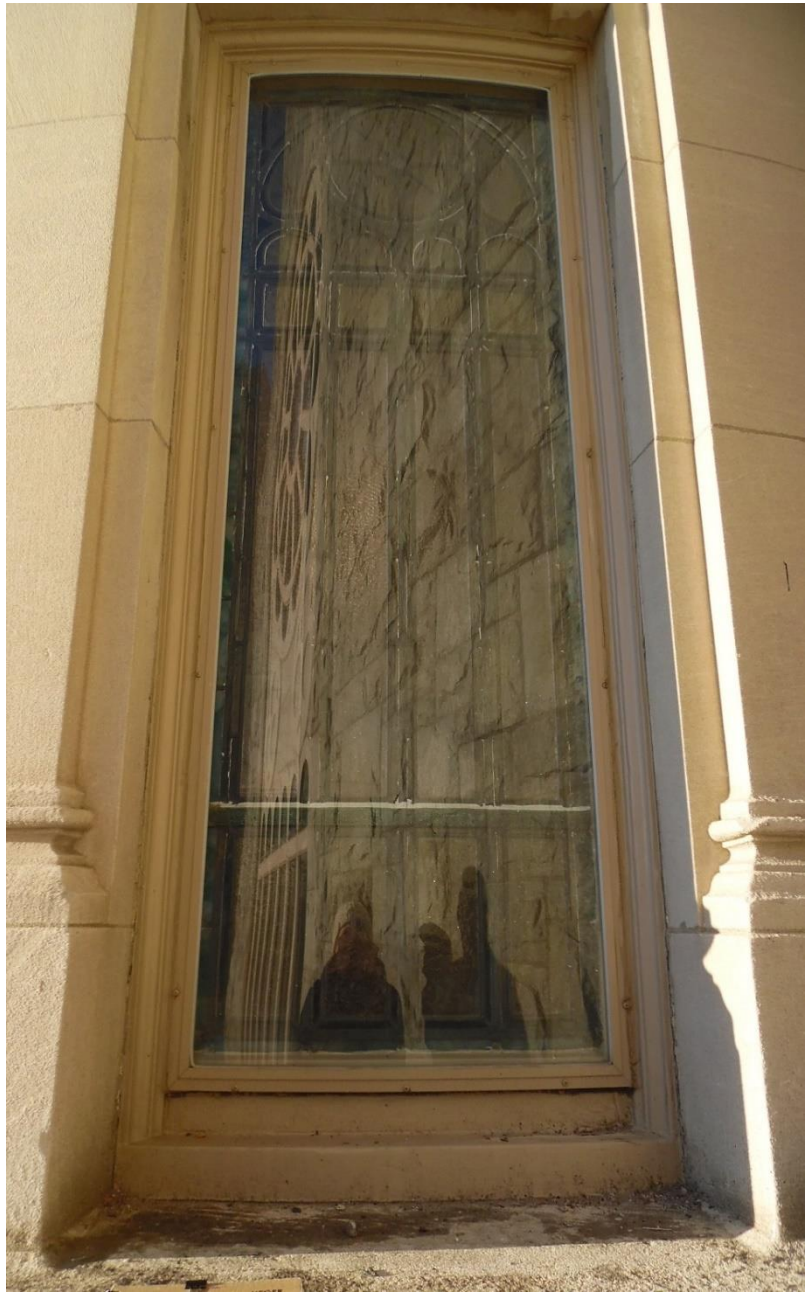
Cracked Glazing

Remedial Sealant

Split Caming

Evidence of Leaks

PACKAGE A



PACKAGE A

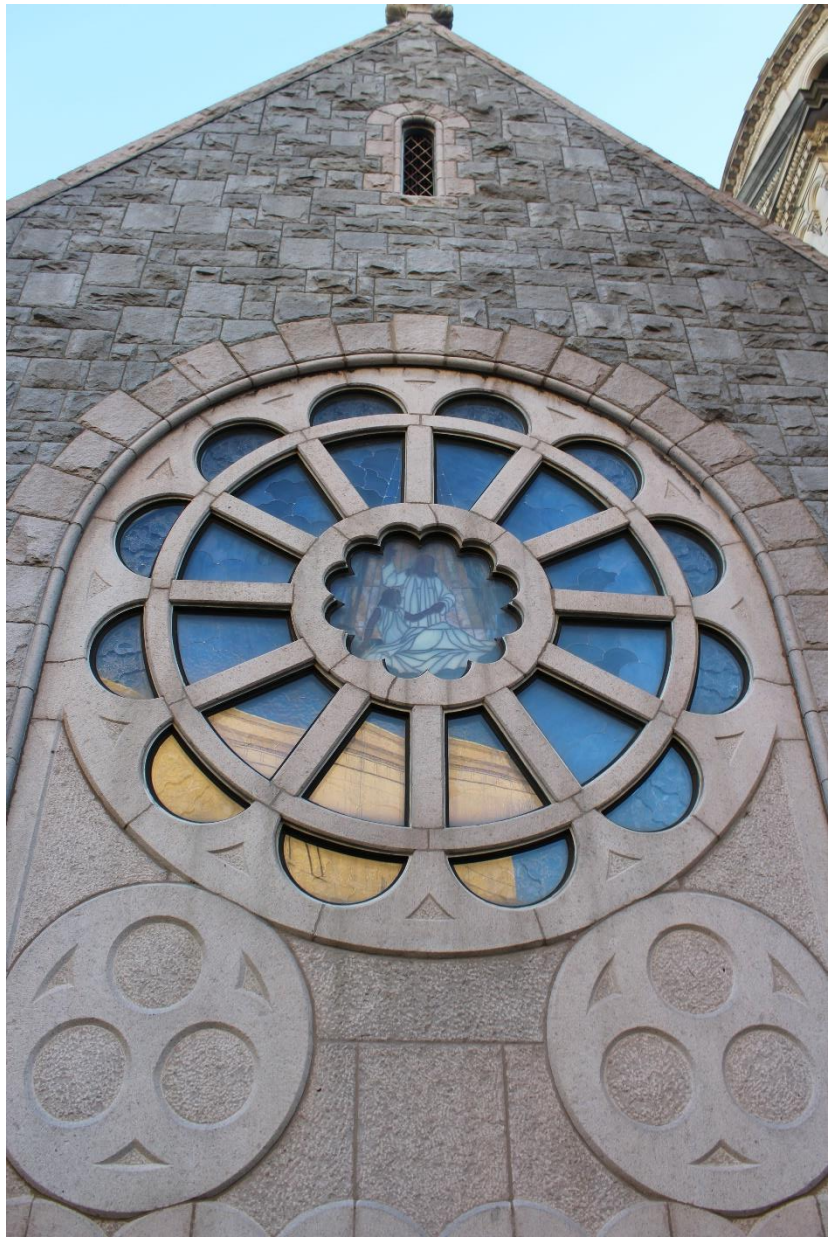
NORTH ELEVATION (SIMILAR OTHER ELEVATIONS)

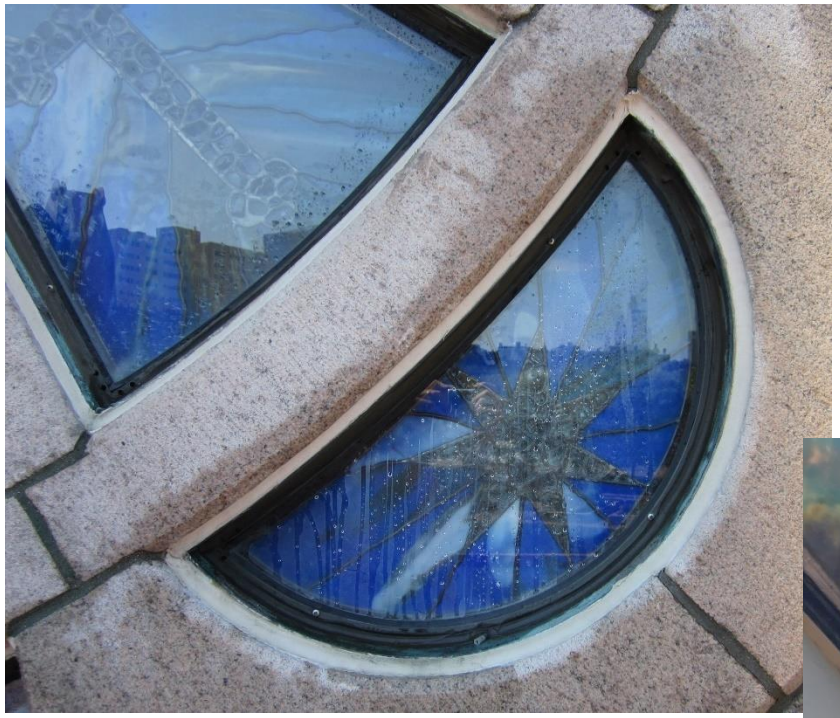
PROTECTIVE GLAZING

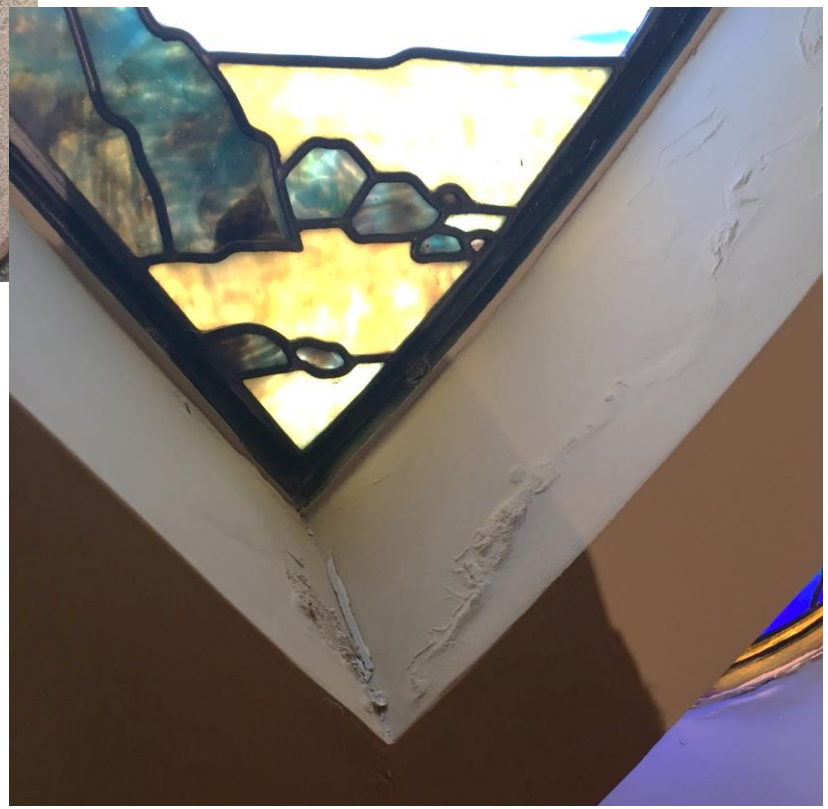
REPAIR EXISTING

ALTERNATE: REPLACE

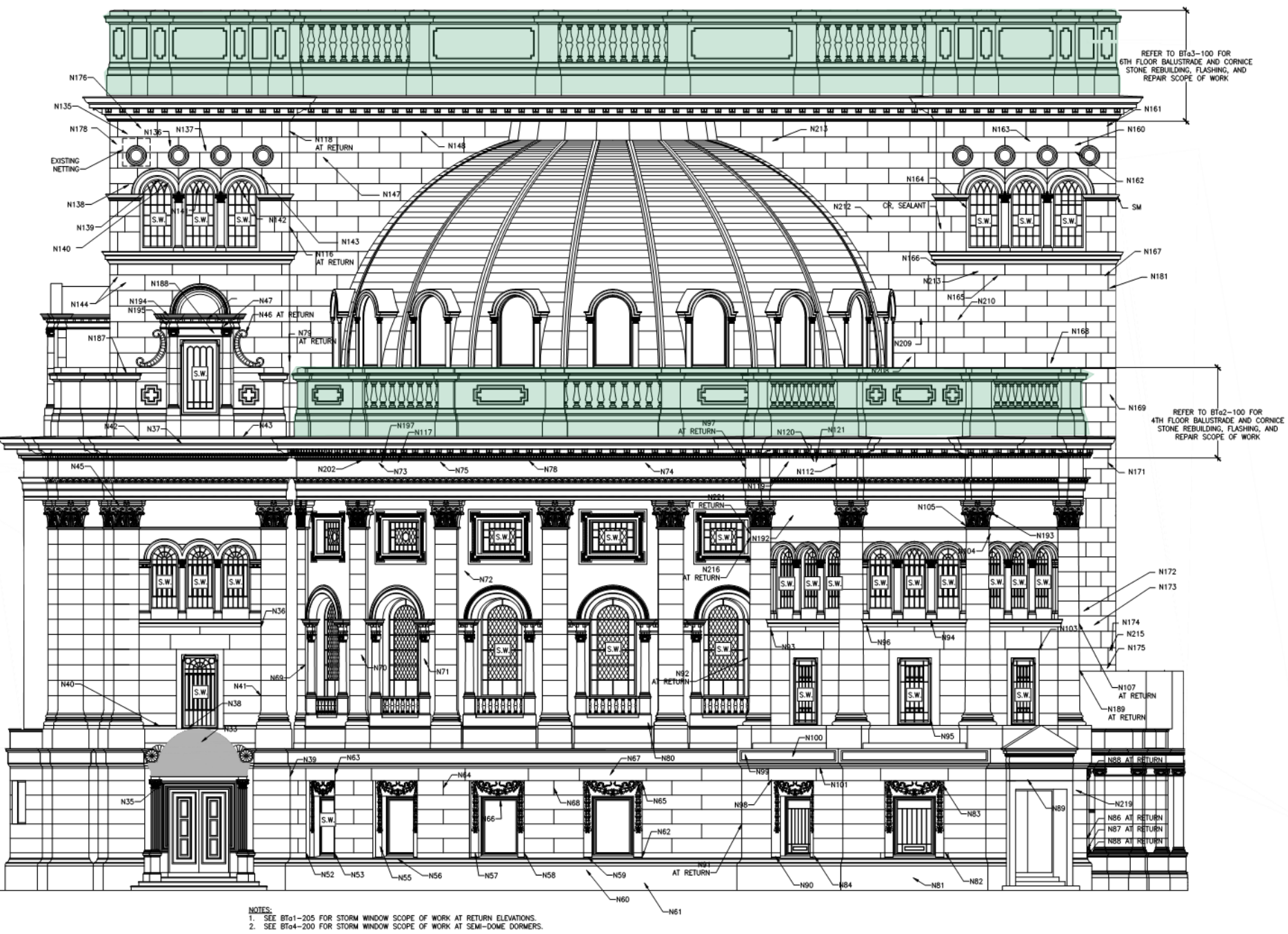
PACKAGE A







PACKAGE A



BALUSTRADES

REBUILD AS CAVITY WALL

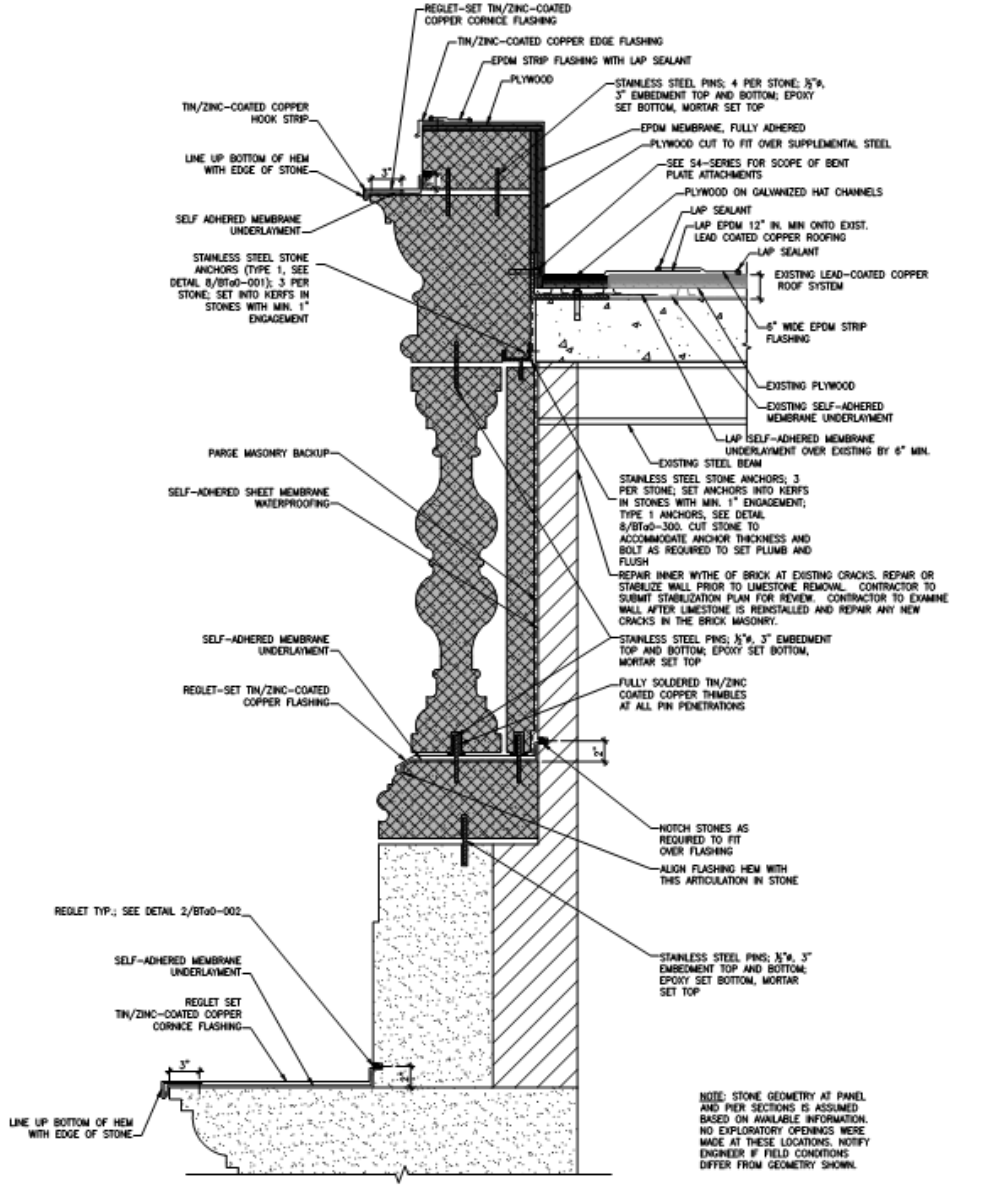
STONE REPAIRS

FLASHING

STRUCTURAL REPAIRS

NORTH ELEVATION (6TH FLOOR ALL ELEVATION, 4TH FLOOR NORTH AND SOUTH ONLY)

PACKAGE A



1 LOWER DRUM (6TH FL.) BALUSTRADE SECTION AT BALUSTERS
PHASE 2, 3, AND 4 N.T.S.

BALUSTRADES

REBUILD AS CAVITY WALL

STONE REPAIRS

FLASHING

STRUCTURAL REPAIRS

PACKAGE A

2010 4TH FLOOR MOCKUP – NORTH ELEVATION

BALUSTRADES

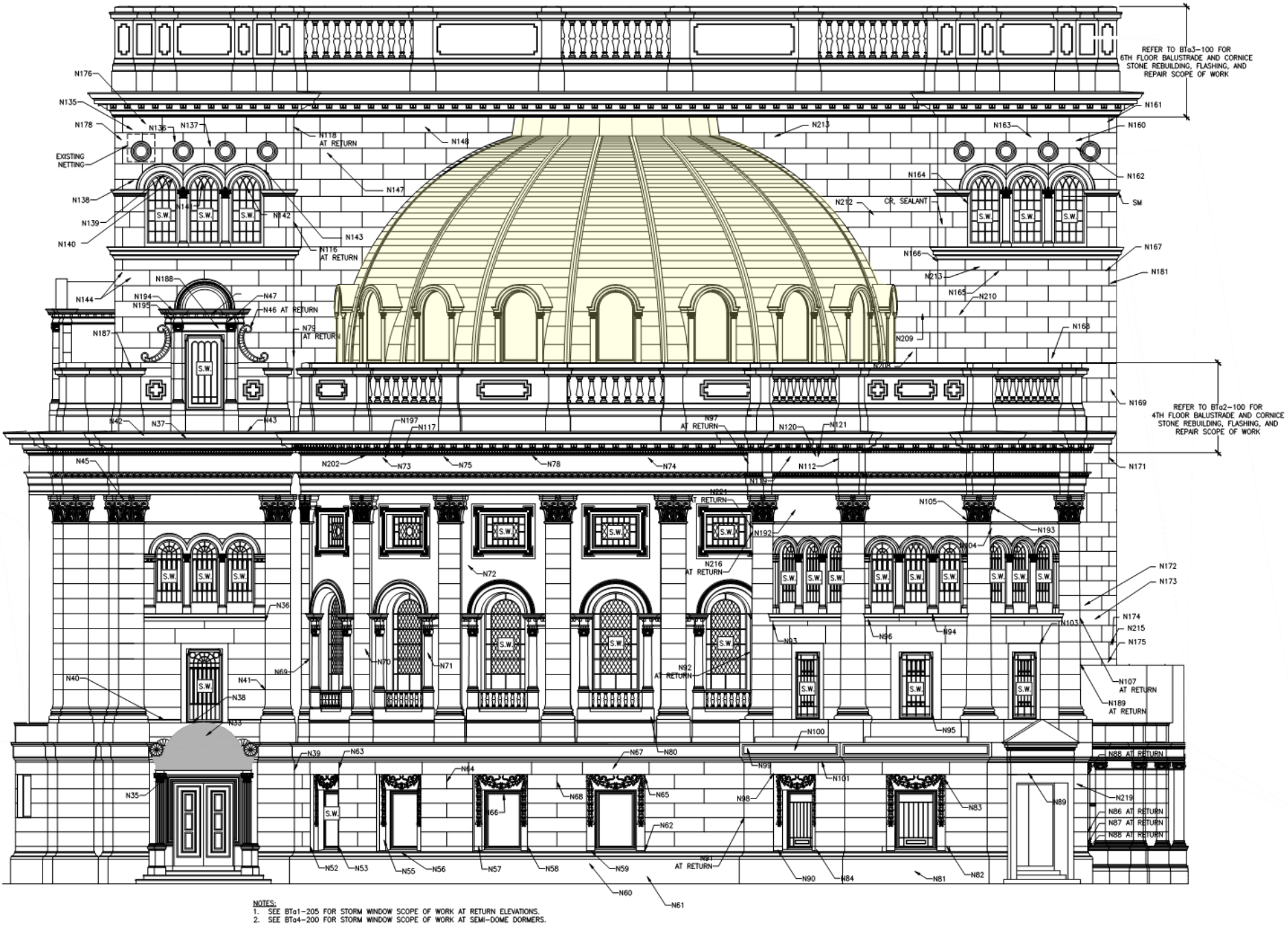
REBUILD AS CAVITY WALL

STONE REPAIRS

FLASHING

STRUCTURAL REPAIRS

PACKAGE A



NORTH ELEVATION (SOUTH SIMILAR)

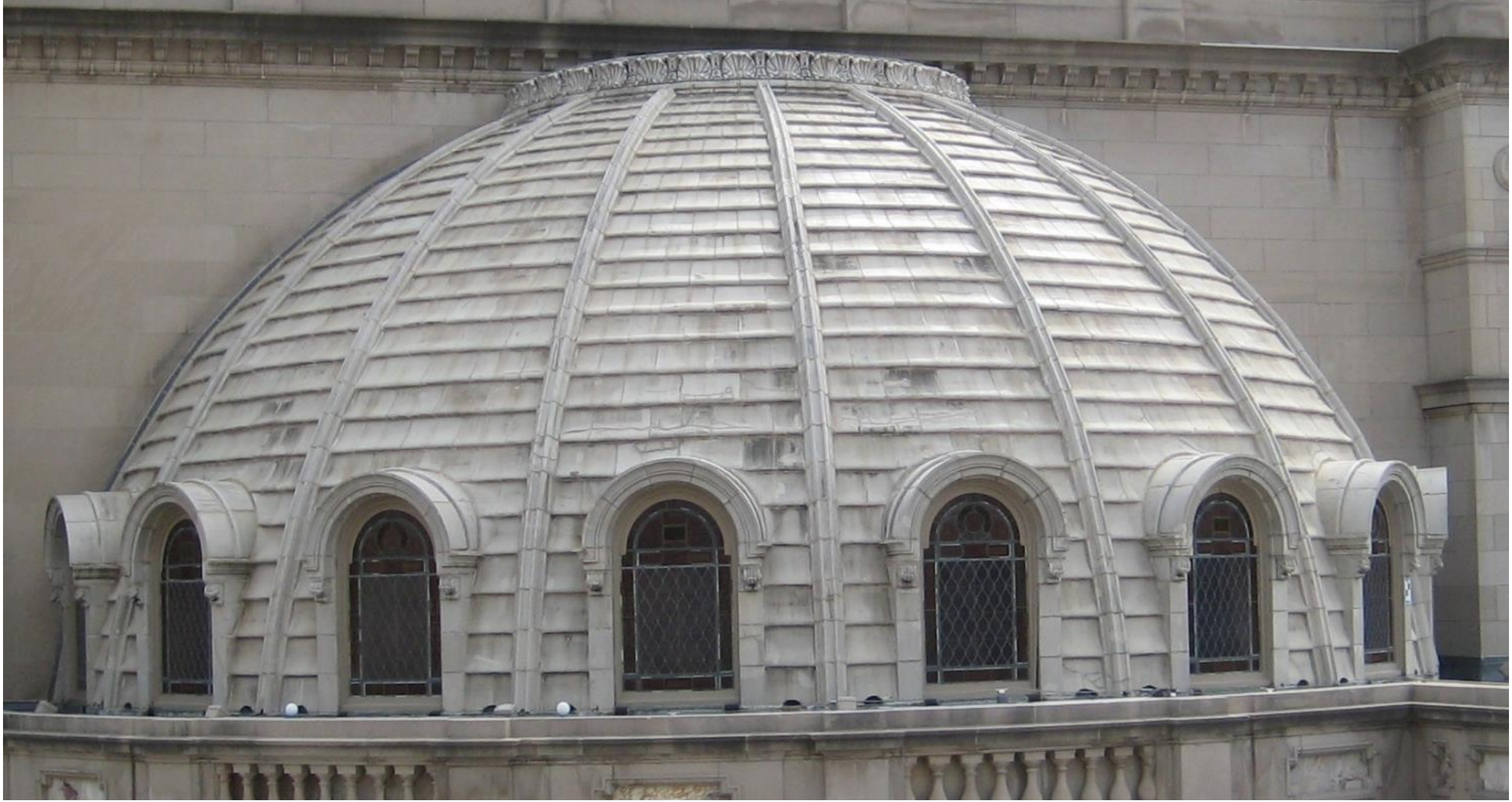
SEMI DOMES

REBUILD DOWN TO GUSTAVINO TILE SUB-STRUCTURE TO PROVIDE NEW WATERPROOFING AND FLASHING

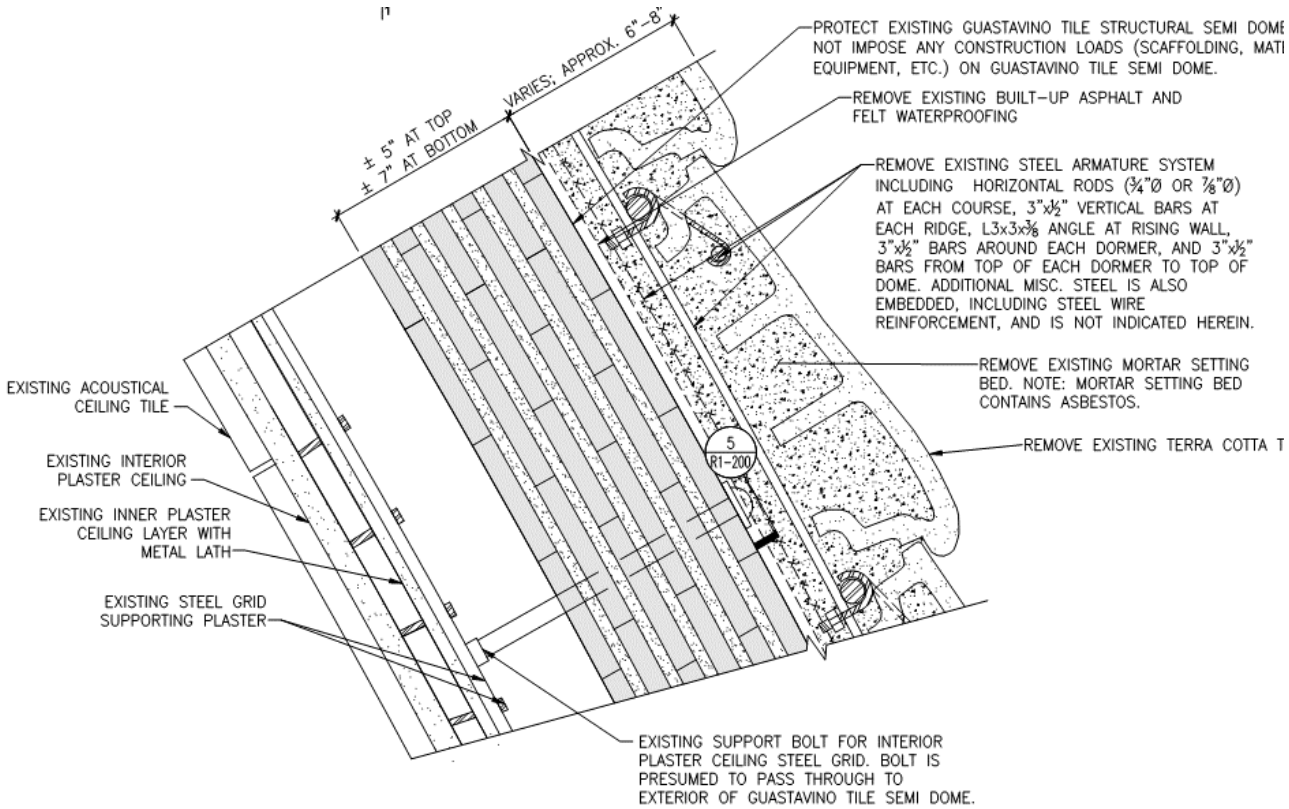
REPLACE TERRA COTTA – IN-KIND OR WITH STONE (ALTERNATE)

REMOVE AND REINSTALL WINDOWS

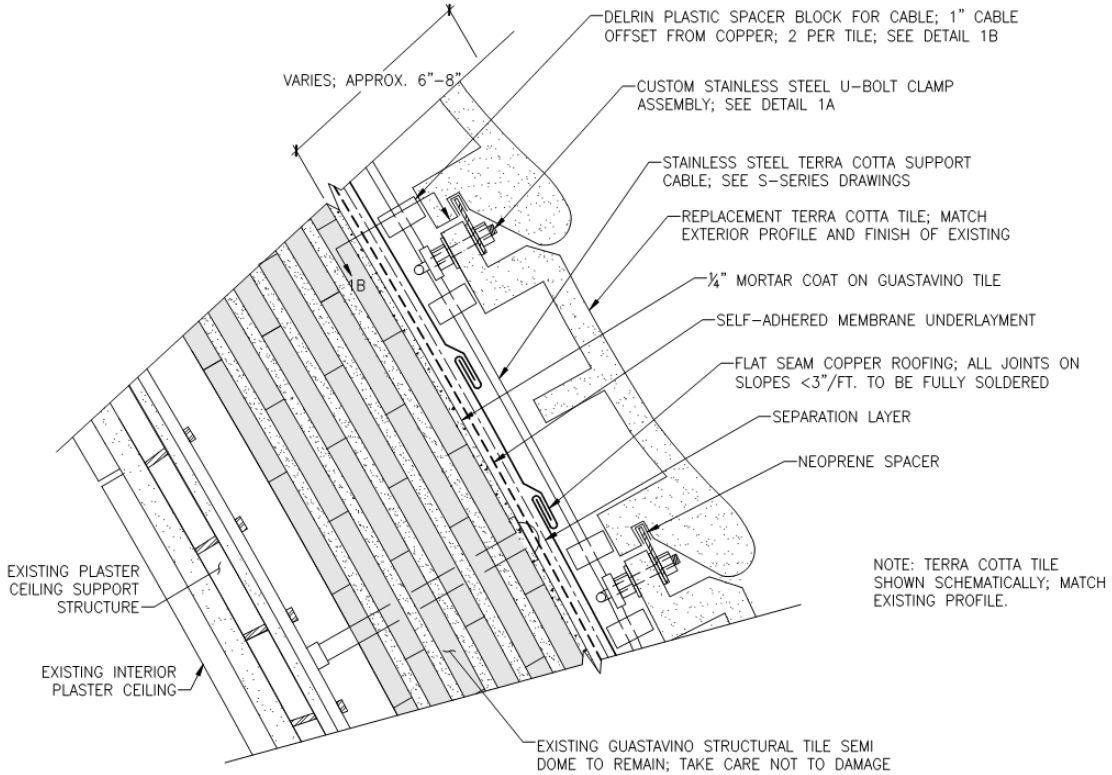
PACKAGE A



PACKAGE A

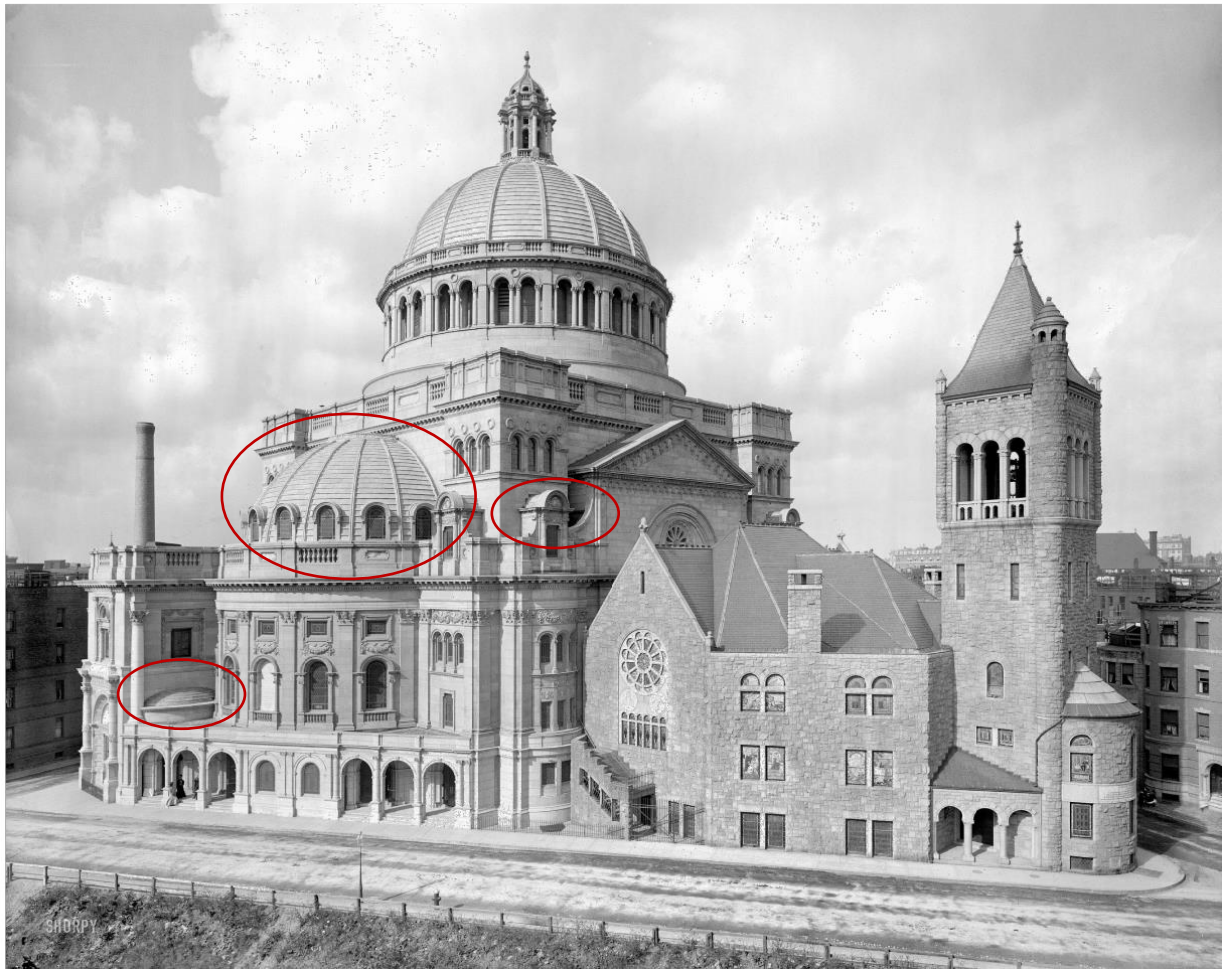


NOTES:
1. GUASTAVINO TILES (BROWN/ORANGE COLORED RIBBED TILES) FORM THE STRUCTURAL SEMI DOME. DO NOT DAMAGE.
2. MORTAR SETTING BED UNDER TERRA COTTA CONTAINS ASBESTOS.
3. SEE 3/Ra4-100 FOR AREAS OF INTERIOR CEILING REMOVAL, INCLUDING REMOVAL OF ACOUSTICAL CEILING TILE, LATH AND PLASTER, AND STEEL GRID.
4. INTERIOR STEEL GRID STRUCTURE IS VARIABLE IN LAYOUT AND COATED IN PLASTER.
5. SUPPORT BOLTS ARE VARIABLE IN LAYOUT.
6. ASSUME ADHESIVE FOR EXISTING ACOUSTICAL CEILING TILE CONTAINS ASBESTOS.

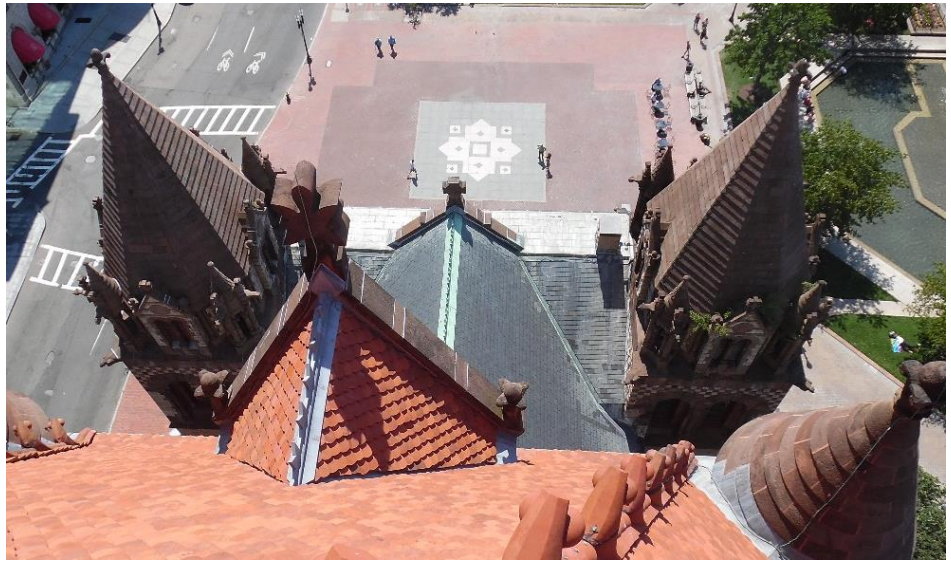


PACKAGE A

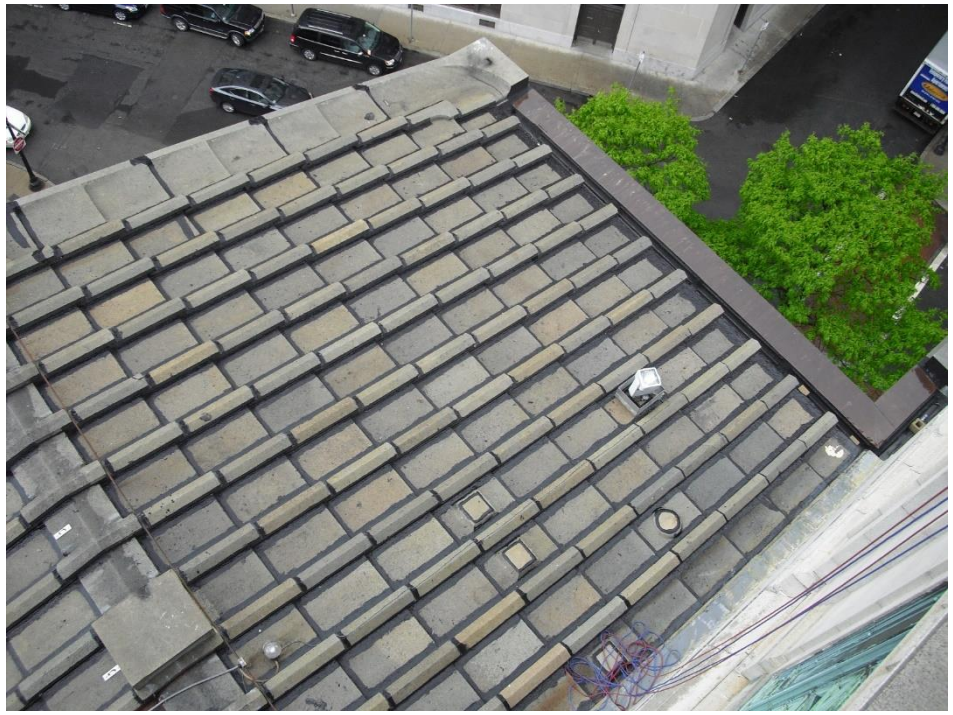
STONE SUBSTITUTION



PACKAGE A



Trinity Church – Brownstone Towers



Custom House – Granite Roofing

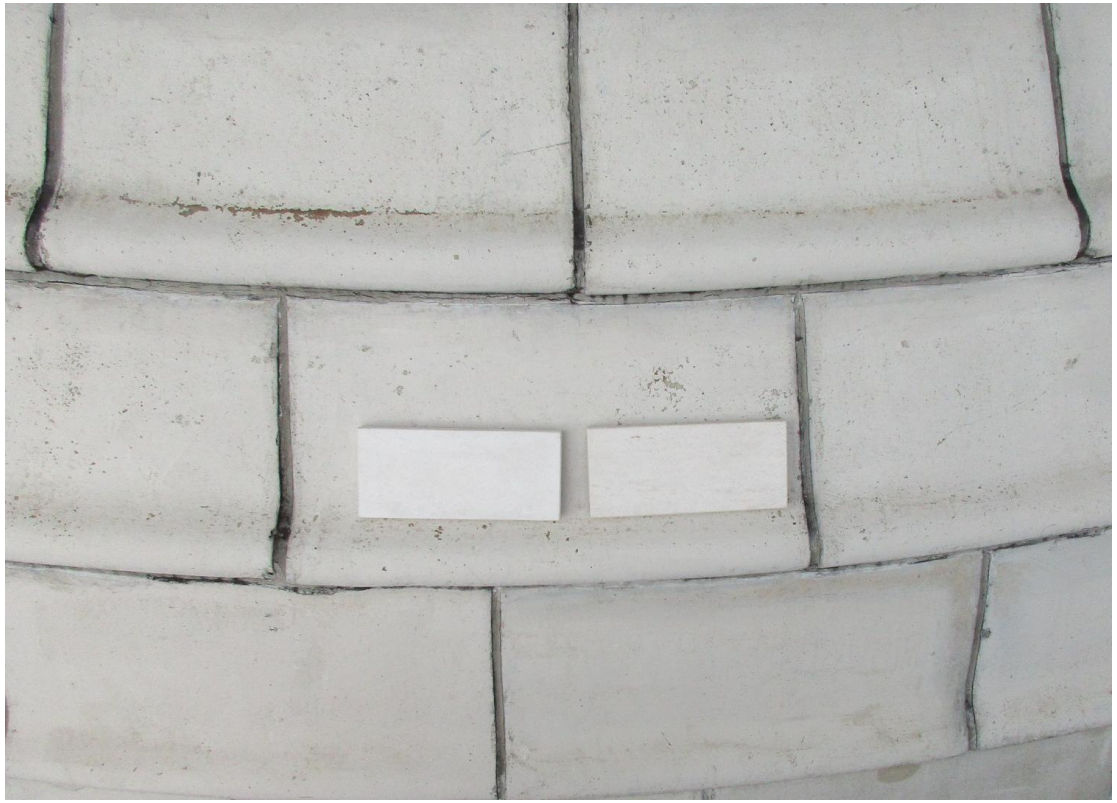
New York State Capitol - Granite

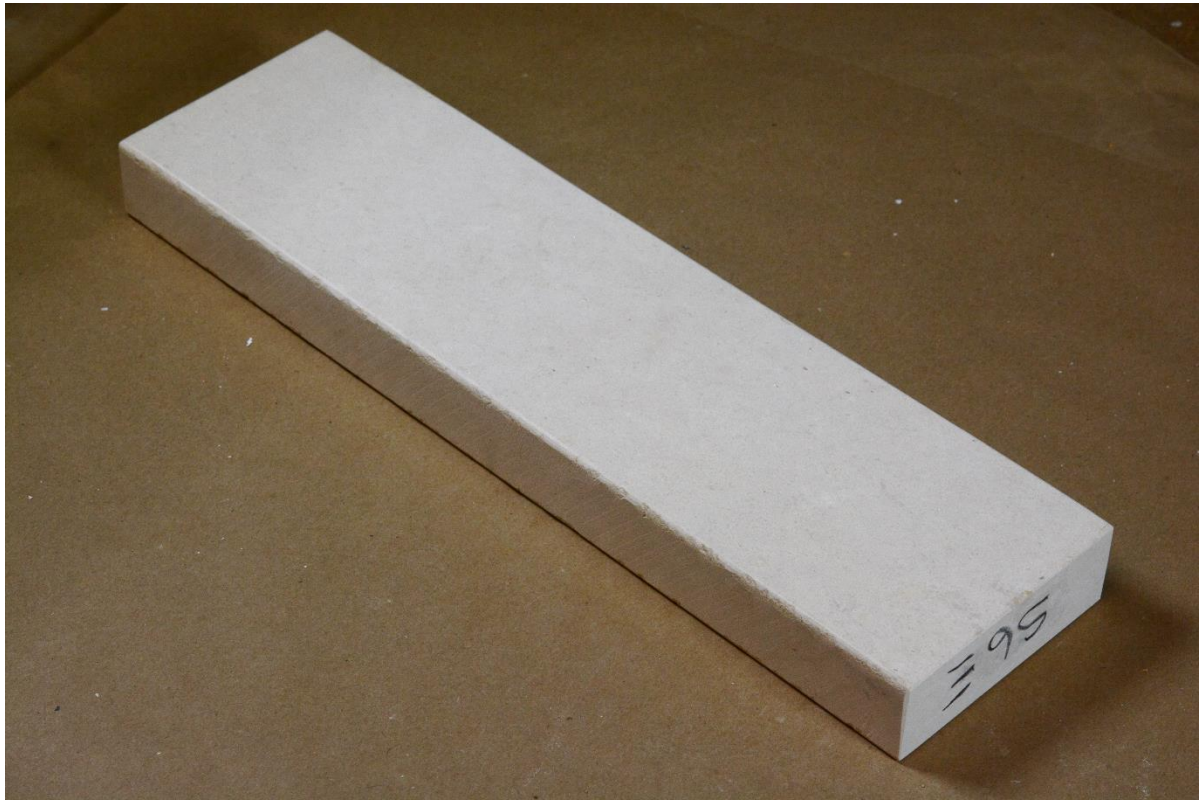
Albany City Hall - Brownstone

TFCCS – Limestone Coping and Cornices

PACKAGE A

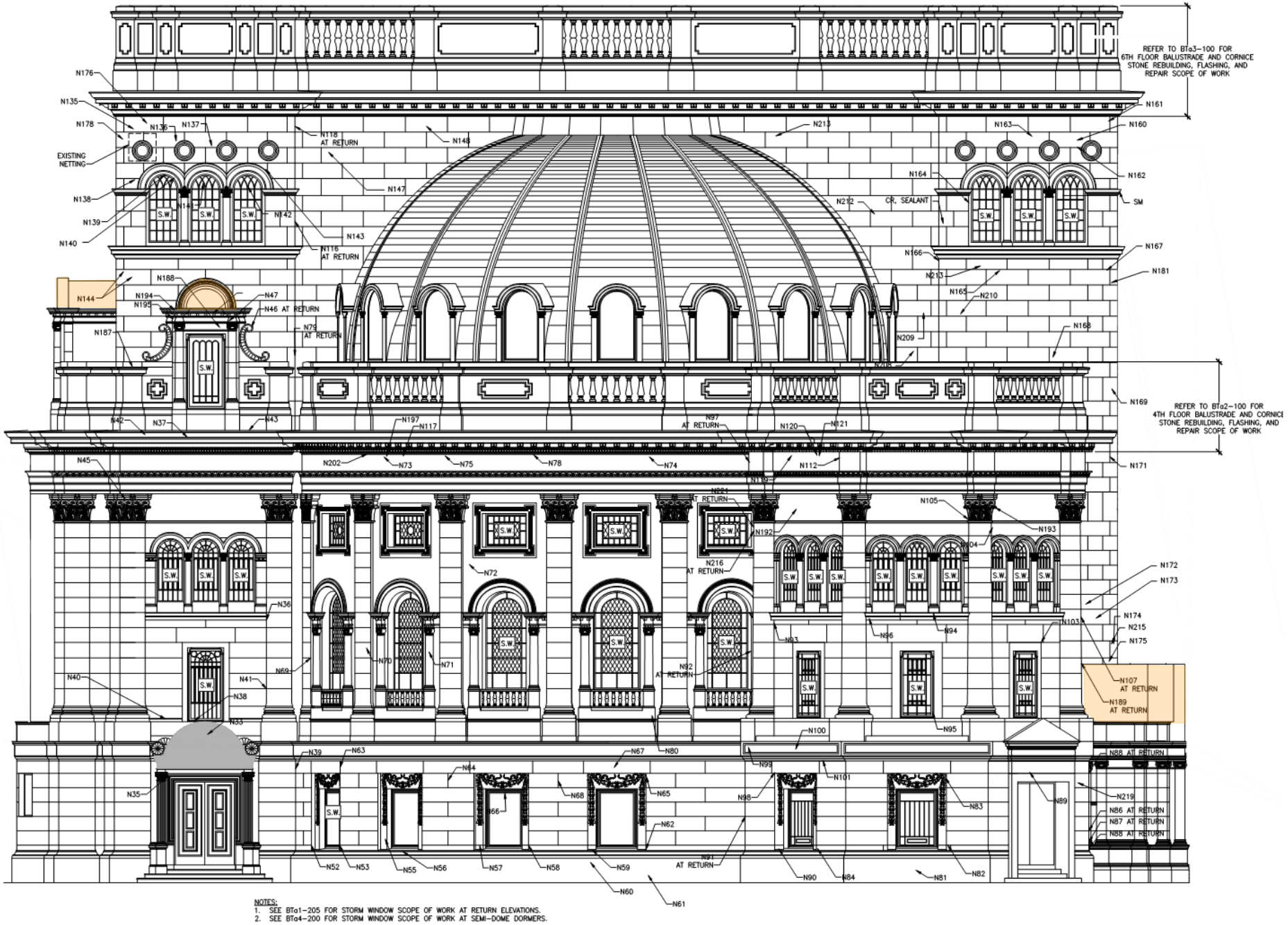
STONE SUBSTITUTION





EVA LIMESTONE

PACKAGE A



NORTH ELEVATION (SMALL DORMERS ON NORTH, EAST AND SOUTH)

DORMERS

REBUILD BARRELS DOWN TO SUB-STRUCTURE TO PROVIDE NEW WATERPROOFING AND FLASHING

SMALL DORMERS COVER ENTIRELY WITH METAL; ALTERNATE – REPLACE IN-KIND OR WITH STONE (ALTERNATE)

REPLACE NW DORMER TERRA COTTA IN-KIND OR WITH STONE (ALTERNATE)

PACKAGE A

SM. DORMERS

PACKAGE A

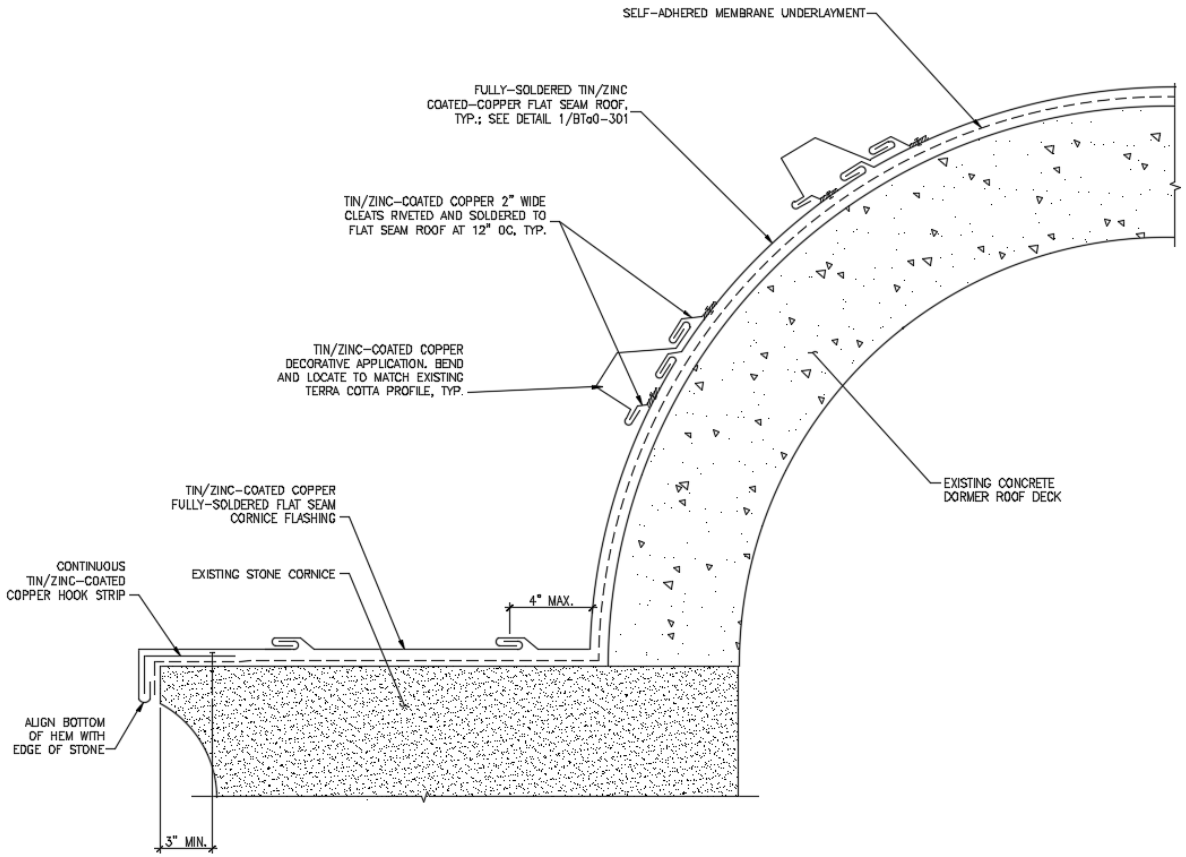
SM. DORMERS

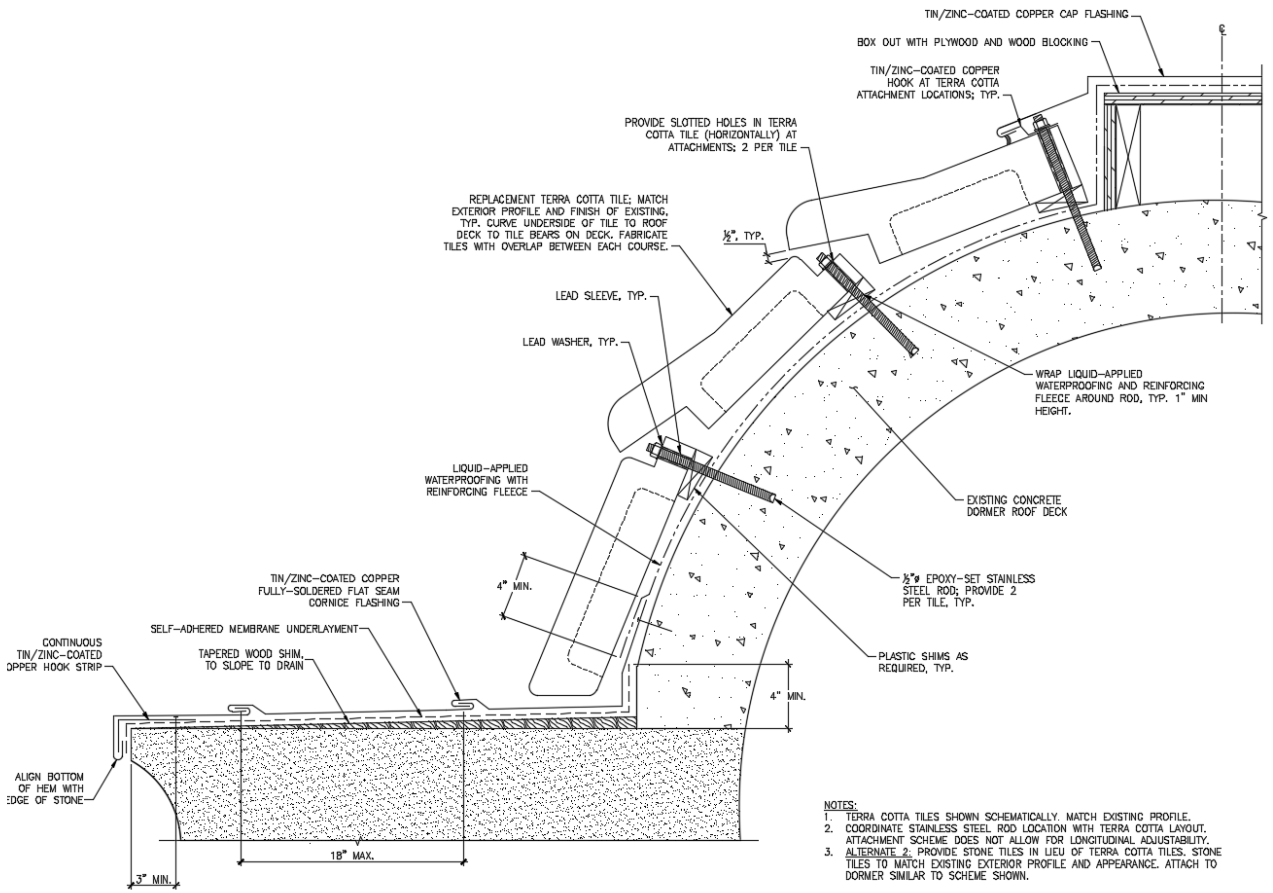
PACKAGE A

SM. DORMERS

PACKAGE A

SM. DORMERS

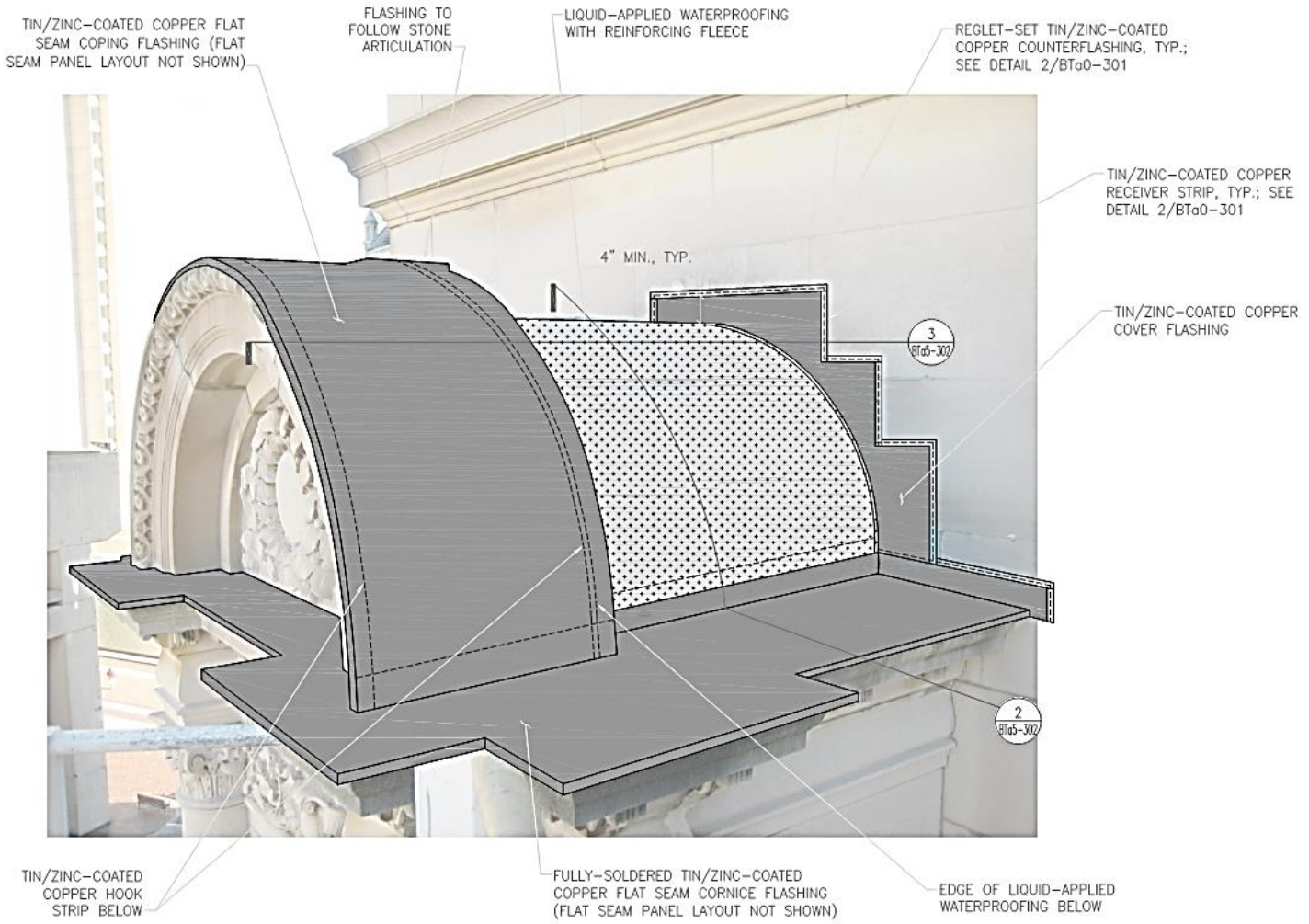




NOTES:
1. TERRA COTTA TILES SHOWN SCHEMATICALLY. MATCH EXISTING PROFILE.
2. COORDINATE STAINLESS STEEL ROD LOCATION WITH TERRA COTTA LAYOUT. ATTACHMENT SCHEME DOES NOT ALLOW FOR LONGITUDINAL ADJUSTABILITY.
3. ALTERNATE 2: PROVIDE STONE TILES IN LIEU OF TERRA COTTA TILES. STONE TILES TO MATCH EXISTING EXTERIOR PROFILE AND APPEARANCE. ATTACH TO DORMER SIMILAR TO SCHEME SHOWN.

PACKAGE A

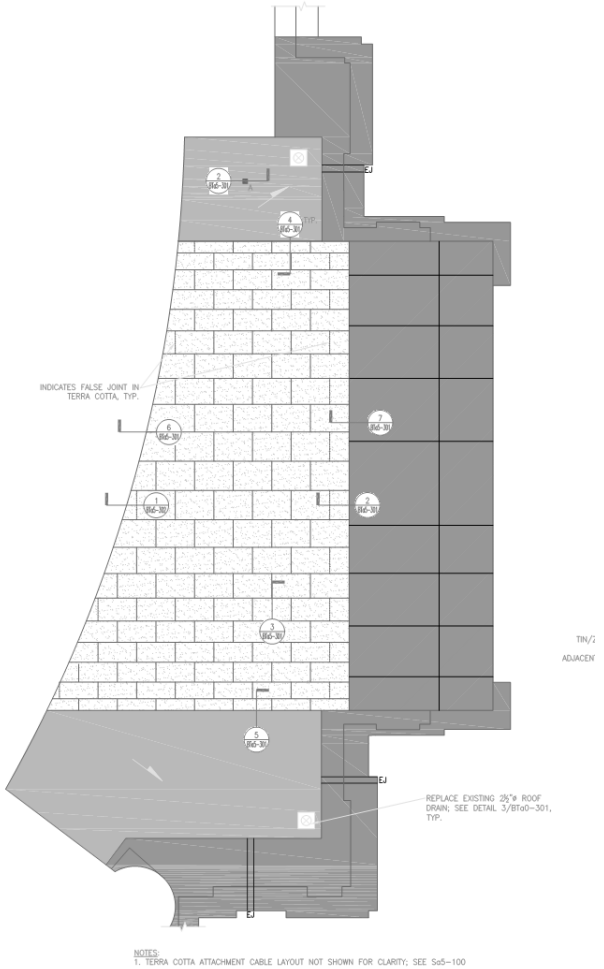
SM. DORMERS



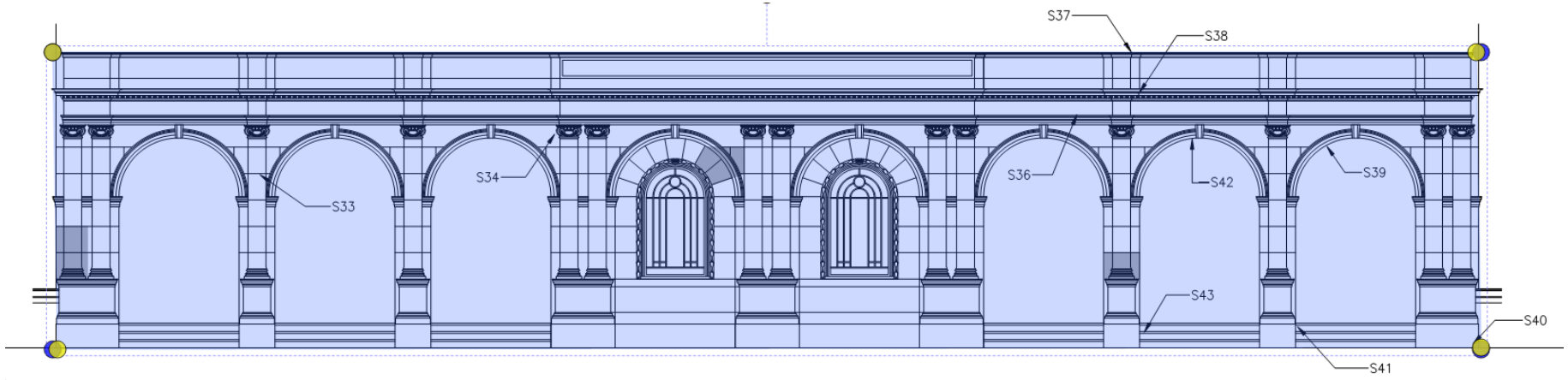
NOTES:
1. TERRA COTTA OR STONE TILES AND ATTACHMENT NOT SHOWN FOR CLARITY.
2. FLAT SEAM PANEL SEAMS NOT SHOWN.

PACKAGE A

NW DORMER



PACKAGE A



SOUTH PORTICO

STONE REPAIRS

FLASHING

STONE CLEANING

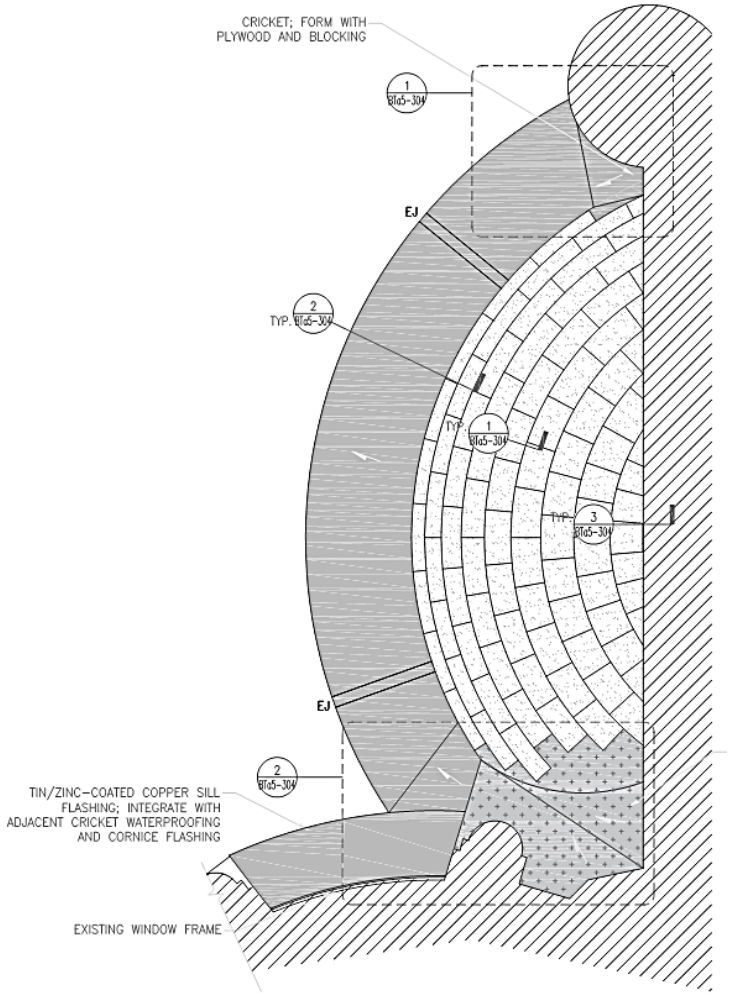
REPLACEMENT OF SMALL TERRA COTTA DOME IN-KIND OR WITH STONE (ALTERNATE)

PLAZA TIE-INS

REPAIRS TO GUSTAVINO CEILING

PACKAGE A

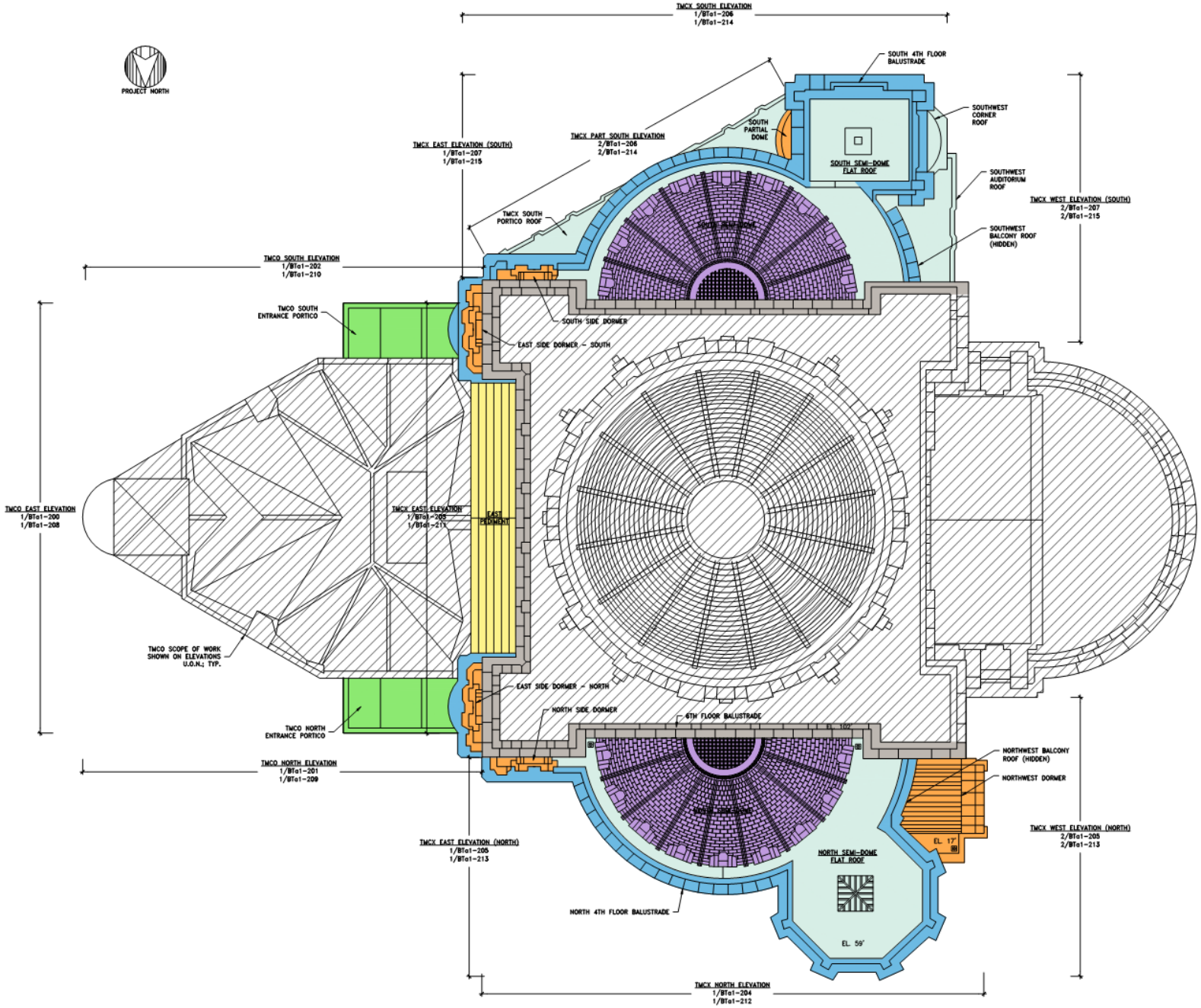
SOUTH PARTIAL DOME



PACKAGE A

PORTICO DAMAGE

PACKAGE A



ROOFS

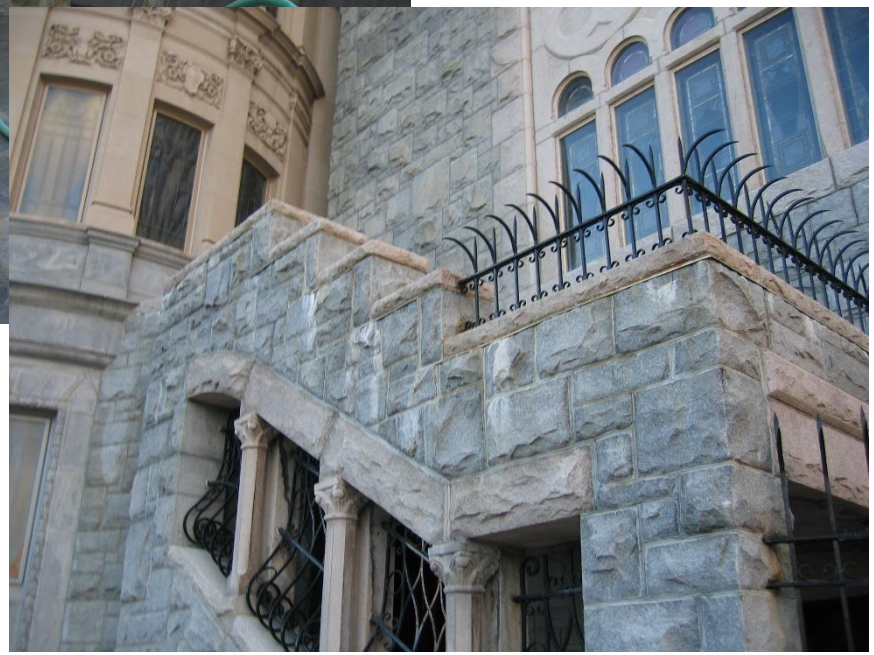
REPLACE ROOFS – COMBINATION OF COPPER AND PVC

PACKAGE A

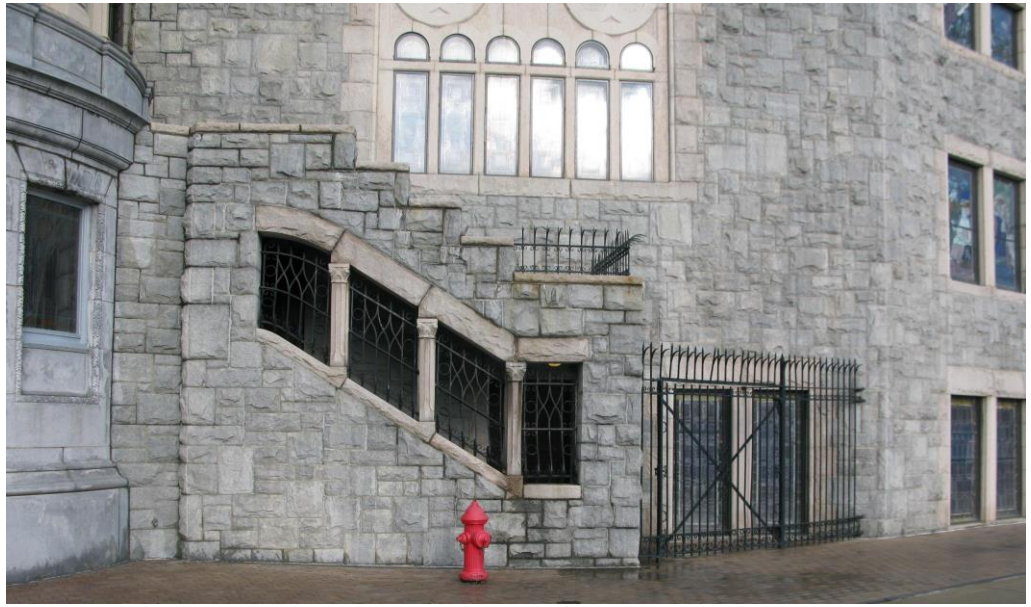
EAST PEDIMENT

PACKAGE A

TMCO PORTICO

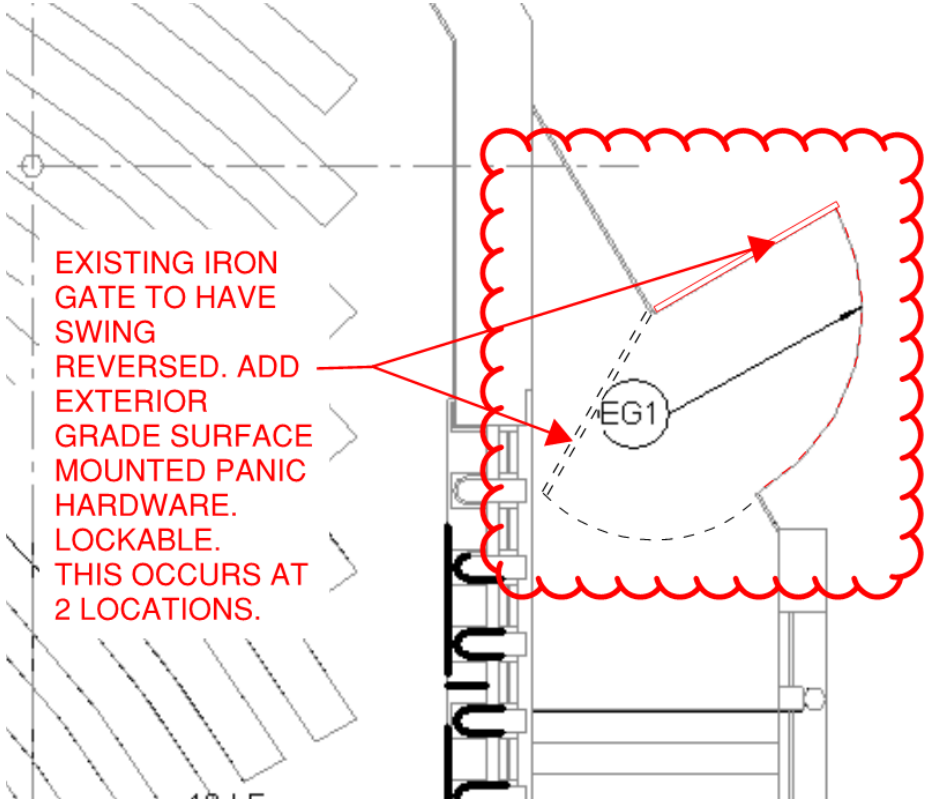


PACKAGE A

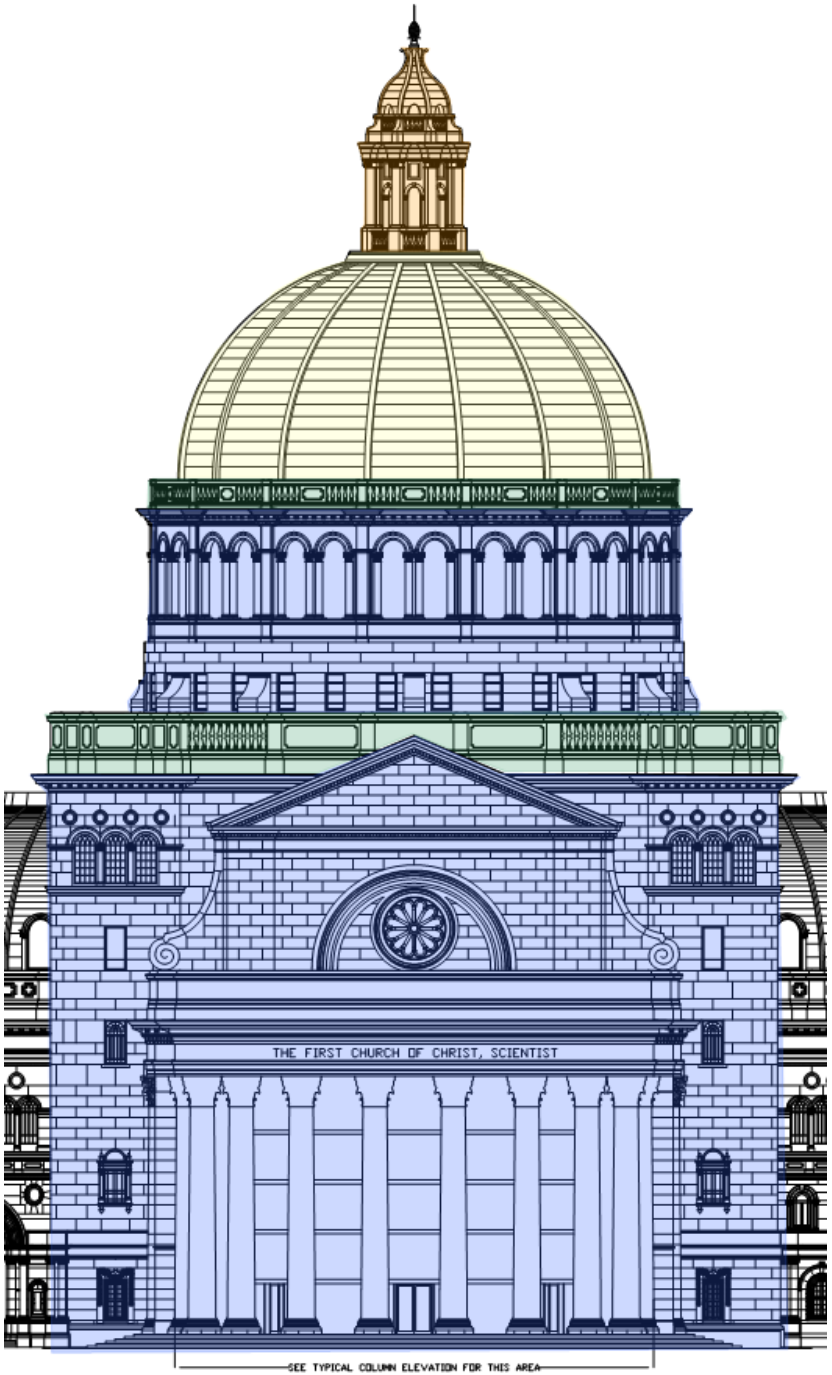


MISC.

CHANGE GATE SWING FOR EGRESS



PACKAGE A



FACADE

STONE REPAIRS

FLASHING

STONE CLEANING

STORM WINDOWS

BALUSTRADES

REBUILD AS CAVITY WALL

STONE REPAIRS

FLASHING

STRUCTURAL REPAIRS

MAIN DOME

TERRA COTTA REPAIRS AND JOINT TREATMENT

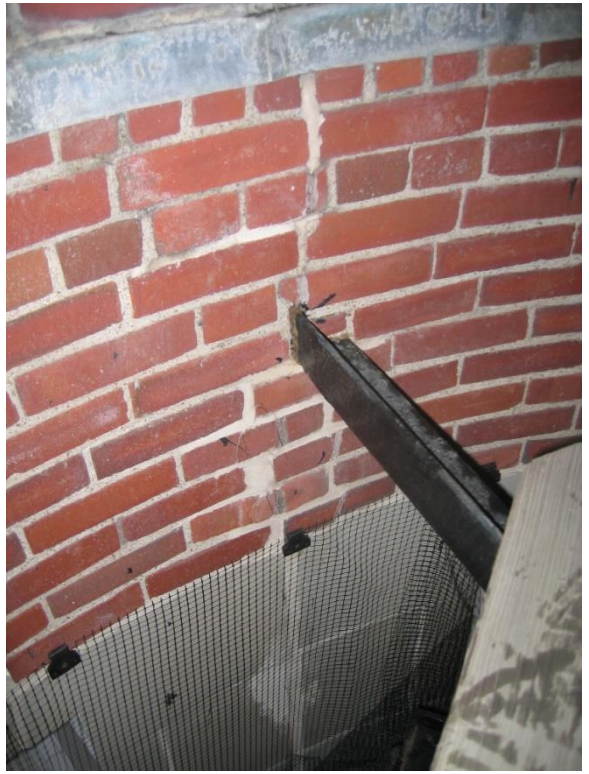
BASE OF WALL REPAIRS

CUPOLA

TERRA COTTA REPAIRS AND JOINT TREATMENT

ALTERNATE – REBUILD CUPOLA

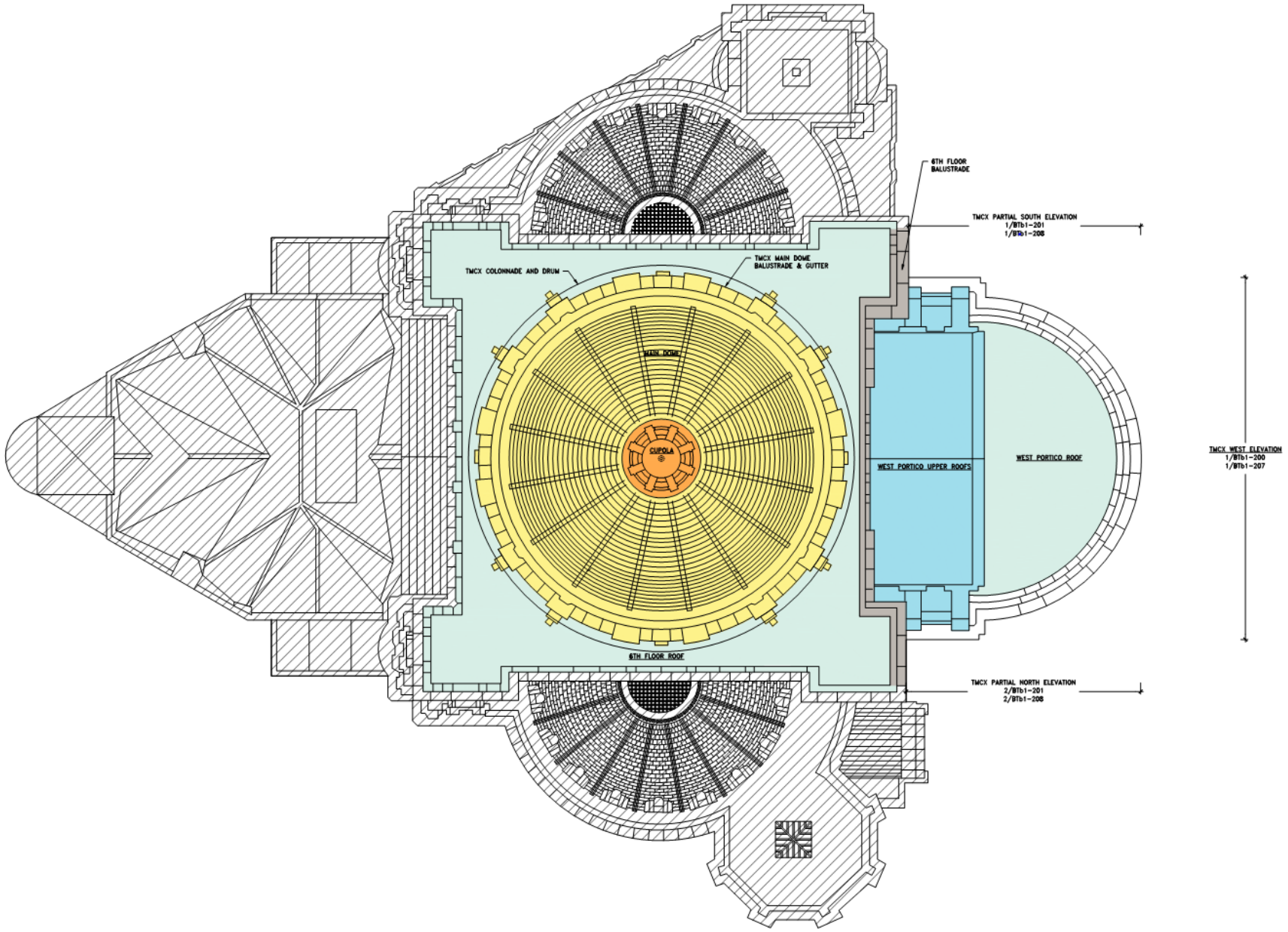
PACKAGE B



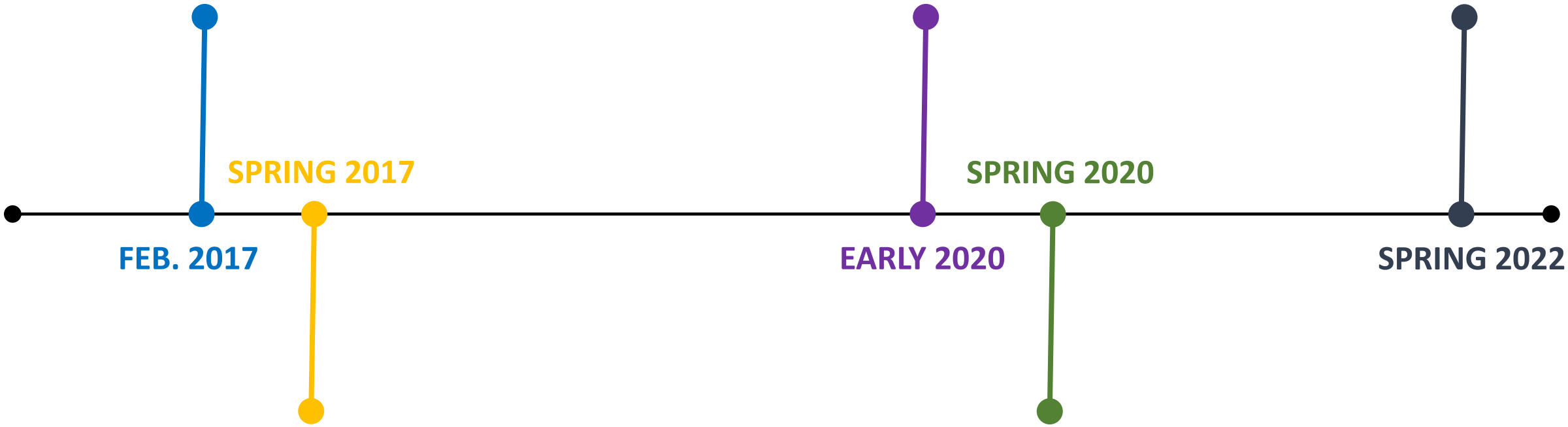
CUPOLA

ROOFS

REPLACE ROOFS – COMBINATION OF COPPER AND PVC



PACKAGE B


BLC SUBMISSION
FORMAL APPLICATION TO BLC FOR PACKAGE A
SPRING 2017
FEB. 2017
PACKAGE A START
PACKAGE A CONSTRUCTION ANTICIPATED TO START IN SPRING 2017 WITH PHASE 2
BLC SUBMISSION
FORMAL APPLICATION TO BLC EXPECTED IN JANUARY 2020 FOR PACKAGE B
SPRING 2020
EARLY 2020
PACKAGE A DONE
PACKAGE B START
PACKAGE A CONSTRUCTION ANTICIPATED TO FINISH IN SPRING OF 2020
PACKAGE B CONSTRUCTION ANTICIPATED TO START IN SPRING 2020 WITH PHASE 5
PACKAGE B DONE
PACKAGE B CONSTRUCTION ANTICIPATED TO FINISH IN SPRING OF 2022
SPRING 2022

NEXT STEPS