Notice is hereby given that sealed proposals will be received by the Reno-Tahoe Airport Authority (Owner) at the Reno-Tahoe Airport Authority Administrative Offices, Reno-Tahoe International Airport, 2001 East Plumb Lane, Reno, Nevada 89502. All sealed proposals must be received, and time recorded prior to 2:00 p.m., Local Time on March 28, 2019 at which time they will be publicly opened and read, for performing work as follows:

**Reno-Tahoe International Airport**

**Passenger Boarding Bridge Replacement Project**

In accordance with the plans and specifications, the project consists of a phased replacement of six (6) passenger boarding bridges (PBB) at the Reno-Tahoe International Airport. Two (2) of the PBBs are located on the B-Concourse and the Four (4) of the PBBs are located on the C-Concourse. The scope of work includes the procurement and installation of the new PBBs, as well as the removal and reinstallation of various pieces of existing equipment, including but not limited to, pre-conditioned air units and ground power units. In addition the scope includes, installation of associated data cabling inside the concourses, removal of existing gate envelope striping, and reinstallation of new gate envelope striping at all six (6) associated gates.

Issuance of the Contract Documents with proposal forms will be authorized through:

AERO Systems Engineering, Inc.
Dennis Ruff, PE
2700 Delk Rd. SE, Suite 100
Marietta, GA 30067
Telephone: (770) 423-4200 x214
Email: Dennis.ruff@aerosys.net

Issuance of the Contract Documents will be done digitally. There will be no charge to obtain the Contract Documents.

Questions regarding the project should be addressed in writing to: Mr. Dennis Ruff, PE, AERO Systems Engineering, at the above address. Questions will be accepted until 5:00 p.m. (PDT) on March 18, 2019.

Pursuant to the Statutes §§ 338.020 to 338.090 of the State of Nevada, the Labor Commissioner has established the minimum wage rates and rates of overtime and legal holidays in the locality in which the work is to be performed. Nevada bidder preference Statute NRS §§338.147 may be applicable to the Project.

A Pre-Bid Conference will be held at the Reno-Tahoe Airport Authority Administrative Offices, Reno-Tahoe International Airport, 2001 East Plumb Lane, Reno, Nevada 89502, at 11:00 a.m. Local Time on March 7, 2019. This will be the only opportunity to check the worksite. All bidders submitting as prime contractors are **highly encouraged to attend**.

All proposals or bids shall be accompanied by a cashier's or certified check payable to the order of the Reno-Tahoe Airport Authority amounting to not less than ten percent (10%) of the bid, or by a bond in said amount and payable to said Owner signed by the bidder and a corporate surety. Said check shall be forfeited or said bond shall become payable to said Owner in case the bidder depositing the same does...
not, within ten (10) days after written notice that the Contract has been awarded to him: (a) enter into a Contract with the Owner, and (b) furnish certificates of insurance, a bond of faithful performance and a payment bond as described in the Contract Documents.

The results of the bidding will be reported by the Owner within sixty (60) days of the bid opening, at which time the Owner may award the Contract to the lowest, responsive, and responsible bidder as so reported; however, said Owner reserves its rights to reject any or all bids and to waive irregularities or informalities in any bid or in the bidding for any reason whatsoever.

No bidder shall withdraw his bid for a period of one hundred twenty (120) calendar days after the date of the opening thereof.

All bidders and their proposed subcontractors must hold a valid license of a class corresponding to the work to be done as required by the State of Nevada's Contractor's License Law.

**CIVIL RIGHTS**

**Title VI Solicitation Notice:**
The Reno-Tahoe Airport Authority, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

**DISADVANTAGED BUSINESS ENTERPRISE**

**Solicitation Language (Race/Gender Neutral Means)**
The requirements of 49 CFR part 26 apply to this contract. It is the policy of the Reno-Tahoe Airport Authority to practice nondiscrimination based on race, color, sex or national origin in the award or performance of this contract. The Owner encourages participation by all firms qualifying under this solicitation regardless of business size or ownership.

The RTAA has not set a specific DBE participation contract goal for this project. The RTAA has set an overall FY 2019 DBE program participation race / gender neutral goal of 5% for Reno-Tahoe International Airport. DBE participation is encouraged to assist the RTAA in meeting its overall DBE program goal.

**END OF NOTICE INVITING SEALED PROPOSALS**
INSTRUCTIONS TO BIDDERS

IB-01 WORK TO BE DONE. This project includes the furnishing of all labor, materials and equipment for the Reno-Tahoe International Airport, Passenger Boarding Bridge Replacement Project, together with all appurtenant work and facilities, as shown on the Plans and as specified herein. All equipment and materials furnished shall be new.

IB-02 LOCATION OF THE WORK. The project will be constructed on property owned by, or rights-of-way provided by the Reno-Tahoe Airport Authority. All of the work is within Washoe County, Nevada.

IB-03 PRE-SUBMISSION. Contract Documents are available from and at a charge as indicated in the Notice Inviting Sealed Proposals. The time, date and place of the Pre-Bid Conference if any, is also indicated in the Notice Inviting Sealed Proposals.

IB-04 EXAMINATION OF SITE, PLANS, ETC. Each bidder shall visit the site of the proposed work and fully acquaint himself with local conditions, construction and labor so that he may fully understand the facilities, difficulties, and restrictions attending the execution of the work under the Contract. Bidders shall thoroughly examine and be familiar with the Plans and Specifications. The failure of any bidder to receive or examine any form, instrument, addendum, or other document, or to visit the site and acquaint himself with conditions there existing shall in no way relieve the bidder from any obligation with respect to his proposal or to the Contract. The Plans for the work show conditions as they are supposed or believed by the Design Engineer to exist; but it is neither intended nor to be inferred that the conditions as shown thereon constitute a representation by the Design Engineer, the Owner, or its officers, that such conditions actually exist, nor shall the Owner, the Design Engineer, or any of their officers or representatives be liable for any loss sustained by the Contractor as a result of any inference or extrapolation drawn by the Bidder between conditions as shown on the Drawings and the actual conditions revealed during the progress of the work, or otherwise.

Where investigations of surface and subsurface conditions have been made by the Owner with respect to foundations or other structural design, this information was obtained to provide data for design purposes only. The interpretations presented in reports are not to be used by bidders as a representation of conditions affecting construction site and location. The Owner and the Design Engineer assume no responsibility whatsoever as to the sufficiency of borings, or the accuracy of test results, or of the interpretations thereof; there is no guarantee, warranty, or representation, expressed or implied, that the conditions indicated thereby in fact exist, or are representative of those existing throughout the work. Such information shall be used as a basis for bids at the bidder’s own and sole risk. Making such information available to bidders is not to be construed in any way as a waiver of the other provisions of this paragraph and bidders must satisfy themselves through their own investigations as to the surface and subsurface conditions to be encountered at the site. Bidders are further cautioned that surface waters and runoff waters from drainage and flood control structures may vary substantially during the course of project construction and that the means and methods of construction and costs of accommodating such runoff surface and flood water as well as ponding and soil saturation will be at the Contractor’s sole risk and expense, except for an extension of time for certain Force Majeure events defined in the General Provisions.

The bidder’s attention is directed to the possible existence of obstructions and public or private improvements which may be within the limits of the work or adjacent thereto, which may or may not be shown on the Plans.
The bidder shall investigate to his satisfaction as to the conditions to be encountered, as to the character, quality, and quantities of work to be performed and materials to be furnished, and as to the requirements of these Plans and Specifications, and the Contract. It is mutually agreed that submission of a proposal shall be considered conclusive evidence that the bidder has made such examination and has accepted the project site as a safe workplace to perform his work.

**IB-05 INTERPRETATION OF CONTRACT DOCUMENTS/RESTRICTION.** Should a bidder find discrepancies in or omissions from the Plans or Specifications, or doubt as to their meaning, bidder shall at once notify the Owner and, should it be found that the point in question is not clearly and fully set forth, a written addendum or Bulletin of Instructions will be sent to all bidders. Neither the Engineer, Design Engineer, nor the Owner, shall be responsible for any oral instructions. The bidder, by submission of his bid, confirms he has familiarized himself with the Plans and Specifications and has found them fit and sufficient for purpose of preparing his bid. Written interpretations necessary for the proper execution or progress of the Work, in the form of drawings, emails, notes or otherwise, will be issued with reasonable promptness by the Engineer.

**IB-06 FORM AND CONTENT OF PROPOSAL.** Proposals shall be filed as noted hereinafter and shall include and be limited to the following completed documents:

- Proposal for Construction and Bid Schedule
- Acknowledgment of Receipt of Addenda
- Bid Guaranty
- Bidder Affidavit
- Designation of Subcontractors
- Contractor’s Schedule
- Affidavit to Receive a Preference in Bidding (if project qualifies for Nevada Bidders preference)
- A copy of a Certificate of Eligibility to receive a preference issued by the Nevada State Contractor’s Board (if project qualifies for Nevada Bidders preference)
- Items identified under Technical Specifications Section 11 8504, Part 1.04.B. Bid-Submittals

To receive consideration, proposals shall be made in accordance with the following instructions:

A. With the exception of the Contractor’s Schedule, proposals shall be made only upon the forms provided with these Contract Documents, with all items filled out, amounts bid stated both in words and figures, the original signatures of all persons required to sign, and shall be typed or written in ink. The completed form should be without interlineations, alterations, or erasures unless such are initialed by the signatory.

B. Proposals shall contain only the quotations for which the form is prepared. Alternative proposals will not be considered unless called for. No oral, telegraphic, or telephonic proposals or modifications will be considered.

C. Each bidder shall submit with his bid, on the form provided in the Proposal, the name and address of each proposed subcontractor performing over five percent (5%) of the total value of the project, and the portion of the work, which each subcontractor will do. If the bidder fails to name the subcontractors in his proposal, he shall be deemed to have agreed to perform such portion of the work himself and shall not be permitted to subcontract said portion of the work without previous written permission of the Owner. Additionally, in accordance with Chapter 338 of NRS,
“Within two (2) hours after the completion of the opening of the bids, the general contractors who submitted the three lowest bids must submit a list of the names of each subcontractor who will provide labor or a portion of the work or improvement to the contractor for which he will be paid an amount exceeding 1 percent of the prime contractor's total bid or $50,000, whichever is greater, and the number of the license issued to the subcontractor pursuant to NRS Chapter 624”. If the general contractor fails to submit such a list within the required time, his bid shall be deemed not responsive.

D. Proposals shall be accompanied by a proposal guaranty instrument in the form of an unconditional cashier's check or check certified by a responsible bank of an amount not less than ten percent (10%) of the aggregate of the proposal, payable to the order of the Reno-Tahoe Airport Authority, or by a bidders bond for the said amount and so payable written by a surety company listed in the current U.S. Treasury List (Federal Register Supplement 570) and licensed to do business in the State of Nevada and have a current A.M. Best and Company rating of at least A:VI. Said check or bond shall be a guarantee that the bidder, if awarded the work, will: (1) enter into a contract, (2) furnish a bond of faithful performance and a labor and material bond within ten (10) days after award and (3) furnish required evidence of insurance in accordance with the Special Provisions. In case of refusal or failure to perform these three tasks, the proposal guaranty shall be forfeited to the Owner, the proceeds therefrom being hereby agreed upon as liquidated damages to the said Owner on account of the delay in the execution of the Contract and required bonds and the performance of the work thereunder, and the necessity of accepting a higher or less desirable proposal resulting from such failure or refusal to execute the Contract and the bonds as required. Upon the execution of the Contract and the approval on behalf of the Owner of the accompanying bonds and insurance policies, all proposal guarantees will be returned to each bidder.

E. Each bidder shall be licensed, with an adequate dollar limit, in accordance with the provisions of the State Contractor's License Law Requirement (NRS 624.230, as amended to date) and shall hold a valid license of a class corresponding to the work to be done and shall be skilled and regularly engaged in the general class or type of work called for under this Contract.

IB-07 PARTICIPATION BY DISADVANTAGED BUSINESS ENTERPRISES.
Reno-Tahoe Airport Authority that Minority and Women Business Enterprises shall have equal opportunity to participate in the performance of airport contracts. Respondents to this invitation shall not be discriminated against on the basis of race, color, national origin or gender in the award and performance of any contract entered into pursuant to this advertisement.

IB-08 BIDDERS INTERESTED IN MORE THAN ONE PROPOSAL. No person, firm, or corporation shall be allowed to make, file, or be interested in more than one proposal for the same work, unless alternative proposals are invited. A person, firm, or corporation who has submitted a sub-proposal to a bidder, or who has quoted prices on materials to a bidder, is not thereby disqualified from submitting a proposal, or quoting prices to other bidders.

Reasonable grounds for believing that any bidder is interested in more than one proposal for the work will cause the rejection of all proposals in which said bidder is interested. If there is reason to believe that collusion exists among the bidders, none of the participants in such collusion will be considered.

IB-09 ADDENDA. Any addenda or clarifications supplementing the Plans and Specifications and issued prior to the time set for the opening of proposals, and/or forming a part of the documents furnished
to the bidder for the preparation of his proposal, shall be acknowledged in the proposal and shall be made a part of the Contract.

**IB-10 FILING PROPOSAL.** The sealed envelope containing the proposal shall be endorsed with the bidder's name and address, Nevada's Contractor's license number and class and the monetary limit placed upon him/her by the Nevada Contractor's Board, marked with the name of the project, PWP number (if applicable), the date and time to be opened, and addressed to: Reno-Tahoe Airport Authority. Any bids received that are not so endorsed may, in the discretion of the Owner, be returned unopened. Should the Bid documents be delivered via courier or overnight service that carrier’s envelope shall be marked with the same information and shall contain the bid in another sealed envelope as indicated above. It is each bidder's responsibility to ensure that their proposal is received and time stamped by the Owner prior to the time set for bid opening. Any proposal received after the scheduled closing time for receipt of proposals may, in the discretion of the Owner, be returned to the bidder unopened. If proposal is mailed, it shall be addressed to the Reno-Tahoe Airport Authority, Engineering Division, P.O. Box 12490, Reno, Nevada 89510, or can be delivered to 2001 E. Plumb Lane, Reno, NV located in the Administration offices on the second floor.

The Owner reserves the right to extend the period for submission of proposals at any time.

**IB-11 WITHDRAWAL OF PROPOSALS.** Proposals may be withdrawn, by mutual agreement between the RTAA and Bidder, prior to, but not after, the award of contract by the Board of Trustees.

**IB-12 OPENING AND COMPARISON OF PROPOSALS.** Immediately after the expiration of the time for submission of proposals, all proposals will be opened by the Owner. Total bid amounts contained in the proposals will be read aloud, and after review, shall be referred to the Owner for action.

Bidders or their representatives and other interested parties may be present at said opening and reading. The Owner will determine the lowest responsive responsible bidder for the work after the proposals have been reviewed and tabulated for comparison. Bids will be evaluated on the basis of the total of all bid items awarded. In case of discrepancies between bid amounts in writing and in figures, the written amounts in all cases shall prevail.

**IB-13 DISQUALIFICATION OF BIDDERS.** Any of the following reasons may be considered as sufficient for the disqualification of a bidder and the rejection of his proposal or proposals.

A. More than one proposal for the same work from an individual, firm, or corporation under the same or different name.

B. Evidence of collusion among bidders. Participants in such collusion will receive no recognition as bidders for any future work of the Owner until any such participants shall have been reinstated as a qualified bidder.

C. Uncompleted work, which in the judgment of the Owner might hinder or prevent the prompt completion of additional work if awarded.

D. Unsatisfactory performance record as shown by past work judged from the standpoint of workmanship and progress.

E. Failure to pay or satisfactorily settle all bills due for labor or materials on former contracts in force at the time of letting.
F. Failure to hold a valid license of a class corresponding to the work to be done as required by the State of Nevada's Contractor's License Law.

G. Failure to submit a complete proposal and required supporting documents.

The foregoing is not a complete list of grounds for disqualifying a bid nor does it imply any obligation on part of Owner to entertain or consider any contention that any particular bidder be disqualified.

**IB-14 APPEAL BY UNSUCCESSFUL BIDDER (BID PROTEST).** Any unsuccessful bidder may appeal a pending bid award per NRS 338 prior to award by the Reno-Tahoe Airport Authority. The appellant must:

A. Submit a written protest to the Manager of Engineering and Construction within five (5) workdays after the bid opening.
B. Describe, in the written protest, the issues to be addressed on appeal.
C. Post, with the written protest, a bond with good and solvent surety authorized to do business in this state or submit other security in a form approved by the Reno-Tahoe Airport Authority, who will hold the bond or other security until a determination is made on the appeal.
D. Post the bond or other security in the amount of 25% of the total dollar value of appellant’s bid, up to a maximum bond or other security amount of $250,000.
E. Not seek any type of judicial intervention until the Reno-Tahoe Airport Authority has rendered its final decision on the protest.

The Reno-Tahoe Airport Authority will stay any award actions until after the Manager of Engineering and Construction has responded in writing to the protest. If the appellant is not satisfied with the response, appellant may then protest to the Reno-Tahoe Airport Authority Board of Trustees, who will render a final decision for the Reno-Tahoe Airport Authority. No bid protests will be heard by the Board of Trustees unless the bidder has followed the appeal process.

If an appeal is granted, the full amount of the posted bond will be returned to the appellant. If the appeal is denied or not upheld, a claim may be made against the bond for expenses suffered by the Reno-Tahoe Airport Authority because of the unsuccessful appeal.

The Reno-Tahoe Airport Authority is not liable for any costs, expenses, attorney’s fees, loss of income, or other damages sustained by the appellant in the bid process.

**IB-15 AWARD OR REJECTION OF PROPOSALS.** The Owner reserves the right to reject any or all bids, or parts thereof, and to waive irregularities or informalities in any bid or in the bidding for any reason whatsoever.

It is the intention of the Owner to award the Contract only to a bidder who is able to furnish satisfactory evidence that they have the requisite experience and ability, and that they have sufficient capital, facilities, and plant to enable them to prosecute the work successfully and promptly, and to complete it within the time set forth in the Contract.

In determining the degree of responsibility to be credited to a bidder, the Owner will weigh any evidence indicating the bidder, or personnel guaranteed to be employed in responsible charge of the work, has satisfactorily performed other contracts of like nature and magnitude.
In accordance with the provisions of Public Law 100-202, the award will not be made to any Contractor or a foreign country listed by the United States Trade Representative under Section 109 or utilize on the project subcontractors from such country or supplier of products made in such country for projects with a cost of more than $500,000.

The award of contract, if it is awarded, will be based on the "Base Bid" plus the alternates selected for inclusion in the contract (if any) of the lowest responsible bidder. The bidder's attention is drawn to the fact that Nevada's bidder preference statute NRS 338.147(4) is applicable to the Project.

A company representative shall be present at both the Reno-Tahoe Airport Authority Board of Trustee’s Planning and Construction Committee Meeting as well as the Board of Trustee’s Meeting at which the award of the Contract is on the agenda for consideration.

Immediately after making an award, the Owner will issue a Notice of Award and forward to the bidder to whom such award is made.

The Owner reserves the right to cancel the award without liability to the bidder, except return of proposal guaranty, at any time before a contract has been fully executed by all parties and is approved by the Owner.

Upon the execution of a Contract or rejection of proposals, the Owner will return to bidders the proposal guaranty instrument, which accompanied their proposals.

**IB-16 COMMENCEMENT AND PROGRESS OF THE WORK TO COMPLETION.** Within ten days of the date of the Notice of Award, the successful bidder shall deliver to the Owner his Certificate of Insurance, project performance bond, project payment bond, and two counterparts of the Contract Agreement fully executed by the bidder. The successful bidder, then, properly bonded and insured, after receiving notice that the Contract has been executed on behalf of the Owner, will become the Contractor and shall commence the work within ten (10) days after the date established in the Notice to Proceed, and complete all work in the duration specified.

END OF INSTRUCTION TO BIDDERS
PROPOSAL FOR CONSTRUCTION OF
Reno-Tahoe International Airport
Passenger Boarding Bridge Replacement Project

Company: __________________________________________

RENO-TAHOE
AIRPORT AUTHORITY
P.O. Box 12490
Reno, Nevada 89510

Address: __________________________________________

Date: _____________________________________________

Pursuant to the Notice Inviting Sealed Proposals, the undersigned hereby proposes and agrees that on
award by the Owner under this Proposal, and in accordance with the provisions therein stated, it will
execute a Contract, with necessary bonds, to furnish any and all labor, materials, transportation, and
services for construction, in accordance with the Plans and Specifications, Notice Inviting Sealed
Proposals, Instructions to Bidders, and other Contract Documents set forth in the Contract Agreement
therefore adopted and on file with the Owner within the time hereinafter set forth for the:

BASE BID TOTAL:

_________________________(in numbers)

_________________________(in words)

$_______________________________ Dollars and _____ Cents

BID ALTERNATES TOTAL:

_________________________(in numbers)

_________________________(in words)

$_______________________________ Dollars and _____ Cents
## BASE BID SCHEDULE

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Estimated Quantity</th>
<th>Unit</th>
<th>Item Description with Price in Words</th>
<th>Total Price</th>
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| 1        | 1                  | LS   | Base Bid $_________________________dollars  
_________________________cents | $           |
|          |                    |      |                                      |             |
|          |                    |      | TOTAL BASE BID PRICE $               |             |

## BID ALTERNATES SCHEDULE

(Bid Alternates may be selected in any combination depending on budget availability)

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<tr>
<th>Item No.</th>
<th>Estimated Quantity</th>
<th>Unit</th>
<th>Item Description with Price in Words</th>
<th>Total Price</th>
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| 2        | 1                  | LS   | Bid Alternate #1a – RJ Floor - B10 $_________________________dollars  
_________________________cents | $           |
|          |                    |      |                                      |             |
| 3        | 1                  | LS   | Bid Alternate #1b – RJ Floor - B11 $_________________________dollars  
_________________________cents | $           |
|          |                    |      |                                      |             |
| 4        | 1                  | LS   | Bid Alternate #1c – RJ Floor - C1 $_________________________dollars  
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|          |                    |      |                                      |             |
| 5        | 1                  | LS   | Bid Alternate #1d – RJ Floor - C3 $_________________________dollars  
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|          |                    |      |                                      |             |
| 6        | 1                  | LS   | Bid Alternate #1e – RJ Floor - C5 $_________________________dollars  
_________________________cents | $           |
|          |                    |      |                                      |             |
| 7        | 1                  | LS   | Bid Alternate #1f – RJ Floor - C7 $_________________________dollars  
_________________________cents | $           |
|          |                    |      |                                      |             |
| 8        | 1                  | LS   | Bid Alternate #2a – New 5ft Extended Corr. - B11 $_________________________dollars  
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<tr>
<td>#2c</td>
<td>New 5ft Extended Corr. – C7 dollars cents</td>
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<tr>
<td>#3a</td>
<td>Replace Carpet – Existing B11 Extended Corr. dollars cents</td>
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<tr>
<td>#3b</td>
<td>Replace Carpet – Existing C1 Walkway dollars cents</td>
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<tr>
<td>#3c</td>
<td>Replace Carpet – Existing C5 Extended Corr. dollars cents</td>
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<tr>
<td>#3d</td>
<td>Replace Carpet – Existing C7 Extended Corr. dollars cents</td>
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<td>#4a</td>
<td>Exterior Paint – Existing B10 Walkway dollars cents</td>
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### UNIT PRICE SCHEDULE
(Used for revisions to the Contract for additional scope)

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ACKNOWLEDGEMENTS

1. The undersigned has examined the location of the proposed work and is familiar with the Plans and Specifications and the local conditions at the place where the work is to be done. The undersigned has checked the above amounts and understands that the Owner will not be responsible for any errors or omissions on the part of the undersigned in making up his Proposal.

2. The undersigned understands that the Owner reserves its right to reject any or all bids and to waive irregularities and informalities in any bid or in the bidding for any reason whatsoever.

3. The undersigned certifies, by submission of this proposal that the firm he represents is licensed, with an adequate dollar limit, in accordance with the provisions of the State Contractor's License Law Requirement (NRS 624.230), as amended to date) and holds a valid license of a class corresponding to the work to be done and is skilled and regularly engaged in the general class or type of work called for under this Contract.

4. It is agreed that this Proposal may not be withdrawn within the period indicated in the Notice Inviting Sealed Proposals.

5. In accordance with the Contract Documents, the undersigned further agrees to so plan the work and to prosecute it with such diligence that said work shall be commenced within ten (10) days after the date established in the Notice to Proceed, and the entire project completed within the duration established in the Special Provisions within the total project time. That the undersigned further agrees that he/she and/or his/her surety shall be liable for and pay to the Owner the dollar amounts established in the Special Provisions as liquidated damages that the work remains incomplete, not as penalty but as liquidation of a reasonable portion of the damages that will be incurred by the Owner by failure of the undersigned to meet his/her obligation by time or date stipulated.

6. The undersigned agrees, if awarded the Contract, that there shall be paid by the undersigned and by all subcontractors under him to all laborers, workers, and mechanics employed in the execution of such Contract, or any subcontract thereunder, not less than the general prevailing rate of per diem wages and rates for overtime and legal holidays in the locality in which the work is to be performed, as ascertained and determined, pursuant to the state statute thereto applicable, by the State Labor Commissioner.

7. The bidder acknowledges that the following addenda have been received and examined as part of these Contract Documents:

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BID GUARANTY

Enclosed herein is a (bidder's bond, certified check, cashier's check) for the sum of __________________________ dollars ($___________________), being not less than ten percent (10%) of the total amount of this Proposal; and the undersigned agrees that, in case of his default in executing the Contract and furnishing the necessary bonds, insurance certificates and other required information after award and due notice thereof, the said check or bond and the money payable thereon shall become and remain the property of the Owner as liquidated damages without proof of actual loss.

BIDDER AFFIDAVIT

The undersigned states that this is a genuine proposal and is neither collusive nor made in the interest of any other person, and has not induced anyone to submit a sham bid or refrain from bidding.

The undersigned declares: that the only person or parties interested in this proposal as principals are those named herein; that this bid is made without any connection with any other person or persons making a bid for the same work, except for another division of the undersigned which may submit an independent bid; that the bid is in all respects fair and without collusion or fraud; that the undersigned has read the Notice Inviting Sealed Proposals and the Instructions to Bidders and agrees to all the stipulations contained therein; that the undersigned has examined the form of contract (including specifications, drawings, and other documents incorporated therein by reference); that in the event this bid as submitted, the incorporated bidding documents, be accepted by the Authority that the undersigned shall execute a contract to perform the work as outlined herein.

Name of Bidder: _______________________________________________________________________

Authorized Signature: ___________________________ Title: __________________________________

Print Name: ___________________________________ Date: __________________________________

Address: _____________________________________________________________________________

____________________________________________ Phone: __________________________________

Contractor's License No.: ________________________ Primary Class: ___________________________

Social Security No. or Federal Employer ID No.: _____________________________________________

If the undersigned is a corporation, proposal must be signed by an authorized officer of the corporation and the corporate seal must be affixed below. This Proposal must be accompanied by a document evidencing such officer is authorized to sign.

Check One: (   ) Sole Proprietor
(   ) Partnership
(   ) Corporation
(   ) Other
DESIGNATION OF SUBCONTRACTORS
(To Accompany Proposal)

The bidder's attention is called to Chapter 338 of Nevada Revised Statutes (NRS) with which this bid must strictly comply.

Each bidder shall set forth below: (a) the name, the location of the place of business and license number of each first tier subcontractor who will perform work or labor, fabricate a portion of the work or improvement according to detailed drawings in the project plans, or render service to the Contractor in or about the construction of the work in an amount in excess of five percent (5%) of the Contractor's total bid, and (b) the portion of the work which will be done by each such first tier subcontractor. Further, pursuant to NRS 338.141 the prime contractor shall include their name on this list should the prime contractor be performing any of the work greater than one percent (1%) in value. The following is submitted pursuant to NRS 338.141:

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**SUBCONTRACTORS:**

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### DESIGNATION OF SUBCONTRACTORS
(To Accompany Proposal)

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The three lowest bidders shall be required to confirm and/or modify this list within two hours of the completion of the public reading of the bids (Per NRS 338.141). Bidder shall enter “NONE” under the “Name of Subcontractor” if not utilizing subcontractors exceeding this amount. This form shall be complete in all respects. If additional space is needed, attach a separate page. Such shall be hand delivered to the Reno-Tahoe Airport Authority or emailed to atwitchell@renoairport.com or FAXED to (775) 328-6463, Attn: Amanda Twitchell within 2 hours of time of public reading of bids. Should the contractor not submit this list within 2 hours of public reading of bids, the original bid will be considered non-responsive.
CONTRACTOR’S SCHEDULE

The bidder shall present his schedule in a manner and in detail sufficient to convey his understanding of the work and timing required to complete the project within the schedule set forth in these documents.
AFFIDAVIT TO RECEIVE A PREFERENCE IN BIDDING  
(Only applicable if project qualifies for Nevada Bidders preference)

Acting as a duly authorized representative of the below named bidder, I hereby certify that, for the duration of the project:

(a) At least 50 percent of all workers employed on the public work, including, without limitation, any employees of the contractor, applicant or design-build team and of any subcontractor engaged on the public work, will hold a valid driver’s license or identification card issued by the Nevada Department of Motor Vehicles;

(b) All vehicles used primarily for the public work will be:

(1) Registered and partially apportioned to Nevada pursuant to the International Registration Plan, as adopted by the Nevada Department of Motor Vehicles pursuant to NRS 706.826; or

(2) Registered in the State of Nevada;

(c) At least 50 percent of the design professionals working on the public work, including, without limitation, any employees of the contractor, applicant or design-build team and of any subcontractor engaged on the public work, will have a valid driver’s license or identification card issued by the Nevada Department of Motor Vehicles;

(d) At least 25 percent of the suppliers of the materials used for the public work will be located in the State of Nevada; and

(e) The contractor, applicant or design-build team and any subcontractor engaged on the public work will maintain and make available for inspection within the State of Nevada his or her records concerning payroll relating to the public work.

________________________________________________________________________

Name of Bidder

_________________________________________________ ____________________
Signature of Duly Authorized Representative   Date

_________________________________________________
Typed or Printed Name of Duly Authorized Representative
SECTION 80

PROSECUTION AND PROGRESS

80-01 SUBLETTING OF CONTRACT. The owner will not recognize any subcontractor on the work. The Contractor shall at all times when work is in progress be represented either in person, by a qualified superintendent, as approved by the Construction Manager or by other designated, qualified representative as approved by the Construction Manager who is duly authorized to receive and execute orders of the Engineer.

Contractor agrees that any subcontract entered into pursuant to this provision shall comply with NRS 338.170 concerning progress payments by Contractor to subcontractor.

Contractor's attention is directed to the provisions of NRS 338.125, Fair Employment Practices. Any subcontract entered into Contractor shall comply with the relevant provisions of NRS 388.125.

Contractor agrees to comply with NRS 338.020 et seq. dealing with Nevada wage rates in any subcontract entered into by Contractor.

Contractor's attention is further directed to the provisions of NRS 608.150 obligating the Contractor for indebtedness for labor incurred by any subcontractor or any contractors acting under, by or for the original Contractor in performing any labor, construction or other work included in the subject of this Contract.

Should the Contractor elect to assign his/her contract, said assignment shall be concurred with, by the surety, shall be presented for the consideration and approval of the owner, and shall be consummated only on the written approval of the owner. In case of approval, the Contractor shall file copies of all subcontracts with the Engineer.

80-02 NOTICE TO PROCEED. The notice to proceed shall state the date on which it is expected the Contractor will begin the construction and/or procurement and from which date contract time will be charged. The Contractor shall begin the work to be performed under the contract within 10 days of the date set by the Owner in the written notice to proceed, but in any event, the Contractor shall notify the Owner at least 24 hours in advance of the time actual construction operations will begin.

80-03 PROSECUTION AND PROGRESS. Unless otherwise specified, the Contractor shall submit his/her progress schedule for the Engineer's approval within 10 days after the effective date of the notice to proceed. The Contractor's progress schedule, when approved by the Owner, may be used to establish major construction operations and to check on the progress of the work. The Contractor shall provide sufficient materials, equipment, and labor to guarantee the completion of the project in accordance with the plans and specifications.

If, in the sole judgment of the Construction Manager, the Contractor falls significantly behind the submitted schedule, the Contractor shall, upon the Engineer's request, submit a revised schedule for completion of the work within the contract time and modify his/her operations to provide such additional materials, equipment, and labor necessary to meet the revised schedule. The Construction Manager may order the Contractor, in writing, at no extra cost to the Owner to accelerate his work. Accelerated work may constitute longer shift hours, Saturdays, Sundays or combination thereof. Should the prosecution of the work be discontinued for any reason, the Contractor shall notify the Engineer at least 24 hours in advance of resuming operations.
The Contractor shall not commence any actual construction prior to the date on which the notice to proceed is issued by the owner.

80-04 LIMITATION OF OPERATIONS. The Contractor shall control his/her operations and the operations of his/her subcontractors and all suppliers so as to provide for the free and unobstructed movement of aircraft in the AIR OPERATIONS AREAS of the airport.

When the work requires the Contractor to conduct his/her operations within an AIR OPERATIONS AREA of the airport, the work shall be coordinated with airport management (through the Engineer) at least 48 hours prior to commencement of such work. The Contractor shall not close an AIR OPERATIONS AREA until so authorized by the Engineer and until the necessary temporary marking and associated lighting is in place as provided in the subsection titled BARRICADES, WARNING SIGNS, AND HAZARD MARKINGS of Section 70.

When the contract work requires the Contractor to work within an AIR OPERATIONS AREA of the airport on an intermittent basis (intermittent opening and closing of the AIR OPERATIONS AREA), the Contractor shall maintain constant communications as hereinafter specified; immediately obey all instructions to vacate the AIR OPERATIONS AREA; immediately obey all instructions to resume work in such AIR OPERATIONS AREA. Failure to maintain the specified communications or to obey instructions shall be cause for suspension of the Contractor's operations in the AIR OPERATIONS AREA until the satisfactory conditions are provided.

Equipment not in use shall be parked in areas designated by the Construction Manager at least three hundred (300) feet (five hundred (500) feet for instrument runway) from the active runway and at least two hundred (200) feet from active taxiways and aprons. Working equipment closer than this to active paved areas will be permitted only with specific permission and coordinated with the airport management and control tower through the Construction Manager.

The Contractor shall not commence new work that would be prejudicial to work already started.

80-05 CHARACTER OF WORKERS, METHODS, DESIGNS AND EQUIPMENT. The Contractor shall, at all times, employ sufficient labor and equipment for prosecuting the work to full completion in the manner and time required by the contract, plans, and specifications.

All workers shall have sufficient skill and experience to perform properly the work assigned to them. Workers engaged in special work or skilled work shall have sufficient experience in such work and in the operation of the equipment required to perform the work satisfactorily.

All equipment which is proposed to be used on the work shall be of sufficient size and in such mechanical condition as to meet requirements of the work and to produce a satisfactory quality of work. Equipment used on any portion of the work shall be such that no injury to previously completed work, adjacent property, or existing airport facilities will result from its use.

When the methods and equipment to be used by the Contractor in accomplishing the work are not prescribed in the contract, the Contractor is free to use any methods or equipment that will accomplish the work in conformity with the requirements of the contract, plans, and specifications.

When the contract specifies the use of certain methods and equipment, such methods and equipment shall be used unless others are authorized by the Engineer. If the Contractor desires to use a method or type of
equipment other than specified in the contract, he may request authority from the Engineer to do so. The request shall be in writing and shall include a full description of the methods and equipment proposed and of the reasons for desiring to make the change. If approval is given, it will be on the condition that the Contractor will be fully responsible for producing work in conformity with contract requirements. If, after trial use of the substituted methods or equipment, the Engineer determines that the work produced does not meet contract requirements, the Contractor shall discontinue the use of the substitute method or equipment and shall complete the remaining work with the specified methods and equipment. The Contractor shall remove any deficient work and replace it with work of specified quality, or take such other corrective action as the Engineer may direct. No change will be made in basis of payment for the contract items involved nor in contract time as a result of authorizing a change in methods or equipment under this subsection.

The Contract specifies the use of a specific design and such designs shall be used unless another is authorized by the Engineer. If the Contractor desires to use a design other than specified on the Contract, he may request authority from the Engineer to do so. The request shall be in writing and shall include a full description of the new design change and of the reasons for desiring to make the change. If approval is given, it will be on the condition that the Contractor will remain fully responsible for producing work in conformity with Contract requirements. If the Engineer determines that the work produced as a result of the change does not meet Contract requirements, the Contractor shall discontinue the use of the substituted design and shall complete the remaining work with the specified design. The Contractor shall remove any deficient work and replace it with work of a specified quality, or take such other corrective action as the Engineer may direct. No change will be made in basis of payment for contract items involved nor in contract time as a result of authorizing a change in design under this subsection unless otherwise specifically agreed to in writing by the parties.

80-06 TEMPORARY SUSPENSION OF THE WORK. The Engineer and/or Owner shall have the authority to suspend the work wholly, or in part, for such period or periods as he may deem necessary, or such other conditions as are considered unfavorable for the prosecution of the work, or for such time as is necessary due to the failure on the part of the Contractor to carry out orders given or perform any or all provisions of the contract.

In the event that the Contractor is ordered by the Engineer, in writing, to suspend work for some unforeseen cause not otherwise provided for in the contract and over which the Contractor has no control, the Contractor may be reimbursed for actual money expended on the work during the period of shutdown. No allowance will be made for anticipated profits. The period of shutdown shall be computed from the effective date of the Engineer's order to suspend work to the effective date of the Engineer's order to resume the work. Claims for such compensation shall be filed with the Engineer within the time period stated in the Engineer's order to resume work. The Contractor shall submit with his/her claim information substantiating the amount shown on the claim. The Engineer will forward the Contractor's claim to the owner for consideration in accordance with local laws or ordinances. No provision of this article shall be construed as entitling the Contractor to compensation for delays due to inclement weather, for suspensions made at the request of the Contractor, or for any other delay provided for in the contract, plans, or specifications.

If it should become necessary to suspend work for an indefinite period, the Contractor shall store all materials in such manner that they will not become an obstruction nor become damaged in any way. He shall take every precaution to prevent damage or deterioration of the work performed and provide for normal drainage of the work. The Contractor shall erect temporary structures where necessary to provide for traffic on, to, or from the airport.
80-07 DETERMINATION AND EXTENSION OF CONTRACT TIME. The number of calendar days allowed for completion of the work shall be stated in the proposal and contract and shall be known as the CONTRACT TIME.

CONTRACT TIME based on CALENDAR DAYS shall consist of the number of calendar days stated in the contract counting from the effective date of notice to proceed and including all Saturdays, Sundays, holidays, and non-work days.

Should the contract time require extension for reasons beyond the Contractor's control, it shall be adjusted as follows:

a. Delays and Extensions of Time:

(1) If a current controlling operation or operations of the Contractor is delayed by an excusable event, then the contract time shall, subject to the prerequisites of subparagraphs (2), (3), and (4), be extended by the time determined by the Construction Manager to be sufficient to compensate for the delay. Any such extension of time will be granted by change order. In no event shall any delays or extensions of time be construed as cause or justification for payment of extra compensation or monetary damages to the Contractor.

(2) A current controlling operation or operations shall mean any element of work considered at the time by the Construction Manager as one which, if delayed, will delay the time of completion of the contract. The current controlling operation or operations shall be determined from such factors as the approved schedule, the nature of the work being performed, the Contract Documents, such as may be timely submitted by the Contractor and the contract completion date.

An excusable event shall mean:

- an act of God which the Contractor could not have reasonable foreseen, or
- damage to the work caused by fire or other unavoidable casualty beyond the Contractor's control, or

(3) Delays caused by the Contractor, subcontractors (regardless of tier), or material men shall be non-excusable. No time extension shall be granted for a non-excusable event. Examples of such non-excusable events include but are not limited to: poor planning, show mobilization, failure to provide sufficient workers or adequate equipment, failure to procure necessary materials, failure to coordinate or supervise the work, poor workmanship, accidents, or inadequate financial or other resources.

(4) An extension of time shall not be granted for an excusable event unless the Contractor gives written notice to the Construction Manager and to the Owner of the claimed delay within five (5) calendar days of its commencement and requests, in the written notification to the Construction Manager, the extension of time which it seeks. The Construction Manager may require the Contractor to
document the impact and duration of an excusable event and to demonstrate that all reasonable means have been used to minimize the effect of the delay as prerequisites to granting an extension of time.

(5) If the final completion of the contract is delayed by an excusable event, the Contractor's sole remedy shall be a timely application for an extension of time. Any extension of time shall be the sole compensation for any claims, damages, costs or loss resulting from any such delay. No monetary compensation or damages shall be payable because of any delay in the performance or completion of the work. The Contractor shall be paid for the direct cost of an ordered change in the scope of the work in accordance with Section 40.

(6) In the period of delay caused by an excusable event, as determined by the Construction Manager, concurs with the Contractor-caused or other non-excusable delay, a time extension for the duration of the impact of the excusable event on completion may be granted by the Construction Manager provided that the conditions of sub-paragraphs (2), (3) and (4) are complied with for the excusable event.

b. When the contract time is a specified completion date, it shall be the date on which all contract work shall be substantially completed.

If the Contractor finds it impossible for reasons beyond his/her control to complete the work within the contract time as specified, or as extended in accordance with the provisions of this subsection, he may, at any time prior to the expiration of the contract time as extended, make a written request to the Engineer for an extension of time setting forth the reasons which he believes will justify the granting of his/her request. The Contractor's plea that insufficient time was specified is not a valid reason for extension of time. If the Engineer finds that the work was delayed because of conditions beyond the control and without the fault of the Contractor, he may extend the time for completion in such amount as the conditions justify. The extended time for completion shall then be in full force and effect, the same as though it were the original time for completion.

80-08 FAILURE TO COMPLETE ON TIME. For each calendar day or working day, as specified in the contract, that any work remains uncompleted after the contract time (including all extensions and adjustments as provided in the subsection titled DETERMINATION AND EXTENSION OF CONTRACT TIME of this Section) the sum specified in the contract and proposal as liquidated damages will be deducted from any money due or to become due the Contractor or his/her surety. Such deducted sums shall not be deducted as a penalty but shall be considered as liquidation of a reasonable portion of damages that will be incurred by the owner should the Contractor fail to complete the work in the time provided in his/her contract.

Permitting the Contractor to continue and finish the work or any part of it after the time fixed for its completion, or after the date to which the time for completion may have been extended, will in no way operate as a waiver on the part of the owner of any of its rights under the contract.

80-09 DEFAULT AND TERMINATION OF CONTRACT. The Contractor shall be considered in default of his/her contract and such default will be considered as cause for the owner to terminate the contract for any of the following reasons if the Contractor:
a. Fails to begin the work under the contract within the time specified in the "Notice to Proceed," or

b. Fails to perform the work or fails to provide sufficient workers, equipment or materials to assure completion of work in accordance with the terms of the contract, or

c. Performs the work unsuitably or neglects or refuses to remove materials or to perform anew such work as may be rejected as unacceptable and unsuitable, or

d. Discontinues the prosecution of the work, or

e. Fails to resume work which has been discontinued within a reasonable time after notice to do so, or

f. Becomes insolvent or is declared bankrupt, or commits any act of bankruptcy or insolvency, or

g. Allows any final judgment to stand against him unsatisfied for a period of 10 days, or

h. Makes an assignment for the benefit of creditors, or

i. For any other cause whatsoever, fails to carry on the work in an acceptable manner.

Should the Engineer consider the Contractor in default of the contract for any reason hereinbefore, he shall immediately give written notice to the Contractor and may notify the Contractor's surety as to the reasons for considering the Contractor in default and the owner's intentions to terminate the contract.

If the Contractor or surety, within a period of 10 days after such notice, does not proceed to cure the problem identified, then the owner will, upon written notification from the Engineer of the facts of such delay, neglect, or default and the Contractor's failure to comply with such notice, have full power and authority without violating the contract, to take the prosecution of the work out of the hands of the Contractor. The owner may appropriate or use any or all materials and equipment that have been mobilized for use in the work and are acceptable and may enter into an agreement for the completion of said contract according to the terms and provisions thereof, or use such other methods as in the opinion of the Engineer will be required for the completion of said contract in an acceptable manner.

In the event the Owner terminates the order for any reason, the Owner agrees to pay the Contractor the proportional contract value of work performed, including but not limited to the value of work in process, in transit, delivered to site, or in storage, and for any costs incurred and all work that the Contractor has performed up to the date of termination plus a reasonable rate of profit for the work performed. The Owner agrees to limit possession to work and materials previously paid for by the Owner to the Contractor.

All costs and charges incurred by the owner, together with the cost of completing the work under contract, will be deducted from any monies due or which may become due the Contractor. If such expense exceeds the sum which would have been payable under the contract, then the Contractor and the surety shall be liable and shall pay to the owner the amount of such excess.

80-10 TERMINATION FOR NATIONAL EMERGENCIES. The owner shall terminate the contract or portion thereof by written notice when the Contractor is prevented from proceeding with the
construction contract as a direct result of an Executive Order of the President with respect to the prosecution of war or in the interest of national defense.

When the contract, or any portion thereof, is terminated before completion of all items of work in the contract, payment will be made for the actual number of units or items of work completed at the contract price or as mutually agreed for items of work partially completed or not started. No claims or loss of anticipated profits shall be considered.

Reimbursement for organization of the work, and other overhead expenses, (when not otherwise included in the contract) and moving equipment and materials to and from the job will be considered, the intent being that an equitable settlement will be made with the Contractor.

Acceptable materials, obtained or ordered by the Contractor for the work and that are not incorporated in the work shall, at the option of the Contractor, be purchased from the Contractor at actual cost as shown by receipted bills and actual cost records at such points of delivery as may be designated by the Engineer.

Termination of the contract or a portion thereof shall neither relieve the Contractor of his/her responsibilities for the completed work nor shall it relieve his/her surety of its obligation for and concerning any just claim arising out of the work performed.

80-11 FORCE MAJEURE. The Contractor will not be liable for delays in delivery or failure to perform due directly or indirectly to causes beyond reasonable control, acts of God, act (including failure to act) of any governmental authority (de jure or de facto), wars (declared or undeclared), governmental priorities, port congestion, riots, revolutions, strikes, fires, floods, sabotage, nuclear incidents, earthquakes, storms, epidemics, inability to causes beyond Seller’s reasonable control to timely obtain either necessary or proper materials, components, energy, fuel, transportation, or Owner authorizations, instructions, or definition or information required for the Contractor to complete the product delivery. The Contractor will notify Owner of such conditions in a timely manner. In the event of such delay, the time of delivery or of performance shall be extended for a period equal to the time lost by the Contractor by reason of the delay. If delay extends for more than 60 days and the parties have not agreed upon a revised schedule for continuing the work at the end of the 60 days period, including adjustment of the price if applicable, then either party upon 30 days written notice, may terminate the contract with respect to the unexecuted portion of the work, whereupon Owner shall pay the Contractor for all the work completed to the date of termination including profit for that work and the Contractor will turn over all work completed for this effort at this termination date.

END OF SECTION 80
SECTION 90

MEASUREMENT AND PAYMENT

90-01 MEASUREMENT OF QUANTITIES. Any additional work added or deleted by the Owner will be measured by the Owner, or his/her authorized representatives, using United States Customary Units of Measurement or the International System of Units.

The method of measurement and computations to be used in determination of quantities of material furnished and of work performed under the contract will be those methods generally recognized as conforming to good engineering practice.

Unless otherwise specified, longitudinal measurements for area computations will be made horizontally, and no deductions will be made for individual fixtures (or leave-outs) having an area of 9 square feet (0.8 square meter) or less. Unless otherwise specified, transverse measurements for area computations will be the neat dimensions shown on the plans or ordered in writing by the Engineer.

Structures will be measured according to neat lines shown on the plans or as altered to fit field conditions.

Unless otherwise specified, all contract items which are measured by the linear foot such as water lines, conduits, pipe culverts, fence, curb, sewer lines, storm drain lines, and similar items shall be measured parallel to the base upon which such items are placed. All contract items which are measured by the square foot such as asphalt and concrete and similar items shall be measured by the total area of the installed item.

In computing volumes of excavation, the average end area method or other acceptable methods will be used.

The thickness of plates and galvanized sheet used in the manufacture of corrugated metal pipe, metal plate pipe culverts and arches, and metal cribbing will be specified and measured in decimal fraction of inches.

The term "ton" will mean the short ton consisting of 2,000 pounds (907 kilograms) avoirdupois. All materials which are measured or proportioned by weights shall be weighed on accurate, approved scales by competent, qualified personnel at locations designed by the Engineer. If material is shipped by rail, the car weight may be accepted provided that only the actual weight of material is paid for. However, car weights will not be acceptable for material to be passed through mixing plants. Trucks used to haul material being paid for by weight shall be weighed empty daily at such times as the Engineer directs, and each truck shall bear a plainly legible identification mark.

Materials to be measured by volume in the hauling vehicle shall be hauled in approved vehicles and measured therein at the point of delivery. Vehicles for this purpose may be of any size or type acceptable to the Engineer, provided that the body is of such shape that the actual contents may be readily and accurately determined. All vehicles shall be loaded to at least their water level capacity, and all loads shall be leveled when the vehicles arrive at the point of delivery.

When requested by the Contractor and approved by the Engineer in writing, material specified to be measured by the cubic yard (cubic meter) may be weighed, and such weights will be converted to cubic yards (cubic meters) for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by the Engineer and shall be agreed to by the Contractor before such method of measurement of pay quantities is used.
Bituminous materials will be measured by the gallon (liter) or ton (kilogram). When measured by volume, such volumes will be measured at 60 F (15 C) or will be corrected to the volume at 60 F (15 C) using ASTM D 1250 for asphalts or ASTM D 633 for tars.

Net certified scale weights or weights based on certified volumes in the case of rail shipments will be used as a basis of measurement, subject to correction when bituminous material has been lost from the car or the distributor, wasted, or otherwise not incorporated in the work.

When bituminous materials are shipped by truck or transport, net certified weights by volume, subject to correction for loss or foaming, may be used for computing quantities.

The term "lump sum" when used as an item of payment will mean complete payment for the work described in the contract.

When a complete structure or structural unit (in effect, "lump sum" work) is specified as the unit of measurement, the unit will be construed to include all necessary fittings and accessories.

Rental of equipment will be measured by time in hours of actual working time and necessary traveling time of the equipment within the limits of the work. Special equipment ordered by the Engineer in connection with force account work will be measured as agreed in the change order or supplemental agreement authorizing such force account work as provided in the subsection titled PAYMENT FOR EXTRA AND FORCE ACCOUNT WORK of this section.

When standard manufactured items are specified such as fence, wire, plates, rolled shapes, pipe conduit, etc., and these items are identified by gage, unit weight, section dimensions, etc., such identification will be considered to be nominal weights or dimensions. Unless more stringently controlled by tolerances in cited specifications, manufacturing tolerances established by the industries involved will be accepted.

Scales for weighing materials which are required to be proportioned or measured and paid for by weight shall be furnished, erected, and maintained by the Contractor, or be certified permanently installed commercial scales.

Scales shall be accurate within one-half percent of the correct weight throughout the range of use. The Contractor shall have the scales checked under the observation of the inspector before beginning work and at such other times as requested. The intervals shall be uniform in spacing throughout the graduated or marked length of the beam or dial and shall not exceed one-tenth of 1 percent of the nominal rated capacity of the scale, but not less than 1 pound (454 grams). The use of spring balances will not be permitted.

Beams, dials, platforms, and other scale equipment shall be so arranged that the operator and the inspector can safely and conveniently view them.

Scale installations shall have available ten standard 50-pound (2.3 kilogram) weights for testing the weighing equipment or suitable weights and devices for other approved equipment.

Scales must be tested for accuracy and serviced before use at a new site. Platform scales shall be installed and maintained with the platform level and rigid bulkheads at each end.
Scales "overweighing" (indicating more than correct weight) will not be permitted to operate, and all materials received subsequent to the last previous correct weighing-accuracy test will be reduced by the percentage of error in excess of one-half of 1 percent.

In the event inspection reveals the scales have been "underweighing" (indicating less than correct weight), they shall be adjusted, and no additional payment to the Contractor will be allowed for materials previously weighed and recorded.

All costs in connection with furnishing, installing, certifying, testing, and maintaining scales; for furnishing check weights and scale house; and for all other items specified in this subsection, for the weighing of materials for proportioning or payment, shall be included in the unit contract prices for the various items of the project.

When the estimated quantities for a specific portion of the work are designated as the pay quantities in the contract, they shall be the final quantities for which payment for such specific portion of the work will be made, unless the dimensions of said portions of the work shown on the plans are revised by the Engineer. If revised dimensions result in an increase or decrease in the quantities of such work, the final quantities for payment will be revised in the amount represented by the authorized changes in the dimensions.

**90-02 SCOPE OF PAYMENT.** The Contractor shall receive and accept compensation provided for in the contract as full payment for furnishing all materials, for performing all work under the contract in a complete and acceptable manner, and for all risk, loss, damage, or expense of whatever character arising out of the nature of the work or the prosecution thereof, subject to the provisions of the subsection titled NO WAIVER OF LEGAL RIGHTS of Section 70.

When the "basis of payment" subsection of a technical specification requires that the contract price (price bid) include compensation for certain work or material essential to the item, this same work or material will not also be measured for payment under any other contract item which may appear elsewhere in the contract, plans, or specifications. The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work. The Contract Documents are complementary and what is required by any one shall be as binding as if required by all. Work not covered in the Contract Documents will not be required unless it is consistent therewith and is reasonably inferable there from as being necessary to produce the intended results. The Construction Manager shall have the final decision over what is reasonably inferable. All Work agreeable to the manifests intent of the drawings and specifications shall be done by the Contractor, and shall be performed under the Contract and the cost of such Work is included in the Contract Sum, whether or not such Work is fully specified or illustrated. Words and abbreviations in the Contract Documents which have well known technical or trade meanings are used in accordance with such recognized meanings.

**90-03 COMPENSATION FOR ALTERED QUANTITIES.** When the accepted quantities of work vary from the quantities in the proposal, the Contractor shall accept as payment in full, so far as contract items are concerned, payment at the original contract price for the accepted quantities of work actually completed and accepted. No allowance, except as provided for in the subsection titled ALTERATION OF WORK AND QUANTITIES of Section 40 will be made for any increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor which results directly from such alterations or indirectly from his/her unbalanced allocation of overhead and profit among the contract items, or from any other cause.

**90-04 PAYMENT FOR OMITTED ITEMS.** As specified in the subsection titled OMITTED ITEMS of Section 40, the Engineer shall have the right to omit from the work (order nonperformance) any contract item in the best interest of the owner.

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Passenger Boarding Bridge Replacement Project

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Should the Engineer omit or order nonperformance of a contract item or portion of such item from the work, the Contractor shall accept payment in full at the contract prices for any work actually completed and acceptable prior to the Engineer's order to omit or non-perform such contract item.

Acceptable materials ordered by the Contractor or delivered on the work prior to the date of the Engineer's order will be paid for at the actual cost to the Contractor and shall thereupon become the property of the owner, or at the owner’s request, returned to the vendor for a credit minus miscellaneous restocking charges.

In addition to the reimbursement hereinbefore provided, the Contractor shall be reimbursed for all actual and reasonable costs incurred for the purpose of performing the omitted contract item prior to the date of the Engineer's order. Such additional costs incurred by the Contractor must be directly related to the deleted contract item and shall be supported by certified statements by the Contractor as to the nature the amount of such costs.

**90-05 PAYMENT FOR EXTRA AND FORCE ACCOUNT WORK.** Extra work, performed in accordance with the subsection titled EXTRA WORK of Section 40, will be paid for at the contract prices or agreed prices specified in the change order or supplemental agreement authorizing the extra work. When the change order or supplemental agreement authorizing the extra work requires that it be done by force account, such force account shall be measured and paid for based on expended labor, equipment, and materials plus a negotiated and agreed upon allowance for overhead and profit.

a. Miscellaneous. No additional allowance will be made for general superintendence, the use of small tools, or other costs for which no specific allowance is herein provided.

b. Comparison of Record. The Contractor and the Engineer shall compare records of the cost of force account work at the end of each day. Agreement shall be indicated by signature of the Contractor and the Engineer or their duly authorized representatives.

c. Statement. No payment will be made for work performed on a force account basis until the Contractor has furnished the Engineer with duplicate itemized statements of the cost of such force account work detailed as follows:

1. Name, classification, date, daily hours, total hours, rate and extension for each laborer and foreman.
2. Designation, dates, daily hours, total hours, rental rate, and extension for each unit of machinery and equipment.
3. Quantities of materials, prices, and extensions.
4. Transportation of materials.
5. Cost of property damage, liability and workman's compensation insurance premiums, unemployment insurance contributions, and social security tax.

Statements shall be accompanied and supported by a receipted invoice for all materials used and transportation charges. However, if materials used on the force account work are not specifically purchased for such work but are taken from the Contractor's stock, then in lieu of the invoices the Contractor shall furnish an affidavit certifying that such materials were taken from his/her stock, that the
quantity claimed was actually used, and that the price and transportation claimed represent the actual cost to the Contractor.

Refer to table 90-06 - General Contractors Allowance for Work Performed on Extra & Force Account Work.
<table>
<thead>
<tr>
<th>WORK PERFORMED BY</th>
<th>OVERHEAD PROFIT MARKUP</th>
<th>MATERIAL</th>
<th>LABOR</th>
<th>EQUIPMENT Contractor owned/</th>
<th>EQUIPMENT Rented</th>
<th>EQUIPMENT OPERATING COSTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contractor</td>
<td>15%</td>
<td>Actual cost supported by original paid invoice</td>
<td>Actual wage rates plus any fringe benefits</td>
<td>Will be paid at 70% of latest edition of the * blue book rates published by Data Quest.</td>
<td>Will be paid at 100% of actual cost supported by paid invoice.</td>
<td>100% of actual operating costs as detailed in the Blue Book.</td>
</tr>
<tr>
<td>Sub-contractor</td>
<td>10%</td>
<td>Actual cost supported by original paid invoice</td>
<td>Actual wage rates plus any fringe benefits</td>
<td>Will be paid at 70% of latest edition of the * blue book rates published by Data Quest.</td>
<td>Will be paid at 100% of actual cost supported by original paid invoice.</td>
<td>100% of actual operating costs as detailed in the Blue Book.</td>
</tr>
<tr>
<td>Sub-sub-contractor</td>
<td>5%</td>
<td>Actual cost supported by original paid invoice</td>
<td>Actual wage rates plus any fringe benefits</td>
<td>Will be paid at 70% of latest edition of the * blue book rates published by Data Quest.</td>
<td>Will be paid at 100% of actual cost supported by original paid invoice.</td>
<td>100% of actual operating costs as detailed in the Blue Book.</td>
</tr>
<tr>
<td>Sub-sub-sub-contractor</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>

NOTES:
Markup includes general and administrative costs, overhead, salaried supervision, indirect administrative personnel and all other indirect labor, payroll taxes, insurance and company fringe benefits for general and administrative personnel, material handling and warehouse labor, other non-reimbursable costs and profit.

Markups and/or fees on cost reimbursable extra or deleted work shall not be compounded by successive subcontractors or material suppliers at any level or tier. Owner shall not be required to compensate the Contractor for any such compounded markups or fees.

* Applicable daily, weekly or monthly rates. If payment is made for more than three consecutive days in a week (Monday through Saturday), then weekly rates will apply. If payment is made for more than two consecutive weeks in any calendar month, the monthly rates will apply.
90-07 PARTIAL PAYMENTS. The Owner will make partial payments under this Contract monthly if and to the extent the work progresses satisfactorily.

The Contractor shall prepare his/her invoice for submittal to the Construction Manager in a form and content satisfactory to the Construction Manager. To lessen the chance that any submitted invoice will be rejected by the Construction Manager, the Contractor shall coordinate the preparation and development of each invoice with the Construction Manager's cognizant on-site representative. Upon receipt of the invoice the Construction Manager will review the submitted invoice and all supporting data which will include currency of certified payrolls and schedule update submittals as required in the Contract, and will assure that the amount of payment requested fairly represents the work performed and materials complete in place to date of this invoice, and are in accordance with the Contract Plans and Specifications.

Partial payments will be made within thirty (30) calendar days after the date of Construction Manager's receipt of a suitable invoice properly supported as to amount requested.

Partial payments may include an appropriate allowance for delivered materials on hand to the extent provided for and in accordance with the requirements of Subsection 90-07 below.

A partial payment will not be made if the net amount due the Contractor, since the last partial payment, is less than Five Hundred Dollars ($500.00).

From the total of the amount determined to be payable on a partial payment, five percent (5%) of such total amount will be deducted and retained by the Owner until the work is, in Owner's sole judgment, at least fifty percent (50%) physically complete. Once the work is, in Owner's sole judgment, at least fifty percent (50%) physically complete, the Owner will not withhold any additional retainage.

It is understood and agreed that the Contractor shall not be entitled to demand or receive payment based on quantities of work in excess of those provided in the Contract, except when such excess quantities have been determined by the Construction Manager to be necessary and a part of the final quantity for the item of work in question.

No partial payment shall bind the Owner to the acceptance of any materials or work in place as to quality or quantity. All partial payments are subject to correction at the time of Final Payment as provided in the subsection titled ACCEPTANCE AND FINAL PAYMENT of this Section.

90-08 PAYMENT FOR MATERIALS ON HAND. Partial payments may be made to the extent of the delivered cost of materials to be incorporated in the work, provided that such materials meet the requirements of the contract, plans, and specifications and are delivered to acceptable sites on the airport property or at other sites in the vicinity that are acceptable to the owner. Such delivered costs of stored or stockpiled materials may be included in the next partial payment after the following conditions are met:

a. The material has been stored or stockpiled in a manner acceptable to the Engineer at or on an approved site.

b. The Contractor has furnished the Engineer with acceptable evidence of the quantity and quality of such stored or stockpiled materials.

c. The Contractor has furnished the Engineer with satisfactory evidence that the material and transportation costs have been paid.
d. The Contractor has furnished the owner legal title (free of liens or encumbrances of any kind) to the material so stored or stockpiled.

e. The Contractor has furnished the owner evidence that the material so stored or stockpiled is insured against loss by damage to or disappearance of such materials at anytime prior to use in the work.

It is understood and agreed that the transfer of title and the owner's payment for such stored or stockpiled materials shall in no way relieve the Contractor of his/her responsibility for furnishing and placing such materials in accordance with the requirements of the contract, plans, and specifications.

In no case will the amount of partial payments for materials on hand exceed fifty percent (50%) of the contract price for such materials or the contract price for the contract item in which the material is intended to be used. Costs for protection and storage of materials on hand shall be borne by the Contractor.

No partial payment will be made for stored or stockpiled living or perishable plant materials.

The Contractor shall bear all costs associated with the partial payment of stored or stockpiled materials in accordance with the provisions of this subsection.

90-09 NOT USED.

90-10 ACCEPTANCE AND FINAL PAYMENT. When the contract work has been accepted in accordance with the requirements of the subsection titled FINAL ACCEPTANCE of Section 50, the Engineer will prepare the final estimate of the items of work actually performed. The Contractor shall approve the Engineer's final estimate or advise the Engineer of his/her objections to the final estimate which are based on disputes in measurements or computations of the final quantities to be paid under the contract as amended by change order or supplemental agreement within fifteen (15) calendar days of the Contractor's receipt of the Construction Manager's final estimate. The Contractor and the Engineer shall resolve all disputes (if any) in the measurement and computation of final quantities to be paid within 30 calendar days of the Contractor's receipt of the Engineer's final estimate. If, after such 30-day period, a dispute still exists, the Contractor may approve the Engineer's estimate under protest of the quantities in dispute, and such disputed quantities shall be considered by the owner as a claim in accordance with the subsection titled CLAIMS FOR ADJUSTMENT AND DISPUTES of Section 50.

After the Contractor has approved, or approved under protest, the Engineer's final estimate, final payment will be processed based on the entire sum, or the undisputed sum in case of approval under protest, determined to be due the Contractor less all previous payments and all amounts to be deducted under the provisions of the contract. All prior partial estimates and payments shall be subject to correction in the final estimate and payment.

If the Contractor has filed a claim for additional compensation under the provisions of the subsection titled CLAIMS FOR ADJUSTMENTS AND DISPUTES of Section 50 or under the provisions of this subsection, such claims will be considered by the owner in accordance with local laws or ordinances. Upon final adjudication of such claims, any additional payment determined to be due the Contractor will be paid pursuant to a supplemental final estimate.

The Contractor, Subcontractors and Materialmen shall submit a Full Release of All Claims and Waiver Lien on the following form at such time as he receives final payment.

Reno-Tahoe International Airport
Passenger Boarding Bridge Replacement Project

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90-11 **NONPAYMENT SUSPENSION.** if the Owner does not pay the Contractor through no fault of the Contractor, within seven (7) days from the time payment should be made, the Contractor may, without prejudice to any other remedy it may have, upon seven (7) additional days’ written notice to the Owner, stop its work until payment of the amount owing has been received. The Contract price shall, by appropriate adjustment, be increased by the amount of the Contractor’s reasonable costs of shutdown, delay and start-up.
CONDITIONAL WAIVER AND RELEASE
UPON PROGRESS PAYMENT

Property Name: __________________________________________________________

Property Location: ______________________________________________________

Undersigned’s Customer: ________________________________________________

Invoice/Payment Application Number: _____________________________________

Payment Amount: _______________________________________________________

Payment Period: ________________________________________________________

Upon receipt by the undersigned of a check in the above-referenced Payment Amount payable to the
undersigned, and when the check has been properly endorsed and has been paid by the bank on which it is drawn,
this document becomes effective to release and the undersigned shall be deemed to waive any notice of lien, any
private bond right, any claim for payment and any rights under any similar ordinance, rule or statute related to
payment rights that the undersigned has on the above-described Property to the following extent:

This release covers a progress payment for the work, materials or equipment furnished by the undersigned
to the Property or to the Undersigned’s Customer which are the subject of the Invoice or Payment Application, but
only to the extent of the Payment Amount or such portion of the Payment Amount as the undersigned is actually
paid, and does not cover any retention withheld, any items, modifications or changes pending approval, disputed
items and claims, or items furnished that are not paid. Before any recipient of this document relies on it, the recipient
should verify evidence of payment to the undersigned. The undersigned warrants that he or she either has already
paid or will use the money received from this progress payment promptly to pay in full all laborers, subcontractors,
materialmen and suppliers for all work, materials or equipment that are the subject of this waiver and release.

DATED this ________ day of __________, 20 ___.

______________________________________________
Company Name

By ___________________________________________

______________________________________________
(Title)
UNCONDITIONAL WAIVER AND RELEASE
UPON PROGRESS PAYMENT

Property Name: _____________________________________________________________

Property Location: __________________________________________________________

Undersigned’s Customer: _____________________________________________________

Invoice/Payment Application Number: __________________________________________

Payment Amount: ____________________________________________________________

Payment Period: _____________________________________________________________

The undersigned has been paid and has received a progress payment in the above-referenced Payment Amount for all work, materials and equipment the undersigned furnished to the Customer for the above-described Property and does hereby waive and release any notice of lien, any private bond right, any claim for payment and any rights under any similar ordinance, rule or statute related to payment rights that the undersigned has on the above-described Property to the following extent:

This release covers a progress payment for the work, materials and equipment furnished by the undersigned to the Property or to the Undersigned’s Customer which are the subject of the Invoice or Payment Application, but only to the extent of the Payment Amount or such portion of the Payment Amount as the undersigned is actually paid, and does not cover any retention withheld, any items, modifications or changes pending approval, disputed items and claims, or items furnished that are not paid. The undersigned warrants that he or she either has already paid or will use the money received from this progress payment promptly to pay in full all laborers, subcontractors, materialmen and suppliers for all work, materials or equipment that are the subject of this waiver and release.

DATED this _______ day of __________, 20 ___.

___________________________________________
Company Name

By __________________________________________

___________________________________________
(Title)

Notice: This document waives rights unconditionally and states that you have been paid for giving up those rights. This document is enforceable against you if you sign it to the extent of the Payment Amount or the amount received. If you have not been paid, use a conditional release form.
CONDITIONAL WAIVER AND RELEASE
UPON FINAL PAYMENT

Property Name:__________________________________________________________

Property Location:________________________________________________________

Undersigned’s Customer:_____________________________________________________

Invoice/Payment Application Number:_________________________________________

Payment Amount:____________________________________________________________

Payment Period:______________________________________________________________

Amount of Disputed Claims:____________________________________________________

Upon receipt by the undersigned of a check in the above-referenced Payment Amount payable to the undersigned, and when the check has been properly endorsed and has been paid by the bank on which it is drawn, this document becomes effective to release and the undersigned shall be deemed to waive any notice of lien, any private bond right, any claim for payment and any rights under any similar ordinance, rule or statute related to payment rights that the undersigned has on the above-described Property to the following extent:

This release covers the final payment to the undersigned for all work, materials or equipment furnished by the undersigned to the Property or to the Undersigned’s Customer and does not cover payment for Disputed Claims, if any. Before any recipient of this document relies on it, the recipient should verify evidence of payment to the undersigned. The undersigned warrants that he or she either has already paid or will use the money received from the final payment promptly to pay in full all laborers, subcontractors, materialmen and suppliers for all work, materials or equipment that are the subject of this waiver and release.

DATED this ________ day of __________, 20___.

________________________________________________________
Company Name

By ________________________________

________________________________________________________
(Title)
UNCONDITIONAL WAIVER AND RELEASE
UPON FINAL PAYMENT

Property Name:__________________________________________________________

Property Location:_______________________________________________________

Undersigned’s Customer:__________________________________________________

Invoice/Payment Application Number:_______________________________________

Payment Amount:_________________________________________________________

Payment Period:__________________________________________________________

Amount of Disputed Claims:______________________________________________

The undersigned has been paid in full for all work, materials and equipment furnished to the Customer for the above-described Property and does hereby waive and release any notice of lien, any private bond right, any claim for payment and any rights under any similar ordinance, rule or statute related to payment rights that the undersigned has on the above-described Property, except for the payment of Disputed Claims, if any, noted above. The undersigned warrants that he or she either has already paid or will use the money received from this final payment promptly to pay in full all laborers, subcontractors, materialmen and suppliers for all work, materials and equipment that are the subject of this waiver and release.

DATED this ______ day of ________, 20 ___.

___________________________________________________________
Company Name

By __________________________________________________________

(Title)

Notice: This document waives rights unconditionally and states that you have been paid for giving up those rights. This document is enforceable against you if you sign it to the extent of the Payment Amount or the amount received. If you have not been paid, use a conditional release form.
SPECIAL PROVISION NO. 3

INSURANCE REQUIREMENTS

SP3-01 CONTRACTOR PROVIDED INSURANCE. The Contractor will provide the following insurance coverage for himself, all sub-contractors, suppliers, material, men, and any and all others accessing the project on the Contractor’s behalf.

INSURANCE/INDEMNIFICATION SPECIFICATIONS

INTRODUCTION

The Reno-Tahoe Airport Authority (Owner) has established specific indemnification, insurance, and safety requirement for contracts to help assure that reasonable insurance coverage is purchased and safe working conditions are maintained. Indemnification and hold harmless clauses are intended to assure that a Contractor accepts and is able to pay for the loss or liability related to its activities.

The Contractor’s attention is directed to the insurance requirements below. It is highly recommended that the Contractor confer with its respective insurance carriers or brokers to determine in advance of bid/proposal submission the availability of insurance certificates and endorsements as prescribed and provided herein. If there are any questions regarding these insurance requirements, it is recommended that the agent/broker contact the Authority Manager of Finance directly at (775) 328-6830. If the successful Contractor fails to comply strictly with the insurance requirements, that Contractor may be disqualified from award of the contract.

SP3-02 INDEMNIFICATION AGREEMENT

The Contractor shall indemnify, hold harmless and defend the Owner, its Board of Trustees and its officers, directors, agents, servants, and employees from any and all liabilities, losses, suits, claims, judgments, fines, penalties, demands or expenses, including all reasonable costs for investigation and defense thereof (including, but not limited to, attorneys' fees, court costs, and expert fees), for injury or damage to persons or property sustained in or about the Airport, as a proximate result of the acts or omissions of the Contractor, its agents, servants, or employees, subcontractors and subordinate subcontractors, or arising out of the operations of the Contractor upon and about the Airport, excepting such liability as may result from the sole negligence of the Owner, its officers, directors, servants, agents and employees. Contractor shall further use legal counsel reasonably acceptable to the Owner in carrying out Contractor's obligations hereunder. Any final judgment rendered against the Owner for any cause for which Contractor is liable hereunder shall be conclusive against Contractor as to liability and amount, where the time for appeal therefrom has expired. The Indemnity provisions set forth herein shall survive the expiration or early termination of any Agreement. The parties agree that if any part of this indemnification provision is found to conflict with applicable laws, such part shall be unenforceable only insofar as it conflicts with said laws, and that this indemnification provision shall be judicially interpreted and rewritten to provide the broadest possible indemnification legally permissible.

Neither party shall be liable for incidental or consequential damages. The Contractor shall not be obligated or liable for errors, inconsistencies, or omissions produced by Owner.

SP3-03 CONTRACTOR PROVIDED INSURANCE

The Contractor shall provide the following insurance coverage for itself, all subcontractors, suppliers, material men, and all others accessing the project on the Contractor’s behalf.
COMMERCIAL GENERAL LIABILITY INSURANCE
Using Insurance Services Office “Commercial General Liability” policy form CG 00 01, with an edition date prior to 2004, or the exact equivalent. Coverage for an additional insured shall not be limited to its vicarious liability. Defense costs must be paid in addition to limits. Limits shall be no less than $10,000,000 per occurrence for all covered losses and no less than $10,000,000 general aggregate.

COURSE OF CONSTRUCTION INSURANCE
Builder's Risk or Course of Construction Insurance insuring on a "all risks" basis, with a limit equal to the completed value of the project and all materials and equipment to be incorporated therein, including property in transit or elsewhere and insuring the interests of the Owner, Contractor and its subcontractors of any tier providing equipment, materials, or services for the project. The Airport shall be named as loss payee; and the insurers shall waive all rights of recovery against Airport.

SP3-04 ADDITIONAL CONTRACTOR PROVIDED INSURANCE. The contractor will provide the following additional insurance coverage:

WORKERS’ COMPENSATION INSURANCE
The Contractor and its subcontractor shall procure Nevada Worker's Compensation Insurance as evidenced by a Certificate of Insurance from an acceptable insurance company covering contractor's employees for at least the statutorily required limits.

Employer's Liability Insurance with a minimum limit of $1,000,000 per occurrence, including stop gap insurance.

BUSINESS AUTOMOBILE COVERAGE
The Contractor or subcontractor shall be responsible for maintaining Business Auto Coverage on ISO form CA 00 01 including owned, and non-owned and hired autos, or the exact equivalent. Limits shall be no less than $5,000,000 per accident, Combined Single Limit. If Contractor or Contractor’s employees will use personal autos in any way on this project, Contractor shall obtain evidence of personal auto liability coverage for each person.

CONTRACTOR’S TOOLS AND EQUIPMENT
The Contractor is responsible for its own construction tools and equipment whether owned, leased, rented, or borrowed for use at the Airport worksite.

SP3-05 DEDUCTIBLES AND SELF-INSURED RETENTIONS
Contractor's Commercial General Liability: $25,000 per occurrence
Course of Construction Insurance: $10,000 per occurrence

Any changes to the deductibles or self-insured retentions made during the term of the Agreement or during the term of any policy must be approved by the Owner prior to the change taking effect.

SP3-06 ADDITIONAL INSURANCE CRITERIA
Contractor shall furnish the Owner with insurance certificates as evidence that the foregoing insurance is in force prior to commencement of work on the contract, including complete copies of the policies if requested.

Said policies shall be with insurance companies authorized to do business in the State of Nevada with an A. M. Best rating of A- VII or better.
Such policies shall provide that written notice shall be given to Owner thirty (30) days prior to cancellation or material change of any protection which said policies provide.

Said policies, except Worker's Compensation, shall name Owner, its Board, officers, employees, related entities, and representatives as additional insureds. The policies will be primary and any other insurance carried by Contractor and/or Owner shall be excess and not contributing therewith.

In the event Contractor fails to provide Owner with the insurance described, no work shall commence on the contract site. If the coverage required by the Contractor is terminated or reduced for any reason, all work on the contract site shall immediately stop until the all the required coverages are in place.

The extent of coverage or the limits of liability provided under the policies procured by the Contractor and/or subcontractors shall not be construed to be a limitation on the nature or extent of the Contractors' obligations or to relieve the Contractor of any such obligations or representation by the Owner as to the adequacy of the insurance to protect the Contractor against the obligations imposed on it by this or any other contract.

It is the Contractor's responsibility to familiarize itself with the coverages described herein.

Immediate notification must be given to the Owner and/or its agent upon receiving any knowledge or notification of claim or litigation on which the Owner may be named.

**SP3-07 COSTS**

Costs for providing such insurance as described above shall be incidental to the work.

**END OF SECTION SP3**
SPECIAL PROVISION NO. 10

PHASING, DURATION AND LIQUIDATED DAMAGES

SP10-01 OVERVIEW. The work under this contract shall be performed in a phased construction schedule in order to minimize impacts on airport operations and to maximize flexibility for the Contractor. The Phases will consist of Phase 1 – Procurement, Phase 2a – Apron Striping, Phase 2b – Construction (All Remaining Scope).

SP10-02 WORK AREAS AND DURATION. The entire project shall consist of the work areas as depicted on the Drawings.

A Notice-to-Proceed shall be issued separately for Phase 1 – Procurement Phase 2a – Apron Striping, and Phase 2b – Construction (All Remaining Scope). See below for the specific durations for each phase.

SP10-03 PHASING PLAN. Prior to beginning any operations on site, the Contractor shall prepare a detailed written and graphic construction progress plan indicating how he intends to perform the work addressing the constraints listed. Such plan must address work areas, haul routes, staging areas, flagged crossings and schedule at a minimum. Costs for these items shall be reflected in the bid price for General Conditions.

This plan shall be must be approved by the Owner and Construction Manager prior to the Contractor beginning any work.

<table>
<thead>
<tr>
<th>PHASE</th>
<th>COMMENCEMENT and DURATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1 - Procurement</td>
<td>Procure all materials, fixtures, and equipment needed to begin construction. Duration of this phase is one hundred forty (140) consecutive calendar days.</td>
</tr>
<tr>
<td>Phase 2a – Apron Striping</td>
<td>This scope of work shall be completed prior to June 1, 2019. This work shall be substantially complete and ready for occupancy at time of Substantial Completion for the Work. Duration of this phase is fourteen (14) consecutive calendar days, with no single gate taking longer than 2 days to be substantially complete. There are a total of six gates included in the scope of work. Not more than one gate, on each concourse, can be under construction at one time. Gates C1, C3, C5, and C7 shall be completed in this consecutive order with zero days/time duration between finishing one gate and starting the next. Gates B10 and B11 shall be completed in this consecutive order with zero days/time duration between finishing one gate and starting the next.</td>
</tr>
<tr>
<td>Phase 2b – Construction (All Remaining Scope)</td>
<td>This work shall not commence prior to September 3, 2019. This work shall be substantially complete and ready for occupancy at time of Substantial Completion for the Work. Duration of this phase is seventy-two (72) consecutive calendar days, with no single passenger boarding bridge taking longer than 12 days to be substantially complete. There are a total of six passenger boarding bridges included in the scope of work. Not more than one passenger boarding bridge, on each concourse, can be under construction at one time. The Contractor shall coordinate the activation schedule to allow for an Airline Test Fit with an aircraft. This shall occur no later than day 10 of 12 in each individual bridge schedule.</td>
</tr>
</tbody>
</table>
**SP10-04 STAGING AREAS.** The Contractor shall use staging areas as shown on the Project Drawings.

**SP10-05 LIQUIDATED DAMAGES.** The Contractor agrees that he/she and his/her Surety shall be liable for and pay to the Owner the dollar amounts as fixed below, agreed as liquidated damages per each calendar day, including Sundays and holidays, that the Work remains incomplete or area unopened, not as penalty but as a liquidation of a reasonable portion of damages that will be incurred by the Owner by the failure of the Contractor to meet his/her obligation by the time or date stipulated. For failure to have the following areas open during the periods specified or for failure to complete and open areas in durations specified hereinbefore:

<table>
<thead>
<tr>
<th>AREA</th>
<th>LIQUIDATED DAMAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 2b</td>
<td>$1,000 per calendar day for each day past 72 days from the Phase 2b – Construction NTP that the phase of the project remains incomplete or unusable to Owner, with a maximum of no more than 10% of the total contract value.</td>
</tr>
<tr>
<td>Phase 2b – Single Bridge</td>
<td>$1,000 per calendar day for each day past 12 days from the commencement of work on any single passenger boarding bridge that the bridge remains incomplete or unusable to Owner, with a maximum of no more than 10% of the total contract value.</td>
</tr>
</tbody>
</table>

Liquidated damages shall not be assessed for delays not caused by the Contractor.

During all phases, if the Work is determined to be unsatisfactory for any reason and requires removal and replacement, rework, or any action that will affect Airport Operations, it will be considered part of the Work, and if the time period exceeds that specified or if areas cannot be opened, liquidated damages will be assessed.

**END OF SECTION SP10**
SECTION 11 8504 - PASSENGER BOARDING BRIDGE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This specification sets forth the description, technical and performance specifications for apron drive type passenger boarding bridges (PBB).
   1. This specification is intended to include both two and three tunnel type passenger boarding bridges, of corrugated or truss style construction, and all lengths thereof, as well as any fixed section of tunnel used as a walkway to the apron drive bridge; however, only corrugated tunnel bridges will be allowed on this project.
   2. It is the intent of the Owner to re-use the existing foundations for all PBBs to be replaced under this Contract. As part of the bid, Contractor shall submit sufficient evidence, for Engineer review and approval, confirming and ensuring that the loads of the new PBBs being provided and installed by the Contractor will not exceed the loads of the existing PBBs by more than 5%. See Attachment A for load information of existing PBBs.
   3. The aircraft parking requirements for each PBB can be seen in the contract drawings.

1.02 REFERENCES

A. The bridge shall conform to all applicable federal, state, and municipal codes and regulations that apply to the installation site. The design of all parts and subassemblies shall be in accordance with good commercial practices to assure safe, efficient, and practical designs in keeping with standards that have been adopted by the passenger loading bridge industry. Applicable documents include, but are not limited to, the following. The latest approved version or edition, by the authority having jurisdiction, of the following codes, references and standards shall apply. If the authority having jurisdiction has not approved or adopted a particular code, reference, or standard, the latest published edition shall be applicable.
   1. American Institute of Steel Construction (AISC)
   2. Society of Automotive Engineers (SAE) Standards
   3. American Society of Mechanical Engineers (ASME) Standards
   6. American's with Disabilities Act (ADA)
   7. Steel Structures Painting Council (SSPC)
   8. National Electrical Code (NEC)
   9. National Electrical Manufacturers Association (NEMA) Standards
   10. Occupational Safety and Health Administration (OSHA)
   11. American Welding Society (AWS) Standards
   13. American Insurance Association (AIA)
   14. Structural Steel ASTM-A36
   15. Hollow Structural Sections (HSS) ASTM-500
   16. Wide Flange Sections ASTM-A992
   17. Steel Pipe ASTM-A53
   18. Steel Sheet ASTM-A570
   19. T-1 Steel ASTM-A514 and A517
   20. Hinge Pins ASTM-A 311 Grade 1018 and Grade 1144
   22. Bolts—High Strength SAE-J429 Grade 5 and 8

B. In the event of conflict between a reference and another reference or this specification, request clarifications. All responses are final, and will be at no additional cost to the Owner.
1.03 GENERAL REQUIREMENTS

A. The term “Passenger Boarding Bridge”, “Passenger Loading Bridge”, “Boarding Bridge” “Loading Bridge”, “bridge”, “PLB”, and “PBB” as used within this specification and throughout the contract documents is understood to mean the components, subcomponents and subsystems that constitute a complete, operable, and maintainable Passenger Boarding Bridge and as referred to herein, are synonymous.

B. The terms, “Seller”, “Contractor”, “Provider” and “Manufacturer” as referred to herein, are synonymous. The term Owner, shall include the Owner, or his authorized representative.

C. Applicable contract and terminal building drawings will be made available upon written request.

D. The PBB and all components thereof shall be constructed in accordance with all codes and standards and local laws and regulations applicable to the design and construction of this type of equipment, which are generally accepted and used as good practice throughout the industry, including without limitation, NFPA, Underwriter's Laboratories, OSHA, SAE Publications, American National Standards, Military Standards, etc. The design of all parts and subassemblies shall be in accordance with good commercial practice and shall be the responsibility of the manufacturer to assure safe, efficient and practical design in keeping with requirements peculiar to this type system.

E. The manufacturer shall be a qualified source, who has been regularly engaged in the engineering, manufacturing and installation of commercial aviation PBB equipment and components for a minimum of five (5) years and with a minimum of one hundred (100) units installed.

F. Qualified manufacturers and installers will have completed no less than five (5) jobs of similar size and scope within the last five (5) years.

G. The manufacturer shall have proven technical capabilities and adequate manufacturing facilities together with sufficient financial depth and stability to permit prompt and satisfactory execution of the contract.

H. Manufacturers are required to satisfy all requirements of this specification. Should the Manufacturer desire to deviate from any portion, either because the specification is in error, violation of any law or regulation, or is in need of modification to permit a more satisfactory functional and economical design, they must submit a written request for such deviation. The Manufacturer shall not contract, purchase or cause to be delivered, equipment which does not meet all requirements of this document as specified, without obtaining prior written approval.

I. The Manufacturer shall be responsible for verifying installation locations and methods and shall notify the Engineer of any conflicts or code violations prior to manufacture of the PBB units. Verifications shall include field verifications of terminal building heights, appurtenances and finishes, including terminal doors; electrical, mechanical, special systems, and communications interfaces; as well as PBB and walkway foundation locations, rotations, elevations and bolt details. Modifications to eliminate conflicts or code violations will be coordinated with and approved by the Engineer. Modifications shall be made at no additional cost to the Owner.

J. The Manufacturer shall furnish and install all necessary equipment to provide a complete, operable and maintainable unit.

K. Should alternate mounting configurations or physical attributes, other than those specified herein, or indicated on the project drawings, be proposed, manufacturers shall submit alternates for approval prior to bid date. Alternate mounting, configurations, or attributes shall be provided at no additional cost to the Owner.

L. EMI/RFI: Unit shall be designed so as not to affect aircraft radio/navigation equipment. It shall be applicable throughout the entire aircraft radio frequency range. Provisions shall be designed into the unit to protect it from voltage fluctuations which might result from the operation of aircraft radio frequency equipment.
M. The equipment and its accessories shall be designed and constructed with reliability of operation a primary consideration. The minimum reliability design requirement is that the equipment be designed to operate between periodic preventative maintenance periods of 300 operating hours or six weeks, whichever occurs first. The above interval does not apply to components in those cases where the component manufacturer recommends more frequent maintenance intervals.

1.04 SUBMITTALS

A. Drawings, sketches, details, and materials shall be submitted in the English language, with United States Units, including dimensions, volumes, weights, and forces. The use of the metric or SI units is not acceptable.

B. Bid-Submittals: The following submittals shall be included with bid.
   1. Alternate Configurations per 1.03.K.
   2. NFPA 415 certificates and manufacturer's compliance statement per 1.11.C.9.
   3. Documentation as evidence for Owner review that the manufacturer and installer meet the requirements per 1.03E, F, and G.
   4. Spare Parts List: Provide manufacturer's recommended spare parts list. Spare parts list shall include Owner applicable pricing. Spare parts pricing shall remain valid for two (2) years from the date of final completion.
   5. Proposed PBB models with manufacturer's standard cut sheets for proposed models.
   6. Foundation loads for each passenger boarding bridge model proposed per 1.01.A.2.
   7. UL/ETL Certification per 1.05.C.

C. Pre-Manufacture Submittals: The following submittals shall be made as necessary to meet the project schedule, and shall be submitted to and approved prior to manufacturing the PBB units.
   1. The manufacturer shall submit shop drawings, technical specifications, and descriptive product data for review and approval. An index prepared in chronological order listing drawings, sketches, details, and material submitted shall be provided.
   2. Product data for selected models including specialties, accessories, and the following:
      a. Critical design items related to the human factors including operation and maintenance shall be addressed with Shop Drawing and shall include, but not be limited to:
         1) General:
            (a) General Arrangement drawings to include dimensions
            (b) General Erections drawings to include dimensions
         2) Interior Finishes:
            (a) Interior scheme of each type
            (b) Transition details
            (c) Wall finish attachment
            (d) Light fixture details and layout
            (e) Joint details
            (f) Interior Finishes
            (g) Carpet edging details, including, lines of demarcation between carpeted and hard surfaced floor at wall areas and treatment at doors and thresholds
         3) Exterior Configurations:
            (a) General bridge layout
            (b) Exterior sketch of each type
            (c) Graphics
            (d) Paint finishes
            (e) Handrails
            (f) Flashing (terminal to passenger loading bridge)
            (g) Flashing (terminal to fixed walkway)
            (h) Flashing (fixed walkway to passenger loading bridge)
(i) Flashing (bridge segments)
(j) Cab door seal
(k) Ramp Service Stairway

4) Cab:
(a) Operator's cone of visibility
(b) Control panel location and functional layout with labeling.
(c) View panels
(d) Interface with aircraft
(e) Designs necessary for appropriate mating with required aircraft types (including auto-leveling devices)
(f) Operator protection while bridge is in motion with weather door open
(g) Operator instruction placard
(h) Copies of all graphic screen shots in color, including indication of different colors for those items that change colors to indicate changing states of equipment or systems.

5) Safety Markings:
(a) All safety decals and stencils

b. PBB operational envelopes dimensioned.
c. Motor ratings and electrical characteristics including motor and fan accessories.
d. Materials, gauges and finishes, including paints, wallboards, floor coverings, etcetera.
e. Engineering Certification:
   1) Manufacturer shall submit Engineering Certification stating that the PBB and all components thereof are constructed in accordance with this specification, as well as all codes and standards and local laws and regulations applicable to the design and construction of passenger boarding bridges, including without limitation, NFPA, Underwriter's Laboratories, and OSHA.
f. Shop Drawings: Provide schematics and interconnection diagrams, indicate front and side views of PBB with overall dimensions and weights shown; conduit/cable entrance locations and requirements; and nameplate legends. Differentiate between manufacturer-installed wiring and field-installed connections.

3. Installation Details: Provide complete installation details including, without limitation, installation details of all appurtenances. Show installed configuration as well as any pertinent details regarding interface to other equipment and systems, include electrical connection service points.

D. Pre-Ship Submittals: The following shall be submitted for approval prior to shipping PBB units to the project site:
1. Factory Test Reports: Indicate factory tests and results and inspection procedures.

E. Pre-Substantial Completion Submittals: The following submittals shall be submitted and approved prior to 14 days before substantial completion, unless otherwise noted herein.
1. Operation and Maintenance Manuals.
2. Training Program: At least 60 days prior to substantial completion, a training program summary, course syllabus, instructor qualifications, and copy of the training manual shall be submitted for review and approval.
3. Field Commissioning Report: Submit proposed field commissioning report for approval. This approved form shall be utilized for the final field commissioning as specified in Section 3.

F. Installation Submittals: The following submittals shall be submitted and approved during installation if necessary per these specifications.
1. Welding Certifications per PBB Mechanical Erection and Lifting section of this specification.

G. Pre-Final Completion Submittals: The following submittals shall be submitted and approved prior to 14 days before final completion.
1. As-Built Drawings. Provide field edited redlined project drawings showing deviations from
design documents.
2. Warranty: Submit manufacturer warranty and ensure that forms have been completed in
Owner's name and have been registered with the manufacturer.
Utilize approved form.
4. Training Rosters. Provide training roster with trainee names, dates and types of training,
as well as durations.
5. All original software packages and documentation, registered in the Owner's name.
6. Hard copies as well as electronic (compact disk of flash card) copies of all final programs
loaded into all machinery under this contract.

1.05 QUALITY CONTROL
A. NFPA Compliance: Comply with applicable portions of NFPA 70 and NFPA 415 for components
and completed and installed products.
B. NEMA Compliance: Motors, enclosures and electrical accessories shall comply with NEMA
standards and be so rated.
C. UL Compliance: PBB shall be UL, or ETL listed and shall be labeled by a nationally recognized
testing laboratory at the time of bid. Submit verification with bid submittals.

1.06 DELIVERY, STORAGE, AND PROTECTION
A. Lift and support PBB's with the manufacturer's designated lifting or supporting points.
B. Deliver equipment as factory-assembled unit, or sub-units whenever practical for shipping
purposes with protective covering.
C. Store equipment and material in suitable facilities until delivery, installation, and final
acceptance.
D. Coordinate the delivery acceptance of this equipment at the job site. Receive, offload, store and
protect this equipment until such time as it has been installed and final accepted by the Owner.
E. Properly dispose of all waste, including, but not limited to, packaging, crates, etcetera.

1.07 ROYALTIES AND LICENSE FEES
A. The PBB manufacturer shall pay all royalties and license fees and shall defend all suits or
claims for whatever infringements of any prior, pending, or future patent rights and shall save
the Owner and Engineer harmless from liability, expense, or loss on account thereof, with
respect to any processes, devices, methods, articles, inventions, or procedures used by the
manufacturer.

1.08 WARRANTY
A. Provide a full parts and labor warranty for the new units and ancillaries. Labor warranty shall be
performed by factory trained service technicians. Warranty shall run two (2) years from the
Date of Beneficial Use. Date of Beneficial Use is defined as the date the system is turned over
by the manufacturer, and accepted by the Owner for normal operation, or the date that the
facility/Gate is placed into commercial operation, whichever occurs later. All warranty services
shall be at the site of the installation. Provider shall be responsible for all travel and sustenance
expenses necessary for warranty services.
B. Shipping and handling charges for warranty parts are the responsibility of the Provider.
C. Warranty Services shall be commenced with on site representation, by qualified repair
technicians, within 72 hours from the request of the Owner.

1.09 OPERATION AND MAINTENANCE MANUALS
A. Provide six (6) bound copies, and three (3) electronic copies (CD or DVD) of the approved,
comprehensive Operation and Maintenance Manual for each model PBB supplied fourteen (14)
days prior to Substantial Completion.
B. The manuals shall fully describe each product, system, or subsystem numbered logically and separated into sections and contained in rigid plastic binders with identification inserted in clear plastic pockets on front and spine of each binder. Manuals shall be assembled in accordance with ATA 101

C. The content of the manuals shall be limited to information and data that specifically apply to products provided and shall include, at minimum, a general description, theory of operation, routine normal and special operating instructions and sequences. Also included shall be routine maintenance procedures and guides for troubleshooting, disassembly and reassembly instructions, and recommended spare parts list including current prices and sources.

D. Wiring diagrams and schematics shall be incorporated into the manuals to clearly show features such as controls, switches, instruments, and indicators by name and location.

E. Interconnection with other systems shall clearly be indicated, including 400Hz equipment, Preconditioned Air equipment, and ancillaries.

F. Special Tools List: Provide a list of any special tools required to perform any field performable maintenance tasks.

G. Spare Parts List: Provide manufacturer's recommended spare parts list.

H. Lubricants list: Provide manufacturer's recommended lubrication product list. Base on a single lubricant manufacturer.

1.10 TRAINING

A. Manufacturer shall provide a complete training program for the Owner's operating, engineering, and maintenance personnel. Training shall include both classroom and hands-on instruction and be of sufficient duration to adequately train personnel to perform on site routine, preventative, and remedial maintenance of the equipment, product or system. Unless noted otherwise, maintenance training shall consist of a minimum of one (1) training session of eight (8) hours classroom instruction and eight (8) hours hands-on instruction for eight (8) personnel, and operator's training shall consist of a minimum of four (4) classes at two (2) hours duration each hands-on instruction for four (4) personnel.

1. Operator's training may require some night hour training classes at the Owner's discretion without additional cost to the Owner.

2. The maintenance training course will fulfill the technical information requirements of the Owner's maintenance instructors, engineers and mechanics. This course, with number of classes as specified shall emphasize the following:
   a. Orientation providing overview of system/subsystem concept, configuration, and operation.
   b. Familiarization with and use of electrical schematics, control programs and functional block diagrams.
   c. Operations theory and interfaces.
   d. Instruction in basic theoretical and practical understanding of equipment appearance, layout, and functions.
   e. Safety precautions.
   f. Use of standard and special tools and test equipment.
   g. Adjustment, calibration, and use of related test equipment.
   h. Detailed preventative maintenance activities.
   i. Troubleshooting, diagnostics, and testing.
   j. Equipment assembling/disassembling.
   k. Repair and parts replacement.
   l. Failure and recovery procedures.
   m. Cabling and/or interface connectors.
   n. Operation and Maintenance Manuals, and related reference publications familiarization.
o. Procedures, practices, documentation and materials required for system maintenance.
p. Towing and Jack Stand operations.

B. Operator training shall be completed no later than seven (7) days prior to beneficial use. The manufacturer shall provide maintenance training within 30 days of beneficial use. At least 60 days prior to substantial completion, a training program summary, course syllabus, instructor qualifications, and copy of the training manual shall be submitted for review and approval.

C. Training shall be conducted prior to final acceptance of respective equipment, products, and systems and shall be given at the installation site property at the direction of the Owner.

D. Provide Owner a minimum of seven (7) days notice prior to conducting any training.

1.11 SYSTEM DESCRIPTION
A. General
1. The aircraft passenger loading bridge covered by these specifications shall be designed to extend from the terminal departure lounge doorway to the aircraft boarding door so that passengers can walk between the two, completely protected from inclement weather, aircraft engine blast, and blown dust. The bridge shall provide a simple, convenient, safe, and controlled method for passenger boarding. The complete assembly shall be weatherproof, both when sealed to the aircraft and when parked with the cab weather door closed. Particular attention shall be given to the safety of the passengers.

2. The bridge shall consist of the following components:
   a. Fixed Walkway (if specified, or indicated on the project drawings)
   b. Rotunda Entry Corridor
   c. Rotunda
   d. Telescoping Tunnels (2 or 3 as specified)
   e. Vertical and Horizontal Drive Column Assembly
   f. Rotating Aircraft Cab with Operator Control Console
   g. Automatic Leveling Device
   h. Service Door, Landing and Service Stair
   i. Canopy Closure to Aircraft
   j. Electrical Distribution Systems and Components
   k. Rooftop Ventilator in Rotunda

B. Application
1. The apron drive loading bridge must be capable of reaching all passenger doors of specified aircraft parking positions as indicated on the project drawings. The bridge cab shall have sufficient flexibility to enable it to mate with the aircraft passenger loading door when the aircraft is parked at the gate. The bridge shall have sufficient vertical travel to accommodate all aircraft specified on the aircraft parking layout drawings. The bridge shall have additional extended travel beyond the outer most aircraft operational requirement and additional retract travel from the closest aircraft operational requirement or PBB stow box as indicated on the project drawings.
   a. Submit manufacturer's proposed PBB models with standard cut sheets with bid.

1. The bridge shall be designed to achieve the maximum safety of aircraft passengers, crew, operators, and maintenance personnel. The bridge shall conform to all current federal, state, and local Occupational Health and Safety Codes, along with standards developed and adopted by the passenger loading bridge industry.

2. All elements of the bridge shall be designed to be fail-safe in operation.

3. Operating controls and maintenance features shall be designed so that errors in the operation and maintenance of the bridge cannot cause structural damage to any of its elements.
4. All operating mechanisms shall be designed so that the drive mechanism is locked when power fails or is turned off. Electrical-Mechanical lift columns shall be equipped with a fault detector to sense differential motion of the ball screw assemblies. The detector shall disconnect electrical power from the vertical drive motors if a fault is detected.

5. Positive mechanical stops shall be provided to prevent hazardous over-travel where any component might become disengaged from its guiding or restraining component.

6. The operator's position in the cab shall be arranged to permit the operator to operate the loading bridge with the cab weather door closed.

7. Transition ramps shall have floor coverings as indicated in the finishes section with yellow chamfered edges and be equipped with brushed aluminum handrails on both sides.

8. Sheared or sharp metal edges must be deburred or broken and all exposed metal corners are to be rounded. All critical fasteners are to incorporate suitable locking devices.

   a. Submit certificates of compliance for its bridges including any assemblies or appurtenances affected, with NFPA 415, most recent edition, from a Nationally Recognized Testing Laboratory (NRTL) located in the United States.
   b. Provide written certification that the total PBB, including any design changes, is in compliance with NFPA 415, most recent edition.

10. The innermost or "A" tunnels, as well as the interiors of any fixed walkway section, and all interior ramps, to include brushed aluminum handrails on both sides. 1-1/2" O.D. with returns on ends.

11. Provide emergency lighting with 90-minute battery back-up complete with self-contained charger and automatic on-off control. Emergency lighting may be incorporated into normal lighting fixtures. Emergency lighting shall meet the minimum lighting level requirements of NFPA 101 - Life Safety Codes.

12. The PBB shall comply with all applicable Life Safety Codes in effect at the time of manufacture.

D. Personnel Safety

1. A high resolution color video camera (CCTV) shall be installed beneath the PBB in such a manner as to allow the PBB operator to view at a control console mounted monitor, the wheel bogey and service stair areas during PBB operation.
   a. Install and adjust as necessary to prevent blocking the operator's view by items such as PCA units, hoses, etcetera.
   b. Provide video out feed via CAT 6 to be tied into RTAA video management system.

2. Surface mounted, four lens cameras shall be provided at the rotunda of each bridge. Where indicated on the drawings, provide and install as follows:
   a. 4 x 3 MP (12 MP) 1/3" Progressive scan sensor
   b. Manufacturer: Avigilon
   c. Model: Surface Mount (H3-MH-DO)
   d. Power: Ethernet, 24VAC or 24 VDC power input

3. The operator's position in the control cab shall be designed so as to permit the operator to position the loading bridge with the outer door open or closed. Suitable enclosures, guard rails, etc. shall be provided to protect the operators from being pitched out the open end of the cab in case of sudden stops or inadvertent movements of the bridge when operated with the outer door open.

4. Where required, heat shields or guards shall be installed to protect personnel operating the equipment or performing routine periodic maintenance on it against accidental contact with exposed parts which are subject to high operating temperatures.

5. Caution/trip hazard signs shall be provided within the loading bridge overhead at each tunnel transition.
6. The loading bridge shall be provided with a caged, OSHA approved roof access ladder accessed from the service stair platform. All items to be galvanized steel.

7. OSHA approved handrails will be installed atop the outer most tunnel section to provide fall protection to personnel working on drive motors, etc. The other tunnel section(s), as well as any fixed walkway installed, shall be equipped with full length OSHA compliant fall protection. Handrails, ladders, cages, brackets, etcetera shall be galvanized steel.

8. OSHA and NFPA approved emergency lighting shall be provided as a means of safe exit in the event of a power interruption. They shall provide sufficient illumination throughout the PBB as specified herein.

9. Suitable OSHA compliant guards shall be provided for all sprockets, gears, chains, fans, belts, and other moving parts located where operating or maintenance personnel may make accidental contact with them. Warning decals shall be added where applicable.

10. Exposure of operating and maintenance personnel to electric shock hazards shall be minimized by provision of suitable interlocks, grounding means or protective devices.

11. Guards or enclosures shall be provided for all exposed portions of electrical equipment.

12. Elevating devices shall be protected from uncontrolled movement or actuation in the event of a power source failure of any type (i.e., electrical, or pneumatic).

13. Electrically operated lifting devices shall be equipped with brakes to lock the system in the event of power failure or malfunction.

14. All pinch and shear points, sharp edges and protruding objects must be eliminated wherever possible and practical. If elimination is not possible, adequate guarding must be achieved to prevent injury and/or damage exposure.

15. All stairs, ladders, scaffolds, platforms, and handrails shall comply with all applicable OSHA requirements.

16. PBB design shall eliminate wherever possible all tripping hazards. Possible tripping hazards such as transition ramps (nosings), gutters, etc. shall be identified. Transition ramps shall be identified by using a durable, one-inch, yellow (OSHA Alert Yellow) trim band at the beginning of such ramp or hazard. Interior rain gutters shall be painted with alternating yellow/black safety striping the entire length. Other methods of striping may be acceptable, but shall be submitted for approval prior to installation.

17. All carpeting shall have edge strips to prevent fraying.

E. Equipment Safety

1. Sharp edges, projections and hinged devices with hazardous characteristics shall be avoided in the design and construction of the loading bridge. Suitable edge detailing shall be provided where necessary.

2. When in operate mode, all equipment shall be designed to be fail safe and bridge motion controls (i.e. horizontal and vertical travel, cab rotation) shall require the operator to apply constant pressure to remain engaged (dead-man).

3. All operating mechanisms, i.e. horizontal and vertical drive, cab rotation, etc. shall be designed so that the drive mechanism is locked when power fails or is shut “off”.

4. Positive mechanical stops shall be provided to prevent dangerous over travel when any component might become disengaged from its guiding or restraining component.

5. Externally mounted cab mirror(s), both sides, shall be provided for viewing the apron area from the operator’s position. Provide additional mirrors as necessary such that the operator can fully view the wheel bogey area and service stairs during operation.

F. Noise and Vibration

1. The maximum average sound level and loading bridge vibration limits shall comply with the requirements of S.A.E. ARP 1247, current revision.

G. Technical and Performance Requirements

1. The boarding bridge shall be designed to accommodate all imposed loads collectively. In the worst operating configuration, structural margins of safety as recommended by AISC specifications for the design and erection of steel structures shall be maintained.
2. In determining the design factor of safety, weld efficiencies as designated by the American Welding Society or applicable design codes shall be used.

3. Joint efficiencies shall be included in determination of the factor for bolted connections.

4. All lifting devices shall be designed to AISC standards, (except wire rope) with a minimum factor of safety of 5 based on ultimate strength.

5. The unit shall be designed with sufficient structural rigidity so that deflections due to load, wind, and motions of working parts do not create interferences, cause malfunctioning of the equipment, or present any safety hazards to personnel, aircraft, or the unit itself.

6. In the case of standard component or component assemblies used by the end product manufacturer, certification of the application by the component manufacturer will constitute structural acceptability of such components.

7. Shoulder bolts, bearings, or bushings shall be used when attaching parts that have relative rotary or linear motion.

8. The wheels used on the equipment shall be of a type and size which will not damage or cause undue wear to the surface over which they will normally operate. The tires must be capable of supporting the design load of the passenger boarding bridge, roof load, snow load, and all ancillary equipment. The tires must be capable, under dead load and/or roof load, including snow loads, of operating satisfactorily without operational degradation.

9. All mechanisms for actuating, restraining, and guiding the bridge and its components shall be designed so that no noise, sway, or sense of insecurity will be apparent to the passengers. No operating vibration or loads are to be transmitted to the terminal building.

10. The passenger boarding bridge(s) submitted shall be designed not to exceed 1 in 12 (8.33\%) tunnel slope when servicing any aircraft in the fleet mix designated for the gate where the PBB is to be located; however, the PBB shall be capable of achieving a minimum of 12\% slope without causing damage to the PBB or ancillary equipment, including PCA or 400 Hz equipment, for maintenance or irregular operation activities.

11. The bridge floor structure shall be designed to accommodate a dynamic load of 40 pounds per square foot over the total floor area.

12. The roof shall accommodate snow loads of 25 pounds per square foot over the total roof area, or as otherwise required by code, whichever is greater.

13. The bridge, when in use at any extended length, shall accommodate, while maintaining operability, a wind load of 12.5 pounds per square foot and a wind velocity of 60 M.P.H. from any direction without loss of stability or control.

14. In conditions of sustained wind loads greater than 60 M.P.H., the bridge will be stowed. At wind loads above 60 M.P.H., the bridge, when retracted to the stowed position, shall accommodate a wind load of 25 pounds per square foot and a wind velocity of 90 M.P.H., from any direction.

15. The bridge shall be able to accommodate the added loads of 400 HZ ground power and preconditioned air equipment, including appurtenances, including dynamic operational loads presented by the PBB and these additional equipment items. These loads may be applied in total or in part, singularly or simultaneously. The design shall be based on the combination, which imposes the most adverse loading.

16. The bridge when maintained in accordance with the manufacturer's O&M manual by Airport maintenance personnel trained by the manufacturer as indicated herein, shall provide a useful service life of 20 years minimum.

H. Environmental Considerations

1. The bridge shall function satisfactorily and in accordance with these specifications under ambient temperatures from -40 degrees F to 125 degrees F with winds up to 60 miles per hour on wet, iced, or snow laden apron surfaces.

2. The entire bridge is to be weatherproof.

3. Equipment and controls that are exposed to the weather are to be of a weatherproof type or housed in weatherproof boxes.

4. PBB shall be equipped with thermal brushes at tunnel lap sections.
5. Externally mounted electrical panels and/or cabinets shall be equipped with space heaters to control condensation as indicated herein.

6. Electro-mechanical drive systems shall have suitable protective coverings over motors, chains, sprockets, actuator arms, linear actuator arms, etc., to both protect operating personnel and passengers, as well as to protect the systems themselves from exposure to weather elements or traffic abuse.

7. The structure shall be designed to resist the accumulation of debris or water in low points and/or pockets in the structure. Dimpled drain holes or suitable covers will be provided where necessary. Drain holes shall be located so as to drain collection points with the bridge in any normal attitude. Scupper drains from the internal gutters shall carry moisture clear of the structure and shall be sized to eliminate blockage. Welding and drilling operations after application of prime coats shall be prohibited.

8. Where access holes have been created to gain access to components of the PBB, or where pockets otherwise exist, that could trap or accumulate debris, such pocket or opening shall be suitably covered with screw attached covers.

9. All parts shall be resistant to, or protected from corrosion caused by contaminated turbine fuel or moisture blown or splashed from the ground. Provisions shall be made to resist electrolytic corrosion where conditions tend to cause this corrosion. Fasteners shall be of corrosion resistant material or plated to prevent corrosion.

10. All edges of marine grade plywood are to be sealed with an approved APA sealer prior to installation.

11. All panels containing VFD inverters shall be equipped with space heaters as necessary for optimum VFD operations.

I. Service and Access

1. The design shall stress simplicity, ruggedness and ease of maintenance. All systems shall be designed to operate with a minimum of routine maintenance using long life components sealed or self-lubricating mechanisms, etc.

2. Equipment components and systems requiring frequent inspection or maintenance shall be readily accessible. Suitable access doors or removable enclosures shall be approved for this purpose.

3. Access doors, covers, and protective guards shall be designed for quick removal or opening.

4. Access panels shall be hinged, pinned, etc. to prevent loss from the unit. Large panels of over 4 feet, in both height and width, which are normally removed only for heavy maintenance, i.e. major component overhaul or removal, may be designed to be removed from the equipment when hinging or pinning is not practical.

5. Hinges shall be located on the forward edge of all vertically hung doors and on the lower edge of all horizontally hinged doors. Where possible, at least 8 inches of clearance above the ground shall exist when any door is open.

6. All hinge doors shall be provided with devices to secure them either in the open or closed position such that they will not be blown by jet blast or ambient winds.

7. Stops or bumpers shall be installed so that the doors, when open, do not mark or scratch the paint work.

8. Major assemblies and components shall be capable of being disconnected and removed from the equipment without the necessity for extensive disassembly of other components. A design goal shall be that any major component should be able to be removed and reinstalled in a period not to exceed eight man-hours. All components/assemblies exceeding 80 lb. for two person-handling or 30 lb. for single person handling, require mechanical assistance and shall be provided with lift eyes, forklift guides, etc.

9. Fastener heads and nuts shall be provided with adequate clearance for wrenches or drivers.
10. The design of the unit shall be such that only ordinary common hand tools and test equipment are required in routine maintenance operations and special tool requirements for overhaul/heavy repair work is kept at a minimum.

11. The equipment compartment shall be designed so as to provide easy access to the controls, relays, valves and other components within the enclosure. Provisions shall be made for ready adjustment, servicing, or replacement of these and other components frequently replaced or serviced.

12. Maintenance service points and access covers shall be located and positioned in such a manner that a minimum time and effort are required during servicing operations. There shall be no interference to the servicing or draining of lubricants to or from any assembly or component by frame members or other obstructions.

13. Any special tools or test equipment designed solely to service, overhaul or test performance of the loading bridge shall be identified in writing and submitted as specified.

14. Pressure lubrication fittings shall be provided at all points where heavy loads, close tolerance, relative rotary or linear motion of parts occurs. Where access to fittings are difficult, a lubrication panel should be utilized.

15. Components shall be protected from mechanical, electrical, and corrosion damage and malfunctions due to rain, snow, ice, sand, grit, deicing fluids, and other contaminants.

16. All chains and belt drives shall have provisions for adjustment, and once adjusted, a positive means of retaining this adjustment, as well as OSHA compliant covers or guards.

17. All hydraulic components, if present, shall be provided with drip pans to prevent the dripping of hydraulic fluid onto the ramp.

J. Materials, Parts and Processes

1. Only standard components of highest commercial quality, commercially available and conforming to recommendations of standards established by the Society of Automotive Engineers (SAE) and the American Society of Mechanical Engineers (ASME) will be used.

2. All material and components assembled or fabricated into the equipment are to be new, unused, of high quality, of current production and free from defects or imperfections which might affect the appearance or serviceability of the finished product.

3. All parts and materials needed to fabricate, assemble, and finish the equipment shall be furnished by the manufacturer unless otherwise specified.

4. All bolted, screwed, and threaded fastenings shall incorporate adequate locking devices. Safety wire shall be incorporated in critical applications.

5. Weldments requiring alignment with assemblies, interchangeability, fit, and flatness shall be fabricated with fixtures capable of maintaining dimensions in the finished part within design tolerance.

6. Specified sections and weld design and application shall be such that heat distortion of plates and members is minimized in the final weldment.

7. All intersecting steel planes, e.g. side to top, side to bottom, of exterior steel sections of the passenger boarding bridge shall be 100% welded. Caulk shall not be used to provide weather seals.

8. Components must be installed per the manufacturer’s recommendations. Modification of the component which could affect its performance must be approved in writing from the manufacturer of the component. Any modified component should be identified as such to the Owner for purposes of interchangeability.

9. All components shall be chosen to be within their manufacturer’s published ratings under the most severe conditions of operation. This shall include, but not be limited to the following:
   a. Mechanical Components: Speed, torque, force, environment, lubrication means, and expected service life of chains, belts, sheaves, sprockets, shafts, bearings, gears, etc.
   b. Electrical Components: Voltage, current, load characteristics, and duty cycle of electrical components.
c. Others: For components proprietary to the manufacturer, design shall conform to established industry practices.
10. Fastener heads shall not be located on rub or wear surfaces unless recessed below the surface.

K. Maintainability
1. The bridge shall be designed to emphasize simplicity, ruggedness, and ease of maintenance. There shall be no special tools required for routine maintenance.
2. Attention shall be given to the design of each component and assembly to minimize the number of routine maintenance items on the bridge.
3. Components shall be selected and assemblies shall be designed to facilitate troubleshooting and to minimize repair or replacement time.
4. Access panels enclosing areas requiring maintenance shall be large enough to permit accomplishment of the task required.
5. Where practical, components shall be built in subassemblies for ease of replacement and shall be designed to be installed or removed by one person.
6. Where the weight of a component requires mechanical assistance, the component shall be provided with lifting eyes or other suitable hoisting arrangement.
7. Drawings, sketches, details, and all materials/equipment shall be submitted and provided in the English language and systems of measure, including, without limitation, dimensions, volumes, weights, threads, forces, fasteners, devices, panels, labels, signs, notices, communications etcetera. The use of metric or SI units is not acceptable.
8. All parts having the same manufacturer’s part number shall be directly and completely interchangeable with each other with respect to installation and performance.
9. All components and assemblies incorporated into the loading bridge shall be designed and manufactured to dimensional tolerances which will permit future interchangeability and facilitate replacement of parts.
10. The individual parts and components of each unit shall be of the same original manufacture and part number. Minor component parts need not comply with the above, provided interchangeability and safety are not compromised.

L. Workmanship
1. High standards of workmanship and methods shall be employed in the manufacture of the passenger boarding bridge. Particular attention shall be given to metal finishes to assure freedom from blemishes, defects, burrs and sharp edges. Quality of welding, painting, riveting and alignment of parts shall be maintained.
2. All welds shall be of adequate length, area and strength to sustain the design load. Welds shall be reasonably uniform in appearance and cross section, and shall be free of cracks, inclusion, porosity, cavities, and other physical and metallurgical defects. Welds shall not be ground in order to improve appearance except as required for flush surfaces or non-structural parts. All welding performed in the fabrication, assembly and/or mounting of the passenger boarding bridge shall be accomplished by an appropriately licensed certified welder.
3. Assembly screws, bolts, studs, and other threaded fasteners shall be corrosion-resistant material or plated to prevent corrosion. All fasteners shall be tight and shall retain tension in service.
4. All wires and lines subject to chafing shall be provided with some means of protection. Acceptable anti-chafing devices include grommets, flexible sleeves or jackets, and other approved materials.

M. Identification and Markings
1. All instruments, relays, circuit boards, pumps, motors, controls, etc. and instructions shall be suitably identified with permanent, non-fading placards, or pictographs impervious to the effects of weather, oil, cleaning solvents, aircraft hydraulic fluids, fuel and other effects of normal operation for the life of the equipment without deterioration, fading, or loosening.
2. Placards shall be in sharp color contrast in large enough letters to be easily read from the operator’s position indicating the function, direction and/or identification.

3. A metal nameplate shall be riveted to the equipment specifying manufacturer’s name and/or trademark, manufacturer’s part or model number, manufacturer’s serial number, date of manufacture, and equipment’s rating.

4. Circuit breakers shall be labeled as to the circuit that they feed.

N. Fixed Walkway

1. Existing walkways which receive lighting and other power or control circuits from existing PBB’s shall be tied into new PBB’s in a similar fashion.

2. Existing walkways shall be temporarily supported as necessary to facilitate the removal of existing PBB’s and installation of new PBB’s.

3. The contractor must provide all required supports and haunches for final support of existing walkways.

4. Field verify all dimensions prior to manufacture.

O. Rotunda Corridor

1. The minimum inside height of the corridor shall be 7 feet, 6 inches and the minimum inside width shall be 4 feet, 4 inches.

2. A polished aluminum diamond plate threshold plate with a non-slip surface shall bridge the gap between the terminal building and the adjacent fixed walkway or between the terminal building and the rotunda corridor.

3. Interior and exterior flashing shall be installed between the terminal building and the adjacent fixed walkway or between the terminal building and the rotunda corridor to effect a weather-tight connection. Interior flashing shall be stainless steel or painted metal to match bridge interior color. Exterior flashing shall be NFPA-415 compliant weather resistant fabric.

4. The design of the rotunda and connecting corridor shall accommodate a terminal door sized 4'-0" x 6'-10" or as otherwise may be existing.

5. Provide extended corridors where indicated on project documents.

P. Rotunda

1. The rotunda is to be supported on an independent support column. It shall allow the telescoping tunnels to swing through an arc of 175 degrees (87.5 degrees clockwise and 87.5 degrees counterclockwise).

2. The rotunda support column shall not be anchored or secured to the terminal building, nor shall it transmit any live or dead loads or vibrations to the terminal building.

3. Coordinate base plate with details as indicated on the construction documents. Field verify prior to manufacture.

4. Field verify column dimensions prior to manufacture.

5. The rotunda shall be equipped with adjustable limit switches (to be set at time of installation) to control the swing angles of the bridge tunnels. If the limit switch is activated by the bridge, the bridge shall be prevented from traveling further, but will not be prevented from driving off of the limit in the opposite direction.

6. The opening between the rotunda and the hinged telescoping tunnels shall have a complete weatherproof seal.

7. The side coiling curtain barrel assemblies shall be covered to protect them from the weather. These covers shall be hinged to allow easy access to curtain assemblies. Hinges shall be full length stainless steel.

8. The rotunda shall include a roof-top ventilator.

9. The rotunda floor shall remain level regardless of the movements of the bridge tunnels.

10. The rotunda shall include positive bird nesting prevention features.

11. Weather seals shall be provided at curtains to prevent wind blown dust, rain or snow from entering bridge interior.
12. Curtains, seals and covers shall provide complete protection from the exterior elements. There shall be no visible gaps or daylight apparent through the rotunda.

13. Threshold plates shall have chamfered edges to reduce tripping hazards.

Q. Telescoping Tunnels
1. The telescoping tunnels shall be rectangular in cross section and hinged for vertical motion at the rotunda.
   a. The telescoping tunnels shall permit servicing of all commercial jet aircraft as required by the aircraft parking layout indicated in the drawings such that the slope of the tunnels does not exceed 1 in 12 (8.33%), with the exception of the transition ramps.
   b. The minimum inside width of the tunnels shall be 4 feet, 10 inches and the minimum inside height shall be 6 feet 11 inches.
   c. Flexible seals are to be used between the tunnel sections to provide a weather-tight seal preventing entry of blowing dust, rain, or snow.
   d. Where the telescoping sections overlap, ramps shall be provided to accommodate the difference in elevation. The ramps shall have yellow chamfered edges and handrails on both sides. Ramps shall have floor coverings as indicated in the finishes section.
   e. All tunnels shall have flat roofs to prevent the collection of water. Corrugated roofs will not be approved. Flat roofs should be designed to facilitate positive water drainage.

R. Drive Column
1. The drive column assembly shall provide the force to swing, extend or retract, and raise or lower the bridge. This assembly shall be electro-mechanical.
2. The motors and mechanisms for vertical, horizontal, and radial motion shall be integral parts of the drive and lift column assembly and operate in a smooth and quiet manner.
3. The assembly shall be designed to permit simultaneous vertical travel, horizontal travel, and steering to permit expeditious movement to the aircraft.
4. The vertical lift speed as measured at the cab bumper shall be 2.5 - 3.6 FPM nominal.
5. The drive system shall permit the unit to be extended/retracted and rotated to any point within its operating envelope and shall permit these movements at variable speeds between 0 and 90 FPM. Maximum speed shall be limited to 85-90 FPM. Control of the drive system shall be such as to provide smooth starts and stops and positive fail safe braking. The brakes shall remain effective with power removed from the unit.
6. Axles, wheels and tires shall be operated within their respective manufacturer's recommendations. Tire footprint loads shall be limited to 200 P.S.I.
7. Wheel/Tire assemblies shall be solid rubber tire tread on steel wheels as manufactured by Trelleborg or approved equal. Drive assembly shall operate satisfactorily as specified in the construction documents on wet, iced, or snow laden ramp surfaces.
8. Provide a 2" wide reference stripe on each inner column tube indicating upper and lower travel limits.
9. The assembly shall be electro-mechanical driven and the following requirements shall be met as applicable:
   a. Horizontal Drive—Electro-Mechanical
      1) An electrical mechanical drive system shall provide extend, retract, swing, and steer capabilities at variable speeds up to 90 feet per minute. This two-wheeled system shall operate on solid tires. Both wheels shall be independently driven by AC gear motors with solid state silicon controlled rectifier (SCR) controls. The entire system shall be contained within the bridge and require only AC power.
      2) A dynamic braking system shall allow the bridge to come to a smooth, controlled stop. Spring actuated brakes shall be located on each drive motor and lock the bridge in place whenever electrical power is cut off by moving the control lever to the neutral position or when there is a power failure.
      3) The horizontal drive motors shall be equipped with brake releases. Connection lugs shall be provided to allow the bridge to be towed in the event of power failures.
b. Vertical Drive—Electrical Mechanical
   1) The lift mechanism shall consist of two (2) recirculating ball bearing screw assemblies. Each assembly shall be independent of the other, with individual motors, and be capable of supporting the bridge under full design load and raising and lowering the bridge at an approximate speed of 2 feet, 6 inches per minute measured at the cab bumper. The ball nut of this assembly shall be equipped with wiper brushes to remove grit or dirt from screw threads and a self-locking Acme type thread to prevent unit collapse in the event of a ball nut failure.
   2) The vertical drive motors shall be fitted with spring-applied brakes that release only when electric power is applied and vertical motion, up or down, is signaled from the operator's console or the auto-leveler system.
   3) The brakes shall hold securely at all elevations, without creeping, whether the bridge is in operation or not.
   4) The fault detector circuit shall shut down the electrical power to the vertical drive motors and set the brakes independently of the operator. This shall occur if the bridge is in the vertical-operate mode and there is differential motion at the ball screws.

c. PBB's shall provide for "conventional steering".

S. Aircraft Cab with Operator's Station
   1. The aircraft cab with operator's station shall be designed to rotate a minimum of 125 degrees, a minimum of 92.5 degrees counterclockwise and 32.5 degrees clockwise on bridges with right-side service stairs and a minimum of 92.5 degrees clockwise and 32.5 degrees counterclockwise on bridges with left-side service stairs from the tunnel centerline to facilitate alignment with multiple aircraft parking configurations. The rotation speed shall be between 2 and 2.5 degrees per second. The cab shall be enclosed to provide maximum security and protection from the outside environment throughout the docking and passenger loading operation.
      a. All cab rotate motors shall be provided with VFD inverter drives suitable rated for the connected load.
         1) Provides smooth start/stop functions.
         2) Equip enclosure with heaters per environmental section.
      2. Cab rotation pin assemblies shall be provided with accessible lubrication points and shall be included in the PBB preventative maintenance program.
      3. The operator's station shall be located on the left-hand side of the cab and shall be protected from the outside environment as well as passenger interference. It shall consist of a forward facing control console positioned behind a safety glass window. This window shall be of sufficient size to allow the operator to operate the bridge with full view of the aircraft contact area during normal operation, including the auto-leveler, without opening the weather door.
      4. The cab shall have sufficient windows to allow the operator to view the ramp area during operation. Also, a round rear view mirror shall be provided on both sides of the cab to allow the operator full view of the horizontal drive wheels (wheel bogie) during operation. Provide additional mirrors as necessary such that operator has full view of wheel bogie and service stairs during bridge operations.
      5. The cab side coiling curtain slats shall be equipped with upper and lower safety glass view panels to allow the operator maximum visibility of the aircraft and ramp during operation.
      6. A closed circuit television system shall be provided complete with a monitor housed in or near the control console. The camera shall be focused on the drive bogie and service stair so that the operator has an unobstructed view when servicing all aircraft. An additional video-out feed via CAT6 shall be provided for Owner's use.
7. The side coiling curtain barrel assemblies shall be covered to protect them from the weather. Covers shall be hinged to allow easy access to curtain assemblies. Hinges shall be full length stainless steel.

8. Weather seals shall be provided at curtains to prevent wind blown dust, rain or snow from entering bridge interior.

9. Curtains, seals and covers shall provide complete protection from the exterior elements. There shall be no visible gaps or daylight apparent through the cab except at windows and clear curtain slats.

10. The cab shall have weather proof doors to protect the interior of the bridge when it is not in operation. This door shall be located to the right of the operator's station and have the capability of being locked. This door shall be double swinging weather doors. The opening shall have a clear width of 44 inches and a minimum clear height of 7 feet 6 inches, and shall be equipped with 1/2 door height wire reinforced safety glass windows to enhance visibility.
   a. Door to incorporate suitable stops to hold open when opened and closed when closed.
   b. Door to be lockable from inside the cab bubble area.
   c. Doors shall utilize a commercial grade door closer such that a minimum of effort is required to open or close the doors.
   d. Doors shall be fitted with three non corrosive hinges per door.

11. The aircraft end of the cab floor shall be equipped with a full width aircraft spacer (bumper). The spacer shall be of a material that will retain its flexibility during constant usage regardless of the temperature and must be non-abrasive to prevent scratching or other damage to the aircraft fuselage. The spacer shall provide safe and secure human support when stepped upon. The color of the bumper shall be safety yellow. Appropriate designed and fabricated cut-outs shall be provided to accommodate all design aircraft devices, including without limitation, the door of the A300, MD80 and B737 series aircraft pitot tubes without violating NFPA 415, current edition, requirements. The PBB spacer material shall comply with NFPA 415, current edition, requirements.
   a. Submit bumper details for approval.

12. The outer most end of the cab shall be equipped with an adjustable floor. The floor shall be actuated and independently adjustable to adapt to the slope of the aircraft door sills. It shall be designed to level automatically and be equipped with a manual override control switch. The floor shall be capable of providing a level surface adjacent to the aircraft door sill for passenger loading bridge slopes from -12% to +12%. No portion of the cab floor shall exceed 8.33% slope in the direction of the expected passenger traffic. All actuators and the like, exposed to passenger view shall have removable painted metal covers installed. Paint shall match PBB color.

13. The floor shall be double hinged and shall provide a smooth transition between the level floor and the tunnel section. This transition floor shall provide a smooth platform sloped approximately in the direction of passenger traffic flow. There shall be no raised surfaces that may introduce a tripping hazard to the passengers. Adjacent surfaces shall be the same level regardless of the position of the cab floor or the passenger loading bridge.

14. Passenger Boarding Bridge Identification Signs shall be supplied by the manufacturer for each bridge identified in the construction documents. These three sided illuminated triangular signs are mounted to the top of the jetbridge end cab and are visible from any angle by the pilots as they approach the gate area. The gate number is approximately 2'-5" high with a readable distance of 600 feet or more. The aluminum-fabricated structure will be painted to match the color of the passenger boarding bridge, and will have 1/4" thick acrylic sign faces with surface sprayed color. The letters will be masked during the spraying process and, when removed, the translucent acrylic will be revealed. Approximate size of the sign faces will be 4'-5&1/2". This sign will require out-door weatherproof detailing.
   a. Match airfield standard colors and fonts.
1) Submit details and obtain written approval before proceeding.
   b. Gate signs shall be activated by an adjustable photoeye. Power shall be distributed
      from a circuit breaker located within the electrical control cabinet. Accessible switches
      that could be inadvertently turned off will not be allowed.
   c. Provide and install any necessary wiring or control devices for new identification signs
      on existing PBB's indicated where the PBB does not get replaced.
15. Vinyl Gate No. decals shall be installed on the terminal side of all PBB wheel bogies.
   a. Match airfield standard size, colors and fonts.
16. Operator's station shall be equipped with an operators platform for the operator to stand on
    while rotating the cab. This prevents the operator from having to walk while also attempting
    to operate the bridge.
17. Control console doors/lid shall be interlocked to drop main power in the event they are
    opened. These limit switch interlocks shall be defeatable by maintenance staff.
18. Control console doors/lid shall have hold open devices.
19. Cab Floor De-Icer: A system to heat the floor area located outside and forward of the cab
    doors shall be provided for the purpose of melting, or preventing accumulation of, ice and
    snow. The floor heating system shall be controlled by an automatic adjustable thermostat,
    an overheat safety switch (manually reset) and a manual control switch at the operator's
    control console. The system shall incorporate an indicator light at the operator's station to
    indicate that the floor is heating.

T. Controls and Indicators
1. Controls
   a. The operator's control console shall be designed to allow accurate operation by
      personnel possessing no special skills and trained by the manufacturer or
      manufacturer-certified trainers, in accordance with the manufacturer's operation
      manual.
   b. A placard outlining the bridge operating instructions shall be displayed in a prominent
      location in the cab of each bridge so as to be easily visible to the Operator while
      operating the bridge.
   c. All motor controls shall be motion oriented. For example, in raise and lower functions,
      the "raise" push-button will be located above the "lower" push-button, etc.
   d. All controls necessary for the operation and control of the loading bridge are to be
      located on the control console and grouped on control console faceplate in functional
      groups and labeled as to its function. The following controls shall be located on the
      control console:
      1) Card reader access control system for operation of the PBB.
         (a) Card reader: HID 921NMNNEKMA0CV
         (b) Control board: LENEL LBL-2210
      2) A keyed selector switch override for operation of the PBB.
         (a) Keyed switches shall match existing airfield standard.
      3) A "Power On" push-to-start button.
      4) An illuminated "Emergency Stop" push button. E-stop shall not interrupt power to
         PBB lighting circuits; it shall, however, activate the Auto-level alarms and
         illuminate in the event that it is depressed while auto leveler is in "Auto".
      5) A two or four quad "Joy Stick" shall control forward, reverse and steering
         functions. The steering rate shall produce smooth and reasonable steering,
         speed, acceleration, and deceleration. The speed of travel shall be proportional
         to the movement of the joy stick.
      6) Two individual push-buttons marked "Raise" and "Lower" for controlling the
         vertical travel of the bridge.
      7) Two individual push-buttons marked "Rotate Left" and "Rotate Right" for rotating
         the cab.
8) Push-button(s) to control the adjustment of the left and right side of the bellows-type aircraft closure.
9) A switch to control the floodlights that illuminate the ramp area under the aircraft and drive column undercarriage.
10) A switch to control the light in the cab.
11) A switch to change the adjustable cab floor operation from automatic or manual.
12) A push-button switch to control the adjustable cab floor while in the manual mode.

e. Control requirements shall include a Human Machine Interface (HMI) touch screen.
   1) All control and display schemes shall be submitted for approval. See submittals section.

2. Indicators. The following indicators shall be labeled to indicate function and shall be located on the control panel.
   a. A cab floor height indicator shall show when the cab floor elevation is at the proper height (theoretically correct) for each aircraft to be serviced.
   b. A wheel position indicator shall show the orientation of the wheels along with the true tunnel centerline, regardless of the cab's rotational position.
   c. An amber light to indicate that the auto level function is energized and operating.
   d. An auto level malfunction shall be indicated with a red light and shall be accompanied by an audible warning.
   e. A swing limit reached shall be indicated with a red light and shall be accompanied by an audible warning.
   f. An amber light shall indicate when the aircraft canopy closure is in the down position (aircraft closure must be retracted before the bridge can be moved). Green shall indicate up, red shall indicate canopy down and the key selector switch to ON.
   g. A red light shall indicate a lift column malfunction has occurred.
   h. A light shall indicate if the adjustable cab floor is in the automatic or manual mode.
   i. A red light shall indicate when the 400 Hz aircraft cable is deployed.
   j. An green light shall indicate when the 400 Hz SSFC or PCA units are operating, red shall indicate faults, amber shall indicate standby.
   k. Any operator correctable condition that prevents the PBB from operating with the Key switch in the ON position should be displayed in an approved manner.
   l. Any condition that causes an audible alarm shall be displayed.
   m. Video control monitor.

   n. Display requirements shall be met with a Human Machine Interface (HMI) touch screen.
      1) All control and display schemes shall be submitted for approval. See submittals section.

U. Aircraft Canopy
   1. The outermost end of the cab is to be equipped with an accordion-type bellows closure. Both sides of the closure shall be independently adjustable to provide a weather-tight seal against the most critical aircraft contours. When fitted against the aircraft fuselage, the closure shall enclose both the open aircraft door and doorway. Pressure sensitive limit switches shall be incorporated into each side of the closure actuator mechanisms, as necessary, to prevent excessive pressure on the skin of the aircraft. The aircraft contact point of the closure shall be a soft material to prevent scratching or damage of any kind. The closure is to be non-abrasive, highly tear resistant, and weather resistant as well as able to remain elastic and flexible in extreme cold and hot climates and meet the requirements of NFPA-415, latest edition.
   2. To maximize UV protection and increase service life, the assembly shall be two ply, the outer ply will be a rugged, polyester fabric while the inner ply will be a NFPA 415 compliant material.
3. The material for the outer ply shall meet the following minimum requirements: FIBER-Polyester, DENIER-1000, COUNT-18 x18, TEAR (LBS/IN)-242/213, TENSILE (LBS/IN)-439/441.

4. The material for the inner ply shall meet the following minimum requirements: FIBER-Fiberglass-Satin Weave, DENIER-, COUNT-, TEAR (LBS/IN)-50/45, TENSILE (LBS/IN)-300/275.

5. A minimum two (2) inch thick cushion pad shall be provided at the point of contact between the canopy and the aircraft fuselage to prevent damage to the aircraft skin and cabin or cockpit windows. Canopy supports in the leading edge of the canopy shall be padded to prevent contact with the aircraft. This padding shall be firmly attached in such a manner to prevent its slipping, turning, twisting, or distortion from normal usage. It shall be possible to replace the padding in sections without removal of the entire canopy.

6. The closure must be capable of mating with all aircraft from BAE-146/RJ-85 through B757, B767, B777, B747 and Airbus aircraft compatible. This shall be a minimum requirement. Additionally, the manufacturer shall review the aircraft parking planning drawings and shall ensure that all canopies shall mate properly to all indicated aircraft, irrespective of gate position.

7. The closure when in its retracted position shall be protected by a hood or other device to prevent water and/or debris from laying in the folds of the closure material when the bridge is not in use.

8. Any exposed arms, struts, etcetera should be covered.

V. Auto Leveler

1. PBB's shall be equipped with an automatic leveling device which permits the bridge to automatically respond to changes, including small changes, in aircraft door sill height thus maintaining a constant relationship between the floor of the aircraft and the floor of the PBB. It shall not exert stress on the fuselage skin. The leveling device actuating mechanism or rotary sensor which contacts the aircraft shall be located on the right side of the cab in full view of the operator. If the actuating mechanism or sensor is located in the cab interior or other area normally exposed to passenger traffic, it shall be located in a remote area not typically occupied by the passengers, and it shall be adequately protected and shrouded to preclude passenger interference. "DANGER - DO NOT TOUCH" shall be printed in 1/2" red letters on the device or shroud to advise passengers to stay clear. It shall function reliably on each specified aircraft regardless of door location, fuselage contour, and aircraft door sill height. The auto-leveler shall be engaged when the PBB is in the "AUTO" mode.

2. In the event of an auto leveler failure, an alarm shall sound and an "Auto Leveler" Warning light shall flash, at the console to alert the operator. The console alarm shall be a different alarm with a distinct sound so as to distinguish it from other PBB alarms. The audible alarm shall be of sufficient volume to be heard throughout the interior of the PBB.

3. Since the aircraft and PBB are exposed to various wind conditions and jet blast during the servicing period, the auto-leveler actuating mechanism shall be capable of activating within the full range of its horizontal and lateral clearance.

4. The control circuitry shall include an adjustable solid state timer which shall limit the auto-leveler's continuous response in either direction. The timer shall be adjustable from 1.6 to 16 seconds, and shall be preset to 2 seconds, and have a minimum rotation of one revolution and allow a range of adjustment of at least six inches up or down from a neutral position. The circuitry shall include both audible and visual alarms at the operator's console, and a bell or horn in the general ramp area, which shall produce a distinctively different sound from the other alarms on the unit, when the timer interrupts the response to the system. When the timer circuit de-activates the auto-leveler, the vertical lift system shall automatically be de-energized and locked in position, a vertical brake system shall automatically engage, and the audible and visual alarms at both the operator's console and ramp area shall be activated.
5. The auto-leveler actuating mechanism and sensor shall be durable and operate reliably even in the most adverse weather and ramp environment. It shall also be protected against accidental damage.

6. If an existing remote audible alarm is located at the fixed walkway or at the building interface this device shall be interfaced to the new PBB auto-level audible alarm.

W. RJ Cab Floor (See project drawings for gates with RJ Cab Floors)
   1. The passenger boarding bridge shall be capable of docking to the Canadair Regional Jet (CRJ), and the Embraer Regional Jet (ERJ), as well as the standard narrow/wide body aircraft mix.
   2. The interface between the CRJ aircraft and boarding bridge shall be a smooth transition. The top of the cab floor and the top of the CRJ aircraft step/sill shall be flush. The boarding bridge floor shall not lay atop the CRJ aircraft step/sill, but rather shall abut the aircraft walking surface. The apron drive cab floor shall be an electro-mechanical floor and shall be designed to negotiate the sensors on ERJ and CRJ jet aircraft.
   3. The operation of the floor shall be electro-mechanical.
   4. The bridge cab floor shall not have any steps, ledges, gaps, or surface protrusions when docked to the specified aircraft. These may present tripping hazards at the bridge to aircraft interface and are not permitted. There shall exist no tripping hazard gaps by design. The use of hand ramps to cover gaps will not be permitted.
   5. Bumper must be continuous in all applications. If slots or gaps are utilized to accomodate regional jet handrails, these shall be repositioned so as to be eliminated when servicing narrow body aircraft. The floor shall be designed to eliminate any tripping hazard or shall be equipped with appropriate guards.
   6. The bridge cab floor shall be designed to provide positive protection to the CRJ door. The cab floor section that interfaces with the CRJ door shall be free to tip/rotate/move upward so as to prevent damage to the CRJ aircraft door in case of misdock or auto-leveling failure.
   7. The canopy closure of the boarding bridge shall form a weather seal around the door of the aircraft specified and shall be constructed so as to clear all aircraft antennas, pitot tubes, etc. The canopy shall be designed to keep all heated probes out of the contact of passengers.
   8. Handrails shall be provided to direct and support passengers as they enter/exit the regional jet aircraft. The handrails shall be able to support 400lbs loading. The handrails shall keep the passengers away from any heated probes on the regional jet aircraft. The handrails shall be affixed to the bridge and shall be easy to deploy. The handrails shall provide a full barrier system to keep passengers from exiting off of the front of the bridge at any time after the boarding bridge has been docked, and shall meet all applicable OSHA and ADA requirements.
   9. The regional aircraft cab floor shall be controlled from the bridge console. The floor shall extend and retract to accommodate the regional jet aircraft steps and sensors.
  10. The cab floor shall be equipped with appropriate sensors to safeguard the aircraft, including, but not limited to slow down sensors for forward motion and cab rotate, sensor strips to prevent damage to stairs, handrails, moveable handrails, etcetera.
   11. Floor design shall be capable of completing a docking process safely in a maximum of 1 minute for the typical operator.

X. Slow and Stop Proximity Sensors
   1. The manufacturer shall equip each PBB with a proximity switch system, or comparable, to prevent the bridge bumper from hitting the aircraft, causing damage. At 2’ to 10’ (adjustable) from the aircraft, slow-down circuitry shall be initiated, slowing forward movement to half speed. As the bridge continues to approach the aircraft, stop proximity sensors shall activate, no part of the bumper will be permitted to come within 0” to 2” (adjustable) of the aircraft. Appropriate forward motion and cab rotation in the direction of
the aircraft will be locked out to prevent the bridge from contacting the aircraft. Movement away from the aircraft will be unrestricted.

Y. Service Door, Landing, and Stair
1. A ramp service door, landing, and service stair shall be provided at the aircraft end of the bridge for apron access by authorized personnel. The door, landing, and stair shall be positioned on the right-hand side of the cab bubble unless otherwise indicated.
2. The service door shall be a minimum of 2'-6" wide by 6'-8" high, half wire-glass hollow core, steel door, with a 45-minute fire rating. The door shall open outward on the landing and be equipped with a heavy duty door closure. The door shall include a 30-inch stainless steel kick plate to cover the lower inside portion of the door along with weather stripping on the jambs and header and a vertically adjustable bottom weatherstrip. The door shall be equipped with an electronic keypad keyless lockset conforming to FAR 107.14 security requirements. Security system shall match airfield standard.
   a. The door shall be equipped with electronic access conforming to FAR 107.14 security requirements.
      1) Simplex EE1000 series cylindrical knob set with double side cipher locks to match airfield standard.
      (a) Key override shall be of the removable core type to accept Best cores.
      (b) If a temporary core is provided, supply two (2) keys to RTAA.
   b. Door shall incorporate hold open devices to hold door open in high wind conditions and due to forces associated with a sloping bridge.
   c. Equip door exterior with gutter or drip diverter for overhead condensation.
   d. Equip with weatherproof exterior adjustable heavy duty door closer
   e. Confirm all details with the tenants prior to manufacturing.
3. The service stairs shall have equally spaced, self-adjusting risers with open mesh non-skid treads. All steps have equal rise with a minimum tread width of 28 inches, and a minimum depth of 9-1/2 inches. The bottom of the service stair shall be supported by casters with rubber tired cast iron wheels to roll on the apron. Both sides of the stairs shall be equipped with tubular galvanized steel handrails of proper height to meet applicable codes.
   a. The lower 6' section of the handrail assembly shall be designed to separate from the assembly and shall be connected with conventional fasteners to allow replacement of this section without cutting and welding.
4. The service landing shall be made of an open mesh, non-skid grating and be completely surrounded by tubular steel handrails of the proper height to meet applicable codes. The landing shall be level with the cab floor and shall be illuminated by a 100 watt light actuated from within and shall prevent the accumulation of water and snow.
5. A visual modesty shield shall be provided beneath the service stair landing. Design shall prevent the accumulation of rain or snow.
6. Service platform handrails shall incorporate industry standard “catering gate” handrail modifications. Catering gates shall be self closing and latching. Provisions shall also be provided to permanently securing catering gate for individual tenants who choose not to utilize them such as a bolted closure connection point.

Z. Baggage Slides
1. Remove and reinstall baggage slides at Gates B10, C3, C5, & C7 on (N) PBBs.
   a. Provide and install all necessary brackets and hardware for reinstallation on (N) PBBs.

AA. Electrical System and Components
1. All CAT6 communication cables installed on, through, or across the PBB shall be ETHERLINE 4 Pair CAT6 Continuous Flex Cable by LAPP Group, www.lappusa.com, (800) 774-3539, or equivalent. All cables shall be in conduit. Utilize UV Rated LFNC where necessary.
a. All CAT6 cabling shall be continuous and unspliced from device into building communication rooms. Provide cable lengths indicated on drawings for each of the following devices across the PBB with the remaining length coiled inside the A tunnel.
   1) VOIP phone
   2) Wheel bogey camera/CCTV additional video-out feed
   3) Rotunda/corridor mounted camera
   4) Card access control for PBB

2. The passenger boarding bridge shall be capable of operating on an emergency power backed up source of 3-phase, 3-wire, 480/277 Volt, 40 Amps service terminating in a panel on the terminal wall adjacent to the rotunda column of the bridge, which shall be provided by others. The PBB shall also accept 120/208 Volt, 20 Amps servise for lighting and control circuits. This power shall remain separate from non-critical load power such as PCA and 400 Hz loads. A thermal magnetic trip circuit breaker panel disconnect for the motor, lighting, and control circuits shall be mounted on the rotunda support column.
   a. The PBB main circuit breaker shall remove all power from all bridge circuits (exclusive of PCA & 400 Hz systems).

3. This panel shall also house thermal magnetic trip circuit breakers for the addition of the preconditioned air and 400 Hz equipment as applicable and as indicated on the project drawings.
   a. All circuit breakers shall be lockable in the "OFF" position.
   b. All primary disconnecting means shall be suitably rated to be capable of withstanding and interrupting fault currents available at the input.

4. All standard lighting, duplex receptacles, operator controls, and fractional HP motors shall operate on 120 volt, single phase, 60 Hz power. The transformer and separate circuit breakers for lighting and control power shall be mounted in the power control panel.
   a. All circuit breakers shall be lockable in the "OFF" position.
   b. All circuits and systems shall be protected by circuit breakers. Fuses will not be allowed.

5. Disconnect panel shall either be equipped with exterior handles, or shall be guarded such that all circuit breakers can be operated by an operator without having access to energized components.

6. All electrical components, which are exposed to the weather, shall be direct sunlight rated, of a weatherproof type and/or housed in weather-tight NEMA 3R enclosures, except for main power disconnect(s), which shall be a NEMA 4 stainless steel enclosure. Where dictated by the environment, electrical enclosures shall be equipped with heaters to control condensation.

7. All electrical equipment and methods of installation shall conform to the requirements and recommendations of the American Insurance Association (AIA), the National Electrical Manufacturers Association (NEMA), and the National Electrical Code (NEC).

8. All electrical components utilized shall be recognized by Underwriters Laboratories (UL) or an approved equal testing laboratory.

9. Wiring and installation shall be in accordance with National Electric Code and applicable local electrical codes.

10. Both ends of each conductor shall be color coded or identified. Particular attention shall be given to separating circuits of different voltages, emergency lighting, and telephone lines.

11. Five (5) unswitched, 120 volt, 1 phase, 60 Hz, 15 Amp three-conductor duplex receptacles shall be provided; one located near the operator's console, one in the Rotunda, one in the rotunda located disconnect panel, one weatherproof outlet at the wheel undercarriage near one of the lift columns, and one weatherproof outlet at the cab end of the roof. These outlets shall be GFCI protected.
   a. Exterior outlets shall be equipped with extra heavy duty, metallic, while in use, wet cover assemblies such as Red Dot Model CKMUV or equivalent.
b. Cab end of the roof outlets on Delta Air Line PBB’s shall be integrated with CAT 6 data cables and shall be contained within an overall enclosure, see project drawings.

12. One (1) additional unswitched, 120 volt, 1 phase, 60Hz three conductor duplex GFCI outlet shall be provided above the ceiling panels on the left side of the PBB within 1’ of the end of the outermost tunnel for the tenant installation of aftermarket equipment.
   a. This outlet shall be on a dedicated circuit.

13. Control console lid, wiring harness should be of sufficient length to allow the panel to be pulled out and turned over, facilitating repairs.

14. All wiring shall be brought to terminal blocks and/or suitable connectors. The wiring shall be formed and restrained to give a neat appearance. Wire splices shall not be used. Connections shall be made using terminal strips and staked lugs or by patent connectors.

15. Grommets and suitable anti-chafe material shall be used where wires are required to pass through structure or other similar relief or opening which exposes the wire to possible chafing. All wiring shall be in conduit (preferably automotive split loom) or spot-tied and shall routed away from possible pinch points. Wiring shall be adequately supported to protect it from damage due to ice and snow buildup, bumping, kinking, and flexing.

16. Quick disconnect fittings, where required, shall be UL or ETL approved.

17. All light bulbs shall be heavy-duty LED type.

18. All receptacles and light switch cover plates to be stainless steel, ANSI No. 4 finish.

19. Electrical interlocks shall be fail-safe design.

20. Electrical devices including lights, switches, relays, wiring, and terminals when located in an area exposed to weather, shall be of weatherproof design or protected by weatherproof enclosures. All exterior located limits switches, potentiometers, or other electrical devices, shall be protected by suitable covers to prevent the accumulation of snow or ice from preventing switch action or causing false switch action, as well as to protect the devices from physical damage.

21. Electrical conductors or cables exposed to weather shall be suitably rated and UL approved.

22. Flexible cables/conduits shall not exceed 24” except where relational motion is required. All cables and conduits shall be adequately supported.

23. Under bridge cable carrier systems are preferred. Side mounted cable carrier systems shall be used when necessary.

24. The bridge shall contain appropriate telephone communications equipment. The provisions shall include a flush mounted "J" box containing a CAT-6 communication cable near the operator's position. On this flush mounted junction box, this manufacturer shall provide and install a VOIP phone. The communications cable shall extend across the PBB and must have sufficient length at the rotunda end of the bridge to allow connection to the terminal building communications room as indicated in the drawings. Test phone to ensure bridge phones operate correctly.
   a. GAI-TRONICS VOIP Phone (Catalog: 111-02-001J-212) or approved equal

25. The bridge shall be designed with safety as the first priority; at a minimum, the following control features, interlocks, and warning devices shall be included in the bridge:
   a. With the PBB in the "Off" mode, all controls shall be inoperative.
   b. Spring-loaded wheel brake(s) shall be automatically set whenever controls for horizontal travel are not actuated by the operator. The drive system shall have provisions to manually release the brakes to permit towing of the unit in the event of a power failure.
   c. The vertical lift column safety stops are to be automatically engaged whenever controls for vertical travel are not actuated by the operator.
   d. With the PBB in the "Auto-Level" mode, all manual motion controls shall be inoperative. In this mode, vertical travel shall be regulated by the automatic leveling system.
With the PBB in the "Operate" mode, the Auto-Leveler shall be retracted and become inoperative.

The control circuits shall be designed and wired so that it is impossible to select opposite motions simultaneously, e.g., extend and retract or raise and lower travel.

Two limit switches, one to slow the bridge to half speed and one to halt forward or reverse travel of the bridge when the tunnel extension or retraction limits have been reached.

Limit switches shall prevent movement of the bridge beyond specified Rotunda operating parameters as specified in these Specifications.

A 6-inch diameter alarm bell located under the aircraft cab shall sound continuously whenever the bridge is in drive mode of operation.

An amber colored rotating beacon located under the aircraft cab shall illuminate when the selector switch on the operators' console is in the "Operate" position.

Adjustable slope limit switches shall be added to prevent movement of the bridge in a way that can damage the loading bridge or any auxiliary equipment that is mounted on the bridge.

Vertical travel limit switches shall be provided to prevent travel of the vertical lift columns into the mechanical stops.

Horizontal travel limit switches shall be provided to prevent travel of the tunnels into the mechanical stops.

Cab rotation limit switches shall prevent over rotation (left or right) of the cab into mechanical stops.

Preconditioned air and 400 Hz operating interlocks shall prevent horizontal bridge motion while these units are operating or the 400 Hz aircraft cable is not in the stowed position. Suitable warning indicators shall be provided for each of these conditions. This shall apply to all PBBs (new or existing) as well as all PCA and 400Hz equipment (either new or existing).

Drive forward and cab rotate controls shall be locked out when canopy is down on the aircraft.

Forward or reverse "drive" controls are locked out by their respective extend or retract switches.

The bridge shall be fitted with slope vertical limiting switches which shall lock out appropriate vertical and drive functions if operated beyond 10.0% (or as required by airline specifications) slope limits.

Adjustable switches shall be provided to limit the swing or rotation of the bridge to prevent contact with the terminal building or other fixed obstruction. This system will stop drive motions in the direction of contact and the system shall incorporate suitable warning lights and buzzers on/or inside the operator’s panel.

The operator shall be able to pre-position the bridge to the approximate height of the aircraft serviced while raising or lowering the bridge in the manual mode. A vertical height indicator shall be provided.

The following interior and exterior LED lights shall be provided:

- Interior lighting shall include the lighting in the cab/bubble and rotunda areas. The level of illumination shall be 200 lux at the finished floor level with the weather door closed.
- Tunnel lighting shall be provided by recessed LED panel fixtures with diffusers. The fixtures shall be 4 feet long and shall be positioned parallel to the tunnel centerline on a maximum of 8-foot centers or less as required to meet specified lighting levels. The lights shall be controlled by two 3-way switches. One shall be located in the control cab and one in the rotunda corridor adjacent to the terminal door. The level of illumination within the tunnels shall be uniform at 200 lux at the finished floor level.
c. Rotunda and bubble area lighting shall be provided in a similar manner, shall meet the same lighting level requirements and shall be controlled from the same tunnel switches.
d. Walkway lighting shall be provided by recessed LED panel fixtures with diffusers. The fixtures shall be 4 feet long and shall be positioned centered on the tunnel centerline spaced as required to meet specified lighting levels. For walkways greater than 10’ in length, the lights shall be controlled with two 3-way switches. One shall be located at the exit end of the walkway, and one shall be adjacent to the terminal door. For walkways less than 10’ one light switch adjacent to the terminal door will suffice. The level of illumination within the tunnels shall be uniform at 200 lux at the finished floor level.
e. The operator's console shall be provided additional lighting via recessed LED light fixtures which shall be controlled via a switch on the operator's console. Provide a minimum of 645 lux at the console faceplate.
f. PBB electrical control cabinets shall be equipped with interior LED light fixtures as necessary to eliminate the controls for maintenance purposes, control via manual switch interior to cabinet.
g. Two exterior LED floodlights shall be provided under the tunnel to illuminate the apron area ahead of the bridge. An additional LED floodlight shall be provided to illuminate the area around the drive column.
h. A sealed exterior type LED fixture shall illuminate the cab area forward of the double swinging weather doors. Level of illumination shall be 200 lux at the finished floor level with the weather door closed.
i. A weatherproof exterior fixture with a 100 watt LED equivalent lamp shall be installed over the service door to illuminate the service stairs and landing. It shall be controlled by an exterior photocell with an interior override switch located on the inside wall of the tunnel adjacent to the door.
j. Provide emergency lighting with 90 minutes battery backup complete with self-contained charger and automatic on-off control. Emergency lighting shall be incorporated into the normal lighting fixtures, and shall meet illumination requirements of NFPA-101 life safety codes. Wall mounted battery units are not acceptable.
k. All PBB lighting shall be LED type without ballasts.

AB. Finishes and Materials
1. The exterior and interior designs shall be aesthetically pleasing and in keeping with contemporary trends. Where necessary to meet this requirement, and when not in conflict with maintainability standards, enclosures should be utilized to cover unsightly appurtenances.
2. All Interior and exterior systems shall be fitted and trimmed as necessary to present a neat and clean finished product.
3. All finishes shall meet NFPA requirements.
4. Interior
   a. All interior surfaces of the structure shall be cleaned in accordance with SSPC-SP3 or sand/grit-blasted in accordance with SSPC-SP6, as appropriate, and shall be coated with a rust inhibiting primer applied to a minimum 4 mil total dry thickness over the average measured blast profile. Exposed interior surfaces shall be coated with an additional 2 mils of polyurethane finish coat.
      1) Color: TBD
   b. Interior wall treatment shall consist of floor to ceiling (or with trim pieces as noted on construction drawings to elevate panels off of floor line) 4-foot-wide laminated phenolic plastic panels, with aluminum trim and recessed black accent strips. Paint all exposed interior metal surfaces to match interior wall panels, except brushed aluminum or bright finish work. Walls shall be fully insulated to include fiberglass fire resistant insulation ahecing a minimum R value of 9.5.
1) Color: TBD
2) Number: SG241
c. Ceiling shall be an 8-inch-wide aluminum plank-type ceiling with a 1/2-inch fire
resistant insulation blanket on top with an exposed, black backing- minimum
combined R Value of 7.5.. Planks shall run complete from bridge wall to wall.
1) Finish: Painted Aluminum (white)
d. The PBB’s shall be carpeted with heavy commercial non-skid carpeting, or rubber as
indicated. Flooring to be supplied and installed by bridge manufacturer in the factory.
1) Aladdin ‘Scholarship II 26 2B100’ Broadloom
2) Color: Tobacco (Color #: 881)
3) Construction: Tufted
e. Sub-floors shall be constructed of 3/4” fire retardent marine plywood which shall be
securely fastened with fasteners suitable for this purpose. Insure adjoining sheets are
supported and fastened to a common member to provide smooth even joints. Any
remaining uneveness will be removed with filler. The sub-floor fasteners will not
protrude through the exterior tunnel siding.
1) Subfloors shall be provided as necessary to meet floor covering manufacturer’s
requirements which may include tongue and groove flooring.
2) Cab floors shall be metal.
3) Other sub-floors as required by floor covering manufacturers.
4) See flooring requirements.
f. Cab (Interior/Exterior):
1) Heavy Duty 1/4” ribbed rubber flooring to be installed in the cab areas
(Interior/Exterior) of the PBB as well as on interior ramps.
5. Exterior
a. All exterior surfaces, including support columns and base plates, shall be sand/grit
blasted in accordance with specification SSPC-SP6 to a 1-1/2 mil minimum to 2 mil
maximum profile.
b. The exterior shall be coated with a rust inhibiting primer applied to a minimum of 4 mil
total dry thickness over the average measured blast profile followed by a finish coat of
5-1/2 mil thickness catalyzed polyurethane enamel.
1) Color: TBD
2) The cured dry film thickness of the total system shall achieve a minimum of 8
mils.
c. Anodized aluminum, galvanized or stainless steel trim items, roll-up doors, and cab
curtains shall be supplied in their original unpainted bright finish. Machined surfaces
shall not be painted unless they are exposed after assembly.
d. All exterior metals requiring primer and paint shall be painted to match the bridge.

1.12 CONTROL
A. The PBB shall be provided with a programmable logic controller which shall monitor all phases
of operation of the PBB and it’s accessories. The controller shall be based on a 32 bit
microprocessor and utilize flash memory technology to store operation parameter information.
Operation parameters of controller shall not be affected by loss of 60 Hz power to controller.
PBB manufacturer shall provide with their bid a detailed description of the controller, type of
graphics and software, sequence of operation, types and number of control points, and
limitations of the control system they intend to provide and install.
1. The practice of sharing the passenger boarding bridge controller, either directly, or through
remote I/O racks with the PCA unit controller will not be permitted. Each PBB shall have a
dedicated and separate controller.

B. Portable Laptop Computer:
1. The PBB manufacturer shall provide a portable laptop computer for Local access to each
PBB unit controller as specified.
a. Dell Latitude Line, or approved equal

2. Portable laptop computer shall include all hardware and software required to support local communications, troubleshooting and maintenance to/of the PBB controller. All Software shall be licensed and registered in the Owner's name.

3. PBB manufacturer shall have representatives on site during start up and commissioning and will assist the contractor in setting up communications equipment on the network such that all remote monitoring functions are tested and proven to be functioning properly.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. JBT AEROTech - FMC Jetway
B. Thyssen Krupp Airport Systems
C. Substitutions: None.

2.02 BRANDING

A. The Owner, or Owner's tenant, reserves the right to provide branding on the exterior sides of the installed equipment and desires that this branding not be diminished by excessively large or aesthetically displeasing branding of individual pieces of equipment. All manufacturers branding, labeling, marking, etcetera, on their products shall be relatively small compared to the overall size of the piece of equipment. The Owner reserves the right to require any non-approved branding removed from finished products at no additional cost.

2.03 FACTORY TESTING

A. The manufacturer shall test one of each model (not size) of every PBB to assure compliance with the specifications. Certification test sheets shall be submitted. The Owner shall be notified fourteen (14) days prior to the date of such tests. The Owner reserves the right to witness tests and request additional tests if necessary to demonstrate compliance with the specifications.

B. Should factory tests fail to indicate compliance with specifications, all costs associated with re-testing, including costs associated with Owner's witness services, will be the responsibility of the manufacturer.

2.04 PRODUCT SUPPORT

A. Spare Parts
   1. The manufacturer shall maintain an adequate inventory of all proprietary or vendor fabricated or modified parts, especially the long lead time items, for routine maintenance of the unit. All stock shall be maintained, whether or not the unit is in current production, for a minimum of ten (10) years from the date of the last unit manufactured.

B. Field Support Services
   1. The manufacturer shall provide supervisory and service personnel, certified by the manufacturer, during the installation of the boarding bridge to assure proper installation.
   2. The manufacturer shall provide the Owner with all appropriate Service Bulletins for bridges supplied for a minimum of twenty years from the date of final acceptance.

PART 3 EXECUTION

3.01 GENERAL

A. This specification shall act as a supplement to the Manufacturer's standard installation procedures only, and in no way shall it be construed so as to limit the installing contractor from providing a complete and operable installation, in accordance with all generally accepted good passenger boarding bridge installation practices, as well as the manufacturer's written installation procedures. Any reference to the installing contractor or contractor herein shall be construed to mean that entity installing this equipment in the field.

B. Installations shall be performed in strict compliance with the Manufacturer's written Installation Procedures.
1. Manufacturer shall submit a copy of their Installation Procedures for approval, prior to installation.

3.02 PASSENGER BOARDING BRIDGE INSTALLATION

A. Any and all damage sustained by the new PBB caused by equipment used for the lifting, transportation, movement, staging, or otherwise, of the new PBB, assemblies, or components shall be the responsibility of the contractor.

B. PBB Mechanical Erection and Lifting

1. Use of Heavy Equipment
   a. The use of crane(s), fork lifts, and/or other heavy equipment throughout the project shall be detailed in advance with and approved by appropriate Aviation Authority offices. Equipment used shall not exceed maximum allowable airfield heights.
   b. Heavy equipment capacity and operator experience shall be adequate to ensure safe and efficient lifting of the PBB systems, assemblies, and/or components.
   c. Damage to the terminal building, apron, foundations, and/or PBB shall be the complete responsibility of the installing contractor.
   d. Paint damage to PBBs and related assemblies shall be minimized, and where occurring, shall be repaired in accordance with the "Exterior Finishes" section of this section.
   e. Heavy equipment operator's shall be fully trained and certified to operate equipment in their control.

2. Rigging
   a. Original Manufacturer designed PBB lifting lugs shall be utilized for rigging and handling of PBB systems, assemblies, and/or components. Where lifting lugs are not present, approved straps, cradles, chains, couplings, cables, and/or fixtures shall be utilized.
   b. Where applicable, lifting tools shall be of the proper strength rating and shall have current certifications.

3. Tunnel/Drive System Assembly Installation
   a. The assembly of PBB vertical and horizontal drive assemblies shall be accomplished using safe and approved practices. All assembly shall be accomplished using new installation bolts/fasteners in accordance with manufacturer's specifications in the originally designed quantities.
   b. Any structural modifications necessary to allow the correct use of fasteners shall be accomplished in a safe and professional manner. All welds, where necessary shall be complete, continuous, and in compliance with AWS standards, and shall be performed by certified welders. Contractor's performing welding operations shall submit copies of the welder's certifications.
   c. PBB structural support integrity shall not be compromised.
   d. The complete tunnel assembly shall be pinned to the fixed rotunda assembly using manufacturer supplied hinge pins.
   e. If hinge pins, hinge pin plates, and/or associated welds show any damage, they are to be replaced.
   f. Ensure that the hinge pins are properly greased and installed without causing any damage or deformation to the pins.

C. Electrical Requirements

1. Miscellaneous Electrical Requirements
   a. All field terminated wiring, interior and exterior, shall be checked for damage and improper or unsafe installation. Damaged wires and cables shall be replaced. All replacement wiring and components shall be UL approved and shall be selected and/or sized in accordance with NEC based upon the intended use.
   b. Wiring shall be color coded in accordance with existing wiring and Manufacturer's specifications and shall be easily traced.
c. Wiring shall be neatly routed in secured harnesses and shall be labeled.
d. All electrical enclosures shall be UL approved, and NEMA rated.
e. The installing contractor shall be responsible for all PBB related electrical
   inter-connects, component/assembly wiring, and PBB electro-mechanical system
   functions, unless specifically identified otherwise.
f. All exterior or otherwise exposed conductors/cables shall be installed within conduit
   unless required for flexibility to be a flexible cable and then exposed cables shall be
   limited to 48", unless mechanical requirements dictate otherwise.
g. All electrical devices/conduits shall be properly secured. Beam clamps will not be
   allowed.

2. Main Power Electrical Disconnect Assembly
   a. All cables/conduits shall be neatly color coded and marked.
   b. All original manufacturer rating and labels shall remain intact and unmarred.
   c. All enclosures shall be securely fastened to the stand using approved Manufacturer
      provided fasteners.
   d. All PBB power cables shall be verified to be in new condition. Damaged cables shall
      be replaced with OEM cables provided by the Manufacturer.
   e. All cables shall be safely routed between PBB junction boxes, utility carrier and the
      main PBB disconnect. All cables shall be secured to PBBs in accordance with
      Manufacturer's instructions.
   f. All power cables, wiring, and utilities installed the across the exterior "A" and "B"
      tunnels shall be installed in the utility carrier.
   g. All power cables, wiring and utilities installed across the exterior of the outermost
      tunnel, shall be contained in conduit and shall be installed on the underside of the
      bridge.
   h. Conduits shall be attached to the PBBs using secure clamps or shall utilize bolted or
      welded mounting brackets.
   i. All wire/cable terminations shall end neatly in PBB mounted junction boxes.

3. Cable Hoist(s)
   a. The installing contractor shall mount the cable hoist(s)with Manufacturer provided
      provisions, and shall inspect and verify proper operation.
   b. The hoist housing shall be securely mounted. All mounting bolts shall be inspected
      and replaced where missing or damaged.
   c. Any damage to the cable hoist exterior finish shall be re-painted in accordance with
      the "Exterior Finishes" section of this scope.
   d. Up/down limit switches shall be fully functional and shall cutoff control motor operation
      when the cable is fully deployed or retrieved.
   e. The three output cable support hooks (sling) are to be in good working condition and
      shall remain detachable from the aircraft cable. Hoist up/down control is
      accomplished from an exterior operator control station mounted on the PBB wheel
      bogie.

3.03 PASSENGER BOARDING BRIDGE SETUP

A. PBB Mechanical Setup
   1. Limit Switches
      a. All mechanical stops, limit switch mounting brackets, mechanical limit switch "trip
         tabs", and associated fasteners shall be inspected, repaired, secured, and/or
         replaced, as applicable, prior to final operational testing of PBB electrical systems.
         Limit switch mounting brackets shall be structurally sound and straightened, if
         necessary, to ensure proper alignment of limit switches. Where adjustable or sliding
         stops are utilized, slide tracks shall be securely attached to PBB structures and lock
         bolts, adjustment threads, etc. shall be fully functional.
   2. PBB Lubrication
a. Ensure that all grease fittings are functional and that grease points have been properly purged of old grease material and foreign material by displacing old material with new material.
b. Perform all other OEM recommended lubrication of moveable areas throughout the PBBs. Only OEM approved lubricants shall be utilized. Chains containing old grease and/or foreign debris shall be fully degreased and re-lubricated. All residual grease and oil displaced or drained onto the PBBs shall be thoroughly cleaned. Lubrication shall include, but shall not necessarily limited to, the following:
   1) Rotunda thrust bearing.
   2) Wheel bogey thrust bearing.
   3) Lift column screws.
   4) Cab rotational guide chain.

3. Door Locks and Keys
   a. Set proper stations code, as defined by stations personnel for service stair door.
   b. Turn over all keys to stations personnel.

B. PBB Electrical System Setup
   1. All wiring and electrical connections shall be safely completed in accordance with national, state, and local electrical code by qualified electricians.
   2. Tunnel interconnects and primary electrical system wiring (480Volt) shall be checked and maintained as per the original manufacturer's design.
   3. PBB electrical setup procedures shall be accomplished by the Contractor in accordance with Manufacturer's installation instructions and any pertinent service bulletins.
   4. Limit Switches
      a. PBB electrical limit settings shall be set to conform to the structural design limits of the PBBs and in accordance with aircraft parking requirements.
      b. Rotunda limit switches (swing limits) shall be adjusted to prevent the PBBs from being capable of swinging into Ground Support Equipment (GSE) staging areas, the terminal building, or adjacent PBBs.
      c. Rotunda mounted slope limits shall be set to prevent operational PBB slopes from exceeding 10.0 percent.
      d. Tunnel travel limits ("full extend/retract" and "slow down") shall be set to safely meet each gate’s operating requirements.
      e. Oversteer limits for the wheel bogie assembly shall ensure that oversteer conditions cannot be encountered.
      f. Ensure that the column travel limits and/or height indicator assembly is installed and functional so as to prevent damage to the vertical drive column assembly. Ensure that height indicator functions/limits are calibrated.
      g. Ensure that the cab rotation limits are functional and that the cab cannot exceed safe rotations.

   5. Electrical System Inspection
      a. Test the auto-level system for proper operation prior to PBB use. Verify auto-level travel response time and time-out relay function. Ensure that the limit switch is in good working order.
      b. Ensure proper function of the canopy deployment system. Verify proper unit operation to ensure that excess canopy pressure on the aircraft will not occur. Ensure that canopy deployment speed is consistent on both sides and that no binding occurs.
      c. Perform a comprehensive operational inspection of all 480-Volt drive systems to ensure proper operation and condition.
      d. Ensure that all lighting circuits and lights are functioning as designed. Bulbs and ballasts shall be checked and replaced if non-operational. All bulbs should be the same style.
      e. Ensure that all other electrical systems, including all travel alarms, operation bell, indicator lights, and warning beacons or strobes are functioning properly.
3.04 INSPECTIONS
   A. Manufacturing Representative
      1. Manufacturer's representative shall be on site, as necessary, during the installation of the
         equipment, as required to ensure the equipment is properly installed in accordance with
         the Project Specifications.
      2. Manufacturer's representative shall be present during preliminary equipment installation
         inspection.
      3. Manufacturer and/or contractor shall diligently pursue the completion of all punch list items.
      4. Manufacturer shall notify the Owner when the equipment installation is considered ready
         for a final inspection.
      5. Manufacturer's representative shall be present during final inspection.
   B. The Owner will not accept the boarding bridge until it has been inspected to verify that the
      installation, function and quality of the PBB meet The Owner's standards. Any deficiencies
      and/or violations shall be immediately corrected by the Manufacturer at no additional cost to the
      Owner and shall be re-inspected.
   C. The Manufacturer shall be responsible for providing all necessary test, measuring and recording
      devices required to demonstrate the boarding bridge's compliance with this specification.

3.05 INSTALLATION
   A. Install in accordance with manufacturer's instructions.

3.06 INTERFACE WITH OTHER WORK
   A. The Contractor shall cooperate and coordinate his work with the 400 Hz, PCA, and related
      equipment installations including ancillaries.
   B. The Contractor shall coordinate with the 400 Hz, PCA, and related equipment for the provisions
      for or installation of all necessary infrastructure prior to final factory painting of the passenger
      boarding bridge. The intent is to eliminate site welding/painting after final factory painting.
   C. Installation of units shall be coordinated with other trades and activities associated with the
      project and site.
   D. Install phone, provide building face terminations and verify proper operation.

3.07 EXAMINATION
   A. Verify/perform the following items or tasks.
      1. Verify all cables and conductors are properly terminated.
      2. Check to be sure that there are no tools or loose objects in the unit.
      3. Make a final check of the security of the power connections.
      4. Re-install any covers removed during installation.
      5. Perform full passenger boarding bridge and related equipment operational
         non-interference test.

3.08 CLEANING
   A. Clean unit from all construction dust and debris prior to start-up.
   B. Touch up scratched or marred surfaces to match original finish.
   C. Protect the installed unit from subsequent construction operations.
   D. Wash exterior of bridge.
   E. Clean all windows, wallboards, windows and interior surfaces.

3.09 STARTING EQUIPMENT AND SYSTEMS
   A. Complete approved field commissioning report, including, but not limited to the following:
      1. Verification that the bridge swings to the right and left, and that the swing limits switches
         function as required.
2. Verification the bridge “raises” and “lowers”, and that the vertical limit switches function as required.
3. Verification that the rack limit switches function as required (if present).
4. Verification that the vertical drive brakes function as required (if present).
5. Verification that the bridge “extends” and “retracts”, and that the extend and retract limit switches function as required.
6. Verification that the cab rotates, and that the cab rotation limit switches function as required.
7. Verification that wheel alignment matches the gauge.
8. Verification that the canopy extends and retracts as required and that the canopy interlocks function as required.
9. Ensure that the bridge “autoleveler” functions, and it alarms after it times out.
10. Ensure that the “floor leveling” works as required.
11. Verification that the bridge “slow down” and “bumper proximity switches” function as required.
12. Ensure all lights, outlets, fans and other accessories function as required.
13. Ensure that all alarms, interlocks, emergency lighting and other safety features functions as required.
14. Ensure that the door locks work.
15. PBB OEM Lubrication.
16. Confirm all network systems are functioning properly at local monitoring stations as well as at Concourse E monitoring station.
17. All other items listed on the approved Field Commissioning Report.

B. Demonstrate complete functional operation of equipment to the satisfaction of the Owner.

END OF SECTION