



# Smithsonian Institution

## Office of Facilities Management Reliability

*January 19, 2025*

### **PROJECT SUMMARY AND INFORMATION**

#### PROJECT INFORMATION

- 1.1. OFEO Project No. RQT. 25102  
Replace Defective Quad AHU Dampers and Motor Starter on Exhaust Fans  
Quad's Gallery of Art & Arthur M Sackler Gallery  
Smithsonian Institution 1100 Independence Ave SW  
Washington, DC 20560.
  
- 1.2. Smithsonian Institution Contacts:  
Contracting Officer  
Smithsonian Institution  
Office of Contracting  
600 Maryland Ave.  
Suite 500E  
Washington DC. 20024  
  
Contracting Officer's Technical Representative (COTR)  
Rex Little 202-359-6332 (cell)  
600 Maryland Ave SW, Suite 5001  
Washington, DC 20024

#### SUMMARY OF WORK

- 2.1. The contractor shall furnish all supervision, labor, materials, and equipment needed to replace the supply dampers and upgrade the pneumatic actuators to Direct Digital Control (DDC) for Air Handling Units (AHUs) 1-9, located in the main mechanical equipment room (Room 3217), and remove and replace (22) twenty-two HOA /disconnects with same specifications as existing that operate exhaust fans throughout the building at the Smithsonian Institution's Quad Museum at 110 Independence Ave SW, Washington, DC.

2.2. The Work includes, but is not limited to:

**Damper Replacement**

- Contractor is advised that this work must be performed off-hours, between the hours of 8pm – 6am.
- Contractor shall coordinate AHU shutdowns with COTR, to ensure that the building has adequate notice of shutdowns. Contractor is advised that only one AHU may be taken offline at a time.
- Contractor shall replace approximately nine (9) existing supply-side dampers and their associated actuators, serving the nine (9) AHUs located in the basement of the Quad.
- Existing AHUs are Miller Picking, Model No. IDAH-70-CWTABFRN.
- All new dampers are required to be fire rated.
- Contractor is advised that existing actuators are pneumatic, new actuators shall be replaced with DDC. Installation shall include new wiring.
- All new wiring shall be installed in conduit.
- New DDC actuators shall meet the system requirements currently being fulfilled by the existing pneumatic actuators.
- Contractor shall remove existing pneumatic actuator lines/wiring that is made obsolete by the new DDC equipment.
- Contractor shall field measure all new equipment. Measurements included in this SOW are approximate sizes that have been included for reference only.
- Contractor shall coordinate lock-out tag-out procedures with COTR, to ensure proper building protocols are followed.
- Contractor shall be responsible for replacing existing ductwork and insulation, and resealing duct joints, that are disturbed while performing this work. Replacement shall be made like in-kind.
- New isolation dampers shall be installed in the proper location and ensure they meet International Energy Conservation Code (IECC) leakage requirements.
- Contractor shall coordinate start-up of all new equipment with COTR. COTR is required to be physically present at the time of start-up.
- Contractor shall perform a daily clean-up of the work area.
- Contractor shall coordinate work schedule with COTR and provide daily progress updates.
- Provide pricing for Option one, noted in section 4.1 of this SOW.

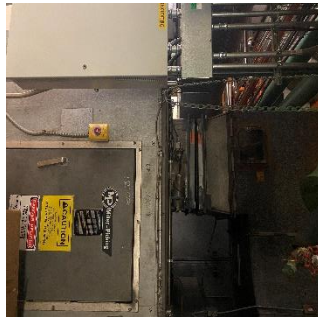
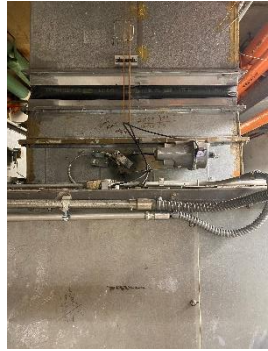
**Supplemental Information**

**Existing AHU Damper Sizes**

AHU #	Damper Height	Damper Length	Damper Width	# of Supply Side Actuators
1	48"	48.5"	10"	1
2	43"	58.5"	10"	1
3	35.5"	47.5"	10"	1
4	32"	45"	10"	1
5	29.5"	39.5"	12.5"	1
6	31"	41"	8"	1
7	35.5"	47.5"	10"	1
8	32.5"	43.5"	8"	1

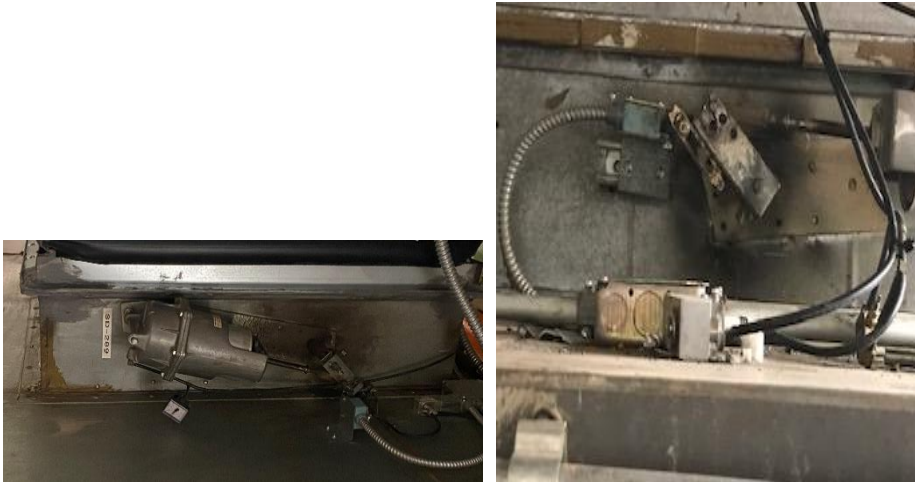
9	39.5"	52.5"	10"	1
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**Existing supply AHU's unit damper Locations:**

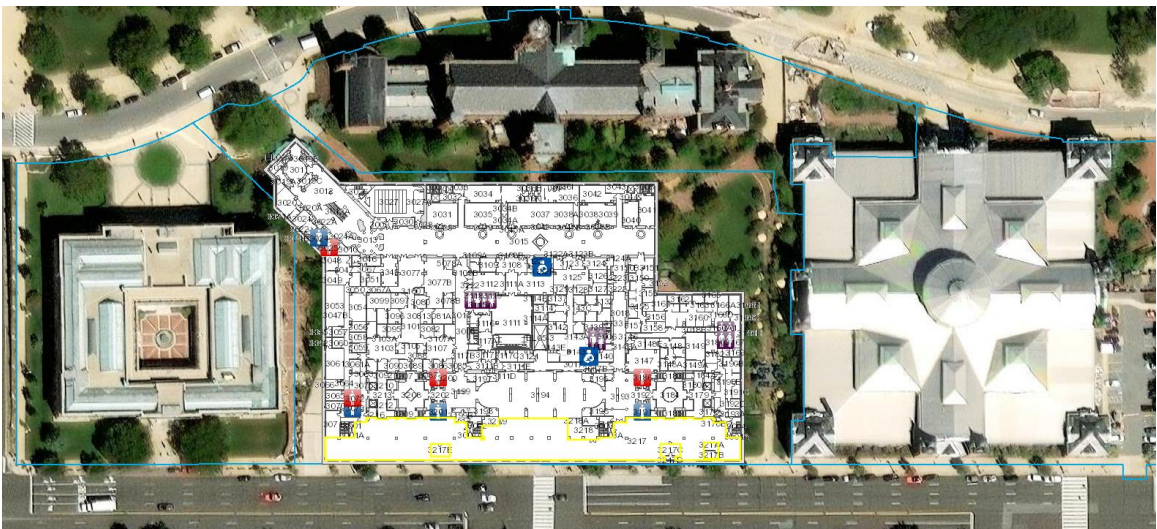




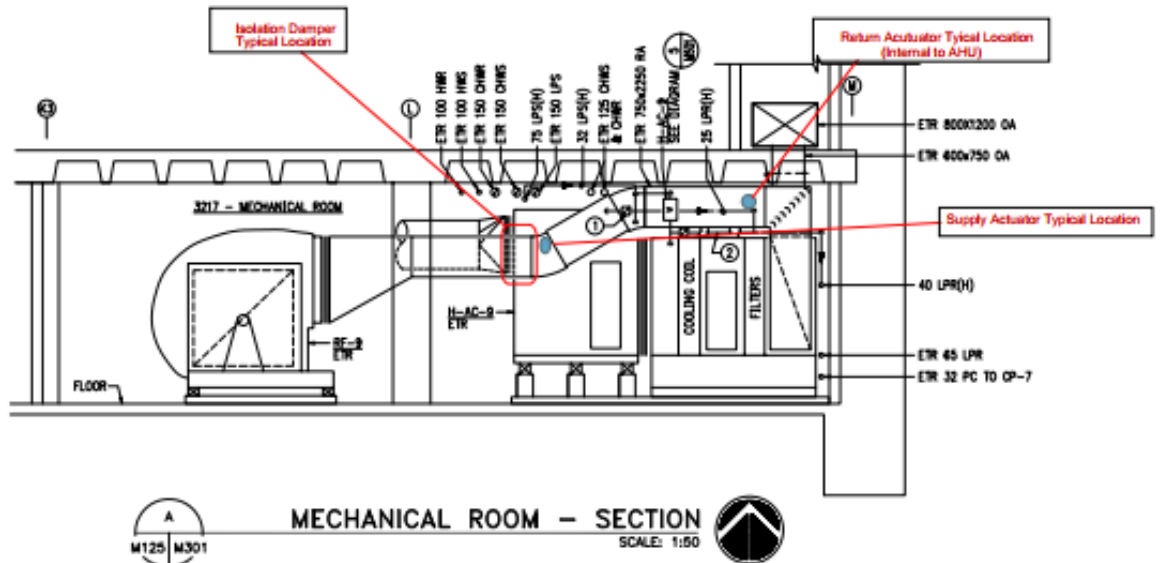
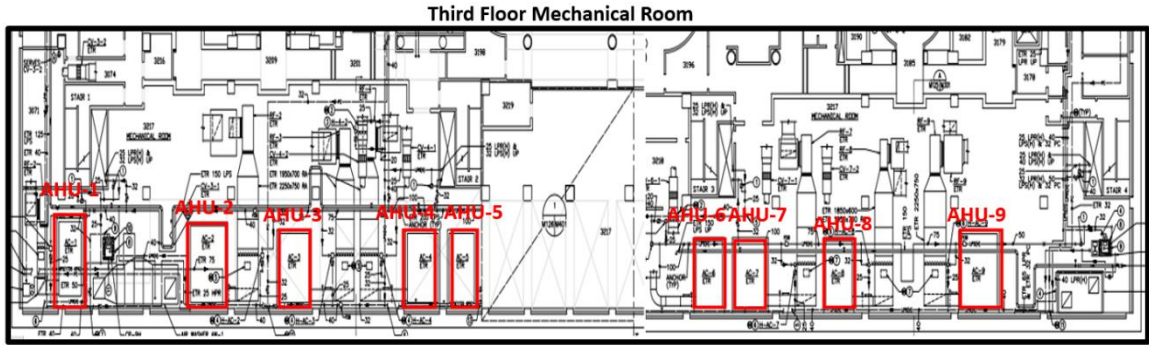
Damper Louvers (existing)



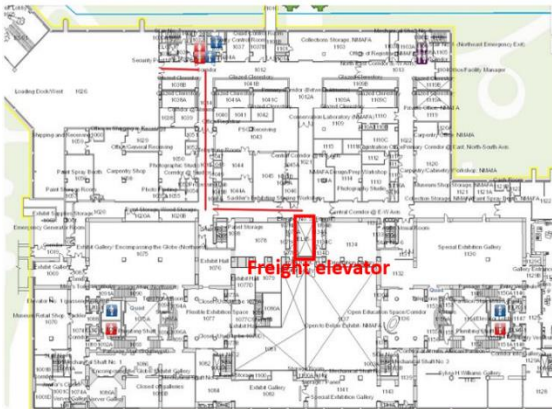
**Work Area**



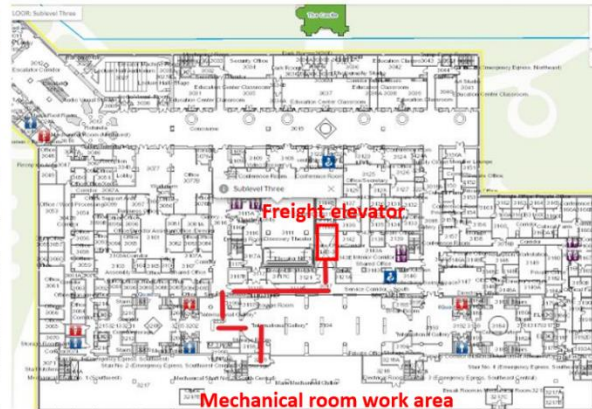
# AHU Equipment Layout



Contractor Path to Work Area  
First Floor Plan



Contractor Path to Work Area  
Third Floor Plan



## Motor Starter Replacement

- Below is the schedule for the exhaust fans. The contractor shall field verify these specifications to match the new HOA starters. Any discrepancies shall be noted and reported to the COTR.

Symbol	Serves	Location	Starter Motor Room Location	CFM	SP	HP	RPM	Fan Drive	Type drive	Arr'gt	Rotation	Discharge	Model	Voltage	HP	Amps
EF-1	General Exhaust	Stair 2	1096ER	4490	1"	1/4	1058	22 1/4"	Belt	10	CCW	Upblast				
EF-2	General Exhaust	Stair 3	1155ER	4350	1 1/4"	2	1270	20"	Belt	10	CW	Upblast				
EF-3	General Exhaust	Stair 5	1096ER	1190	3/4"	1/2	1495	12 1/4"	Belt	10	CCW	Upblast				
EF-4	General Exhaust	Stair 7	1049ER	5,465	1 1/4"	2	1054	24 1/4"	Belt	10	CW	Upblast				
EF-5	Mechanical Rm. Exhaust	Stair 2		10,000	1 1/4"	5	1220	27"	Belt	10	CCW	Upblast				
EF-5A	Mechanical Rm. Exhaust	Stair 3		10,000	1 1/4"	5	1220	27"	Belt	10	CCW	Inline				
EF-6	Loading Dock Exhaust	Loading Dock	1049ER	12,000	1"	5	619	47 1/2"	Belt			Inline				
EF-7	Paint Spray Exhaust	Paint Spray Rm.	1118ER	6,350	1/2"	2	1725	24"	Belt			Inline				
EF-8	Paint Spray Exhaust	Paint Spray Rm.	1053	18,500	1/2"	5	1478	42"	Belt			Upblast	NOT IN CONTRACT			
EF-9	Projection Room Exhaust	Stair 7	1049ER	400	1/2"	1/6	1342	7 1/4"	Belt	10	CW	Upblast				
EF-10	Dark Room Exhaust	Stair 6	1118ER	1500	1"	3/4	1630	12 1/4"	Belt	10	CCW	Upblast				
EF-11	Cons. Lab Hood		1118ER	3000	1 1/4"	1 1/2	1278	18 1/4"	Belt	10	CCW	Upblast				
EF-12	Cons. Lab Hood	Stair 5	1096ER	1500	1 1/4"	1/2	1411	15"	Belt	10	CCW	Upblast				
EF-13	Cons. Lab		1118ER	500	1"	1/6	1561	7 1/4"	Belt	10	CCW	Upblast				
EF-14	Cons Lab Soly Cab	Stair 5	1118ER	200	7/8"	1/3		5"	Direct	10	CCW	Upblast				
EF-15	Plexiglass Workshop Exhaust	Paint Spray Rm.	1053	800	1/2"	1/4	1244	12 1/4"	Belt			T.H.	NOT IN CONTRACT			
EF-16	General Exhaust	Stair 8	1118ER	1445	1/2"	1/2	1678	12 1/4"	Belt	10	CCW	Upblast				
EF-17	Photo Lab Exhaust	Stair 7	1049ER	2200	1"	3/4	1433	15"	Belt	10	CW	Upblast				
EF-18	Conservation Lab Exhaust	Stair 8		450												
EF-19	Paint Stor.	Paint Spray Rm.		1150	1/2"	1/2	1277	9 1/4"??	Belt	10		T.H.				
EF-20	Paint Stor.	Paint Spray Rm.	1118ER	1150	1/2"	1/2	1277	9 1/4"??	Belt	10		T.H.				
EF-21	Elev 1 & 2	Oriental Pavilion	1096ER	2000	1/2"	1	1163	13 1/4"	Belt	10	CCW	Upblast				
EF-22	Elev 3 & 4	African Pavilion	1155ER	2000	1/2"	1	1163	13 1/4"	Belt	10	CCW	Upblast				
EF-23	Fumigation	Stair 8	1118ER	1050	1"	1/2	1486	12 1/4"	Belt	10	CCW	Upblast				

- Field verify all dimensions, quantities, and conditions during walkthrough. Any discrepancy with scope of work must be reported to COTR at that time.
- Coordinate fan shutdown with COTR so that there is no effect to the building's normal operation.
- Contractor shall have new HOA starters on site before disconnection old starters.
- Disconnect wiring and remove the old HOA starters that operate each fan.
- Disconnect and make safe relays and devices associate with the building automation system. Once new HOA starters are installed reconnects and confirm they are working as designed.
- Ensure proper handling and disposal of all old equipment.
- Lock out/tag out (LOTO) of electric service to fan assembly shall be coordinated with COTR.
- All electrical work shall be done by a licensed electrician.
- The work area is to be cleaned of all debris, daily.
- The Contractor shall test the Hand-Off-Auto (HOA) starters to verify proper voltage and amperage during fan operation. These tests must be conducted in the presence of the COTR and the building controls staff. The Contractor is responsible for ensuring that all readings are within manufacturer specifications and identifying any discrepancies or issues for immediate resolution.
- Work shall be done during normal work hours.
- All work that is involved in the Gallery space must be complete by 10am each day before the exhibits are open to the public.

## Addition Information for Each Fan Unit

### Quad exhaust fan location and what it serves.

EF-1 – Serves 1001C and the men's / women's restrooms on the first level Sackler side. The location of the fan is the roof of stairwell **1002**. Starter location 1096ER / Breaker Panel HDP1C.



EF-2 – Serves the men's / women's restrooms first level African art and 1128. The location of the fan is the rooftop of stairwell **1003**. Starter location 1155ER / Breaker Panel HPIA1 #26,28,30.



EF-3 – Serves Mop closets 1062, 1054, 1055, 1056 and 1050. Located on the roof of stairwell **1005**. Starter location 1096ER / Breaker Panel HDP1C.



EF-4 – Serves the restrooms and locker rooms on the first floor Sackler by the loading dock, restrooms on the second level by the elevator, kitchen exhaust on level 2 and mechanical exhaust on level 3 by the escalators. Located in the doghouse at the top of stairwell **1007**. Starter location 1049ER / Breaker Panel HDP1A.



EF-5 – Serves the mechanical room and is located on the roof of stairwell 1002.



EF-5A – Serves the mechanical room and is located on the roof of stairwell 1003.



EF-6 – Serves the loading dock and is located in the loading dock. Starter location 1049ER / Breaker Panel HDP1A.





EF-7 – Serves the spraybooth in the African Art paint shop. Starter location 1118ER / Breaker Panel HDP1B.



EF-9 – Serves the projection booth for the lecture hall 2<sup>nd</sup> level. Located in the doghouse of stairwell 1007. Starter location 1049ER.



EF-10 – Serves 1113 photo lab on the 1<sup>st</sup> level African art. Located on the rooftop of stairwell 1006. Starter location 1118ER / Breaker Panel HDP1B.



EF-10 – Serves room 1109 fume hood. Located on the rooftop of stairwell 1006. Switch operated in the space. Starter location 1118ER / Breaker Panel HDP1B.



EF-11 – Serves room 1109 fume hood. Located on the rooftop of stairwell 1006. Switch operated in the space. Starter location 1096ER / Breaker Panel HDP1C.



EF-12 – Serves room 1115 fume snorkel. Located on the rooftop of stairwell 1006. Switch operated in the space. Starter location 1118ER / Breaker Panel LP1B1 #2.



EF-14 – Serves a solvent cabinet in room 1109. Located in the doghouse of stairwell 1008. Switch operated in the space. Starter location 1118ER / Breaker Panel LP1B1 #1.



EF-16 – Serves the restrooms and mop closet in the NW corner 1<sup>st</sup> floor, rooms 1105, 1106, 1107. Located in the doghouse of stairwell 1008. Starter is in 1118ER / Breaker Panel HDP1B.



EF-17 – Serves the photo lab area on the 3<sup>rd</sup> level concourse. Located in the doghouse of stairwell 1007. Starter location 1049ER.



EF-19 – Serves room 1057 in the paint shop Sackler, located in the paint shop. Breaker is in panel LP1A2 #2

EF-20 – Serves cabinet and paint shop African Art side, its location is also in the paint shop. Starter is in 1118ER / Breaker Panel HDP1B



EF-21 – Serves the Sackler Pavilion elevator shafts, located in the plenum above the elevator shafts. Starter location 1096ER / Breaker Panel HDP1C.

EF-22 – Serves the African Art Pavilion elevator shafts, located in the plenum above the elevator shafts. Starter is located in 1155ER / Breaker panel HDP1D.

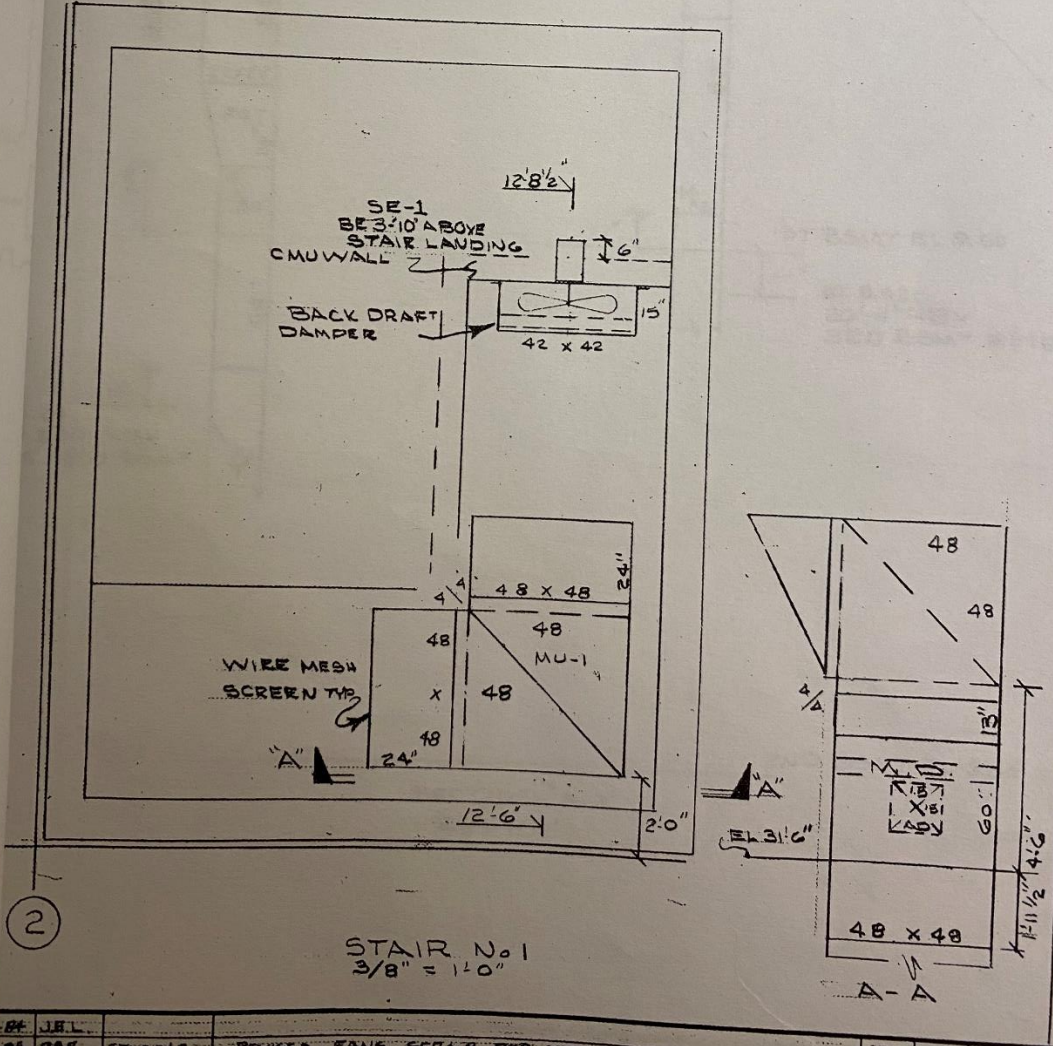
EF-23 – Serves a fume hood in room 1046. Located in the doghouse of stairwell 1008. Starter is in 1118ER / Breaker panel HDP1B.



EF-24 – Serves a fume hood in room 1046. Located on the rooftop of stairwell 1005. Starter is in 1096ER.



3/8" = 1'-0"

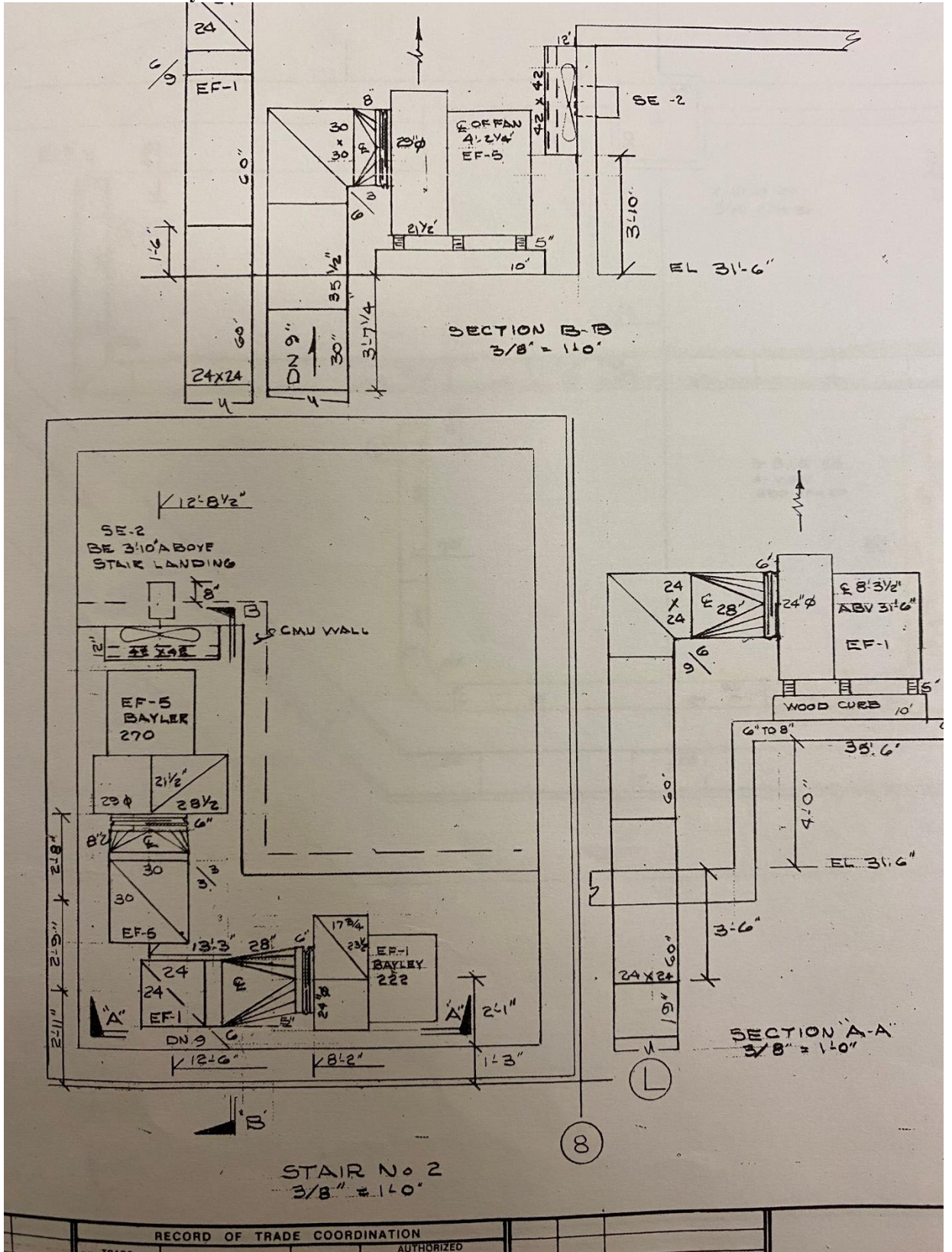


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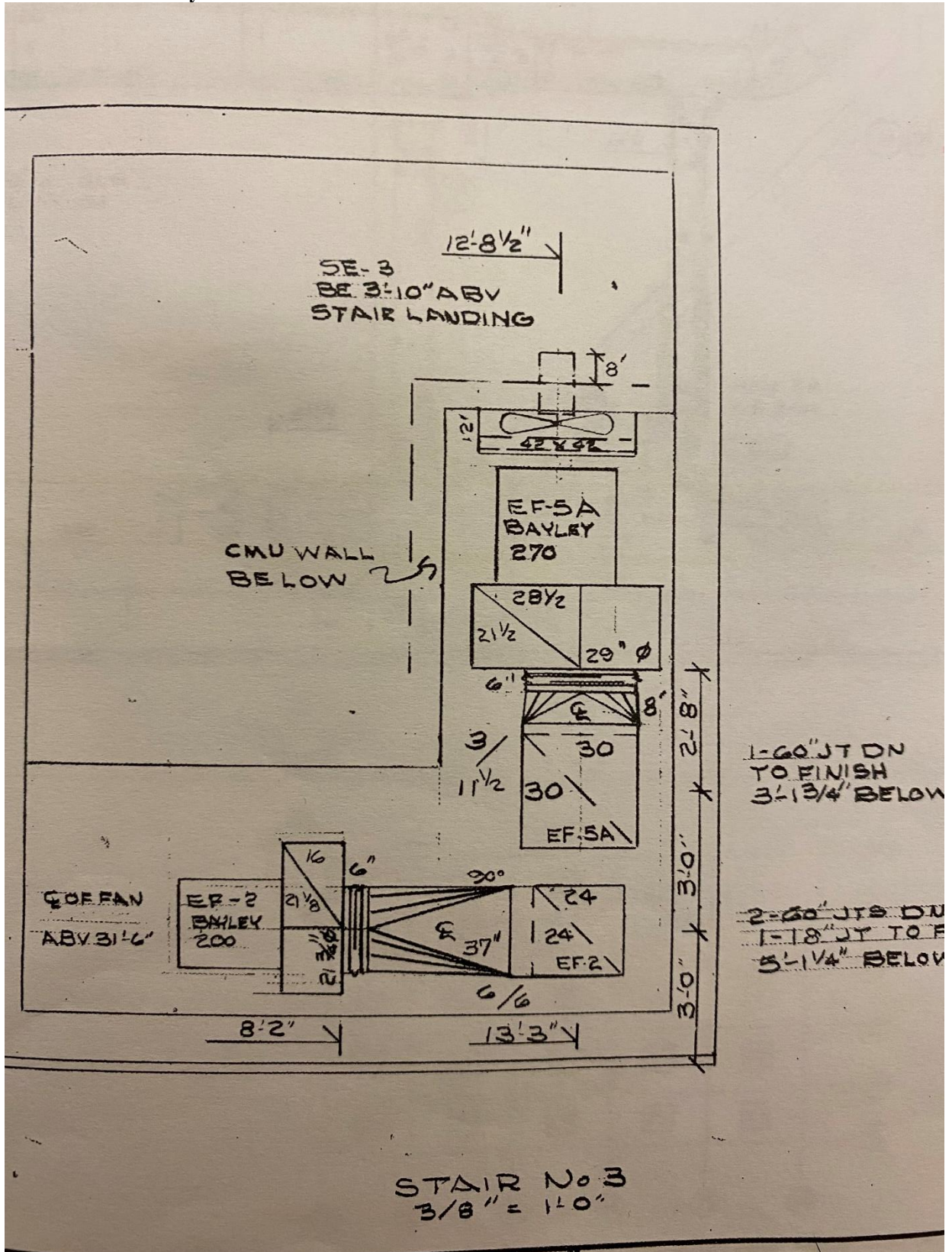
STAIR No 1  
3/8" = 1'-0"

BY	DATE	REVISED	SCALE	DESCRIPTION
JEL				

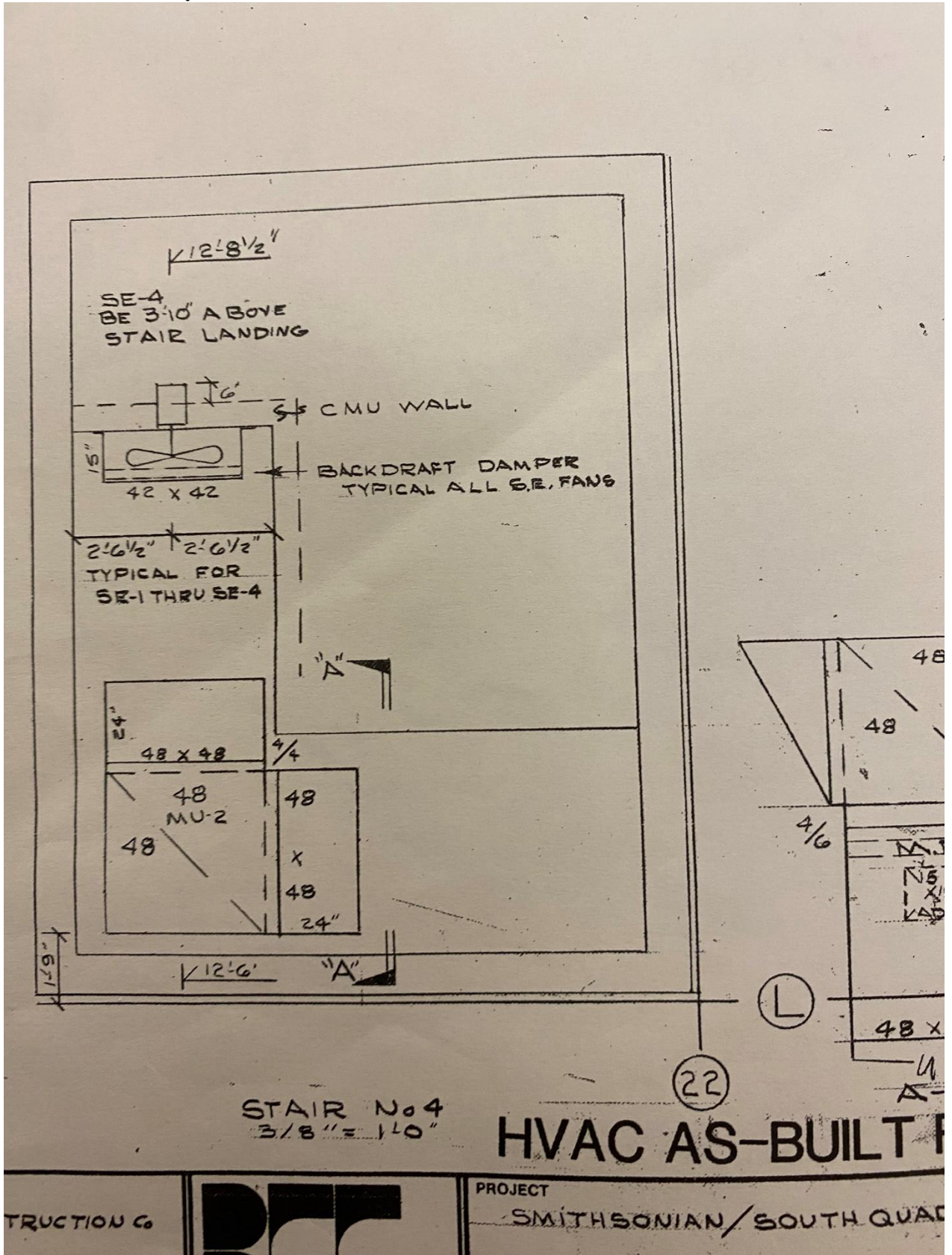
Stairwell 1002 roof layout



Stairwell 1003 roof layout

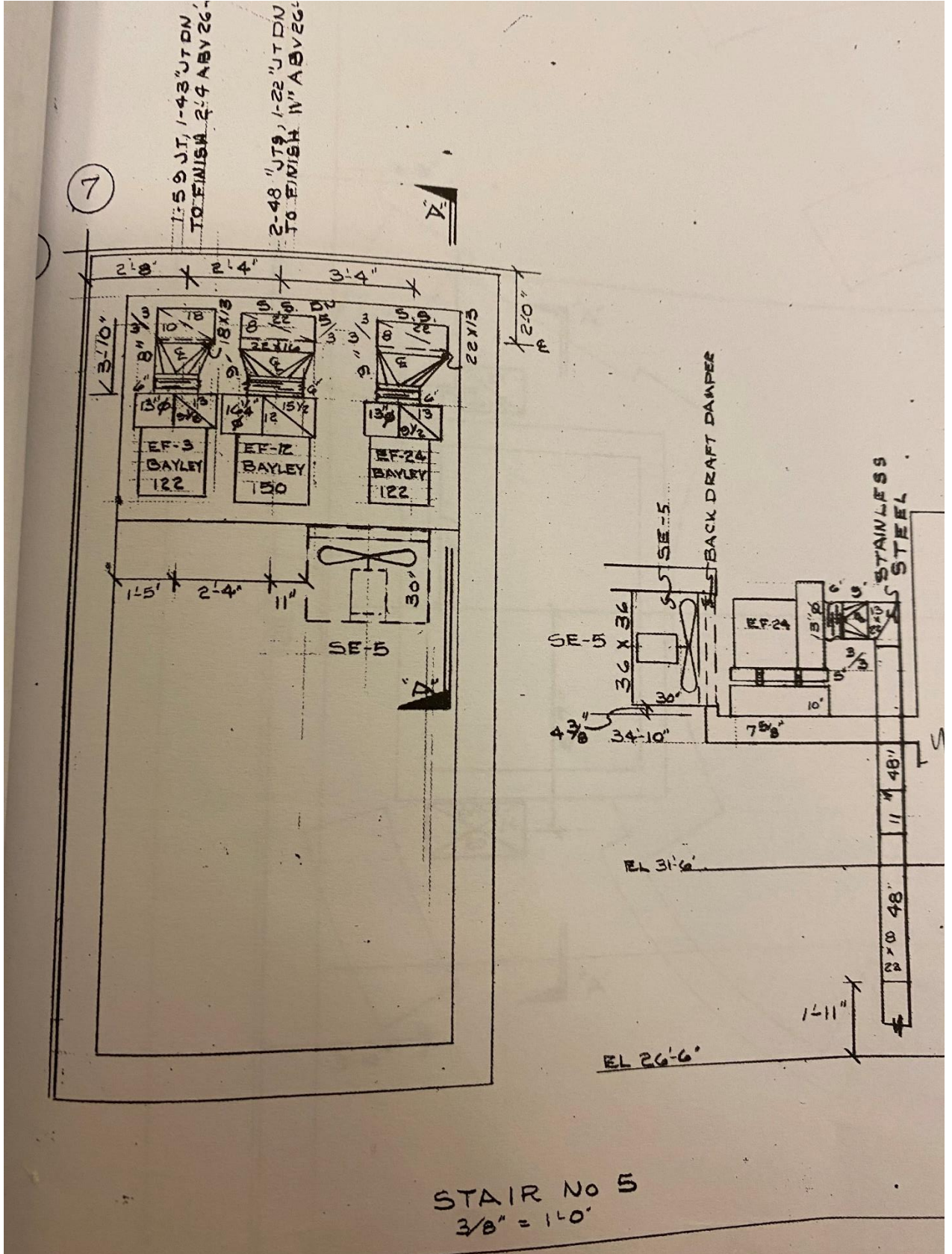


Stairwell 1004 roof layout

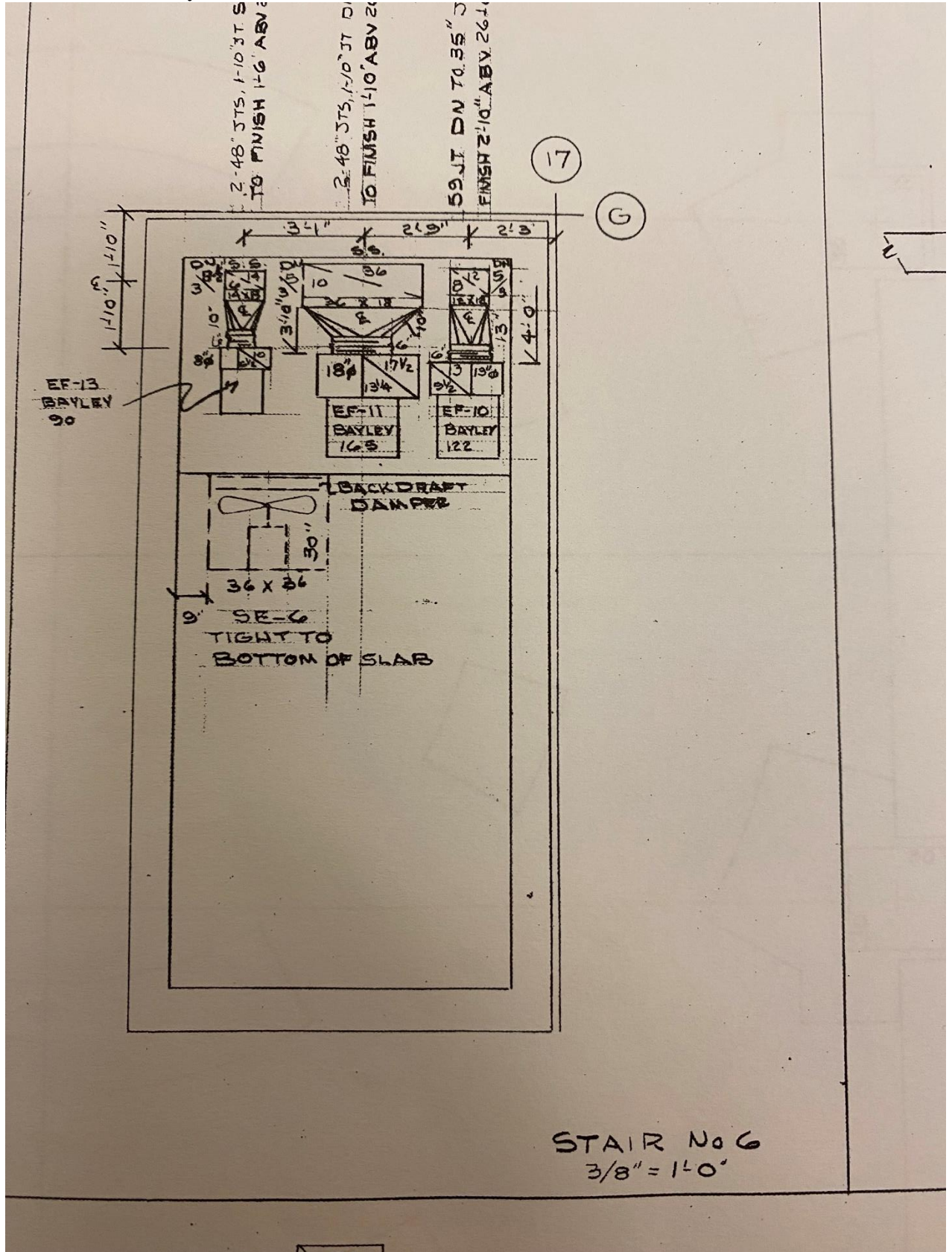




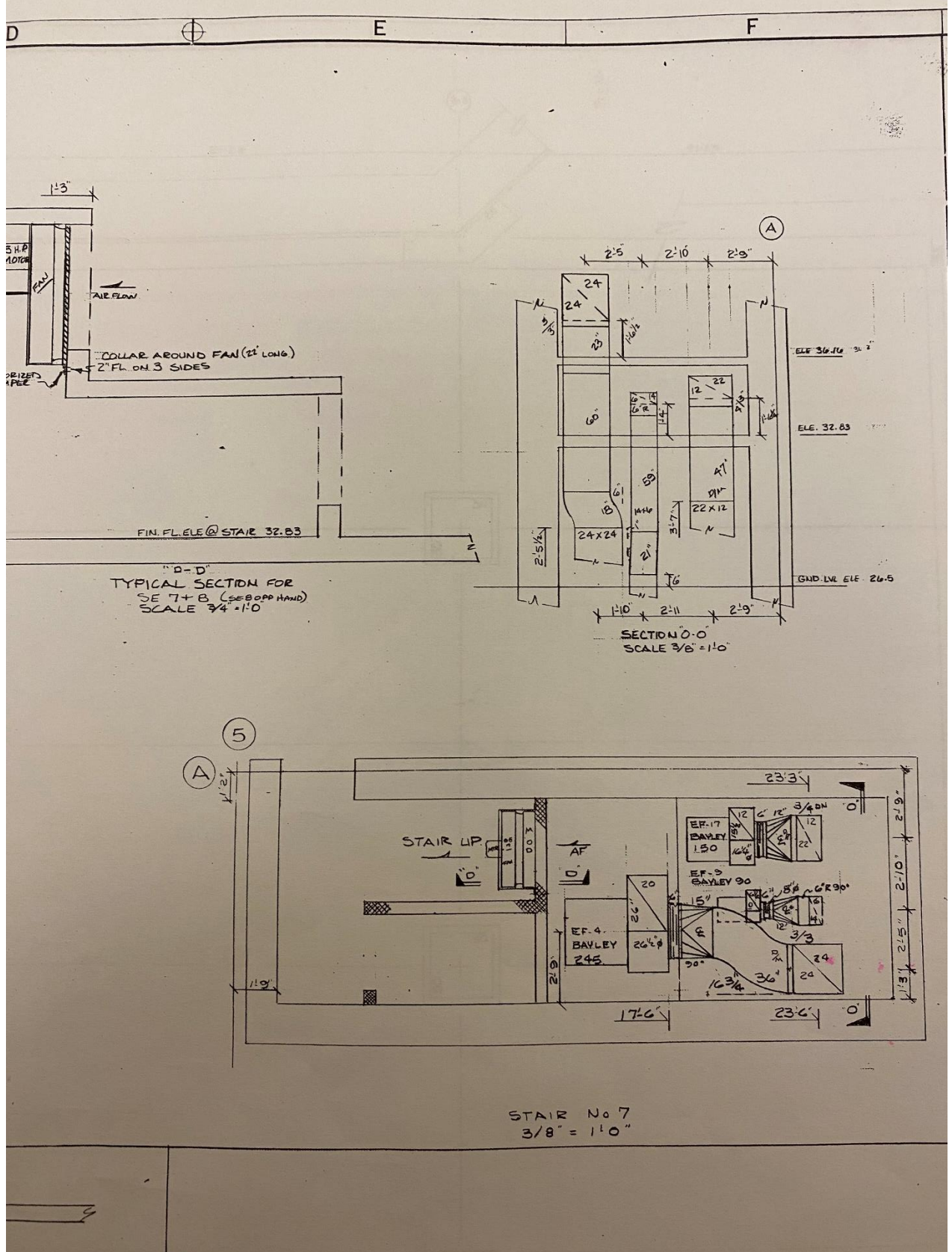
Stairwell 1005 roof layout



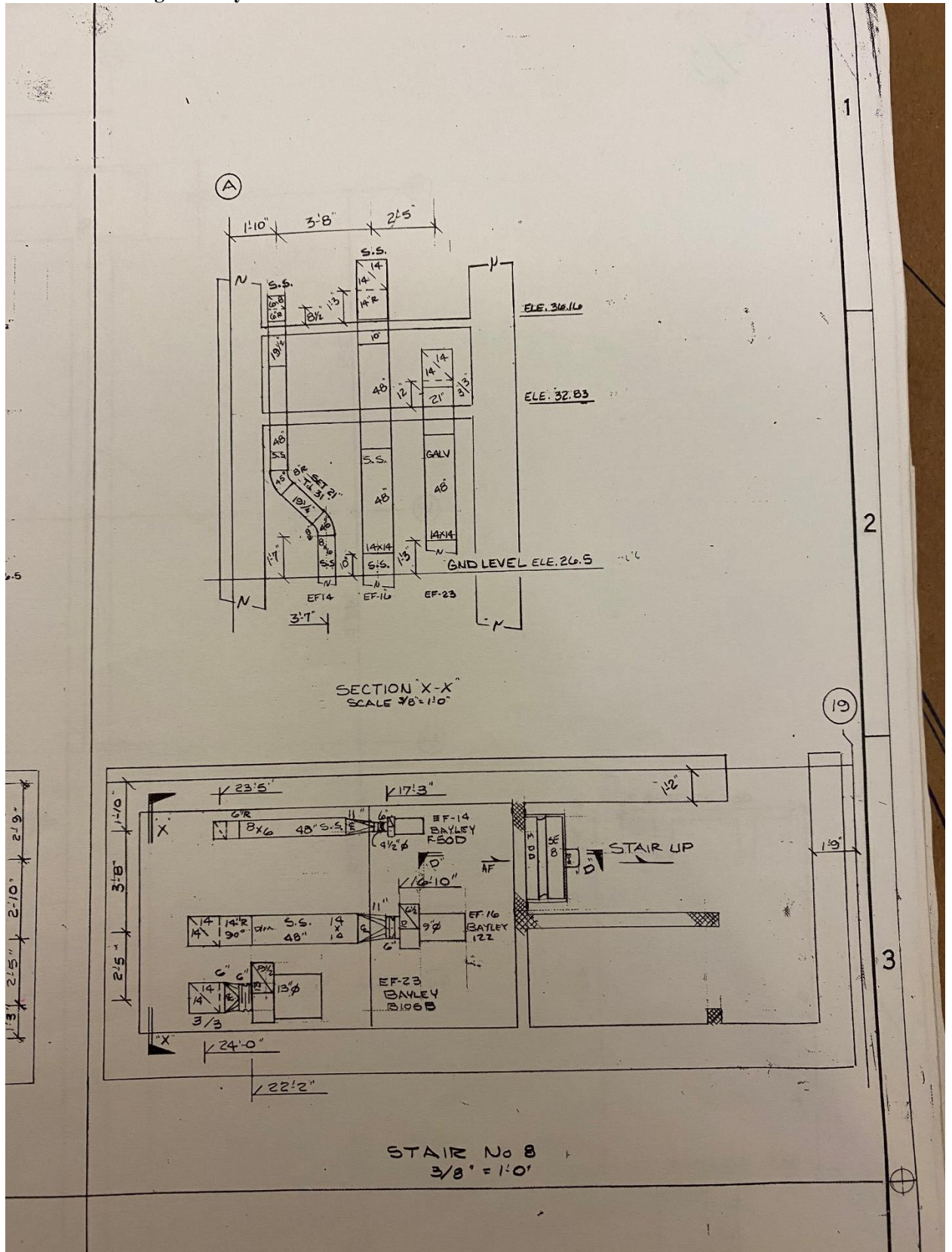
Stairwell 1006 roof layout



Stairwell 1007 doghouse layout



Stairwell 1008 doghouse layout



2.3. Critical Elements of the Work:

The successful Contractor shall be fully qualified to install critical elements of the work. Upon request of the Contracting Officer, bidders shall submit a statement of qualifications to address the following critical elements of the work:

- The contractor shall carefully examine the premises during the proposal period and satisfy himself /herself as to the extent, nature, and location of the work.
- All repairs and installation shall be performed by a licensed contractor; all installations shall be in accordance with the applicable Environmental Protection Agency (EPA).

CONTRACT TIME FOR COMPLETION

3.1. Work under this contract shall begin by the Contractor within ten (10) calendar days after the Notice to proceed and shall be completed within the total contract time of 240 calendar days. All work, including project closeout activities, shall be completed in every respect within the contract time.

3.2. The start date and completion date shall be as stated in the Notice to Proceed issued by the Contracting Officer and discussed at the preconstruction meeting.

SCHEDULE OF ALTERNATES FOR \*BID/PROPOSAL

4.1. The following is a brief Statement of the Work identified for \*bid/proposal alternates. The complete description of the Work is identified elsewhere in the drawings and specifications.

Option One: Replace sixteen (16) mechanical return actuators with DDC actuators.

AHU #	# of Return Side Actuators
1	1
2	2
3	1
4	2
5	2
6	2
7	2
8	2
9	2

SCHEDULE OF UNIT PRICES

5.1. The unit prices in the following schedule shall be submitted as part of the proposal. The Smithsonian reserves the right to accept or reject any unit prices.

5.2. The Contractor agrees that, if the Contractor is directed by the Smithsonian to increase or decrease the quantities of work required by the contract documents on items listed below, the contract amount shall be adjusted based on the following unit prices.

5.3. Unit prices shall include the furnishing of all materials, labor, equipment, and services necessary for or incidental to the execution of the work specified. Unit prices shall include all direct and indirect costs, overhead, taxes, insurance, and profit.

5.4. These unit prices shall be binding upon the Contractor for the duration of the project. No escalation or other variation shall be allowed.

5.5. If requested by the Smithsonian, the Contractor shall provide material, equipment, and personnel to verify or determine changes in quantities. Contractor measurements and calculations shall be subject to verification by the COTR.

5.6. Schedule of Required Unit Prices

ITEM	Price (\$)	Per Unit
N/A		

**BIDDER/OFFEROR EXAMINATION OF SITE**

6.1. Every effort has been made to indicate all work necessary to complete the project as identified. All \*bidders shall carefully examine the premises during the \*bid period and satisfy themselves as to the extent, nature and location of the work, general and local conditions, particularly those bearing on transportation, disposal, handling and storage of materials, availability of labor, water, electric power, access routes, the uncertainties of the weather, type of equipment and facilities needed for the successful execution of the Work.

~~6.2. Contractor may view the project site on an appointment basis. Any comments, information or discussion during the site visit shall not modify the contract documents. The contractor shall make an appointment to view the site by contacting:~~

Rex Little 202-359-6332 (cell)  
600 Maryland Ave SW, Suite 5001  
Washington, DC 20024

6.3. Pre-Bid Conference and Site Visit: A scheduled pre-bid conference and site visit will be announced by the Contracting Officer. The purpose of the scheduled meeting is to provide an opportunity for all bidders to review the project site. Any comments, information or discussion during the site visit shall not modify the contract documents.

6.4. This project is in a public building and requires no special arrangements to visit the building between the hours of 10:00AM and 5:30PM.

6.5. This project requires special arrangements for access to a non-public area. Access to the

site may be restricted at times other than during the scheduled visit.

## NON-PUBLIC, TENANT AND SECURED SPACES

7.1. Certain tenant spaces, non-public spaces, utility and equipment rooms and other areas related to or used for purposes of storage, conservation, research, curation of museum collection and artifacts or for scientific research may have restricted access.

7.2. ~~(b)(3)~~The Contractor shall identify to the COTR as soon as possible, but no less than two (2) working days in advance, any occupied areas that the Contractor must access that are located outside the limits of the project site. The Contractor shall identify in writing:

7.2.1. Restricted areas to be accessed.

7.2.2. ~~(b)(3)~~Specific reason for needing access.

7.2.3. ~~(b)(3)~~Nature of the work to be performed.

7.2.4. ~~(b)(3)~~Date(s) and hours needed to complete construction work activity.

## MUSEUM ARTIFACTS AND SCIENTIFIC RESEARCH MATERIALS

8.1. The handling of museum artifacts or scientific research experiments by the Contractor is strictly prohibited without written consent of the Smithsonian. The existing museum artifacts and research related materials may be moved only by authorized Smithsonian Museum curatorial personnel. An offender of this clause may be subject to arrest or removal from the premises and project by Smithsonian security officers.

## PROTECTION OF HISTORIC PROPERTIES

9.1. The project site is located in a designated National Historic Landmark property and requires special attention to the quality of materials selected for installation and workmanship efforts to satisfactorily preserve and restore historic elements and finishes of an historic landmark structure.

9.2. Upon request of the COTR, the Contractor shall submit evidence of technical competence in restoration work for National Historic Landmark structures, including subcontractor resumes, references and photographs or previous similar work.

9.3. Without exception, all original building fabric of the Quadrangle is designated historic.

## COMMITMENT TO SUSTAINABILITY

10.1. The Smithsonian Institution is a trust instrumentality of the United States, and although not an Executive Branch of the U.S. Government, is committed to planning, designing, constructing, maintaining, and operating its owned and leased buildings and facilities consistent with Federal environmental and energy management requirements, as listed in the Smithsonian OFEO Codes, Standards and Guidelines document, dated February 15, 2012, to the maximum extent practical.

## COMMISSIONING – N/A

~~11.1. The Smithsonian requires Fundamental Commissioning (as defined by the LEED NC and CI rating systems) of all eligible design and construction projects, even if the project is not eligible to pursue LEED certification. The Smithsonian additionally requires Enhanced Commissioning (as defined by the LEED NC and CI rating systems) for larger projects and projects pursuing LEED certification, based on the size and complexity of the project. The Contractor shall coordinate work of different trades, as necessary, with the activities of and the requirements issued by the Smithsonian and the Commissioning Provider, including:~~

~~11.1.1. The Commissioning Plan, a resource to identify the strategies, aspects, and responsibilities within the commissioning process for each phase of the project, outlining the overall project schedule, organization, responsibilities, and documentation requirements of the design process. Refer to specific trade commissioning requirements that may be located in other sections of the technical specifications.~~

~~11.1.2. The Owner's Project Requirements (OPR), the functional requirements of a project and expectations of the building's use and operation as they relate to systems to be commissioned. The OPR addresses, the owner use and requirements, environmental and sustainability goals, energy efficiency goals, indoor environmental quality requirements, equipment, and system expectations, building occupant and operations and maintenance personnel requirements.~~

~~11.1.3. Basis of Design (BOD), which includes a narrative description of the design of any systems to be commissioned and any design assumptions.~~

## **CONTRACTOR USE OF PREMISES**

### HOURS OF WORK, WORKDAYS, AND GOVERNMENT HOLIDAYS

12.1. Work shall be performed under this contract during the night shift of Monday through Friday, except Smithsonian holidays as specified herein, and the work hours of 8:00 p.m. to 6:00a.m.

12.2. For each occasion, the Contractor intends to work on Saturdays, Sundays, or Smithsonian holidays, or during hours other than those indicated above, the Contractor shall obtain written permission from the COTR, at least 3 working days in advance.

12.3. The Contractor shall reimburse the Smithsonian Institution for security and inspection services provided by Smithsonian when the Contractor chooses to work outside the normal workdays and hours, as identified herein. However, the Contractor will not be charged for SI overtime security and inspection services, if in the opinion of the COTR; the work cannot be done during the normal workdays and hours due to the requirements of the Smithsonian.

12.4. Smithsonian Holidays. For holidays that fall on Saturday, the Smithsonian holiday is observed on the previous Friday. For holidays that fall on Sunday, the Smithsonian holiday is observed on the following Monday. The Smithsonian holidays are listed below.

New Year's Day	January 1
Martin Luther King Jr.'s Birthday	January, third Monday
George Washington's Birthday	February, third Monday



Memorial Day	May, last Monday
Juneteenth	June 19
Independence Day	July 4
Labor Day	September, first Monday
Columbus Day	October, second Monday
Veterans' Day	November 11
Thanksgiving Day	November, fourth Thursday
Christmas Day	December 25

\*President's Inauguration Day

## QUALITY ASSURANCE

13.1. The Contractor shall provide for quality control, inspections, testing, and re-testing as necessary for all work, including that of subcontractors, to assure compliance with the contract documents.

## PERMITS, LICENSES, & FEES

14.1. The Contractor shall obtain and pay for all applicable permits and licenses required by regulating agencies, including but not limited to permits for pedestrian and road markings, construction fences, sidewalk cuts, utility company connections, elevator certificates, waste containers, etc.

## PROTECTION OF THE SITE

15.1. The Contractor shall provide adequate protection for all parts of the building, including interior and exterior surfaces, its occupants and contents, and grounds wherever work under this contract is performed.

## DEBRIS CONTROL AND DAILY CLEANUP

16.1. The Contractor shall regularly clean up the work areas and shall at all times maintain the project in as neat and orderly a manner as is consistent with normal operations. Debris resulting from construction operations shall be removed from the site daily by the Contractor. The Contractor shall keep all access, haul routes, and site areas free of dirt, debris, and other materials resulting from construction activities.

16.2. The Contractor shall recycle, salvage, or otherwise divert from landfills and incinerators, at least 50%, with a goal of at least 75%, by weight (tons), unless otherwise noted, of non-hazardous construction and demolition material. The contractor shall track recycling efforts and diversion rates using the Construction and Demolition Waste Tracking Sheet, attached. Before any work is started, the contractor shall submit a Construction Waste Management Plan, consisting of waste identification and a waste reduction work plan. Waste identification shall indicate anticipated types and quantities of demolition, site-clearing, and construction waste generated by the Work. Include estimated quantities and assumptions for estimates. A waste reduction work plan shall list each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures. With each application for payment, the contractor shall submit the Construction and Demolition Waste Tracking Sheet, attached, with data compiled for the payment period, including receipts from hauler or destination. Before requesting for substantial completion, the contractor shall submit calculated end-of-Project percentage of waste diverted from landfills and incinerators (recycled, salvaged, or disposed) as a percentage of total waste generated by the work. With a request for final payment, the contractor shall submit an actual percentage of

waste diverted from landfills and incinerators (recycled, salvaged, or disposed) as a percentage of total waste generated by the Work.

## STAGING, STORAGE, AND WORK AREAS

17.1 Before any work is started, the contractor shall coordinate with the COTR regarding the use of the area for staging and storage of materials and equipment.

## BONDING AND INSURANCE

18.1 Bonding:

In accordance with IDIQ Contract requirements.

NOTE: The only acceptable method of bonding for the Smithsonian Institution is (1) Bid bond SF-24; Performance Bond SF-25; and Payment Bond SF-25A (U.S. Department of the Treasury Acceptable Surety); (2) Irrevocable Letter of Credit (issued by a member of the Federal Deposit Insurance Corporation); or (3) Cashier's Check.

18.2 Insurance:

In accordance with IDIQ Contract requirements.

## **SUBMISSIONS**

### SUBMITTALS AND REVIEWS

19.1. Contractor Responsibility for Submittals: The Contractor shall provide all required submittals, by technical specification section, in accordance with the contract documents. The Contractor shall clearly indicate on the submittal that it has been reviewed by the Contractor and found to meet the project requirements. Any items submitted as substitutions shall be clearly identified as such on the submittal and the transmittal document. If shop drawings show variations from the contract documents because of standard shop practices or for other reasons, the Contractor shall provide a separate, written description of variations along with the submittal. The Contractor shall:

19.1.1. Review each submittal for conformance with requirements of the contract documents and coordination with related work.

19.1.2. Determine and verify all field measurements, required material quantities, method of assembly or erection, installation requirements, and proper connection to adjoining materials installed by others.

19.1.3. Assure that all submittals use the appropriate units of measure. All drawings and technical data shall be in SI (metric) units for projects designed in SI units. Pre-printed literature in other units shall be accompanied by documentation to show conformance to project requirements.

19.1.4. Transmit all required submittals for a technical specification section at the same time unless prior written waiver of this requirement has been provided by the COTR.

19.1.5. Transmit submittals to the COTR in a logical and orderly sequence in accordance with the Submittal Schedule to prevent project delays or adversely impact work by the Smithsonian Institution or other contractors.

19.1.6. Correct and resubmit submittals according to the response from the Smithsonian Office of Engineering Design & Construction.

19.1.7. Commence work on items requiring submittals only, after all, related submittals are reviewed and approved by the Smithsonian. All Work shall conform to approved submittals.

## TOXIC AND HAZARDOUS SUBSTANCES

20.1. The Contractor shall submit to the COTR, at least ten working days prior to their intended use, a written list of toxic and hazardous substances that will be used on the project. The Contractor shall submit a "Material Safety Data Sheet" similar to OSHA Form No. 20 for these substances to identify the following information:

- 20.1.1. Product Identification
- 20.1.2. Hazardous Ingredients
- 20.1.3. Physical Data
- 20.1.4. Fire and Explosion Hazard Data
- 20.1.5. Health Hazard Data
- 20.1.6. Emergency and First Aid Procedures
- 20.1.7. Reactivity Data
- 20.1.8. Spill or Leak Procedures
- 20.1.9. Special Protection Information
- 20.1.10. Special Precautions

20.2. The Contractor will commit to not using the following toxic and hazardous materials:

20.2.1. Products containing asbestos, urea formaldehyde, polychlorinated biphenyls (PCBs) and/or chlorinated fluorocarbons.

20.2.2. Products containing lead content, including solder or flux containing more than 0.2% lead; domestic water pipe or pipe fittings containing more than 8% lead; and paint containing more than 0.06% lead.

20.2.3. Chlorofluorocarbon (CFC) -based refrigerants in new base building heating, ventilating, air conditioning and refrigeration (HVAC&R) systems and comprehensive CFC phase-outs when reusing existing base building HVAC equipment.

20.3.4. The Contractor hereby understands that historic properties may contain pre-existing harmful materials and coatings including, but not limited to, arsenic, lead, dioxide, polyvinylchloride (PVC) and asbestos. Upon discovery of hazardous or toxic materials, the Contractor shall alert the COTR immediately.

## EXISTING FIRE PROTECTION SYSTEMS

21.1. During the course of the Work, all existing smoke and heat detectors and sprinkler heads must remain operable. Coverings may be applied to protect them from spray coatings or other hazardous conditions only during the actual operations. The covering must be removed immediately, after the operations have concluded. The damaged detectors and sprinkler heads shall be replaced immediately by the Contractor at no additional cost to the Smithsonian Institution. The Contractor shall test replaced detectors and sprinklers after installation to the satisfaction of the COTR.

## GENERAL SECURITY REQUIREMENTS

22.1. The Contractor and his employees must comply with security requirements imposed by the Smithsonian Institution, including any necessary security clearances. Failure to inspect the site or obtain knowledge of security regulations shall not relieve the Contractor from security requirements or from the performance of any part of the work.

### JOB SITE SAFETY – Project value \$100k and above

23.1. Safety Coordinator: The Contractor shall designate a person responsible and accountable for personnel safety at both corporate and project level at the project site for the duration of the project. Contracts specifically requiring safety or industrial hygiene personnel should include a copy of their resumes. Qualifications for the Safety Coordinator shall include the OSHA 30-hour course or equivalent course.

23.2. Occupational Safety and Health: This contract is subject to Title 29 of the Code of Federal Regulations, Part 1910 "Occupational Safety and Health Standards" and Part 1926 "Safety and Health Regulations for Construction" pursuant to the Occupational Safety and Health Act (OSHA) of 1970 administered by the US Department of Labor, Occupational Safety and Health Administration.

23.3. Report of Accident or Illness: In the event of any accident or illness for which medical assistance is required, any criminal action, or any fire, the Contractor shall notify the appropriate authority (ambulance, police, fire Dept.), Smithsonian Security, and the COTR.

23.4. Contractor Personnel to be contacted: The Contractor shall submit a written list of emergency telephone numbers and names of people to contact for the General Contractor superintendent and for each major sub-contractor working on the project site. The initial list shall be submitted to the COTR at the Preconstruction Meeting. The list shall be updated and resubmitted to the COTR as needed.

23.5. Site Specific Safety Plan: Upon award of this contract, the contractor shall provide a Site-Specific Safety Plan (SSSP). The SSSP is a safety and health policy and program document and outlines how the contractor will safely conduct their work. This plan shall be job-specific and shall also address any unusual or unique aspects of the project or activity for which it is written. The SSSP shall interface with the employer's overall safety and health program, and a copy shall be available on the work site. Any portions of the employer's safety and health program referenced in the SSSP shall be included as appropriate. The plan shall include, but not limited to, the following:

- a. Signature Sheet that must include plan concurrence (e.g., Chief of Operations, Corporate Chief of Safety, Corporate Industrial Hygienist, project manager or superintendent, project safety professional, project QC). Provide concurrence of other applicable corporate and project personnel (Contractor).
- b. Background Information that must include Brief project description, description of work to be performed, and location; phases of work anticipated these will require a Job Hazard Analysis (JHA's). OSHA 3071
- c. Statement of Safety and Health Policy
- d. Responsibilities and lines of Authority
- e. Subcontractors and Suppliers
- f. Training
- g. Safety and Health inspections that include assignment of responsibilities for a minimum daily/weekly job site safety and health inspection during periods of work activity level of technical proficiency needed to perform the inspections, proof of inspector's training/ qualifications
- h. Accident Reporting
- i. Plans (programs, procedures) required by the Safety Manual. Based on a risk assessment of contracted activities and on mandatory OSHA compliance programs,

the Contractor shall address all applicable occupational risks and compliance plans. Using the 29 CFR 1926 and/or current and accepted procedures in the EM 385-1-1 as a guide

- j. Risk Management Processes, Detailed project-specific hazards and controls shall be provided by a Job Hazard Analysis for each major phase/activity of work, including but not limited to, work involving confined space, fall protection, trenching/excavation, crane/rigging, steel erection, hot work, protection of the public, scaffolding, and other activities that involve high risk potential.

## SCHEDULING & PAYMENTS / BAR CHART

24.1. Project Schedule: The Contractor shall submit to the COTR for approval a Gantt bar chart project schedule within \* 14 calendar days after the date of contract award. No work shall start at the site until the project schedule has been approved by the COTR. The approved bar chart will represent a baseline schedule on which the monthly construction progress will be indicated and submitted to the COTR. The baseline project schedule shall comply with the following:

24.1.1. Weekly breakdown of work activities shall be provided, including interaction between building trades, subdivided by items of work and areas of the project. Items of work shall be grouped and subdivided according to the divisions of the Construction Specifications Institute (CSI) format.

24.1.2. The start date and completion date shall be consistent with the Contract Time established by the Contracting Officer. Any intermediate deadline dates needed to meet specific requirements for Smithsonian use of portions of the work shall be shown.

24.1.3. Project condition survey activities shall be scheduled not later than the 14th calendar day of the contract time and prior to the start of any site work.

24.1.4. Project closeout activities shall be scheduled for completion in accordance with the requirements for the Contract Time for Completion.

24.1.5. Order dates and projected delivery dates shall be shown for equipment, special devices, hardware, products, or other items requiring long lead time.

24.1.6. Required delivery date for items to be furnished by Smithsonian and installed by the Contractor shall be shown, as well as items to be furnished and installed by Smithsonian which will affect the Contractor's work.

24.1.7. Review periods for all submittals and the time required for all necessary inspections and/or testing shall be shown.

24.1.8. Dates shall be given for ordering, delivery, installation, and testing of major equipment and special materials and equipment.

24.1.9. The Contractor shall specifically identify work activities and dates associated with construction bid alternates.

24.2. Revisions to Baseline Schedules: The Contractor shall submit to the COTR for approval all revisions to the approved baseline project schedule. The Contractor shall submit a proposed revision to the schedule as necessary along with proposals for construction

changes, clearly indicating modifications to the schedule based on the proposal. The Contractor shall also submit for review and approval any proposed changes to the schedule due to inability to accomplish the work as planned, for any reason. Approved changes to the schedule shall be incorporated into the Project Schedule, and it shall be resubmitted as necessary or as requested by the COTR.

24.3. Progress behind Schedule: If it becomes apparent to the COTR that the overall progress of the project is behind the approved project schedule, then the COTR will notify the Contractor in writing. The Contractor shall submit to the COTR for approval a Recovery Schedule and Plan to describe how the Work will be accelerated to meet the Contract Time requirements in accordance with the General Conditions contract clause entitled "Commencement, Prosecution, and Completion of the Work". The Recovery Schedule shall be superimposed on the approved baseline project schedule to demonstrate that proposed recovery activities will accomplish completion of the work by the approved completion date.

24.4. Reporting Progress and Applying for Payment: Each month the Contractor shall apply for payment and submit a report of the actual construction progress as follows:

24.4.1. By the 25th of each month, the Contractor and the COTR shall have inspected the work to determine percentages completed for each item, projected through the end of the month. The parties shall attempt to reach agreement on each item, but if they cannot reach an agreement the COTR will determine percent complete.

24.4.2. By the last day of the month, the Contractor shall submit an Application for Payment based on the determined percentages completed for each item. The application shall be submitted in triplicate on the Smithsonian standard Application for Payment form. Each copy of the Application for Payment shall be accompanied by the following:

1. A Progress Schedule identifying the cumulative progress superimposed on the latest revision of the approved Project Schedule. The net progress for the month and applicable dates shall be clearly indicated.
2. A complete set of copies of certified weekly-payroll data for the period.

24.5. Response to Application

24.5.1. Payment shall be made only for progress agreed upon by the COTR, performed on the original Contract Work or approved modifications, in accordance with the current, approved Project Schedule. Failure to submit the Application in accordance with the specifications will prevent the processing of payments.

24.5.2. Payments will be mailed to the Contractor's address as identified in the contract documents on record with the Contracting Officer. Any changes of address or requests for wire transfer of progress payments must be made in writing, signed by the Contractor's authorized person, and submitted to the Contracting Officer.

## Warranty of Construction

25.1. The Contractor shall warrant that the work performed under this contract conforms to the contract requirements and is free of any defect in equipment, materials, design furnishes, or workmanship performed by the Contractor or any subcontractor or supplier at any tier. Unless otherwise stated in the technical sections of the Specifications, the warranty of the Work shall continue for a period of one (1) year from the date of Final Completion status. If Smithsonian takes partial occupancy before Final Completion, then the warranty for that portion shall be in effect for a period of one (1) year beginning on the date of Substantial Completion for that portion of the Work.

25.2. Submission of original warranties for all products, equipment, and systems:  
The Contractor shall assemble original warranty certificates or notarized copies of warranty certificates executed by the Contractor, subcontractors, suppliers, and manufacturers in a tab-indexed three-ring loose-leaf binder with a durable plastic cover. The table of contents shall identify the item covered, the location of the item, the date of Substantial Completion, expiration date of the warranty and the supplier, vendor and installing contractor. Duplicate notarized copies of warranties shall be provided as required by "Manuals for Operation, Maintenance and As-Built Product Data." Include an electronic copy in PDF format, on CD.

#### As-Built Record Drawings

26.1 During the work's progress, the Contractor shall maintain a complete and up-to-date set of record prints, open to inspection by the COTR. These prints shall provide a complete and accurate as-built record of all changes to the Contract Drawings, including rerouting of runs, relocation of items or control points and all other modifications. The exact location of pipes, conduit, or other features concealed underground, under concrete, in chases or above ceilings shall be shown by perpendicular dimensions from at least two available landmarks. As-built drawings shall be neatly marked with colored pencils or ink, marked "As-Built" and signed and dated by the Contractor. Upon completion of the Work and before final payment, the Contractor shall submit, to the COTR, photographically produced as-built record drawings on 4-mil, double matte mylar sheets sized the same as the contract drawings. The Contractor shall submit electronic files in .DWG and PDF formats.

26.2. As-Built Record Survey of Underground Utilities submitted. If outside or underground utilities are part of the work, the Contractor shall furnish, to the COTR for approval, an acceptable and accurately dimensioned survey showing location and elevation of underground storage tanks, all utility lines for water, gas, electrical, sewer, steam, etc., including valves, connections, and changes in direction, as installed under the contract, within the property lines and outside the building walls. Points where utility lines emerge from the building shall be located from lot monuments. The survey shall be made to scale and must be marked "As-Built" and signed and dated by the Contractor. The Contractor shall furnish as scanned, digital copy to the COTR and a copy on a 3-mil, double-matte mylar sheet or sheets the same size as the contract drawings.

26.3. As-Built Record Specifications submitted. The Contractor shall submit one (1) hard copy and a digital (scanned) set of project specifications with annotations to identify any changes made during construction, referencing modification numbers, dates and originators of authorizing letters or memos and other sources of changes. The cover shall be marked "As-Built" and signed and dated by the COTR.

26.4 The Contractor shall submit As-Built Record (1) hard copy and one (1) digital copy set. This document shall consist of all new dampers provided, electrical documentation if option selected and technical data of all new equipment provided under this contract.

#### Operation and Maintenance Data

27.1 The Contractor shall provide the COTR with all new equipment O&M data one month after the equipment has been delivered to the project site. The Contractor shall provide a complete set of O&M files during project closeout to the COTR.

#### Asset Data

28.1 The Contractor shall provide the COTR with all equipment documentation data. This information shall consist of actuator(s) description, manufacturer, model and serial numbers of each piece of equipment within this project.

## Construction and Demolition Waste Tracking Sheet:

To be submitted with each application for payment for the payment period, and at project completion with total waste data and total percentage of waste diverted from landfill for entire project period.

**Project Name:** [OBJ]

**Start Date:** [OBJ]

**End Date:** \_\_\_\_\_

Material Description	Disposal date	Diverted from Landfill or incinerator? (Y/N)	Diversion method (Recycled, Salvaged, etc.)	Hauler or Destination (submit receipts)	Volume (in cubic feet)	Weight (in tons)
Land Clearing Debris						
Gypsum Wallboard Scrap						
Cardboard						
Paper goods						
Beverage containers						
Assorted Plastic						
Wood Pallets						
Asphaltic Concrete Paving						
Concrete						
Brick						
CMU						
Lumber						
Plywood and OSB						
Wood Paneling						
Wood Trim						
Miscellaneous Metals						
Structural Steel						
Rough Hardware						
Insulation						
Roofing						
Doors and Frames						
Door Hardware						
Windows						
Non-Window Glass						
Glazing						
Acoustical Tile						
Carpet						



Material Description	Disposal date	Diverted from Landfill or incinerator? (Y/N)	Diversion method (Recycled, Salvaged, etc.)	Hauler or Destination (submit receipts)	Volume (in cubic feet)	Weight (in tons)
Carpet Pad						
Demountable Partitions						
Equipment						
Cabinets						
Plumbing Fixtures						
Piping						
Piping Supports and Hangers						
Valves						
Sprinklers						
Mechanical Equipment						
Electrical Conduit						
Copper Wiring						
Light Fixtures						
Lamps						
Lighting Ballasts						
Electrical Devices						
Switchgear and Panelboards						
Transformers						
Other:						
Other:						
Other:						
<b>Total Diverted</b>						
<b>Total Not Diverted</b>						
<b>Total All Waste = Total Diverted + Total Not Diverted</b>						
<b>% Diversion Rate* = Total Diverted/Total All Waste</b>						

*\*Percentage Diversion Rate to be compiled after project completion. The minimum diversion rate is 50%. The goal Diversion rate is 75%*