



REQUEST FOR BIDS

Airport History Display

REQUEST NUMBER: 2606

DUE DATE: March 19, 2026

DUE TIME: 2:00 pm (local)

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INTRODUCTION

The Gerald R. Ford International Airport Authority (GFIAA) is requesting bids from qualified firms to build the airport's new Sky Gallery history display on second floor of the airport terminal building. This display will highlight the major historical events and the individuals involved.

The Gerald R. Ford International Airport is the second busiest airport in Michigan, serving business and leisure travelers with nonstop and connecting flights on eight airlines. The Ford Airport is managed and operated by the Gerald R. Ford International Airport Authority.

This solicitation will be publicly opened at the Gerald R Ford International Airport Authority International Room B, located on the first floor of the Gerald R Ford International Airport Terminal Building at 5500 44th St SE, Grand Rapids, MI, 49512. All submissions will be sealed until the date and time specified, at which time they will be opened and read aloud.

SOLICITATION AND PROJECT SCHEDULE

ACTIVITY	DATE
BID Issue Date	February 12, 2026
Question Deadline	March 10, 2026
Submission Due Date	March 19, 2026 at 2 pm

GFIAA reserves the right to modify the deadline set forth in the above table in its sole discretion. Any such modifications will be stated in an addendum.

VOLUNTARY ON-SITE CONFERENCE & SITE INSPECTION

CONFERENCE DETAILS	
Conference Date	March 5, 2026
Conference Time (local)	10 am
Conference Location	International Room B, 1st floor of the airport terminal building, 5500 44th St. SE, Grand Rapids, MI 49512

A voluntary pre-submission conference is scheduled for this request. Equal opportunity will be provided for all Respondents to ask questions.

Attendees should arrive a minimum of five (5) minutes before the scheduled date and time. Attendees will not be allowed to sign in after the conference has commenced. If a firm representative does not sign in prior to the scheduled pre-submission conference, their firm will not be considered.

Attendees requiring special services are asked to provide their requirements to the GFIAA at least forty-eight (48) hours in advance to allow for accommodations.

NOTE: Immediately following the conclusion of the meeting, there will be a brief site visit to the workspace. As it is pre-security, this will not require additional security clearance.

PROJECT INFORMATIONAL ITEMS

Graphics

The graphics that are to be installed in accordance with this display are in the finalization process and, as such, have not been included in this package. The chosen vendor will be provided with the final graphics ready to print once the process of finalization has been completed.

Staging

As this project will mainly take place in the public facing areas of the airport terminal building, the GFIAA requests that all efforts be made to minimize clutter and noise to the traveling public. Contractors will be expected to utilize the workspace as a staging area for the project as well, due to limited terminal space availability.

REQUESTS FOR INFORMATION

Questions regarding this solicitation are to be submitted in writing to *purchasing@grr.org* prior to 2 p.m. on March 10, 2026.

GFIAA reserves the right to publish and respond to an inquiry, respond directly to the inquirer without publishing or not respond to the inquiry at its sole discretion. Unless otherwise indicated, all questions will be compiled into one document and answers will be issued as a Questions & Answers document within 4 days after the question deadline.

It is the firm's responsibility to become familiar with and fully informed regarding the terms, conditions, and specifications of this solicitation. Lack of understanding or misinterpretation of any portions of this solicitation shall not be cause for withdrawal after opening or for subsequent protest of award.

Addendums will only be published by the GFIAA Purchasing Department and available for review at www.grr.org.

CONSTRUCTION

All work is to be done in a first-class workmanlike manner. All debris (packing materials, replaced materials, etc.) are to be cleaned up and removed by the workers.

The successful Respondent is responsible for obtaining all necessary permits and licenses so the completed work complies with all applicable codes, ordinances, regulations, standards, and laws. The cost of such permits and licenses is understood to be a part of the bid price. Any fines, fees, or other costs taxed or charged to Kent County because of the successful bidder's violation(s) of any laws, standards, etc. will be paid by the successful bidder.

Dimensions furnished are for general reference only. Respondents must take their own measurements as necessary for preparing their response.

All materials are to be new, not refurbished, and free from corrosion, scratches, or other such defects which present other than a new appearance.

BID SUBMISSION

Responses may be delivered physically or electronically. To be considered, complete submissions must be received prior to the due date and time specified (local time).

- Hard copy responses can be mailed or otherwise delivered to the address below.

Submission address:

Attn: AJ Nye, Procurement Specialist

Gerald R Ford International Airport Authority

5500 44th St SE

Grand Rapids, MI 49512

- Electronic responses can be securely uploaded as a single pdf document to:

<https://www.dropbox.com/request/Rb7jhEeqf59p4NOpuvNm>

Electronic submissions shall be named with a form or portion of the firm's name as part of the document name.

The firm certifies the response submitted has not been made or prepared in collusion with any other respondent and the prices, terms or conditions thereof have not been communicated by or on behalf of the respondent to any other respondent prior to the official opening of this request. This certification may be treated for all purposes as if it were a sworn statement made under oath, subject to the penalties for perjury. Moreover, it is made subject to the provisions of 18 U.S.C. Section 1001, relating to the making of false statements.

Submissions may be withdrawn by written request only if the request is received on or before the opening date and time.

Submissions not meeting these criteria may be deemed non-responsive.

GFIAA is not liable for any costs incurred by any prospective firm prior to the awarding of a contract, including any costs incurred in addressing this solicitation.

TERMS AND CONDITIONS

GFIAA reserves the right to require that its standard terms and conditions apply to any actual order placed in response to a firm's submission. No attempt to modify GFIAA's Standard Terms and Conditions shall be binding, absent agreement on such modification in writing and signed by GFIAA.

No payment shall be made to the Respondent for any extra material or services, or of any greater amount of money than stipulated to be paid in the contract, unless changes in or additions to the contract requiring additional outlay by the Respondent shall first have been expressly authorized and ordered in writing by contract amendment or otherwise furnished by the GFIAA.

The intent of these specifications is to solicit a properly designed and all-inclusive response. Any requirements not in the specifications, but which are needed for such a response, are to be included in the submission.

The Gerald R Ford International Airport Authority, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 USC §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders or offerors that it will affirmatively ensure that for any contract entered into pursuant to this advertisement, [select businesses, or disadvantaged business enterprises or airport concession disadvantaged business enterprises] will be afforded full and fair opportunity to submit bids in response to this invitation and no businesses will be discriminated against on the grounds of race, color, national origin (including limited English proficiency), creed, sex (including sexual orientation and gender identity), age, or disability in consideration for an award.

The Respondent shall not discriminate against an employee or applicant for employment with respect to hire, tenure, terms, conditions or privileges of employment, or a matter directly or indirectly related to employment, because of race, color, religion, national origin, age, sex, height, weight, marital status, or disability that is unrelated to the individual's ability to perform the duties of a particular job or position.

The Respondent shall observe and comply with all applicable federal, state, and local laws, ordinances, rules and regulations at all times during the completion of any contract with the GFIAA.

The terms of this request shall be interpreted, construed and enforced pursuant to the laws of the State of Michigan, and the Parties irrevocably consent to the jurisdiction of the federal and state courts presiding in Michigan.

The GFIAA is tax-exempt and a regional airport authority organized under 2015 P.A. 95, being MCL 259.137 et. seq.

Vendor Representation and Warranty Regarding Federal Excluded Parties List: The Respondent acknowledges that the GFIAA may be receiving funds from or through the Federal Government; such funds may not be used to pay any Respondent on the Federal Excluded Parties List (EPLS). The Respondent represents and warrants to the GFIAA that it is not on the Federal EPLS. If the Respondent is in non-compliance at any time during execution or term of this agreement (including any extensions thereof), the Respondent shall be in breach and the GFIAA shall be entitled to all remedies available to it at law or equity, specifically including but not limited to recovery of all moneys paid to the Respondent, all consequential damages (including the loss of grant funding or the requirement that grant funding be returned), and attorney fees (including the costs of in-house counsel) sustained as a result of the Respondent's non-compliance with this warranty and representation.

Pursuant to the Michigan Iran Economic Sanctions Act, 2012 P.A. 517, by submitting a bid, proposal or response, Respondent certifies, under civil penalty for false certification, that it is fully eligible to do so under law and that it is not an "Iran linked business," as that term is defined in the Act.

Insurance requirements are posted on the Documents and Forms page of the GFIAA website within the Purchasing Terms and Conditions document.

Termination For Cause: Should the firm fail to perform the Work as required by and in accordance with the schedule or time requirements, or otherwise violate any of the terms set forth in the Solicitation Request, it shall constitute breach of the Contract. Other than in force majeure situations, Respondent shall have five (5) calendar days to cure a breach of the Contract (the "Cure Period") following issuance of GFIAA written notice. Failure to cure a breach of the Contract within said Cure Period shall allow the GFIAA to, without further notice to the Respondent, declare the Contract terminated and proceed with the replacement of the Respondent and the GFIAA shall be entitled to all remedies available to it at law or in equity including a claim against any required payment/performance bonds.

Termination Without Cause: Notwithstanding any other provision, at any time and without cause, GFIAA shall have the right, in its sole discretion, to terminate the contract by giving sixty (60) days written notice.

Although it is the intent to contract with one provider, the GFIAA reserves the right to contract with alternate sources if the Respondent is unable or unwilling to service its obligation, or it is deemed by GFIAA to be in its best interest to use alternate sources.

Assignment: Neither party shall assign or delegate any of its rights or obligations under this Agreement without the prior written consent of the other party.

Respondent warrants that they are an authorized provider of products or services of his/her submission.

MICHIGAN FREEDOM OF INFORMATION ACT

Information submitted in this solicitation is subject to the Michigan Freedom of Information Act and may not be held in confidence after the Respondent's submission is opened. A submission will be available for review after the project has been awarded.

GFIAA cannot assure that all of the information submitted as part of or peripheral to the Respondent's submission will be kept confidential. Any Respondent submission language designated as confidential is considered automatically invalid and void. GFIAA is subject to the Michigan Freedom of Information Act, which prohibits it from concealing information on or associated with responses, successful or unsuccessful, once they are opened.

EVALUATION, STATUS UPDATES/AWARD NOTIFICATION

The Authority reserves the right to request additional information it may deem necessary after the submissions are received.

As part of the evaluation process, Respondents may be requested to make an oral presentation, at the Respondent's expense, to an evaluation committee. Key staff to be assigned to this project must participate in this presentation unless otherwise waived by the Authority. The presentation may be followed by a question-and-answer session.

The Authority reserves the right at its discretion to waive irregularities of this solicitation process.

In the event of extension errors, the unit price shall prevail and the Respondent's total offer will be corrected accordingly. In the event of addition errors, the extended totals will prevail and the Respondent's total will be corrected accordingly. Respondent must check their submission where applicable. Failure to do so will be at the Respondent's risk. Submissions having erasures or corrections must be initialed in ink by the Respondent. Respondents are cautioned to recheck their submissions for possible errors.

The Respondent shall not be allowed to take advantage of error, omissions or discrepancies in the specifications.

The Authority, at its sole discretion, reserves the right to award to the Respondent whose response is deemed most advantageous to the Authority. The Authority, at its sole discretion, shall select the most responsive and responsible Respondent and evaluate all responses based on the requirements and criterion set forth in this solicitation while reserving the right to weigh specifications and other factors in the award. The Authority

reserves the right to reject any and all submissions as a result of this solicitation.

The Authority reserves the right to award by line item when applicable and to accept or reject any or all parts of a submission.

Accelerated discounts should be so stated at the time of submission. If quick-pay discounts are offered, The Authority reserves the right to include that discount as part of the award criterion. Prices must, however, be based upon payment in thirty (30) days after receipt, inspection, and acceptance. In all cases, quick-pay discounts will be calculated from the date of the invoice or the date of acceptance, whichever is later.

Award notifications are posted on the Authority website. It is the Respondent's responsibility to monitor the website for status updates.

EXHIBITS

Exhibit A – Bid Form

See next page.

BID FORM

BID FORM

INVITATION TO BID

This invitation to bid is issued to a list of pre-qualified bidders for the purchase and installation of custom fabricated exhibit components for the Gerald R. Ford International Airport- Observation Deck Exhibits.

CONTACT INFORMATION

Designer: Riggs Ward Design, L.C.
Contact: Michael Radtke
Address: 2315 West Main Street, Richmond, VA 23220
Telephone: 804.254.1740 x205
Email: mradtke@riggsward.com

Owner: The Gerald R. Ford International Airport
Contact: AJ Nye
Address: 5500 44th St. SE, Grand Rapids, MI
Telephone: ~~4951~~2233-6251
Email: purchasing@grr.org

INSTRUCTIONS

1. Bids are due on or before 2 p.m., Thursday, March 19, 2026.
2. All questions shall be directed to purchasing@grr.org and due on or before 2:00 p.m., Tuesday, March 10, 2026.
3. Bidders shall submit bid forms and any addenda. Submit one original and two copies to Riggs Ward Design.
4. All pricing is to be shown as a firm fixed cost. All pricing submitted is to include costs for the labor, materials, taxes, and all other associated costs required for the production and installation of each sign type shown.
5. Bidders shall fill in the Price Schedule or direct copies of the form. The forms shall be typed or filled in with ink and signed by an authorized representative of the bidder.
6. In submitting the invitation to bid, the undersigned has considered all conditions of the bid documents.

SCHEDULE

The schedule outlined below is to provide guidelines for the bidding, award, and fabrication. Due to the brief duration of this project, no changes are anticipated to the schedule shown below at this time.

Bid package sent to prospective bidders	February 12, 2026
Questions due to GFIAA, on or before 5pm	March 10, 2026
Answers due from GFIAA	March 16, 2025
Bids due to GFIAA	March 19, 2025

Contract awarded to fabricator	TBD
Shop drawings	TBD
Finish samples submitted for review no later than	TBD
Completion of installation	TBD

CLARIFICATIONS AND DEVIATIONS

All clarifications to the bid documents shall be submitted to purchasing@grr.org. Oral clarifications can be requested; however, they shall not be binding. Clarifications shall include, but not be limited to, any conflicts, discrepancies, or omissions.

BID FORM

Changes made to the bid documents shall be issued via email to all bidders as an addendum to the original documents. All clarifications must be submitted by 2:00 p.m., March 10, 2026. Bidders shall sign and return each addendum.

PAYMENTS

Contracts shall be made with the Owner. Bidders must submit a schedule of payments based on approved deliverables as part of the proposal. Invoices must be received by the Owner for payments to be made.

WARRANTY

Contractor shall guarantee all materials and workmanship for one year from period of final acceptance. Any defective materials or faulty workmanship occurring within that time shall be replaced at no cost to the Owner.

ALTERNATE BIDS

Alternate bids shall be accepted by the Owner. The Bidder shall outline the proposed alternate work on an attached sheet with the amount added or deducted from the original bid.

PRICE SCHEDULE

<i>Description</i>	<i>Drwg.</i>	<i>Total Cost</i>
Wall mounted SEG graphics (qty= 2 @ 60”h x 78” w)	2/2.01	\$ _____
Two sided backlit, freestanding SEG graphics and frame (qty= 2 @ 82.5”h x 92” w)	2/2.01 & 4.01	\$ _____
Remove and relocate existing wall mounted equipment	2/2.01	\$ _____
Wall mounted and standard graphics	2/2.02	\$ _____
Wall mounted graphic (qty=1) and installation of 14 existing framed images and bronze panels (qty= 4) and 1 glass panel (qty = 1)	1/2.03	\$ _____
Install aircraft wing artifact	4.02	\$ _____
Produce and install bios panel support structures and graphics (qty= 9)	4.03	\$ _____
Produce and install exhibit case and propellers (qty=1)	4.04	\$ _____
Produce and install touch screen interactive and shroud (qty= 1)	1/4.05	\$ _____
Produce and install directional signage (qty= 1)	1/4.06	\$ _____
Artifact mounts (qty= 2)	4.02 & 4.04	\$ _____
Misc graphics panels and murals	0.01	\$ _____
Delivery and install		\$ _____
Total		\$ _____
Subtotal		\$ _____
Shipping and Installation		\$ _____
Sale Tax		Exempt
Total		\$ _____

BID FORM

AUTHORIZATION

Firm Name

Street Address

City/State/Zip

Authorized Representative

Signature

Date

Telephone Number

Email address

Exhibit B – Specifications

See next page.

OUTLINE SPECIFICATIONS
FOR THE GERALD R. FORD INTERNATIONAL AIRPORT-
OBSERVATION DECK EXHIBITS

EXHIBIT COMPONENTS
OCTOBER 30, 2025

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SECTION 01100 - SUMMARY

PART 1 - GENERAL

1.1 SUMMARY OF WORK

A. Project Identification:

1. Project: Gerald R. Ford International Airport- Observation Deck Exhibits
2. Location: Grand Rapids, Michigan
3. Owner: Gerald R. Ford Airport

B. Contract Documents, dated October 29, 2025 were prepared by Riggs Ward Design, L.C., Richmond, Virginia, 23221. They include Outline Specifications, Graphic Specifications, Construction Drawings, and Product Specifications.

C. The Work consists of but is not limited to fabrication and installation of exhibits, and administration of work as described in the Contract Documents. Overall, the fabrication of the exhibits includes but is not limited to:

1. EXHIBIT COMPONENTS:

- a. Fabrication of specialty casework, qty= 1, per drawing 4.04
- b. Fabricate and install bio panel structures and graphics, qty= 9, per drawing 4.03
- c. Fabricate and install touch screen interactive and custom bezel, per drawing 4.05
- c. Fabricate and install signage, per drawing 4.06

2. GRAPHICS:

- a. Fabrication and installation of both traditional graphic elements and silicone edged graphics (aka SEGs). SEG graphics are either wall mounted frames, or 2 sided internally lit assemblies as shown on drawing 4.01.
- b. Mounting, cropping, routing, cutting, lighting enclosures, fabrication and installation of same to ensure aesthetically pleasing, safe, sturdy and durable use.

3. ARTIFACT MOUNT

- a. Properly secure aircraft wing artifact to the ceiling above using traditionally recognized methods and materials.
- b. Properly secure flange/ base of aircraft propeller artifact to floor of exhibit case using traditionally recognized methods and materials.
- c. Properly secure bronze panels (3) and glass panel (1) to existing interior wall as described in drawing 2.03.

4. COORDINATION:

Coordinate with client's AV consultant to verify the functionality of the cabinets that house the interactive touchscreen.

5. INSTALLATION:

Install all elements fabricated and produced as shown in the Construction Documents. Contractor shall ensure that the computer interactive is fully operational and have been sufficiently tested in order to guarantee long-term durability. Contractor shall provide a one-year warranty on all work, including the functionality of all components manufactured, produced, and provided by the Contractor. The Contractor shall verify in field all site conditions for proper installation of components and for structural integrity prior to commencing work.

- D. Work Not Included: The following shall be provided by owner:
 - 1. Audio-visual production and programming.
 - 2. Writing and editing.
 - 3. Obtaining usage rights and permissions for materials provided.
- E. CLARIFICATIONS INCUMBENT UPON BIDDER: Sometimes drawings and accompanying bid documents include statements that are incongruent with the anticipated need outlined in the bid documents. These incongruent elements are often remnants from previous iterations of the drawings or project specifications that were not changed.

Therefore, it shall be incumbent upon the bidder to request clarifications about any elements and other items included in the design and specifications that have not been assigned specifically to the bidder. Should the bidder not obtain such clarifications, then it shall be solely determined by the organization requesting the bid response to determine what is and is not included in the scope of work even if the bidder did not provide a cost for such items.

1.2 WORK RESTRICTIONS

- A. Contractor's Use of Premises: During Contract period of performance, Contractor shall be required to formally contact the Owner directly to arrange for access to the exhibit site. Reasonable notice must be given to the Owner in order to arrange for proper staffing at Project location.
- B. Coordinate access to building and use of facilities with the following:
 - 1. The Owner. A contact name shall be provided to the successful offerer.
 - 2. Riggs Ward Design.
- C. Typical work hours are Monday-Friday 9:00 AM – 5:00 PM, EST. Work performed at times other than typical shall be requested at least one week (7 days) in advance of the requested occurrence.
- D. END OF SECTION 01100

SECTION 01300 - ADMINISTRATIVE REQUIREMENTS

PART 1 - GENERAL

1.1 PROJECT MANAGEMENT AND COORDINATION

- A. Verify layout information shown on Drawings, in relation to existing conditions, before laying out the Work.
- B. Coordinate Work to ensure efficient and orderly execution of each part of the Work.
- C. Submit progress reports to the Owner and Riggs Ward Design every two weeks. Notify Owner and Riggs Ward Design of meeting dates. Provide status of each subcontractor or other entity concerned.

1.2 PROJECT SCHEDULE

- A. Prepare a horizontal bar-chart Project schedule. Provide a separate time bar for each activity and a vertical line to identify the first workday of each week. Use same breakdown of Work indicated in the Schedule of Values. As Work progresses, mark each bar to indicate actual completion.
 - 1. Submit within ten (10) days after date established for Commencement of the Work.
 - 2. Coordinate each element with other activities. Show each activity in proper sequence. Indicate sequences necessary for completion of related Work.
 - 3. Indicate Substantial Completion and allow time for procedures necessary for certifying Substantial Completion.
 - 4. Schedule Distribution: Distribute copies to Owner, Riggs Ward Design, subcontractors, and parties required to comply with dates.
 - 5. Updating: Revise the schedule after each meeting or activity where revisions have been made. Distribute revised copies to Owner, Riggs Ward Design, subcontractors, and parties required to comply with dates.

1.3 QUALIFICATIONS

- A. The offeror must demonstrate that he or she possesses the following qualifications:
 - 1. All work must meet industry standards for quality.
 - 2. Have adequate financial resources for performance, or have the ability to obtain such resources as required during performance.
 - 3. Have the necessary experience, organization, technical and professional qualifications and facilities to perform the work. Specifically, the Offeror must have fabrication management experience with artifact-based exhibits; expertise in exhibit projects that involve the retro-fitting of pre-existing structures; experience working with exhibit fabrication and installation projects; experience working with all forms of standard exhibit and current exhibit technology and cost estimating.
 - 4. Have a satisfactory record of performance and furnish references from three previous clients with projects of similar scope.

1.4 SUBMITTAL PROCEDURES

- A. Coordinate submittal preparation with Project schedule, fabrication lead-times, other submittals, and activities that require sequential operations.
 - 1. No extension of Contract Time will be authorized due to failure to transmit submittals in time to permit processing sufficiently in advance of when materials are required in the Work.
 - 2. Riggs Ward Design will not accept submittals from sources other than Contractor.
 - 3. Any and all structural issues related to the site and to the components and objects shown in the Contract Documents shall be brought to the attention of the Owner and Riggs Ward Design prior to the commencement of any work by the Offeror. The weight, dimensions and structure of any components shall be estimated and resolved prior to the commencement of any work by the Offeror. Neither the Owner nor Riggs Ward Design shall be liable for any structural, mechanical or any other issues caused by any item shown in the Contract Documents.
- B. Prepare submittals by placing a permanent label on each for identification. Provide a 4- by 5-inch space on the label or beside title block to record review and approval markings and action taken. Include the following information on the label:
 - 1. Project name.
 - 2. Date.
 - 3. Name and address of Contractor.
 - 4. Name and address of subcontractor or supplier.
 - 5. Number and title of appropriate Specification Section.
 - 6. Contractor's certification that materials comply with specified requirements.
- C. Coordinate each submittal with other submittals and with work that does not require submittals.
- D. Product Data: Mark each copy to show applicable choices and options. Include the following:
 - 1. Data indicating compliance with specified standards and requirements.
 - 2. Notation of coordination requirements.
 - 3. For equipment data, include rated capacities, dimensions, weights, required clearances, and furnished specialties and accessories.
- E. Shop Drawings: Submit newly prepared information drawn to scale. Do not reproduce Contract Documents or copy standard information. Submit one (1) reproducible print and two (2) blue- or black-line prints on sheets at least 8-1/2 by 11 inches but no larger than 30 by 42 inches. Do not use Product Data or Shop Drawings until they have been approved by Riggs Ward Design or the Owner. Riggs Ward Design may provide the Offerer electronic files for shop use. If the Offerer uses Riggs Ward's electronic files or printed drawings or any other Contract Documents in the execution of the Contract, it is the Offerer's sole responsibility to ensure that all components meet the design intent. Any and all drawings that contain erroneous dimensions, finishes, insufficient information or create any structural problems shall remain the sole responsibility of the Offerer regardless of whom they are provided by or if the drawings (including shop drawings) have been approved by the Owner or Riggs Ward Design. Approved and signed Shop Drawings must still meet the design intent of the Owner and Riggs Ward Design and final explanations and corrections to them and to the final fabricated products shall not incur additional costs and shall remain at the sole discretion of Riggs Ward Design. Include the following:
 - 1. Dimensions, profiles, methods of attachment, coordination with adjoining work, large scale details, and other information, as appropriate for the Work.
 - 2. Identification of products and materials.
 - 3. Notation of coordination requirements.
 - 4. Notation of dimensions established by field measurement.

- 5. Identification of deviations from Contract Documents must be shown in a numbered list (attached to the drawings) and in a color (either blue or red) on the drawings where each change has occurred next to the original text or graphical information shown in black.
- F. Samples: Submit Samples finished as specified and identical with the material proposed. Where variations are inherent in the material, submit sufficient units to show limits of the variations. Include product name or name of the manufacturer.
- G. Riggs Ward Design will review each submittal, mark as appropriate to indicate action taken, and return copies less those retained. Compliance with specified requirements remains Contractor's responsibility.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01300

SECTION 01700 - EXECUTION REQUIREMENTS

PART 1 - GENERAL

1.1 CLOSEOUT SUBMITTALS

- A. Record Drawings: Maintain a set of Contract Drawings as Record Drawings. Mark to show installation that varies from the Work originally shown.
- B. Record Specifications: Maintain one copy of the Project Manual, including addenda, as Record Specifications. Mark to show variations in Work performed in comparison with the text of the Specifications and modifications.
- C. Operation and Maintenance Data: Organize data into three-ring binders, with pocket folders for folded sheet information. Mark identification on front and spine of each binder. Include the following:
 - 1. Emergency instructions.
 - 2. Spare parts list.
 - 3. Copies of warranties.
 - 4. Wiring diagrams.
 - 5. Shop Drawings and Product Data.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 EXAMINATION AND PREPARATION

- A. Examine substrates and conditions for compliance with manufacturer's written requirements including, but not limited to, surfaces that are sound, level, and plumb; substrates within installation tolerances; surfaces that are smooth, clean, and free of deleterious substances; and application conditions within environmental limits. Proceed with installation only after unsatisfactory conditions have been corrected.
- B. Prepare substrates and adjoining surfaces according to manufacturer's written instructions, including, but not limited to, filler and primer application.
- C. Where Drawings indicate dimensions of existing construction verify by field measurement. Where fabricated products are to be fitted to other construction verify dimensions by field measurement before fabricating and, when possible, allow for fitting and trimming during installation.
- D. Final touch ups to painted surfaces may be required prior to final certification.

3.2 CUTTING AND PATCHING

- A. Do not cut structural members without prior written approval of the Owner or the Designer.

- B. For patching, provide materials whose installed performance will equal or surpass that of existing materials. For exposed surfaces, provide or finish materials to visually match existing adjacent surfaces to the fullest extent possible.

3.3 INSTALLATION

- A. Comply with manufacturer's written instructions for installation. Anchor each product securely in place, accurately located and aligned. Clean exposed surfaces and protect from damage. If applicable, prepare surfaces for field finishing.
- B. Comply with local and state codes for installation of electrically operated equipment and electrical components and materials.

3.4 FINAL CLEANING

- A. Clean each surface or item as follows before requesting inspection for certification of Substantial Completion:
 - 1. Remove labels that are not permanent.
 - 2. Clean transparent materials. Remove excess glazing compounds. Replace chipped or broken glass.
 - 3. Clean exposed finishes to a dust-free condition, free of stains, films, and foreign substances.
 - 4. Vacuum all carpeted and tile surfaces.

3.5 CLOSEOUT PROCEDURES

- A. Request Substantial Completion inspection once the following are complete:
 - 1. Advise Owner of pending insurance changeover requirements.
 - 2. Submit Record Drawings and Specifications, maintenance manuals, warranties, and similar record information.
 - 3. Changeover locks and transmit keys to Owner.
 - 4. Complete startup testing of systems and instruction of operation and maintenance personnel.
 - 5. Complete final cleanup.
 - 6. Touch up, repair, and restore marred, exposed finishes.
- B. On receipt of a request for inspection, Designer will proceed with inspection or advise Contractor of unfilled requirements. Designer will prepare the Certificate of Substantial Completion after inspection or advise Contractor of items that must be completed or corrected before the certificate will be issued.
- C. Arrange for each installer of equipment that requires operation and maintenance to provide instruction to Owner's personnel. Include a detailed review of the following:
 - 1. Startup and shutdown.
 - 2. Maintenance manuals.
 - 3. Spare parts, tools, and materials.
 - 4. Identification systems.
 - 5. Control sequences.
 - 6. Warranties and bonds.
- D. Request inspection for certification of final acceptance, once the following are complete:

1. Submit a copy of the Substantial Completion inspection list stating that each item has been completed or otherwise resolved for acceptance.
- E. Designer will re-inspect the Work on receipt of notice that the Work has been completed.
1. On completion of re-inspection, Designer will prepare a certificate of final acceptance. If the Work is incomplete, Designer will advise Contractor of the Work that is incomplete or obligations that have not yet been fulfilled.

END OF SECTION 01700

SECTION 09912 - PAINTING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Summary: Paint all exposed surfaces of Bio Panel Support Structures as indicated in the Construction Drawings.
 - 1. Paint the base plates as well as the front and back-side of structures.
 - 2. Do not paint pre-finished items, finished metal surfaces, operating parts, labels, and materials obviously intended to be left exposed such as brick and tile.
 - 3. Unless otherwise indicated do not paint concealed surfaces.
- B. Submittals: Product data and color samples.
- C. Bio Panel Support Structures: Full-coat finish sample (benchmark sample) of each type of coating, substrate, color, and finish.
- D. Obtain metal etching and/or block fillers, primers, and undercoat materials for each coating system from the same manufacturer as the finish coats.
- E. Extra Materials: Deliver to Owner a 1-gal. container, properly labeled and sealed, of each color and type of finish coat paint used on Project.

PART 2 - PRODUCTS

2.1 PAINT

- A. Benjamin Moore - Regal® AquaVelvet® Eggshell 319 (latex) – Satin finish for frames
 - 1. Colors:
 - a. PNT-1
 - b. PNT-2
- B. Material Quality: Manufacturer's best-quality of coating types specified.
- C. Material Compatibility: Complete system of compatible components that is recommended by manufacturer for application indicated.

PART 3 - EXECUTION

3.1 APPLICATION

- A. Comply with paint manufacturer's written instructions for surface preparation, environmental and substrate conditions, product mixing, and application.

3.2 INTERIOR PAINT APPLICATION SCHEDULE

A. Hardwood framing: As follows:

1. Satin Acrylic: Two coats over primer.

B. Aluminum trim: As follows:

1. Satin, Acrylic: Two coats over primer.

END OF SECTION 09920

SECTION 101200 - DISPLAY CASES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Display cases.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Sustainable Design Submittals:
 - 1. Product Data: For adhesives, indicating that product contains no urea formaldehyde.
 - 2. Laboratory Test Reports: For adhesives, indicating compliance with requirements for low-emitting materials.
 - 3. Product Data: For composite wood products, indicating that product contains no urea formaldehyde.
 - 4. Laboratory Test Reports: For composite wood products, indicating compliance with requirements for low-emitting materials.
- C. Shop Drawings: For display cases.
 - 1. Include plans, elevations, sections, and attachment details.
- D. Samples: For each exposed product and for each color and texture specified.

1.3 CLOSEOUT SUBMITTALS

- A. Maintenance data.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Flame-Spread Index: 25 or less.
 - 2. Smoke-Developed Index: 50 or less.
- B. Electrical Components: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.2 DISPLAY CASE DESCRIPTIONS

- A. Case type 1, refer to drwg. 4.04
Inset case with glazed door, sides and back panel. Case features a built-in case floor and desiccant chamber.

2.3 MATERIALS

- A. All cases to be factory-fabricated display cases; with finished interior, and glazed sides and doors at front or as indicated on the drawings.
- B. Case artifact chamber: all wall and floor panels to be powder coated Alumiwell panels.
- C. Case base: to be powder coated aluminum and painted MDF cladding. Case bases/ areas other than artifact chamber: to be steel with powder coated finish and MDF painted cladding. Base of each modular unit to have levelers, qty as req'd. Case base and floor should be capable of supporting an object that weighs a minimum of 250 lbs.
- D. Glass to be 10 mm, low iron, extra clear, laminated safety glass.
- E. Climate control: where indicated provide a microclimate environment/ desiccant chamber. Chamber to be accessible without opening case envelope. Allow for an air exchange rate (AER) of 0.1 air changes per day (AC/D) or less.
- F. Trim: Extruded-aluminum trim on top, bottom, and sides.
- G. Frame construction: depending on case size, aluminum or steel structure and side panels.
- H. Glazed Hinged Doors: hinged door/s should consist of laminated clear, water-white low-E glass; unframed; with extruded-aluminum top and bottom track; supported on nylon pivot or articulated mechanical hinge; with plastic guides and rubber bumpers. Equip each door with ground finger pull and adjustable cylinder lock with two keys. Exposed glass edges to be ground and polished. Door rails and vitrine support frames to be welded steel with powder coated finish.
 - 1. Number of Doors: As shown on Drawings
- I. Composite Wood Products: Products shall be made without urea formaldehyde shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
- J. MDF (Medex) to meet or exceed ANSI A208.2 Grade 155 and exceed requirements of ASTM D1037 six cycle accelerated aging test
- K. Extruded-Aluminum Bars and Shapes: ASTM B 221, Alloy 6063.
- L. Aluminum Tubing: ASTM B 429/B 429M, Alloy 6063.

- M. Clear Laminated Glass: ASTM C 1048, Kind FT, Condition A, Type I, Class 1, Quality Q3, with exposed edges seamed before tempering.
- N. Adhesives: Do not use adhesives that contain urea formaldehyde. Instead use adhesives that meet the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
- O. Aluminum and steel finishes- powder-coat Finish: AAMA 2603, except with a minimum dry film thickness of 1.5 mils. Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.
 - a. Color: As selected by the Designer from manufacturer's full range.

2.4 FABRICATION

- A. Fabricate display cases to requirements indicated for dimensions, design, and thickness and finish of materials.
- B. Use metals and shapes of thickness and reinforcing required to produce flat surfaces, and to impart strength for size, design, and application indicated.
- C. Fabricate cabinets and door frames with reinforced corners, mitered to a hairline fit, with no exposed fasteners.
- D. Fabricate shelf standards plumb and at heights to align shelf brackets for level shelves.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Install units in locations and at mounting heights indicated on Drawings, or if not indicated, at heights indicated below. Keep perimeter lines straight, level, and plumb. Provide grounds, clips, backing materials, adhesives, brackets, anchors, trim, and accessories necessary for complete installation.
- B. Surface-Mounted Display Cases: Attach units to wall surfaces with concealed clips, hangers, or grounds fastened at not more than 16 inches o.c. Secure tops and bottoms of display cases to walls.
- C. Display Case: Set display case in place, DO NOT MOUNT TO FLOOR.
- D. Install display case shelving level and straight.

END OF SECTION 101200

SECTION 10432 - GRAPHICS

PART 1 - GENERAL

1.1 CORRESPONDING DOCUMENTS

- A. Bid or Construction Drawings
- B. Graphic Specifications

1.2 MATERIALS PROVIDED TO COMPLETE WORK

- A. Contractor shall provide appropriate care and handling of all materials, including but not limited to: exhibit components, computers, electronics, and historically significant items provided by Riggs Ward Design, the multimedia firm, and the Owner and shall return all materials in the same condition as provided.
- B. Appropriate amounts of insurance coverage for loss and damage of materials provided must be obtained by the Contractor prior to acceptance of materials and shall remain in effect until all materials have been returned to and inspected by the Owner.

1.3 VERIFICATIONS

- A. Graphics Including Type: Contractor shall verify that all text is properly proportioned to fit within the parameters specified in the Graphics Specifications and Construction or Bid Drawings. Line lengths, cropping dimensions of images and type size compliance with the Americans with Disabilities Act (ADA) shall be verified by the Contractor. Over usage of hyphens (i.e., more than one per paragraph), improper line breaks, and inflated type shall be corrected as requested by the Owner in a timely manner.
- B. Proofs: At least three (3) rounds of proofs of all graphics shall be provided to the Owner and Riggs Ward Design for approvals. Proofs shall be such that final output quality can be determined. Reasonable review times shall be given to the Owner and Riggs Ward Design.

PART 2- PRODUCTS

2.1 Materials Provided by Contractor

- A. Substrates: Contractor shall verify that all substrates comply with those shown in the Graphic Specifications and the Bid or Construction Documents. Use of any substrates or materials not specified shall result in complete replacement of said components at no additional cost to Riggs Ward Design or the Owner. The Contractor shall verify the structural integrity and function of substrates and mounting techniques in order to ensure that surfaces are free of distortions, warping, or sag (and remain stable after installation) and do not interfere with the Design Intent.
- B. Edges of all graphics shall wrap substrates unless otherwise noted. Should back of component or graphic be visible, wrapped edges should be concealed, trimmed, or finished in a manner that complies with the Design Intent. Where edge wrapping obstructs an aesthetic outcome, Contractor shall finish the graphic in a manner that is consistent with other graphic components and only after approval in writing by Riggs Ward Design and well prior to the occurrence of additional costs.

PART 3- EXECUTION

3.1 INSTALLATION NOTES

- A. The Graphic Specifications and Construction Documents locate exact or intended locations for all components.

END OF SECTION 10432

SECTION 10433 – ARTIFACT MOUNTS AND FRAMES

PART 1 - GENERAL

1.1 CORRESPONDING DOCUMENTS

- A. Bid or Construction Drawings
- B. Mount Specifications

1.2 MATERIALS PROVIDED TO COMPLETE WORK

- A. Contractor shall provide appropriate care and handling of all materials, including but not limited to: exhibit components, computers, electronics, and historically significant items provided by Riggs Ward Design, and the Owner and shall return all materials in the same condition as provided.
- B. Appropriate amounts of insurance coverage for loss and damage of materials provided must be obtained by the Contractor prior to acceptance of materials and shall remain in effect until all materials have been installed and inspected by the Owner.

1.3 VERIFICATIONS

- A. Design Intent: It is the responsibility of the Contractor to ensure that the aesthetic intent shown in the Graphic Specifications and Bid or Construction Documents is achieved. Substitution materials shall be allowed only with written permission from Riggs Ward Design and the Owner.
- B. Coordinate and confirm component delivery schedules and specifications with Riggs Ward Design and the Owner to ensure timely installation of audio-visual components, computers, and electronics. Contractor shall not be compensated for time or materials when proper coordination of services has not occurred.
- C. Schedule: Within ten (10) working days of award the Contractor shall provide Riggs Ward Design and the Owner with a production and installation schedule. Deviations from the schedule shall be submitted in writing upon realization of any factor that may affect the delivery of proofs, final delivery and installation.

PART 2- PRODUCTS

2.1 MATERIALS PROVIDED BY CONTRACTOR

- A. Objects: Objects such as the aircraft wing can be supported from above using appropriately sized (500 lb tensile strength) aircraft cable, crimps and eye hooks. The cable should extend to and be attached to structure above. Where the cable comes in contact with the artifact, a piece of heat shrink PETG should act as a buffer between the object and the artifact.
- B. Objects: Objects such as the flange/ base of the aircraft propeller should be secured to the base of the case by way of custom flanges. This piece should be secured at a minimum of 3 points. Where the flange comes in contact with the artifact, a piece of color matched felt should act as a buffer between the object and the artifact. All mount hardware should be painted to match the adjacent surface.

- C. All materials to conform to ANSI/NISO Z39.79 - 2001 Environmental Conditions for Exhibiting Library and Archival Materials, esp. section 8 re: display considerations and structures, and appendix C re: materials safe/unsafe to use with library materials. The entire standard can be downloaded at:
http://www.niso.org/standards/std_preserv_store.html#Z39.79

PART 3- INSTALLATION NOTES

3.1 Mounts and Bid or Construction Documents

- A. The Mount Specifications and Construction Documents locate exact or intended locations for all components.

END OF SECTION 10432

SECTION 16550 – AUDIO VISUAL AND INTERACTIVE SYSTEMS

PART I – GENERAL

1.1 SUMMARY

- A. It is the intention of the Specifications and Drawings to call for finished work, tested, and ready for operation.
 - 1. Any apparatus, material, programs and media or Work described in either the Drawings or the Specifications and any incidental accessories necessary to make the Work complete in all respects and ready for operation (even though not particularly specified) shall be furnished, delivered and installed by the Contractor without additional expense to the Owner.
 - 2. Minor details not usually shown or specified but necessary for proper installation and operation are included in the Work as if specified herein or shown on the Drawings.
- B. Description: Work in this section includes, but is not limited to, purchasing, installing and coordinating a fully operational AV and Interactive system. The Contractor shall thoroughly familiarize themselves with the Project and conditions that may affect the Audio Visual and Interactive Systems Scope of Work. Report any conditions that would prevent the complete installation of the Work to the Contracting Officer, Owner, and Exhibit Designer in writing as soon as the condition is observed. No waiver of responsibility will be considered unless the above instructions are carried out. Sections below include:
 - 1. System Description
 - 2. Submittals
 - 3. Quality Assurance
 - 4. Delivery, Storage, and Handling
 - 5. Project Conditions
 - 6. Warranty
 - 7. System Startup
 - 8. Manufactured Units, Related Equipment
 - 9. Accessories and Components
 - 10. Source Quality Control
 - 11. Installers
 - 12. Examination
 - 13. Installation
 - 14. Field Quality Control
 - 15. Adjusting
 - 16. Cleaning
 - 17. Demonstration
 - 18. Protection
- C. Each unique Audio Visual or Interactive System requires a working prototype for approval, if accepted, the working prototype may become part of the finished work. Prototypes do not relieve the fabricator of shop drawings to control dimensions and coordinate finishes within the exhibit environment. See Section 1300 Submittals and Prototypes for more information. Interactives systems to include:
 - 1. Interactive Monitor Station
 - i. Elo 5554L 55” Digital Signage Touchscreen E104131
 - ii. SNUC RNUC15CRKI3 with Windows 11 Pro
 - iii. Chief RMF3 Medium Fit Fixed Mount
 - iv. HDMI, USB, and other cables as required

v. Surge protector

- D. All engineering services and testing/prototyping of structural integrity and stability of the exhibit components, including support and loads on freestanding items, and coordination with electrical systems provided as part of the base building or space preparation, are the responsibility of the Exhibit Fabricator.
- E. Compliance with life safety and disability codes and regulations: It is the responsibility of the Exhibit Fabricator to investigate and ensure they fully comply with all Federal, State or municipal codes and other local laws, ordinances, rules and regulations that will be in effect at the job site during the installation and commissioning period. All such rules, regulations and ordinances will be deemed to apply to the Contract throughout and are to be included in the Contract as through written out in full. Including but not limited to:

- BOCA National Building Code
 - UBC Building Code
 - Americans with Disabilities Act (ADA)
 - Uniform Disability Accessibility Guide (UDAG)
 - NFPA 70 and other applicable local electrical code
 - Furnish products listed by UL or other authorized testing firm
 - All other requirements and regulations of local authorities having jurisdiction

- F. All AV Programs and Interactive Software for this project is to be produced and provided by (Owner.) If needed, the successful bidder shall coordinate with the interactive designer (in this case the Owner), for work on the Project. **Ensure the equipment specified is capable of achieving the end result intended by the Exhibit Designer.** Provide for interim prototyping of programs and coordination meetings as required. Show anticipated mock-up or coordination dates on schedules and work plans.

1.2 AUDIO VISUAL AND INTERACTIVE SYSTEMS:

See Drawings and AV treatment document and coordinate with Owner for the complete list of systems and programs.

- A. Exhibit Contractor Scope of Work – Equipment, installation, mock-ups, prototypes, enclosure, hardening, support and mounting.
- B. Software and Media Provider, (in this case, the Owner), is responsible for authoring and installing electronic versions of final Audio Visual and Interactive programs. Copies of this program are to be delivered to the Designer at the end of the project.

1.3 PROTECTION OF EXISTING CONSTRUCTION

- A. Contractor shall use extreme caution when installing materials in existing finished walls, and partitions. Contractor shall not interrupt the building electrical, mechanical, or sprinkler service without the expressed permission of the Owner and Facility Manager. Contractor shall restore or have restored, at their expense, any damage to the original condition caused by their activity.

1.3 QUALITY ASSURANCE

- A. Qualification of Workforce: Provide sufficiently skilled workers and supervisors present at all times during the execution of the Work.

- B. Codes and Standards: In addition to complying with all applicable Federal, State and other local codes and regulations of authorities having jurisdiction as indicated above, comply with the following:
 - 1. National Electric Code (NEC), current edition
 - 2. Requirements of Underwriters Laboratories (UL) Incorporated, for all items for which UL standards have been established and/or provide equipment listed with an approved independent testing laboratory, such as Underwriters Laboratories, Inc.
- C. Contractor/Installer Qualifications: Company specializing in the systems integration of products specified in this Section with a minimum of five years experiences with projects of a similar nature. Contractors must be authorized dealers and service centers for the majority of the equipment specified. They must maintain a fully staffed place of business within one hundred miles of the project location, both during the installation and warranty phases. Project Manager(s) assigned to this effort must CTS certified by the International Communications Industries Association.

1.4 COORDINATION

- A. Coordinate the installation of items with the schedules of other trades to prevent unnecessary delays, Advise Contracting Officer of complete detailed installation schedule and any updates.
- B. Where items are shown in conflict with locations of structural members and mechanical or other equipment, furnish and install required support and wiring to clear the encroachment at no additional cost to the Owner.
- C. Accuracy of Data: the data indicated on the Drawings are as exact as could be secured, but accuracy is not guaranteed. Field measurements are required.

1.6 SYSTEM DESCRIPTION

- A. Design Requirements:
 - 1. Provide concealed wiring wherever possible
- B. Interface with Adjacent Work:
 - 1. Provide concealed wiring wherever possible.
 - 2. Attachment considerations: Account for site peculiarities and expansion and contraction movements so there is no possibility of loosening, weakening or fracturing connections and attached components.
- B. Interface with Adjacent Work:
 - 1. Integrate design and connections with adjacent construction.

1.7 Submittals

- A. Product Data: Submit following
 - 1. Complete manufacturers product data for equipment, controls, accessories, wiring and cabling.
- B. Shop Drawings:
 - 1. Submit shop drawings for:
 - a. Equipment layout

- b. Wiring layout
- c. Control System Touch Screen panel layouts, screen design and text.

C. Closeout Submittals: Submit following in accordance with relevant Section:

- 1. Operation and maintenance manuals. Include wire list and block diagrams with referenced wire numbers identifying each connection. Quantity required: Two indexed sets in three-ring binders.
- 2. Warranty as indicated below and as contracted with Owner,
- 3. Project Record Documents: Submit in accordance with relevant Section. Record actual locations of wiring and concealed conditions. Quantity required: Two sets of prints, one Mylar (reproducible) set and two sets of diskettes with files in Auto CAD, verify preferred version with Contracting officer prior to submittal.

1.8 Delivery, Storage, and Handling

- A. Packing, Shipping, Handling and Unloading: Exercise care to contain and maintain equipment and components. Prevent impact to items, which may result in damage to components.
- B. Storage and Protection: Store in cool, dry location. Do not stack items beyond manufacturers acceptable limitations,

1.9 Project Conditions

- A. Do not install exhibit items or equipment into non-conditioned spaced. Interference with the exhibit schedule due to delays caused by the General or Space Preparation contractor shall be brought to the attention of the Owner immediately.
- B. Environmental Requirements: Comply with manufacturers written requirements under which products can be stored and installed.
- C. Existing Conditions:
 - 1. Field verify existing conditions prior to fabricating and installing the work in this Section
 - 2. Verify all measurements in the field.

1.10 Warranty

- A. Special Warranty: Prepare and submit in accordance with relevant Sections.
 - 1. Warrant installed units to be free from defects in material and workmanship for a period of not less than 1 year from date of acceptance. All repairs will be made on-site at not cost to the Owner for the full warranty period.

1.11 System Startup

- A. Starting of Systems: all systems are to be initiated and demonstrated to the Owner and/or their designated representative.

Part 2 – PRODUCTS

2.1 Manufactured Units, Related Equipment, and Components

- A. See Bill of Materials for selected products and manufacturers. Coordinate with AV and Interactive Producers' Documents. Confirm final scope of work with Owner, Contracting Officer and Exhibit Designer.

2.2 Accessories

- A. Cable connecting components shall carry audio, video, data and other electrical signals. Cables shall be shielded and properly separated from other electrical work to prevent interference produced by adjacent equipment. Wiring shall be low-loss rated for use in a plenum environment.
- B. Label wiring and wire terminations with product similar to E-Z Code Wire Markers by Thomas & Betts. Clearly indicate wire identification numbers.

2.3 Source Quality Control

- A. Verification of Performance: Verify performance of each component and each piece of equipment prior to installation.

Part 3 – EXECUTION

3.1 Installers

- A. All on-site work must comply with job-site requirements in force at the time, including those of applicable building trades.

3.2 Examination

- A. General: Examine conditions, field verify dimensions and clearances, and notify the Owner of any discrepancies.
- B. Confirm that adjacent work, including finish work, is complete, except where wiring and cabling shall be concealed within finish work.

3.3 Installation

- A. Audio-Visual Equipment: Install in accordance with relevant Section, the National Electrical Code, state and local codes, and approved shop drawings.

3.4 Field Quality Control

- A. Site tests and Inspections: Field test each component and piece of equipment to confirm proper operation, including control systems, Run equipment and perform functions expected during normal use after Substantial Completion. Correct functions and connections as needed for complete and proper installation based on testing.

3.5 Adjusting

- A. General: Adjust parts and components for smooth, uniform operation with no interference

3.6 Cleaning

- A. General: Comply with relevant Section.
 - 1. Clean as recommended by the manufacturer. Remove labels, markings, soil, debris, dust and dirt. Do not use materials or methods, which may damage equipments function or finish.

3.7 Demonstration

- A. Demonstrate set-up operation and simple maintenance, such as re-lamping or projectors
- B. Provide not less then one hours of training for key operators (i.e., technical staff) and 30 minutes of training for casual operators (end users)

3.8 Protection

- A. Protect finished work as required from damage.

END OF SECTION 16550

SECTION 057500 - DECORATIVE FORMED METAL

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Decorative-metal-clad, Bio Panel Support Structures.
 - 2. Metal base.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product, including finishing materials.
- B. Shop Drawings: Show fabrication and installation details for decorative formed metal.
 - 1. Include plans, elevations, component details, and attachment details.
 - 2. Indicate materials and profiles of each decorative formed metal member, fittings, joinery, finishes, fasteners, anchorages, and accessory items.
- C. Samples: For each type of exposed finish required, prepared on 6-inch square Samples of metal of same thickness and material indicated for the Work.

1.3 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: For decorative formed metal elements that house items specified in other Sections. Show dimensions of housed items, including locations of housing penetrations and attachments, and necessary clearances.
- B. Evaluation Reports: For post-installed anchors, from ICC-ES.

PART 2 - PRODUCTS

2.1 SHEET METAL

- A. General: Fabricate products from sheet metal without pitting, seam marks, roller marks, stains, discolorations, or other imperfections where exposed to view on finished units.
- B. Aluminum Sheet: Flat sheet complying with ASTM B 209, alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with strength and durability properties of not less than Alloy 5005-H32.

2.2 MISCELLANEOUS MATERIALS

- A. Filler Metal and Electrodes: Provide type and alloy of filler metal and electrodes as necessary for strength, corrosion resistance, and compatibility in fabricated items.
 - 1. Use filler metals that will match the color of metal being joined.
- B. Fasteners: Fabricated from same basic metal and alloy as fastened metal unless otherwise indicated.
 - 1. Provide $\frac{3}{4}$ " x 18 gauge brad nails for exposed fasteners that connect leading and trailing edge trims to adj. hardwood structure otherwise indicated. Space 2" o.c.
- C. Anchors: Provide fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC193
- D. Anchor Materials:
 - 1. Material for Interior Locations: Carbon-steel components zinc plated to comply with ASTM B 633 Class Fe/Zn 5, unless otherwise indicated.

2.3 PAINTS AND COATINGS

- A. Etching Cleaner for Galvanized Metal: Complying with MPI#25.
- B. Universal Shop Primer for Ferrous Metal: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79 and compatible with topcoat.

2.4 FABRICATION, GENERAL

- A. Shop Assembly: Preassemble decorative formed metal items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.
- B. Increase metal thickness or reinforce with concealed stiffeners, backing materials, or both, as needed to provide surface flatness and sufficient strength for indicated use.
 - 1. Support joints with concealed stiffeners as needed to hold exposed faces of adjoining sheets in flush alignment.
- C. Where welding or brazing is indicated, weld or braze joints and seams continuously. Grind, fill, and dress to produce smooth, flush, exposed surfaces in which joints are not visible after finishing is completed.

2.5 METAL BASE

- A. Form continuous metal leading and trailing edges in thickness indicated below:
 - 1. Aluminum Sheet: 0.063 inch.

- a. Finish: Baked enamel or powder coat

2.6 ALUMINUM FINISHES

- A. Baked-Enamel or Powder-Coat Finish: AAMA 2603 except with a minimum dry film thickness of 1.5 mils. Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.
 1. Color and Gloss: to match PNT-1.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Locate and place decorative formed metal items level and plumb and in alignment with adjacent construction. Perform cutting, drilling, and fitting required to install decorative formed metal.
- B. Form tight joints with exposed connections accurately fitted together. Provide reveals and openings for sealants and joint fillers as indicated.
- C. Corrosion Protection: Apply bituminous paint or other permanent separation materials on concealed surfaces where metals would otherwise be in direct contact with substrate materials that are incompatible or could result in corrosion or deterioration of either material or finish.
- D. Restore finishes damaged during installation and construction period so no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit or provide new units.

END OF SECTION 057500

GERALD R. FORD AIRPORT- OBSERVATION DECK

CONSTRUCTION DOCUMENTS 100% DRAWING PACKAGE

OWNER:

GERALD R. FORD INTERNATIONAL AIRPORT

SITE:

5500 44TH STREET SE,
GRAND RAPIDS, MI 49512

CASEY RIES
T: 616.233.6040

EXHIBIT DESIGNER:

RIGGS WARD DESIGN
2315 WEST MAIN STREET
RICHMOND, VA 23220

MICHAEL RADTKE
T: 804.254.1740, EXT. 205







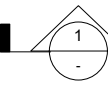

DRAWING INDEX

0.00	COVER
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ABBREVIATIONS:

ABV	ABOVE
AFF	ABOVE FINISH FLOOR
ALUM	ALUMINUM
BLW	BELOW
CL	CENTER LINE
CNC	COMPUTER NUMERICAL CONTROLLED
CONT	CONTINUOUS
DIA	DIAMETER
GWB	GYPSUM WALLBOARD
IFB	ISSUED FOR BID
MDF	MEDIUM DENSITY FIBERBOARD
N/A	NOT APPLICABLE
NIC	NOT IN CONTRACT
NFC	NOT FOR CONSTRUCTION
NTS	NOT TO SCALE
OC	ON CENTER
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
REQ	REQUIRED
SIM	SIMILAR
SPEC	SPECIFICATION
SS	SCREEN PRINT
STL	STEEL
UNO	UNLESS NOTED OTHERWISE
VIF	VERIFY IN FIELD
VO	VISIBLE OPENING [VISIBLE GRAPHIC AREA ONLY, NO BLEED]

DRAWING SYMBOLS:

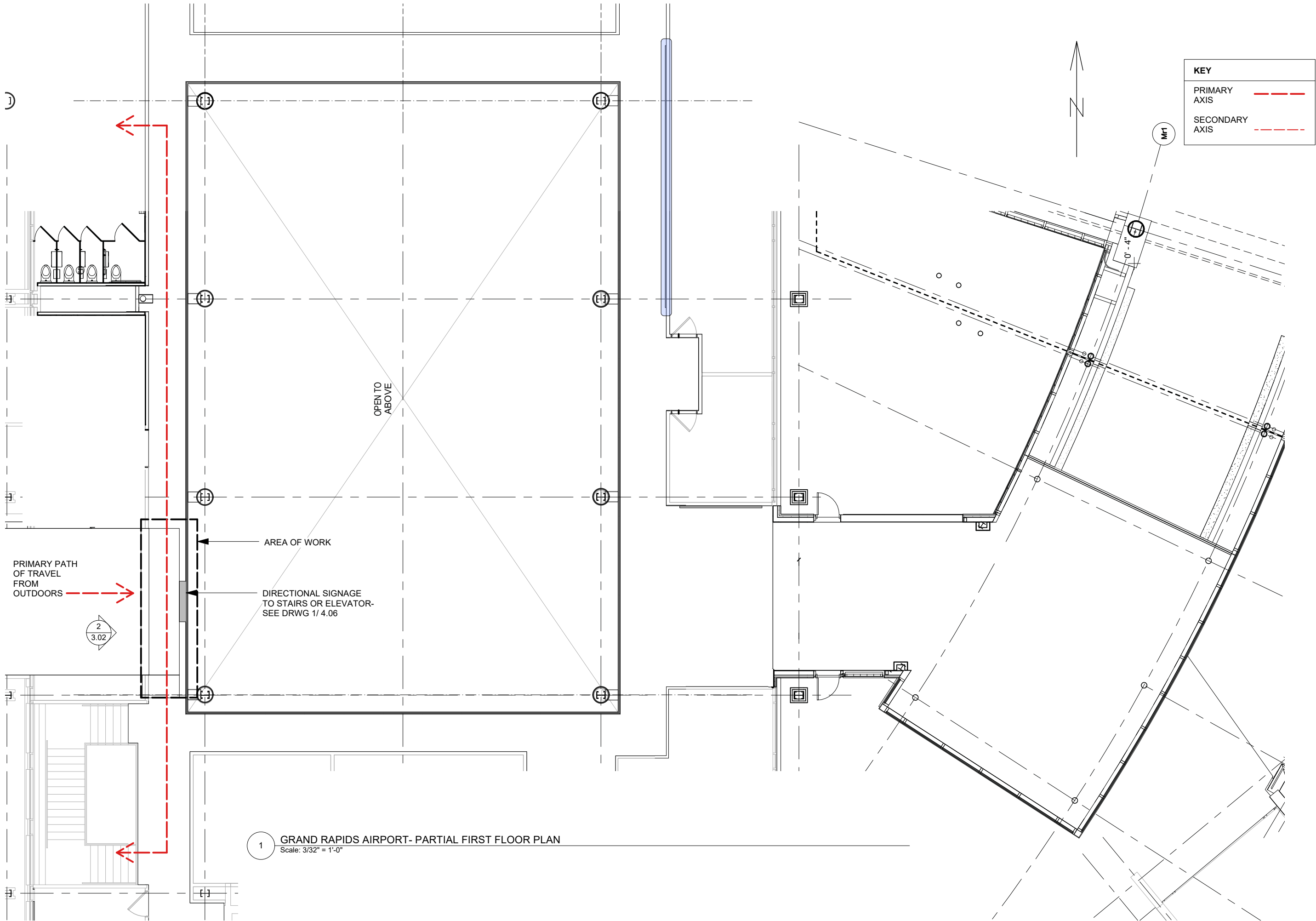
	ROOM LABEL
	REVISION MARKER
	DEMOLITION KEYED NOTE MARKER
	CENTER LINE MARKER
	MULTIPLE INTERIOR ELEVATIONS MARKER
	SINGLE INTERIOR ELEVATION MARKER
	SECTION MARKER
	DETAIL MARKER

GRAPHIC TYPES AND GRAPHIC SCHEDULE

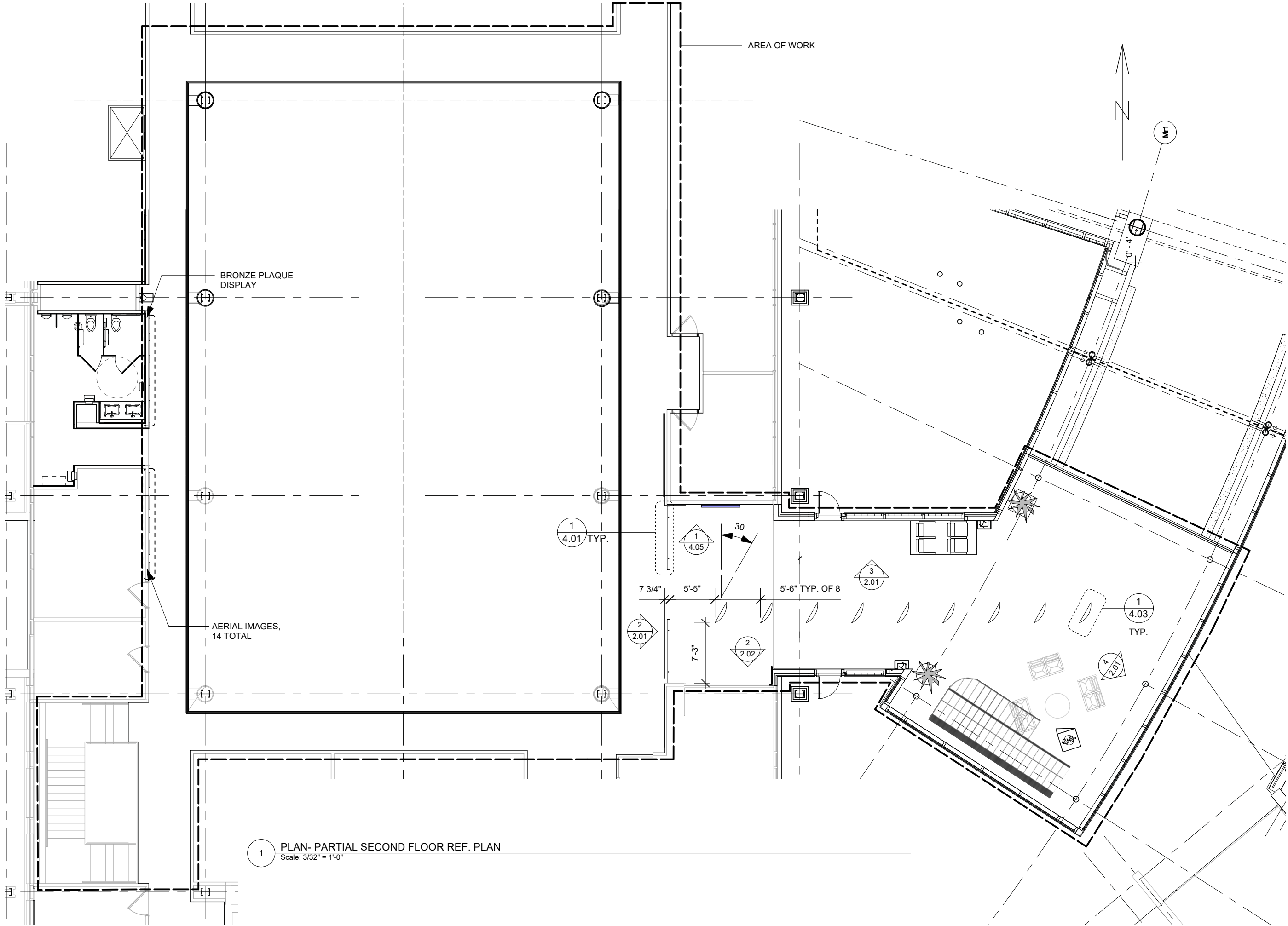
CODE	MANUFACTURER/VENDOR	DESCRIPTION		FINISH	NOTES
GR-1A	CUSTOM	WALL MTD. SEG FABRIC GRAPHIC W/ 1" D ALUMINUM EDGE EXTRUSION			
GR-1B	CUSTOM	WALL MTD. SEG FABRIC GRAPHIC W/ 1" D ALUMINUM EDGE EXTRUSION			W/ BLACK OUT BACKING
GR-2	CUSTOM	2 SIDED, INTERNALLY LIT, SEG FABRIC GRAPHIC W/ 4" D ALUMINUM EDGE EXTRUSION		-	
GR-3	3M	CONTROL- TAC VINYL W/ APPLIED UV LUSTRE LAMINATE AND WRAPPED EDGES ON 0.06" TH AL SIGNBLANK		MATTE	INTERPRETIVE GRAPHIC
GR-3	CUSTOM	ABACO BEACH WALLPAPER WITH MATTE LIQUID LAMINATE		MATTE	WALL PAPER SUPER GRAPHIC
GR-4	CUSTOM	DIRECT PRINT TO MATTE WHITE SIGN BLANK, W/ MATTE LIQUID LAMINATE		MATTE	CASE LABELS
GR-5	CUSTOM	DIRECT PRINT ON 3/4" THICK PAINTED MDF SUBSTRATE		MATTE	INTERPRETIVE GRAPHIC & QR CODE
		-			
		-			
ID #	LOCATION	DESCRIPTION	TYPE	HT / WD	NOTES
1.1A	1ST FLR DIRECTIONAL	INTRO COLUMN GRAPHIC - FRONT LEFT	GR-5	10" / 43"	
1.1B	1ST FLR DIRECTIONAL	INTRO COLUMN GRAPHIC - FRONT RIGHT	GR-5	10" / 82"	
1.2A	1ST FLR DIRECTIONAL	INTRO COLUMN GRAPHIC - BACK LEFT	GR-5	10" / 82"	
1.2B	1ST FLR DIRECTIONAL	INTRO COLUMN GRAPHIC - BACK RIGHT	GR-5	10" / 43"	
2.1	OBS. DECK ENTRY WALL	FAR LEFT SEG	GR-1A	60" / 78"	
2.2A	OBS. DECK ENTRY WALL	LEFT, 2 SIDED SEG, FRONT (W/ TITLE)	GR-2	82.5" / 92"	
2.2B	OBS. DECK ENTRY WALL	LEFT, 2 SIDED SEG, BACK	GR-2	82.5" / 92"	
2.3A	OBS. DECK ENTRY WALL	RIGHT, 2 SIDED SEG, FRONT	GR-2	82.5" / 92"	
2.3B	OBS. DECK ENTRY WALL	RIGHT, 2 SIDED SEG, BACK	GR-2	82.5" / 92"	
2.4	OBS. DECK ENTRY WALL	FAR RIGHT SEG	GR-1A	60" / 78"	
3.1	OBS. DECK	QUOTE/ MURAL, RT.	GR-1B	70" / 168.5"	W/ EXPOSED DOOR, AND COVERED WINDOW
3.2A	OBS. DECK	SURVEY OF AIRCRAFT TYPES- BACKGROUND	GR-3	109" / 153.75"	
3.2B	OBS. DECK	AIRCRAFT PANEL- TALL (QTY=4)	GR-5	59" / 16"	
3.2C	OBS. DECK	AIRCRAFT PANEL- SHORT (QTY= 4)	GR-5	45" / 16"	
3.3A	OBS. DECK	GRADATED BLUE BACKGROUND BEHIND TOUCH SCREEN INTERACTIVE	GR-3	72" / 155.75"	
3.3B	OBS. DECK	QR CODE PANEL	GR-5	6" / 6"	
3.4	OBS. DECK	BACKGROUND BEHIND AIRPLANE SEATS	GR-3	70" / 296.25"	W/ EXPOSED DOOR, AND WINDOWS
4.1	2ND FLR ATRIUM OVERLOOK	FRAMED PHOTO INTERP. PANEL	GR-5	19" / 21.5"	
5.1	NOT USED		-	-	
6.1	OBS. DECK	BIO PANEL- B. STOUT	GR-5	36" / 24"	
6.2	OBS. DECK	BIO PANEL- ROGER B. CHAFFEE	GR-5	36" / 24"	
6.3	OBS. DECK	BIO PANEL- MILDRED "JANE" (BAESSLER) DOYLE	GR-5	36" / 24"	
6.4	OBS. DECK	BIO PANEL- VIRGIL W. NISHIMURA	GR-5	36" / 24"	
6.5	OBS. DECK	BIO PANEL- PRESIDENT GERALD R. FORD	GR-5	36" / 24"	
6.6	OBS. DECK	BIO PANEL- BERNARD "BERNIE" JEFFERSON	GR-5	36" / 24"	
6.7	OBS. DECK	BIO PANEL- WILLIAM "BILL" LEAR	GR-5	36" / 24"	
6.8	OBS. DECK	THOMAS E. WALSH	GR-5	36" / 24"	
6.9	OBS. DECK	DANIEL WATERS CASSARD	GR-5	36" / 24"	
7.1	OBS. DECK	PROPELLER CASE INTERP. PANEL	GR-4	12" / 24"	SUPPORT INSIDE CASE AT BASE AT 45 DEGREES
					AT 45 DEGREES

FINISH AND MATERIAL SCHEDULE

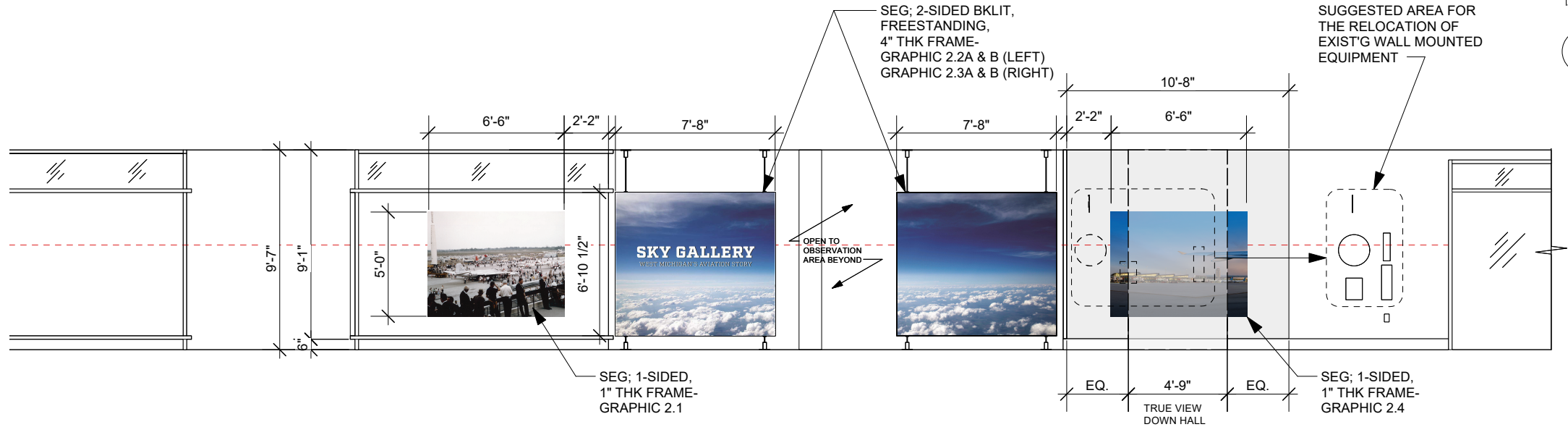
CODE	MANUFACTURER / VENDOR	DESCRIPTION	FINISH	NOTES/ APPLICATION
PNT-1	SHERWIN WILLIAMS	SW 7056 RESERVED WHITE	SATIN	BIO PANEL STRUCTURES
PNT-2	SHERWIN WILLIAMS	SW 2119-60 SILVER LINING	SATIN	BACKER PANELS FOR BRONZE PANELS
PC-1	RAL POWDERCOAT	CLEAR ANODIZED FINISH	SATIN	TITLE SIGNAGE HARDWARE & EXHIBIT CASE TRIM
PNL-1	MEDEX			GRAPHIC PANEL SUBSTRATES AND CASE BASE



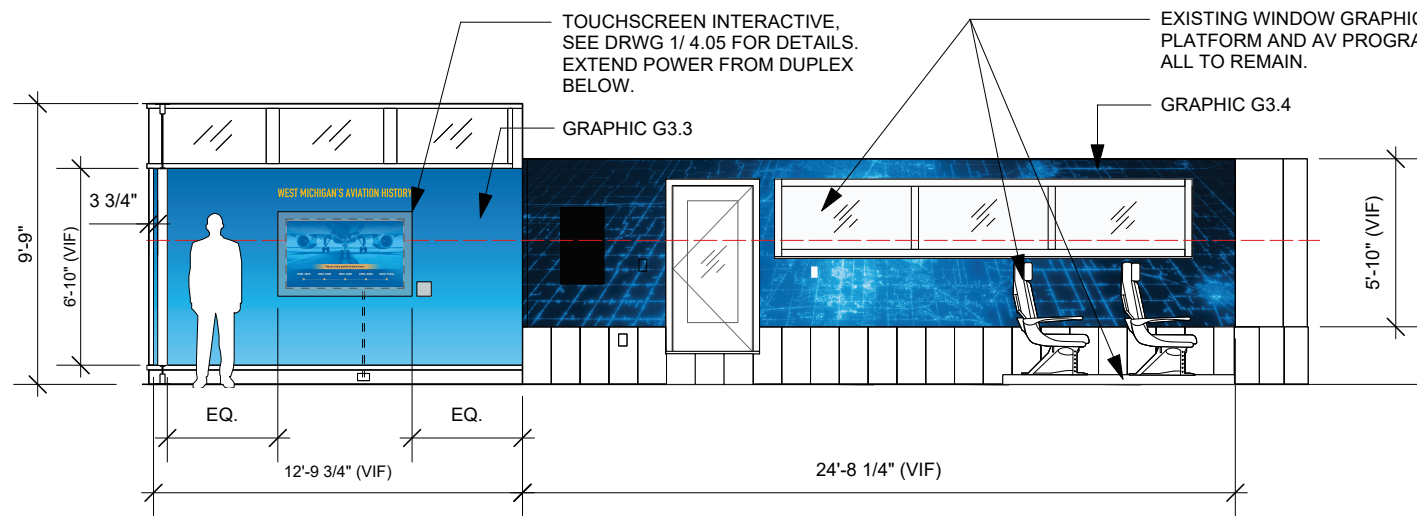
1 GRAND RAPIDS AIRPORT- PARTIAL FIRST FLOOR PLAN
Scale: 3/32" = 1'-0"



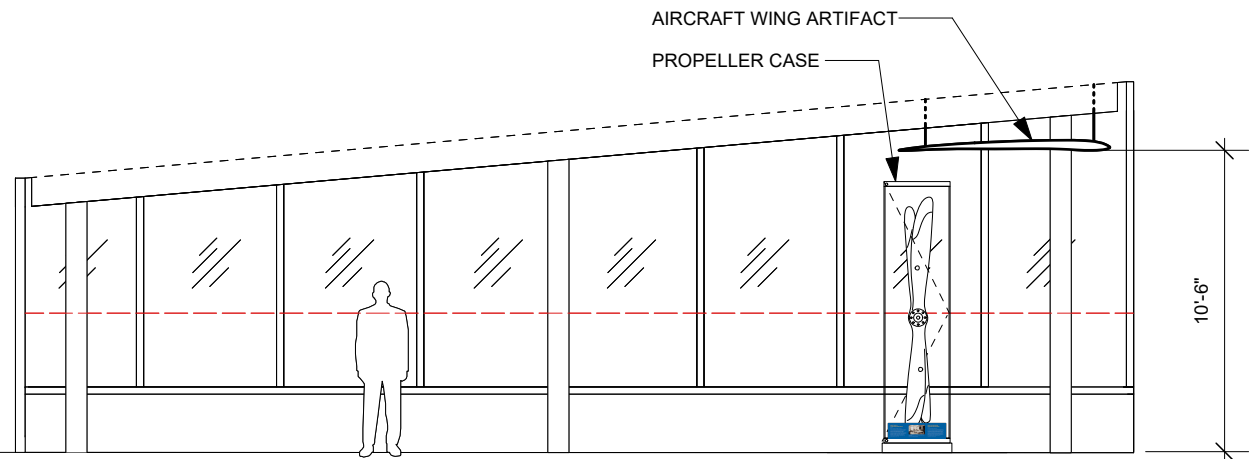
1 PLAN- PARTIAL SECOND FLOOR REF. PLAN
Scale: 3/32" = 1'-0"



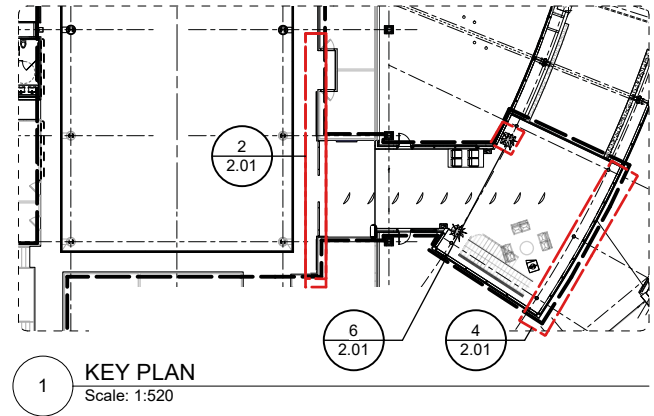
2 EAST ELEVATION- ENTRANCE TO OBSERVATION DECK
Scale: 1:80

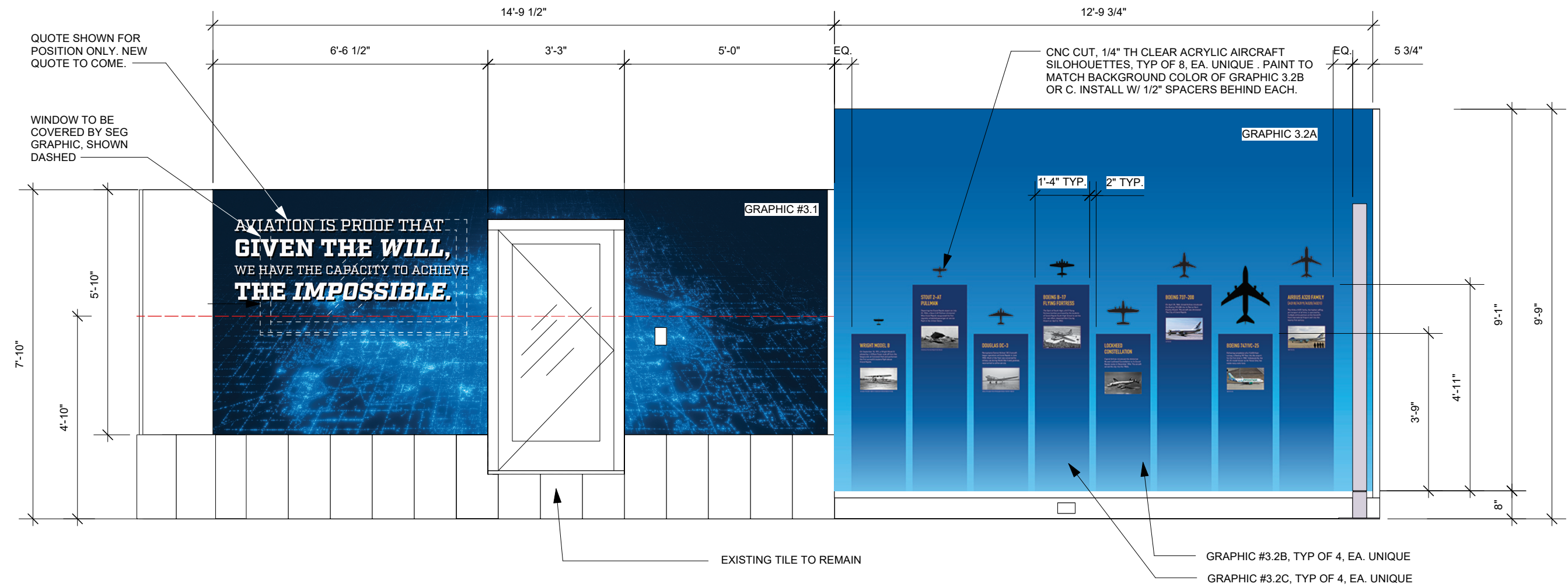
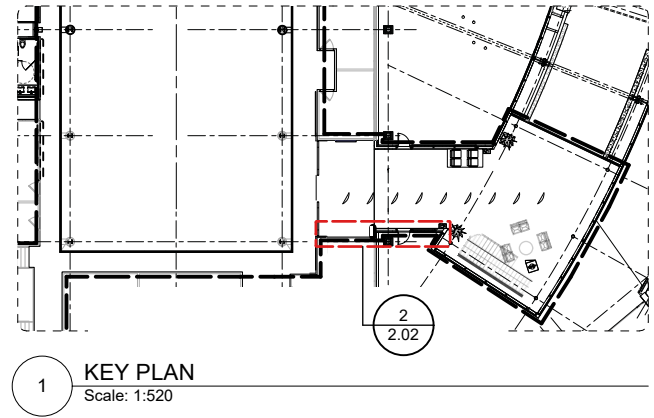


3 NORTH ELEVATION
Scale: 1:80

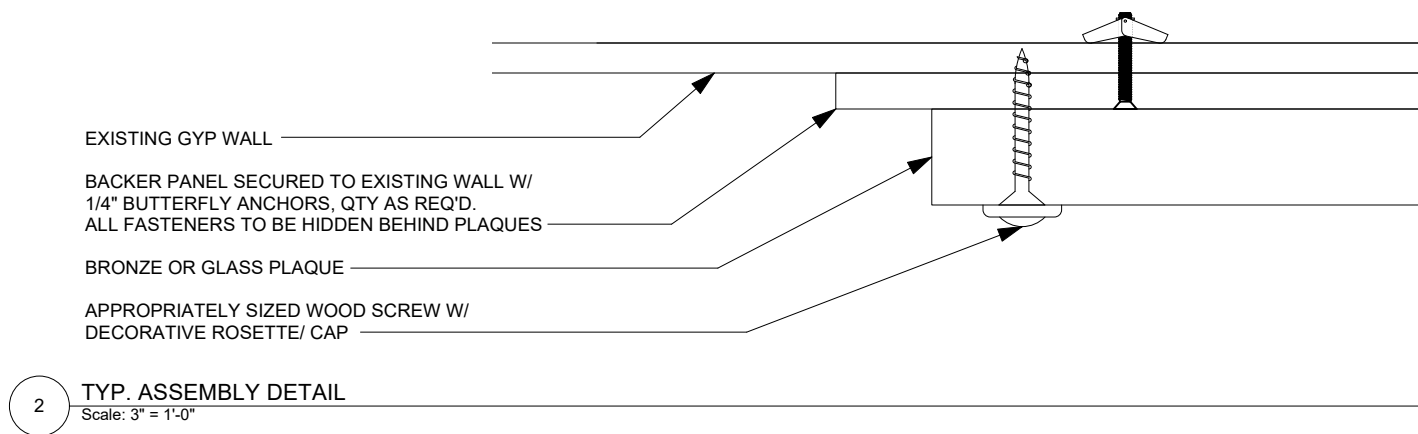
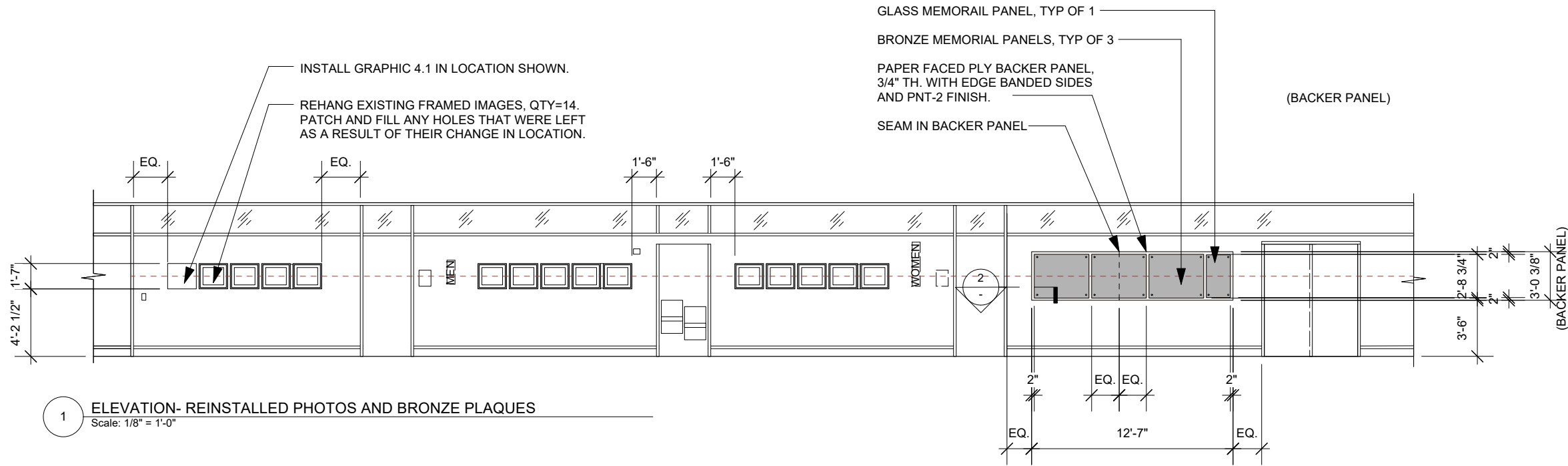


4 SOUTHEAST ELEVATION
Scale: 1:80



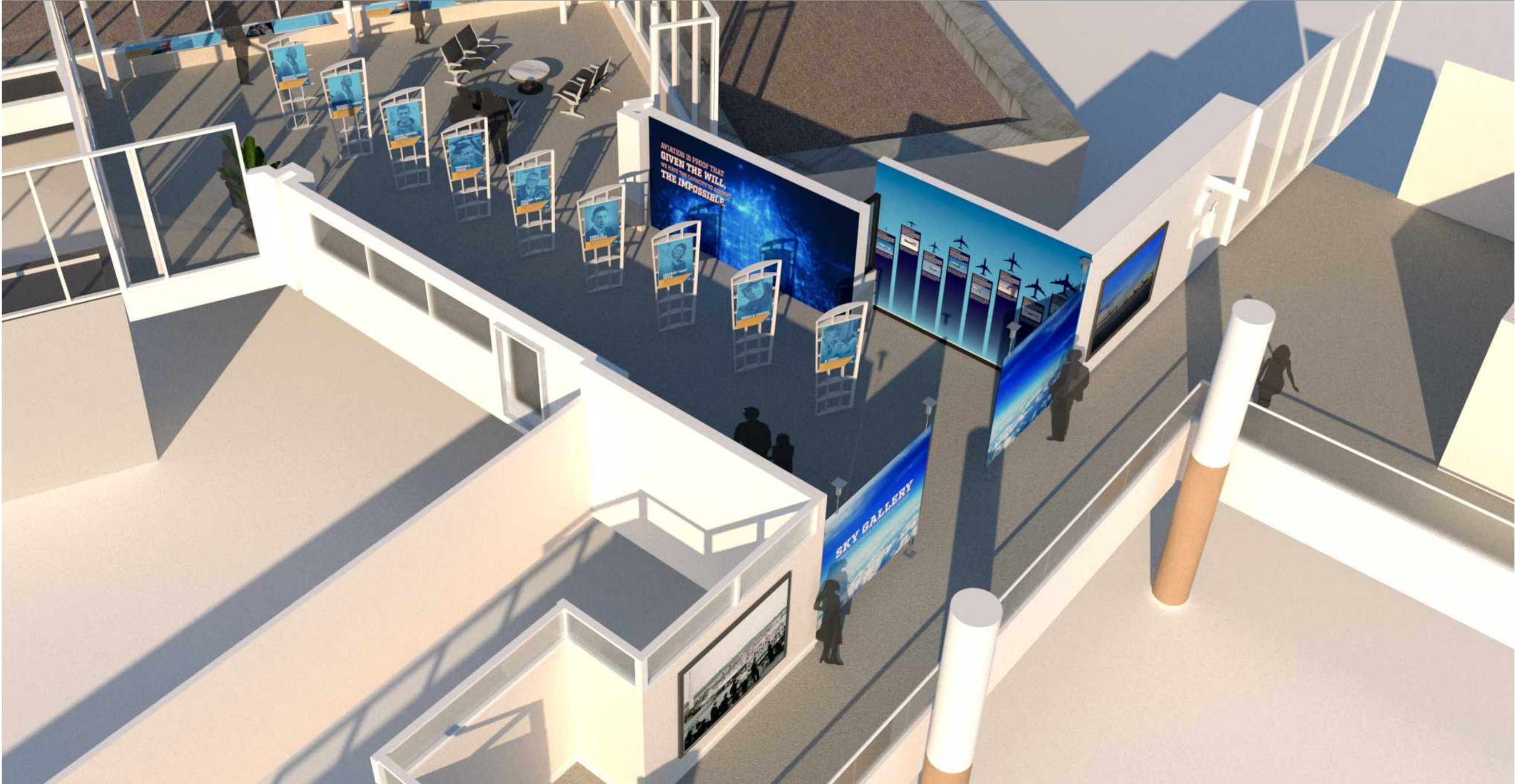


2 SOUTH ELEVATION
Scale: 3/8" = 1'-0"

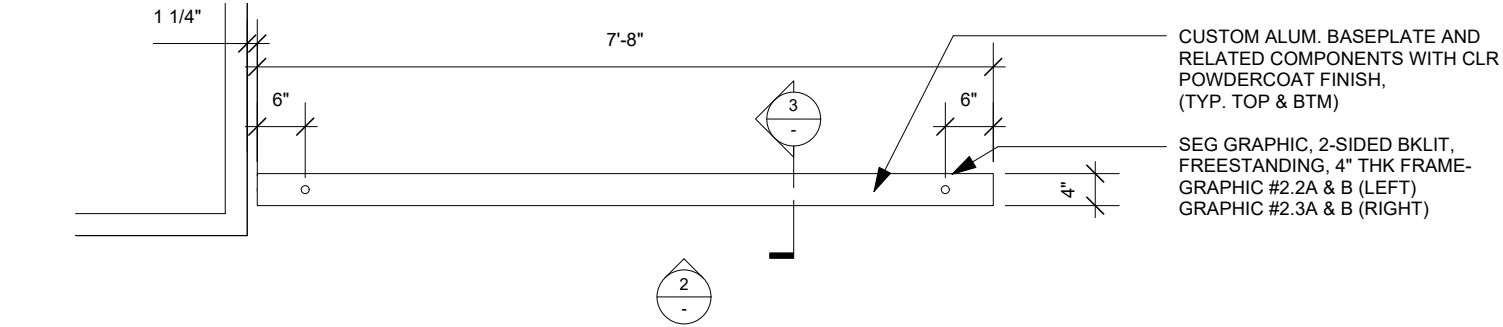




1 AXONOMETRIC- PARTIAL SECOND FLOOR- ENTRY
Scale: None



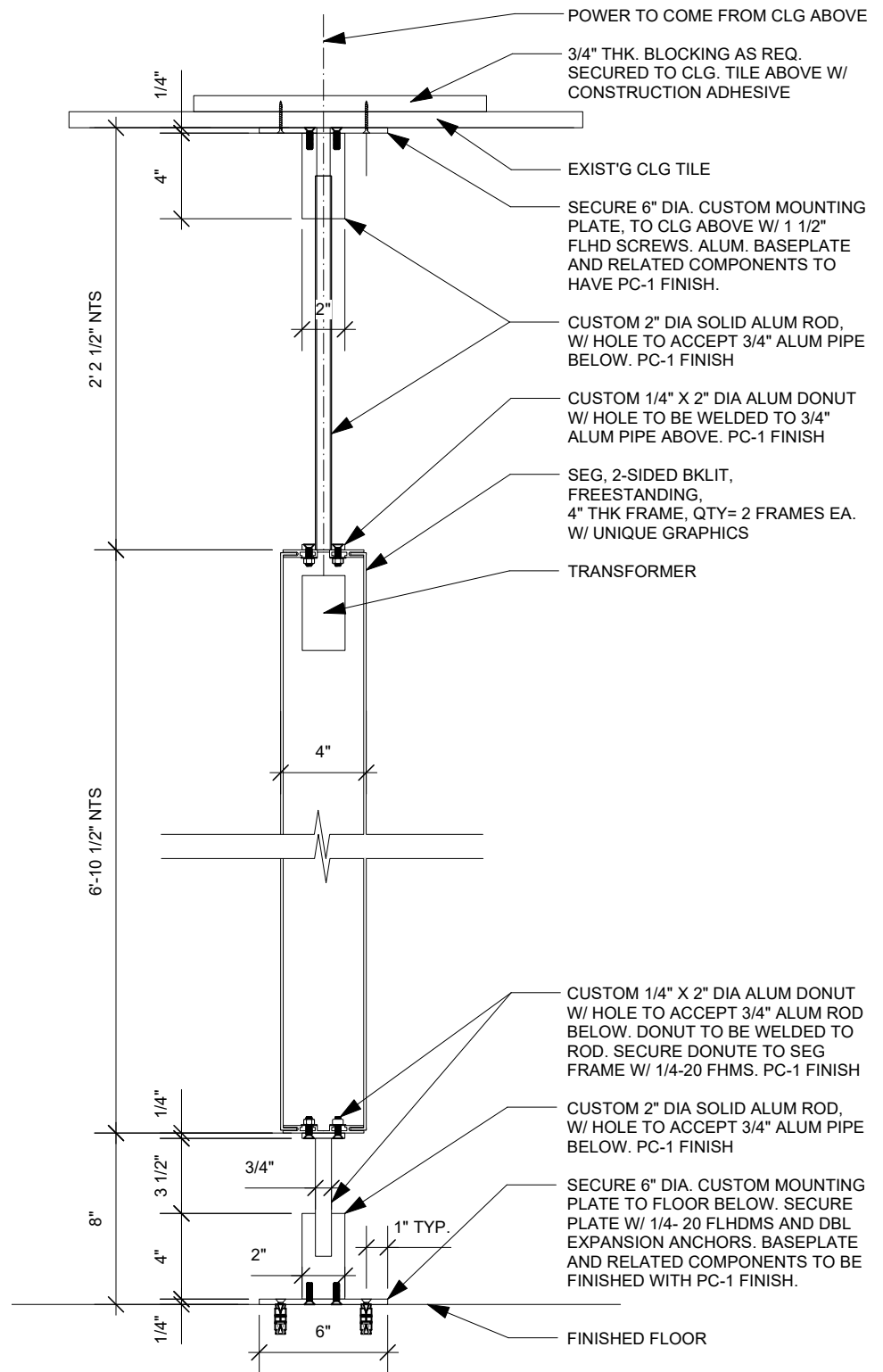
NOTE: PROPELLER CASE AND AIRCRAFT WING NOT SHOWN.



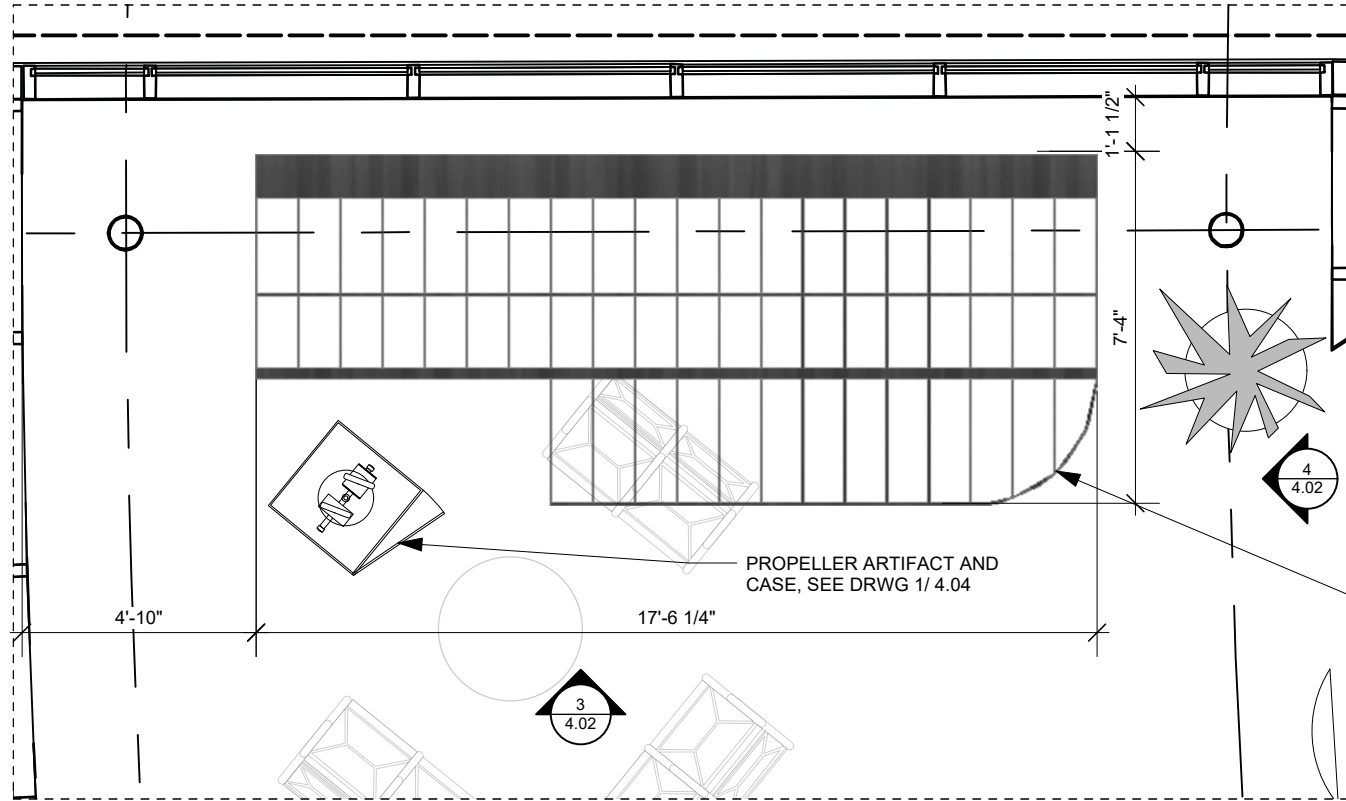
1 PLAN- TITLE SIGNAGE
Scale: 1/2" = 1'-0"



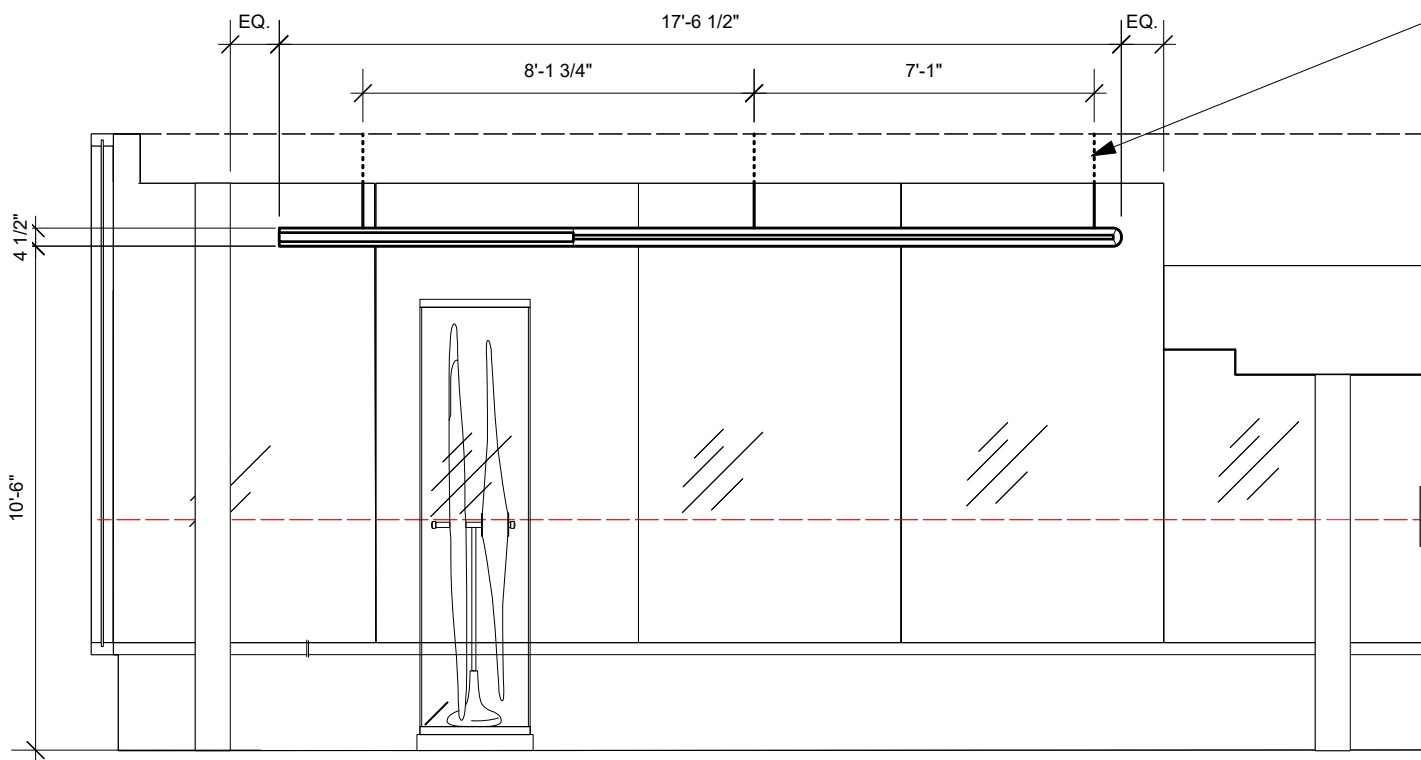
2 ELEVATION- TITLE SIGNAGE
Scale: 1/2" = 1'-0"



3 SECTION- TITLE SIGNAGE
Scale: 1 1/2" = 1'-0"



2 PLAN
Scale: 1/4" = 1'-0"

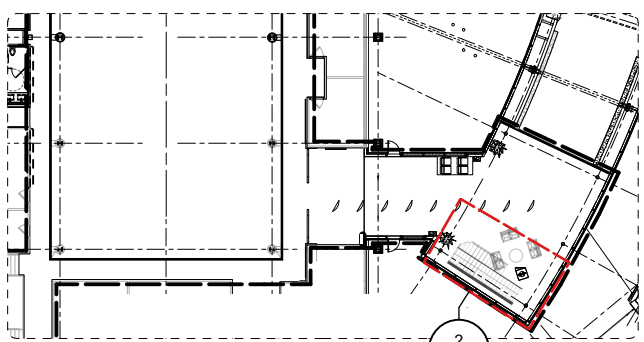


3 ELEVATION- WING FRAME
Scale: 1/4" = 1'-0"

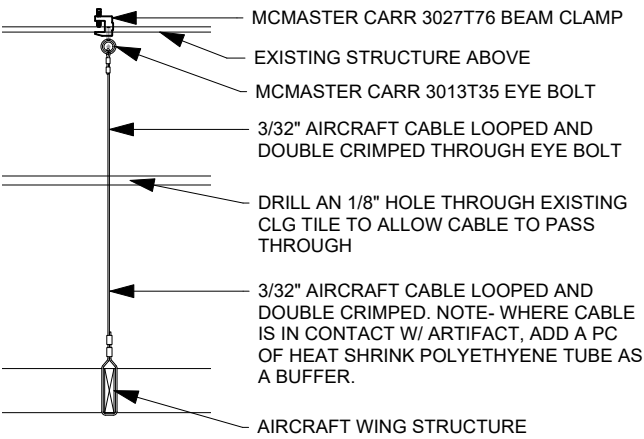
OBJECT RELATED GENERAL NOTES:

1. FABRICATOR TO COORDINATE WITH THE LENDER, SARAH HUMES AT THE GRAND RAPIDS PUBLIC MUSEUM, PH. 616-929-1807, ON THE SCHEDULEING AND DELIVERY OF THIS ARTIFACT TO THE G. R. FORD INTERNATIONAL AIRPORT. THE MUSEUM WILL CONTRACT WITH A 3RD PARTY VENDOR TO MOVE THIS OBJECT TO THE GALLERY SPACE OF THE G. R. FORD INTERNATIONAL AIRPORT, BUT THE COST OF COMPLETEING THIS TASK WILL BE BILLED TO THE AIRPORT. INSTALLATION OF THIS OBJECT WILL BE BY THE FABRICATOR UNDER THE DIRECTION OF THE GRAND RAPIDS PUBLIC MUSEUM STAFF. IF ADDITIONAL HELP IS NEEDED TO COMPLETE THIS TASK, THE MUSEUM CAN RECOMMEND A RIGGING COMPANY THAT CAN BE HIRED BY THE FABRICATOR.

SECURE TO CEILING WITH APPROPRIATE AIRCRAFT CABLE IN LOCATION SHOWN.



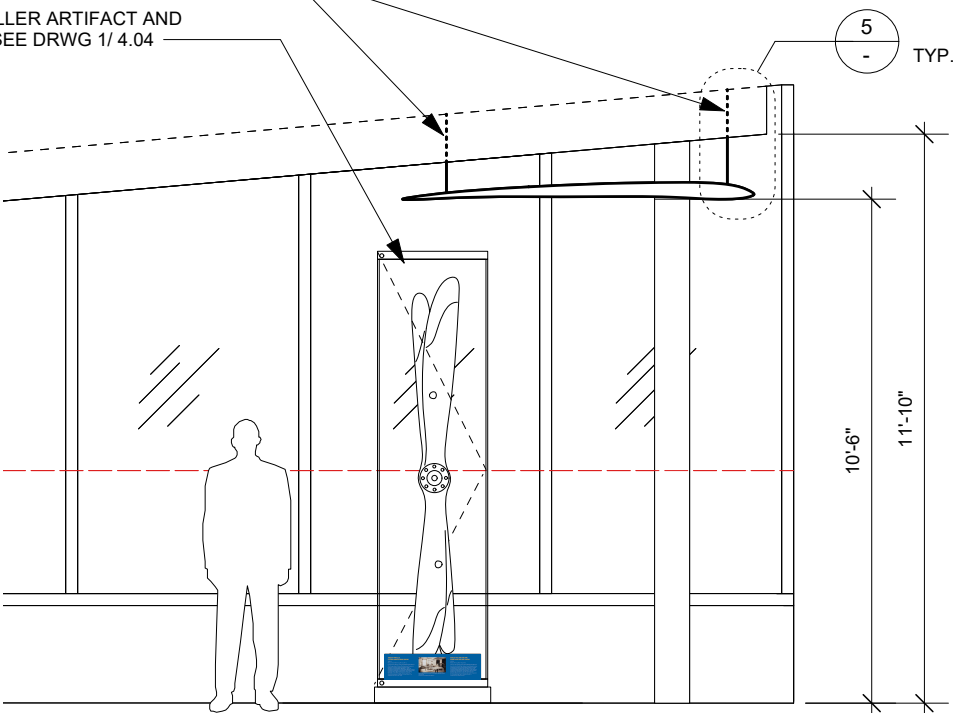
1 KEY PLAN
Scale: 1:520



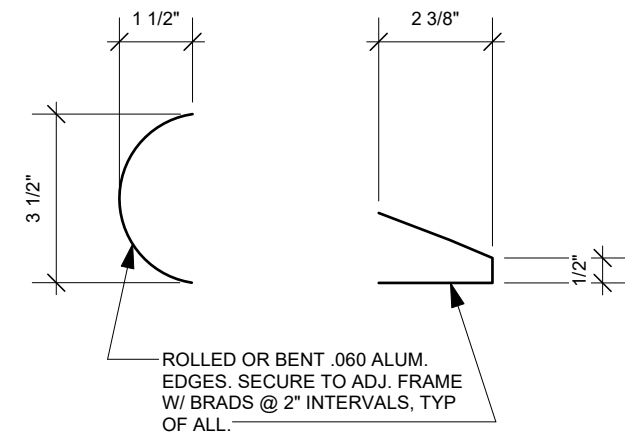
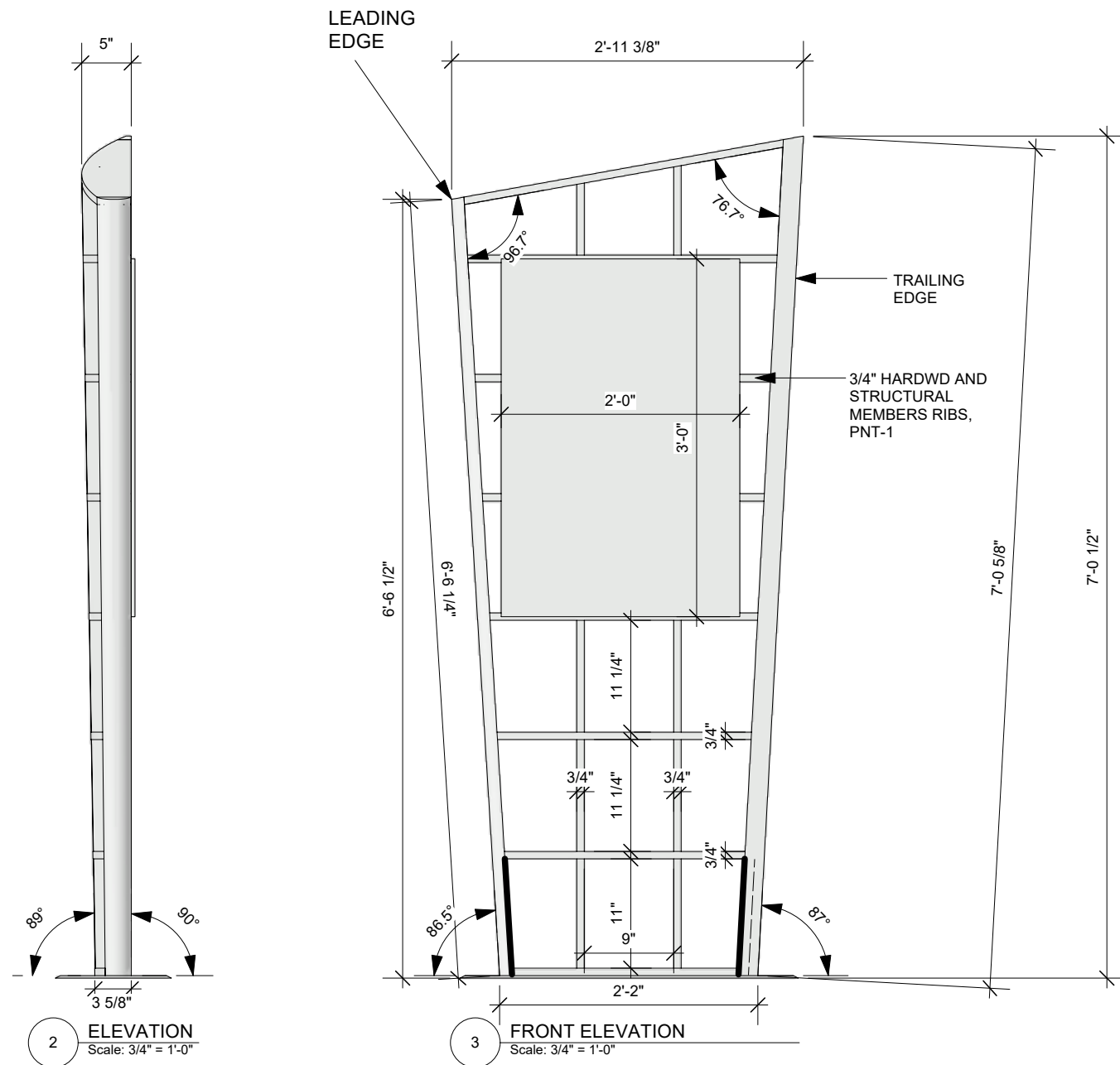
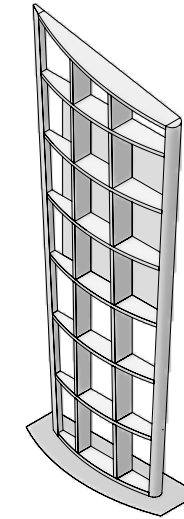
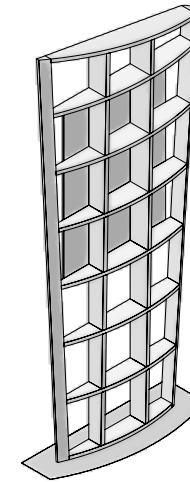
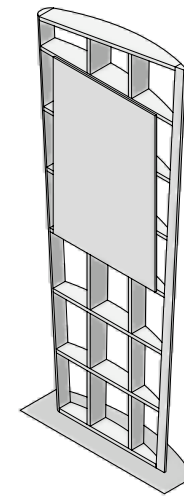
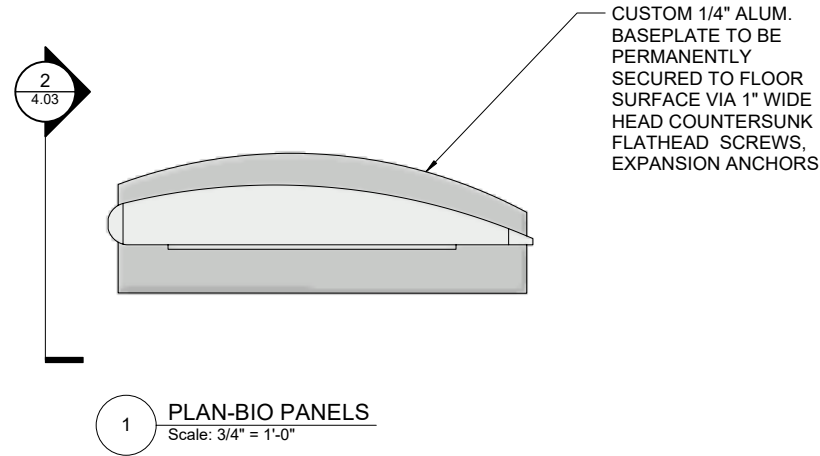
5 DETAIL- CEILING & ARTIFACT ATTACHMENT
Scale: 3/4" = 1'-0"

SECURE TO CEILING WITH APPROPRIATE AIRCRAFT CABLE

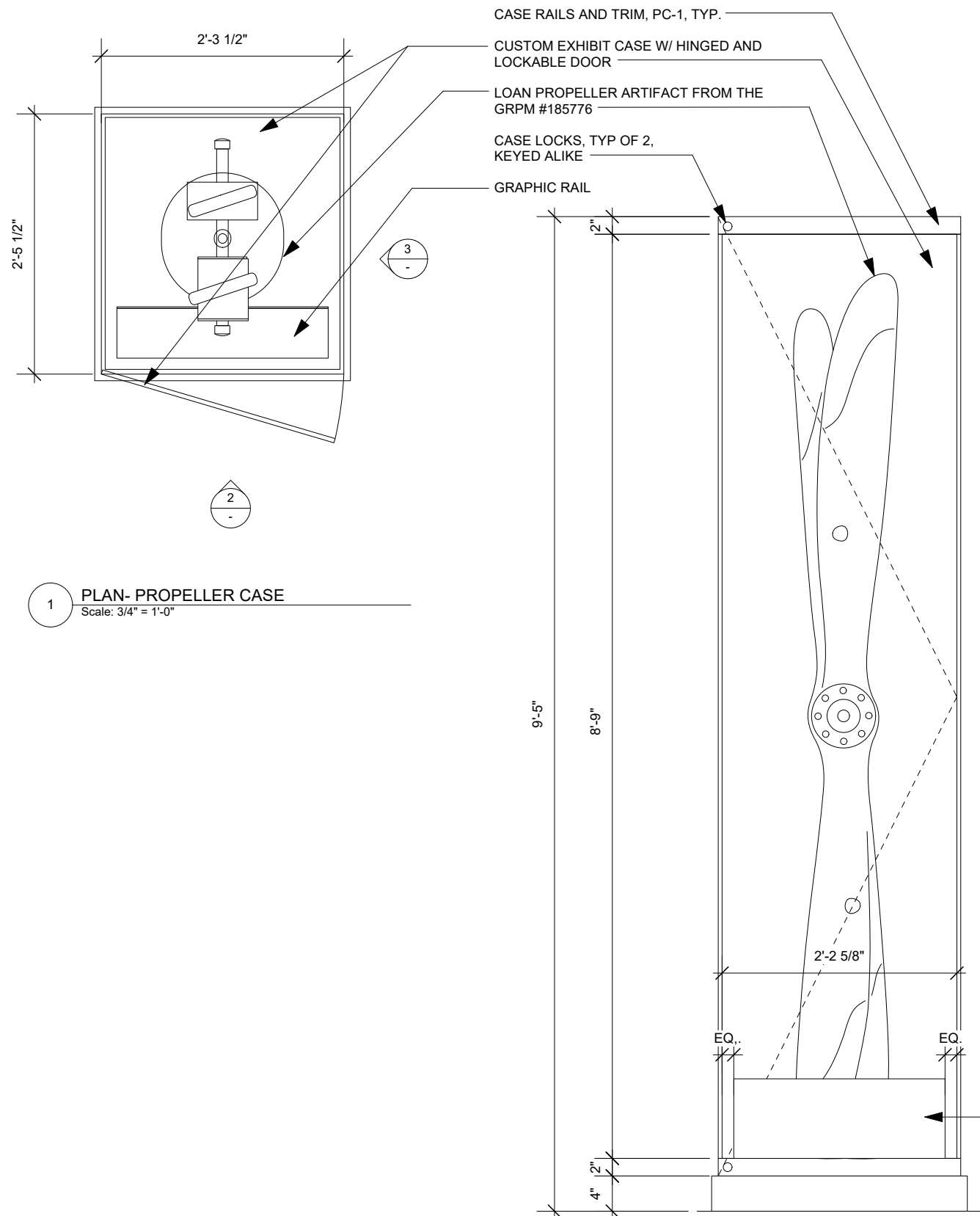
PROPELLER ARTIFACT AND CASE, SEE DRWG 1/ 4.04



4 ELEVATION- WING FRAME
Scale: 1/4" = 1'-0"

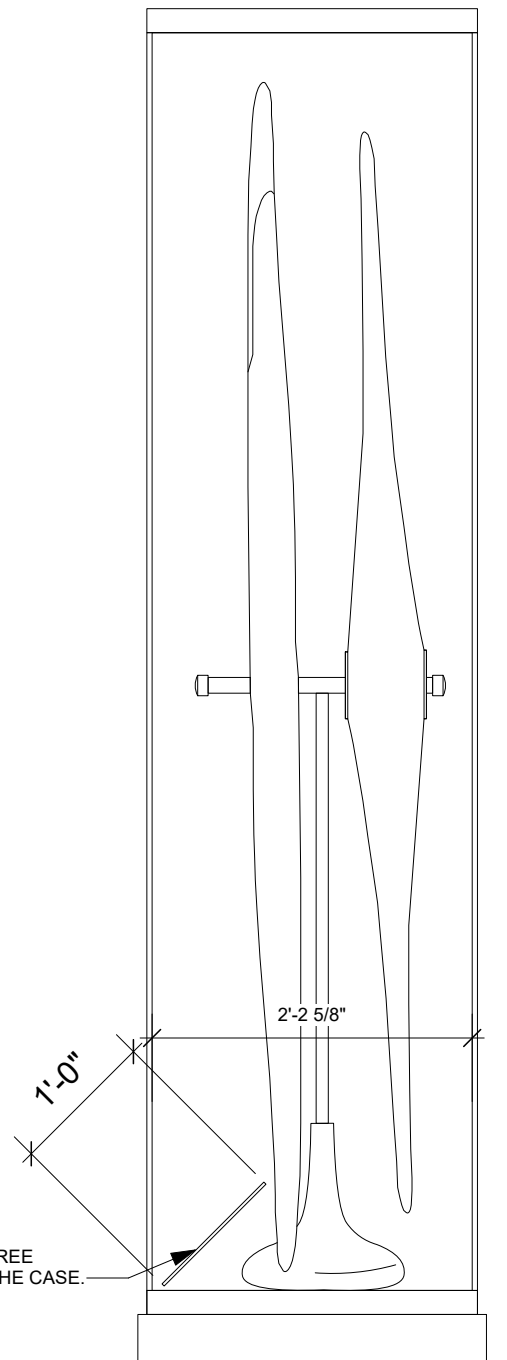


NOTE:
BIO PANELS ARE TO ACCEPT GRAPHICS # 6.1- 6.9



1 PLAN- PROPELLER CASE
Scale: 3/4" = 1'-0"

2 FRONT ELEVATION- PROPELLER CASE
Scale: 3/4" = 1'-0"



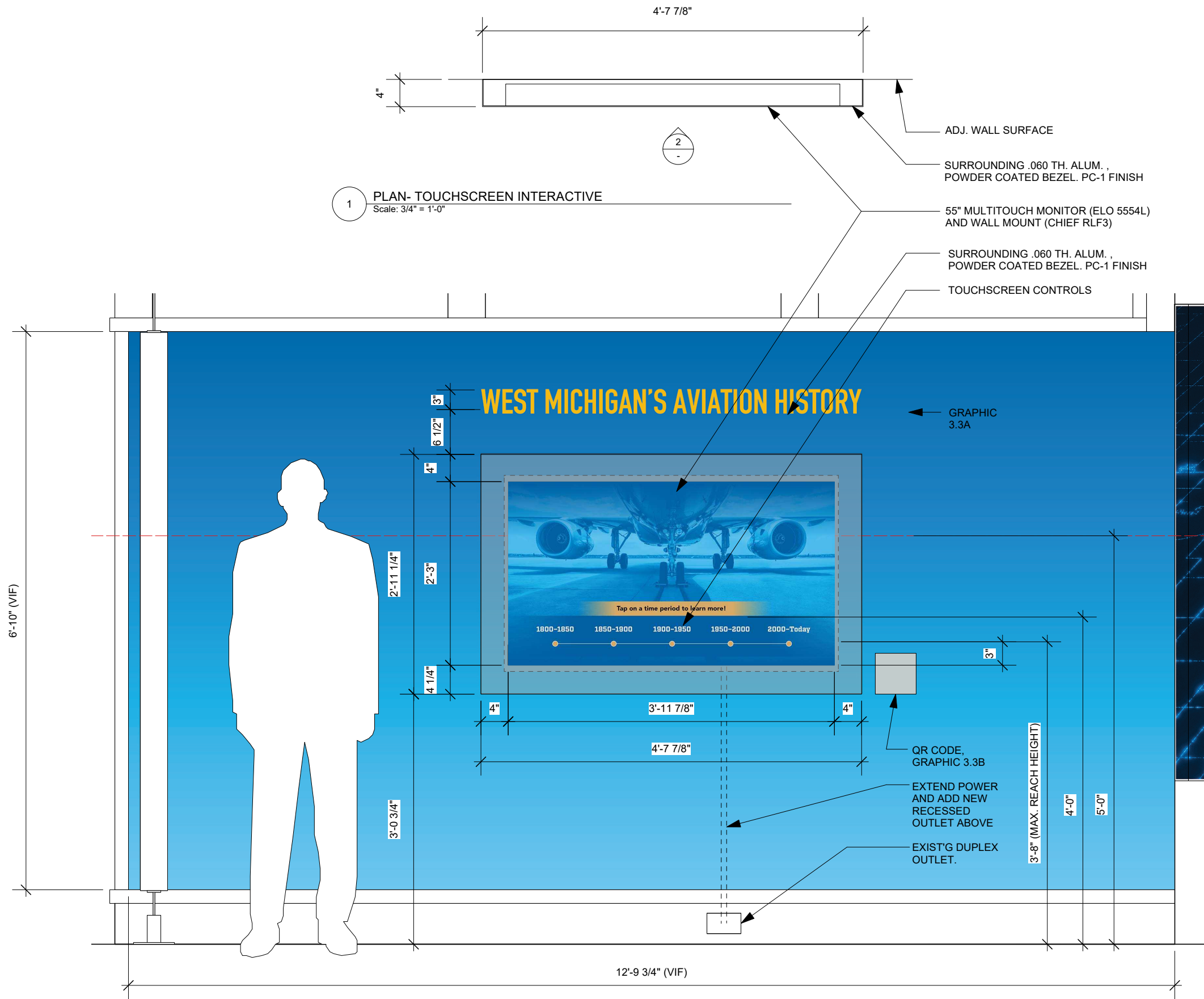
3 SIDE ELEVATION- PROPELLER CASE
Scale: 3/4" = 1'-0"

CASE RELATED GENERAL NOTES:

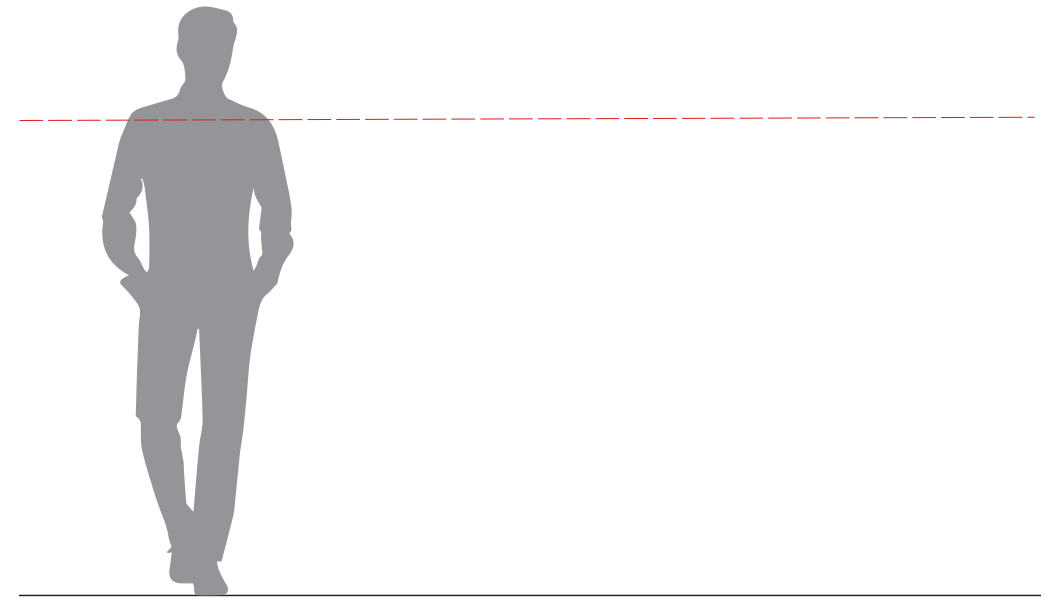
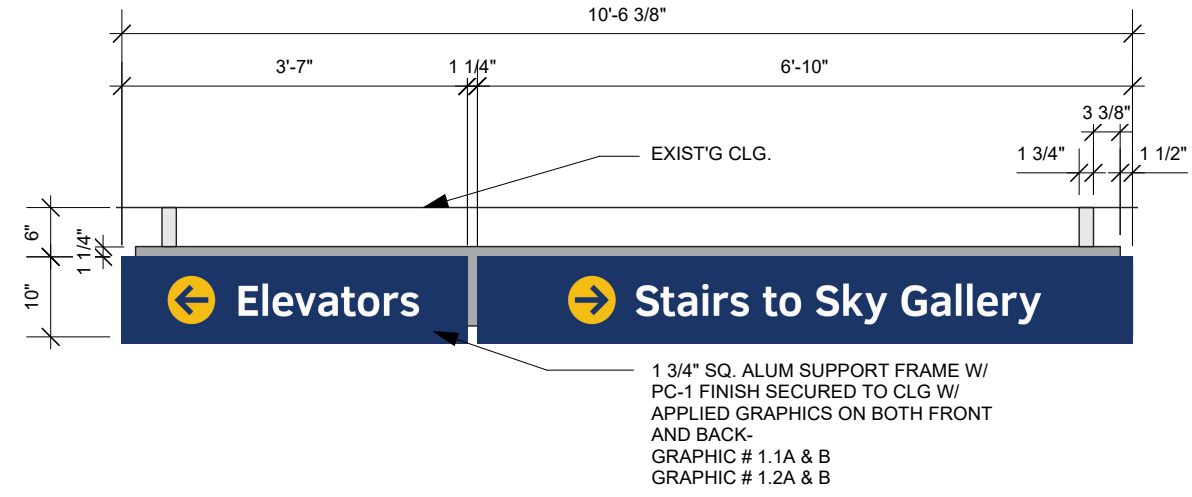
1. MEYVAERT FREESTANDING EXHIBIT CASE, QTY= 1, OR APPROVED EQUAL. PH: 646-300-5626
2. GLASS: IN PROFILE, EXTRA WHITE, LAMINATED, W/ 2 PVB LAYERS
3. DOOR: SINGLE PIVOT DOOR
4. TOP: GLASS TO MATCH SIDES & DOOR
5. LOCKS: ASA ABLOY, TOP & BTM
6. EXTERIOR FINISH: EXTERIOR ALUM. TO HAVE A BRUSHED APPEARANCE, W/ A CLEAR POWDER COAT FINISH.
7. INTERIOR MATERIALS: ALL TO HAVE BEEN ODDY TESTED.
8. CASE FLOOR WEIGHT BEARING CAPACITY: 250 LBS.

OBJECT RELATED GENERAL NOTES:

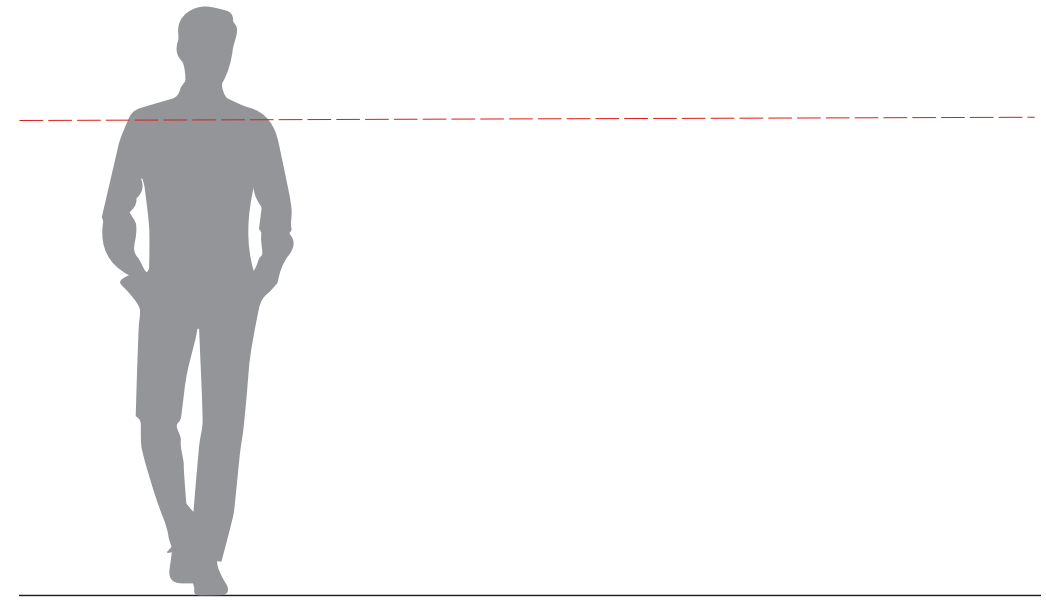
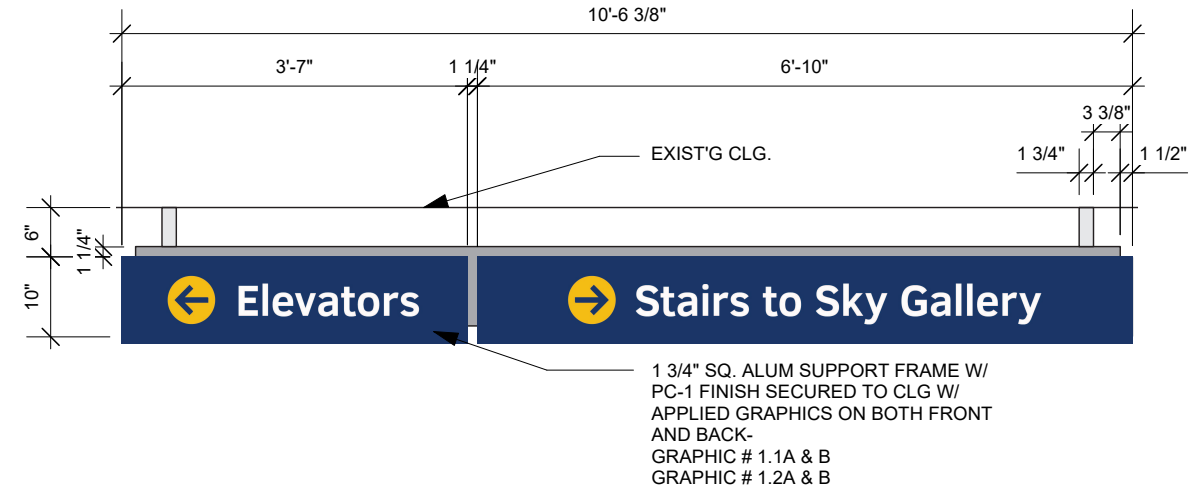
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2 ELEVATION- TOUCHSCREEN INTERACTIVE
Scale: 3/4" = 1'-0"



1 ELEVATION- 1ST FLOOR SIGNAGE (FRONT)
Scale: 1/2" = 1'-0"



1 ELEVATION- 1ST FLOOR SIGNAGE (FRONT)
Scale: 1/2" = 1'-0"