



University of
Massachusetts
Amherst

UMass Dartmouth Science and Engineering (SENG) Building Systems Upgrades Project

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ELLENZWEIG



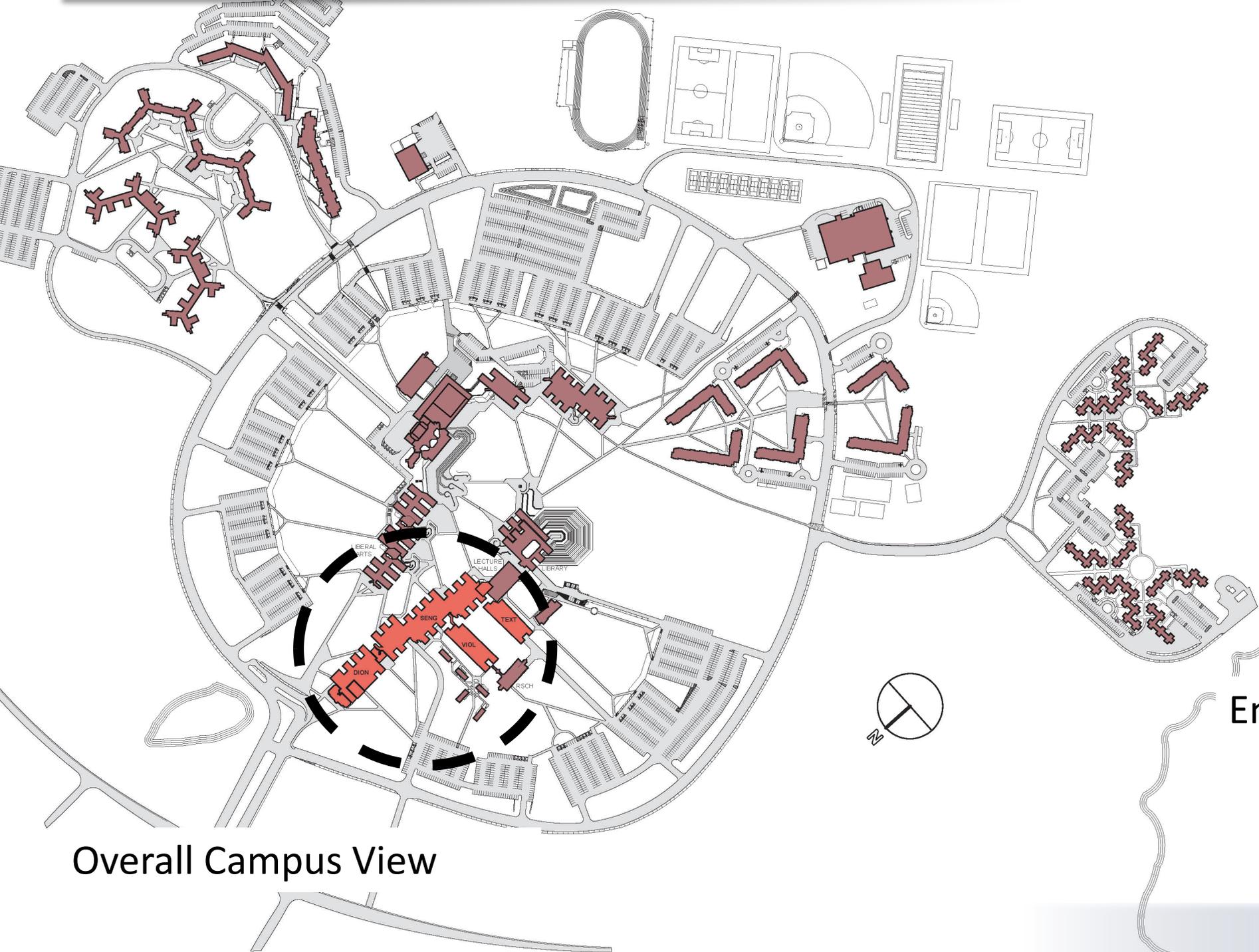
UMass Dartmouth Science and Engineering (SENG) Building Systems Upgrades Project

UMass BRUT Symposium
October 2021

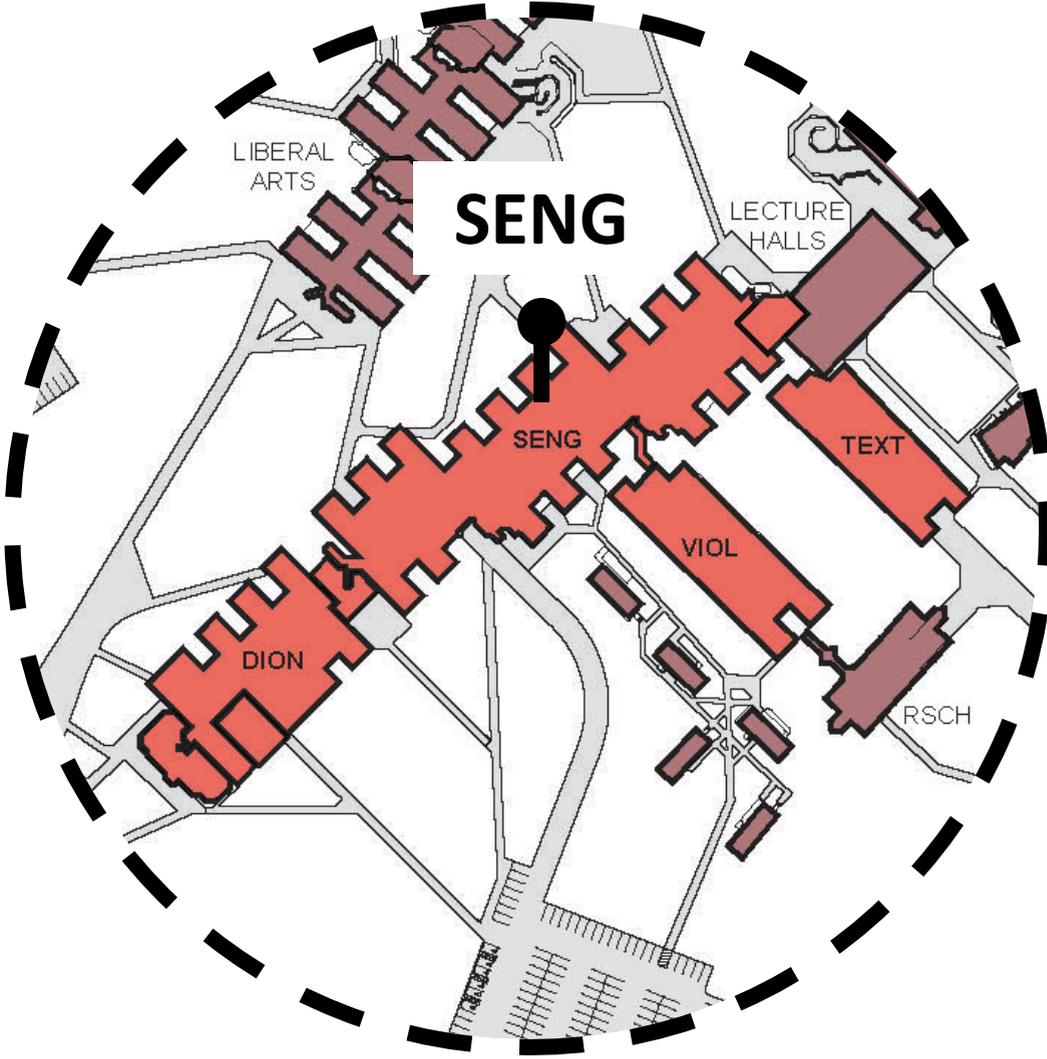


ELLENZWEIG

UMass Dartmouth



Overall Campus View



Enlarged View

UMass Dartmouth Campus

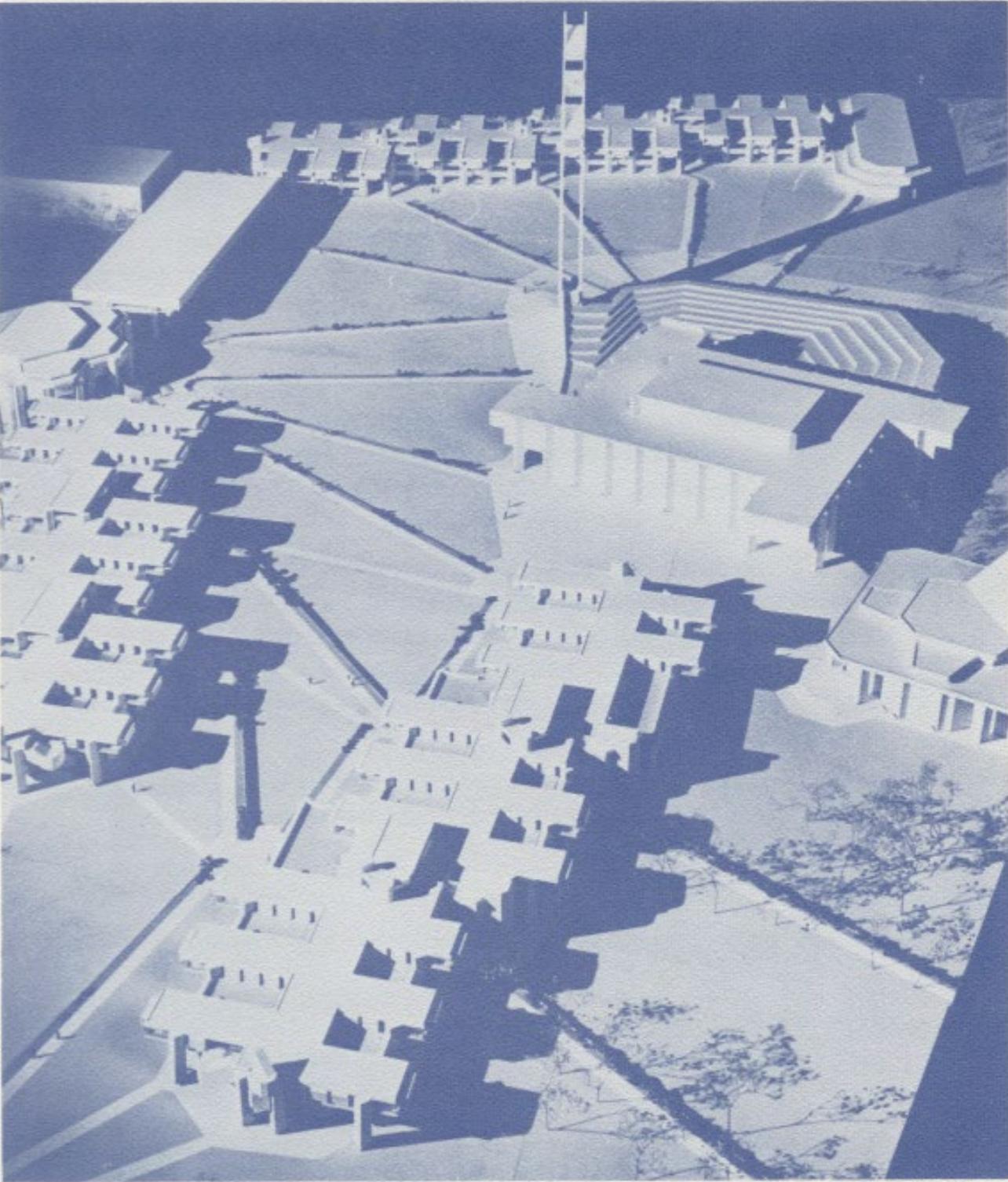
SENG



Aerial View



UMass Dartmouth Campus



Photograph by EZRA STOLLAR ASSOCIATES



Historic Background

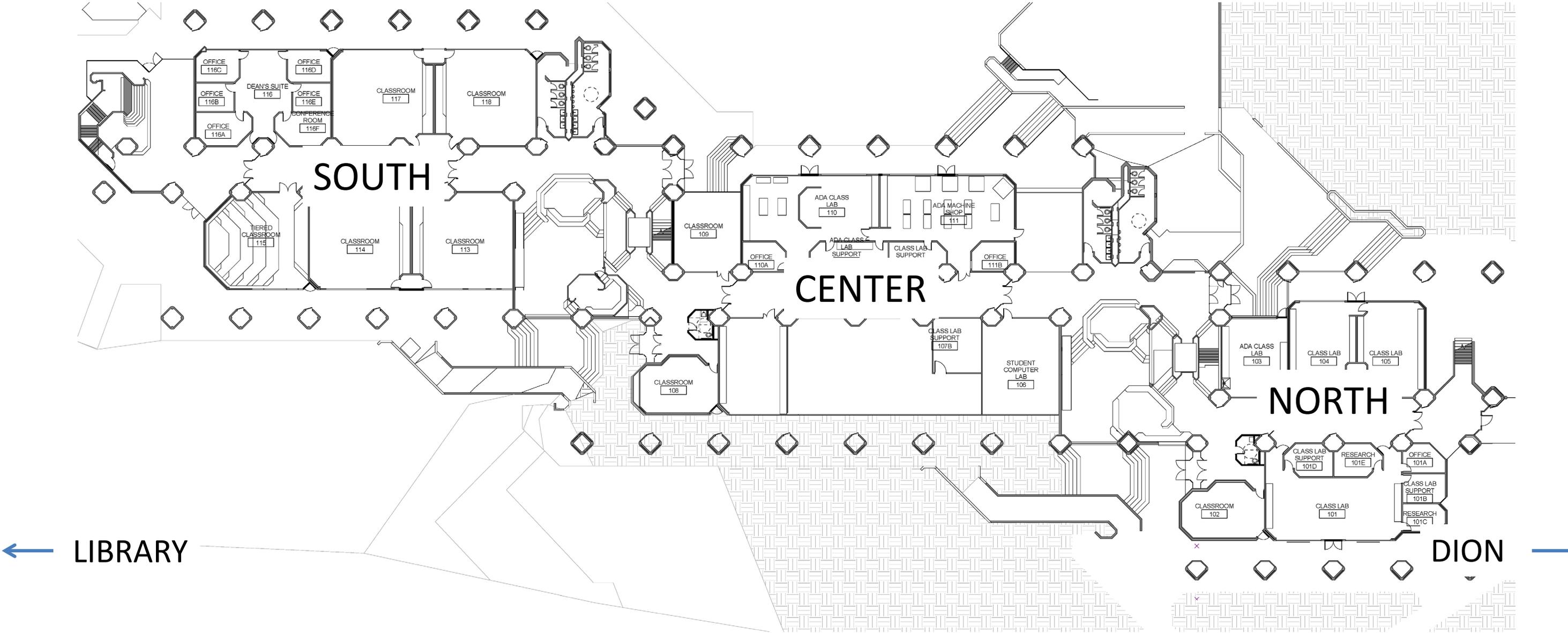
NORTH DARTMOUTH, MASSACHUSETTS

SENG

Building Area

Basement	19,939 SF
First Floor	45,686 SF
Second Floor	58,405 SF
Third Floor	60,589 SF
TOTAL	184,619 SF





First Floor Plan

Exterior



Exterior



Exterior



Concrete / CMU



Stairs



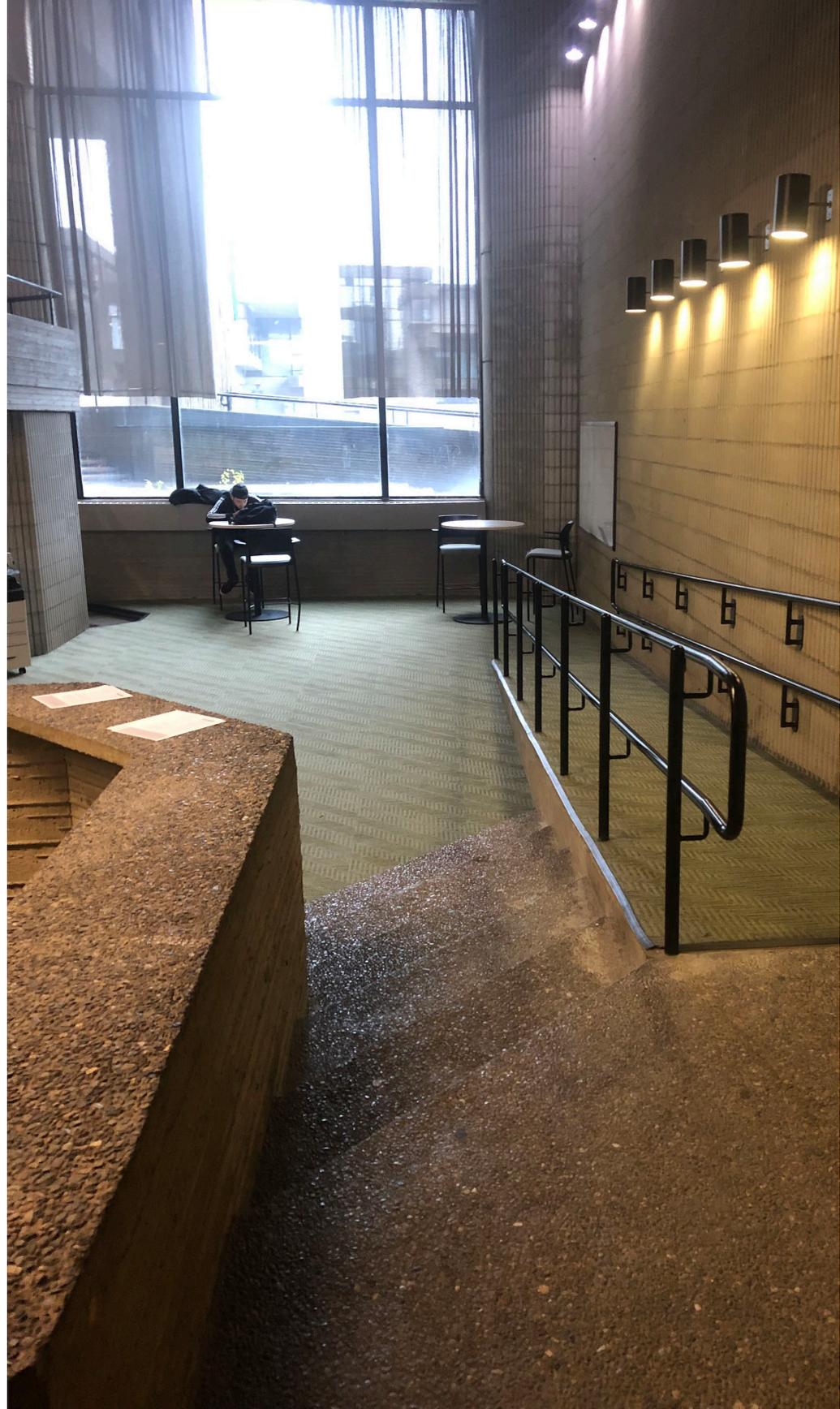
Labs



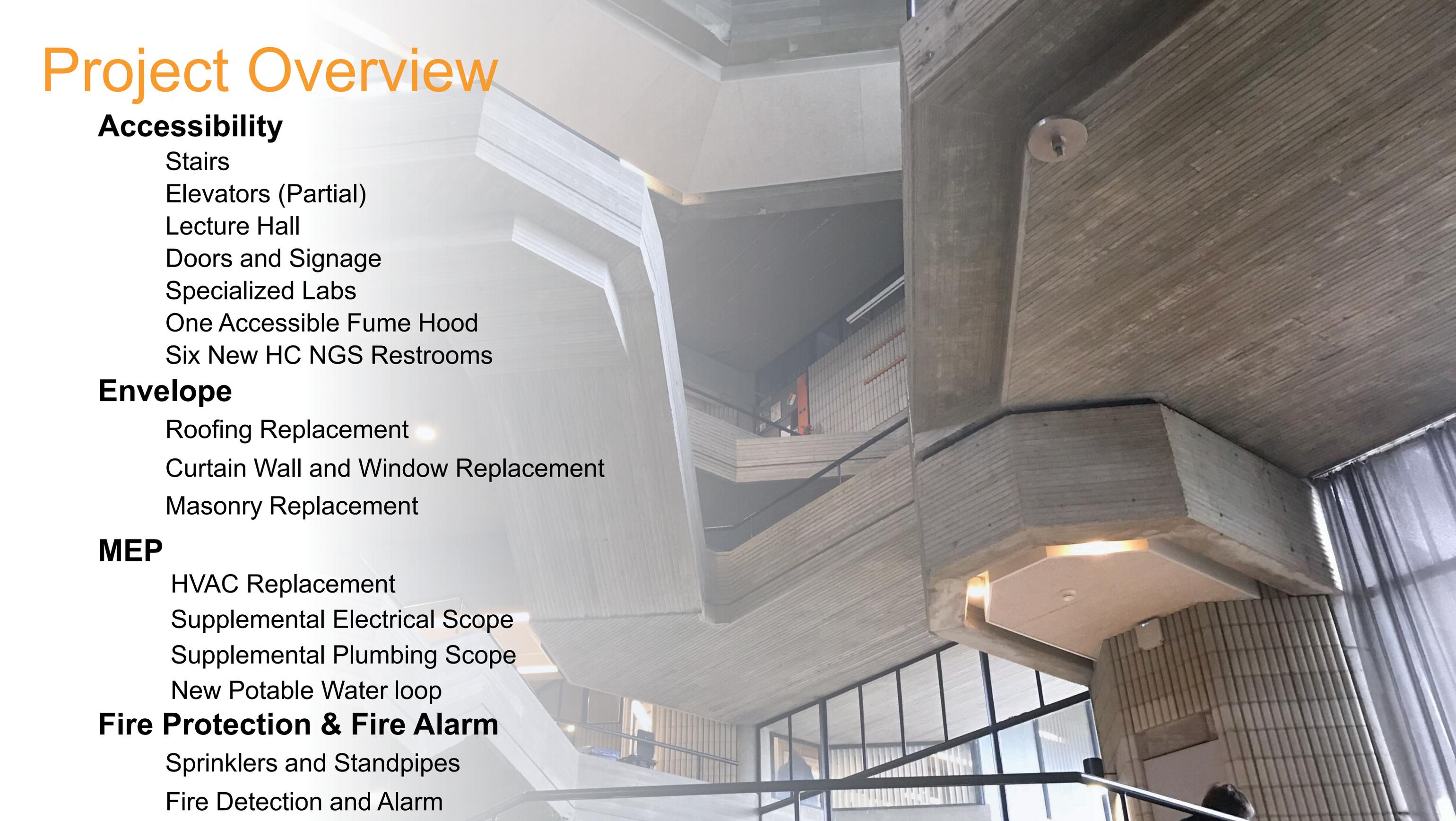
Atrium



Lounge Spaces



Project Overview



Accessibility

- Stairs
- Elevators (Partial)
- Lecture Hall
- Doors and Signage
- Specialized Labs
- One Accessible Fume Hood
- Six New HC NGS Restrooms

Envelope

- Roofing Replacement
- Curtain Wall and Window Replacement
- Masonry Replacement

MEP

- HVAC Replacement
- Supplemental Electrical Scope
- Supplemental Plumbing Scope
- New Potable Water loop

Fire Protection & Fire Alarm

- Sprinklers and Standpipes
- Fire Detection and Alarm

Project Overview



Accessibility

- Stairs
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Fire Protection & Fire Alarm

- Sprinklers and Standpipes
- Fire Detection and Alarm

Project Schedule



- 100% Construction Documents **September 2020**
- Mobilize Construction **Fall 2020**
- Project Completion **Summer 2022**

Window Replacement

Design Phase

- Collaboration
- Unique Details
- Manufacturer Input

Mass. Historic Commission

- Proposal
- Communication
- Review

Construction

- Phase 1 Results
- Project Challenges



Window Replacement

Design Phase

- Collaboration
- Unique Details
- Manufacturer Input

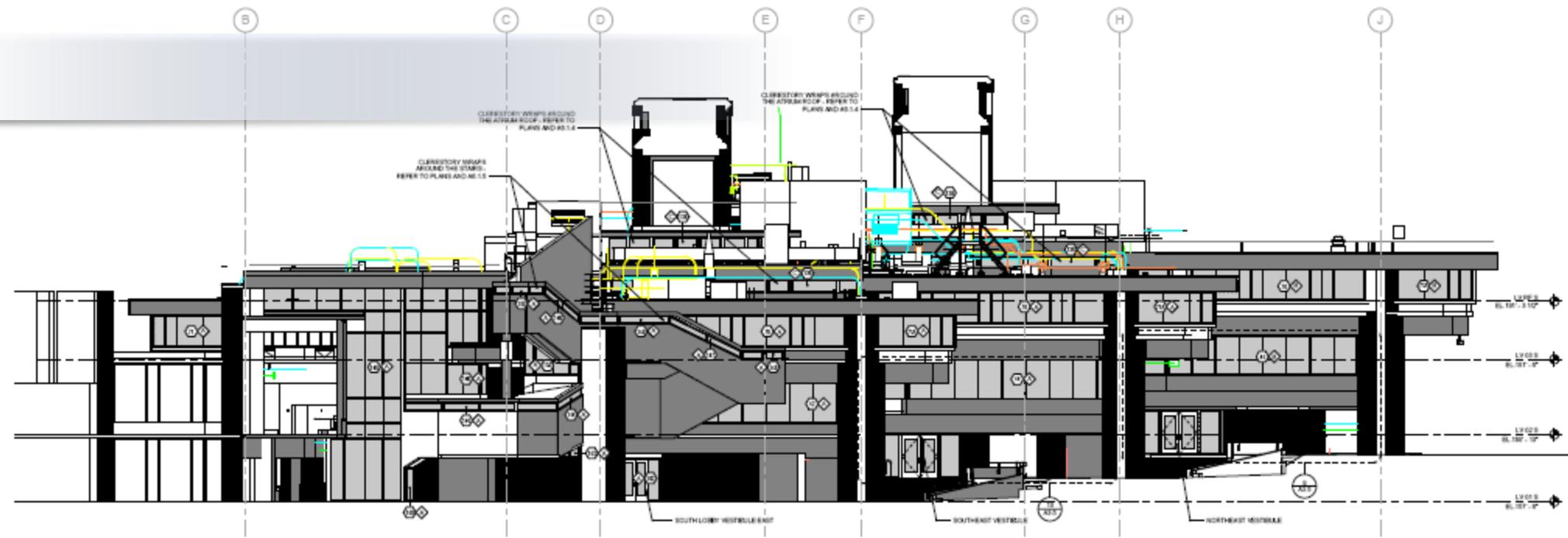
Mass. Historic Commission

- Proposal
- Communication
- Review

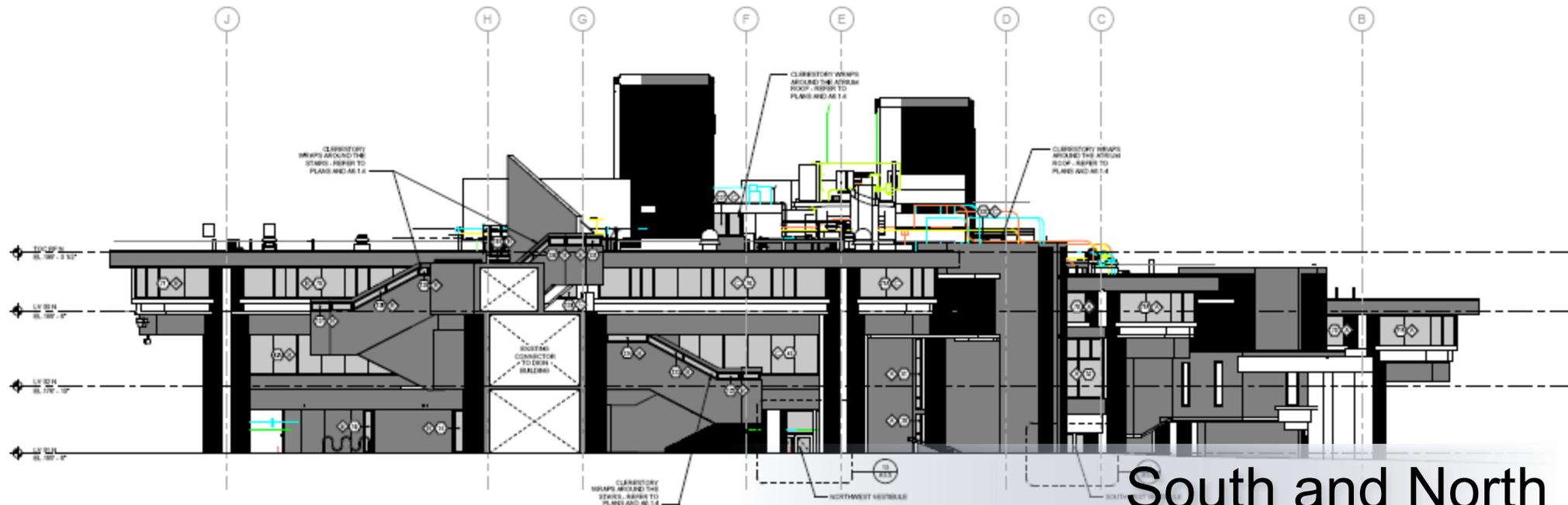
Construction

- Phase 1 Results
- Project Challenges





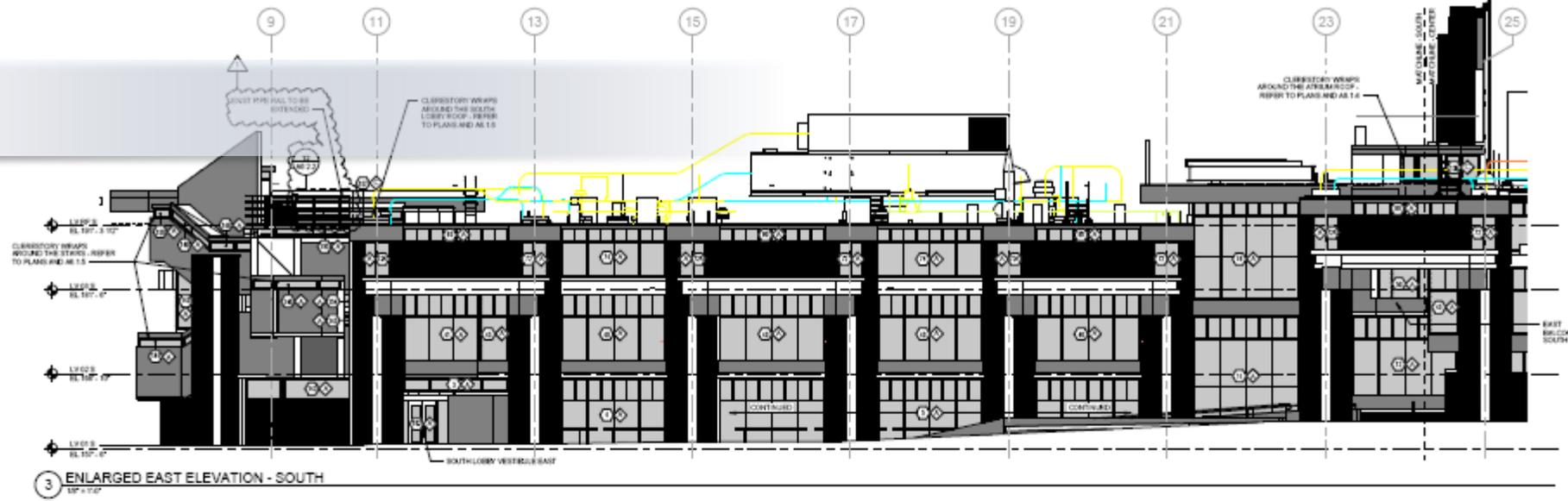
2 ENLARGED SOUTH ELEVATION
1/8" = 1'-0"



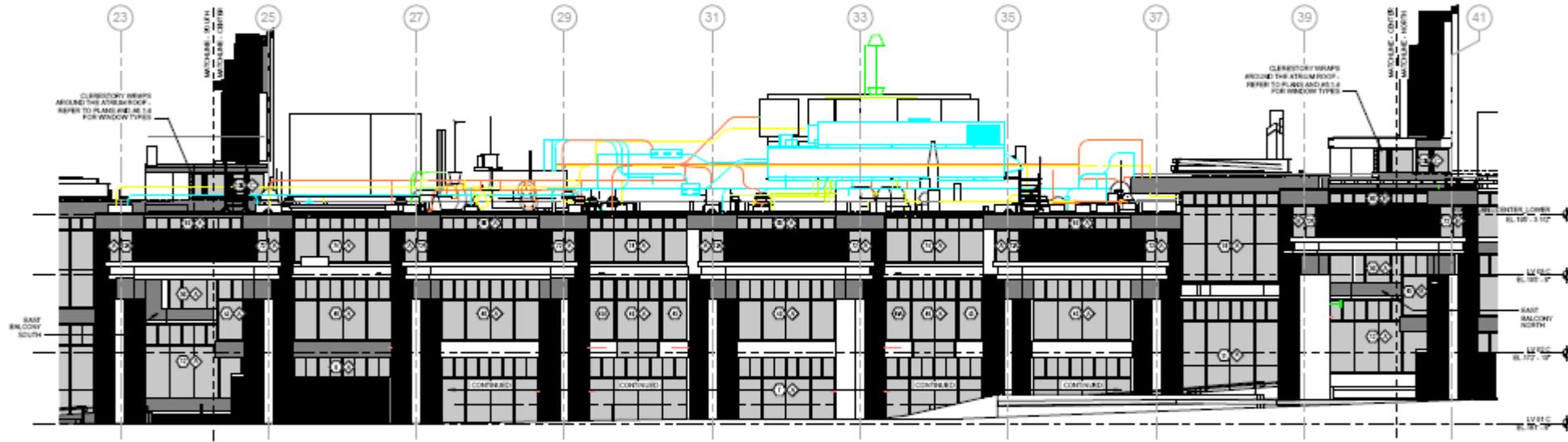
1 ENLARGED NORTH ELEVATION
1/8" = 1'-0"

South and North Elevations

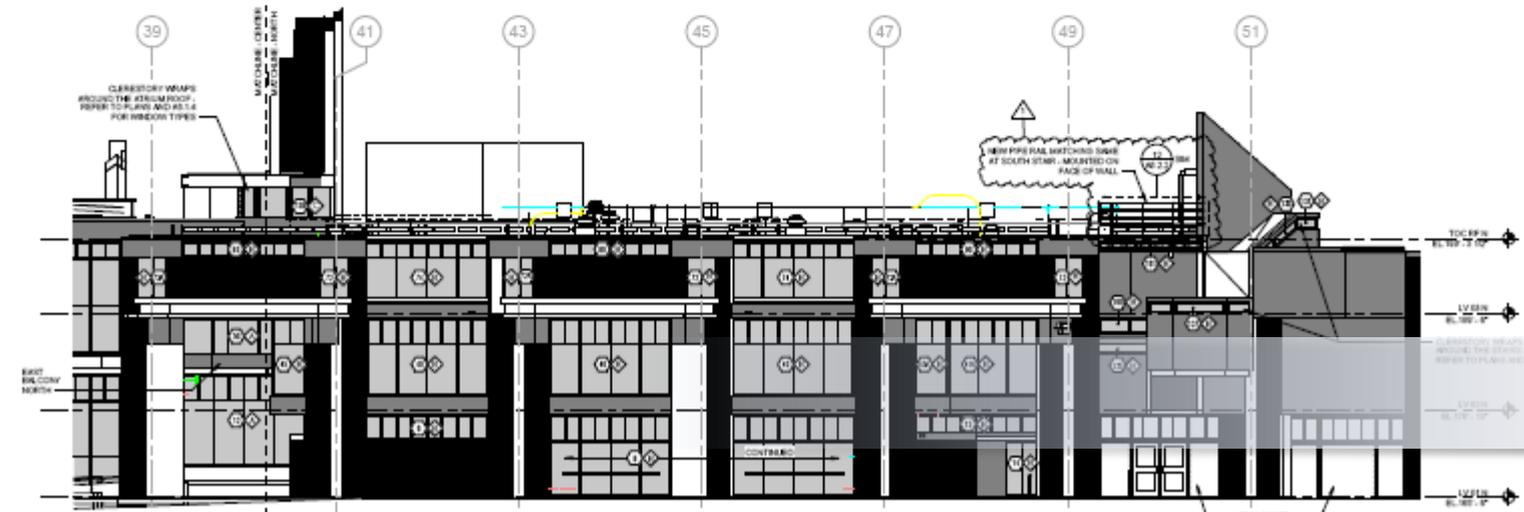


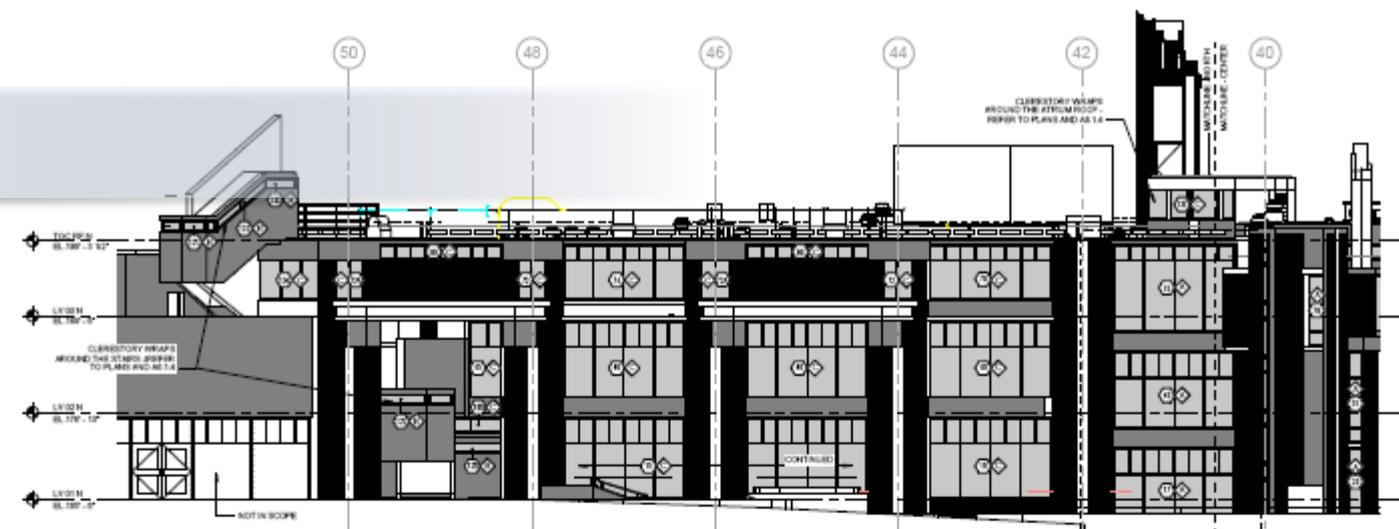


3 ENLARGED EAST ELEVATION - SOUTH
1/8\"/>

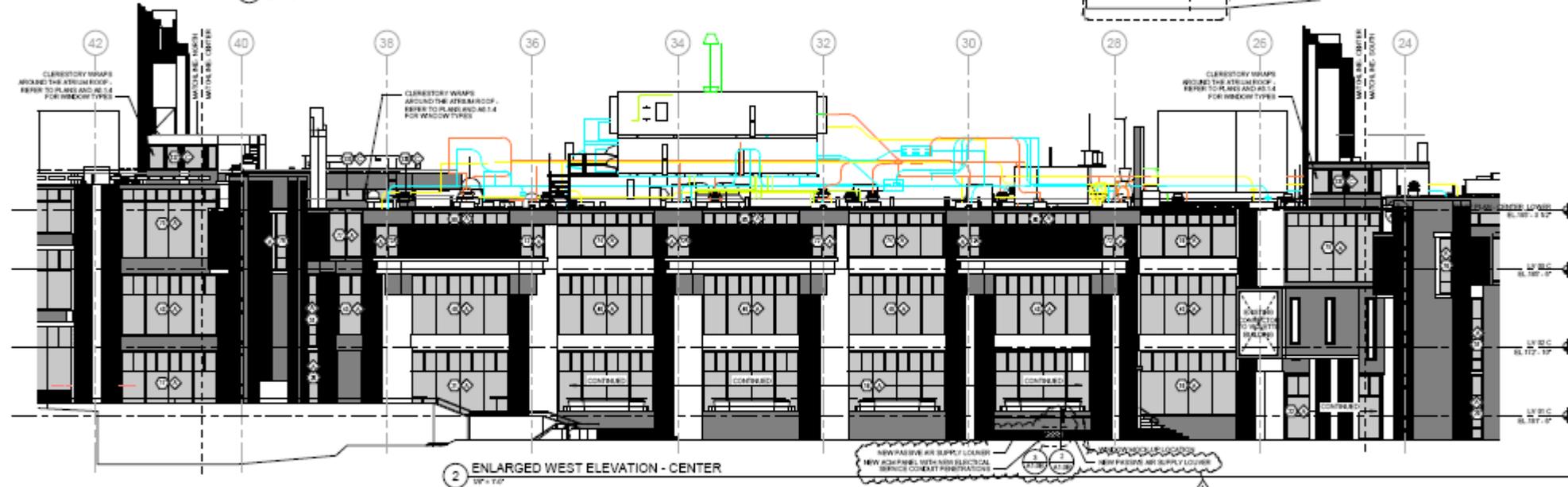


2 ENLARGED EAST ELEVATION - CENTER
1/8\"/>

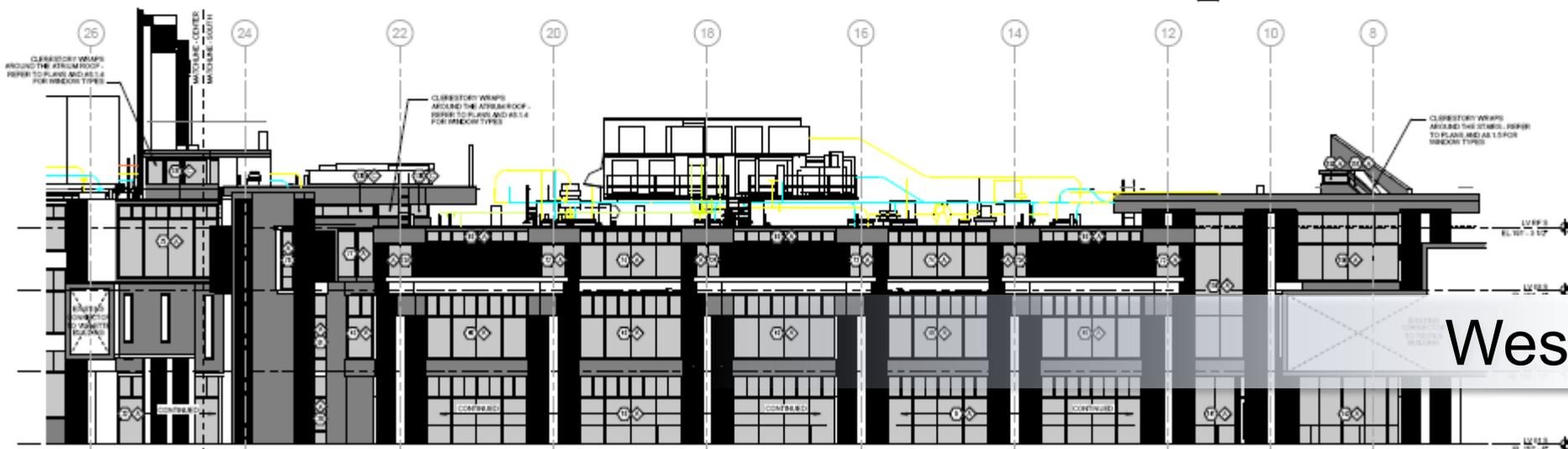




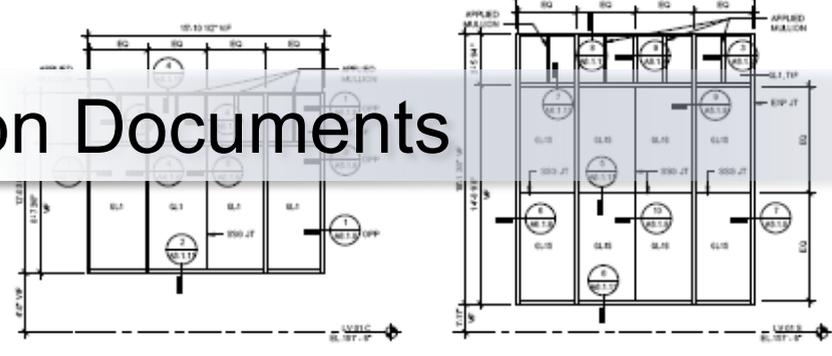
3 ENLARGED WEST ELEVATION - NORTH
WP-107



2 ENLARGED WEST ELEVATION - CENTER
WP-107

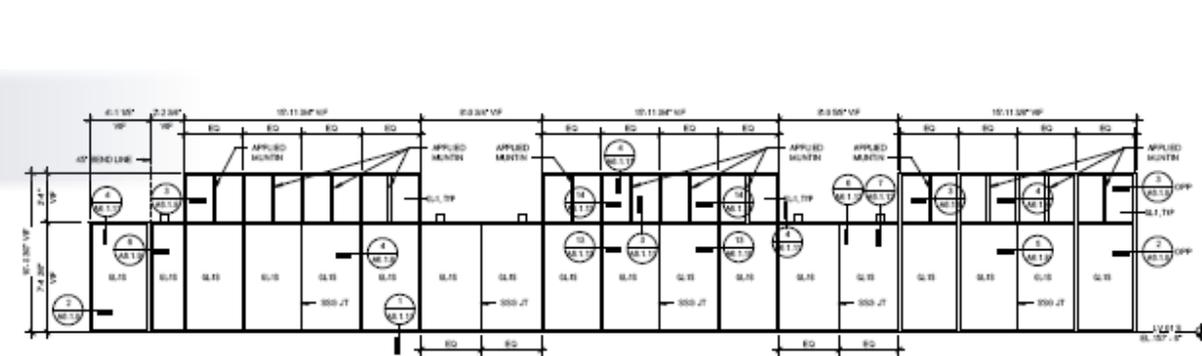


Construction Documents



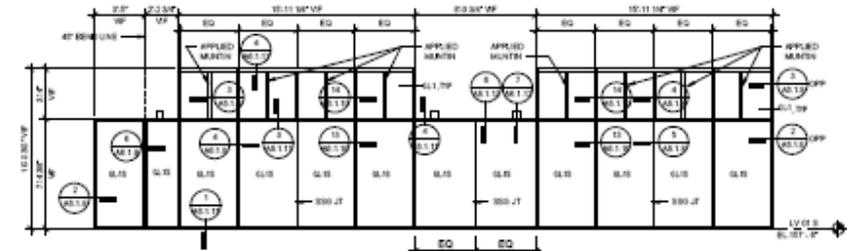
TYPE 12 2' x 1.10' CW
WEST ELEV SOUTH & CENTER, SOUTH LOBBY & NORTH LOBBY
180.53 SF EA. QTY: (2) BASE BD

TYPE 11 2' x 1.10' CW
EAST ELEV SOUTH & CENTER, SOUTH ATRIUM & NORTH ATRIUM
281.15 SF EA. QTY: (2) BASE BD

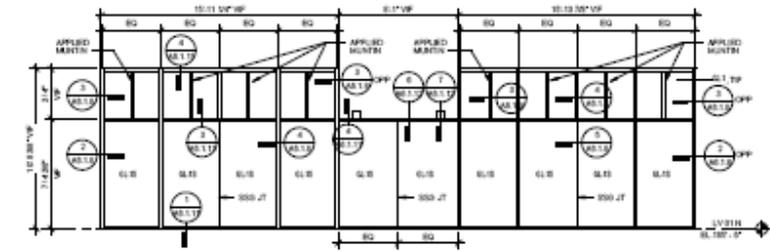


TYPE 10 2' x 1.10' CW
WEST ELEV SOUTH, CLASSROOMS 103 & 110
823.36 SF. QTY: (1) BASE BD

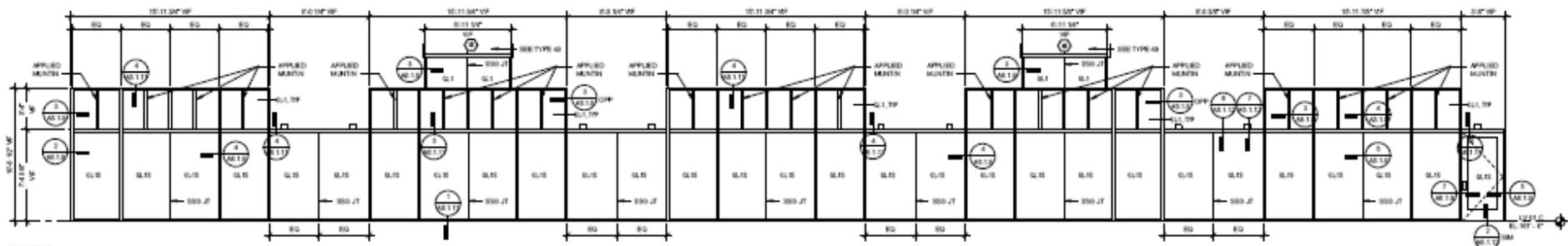
TYPE 8 2' x 1.10' CW
EAST ELEV NORTH, CLASS LAB 101
486.2 SF. QTY: (2) ALU



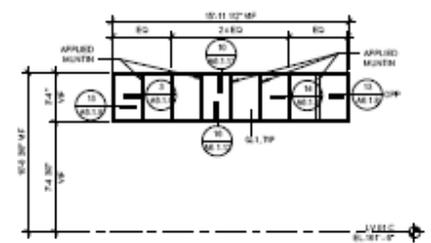
TYPE 9 2' x 1.10' CW
WEST ELEV SOUTH, DEBVS SUITE 110
463.51 SF. QTY: (1) BASE BD



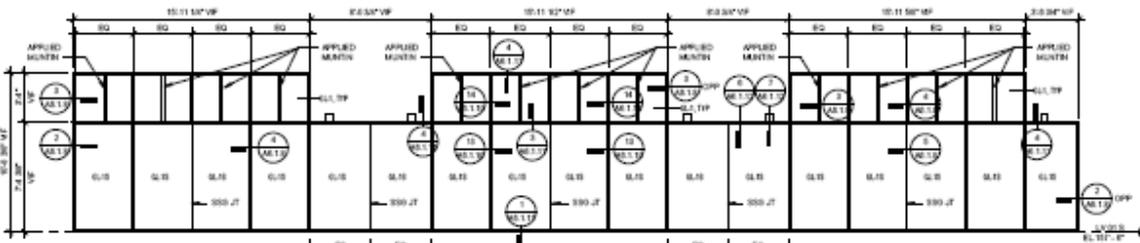
TYPE 8 2' x 1.10' CW
EAST ELEV NORTH, CLASS LAB 101
486.2 SF. QTY: (2) ALU



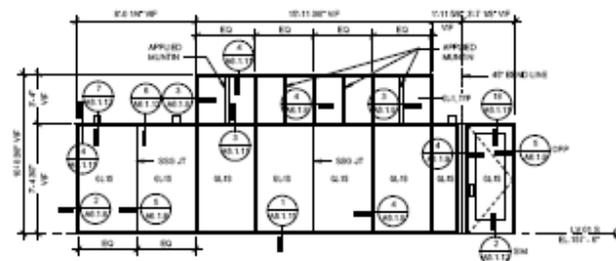
TYPE 7 2' x 1.10' CW
EAST ELEV CENTER, STUDENT COMPUTER LAB 106 & CLASS LAB 107
1152.62 SF. QTY: (2) BASE BD



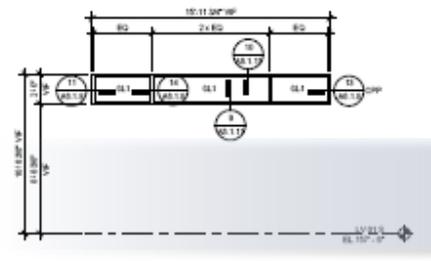
TYPE 6 2' x 1.10' CW
EAST ELEV SOUTH & CENTER, CLASSROOMS 102 & 108
52.19 SF EA. QTY: (1) BASE BD, (2) ALU



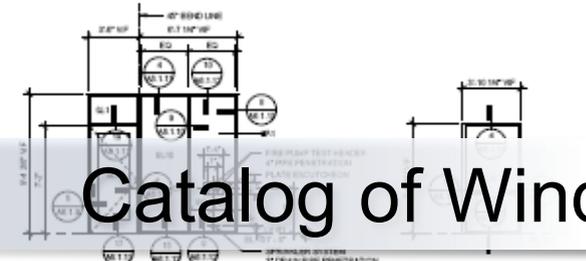
TYPE 5 2' x 1.10' CW
EAST ELEV SOUTH, CLASSROOMS 114 & 115
827.08 SF. QTY: (1) BASE BD



TYPE 4 2' x 1.10' CW
EAST ELEV SOUTH, TIERED CLASSROOMS 105
263.8 SF. QTY: (1) BASE BD



TYPE 3 2' x 1.10' CW
EAST ELEV SOUTH, ADJACENT SOUTH LOBBY & ENTRANCE
31.96 SF. QTY: (1) BASE BD



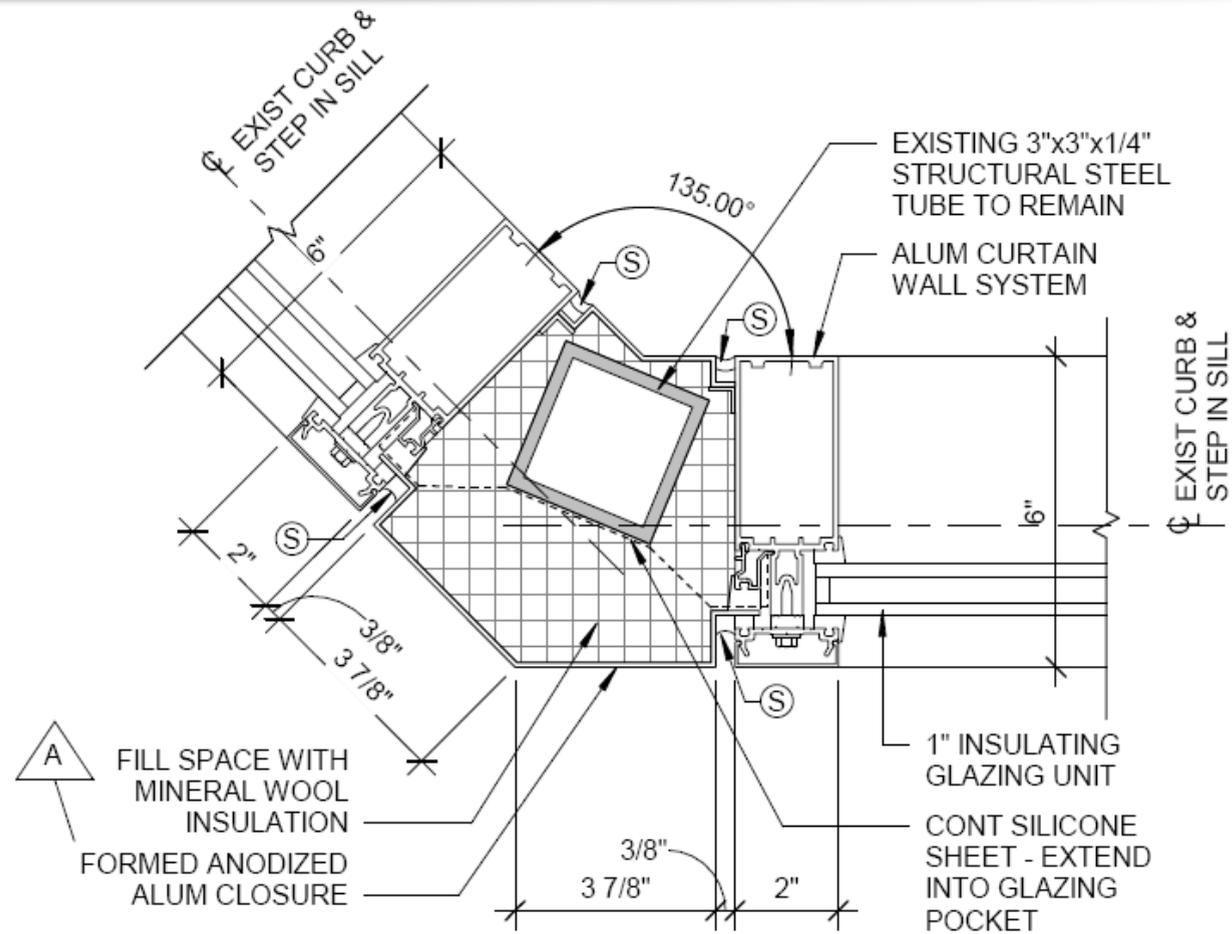
TYPE 2 2' x 1.10' CW
FIRE PUMP ROOM 020
65.58 SF. QTY: (1) BASE BD

TYPE 1 2' x 1.10' CW
LOADING DOCK
23.54 SF. QTY: (1) BASE BD

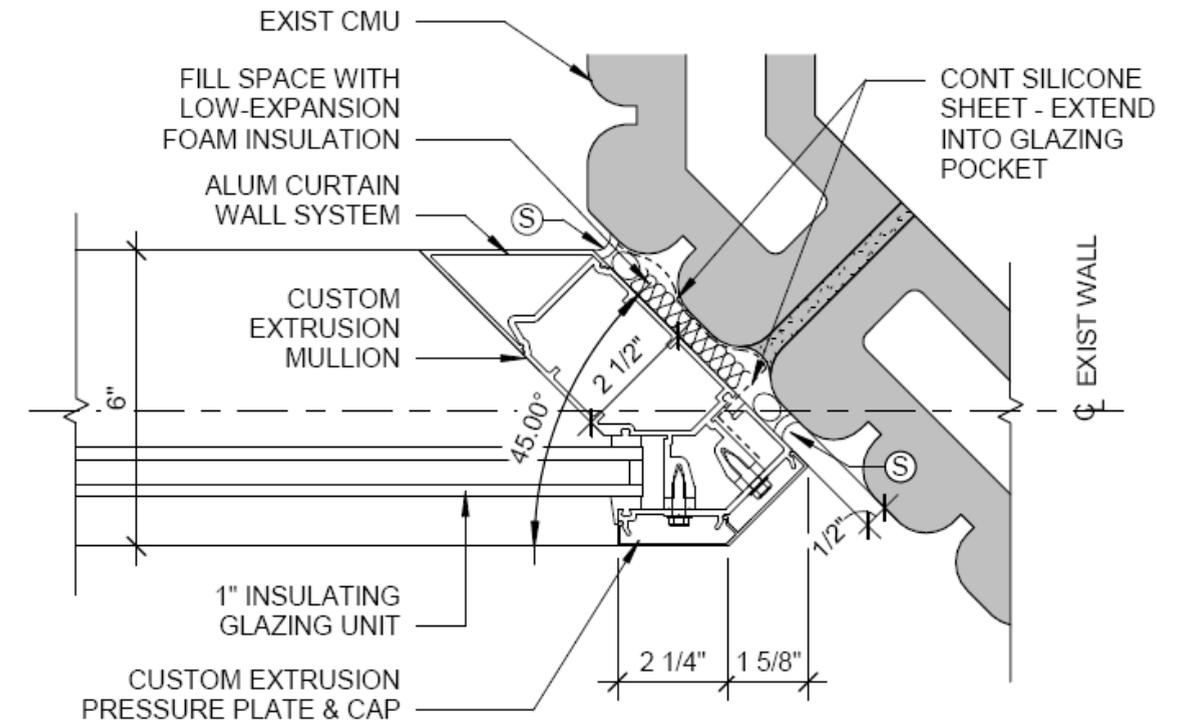
Catalog of Window Types



Construction Documents



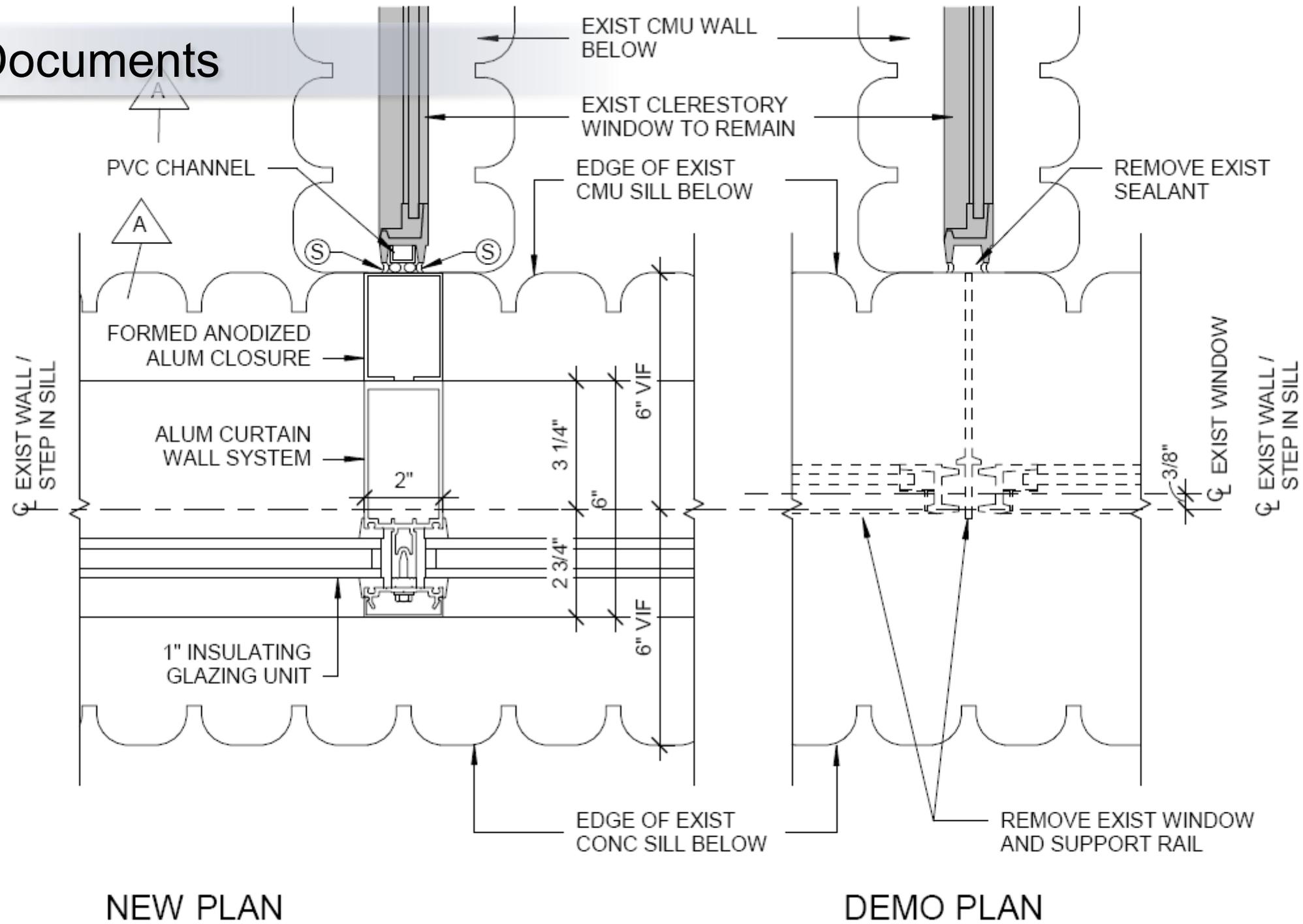
17 JAMB AT EXIST STL TUBE AT CLERESTORY
3" = 1'-0"



19 JAMB AT TYP 3RD FLOOR OFFICE @ 45° CMU
3" = 1'-0"



Construction Documents



3" = 1'-0"



Window Replacement

Design Phase

- Collaboration
- Unique Details
- Manufacturer Input

Mass. Historic Commission

- Proposal
 - Coastal Location Wind Loads (150 mph)
 - Minimal Sight Lines
 - Comparison to Original Windows
- Communication Process
- Review and Approval

Construction

- Phase 1 Results
- Project Challenges



Mass Historic Commission



Note: New mullion pattern (right) reflects original design intent.



Mass Historic Commission



TYPE 1
TEACHING LAB



TYPE 2
ATRIUM LOBBY



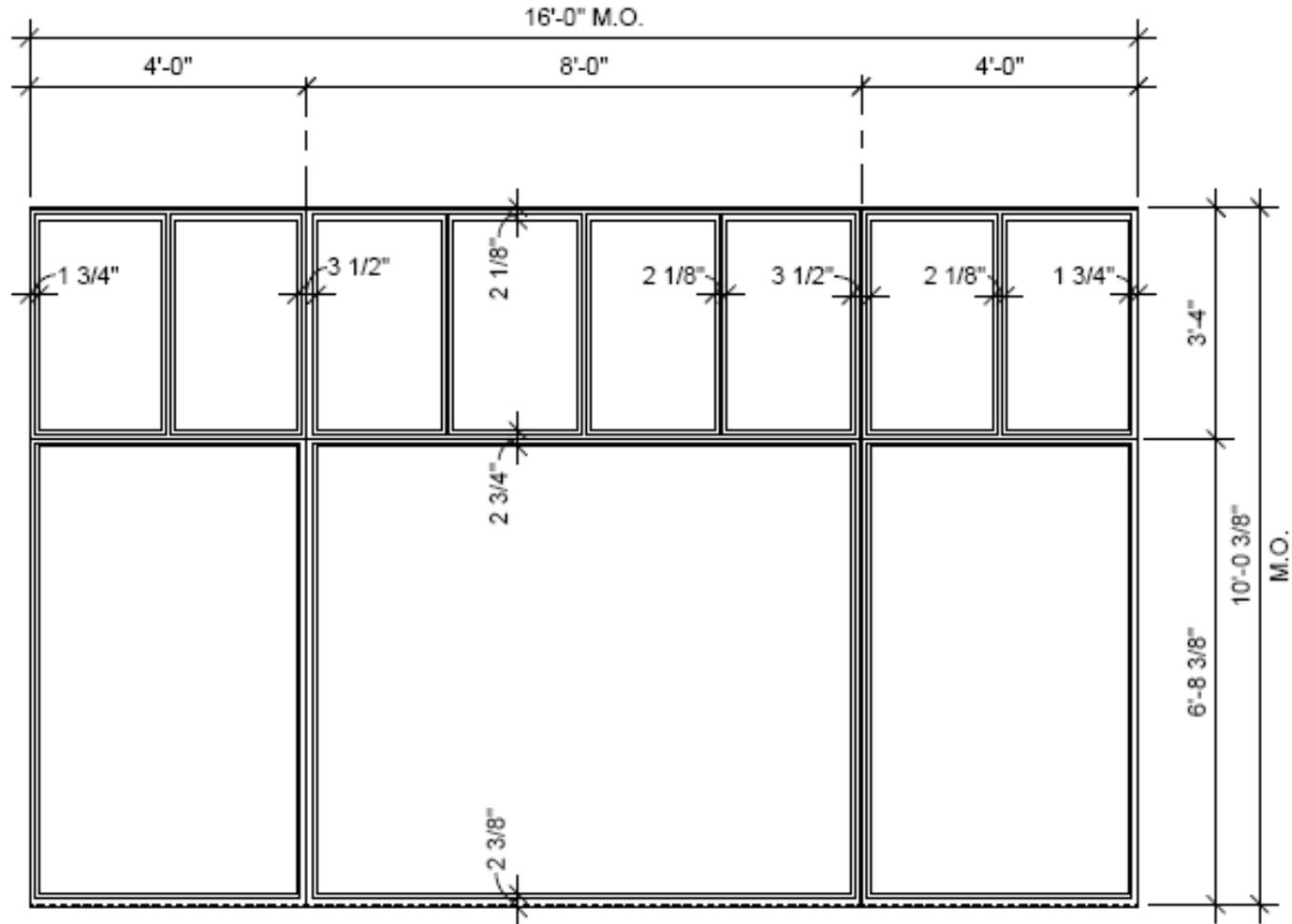
TYPE 3
OFFICE



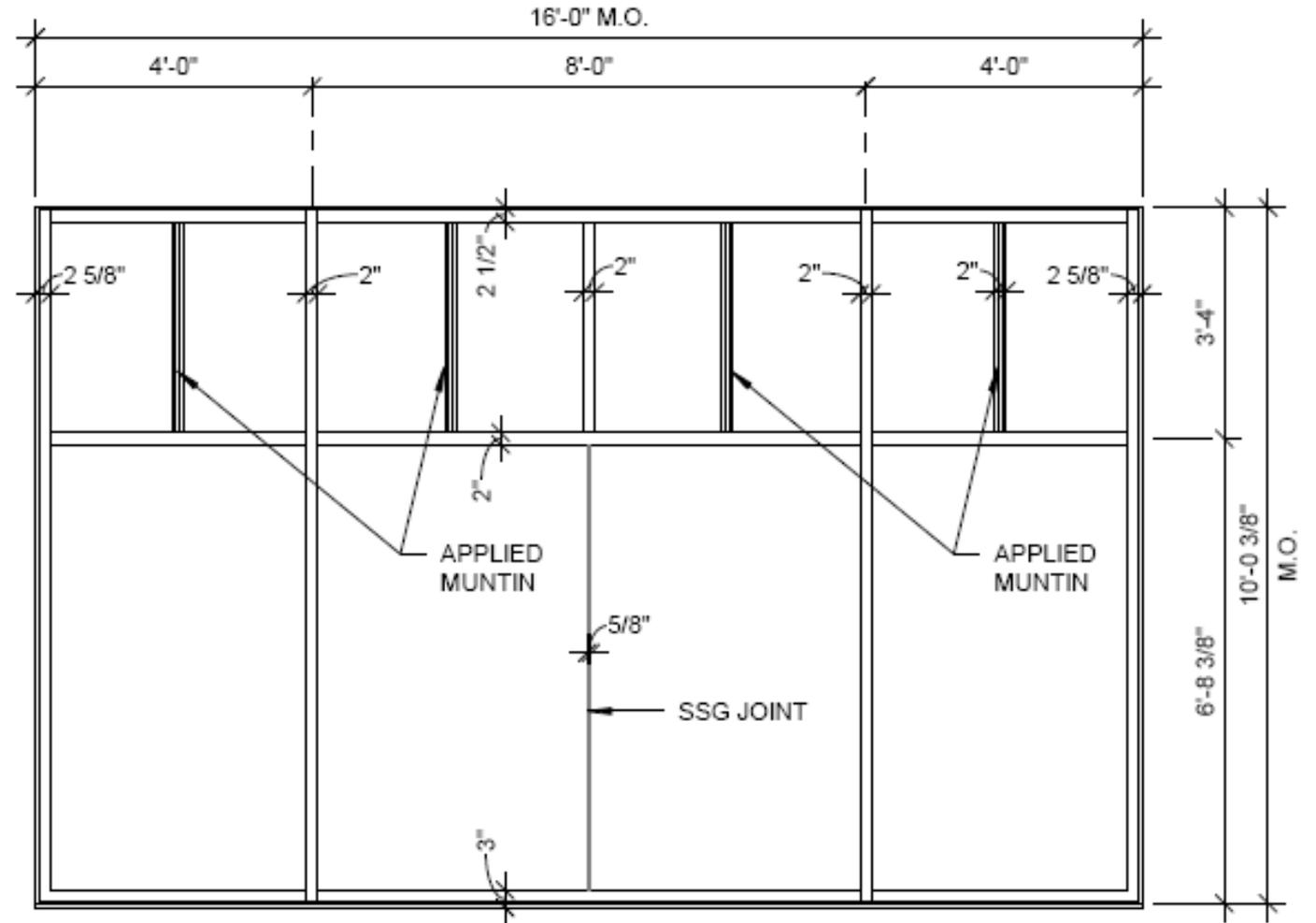
TYPE 4
STAIR



Mass Historic Commission



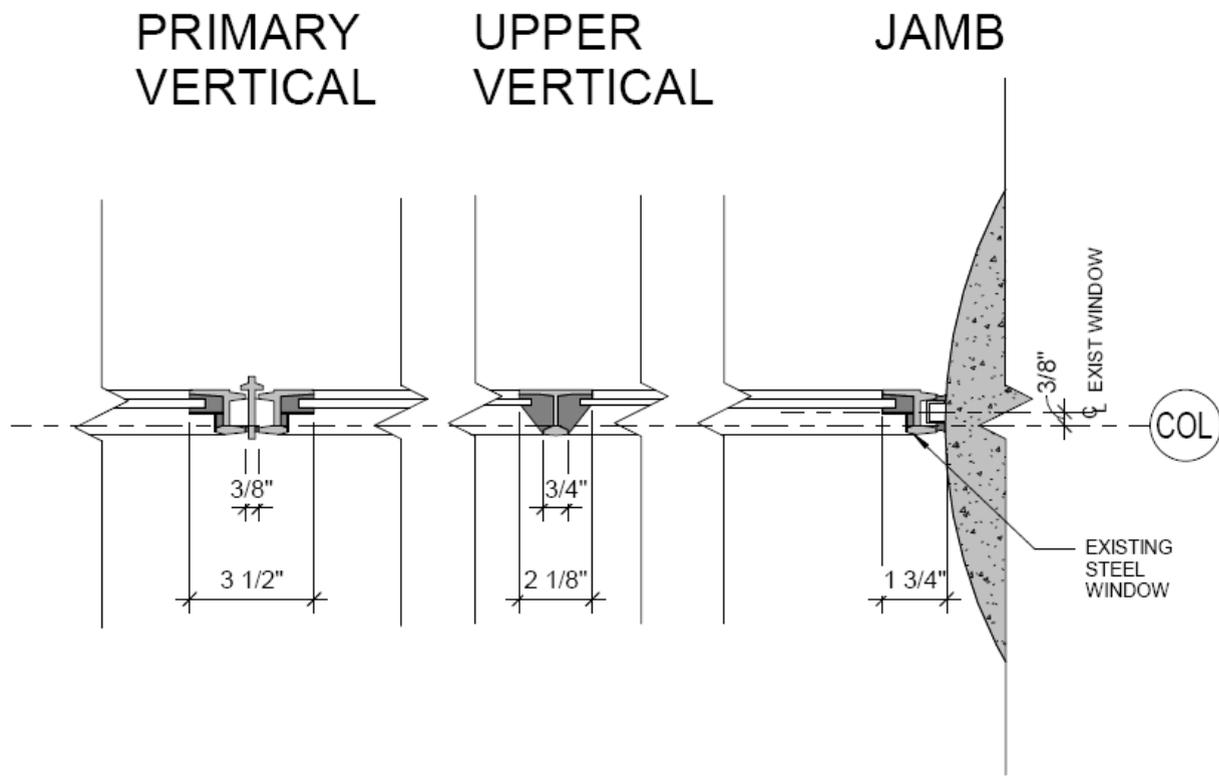
EXISTING WINDOW:
TEACHING LAB



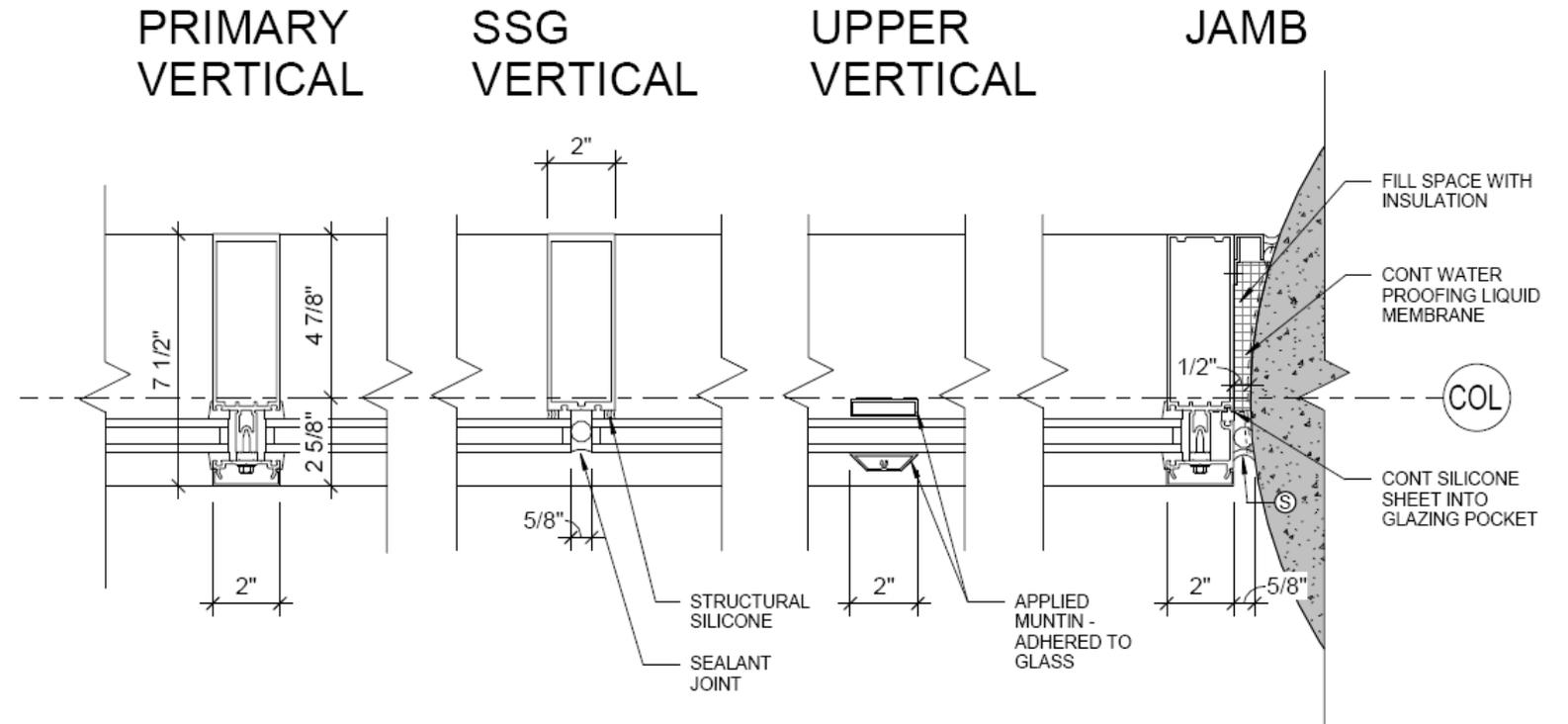
PROPOSED WINDOW:
TEACHING LAB
B.O.D.: Kawneer 1620 & 1620SSG System



Mass Historic Commission

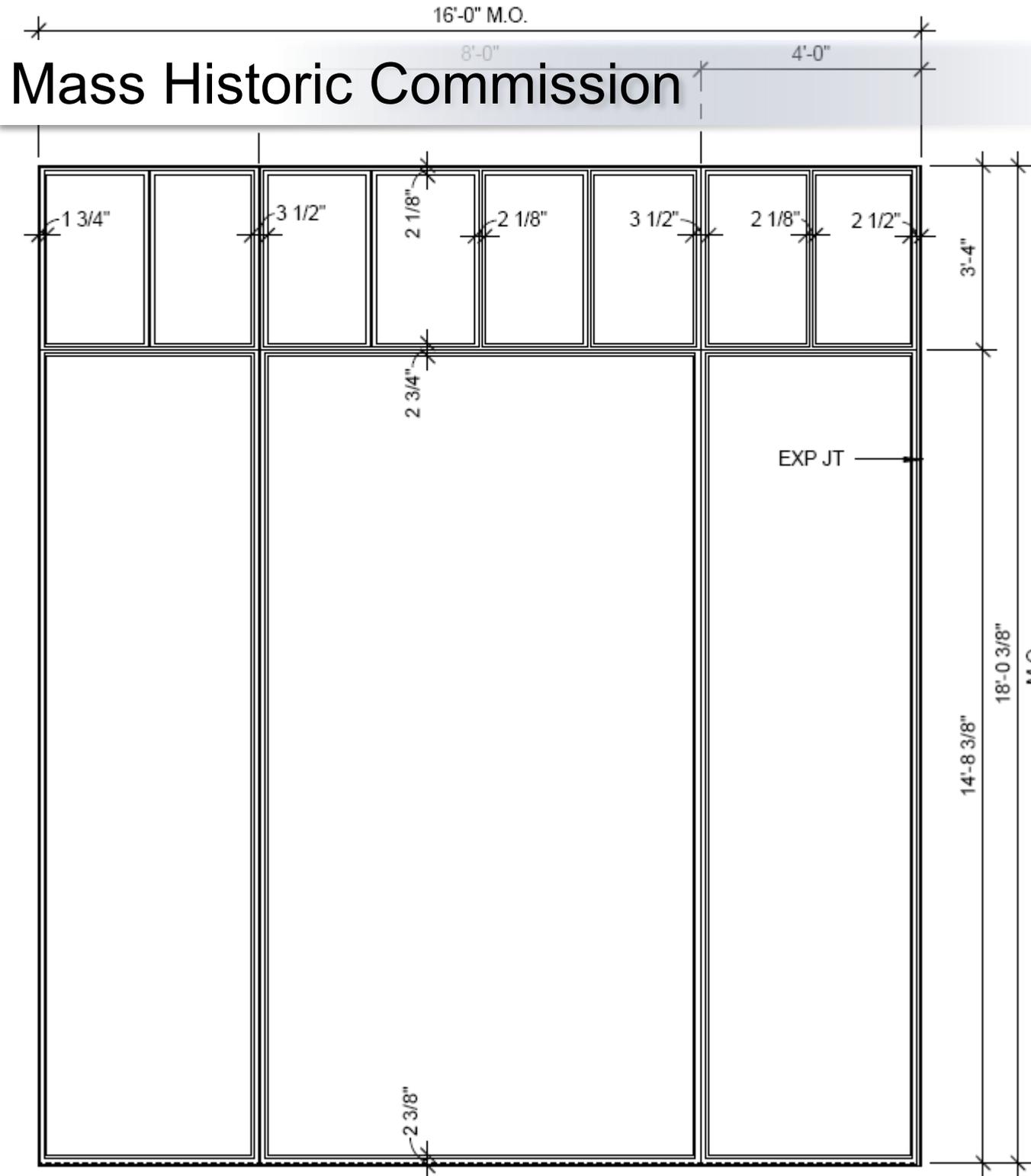


EXISTING WINDOW:
TEACHING LAB

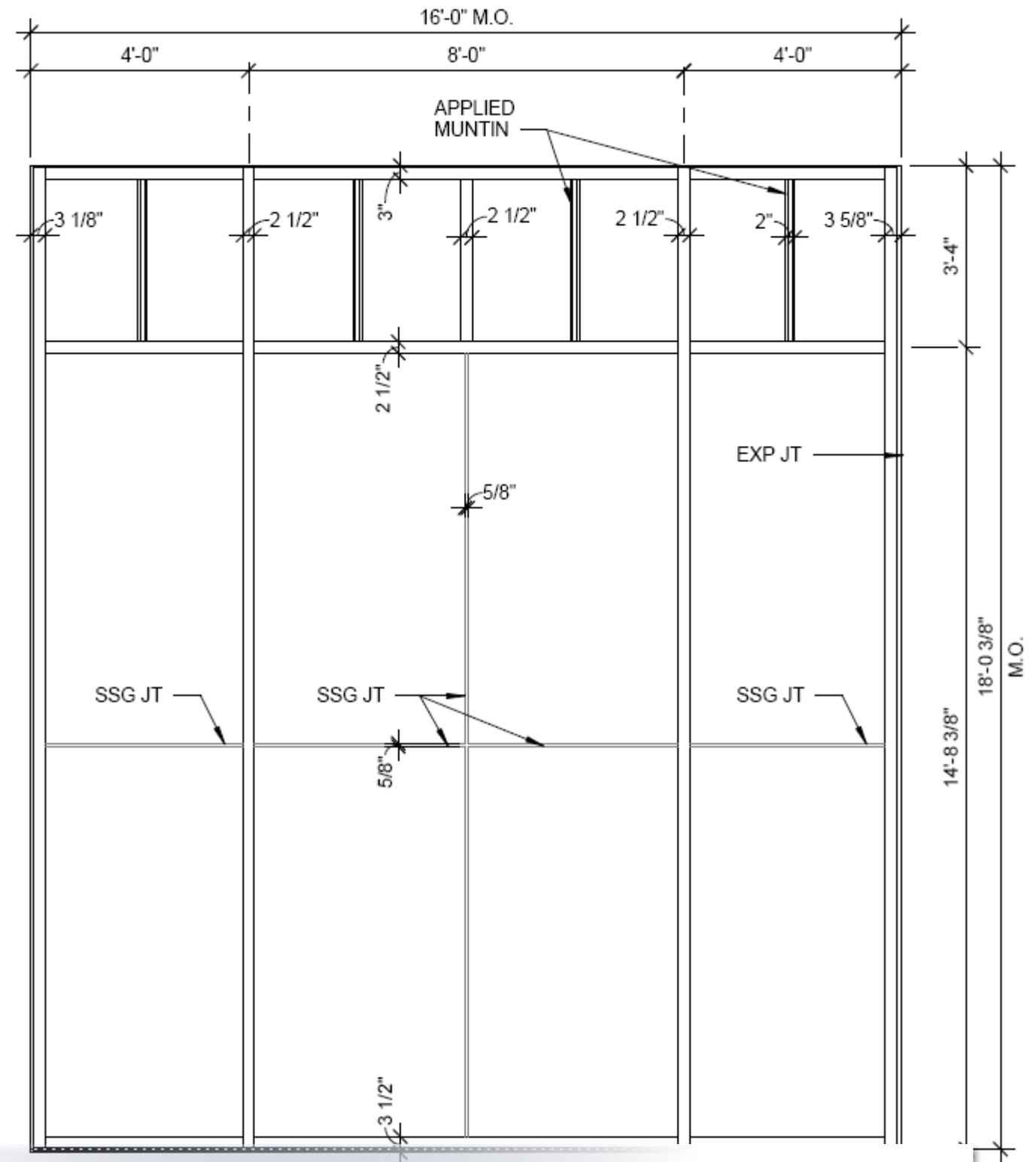


PROPOSED WINDOW:
TEACHING LAB
B.O.D.: Kawneer 1620 & 1620SSG System





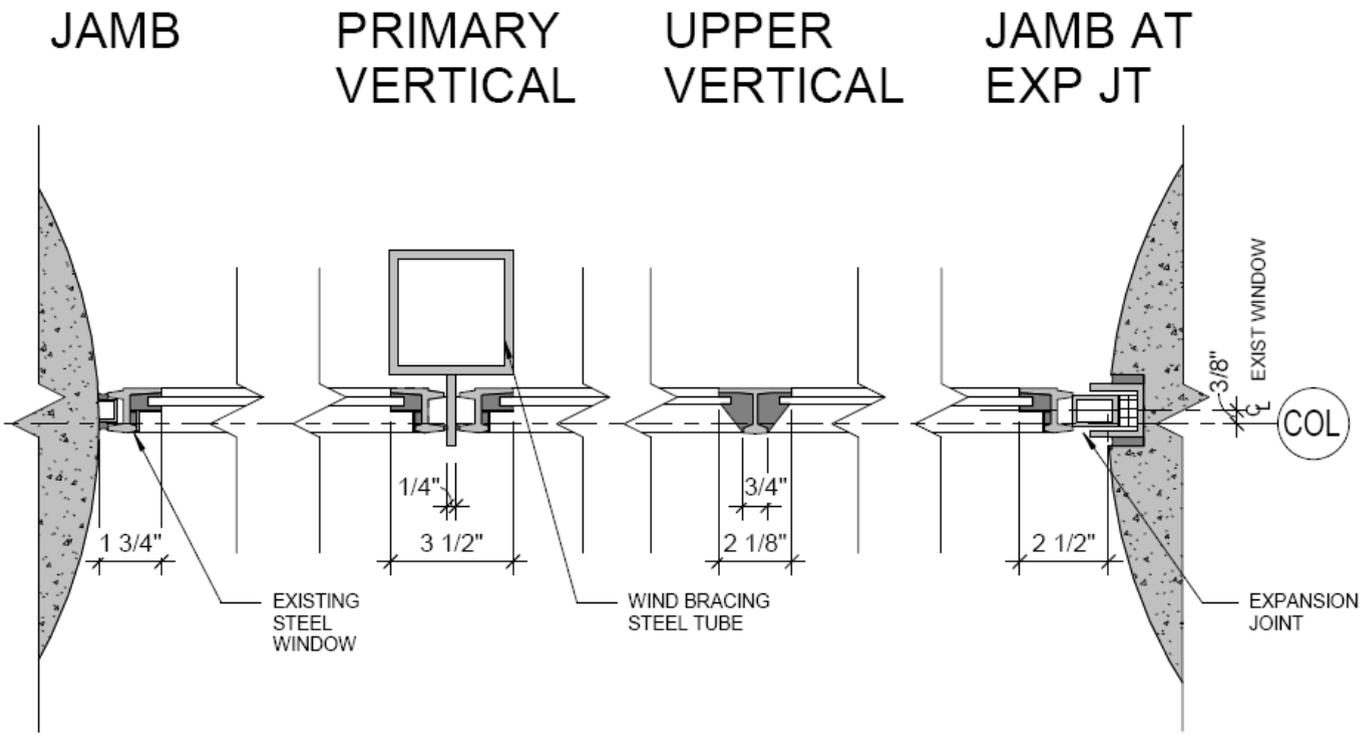
EXISTING WINDOW:
LOBBY



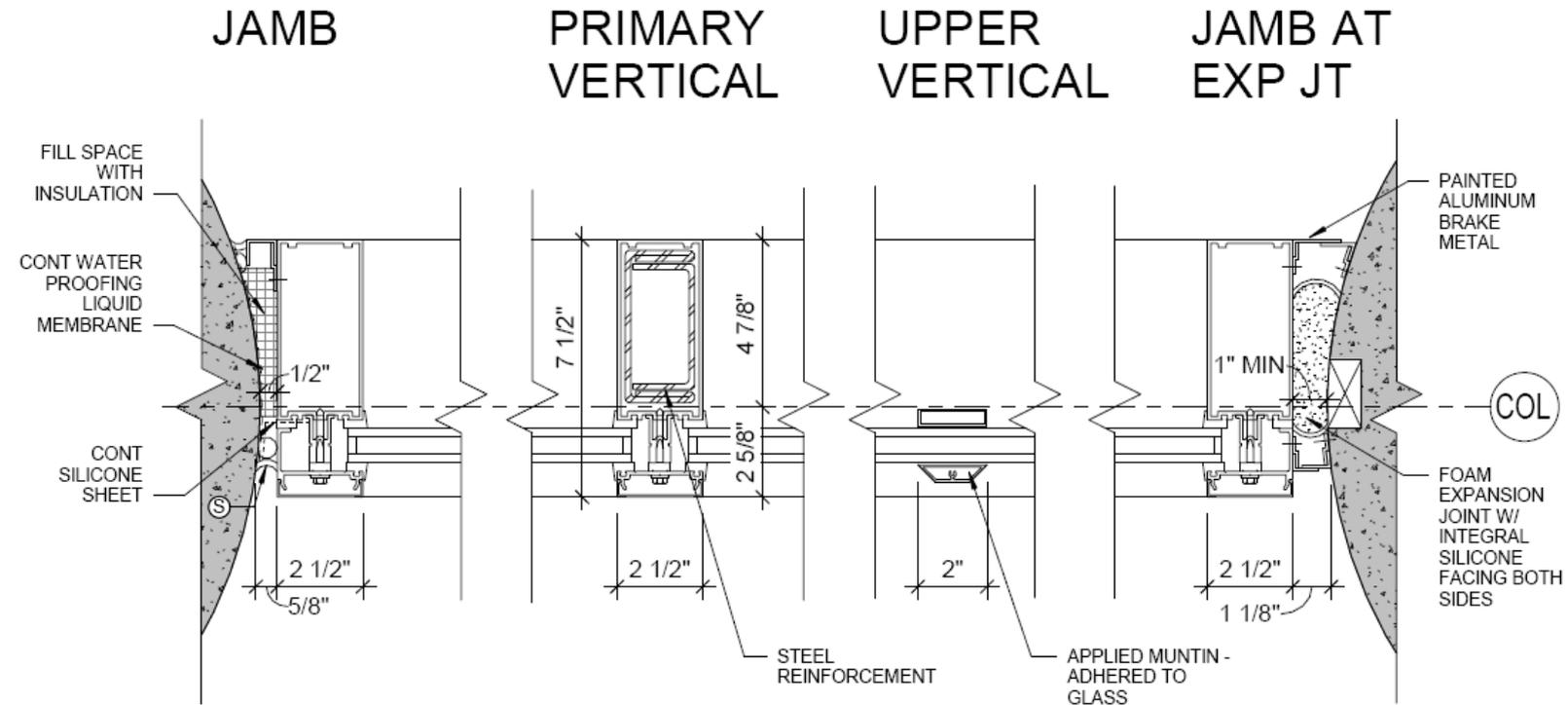
PROPOSED WINDOW:
LOBBY
B.O.D.: Kawneer 1600 System2

Project Notification Form

Mass Historic Commission



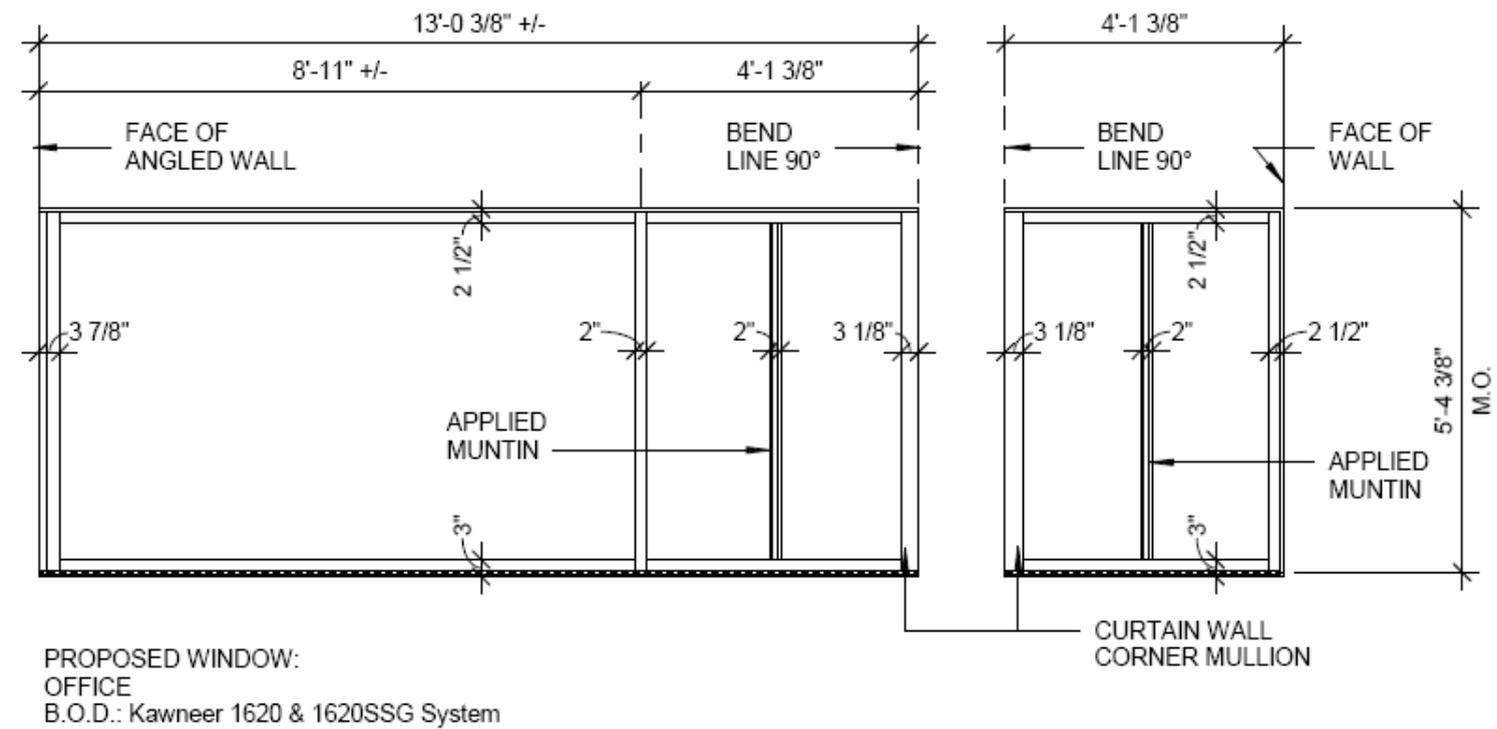
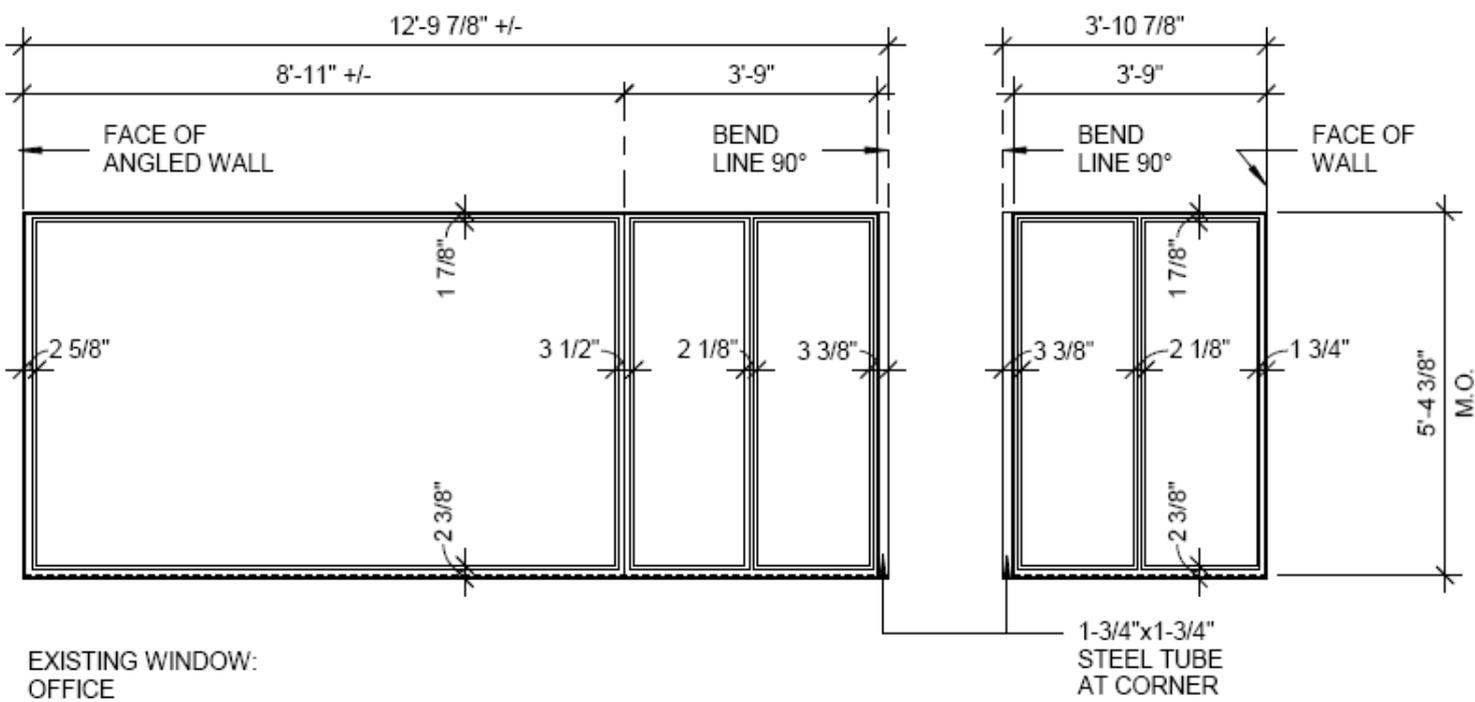
EXISTING WINDOW:
LOBBY



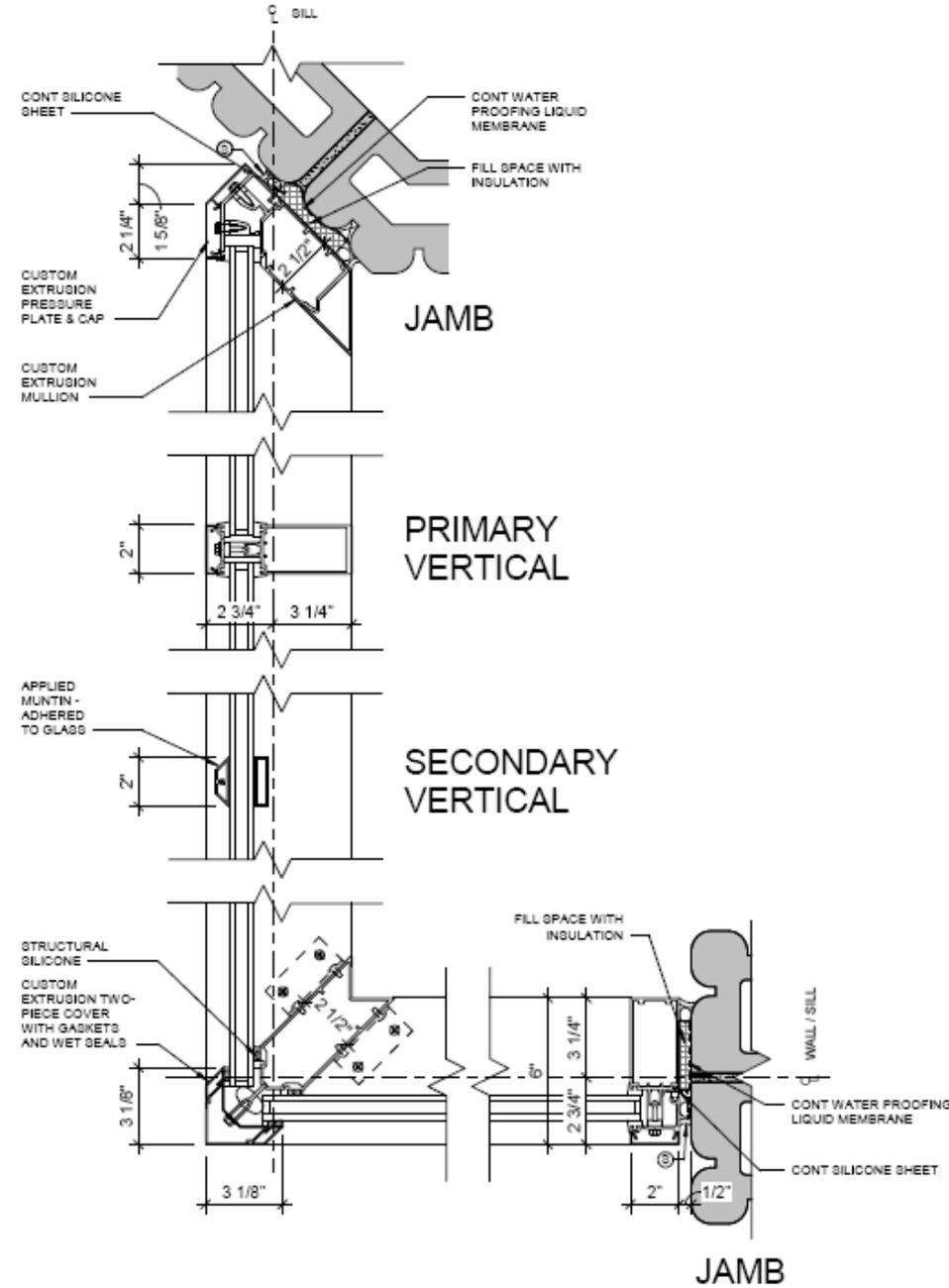
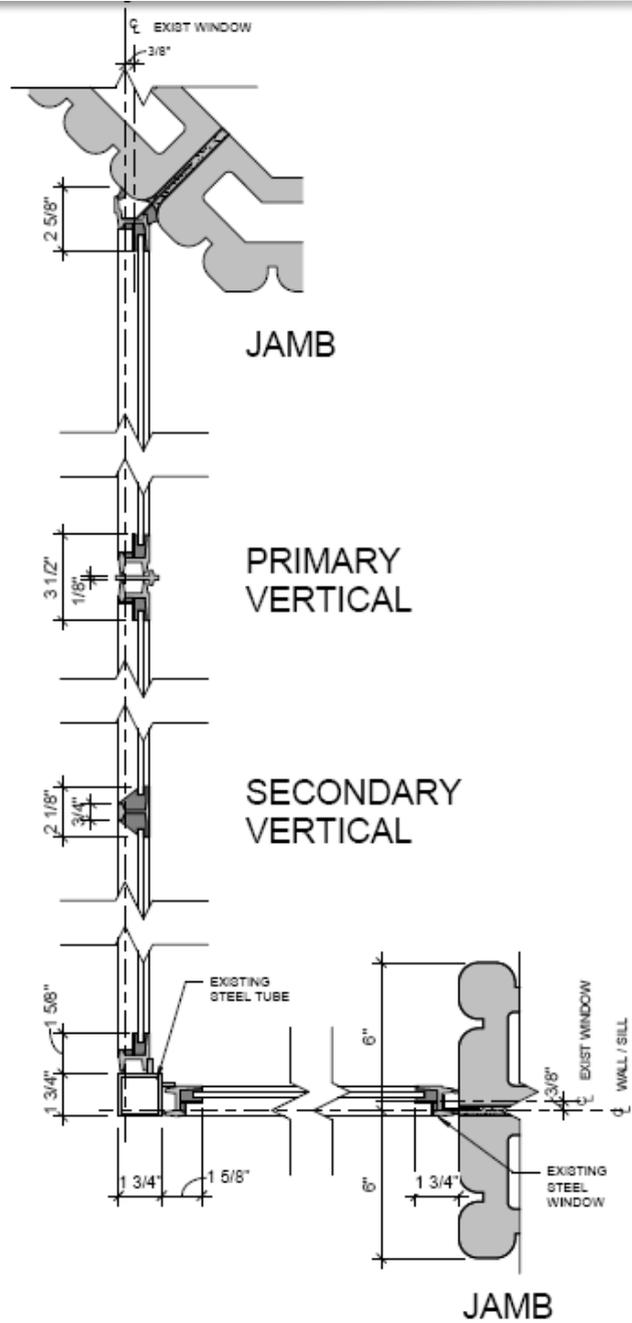
PROPOSED WINDOW:
LOBBY
B.O.D.: Kawneer 1600 System2



Mass Historic Commission



Mass Historic Commission

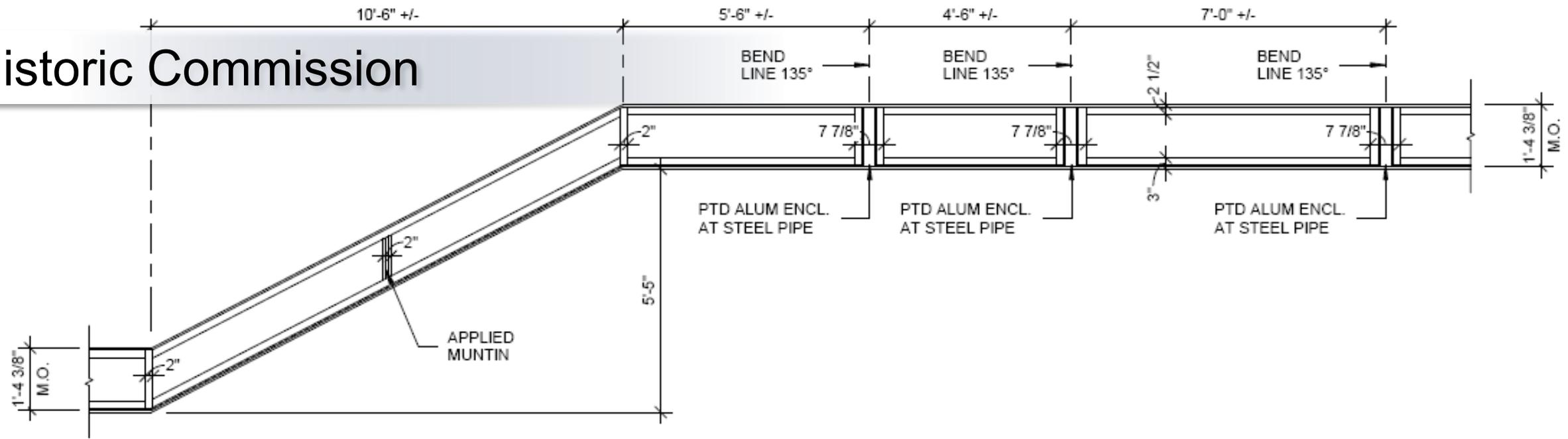


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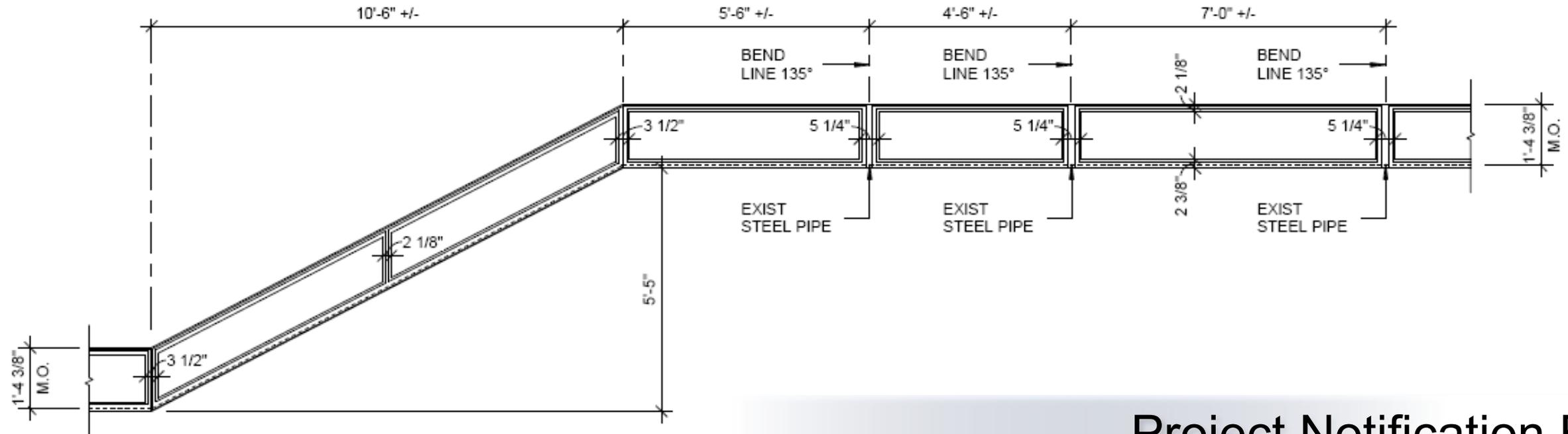
PROPOSED WINDOW:
OFFICE
B.O.D.: Kawneer 1620 & 1620SSG System

Project Notification Form





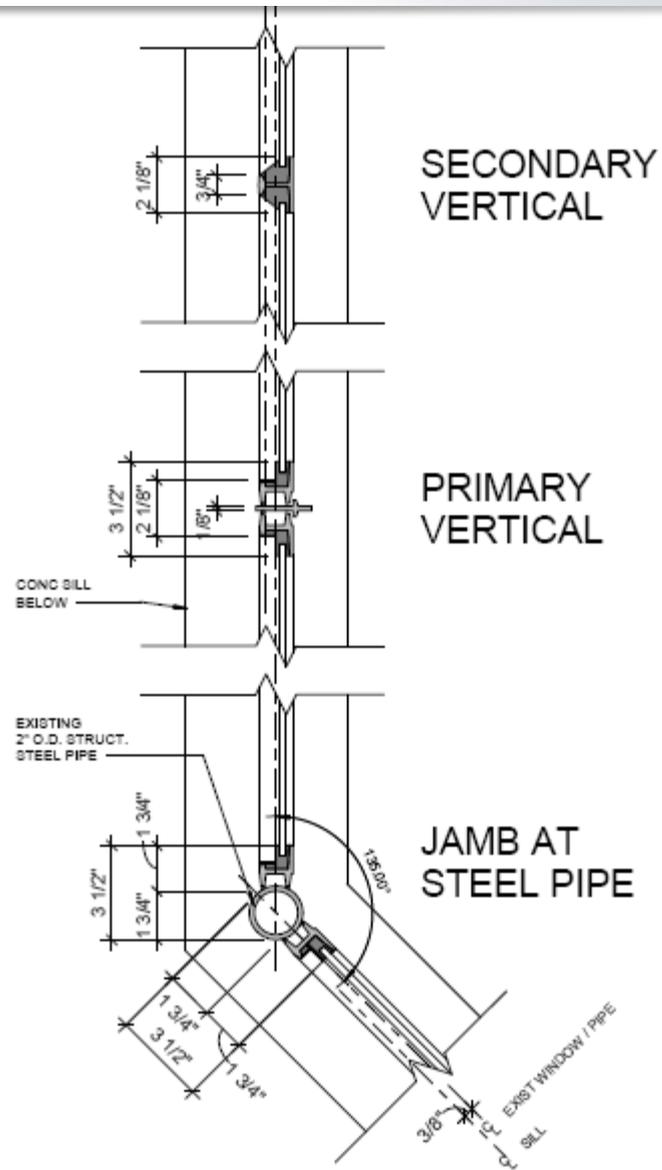
PROPOSED WINDOW:
STAIR
B.O.D.: Kawneer 1620 System



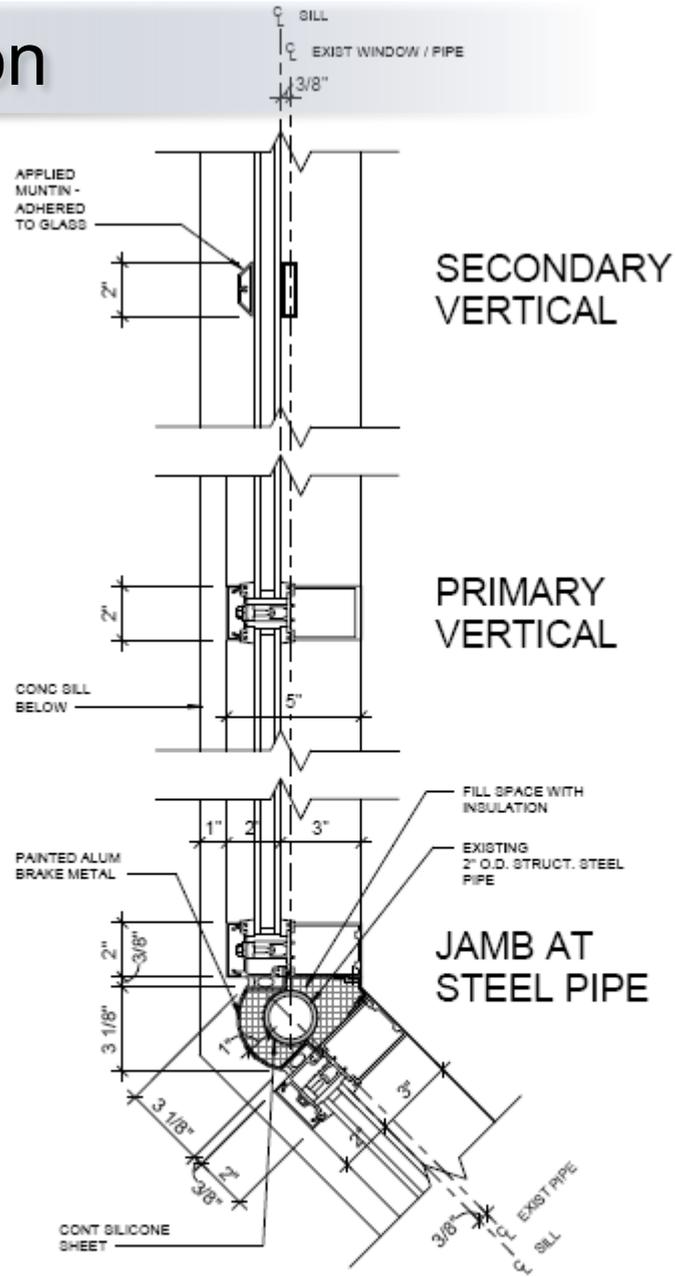
EXISTING WINDOW:
STAIR



Mass Historic Commission



EXISTING WINDOW:
STAIR



PROPOSED WINDOW:
STAIR
B.O.D.: Kawneer 1620 System



Window Replacement

Design Phase

- Collaboration
- Unique Details
- Manufacturer Input

Mass. Historic Commission

- Proposal
- Communication
- Review

Construction

- Phase 1 Results
- Project Challenges



SENG - Construction



Center - Before

SENG - Construction



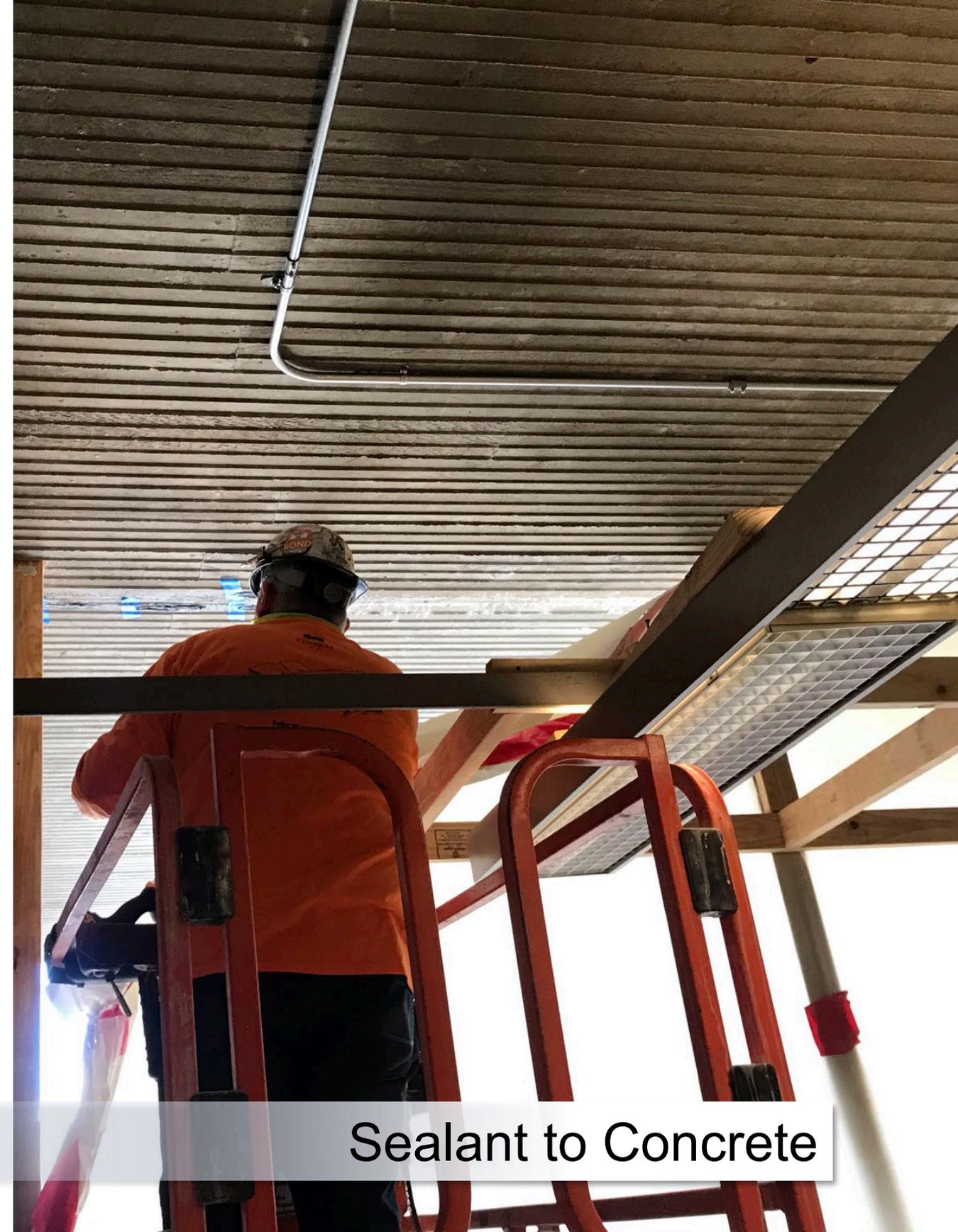
Center – In Progress/After

SENG - Construction



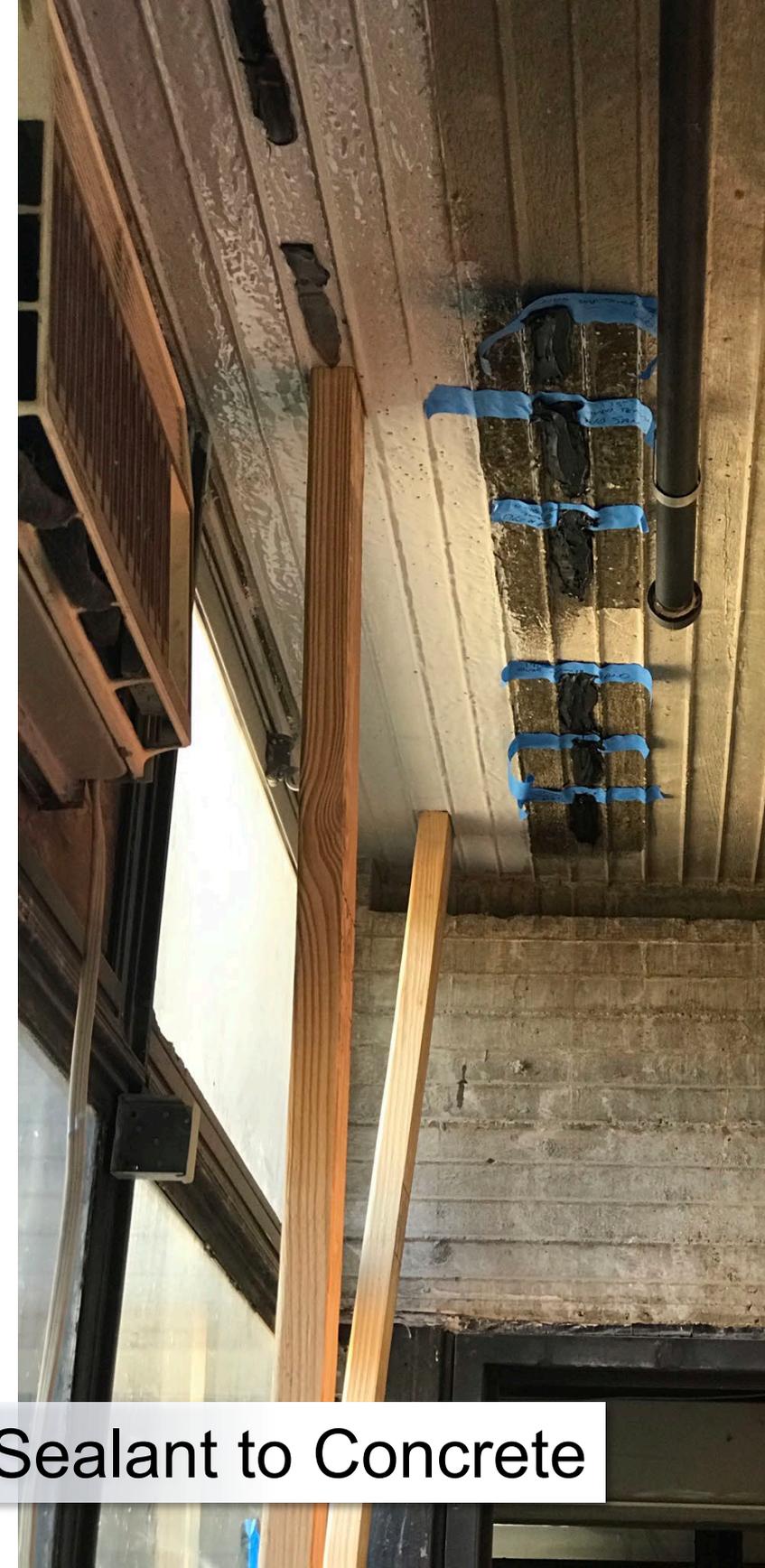
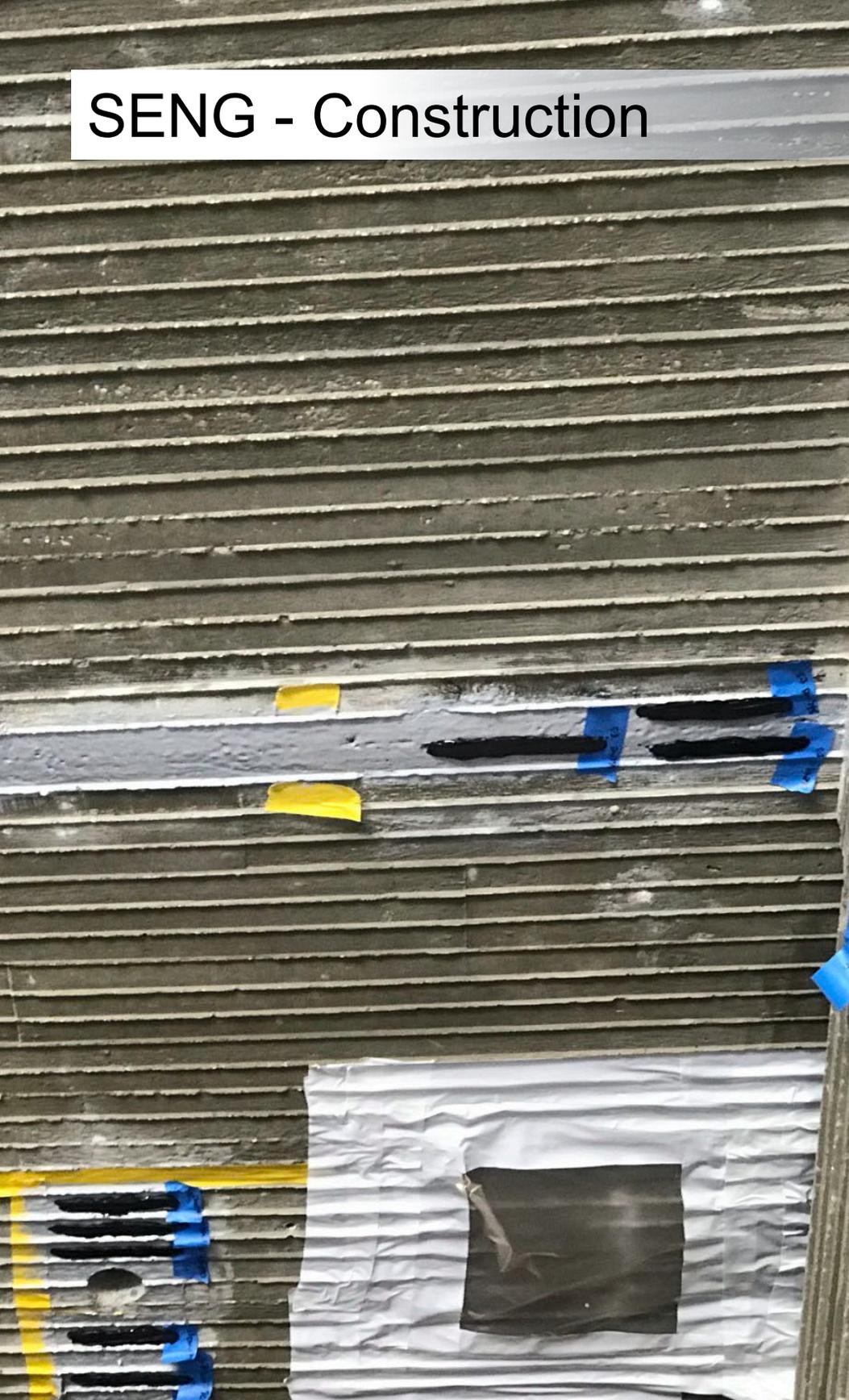
Sealant to Concrete - Efflorescence

SENG - Construction



Sealant to Concrete

SENG - Construction



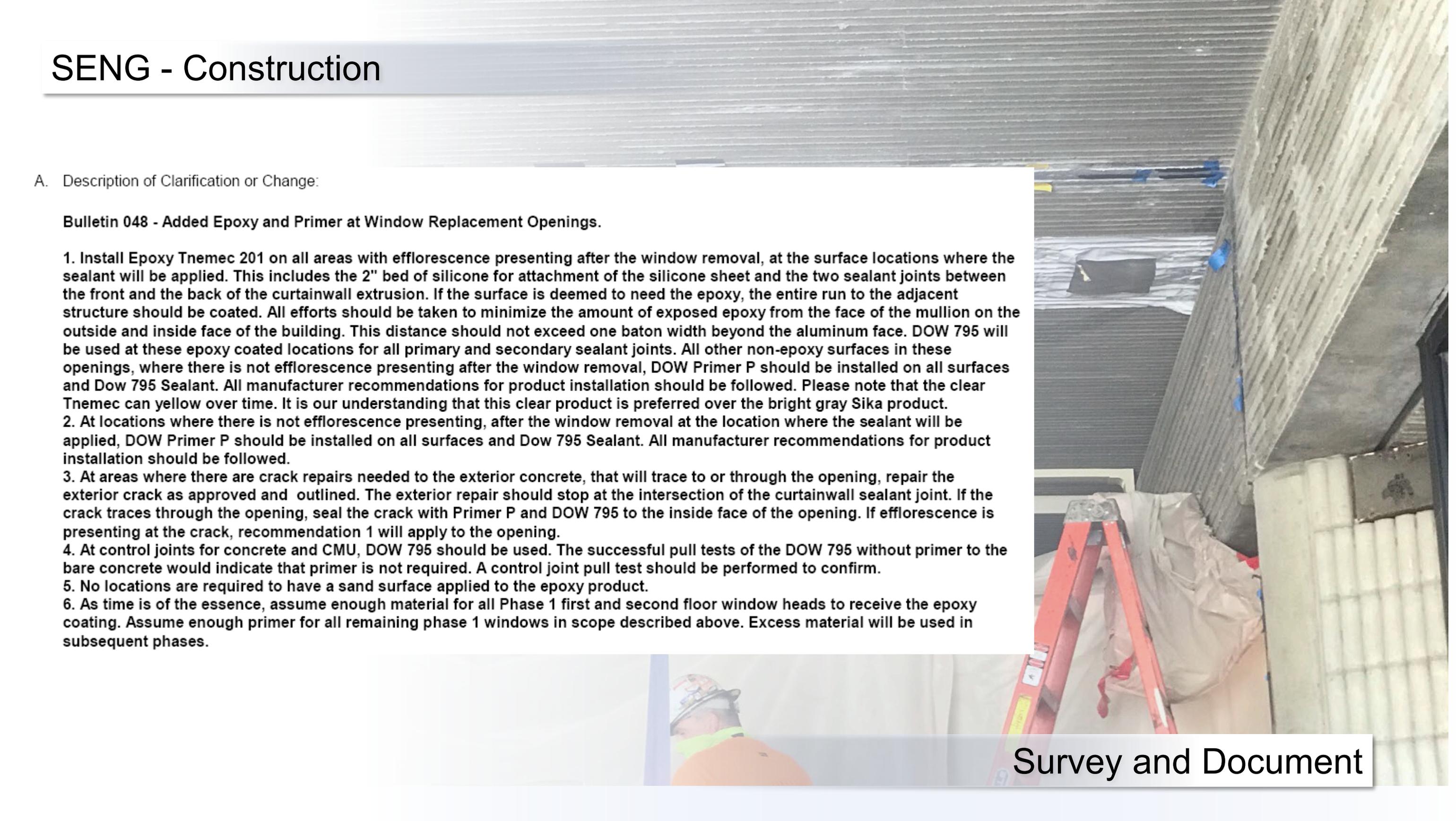
Sealant to Concrete

SENG - Construction

A. Description of Clarification or Change:

Bulletin 048 - Added Epoxy and Primer at Window Replacement Openings.

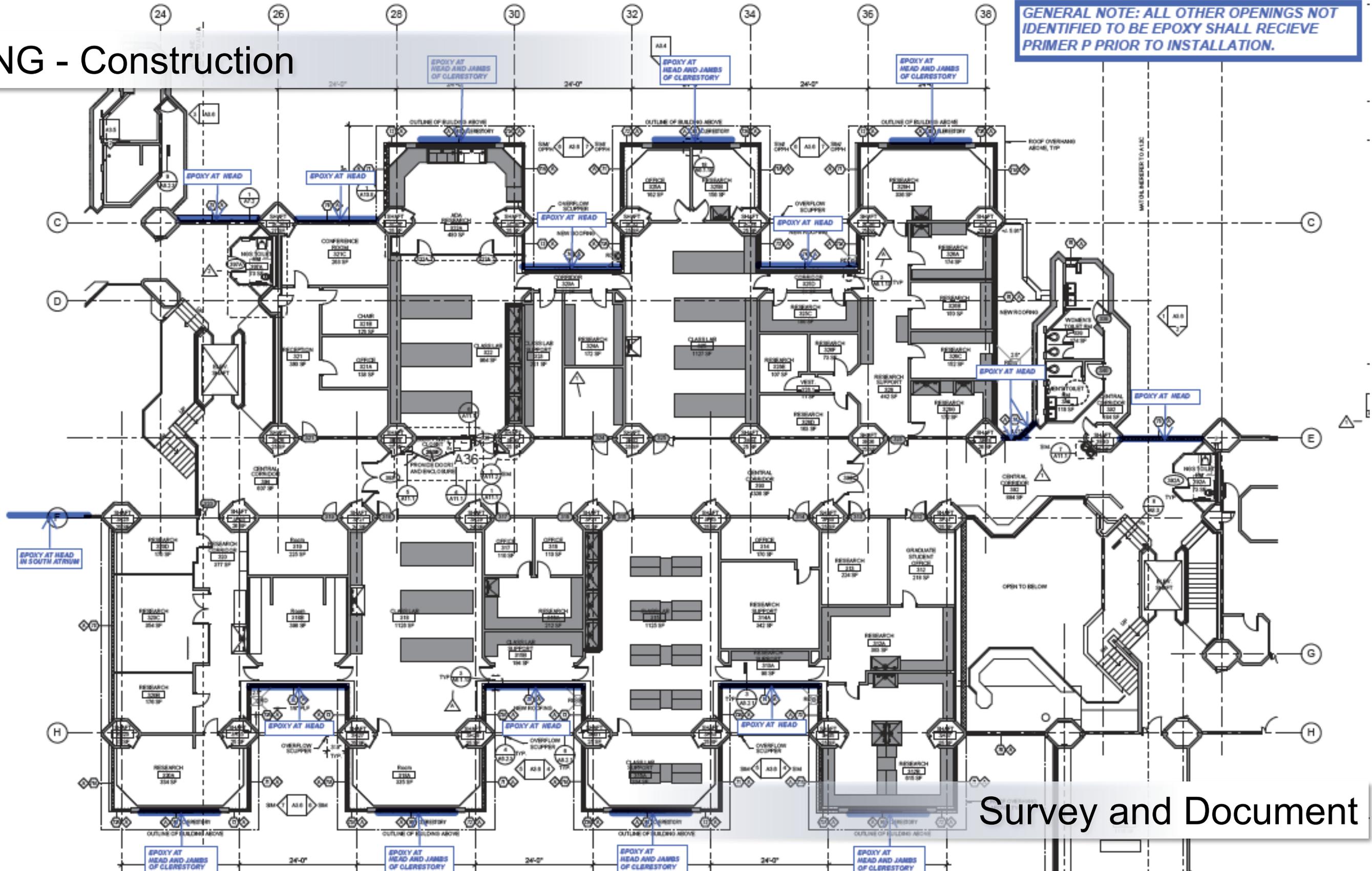
1. Install Epoxy Tnemec 201 on all areas with efflorescence presenting after the window removal, at the surface locations where the sealant will be applied. This includes the 2" bed of silicone for attachment of the silicone sheet and the two sealant joints between the front and the back of the curtainwall extrusion. If the surface is deemed to need the epoxy, the entire run to the adjacent structure should be coated. All efforts should be taken to minimize the amount of exposed epoxy from the face of the mullion on the outside and inside face of the building. This distance should not exceed one baton width beyond the aluminum face. DOW 795 will be used at these epoxy coated locations for all primary and secondary sealant joints. All other non-epoxy surfaces in these openings, where there is not efflorescence presenting after the window removal, DOW Primer P should be installed on all surfaces and Dow 795 Sealant. All manufacturer recommendations for product installation should be followed. Please note that the clear Tnemec can yellow over time. It is our understanding that this clear product is preferred over the bright gray Sika product.
2. At locations where there is not efflorescence presenting, after the window removal at the location where the sealant will be applied, DOW Primer P should be installed on all surfaces and Dow 795 Sealant. All manufacturer recommendations for product installation should be followed.
3. At areas where there are crack repairs needed to the exterior concrete, that will trace to or through the opening, repair the exterior crack as approved and outlined. The exterior repair should stop at the intersection of the curtainwall sealant joint. If the crack traces through the opening, seal the crack with Primer P and DOW 795 to the inside face of the opening. If efflorescence is presenting at the crack, recommendation 1 will apply to the opening.
4. At control joints for concrete and CMU, DOW 795 should be used. The successful pull tests of the DOW 795 without primer to the bare concrete would indicate that primer is not required. A control joint pull test should be performed to confirm.
5. No locations are required to have a sand surface applied to the epoxy product.
6. As time is of the essence, assume enough material for all Phase 1 first and second floor window heads to receive the epoxy coating. Assume enough primer for all remaining phase 1 windows in scope described above. Excess material will be used in subsequent phases.



Survey and Document

SENG - Construction

GENERAL NOTE: ALL OTHER OPENINGS NOT IDENTIFIED TO BE EPOXY SHALL RECEIVE PRIMER P PRIOR TO INSTALLATION.





UMass Dartmouth Science and Engineering (SENG) Building Systems Upgrades Project

UMass BRUT Symposium
October 2021



ELLENZWEIG

SENG - Construction

Spec
mix
SM 100
N
↓

↑
Spec
mix
SM 330
N

Spec
mix
SM 290
N
↓

Spec
mix
Type
N
↑

Spec
mix
SM 330
N
↓

Spec
mix
SM 270
N
↓

↑
Spec
mix
Type
N

↑
Spec
mix
SM 290
N

CMU Matching

SENG - Construction

TYPE
N
FOB
146
M3-WS

TYPE
N
FOB
148
M3-WS

MasterEmaco
N-425
BASF

SEKA 123

JAHN
M90-B05-CR-2

JAHN
M90-S1-CR

JAHN
M90-34382-CR-1

JAHN
M90-B05-CR-2

Mortor and Concrete Matching

SENG - Construction



CMU Matching



ELLENZWEIG