



**City of Newton
City Hall War Memorial Elevator
Feasibility Report**

April 1, 2013

Goldman Reindorf Architects, Inc.
427 Watertown St.
Newton, MA 02458

Table of Contents

Executive Summary	1
Code Issues	2
Vertical Access Options	3
Vertical Access Options Analysis	4
Description of Elevator and Work	5
Drawings	6
Existing Pictures	7
Cost Estimate	8
Appendix	9
-Elevator Cut Sheet	

Executive Summary:

Goldman Reindorf Architects, Inc. was hired by the City of Newton to do a feasibility study to find the best way to provide access to the Newton City Hall Memorial Hall space.

There is currently no accessible entrance to Memorial Hall. The Hall is a large gathering room (approx. 3,000 sf) that the City of Newton uses for a variety of public functions. Memorial Hall is located on the west end of Newton City Hall on the second floor. Because of the size and function of Memorial Hall, code requires that the space be accessible. The existing City Hall Elevator (which is at the east end of City Hall) does not serve this space. The City of Newton attempted to provide access to Memorial Hall through the Aldermanic Chamber on the second floor to a highly sloped floor which exceeds the maximum allowable slope, does not meet the requirements for guard rails, and is non-complying in many other respects.

The City of Newton asked Goldman Reindorf Architects to look at the feasibility of either adding a wheel chair lift to gain access to the Hall or adding an elevator. Two locations were identified by the City of Newton as possible locations for an elevator. Several other locations were generally reviewed and dismissed since these were even less feasible. In addition to providing an accessible entrance to Memorial Hall the solution must consider the fact that the building is a historic structure, so as not to detract aesthetically or hinder the functionality of the building.

Project Team:

MEP Engineers:

WSP Flack + Kurtz
88 Black Falcon Ave
Boston, MA 02210

Structural Engineer:

Boston Building Consultants
241 A Street, Suite 220
Boston, MA 02210

Cost Estimator:

VJ Associates of New England, Inc.
60 Dedham Avenue
Needham, MA 02492

Code Issues:

An accessible path of travel is required to the Memorial Hall space per the Massachusetts Architectural Access Board 521 CMR.

521 CMR 20.2.1

“At least one accessible route shall connect accessible buildings, facilities, elements and spaces that are on the same site.”

Memorial Hall is on the second floor of the City Hall and there is currently no accessible route to the space.

The existing wheelchair route through the Aldermanic Chamber does not meet the accessibility codes.

Per the **International Building Code**, an accessible route shall coincide with or be located in the same area as a general circulation path. The general circulation does not coincide with the route through the Aldermanic Chamber.

The sloped floor that connects the Aldermanic Chamber to Memorial Hall exceeds the maximum allowable slope of 1:12 per **521 CMR 21.3**. The extreme slope creates a safety hazard compounded by the inadequate and non-complying guard rails and railings.

Per the **521 CMR 20.1** “Accessible routes may include but are not limited to walks, halls, corridors, aisles, skywalks, and tunnels. Accessible routes may not include stairs, steps, or escalators, even if the stairs and steps are required to be accessible under 521 CMR”

The corridor on the first floor leading from the existing accessible entrance to the building to the new elevator location meets the requirements for an accessible route. The addition of an elevator will extend the accessible route to the second floor Memorial Hall Space.

Although an accessible route is required to the Memorial Hall, the ancillary Gallery mezzanine space is not required to be on an accessible route per the International Building Code.

IBC 1104.4 Exception 1. “An accessible route is not required to stories and mezzanines that have an aggregate area of not more than 3,000 square feet and are located above and below accessible levels.”

Vertical Access Options:

Option 1: A 2-stop wheelchair lift within the Stair Hall (159)

- a. The lift would be located in the open area of the stair hall on the first floor and go up to and open on the second floor gallery above the stair hall on the second floor.
- b. Modifications to the existing railings on the second floor would need to be made.

Option 2: A 2-stop elevator opening onto the Stair Hall (159)

- a. Because of limited space a full size elevator would not fit here. Need to use a limited use elevator.
- b. The elevator would open onto the first floor stair hall and go up to and open on the second floor stair hall at the location of the back stairs to the Memorial Hall stage.

Option 3: A 2-stop elevator in the Disabled Veterans Room (156)

- a. A 2-hr rated elevator shaft would extend from the basement level where the elevator pit is located to the floor of the gallery level.
- b. The elevator would stop at the first floor in the Lobby (155) and stop at the second floor lobby (255). The elevator will not stop at the gallery level or the basement level because it is not required by code.

Vertical Access Options Analysis:

Option 1: Wheelchair Lift Feasibility:

The City of Newton proposed adding a wheel chair lift within the Stair Hall (159) to provide access to Memorial Hall. **GRA found that this was not a suitable solution for several reasons.**

1. The wheel chair lift would detract from the aesthetics of the historic City Hall.
2. The location of the wheel chair lift would hinder the functionality of the space by blocking a building entrance and blocking a doorway to a stair to the basement.
3. It is not acceptable to use a wheelchair lift in lieu of an elevator for access to Memorial Hall because it does not meet the conditions listed in **MAAB 521 CMR 28.12.1**. The circumstances in which a wheel chair lift could be used in lieu of an elevator are:
 - a. To provide an accessible route to a performing area (stage) in an assembly occupancy. ***The lift is not for this purpose.***
 - b. To comply with the wheelchair viewing line-of-sight and dispersion requirements of 521 CMR 14.4.1. ***The lift is not for this purpose.***
 - c. In existing buildings where no other work is being performed, except for the installation of a vertical wheelchair lift. ***The building does not meet this requirement.***
 - d. In existing buildings of less than three stories in height or that have less than 3,000 square feet per story unless the building is a shopping center, a shopping mall, or the professional office of a health care provider. ***The building does not meet this requirement. Including the basement, City Hall has 3 stories.***
 - e. To provide vertical access where the distance between the floors is less than a full story and where a ramp is not feasible. ***The vertical access distance is a full story.***

Option 2: Elevator Location 1 Feasibility:

The City of Newton proposed adding an elevator in the Stair Hall (159) to provide access to Memorial Hall. **GRA found that this was not a suitable solution for several reasons.**

1. The elevator would detract from the aesthetics of the historic City Hall.
2. The location of the elevator would not allow access to the existing stair from the first floor to the basement.
3. An elevator sized to fit a gurney would not fit into the space available in the Stair Hall. GRA recommends that the elevator be sized to fit a gurney

since Memorial Hall is a large public space. The size constraints would require use of a Limited Use Elevator.

4. It is not acceptable to use a limited use elevator in lieu of an elevator for access to Memorial Hall because it does not meet the conditions listed in **MAAB 521 CMR 28.12.1** which are the same as the conditions for a wheelchair lift (see item 3 under wheelchair lift feasibility).
5. The location of the elevator would interfere with multiple structural members and retaining walls.

Option 3: Elevator Location 2 Feasibility:

Elevator Location 2 is located in the current Disabled Veteran's space on the first floor in the War Memorial Wing. **GRA has found this location to be suitable** in providing the functionality required and the least amount of aesthetic detraction to the existing building. Location 2 is a suitable elevator location for several reasons.

1. There is an accessible path of travel inside the building, from the existing accessible entrance, at the east end of the building through the first floor main corridor to the proposed elevator location 2.
2. The space available allows enough room to fit an elevator large enough to accommodate a gurney.
3. There is unobstructed space in the Basement for the elevator machine room and pit (some storage space will be lost).
4. The Location of the elevator on the second floor is inside the Lobby (255) and does not obstruct access to any stairs or rooms.
5. The elevator hoistway will not need to extend past the height of the existing wood guard rail at the edge of the Gallery level so the elevator will not be visible from inside Memorial Hall.
6. The hoistway exhaust duct can be hidden in a furred out wall and extend from the low flat roof. The exhaust duct will not be visible from the interior or exterior of the building.

Description of Elevator and Work:

The drawings included in this report are schematic and provided for feasibility study purposes only. The drawings depict the installation of a new two-stop elevator in an existing historic building.

Work will be in an existing occupied building and the GC shall provide dust protection and maintain required egresses at all times. No materials will be allowed to be stored in the building. Project schedule should work around building occupant requirements.

Project involves new elevator, electrical, HVAC, doors, hardware, painting, GWB and other finishes. Miscellaneous work to adjacent spaces for finishes, wood trim and electrical will also be required. No fire protection or plumbing work required.

Demolition: Provide removals of walls, floor openings, doors etc. per the plans. Provide allowance for hazardous material removals. Provide temporary shoring of structure as required.

Elevator: shall be Otis Hydrofit hole-less hydraulic elevator or equal: 3500 pound capacity: sized for gurney. Cab finishes: stone tile flooring and base, combination SS steel and wood walls with bumper rails and SS ceiling panels with down-lights. Provide all required call buttons and other misc. items at two floors.

Vent for elevator shaft: to be two-hour rated ducts in gyp board enclosure carried to flat roof area above. Install new fan/vent over roof and provide flashing and patching of existing copper roofing. Fan to be hooked into emergency electrical system. Provide steel framing as needed at new duct and roof.

New doors: doors on 1st and 2nd floors to match existing solid wood historic recessed panels doors with wood frames to match existing.
Hardware: provide code required in historic bronze finish.

New door to Men's Room: to match existing solid wood panel doors with historic type hardware. Provide electronic door opener with actuators both sides of the door.

New door to Disabled Veterans space to match existing solid wood panel doors with historic type hardware. Doors to corridors to be min 20 min rating with closers.

Flip door swing at 2nd floor: provide new historic look HW (closer, lever handle, lockset, hinges etc.) and custom rework of wood frame as required to flip swing.

Double doors to memorial Hall: install automatic door openers and all required hardware to provide HC access.

Doors in Basement: new 2-hour B label metal doors.

Wood trim: remove and reinstall various wood trim items per the drawings. Provide new matching wood trim as required. Rebuild wood frames as required.

Signage: provide elevator signage and room signs

Structural: provide steel and concrete work per the structural sketches for new shaft-way, foundation and slab support, heading off existing floor structures and roof opening for new vent duct.

Gyp Board: provide new gyp board and patching with skim coat plaster as noted on the drawings. Provide min 20 gauge studs with sound insulation. Provide furring and gyp board over exposed new masonry shaft-way walls typical. Provide patching of existing plaster walls as required at masonry hoist-way walls and other locations. Since the building does not have sprinklers all corridor walls to be min 1 hour rated. Note: at the balcony area there are two plaster finishes: rough finish on upper area and smooth below. Match this pattern on the new furred wall at that level.

Finishes: provide new flooring, wall patching and painting and ceiling patching and painting in all project areas.

Heat: heating to be maintained in all spaces. Relocate or provide new thermostats to existing radiators as needed.

Lighting: relocate several historic fixtures. Provide new historic look fixtures as noted. Provide all wiring and switches etc.

The elevator will be installed in a new 2-hr rated masonry hoistway supporting the existing structure of the masonry walls. The hoistway shaft will have a new concrete slab floor and a poured concrete 2-hr rated roof. Because the condition of the soils is not known, it is recommended that the City of Newton provide exploratory borings below the basement slab prior to the commencement of work. An add alternate has been priced out for a thicker concrete mat in the basement floor and additional piles if the soils are found to be unsatisfactory.

The elevator pit will be in the basement level of the Newton City Hall in room B51H which is now used for drawing storage. Prior to the start of work the area will need to be cleared. Work in the basement will include concrete work at the

slab, construction of a machine room, construction of a masonry 2 hour rated hoistway, electrical, HVAC and structural work.

The elevator hoistway will extend through to the first floor in the disabled veteran's room. The entry to the disabled veteran's room will be moved west of its existing location and the door to the existing men's room will also be moved west. The closet inside the Disabled Veterans room will be removed to allow entry into the room. New VCT flooring will be installed in the Disabled Veterans room along with patching and painting the walls, adding trim to match the existing wood trim at the new walls and the closet walls and a new ceiling mounted light fixture. In the corridor, the walls will be patched and painted to match the existing conditions and the flooring will be patched with new terrazzo tile.

On the second floor the hoistway will extend through the lobby (255). Work will include moving two existing light fixtures to the hoistway wall, adding new wood trim on new walls to match the existing. The area in the lobby behind the elevator will still provide access to the gallery level above but the door from Memorial Hall into the space will no longer be used as an exit. The signage and door hardware will need to be changed. A ceiling mounted light fixture will also be added to the space.

The gallery level will accommodate the overhead space required by code for the elevator. The elevator is not required by code to stop on this level and it will not. The exhaust duct will need to extend from the top of the elevator shaft. A furred out wall will be built to hide the exhaust duct. Work in the gallery will include a new brass guard rail, relocating the existing wall sconces, relocating wood trim and patching and painting. From the 2nd floor Memorial Hall space the elevator shaft or exhaust duct will not be visible and the aesthetics of the historic hall will not be altered.







The project for Elevator Location 2 includes 3 Add Alternates:

Add Alt # 1: Increase concrete mat thickness in basement floor to 2'-0". Provide 8 - 15 ton drilled in mini piles (2 piles per side). See structural drawings.







Add Alt # 2: Cost for extended bronze railing at existing balcony wall (existing is below code 3'6" high guard requirement). Railing to be two 1 1/4" bronze rails with bronze supports every 4' o c.

Add Alt # 3: Cost to provide a Fire Alarm system for Memorial Hall 256 and all auxiliary spaces (gallery 352, lobby 255 and stairs). Memorial Hall has an occupancy of over 300 persons and is classified as assembly group A. Provide fire alarm system for the Memorial Hall assembly area complying with 780 CMR 907.2.






PLAN KEY:

-  EXISTING WALL TO BE REMOVED
-  EXISTING DOOR TO BE REMOVED
-  INSTALL NEW WALL MOUNTED EXIT SIGN
-  INSTALL NEW WALL MOUNTED DOOR ACTUATOR
-  INSTALL NEW DUPLEX OUTLET
-  INSTALL NEW LIGHT SWITCH







FINISH KEY:

-  WALL FINISH
-  FLOOR FINISH
-  PATCH & PAINT WALLS TO MATCH EXIST.
-  PATCH & PAINT WALLS
-  NEW VCT AND RUBBER BASE
-  EXISTING FLOORING TO REMAIN - INSTALL NEW BASE TO MATCH EXISTING AT NEW WALLS

WALL KEY:

-  NEW 2-HR RATED 8" CMU ELEVATOR SHAFT WALL
-  NEW 2 HR GWB WALL WITH METAL STUDS
-  INSTALL 1½" METAL FURRING CHANNELS AND ONE LAYER GWB OVER NEW 8" CMU SHAFT WALL (WALL TYPE 1)
-  NEW 1 HR GWB WALL WITH METAL STUDS
-  NEW 1½" METAL STUDS AND GWB ONE SIDE

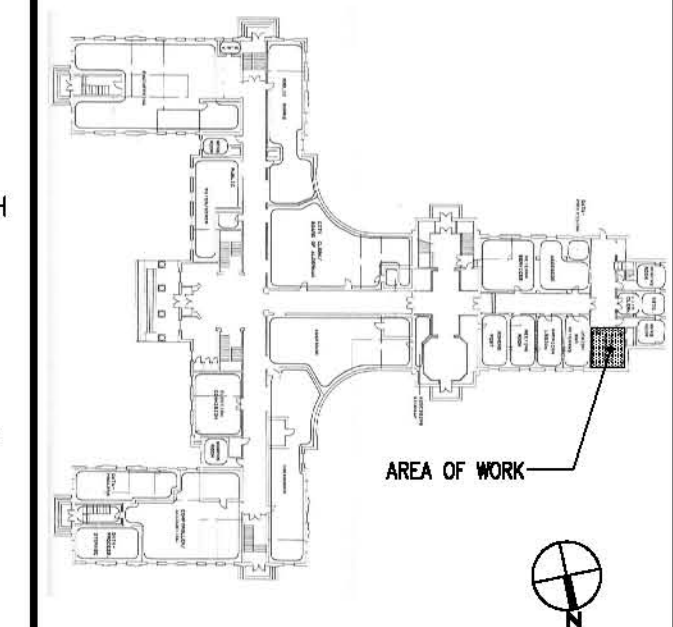
DOOR KEY:

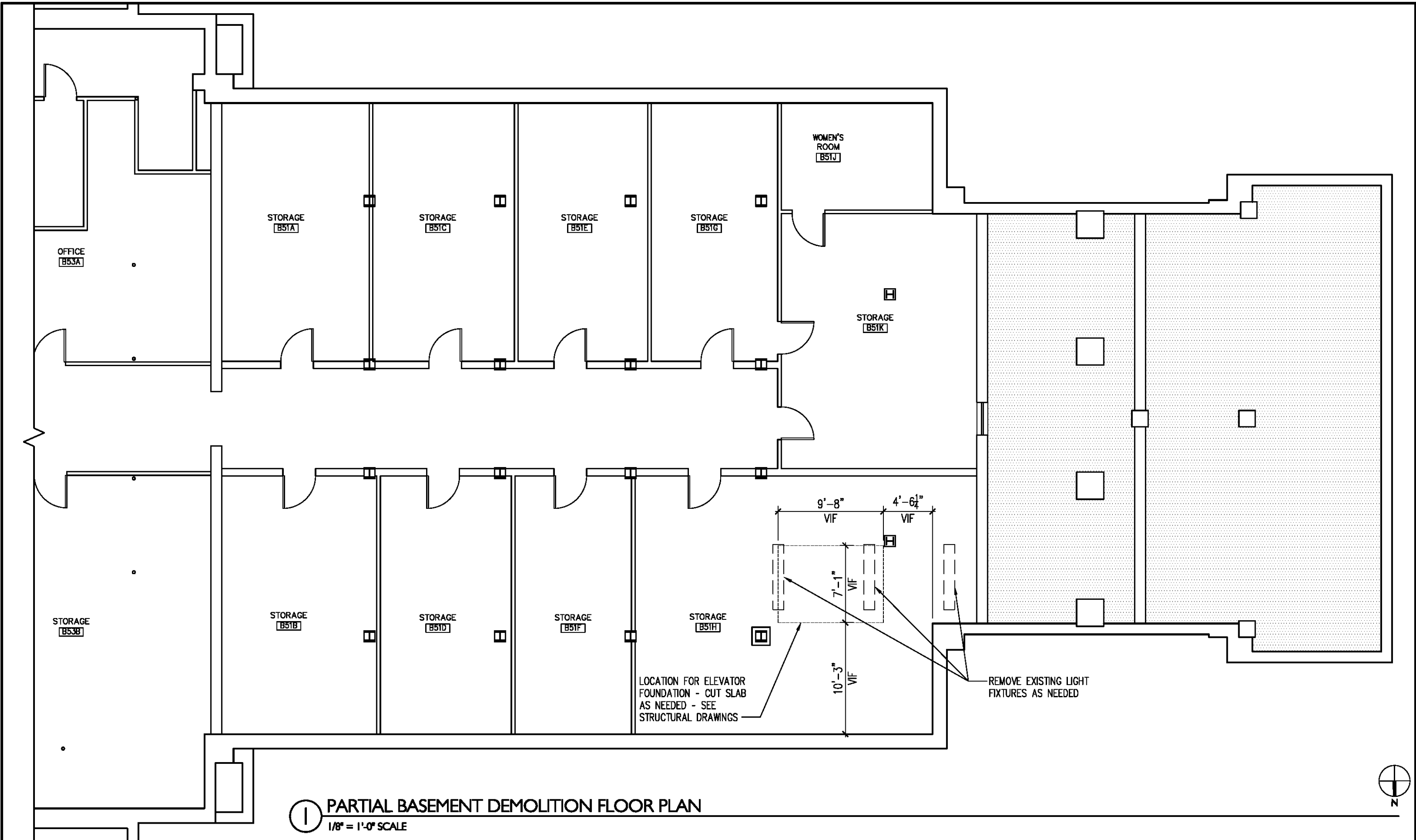
-  EXISTING DOOR TO REMAIN
-  NEW DOOR AND FRAME
-  NEW 2HR RATED STEEL DOOR AND FRAME
-  NEW 20 MIN. STAINED WOOD FLUSH PANEL DOOR AND PAINTED WOOD FRAME TO MATCH EXIST.
-  NEW STAINED SOLID WOOD FLUSH PANEL DOOR WITH LOUVER AND PAINTED WOOD FRAME TO MATCH EXIST.
-  EXISTING DOOR - FLIP DOOR SWING IN EXISTING FRAME - SCRAPE, PATCH, AND RE-PAINT DOOR - RE-BUILD, SCRAPE, PATCH AND PAINT FRAME

DRAWING LIST

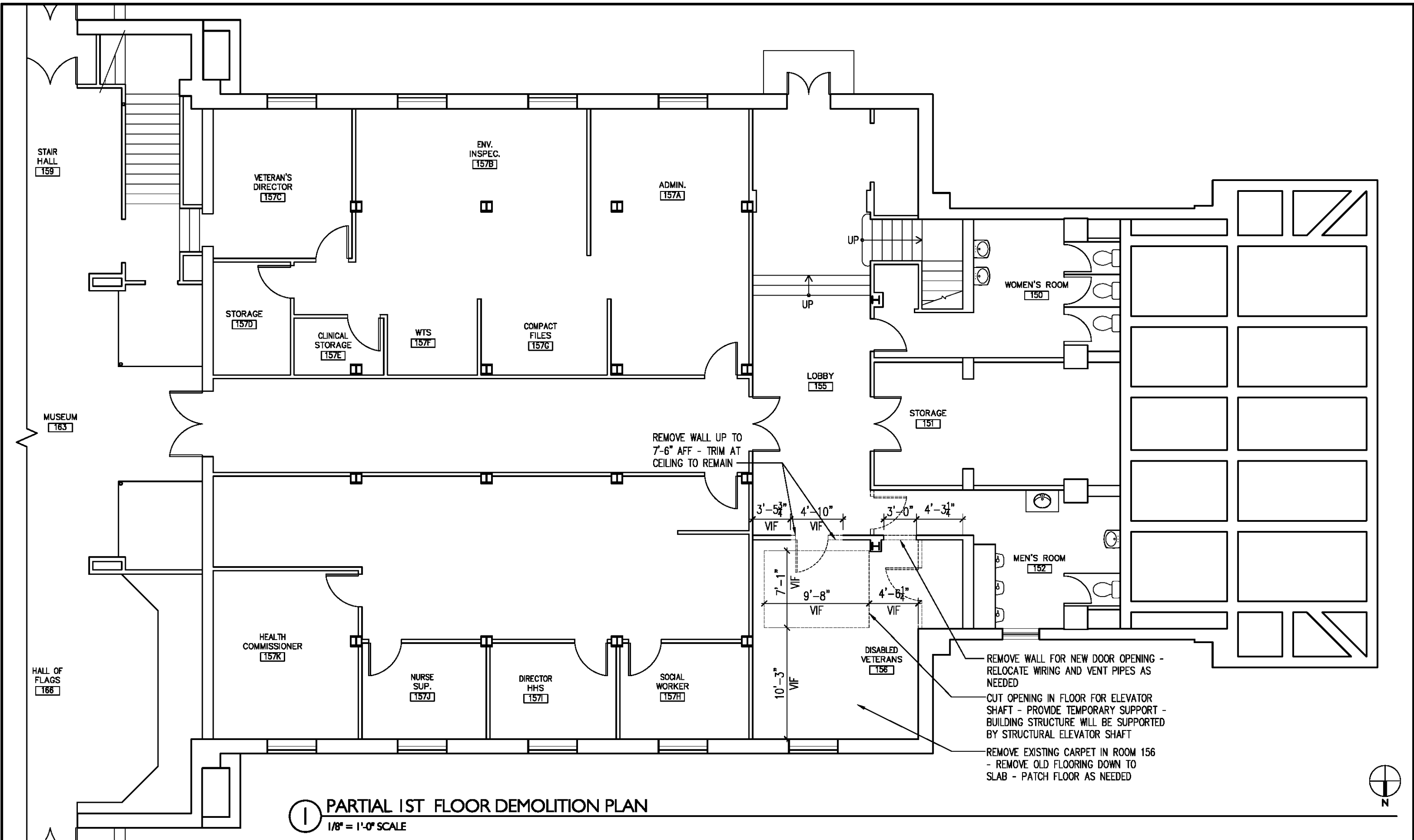
ARCHITECTURAL

- T1 - TITLE PAGE, DRAWING LIST, AND NOTES
- D1 - PARTIAL BASEMENT DEMOLITION PLAN
- D2 - PARTIAL FIRST FLOOR DEMOLITION PLAN
- D3 - PARTIAL SECOND FLOOR AND GALLERY DEMOLITION PLANS
- A1- PARTIAL BASEMENT FLOOR PLAN
- A2 - PARTIAL FIRST FLOOR PLAN
- A3 - PARTIAL SECOND FLOOR AND GALLERY FLOOR PLANS
- A4 - ELEVATOR SECTIONS
- S1 - STRUCTURAL SKETCHES
- ME1 - MECHANICAL AND ELECTRICAL NARRATIVE



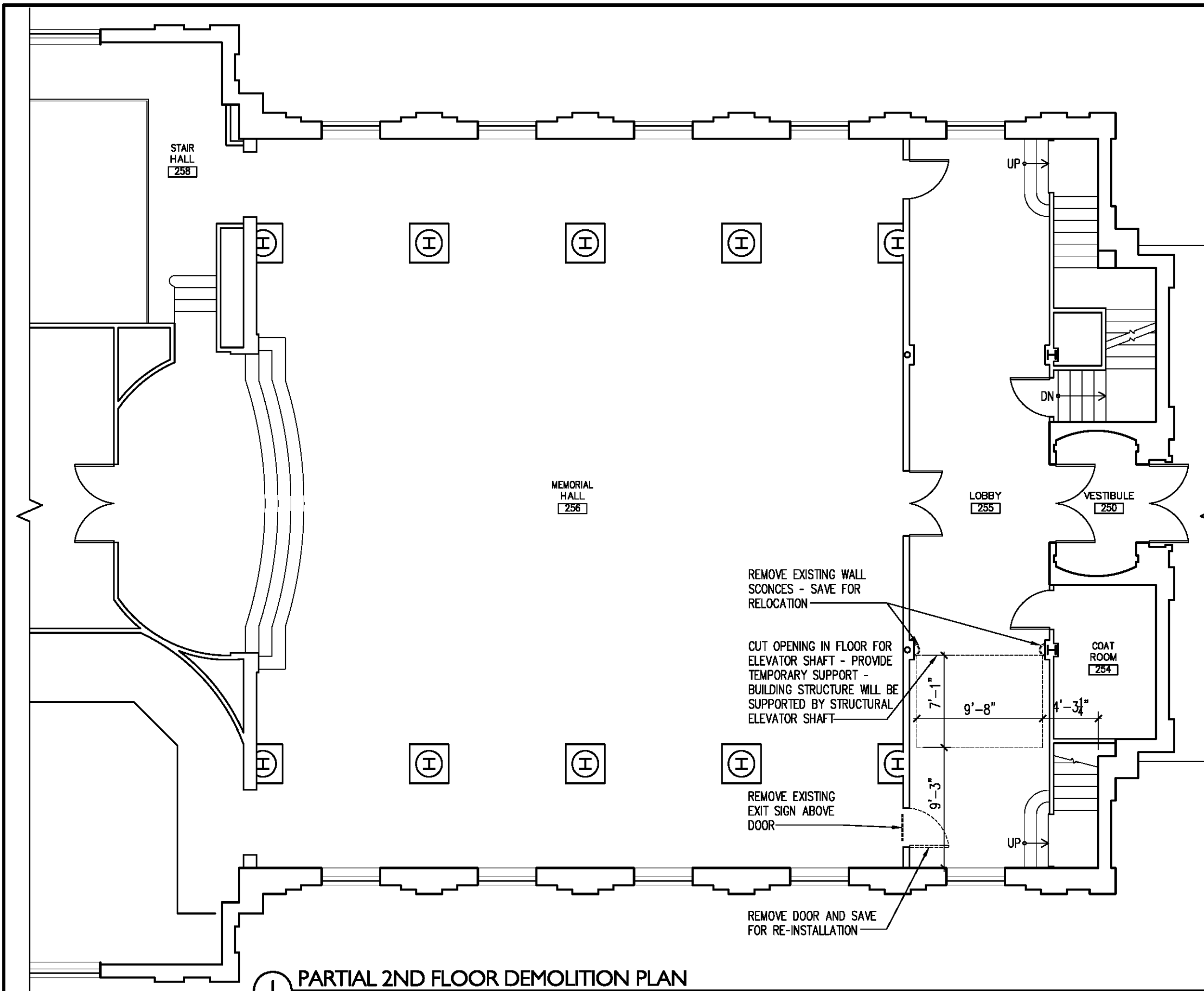


1 PARTIAL BASEMENT DEMOLITION FLOOR PLAN
 1/8" = 1'-0" SCALE

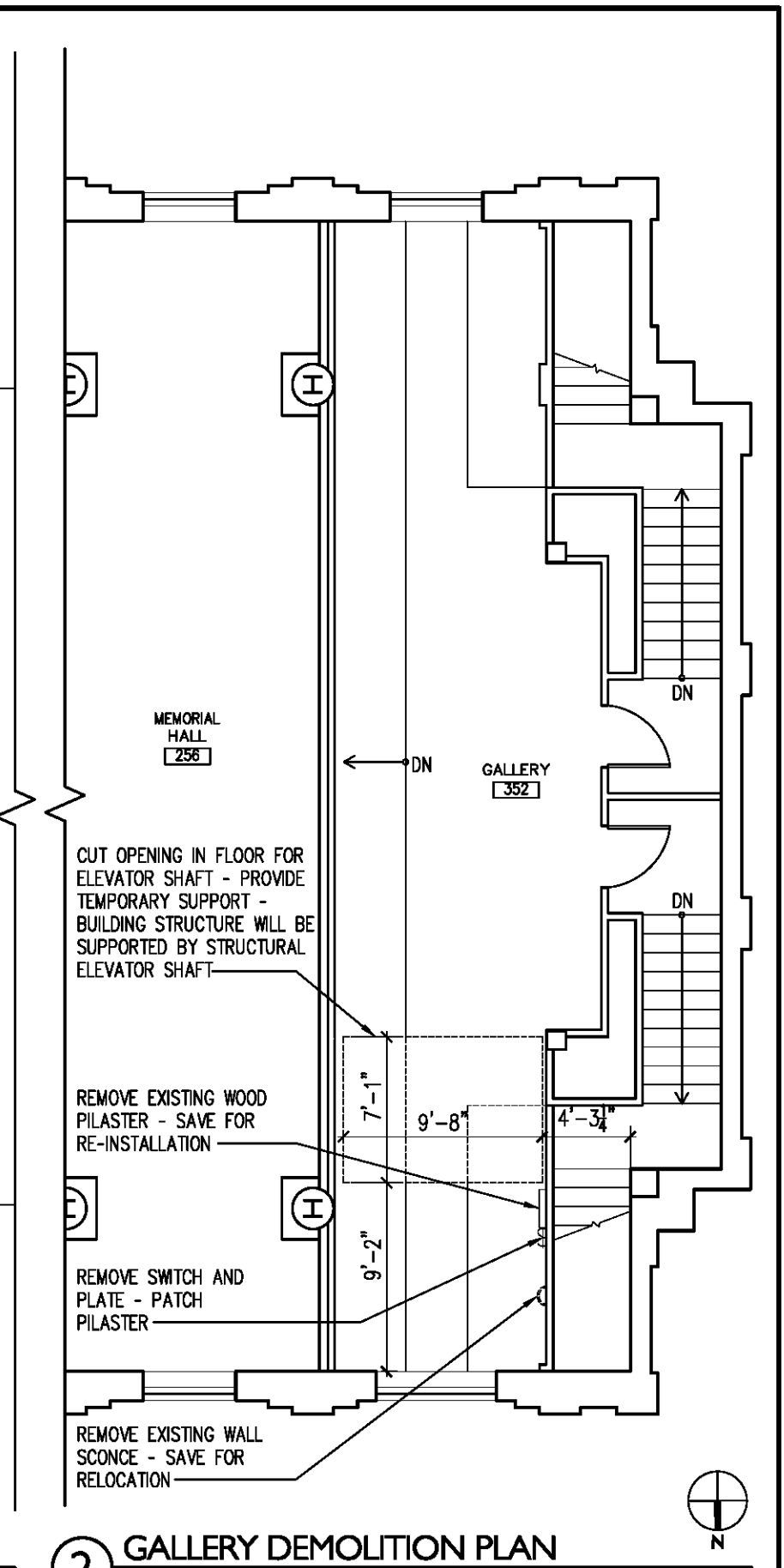


1 PARTIAL 1ST FLOOR DEMOLITION PLAN
 1/8" = 1'-0" SCALE

- REMOVE WALL FOR NEW DOOR OPENING - RELOCATE WIRING AND VENT PIPES AS NEEDED
- CUT OPENING IN FLOOR FOR ELEVATOR SHAFT - PROVIDE TEMPORARY SUPPORT - BUILDING STRUCTURE WILL BE SUPPORTED BY STRUCTURAL ELEVATOR SHAFT
- REMOVE EXISTING CARPET IN ROOM 156 - REMOVE OLD FLOORING DOWN TO SLAB - PATCH FLOOR AS NEEDED

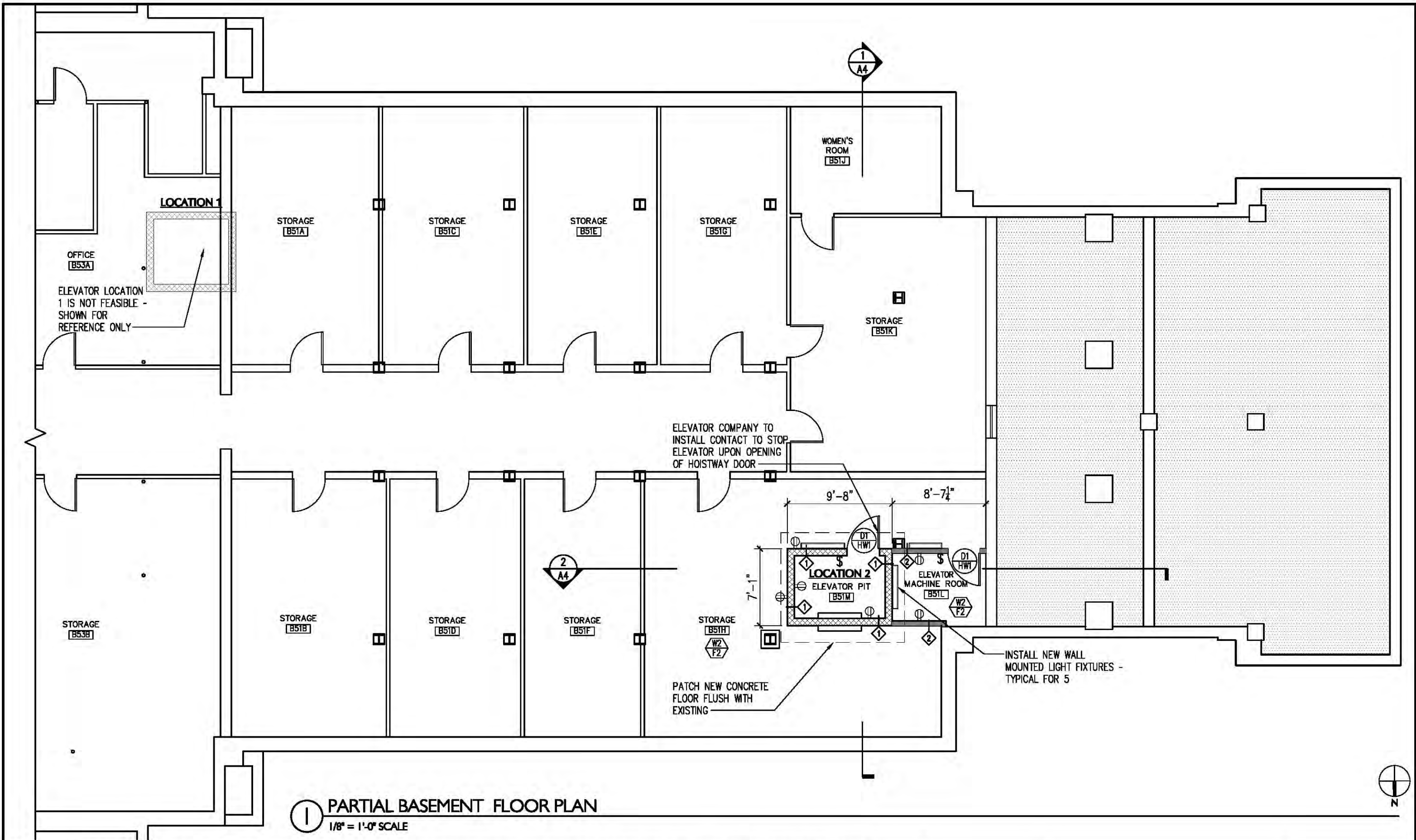


1 PARTIAL 2ND FLOOR DEMOLITION PLAN
1/8" = 1'-0" SCALE

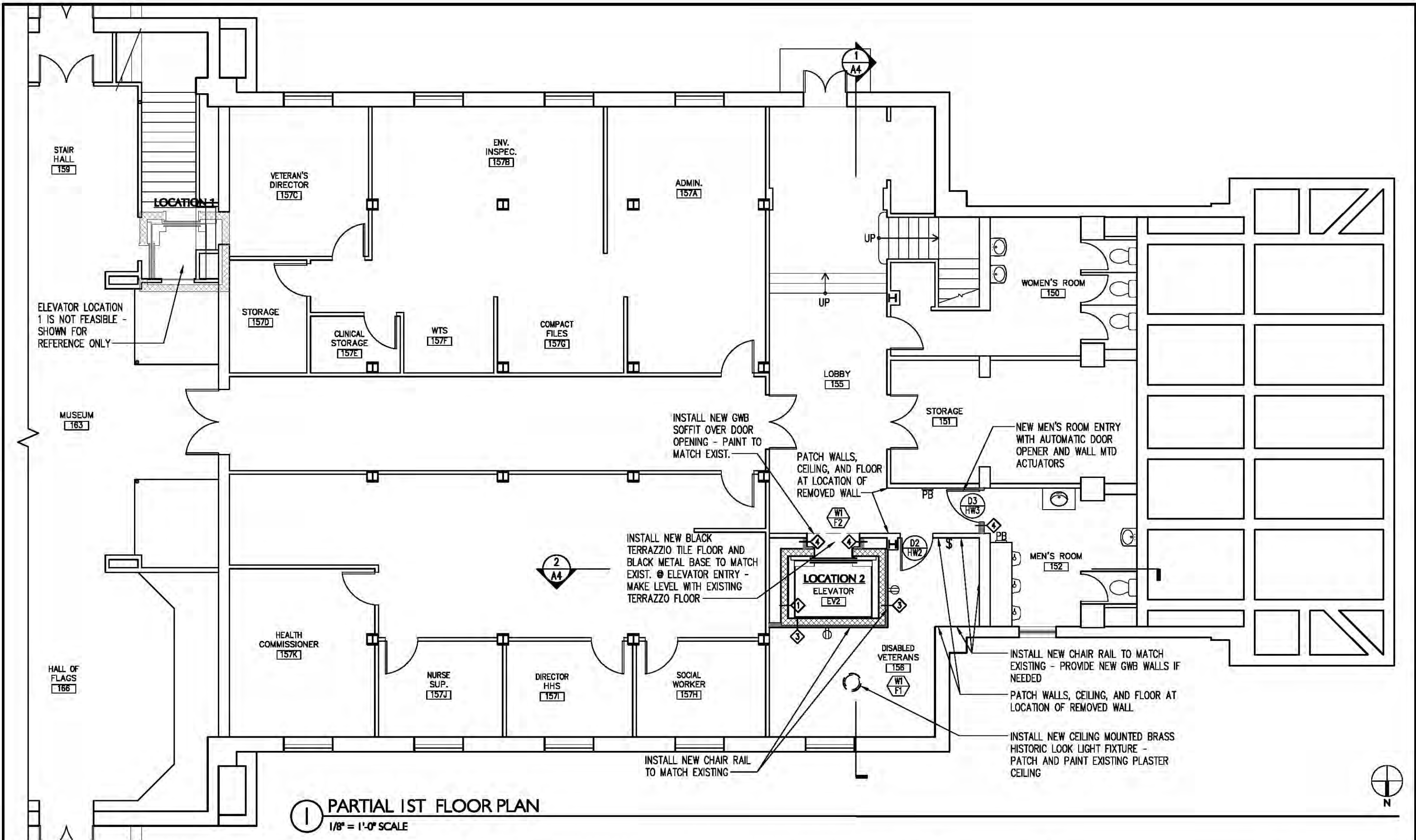


2 GALLERY DEMOLITION PLAN
1/8" = 1'-0" SCALE

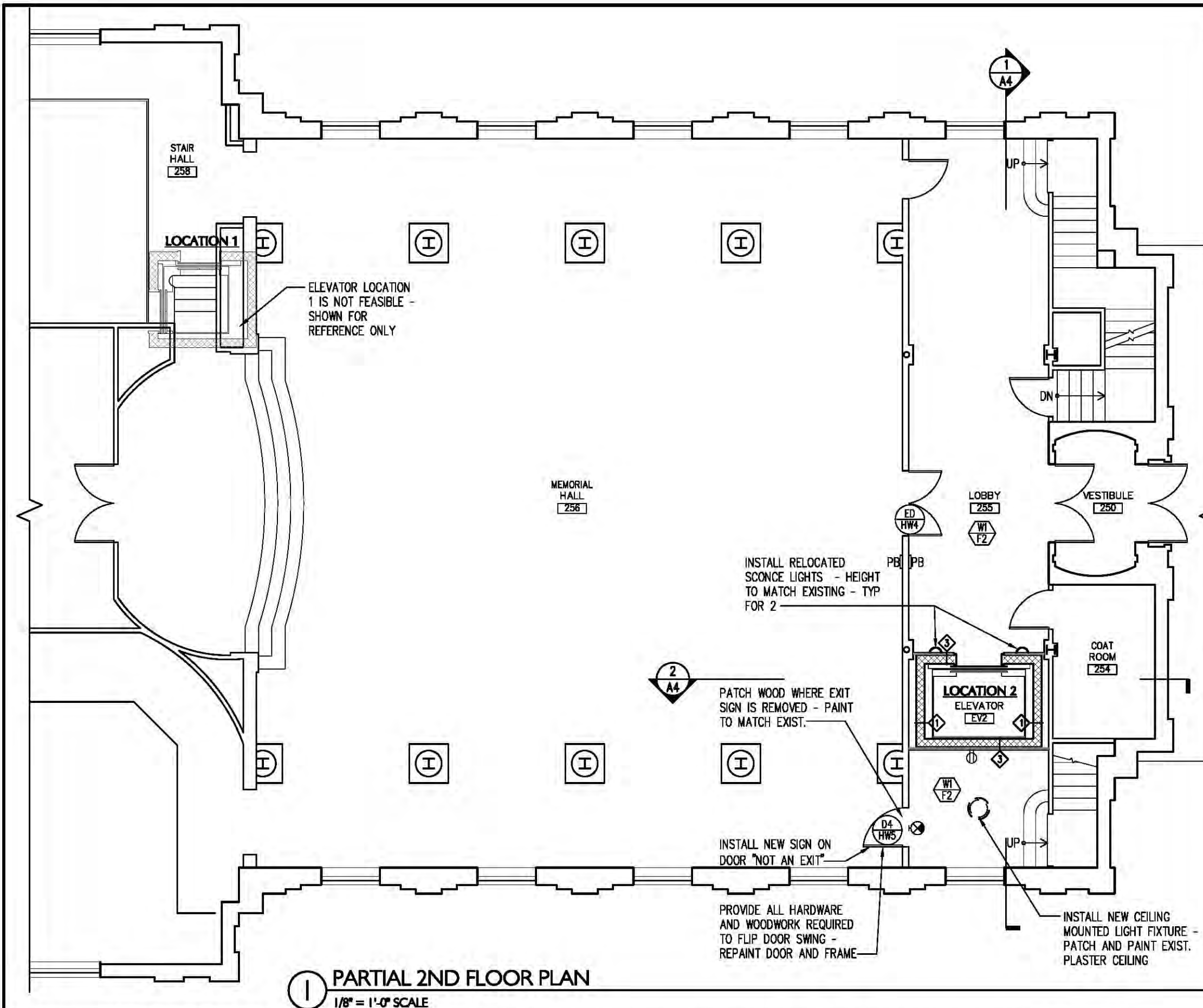




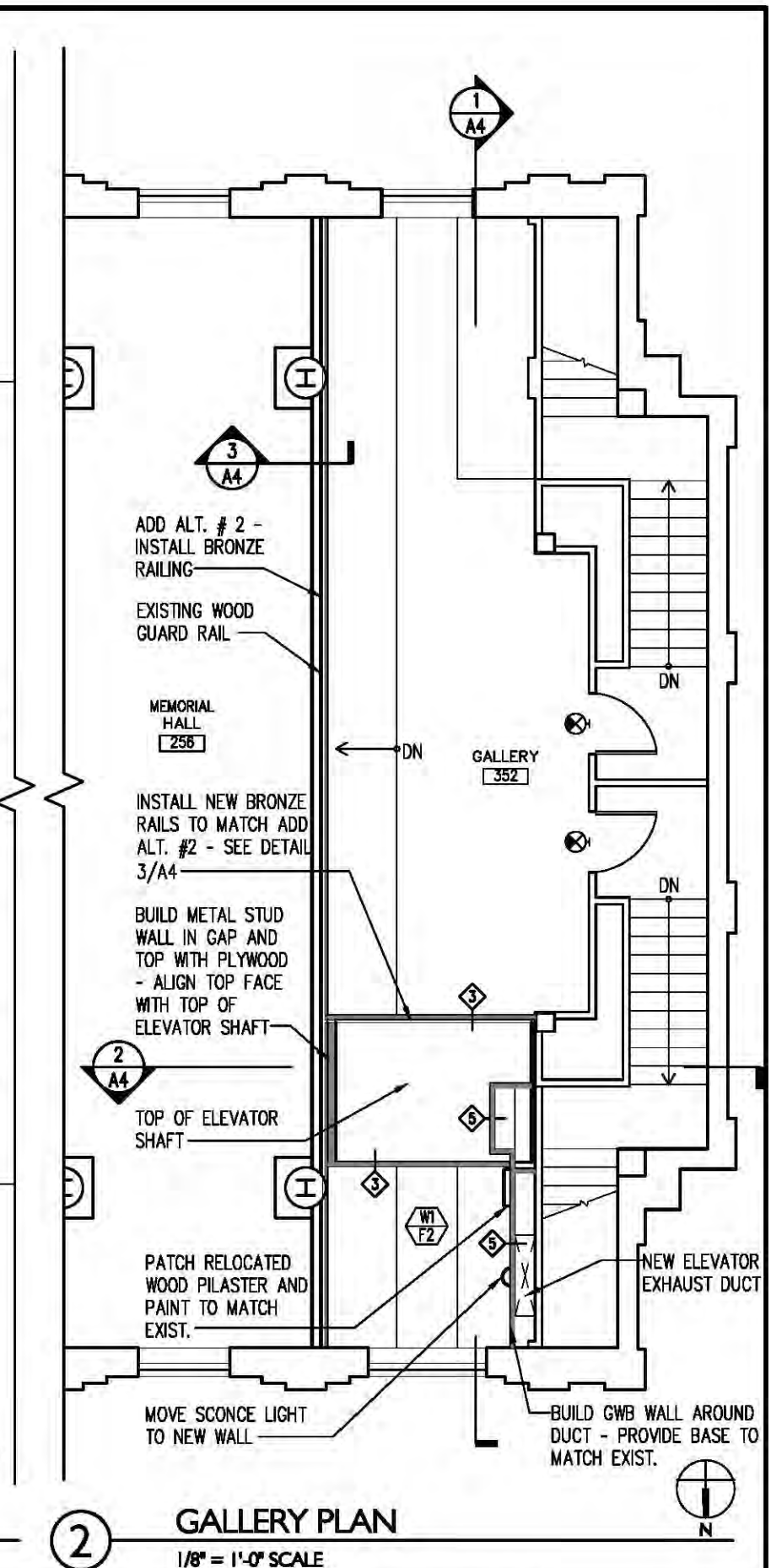
1 PARTIAL BASEMENT FLOOR PLAN
1/8" = 1'-0" SCALE



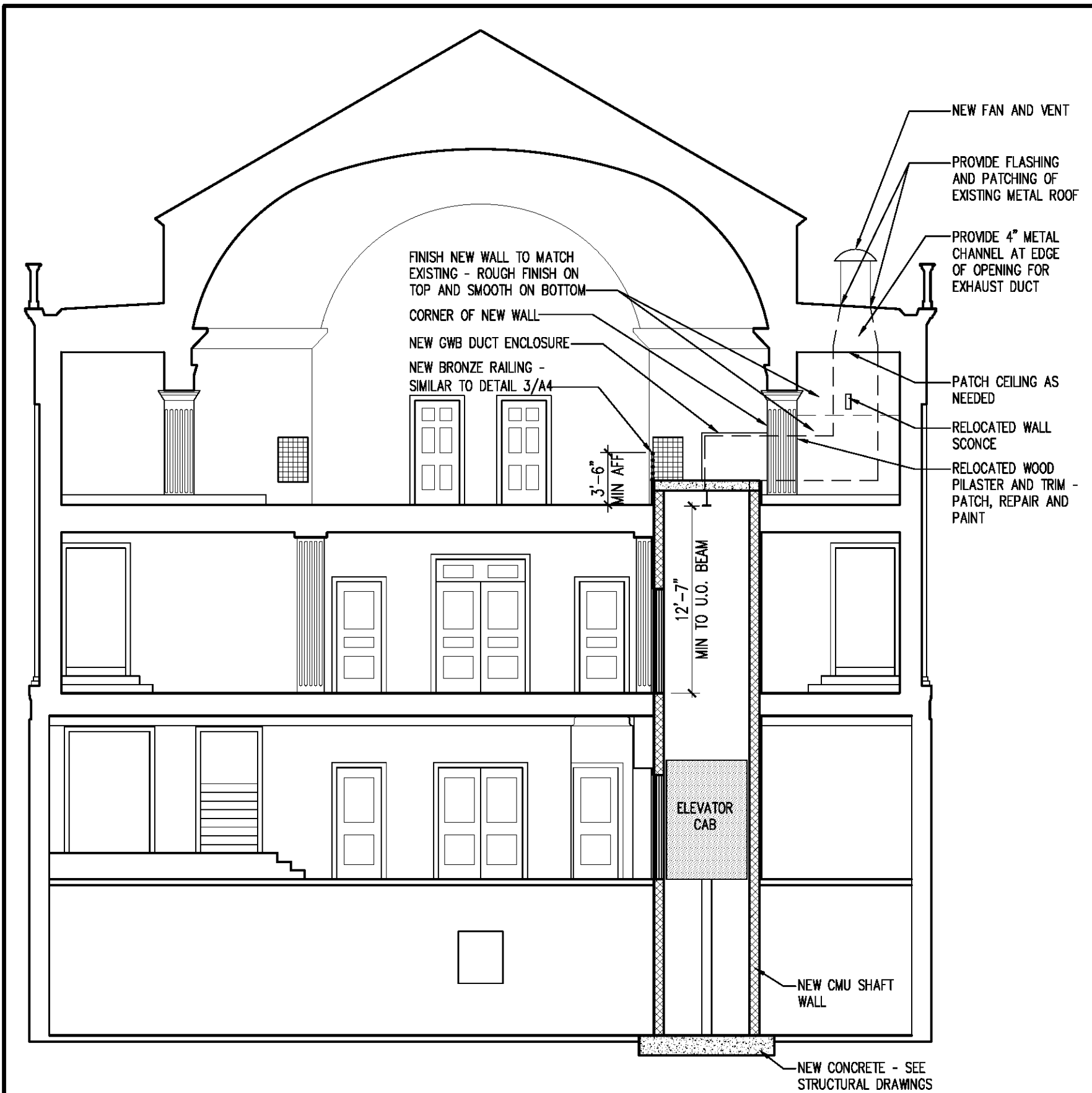
1 PARTIAL 1ST FLOOR PLAN
 1/8" = 1'-0" SCALE



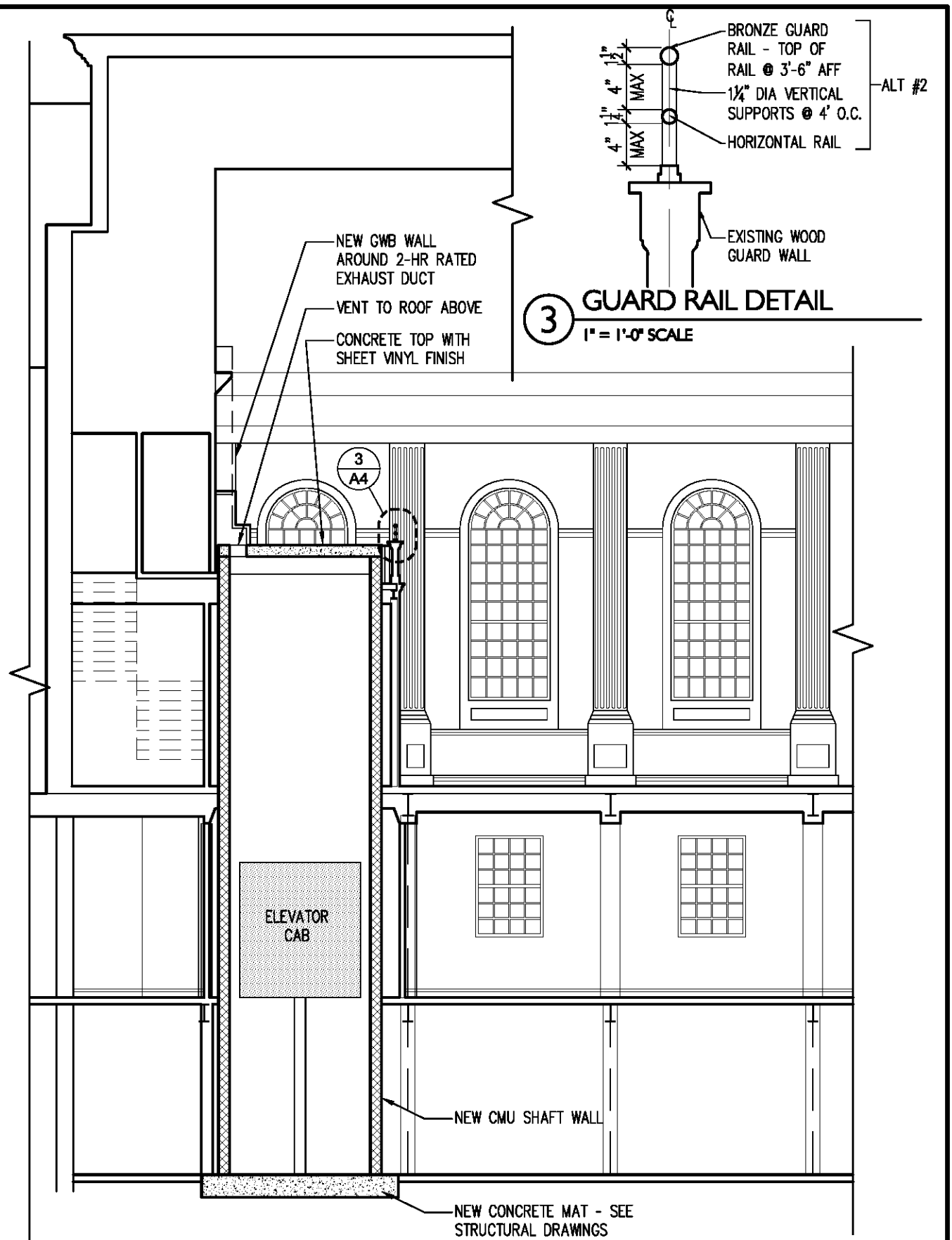
1 PARTIAL 2ND FLOOR PLAN
1/8" = 1'-0" SCALE



2 GALLERY PLAN
1/8" = 1'-0" SCALE

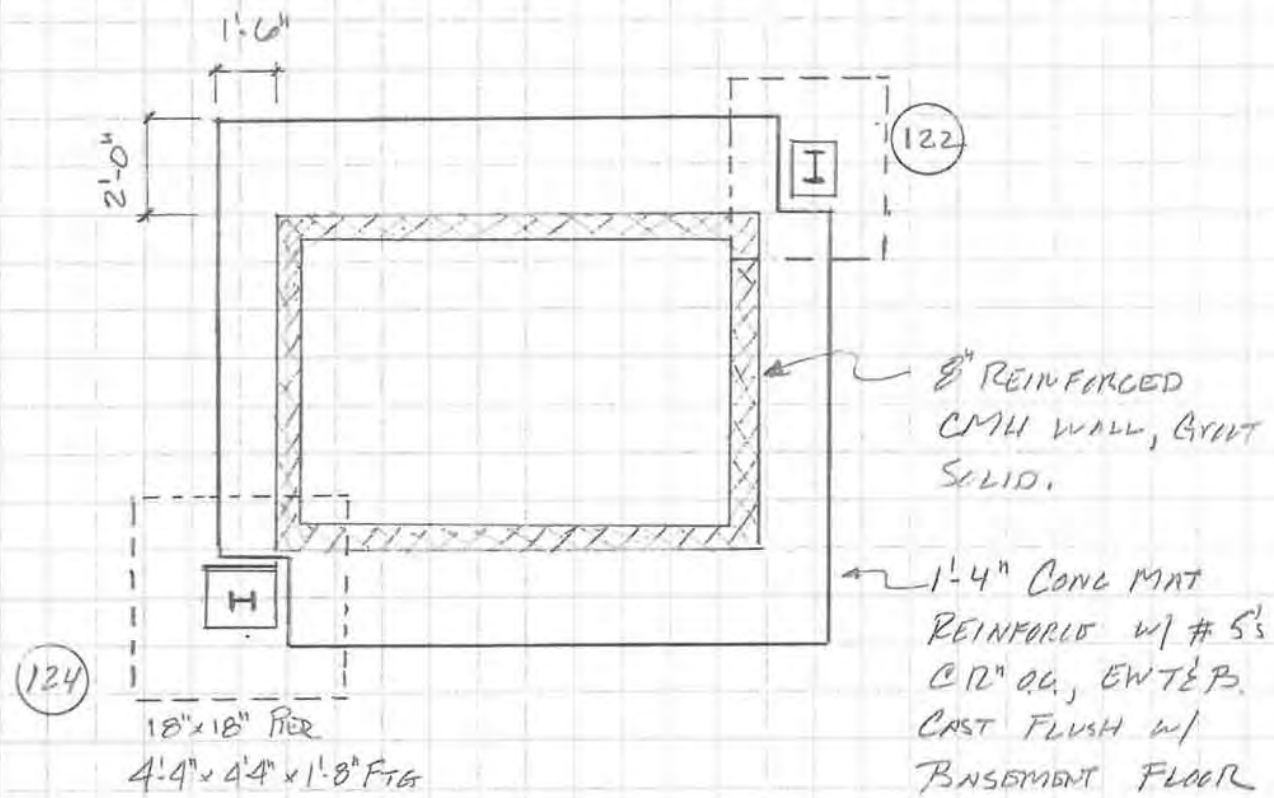


1 ELEVATOR SHAFT SECTION
1/8" = 1'-0" SCALE



2 ELEVATOR SHAFT SECTION
1/8" = 1'-0" SCALE

3 GUARD RAIL DETAIL
1" = 1'-0" SCALE



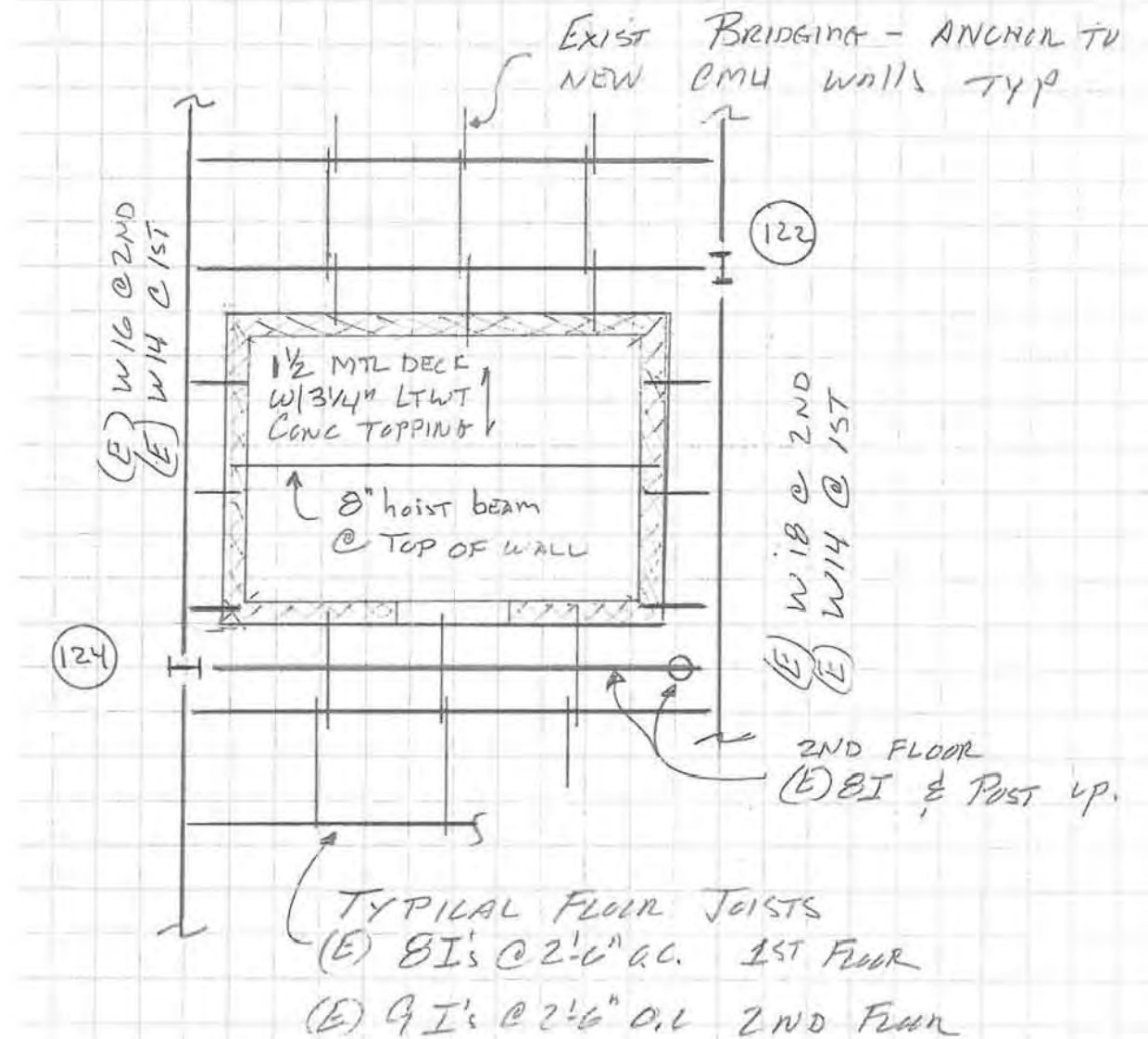
FOUNDATION PLAN

- NOTES:
- EXISTING INFORMATION TAKEN FROM ORIGINAL DWS # 14 F.
 - EXISTING BASEMENT SLAB ELEVATION 100.00'
 - ASSUMED EXISTING BOTTOM OF FTG ELEVATION 93.33'

- ALTERNATE 1:
- INCREASE MAT THICKNESS TO 2'-0"
 - PROVIDE 8-15 TON DRILLED IN MINI PILES. (2 PILES PER SIDE)

1 FOUNDATION PLAN

NTS



- NOTES
- NEW CMU WALLS REINFORCED AND GROUTED SOLID
 - HOISTWAY WALLS TO EXTEND UP ABOVE GALLERY. GALLERY FRAMING TO BE SUPPORTED ON WALLS SIMILARLY.
 - EXISTING FLOOR SLABS TO BEAR 3" ON HOISTWAY WALLS. DRY PACK ALL VOIDS BETWEEN CMU & UNDERSIDE OF SLAB.

2 HOISTWAY FRAMING PLAN

NTS

Purpose of Schematic Report

The new City Hall War Memorial Elevator program calls for the installation of a new elevator, elevator m/c room, pit and hoistway spaces with electrical, mechanical, plumbing and fire protection systems as required to comply with all federal, state and local regulations and codes.

The elevator is proposed in two alternate locations for this schematic report. Each location is indicated on the architectural schematic plans. Reference to the schematic architectural plans should be made by the contractor for proposed lighting and ductwork.

All work on the elevator installation is being coordinated by the Architect. The Architect will provide information on elevator electrical and mechanical requirements. This report coordinates the work between the architect and work required by mechanical, electrical plumbing and fire protection systems required to

support the elevator project.

This report assesses the existing services available to the elevators and confirms required upgrades to support elevator project.

a) Report includes all mechanical, electrical, plumbing, fire protection and controls that are required to support the elevator.

b) Report includes assessing existing conditions to determine if any additional improvements are required.

General

All required services for the new elevator are presently available in the Newton City Hall to serve the proposed new elevator. Refer to architectural schematic plans for additional mechanical and electrical work.

Plumbing and Fire Protection

The proposed elevator installation at the City Hall War Memorial Elevator does not require any plumbing work (code required sump pump only required where pit is below water table) or fire protection work (Massachusetts has exception to IBC requirements).

Fire Alarm

Existing Fire Alarm (FA) installation system is a Notifier 3030 analog addressable system with a local node in the first floor health services office. This FA system is capable of being reprogrammed to provide elevator service.

Fire Alarm (FA) work to be included in contract work:

-For the elevator installation new smoke detectors are required.

o In the elevator machine (m/c) room.

o At each elevator lobby.

-Provide FA contacts to operate "fire hat" if elevator machine room smoke detectors are in alarm.

-Provide FA contact to operate the top of shaft vent Automatic Control Damper (ACD) and smoke exhaust fan.

-Provide contacts to recall elevator to 1st floor (normal operation) or 2nd floor (alternate floor) if elevator lobby/mc room smoke detectors are in alarm.

-Provide contacts to shut off elevator m/c room ventilation fan and ACD.

-Provide FA Strobe in m/c room

-Testing of FA/Elevator interfaces to satisfaction of local Authorities Having Jurisdiction (AHJ's)

Normal Elevator Electrical Services

Elevator electric service requires a new 200 ampere 208 volt 3 phase 3 wire grounded from the existing 2000A normal/emergency switchboard. As the building is not a high rise emergency service is not required.

Electrical work for elevator electrical services to be included in contract work:

-Provide new 200amp circuit breaker (65kAIC) in existing main 120/208 volt switchboard.

-Provide new 200A fused elevator disconnect with auxiliary contacts on strike side of door.

-Provide new 200amp feeder in conduit from electric service.

-Provide 120v fused disconnects for cab electric service fed from local panel

-Provide new conduit/wire to elevator controllers from 200 Amp disconnect.

Machine Room

Elevator m/c room (machine room less elevator) is located at basement level and is vented to the elevator shaft. The room is not mechanically heated or cooled; the room will maintain code required temperatures by the provision of an exhaust fan and associated ACD controlled by thermostat.

General elevator m/c room work to be included in contract work:

-Provide conduit for telephone and security in m/c room.

-Fire stopping required at all wall penetrations.

-Install new GFCI receptacle in m/c room.

-Provide two new energy efficient fluorescent lighting fixtures with wire guards.

-Provide exhaust fan and intake louvers with 2-hour ACD's (supply and exhaust) ACD controlled by thermostat and fire alarm.

Elevator Hoistway

Elevator hoistway work to be included in contract work:

-Provide code required 2-hour rated elevator hoistway ventilation system. Ductwork shall be 2hr rated utilizing 2hr rated 3M duct wrap. As this vent is installed horizontal for more than 10ft provide with smoke exhaust fan. This vent fan is required to be powered from an emergency source. The City Hall generator will power this fan during a power outage. Refer to architectural drawings for required ductwork.

-Provide ACD for energy savings on hoistway vent and required control wiring (thermostat and fire alarm) for vent ACD and elevator vent/exhaust fan.

-Provide 2 energy efficient fluorescent lighting fixtures with wire guard at top of hoistway.

Pit

Elevator pit is accessed from the basement level.

Pit work to be included in contract work:

-Provide 120V 20A GFI receptacle for future sump pump.

-Install new GFCI receptacle

-Provide 2 energy efficient fluorescent lighting fixtures with wire guard.

Existing Pictures



Memorial Hall



Memorial Hall looking @ gallery



Entry to Disabled Veterans Room



Lobby 255



Lobby 255



Lobby 255



Gallery



Gallery



Gallery



Stair Hall



Stair Hall

City of Newton - War Memorial Elevator
Newton, MA

Feasibility Estimate

03-28-2013

Architect: Goldman Reindorf Architects, Inc.



60 Dedham Avenue, Needham, Massachusetts



**City of Newton - War Memorial Elevator
Newton, MA
Feasibility Estimate**

03-28-2013

BASIS OF ESTIMATE

The estimate is based on the drawings prepared by Goldman Reindorf Architects, Inc. and dated 03-11-2013

Qualifications / Clarifications:

- 1 Labor costs included at prevailing wage labor rates
- 2 The following mark ups area used:

Contingency - Design:	6.00%
General Conditions and Profit incl:	25.00%
Contractor's Supervision	
Scheduling Staff	
Engineer's Office Cleaning and Support	
Contractor's Office and Support	
Permits, Survey, and Signage	
Progress Photos	
Site Safety and upkeep	
Site Security	
Escalation is excluded	0.00%
Construction Contingency is excluded	0.00%
- 3 The estimate assumes all long-lead items can be pre-purchased to meet schedule requirements.
- 4 The estimate is based on the premise that the design will meet all codes, laws, ordinances, rules, and regulations in effect at the time that the estimate was prepared. The estimate shall be adjusted should any discrepancies between design and the aforementioned codes, laws or ordinances result in, or require, an increase in the Cost of the Work

The estimate excludes the following:

- 1 A-E Fees.
- 2 Overtime.
- 3 Hazardous materials abatement, both site and building
- 4 Working in contaminated soils.
- 5 Excavation in rock.
- 6 Dewatering.
- 7 Loose furniture and equipment.
- 8 Loose technology equipment (i.e. Computers, Printers, Etc.)
- 9 Telecom / security / equipment devices & wiring excluded. AV Equipment & wiring excluded.
- 10 Conduits, raceways, back boxes only included for Telecoms / security.
- 11 Builder's Risk Insurance.
- 12 Special seismic requirements.
- 13 Third party commissioning costs.
- 14 Work associated with the removal or remediation of contaminated soils, underpinning of existing foundations, unsuitable soil, unidentified underground obstructions or any other unsuitable materials including the haul in of replacement material.
- 15 Land Purchase
- 16 Traffic Impact Fees
- 17 School Impact Fees
- 18 Sewer Tap Fees
- 19 Water Tap Fees
- 20 Land & Off-Site Improvements
- 21 Geotechnical engineering.
- 22 Utility company back charges and user fees/surcharges.
- 23 Testing or inspection services, as required by State Building Code or other: concrete, soils, pavement, fireproofing.
- 24 Costs associated with air monitoring/clearance sampling.
- 25 Sales Tax
- 26 Tenant relocation costs

03-28-2013					
City of Newton - War Memorial Elevator Newton, MA Feasibility Estimate					
Architect: Goldman Reindorf Architects, Inc.					
Total Project Estimate					
			Est. Cost		One line specification or comments
024100	Demolition		13,750		
031000	Concrete Formwork		16,105		
032000	Concrete Flatwork		4,560		
040000	Masonry		61,600		
051000	Structural Steel Framing		2,360		
055000	Metal Fabrications		-		
061000	Rough Carpentry		13,320		
064000	Interior Architectural Woodwork		3,000		
070000	Waterproofing & Damp-proofing		-		
075000	Roofing		1,200		
079200	Joint Sealants & Caulking		-		
081000	Doors, Frames and Hardware		12,350		
088000	Glazing		-		
092000	Gypsum Board Assemblies		19,364		
093000	Tiling		-		
095000	Acoustical Panel Ceiling		-		
096500	Resilient Tile Flooring		5,980		
096800	Carpet		-		
099000	Painting		4,160		
101100	Specialties		-		
110000	Equipment		-		
120000	Furnishings		-		
130000	Special Construction		-		
140000	Conveying Equipment		98,000		
210000	Fire Protection		-		
220000	Plumbing		4,000		
230000	HVAC		12,800		
260000	Electrical		34,150		
310000	Building Sitework		-		
	Subtotal for Direct Costs		306,699		
	General Conditions		46,100	15.0%	
	General Requirements		15,400	5.0%	
	General Contractor Fee		15,400	5.0%	
	Subtotal ECC Before Contingencies		383,599		
	Contingencies				
	Design Contingency		23,100	6%	
	Phasing and Temporary Work		-	0%	
	Escalation Contingency		-	0%	
	Total ECC with Contingencies		\$406,699		

03-28-2013

City of Newton - War Memorial Elevator
Newton, MA
Feasibility Estimate

Architect: Goldman Reindorf Architects, Inc.

Building Project Cost

Code	Description	Quantity	Unit	Rate	Assembly Cost
024100	Demolition				\$ 13,750
	Temporary barriers for demo	1	LS	\$ 2,400.00	\$ 2,400
	Sawcutting of extg basement slab	1	LS	\$ 1,300.00	\$ 1,300
	Extg slab removal	230	SF	\$ 9.00	\$ 2,070
	Hand excavation for elev matt slab	1	LS	\$ 3,500.00	\$ 3,500
	Interior wall demo for new work	1	LS	\$ 3,400.00	\$ 3,400
	Demo carpet	1	LS	\$ 350.00	\$ 350
	Dumpster for debris removal	1	EA	\$ 730.00	\$ 730
031000	Concrete Formwork				\$ 16,105
	Matt slab	120	SF		\$ -
	formwork	120	SF	\$ 15.00	\$ 1,800
	Concrete materials	8	CY	\$ 115.00	\$ 920
	Reinforcing	2,000	LBS	\$ 1.40	\$ 2,800
	Concrete pumping	1	DY	\$ 800.00	\$ 800
	Walls	32	LF		\$ -
	formwork	32	LF	\$ 150.00	\$ 4,800
	Concrete materials	9	CY	\$ 115.00	\$ 1,035
	Reinforcing	2,250	LBS	\$ 1.40	\$ 3,150
	Concrete pumping	1	DY	\$ 800.00	\$ 800
032000	Concrete Flatwork				\$ 4,560
	Patch extg slab for elev work	1	LS	\$ 1,560.00	\$ 1,560
	Concrete elev shaft cover	1	LS	\$ 3,000.00	\$ 3,000
040000	Masonry				\$ 61,600
	New CMU elev shaft construction	1,540	SF	\$ 40.00	\$ 61,600
051000	Structural Steel Framing				\$ 2,360
	Hoist beam	1	EA	\$ 1,800.00	\$ 1,800
	Elev door lintels		EA	\$ 300.00	\$ 300
	Elev shaft metal decking	70	SF	\$ 8.00	\$ 560
055000	Metal Fabrications				\$ -
	NIC	1			\$ -
061000	Rough Carpentry				\$ 13,320
	Adjust floor framing for new elev shaft	4	DY	\$ 1,180.00	\$ 4,720
	Temporary support framing for new elev shaft	1	LS	\$ 5,000.00	\$ 5,000
	Repairs to extg pilasters	1	LS	\$ 3,600.00	\$ 3,600
064000	Interior Architectural Woodwork				\$ 3,000
	New chair rail	100	LF	\$ 30.00	\$ 3,000
070000	Waterproofing & Damp-proofing				\$ -
	NIC	1			\$ -
075000	Roofing				\$ 1,200
	Roof patch fro MEP vent piping	1	LS	\$ 1,200.00	\$ 1,200
079200	Joint Sealants & Caulking				\$ -
	NIC	1			\$ -
081000	Doors, Frames and Hardware				\$ 12,350
	New door units	5	EA	\$ 2,300.00	\$ 11,500
	New hardware on extg door, HW4	1	EA	\$ 850.00	\$ 850
088000	Glazing				\$ -
	NIC	1			\$ -
092000	Gypsum Board Assemblies				\$ 19,364
	New elev machine room walls	13	LF	\$ 170.00	\$ 2,210
	GWB furring at CMU shaft wall	407	SF	\$ 22.00	\$ 8,954

03-28-2013

City of Newton - War Memorial Elevator
Newton, MA
Feasibility Estimate

Architect: Goldman Reindorf Architects, Inc.

Building Project Cost

	Extg wall patching	1	LS	\$ 3,000.00	\$ 3,000
	GWB for duct enclosure, 2 HR	1	LS	\$ 3,700.00	\$ 3,700
	GWB soffits	1	LS	\$ 1,500.00	\$ 1,500
093000	Tiling				\$ -
	NIC	1			\$ -
095000	Acoustical Panel Ceiling				\$ -
	NIC	1			\$ -
096500	Resilient Tile Flooring				\$ 5,980
	Terrazzo floor patching	1	LS	\$ 2,500.00	\$ 2,500
	New flooring	1	LS	\$ 480.00	\$ 480
	Extg flooring patch from demo	1	LS	\$ 3,000.00	\$ 3,000
096800	Carpet				\$ -
	NIC	1			\$ -
099000	Painting				\$ 4,160
	Paint new walls	1	LS	\$ 3,160.00	\$ 3,160
	Touch up extg wall conditions	1	LS	\$ 1,000.00	\$ 1,000
101100	Specialties				\$ -
	NIC	1			\$ -
110000	Equipment				\$ -
	NIC	1			\$ -
120000	Furnishings				\$ -
	NIC	1			\$ -
130000	Special Construction				\$ -
	NIC	1			\$ -
140000	Conveying Equipment				\$ 98,000
	New elevator, in-line, 2 stop	1	EA	\$ 98,000.00	\$ 98,000
210000	Fire Protection				\$ -
	NIC	1			\$ -
220000	Plumbing				\$ 4,000
	Extg in wall piping to be relocated as req'd	1	ALW	\$ 4,000.00	\$ 4,000
230000	HVAC				\$ 12,800
	New exhaust fans	1	LS	\$ 1,600.00	\$ 1,600
	New ductwork	1	LS	\$ 8,400.00	\$ 8,400
	Louvers	1	LS	\$ 500.00	\$ 500
	ACD with controls	1	LS	\$ 2,300.00	\$ 2,300
260000	Electrical				\$ 34,150
	Make-safe for demo	1	LS	\$ 1,300.00	\$ 1,300
	Salvage and reinstall light fixtures	3	EA	\$ 480.00	\$ 1,440
	New light fixture	4	EA	\$ 470.00	\$ 1,880
	New outlets	9	EA	\$ 180.00	\$ 1,620
	New switches	3	EA	\$ 170.00	\$ 510
	New brass feature light fixture	1	EA	\$ 1,300.00	\$ 1,300
	Power wiring for new elevator	1	LS	\$ 8,800.00	\$ 8,800
	Door operator with push buttons	1	EA	\$ 6,500.00	\$ 6,500
	New Fire Alarm devices	1	LS	\$ 2,320.00	\$ 2,320
	New Fire Alarm contacts	1	LS	\$ 4,500.00	\$ 4,500
	New FA tie ins	1	LS	\$ 1,900.00	\$ 1,900
	FA programming and testing	1	LS	\$ 2,080.00	\$ 2,080
310000	Earthwork				\$ -
	NIC	1			\$ -
	Direct Cost For Above Work				\$ 306,699

03-28-2013

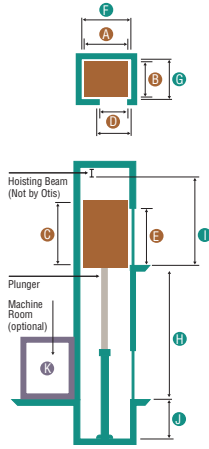
City of Newton - War Memorial Elevator
Newton, MA
Feasibility Estimate

Architect: Goldman Reindorf Architects, Inc.

Alternates

Code	Description	Quantity	Unit	Rate	Assembly Cost
ALT #1	Drilled mini-piles				
	Mobilization	1	LS	\$ 7,000.00	\$ 7,000
	Drilled mini-piles	8	EA	\$ 4,300.00	\$ 34,400
	Remove excess materials	1	LS	\$ 3,500.00	\$ 3,500
	Subtotal for Direct Cost				\$ 44,900
	General Conditions		%	15.00%	\$ 6,800
	General Requirements		%	5.00%	\$ 2,300
	General Contractor Fee		%	5.00%	\$ 2,300
	Subtotal for Construction Cost				\$ 56,300
	Design Contingency		%	6.00%	\$ 3,400
	Phasing and Temporary Work		%	0.00%	\$ -
	Escalation Contingency		%	0.00%	\$ -
	Total Alternate Cost			ADD	\$ 59,700
ALT #2	New bronz railing				
	New bronz railing, 12" H, furnish	48	LF	\$ 100.00	\$ 4,800
	New bronz railing, 12" H, install	1	LS	\$ 1,700.00	\$ 1,700
	Subtotal for Direct Cost				\$ 6,500
	General Conditions		%	15.00%	\$ 1,000
	General Requirements		%	5.00%	\$ 400
	General Contractor Fee		%	5.00%	\$ 400
	Subtotal for Construction Cost				\$ 8,300
	Design Contingency		%	6.00%	\$ 500
	Phasing and Temporary Work		%	0.00%	\$ -
	Escalation Contingency		%	0.00%	\$ -
	Total Alternate Cost			ADD	\$ 8,800
ALT #3	Fire Alarm for Memorial Hall 265 and auxiliary spaces				
	New fire alarm devices	1	LS	\$ 6,960.00	\$ 6,960
	Tie ins to extg FA control panel	1	LS	\$ 4,800.00	\$ 4,800
	Programming and testing	1	LS	\$ 2,080.00	\$ 2,080
	Subtotal for Direct Cost				\$ 13,840
	General Conditions		%	15.00%	\$ 2,100
	General Requirements		%	5.00%	\$ 700
	General Contractor Fee		%	5.00%	\$ 700
	Subtotal for Construction Cost				\$ 17,340
	Design Contingency		%	6.00%	\$ 1,100
	Phasing and Temporary Work		%	0.00%	\$ -
	Escalation Contingency		%	0.00%	\$ -
	Total Alternate Cost			ADD	\$ 18,440

HYDROFIT SPECIFICATIONS



Travel height maximum	26'-6" 8m	
Maximum stops	4	
Speed (ft/min)	100 0.51m/s	125 0.64m/s

IMPORTANT: To assist in your planning, we recommend that you call your Otis representative at the beginning of the project.

Dimensions

PASSENGER

Rated lbs.	2100 (953kg)	2500 (1134kg)	3000 (1361kg)	3500 (1588kg)
Passenger Capacity	13	15	18	21

Car¹

A Interior width	5'-8 5/8" (1735mm)	6'-5 5/8" (1970mm)	
B Interior depth	4'-3 3/8" (1309mm)	5'-0 3/8" (1528mm)	5'-5 5/8" (1665mm)
for front and rear openings	4'-4 1/8" (1324mm)	5'-0 3/4" (1543mm)	5'-6 1/8" (1680mm)
C Interior height ²	7'-9" Optional 9'-9" (2362mm Optional 2972mm)		
D Car door width	3'-0" (914mm)	3'-6" (1067mm)	
E Entrance height	7'-0" Optional 8'-0" (2134mm Optional 2438mm)		

SERVICE

4500 (2041kg)	5000 (2268kg)	5000AIA (2268kg)
28	31	31

5'-5 3/8" (1665mm)	5'-11 5/8" (1811mm)	5'-6 13/16" (1697mm)
7'-10 13/16" (2411mm)	8'-4 3/8" (2544mm)	8'-11 3/8" (2728mm)
7'-11 1/2" (2426mm)	8'-4 3/4" (2559mm)	9'-0" (2743mm)
7'-9" Optional 9'-9" (2362mm Optional 2972mm)		
4'-0" (1219mm)	4'-6" (1371mm)	4'-0" (1219mm)
7'-0" Optional 8'-0" (2134mm Optional 2438mm)		

Hoistway

F Width ³	7'-7" (2311mm) ⁴	8'-4" (2540mm)	
G Depth	5'-9" (1753mm)	6'-4" (1930mm)	6'-11" (2108mm)
for front and rear openings	6'-3 1/4" (1911mm) ⁶	6'-11 1/8" (2130mm)	7'-5 1/2" (2267mm)

7'-9" (2362mm) ⁵	8'-4" (2540mm) ⁵	7'-11" (2413mm) ⁵
9'-7" (2921mm)	10'-1" (3073mm)	10'-8" (3251mm)
10'-4 1/2" (3162mm)	10'-9 3/4" (3295mm)	11'-5" (3479mm)

H	Maximum rise	SINGLE STAGE	TWO STAGE
	@100 ft/min (with 4' pit depth)	13'-5" (4089mm)	21'-6" (6553mm)
	@125 ft/min (with 4' pit depth)	13'-2" (4013mm)	21'-6" (6553mm)
	@100 ft/min (with 5' pit depth)	14'-5" (4394mm)	26'-6" (8077mm)
	@125 ft/min (with 5' pit depth)	14'-2" (4318mm)	26'-6" (8077mm)
I	Clear overhead to hoist beam	SINGLE STAGE	TWO STAGE
	@100 ft/min (with 7'-9" cab)	12'-3" (3734mm)	12'-7" (3835mm)
	@125 ft/min (with 7'-9" cab)	12'-4" (3759mm)	12'-10" (3912mm)
	@100 ft/min (with 9'-9" cab)	14'-2" (4318mm)	14'-5" (4394mm)
	@125 ft/min (with 9'-9" cab)	14'-2" (4318mm)	14'-9" (4496mm)
J	Minimum pit depth	4'-0" / 5'-0" (1219mm/1524mm) ⁷	

Machine Room (optional)

K	Minimum width and depth ⁸	5'-9" (1753mm) x 7'-4" (2235mm)	5'-9" (1753mm) x 7'-4" (2235mm)
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- Interior dimensions may vary depending on finishes selected.
- Clear cab height varies by ceiling type and floor recess.
- The hoistway width and depth dimensions listed represent the minimum requirements for MRL applications. Construction efficiencies can be realized by increasing these dimensions by up to 2" (51 mm).
- For 2100 lb systems that opt for a machine room, the hoistway width can be reduced by 3".
- For 4500 lb, 5000 lb, and 5000AIA systems that opt for a machine room, the hoistway width can be reduced by 2".
- Front & Rear openings for 2100 and 2500 lb machine-roomless installations allow for rear openings at 2nd and 3rd floors only.
- Some locations require a 5'-0" pit. Contact your local Otis representative for details.
- Machine room dimensions for 2 car group arrangements vary by hoistway dimension. Contact your local Otis representative for details.
- Maximum rise is based on a combination of speed and duty. Contact your local Otis representative for details.



Otis

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