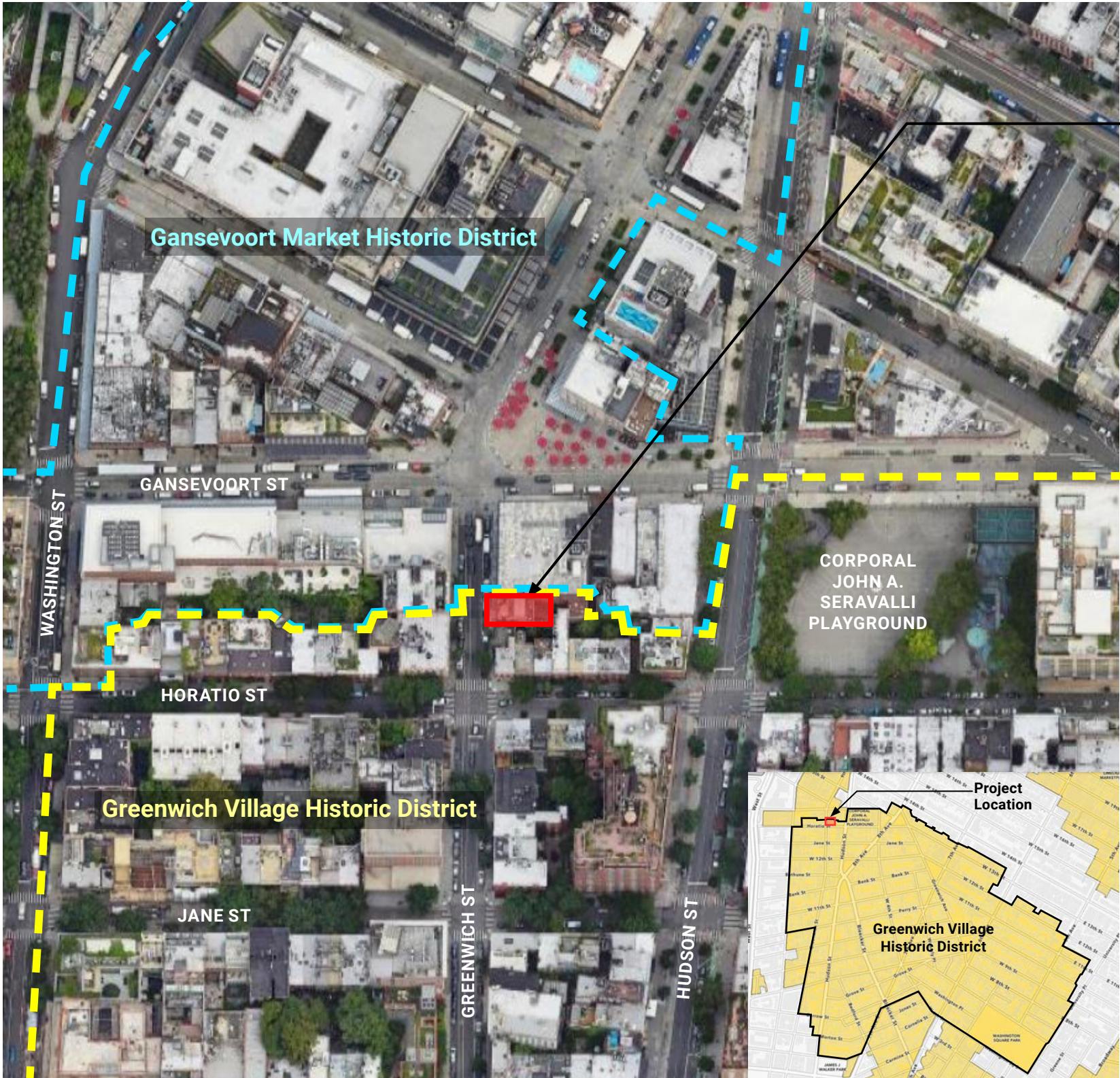




EXISTING BUILDING



PROJECT LOCATION

PROJECT LOCATION
829 Greenwich St
Manhattan

LPC DISTRICT
Greenwich Village
Historic District

CONSTRUCTED
2005

GENERAL INFO
4 Stories + Cellar
Single-Family Home



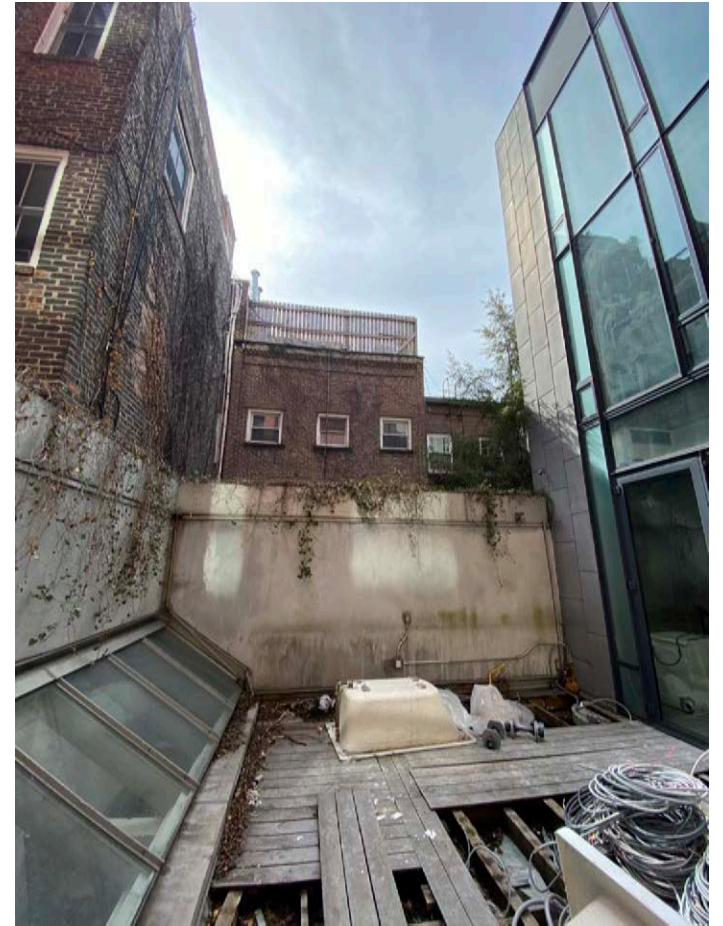
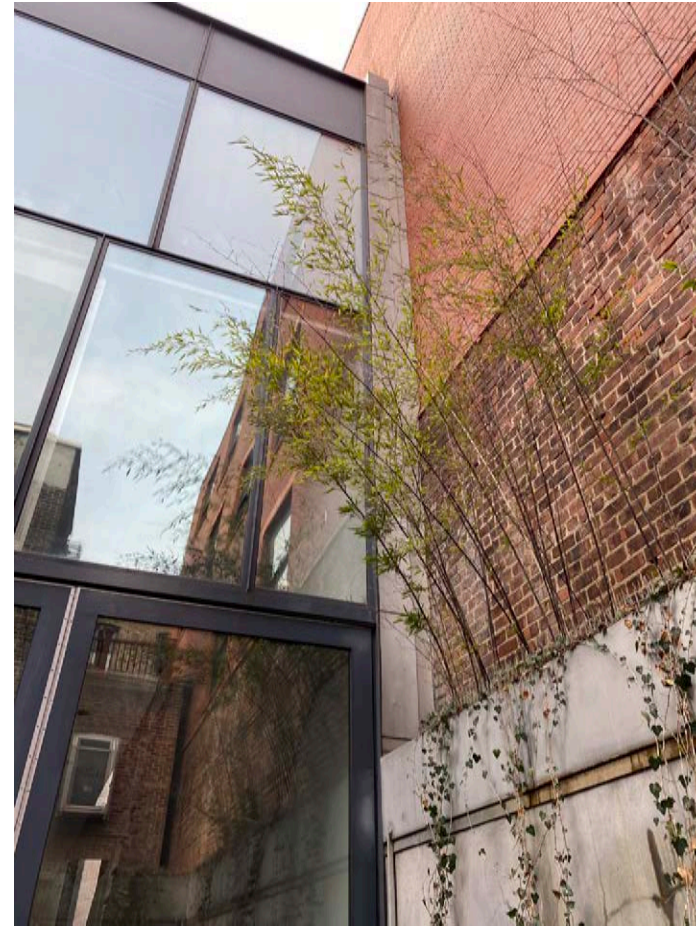
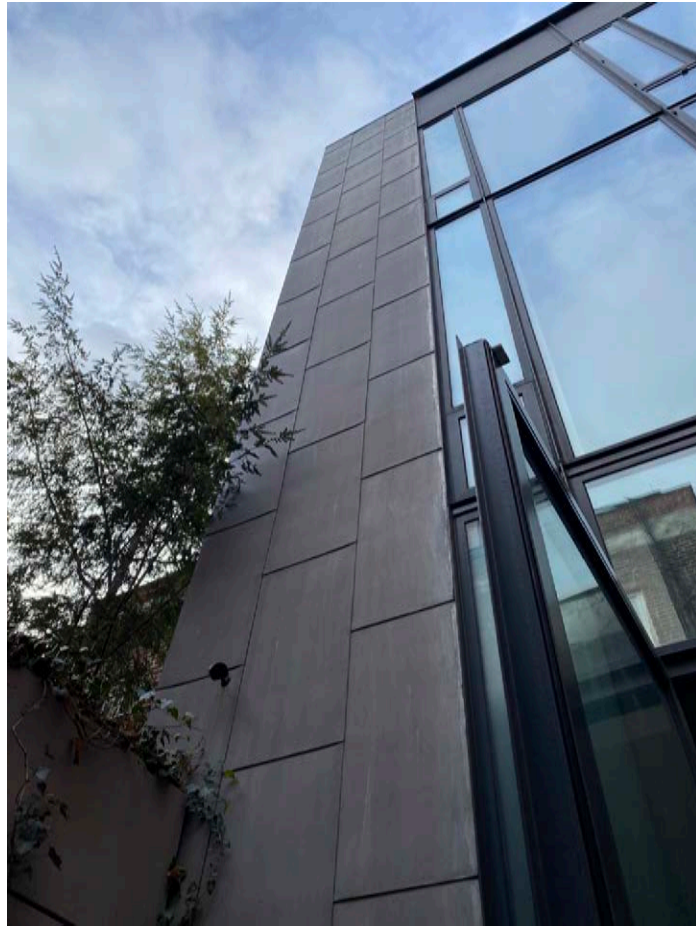
VIEW FROM NW AT GREENWICH ST AND GANSEVOORT ST



VIEW FROM FRONT



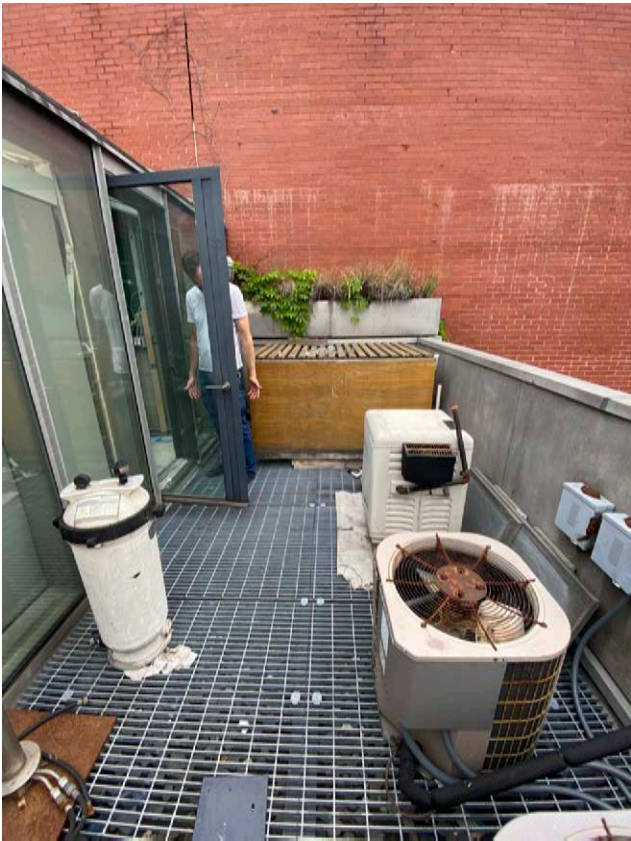
VIEW FROM SW AT GREENWICH ST AND HORATIO ST



FRONT



REAR

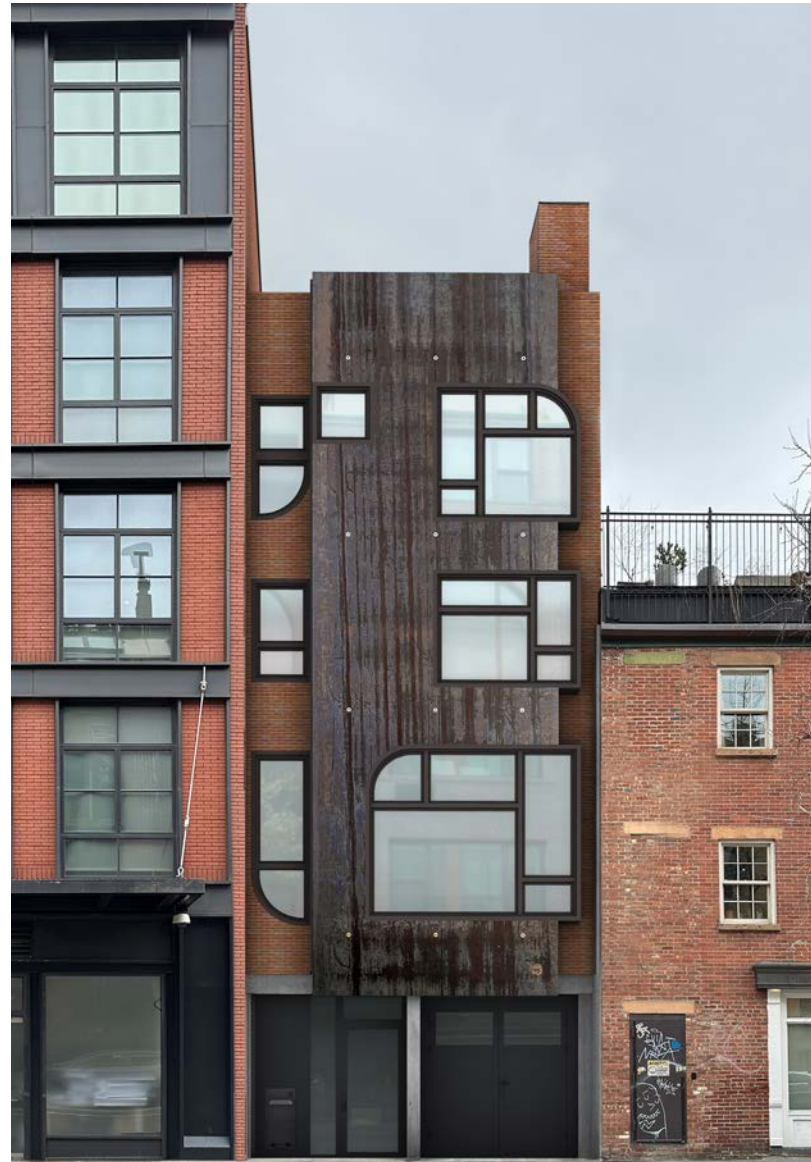




EXISTING



PROPOSED





EXISTING



PROPOSED

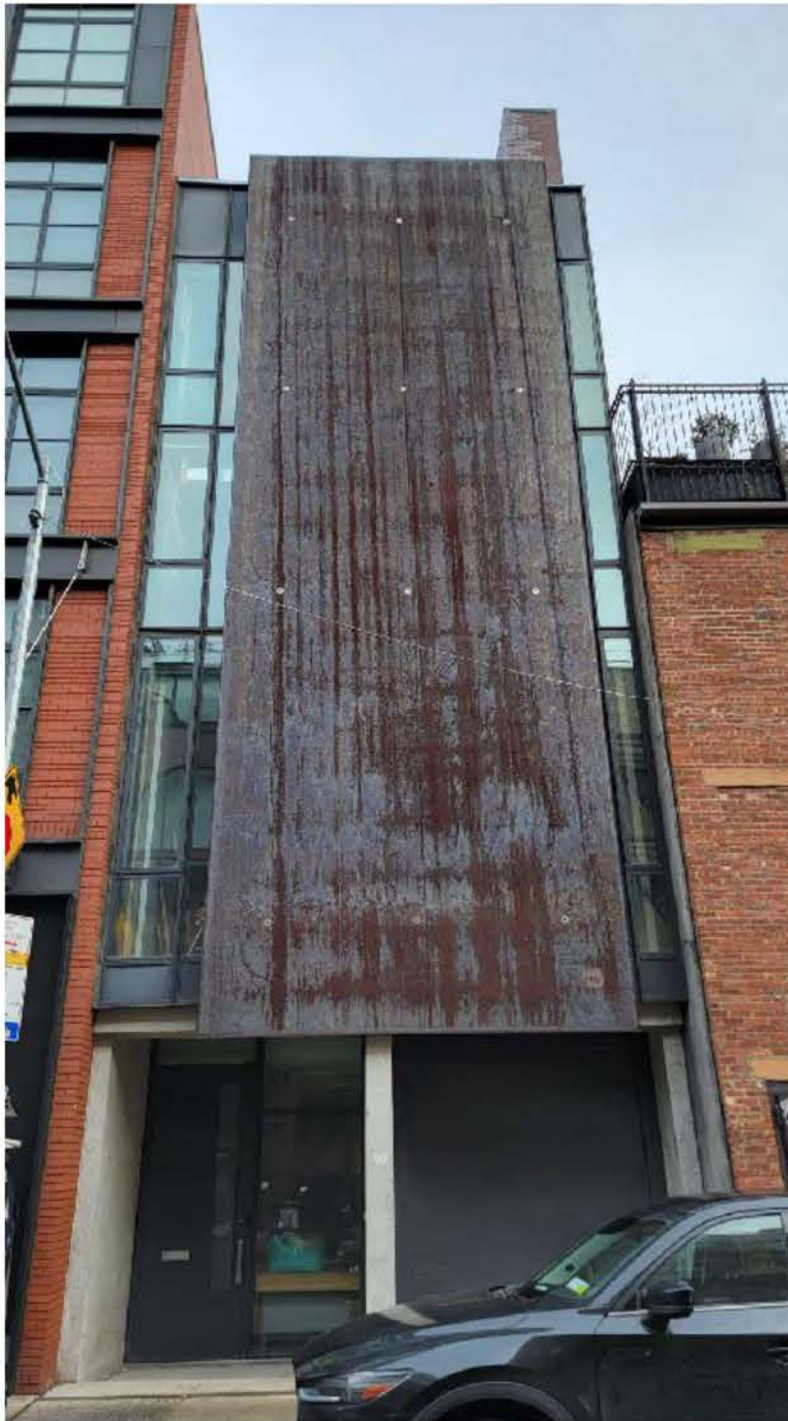
SITE HISTORY AND CONTEXT



1940



2003



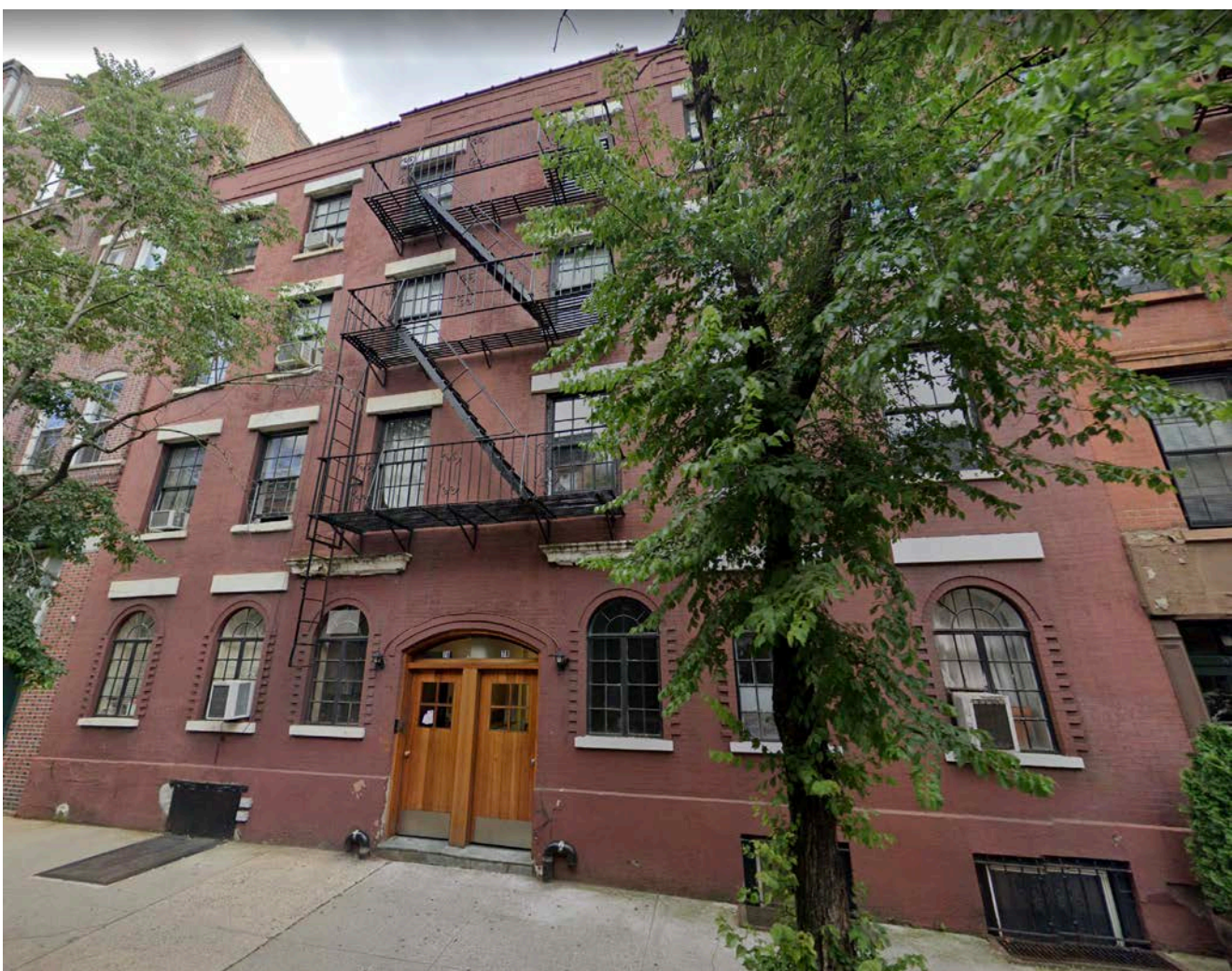
CURRENT



48-50 Charles Street
Built 1839-40



306 West 11th Street
Built 1845



76-78 Horatio Street
Two row houses converted into apartments in 1927

HISTORIC ALTERATION OF ROW HOUSES



244-246 Waverly Place
Built 1886



733 Greenwich Street
Built 1904



114 Waverly Place
Built 1826
Redesigned 1920

HISTORIC EVOLUTION OF FACADE DESIGN



123-127 Bank Street



227 West 13th Street



727 Washington Street

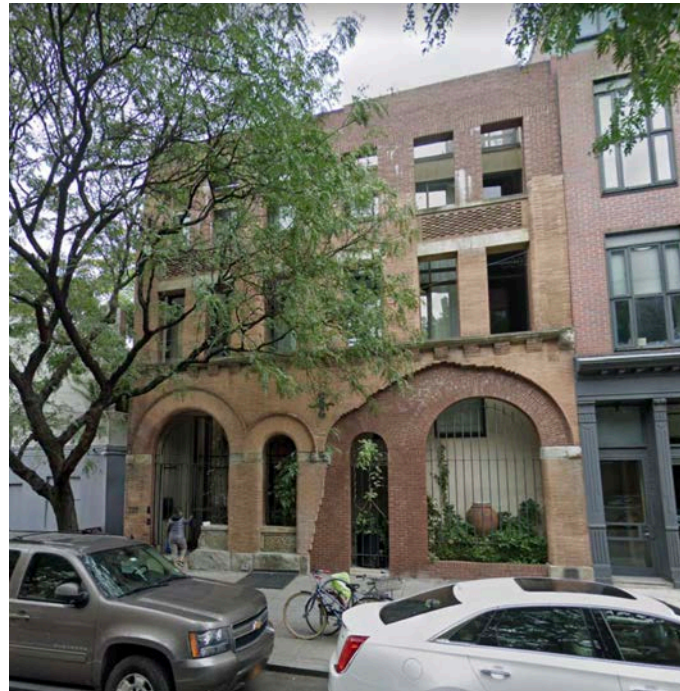


777 Washington Street



771 Washington Street

INDUSTRIAL DEVELOPMENT AND FACADES



727 Washington Street
Approved 2008



777 Washington Street
Approved 2008



70 Horatio Street
Approved 1983



297 West Fourth Street
Approved 2006



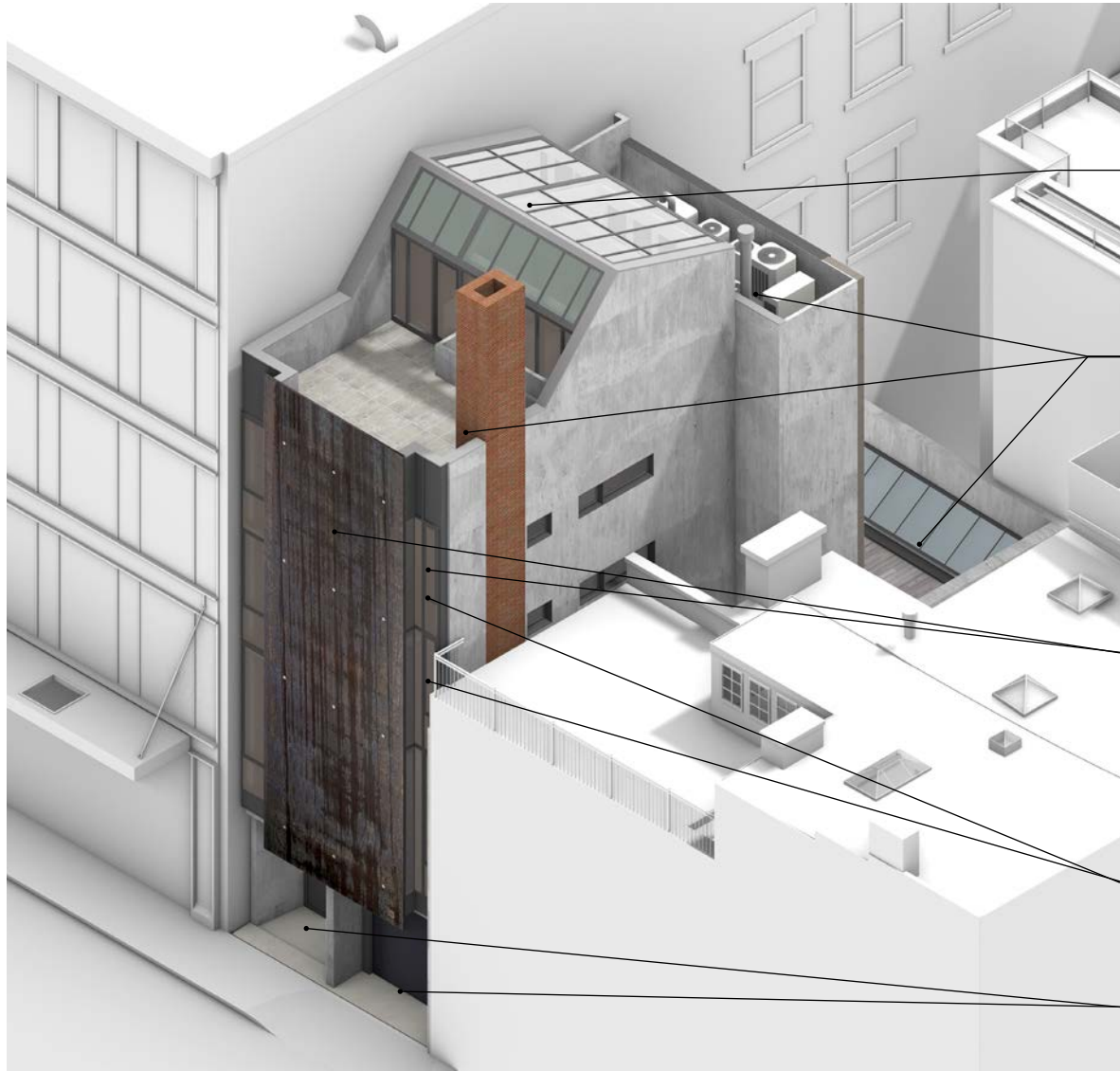
540 Hudson Street
Approved 2017



146 Perry Street
Approved 2017

LPC APPROVALS

EXISTING CONDITIONS



FRONT / SIDE AERIAL VIEW

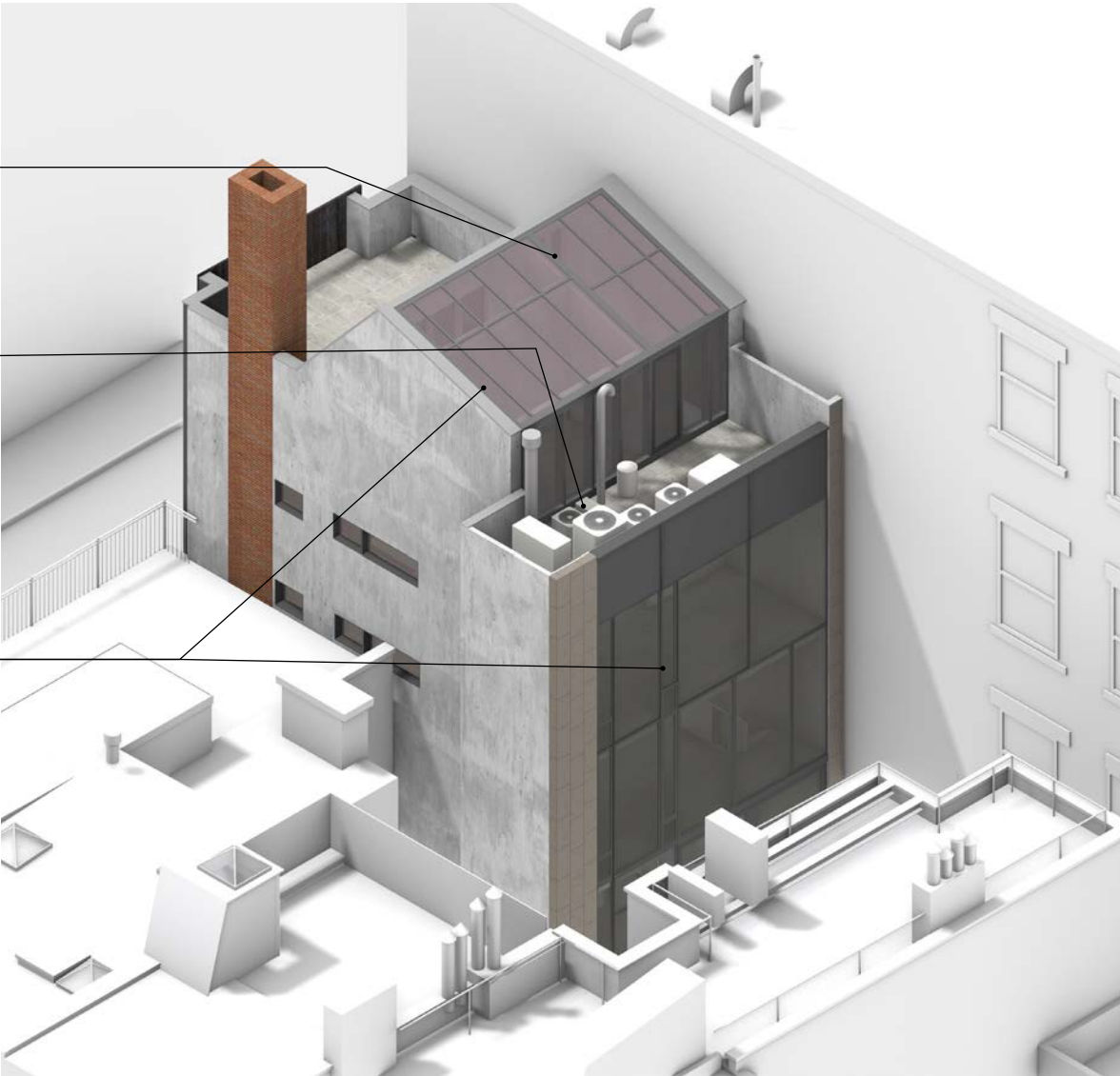
Excessive solar heat gain through large bulkhead skylight

Water leakage through skylights, roof terraces, curtain walls, and around steel plate caused mold which made the family ill

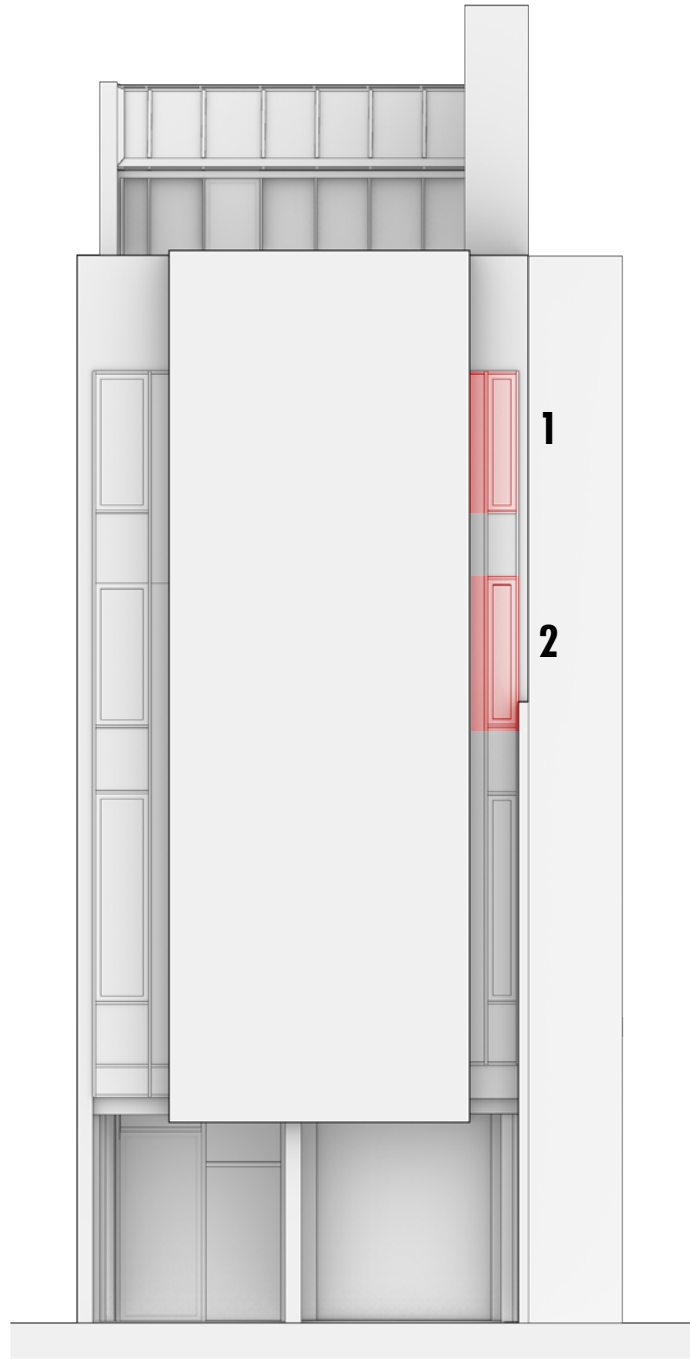
Thermal bridging through curtain walls, failed IGUs, and uninsulated portions of steel plate

Inadequate natural light in front rooms

Very deep recesses at ground level



REAR / SIDE AERIAL VIEW

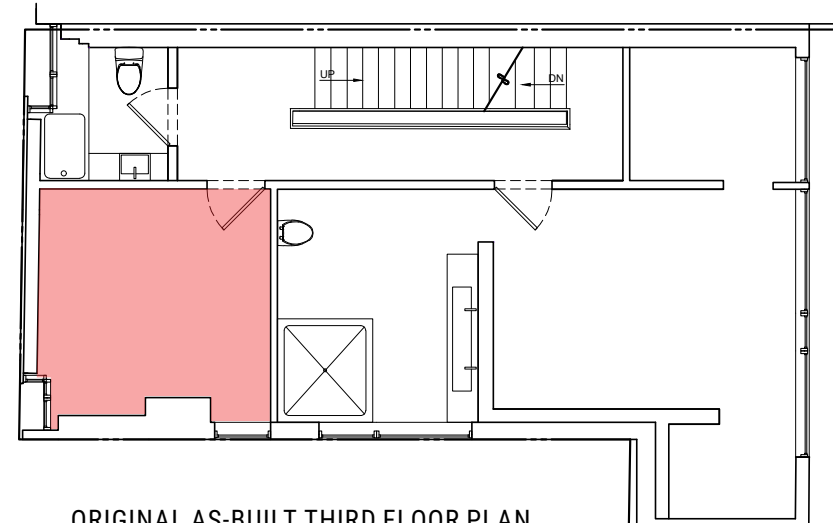


1

Existing front facade windows do not provide adequate light to interior habitable spaces at 2nd & 3rd floors, as per building code requirements

Original third floor front bedroom glazing area does not comply with code requirements

Floor area = 123 SF
Required light (10%) = 12.3 SF
Provided light = 8.2 SF

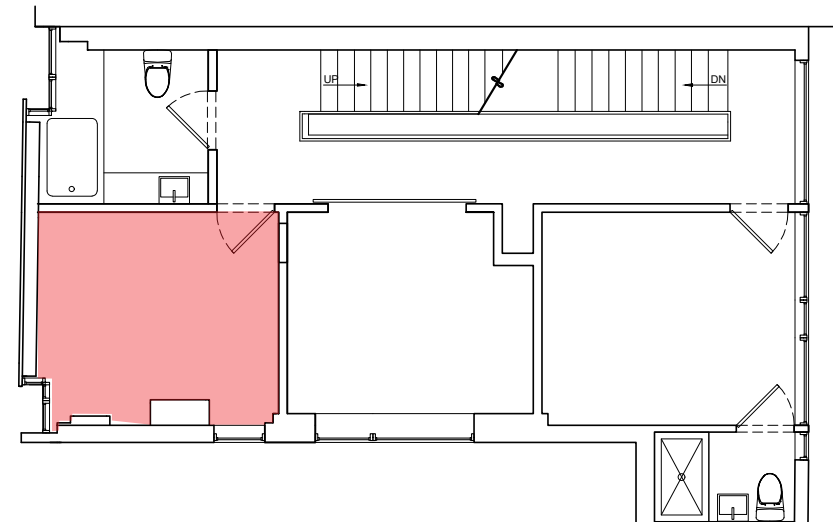


ORIGINAL AS-BUILT THIRD FLOOR PLAN

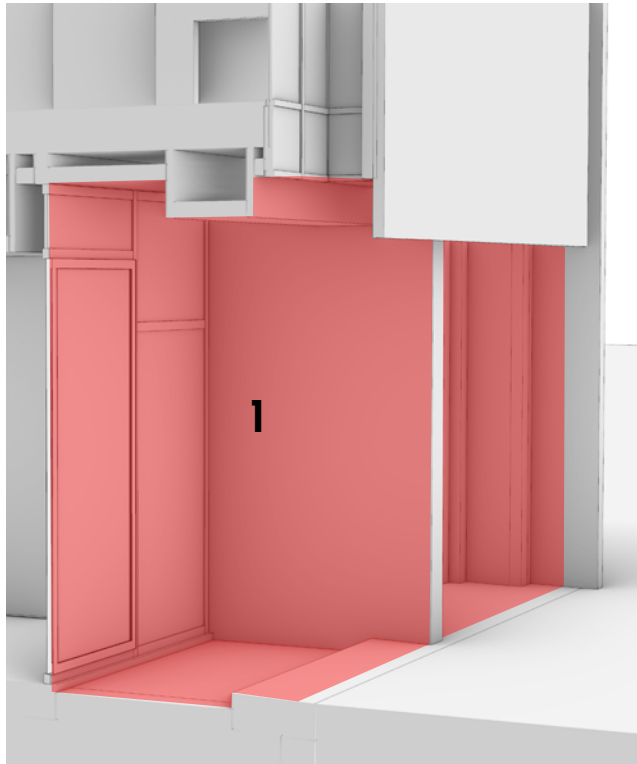
2

Original second floor front bedroom glazing area does not comply with code requirements

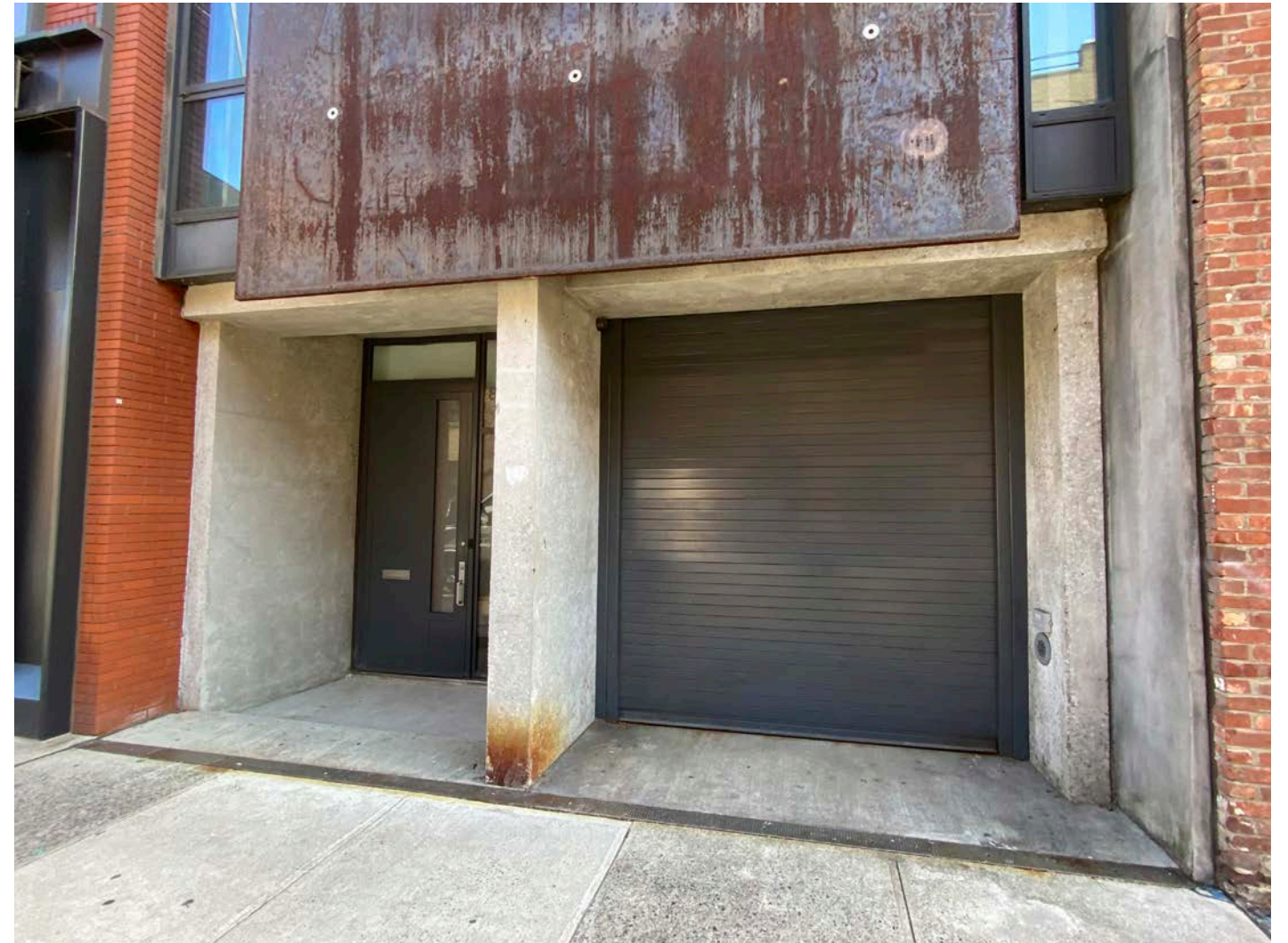
Floor area = 120 SF
Required light (10%) = 12.0 SF
Provided light = 7.4 SF



ORIGINAL AS-BUILT SECOND FLOOR PLAN



1
 Recessed spaces at the entry door
 and garage door on the ground level
 of the front facade are deep enough
 to be used as shelters for transient
 individuals, creating a safety hazard



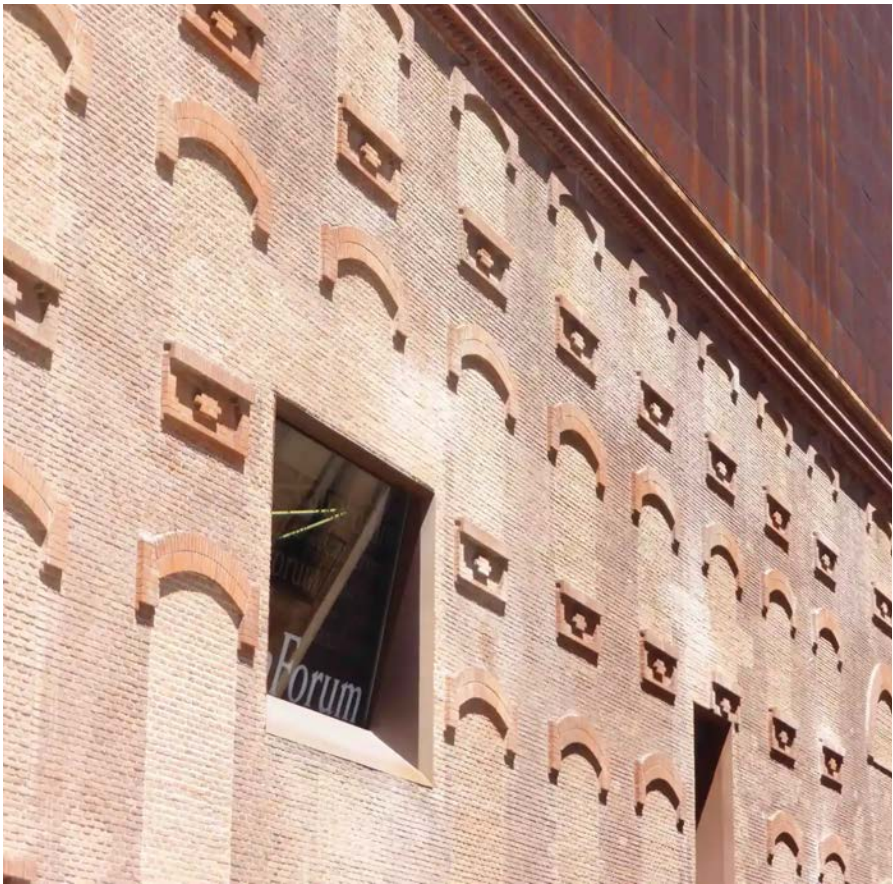
DESIGN PROPOSAL



The Juilliard School -- Belluschi



Castelveccchio - Carlo Scarpa



Caixa Forum -- Herzog and de Meuron



The Juilliard School -- Diller Scofidio and Renfro



48-50 Charles Street
Built 1839-40



New windows are larger scale and interrupt the original cornice, but maintain the same sill as the existing windows



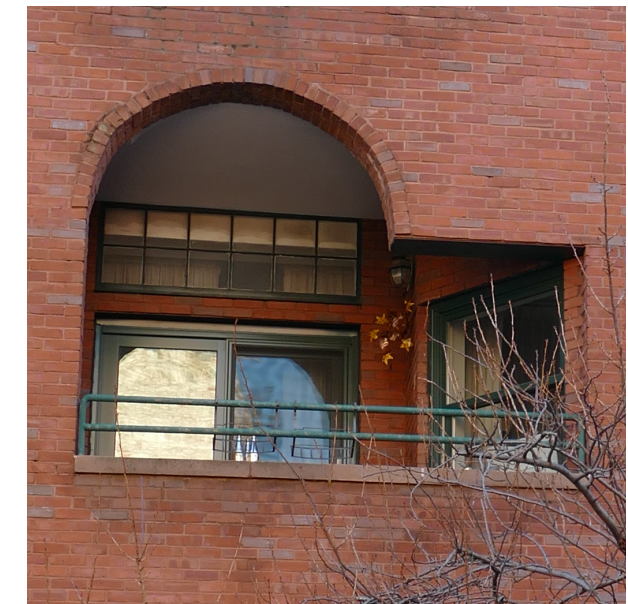
114 Waverly Place
Built 1826
Redesigned 1920



Mix of curved and square windows. The facade was comprehensively redesigned, with few traces of the original, but is juxtaposed with the historic context.



70 Horatio Street
Approved 1983



Apertures are hybrids of curved and square corners.

Facade is layered in different planes that merge into a single layer on the right side of the facade.

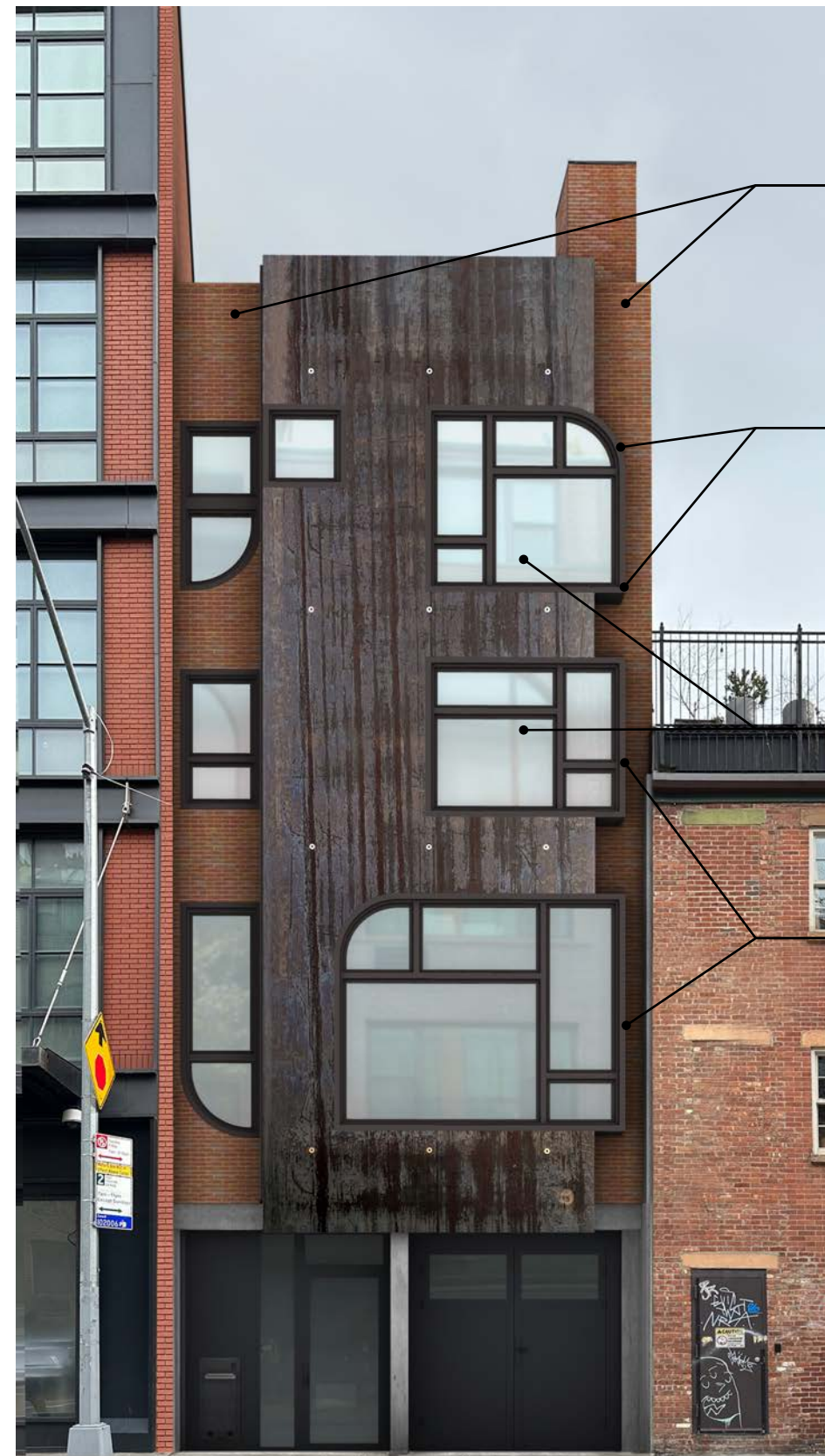
Materials were in high contrast to immediate context at the time of LPC approval. Brick material was limited to the chimney.

The steel plate was designed to match the proportion of a townhouse facade.

The steel plate was designed to 'float' independently in front of the glass curtain wall and supporting concrete columns and beam. The plate makes no alignments with the curtain wall and concrete structure behind it. Layers are absolutely clear and distinct.



EXISTING



PROPOSED

Brick material is expanded to occupy the plane of the facade behind the steel plate.

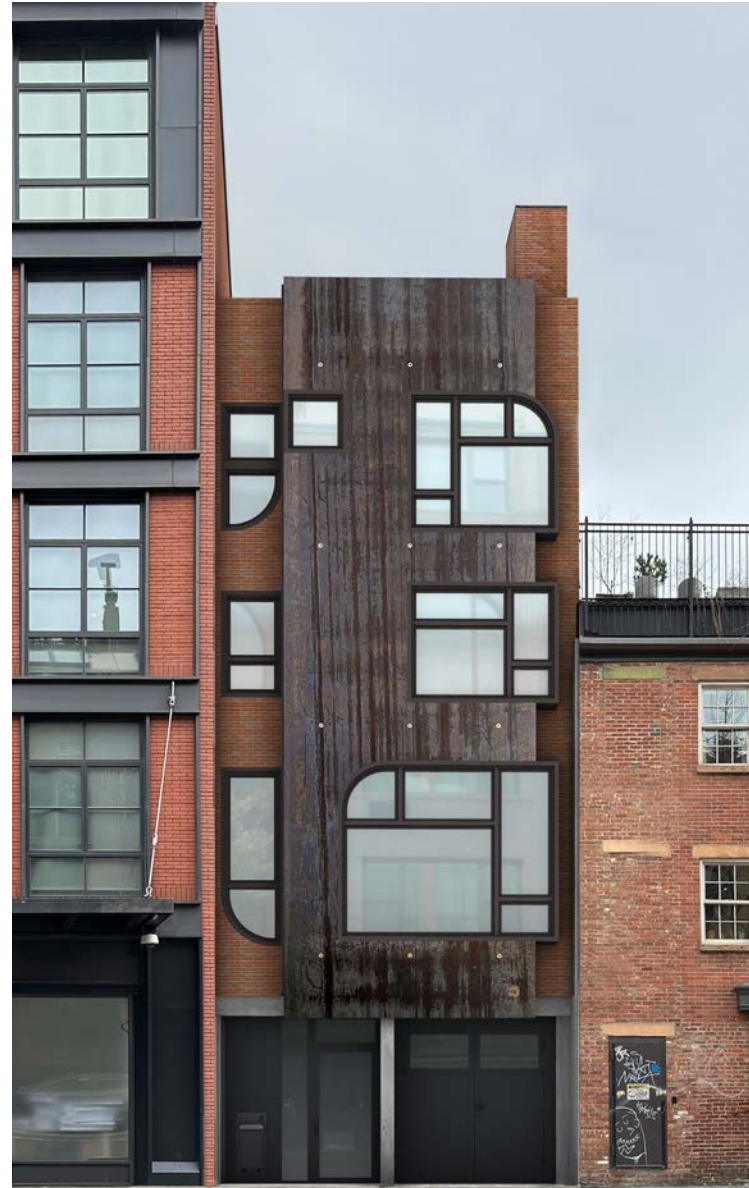
Mix of curved and square corners hybridizes existing and new conditions.

New apertures bring light to interior spaces that is required in order to meet code.

Window scales progress from largest at parlor to smaller at upper floors in keeping with the typical hierarchy of townhouse windows.

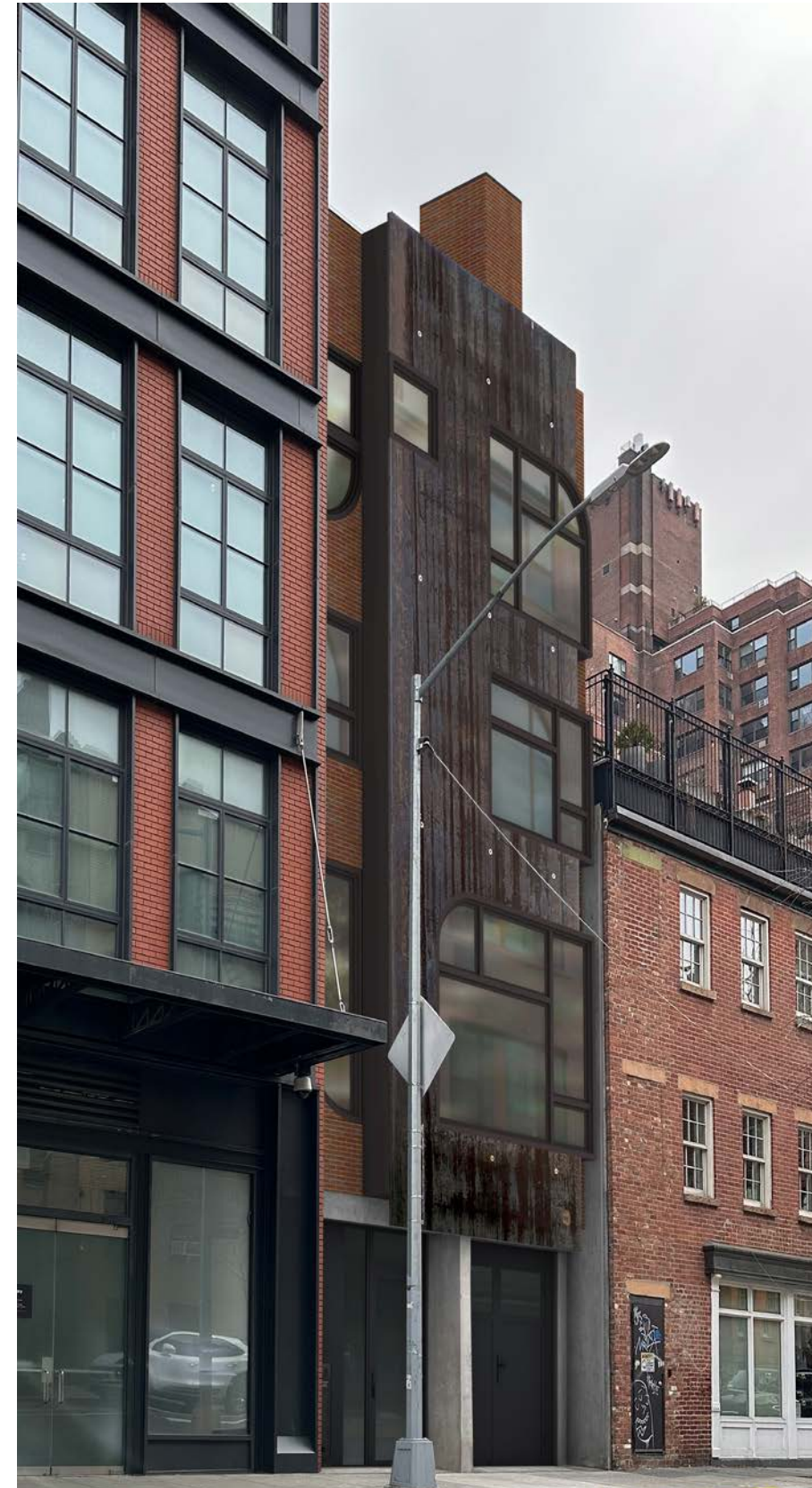
Windows make alignment that is independent of the steel plate but in alignment with each other.

The window divisions further break down the scale.





EXISTING



PROPOSED



EXISTING



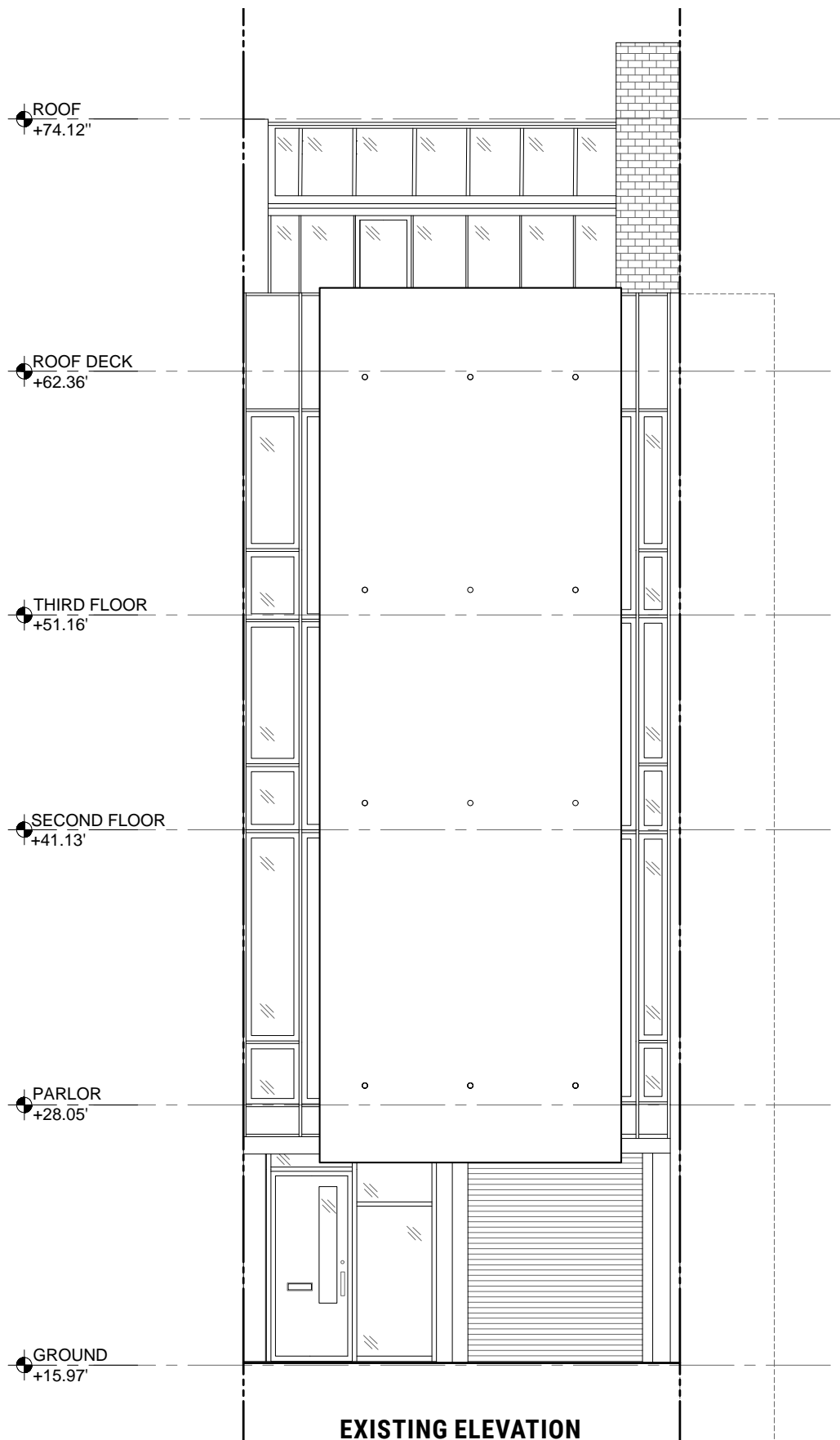
PROPOSED



EXISTING



PROPOSED



Brick veneer wall to replace removed curtain wall system



Existing corten steel plate to be modified for new windows



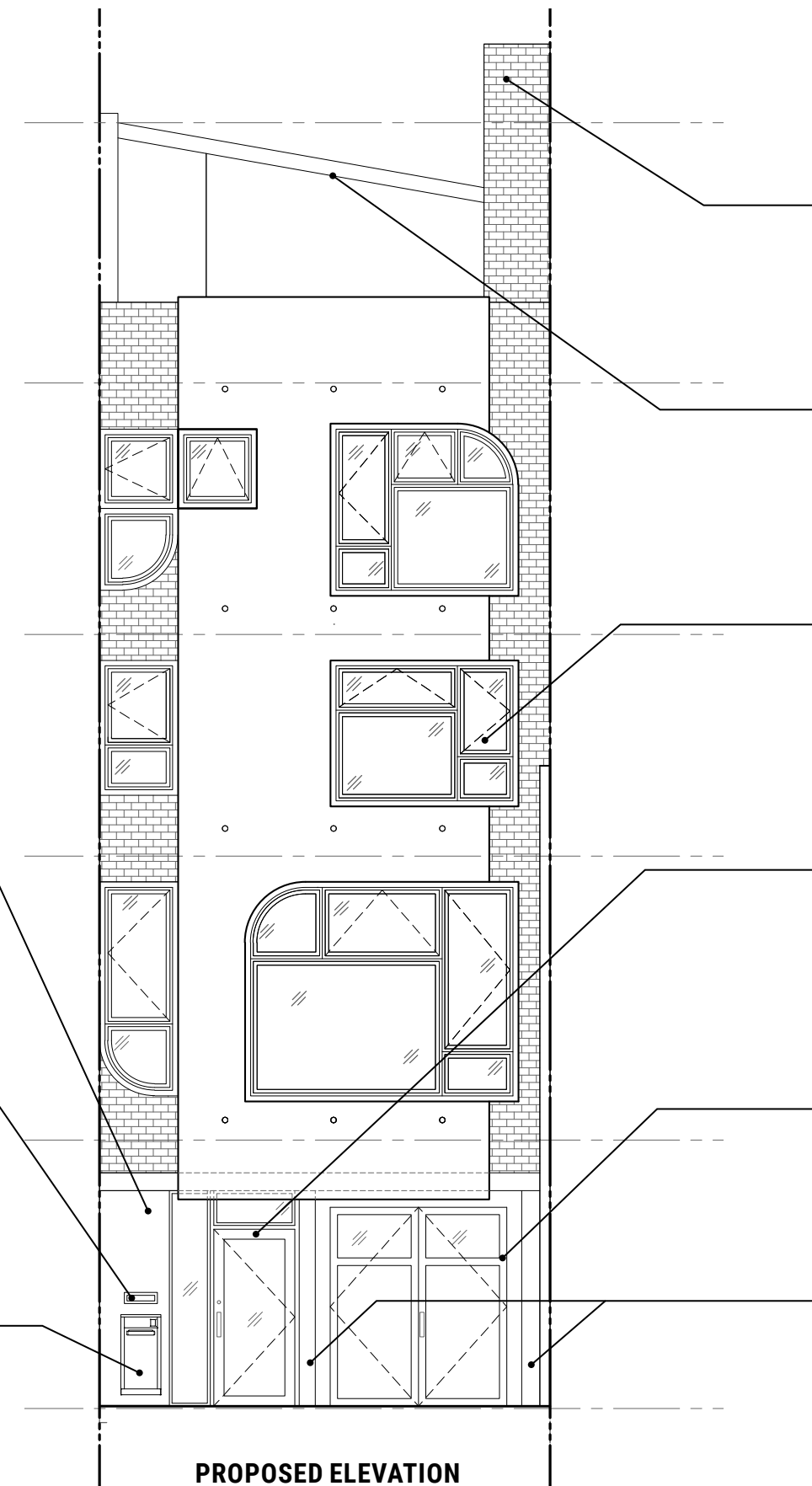
Metal paneled wall to match aluminum framed door system



Mail slot



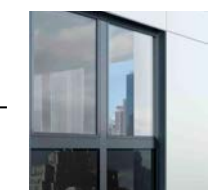
Package box



Existing brick chimney



Metal structure for solar array



Aluminum frame curtain wall system



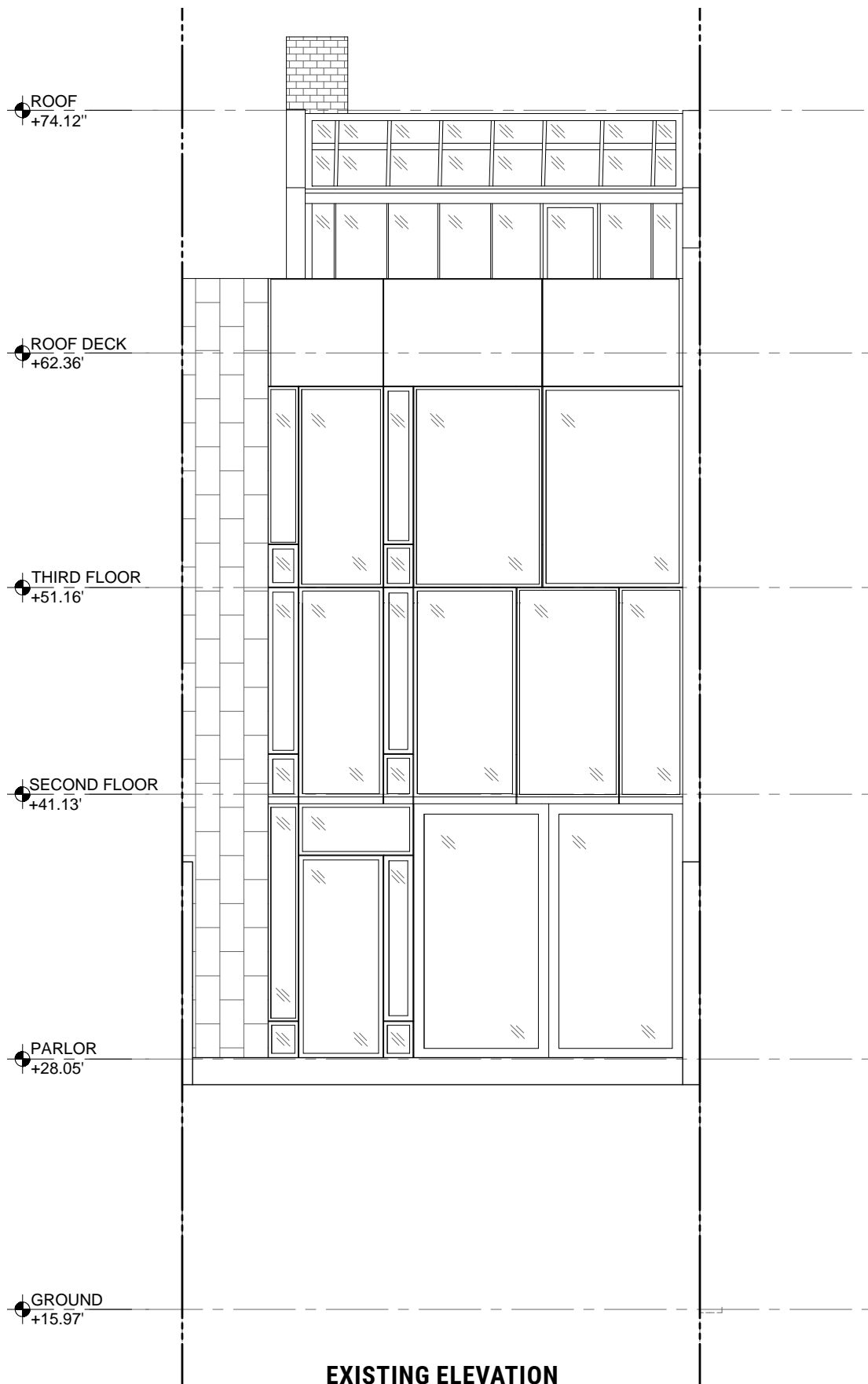
Aluminum framed glass entry door and sidelite



Insulated garage door



Existing concrete wall to remain



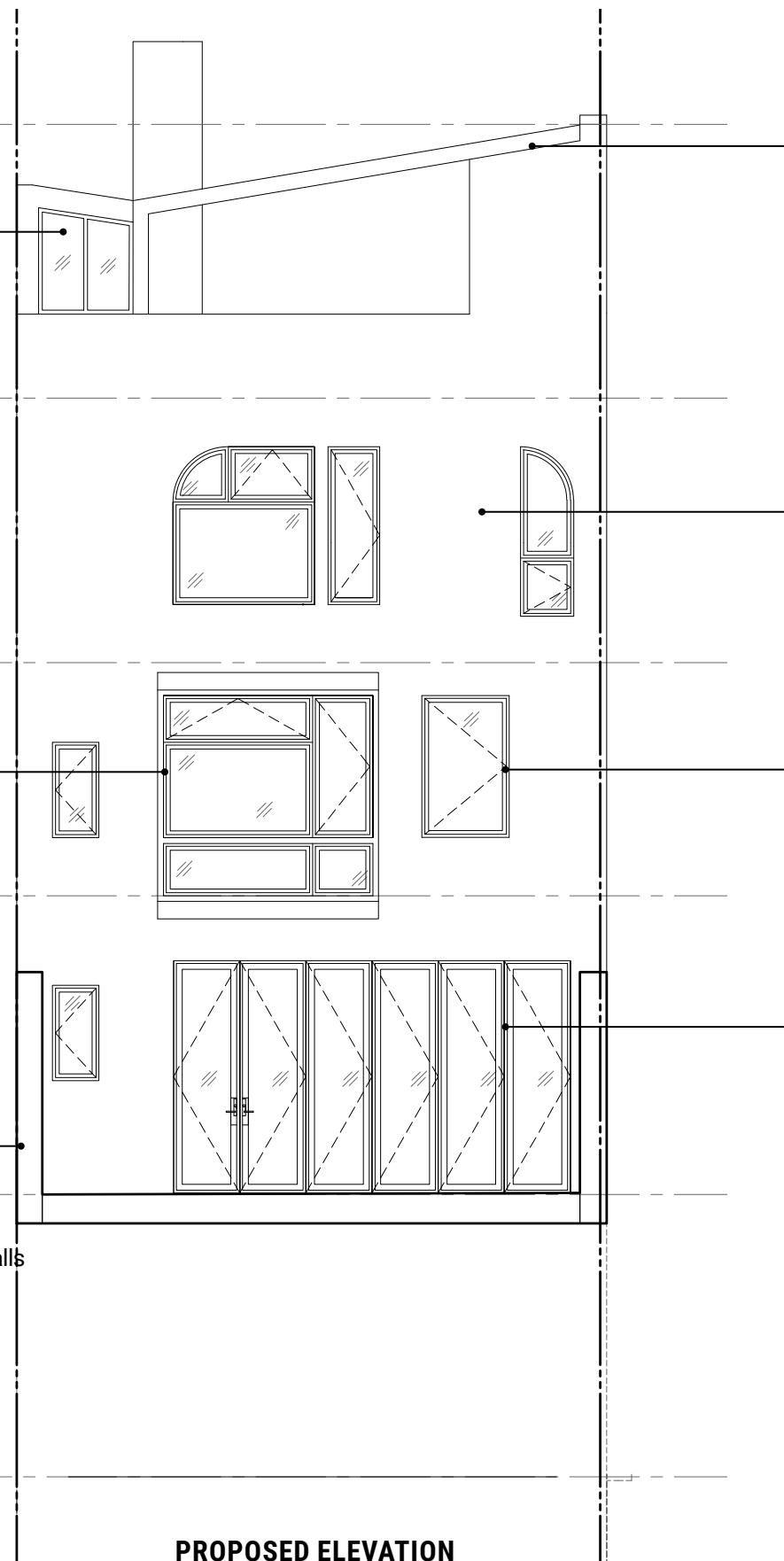
New greenhouse addition



Metal finish projected window



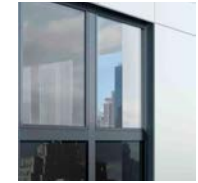
Replace stucco on terrace walls



Metal structure for solar array



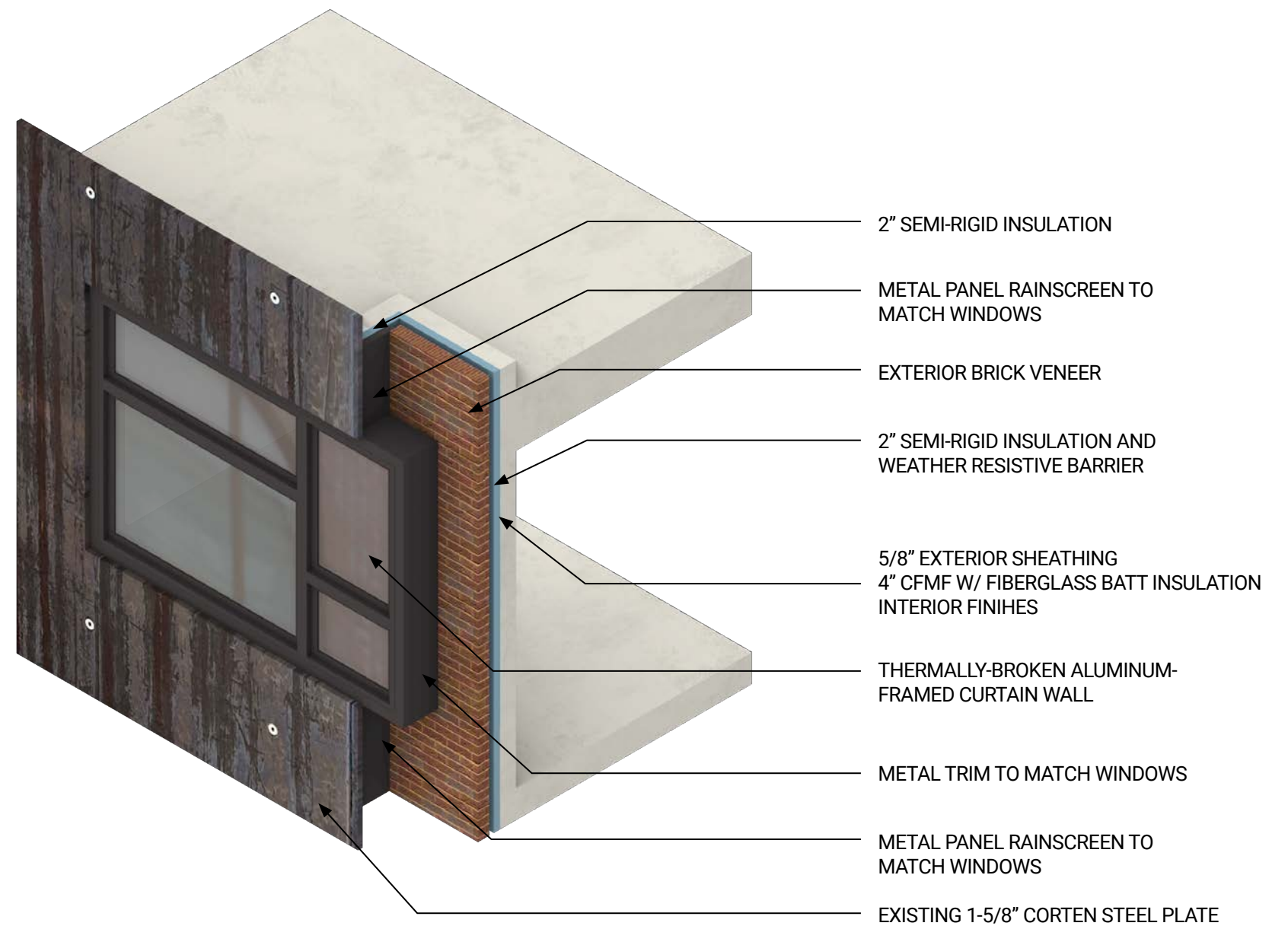
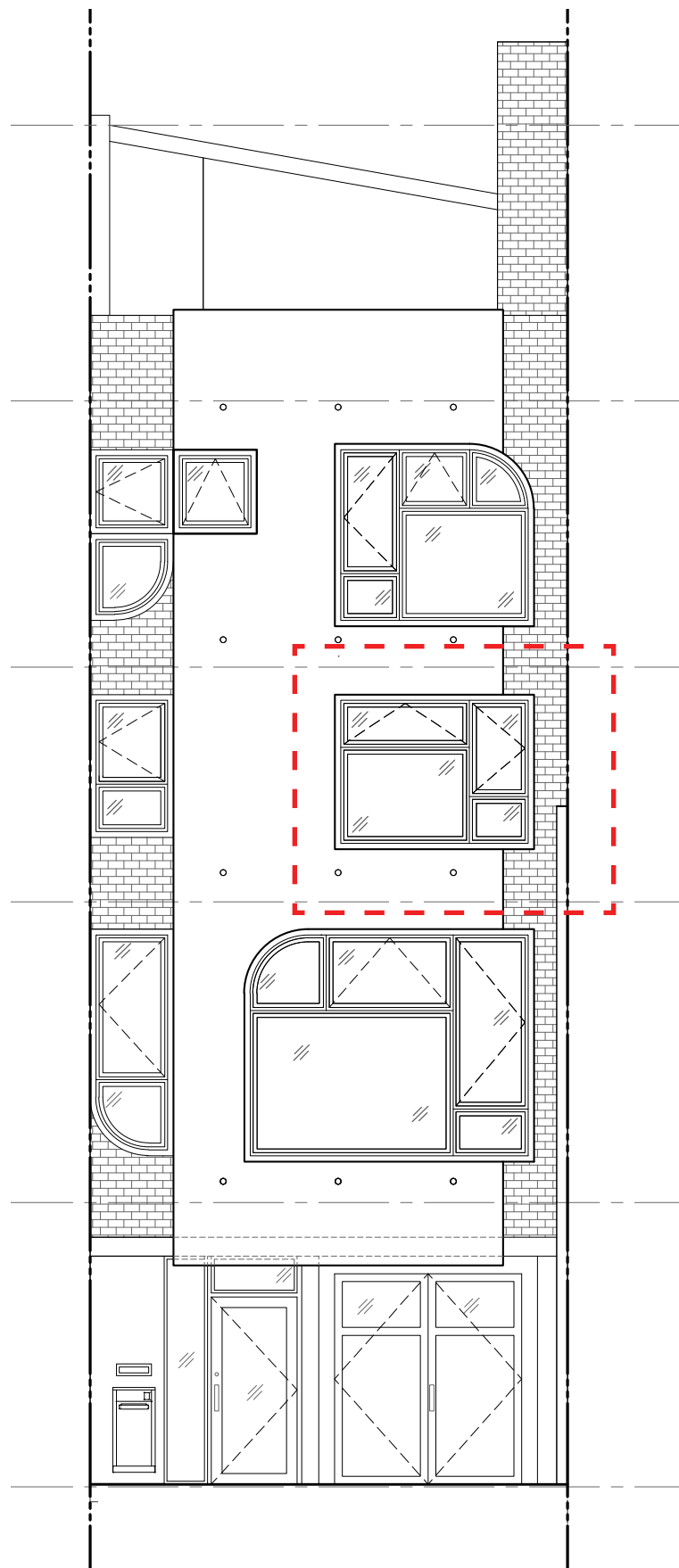
Stucco finished rainscreen wall

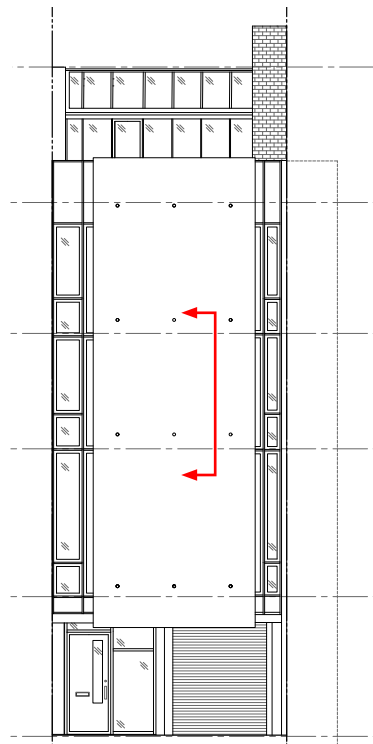


Aluminum framed windows

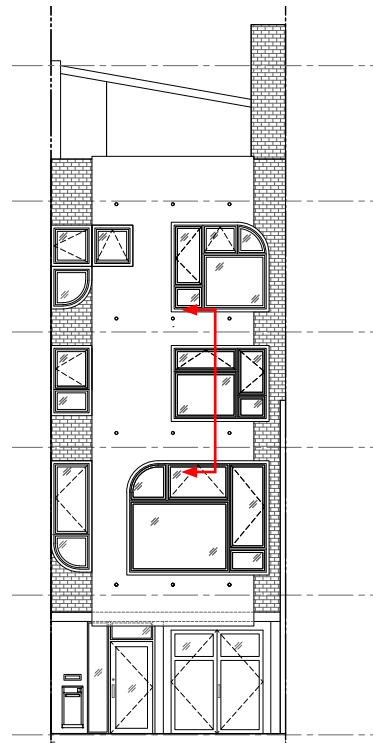


Aluminum framed multi-fold door system





EXISTING



PROPOSED

EXTERIOR

INTERIOR

- (E) 1-5/8" CORTEN STEEL PLATE
- (E) 2" RIGID INSULATION
- (E) WEATHER RESISTIVE BARRIER
- (E) 1/2" CEMENT BOARD
- (E) 4" CFMF W/ FIBERGLASS BATT INSULATION BETWEEN STUDS
- (E) 1/2" GWB

5 5/8"
TO E.O.S.

3RD FLOOR

2ND FLOOR

EXISTING FRONT FACADE WALL SECTION

EXTERIOR

INTERIOR

- 5/8" TYPE X GWB
- STEEL FRAMING, SEE STRUCTURAL DRAWINGS
- CORTEN STEEL ANGLE 2.5"x1.5"x1/4"
- THERMALLY-BROKEN ALUMINUM-FRAMED CURTAIN WALL

3RD FLOOR

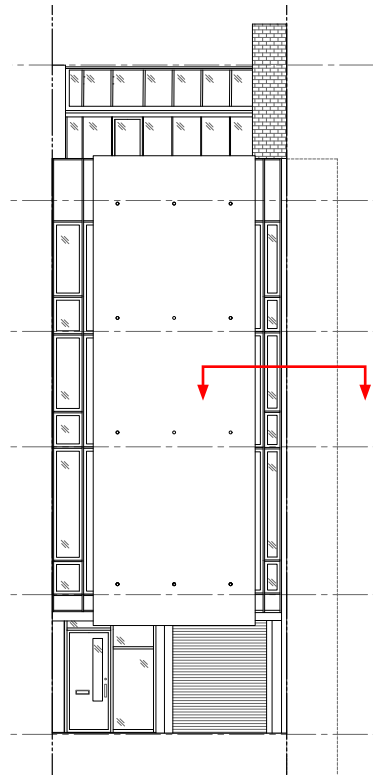
2ND FLOOR

- (E) 1-5/8" CORTEN STEEL PLATE
- 4" CLOSED CELL SPRAY POLYURETHANE FOAM INSULATION
- 4" CFMF W/ FIBERGLASS BATT INSULATION BETWEEN STUDS
- (E) CONCRETE FLOOR SLAB FIRE BARRIER

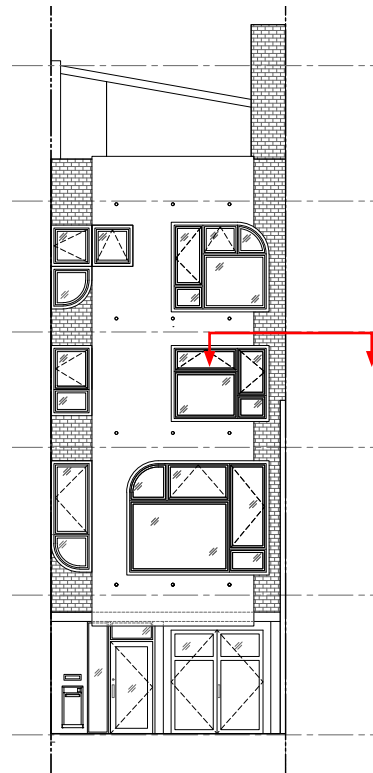
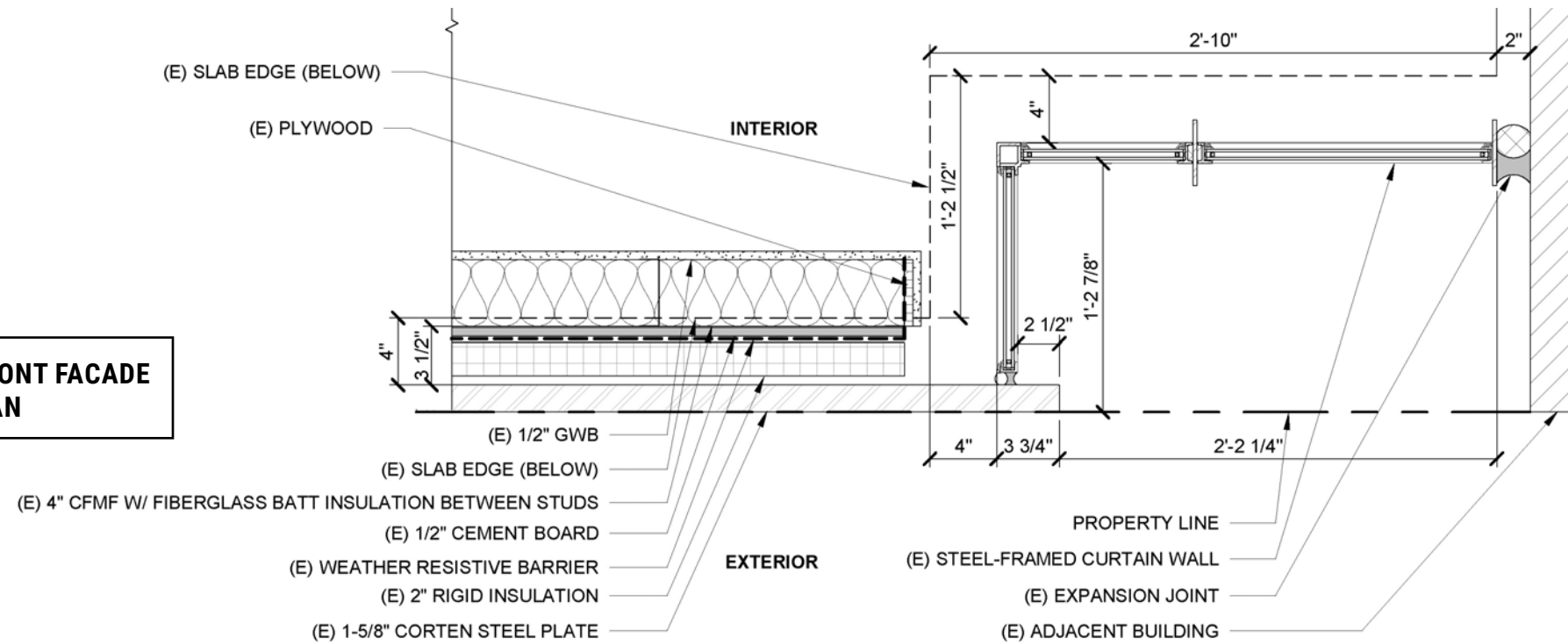
2'-0"

4"

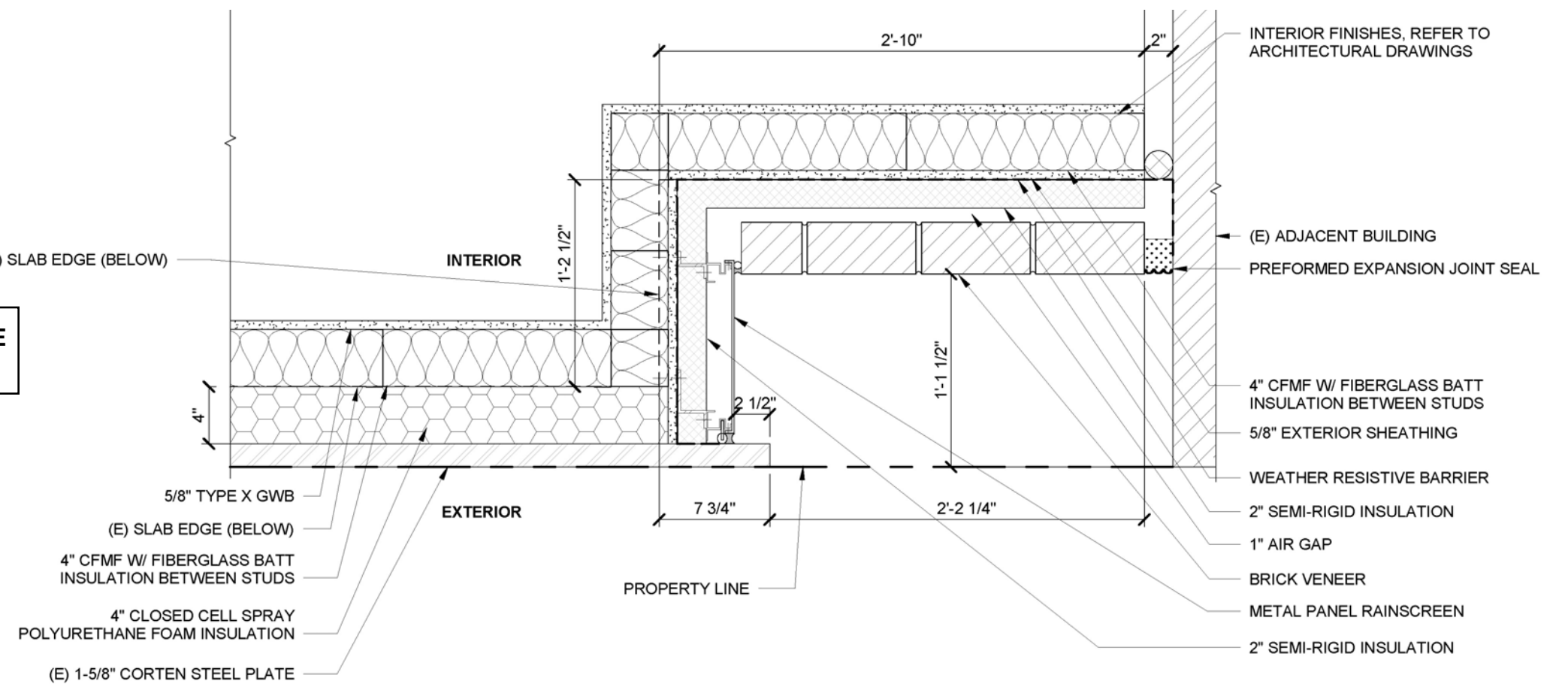
PROPOSED FRONT FACADE WALL SECTION

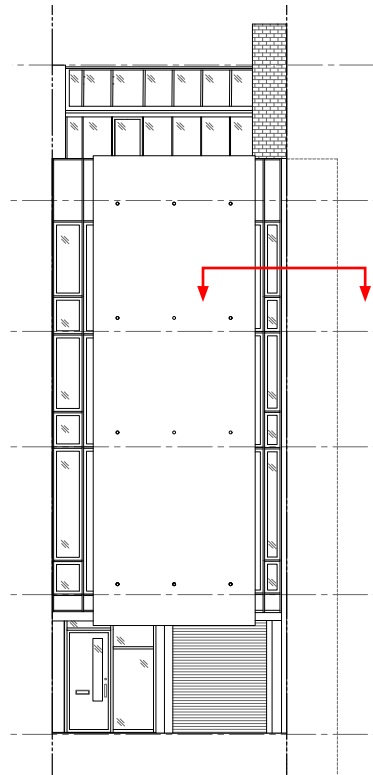


**EXISTING FRONT FACADE
PARTIAL PLAN**

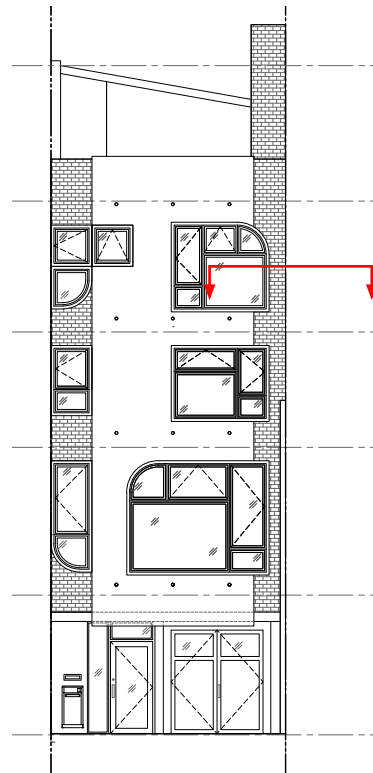
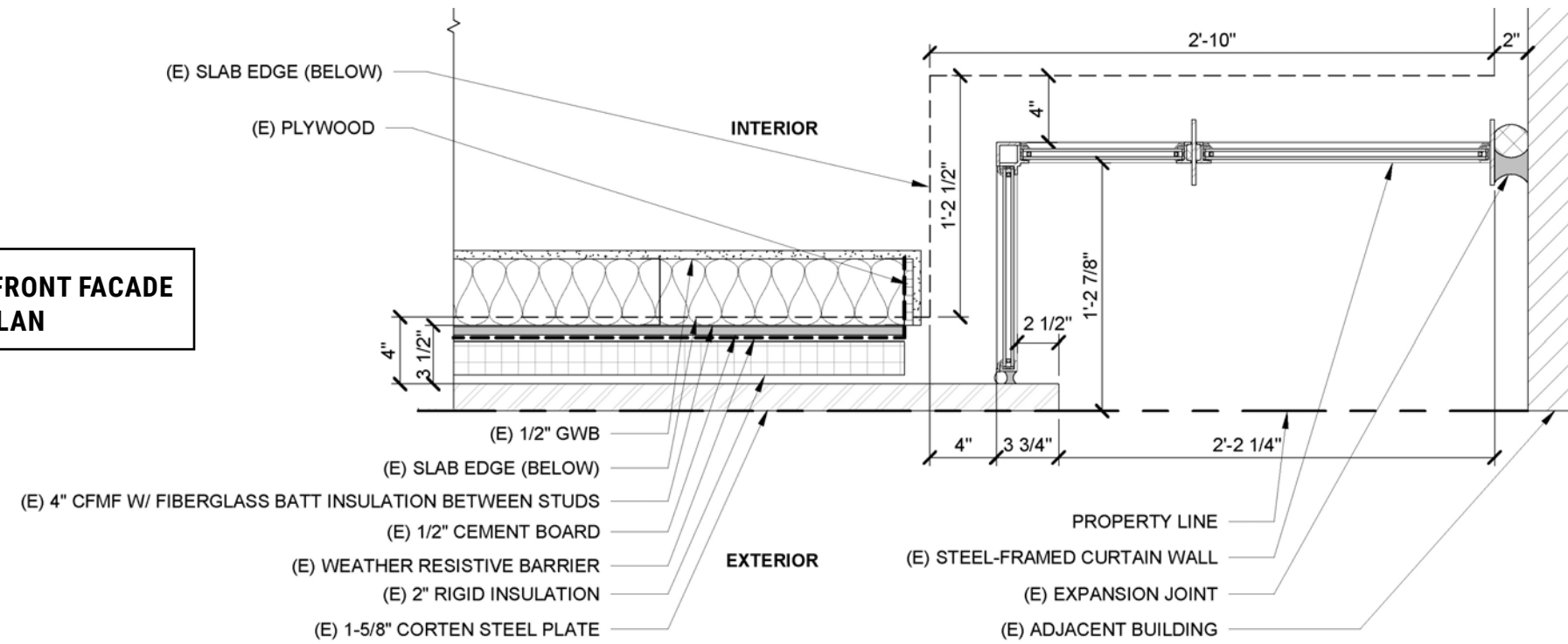


**PROPOSED FRONT FACADE
PARTIAL PLAN @ WALL**

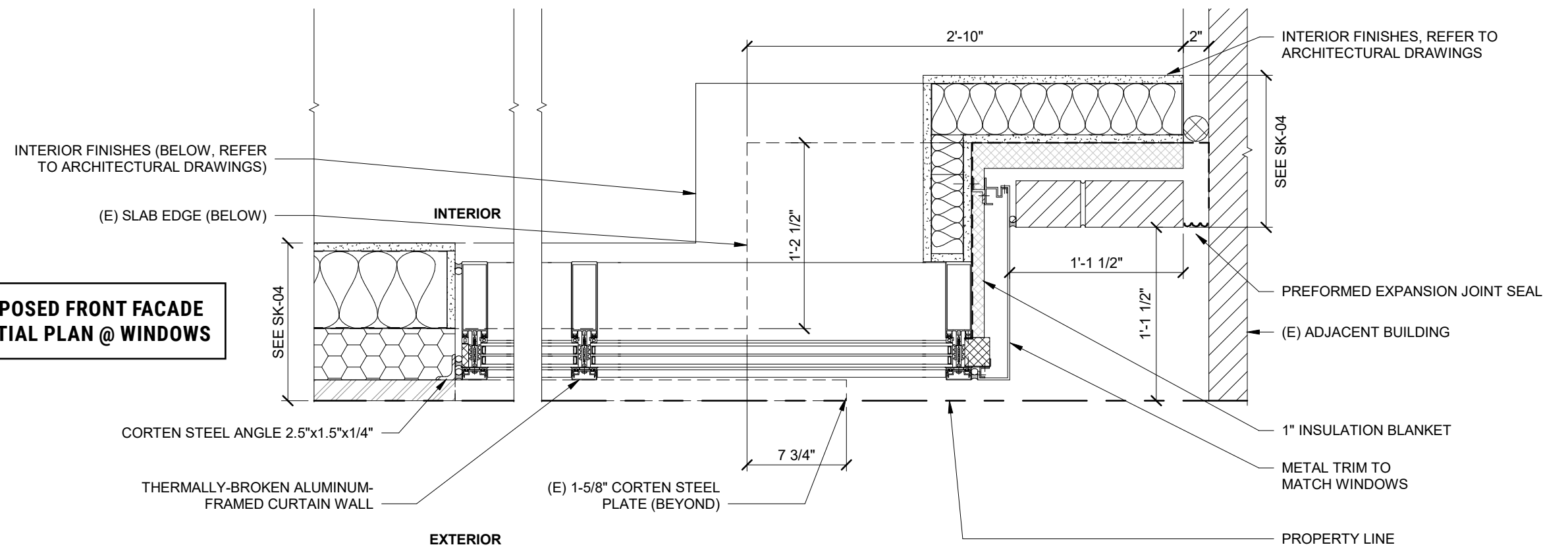


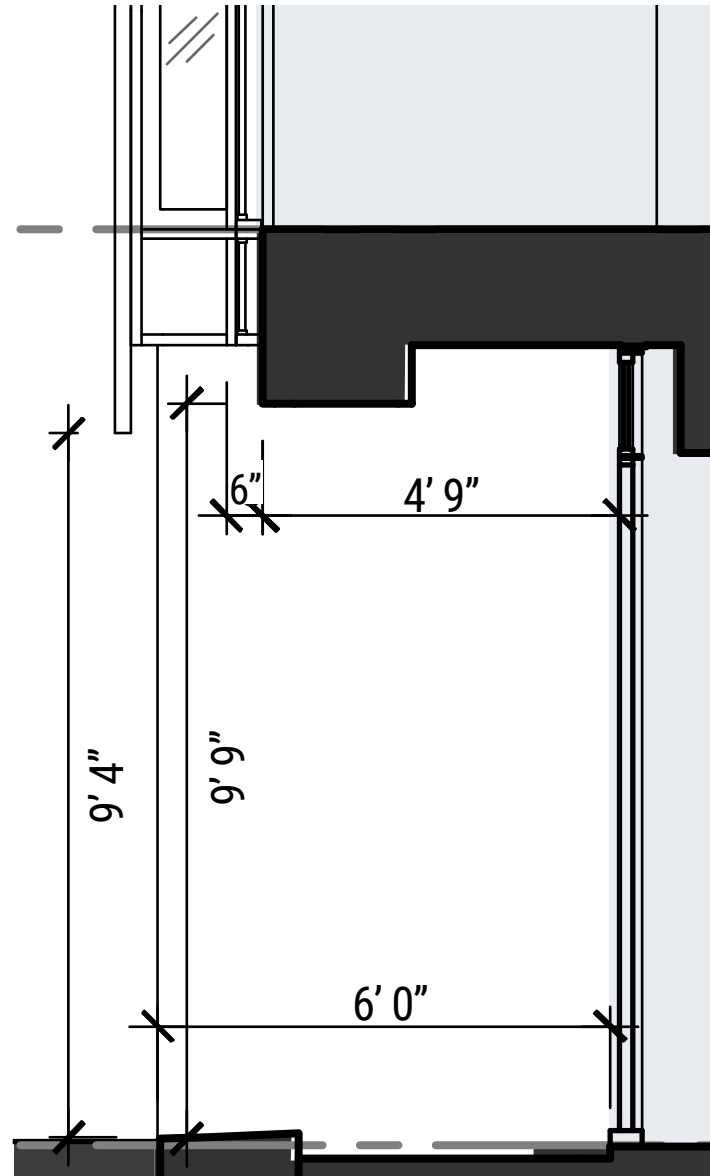


**EXISTING FRONT FACADE
PARTIAL PLAN**

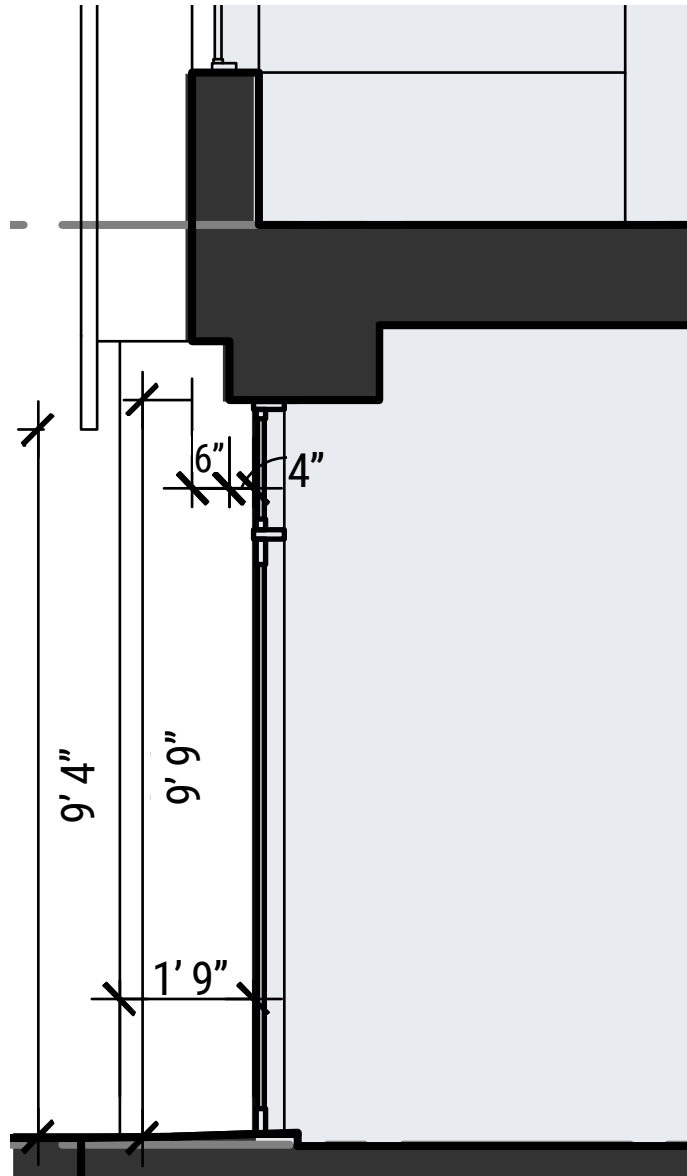


**PROPOSED FRONT FACADE
PARTIAL PLAN @ WINDOWS**

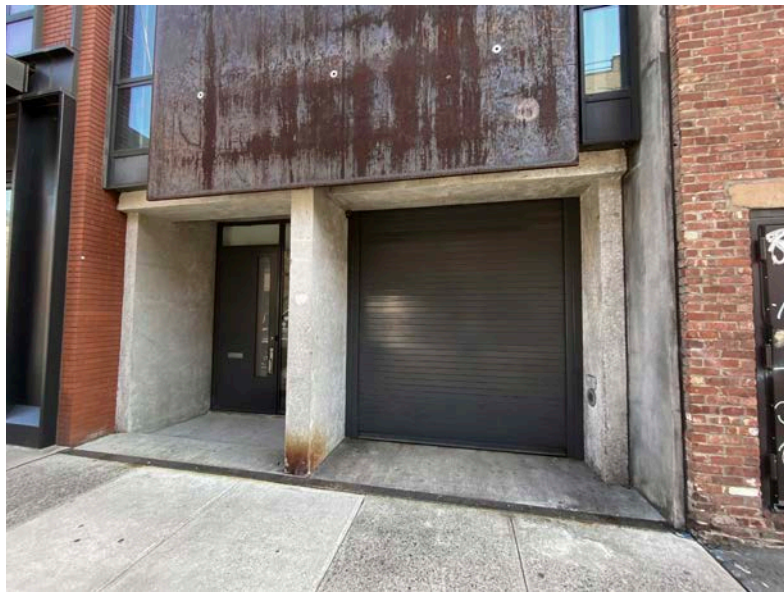




EXISTING SECTION



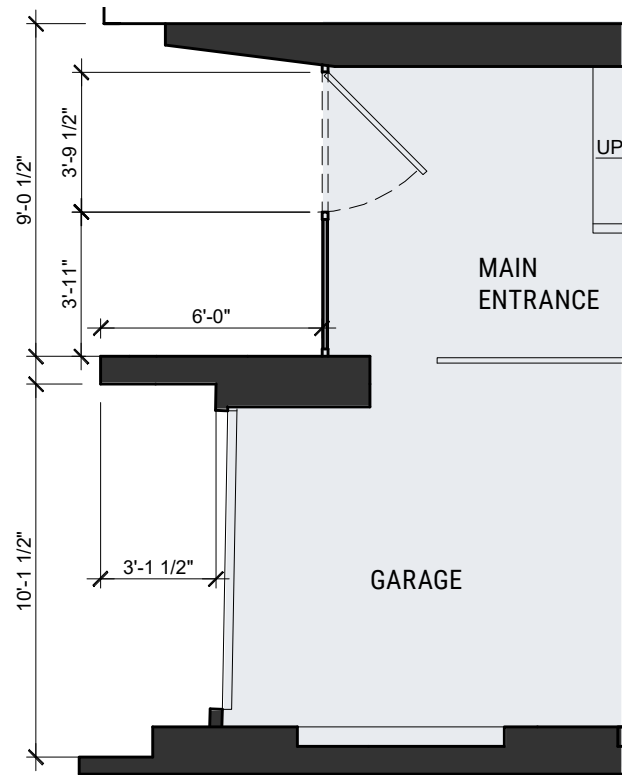
PROPOSED SECTION



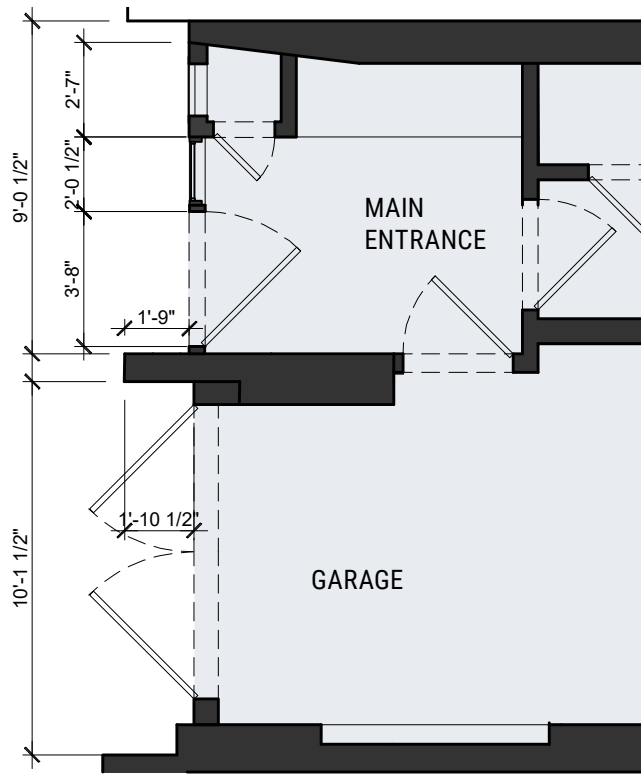
EXISTING CONDITION



PROPOSED CONDITION

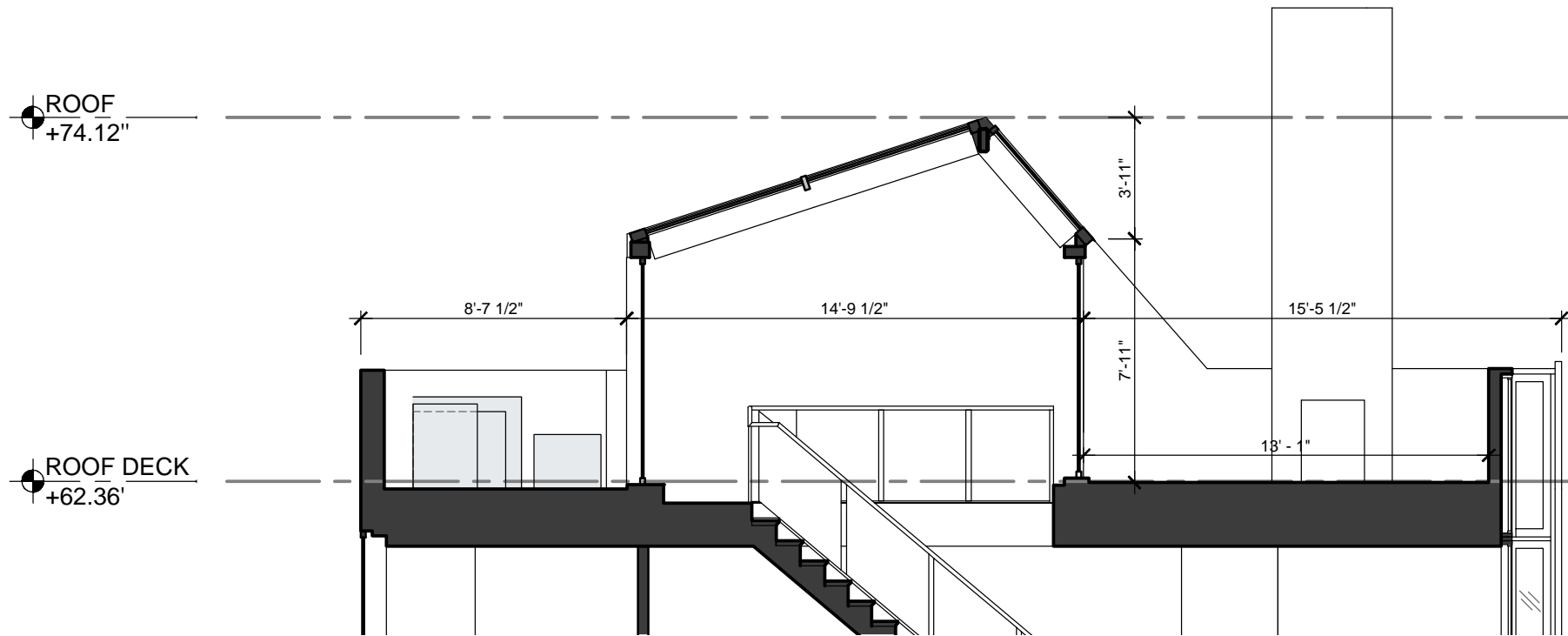


EXISTING PLAN

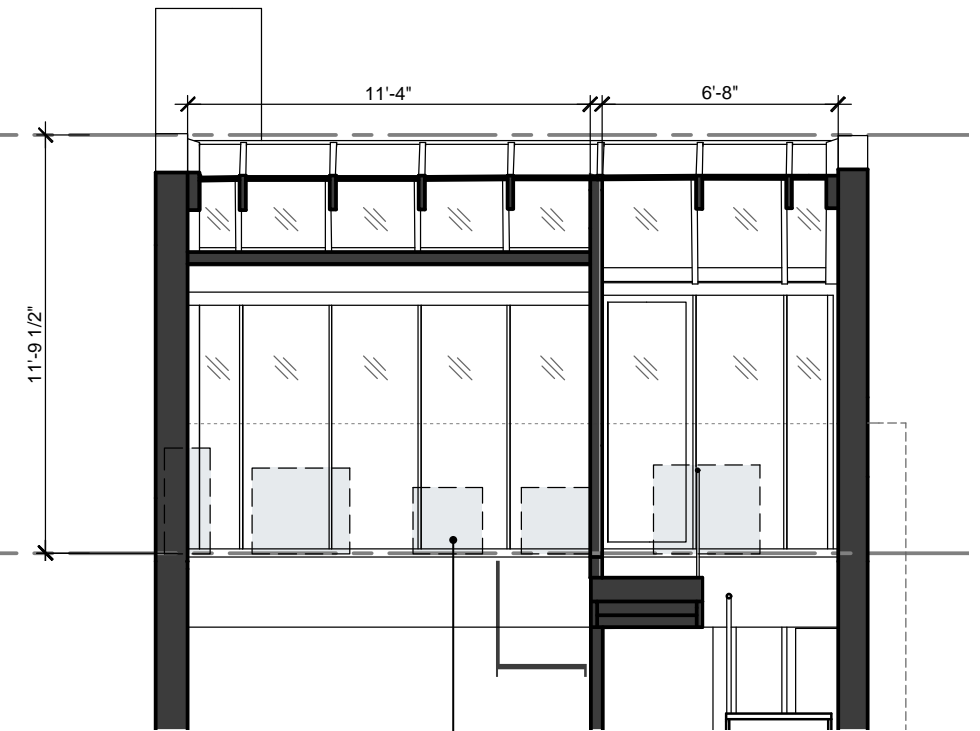


PROPOSED PLAN

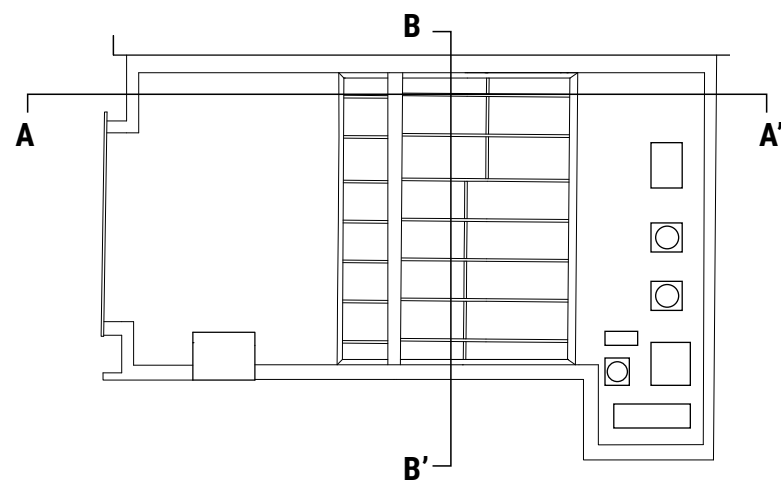
GROUND ENTRANCE



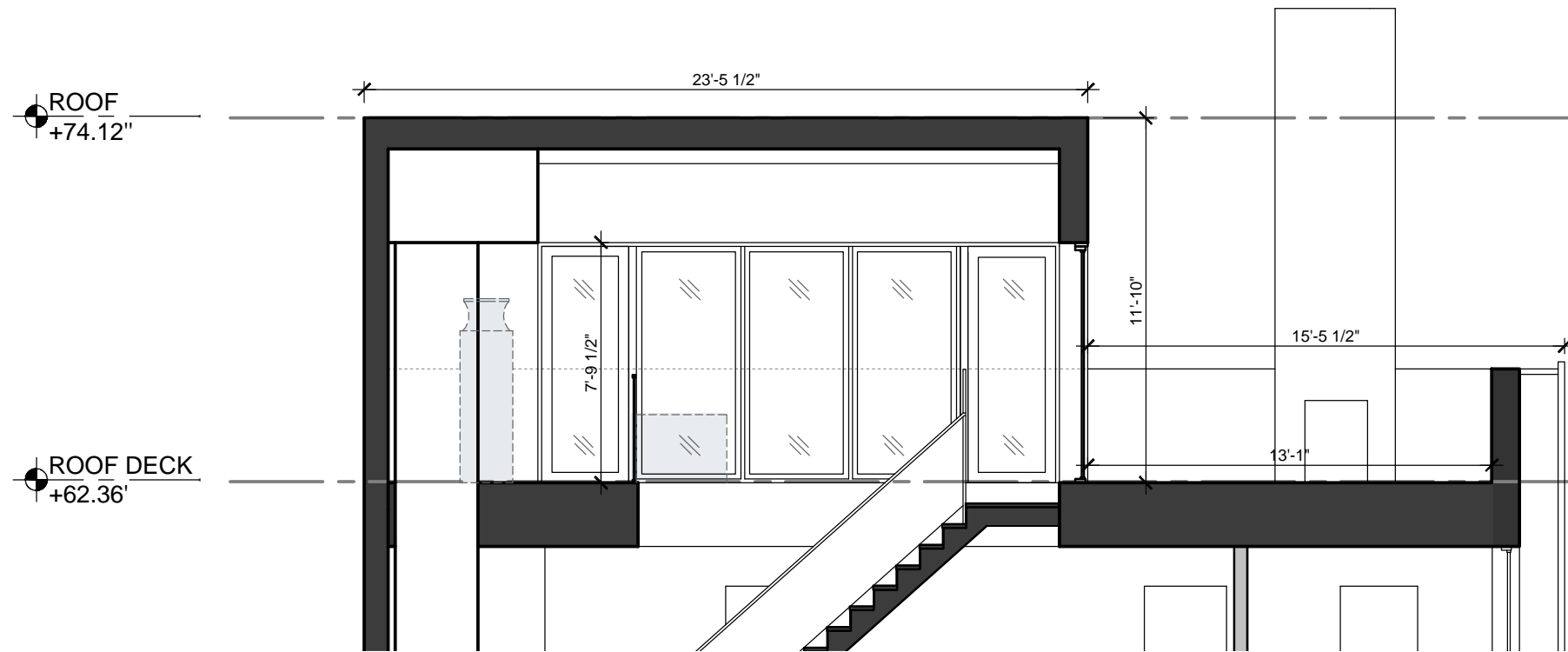
SECTION A - A'



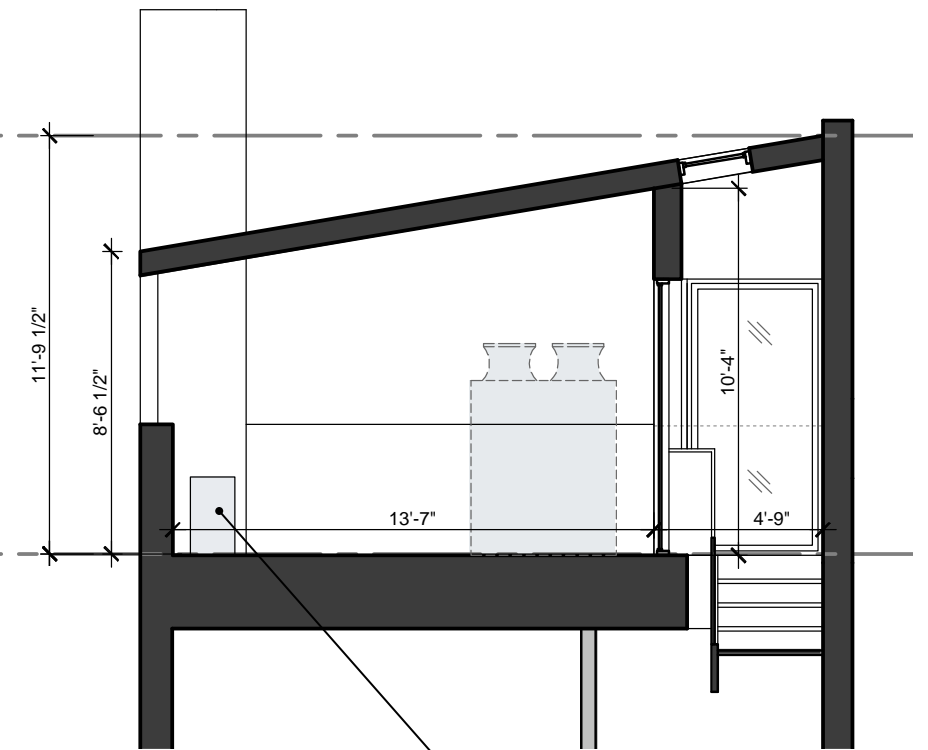
SECTION B - B'



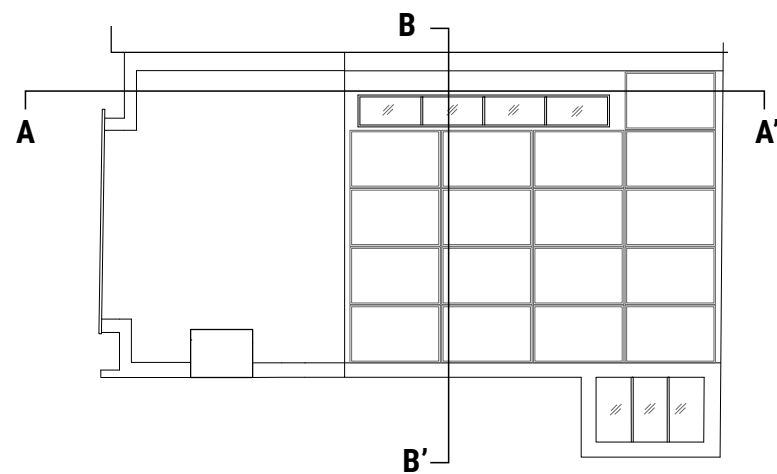
Existing mechanical equipment



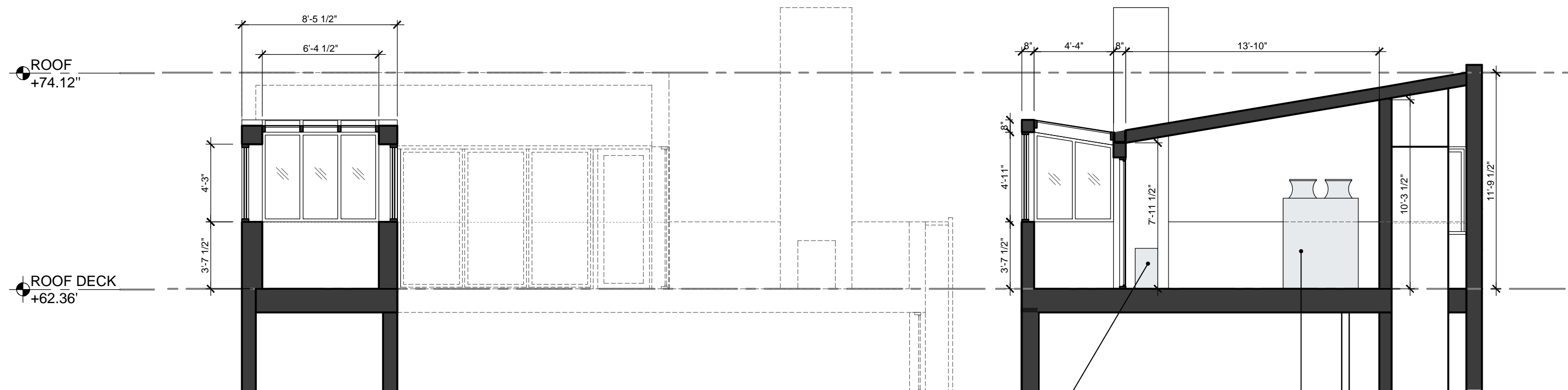
SECTION A - A'



SECTION B - B'

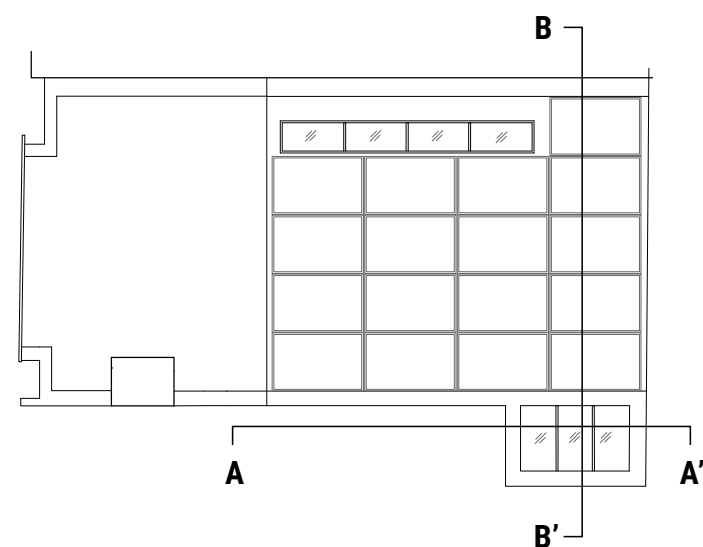


New heat pump for
electrical hot water
heater



SECTION A - A'

SECTION B - B'

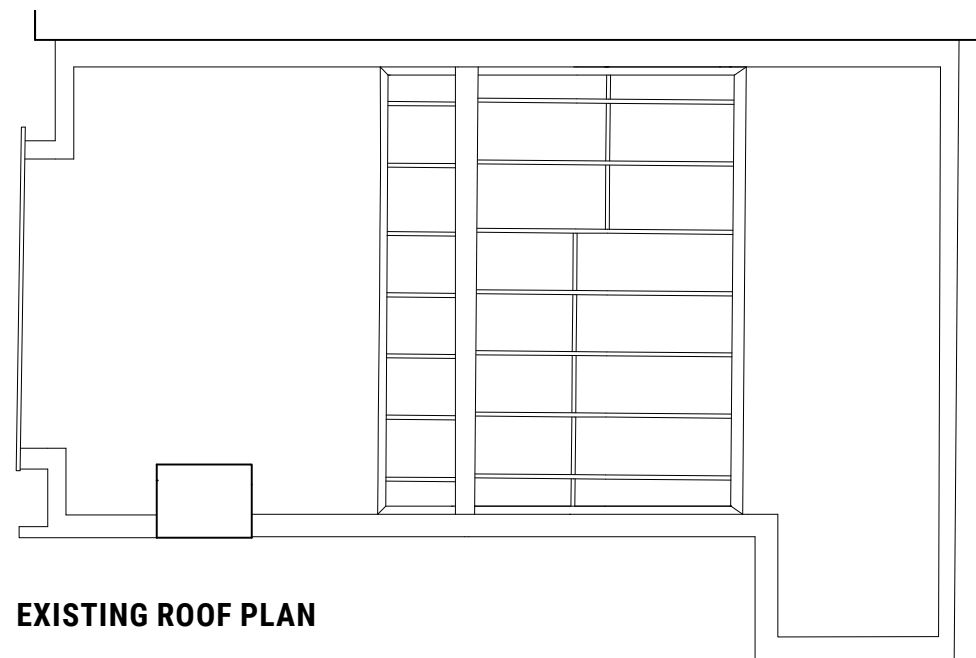


New heat pump for
electrical hot water
heater

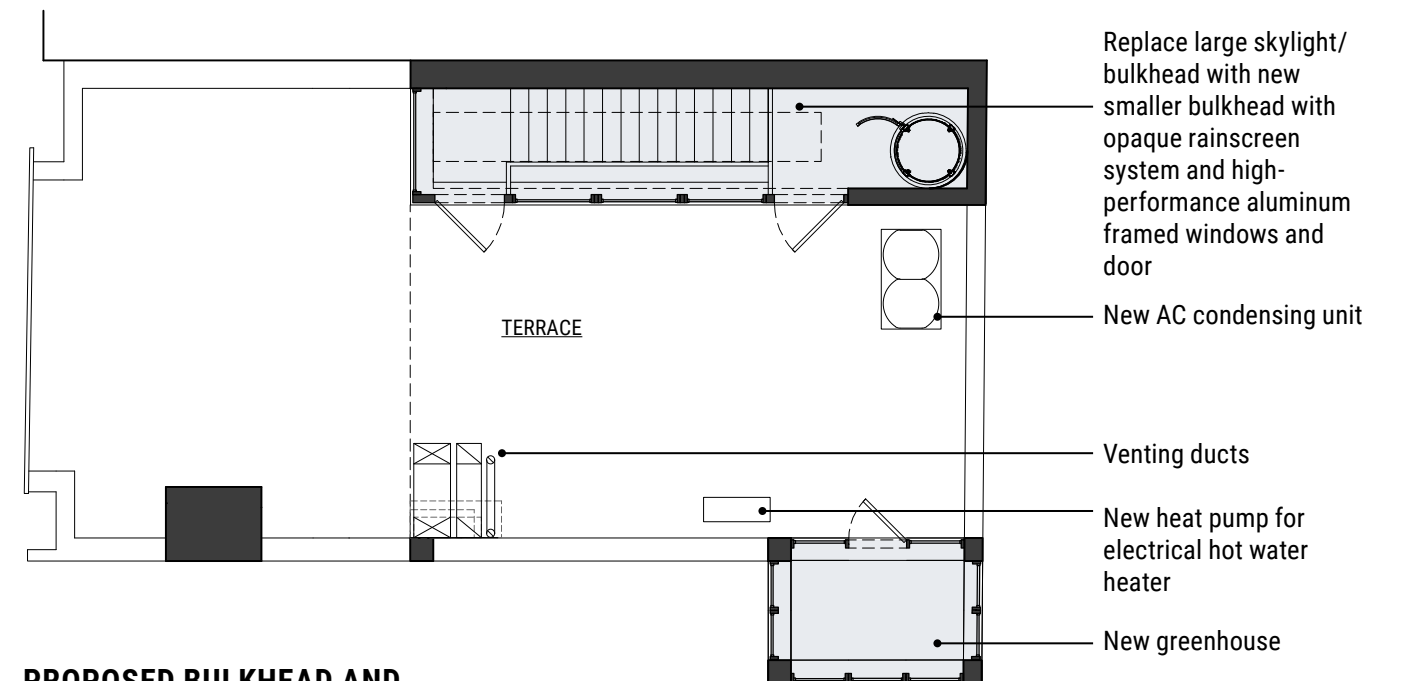


New AC
condensing unit

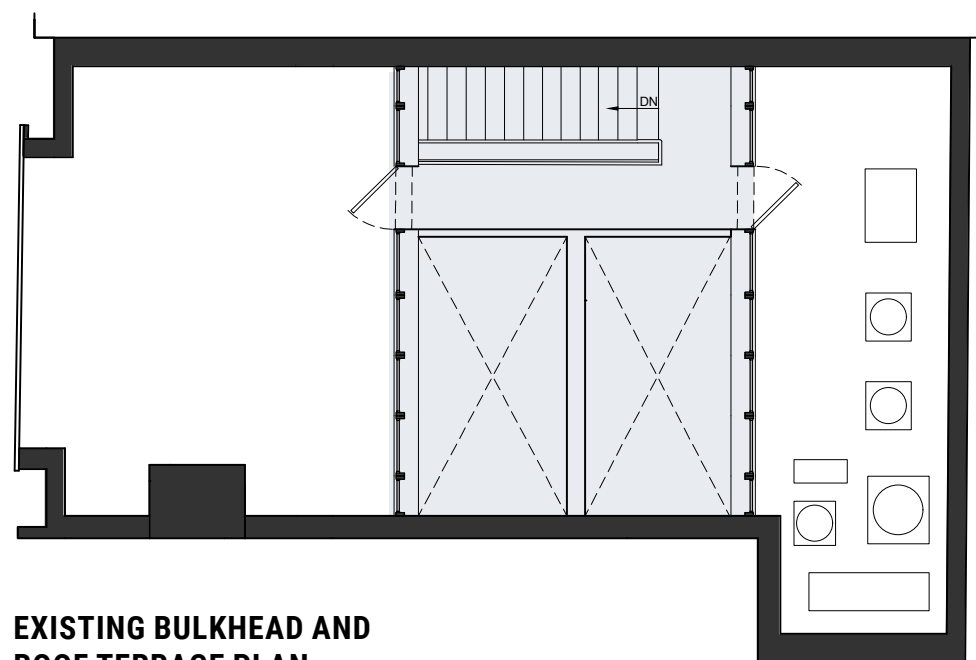




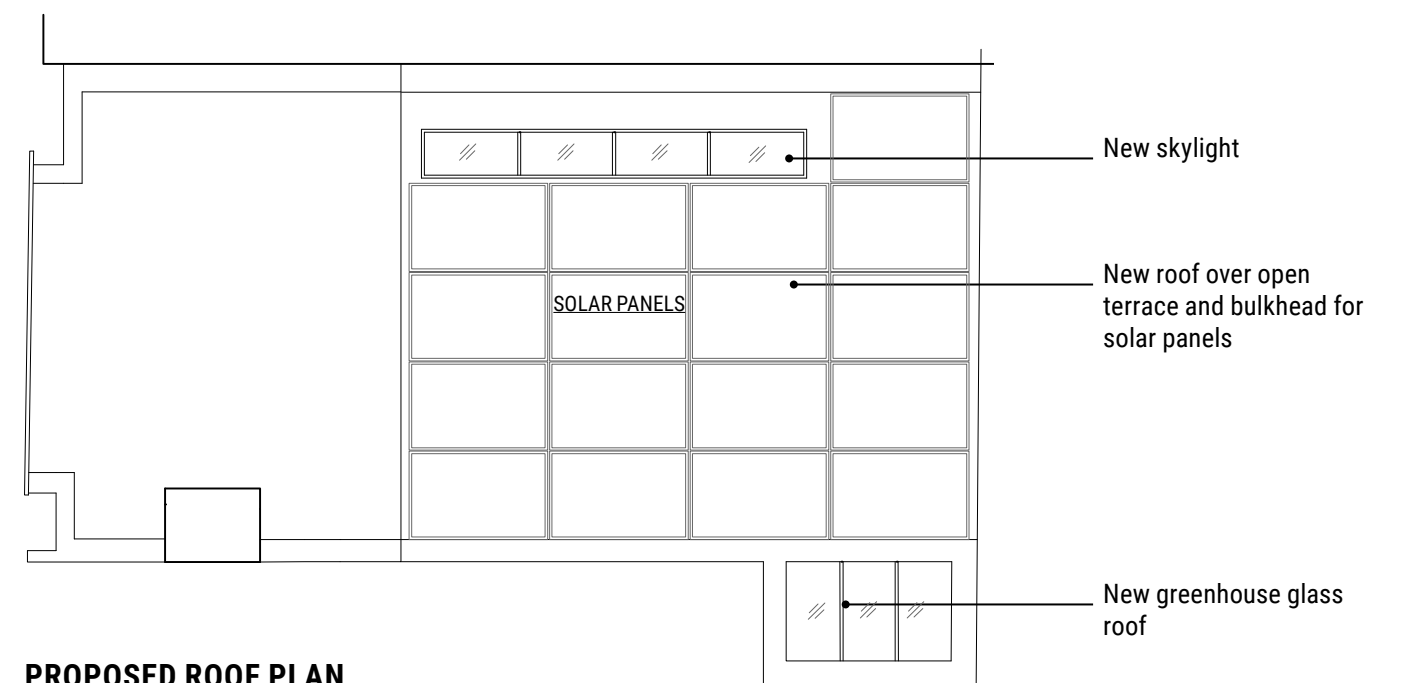
EXISTING ROOF PLAN



PROPOSED BULKHEAD AND ROOF TERRACE PLAN



EXISTING BULKHEAD AND ROOF TERRACE PLAN



PROPOSED ROOF PLAN





EXISTING WITH MOCKUP



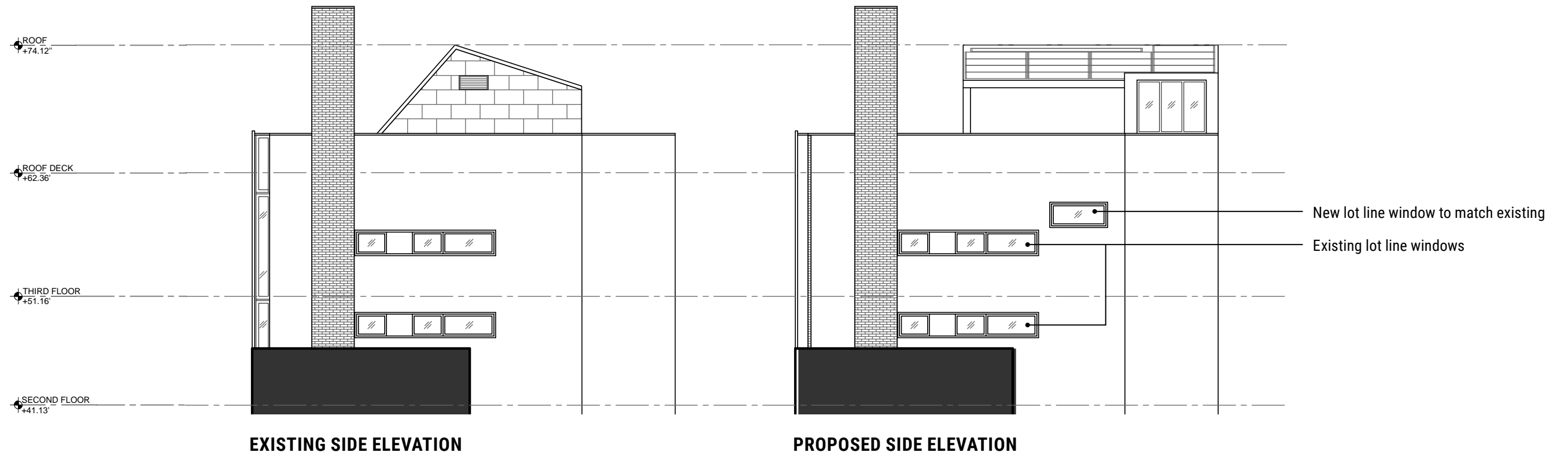
EXISTING WITH PROPOSED ROOF



EXISTING WITH MOCKUP



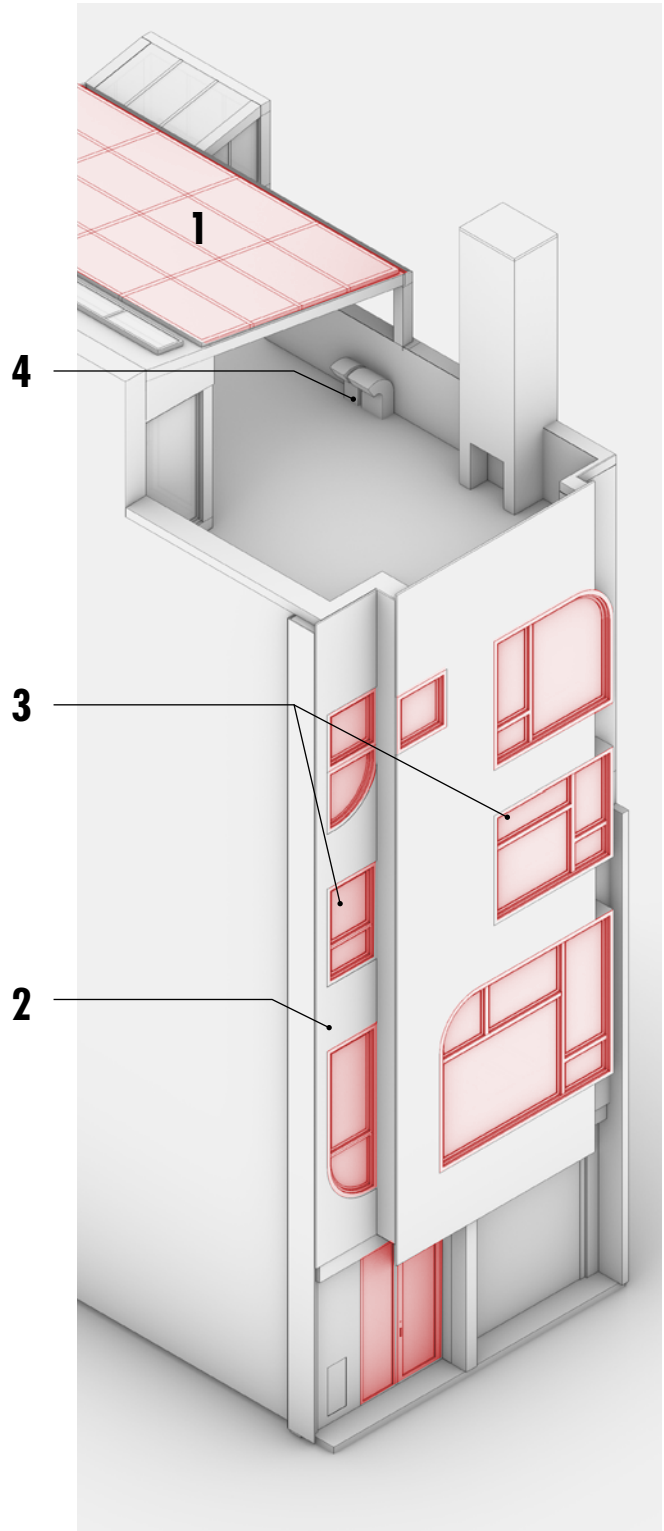
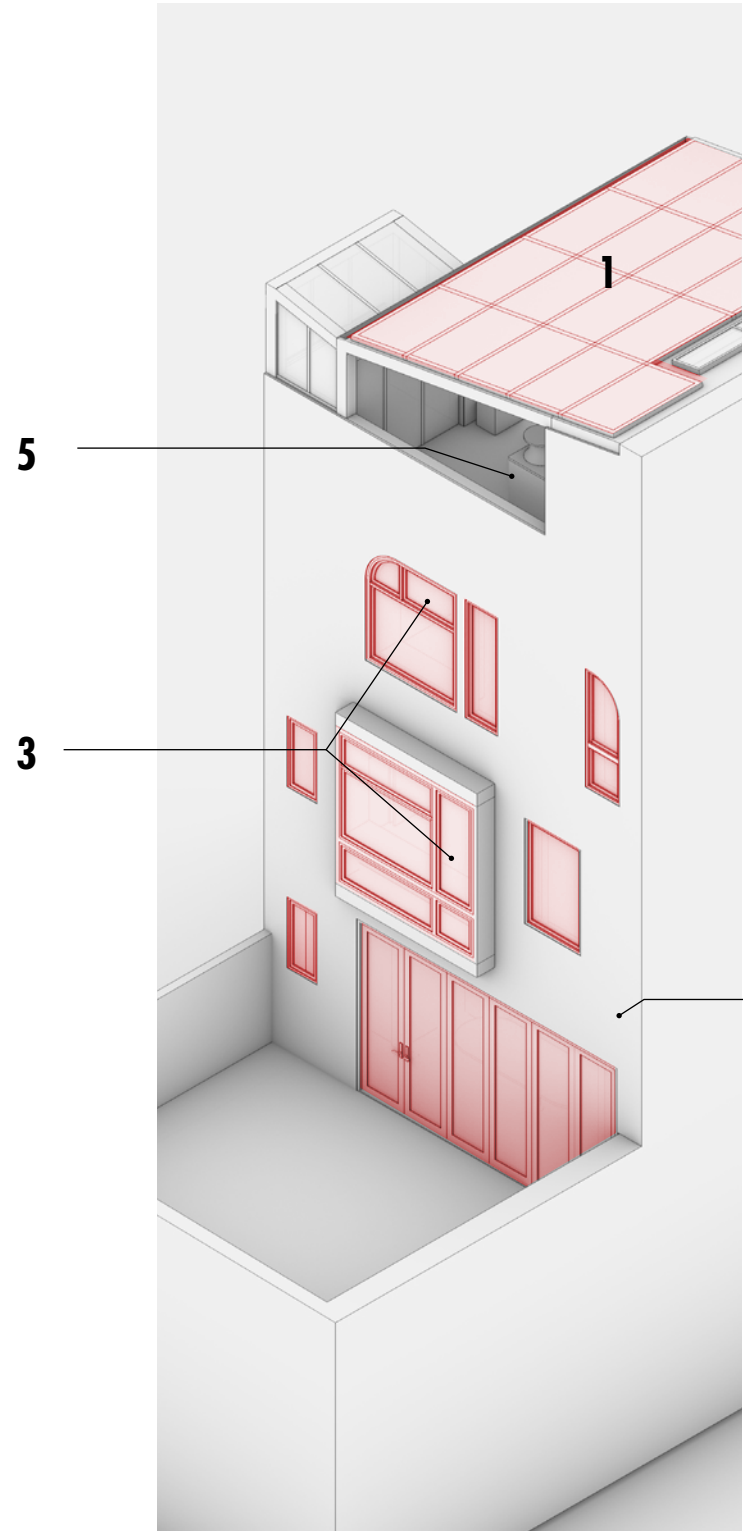
EXISTING WITH PROPOSED ROOF



EXISTING SIDE WINDOWS VISIBILITY



PROPOSED WINDOW VISIBILITY



1

Solar Array

2

New air sealing membranes on interior side of exterior walls and roofs with new insulation to meet passive house design recommendations

3

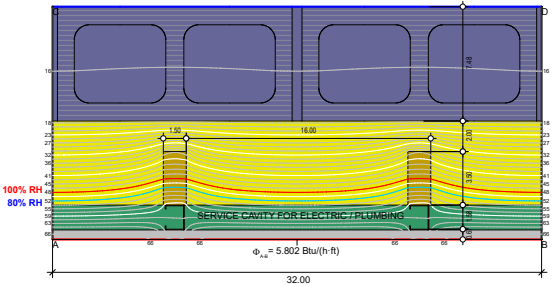
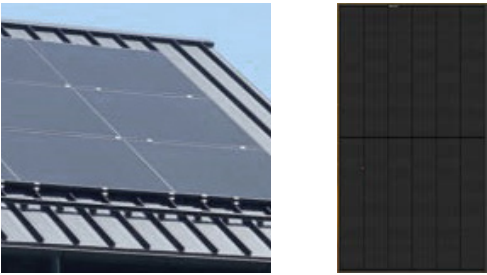
All new fenestration with triple-pane glazing

4

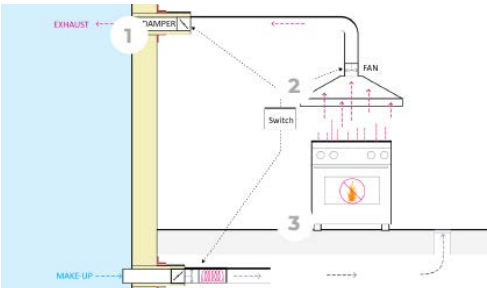
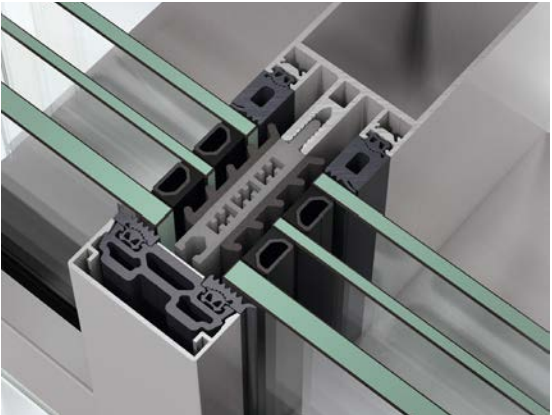
New air ventilation components to meet passive house design recommendations

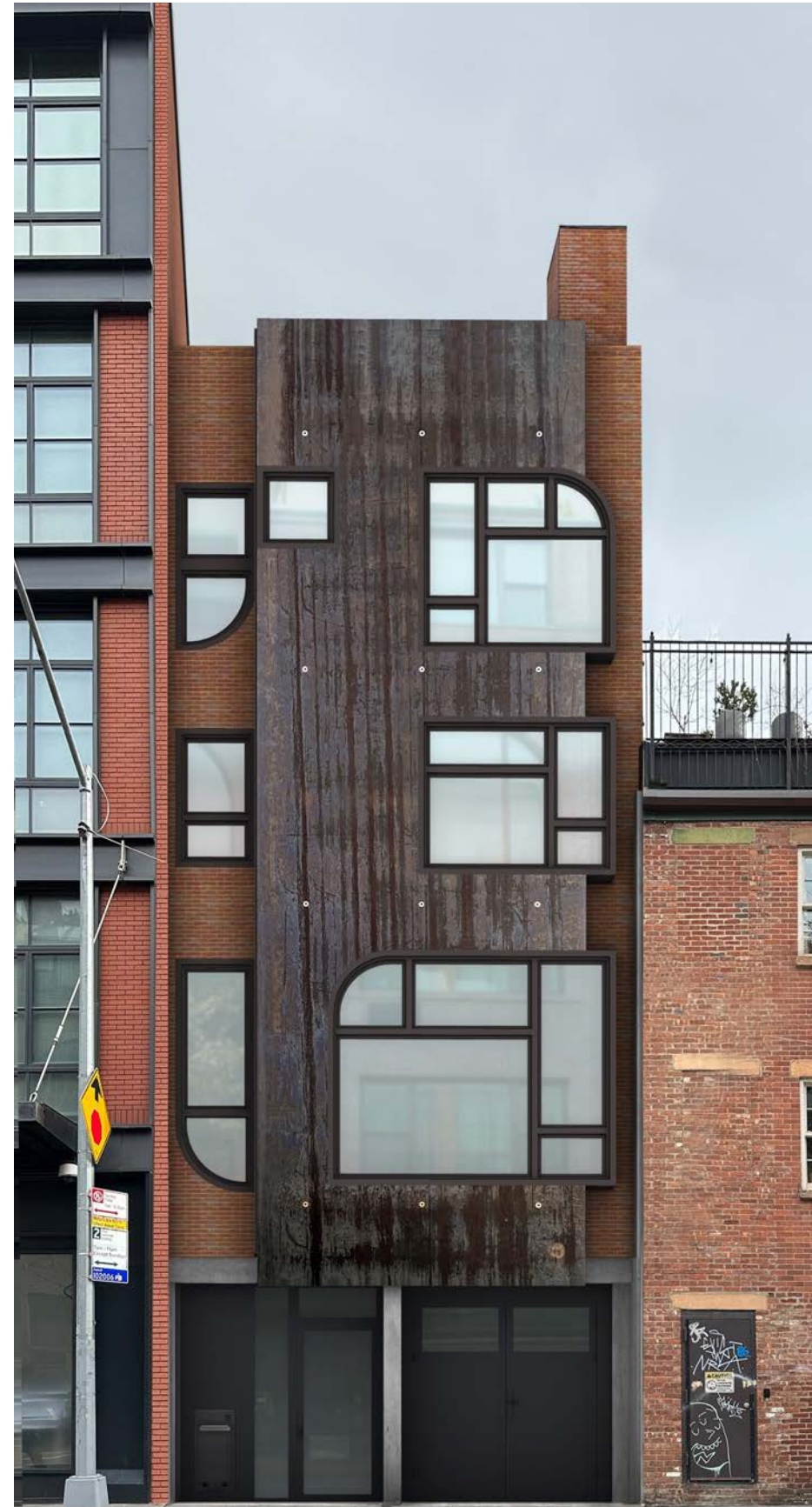
5

Gas services are removed and all systems are replaced with electric equipment in compliance with Local Law 154



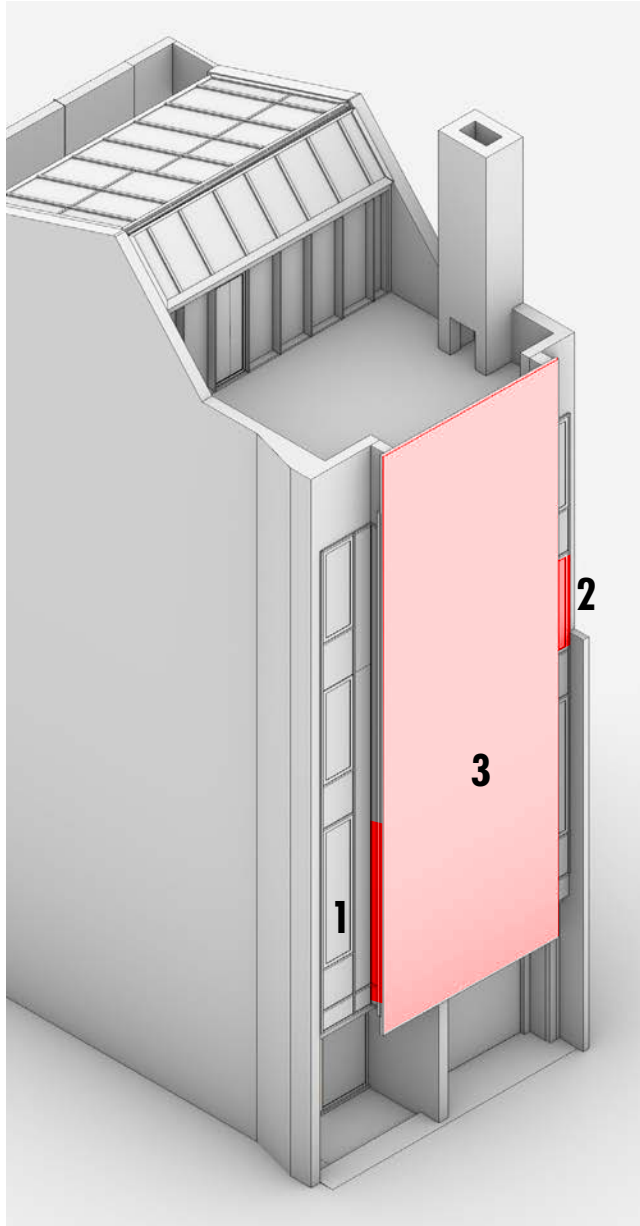
$$U_{\text{wall}} = \frac{5.802}{54.0 \times 2.667} = 0.0403 \text{ Btu/(h-ft}^2\text{)} = R-24.8$$





APPENDIX

BUILDING ENCLOSURE PROPOSED SCOPE



1

Displaced gasket

Staining at IGU edge and on trim



2

Displaced IGU spacers

Deteriorated gaskets at operable vents

Water leaks throughout entire building envelope caused mold growth on majority of building interior, which needed to be professionally abated



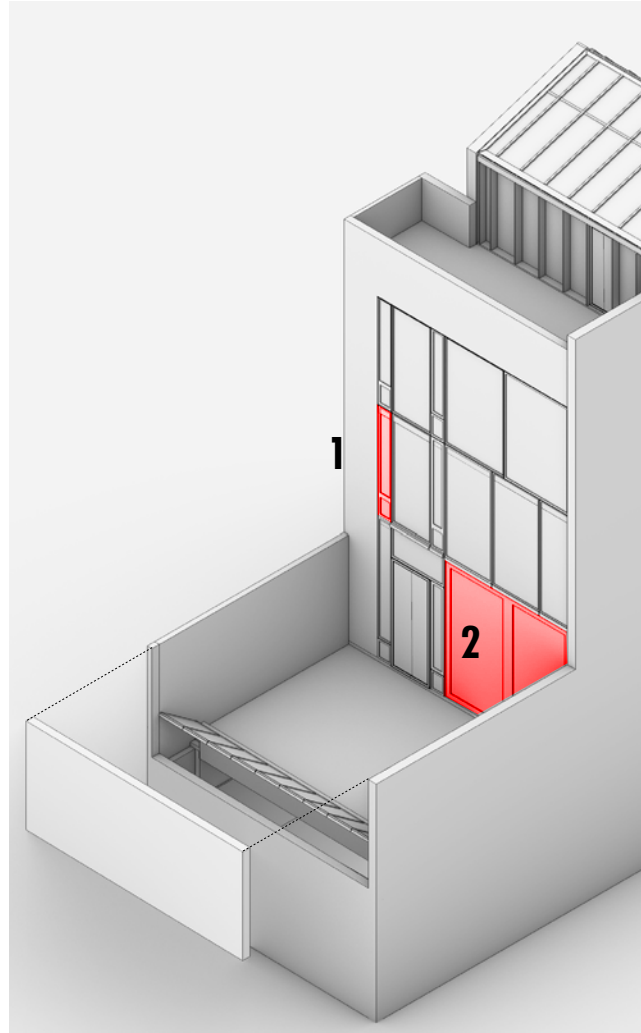
3

Steel plate, XPS insulation, self-adhered membrane waterproofing

Interior surface of exterior sheathing-staining and deterioration

Steel plate has water leaks, thermal bridges, and poor thermal performance





1

Deteriorated gaskets at operable vents

Discontinuous gasket

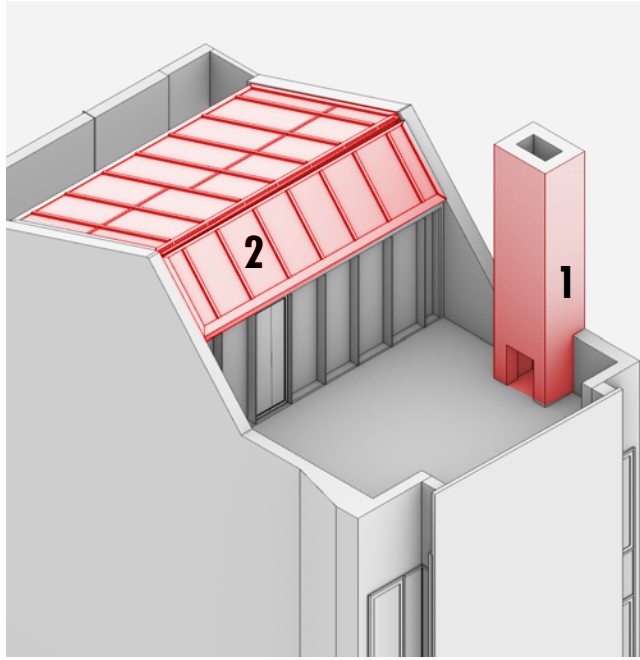
Water stain



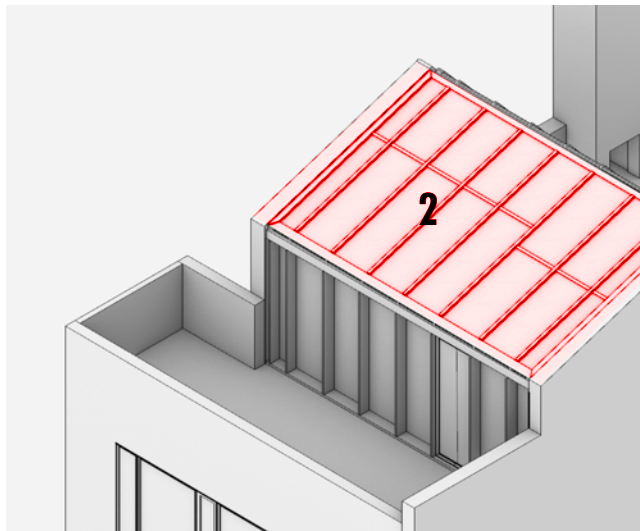
2

Misalignment / lack of gasket compression at bi-fold door





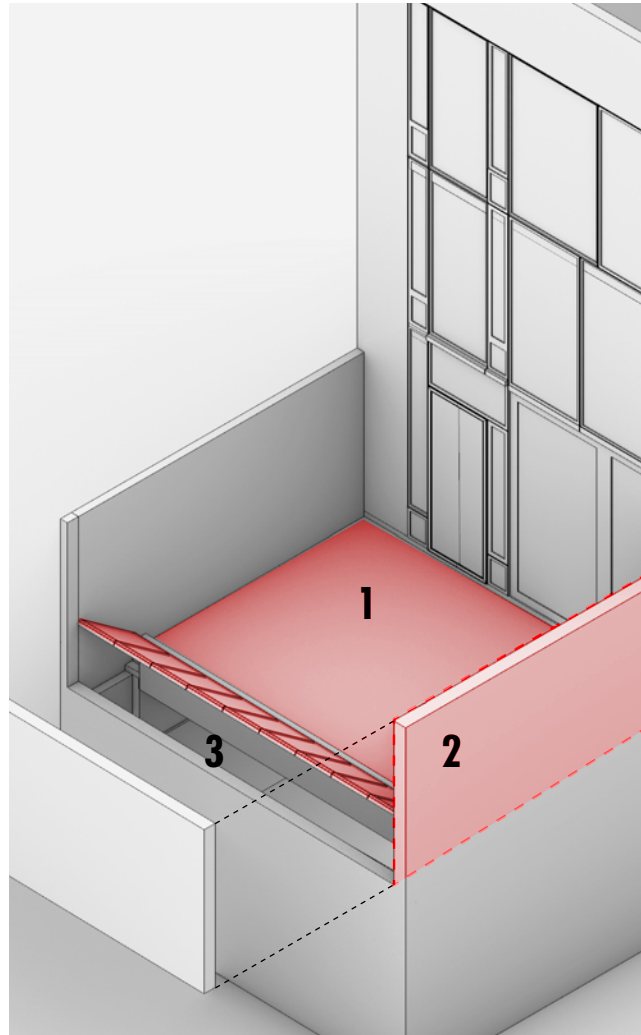
1
Deteriorated mortar at brick masonry chimney



2
Excessive solar heat gain from roof skylight (shade installed to reduce heat gain)

Large skylight and bulkhead has air leaks, condensation at frames, and contributes to excessive solar heat gain





1

Existing roofing

Water below and within roofing assembly

Ceiling repairs at area of reported water leakage



2

Cracked stucco and corroded flashing



3

Staining and mineral deposits on framing at sill
Discoloration at IGU edge



FACADE - EXISTING CONDITIONS AND PROPOSED SCOPE

Findings*

- **Curtain Wall**
 - Deteriorated interior and exterior gaskets throughout
 - Condensation at frames and adjacent interior finishes
 - Failed (i.e., fogged) IGUs
 - Water leaks through operable units and potentially at fixed units
 - Lack of window guards/stops at operable units
- **Doors**
 - Failed IGUs and broken hinges, and lack of perimeter gasket compression at bifold doors
 - Evidence of water leakage inboard of roof and parlor level terrace hinged doors
- **Steel Plate Assembly**
 - Water leakage through and/or around steel plate
 - Thermal bridging
 - Poor overall thermal performance

* Findings are limited to water, thermal, air, and water vapor performance of existing building enclosure systems. They do not consider other performance characteristics, such as daylighting, ventilation, and acoustics

Scope of Work

1. Replace rolled steel-framed curtain wall with opaque rainscreen systems
2. Provide punched openings with high-performance thermally-broken aluminum-framed window system
3. Replace doors with thermally-broken aluminum-framed system

ROOF - EXISTING CONDITIONS AND PROPOSED SCOPE

Findings*

- Main Roof
 - Waterproofing terminates on uninsulated ducts, with unsealed seams
 - Poor thermal performance
- Parlor Level Terrace
 - Roofing system has failed
 - Water leaks to cellar
 - Stucco is deteriorated
- Skylights
 - Condensation at frames
 - Potential water leakage
 - Excessive solar heat gain

* Findings are limited to water, thermal, air, and water vapor performance of existing building enclosure systems. They do not consider other performance characteristics, such as daylighting, ventilation, and acoustics

Scope of Work

1. Provide additional insulation at main roof.
2. Provide waterproofing and insulation (if necessary) at main roof ducts
3. Replace parlor level terrace roofing with waterproofing system
4. Replace stucco and waterproofing at planters
5. Replace skylights with thermally-broken skylight system with condensation gutters

OTHER - EXISTING CONDITIONS AND PROPOSED SCOPE

Findings*

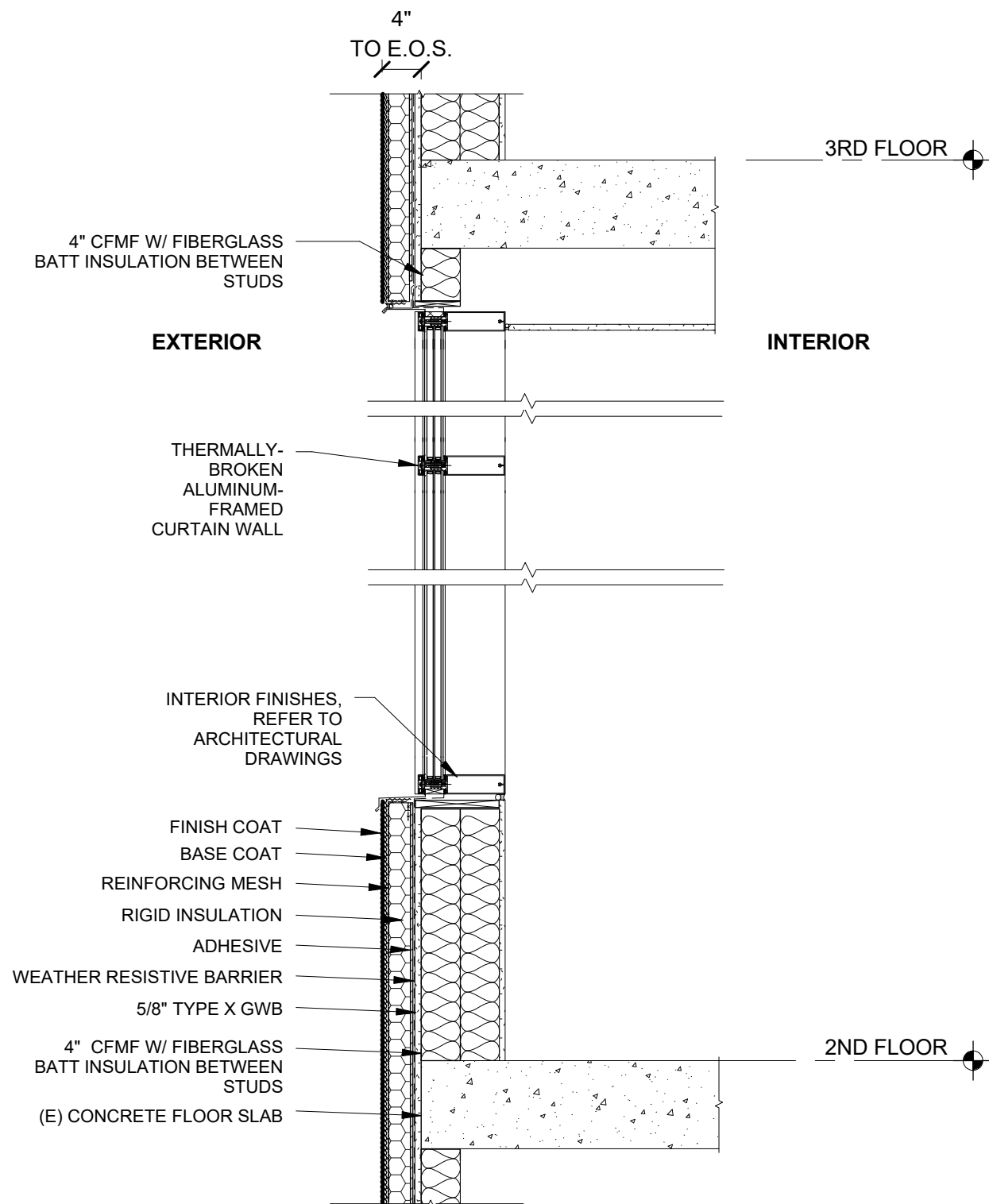
- Below-Grade Walls
 - Water leaks through existing rubble foundation walls
 - Ongoing pointing may reduce leakage but will not provide long term solution
 - Potential water leakage through east foundation wall
 - Foundation slab to be replaced
- Chimney
 - Water leaks through chimney
 - Ongoing pointing may reduce leakage but will not provide long term solution

* Findings are limited to water, thermal, air, and water vapor performance of existing building enclosure systems. They do not consider other performance characteristics, such as daylighting, ventilation, and acoustics

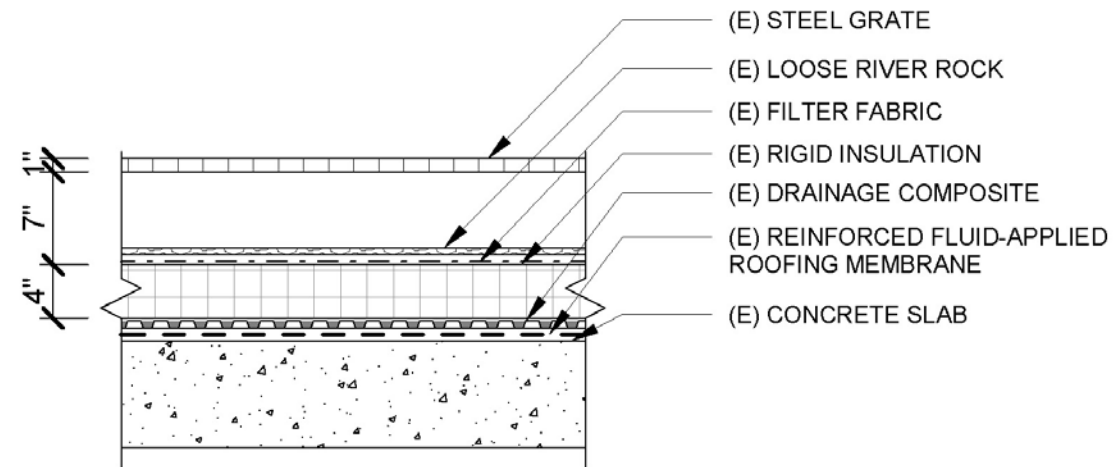
Scope of Work

1. Provide interior drainage system at cellar walls
2. Perform negative-side waterproofing repairs
3. Provide blind-side waterproofing at new foundation slab
4. Clad chimney

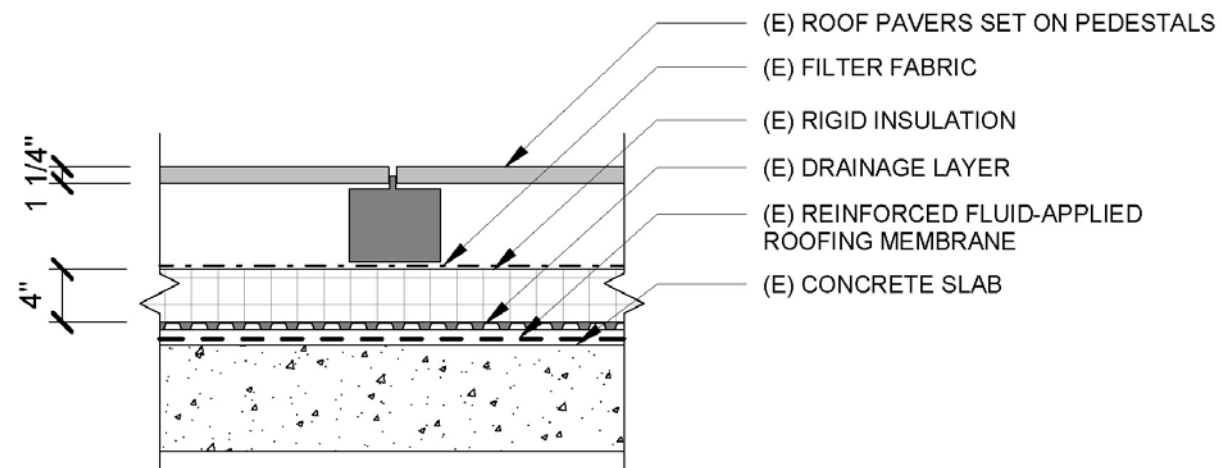
SECONDARY ENCLOSURE DETAILS



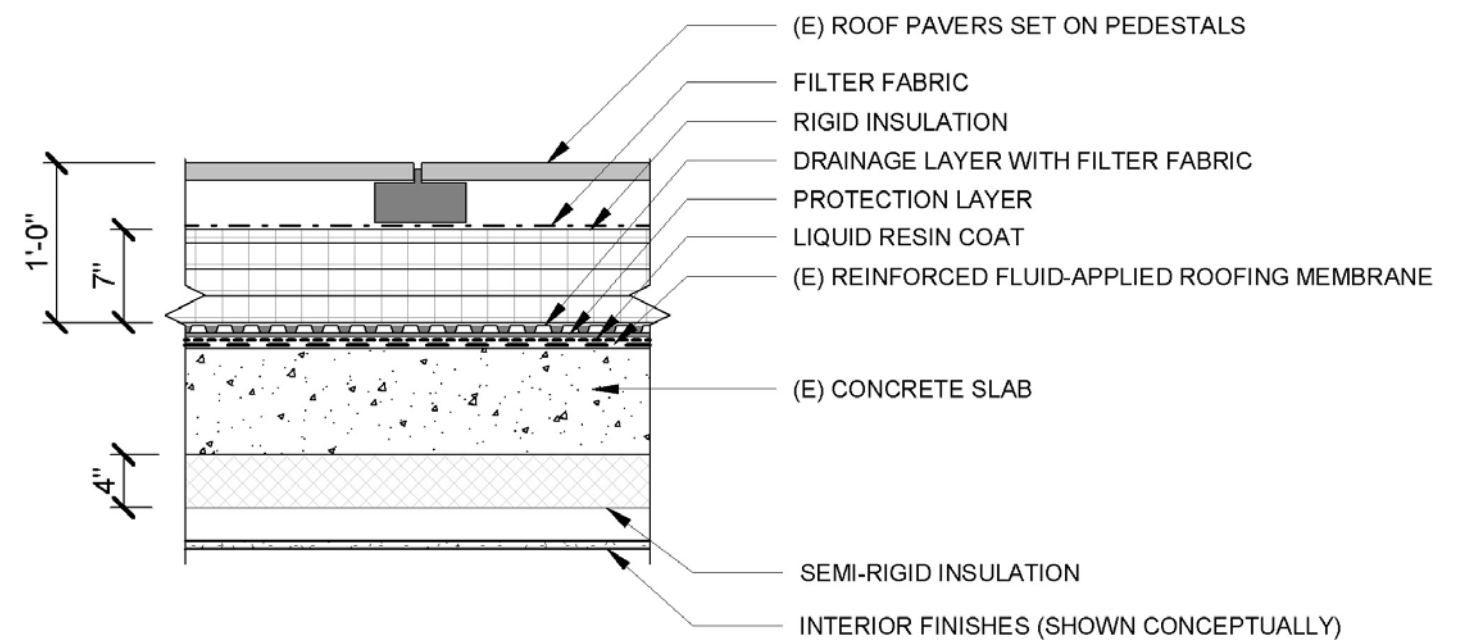
PROPOSED REAR FACADE WALL SECTION



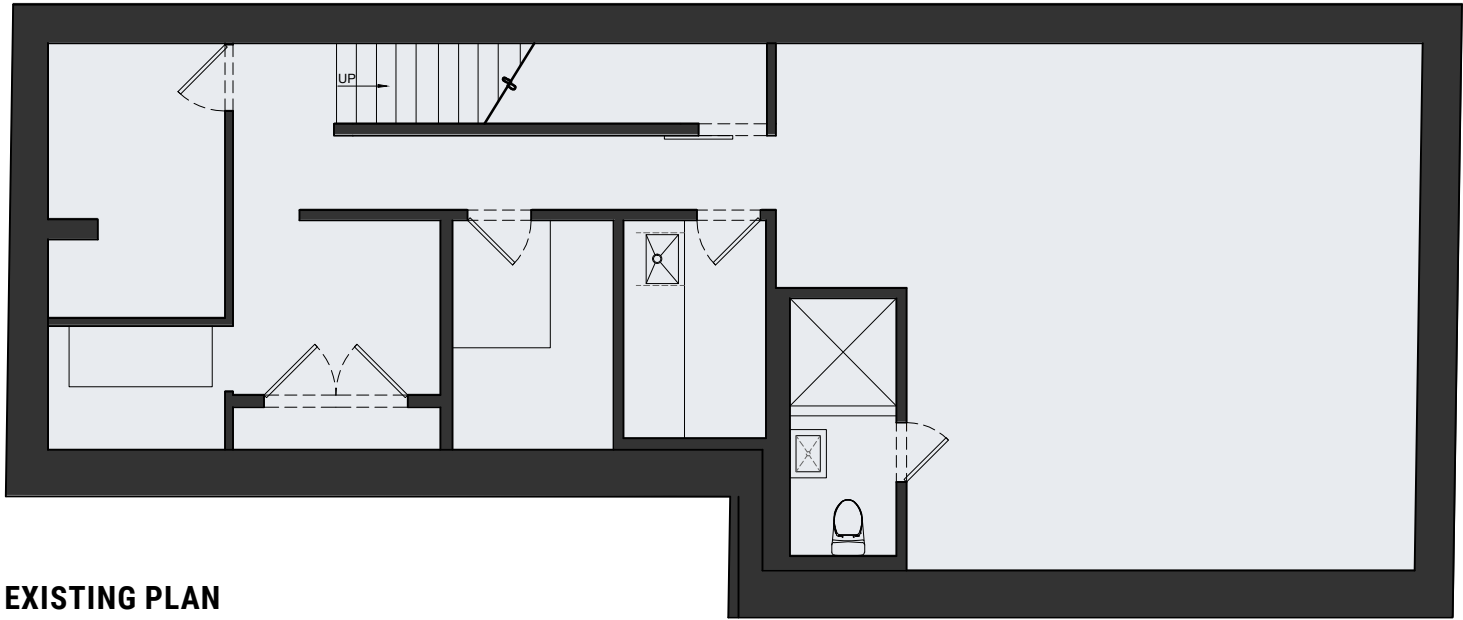
**EXISTING MAIN ROOF ASSEMBLY
BACK TERRACE**



**EXISTING MAIN ROOF ASSEMBLY
FRONT TERRACE**



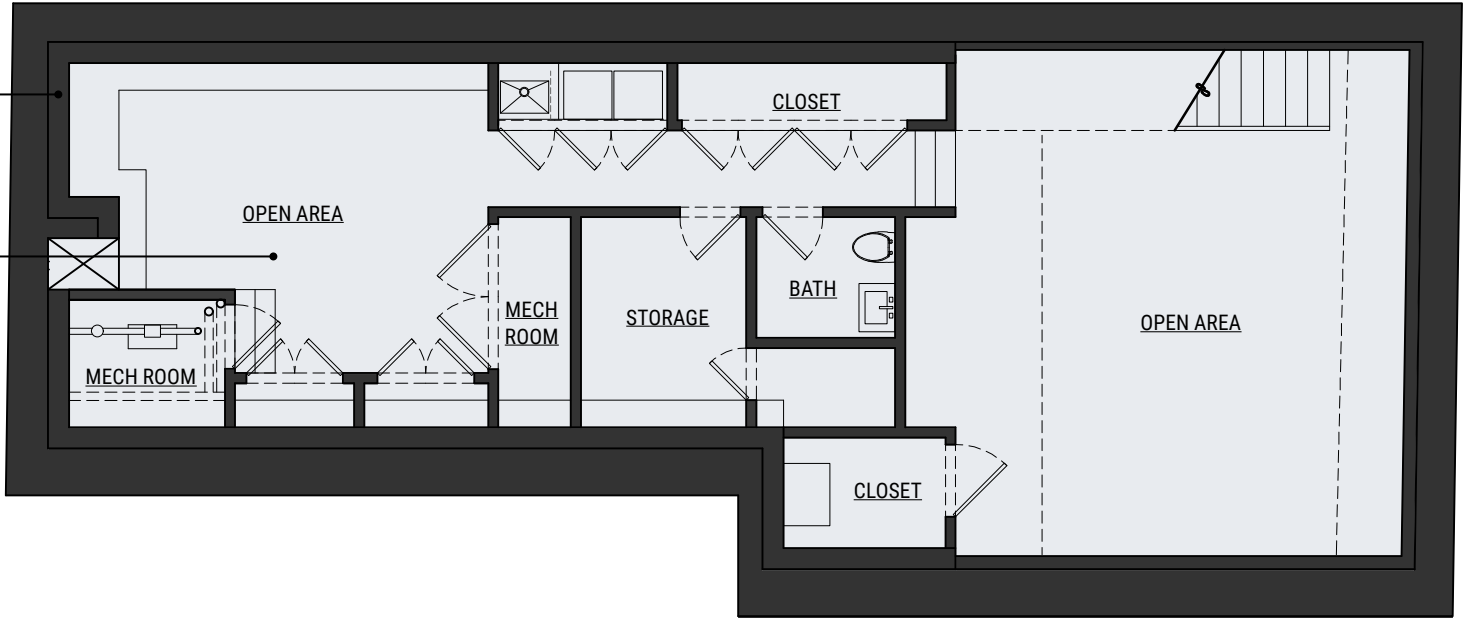
PROPOSED MAIN ROOF ASSEMBLY



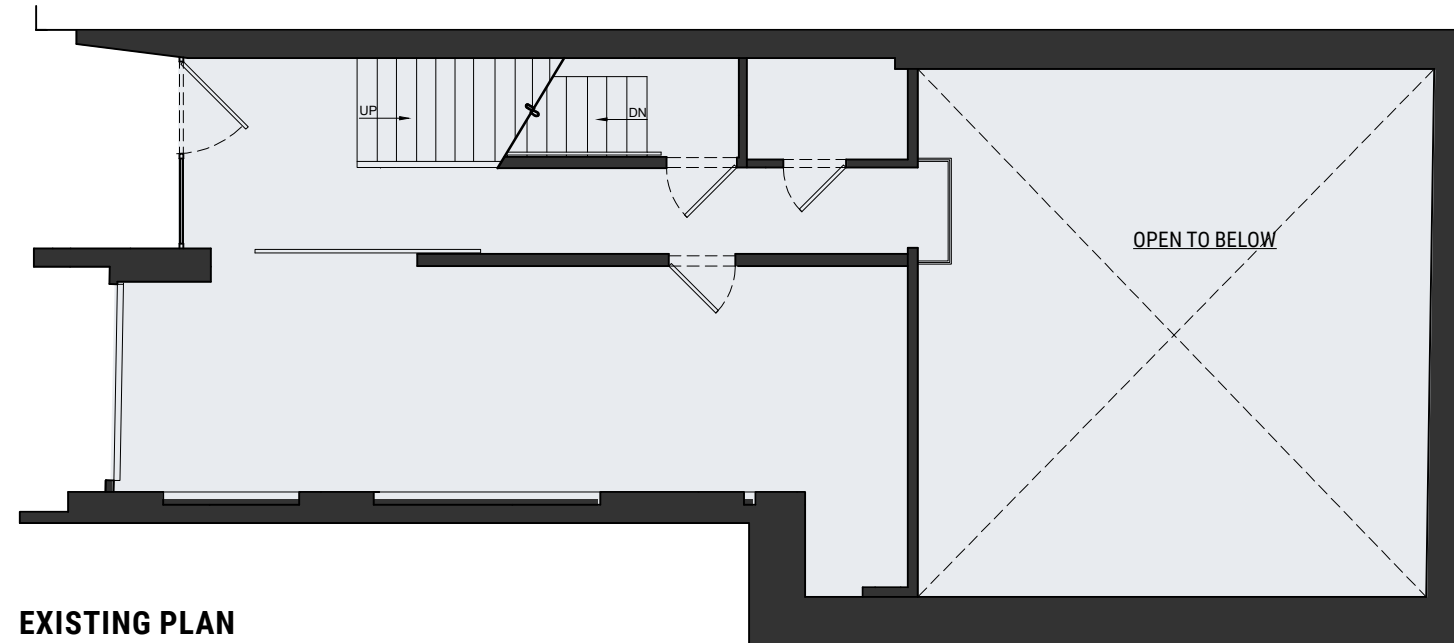
EXISTING PLAN

Provide interior drainage system at cellar walls

Lower slab on west end of cellar for higher ceiling height and provide new waterproofing

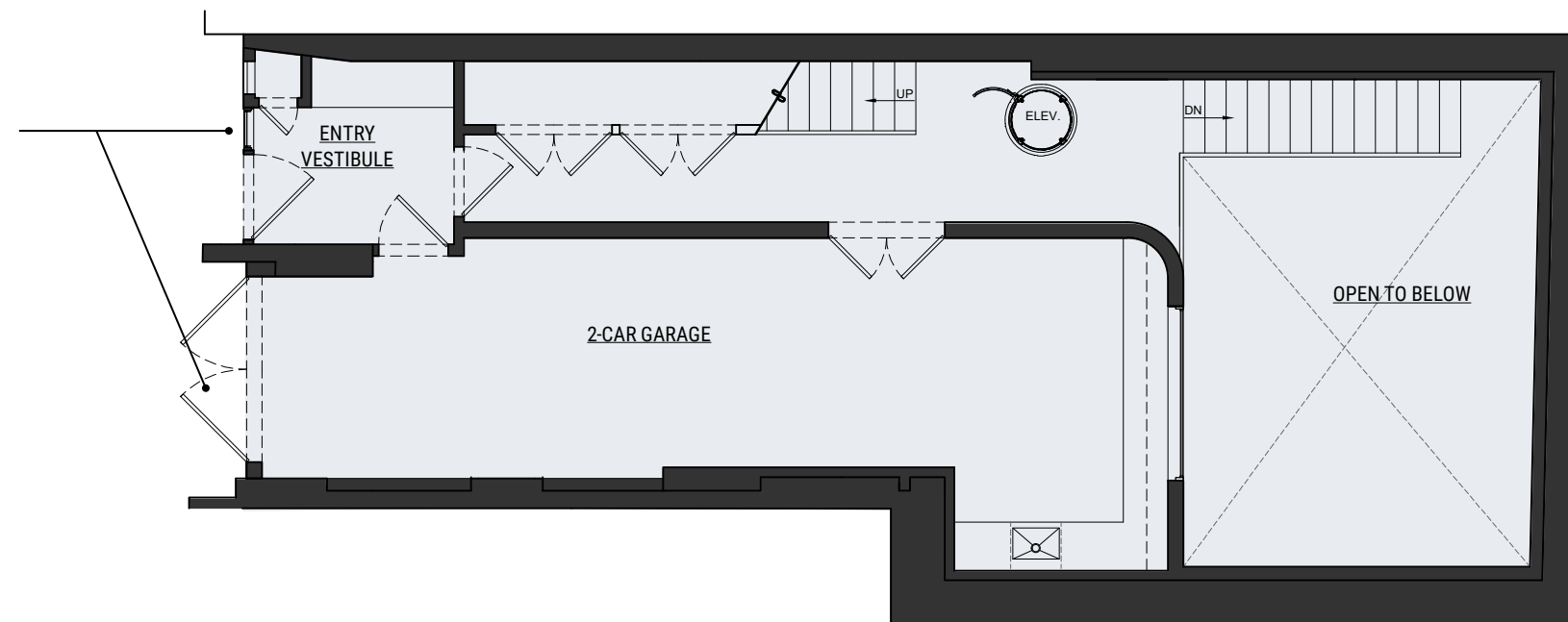


PROPOSED PLAN

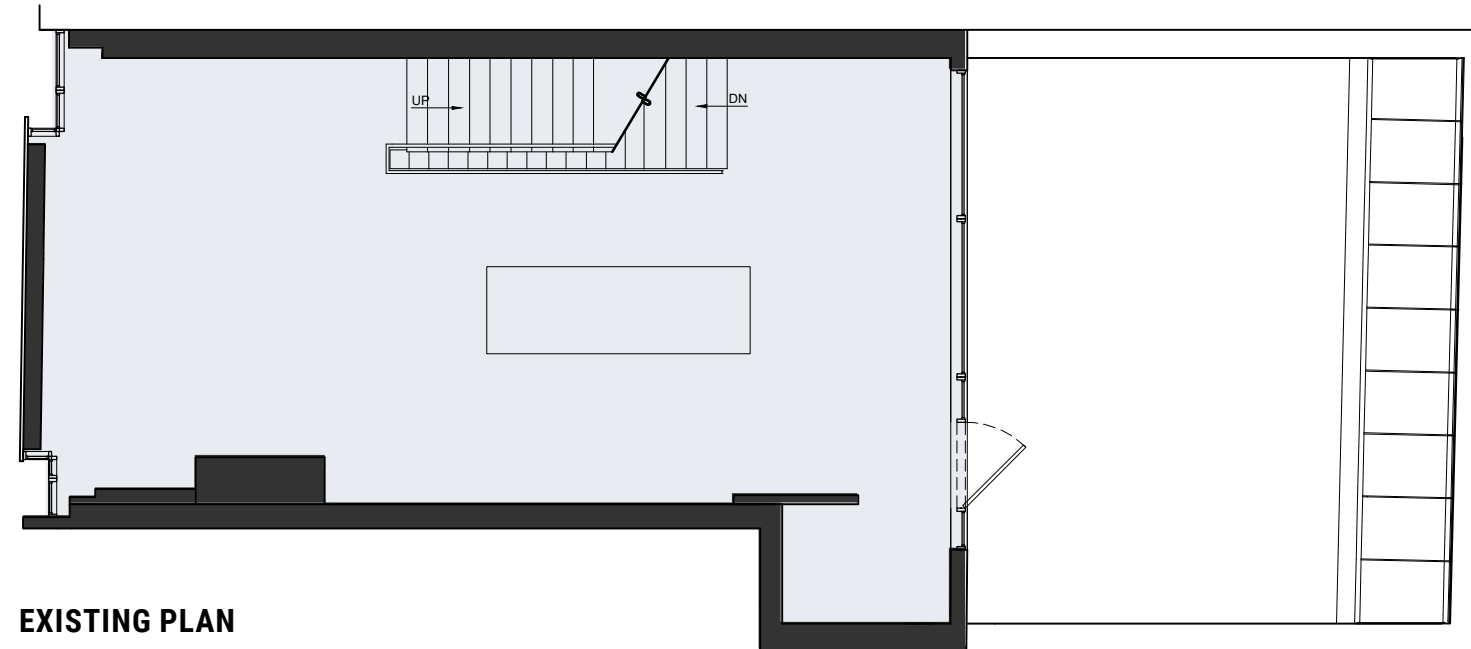


EXISTING PLAN

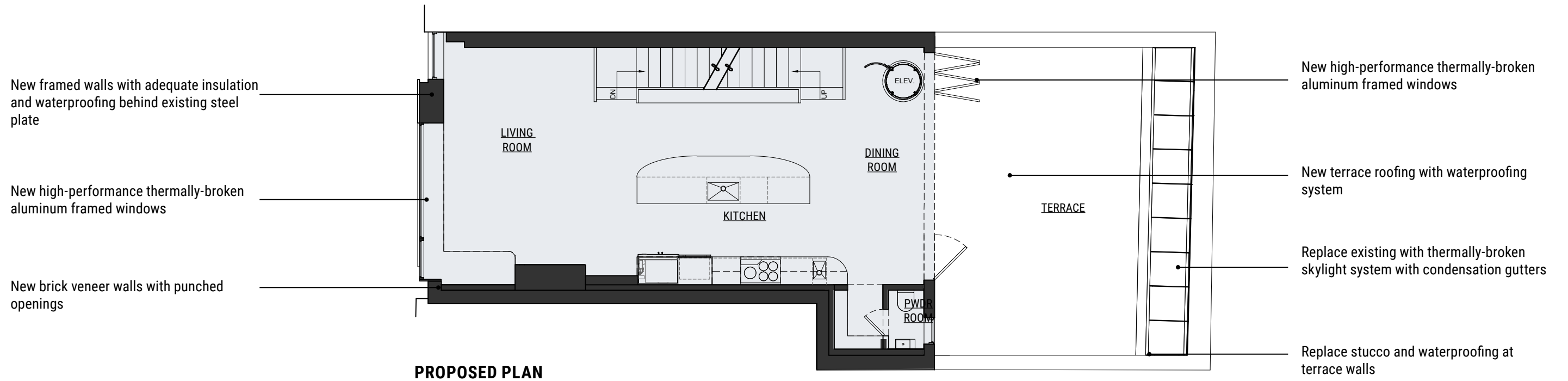
Move boundary of entry and garage door out towards street to reduce exterior overhang



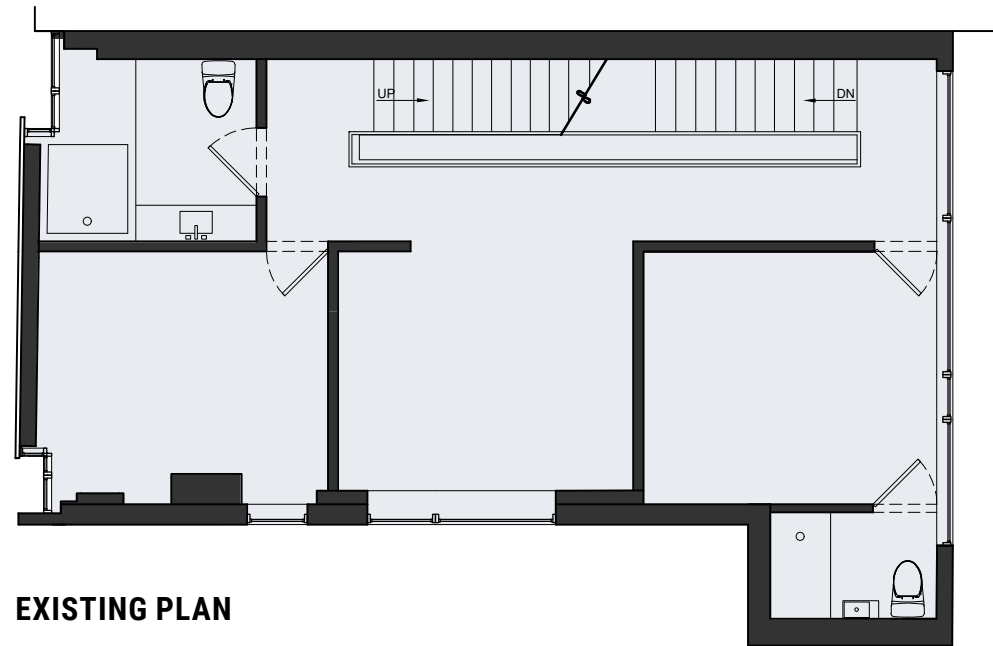
PROPOSED PLAN



EXISTING PLAN



PROPOSED PLAN

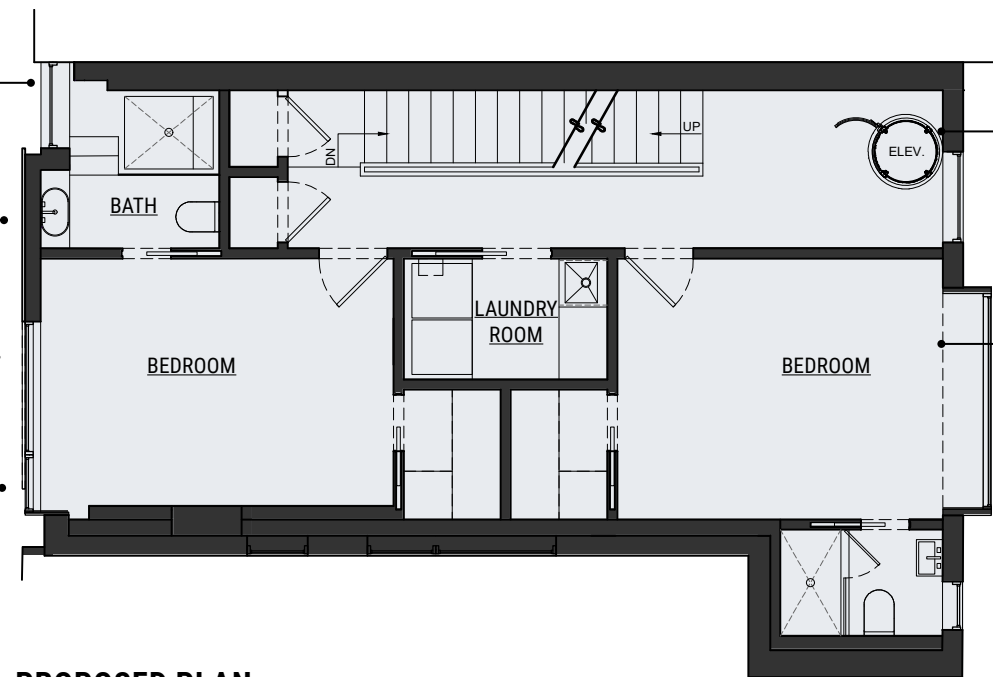


Replace front-facing curtain wall with brick veneer walls with punched openings

Provide new framed walls with adequate insulation and waterproofing behind steel plate

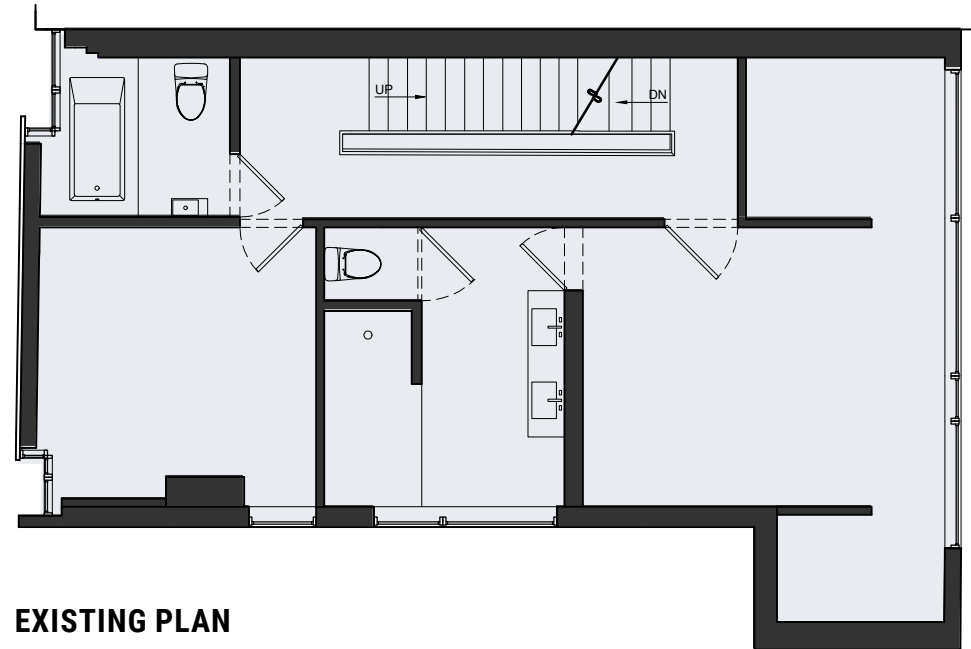
Provide punched openings with high-performance thermally-broken aluminum framed windows

Provide larger windows and openings to improve natural light and ventilation in habitable spaces



Replace curtain wall with opaque rainscreen system

Provide punched openings with high-performance thermally-broken aluminum framed windows

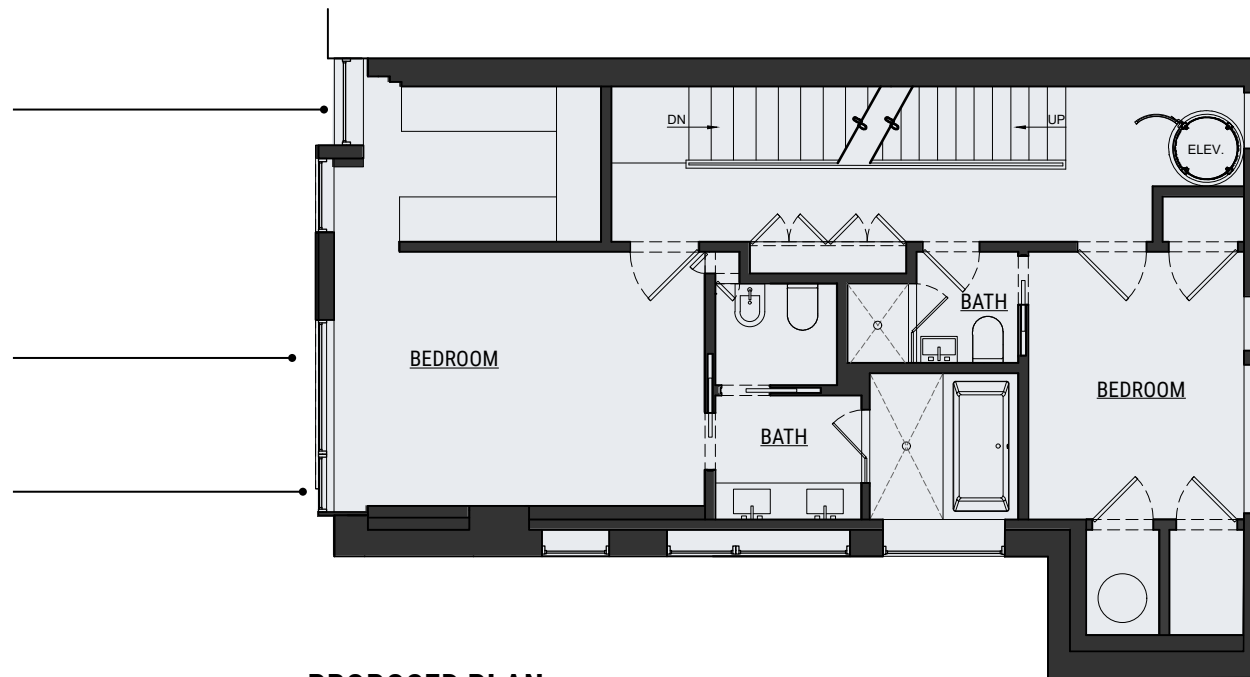


EXISTING PLAN

Replace front-facing curtain wall with brick veneer walls with punched openings

Provide punched openings with high-performance thermally-broken aluminum framed windows

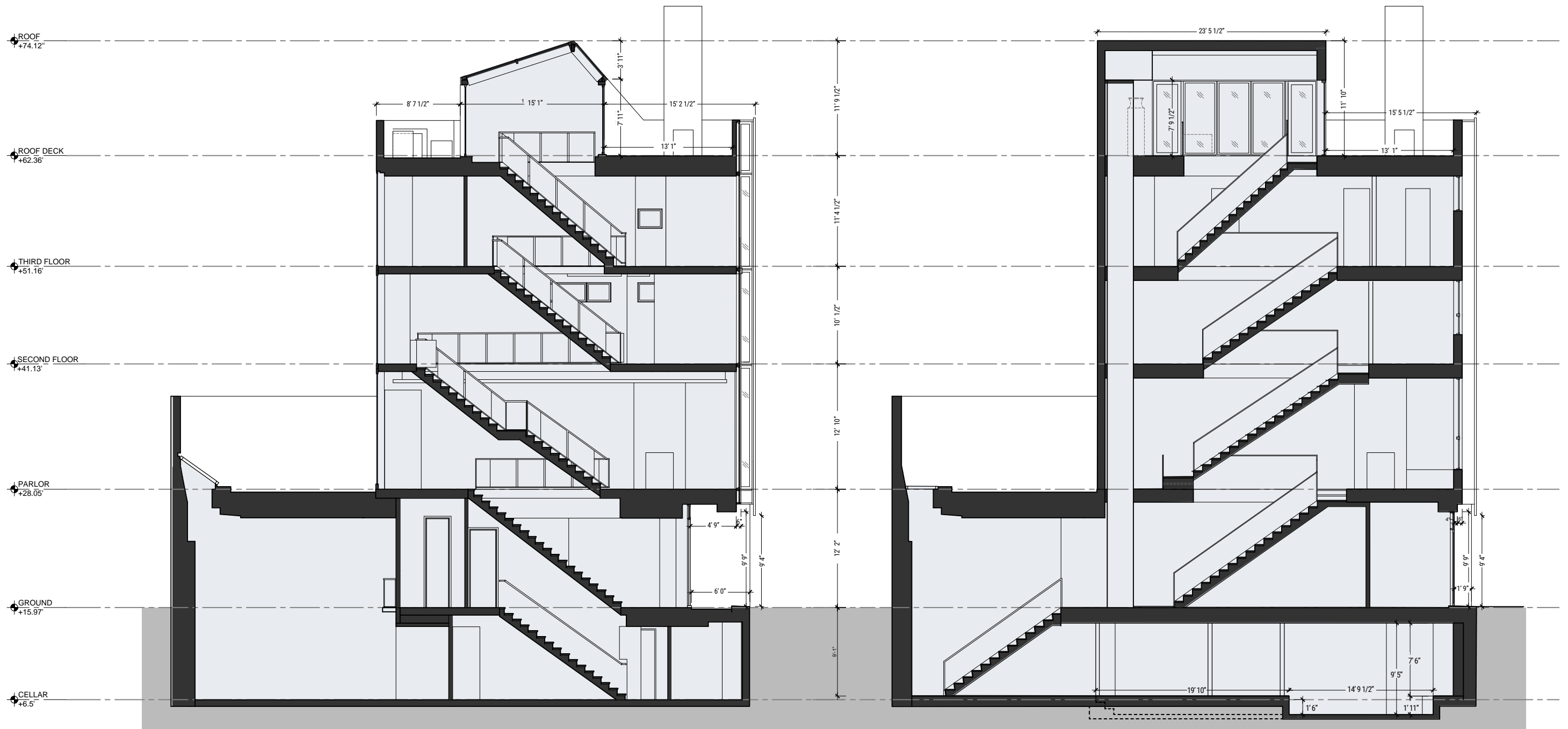
Provide larger windows and openings to improve natural light and ventilation in habitable spaces



PROPOSED PLAN

Replace curtain wall with opaque rainscreen system

Provide punched openings with high-performance thermally-broken aluminum framed windows



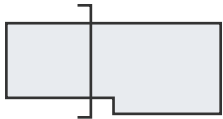
EXISTING SECTION

PROPOSED SECTION



EXISTING SECTION

PROPOSED SECTION





EXISTING



PROPOSED