

**ADDENDUM NO. 01**

*to*

**CONTRACT DOCUMENTS**

**for**

**GREATER BINGHAMTON AIRPORT**

**COUNTY OF BROOME**

**Rehabilitation of Hangars 2&3 – Phase 2**

**M-J PROJECT NO.: 01.19090.06**

*October 7, 2026*

**Greater Binghamton Airport  
Rehabilitation of Hangars 2&3 – Phase 2  
Addendum No. 01**

**GREATER BINGHAMTON AIRPORT  
REHABILITATION OF HANGARS 2&3 – PHASE 2**

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## **ADDENDUM No. 01**

### **October 7, 2026**

#### **1. INSTRUCTIONS TO ALL HOLDERS OF CONTRACT DOCUMENTS**

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Your attention is directed to the following interpretations of changes in and additions to the Contract Documents for the construction of the REHABILITATION OF HANGARS 2&3 – PHASE 2 project at the Greater Binghamton Airport.

**Please indicate receipt of this addendum (including date) on page P-5 of the Bid Proposal Documents.**

#### **2. MINUTES OF PREBID CONFERENCE**

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See Attachments for PreBid Meeting Minutes.

#### **3. CONTRACTOR QUESTIONS AND ANSWERS**

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The following questions were received as of October 7, 2026. Responses follow each question:

1. Question: What type of hangar doors are called out on this project? Or is there any hangar door work to be performed?

*Answer:* The existing hangar doors are to remain. The scope of work includes repairs and rehabilitation to address any physical damage and/or wear and tear and to ensure proper, smooth operation. More information regarding the scope of work has been made available in Addendum 1 (this addendum).

2. Question: Can you please confirm whether an existing public address/paging system is present within Hangars 2 and 3 and whether any existing PA speakers or associated low-voltage equipment are required to be removed, relocated, reinstalled, or extended as part of the Phase 2 renovations. Please also confirm whether PA coverage is required in the newly renovated offices, training/conference rooms, corridors, restrooms, and hangar areas.

*Answer:* The contract drawings call for the removal and reinstallation of ceiling mounted speakers that were observed to accommodate new ceiling installation. This work is included on the electrical drawings. Any other PA system work was not included in Phase 2 renovations scope of work.

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3. Question: The specs call out cleaning of all duct work (233100, 3.05). I do not find any duct work plans indicating where they are located. Also, are the NADCA cleaning specs to be followed?

*Answer: Duct cleaning is not required. Revisions has been made to delete this article in the Addendum 1 (this addendum).*

4. Question: Section 58.2 states 51% of the contract work must be self-performed. Please confirm that this requirement applies to this project.

*Answer: The Contractor shall perform, with its own organization, contract work amounting to not less than 30 percent of the total contract bid price. Section 58.2 has been updated accordingly in Addendum 1*

5. Question: Who will be responsible for master project Schedule and coordination of the Separate prime Contracts.

*Answer: the General Contractor shall be responsible for developing, maintaining, and administering the Master Project Schedule for coordination of the work activities of all prime contractors. Plumbing, Mechanical, and Electrical Contractors shall provide General Contractor schedule updates. See section 01 3200 for details included in Addendum 1.*

6. Question: Please provide a schedule for doors and hardware

*Answer: Door and hardware information is included in addendum 1 (this addendum, see drawing A-002A).*

7. Question: Can you tell me what the completion date is for this project?

*Answer: the completion date is 180 consecutive calendar days from the date of Notice to Proceed (start of construction). See time of completion note at the bottom of drawing IN-01*

8. Question: Substitute request – Section 10 2113.17 Phenolic Toilet Compartments - Suggested Phenolic Partitions Substitute for Global: Metpar Phenolic. Manufacturer: Scranton products.

*Answer: Request approved.*

#### **4. REVISIONS/CLARIFICATIONS TO CONTRACT SPECIFICATIONS**

##### **Contract Specifications:**

- (1) Replace INSTRUCTION TO BIDDERS section 11. Preparation and submission of proposal in the proposal document page no IB-6 with attached IB-6A. (Revised bullet P for contractor to self-perform 30% of contract bid price )
- (2) Replace SUMMARY OF WORK section 2.09 Allowances in the proposal document page no S-4 with attached S-4A. (Added Allowance for Hangar 2&3 Hangar Bay Doors)
- (3) Replace BID SUMMARY section in the proposal document - page no. P-12 and P-13 with attached page no. P-12A and P-13A. (revised applicable bid alternatives)
- (4) Replace SUPPLEMENTAL GENERAL PROVISIONS section 58.2. Performance of the contract work in the proposal document page no SGP-11 with attached SGP-11A. (Revised to state contractor to self-perform 30% of contract bid price)
- (5) Add attached technical specification section 01 3200 Project Scheduling and Coordination of Separate Prime Contracts to the proposal document in its entirety page no.1 through page no. 9.
- (6) Add attached technical Specification section 096723 Resinous Flooring in its entirety to the proposal document page no 1A through page no. 9A
- (7) Replace Technical Specification section 233100 DUCTWORK in its entirety page no H-1 through H-4 with attached page no. H-1A through H-4A. (Deleted article 3.05)
- (8) Replace Technical Specification section 235545 INDIRECT FIRED AIR ROTATION UNIT in its entirety page no H-1 through H-4 with attached page H-1A through H-5A. (Added language to article 2.02 section P. Accessories)

#### **5. REVISIONS/CLARIFICATIONS TO CONTRACT PLANS**

##### **Plan Revisions:**

- (1) Drawing IN-01 Index and Work Description

REPLACE Drawing IN-01 in its entirety with the attached Drawing IN-01A (revised work description table)

- (2) Drawing IN-02 Major Scope Items

REPLACE Drawing IN-02 in its entirety with the attached Drawing IN-02A (revised prime contractor responsibly – major scope items table)

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(3) Drawing A-002A Door and Hardware Schedules

ADD Drawing A-002A in its entirety (Added Door and Hardware Schedules)

(4) Drawing A-100 Hangar 2 First Floor Plan

REPLACE Drawing A-100A in its entirety with the attached Drawing A-100A (Removed mechanical room, Relocated ATU, and added information about Hangar Bay doors and floor.)

(5) Drawing A-101 Hangar 2 Second Floor Plan

REPLACE Drawing A-101 in its entirety with the attached Drawing A-101A (removed mechanical room, added support for ATU)

(6) Drawing A-102 Floor Plans – Offices

REPLACE Drawing A-102 in its entirety with the attached Drawing A-102A (Removed Mechanical Room)

(7) Drawing A-103A Hangar 3 – Floor Plan

ADD Drawing A-103A in its entirety (Added sheet for Hangar 3 Hangar Bay 3 work )

(8) Drawing A-500 Reflected Ceiling Plans

REPLACE Drawing A-500 in its entirety with the attached Drawing A-500A (removed Mechanical room)

(9) Drawing A-520 Enlarged Plans First Floor

REPLACE Drawing A-520 in its entirety with the attached Drawing A-520A (Removed Mechanical room)

(10) Drawing A-521 Enlarged Plans Second Floor

REPLACE Drawing A-521 in its entirety with the attached Drawing A-521A (Removed Mechanical Room)

(11) Drawing PL101- Hangar 2 First Floor Plan – Plumbing

REPLACE Drawing PL101 in its entirety with the attached Drawing PL101A (Changed location of ATU)

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- (12) Drawing MH101- Hangar 2 First Floor Plan – Mechanical  
  
REPLACE Drawing MH101 in its entirety with the attached Drawing MH101A  
(Changed location of ATU)
- (13) Drawing MH102- Hangar 2 Second Floor Plan – Mechanical  
  
REPLACE Drawing MH102 in its entirety with the attached Drawing MH102A  
(Changed location of ATU)
- (14) Drawing MH601- Schedules  
  
REPLACE Drawing MH601 in its entirety with the attached Drawing MH601A  
(Updated Air Turnover Unit Schedule)
- (15) Drawing EP101- Hangar 2 first floor plan – Power and Fire Alarm  
  
REPLACE Drawing EP101 in its entirety with the attached Drawing EP101A  
(updated for revised location of ATU)
- (16) Drawing E-701- Hangar 2 – One Line Power Diagram  
  
REPLACE Drawing E-701 in its entirety with the attached Drawing E-701A  
(updated one line diagram)
- (17) Drawing E-901- Schedules Symbols list & Abbreviation  
  
REPLACE Drawing E-901 in its entirety with the attached Drawing E-901A  
(updated electrical equipment wiring schedule)

## **6. ATTACHMENTS**

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**Greater Binghamton Airport (BGM)  
Rehabilitation of Hangar 2 & 3 – Phase 2  
PIN: 9A10.53  
Comptroller's Contract No.: K007639  
MJ # 19090.06**

**Pre-Bid Meeting - 9/30/2026 at 11 am**

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**I. Sign-in Sheet:**

See attached meeting sign-in sheet.

**II. Project Description:**

The work includes addressing aging infrastructure, safety concerns, and code deficiencies by upgrading outdated HVAC, electrical, plumbing, and fire alarm systems; and improving overall energy efficiency and safety. Additionally, the work includes restoring damaged interiors, rehabilitating hangar bay doors, installing modern heating and ventilation solutions, and implementing ADA and current building code compliance measures such as accessible restrooms, fire-rated assemblies, CO detection, and installation of a wheelchair lift.

This project consists of a Base Bid and Add Alt. 1, 2, 3, 4 and 5, A general description of the major work associated with the base bid and Add Alternatives is as follows:

- Base Bid:
  - Includes all work associated with hangar 2, including main service electrical work, wheelchair lift work with associated removal and installation of fire-rated walls and doors, complete first-floor bathroom renovations, second-floor bathroom plumbing rough-in, plumbing pressure-assist system, ground power unit with associated circuits and receptacles, and beta tech power hook-ups.
- Add Alt. 1:
  - Includes all work associated with hangar 2 removal of radiant gas heaters in hangar bay, installing new heating system in hangar bay, and replacing HVLV in hangar bay
- Add Alt. 2:
  - Includes all work associated with hangar 2 sealant of hangar bay floor, and rehabilitation of main hangar bay door.
- Add Alt. 3:
  - Includes all work associated with hangar 2 first floor office updates including wall, floors, lights, ceiling, fire alarms, HVAC.

- Add Alt. 4:
  - Includes all work associated with hangar 2 second floor office updates including wall, floors, lights, ceiling, fire alarms, HVAC, bathrooms
- Add Alt. 5:
  - Includes all work associated with hangar 3 replacing HVLV fans in hangar bay and rehabilitation of main hangar bay door

### **III. Relationships**

- |           |                        |                                                                                                                                                                                                                                                                                                                                                       |
|-----------|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>A.</b> | <b>The Owner:</b>      | Broome County                                                                                                                                                                                                                                                                                                                                         |
| <b>B.</b> | <b>Grant Agencies:</b> | Broome County , New York State Department of Transportation                                                                                                                                                                                                                                                                                           |
| <b>C.</b> | <b>Consultant:</b>     | McFarland-Johnson, Inc.                                                                                                                                                                                                                                                                                                                               |
| <b>D.</b> | <b>Architect:</b>      | Aubertine & Currier Architects Engineers & Land Surveying                                                                                                                                                                                                                                                                                             |
| <b>E.</b> | <b>MEP Engineer:</b>   | Ram-Tech Engineers                                                                                                                                                                                                                                                                                                                                    |
| <b>F.</b> | <b>Contractor:</b>     | Low qualified bidder<br>The project will be subject to Wicks law and separate contracts will be awarded for the following: <ul style="list-style-type: none"><li>• Contract #1 - General Contractor</li><li>• Contract #2 - Plumbing Contractor</li><li>• Contract #3 - Mechanical Contractor</li><li>• Contract #4 - Electrical Contractor</li></ul> |

### **IV. Contract Duration**

- 180 Consecutive Calendar Days for award of Base Bid and any combination of Add Alternatives 1, 2, 3, 4, and 5

Liquidated damage clauses have been included for work beyond the completion times of individual phases and are as follows:

- \$2,500 for Each Calendar Day or portion thereof in which the work items remain incomplete beyond:
  - 180 consecutive calendar days for award of Base Bid and any combination of Add Alternatives 1, 2, 3, 4, and 5

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**V. Contractor's Schedule:**

- As per Section 72 of the Supplemental General Provisions of the Contract Specifications, Contractor shall provide a construction schedule for all work activities. This schedule shall be submitted to the Engineer for review during the Pre-Construction meeting. The schedule shall be maintained throughout the project to the satisfaction of the Engineer.

**VI. Additional Considerations/Topics –**

**A. Security and Badging**

- Badging of Contractor and Subcontractor Personnel: ALL onsite construction personnel to be properly badged with the exception of Delivery Truck Personnel. The Contractor must consider the number of badged personnel, both they and their subcontractors are required for orderly progression of the work.
- Badging fee of **\$50.00/each** is to be included in the items for bid.
- Gate Guards. All open gates shall be protected by a gate guard. When not in use all gates shall be securely locked.
- Stop List. The Contractor shall have a stop list at the access gate with the current list of delivery trucks for each day's work. If the truck does not appear on the list they will not be allowed to enter the site.
- Gates: The contractor shall provide a lock to be used in conjunction with the airport lock provided on each access gate. Gates shall be locked when not in use.
- The airport security fence line shall be maintained at all times during the project.
- The project is located on the secured side of the airport and will be closely monitored by TSA personnel. The contractor will be held closely to all security requirements. All fines assessed by the TSA for security breaches due to construction activities will be the responsibility of the Contractor.

**B. General Requirements for review**

- **Bonding and Insurance** – The bidder is directed to review the requirements for insurance and bonding.
- **Prevailing Wages** – State wage rate schedules are included in the contract documents.
- **WBE Goal** - The Women-Owned Business Enterprise (WBE) Utilization Goal is **11%**.
- **MBE Goal** - The Minority-Owned Business Enterprise (MBE) Utilization Goal is **7%**.
- **SDVOB Goal** -The Service-Disabled Veteran Owned Business (SDVOB) utilization goal is **6%**.
- **EEO Goal** - The Equal Employment Opportunity (EEO) goal for the contractor's work force for Minority Participation is 1.1% and the Female Participation goal is 6.9%.
- **EBO Requirements** – civil rights reporting software is Equitable Business Opportunity Solution (EBO). Bidders should become familiar with EBO. Failure to comply with EBO requirements will result in delayed or non-payment to contractors for work performed on the project.
- **Buy America** – See Buy America requirements in the contract specification
- Interpretation: Broome County Department of Purchase for bidding requirements
- Design Interpretation: Hashem Obeidallah, hobeidallah@mjinc.com (MJ). The deadline for submitting inquiries related to this project is at 10:00 am local time on Wednesday, October 21, 2026

- Proposal Submission: Broome County Department of Purchasing requires All bidders to submit one (1) signed original and one (1) copy, and one (1) electronic copy of the bid submittal on a USB drive of all documents listed on Page P-3 "Proposal Checklist". Copied documents shall be clearly marked "COPY" and bound as a complete set.

**C. Addendum Items**

- Pre-bid meeting minutes will be submitted as an addendum
- Any revised drawings and specs

**D. Bid Opening**

- Sealed Bids proposals will be accepted at the Broome County, 2nd floor, Edwin L. Crawford County Office Building, 60 Hawley Street, Binghamton, New York 13902-1766, until **2:00 P.M. local time on Wednesday, October 28, 2026**. Bids shall be publicly opened and **read at 2:30 P.M.**, on the above bid date.

## **INSTRUCTIONS TO BIDDERS**

within the period specified in the Invitation to Bid for the bids to remain valid, or if a Bidder is awarded the Contract but fails, refuses, or neglects to execute the Contract or to furnish acceptable Insurance Documents and the required Certificates of Insurance, Payment and Performance Bonds within 5 days after receipt of written Notice of Award, then the amount of this Proposal Surety shall be paid to, or retained by, the Owner as liquidated damages.

N. When sent by mail, the sealed Proposal marked as indicated in the "Invitation to Bid" shall be enclosed in an additional envelope and sent by Federal Express, UPS, or registered mail with return receipt requested. No Proposal will be considered unless received on or before the time and at the place designated in the "Invitation to Bid." The Owner will in no way be responsible for delays caused by the U.S. Postal Service or any other deliverer of the Proposal, or for delay caused by any other occurrence.

O. The Bidder must supply all information list on the "Proposal Checklist".

P. The contractor shall perform, with its own organization, contract work amounting to not less than thirty percent (30%) of the total contract bid price.

### **12. MODIFICATIONS AND/OR WITHDRAWAL OF PROPOSALS:**

A. A Bidder may withdraw or refuse (by withdrawal of one Proposal and submission of another) a Proposal, provided that Bidder's Request for Withdrawal is received by the Owner in writing before the time specified for opening bid Proposals. Revised Proposals must be received at the place specified in the advertisement before the time specified for opening all bid Proposals. Modifications shall not reveal original amount of bids. Proposal Bonds must reflect modifications.

B. Negligence on the part of the Bidder in the preparation of his Proposal shall not be grounds for modification or withdrawal of the Proposal after the time set for bid Proposal opening.

### **13. REJECTION OF PROPOSALS:**

A. Proposals containing any omission, alteration of form, additions or conditions not called for, conditional or alternate bids unless called for, incomplete bids, or Proposals otherwise regular which are not accompanied by the appropriate Proposal Surety will be considered irregular and may be rejected.

B. The Owner reserves the right to reject any or all bid Proposals, to waive any formalities, technicalities, or irregularities therein, to award or refrain from awarding a contract for work, and to readvertise for bid Proposals.

C. Proposals may be considered irregular for the following reasons:

## 2.09 ALLOWANCES

### A. CONTRACT NO. 1 - GENERAL CONSTRUCTION

1. Field Change Allowance: The General Contractor shall include \$50,000 in the total of their lump sum bid for Field Changes as needed. Any work paid through the Field Change Allowance must receive approval by the Resident Engineer and Owner prior to be undertaken with an agreed upon scope and price. If, at the end of the project, there is additional monies left in the Field Change Allowance, it will be deducted from the total General Contract Amount.
2. Hangar 2&3 Hangar Bay Door Allowance: The General Contractor shall include \$100,000 in the total of their lump sum bid for Hangar Bay Door work as needed in Hangar 2 or 3. Any work paid through the Hangar Bay Door Allowance must receive approval by the Resident Engineer and Owner prior to be undertaken with an agreed upon scope and price. If, at the end of the project, there is additional monies left in the Hangar Bay Door Allowance, it will be deducted from the total General Contract Amount.

### B. CONTRACT NO. 2 – PLUMBING

1. Field Change Allowance: The Plumbing Contractor shall include \$10,000 in the total of their lump sum bid for Field Changes as needed. Any work paid through the Field Change Allowance must receive approval by the Resident Engineer and Owner prior to be undertaken with an agreed upon scope and price. If, at the end of the project, there is additional monies left in the Field Change Allowance, it will be deducted from the total Plumbing Contract Amount.

### C. CONTRACT NO. 3 – MECHANICAL

1. Field Change Allowance: The Mechanical Contractor shall include \$10,000 in the total of their lump sum bid for Field Changes as needed. Any work paid through the Field Change Allowance must receive approval by the Resident Engineer and Owner prior to be undertaken with an agreed upon scope and price. If, at the end of the project, there is additional monies left in the Field Change Allowance, it will be deducted from the total Mechanical Contract Amount.

### D. CONTRACT NO. 4 – ELECTRICAL

1. Field Change Allowance: The Electrical Contractor shall include \$10,000 in the total of their lump sum bid for Field Changes as needed. Any work paid through the Field Change Allowance must receive approval by the Resident Engineer and Owner prior to be undertaken with an agreed upon scope and price. If, at the end of the project, there is additional monies left in the Field Change Allowance, it will be deducted from the total Electrical Contract Amount.
2. Utility Allowance: The Electrical Contractor shall include \$10,000 in the total of their lump sum bid for fees paid to the Utility Companies for the installation of new electrical services to the building. The amount of the allowance paid to the Electrical Contractor will be the amount of the invoice from the Utility Company plus 5%. If, at the end of the project, there is additional monies left in the Utility Allowance, it will be deducted from the total Electrical Contract Amount.

## END OF SECTION

## **BID SUMMARY**

### **BID CONTRACT # 1 – GENERAL CONSTRUCTION**

| ITEM                             | QUNT | UNIT | AMOUNT BID | AMOUNT BID IN WORDS                         |
|----------------------------------|------|------|------------|---------------------------------------------|
| CONTRACT #1<br>Base Bid          | 1    | LS   | \$         |                                             |
| FIELD<br>CHANGE                  | 1    | DC   | \$50,000   | Fifty Thousand Dollars and Zero Cents       |
| HANGAR BAY<br>DOORS<br>ALLOWANCE | 1    | ALL  | \$100,000  | One Hundred Thousand Dollars and Zero Cents |
| CONTRACT #1<br>Add Alt. 1        | NA   | NA   | NA         | NOT APPLICABLE                              |
| CONTRACT #1<br>Add Alt. 2        | 1    | LS   | \$         |                                             |
| CONTRACT #1<br>Add Alt. 3        | 1    | LS   | \$         |                                             |
| CONTRACT #1<br>Add Alt. 4        | 1    | LS   | \$         |                                             |
| CONTRACT #1<br>Add Alt. 5        | NA   | NA   | NA         | NOT APPLICABLE                              |
| TOTAL BID CONTRACT # 1           |      |      | \$         |                                             |

### **BID CONTRACT # 2 – PLUMBING CONSTRUCTION**

| ITEM                      | QUNT | UNIT | AMOUNT BID | AMOUNT BID IN WORDS                 |
|---------------------------|------|------|------------|-------------------------------------|
| CONTRACT #2<br>Base Bid   | 1    | LS   | \$         |                                     |
| FIELD<br>CHANGE           | 1    | DC   | \$10,000   | Ten Thousand Dollars and Zero Cents |
| CONTRACT #2<br>Add Alt. 1 | 1    | LS   | \$         |                                     |
| CONTRACT #2<br>Add Alt. 2 | NA   | NA   | NA         | NOT APPLICABLE                      |
| CONTRACT #2<br>Add Alt. 3 | NA   | NA   | NA         | NOT APPLICABLE                      |
| CONTRACT #2<br>Add Alt. 4 | 1    | LS   | \$         |                                     |
| CONTRACT #2<br>Add Alt. 5 | NA   | NA   | NA         | NOT APPLICABLE                      |
| TOTAL BID CONTRACT # 2    |      |      | \$         |                                     |

**BID CONTRACT # 3 – MECHANICAL CONSTRUCTION**

| ITEM                      | QUNT | UNIT | AMOUNT BID | AMOUNT BID IN WORDS                 |
|---------------------------|------|------|------------|-------------------------------------|
| CONTRACT #3<br>Base Bid   | 1    | LS   | \$         |                                     |
| FIELD<br>CHANGE           | 1    | DC   | \$10,000   | Ten Thousand Dollars and Zero Cents |
| CONTRACT #3<br>Add Alt. 1 | 1    | LS   | \$         |                                     |
| CONTRACT #3<br>Add Alt. 2 | NA   | NA   | NA         | NOT APPLICABLE                      |
| CONTRACT #3<br>Add Alt. 3 | 1    | LS   | \$         |                                     |
| CONTRACT #3<br>Add Alt. 4 | 1    | LS   | \$         |                                     |
| CONTRACT #3<br>Add Alt. 5 | 1    | LS   | \$         |                                     |
| TOTAL BID CONTRACT # 3    |      |      | \$         |                                     |

**BID CONTRACT # 4 – ELECTRICAL CONSTRUCTION**

| ITEM                      | QUNT | UNIT | AMOUNT BID | AMOUNT BID IN WORDS                 |
|---------------------------|------|------|------------|-------------------------------------|
| CONTRACT #4<br>Base Bid   | 1    | LS   | \$         |                                     |
| FIELD<br>CHANGE           | 1    | DC   | \$10,000   | Ten Thousand Dollars and Zero Cents |
| UTILITY<br>ALLOWANCE      | 1    | ALL  | \$10,000   | Ten Thousand Dollars and Zero Cents |
| CONTRACT #4<br>Add Alt. 1 | 1    | LS   | \$         |                                     |
| CONTRACT #4<br>Add Alt. 2 | NA   | NA   | NA         | NOT APPLICABLE                      |
| CONTRACT #4<br>Add Alt. 3 | 1    | LS   | \$         |                                     |
| CONTRACT #4<br>Add Alt. 4 | 1    | LS   | \$         |                                     |
| CONTRACT #4<br>Add Alt. 5 | 1    | LS   | \$         |                                     |
| TOTAL BID CONTRACT # 4    |      |      | \$         |                                     |

## SUPPLEMENTAL GENERAL PROVISIONS

Each shop drawing and submittal shall be accompanied by a signed copy of Form MJ-212 "Contractor / Subcontractor / Supplier Buy American Certification." A blank copy of this form is included in the "Forms" Section referenced above.

**56.11** The contractor shall submit all documents via ACC AutoDesk Forma.

### **57. DISADVANTAGED BUSINESS ENTERPRISE (DBE) AND SMALL BUSINESS PROGRAMS**

**57.1** Not used.

### **58. SUBLETTING WORK TO SUBCONTRACTORS AND SUPPLIERS OR ASSIGNMENT OF CONTRACT**

**58.1 GENERAL:** The Contractor shall not sublet, assign, sell, transfer, or otherwise dispose of the Contract or any portion thereof, or of its right, title, or interest therein to any individual, firm, corporation, or other entity without the written consent of the Greater Binghamton Airport. The Contractor must file with the Greater Binghamton Airport copies of all executed subcontracts and other documents. An approved subcontractor shall not in turn sublet or assign any of the work pertaining to the subcontract without the Contractor obtaining further permission from the Greater Binghamton Airport. In no event shall the Greater Binghamton Airport approval release the Contractor from responsibility and liability under the Contract and bonds.

Any work or material supply that costs \$10,000 or more and is included in this project that the Prime Contractor wants to sublet to another firm must be approved by the Greater Binghamton Airport in writing. Any Subcontractors or Suppliers that will be doing work or supplying material that is sublet and approved by the Greater Binghamton Airport must have a signed contract with the Prime Contractor or a lower tier Subcontractor or Supplier before they may begin work or deliver material to the project site. The Greater Binghamton Airport reserves the right to reject the use of any Subcontractor or Supplier that they feel is not in best interests of the Greater Binghamton Airport.

**58.2 PERFORMANCE OF THE CONTRACT WORK:** The Contractor shall perform, with its own organization, contract work amounting to not less than **30 percent** of the total Contract bid price, minus "Specialty Items." The Contractor's own organization includes only workers employed and paid directly by the Contractor and equipment owned, leased, or rented by it from a non-debarred individual or entity, with or without operators. The term "own organization" does not include employees or equipment of a subcontractor, assignee, agent, or supplier of the Contractor. When determining whether the Contractor is in compliance with this 50 percent requirement, the following shall apply:

- (1) The cost of materials and manufactured products to be purchased or produced under the Contract shall be included in the amount upon which the **30 percent** requirement is computed.

## SECTION 01 32 00

### PROJECT SCHEDULING AND COORDINATION OF SEPARATE PRIME CONTRACTS

#### PART 1 – GENERAL

##### 1.1 SUMMARY

A. This Section establishes requirements for project scheduling and coordination among the General Contractor and the separate prime contractors performing work under separate contracts with the Owner.

B. The Project is being performed under a multiple-prime contracting arrangement. Separate contracts may include, but are not necessarily limited to:

1. General Construction;
2. Plumbing Construction;
3. Mechanical Construction; and
4. Electrical Construction.

C. The General Contractor shall be responsible for developing, maintaining, and administering the **Master Project Schedule** for coordination of the work of all prime contractors.

D. The Master Project Schedule shall serve as the principal project-wide scheduling and coordination document for the Owner, Engineer, General Contractor, and separate prime contractors.

##### 1.2 COORDINATION OF SEPARATE CONTRACTS

A. The General Contractor shall coordinate the overall sequence and timing of the work of the separate prime contractors to facilitate orderly and timely completion of the Project.

B. The General Contractor shall develop and maintain a Master Project Schedule incorporating the activities of all prime contractors.

C. The General Contractor shall coordinate schedule interfaces between the separate prime contracts, including, as applicable:

1. Site access and work areas;
2. Temporary facilities and utilities;
3. Demolition and removal operations;
4. Delivery and storage of materials;
5. Equipment access;
6. Shutdowns and tie-ins;
7. Building systems installation;

8. Work requiring access to or completion of work by another prime contractor;
9. Inspections and testing;
10. Start-up and commissioning activities;
11. Substantial and Final Completion activities; and
12. Punch list and closeout activities.

D. Each prime contractor shall cooperate with the General Contractor and the other prime contractors in coordinating its work and shall provide timely schedule information necessary for development and maintenance of the Master Project Schedule.

### **1.3 MASTER PROJECT SCHEDULE**

A. Within the time period specified by the Contract Documents following Notice to Proceed, the General Contractor shall prepare and submit a detailed Master Project Schedule to the Owner and Engineer for review.

B. The Master Project Schedule shall be developed using a scheduling system capable of clearly identifying the activities, sequence, duration, relationships, and anticipated completion dates for the work of each prime contractor.

C. At a minimum, the Master Project Schedule shall identify:

1. Major Project milestones;
2. Contract milestones;
3. Activities for each prime contractor;
4. Activity durations;
5. Planned start and finish dates;
6. Predecessor and successor relationships;
7. Critical and near-critical activities;
8. Required access dates;
9. Major material and equipment deliveries;
10. Shutdowns and tie-ins;
11. Required inspections and testing;
12. Start-up and commissioning activities;
13. Substantial Completion;
14. Final Completion; and
15. Closeout activities.

D. The schedule shall be sufficiently detailed to demonstrate the planned coordination and sequencing of the work of the separate prime contractors.

#### **1.4 WEEKLY SCHEDULE UPDATES**

A. Each prime contractor shall submit to the General Contractor, on a weekly basis, an updated schedule report for its respective work.

B. The weekly update shall be submitted in sufficient time to permit the General Contractor to incorporate the information into the current Master Project Schedule.

C. Each prime contractor's weekly schedule update shall include, at a minimum:

1. Activities completed during the preceding week;
2. Activities in progress;
3. Activities planned for the upcoming two weeks;
4. Actual start dates for activities commenced;
5. Actual completion dates for activities completed;
6. Anticipated start and completion dates for incomplete activities;
7. Current percentage of completion for major activities;
8. Changes to previously reported dates;
9. Anticipated manpower, where relevant to schedule performance;
10. Material or equipment delivery status affecting scheduled work;
11. Delays or disruptions affecting the contractor's work;
12. Potential delays or impacts to other prime contractors;
13. Required access, shutdowns, tie-ins, or other coordination requirements; and
14. Any other information reasonably necessary for maintaining the Master Project Schedule.

D. Each prime contractor shall promptly notify the General Contractor of any condition that may materially affect its ability to meet the current schedule.

#### **1.5 WEEKLY MASTER SCHEDULE UPDATE**

A. The General Contractor shall incorporate the weekly schedule information received from the separate prime contractors into the Master Project Schedule.

B. The General Contractor shall update the Master Project Schedule at least weekly.

C. The updated Master Project Schedule shall reflect actual progress and current anticipated dates for the work of all prime contractors.

D. The General Contractor shall identify material changes from the previously submitted schedule, including:

1. Activities falling behind schedule;
2. Activities completed ahead of schedule where such change affects other work;
3. Changes to critical or near-critical activities;
4. Changes in planned sequencing;
5. Delays or potential delays;
6. Impacts to successor activities;
7. Required recovery measures; and
8. Changes to Project milestone dates.

E. The General Contractor shall submit the updated Master Project Schedule to the Owner and Engineer on a weekly basis, or at such other frequency as established by the Contract Documents.

## **1.6 LOOK-AHEAD SCHEDULE**

A. The General Contractor shall prepare and distribute a rolling **Three-Week Look-Ahead Schedule** based upon the current Master Project Schedule.

B. The Three-Week Look-Ahead Schedule shall identify work planned for the General Contractor and each separate prime contractor during the upcoming three weeks.

C. The Look-Ahead Schedule shall identify, where applicable:

1. Work areas;
2. Planned activities;
3. Contractor responsible for each activity;
4. Planned start and completion dates;
5. Required predecessor work;
6. Required access;
7. Required shutdowns and tie-ins;
8. Material deliveries;
9. Inspections and testing;
10. Coordination requirements; and
11. Potential conflicts or constraints.

D. The General Contractor shall distribute the Look-Ahead Schedule to the Owner, Engineer, and affected prime contractors.

### **1.7 SCHEDULE COORDINATION MEETINGS**

A. The General Contractor shall conduct periodic schedule and coordination meetings as necessary to maintain the Master Project Schedule and coordinate the work of the separate prime contractors.

B. The General Contractor shall require representatives of affected prime contractors to participate in such meetings.

C. Schedule coordination meetings shall address, as applicable:

1. Progress against the Master Project Schedule;
2. Work planned for the upcoming three weeks;
3. Work-area coordination;
4. Interfaces between prime contractors;
5. Access requirements;
6. Material and equipment deliveries;
7. Shutdowns and tie-ins;
8. Testing and inspections;
9. Delays and potential delays;
10. Schedule conflicts;
11. Recovery measures; and
12. Upcoming Project milestones.

D. The General Contractor shall document significant schedule coordination issues and distribute meeting minutes or other appropriate documentation to the Owner, Engineer, and affected prime contractors.

### **1.8 DELAYS AND POTENTIAL DELAYS**

A. Each prime contractor shall immediately notify the General Contractor, Engineer, and Owner, in accordance with the notice requirements of its Contract, of any actual or anticipated condition that may delay its work or affect the work of another prime contractor.

B. The General Contractor shall incorporate known schedule impacts into the Master Project Schedule and shall identify such impacts in the weekly schedule submission to the Owner and Engineer.

C. When a prime contractor's progress falls materially behind the approved or current Master Project Schedule, the General Contractor shall request that the affected prime contractor provide a recovery plan identifying proposed measures to regain schedule progress.

D. Recovery measures may include, as appropriate, resequencing of activities, additional shifts, additional manpower, additional equipment, or other measures proposed by the affected prime contractor.

E. Nothing herein shall authorize the General Contractor to direct another prime contractor's means, methods, techniques, sequences, procedures, or safety programs.

## **1.9 RECOVERY SCHEDULE**

A. When directed by the Owner or Engineer, or when necessary due to a material schedule deviation, the General Contractor shall incorporate a recovery schedule into the Master Project Schedule.

B. Each affected prime contractor shall provide the General Contractor with information necessary to develop the recovery schedule for its respective work.

C. The recovery schedule shall identify the measures proposed to restore the Project schedule and shall identify any resulting changes in sequencing or coordination requirements.

D. The recovery schedule shall not relieve any prime contractor of its contractual obligations or establish entitlement to additional compensation or time unless separately determined in accordance with the applicable Contract Documents.

## **1.10 MILESTONES AND CONTRACT COMPLETION DATES**

A. The General Contractor shall incorporate all contractual milestone dates and required completion dates established by the Contract Documents into the Master Project Schedule.

B. The General Contractor shall coordinate the sequencing of the separate prime contracts to support achievement of the established Project milestones.

C. Each prime contractor remains responsible for completing its own work within the time requirements established by its respective contract.

## **1.11 SCHEDULE FORMAT AND SUBMITTALS**

A. Schedule submissions shall be provided electronically in PDF format and, when requested by the Owner or Engineer, in the native scheduling software format used to prepare the Master Project Schedule.

B. Each weekly schedule submission shall include:

1. Updated Master Project Schedule;
2. Three-Week Look-Ahead Schedule;
3. Narrative summary of significant schedule changes;
4. Identification of critical or near-critical schedule impacts;
5. Identification of known delays and potential delays; and

6. Other schedule information required by the Owner or Engineer.

C. The General Contractor shall maintain current schedule information and supporting documentation for the duration of the Project.

## **PART 2 – PRODUCTS**

### **2.1 SCHEDULING SOFTWARE**

A. The General Contractor shall use commercially available scheduling software capable of producing a logic-based project schedule and the reports required by this Section.

B. The scheduling software shall be capable of identifying activities by responsible prime contractor and of establishing logical relationships between activities.

## **PART 3 – EXECUTION**

### **3.1 GENERAL**

A. The General Contractor shall administer the project-wide scheduling process and shall serve as the primary point of coordination for schedule information among the Owner, Engineer, and separate prime contractors.

B. Each prime contractor shall provide accurate, timely, and complete schedule information concerning its own work.

C. The General Contractor shall use information provided by the separate prime contractors to maintain the Master Project Schedule.

### **3.2 RESPONSIBILITY OF SEPARATE PRIME CONTRACTORS**

A. Each prime contractor remains solely responsible for:

1. Performance of its own Contract;
2. Means, methods, techniques, sequences, and procedures of construction;
3. Supervision of its own employees, subcontractors, and suppliers;
4. Compliance with the requirements of its Contract Documents;
5. Providing accurate schedule information concerning its own work;
6. Timely notification of actual or anticipated delays; and
7. Achieving the milestones and completion dates applicable to its Contract.

B. Participation in the Master Project Schedule and coordination process shall not relieve any prime contractor of any contractual responsibility.

### **3.3 GENERAL CONTRACTOR'S COORDINATION RESPONSIBILITY**

A. The General Contractor shall be responsible for project-wide scheduling coordination and administration of the Master Project Schedule.

B. The General Contractor shall identify conflicts and coordination issues apparent from the schedules submitted by the separate prime contractors and shall bring such matters to the attention of the affected contractors, Owner, and Engineer.

C. The General Contractor shall coordinate schedule interfaces between the separate prime contracts but shall not assume responsibility for the work, means, methods, or contractual obligations of another prime contractor.

D. The General Contractor shall promptly notify the Owner and Engineer of significant schedule conflicts, delays, or conditions that may adversely affect achievement of Project milestones.

### **3.4 OWNER AND ENGINEER REVIEW**

A. Schedule submissions are subject to review by the Owner and Engineer for general conformity with the requirements of the Contract Documents.

B. Review or acceptance of a schedule by the Owner or Engineer shall not relieve the General Contractor or any separate prime contractor of responsibility for complying with its respective Contract.

C. Neither the Owner's nor the Engineer's review of the Master Project Schedule shall constitute direction regarding the means, methods, techniques, sequences, procedures, or safety programs of any contractor.

### **3.5 FAILURE TO PROVIDE SCHEDULE INFORMATION**

A. Failure of a prime contractor to provide required schedule information shall not relieve that contractor of its contractual obligations.

B. The General Contractor shall identify missing, incomplete, or late schedule information in the applicable schedule submission to the Owner and Engineer.

C. The General Contractor shall continue to maintain the Master Project Schedule using the best available information and shall identify assumptions made as a result of missing or incomplete information.

### **3.6 COMPLETION AND CLOSEOUT**

A. The General Contractor shall incorporate the closeout activities of all prime contractors into the Master Project Schedule.

B. Closeout activities shall include, as applicable:

1. Punch list work;
2. Testing and balancing;
3. Commissioning;
4. Equipment start-up;
5. Training;
6. O&M manual submissions;

7. As-built documentation;
8. Final inspections;
9. Correction of deficiencies;
10. Final completion activities; and
11. Demobilization.

C. The General Contractor shall coordinate the sequencing of closeout activities among the separate prime contractors to facilitate timely Project completion.

**END OF SECTION**

**SECTION 09 6723  
RESINOUS FLOORING**

**PART 1 GENERAL**

**1.01 SUMMARY**

- A. Section Includes:
- B. Heavy-duty resinous floor coating system over concrete substrate at aircraft hangar floor.
- C. Concrete substrate preparation.
- D. Moisture-vapor-barrier primer where required by flooring manufacturer based on substrate conditions.
- E. High-solids epoxy build coat.
- F. Slip-resistant aggregate.
- G. Chemical- and abrasion-resistant urethane finish coat.
- H. Crack and joint treatment associated with resinous flooring installation.
- I. Related Sections:
- J. Section 03 30 00 – Cast-in-Place Concrete.
- K. Section 07 92 00 – Joint Sealants.

**1.02 REFERENCES**

- A. Comply with applicable requirements of the latest editions of the following:
- B. ASTM C1583 – Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension.
- C. ASTM D4060 – Abrasion Resistance of Organic Coatings by the Taber Abraser.
- D. ASTM D4541 – Pull-Off Strength of Coatings Using Portable Adhesion Testers.
- E. ASTM D2240 – Rubber Property – Durometer Hardness.
- F. ASTM D635 – Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position.
- G. ASTM F710 – Preparing Concrete Floors to Receive Resilient Flooring.
- H. ICRI 310.2R – Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays.
- I. NFPA 409 – Standard on Aircraft Hangars.
- J. Where manufacturer's requirements are more stringent than the requirements specified herein, comply with the manufacturer's requirements.

**1.03 PERFORMANCE REQUIREMENTS**

- A. Provide a complete, compatible resinous floor coating system specifically manufactured and recommended for aircraft hangar applications.
- B. System shall be suitable for application within a 25,000 SF aircraft hangar used primarily for storage and normal movement of general aviation and business aircraft, including limited maintenance activities.
- C. System shall be suitable for aircraft storage, towing and movement, aircraft tire traffic, ground-support equipment, maintenance equipment, and limited aircraft maintenance activities.
- D. Provide a system capable of resisting deterioration, softening, staining, blistering, and loss of adhesion resulting from exposure to aviation fuels, Jet-A, hydraulic fluids including Skydrol or equivalent, petroleum oils and lubricants, grease, deicing salts, water, snow, and commonly used hangar cleaning chemicals.

- E. Provide a system with sufficient abrasion and wear resistance for aircraft tires, towing operations, carts, maintenance equipment, and ground-support equipment.
- F. Provide a slip-resistant surface suitable for wet conditions and exposure to water, snow, deicing salts, oil, and hydraulic fluids.
- G. Provide a seamless, nonporous, readily cleanable surface except at required control, construction, expansion, and isolation joints.
- H. Provide a system suitable for normal hangar temperature fluctuations and exposure to hot aircraft tires under normal operating conditions.
- I. Provide a minimum total dry film thickness of 40 mils, unless a greater thickness is recommended by the manufacturer for the intended service conditions.
- J. Complete flooring system shall be compatible with and suitable for installation over the noncombustible concrete floor substrate required for aircraft storage and servicing areas by NFPA 409.
- K. Resinous flooring system shall not replace, modify, or compromise the required noncombustible concrete floor construction.
- L. Where required by the Authority Having Jurisdiction, provide manufacturer's documentation demonstrating that the proposed flooring system is acceptable for use over concrete grade floors in aircraft storage and servicing areas subject to NFPA 409.

#### **1.04 SUBMITTALS**

- A. Product Data:
  - 1. Manufacturer's current technical data for each component of the proposed system.
  - 2. Complete system build-up identifying primer, moisture-vapor-barrier primer where applicable, body coat, aggregate, topcoat, coverage rates, and nominal dry film thicknesses.
  - 3. Chemical resistance data.
  - 4. Abrasion and adhesion performance data.
  - 5. Installation instructions.
  - 6. Cleaning and maintenance procedures.
  - 7. Documentation identifying the manufacturer's recommended flooring system for aircraft hangar applications.
  - 8. Documentation addressing compatibility with applicable NFPA 409 floor requirements.
- B. Samples:
  - 1. Standard color samples.
  - 2. Cured sample demonstrating proposed color, aggregate distribution, and surface texture.
- C. Installer Qualifications:

Documentation demonstrating that installer is trained, approved, or authorized by the flooring system manufacturer.
- D. Warranty:
  - 1. Submit manufacturer's written system warranty.
  - 2. Submit Contractor's written installation warranty.

#### **1.5 QUALITY ASSURANCE**

- A. Manufacturer:

Minimum five years documented experience manufacturing resinous flooring systems for industrial, aviation, transportation, or similarly demanding applications.

- B. Installer:
  - 1. Minimum five years documented experience installing resinous flooring systems of similar type and complexity.
  - 2. Installer shall be approved, trained, or authorized by the flooring system manufacturer.
- C. Preinstallation Conference:
  - 1. Conduct conference prior to commencement of substrate preparation.
  - 2. Review substrate conditions, moisture testing, surface preparation, environmental conditions, application procedures, curing, protection, joint treatment, warranty requirements, and maintenance procedures.

## **1.06 WARRANTY**

- A. Provide a written five-year manufacturer's system warranty and five-year Contractor's installation warranty commencing on the date of Substantial Completion.
- B. Manufacturer's System Warranty:

Manufacturer shall warrant the complete resinous flooring system, including primer, moisture-vapor-barrier primer where provided, epoxy build coat, aggregate, urethane topcoat, and associated system materials, against defects in materials and premature deterioration when installed and maintained in accordance with the manufacturer's written requirements.
- C. Contractor's Installation Warranty:

Contractor shall warrant the completed resinous flooring installation against defects in workmanship and improper installation for a minimum period of five years from the date of Substantial Completion.
- D. Warranted Failures:
  - 1. The warranty shall include, but not be limited to, the following failures when attributable to defective materials or improper installation:
  - 2. Delamination or loss of bond between the resinous flooring system and concrete substrate.
  - 3. Blistering or bubbling resulting from defective materials or improper installation.
  - 4. Peeling, flaking, or separation between coating layers.
  - 5. Premature cracking attributable to defective materials or improper installation.
  - 6. Premature excessive wear or deterioration under normal hangar traffic and use.
  - 7. Premature loss of chemical resistance under normal exposure to aviation fuels, Jet-A, hydraulic fluids including Skydrol or equivalent, petroleum oils, lubricants, grease, deicing salts, and commonly used hangar cleaning chemicals.
  - 8. Premature loss, excessive wear, or dislodgement of slip-resistant aggregate or surface texture under normal use.
  - 9. Failure to maintain adhesion or system integrity at properly repaired cracks or treated areas.
- E. Warranty shall apply to normal intended use of the flooring system, including aircraft storage, aircraft towing and movement, aircraft tire traffic, ground-support equipment, maintenance equipment, and limited aircraft maintenance activities.
- F. Warranty Exclusions:
  - 1. Structural movement, settlement, failure, or cracking of the concrete substrate not attributable to the resinous flooring system.
  - 2. Active hydrostatic pressure, water intrusion, or moisture conditions exceeding the flooring manufacturer's published limitations, except where such conditions were addressed

through an approved moisture-vapor-barrier or moisture-mitigation system included in the Work.

3. Exposure to chemicals or substances substantially different from those identified in the manufacturer's published chemical-resistance data.
4. Abuse, impact, cutting, gouging, burning, welding, or other physical damage not considered normal hangar operations.
5. Failure of the Owner to follow the manufacturer's written cleaning and maintenance requirements.

G. Warranty Claim Procedure:

1. Upon discovery of a warranted failure, Contractor shall promptly notify the flooring manufacturer and Architect.
2. Contractor shall provide a written description of the failure and proposed corrective procedure for review prior to commencing corrective work.

H. Corrective Work:

1. Corrective Work shall include all labor, materials, equipment, surface preparation, removal, replacement, refinishing, and incidental work necessary to restore the flooring system to the condition required by this Section.
2. Perform repairs beyond the immediately visible area as necessary to address the underlying cause of the failure.
3. Use only manufacturer-approved materials and repair procedures.

I. Repair Matching:

Repairs shall match the existing flooring system in color, texture, aggregate distribution, thickness, chemical resistance, and slip resistance to the greatest extent practicable.

J. Extent of Repairs:

Where localized repair is insufficient to restore the required performance of the flooring system, replace the affected flooring area or complete flooring system as recommended by the manufacturer and approved by the Architect.

K. Warranty Following Corrective Work:

- i. Corrective Work shall not reduce or terminate the remaining warranty period.
- ii. Repaired or replaced areas shall be warranted for the remainder of the original warranty period or one year from completion of corrective Work, whichever is longer.

L. Warranty obligations specified herein are in addition to and shall not limit any other warranties, guarantees, or remedies required by the Contract Documents.

### **1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver materials in original, unopened containers clearly identified with manufacturer, product name, batch number, and expiration date.
- B. Store materials in accordance with manufacturer's written requirements.
- C. Protect materials from freezing, excessive heat, moisture, direct sunlight, and contamination.

### **1.08 PROJECT CONDITIONS**

- A. Do not commence flooring installation until substrate and environmental conditions comply with manufacturer's requirements.
- B. Maintain substrate and ambient temperatures within the manufacturer's published limits during installation and curing.

- C. Provide ventilation in accordance with manufacturer's requirements.
- D. Protect adjacent construction from dust, splatter, odors, and other effects of flooring installation.
- E. Do not permit aircraft, vehicles, equipment, or construction traffic on completed flooring until the manufacturer's required cure period has been achieved.
- F. Coordinate installation and curing with hangar operations and provide temporary protection as necessary.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Basis-of-Design System:
- B. Sherwin-Williams Resufloor Performance HPS, utilizing compatible Sherwin-Williams epoxy primer or moisture-vapor-barrier primer, high-solids epoxy build coat, slip-resistant aggregate, and Resutile HPS 100 chemical-resistant urethane topcoat, or current manufacturer-approved components specifically recommended for the intended aircraft hangar application.
- C. Acceptable Manufacturers:
  - 1. Sherwin-Williams.
  - 2. Sika Corporation.
  - 3. Tennant Company.
  - 4. Stonhard.
  - 5. Other manufacturers meeting or exceeding the specified performance requirements may be submitted for approval.
- D. All components shall be supplied by or specifically approved for use together by the resinous flooring system manufacturer.
- E. Do not combine products from different manufacturers unless specifically approved in writing by the flooring system manufacturer and Architect.

### **2.02 RESINOUS FLOOR COATING SYSTEM**

- A. Provide a complete, compatible, high-solids epoxy/urethane flooring system consisting of:
  - 1. Concrete primer or moisture-vapor-barrier primer as required by substrate conditions and manufacturer.
  - 2. High-solids epoxy build coat.
  - 3. Fine slip-resistant aggregate.
  - 4. Chemical-resistant urethane protective finish coat.
- B. Provide minimum total dry film thickness of 40 mils. Provide greater thickness where recommended by manufacturer for intended service conditions.
- C. Primer and build coat thickness shall be established by the manufacturer based on substrate conditions, moisture conditions, service conditions, and selected system.
- D. Install complete system in accordance with manufacturer's written requirements.
- E. Urethane topcoat shall be compatible with epoxy build coat and suitable for aircraft hangar applications.
- F. Provide UV-resistant finish where exposed to natural daylight or exterior hangar door openings.
- G. System shall be suitable for installation over existing concrete following required mechanical surface preparation.
- H. Where moisture or vapor conditions warrant, provide manufacturer's compatible moisture-vapor-barrier primer or moisture mitigation system.

## **2.03 SYSTEM PERFORMANCE**

- A. Provide minimum performance requirements as follows:
  - 1. Abrasion Resistance: Maximum 50 mg loss when tested in accordance with ASTM D4060 using CS-17 wheel, 1,000-gram load, and 1,000 cycles.
  - 2. Tensile Adhesion: Minimum 250 psi when tested in accordance with ASTM D4541 or ASTM C1583, unless failure occurs in the concrete substrate at a lower value.
  - 3. Hardness: Minimum Shore D 75 when tested in accordance with ASTM D2240.
  - 4. Impact Resistance: Minimum 100 in-lb without cracking, chipping, or delamination.
  - 5. Chemical Resistance: System shall demonstrate resistance to aviation fuels, Jet-A, hydraulic fluids, petroleum oils, grease, deicing salts, and commonly used hangar cleaning chemicals without softening, blistering, delamination, or unacceptable loss of adhesion when tested in accordance with manufacturer's published procedures.
- B. Manufacturer shall provide published test data demonstrating compliance with specified performance requirements.
- C. Basis-of-design published performance data includes abrasion resistance of approximately 18.8 mg loss in accordance with ASTM D4060, adhesion of approximately 450 psi with concrete substrate failure in accordance with ASTM D4541, and Shore D hardness of approximately 80-85 at 0 seconds and 75-80 at 15 seconds.
- D. Where published performance data is based on component thicknesses different from those proposed, manufacturer shall confirm in writing that the proposed system and specified total thickness meet or exceed the specified performance requirements.

## **2.04 AGGREGATE**

- A. Provide clean, dry, graded silica, glass bead, or manufacturer-approved aggregate.
- B. Provide slip resistance suitable for wet hangar conditions.
- C. Provide fine surface texture sufficient to provide traction without creating excessive roughness that could interfere with aircraft, ground-support equipment, carts, or maintenance equipment.
- D. Fully encapsulate aggregate within the resinous flooring system.
- E. Provide increased slip resistance at hangar entrances and other areas subject to snow, water, oil, hydraulic fluids, or deicing salts.

## **2.05 COLORS**

- A. Architect shall select final color from manufacturer's standard color range.
- B. Provide a medium-light-value color suitable for identifying oil, hydraulic fluid, dirt, and debris.
- C. Consider light-reflective colors to improve visibility and illumination within the hangar.
- D. Final color shall be approved by Architect prior to installation.

## **2.06 JOINT MATERIALS**

- A. Do not bridge active expansion, isolation, or movement joints with rigid resinous flooring.
- B. Provide compatible flexible joint sealant or joint system.
- C. Maintain existing control and construction joints through the completed flooring system.
- D. Joint materials shall be compatible with the resinous flooring system and approved by the manufacturer.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Examine concrete substrate with flooring Installer prior to commencement of Work.
- B. Verify that concrete is sound, adequately cured, clean, and free of laitance, curing compounds, sealers, oil, grease, fuel, hydraulic fluid, wax, paint, existing coatings, and other contaminants.
- C. Verify that substrate is free of loose or deteriorated concrete and that moisture, temperature, and environmental conditions comply with manufacturer's requirements.
- D. Verify that substrate is suitable for application of specified flooring system.
- E. Notify Architect of conditions that could adversely affect flooring installation.
- F. Do not commence Work until unacceptable conditions have been corrected.

### **3.02 CONCRETE SURFACE PREPARATION**

- A. Prepare concrete mechanically by shot blasting, diamond grinding, scarifying, or other manufacturer-approved mechanical method.
- B. Acid etching shall not be used as the sole method of surface preparation.
- C. Provide concrete surface profile of ICRI CSP 3 through CSP 5, unless a more stringent profile is required by the flooring manufacturer.
- D. Remove oil, grease, aviation fuel, hydraulic fluid, curing compounds, sealers, paint, existing coatings, laitance, efflorescence, loose concrete, dirt, and other contaminants.
- E. Remove contaminated concrete to sound material where required by the flooring manufacturer.
- F. Thoroughly vacuum prepared substrate prior to application of flooring materials.
- G. Do not use chemical cleaners or solvents that leave residues detrimental to flooring adhesion.

### **3.03 CONCRETE REPAIRS**

- A. Repair cracks, spalls, voids, bugholes, deteriorated concrete, and other surface irregularities prior to flooring installation.
- B. Use compatible repair materials approved by the flooring system manufacturer.
- C. Grind high spots, ridges, fins, and projections smooth.
- D. Treat static cracks in accordance with manufacturer's written recommendations.
- E. Do not rigidly fill active movement joints.

### **3.04 MOISTURE TESTING**

- A. Test concrete substrate in accordance with the flooring manufacturer's current written requirements.
- B. Use the moisture testing method or methods specified by the flooring manufacturer for the proposed system.
- C. Do not install flooring where moisture, relative humidity, vapor emission, or other substrate conditions exceed the manufacturer's published limitations.
- D. Verify that active moisture intrusion, hydrostatic pressure, and water infiltration are not present.
- E. Where moisture conditions exceed system limitations, provide a compatible manufacturer-approved moisture-vapor-barrier primer or moisture mitigation system.
- F. Do not commence flooring installation until moisture conditions have been corrected or the manufacturer has provided written approval for the proposed system and conditions.

### **3.05 APPLICATION**

- A. Apply complete flooring system strictly in accordance with manufacturer's written requirements.
- B. Apply primer or moisture-vapor-barrier primer as required.
- C. Apply high-solids epoxy build coat.
- D. Broadcast specified slip-resistant aggregate into wet resin in accordance with manufacturer's requirements.
- E. Remove excess aggregate after resin has cured sufficiently.
- F. Apply additional resin coat where necessary to fully encapsulate aggregate and provide uniform coverage.
- G. Apply chemical-resistant urethane topcoat.
- H. Provide minimum total dry film thickness of 40 mils.
- I. Finished flooring shall be free of puddling, pinholes, fisheyes, holidays, roller marks, lap lines, blisters, and other visible defects.
- J. Provide neat, straight terminations at walls, thresholds, penetrations, and other transitions.
- K. Observe manufacturer's specified recoat windows.
- L. Do not apply subsequent coats over contaminated, improperly prepared, or otherwise unsuitable surfaces.

### **3.06 SLIP RESISTANCE**

- A. Provide slip-resistant aggregate throughout areas subject to pedestrian traffic, snow, water, oil, hydraulic fluids, or deicing salts.
- B. Provide additional slip resistance at hangar entrances and other areas routinely exposed to weather.
- C. Coordinate final surface texture with Owner to provide adequate traction without creating a surface that interferes with aircraft tires, ground-support equipment, carts, or maintenance activities.
- D. Provide uniform aggregate distribution and texture throughout the completed flooring system.

### **3.07 JOINTS**

- A. Do not bridge active joints with rigid resinous flooring.
- B. Maintain existing control and construction joints.
- C. Sawcut cured resinous flooring over existing control joints where required to maintain joint function.
- D. Seal joints with compatible flexible sealant or joint system.

### **3.08 CURING AND PROTECTION**

- A. Protect completed flooring from traffic, moisture, dirt, dust, chemicals, and other contamination during curing.
- B. Do not permit construction traffic until manufacturer's required cure period has been achieved.
- C. Do not permit aircraft, tugs, vehicles, forklifts, or heavy equipment on flooring until the manufacturer's required cure period for the anticipated loading has been achieved.
- D. Protect completed flooring from welding, grinding, cutting, painting, and other activities capable of damaging the surface.

- E. Do not drag equipment or materials across completed flooring.
- F. Repair damage to completed flooring prior to acceptance.

### **3.09 FIELD QUALITY CONTROL**

- A. Verify adequacy of substrate preparation.
- B. Verify required concrete surface profile.
- C. Monitor ambient temperature, substrate temperature, and relative humidity during installation.
- D. Verify compliance with required moisture conditions.
- E. Verify total installed flooring thickness.
- F. Perform adhesion testing when requested by Architect.
- G. Repair or replace areas that fail to meet specified requirements.

### **3.10 CLEANING**

- A. Clean completed flooring in accordance with manufacturer's written requirements following sufficient cure.
- B. Remove construction residue, dirt, dust, excess aggregate, and debris.
- C. Do not use cleaning chemicals or methods capable of damaging or degrading the flooring system.

### **3.11 ACCEPTANCE**

- A. Completed flooring shall be fully bonded, seamless except at required joints, uniform in appearance, free of visible defects, slip resistant under wet conditions, and suitable for aircraft storage, aircraft movement, ground-support equipment, and limited maintenance activities.
- B. Completed flooring shall be compatible with and installed over the noncombustible concrete grade floor required for the applicable aircraft hangar areas by NFPA 409.
- C. Repair or replace defective flooring at no additional cost to Owner.

**END OF SECTION 09 67 23**

## **SECTION 233100 DUCTWORK**

### **PART 1 GENERAL**

#### **1.01 SUMMARY**

- A. Metal and flexible ductwork.
- B. Duct cleaning.

#### **1.02 REFERENCES**

- A. ASHRAE - Handbook Fundamentals; Chapter 33 - Duct Design.
- B. ASHRAE - Handbook Equipment; Chapter 1 - Duct Construction.
- C. ASTM A 90 - Weight of Coating on Zinc-Coated (Galvanized) Iron or Steel Articles.
- D. ASTM A 525 - General Requirements for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.
- E. ASTM A 527 - Steel Sheet, Zinc-Coated (Galvanized) by Hot-Dip Process, Lock Forming Quality.
- F. NFPA 90A - Installation of Air Conditioning and Ventilating Systems.
- G. NFPA 90B - Installation of Warm Air Heating and Air Conditioning Systems.
- H. SMACNA - Metal and Flexible HVAC Duct Construction Standards.
- I. UL 181 - Factory-Made Air Ducts and Connectors.

#### **1.03 DEFINITIONS**

- A. Duct Sizes: Inside clear dimensions. For lined ducts, maintain sizes inside lining.
- B. Low Pressure: Three pressure classifications: 1/2 inch WG positive or negative static pressure; 1 inch WG positive or negative static pressure and 2 inch WG positive or negative static pressure. All low pressure ductwork shall be constructed to the 2 inch WG pressure-velocity classification.

#### **1.04 QUALITY ASSURANCE**

- A. SMACNA: Gages of materials, fabrication, reinforcement, sealing requirements, installation, and method of supporting ductwork shall be in accordance with the SMACNA HVAC Duct Construction Standards manuals.
- B. Installation shall be by contractor with SMACNA certified training.

#### **1.05 REGULATORY REQUIREMENTS**

- A. Construct ductwork to NFPA 90A and NFPA 90B standards.

## **PART 2 PRODUCTS**

### **2.01 MATERIALS**

- A. General: Non-combustible or conforming to requirements for Class 1 air duct materials, or UL 181.
- B. Steel Ducts: ASTM A525 or ASTM A527 galvanized steel sheet, lock-forming quality. Ductwork shall have a minimum G60 coating, except for exterior unpainted ductwork and condenser water sump, which shall have a G90 coating. Ductwork specified to be painted shall be Galvannealed Steel
- C. Insulated Flexible Ducts:
  - 1. Flexible duct wrapped with flexible glass fiber insulation, enclosed by seamless aluminum pigmented plastic vapor barrier jacket; maximum 0.23 K value at 75°F.
  - 2. Manufacturer's product shall meet Underwriters Laboratories Spec. UL181 and NFPA 90A, flame spread 25, smoke developed 50.
  - 3. Insulation shall be 1½", 3/4# density fiberglass blanket, rated for up to 6" S.P. positive, 6,000 FPM, ½" S.P. negative.
  - 4. Provide certification that materials used have been tested and listed by the Building Code of New York State regarding Toxicity/Combustion testing standards.
  - 5. Acceptable Manufacturers: Owens Corning "Fiberglas Valuflex", Thermaflex, Genflex SLR.
- D. Fasteners: Rivets, bolts, or sheet metal screws.
- E. Sealant: Non-hardening, water resistant, fire resistive, compatible with mating materials; liquid used alone or with tape, or heavy mastic. Tapes shall not be used to seal joints. Sealant equal to Iron Grip IG-601 or accepted equal.
- F. Hanger Rod: Galvanized steel, stainless steel, or aluminum; threaded both ends, threaded one end, or continuously threaded.

### **2.02 LOW PRESSURE DUCTWORK (FABRICATION)**

- A. Fabricate and support ductwork and provide duct material, gages, reinforcing and sealing in accordance with SMACNA Metal and Flexible HVAC Duct Construction Standards and ASHRAE handbooks. All ductwork shall be constructed to the 2" WG/2500 fpm pressure-velocity classification. All ductwork shall receive Class A sealant, regardless of SMACNA requirements.
- B. All rectangular ductwork shall be in accordance with the latest SMACNA Standards with regard to; duct gage thickness, reinforcement spacing, bracing, and hangers and supports. All longitudinal seams shall be made with a Pittsburgh Lock (Type L-1) or SMACNA equivalent. Transverse joints on ducts over 14" shall be made with the Ductmate, Ward or Nexus ductwork connection system. Transverse joints on ductwork smaller than 14" may be made with slip and drive joint or SMACNA equivalent.
- C. Construct T's, bends, and elbows with radius of not less than 1-1/2 times width of duct on centerline. Where not possible and where rectangular elbows are used, provide air foil turning vanes. Where acoustical lining is indicated, provide turning vanes of perforated metal with glass fiber insulation.
- D. Increase duct sizes gradually, not exceeding 15 degrees divergence wherever possible. Divergence upstream of equipment shall not exceed 30 degrees; convergence downstream shall not exceed 45 degrees.

- E. Provide easements where low pressure ductwork conflicts with piping and structure. Where easements exceed 10 percent duct area, split into two ducts maintaining original duct area.
- F. Connect flexible ducts to metal ducts with draw bands, adhesive plus sheet metal screws. Metal collars shall be used where flexible ducts are connected to metal ducts and shall be a minimum of 2" in length.
- G. Dissimilar Metals: Separate dissimilar metals used for ductwork with 12 oz. Vinyl coated woven fiberglass duct connector fabric, such as Duro Dyne's Glassteel. No separation is required between screws or rivets and the materials in which they are inserted.
- H. Sealant: Non-hardening, water resistant, fire resistive, compatible with mating materials; liquid, mastic, gaskets, or mastic embedded fabric. Tapes shall not be used to seal joints. Sealant equal to Iron Grip 1G-601 or accepted equal.
- I. Provide standard 45 degree lateral wye takeoffs unless otherwise indicated.
- J. Wet exhaust system ductwork (i.e. intake and exhaust plenums, etc.) shall be fabricated with seams and welded/soldered to be watertight.

## **2.03 PLENUMS**

- A. Fabricate plenums in accordance with SMACNA Metal and Flexible HVAC Duct Construction Standards. Solder joints watertight.

## **2.04 DUCTWORK SUPPORT MATERIALS**

- A. Except as otherwise indicated, provide hot-dipped galvanized steel fasteners, anchors, rods, straps, trim and angles for support of ductwork.

# **PART 3 EXECUTION**

## **3.01 INSTALLATION**

- A. Install ductwork to allow maximum headroom. Properly seam, brace, stiffen, support and render ducts mechanically airtight.
- B. Provide necessary transformation pieces, and flexible fabric connections for ductwork connected to all air handling equipment.
- C. Provide volume dampers at every branch take off and to each air outlet.
- D. Connect diffusers or troffer boots to low pressure ducts with 5 feet maximum length of flexible duct. Hold in place with strap or clamp.
- E. During construction provide temporary closures of metal or taped polyethylene on open ductwork to prevent construction dust from entering ductwork system.

## **3.02 SEALING SEAMS, JOINTS, AND PENETRATIONS**

- A. Seal ductwork in accordance with the SMACNA Manual. Low pressure ductwork to be seal Class A. Leakage of system to be a maximum of 5%.
- B. Use liquids, mastics, gaskets, or mastic embedded fabric. Tapes shall not be used to seal joints.
- C. Non VOC sealants and adhesives are mandatory.

### 3.03 DUCTWORK APPLICATION SCHEDULE

#### AIR SYSTEM

#### MATERIAL

Low Pressure Supply, Return and General Exhaust

Galvanized Steel

Low Pressure Supply, Return and General Exhaust  
(Exposed in Finished Spaces)

Galvanized Steel

Intake and Exhaust Plenums

Galvanized steel all joints  
welded/soldered. watertight

Outside Air Intake

Galvanized Steel all joints  
welded/soldered. watertight

### 3.04 DUCTWORK SUPPORTS

- A. Hangers, Rectangular Ducts: Ducts with semi-perimeter of up to 30", provide 1" x 22 ga. strap. Semi-perimeter of up to 72", provide 1" x 18 ga. strap. Ducts with semi-perimeter greater than 72", provide trapeze hanger with all thread rod. All above as per SMACNA Standards.
- B. Hangers, Round Duct: Ducts up to 24" diameter, provide 1" x 22 ga. strap hangers. Ducts up to 36" diameter, provide 1" x 20 ga. strap hangers. Ducts larger than 36" diameter, provide two 3/8" rod hangers with (2) 1" x 18 ga. straps around duct. The above as per SMACNA Standards.

**END OF SECTION**

**SECTION 235545**  
**INDIRECT FIRED AIR ROTATION UNIT**

**PART 1 GENERAL**

**1.01 SUMMARY**

- A. Indirect fired air rotation unit.
- B. Unit Controls.
- C. Maintenance service.

**1.02 REFERENCES**

- A. ANSI/Z223.1 (NFPA 54) - National Fuel Gas Code.
- B. ARI 210/240 - Unitary Air-Conditioning and Air-Source Heat Pump Equipment.
- C. NFPA 90A - Installation of Air Conditioning and Ventilating Systems.
- D. ARI 270 - Sound Rating of outdoor Unitary Equipment.

**1.03 SUBMITTALS**

- A. Submit Shop Drawings and Product Data: Indicate dimensions, duct and service connections, accessories, controls, electrical nameplate data, and wiring diagrams. Indicate gas burner inlet pressure requirements and compliance with ANSI and Factory Mutual requirements.
- B. Submit fan data; include fan performance curve with operating point clearly plotted.
- C. Submit electrical requirements for power supply wiring including wiring diagrams for interlock and control wiring, clearly indicating factory-installed and field-installed wiring.
- D. Submit Manufacturer's Installation Instructions: Indicate rigging, assembly, and installation instructions.
- E. Submit Operation and Maintenance data; include manufacturer's descriptive literature, operating instructions, installation instructions, maintenance and repair data, and parts listing. Include this data and other submittal data in the Operation and Maintenance Manual; in accordance with Division 1 Requirements.

**1.04 QUALITY ASSURANCE**

- A. Comply with applicable regulations, ANSI Requirements and have factory mutual approval.
- B. Factory test to check construction, controls and operation of unit and provide certification.
- C. Regulatory Requirements:
  - 1. Unit shall be factory tested and the design, construction and installation shall be in accordance with the following: NFPA, UL and all State and Local codes or regulations having jurisdiction.
  - 2. Electrical components shall be UL listed.
- D. Manufacturer's representative to perform field test of operation after installation.

**1.05 DELIVERY**

- A. Deliver each unit as an integral factory packaged assembly.

**1.06 MAINTENANCE**

- A. Maintenance Service: A fully equipped authorized service organization capable of guaranteeing response within 8 hours to service calls shall be available 24 hours a day, 7 days a week to service the completed Work.

**1.07 EXTRA PARTS**

- A. Extra Materials: Provide with each unit, one spare set of air filters Suitable box and label spare filters as to their usage.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Johnson-Marcraft
- B. Titan Air Inc.
- C. Moffitt Ventilation Solutions.
- D. Design Make: Johnson-Marcraft

**2.02 AIR TURNOVER UNITS:**

- A. General
1. Provide packaged air rotation unit (ARU) having gas burner suitable for indoor floor mounting.
  2. Unit shall be self-contained, packaged, factory assembled and prewired, consisting of cabinet and frame, supply fan, heat exchanger and burner, vibration isolation, controls, air filters, etc.
  3. The unit shall be manufactured and installed in accordance with the requirements of the underwriter's laboratory standard; "ductless large open building heating and cooling equipment - category IZPG" and bear the official UL label.
  4. The unit shall be factory assembled and tested prior to shipping and disassemble for shipping and reassembled on site by the awarded contractor as required.
  5. System and accessories to be ul listed and approved as a complete unit. Unit shall be manufactured to FM standards as required.
  6. Unit configuration: vertical with horizontal discharge.
- B. Frame construction: shall be angle iron framing with 3/16" horizontal flange and 1/8" vertical framing and factory painted, suitably reinforced and braced to permit the loading, shipping, unloading and rigging to the unit location and general handling of completed sections without damage to external or internal components or misalignment of factory assembled components due to normal handling techniques.
- C. Cabinet construction: 18-gauge a-60 bonderized steel suitable for factory painting. The panels shall be factory assembled using flat bar screwed construction and have a reinforced steel angle flange assembly. Unit shall be factory painted using factory standard enamel finish.

- D. Access panels: hinged access doors in the unit housing shall be provided to permit ready access to all internal components. The access doors shall be a minimum of 18-gauge galvanized steel. The doors shall be designed to swing out. The doors shall be provided with a continuous 16-gauge stainless steel piano hinge. The unit's wall panels shall be an integral part of the doorframe. The unit's fan compartment access for inspection and adjustment shall be UL approved. A warning placard shall be affixed at the access door indicating that the unit is to be shut off before opening the door and entering the fan compartment.
- E. Return air filter frame and air filters: filter frame shall be fabricated of 16-gauge galvanized steel and painted to match the unit's color. Filters shall be upstream service, mounted at floor level for ease of access. Filters will be washable natural hair and vegetable media, 1-inch depth.
- F. Insulation: the air mover and inlet module shall have ½" sound insulation installed using welded pin construction. The heater module shall have ½" thermal insulation installed throughout. No insulation shall be provided in the outlet sections.
- G. Supply fans:
1. The supply fans, a minimum of one per unit, shall consist of a propeller fan with a smooth inlet venturi motor mount. The propeller blade shall be supported by two bearings, which shall be of a self-aligning, ball bearing type and shall be designed for at least 100,000 hours average life.
  2. Fans shall have the capacity, and class, as scheduled.
  3. Blower shafts - blower shafts shall be solid ground and polished. The shafts shall not pass through their first critical speed when the unit comes up to the rated rpm. Shaft shall be coated with a rust inhibitor.
  4. V-belt drives - all v-belt drives shall be standard capacity dual belt type, furnished in matched sets with reinforced rubber belts. The sheaves shall be of a cast iron type.
  5. The service factor used for v-belt drive selection shall be not less than 1.25.
  6. Lubrication - mount all grease fittings directly on the bearings.
  7. Motors shall be ODP, 1800 rpm, 460-volt, 3 phase, 60 hz. Motor horsepower shall be as indicated on the schedule. Motors will be manufacturer's premium efficiency design.
- H. Heat exchanger:
1. Multi-pass, welded construction, drum and tube style heat exchanger.
  2. Primary surfaces are to be type 400 series stainless steel 11-gauge minimum. All other surfaces are to be 14-gauge minimum.
- I. Heaters that incorporate induced draft fans are not permitted.
- J. Fixed gas burner: forced draft flame retention type. Burner shall be listed by and bear the UL label.
1. The burner shall burn the specified quantity of fuel without objectionable vibration, noise or pulsation with not more than 20% excess air and less than 50 ppm CO in the products of combustion. Manufacturer to submit NO<sub>2</sub> generation rates for manufacturer's burner throughout operational range.
  2. The burner shall incorporate a stainless-steel flame retention type combustion head for long life and efficient operation. Multiport type gas firing heads are preferred and deviation from this specification must be noted.
  3. Primary-secondary air control shall be a design function of the combustion head. Combustion heads requiring an internal adjustment will not be accepted.

4. The burners are to be equipped with a cast blower housing with integral fan scroll. Other types will be accepted based on owner approval and must be submitted as such.
  5. A permanent observation port shall be provided in the burner to allow observation of both the pilot and main flame.
- K. Gas Train:
1. The gas train piping shall include a 1/4" npt pressure tapping with 1/4" pipe plug upstream and downstream of valve and regulator in the gas train.
  2. Furnish and install one manually operated ball valve upstream of all valves.
  3. Provide one main gas pressure regulator with vent to outside atmosphere, in accordance with local codes.
  4. A manually operated gas valve shall be located downstream of both automatic gas valves to permit leakage testing of the valves.
  5. Gas pressure supervision shall be provided by approved pressure switches interlocked to accomplish a non-recycling safety shutdown in the event of either no or low gas pressure.
- L. Gas Burner Safety Controls:
1. An additional temperature high limit safety shall be provided to shut down the burner. Once cooled down burner shall be allowed to operate again.
  2. Pre-purge operation of the burner fan shall be provided.
  3. A manual restart of the burner shall be necessary in the event of shutdown due to flame failure.
  4. All three-phase motors shall be controlled and protected by an automatic starter with thermal overload protection. Starter shall be interlocked to prevent burner operation when overload relays are tripped out.
  5. Supply a burner mounted diaphragm airflow switch to prevent the energization of the main fuel valves in the event of insufficient combustion air.
  6. A factory pre-wired control cabinet should be supplied with burner. Cabinet is mounted on or near burner. Cabinet to house the flame safeguard control, programming purge timer, burner motor starter, fuses, control switches and relays as specified hereinafter.
  7. Provide in the control cabinet individual lights with nameplates to indicate "power on" and "main fuel valve on".
  8. The burner shall be equipped with suitable fuel and air controls to assure smooth main flame ignition.
  9. Electronic safety combustion controls shall be supplied complete with ultraviolet flame scanner to monitor the pilot and main flame. A programming relay similar to Honeywell RM7897, RM7845 or RM7840 shall be furnished. It shall be so utilized as to provide intermittent type gas-electric ignition and pre-ignition purge timer.
- M. Discharge Louvers: Vertical louvers painted to match cabinet finish.
- N. Controls:
1. There shall be a locking control cabinet with flame failure alarm horn, temperature controls, and displaying pilot lights to indicate "power on", and "call for heat" light indicator.
  2. The power panel shall have a locking dead front main power cabinet with disconnect and containing necessary fuses, sub-circuits, magnetic starters with 3-leg protection, relays and contactors requiring only single 3-phase connection.
  3. The control panel shall contain an emergency shutdown circuit that may be supervised by the fire protection system in the facility. At owner's option this can be accomplished with an external power source of either 120 volts or 24 volts.

4. The unit shall incorporate factory-mounted transformers to step down the main power supply voltage to be 120 volts and 24 volts (as required).
  5. DDC type controller (Carel, or equivalent) provided by ARU manufacturer.
  6. BAS Interface Card – BACNET/LON/MODBUS/Web capable.
  7. Two high temperature limits shall be installed, one for automatic reset (factory set at 200°F) and one for manual reset (factory set at 250°F).
- O. Performance Ratings
1. Refer to schedule on Contract Drawings.
- P. Accessories
1. Provide a factory ATU stand designed and built by the ATU manufacturer. The stand shall be angle iron framing with 3/16" horizontal flange and 1/8" vertical framing and factory painted. Provide cross bracing to brace stand from the existing structure. Any stand not built by the ATU manufacturer shall come with PE stamped fabrication drawings.

### **PART 3 EXECUTION**

#### **3.01 INSTALLATION**

1. Install units in complete accordance with the manufacturers' printed instructions, and as indicated.
2. Provide all piping, electrical and ductwork connections to units.

#### **3.02 FIELD QUALITY CONTROL**

- A. Preliminary Requirements: Employ the services of a Company Field Advisor of the rooftop heat recovery unit manufacturer for the following:
1. Inspect unit installations prior to start-up.
  2. Supervise initial start-up of machine.
  3. Instruction of State Personnel.
- B. Pre-Start-Up, Start-Up and Instruction: Upon completion of the installation of the unit, to the satisfaction of the Company Field Advisor, start-up and preliminary testing shall be accomplished under the Company Field Advisor's supervision. When all necessary adjustments have been made and unit is properly operating, the Company Field Advisor shall instruct State Personnel in the operation and maintenance of the unit and accessories. Provide a minimum of 4 hours for instruction purposes exclusive of all pre-start-up and start-up time.

### **END OF SECTION**

McFARLAND JOHNSON

49 COURT STREET, SUITE 240  
BINGHAMTON, NY 13901

AUBERTINE  
and  
CURRIER

ARCHITECTS, ENGINEERS  
& LAND SURVEYORS, PLLC

RAM-TECH  
ENGINEERS

6100 FAIRWAY DR.  
SYRACUSE, NY 13211

CLIENT:  
GREATER BINGHAMTON AIRPORT  
JOHNSON CITY, NEW YORK

PROJECT:  
REHABILITATION OF HANGARS 2 & 3 - PHASE 2

REVISIONS

| NO. | DATE    | DESCRIPTION    |
|-----|---------|----------------|
| 1   | 10/7/26 | ADDENDUM NO. 1 |

STAMP

STATE OF NEW YORK

HASHEM M. OBIYI

095257

REGISTERED PROFESSIONAL ENGINEER

EXPIRES: JULY 31, 2029

PROJECT MILESTONE

BID PLANS

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT ORIENTATION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE REVISION ALTERED (BY FOLLOWING BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

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PROJECT

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OCTOBER 7, 2026

19090.06

DRAWING TITLE

INDEX AND WORK DESCRIPTION

DRAWING NUMBER

IN-01A

02 OF 04

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| DISCIPLINE             | SHEET NUMBER | DRAWING NUMBER | DRAWING TITLE                                    | <div><div>⚠</div><div>HANGAR 2 &amp; 3</div></div> <div>INCLUDES ALL WORK ASSOCIATED WITH HANGAR 2, INCLUDING MAIN SERVICE ELECTRICAL WORK, WHEELCHAIR LIFT WORK WITH ASSOCIATED REMOVAL AND INSTALLATION OF FIRE-RATED WALLS AND DOORS, COMPLETE FIRST-FLOOR BATHROOM RENOVATIONS, SECOND-FLOOR BATHROOM PLUMBING ROUGH-IN, PLUMBING PRESSURE-ASSIST SYSTEM, GROUND POWER UNIT WITH ASSOCIATED CIRCUITS AND RECEPTACLES, AND BETA TECH POWER HOOK-UPS. HANGAR 2&amp;3 MAIN HANGAR BAY AIRCRAFT DOOR DETAILED INSPECTION AND REPORTING.</div> <div><div>⚠</div></div> | HANGAR 2                      | HANGAR 2                      | HANGAR 2                      | HANGAR 2                      | HANGAR 3                      |
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|                        | 7 OF 9       | MH501          | DETAILS                                          | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | •                             |                               | •                             | •                             | •                             |
|                        | 8 OF 9       | MH601          | SCHEDULES                                        | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | •                             |                               | •                             | •                             | •                             |
|                        | 9 OF 9       | MH901          | SYMBOL LIST                                      | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | •                             |                               | •                             | •                             | •                             |
| ELECTRICAL DRAWINGS    | 1 OF 12      | ED101          | HANGAR 2 FIRST FLOOR PLAN - ELECTRICAL REMOVALS  | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                               |                               | •                             |                               |                               |
|                        | 2 OF 12      | ED102          | HANGAR 2 SECOND FLOOR PLAN - ELECTRICAL REMOVALS | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | •                             | •                             |                               | •                             |                               |
|                        | 3 OF 12      | ED103          | HANGAR 3 FIRST FLOOR PLAN - ELECTRICAL REMOVALS  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                               |                               |                               |                               | •                             |
|                        | 4 OF 12      | ED701          | HANGAR 2 - ONE LINE DIAGRAM - REMOVALS           | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                               |                               |                               |                               |                               |
|                        | 5 OF 12      | EL101          | HANGAR 2 FIRST FLOOR PLAN - LIGHTING             | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                               |                               | •                             |                               |                               |
|                        | 6 OF 12      | EL102          | HANGAR 2 SECOND FLOOR PLAN - LIGHTING            | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                               |                               |                               | •                             |                               |
|                        | 7 OF 12      | EP101          | HANGAR 2 FIRST FLOOR PLAN - POWER                | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | •                             | •                             | •                             | •                             |                               |
|                        | 8 OF 12      | EP102          | HANGAR 2 SECOND FLOOR PLAN - POWER & FIRE ALARM  | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                               |                               |                               | •                             |                               |
|                        | 9 OF 12      | EP103          | HANGAR 3 FIRST FLOOR PLAN - POWER                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                               |                               |                               |                               |                               |
|                        | 10 OF 12     | E-501          | DETAILS                                          | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                               |                               | •                             | •                             |                               |
|                        | 11 OF 12     | E-701          | HANGAR 2 - ONE LINE POWER DIAGRAM                | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                               |                               |                               |                               |                               |
|                        | 12 OF 12     | E-901          | SCHEDULES, SYMBOL LIST & ABBREVIATIONS           | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | •                             | •                             | •                             | •                             | •                             |
| CONSTRUCTION DURATION  |              |                |                                                  | 180 CONSECUTIVE CALENDAR DAYS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | RUNS CONCURRENT WITH BASE BID | RUNS CONCURRENT WITH BASE BID | RUNS CONCURRENT WITH BASE BID | RUNS CONCURRENT WITH BASE BID | RUNS CONCURRENT WITH BASE BID |

TIME OF COMPLETION :

WORK SHALL BEGIN AFTER NOTICE TO PROCEED AND SHALL BE COMPLETED WITHIN:

•

180 CONSECUTIVE CALENDAR DAYS FOR AWARD OF BASE BID AND ANY COMBINATION OF ADD ALTERNATIVES 1, 2, 3, 4, AND 5

LIQIDATED DAMAGES:

FAILURE TO COMPLETE ALL THE WORK WILL RESULT IN THE ASSESSMENT OF LIQUIDATED DAMAGES IN THE AMOUNT OF \$2,500 FOR EACH CALENDAR DAY OR PORTION THEREOF IN WHICH THE WORK ITEM REMAIN INCOMPLETE BEYOND:

•

180 CONSECUTIVE CALANDAR DAYS FOR AWARD OF BASE BID AND ANY COMBINATION OF ADD ALTERNATIVES 1, 2, 3, 4, AND 5

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| PRIME CONTRACTOR RESPONSIBILITY - MAJOR SCOPE ITEMS                                                                                                                                                                                                                                                                                                                                                                                                                         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
| BID ALTERNATIVE & WORK DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | GENERAL CONTRACTOR RESPONSIBILITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  | PLUMBING CONTRACTOR RESPONSIBILITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | MECHANICAL CONTRACTOR RESPONSIBILITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  | ELECTRICAL CONTRACTOR RESPONSIBILITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |
| BASE BID                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
| INCLUDES ALL WORK ASSOCIATED WITH HANGAR 2, INCLUDING MAIN SERVICE ELECTRICAL WORK, WHEELCHAIR LIFT WORK WITH ASSOCIATED REMOVAL AND INSTALLATION OF FIRE-RATED WALLS AND DOORS, COMPLETE FIRST-FLOOR BATHROOM RENOVATIONS, SECOND-FLOOR BATHROOM PLUMBING ROUGH-IN, PLUMBING PRESSURE-ASSIST SYSTEM, GROUND POWER UNIT WITH ASSOCIATED CIRCUITS AND RECEPTACLES, AND BETA TECH POWER HOOK-UPS. HANGAR 2&3 MAIN HANGAR BAY AIRCRAFT DOOR DETAILED INSPECTION AND REPORTING. |  | <ul style="list-style-type: none"><li>•PROVIDE GENERAL CONSTRUCTION DEMOLITION AND REMOVAL AS INDICATED.</li><li>•PROVIDE ARCHITECTURAL CONSTRUCTION, PARTITIONS, CEILINGS, FINISHES, AND RESTORATION.</li><li>•PROVIDE FIRE-RATED WALLS, DOORS, FRAMES, AND ASSOCIATED CONSTRUCTION.</li><li>•PROVIDE STRUCTURAL MODIFICATIONS AND GENERAL BUILDING CONSTRUCTION AS INDICATED.</li><li>•PROVIDE FIRST-FLOOR BATHROOM ARCHITECTURAL RENOVATION, INCLUDING FINISHES AND ACCESSORIES.</li><li>•PROVIDE EQUIPMENT PADS, CURBS, BLOCKING, AND SUPPORTS ASSIGNED TO GENERAL CONSTRUCTION.</li><li>•PROVIDE GENERAL CUTTING, PATCHING, AND RESTORATION ASSOCIATED WITH ITS WORK.</li><li>•PROVIDE CORE DRILLING AS NECESSARY TO ACCOMMODATE NEW PLUMBING, MECHANICAL, OR ELECTRICAL COMPONENTS.</li><li>•COORDINATE WALL/CEILING OPENINGS AND CLOSURES WITH PLUMBING, MECHANICAL, AND ELECTRICAL.</li><li>•PROVIDE PROTECTION OF ITS WORK AND MAINTAIN SAFE ACCESS TO ITS WORK AREAS.</li><li>•COORDINATE ITS OWN WORK WITH THE OTHER PRIME CONTRACTORS THROUGH THE OWNER/CM.</li><li>•PROVIDE ENCLOSURE FOR WHEELCHAIR LIFT</li><li>•INSTALL WHEELCHAIR LIFT IN COORDINATION WITH ELECTRICAL WORK.</li><li>•PERFORM DETAILED INSPECTION OF HANGAR 2 AND 3 HANGAR BAY MAIN AIRCRAFT DOOR, AND PROVIDE SCOPE AND COST OF RECOMMENDED REHABILITATION RECOMMENDATION.</li><li>•DEVELOPED, MAINTAIN, AND ADMINISTER THE MASTER PROJECT SCHEDULE FOR COORDINATION OF THE WORK ACTIVITIES OF ALL PRIME CONTRACTORS ON THIS PROJECT. SEE SPECIFICATION SECTION 01 3200.</li></ul> |  | <ul style="list-style-type: none"><li>•REMOVAL OF EXISTING PLUMBING EQUIPMENT AS INDICATED ON DRAWINGS.</li><li>•SANITARY, WASTE AND VENT PIPING, AND DOMESTIC WATER PIPING AND CONNECTIONS TO EXISTING SYSTEMS WHERE INDICATED ON DRAWINGS.</li><li>•PLUMBING FIXTURES AND ACCESSORIES AND WATER COOLERS WHERE INDICATED ON DRAWINGS.</li><li>•INSULATION OF ALL RENOVATED WORK AS SPECIFIED.</li><li>•IDENTIFICATION OF SYSTEMS.</li><li>•ALL NECESSARY CUTTING, PATCHING AND FIRESTOPPING.</li><li>•CLEANING AND TESTING AS SPECIFIED.</li></ul> |  | <ul style="list-style-type: none"><li>•REMOVAL OF EXISTING TOILET EXHAUST FANS IN THE FIRST FLOOR OFFICE AREA AND ASSOCIATED CONTROLS.</li><li>•NEW TOILET EXHAUST FANS IN THE FIRST FLOOR OFFICE AREAS</li><li>•CONTROL WIRING TO MOTOR CONTROLLERS, TEMPERATURE SENSORS, CONTROL WIRING TO HVAC EQUIPMENT, CONTROL TRANSFORMERS, ETC.</li><li>•TEMPERATURE CONTROL SYSTEM.</li><li>•TESTING, ADJUSTING AND BALANCING.</li><li>•ALL NECESSARY CUTTING, PATCHING AND FIRESTOPPING.</li><li>•MISCELLANEOUS ITEMS SHOWN AND/OR SPECIFIED.</li></ul>                                                                                                                                 |  | <ul style="list-style-type: none"><li>•PROVIDE ELECTRICAL SERVICE, DISTRIBUTION, FEEDERS, PANELS, AND BRANCH CIRCUITS AS INDICATED.</li><li>•PROVIDE CIRCUITS, RECEPTACLES, CONDUITS, WIRING, DISCONNECTS, AND ASSOCIATED DEVICES.</li><li>•PROVIDE ELECTRICAL POWER AND CONNECTIONS FOR MECHANICAL AND PLUMBING EQUIPMENT.</li><li>•PROVIDE ELECTRICAL POWER, CIRCUITS, DISCONNECTS, AND HOOKUP FOR THE GROUND POWER UNIT (GPU).</li><li>•PROVIDE BETA TECH POWER HOOKUPS AS INDICATED.</li><li>•PROVIDE ELEVATOR FEEDERS, DISCONNECTS, POWER, AND ELECTRICAL CONNECTIONS AS INDICATED.</li><li>•PROVIDE GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS AND EQUIPMENT.</li><li>•PROVIDE ELECTRICAL PENETRATIONS, SLEEVES, AND REQUIRED FIRESTOPPING.</li><li>•PROVIDE ELECTRICAL TESTING, STARTUP, AND COMMISSIONING.</li><li>•COORDINATE ELECTRICAL REQUIREMENTS WITH THE OTHER PRIME CONTRACTORS THROUGH THE OWNER/CM.</li><li>•FIRE ALARM SYSTEM</li><li>•ALL NECESSARY CUTTING, PATCHING AND FIRESTOPPING.</li><li>•MISCELLANEOUS ITEMS SHOWN AND/OR SPECIFIED</li></ul> |  |
| ADD ALTERNATIVE 1                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
| INCLUDES ALL WORK ASSOCIATED WITH HANGAR 2 REMOVAL OF RADIANT GAS HEATERS IN HANGAR BAY, INSTALLING NEW HEATING SYSTEM IN HANGAR BAY, AND REPLACING HVLV IN HANGAR BAY                                                                                                                                                                                                                                                                                                      |  | NONE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | <ul style="list-style-type: none"><li>•REMOVAL OF EXISTING GAS PIPING.</li><li>•GAS PIPING, AND EQUIPMENT CONNECTIONS.</li><li>•IDENTIFICATION OF SYSTEMS.</li><li>•ALL NECESSARY CUTTING, PATCHING AND FIRESTOPPING.</li><li>•TESTING AS SPECIFIED.</li></ul>                                                                                                                                                                                                                                                                                      |  | <ul style="list-style-type: none"><li>•REMOVAL OF EXISTING INFRARED HEATERS AND ASSOCIATED CONTROLS.</li><li>•HEATING SYSTEM INCLUDING AIR TURNOVER UNIT AND HVLV FANS,</li><li>•CONTROL WIRING TO MOTOR CONTROLLERS, TEMPERATURE SENSORS, LINE AND LOW VOLTAGE THERMOSTATS, INTERLOCK WIRING, CONTROL WIRING TO HVAC EQUIPMENT, CONTROL TRANSFORMERS, ETC.</li><li>•TEMPERATURE CONTROL SYSTEM.</li><li>•TESTING, ADJUSTING AND BALANCING.</li><li>•ALL NECESSARY CUTTING, PATCHING AND FIRESTOPPING.</li><li>•MISCELLANEOUS ITEMS SHOWN AND/OR SPECIFIED.</li></ul>                                                                                                             |  | <ul style="list-style-type: none"><li>•REMOVAL OF EXISTING ELECTRICAL EQUIPMENT AS INDICATED ON DRAWINGS.</li><li>•WIRING DEVICES AND BRANCH CIRCUITRY IN AREAS SHOWN.</li><li>•POWER WIRING SYSTEMS FOR MECHANICAL AND MISCELLANEOUS ELECTRICAL EQUIPMENT ETC.</li><li>•ALL NECESSARY CUTTING, PATCHING AND FIRESTOPPING.</li><li>•MISCELLANEOUS ITEMS SHOWN AND/OR SPECIFIED.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |
| ADD ALTERNATIVE 2                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
| INCLUDES ALL WORK ASSOCIATED WITH HANGAR 2 SEALANT OF HANGAR BAY FLOOR.                                                                                                                                                                                                                                                                                                                                                                                                     |  | <ul style="list-style-type: none"><li>•PROVIDE HEAVY-DUTY, HIGH-SOLIDS EPOXY RESIN FLOOR COATING SYSTEM SUITABLE FOR AIRCRAFT HANGAR APPLICATION</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | NONE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  | NONE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  | NONE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |
| ADD ALTERNATIVE 3                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
| INCLUDES ALL WORK ASSOCIATED WITH HANGAR 2 FIRST FLOOR OFFICE UPDATES INCLUDING WALL, FLOORS, LIGHTS, CEILING, FIRE ALARMS, HVAC.                                                                                                                                                                                                                                                                                                                                           |  | <ul style="list-style-type: none"><li>•DEMOLITION AND CONSTRUCTION OF A NEW ADA-COMPLIANT RECEPTION DESK.</li><li>•ABATEMENT OF ANY ACM EXPOSED DURING THE DEMOLITION OF WALLS OR DOORS AND ASSOCIATED THRESHOLDS.</li><li>•DEMOLITION OF EXISTING SUSPENDED CEILING.</li><li>•CONSTRUCTION OF NEW WALLS AS INDICATED ON FLOOR PLANS.</li><li>•INSTALLATION OF NEW DOORS AS INDICATED ON FLOOR PLANS.</li><li>•CLEANING, PATCHING, PRIMING, AND PAINTING WALLS TO REMAIN.</li><li>•INSTALLATION OF NEW CARPET TILES.</li><li>•INSTALLATION OF NEW CEILING TILES AND GRID.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | NONE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  | <ul style="list-style-type: none"><li>•REPLACEMENT OF EXISTING AIR INLET AND OUTLETS AND ASSOCIATED DUCTWORK AND ACCESSORIES IN THE FIRST FLOOR OFFICE AREA.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | <ul style="list-style-type: none"><li>•REPLACEMENT OF EXISTING LIGHTING AND CONTROLS IN THE FIRST FLOOR OFFICE AREA.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |
| ADD ALTERNATIVE 4                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
| INCLUDES ALL WORK ASSOCIATED WITH HANGAR 2 SECOND FLOOR OFFICE UPDATES INCLUDING WALL, FLOORS, LIGHTS, CEILING, FIRE ALARMS, HVAC, BATHROOMS                                                                                                                                                                                                                                                                                                                                |  | <ul style="list-style-type: none"><li>•ABATEMENT OF ANY ACM EXPOSED DURING THE DEMOLITION OF WALLS OR DOORS AND ASSOCIATED THRESHOLDS.</li><li>•CONSTRUCTION OF NEW WALLS AS INDICATED ON FLOOR PLANS.</li><li>•INSTALLATION OF NEW DOORS AS INDICATED ON FLOOR PLANS.</li><li>•CLEANING, PATCHING, PRIMING, AND PAINTING WALLS TO REMAIN.</li><li>•INSTALLATION OF NEW CARPET TILES.</li><li>•DEMOLITION OF EXISTING SUSPENDED CEILING.</li><li>•INSTALLATION OF NEW CEILING GRID AND TILES.</li><li>•INSTALLATION OF RESTROOM FINISHES (WALL TILES, FLOORING &amp; CEILING), FIXTURES, AND ASSOCIATED FITTINGS.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | <ul style="list-style-type: none"><li>•REMOVAL OF EXISTING PLUMBING EQUIPMENT AS INDICATED ON DRAWINGS.</li><li>•SANITARY, WASTE AND VENT PIPING, AND DOMESTIC WATER PIPING AND CONNECTIONS TO EXISTING SYSTEMS WHERE INDICATED ON DRAWINGS.</li><li>•PLUMBING FIXTURES AND ACCESSORIES AND WATER COOLERS WHERE INDICATED ON DRAWINGS.</li><li>•INSULATION OF ALL RENOVATED WORK AS SPECIFIED.</li><li>•IDENTIFICATION OF SYSTEMS.</li><li>•ALL NECESSARY CUTTING, PATCHING AND FIRESTOPPING.</li><li>•CLEANING AND TESTING AS SPECIFIED.</li></ul> |  | <ul style="list-style-type: none"><li>•REPLACEMENT OF EXISTING AIR INLET AND OUTLETS AND ASSOCIATED DUCTWORK AND ACCESSORIES IN THE SECOND FLOOR OFFICE AREA.</li><li>•REMOVAL OF EXISTING TOILET EXHAUST FANS IN THE FIRST FLOOR OFFICE AREA AND ASSOCIATED CONTROLS.</li><li>•NEW TOILET EXHAUST FANS IN THE FIRST FLOOR OFFICE AREAS</li><li>•CONTROL WIRING TO MOTOR CONTROLLERS, TEMPERATURE SENSORS, CONTROL WIRING TO HVAC EQUIPMENT, CONTROL TRANSFORMERS, ETC.</li><li>•TEMPERATURE CONTROL SYSTEM.</li><li>•TESTING, ADJUSTING AND BALANCING.</li><li>•ALL NECESSARY CUTTING, PATCHING AND FIRESTOPPING.</li><li>•MISCELLANEOUS ITEMS SHOWN AND/OR SPECIFIED.</li></ul> |  | <ul style="list-style-type: none"><li>•REPLACEMENT OF EXISTING LIGHTING AND CONTROLS IN THE SECOND FLOOR OFFICE AREA.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
| ADD ALTERNATIVE 5                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
| INCLUDES ALL WORK ASSOCIATED WITH HANGAR 3 REPLACING HVLV FANS IN HANGAR BAY.                                                                                                                                                                                                                                                                                                                                                                                               |  | NONE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | NONE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  | <ul style="list-style-type: none"><li>•REPLACEMENT OF EXISTING CEILING FANS WITH HVLV FANS. IN HANGAR 2</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | <ul style="list-style-type: none"><li>•REMOVAL OF EXISTING ELECTRICAL EQUIPMENT AS INDICATED ON DRAWINGS.</li><li>•POWER SYSTEMS FOR THE ALTERATIONS AND AREAS SHOWN.</li><li>•POWER WIRING SYSTEMS FOR MECHANICAL EQUIPMENT.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |

McFARLAND JOHNSON

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AUBERTINE CURRIER

ARCHITECTS, ENGINEERS  
& LAND SURVEYORS, PLLC

RAM-TECH ENGINEERS

6100 FAIRWAY DR.  
SYRACUSE, NY 13211

GREATER BINGHAMTON AIRPORT

JOHNSON CITY, NEW YORK

REHABILITATION OF HANGARS 2 & 3 - PHASE 2

CLIENT:

PROJECT:

REVISIONS

| NO. | DATE    | DESCRIPTION    |
|-----|---------|----------------|
| 1   | 10/7/26 | ADDENDUM NO. 1 |

STAMP

STATE OF NEW YORK

HASHEM M. OBEIDAT

065257

REGISTERED PROFESSIONAL ENGINEER

EXPIRES: JULY 31, 2029

PROJECT MILESTONE

BID PLANS

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT SUPERVISION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER IN ANY MANNER, IN ANY WAY, IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED. THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

DRAWN

DESIGNED

CHECKED

SCALE

DATE

PROJECT

EWJ

EWJ

HMO

AS SHOWN

OCTOBER 7, 2026

19090.06

DRAWING TITLE

MAJOR SCOPE ITEMS

DRAWING NUMBER

IN-02A

03 OF 04

CLIENT: GREATER BINGHAMTON AIRPORT

PROJECT: JOHNSON CITY, NEW YORK

REHABILITATION OF HANGARS 2 & 3 - PHASE 2

REVISIONS

| NO.                                                                                   | DATE    | DESCRIPTION    |
|---------------------------------------------------------------------------------------|---------|----------------|
|  | 10/7/26 | ADDENDUM NO. 1 |

STAMP



EXPIRES: JULY 31, 2029

PROJECT MILESTONE

BID PLANS

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER IN ANY MANNER ANY PART OF THE DRAWING OR THE SEAL OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR. ANY ALTERATION TO THE DRAWING OR SEAL SHALL BE FOLLOWED BY THE SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

DRAWN

DESIGNED

CHECKED

SCALE

DATE

PROJECT

DRAWING TITLE

MAJOR SCOPE ITEMS

DRAWING NUMBER

IN-02A

03 OF 04

02 OF 11

**GENERAL NOTE:  
RESINOUS FLOOR COATING**

PROVIDE HEAVY-DUTY RESINOUS FLOOR COATING SYSTEM OVER CONCRETE FLOOR. SUITABLE FOR AIRCRAFT HANGAR APPLICATIONS. BASIS OF DESIGN: SHERWIN-WILLIAMS RESULFOR PERFORMANCE IPS SYSTEM OR APPROVED EQUAL. PROVIDE COMPLETE SYSTEM INCLUDING COMPATIBLE PRIMER, HIGH-SOLID EPXY BUILD COAT, SLIP-RESISTANT AGGREGATE, AND CHEMICAL-RESISTANT URETHANE TOPCOAT. PROVIDE MINIMUM 40 MIL TOTAL DRY FILM THICKNESS.

SYSTEM SHALL BE SUITABLE FOR AIRCRAFT STORAGE, AIRCRAFT TOWING AND MOVEMENT, AIRCRAFT TIE-DOWN, GROUND SUPPORT EQUIPMENT, AND LIMITED AIRCRAFT MAINTENANCE. SYSTEM SHALL RESIST AVIATION FUELS, JET-A FUEL, HYDRAULIC FLUIDS INCLUDING HYDROK, OIL, GREASE, DECKING SALTS, WATER, SNOW, AND COMMON HANGAR CLEANING CHEMICALS.

MECHANICALLY PREPARE CONCRETE SUBSTRATE IN ACCORDANCE WITH FLOORING MANUFACTURER'S REQUIREMENTS. REMOVE OIL, GREASE, FUEL, HYDRAULIC FLUID, DURING COMPONDS, SEALERS, EXISTING COATINGS, LAWNACE, AND OTHER CONTAMINANTS. PROVIDE SLIP-RESISTANT FINISH APPROPRIATE FOR WET HANGAR CONDITIONS WITHOUT EXCESSIVE SURFACE TEXTURE THAT WOULD INTERFERE WITH AIRCRAFT OR EQUIPMENT MOVEMENT.

FLOORING SYSTEM SHALL BE INSTALLED OVER THE NONCOMBUSTIBLE CONCRETE FLOOR SUBSTRATE AND SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF WPA AND PROVIDE MANUFACTURER'S DOCUMENTATION CONFIRMING SUITABILITY OF THE PROPOSED SYSTEM FOR AIRCRAFT HANGAR APPLICATIONS.

PROVIDE FIVE-YEAR MANUFACTURER'S SYSTEM WARRANTY AND FIVE-YEAR CONTRACTORS INSTALLATION WARRANTY.

**GENERAL NOTE:  
HANGAR BAY DOOR INSPECTION,  
MAINTENANCE, AND REPAIR**

THE CONTRACTOR SHALL PROVIDE A DETAILED INSPECTION AND EVALUATION OF EACH EXISTING HANGAR BAY DOOR SYSTEM. THE INSPECTION SHALL INCLUDE, BUT NOT BE LIMITED TO, THE MECHANICAL, ELECTRICAL, STRUCTURAL, SAFETY, AND OPERATIONAL COMPONENTS OF EACH DOOR. THE CONTRACTOR SHALL PERFORM ALL REQUIRED ROUTINE MAINTENANCE AND INSPECTION SERVICES NECESSARY TO EVALUATE THE CONDITION AND PERFORMANCE OF EACH DOOR SYSTEM.

PRIOR TO COMMENCING WORK OR INSPECTION ACTIVITIES EACH WORKDAY, THE CONTRACTOR SHALL COORDINATE WITH A DESIGNATED REPRESENTATIVE OF THE GREATER BINGHAMTON AIRPORT TO CONFIRM THE WORK AREA, WORK ACTIVITIES, DOOR STATUS, AND REQUIRED OPERATIONAL RESTRICTIONS.

THE CONTRACTOR SHALL ESTABLISH AND MAINTAIN A SECURE WORK AREA AROUND EACH DOOR BEING INSPECTED OR SERVICED. AREAS WHERE WORK IS BEING PERFORMED SHALL BE CORDED OFF AND PROTECTED FROM UNAUTHORIZED ACCESS. PRIOR TO PERFORMING INSPECTION, MAINTENANCE, OR REPAIR WORK, THE CONTRACTOR SHALL IMPLEMENT APPROPRIATE LOCKOUT/TAGOUT PROCEDURES AND SECURE THE ELECTRICAL POWER SOURCE SERVING THE DOOR. DOORS SHALL BE RENDERED INOPERABLE AS NECESSARY TO PREVENT OPERATION DURING INSPECTION, MAINTENANCE, OR REPAIR ACTIVITIES. COORDINATE ALL LOCKOUT/TAGOUT PROCEDURES WITH THE GREATER BINGHAMTON AIRPORT REPRESENTATIVE PRIOR TO COMMENCING WORK.

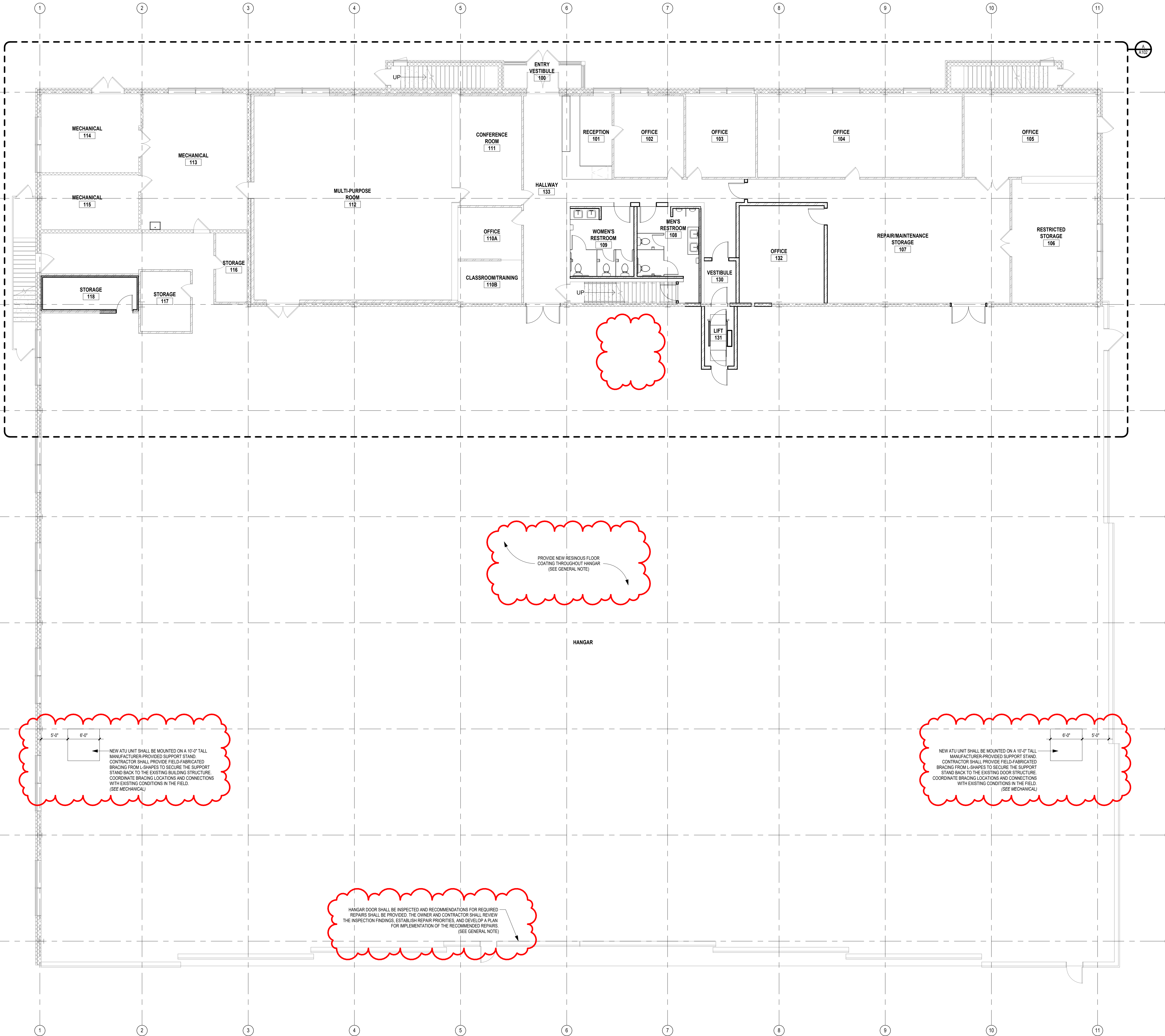
THE INSPECTION SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:

- INSPECT AND EVALUATE THE CONDITION AND LUBRICATION OF THE UPPER TROLLEY ROLLERS AND RELATED OVERHEAD MECHANICAL HARDWARE.
- INSPECT THE UPPER POWER FEED SHAFTS FOR PROPER ALIGNMENT, CONDITION, AND ELECTRICAL CONTINUITY.
- INSPECT ALL STRUCTURAL DOOR PANELS AND PICK-UP BRACKETS FOR PROPER CONNECTIONS, FASTENING, CONDITION, AND ALIGNMENT.
- INSPECT THE LOWER MOTOR DRIVES AND GEARBOXES FOR PROPER CONDITION, OPERATION, AND ALIGNMENT.
- INSPECT DRIVE CHAINS FOR EXCESSIVE WEAR, STRETCHING, PROPER TENSION, AND CONDITION.
- INSPECT IDLER WHEELS, ROLLERS, AND ASSOCIATED BEARINGS FOR WEAR, DAMAGE, PROPER OPERATION, AND ALIGNMENT.
- INSPECT ALL BOTTOM RAILS FOR CORROSION, DAMAGE, CONDITION, AND PROPER ALIGNMENT.
- INSPECT THE CONDITION OF THE EXISTING HANGAR FLOOR ADJACENT TO EACH DOOR, INCLUDING EXPANSION JOINTS, FOR CONDITIONS THAT MAY AFFECT DOOR OPERATION OR PERFORMANCE.
- INSPECT FOR THE EXISTENCE, CONDITION, CONTINUITY, AND PROPER INSTALLATION OF ALL RUBBER AND BRUSH WEATHER SEALS.
- INSPECT THE INTERIOR AND EXTERIOR SHEET METAL ASSOCIATED WITH EACH DOOR AND IDENTIFY DEFICIENCIES INCLUDING, BUT NOT LIMITED TO, CORROSION, DETERIORATION, DAMAGE, LOOSE OR MISSING FASTENERS, DISTORTION, AND OTHER CONDITIONS REQUIRING CORRECTIVE ACTION.
- INSPECT AND EVALUATE OTHER MECHANICAL, ELECTRICAL, STRUCTURAL, SAFETY, AND OPERATIONAL COMPONENTS OF EACH DOOR SYSTEM AS NECESSARY TO DETERMINE THE OVERALL CONDITION AND SAFE OPERATION OF THE DOOR.

THE CONTRACTOR SHALL INSPECT, TEST, AND EVALUATE THE CONDITION OF EACH DOORS MECHANICAL, ELECTRICAL, STRUCTURAL, AND ASSOCIATED SAFETY COMPONENTS. INSPECTION AND MAINTENANCE ACTIVITIES SHALL INCLUDE IDENTIFICATION OF DETERIORATED, DAMAGED, MISALIGNED, WORK, OR OTHERWISE DEFICIENT COMPONENTS; VERIFICATION OF PROPER OPERATION; AND IDENTIFICATION OF CONDITIONS THAT MAY AFFECT THE SAFE AND RELIABLE OPERATION OF THE DOOR.

THE CONTRACTOR SHALL DOCUMENT THE RESULTS OF THE INSPECTION FOR EACH DOOR, INCLUDING EXISTING CONDITIONS, DEFICIENCIES, MAINTENANCE PERFORMED, AND RECOMMENDED REPAIRS OR CORRECTIVE ACTIONS. INSPECTION RESULTS SHALL BE USED TO IDENTIFY AND DEVELOP THE REPAIRS AND CORRECTIVE WORK REQUIRED. NO REPAIR WORK BEYOND THE SPECIFICALLY IDENTIFIED INSPECTION AND MAINTENANCE SERVICES SHALL BE PERFORMED WITHOUT AUTHORIZATION FROM THE OWNER AND/OR ARCHITECT.

FOLLOWING COMPLETION OF THE INSPECTION AND MAINTENANCE ACTIVITIES, THE CONTRACTOR SHALL PROVIDE AN UPDATED MAINTENANCE RECORD FOR EACH HANGAR BAY DOOR. RECORDS SHALL IDENTIFY THE DOOR, DATE OF INSPECTION, COMPONENTS INSPECTED, CONDITIONS OBSERVED, MAINTENANCE PERFORMED, REPAIRS RECOMMENDED AND/OR COMPLETED, AND OTHER INFORMATION NECESSARY TO ESTABLISH A BASELINE FOR FUTURE INSPECTIONS, MAINTENANCE, AND REPAIR ACTIVITIES. PROVIDE RECORDS TO THE OWNER AND ARCHITECT FOR INCORPORATION INTO THE OWNER'S FUTURE HANGAR DOOR MAINTENANCE PROGRAM.



**A FIRST FLOOR PLAN**  
1/8" = 1'-0"

CLIENT: **GREATER BINGHAMTON AIRPORT**

JOHNSON CITY, NEW YORK

PROJECT: **REHABILITATION OF HANGAR 2 & 3**

NO. DATE DESCRIPTION

REVISIONS

NO. DATE DESCRIPTION

NO. DATE DESCRIPTION

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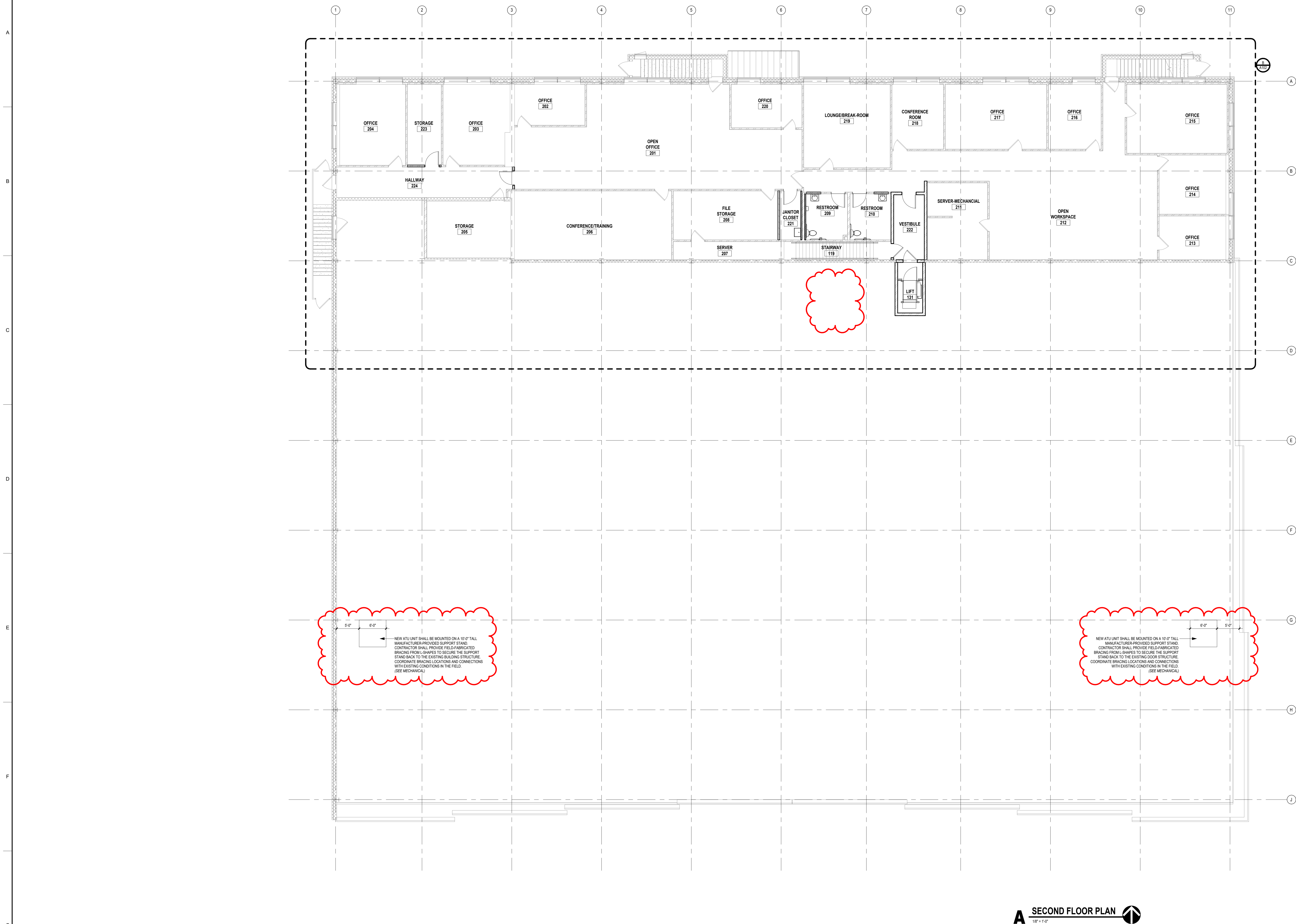
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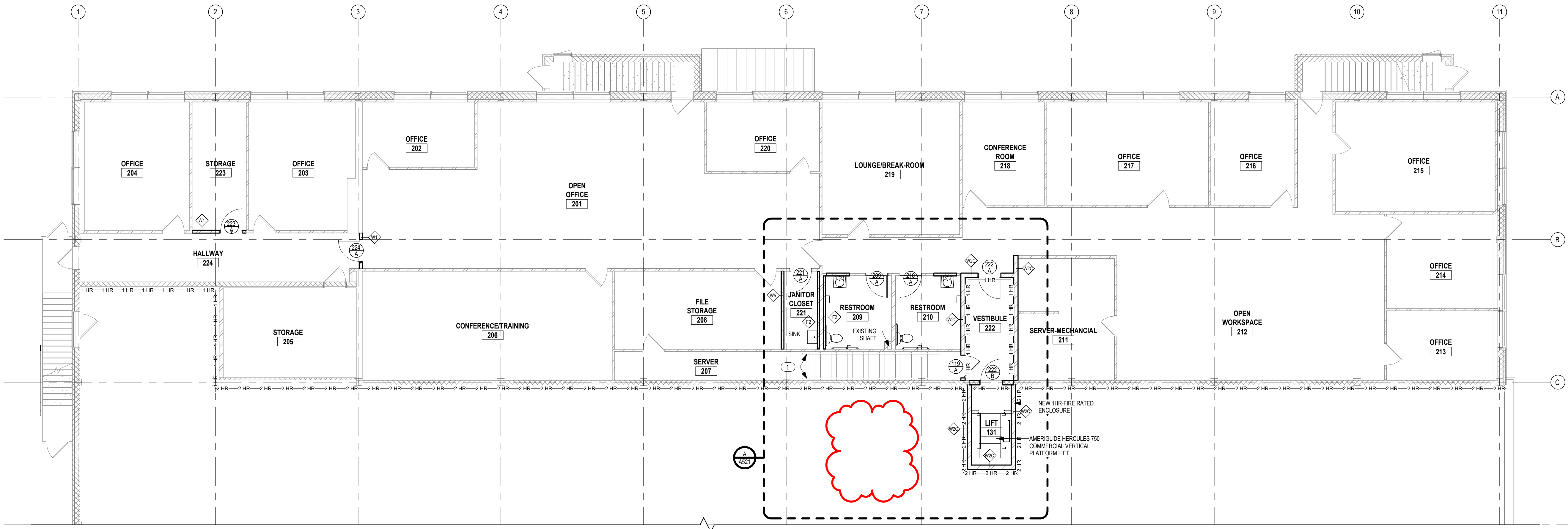
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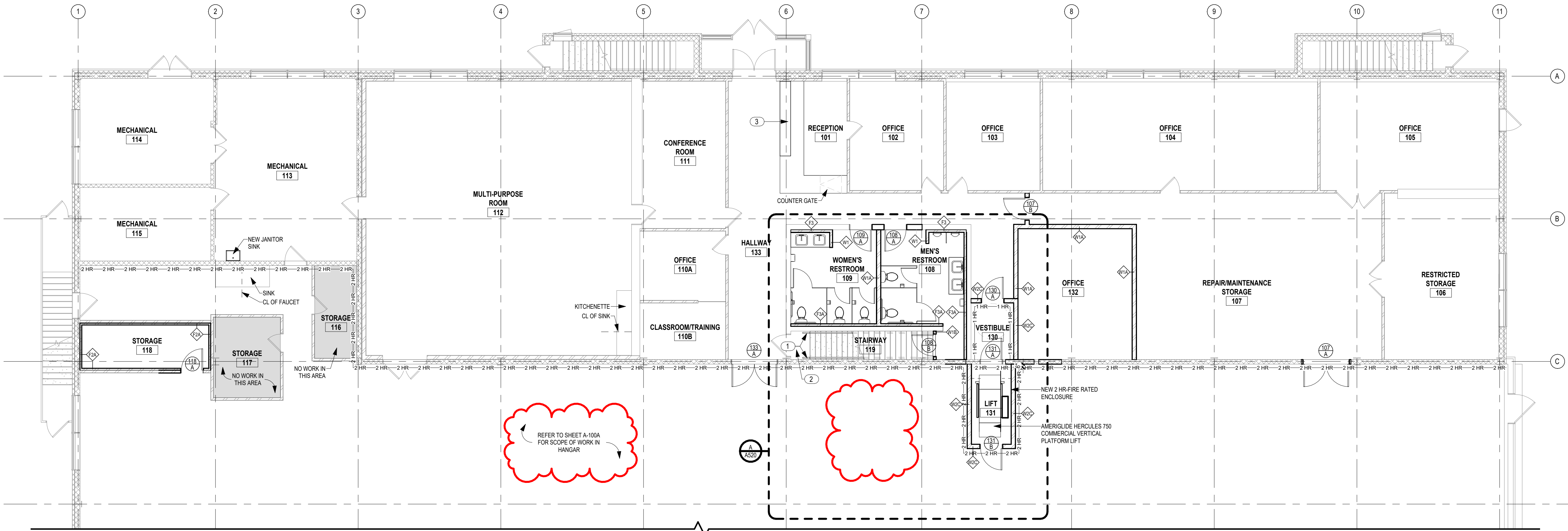
| FURRED WALL ASSEMBLIES |                      |             |         |                                                                                                                                                                     |
|------------------------|----------------------|-------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TYPE                   | FIRE TEST DESIGN No. | FIRE RATING | SECTION | BASIC COMPONENTS                                                                                                                                                    |
| F2                     | -                    | -           |         | • 5/8" GYPSUM WALLBOARD<br>• 2 1/2" METAL STUDS AT 16" O.C. WITH 2" SOUND ATTENUATION BATTS.                                                                        |
| F3<br>F3A              | -                    | -           |         | • 5/8" GYPSUM WALLBOARD<br>• 3 5/8" METAL STUDS AT 16" O.C. WITH 2" SOUND ATTENUATION BATTS<br>F3A - 3 5/8" METAL STUDS AT 16" O.C. WITHOUT SOUND ATTENUATION BATTS |

| WALL ASSEMBLIES  |                      |             |         |                                                                                                                                                                                                                                                          |
|------------------|----------------------|-------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TYPE             | FIRE TEST DESIGN No. | FIRE RATING | SECTION | BASIC COMPONENTS                                                                                                                                                                                                                                         |
| W1<br>W1A<br>W1B | -                    | -           |         | • 5/8" GYPSUM WALLBOARD<br>• 3 5/8" METAL STUDS AT 16" O.C. WITH 2" SOUND ATTENUATION BATTS.<br>• 5/8" GYPSUM WALLBOARD<br>W1A - 6" METAL STUDS AT 16" O.C. WITH 2" SOUND ATTENUATION BATTS.<br>W1B - 3 5/8" METAL STUDS AT 16" O.C. WITHOUT SOUND BATTS |
| W2C              | UL-U419              | 1HR         |         | W2C - 6" METAL STUDS @ 16" O.C. WITH (1) LAYER 5/8" TYPE 'X' GYPSUM BOARD EACH SIDE                                                                                                                                                                      |
| W5               | -                    | -           |         | • 5/8" GYPSUM WALLBOARD<br>• 2x4 STUDS @ 16" O.C. WITH 2" SOUND ATTENUATION BATTS<br>• 5/8" GYPSUM WALLBOARD                                                                                                                                             |

| NEW WORK KEY NOTES |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1                  | PROVIDE AND INSTALL NEW CODE COMPLIANT HANDRAILS AT LOCATIONS INDICATED ON THE DRAWINGS AND AS REQUIRED BY APPLICABLE BUILDING CODES. HANDRAILS SHALL COMPLY WITH ALL APPLICABLE ACCESSIBILITY REQUIREMENTS, INCLUDING CONTINUOUS GRASPABLE SURFACES, PROPER HEIGHTS, CLEARANCES, AND EXTENSIONS AT TERMINUS CONDITIONS.<br>ANCHOR HANDRAILS SECURELY TO STRUCTURE USING MANUFACTURER'S RECOMMENDED METHODS AND FASTENERS SUITABLE FOR SUBSTRATE CONDITIONS. COORDINATE ALL MOUNTING CONDITIONS WITH FIELD CONDITIONS AND ADJACENT CONSTRUCTION.                                       |
| 2                  | PROVIDE ALL REQUIRED ACCESSORIES, RETURNS, BRACKETS, AND TRANSITIONS FOR A COMPLETE AND FINISHED INSTALLATION. ENSURE ALL WORK IS INSTALLED PLUMB, LEVEL, AND FREE OF DEFECTS, AND READY FOR FINAL INSPECTION AND USE. SING DOOR, FRAME, HARDWARE, AND ALL ASSOCIATED COMPONENTS IN THEIR ENTIRETY.                                                                                                                                                                                                                                                                                    |
| 3                  | REPLACE ANY FITTINGS REMOVED OR AFFECTED BY HAZARDOUS MATERIALS REMOVAL PERFORMED DURING PHASE 1.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 4                  | PROVIDE AND INSTALL A NEW BUILT-IN RECEPTION DESK COMPLETE WITH CASEWORK, COUNTERTOPS, TRANSACTION COUNTER, SUPPORT FRAMING, FINISHES, HARDWARE, AND ALL ACCESSORIES REQUIRED FOR A COMPLETE AND FUNCTIONAL INSTALLATION. FABRICATE AND INSTALL THE RECEPTION DESK IN ACCORDANCE WITH THE DRAWINGS, DETAILS. COORDINATE THE INSTALLATION OF ALL REQUIRED ELECTRICAL, DATA, COMMUNICATIONS, AND OTHER UTILITIES SERVING THE RECEPTION DESK WITH THE APPROPRIATE TRADES. VERIFY ALL FIELD DIMENSIONS PRIOR TO FABRICATION AND INSTALL THE RECEPTION DESK PLUMB, LEVEL, AND TRUE TO LINE. |



**B SECOND FLOOR PLAN - OFFICES**  
1/8" = 1'-0"



**A FIRST FLOOR PLAN - OFFICES**  
1/8" = 1'-0"



49 COURT STREET; SUITE 240  
BINGHAMTON, NY 13901



GREATER BINGHAMTON AIRPORT

JOHNSON CITY, NEW YORK

REHABILITATION OF HANGAR 2 & 3

CLIENT:

PROJECT:

REVISIONS  
NO. DATE DESCRIPTION

STAMP



EXPIRATION DATE: NOV. 30, 2028

PROJECT MILESTONE  
ADDENDUM NO. 1

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT ORIENTATION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER OR IN ANY WAY, IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY FOLLOWING BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION."

DRAWN GNC  
DESIGNED BAJ  
CHECKED BAJ  
SCALE AS INDICATED  
DATE 10/7/2026  
PROJECT 19090.06

DRAWING TITLE

FLOOR PLANS - OFFICES

DRAWING NUMBER A-102A

06 OF 10

REHABILITATION OF HANGAR 2 &amp; 3 - PHASE 1

PROJECT:

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| PROJECT MILESTONE |
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IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

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| PROJECT | 19090.06 |
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### HANGAR 3 - FLOOR PLAN

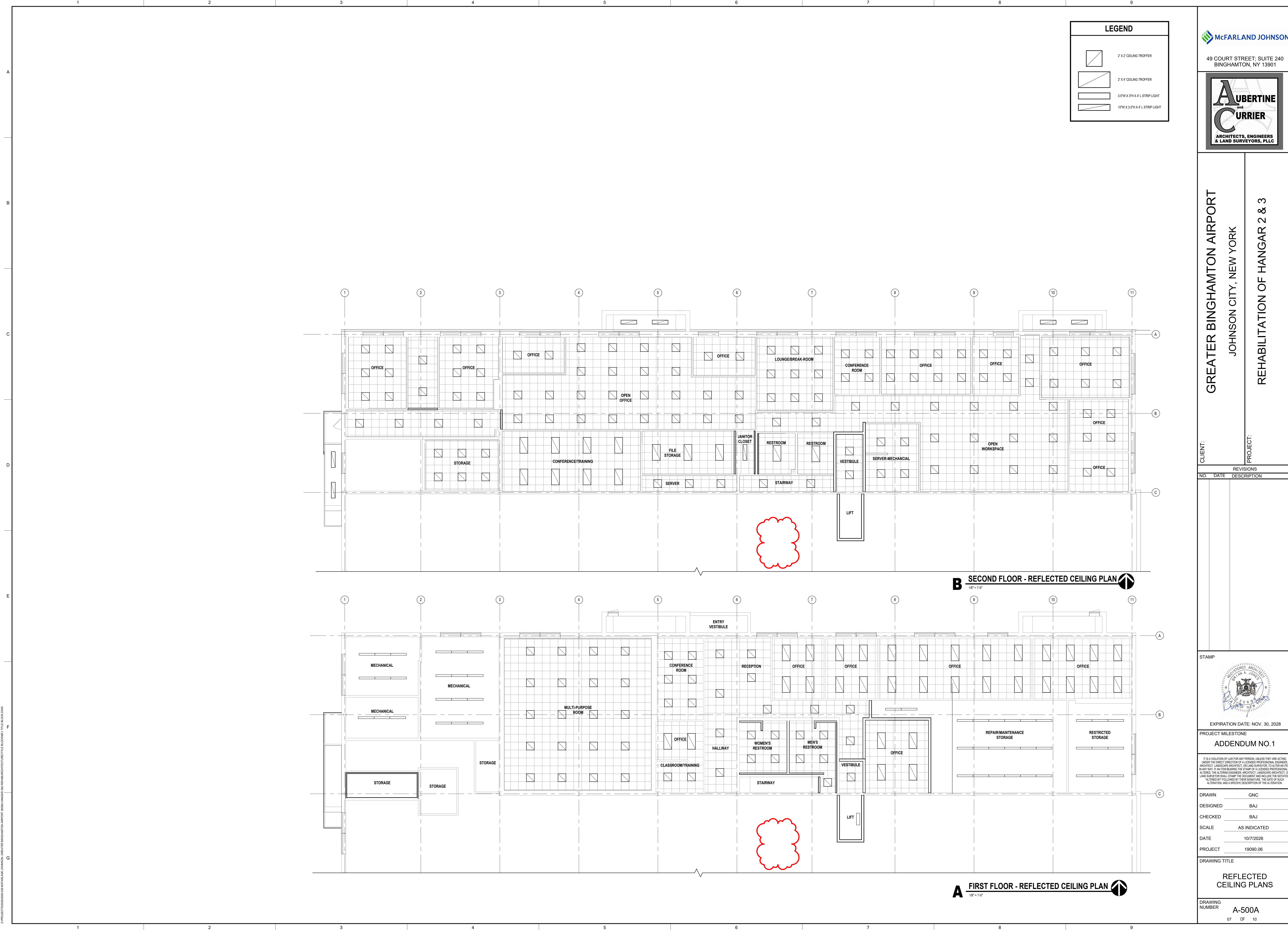
NUMBER A-103A

01 OF 01

FOLLOWING COMPLETION OF THE INSPECTION AND MAINTENANCE ACTIVITIES, THE CONTRACTOR SHALL PROVIDE AN UPDATED MAINTENANCE RECORD FOR EACH HANGAR BAY DOOR. RECORDS SHALL IDENTIFY THE DOOR, DATE OF INSPECTION, COMPONENTS INSPECTED, CONDITIONS OBSERVED, MAINTENANCE PERFORMED, REPAIRS RECOMMENDED AND/OR COMPLETED, AND OTHER INFORMATION NECESSARY TO ESTABLISH A BASELINE FOR FUTURE INSPECTIONS, MAINTENANCE, AND REPAIR ACTIVITIES. PROVIDE RECORDS TO THE OWNER AND ARCHITECT FOR INCORPORATION INTO THE OWNER'S FUTURE HANGAR DOOR MAINTENANCE PROGRAM.

HANGAR DOOR SHALL BE INSPECTED AND RECOMMENDATIONS FOR REQUIRED REPAIRS SHALL BE PROVIDED. THE OWNER AND CONTRACTOR SHALL REVIEW THE INSPECTION FINDINGS, ESTABLISH REPAIR PRIORITIES, AND DEVELOP A PLAN FOR IMPLEMENTATION OF THE RECOMMENDED REPAIRS. (SEE GENERAL NOTE)

## A HANGAR 3 - FLOOR PLAN



McFARLAND JOHNSON

49 COURT STREET; SUITE 240  
BINGHAMTON, NY 13901

A

UBERTINE

and

C

CURRIER

ARCHITECTS, ENGINEERS  
& LAND SURVEYORS, PLLC

CLIENT:

PROJECT:

REVISIONS

| NO. | DATE | DESCRIPTION |
|-----|------|-------------|
|-----|------|-------------|

STAMP

REGISTERED ARCHITECT

UBERTINE and CURRIER

STATE OF NEW YORK

EXPIRATION DATE: NOV. 30, 2028

PROJECT MILESTONE

ADDENDUM NO. 1

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT ORIENTATION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY, IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED. THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

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DESIGNED

CHECKED

SCALE

DATE

PROJECT

DRAWING TITLE

REFLECTED CEILING PLANS

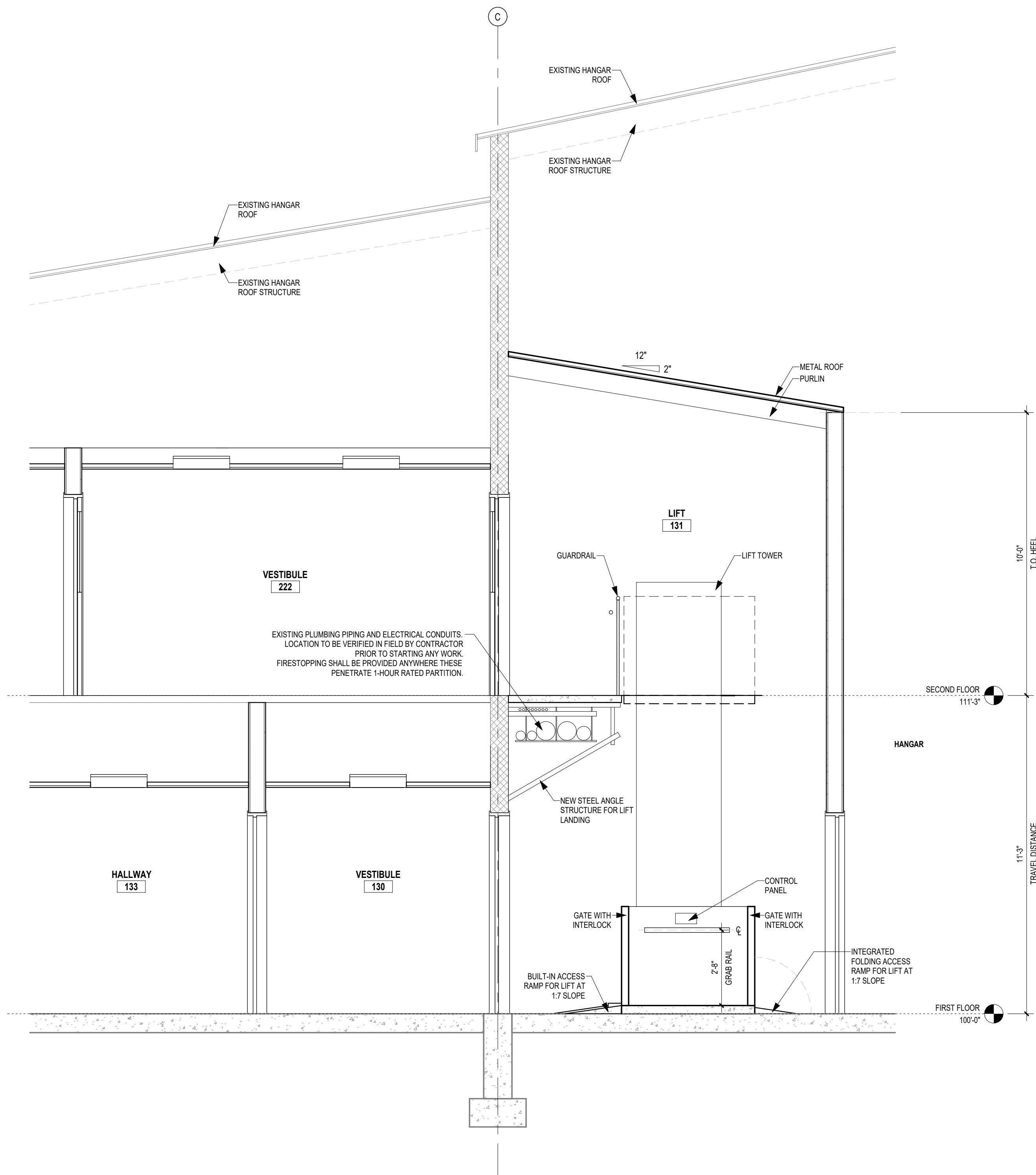
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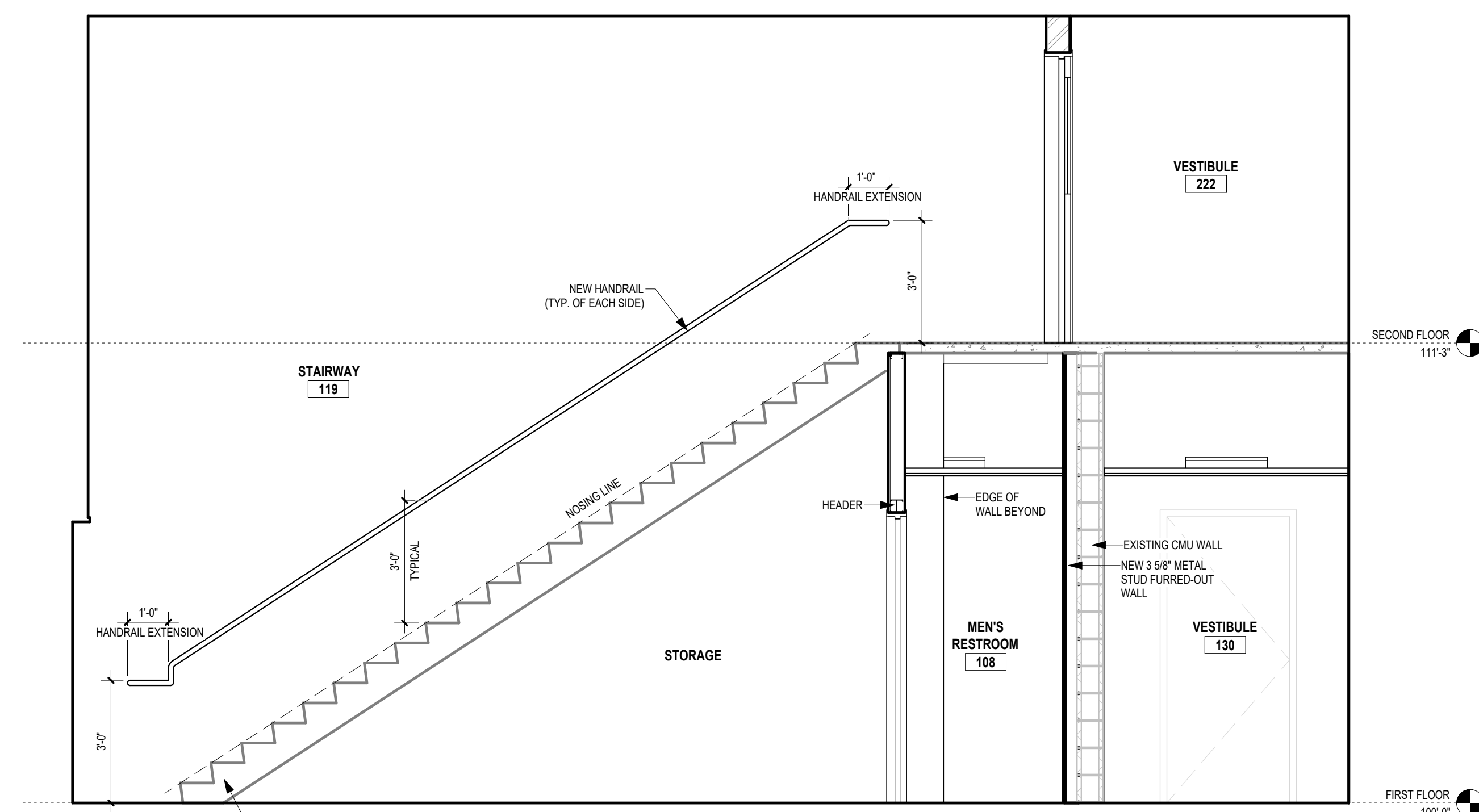
07

OF

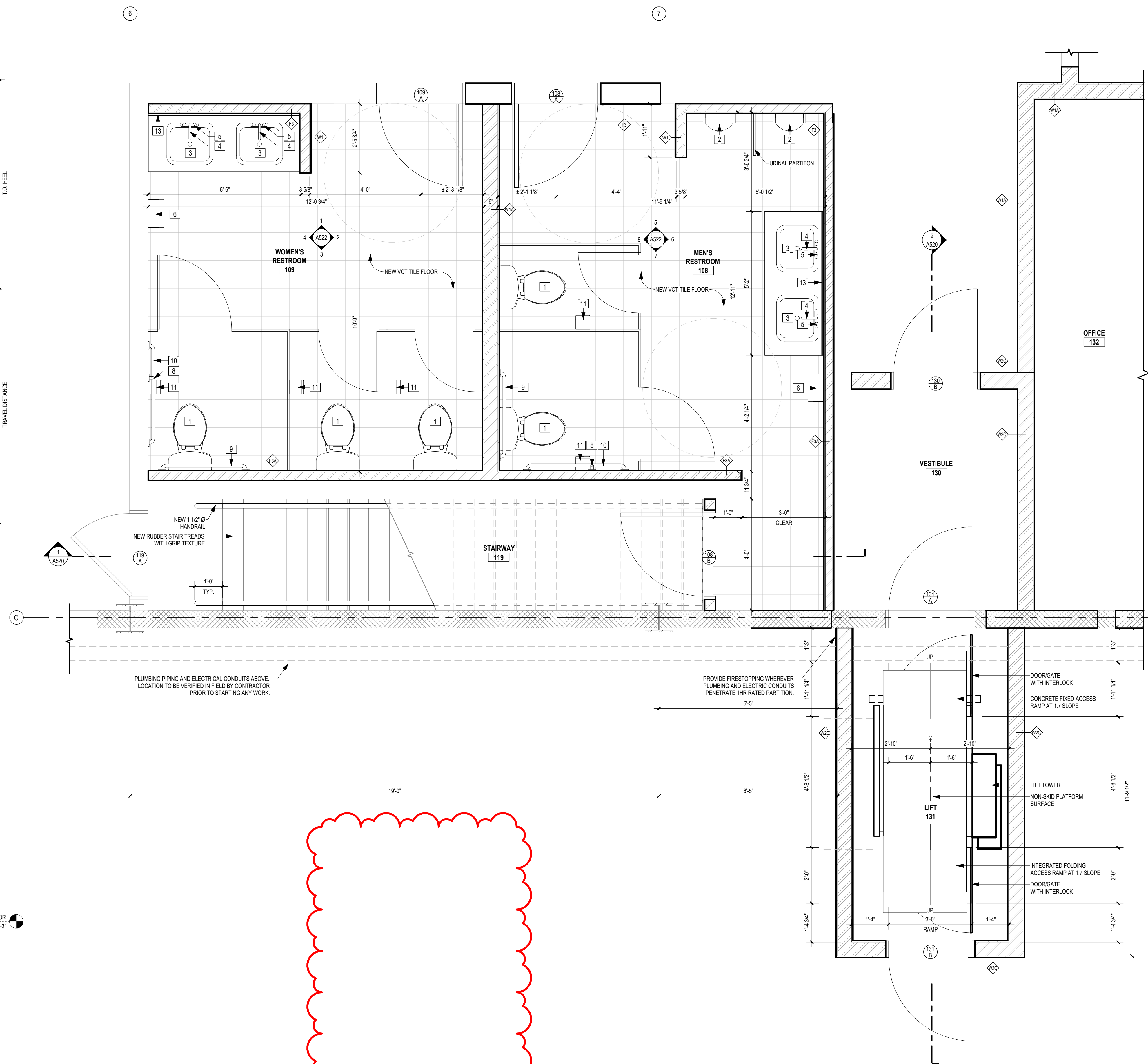
10



**2 SECTION THROUGH PLATFORM LIFT**  
3/8" = 1'-0"



**1 SECTION THROUGH STAIRWAY**  
3/8" = 1'-0"



**A FIRST FLOOR - RESTROOMS - ENLARGED**  
1/2" = 1'-0"

JOHNSON CITY, NEW YORK

REHABILITATION OF HANGAR 2 &amp; 3

|           |                  |
|-----------|------------------|
| REVISIONS |                  |
| NO.       | DATE DESCRIPTION |

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| PROJECT MILESTONE |
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IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

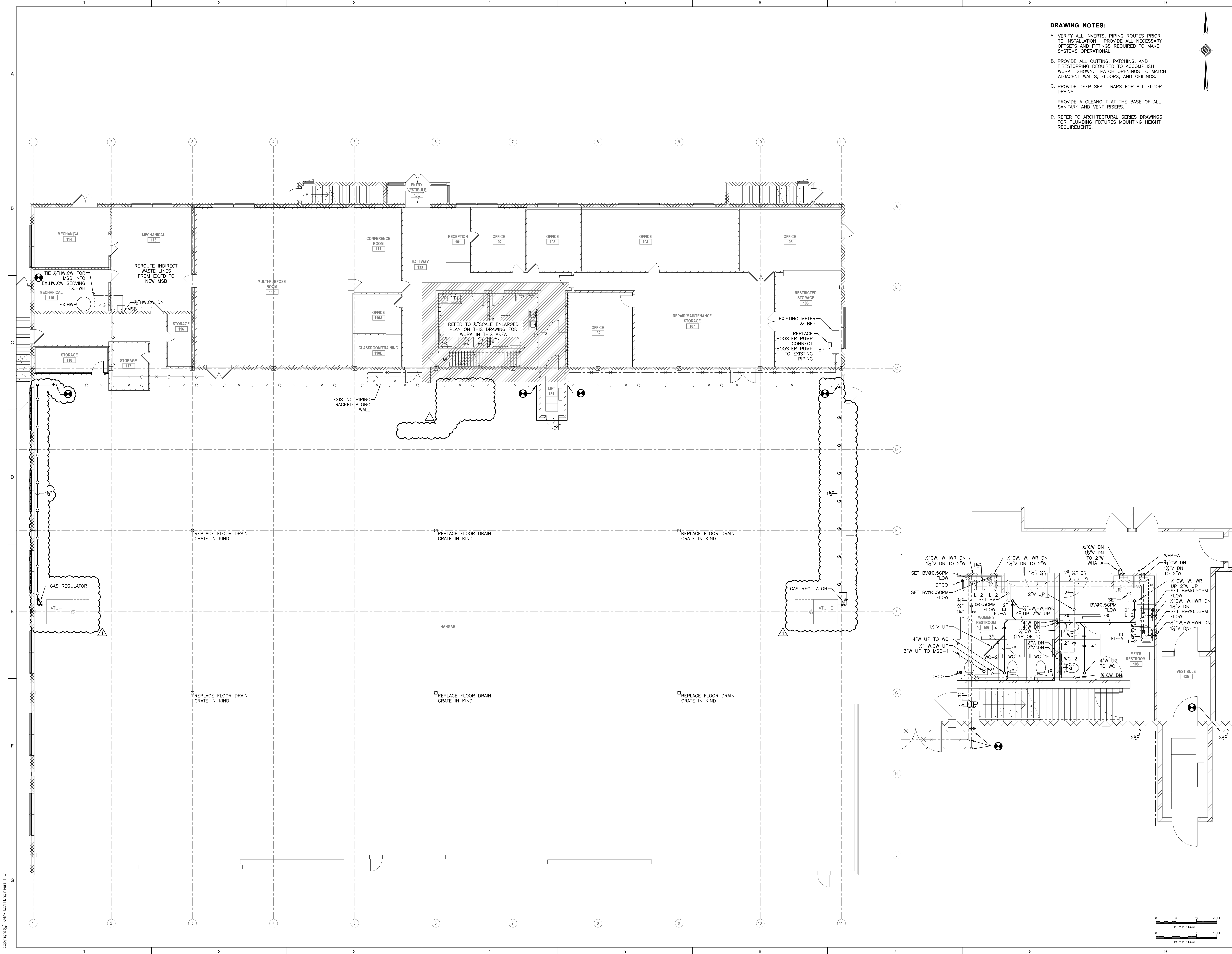
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| DRAWN    | GNC          |
| DESIGNED | BAJ          |
| CHECKED  | BAJ          |
| SCALE    | AS INDICATED |
| DATE     | 10/7/2026    |
| PROJECT  | 19090.06     |

DRAWING  
NUMBER

A-521A

09 OF 10

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DRAWING NOTES:

- A. VERIFY ALL INVERTS. PIPING ROUTES PRIOR TO INSTALLATION. PROVIDE ALL NECESSARY OFFSETS AND FITTINGS REQUIRED TO MAKE SYSTEMS OPERATIONAL.
- B. PROVIDE ALL CUTTING, PATCHING, AND FIRESTOPPING REQUIRED TO ACCOMPLISH WORK SHOWN. PATCH OPENINGS TO MATCH ADJACENT WALLS, FLOORS, AND CEILINGS.
- C. PROVIDE DEEP SEAL TRAPS FOR ALL FLOOR DRAINS.
- PROVIDE A CLEANOUT AT THE BASE OF ALL SANITARY AND VENT RISERS.
- D. REFER TO ARCHITECTURAL SERIES DRAWINGS FOR PLUMBING FIXTURES MOUNTING HEIGHT REQUIREMENTS.



49 COURT STREET, SUITE 240  
BINGHAMTON, NY 13901



CLIENT: GREATER BINGHAMTON AIRPORT

JOHNSON CITY, NEW YORK

PROJECT: REHABILITATION OF HANGARS 2 & 3 - PHASE 2

CLIENT:

| REVISIONS |           |                |
|-----------|-----------|----------------|
| NO.       | DATE      | DESCRIPTION    |
| 1         | 10/7/2026 | ADDENDUM NO. 1 |

STAMP



PROJECT MILESTONE

BID PLANS

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER IN ANY MANNER, OR IN ANY WAY, IF AN ITEM BORROWING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

|          |                             |
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| DRAWN    | JMT                         |
| DESIGNED | TAM                         |
| CHECKED  | TAM                         |
| SCALE    | 1/8" = 1'-0" & 1/4" = 1'-0" |
| DATE     | 09/16/2026                  |
| PROJECT  | 2026-039                    |

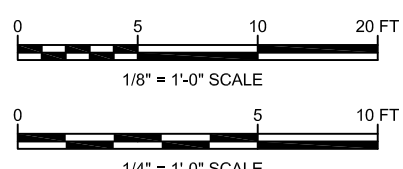
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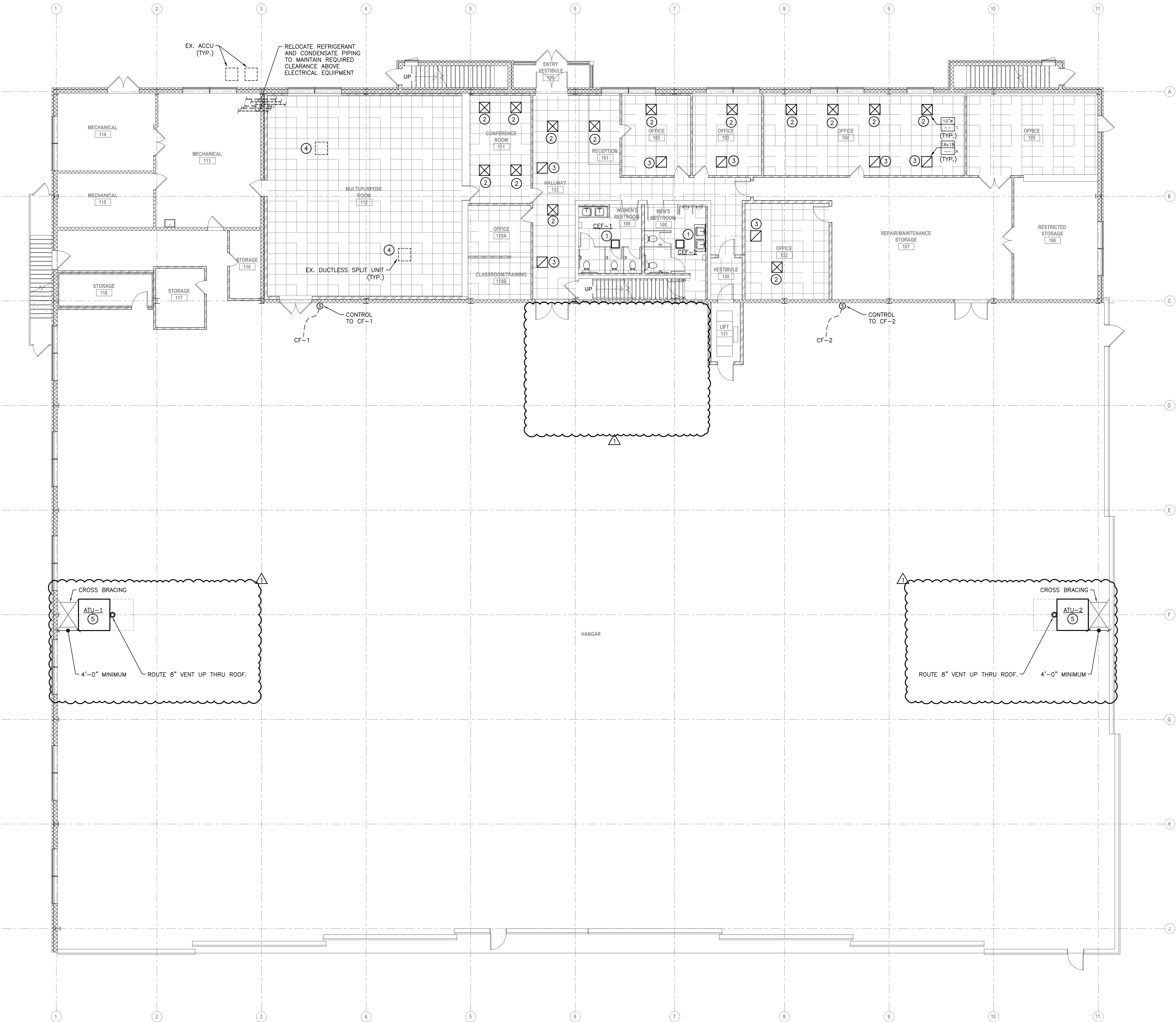
HANGAR 2 FIRST FLOOR  
PLAN - PLUMBING

DRAWING NUMBER

PL101A

05 OF 07





DRAWING NOTES - RENOVATIONS:

- PROVIDE ALL CUTTING, PATCHING AND FIRESTOPPING REQUIRED TO ACCOMPLISH WORK SHOWN. PATCH AND SEAL OPENINGS TO MATCH ADJACENT WALLS, FLOORS, CEILINGS, ETC. UNLESS OTHERWISE INDICATED.
- CONCEAL ALL WORK IN FINISHED AREAS UNLESS OTHERWISE INDICATED OR DIRECTED BY ARCHITECT.
- PROVIDE ALL CONTROL COMPONENTS, CONTROL WIRING, AND CONNECTIONS TO PROPERLY INTERFACE WITH THE EXISTING ANDOVER DDC TEMPERATURE CONTROL SYSTEM, AND CONTROL AND OPERATE SYSTEMS AS INDICATED. ALL NEW CONTROL COMPONENTS, CONTROL VALVES, THERMOSTATS, SENSORS, ETC. SHALL BE ELECTRIC TYPE. PROVIDE ALL CONTROL WIRING IN APPROVED RACEWAY SYSTEMS; REFER TO DIVISION 26 SPECIFICATIONS.
- FIELD VERIFY ALL LOCATIONS, DIMENSIONS AND EXISTING CONDITIONS (PIPING, DUCTWORK, STRUCTURAL ELEMENTS, ETC.) PRIOR TO STARTING WORK. CONTRACTOR SHALL COORDINATE INSTALLATION OF EQUIPMENT, PIPING AND DUCTWORK WITH EXISTING CONDITIONS. PROVIDE FITTINGS, TRANSITIONS, OFFSETS, ELEVATION CHANGES, ETC. TO MINIMIZE CONFLICTS WITH EXISTING CONDITIONS.
- MAINTAIN THE INTEGRITY OF ALL EXISTING EQUIPMENT AND SYSTEMS LOCATED OUTSIDE THE WORK AREA AND INTERRUPTED BY THE RENOVATION WORK. PROVIDE ALL ADDITIONAL PIPING, FITTINGS, DUCTWORK, ACCESSORIES, ETC. REQUIRED TO EXTEND AND RECONNECT REMAINING EQUIPMENT AND SYSTEMS.
- EXISTING EQUIPMENT LOCATIONS, DUCT SIZES AND PIPE SIZES SHOWN ARE APPROXIMATE AND NEED TO BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO STARTING THE WORK. NOT ALL EXISTING HVAC EQUIPMENT, DUCTWORK AND PIPING IN THE WORK AREA HAVE BEEN SHOWN. FIELD VERIFY ACTUAL EXTENT OF REMOVALS WORK AT SITE.
- SYSTEMS INDICATED ON DRAWINGS SHALL BE INSTALLED AS SHOWN. ADJUSTMENTS TO LOCATIONS OF VARIOUS ITEMS MAY BE REQUIRED BY FIELD CONDITIONS AND COORDINATION WITH THE WORK OF OTHER TRADES. VERIFY PRIOR TO INSTALLATION.
- REFER TO ARCHITECTURAL REFLECTED CEILING PLAN DRAWINGS FOR DIFFUSER AND REGISTER LOCATIONS WITH RESPECT TO OTHER ELEMENTS.
- NOT ALL MANUAL VOLUME DAMPERS ARE SHOWN. PROVIDE MANUAL VOLUME DAMPERS IN MAIN BRANCH DUCTS, IN THE BRANCH DUCT TAKE-OFF TO EACH AIR OUTLET OR INLET, (WHETHER SHOWN OR NOT) AND WHERE SHOWN, REFER TO SYMBOL LIST FOR IDENTIFICATION.
- PROVIDE SERVICE CLEARANCE FOR ALL HVAC EQUIPMENT AS RECOMMENDED BY MANUFACTURER.
- NOT ALL DUCT ACCESS DOORS ARE SHOWN. PROVIDE DUCT ACCESS DOOR FOR FILTERS, COILS, FANS, AUTOMATIC DAMPERS, FIRE DAMPERS, SMOKE DAMPERS, FIRE/SMOKE DAMPERS AND AS INDICATED.
- PROVIDE 24"x24" ACCESS DOOR WITH LATCH IN HARD CEILINGS, WALLS AND FLOORS AS REQUIRED TO ACCESS ALL VALVES, VOLUME DAMPERS, FIRE DAMPERS, SMOKE DAMPERS, FIRE/SMOKE DAMPERS, HVAC EQUIPMENT, ETC.
- COORDINATE ALL WORK WITH HAZARDOUS MATERIALS ABATEMENT DRAWINGS AND REPORTS.
- PROVIDE OPENING PROTECTIVES IN DUCT PENETRATIONS OF RATED FLOORS AND WALLS.

KEYED NOTES: (A)

- NEW CEILING EXHAUST FAN AND CONTROLS. CONNECT TO EXISTING EXHAUST DUCTWORK. PROVIDE ALL REQUIRED CONTROLS (WIRING, ETC.), DUCTWORK (TRANSITIONS), HANGERS, DAMPERS, ETC. TO MAKE A WORKING SYSTEM.
- NEW CEILING SUPPLY AIR DIFFUSER. CONNECT TO EXISTING SUPPLY AIR DUCTWORK. PROVIDE ALL REQUIRED DUCTWORK (TRANSITIONS), HANGERS, DAMPERS, ETC. TO MAKE A WORKING SYSTEM. BALANCE TO PRE-CONSTRUCTION CFM PER SUBMITTED PRE-CONSTRUCTION WRITTEN REPORT.
- NEW CEILING RETURN AIR GRILLE.
- REINSTALL EXISTING UNIT. RECONNECT TO EXISTING PIPING AND CONTROLS. PROVIDE ALL REQUIRED PIPING/WIRING, REFRIGERATION TO MAKE A WORKING SYSTEM.
- ANCHOR THE ATU STAND TO THE CONCRETE SLAB AND FASTEN THE UNIT TO THE STAND PER THE PUBLISHED INSTALLATION INSTRUCTIONS. ATU BURNER SHALL BE 25'-0" ABOVE FINISHED FLOOR ELEVATION. PROVIDE 1/2" THICK BASE PLATES FOR EACH LEG WITH (2) 1/2" DIAMETER THREADED RODS ANCHORED INTO THE SLAB WITH HILTI HY 200 EPOXY, MINIMUM 4" EMBED INTO EXISTING 8" SLAB. THE UNIT MUST BE INSTALLED PERFECTLY LEVEL/PLUMB. PROVIDE SHIM PLATES THAT MATCH THE BASEPLATE DIMENSIONS. NECESSARY ALTERNATELY, LEVELING GROUT MAY BE USED. IF USED, SCARIFY TOP OF SLAB AT & PROVIDE BONDING AGENT BETWEEN GROUT AND TOP OF SLAB. PROVIDE BRACE FROM STAND TO EXISTING COLUMN AS RECOMMENDED BY MANUFACTURER.



GREATER BINGHAMTON AIRPORT

JOHNSON CITY, NEW YORK

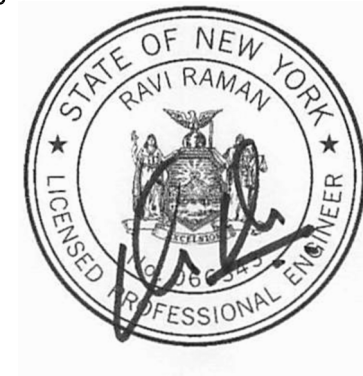
REHABILITATION OF HANGARS 2 & 3 - PHASE 2

CLIENT:

PROJECT:

| REVISIONS |            |                |
|-----------|------------|----------------|
| NO.       | DATE       | DESCRIPTION    |
| 1         | 10/17/2026 | ADDENDUM NO. 1 |

STAMP



RAM-TECH Engineers, P.C.  
Expires: 02/28/2027  
DQS 08 1395607  
RASH 26004  
Signed on: 09/14/2026

PROJECT MILESTONE

BID PLANS

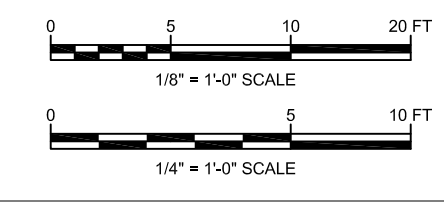
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER IN ANY MANNER ANY PART OF THE DRAWING OR ANY PART OF THE DOCUMENT, INCLUDING THE SEAL, WITHOUT THE WRITTEN CONSENT OF THE ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR. ANY SUCH ALTERATION SHALL BE CONSIDERED A VIOLATION OF THE PROFESSIONAL ETHICS OF THE ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR. THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

|          |              |
|----------|--------------|
| DRAWN    | DNL          |
| DESIGNED | TAM          |
| CHECKED  | TAM          |
| SCALE    | 1/8" = 1'-0" |
| DATE     | 09/16/2026   |
| PROJECT  | 2026-039     |

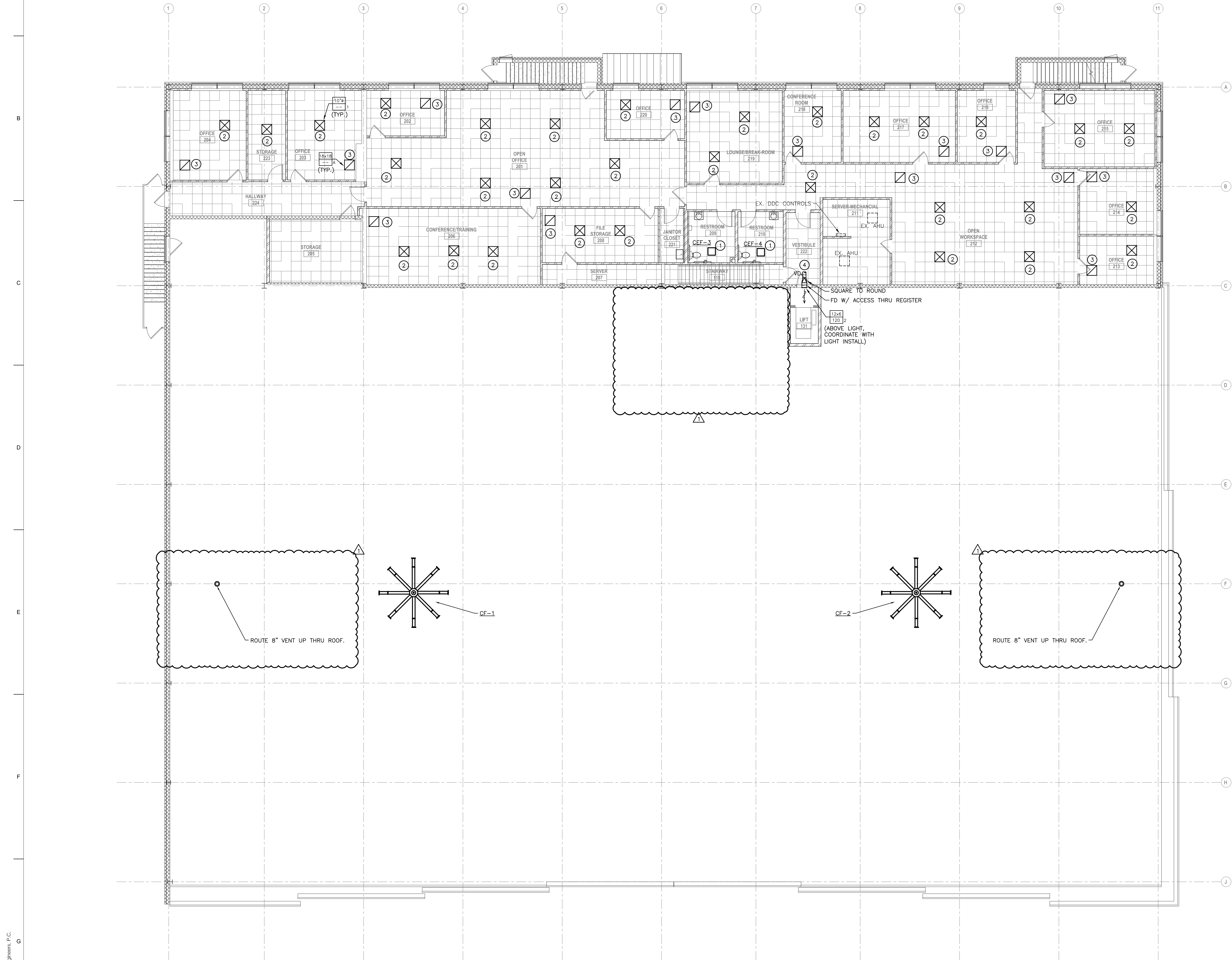
DRAWING TITLE

HANGAR 2 FIRST FLOOR  
PLAN - MECHANICAL

DRAWING NUMBER  
MH101A  
04 OF 09



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**DRAWING NOTES - RENOVATIONS:**

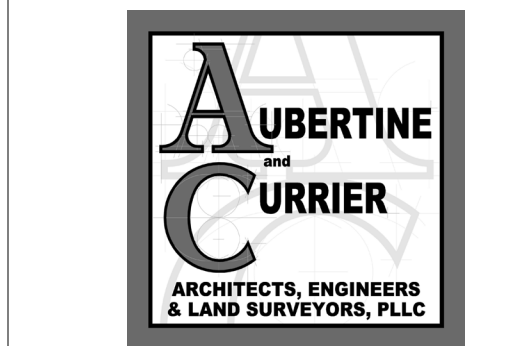
- A. PROVIDE ALL CUTTING, PATCHING AND FIRESTOPPING REQUIRED TO ACCOMPLISH WORK SHOWN. PATCH AND SEAL OPENINGS TO MATCH ADJACENT WALLS, FLOORS, CEILINGS, ETC. UNLESS OTHERWISE INDICATED.
- B. CONCEAL ALL WORK IN FINISHED AREAS UNLESS OTHERWISE INDICATED OR DIRECTED BY ARCHITECT.
- C. PROVIDE ALL CONTROL COMPONENTS, CONTROL WIRING, AND CONNECTIONS TO PROPERLY INTERFACE WITH THE EXISTING ANDOVER DDC TEMPERATURE CONTROL SYSTEM, AND CONTROL AND OPERATE SYSTEMS AS INDICATED. ALL NEW CONTROL COMPONENTS, CONTROL VALVES, THERMOSTATS, SENSORS, ETC. SHALL BE ELECTRIC TYPE. PROVIDE ALL CONTROL WIRING IN APPROVED RACEWAY SYSTEMS; REFER TO DIVISION 26 SPECIFICATIONS.
- D. FIELD VERIFY ALL LOCATIONS, DIMENSIONS AND EXISTING CONDITIONS (PIPING, DUCTWORK, STRUCTURAL ELEMENTS, ETC.) PRIOR TO STARTING WORK. CONTRACTOR SHALL COORDINATE INSTALLATION OF EQUIPMENT, PIPING AND DUCTWORK WITH EXISTING CONDITIONS. PROVIDE FITTINGS, TRANSITIONS, OFFSETS, ELEVATION CHANGES, ETC. TO MINIMIZE CONFLICTS WITH EXISTING CONDITIONS.
- E. MAINTAIN THE INTEGRITY OF ALL EXISTING EQUIPMENT AND SYSTEMS LOCATED OUTSIDE THE WORK AREA AND INTERRUPTED BY THE RENOVATION WORK. PROVIDE ALL ADDITIONAL PIPING, FITTINGS, DUCTWORK, ACCESSORIES, ETC. REQUIRED TO EXTEND AND RECONNECT REMAINING EQUIPMENT AND SYSTEMS.
- F. EXISTING EQUIPMENT LOCATIONS, DUCT SIZES AND PIPE SIZES SHOWN ARE APPROXIMATE AND NEED TO BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO STARTING THE WORK. NOT ALL EXISTING HVAC EQUIPMENT DUCTWORK AND PIPING IN THE WORK AREA HAVE BEEN SHOWN. FIELD VERIFY ACTUAL EXTENT OF REMOVALS WORK AT SITE.
- G. SYSTEMS INDICATED ON DRAWINGS SHALL BE INSTALLED AS SHOWN. ADJUSTMENTS TO LOCATIONS OF VARIOUS ITEMS MAY BE REQUIRED BY FIELD CONDITIONS AND COORDINATION WITH THE WORK OF OTHER TRADES. VERIFY PRIOR TO INSTALLATION.
- H. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN DRAWINGS FOR DIFFUSER AND REGISTER LOCATIONS WITH RESPECT TO OTHER ELEMENTS.
- I. NOT ALL MANUAL VOLUME DAMPERS ARE SHOWN. PROVIDE MANUAL VOLUME DAMPERS IN MAIN BRANCH DUCTS, IN THE BRANCH DUCT TAKE-OFF TO EACH AIR OUTLET OR INLET, (WHETHER SHOWN OR NOT) AND WHERE SHOWN. REFER TO SYMBOL LIST FOR IDENTIFICATION.
- J. PROVIDE SERVICE CLEARANCE FOR ALL HVAC EQUIPMENT AS RECOMMENDED BY MANUFACTURER.
- K. NOT ALL DUCT ACCESS DOORS ARE SHOWN. PROVIDE DUCT ACCESS DOOR FOR FILTERS, COILS, FANS, AUTOMATIC DAMPERS, FIRE DAMPERS, SMOKE DAMPERS, FIRE/SMOKE DAMPERS AND AS INDICATED.
- L. PROVIDE 24"x24" ACCESS DOOR WITH LATCH IN HARD CEILINGS, WALLS AND FLOORS AS REQUIRED TO ACCESS ALL VALVES, VOLUME DAMPERS, FIRE DAMPERS, SMOKE DAMPERS, FIRE/SMOKE DAMPERS, HVAC EQUIPMENT, ETC.
- M. COORDINATE ALL WORK WITH HAZARDOUS MATERIALS ABATEMENT DRAWINGS AND REPORTS.
- N. PROVIDE OPENING PROTECTIVES IN DUCT PENETRATIONS OF RATED FLOORS AND WALLS.

**KEYED NOTES: (1)**

1. NEW CEILING EXHAUST FAN AND CONTROLS. CONNECT TO EXISTING EXHAUST DUCTWORK. PROVIDE ALL REQUIRED CONTROLS (WIRING, ETC.), DUCTWORK (TRANSITIONS), HANGERS, DAMPERS, ETC. TO MAKE A WORKING SYSTEM.
2. NEW CEILING SUPPLY AIR DIFFUSER. CONNECT TO EXISTING SUPPLY AIR DUCTWORK. PROVIDE ALL REQUIRED DUCTWORK (TRANSITIONS), HANGERS, DAMPERS, ETC. TO MAKE A WORKING SYSTEM. BALANCE TO PRE-CONSTRUCTION CFM PER SUBMITTED PRE-CONSTRUCTION WRITTEN REPORT.
3. NEW CEILING RETURN AIR GRILLE.
4. CONNECT NEW 8"x8" SA BRANCH DUCTWORK TO EXISTING SA MAIN DUCTWORK FROM EXISTING SECOND FLOOR AHU (SIZE NEW SA DUCT, DAMPER AND REGISTER AS NEEDED TO BE INSTALLED ABOVE DOOR). PROVIDE ALL REQUIRED DUCTWORK (TRANSITIONS), HANGERS, DAMPERS, INSULATION, ETC. TO MAKE A WORKING SYSTEM.

McFARLAND JOHNSON

49 COURT STREET, SUITE 240  
BINGHAMTON, NY 13901



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www.ramtechengineers.com

GREATER BINGHAMTON AIRPORT

JOHNSON CITY, NEW YORK

CLIENT:

PROJECT:  
REHABILITATION OF HANGARS 2 & 3 - PHASE 2

| REVISIONS |            |                |
|-----------|------------|----------------|
| NO.       | DATE       | DESCRIPTION    |
| 1         | 10/17/2026 | ADDENDUM NO. 1 |

STAMP



PROJECT MILESTONE  
**BID PLANS**

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|          |              |
|----------|--------------|
| DRAWN    | DNL          |
| DESIGNED | TAM          |
| CHECKED  | TAM          |
| SCALE    | 1/8" = 1'-0" |
| DATE     | 09/16/2026   |
| PROJECT  | 2026-039     |

DRAWING TITLE

HANGAR 2 SECOND FLOOR  
PLAN - MECHANICAL

DRAWING NUMBER  
**MH102A**  
05 OF 09

| UNIT NO. | AREA SERVED | CFM TOTAL | O/A MIN. | EXT. S.P. | BURNER |         |     |      | GAS PRESS MIN (IN.WC.) | GAS PRESS MAX (PSIG) | ELECTRICAL |       |       |     |      | DRIVE | PHYSICAL DATA |            |             |              |                 | MFR/MODEL                                           | NOTES |
|----------|-------------|-----------|----------|-----------|--------|---------|-----|------|------------------------|----------------------|------------|-------|-------|-----|------|-------|---------------|------------|-------------|--------------|-----------------|-----------------------------------------------------|-------|
|          |             |           |          |           | MBH IN | MBH OUT | EAT | LAT  |                        |                      | HP         | VOLTS | PHASE | MCA | MOCp |       | LENGTH (IN)   | WIDTH (IN) | HEIGHT (IN) | WEIGHT (LBS) | VENT SIZE (IN.) |                                                     |       |
| ATU-1    | HANGER #2   | 24000     | 0        | 0.5       | 900    | 720     | 65  | 92.8 | 7                      | 5                    | 10         | 208   | 3     | 49  | 70   | BELT  | 72            | 72         | 276         | 7,300        | 8               | ARIZON JOHNSTON<br>/AR55.5SH-60RA10D-LHOGSC-XX-F1P2 | 1-11  |
| ATU-2    | HANGER #2   | 24000     | 0        | 0.5       | 900    | 720     | 65  | 92.8 | 7                      | 5                    | 10         | 208   | 3     | 49  | 70   | BELT  | 72            | 72         | 276         | 7,300        | 8               | ARIZON JOHNSTON<br>/AR55.5SH-60RA10D-LHOGSC-XX-F1P2 | 1-11  |

NOTES:

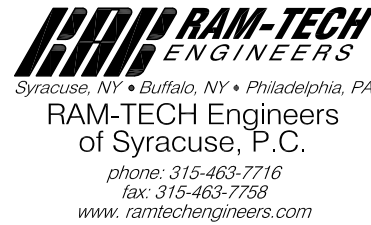
1. UNIT SHALL BE UL LISTED AND LABELED AS A COMPLETE UNIT.
2. PROVIDE INDIRECT FIRED FURNACE WITH CORROSION RESISTENT HEAT EXCHANGER AND BURNER SUITABLE FOR NATURAL GAS. UNIT GAS TRAIN SHALL BE MANUFACTURED TO FM STANDARDS.
3. PROVIDE SINGLE POINT POWER CONNECTION WITH DISCONNECT SWITCH.
4. PROVIDE FILTER RACK FOR 2" THICK FILTERS.
5. PROVIDE FACTORY INSTALLED VFD.
6. PROVIDE STAND-ALONE HEATING CONTROLS WITH BACnet INTERFACE TO THE EXISTING AUTOMATED LOGIC DDC CONTROL SYSTEM, PROVIDE WITH RETURN AIR THERMOSTAT TO CONTROL BURNER RESET BY A SPACE TEMPERATURE SENSOR.
7. PROVIDE ADJUSTABLE VERTICAL DISCHARGE LOUVERS
8. MAXIMUM SOUND LEVELS SHALL BE LESS THAN 75 DBA, 10' FROM THE UNIT AT 5' AFF.
9. PROVIDE UL-APPROVED DATED PLUMB INSULATED PIPE WITH STAINLESS STEEL LINER AND ALUMINIZED SHELL IN ACCORDANCE WITH MANUFACTURERS PUBLISHED INSTALLATION INSTRUCTIONS.
10. PROVIDE DISCHARGE LOUVER WITH DARK BRONZE BAKED ENAMEL FINISH AND VERTICAL BLADES TO ALLOW HORIZONTAL AIR DISTRIBUTION.
11. PROVIDE 10' HIGH FLOOR STAND DESIGNED AND FABRICATED BY UNIT MANUFACTURER.

| FAN SCHEDULE                                            |           |           |         |        |                  |          |      |       |     |                 |         |       |         |                    |           |                     |       |
|---------------------------------------------------------|-----------|-----------|---------|--------|------------------|----------|------|-------|-----|-----------------|---------|-------|---------|--------------------|-----------|---------------------|-------|
| UNIT NO.                                                | SERVICE   | LOCATION  | TYPE    | DRIVE  | PERFORMANCE DATA |          |      |       |     | FAN MOTOR DATA  |         |       | CONTROL | WEIGHT             | MFR/MODEL | NOTES               |       |
|                                                         |           |           |         |        | CFM              | TOTAL SP | BHP  | (% SE | MHP | ELECTRICAL DATA |         |       |         |                    |           |                     |       |
|                                                         |           |           |         |        |                  | (IN.)    |      |       |     | FAN RPM         | (WATTS) | VOLTS |         |                    |           |                     | PHASE |
| CF-1                                                    | HANGER #2 | HANGER #2 | HVLV    | DIRECT | 25,500           | ---      | 109  | 1.5   | --- | 2               | 208     | 3     | 60      | KEY PAD CONTROLLER | 209       | BIG ASS FANS        | 1.2   |
| CF-2                                                    | HANGER #2 | HANGER #2 | HVLV    | DIRECT | 25,500           | ---      | 109  | 1.5   | --- | 2               | 208     | 3     | 60      | KEY PAD CONTROLLER | 209       | BIG ASS FANS        | 1.2   |
| CF-3                                                    | HANGER #3 | HANGER #3 | HVLV    | DIRECT | 25,500           | ---      | 109  | 1.5   | --- | 2               | 208     | 3     | 60      | KEY PAD CONTROLLER | 209       | BIG ASS FANS        | 1.2   |
| CEF-1                                                   | TOILET    | TOILET    | CEILING | DIRECT | 150              | 0.375    | 1100 | (87W) | --- | 0.04            | 115     | 1     | 60      | DDC                | 20        | COOK/ GEMINI GN-186 | 1-4   |
| CEF-2                                                   | TOILET    | TOILET    | CEILING | DIRECT | 150              | 0.375    | 1100 | (87W) | --- | 0.04            | 115     | 1     | 60      | DDC                | 20        | COOK/ GEMINI GN-186 | 1-4   |
| CEF-3                                                   | TOILET    | TOILET    | CEILING | DIRECT | 100              | 0.375    | 1100 | (87W) | --- | 0.04            | 115     | 1     | 60      | DDC                | 20        | COOK/ GEMINI GN-148 | 1-4   |
| CEF-4                                                   | TOILET    | TOILET    | CEILING | DIRECT | 100              | 0.375    | 1100 | (87W) | --- | 0.04            | 115     | 1     | 60      | DDC                | 20        | COOK/ GEMINI GN-148 | 1-4   |
| KEYED NOTES:                                            |           |           |         |        |                  |          |      |       |     |                 |         |       |         |                    |           |                     |       |
| 1. PROVIDE INTEGRAL DISCONNECTING MEANS                 |           |           |         |        |                  |          |      |       |     |                 |         |       |         |                    |           |                     |       |
| 2. PROVIDE SPEED CONTROL FOR VOLUME ADJUSTMENT          |           |           |         |        |                  |          |      |       |     |                 |         |       |         |                    |           |                     |       |
| 3. PROVIDE BACKDRAFT DAMPER                             |           |           |         |        |                  |          |      |       |     |                 |         |       |         |                    |           |                     |       |
| 4. FAN TO OPERATE CONTINUOUSLY DURING OCCUPIED PERIODS. |           |           |         |        |                  |          |      |       |     |                 |         |       |         |                    |           |                     |       |

| TYPE | DESCRIPTION                                                           | CONSTRUCTION                                                                    | FEATURES                                                                                                                                         | BASIS OF DESIGN                                       | NOTES      |
|------|-----------------------------------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|------------|
| 1    | 12"x12" OR 24"x24"<br>(AS SHOWN) MULTI-CORE<br>DIFFUSER<br>SUPPLY AIR | FACE                                                                            | STEEL FLUSH STAMPED<br>MULTI-CORE                                                                                                                | 4-WAY ADJUSTABLE PATTERN<br>DAMPER OPERABLE FROM FACE | TITUS TMSA |
| 2    | SUPPLY AIR REGISTER                                                   | STEEL DOUBLE DEFLECTED<br>ADJUSTABLE BLADES,<br>FRONT SPACED<br>3/4" ON CENTER. | BLADES SHALL HAVE STEEL FRICTION<br>PIVOT ENDS. DAMPER OPERABLE FROM<br>FACE, FRONT BLADES PARALLEL TO<br>HORIZONTAL.                            | TITUS 300 RL                                          |            |
| A    | 12"x12" OR 24"x24" (AS SHOWN)<br>PERFORATED FACE RETURN               | STEEL FLUSH PERFORATED FACE<br>WITH 3/16" HOLES ON 1/4"<br>STAGGERED CENTERS    | UN-ADJUSTABLE FACE<br>WITHOUT DAMPER OR PATTERN<br>CONTROL<br>FOR LAY-IN CEILING                                                                 | TITUS PAR                                             |            |
| B    | 35° DEFLECTION<br>RETURN, EXHAUST OR MAKE-UP AIR<br>GRILLE            | STEEL FIXED BLADES<br>PARALLEL TO LENGTH<br>SPACED AT 1/2" ON CENTER            | BLADES SHALL BE FIXED BY MULLIONS -<br>BEHIND THE GRILLE AND FIXED TO GRILLE<br>BY WELDING. PROVIDE OPPOSED BLADE<br>DAMPER ADJUSTABLE FROM FACE | TITUS 355 RL                                          |            |
|      |                                                                       |                                                                                 |                                                                                                                                                  |                                                       |            |

GENERAL NOTES:  
A. PROVIDE FRAMES FOR GYPSUM BOARD CEILING AS NECESSARY. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPE.  
B. PROVIDE BAKED ENAMEL FINISH WITH COLOR AS SELECTED BY ARCHITECT.  
C. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPE. SELECT DIFFUSER, REGISTER OR GRILLE ACCORDINGLY.  
D. PROVIDE SIZE AND CONFIGURATION FOR 25 NC MAXIMUM.

49 COURT STREET; SUITE 240  
BINGHAMTON, NY 13901



## GREATER BINGHAMTON AIRPORT

JOHNSON CITY, NEW YORK

REHABILITATION OF HANGARS 2 &amp; 3 - PHASE 2

| REVISIONS |           |                |
|-----------|-----------|----------------|
| NO.       | DATE      | DESCRIPTION    |
| 1         | 10/7/2026 | ADDENDUM NO. 1 |



RAM-TECH Engineers, P.C.  
Expires: 02/28/2027  
DOS ID# 1395067  
RAB# 26004  
Signed on: 09/14/2026

| PROJECT MILESTONE |                                |
|-------------------|--------------------------------|
| 1                 | Project Initiation             |
| 2                 | Project Planning               |
| 3                 | Project Execution              |
| 4                 | Project Monitoring and Control |
| 5                 | Project Closure                |

## BID PLANS

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|          |            |
|----------|------------|
| DRAWN    | DNL        |
| DESIGNED | TAM        |
| CHECKED  | TAM        |
| SCALE    | NA         |
| DATE     | 09/16/2026 |
| PROJECT  | 2026-039   |

DRAWING TITLE

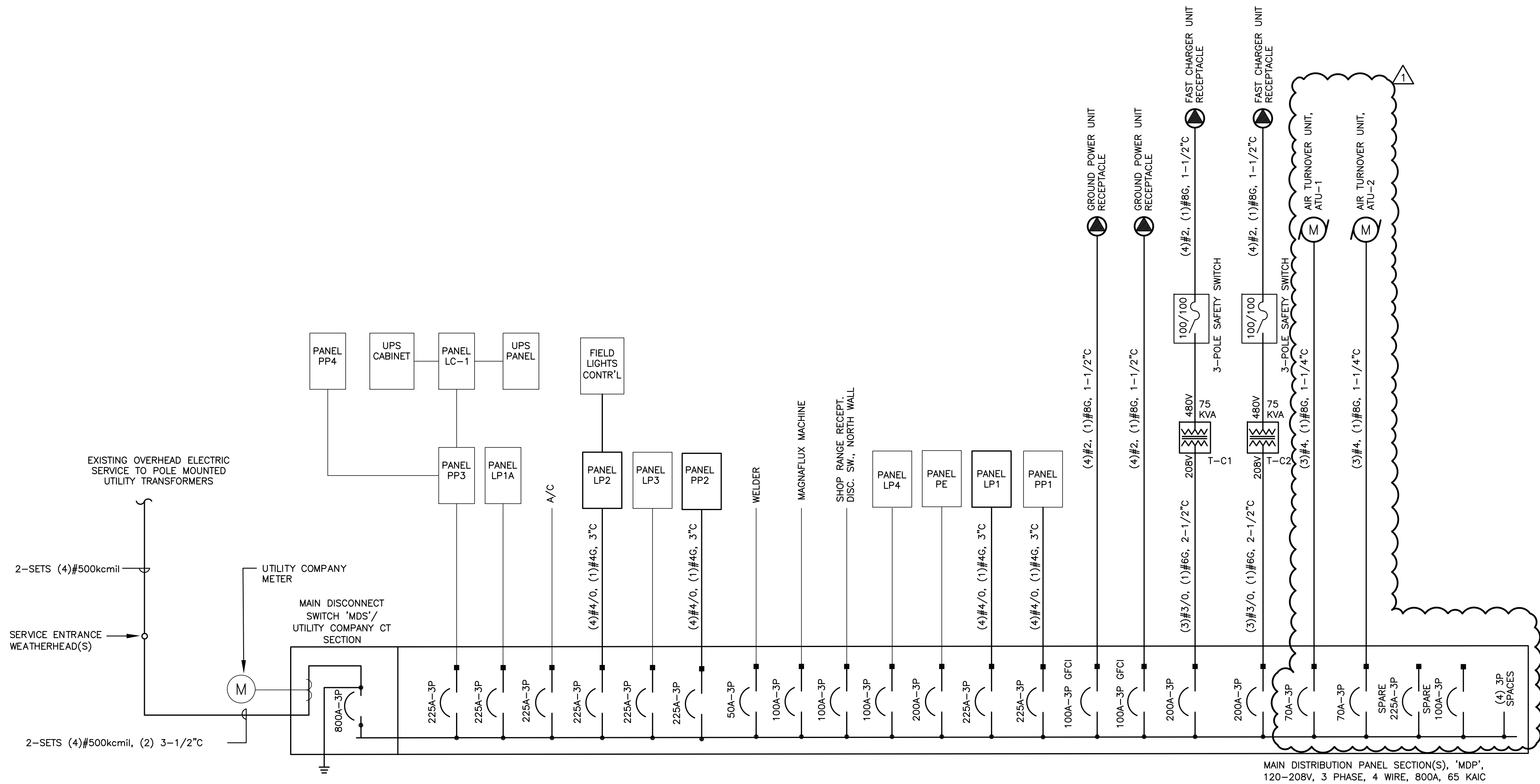
## SCHEDULES

DRAWING NUMBER

MH601A



07 OF 12



ONE LINE POWER DIAGRAM

NTS

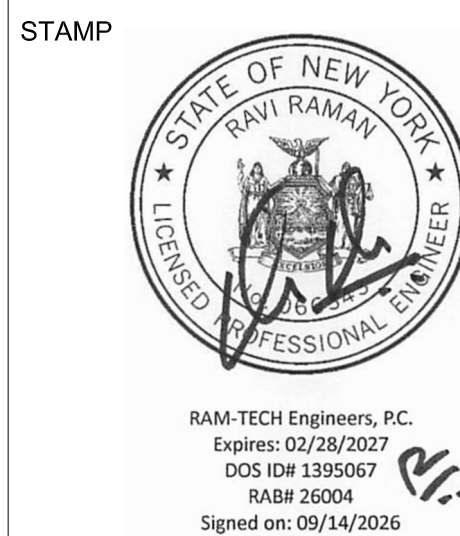


CLIENT: GREATER BINGHAMTON AIRPORT  
JOHNSON CITY, NEW YORK

PROJECT: REHABILITATION OF HANGARS 2 & 3 - PHASE 2

| REVISIONS |      |             |
|-----------|------|-------------|
| NO.       | DATE | DESCRIPTION |

|   |           |                |
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| 1 | 10/7/2026 | ADDENDUM NO. 1 |
|---|-----------|----------------|



PROJECT MILESTONE  
**BID PLANS**

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|----------|------------|
| DRAWN    | FAR        |
| DESIGNED | TAM        |
| CHECKED  | TAM        |
| SCALE    | NTS        |
| DATE     | 09/16/2026 |
| PROJECT  | 2026-039   |

DRAWING TITLE  
**HANGAR 2 - ONE LINE  
POWER DIAGRAM**

DRAWING NUMBER  
**E-701A**  
11 OF 12

| PANEL SCHEDULE        |                                      |  |                |      |             |                         |           |                                |  |          |
|-----------------------|--------------------------------------|--|----------------|------|-------------|-------------------------|-----------|--------------------------------|--|----------|
| PANEL: PP2            |                                      |  | VOLTS: 208/120 |      |             | PHASE: 3                |           | WIRE: 4                        |  |          |
| MAIN RATING: 225 AMPS |                                      |  | MCB: AMP       |      |             | MIN AIC RATING: 10K     |           | AMPS RMS SYM.                  |  |          |
| MOUNTING: SURFACE     |                                      |  | OTHER: -       |      |             | LOCATION: MECHANICAL113 |           |                                |  |          |
| CKT. NO.              | LOAD DESCRIPTION                     |  | WIRE SIZE      | TRIP | PHASE A B C | TRIP                    | WIRE SIZE | LOAD DESCRIPTION               |  | CKT. NO. |
| 1                     | BOILER                               |  | -              | 20   | +           | 20                      | -         | BOILER                         |  | 2        |
| 3                     | BOILER                               |  | -              | 20   | +           | 20                      | -         | BOILER PUMPS                   |  | 4        |
| 5                     | BOILER                               |  | -              | 20   | +           | 20                      | -         | BOILER PUMPS                   |  | 6        |
| 7                     | LARGE AIR COMPRESSOR                 |  | -              | 30   | +           | 20                      | -         | REC. GRIND ROOM EAST WALL      |  | 8        |
| 9                     | LARGE AIR COMPRESSOR                 |  | -              | 30   | +           | 20                      | -         | REC. GRIND ROOM EAST WALL      |  | 10       |
| 11                    | LARGE AIR COMPRESSOR                 |  | -              | 30   | +           | 20                      | -         | REC. GRIND ROOM EAST WALL      |  | 12       |
| 13                    | BOILER PUMPS                         |  | -              | 20   | +           | 20                      | -         | PAINT BOOTH EXHAUST FAN        |  | 14       |
| 15                    | BOILER PUMPS                         |  | -              | 20   | +           | 20                      | -         | PAINT BOOTH EXHAUST FAN        |  | 16       |
| 17                    | BOILER PUMPS                         |  | -              | 20   | +           | 20                      | -         | PAINT BOOTH EXHAUST FAN        |  | 18       |
| 19                    | 30 REC. GRINDING ROOM VACUUM CLEANER |  | -              | 20   | +           | 20                      | -         | GOVERNOR TESTER PROPS          |  | 20       |
| 21                    | 30 REC. GRINDING ROOM VACUUM CLEANER |  | -              | 20   | +           | 20                      | -         | GOVERNOR TESTER PROPS          |  | 22       |
| 23                    | 30 REC. GRINDING ROOM VACUUM CLEANER |  | -              | 20   | +           | 20                      | -         | GOVERNOR TESTER PROPS          |  | 24       |
| 25                    | WELDER                               |  | -              | 90   | +           | 90                      | -         | NORTHEAST CORNER ABOVE CEILING |  | 26       |
| 27                    | WELDER                               |  | -              | 90   | +           | 90                      | -         | NORTHEAST CORNER ABOVE CEILING |  | 28       |
| 29                    | WELDER                               |  | -              | 90   | +           | 90                      | -         | NORTHEAST CORNER ABOVE CEILING |  | 30       |
| 31                    | SPARE                                |  | -              | 20   | +           | 30                      | -         | VMC FADA 1                     |  | 32       |
| 33                    | SPARE                                |  | -              | 20   | +           | 30                      | -         | VMC FADA 1                     |  | 34       |
| 35                    | SPARE                                |  | -              | 20   | +           | 30                      | -         | VMC FADA 1                     |  | 36       |
| 37                    | SPARE                                |  | -              | 20   | +           | 70                      | -         | SPARE                          |  | 38       |
| 39                    | SPARE                                |  | -              | 20   | +           | 70                      | -         | SPARE                          |  | 40       |
| 41                    | SPARE                                |  | -              | 20   | +           | 20                      | -         | SPARE                          |  | 42       |
| 43                    | SPARE                                |  | -              | 20   | +           | 20                      | -         | SPARE                          |  | 44       |
| 45                    | SPACE                                |  | -              | -    | +           | -                       | -         | SPACE                          |  | 46       |
| 47                    | SPACE                                |  | -              | -    | +           | -                       | -         | SPACE                          |  | 48       |
| 49                    | SPACE                                |  | -              | -    | +           | -                       | -         | SPACE                          |  | 50       |
| 51                    | SPACE                                |  | -              | -    | +           | -                       | -         | SPACE                          |  | 52       |
| 53                    | SPACE                                |  | -              | -    | +           | -                       | -         | SPACE                          |  | 54       |

NOTES:  
1. PROVIDE ALL BREAKER INDICATED.  
2. RECONNECT ALL EXISTING BRANCH CIRCUITS TO CORRESPONDING CIRCUIT BREAKER.  
3. PROVIDE GROUND WIRE IN ALL NEW CIRCUITS. SIZED PER NEC.  
4. REASSIGN BREAKER DESIGNATIONS FOR NEW LOADS WHERE MADE AVAILABLE BY DEMOLITION.

| PANEL SCHEDULE        |                                |                |      |                            |          |                     |                                   |          |  |
|-----------------------|--------------------------------|----------------|------|----------------------------|----------|---------------------|-----------------------------------|----------|--|
| PANEL: LP1            |                                | VOLTS: 208/120 |      |                            | PHASE: 3 |                     | WIRE: 4                           |          |  |
| MAIN RATING: 225 AMPS |                                | MCB: 225 AMPS  |      | MIN AIC RATING: 10K        |          | AMPS RMS SYM.       |                                   |          |  |
| MOUNTING: SURFACE     |                                | OTHER: -       |      | LOCATION: HANGAR WEST WALL |          |                     |                                   |          |  |
| CKT. NO.              | LOAD DESCRIPTION               | WIRE SIZE      | TRIP | PHASE A B C                | TRIP     | WIRE SIZE           | LOAD DESCRIPTION                  | CKT. NO. |  |
| 1                     | ROW 10 LIGHTS SOUTH            | -              | 20   | +                          | 20       | -                   | ROW 10 LIGHTS NORTH               | 2        |  |
| 3                     | ROW 9 LIGHTS SOUTH             | -              | 20   | +                          | 20       | -                   | ROW 9 LIGHTS NORTH                | 4        |  |
| 5                     | ROW 8 & 7 LIGHTS SOUTH         | -              | 20   | +                          | 20       | -                   | ROW 8 LIGHTS NORTH                | 6        |  |
| 7                     | ROW 6 LIGHTS SOUTH             | -              | 20   | +                          | 20       | -                   | ROW 7 LIGHTS NORTH                | 8        |  |
| 9                     | ROW 4 & 5 LIGHTS SOUTH         | -              | 20   | +                          | 20       | -                   | ROW 6 LIGHTS NORTH                | 10       |  |
| 11                    | ROW 3 LIGHTS SOUTH             | -              | 20   | +                          | 20       | -                   | ROW 5 LIGHTS NORTH                | 12       |  |
| 13                    | ROW 2 & 1 LIGHTS SOUTH         | -              | 20   | +                          | 20       | -                   | ROW 4 LIGHTS NORTH                | 14       |  |
| 15                    | HEAT                           | -              | 20   | +                          | 20       | -                   | ROW 3 LIGHTS NORTH                | 16       |  |
| 17                    | HEAT                           | -              | 20   | +                          | 20       | -                   | ROW 2 LIGHTS NORTH                | 18       |  |
| 19                    | OUTSIDE LIGHTS RELAY OLD SPOTS | -              | 20   | +                          | 20       | -                   | ROW 1 LIGHTS NORTH                | 20       |  |
| 21                    | OUTSIDE LIGHTS RELAY OLD SPOTS | -              | 20   | +                          | 20       | -                   | EXIT SIGN HANGAR SOUTHWEST CORNER | 22       |  |
| 23                    | HANGAR HEAT                    | -              | 20   | -                          | 20       | -                   | GAS HEAT FANS                     | 24       |  |
| +                     |                                |                |      | 20                         | -        | LIGHTS OUTSIDE RAMP | 26                                |          |  |
| +                     |                                |                |      | 20                         | -        | OUTSIDE LIGHTS      | 30                                |          |  |
| 29                    | RECEPTACLES HANGAR WEST WALL   | -              | 20   | +                          | 20       | -                   | OUTSIDE LIGHTS                    | 32       |  |
| 31                    | CF-1                           | #12            | 15   | -                          | 15       | -                   | CF-2                              | 34       |  |
| +                     |                                |                |      | 15                         | -        | CF-2                | 36                                |          |  |
| +                     |                                |                |      | 15                         | -        | CF-2                | 38                                |          |  |
| 37                    | SPARE                          | -              | 20   | +                          | 20       | -                   | SPARE                             | 40       |  |
| 39                    | SPARE                          | -              | 20   | +                          | 20       | -                   | SPARE                             | 42       |  |
| 41                    | SPARE                          | -              | 20   | +                          | 20       | -                   | SPARE                             | 44       |  |
| 43                    | SPARE                          | -              | 20   | +                          | 20       | -                   | SPARE                             | 46       |  |
| 45                    | SPARE                          | -              | 20   | +                          | 20       | -                   | SPARE                             | 48       |  |
| 47                    | SPARE                          | -              | 20   | +                          | 20       | -                   | SPARE                             | 50       |  |
| 49                    | SPACE                          | -              | -    | +                          | -        | -                   | SPACE                             | 52       |  |
| 51                    | SPACE                          | -              | -    | +                          | -        | -                   | SPACE                             | 54       |  |
| 53                    | SPACE                          | -              | -    | +                          | -        | -                   | SPACE                             | 56       |  |

NOTES:  
1. PROVIDE ALL BREAKER INDICATED.  
2. RECONNECT ALL EXISTING BRANCH CIRCUITS TO CORRESPONDING CIRCUIT BREAKER.  
3. PROVIDE GROUND WIRE IN ALL NEW CIRCUITS. SIZED PER NEC.  
4. REASSIGN BREAKER DESIGNATIONS FOR NEW LOADS WHERE MADE AVAILABLE BY DEMOLITION.

| PANEL SCHEDULE        |                                   |                 |      |                          |      |               |                                        |          |  |
|-----------------------|-----------------------------------|-----------------|------|--------------------------|------|---------------|----------------------------------------|----------|--|
| PANEL: LP2            |                                   | VOLTS: 208/120  |      | PHASE: 3                 |      | WIRE: 4       |                                        |          |  |
| MAIN RATING: 225 AMPS |                                   | MCB: _____ AMPS |      | MIN AIC RATING: 10K      |      | AMPS RMS SYM. |                                        |          |  |
| MOUNTING: SURFACE     |                                   | OTHER: _____    |      | LOCATION: MECHANICAL 113 |      |               |                                        |          |  |
| CKT. NO.              | LOAD DESCRIPTION                  | WIRE SIZE       | TRIP | PHASE A B C              | TRIP | WIRE SIZE     | LOAD DESCRIPTION                       | CKT. NO. |  |
| 1                     | CLEARANCE LIGHTS                  | —               | 20   | —                        | 20   | —             | RECEP. LEFT OF PANEL ROOM DOOR         | 2        |  |
| 3                     | RECEP. BY SPRAY BOOTH             | —               | 20   | —                        | 20   | —             | EXIT LIGHTS                            | 4        |  |
| 5                     | LIGHTS (PAINT BOOTH & CHARGE RM.) | —               | 20   | —                        | 20   | —             | RECEPT. & LIGHTS THIS ROOM S. WALL     | 6        |  |
| 7                     | RECEP. S.W. WALL LARGE SHOP       | —               | 20   | —                        | 20   | —             | HOT WATER HEATER                       | 8        |  |
| 9                     | RECEP. S.E. WALL LARGE SHOP       | —               | 20   | —                        | 20   | —             | CHARGING ROOM RECEPTACLE               | 10       |  |
| 11                    | RECEP. E. WALL LARGE SHOP         | —               | 20   | —                        | 20   | —             | DC POWERSUPPLY FOR HOT BATH            | 12       |  |
| 13                    | FIRE ALARM                        | —               | 20   | —                        | 20   | —             | LIGHTS GRINDING RM. & FURN. RECEP.     | 14       |  |
| 15                    | ???                               | —               | 20   | —                        | 20   | —             | RECEP. GRINDING ROOM SOUTH             | 16       |  |
| 17                    | FLOOR RECEPT. ROGER'S OFFICE N.   | —               | 20   | —                        | 20   | —             | RECEP. GRINDING ROOM NORTH             | 18       |  |
| 19                    | ???                               | —               | 20   | —                        | 20   | —             | ???                                    | 20       |  |
| 21                    | FLOOR RECEPT. PARTS W & NE        | —               | 20   | —                        | 20   | —             | ???                                    | 22       |  |
| 23                    | AIR COMP., AIR DRYER & COOLER     | —               | 20   | —                        | 20   | —             | ???                                    | 24       |  |
| 25                    | ???                               | —               | 20   | —                        | 30   | —             | GRINDING ROOM & SAND BLASTER           | 26       |  |
| 27                    | ???                               | —               | 20   | —                        | 20   | —             | ???                                    | 28       |  |
| 29                    | ???                               | —               | 20   | —                        | 20   | —             | ???                                    | 30       |  |
| 31                    | ELECTRIC ROOM LIGHTS              | —               | 20   | —                        | 20   | —             | OVER OUTLET                            | 32       |  |
| 33                    | ???                               | —               | 20   | —                        | 20   | —             | ???                                    | 34       |  |
| 35                    | ???                               | —               | 20   | —                        | 40   | —             | ???                                    | 36       |  |
| 37                    | RECEPT. NORTHWEST WALL CORNER     | —               | 20   | —                        | 20   | —             | RECEP. TIME CLOCK RM. REFRIG.          | 38       |  |
| 39                    | ???                               | —               | 20   | —                        | 20   | —             | ???                                    | 40       |  |
| 41                    | ???                               | —               | 30   | —                        | 30   | —             | ???                                    | 42       |  |
| 43                    | ???                               | —               | 20   | —                        | 20   | —             | RECEP. TIME CLOCK RM./PILOTS OFFICE    | 44       |  |
| 45                    | CEF-1                             | #12             | 20   | —                        | 20   | #12           | LIFT                                   | 46       |  |
| 47                    | CEF-2                             | #12             | 20   | —                        | 20   | #12           | RECEPTACLES—RESTROOMS, CORRIDOR, MECH. | 48       |  |
| 49                    | HAND DRYER                        | #12             | 20   | —                        | 20   | #12           | HAND DRYER                             | 50       |  |
| 51                    | HAND DRYER                        | #12             | 20   | —                        | 20   | #12           | HAND DRYER                             | 52       |  |
| 53                    | RECEPTACLE—BOOSTER PUMP           | #12             | 20   | —                        | 20   | —             | SPARE                                  | 54       |  |

NOTES:  
1. PROVIDE ALL BREAKER INDICATED.  
2. RECONNECT ALL EXISTING ACTIVE BRANCH CIRCUITS TO CORRESPONDING CIRCUIT BREAKER.  
3. PROVIDE GROUND WIRE IN ALL NEW CIRCUITS. SIZED PER NEC.  
4. REASSIGN BREAKER DESIGNATIONS FOR NEW LOADS WHERE MADE AVAILABLE BY DEMOLITION.  
5. CONFIRM IF BREAKERS MARKED WITH ??? ARE ACTIVE. IF SO, RECONNECT TO EXISTING BRANCH CIRCUIT AS REQUIRED. IF NOT, UTILIZE BREAKER AS A SPARE.

| LUMINAIRE SCHEDULE |                                                                                                                                                           |                                                                                           |                  |                             |        |         |                                      |                                                                             |  |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|------------------|-----------------------------|--------|---------|--------------------------------------|-----------------------------------------------------------------------------|--|
| TYPE               | DESCRIPTION                                                                                                                                               | MANUFACTURER                                                                              | LAMP             | VOLTAGE/ DRIVER             | LUMENS | WATTAGE | MOUNTING                             | NOTES                                                                       |  |
| A                  | 2'x2'x1.5"D SHALLOW TROFFER, 80CRI, CURVED CENTER LENS, GLARE REDUCING MATTE WHITE POWDER COAT REFLECTOR                                                  | LITHONIA STACK PRIME STAKP 2X2 4000L 80CRI 40K COLT MIN10 ZT MVOLT OR APPROVED EQUAL      | LED, 4000 DEG. K | 120/277 VOLT 0-10V DIMMABLE | 4310   | 30.7    | ACT CEILING RECESSED                 |                                                                             |  |
| B                  | 2'x4'x1.5"D SHALLOW TROFFER, 80CRI, CURVED CENTER LENS, GLARE REDUCING MATTE WHITE POWDER COAT REFLECTOR                                                  | LITHONIA STACK PRIME STAKP 2X4 4000L 80CRI 40K COLT MIN10 ZT MVOLT OR APPROVED EQUAL      | LED, 4000 DEG. K | 120/277 VOLT 0-10V DIMMABLE | 4321   | 30.3    | ACT CEILING RECESSED                 |                                                                             |  |
| C                  | 4'x3.5"W LINEAR LED LENSED STRIP LIGHT, STANDARD EFFICIENCY, ROUND DIFFUSE LENS, STANDARD DISTRIBUTION, 80CRI, HANGER CHAINS                              | LITHONIA LIGHTING CLX L48 4000LM SEF RDL MVOLT GZ10 40K 80CRI WH/H36M12 OR APPROVED EQUAL | LED, 4000 DEG. K | 120/277 VOLT 0-10V DIMMABLE | 4237   | 25.5    | CEILING SURFACE                      |                                                                             |  |
| D                  | 10"Wx3.5"Hx4"L COMMERCIAL LENSED WRAP, 80CRI, SQUARE LENS, MATTE WHITE POWDER COAT FINISH, WITH END CAPS                                                  | LITHONIA LIGHTING STL4 40L GZ10 LP840 OR APPROVED EQUAL                                   | LED, 4000 DEG. K | 120/277 VOLT 0-10V DIMMABLE | 3979   | 34.9    | CEILING SURFACE                      |                                                                             |  |
| E                  | 4'x3.5"W LINEAR LED LENSED STRIP LIGHT, STANDARD EFFICIENCY, ROUND DIFFUSE LENS, STANDARD DISTRIBUTION, 80CRI                                             | LITHONIA LIGHTING CLX L48 4000LM SEF RDL MVOLT GZ10 40K 80CRI WH OR APPROVED EQUAL        | LED, 4000 DEG. K | 120/277 VOLT 0-10V DIMMABLE | 3000   | 22.0    | WALL MOUNTED ABOVE MIRROR            |                                                                             |  |
| EXIT               | 11.61"Wx2.1"Dx7.54"H LED EXIT SIGN, WHITE HOUSING WITH RED LETTERS, THERMOPLASTIC POLYCARBONATE HOUSING, BATTERY BACKUP, SELF-DIAGNOSTICS, NICAD BATTERY. | LITHONIA QUANTUM LQM OR APPROVED EQUAL                                                    | --               | 120-277 VOLT                | --     | --      | SURFACE WALL CEILING MOUNT PER PLANS | PROVIDE SINGLE FACE OR DOUBLE FACE PER PLANS. DIRECTIONAL ARROWS PER PLANS. |  |

| ELECTRICAL EQUIPMENT WIRING SCHEDULE |                     |                      |            |       |    |       |                 |                                |                                        |                                                        |                         |
|--------------------------------------|---------------------|----------------------|------------|-------|----|-------|-----------------|--------------------------------|----------------------------------------|--------------------------------------------------------|-------------------------|
| EQUIP. ID                            | DESCRIPTION         | LOCATION             | HP (WATTS) | VOLTS | PH | PANEL | CIRCUIT BREAKER | POWER & CONTROL WIRING/CONDUIT | MOTOR CONTROL (BY DIV 26 UNLESS NOTED) | MOTOR CONTROL FURNISHED BY OTHERS (INSTALLER-ET SW-26) | LOCATION OF CONTROLLERS |
| ATU-1                                | AIR TURNOVER UNIT   | HANGAR #2            | 10         | 208   | 3  | MDP   | 70A/3P          | 4#4, 1#8G, 1-1/4"C             | --                                     | IDS                                                    | --                      |
| ATU-2                                | AIR TURNOVER UNIT   | HANGAR #2            | 10         | 208   | 3  | MDP   | 70A/3P          | 4#4, 1#8G, 1-1/4"C             | --                                     | IDS                                                    | --                      |
| CF-1                                 | CEILING FAN         | HANGAR #2            | 2          | 208   | 3  | LP1   | 15A/3P          | 4#12, 1#12G-3/4"C              | --                                     | IDS                                                    | --                      |
| CF-2                                 | CEILING FAN         | HANGAR #2            | 2          | 208   | 3  | LP1   | 15A/3P          | 4#12, 1#12G-3/4"C              | --                                     | IDS                                                    | --                      |
| CF-3                                 | CEILING FAN         | HANGAR #3            | 2          | 208   | 3  | LP1A  | 15A/3P          | 4#12, 1#12G-3/4"C              | --                                     | IDS                                                    | 1                       |
| CEF-1                                | CEILING EXHAUST FAN | WOMEN'S RESTROOM 1ST | (87)       | 120   | 1  | LP2   | 20A/1P          | 2#12, 1#12G-3/4"C              | R                                      | --                                                     | --                      |
| CEF-2                                | CEILING EXHAUST FAN | MEN'S RESTROOM 1ST   | (87)       | 120   | 1  | LP2   | 20A/1P          | 2#12, 1#12G-3/4"C              | R                                      | --                                                     | --                      |
| CEF-3                                | CEILING EXHAUST FAN | WOMEN'S RESTROOM 2ND | (87)       | 120   | 1  | LP3   | 20A/1P          | 2#12, 1#12G-3/4"C              | R                                      | --                                                     | 1                       |
| CEF-4                                | CEILING EXHAUST FAN | MEN'S RESTROOM 2ND   | (87)       | 120   | 1  | LP3   | 20A/1P          | 2#12, 1#12G-3/4"C              | R                                      | --                                                     | 1                       |
| LIFT                                 | ELEVATOR LIFT       | HANGAR #2            | (XXX)      | 120   | 1  | LP2   | 20A/1P          | 2#12, 1#12G-3/4"C              | --                                     | --                                                     | --                      |

ELECTRICAL EQUIPMENT SCHEDULE LEGEND:

FSS = FUSIBLE SAFETY SWITCH, NUMBER INDICATES SWITCH SIZE. FUSES SHALL BE SIZED FOR EQUIPMENT MANUFACTURERS REQUIREMENTS.  
AU = LOCATED AT UNIT.  
SS = SAFETY SWITCH, NON-FUSED.  
PCU = PACKAGED CONTROL UNIT, PROVIDE BY OTHERS.  
TS = TOGGLE TYPE SWITCH (SINGLE GANG).  
IOL = INTEGRAL OVERLOADS OR THERMALLY PROTECTED MOTOR.  
IDS = INTEGRAL DISCONNECT SWITCH.  
VFD = VARIABLE FREQUENCY DRIVE.  
R = RELAY FOR AUTOMATIC OPERATION BY THE DDC SYSTEM.  
SC = MANUAL SPEED CONTROLLER.  
PS = PURGE SWITCH.  
T = LINE VOLTAGE THERMOSTAT.  
REFER TO SPECIFICATION SECTION 26 29 13 FOR MOTOR CONTROLLER TYPES; A, A1, B, B1, AND REMOTE CONTROL STATIONS.

NOTES:

- PROVIDE NEW BREAKERS IN EXISTING PANELBOARD AS REQUIRED TO MATCH MANUFACTURER. LP1A IS SQUARE D QO LOADCENTER AND LP3 IS AN ITE G4242 LOAD CENTER.
- PROVIDE A DEDICATED DUPLEX RECEPTACLE TO ACCOMMODATE ASSOCIATED LIFT PLUG.

ELECTRICAL SYMBOL LIST

|                    |                                                                                                                          |
|--------------------|--------------------------------------------------------------------------------------------------------------------------|
| —                  | SOLID LIGHT LINEWORK INDICATES EXISTING TO REMAIN                                                                        |
| ----               | DASHED LIGHT LINEWORK INDICATES EXISTING TO BE REMOVED                                                                   |
| —                  | SOLID HEAVY LINEWORK INDICATES NEW                                                                                       |
| A                  | LUMINAIRE. LETTER INDICATES TYPE. REFER TO LUMINAIRE SCHEDULE ON DRAWING E900. LOWER CASE LETTER INDICATES CONTROL ZONE. |
| ⓐ                  | EXIT LUMINAIRE, WALL MOUNTED. REFER TO LUMINAIRE SCHEDULE ON DRAWING E-901. DIRECTIONAL ARROW AS INDICATED ON PLANS.     |
| ⓑ                  | EXIT LUMINAIRE CEILING MOUNTED. REFER TO LUMINAIRE SCHEDULE ON DRAWING E-901. DIRECTIONAL ARROW AS INDICATED ON PLANS.   |
| Ⓒ                  | EMERGENCY LUMINAIRE                                                                                                      |
| Ⓓ                  | CEILING MOUNTED VACANCY SENSOR (MANUAL ON/AUTO OFF). LOWER CASE LETTER INDICATES CONTROL ZONE.                           |
| Ⓔ                  | WALL MOUNTED VACANCY SENSOR, (MANUAL ON/AUTO OFF)                                                                        |
| Ⓕ                  | CEILING MOUNTED DAYLIGHT PHOTO SENSOR. LOWER CASE LETTER INDICATES CONTROL ZONE.                                         |
| \$ <sup>D</sup> VS | WALL MOUNTED VACANCY SENSOR WITH DIMMING, (MANUAL ON/AUTO OFF)                                                           |
| \$                 | SINGLE POLE SWITCH                                                                                                       |
| \$ <sup>3</sup>    | THREE WAY SWITCH                                                                                                         |
| \$ <sup>D</sup>    | DIMMING SWITCH                                                                                                           |
| ■                  | PANELBOARD 120/208 VOLT                                                                                                  |
| Ⓟ                  | DUPLEX RECEPTACLE                                                                                                        |
| Ⓡ                  | DUPLEX RECEPTACLE, GROUND FAULT CIRCUIT INTERRUPTING                                                                     |

|                   |                                                                                  |
|-------------------|----------------------------------------------------------------------------------|
| Ⓕ                 | FIRE ALARM CONTROL PANEL                                                         |
| Ⓖ                 | FIRE ALARM ANNUNCIATOR PANEL                                                     |
| Ⓜ                 | FIRE ALARM HORN/STROBE. 15 CANDELA RATING UNLESS NOTED OTHERWISE                 |
| Ⓢ                 | FIRE ALARM STROBE. 15 CANDELA RATING UNLESS NOTED OTHERWISE                      |
| Ⓢ                 | FIRE CARBON MONOXIDE ALARM HORN/STROBE. 15 CANDELA RATING UNLESS NOTED OTHERWISE |
| Ⓖ                 | FIRE ALARM MANUAL PULL STATION                                                   |
| Ⓖ <sup>S</sup>    | FIRE ALARM SMOKE DETECTOR, AREA TYPE                                             |
| Ⓖ <sup>S</sup> ER | FIRE ALARM SMOKE DETECTOR, ELEVATOR RECALL AREA TYPE                             |
| Ⓖ                 | FIRE ALARM HEAT DETECTOR, RATE OF RISE. 190deg UNLESS NOTED OTHERWISE            |
| Ⓖ <sup>S</sup> DT | FIRE ALARM SMOKE DETECTOR, DUCT TYPE                                             |
| Ⓖ <sup>S</sup> T  | FIRE ALARM BEAM DETECTOR, TRANSMITTER                                            |
| Ⓖ <sup>S</sup> R  | FIRE ALARM BEAM DETECTOR, REFLECTOR                                              |
| Ⓖ                 | FIRE ALARM CARBON MONOXIDE DETECTOR, CEILING MOUNTED                             |
| Ⓖ                 | FIRE ALARM CARBON MONOXIDE DETECTOR, WALL MOUNTED                                |
| Ⓖ                 | CEILING SPEAKER                                                                  |
| Ⓜ                 | MOTOR/ELECTRICAL EQUIPMENT. LETTERS INDICATE ITEM. REFER TO DRAWING/KEYED NOTES. |

ELECTRICAL ABBREVIATIONS

|        |                                      |
|--------|--------------------------------------|
| A      | AMPERE                               |
| AC     | ABOVE COUNTER                        |
| AFF    | ABOVE FINISHED FLOOR                 |
| AFG    | ABOVE FINISHED GRADE                 |
| BKR    | BREAKER                              |
| C      | CONDUIT                              |
| Cu     | COPPER                               |
| ETR    | EXISTING TO REMAIN                   |
| G, GND | GROUND                               |
| GFI    | GROUND FAULT INTERRUPTER             |
| KAIC   | THOUSAND AMPERE INTERRUPTING CURRENT |
| MCB    | MAIN CIRCUIT BREAKER                 |
| MLO    | MAIN LUG ONLY                        |
| NL     | NIGHT LIGHT                          |
| P      | POLE                                 |
| TBR    | TO BE REMOVED                        |
| V      | VOLT                                 |
| WP     | WEATHERPROOF                         |
| W      | WIRE                                 |



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