

# Meridian Airport Authority, Dean Aircraft Services Hangar Additions & Alterations

# ADDENDUM NO. 4

- TO: All Bidders on the Above Referenced Product
- FROM: Davis Purdy Architects, PLLC
- DATE: April 5, 2021
- SUBJECT: ADDENDUM NO. 4

# ACKNOWLEDGEMENT OF RECEIPT OF ADDENDUM IS REQUIRED ON BID FORM.

Clarifications and revisions to Contract Documents for the referenced project are as follows:

- 1. CLARIFICATION: Awarded bidder shall provide Builder's Risk policy that includes "Business Interruption". "Business Interruption" pertains only to the owner's interest for a maximum of 6 months.
- 2. CLARIFICATION: Time of Completion of 450 days applies to only the Base Bid.
- **3.** CLARIFICATION: All doors indicated with access control devices on the Electrical drawings are security doors as references in Allowance No. 2.

# **SPECIFICATIONS**

- DELETE: Specification section 07 41 13.16 STANDING SEAM METAL ROOF PANELS dated 3/28/21.
- CLARIFICATION: Roof information is provided in specification section 13 34 10 Pre-Engineered Metal Building Systems dated 3/26/21.



- REPLACE: Replace the Specification section 01 10 50 BID PACKAGE
  SUMMARY dated 3/11/21 with specification section 01 10 50 BID PACKAGE
  SUMMARY dated 4/5/21. Specification section 01 10 50 is attached.
- ADD: Add specification section 26 43 00 Surge Protective Device (SPD). Specification section is attached.

## **DRAWINGS**

- **8. CLARIFICATION:** The hangar door indicated on Architectural sheet A-312 is the correct door size. The door size in the specifications is different and is incorrect.
- REPLACE: Replace Architectural sheet A-800 dated 3/3/21 with the same sheets dated 4/5/21. Minor changes are indicated with clouds on sheets along with a written narrative (Dean Hangar – Addendum #4 Narrative). Architectural sheet A-800 is attached.
- **10. CLARIFICATION:** Partition types shown on Architectural sheet A-800 shall extend 12" minimum above ceiling. Contractor shall provide bracing as required to stabilize partitions.
- **11. CLARIFICATION:** Architectural sheets A-602 and A-800 indicate toilet rooms receiving tile walls. Provide tile on fixture walls only extending from floor to ceiling.
- 12. CHANGE: Apply the following changes to Structural sheet S-106 Alternate 1 –
  Mezzanine Framing Plan:
  - a. Add the following note to this sheet under FLOOR SYSTEM NOTES: "9. IF THE PEMB ENGINEER LACKS THE ABILITY TO DESIGN ANY AFOREMENTIONED ITEMS IN THESE NOTES INCLUDING, BUT NOT LIMITED TO, VIBRATION DESIGN, CONCRETE DESIGN, CONCRETE REINFORCING DESIGN, CONCRETE FORM DECK DESIGN, ETC., THE GENERAL CONTRACTOR SHALL RETAIN THE SERVICES OF A SPECIALTY ENGINEER WHOM IS A LICENSED MISSISSIPPI



PROFESSIONAL ENGINEER TO PERFORM THE NECESSARY DESIGN(S) FOR THE ITEMS ABOVE. THE SPECIALTY ENGINEER SHALL SUBMIT A LETTER WITH MISSISSIPPI PE SEAL AFFIXED TO THE ARCHITECT/ENGINEER WHICH STATES THAT "THE MEZZANINE HAS BEEN DESIGNED IN ACCORDANCE WITH ALL REQUIREMENTS OF THE CONSTRUCTION DOCUMENTS."

- **13. CLARIFICATION:** A written narrative (Addendum #2 Narrative) is provided for Electrical sheets provided in Addendum No. 2. Written narrative is attached.
- 14. REPLACE: Replace the following Electrical sheets dated 3/18/21 with the same sheets dated 4/5/21. Minor changes are indicated with clouds on sheets along with a written narrative (Dean Hangar Addendum #4 Narrative). Electrical sheets and written narratives are attached:
  - a. E-005
  - b. E-006
  - c. E-200
  - d. E-201



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Submitted By

John L. Purdy, AIA Davis Purdy Architects, PLLC April 5, 2021

# ACKNOWLEDGEMENT OF RECEIPT OF THIS ADDENDUM IS REQUIRED AND SHALL BE INDICATED ON BID FORM

#### SECTION 01 10 50 – BID PACKAGE SUMMARY

#### PART 1- GENERAL

#### 1.01 SUMMARY

#### A. WORK EXECUTED IN THE CONTRACT

- The Scope of Work included herein will be required of the selected Bidder. The Scope of Work identified herein will become part of the Agreement between the Contractor and the Owner. The Scope of Work listed below shall include all labor, materials, equipment, supervision, insurance, payment and performance bonds, applicable taxes and all other work in accordance with the contract documents.
- 2. Unless otherwise specified, the Contractors will be responsible their own Construction Facilities and Temporary Controls including, but not limited to, offices, storage trailers, etc.
- 3. The General Trades contractor will be required to provide dumpsters and temporary toilets for all Prime Contractors included in this bid package summary. It will still be the Prime contractors' responsibility to put their debris and trash in the dumpsters, as well as keeping the porta johns in decent working order. It will be all Prime Contractors responsibility to keep the floors orderly, swept, and free from tripping hazards.
- 4. The Electrical Contractor will provide temporary power and lighting for construction activities as needed by all Prime Contractors. Metering Fee and reasonable usage will be paid for by the Owner.
- 5. The Mechanical and Plumbing Contractor will provide temporary water onsite for construction activities as needed by all Prime Contractors. Metering and reasonable usage will be paid for by the Owner.
- 6. The General Trades contractor will be required to provide any temporary measures for temporary dry in or conditioning for finishes, should it be necessary.
- 7. All Contractors will be required to provide one designated representative for continuous cleanup. Should the Contractor exceed ten (10) persons, then the Contractor shall provide an additional designated representative for continuous cleanup at the discretion of the Owner, Architect, or Construction Manager. Should the Contractor not provide manpower for cleanup and the job site become unclean or unsafe, all work will be stopped, and all manpower used to address the issues before work can presume.
- 8. Contractor shall cooperate fully with Owner forces or separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work associated with the project.
- 9. All Contractor Supervision shall be approved by the Owner, Architect, and the Construction Manager before work commence.
- 10. The Contractor will be responsible for repairs or damage to Owner provided work.

#### B. PROJECT PHASING

- 1. Contractors agree that the Master Project Schedule as developed and approved by the Construction Manager, Architect, and Owner will be the Master Schedule for the Project.
- C. OWNER PROVIDED
  - 1. Concrete and compaction testing as outlined in the Specification
  - 2. Project Identification or Signage.

- 3. The Owner reserves the right to award contracts to multiple contractors for the project. The Contractor and its subcontractors shall coordinate and cooperate fully as required by the Owner.
- 4. Any additional chain-link fencing, gates, or barricades necessary for security or control of construction traffic.

#### D. GENERAL TRADES BID PACKAGE

- 1. The General Trades Bid Package includes all work not identified as provided by the Owner or specified in other Bid Package Contractors work outlined herein.
- 2. The General Trades contractor will be required to provide dumpsters and temporary toilets for all Prime Contractors included in this bid package summary. It will still be the Prime contractors' responsibility to put their debris and trash in the dumpsters, as well as keeping the porta johns in decent working order. It will be all Prime Contractors responsibility to keep the floors orderly, swept, and free from tripping hazards.
- 3. The Contractor shall comply with all federal, state, and local guidelines associated with renovating existing buildings.
- 4. The Contractor will provide a Storm Water Permit, and erosion control measures required to comply with all local, and state requirements. The Contractor will be responsible to provide required erosion control inspections, maintenance, and repair for the duration of the project.
- 5. The Contractor will be responsible for providing temporary measures to control construction dirt, debris, dust, and trash from leaving the construction limits and entering areas still in operation by Dean Aircraft, Meridian Airport Authority, and other airport areas. Temporary measures include, but are not limited to, snow fence in areas where trash could blow towards the run way, gravel pathways for exterior access or site activities, fire smoke and dust walls, tack mats at operable doors into any existing hanger operations etc. A dust control and logistics plan shall be present to and approved by the Construction Manager, Owner, and Architect prior to execution of any work.
- 6. The General Trades Contractor shall provide all caulking or sealants including fire proofing, fire caulking, and sound caulking. All mechanical, fire protection, plumbing, and electrical contractors shall ensure any holes they cut through walls leave no more than a <sup>3</sup>/<sub>4</sub>" gap for proper sealing.
- 7. No materials, fixtures, tie ins, or provisions will be made or provided by the Owner unless otherwise noted in the contract documents.
- 8. General Trades Package shall include, but is not limited to, necessary demolition, temporary partitions to existing facility, site work, foundations, steel, stairways, railings, walls, ceilings, woods, plastics, and composites, all thermal and moisture protection, interior finishes, doors, hardware, glazing, painting, elevated decks, miscellaneous steel, blocking, rough carpentry, appliances, furnishings, elevator, specialties, pre-engineered metal building, roofing, plaque, and signage.
- 9. Final Cleaning as described in specification section 017420 shall be the responsibility of the General Trades Contractor. Cleaning shall include a thorough clean before a punchlist and touch up afterwards to ensure the Owner receives a clean project at completion.
- 10. Site utility work associated with all other trades will be performed by the mechanical/plumbing/electrical/fire protection contractors. All excavation necessary for the demolition or reinstallation of new systems shall be backfilled and compacted per the architect's direction here in. Stone fill or concrete encasement in trenches shall be the responsibility of the trade contractors and be brought to finish elevation. The

General Trades contractor shall be responsible for the asphalt, concrete, or top soil necessary to finish the exterior as shown in the documents after the systems are in place.

- 11. The Contractor shall review documents for alternates that pertain to the scope of work in this bid package and include as required.
- 12. SPECIFICATIONS INCLUDED

#### **REFER TO SPECIFICATIONS IN THE FOLLOWING:**

DIVISION 00 – Included in its entirety

DIVISION 01 – Included in its entirety

DIVISION 02 – Included in its entirety

DIVISION 03 – Included in its entirety

DIVISION 04 - Included in its entirety

DIVISION 05 – Included in its entirety

DIVISION 06 – Included in its entirety

DIVISION 07 - Included in its entirety

DIVISION 08 - Included in its entirety

DIVISION 09 – Included in its entirety

DIVISION 10 – Included in its entirety

- DIVISION 12 Included in its entirety
- DIVISION 13 Included in its entirety

DIVISION 14 – Included in its entirety

DIVISIONS 21 - 28 – INCLUDED FOR REFERENCE AND COORDINATION WHERE APPLICABLE WITH ALL SPECIFICATIONS AND SCOPES INCLUDED UNDER GENERAL TRADES.

DIVISION 21	FIRE SUPPRESSION
DIVISION 22	PLUMBING
DIVISION 23	MECHANICAL
DIVISION 26	ELECTRICAL
DIVISION 27	COMMUNICATIONS
DIVISION 28	SECURITY

#### E. MECHANICAL & PLUMBING PACKAGE

- 1. The Mechanical and Plumbing Bid Package includes all mechanical, plumbing, relative demolition, and associated work for additions and exterior connections as outlined on the plans and the specifications outlined herein to provide a complete system.
- 2. The Mechanical and Plumbing Contractor shall provide a complete HVAC system with controls as outlined here in.
- 3. No materials, fixtures, tie ins, or provisions will be made or provided by the Owner unless otherwise noted in the contract documents.
- 4. Site utility work associated with plumbing, sewer, gas, etc. will be performed by the mechanical/plumbing contractor. All excavation for demolition or new work shall be backfilled and compacted per the architect's direction. Stone fill and thrust blocks in trenches shall be the responsibility of this contractor and be brought to finish elevation. The general trades contractor shall be responsible for the asphalt, concrete, or top soil necessary to finish the exterior as shown in the documents.
- 5. Contractor shall be responsible for connecting and running the fire main to 1' above finish floor, where the fire protection contractor will connect the flange for their system. This work shall include any PIV and tamper switch that shall be run to the riser location for tie in with the fire protection system. The lines shall be jointly flushed out and checked once water can be put on the system.
- 6. Contractor shall review documents for Alternates that pertain to the scope of work in this bid package.
- 7. The Contractor shall be responsible for making penetrations as required for their systems, and as required for complete fireproofing, fire sealants, or fire taping. All penetrations shall leave no larger than a <sup>3</sup>/<sub>4</sub>" gap. Any fire dampers or mechanical components that provide fire or sound ratings, shall be a part of this package.
- 8. SPECIFICATIONS INCLUDED

#### **REFER TO SPECIFICATIONS IN THE FOLLOWING:**

DIVISION 00 – Included in its entirety

DIVISION 01 – Included in its entirety

- DIVISION 02 Includes, but is not limited to, site utilities and compaction in ditches.
- DIVISION 03 As required for trust blocks and housekeeping pads.
- DIVISION 04 For reference and coordination
- DIVISION 05 14 Included were applicable to mechanical and plumbing scopes.
- DIVISION 22 Included in its entirety.
- DIVISION 23 Included in its entirety.
- DIVISION 21 Included were applicable to mechanical and plumbing scopes.
- DIVISION 26-28 Included were applicable to mechanical and plumbing scopes.

### F. FIRE PROTECTION BID PACKAGE

- 1. The Fire Protection Bid Package includes all fire protection and relative demolition work as outlined in the plans, specifications, and other contract documents as to provide a complete system and to the satisfaction of the Owner. Scope of work shall consist of starting at one foot (1') above finished floor. Scope of work shall include flow tests: fire protection design: shop drawings: materials, equipment and installation to meet NFPA, local, state, and federal codes, regulations, and requirements as to provide a complete fire protection system. The Contractor shall furnish and install all electrical components for the fire protection system including post indicator valves outside of the building. Electrical Bid Package Contractor will provide final termination to the Fire Protection System. The Fire Protection Bid Package includes all fire protection and associated work for renovations and site as outlined on the plans and the specifications outlined herein to provide a complete system.
- 2. SPECIFICATIONS INCLUDED:

#### **REFER TO SPECIFICATIONS IN THE FOLLOWING:**

DIVISION 00 – Included in its entirety

- DIVISION 01 Included in its entirety
- DIVISION 02 14 For reference and coordination
- DIVISION 21 Included in its entirety
- DIVISION 22 28 For reference and coordination

#### G. ELECTRICAL BID PACKAGE

- 1. The Electrical Bid Package includes all electrical, relative demolition, and associated work for renovations and site work as outlined on the plans and the specifications outlined herein to provide a complete system.
- 2. The Contractor shall provide all electrical site utilities or connections to existing services.
- 3. The Contractor shall provide the low voltage systems as outlined in the documents including, but not limited to, fire alarm, phone, data, and security.
- 4. The Contractor shall provide concrete pads for electrical equipment as required by documents and manufacturer requirements.
- 5. Site utility work associated with electrical will be performed by the electrical contractor. All excavation for demolition or new work shall be backfilled and compacted per the architect's direction. Stone fill or concrete encasement in trenches shall be the responsibility of this contractor and be brought to finish elevation. The general trades contractor shall be responsible for the asphalt,

concrete, or topsoil necessary to finish the exterior as shown in the documents.

- 6. No materials, fixtures, tie ins, or provisions will be made or provided by the Owner unless otherwise noted in the contract documents.
- 7. The Contractor shall be responsible for making penetrations as required for their systems, and as required for complete fireproofing, fire sealants, or fire taping. All penetrations shall leave no larger than a <sup>3</sup>/<sub>4</sub>" gap.
- 8. The Contractor shall provide final terminations to the fire protection system including switches located inside and outside the building.
- The Contractor shall review documents for alternate that pertain to the scope of work in this bid package and include as required. SPECIFICATIONS INCLUDED

#### **REFER TO SPECIFICATIONS IN THE FOLLOWING:**

DIVISION 00 – Included in its entirety

DIVISION 01 – Included in its entirety

DIVISION 02 – 24 – For reference and coordination

DIVISION 26 - 28 - Included in its entirety

## END OF SECTION 01 10 50

#### SECTION 264300 - SURGE PROTECTIVE DEVICE (SPD)

#### PART 1 – GENERAL

#### 1.1 SCOPE

- A. The Contractor shall furnish and install the Surge Protective Device (SPD) equipment having the electrical characteristics, ratings, and modifications as specified herein and as shown on the contract drawings. To maximize performance and reliability and to obtain the lowest possible let-through voltages, the ac surge protection shall be integrated into electrical distribution equipment such as switchgear, switchboards, panelboards, busway (integrated within bus plug), or motor control centers. Refer to related sections for surge requirements in:
- 1.2 RELATED SECTIONS
  - A. Section 262400 Panelboards

#### 1.3 REFERENCES

A. SPD units and all components shall be designed, manufactured, and tested in accordance with the latest applicable UL standard (ANSI/UL 1449 3<sup>rd</sup> Edition).

#### 1.4 SUBMITTALS – FOR REVIEW/APPROVAL

- A. The following information shall be submitted to the Engineer:
  - Provide verification that the SPD complies with the required ANSI/UL 1449 3rd Edition listing by Underwriters Laboratories (UL) or other Nationally Recognized Testing Laboratory (NRTL). Compliance may be in the form of a file number that can be verified on UL's website or on any other NRTL's website, as long as the website contains the following information at a minimum: model number, SPD Type, system voltage, phases, modes of protection, Voltage Protection Rating (VPR), and Nominal Discharge Current (In).
  - 2. For sidemount mounting applications (SPD mounted external to electrical assembly), electrical/mechanical drawings showing unit dimensions, weights, installation instruction details, and wiring configuration.
- B. Where applicable the following additional information shall be submitted to the engineer:
  - 1. Descriptive bulletins
  - 2. Product sheets

#### 1.5 SUBMITTALS – FOR CONSTRUCTION

- A. The following information shall be submitted for record purposes:
  - 1. Final as-built drawings and information for items listed in Section 1.04 and shall incorporate all changes made during the manufacturing process

#### 1.6 QUALIFICATIONS

A. The manufacturer of the assembly shall be the manufacturer of the major components within the assembly.

- B. For the equipment specified herein, the manufacturer shall be ISO 9001 or 9002 certified.
- C. The manufacturer of this equipment shall have produced similar electrical equipment for a minimum period of five (5) years. When requested by the Engineer, an acceptable list of installations with similar equipment shall be provided demonstrating compliance with this requirement.
- D. The SPD shall be compliant with the Restriction of Hazardous Substances (RoHS) Directive 2002/95/EC.

#### 1.7 DELIVERY, STORAGE AND HANDLING

- A. Equipment shall be handled and stored in accordance with manufacturer's instructions. One
  (1) copy of manufacturer's instructions shall be included with the equipment at time of shipment.
- 1.8 OPERATION AND MAINTENANCE MANUALS
  - A. Operation and maintenance manuals shall be provided with each SPD shipped.

#### PART 2 – PRODUCTS

- 2.1 MANUFACTURERS
  - A. Eaton Cutler-Hammer

The listing of specific manufacturers above does not imply acceptance of their products that do not meet the specified ratings, features, and functions. Manufacturers listed above are not relieved from meeting these specifications in their entirety. Products in compliance with the specification and manufactured by others not named will be considered only if pre-approved by the Engineer ten (10) days prior to bid date.

#### 2.2 VOLTAGE SURGE SUPPRESSION – GENERAL

- B. Electrical Requirements
  - 1. Unit Operating Voltage Refer to drawings for operating voltage and unit configuration.
  - 2. Maximum Continuous Operating Voltage (MCOV) The MCOV shall not be less than 125% of the nominal system operating voltage.
  - 3. The suppression system shall incorporate thermally protected metal-oxide varistors (MOVs) as the core surge suppression component for the service entrance and all other distribution levels. The system shall not utilize silicon avalanche diodes, selenium cells, air gaps, or other components that may crowbar the system voltage leading to system upset or create any environmental hazards.
  - 4. Protection Modes The SPD must protect all modes of the electrical system being utilized. The required protection modes are indicated by bullets in the following table:

	Protec	tion Mod	les	
Configuration	L-N	L-G	L-L	N-G
Wye				
Delta	N/A			N/A

Single Split Phase		
High Leg Delta		

- 5. Nominal Discharge Current  $(I_n)$  All SPDs applied to the distribution system shall have a 20kA  $I_n$  rating regardless of their SPD Type (includes Types 1 and 2) or operating voltage. SPDs having an  $I_n$  less than 20kA shall be rejected.
- 6. ANSI/UL 1449 3rd Edition Voltage Protection Rating (VPR) The maximum ANSI/UL 1449 3rd Edition VPR for the device shall not exceed the following:

Modes	208Y/120	480Y/277	600Y/347
L-N; L-G; N-G	700	1200	1500
L-L	1200	2000	3000

#### C. SPD Design

- Maintenance Free Design The SPD shall be maintenance free and shall not require any user intervention throughout its life. SPDs containing items such as replaceable modules, replaceable fuses, or replaceable batteries shall not be accepted. SPDs requiring any maintenance of any sort such as periodic tightening of connections shall not be accepted. SPDs requiring user intervention to test the unit via a diagnostic test kit or similar device shall not be accepted.
- Balanced Suppression Platform The surge current shall be equally distributed to all MOV components to ensure equal stressing and maximum performance. The surge suppression platform must provide equal impedance paths to each matched MOV. Designs incorporating replaceable SPD modules shall not be accepted.
- Electrical Noise Filter Each unit shall include a high-performance EMI/RFI noise rejection filter. Noise attenuation for electric line noise shall be up to 50 dB from 10 kHz to 100 MHz using the MIL-STD-220A insertion loss test method. Products unable able to meet this specification shall not be accepted.
- 4. Internal Connections No plug-in component modules or printed circuit boards shall be used as surge current conductors. All internal components shall be soldered, hardwired with connections utilizing low impedance conductors.
- 5. Monitoring Diagnostics Each SPD shall provide the following integral monitoring options:
  - a. Protection Status Indicators Each unit shall have a green / red solid-state indicator light that reports the status of the protection on each phase.
    - i. For wye configured units, the indicator lights must report the status of all protection elements and circuitry in the L-N and L-G modes. Wye configured units shall also contain an additional green / red solid-state indicator light that reports the status of the protection elements and circuitry in the N-G mode. SPDs that indicate only the status of the L-N and L-G modes shall not be accepted.
    - ii. For delta configured units, the indicator lights must report the status of all protection elements and circuitry in the L-G and L-L modes.
    - iii. The absence of a green light and the presence of a red light shall indicate that damage has occurred on the respective phase or mode. All protection status indicators must indicate the actual status of the protection on each phase or mode. If power is removed from any one phase, the indicator lights must continue to indicate the status of the protection on all other phases and protection modes. Diagnostics packages that simply indicate whether power is present on a particular phase shall not be accepted.

- b. Remote Status Monitor The SPD must include Form C dry contacts (one NO and one NC) for remote annunciation of its status. Both the NO and NC contacts shall change state under any fault condition.
- c. Audible Alarm and Silence Button The SPD shall contain an audible alarm that will be activated under any fault condition. There shall also be an audible alarm silence button used to silence the audible alarm after it has been activated.
- d. ∃Surge Counter The SPD shall be equipped with an LCD display that indicates to the user how many surges have occurred at the location. The surge counter shall trigger each time a surge event with a peak current magnitude of a minimum of 50 ± 20A occurs. A reset pushbutton shall also be standard, allowing the surge counter to be zeroed. The reset button shall contain a mechanism to prevent accidental resetting of the counter via a single, short-duration button press. In order to prevent accidental resetting, the surge counter reset button shall be depressed for a minimum of 2 seconds in order to clear the surge count total.
  - i. The ongoing surge count shall be stored in non-volatile memory. If power to the SPD is completely interrupted, the ongoing count indicated on the surge counter's display prior to the interruption shall be stored in non-volatile memory and displayed after power is restored. The surge counter's memory shall not require a backup battery in order to achieve this functionality.
- 6. Overcurrent Protection
  - a. The unit shall contain thermally protected MOVs. These thermally protected MOVs shall have a thermal protection element packaged together with the MOV in order to achieve overcurrent protection of the MOV. The thermal protection element shall disconnect the MOV(s) from the system in a fail-safe manner should a condition occur that would cause them to enter a thermal runaway condition.
- Fully Integrated Component Design All of the SPD's components and diagnostics shall be contained within one discrete assembly. SPDs or individual SPD modules that must be ganged together in order to achieve higher surge current ratings or other functionality shall not be accepted.
- 8. Safety Requirements
  - a. The SPD shall minimize potential arc flash hazards by containing no user serviceable / replaceable parts and shall be maintenance free. SPDs containing items such as replaceable modules, replaceable fuses, or replaceable batteries shall not be accepted. SPDs requiring any maintenance of any sort such as periodic tightening of connections shall not be accepted. SPDs requiring user intervention to test the unit via a diagnostic test kit or similar device shall not be accepted.
  - b. SPDs designed to interface with the electrical assembly via conductors shall require no user contact with the inside of the unit. Such units shall have any required conductors be factory installed.
  - c. Sidemount SPDs shall be factory sealed in order to prevent access to the inside of the unit. Sidemount SPDs shall have factory installed phase, neutral, ground and

remote status contact conductors factory installed and shall have a pigtail of conductors protruding outside of the enclosure for field installation.

#### 2.3 SYSTEM APPLICATION

- A. The SPD applications covered under this section include distribution and branch panel locations, busway, motor control centers (MCC), switchgear, and switchboard assemblies. All SPDs shall be tested and demonstrate suitability for application within ANSI/IEEE C62.41 Category C, B, and A environments.
- B. Surge Current Capacity The minimum surge current capacity the device is capable of withstanding shall be as shown in the following table:

Minimum su	irge current capacity based on ANSI / IEEE	C62.41 locatio	n category
Category	Application	Per Phase	Per Mode
С	Service Entrance Locations	250 kA	125 kA
	(Switchboards, Switchgear, MCC, Main		
	Entrance)		
В	High Exposure Roof Top Locations	160 kA	80 kA
	(Distribution Panelboards)		
А	Branch Locations (Panelboards, MCCs,	120 kA	60 kA
	Busway)		

C. SPD Type – all SPDs installed on the line side of the service entrance disconnect shall be Type 1 SPDs. All SPDs installed on the load side of the service entrance disconnect shall be Type 1 or Type 2 SPDs.

#### 2.4 LIGHTING AND DISTRIBUTION PANELBOARD REQUIREMENTS

- A. The SPD application covered under this section includes lighting and distribution panelboards. The SPD units shall be tested and demonstrate suitability for application within ANSI/IEEE C62.41 Category B environments.
  - 1. The SPD shall not limit the use of through-feed lugs, sub-feed lugs, and sub-feed breaker options.
  - SPDs shall be installed immediately following the load side of the main breaker. SPDs installed in main lug only panelboards shall be installed immediately following the incoming main lugs.
  - 3. The panelboard shall be capable of re-energizing upon removal of the SPD.
  - 4. The SPD shall be interfaced to the panelboard via a direct bus bar connection. Alternately, an SPD connected to a 30A circuit breaker for disconnecting purposes may be installed using short lengths of conductors as long as the conductors originate integrally to the SPD. The SPD shall be located directly adjacent to the 30A circuit breaker.
  - 5. The SPD shall be included and mounted within the panelboard by the manufacturer of the panelboard.
  - 6. The SPD shall be of the same manufacturer as the panelboard.
  - 7. The complete panelboard including the SPD shall be UL67 listed.
- B. Sidemount Mounting Applications Installation (SPD mounted external to electrical assembly)
  1. Lead length between the breaker and suppressor shall be kept as short as possible to
  - ensure optimum performance. Any excess conductor length shall be trimmed in order to

minimize let-through voltage. The installer shall comply with the manufacturer's recommended installation and wiring practices.

- C. Switchgear, Switchboard, MCC and Busway Requirements
  - 1. The SPD application covered under this section is for switchgear, switchboard, MCC, and busway locations. Service entrance located SPDs shall be tested and demonstrate suitability for application within ANSI/IEEE C62.41 Category C environments.
  - 2. The SPD shall be of the same manufacturer as the switchgear, switchboard, MCC, and busway
  - 3. The SPD shall be factory installed inside the switchgear, switchboard, MCC, and/or bus plug at the assembly point by the original equipment manufacturer
  - 4. Locate the SPD on the load side of the main disconnect device, as close as possible to the phase conductors and the ground/neutral bar.
  - 5. The SPD shall be connected through a disconnect (30A circuit breaker). The disconnect shall be located in immediate proximity to the SPD. Connection shall be made via bus, conductors, or other connections originating in the SPD and shall be kept as short as possible.
  - 6. The SPD shall be integral to switchgear, switchboard, MCC, and/or bus plug as a factory standardized design.
  - 7. All monitoring and diagnostic features shall be visible from the front of the equipment.

#### 2.5 ENCLOSURES

- A. All enclosed equipment shall have NEMA 1 general purpose enclosures, unless otherwise noted. Provide enclosures suitable for locations as indicated on the drawings and as described below:
  - NEMA 1 Constructed of a polymer (units integrated within electrical assemblies) or steel (sidemount units only), intended for indoor use to provide a degree of protection to personal access to hazardous parts and provide a degree of protection against the ingress of solid foreign objects (falling dirt).
  - 2. NEMA 4 Constructed of steel intended for either indoor or outdoor use to provide a degree of protection against access to hazardous parts; to provide a degree of protection of the equipment inside the enclosure against ingress of solid foreign objects (dirt and windblown dust); to provide a degree of protection with respect to the harmful effects on the equipment due to the ingress of water (rain, sleet, snow, splashing water, and hose directed water); and that will be undamaged by the external formation of ice on the enclosure. (sidemount units only)
  - 3. NEMA 4X Constructed of stainless steel providing the same level of protection as the NEMA 4 enclosure with the addition of corrosion protection. (sidemount units only)

#### PART 3 – EXECUTION

- 3.1 EXAMINATION
- 3.2 FACTORY TESTING
  - A. Standard factory tests shall be performed on the equipment under this section. All tests shall be in accordance with the latest version of NEMA and UL standards.

#### 3.3 INSTALLATION

A. The Contractor shall install all equipment per the manufacturer's recommendations and the contract drawings.

#### 3.4 WARRANTY

A. The manufacturer shall provide a full ten (10) year warranty from the date of shipment against any SPD part failure when installed in compliance with manufacturer's written instructions and any applicable national or local code.

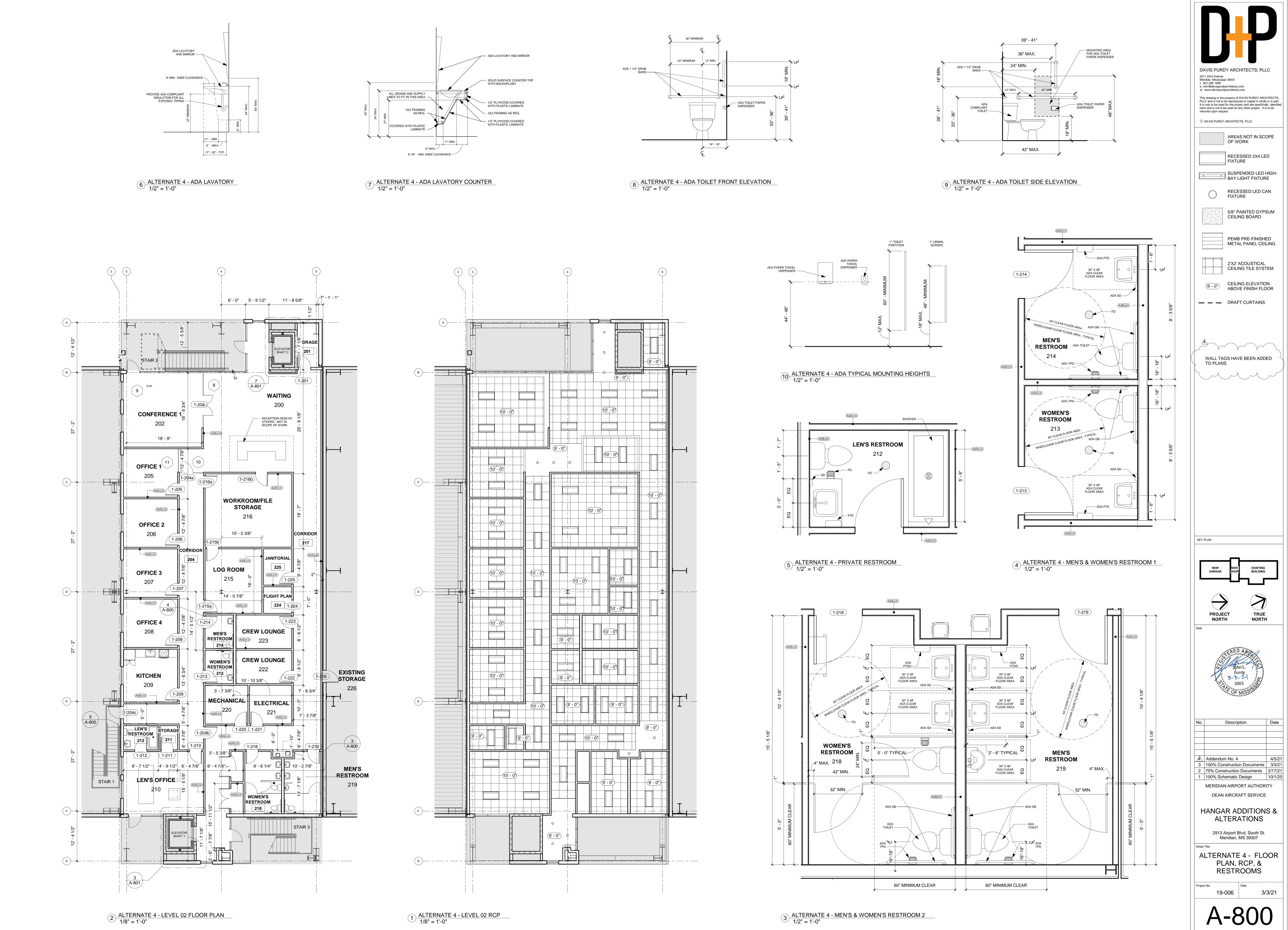
## END OF SECTION

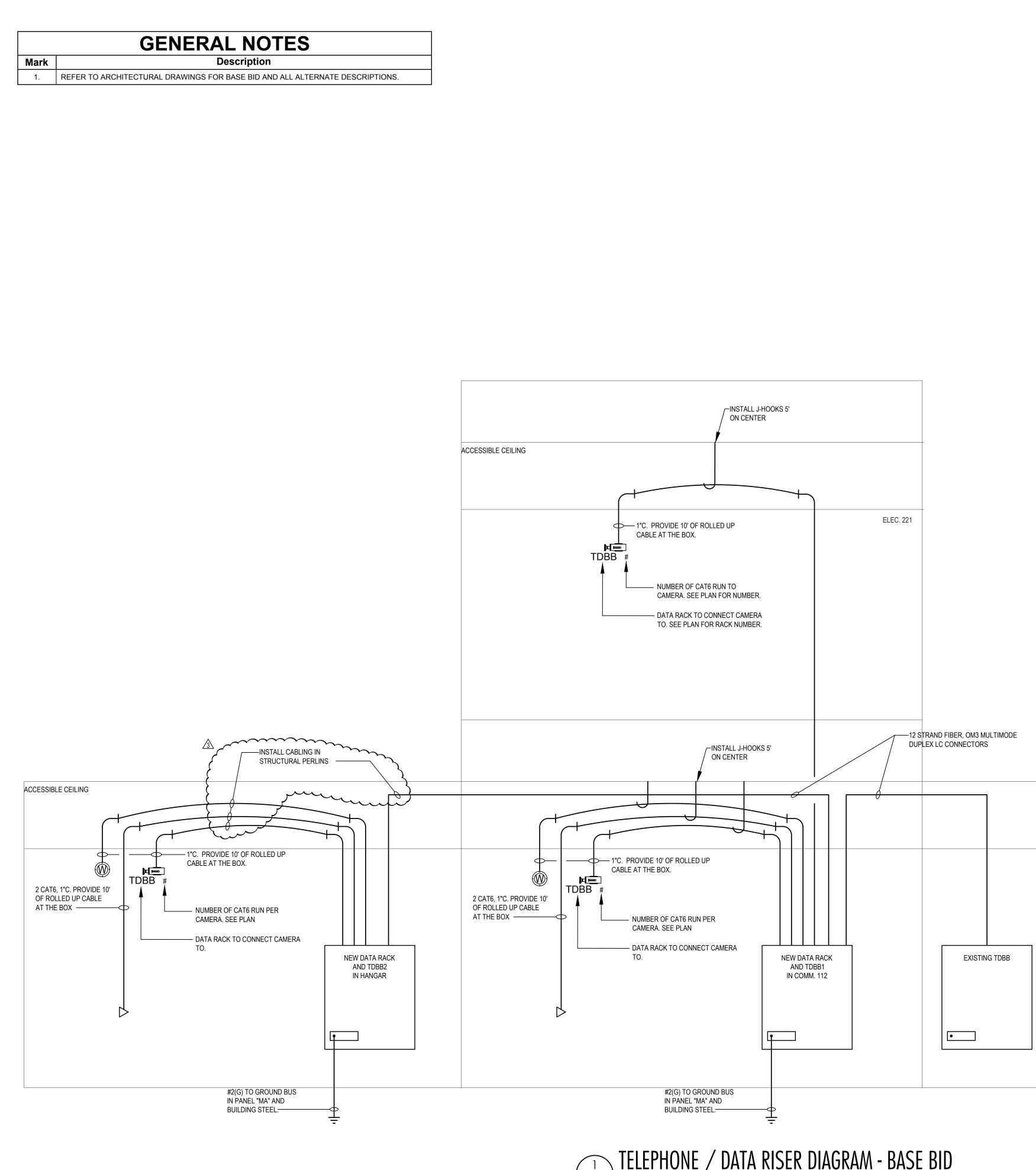
#### Dean Hangar – Addendum #2 Narrative:

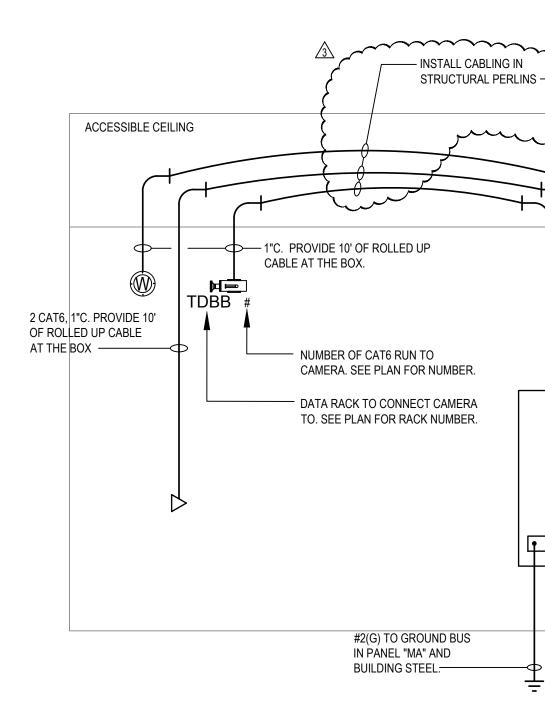
- E-000 Revised Lighting Fixture Schedule
- E-001 Modified Viewport to show General Notes
- E-002 Modified Viewport to show General Notes
- E-003 Modified Viewport to show General Notes
- E-003 Added Keyed Notes
- E-005 Modified Viewport to show General Notes
- E-005 Modified Telephone Riser Diagram Basebid and Alternate #4
- E-006 Modified Viewport to show General Notes.
- E-006 Modified Panel Schedules
- E-100 Modified Hangar Lights and Circuitry
- E-100 Modified Exit Sign Labels to show correctly
- E-100 Added Corridor Lights were none were previously shown
- E-101 Added Alternate #4 Lighting
- E-200 Added Receptacles and Circuitry for owner requested Receptacles
- E-200 Added Corridor Power were none was previously shown
- E-200 Modified Panels
- E-201 Modified Panels
- E-201 Added Alternate #4 Power
- E-300 Modified Camera Locations for owner requested Cameras and Cables
- E-301 Modified Camera Locations for owner requested Cameras and Cables
- E-301 Added Alternate #4 Auxiliary
- E-302 Modified Camera Locations for owner requested Cameras and Cables
- E-401 Added Provisions for VRF System Touch Screen
- ED-100 Added all Demolition Alternates and Devices

Dean Hangar – Addendum #4 Narrative:

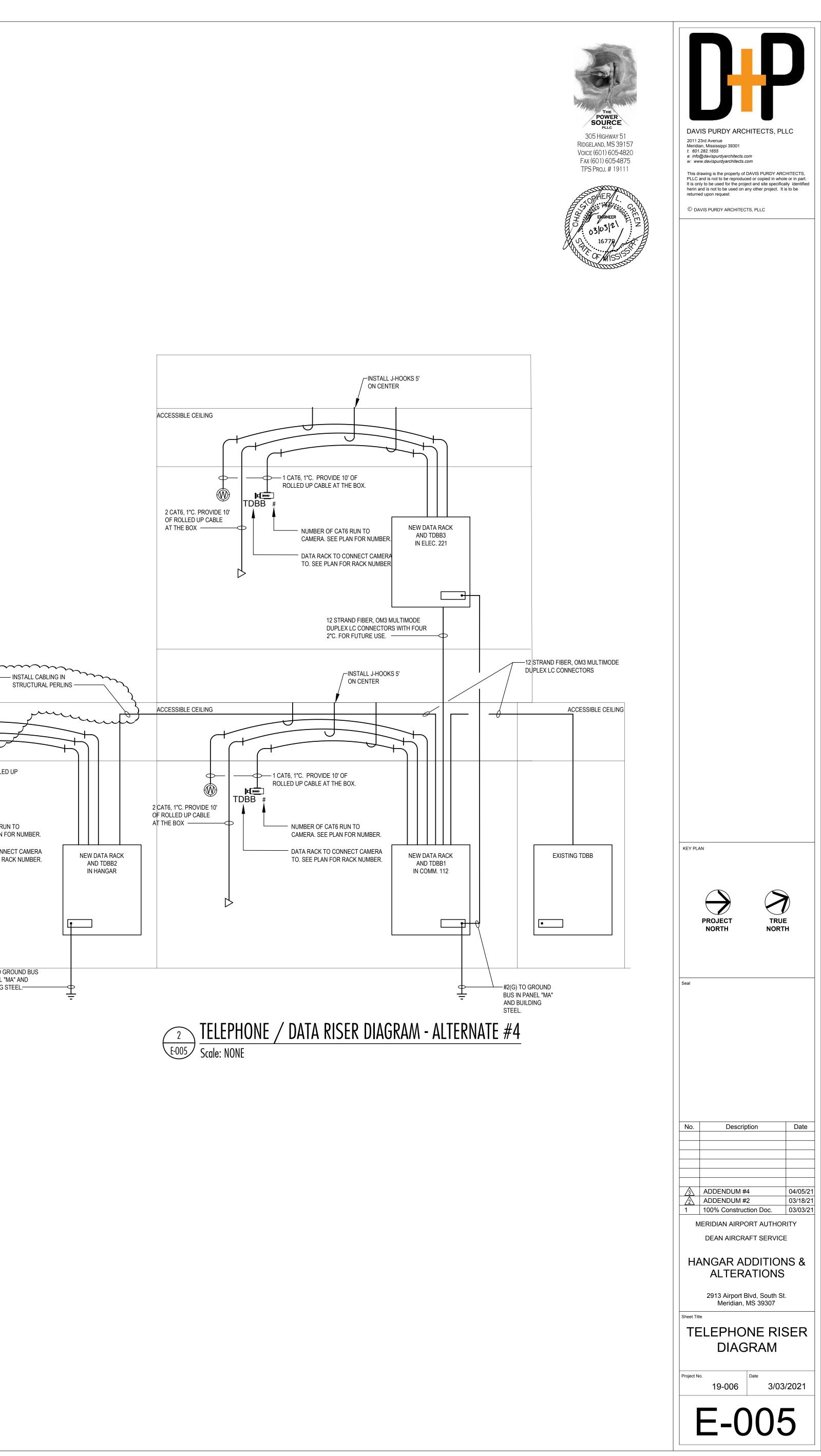
- E-005 Added Note to Clarify how to get cabling to TDBB#2 and devices.
- E-006 Modified Panel Schedules to show correct description of Elevators Locations. Added Spec attached in the Email.
- E-201 Added Location of Existing TDBB
- E-202 Removed Panel PB from Plan







# TELEPHONE / DATA RISER DIAGRAM - BASE BID Scale: NONE



		1																		
P/	NEL	LOCATION:	ELECTRICAL ROOM	LUG LOCATI	ION: BOTTOM FEED						PA	NEL	LOCATION	ELECTRICAL ROOM	LUG LOCATIO	DN: TOP FEED				
	/IA	VOLT:	208Y/120V, 3Ø, 4W	MAIN BUS:	MAIN LUGS ONL	_Y							VOLT:	208Y/120V, 3Ø, 4W	MAIN:	MAIN LUGS O	NLY			
		BUS:	400A	MOUNTING:	SURFACE		PANELBOARD AIC RATING (A):			OARD AIC RATING (A): 22,000		SEC. 2	BUS:	225A	MOUNTING:	SURFACE		PANELBOARD AIC F	RATING (A): 2	22,000
CIRCUIT	BRE	AKER	DESCRIPTION		PHASE LOAD (KV	/A)	DESCRIPTION		AKER	CIRCUIT	CIRCUIT	BRE	AKER	DECODIDITION		PHASE LOAD (	KVA)		BREAKER	R CIRCUIT
NO.	AMPS	POLES	DESCRIPTION	A	В	С	DESCRIPTION	AMPS	POLES	NO.	NO.	AMPS	POLES	DESCRIPTION	A	B	С	DESCRIPTION	AMPS PO	
1	80	3	SPARE	0.0 3	3.4		ATO	60	3	2	55	20	1	LTS (EMPTY SHOP SPACE 101 ALT #1)	1.2 0.	.0		POWER FOR ACCESS CONTROLS	20	1 56
3	-	-	-		0.0 3.4		-	-	-	4	57	20	1	LTS (EMPTY SHOP SPACE 101 ALT #1)	<u> </u>	0.9 0.5	5	LTS (EXTERIOR LIGHTING)	20	1 58
5	-	-	-			0.0 3.4	-	-	-	6	59	20	1	CONTACTOR C3 ALT #1	1		0.5 0.5	LTS (EXTERIOR LIGHTING ALT#3)	20	1 60
7	80	3	ODU-1 (ALT #2)	4.7 1	1.7		EUH-5 (ALT #2)	20	3	8	61	20	1	LTS (STORAGE 200 - ALT #1)	0.9 0.	.5		LTS (EXTERIOR LIGHTING ALT#3)	20	1 62
9	-	-	-		4.7 1.7		-	-	-	10	63	20	1	LTS (STORAGE 200 - ALT #1)	· [	0.9 0.5	5	LTS (EXTERIOR LIGHTING ALT#3)	20	1 64
11	-	-	-			4.7 1.7	-	-	-	12	65	20	1	LTS (STORAGE 200 - ALT #1)	1		0.9 0.0	SPARE	20	1 66
13	20	2	IDU-1.01 THRU IDU-1.07 (ALT #2)	1.0 1	1.7		EUH-6 (ALT #2)	20	3	14	67	20	1	PROVISIONS FOR VRF TOUCHSCREEN - ALT #3	0.5 0.	.0		SPARE	20	1 68
15	-	-	-		1.0 1.7		-	-	-	16	69	20	1	SPARE		0.0 0.0		SPARE	20	1 70
17	25	3	EWH-1 (ALT #2)			2.0 1.7	-	-	-	18	71	20	1	SPARE	1		0.0 0.0	SPARE	20	1 72
19	-	-	-	2.0 5	5.0		ODU-02a (ALT #4)	80	3	20	73	20	1	SPARE	0.0 0.	.0		SPARE	20	1 74
21	-	-	-		2.0 5.0		-	-	-	22	75	20	1	SPARE		0.0 0.0	)	SPARE	20	1 76
23	20	3	EUH-1 (ALT #2)			1.7 5.0	-	-	-	24	77	20	1	SPARE	1		0.0 0.0	SPARE	20	1 78
25	-	-	-	1.7 5			ODU-02b (ALT #4)	80	3	26	79	20	1	SPARE	0.0 0.	.0		SPARE	20	1 80
27	-	-	-		1.7 5.0		-	-	-	28	81	20	1	SPARE		0.0 0.0	)	SPARE	20	1 82
29	20	3	EUH-2 (ALT #2)			1.7 5.0	-	-	-	30	83	20	1	SPARE	1		0.0 0.0	SPARE	20	1 84
31	-	-	-	1.7 2	2.1		PROVISIONS FOR DUST COLLECTION (ALT #1)	35	3	32	85	20	1	SPARE	0.0 0.	.0		SPARE	20	1 86
33	-	-	-		1.7 2.1		-	-	-	34	87	20	1	SPARE		0.0 0.0	)	SPARE	20	1 88
35	20	3	EUH-3 (ALT #2)			1.7 2.1	-	-	-	36	89	20	1	SPARE	1		0.0 0.0	SPARE	20	1 90
37	-	-	-	1.7 0	0.0		SPARE	20	1	38	91	20	1	SPARE	0.0 0.	.0		SPARE	20	1 92
39	-	-	-		1.7 0.0		SPARE	20	1	40	93	20	1	SPARE		0.0 0.0		SPARE	20	1 94
41	20	3	EUH-4 (ALT #2)			1.7 0.0	SPARE	20	1	42	95	20	1	SPARE	1	,	0.0 0.0	SPARE	20	1 96
43	-	-	-	1.7 (			SPARE	20	1	44	97	20	1	SPARE	0.0 0.	.0		SPARE	20	1 98
45	-	-	-		1.7 0.0		SPARE	20	1	46	99	20	1	SPARE		0.0 0.0		SPARE	20	1 100
47	20	1	SPARE			0.0 0.0	SPARE	20	1	48	101	20	1	SPARE	1	,	0.0 0.0	SPARE	20	1 102
49	225	3	PANEL 'PA'	12.7 (			SPARE	20	1	50	103	20	1	SPARE	0.0 0.	.0		SPARE	20	1 104
51	-	-	-		12.3 0.0		SPARE	20	1	52	105	20	1	SPARE		0.0 0.0	)	SPARE	20	1 106
53	-	-	-			13.9 0.0	SPARE	20	1	54	107	20	1	SPARE	1		0.0 0.0	SPARE	20	1 108
TOTAL				45.8	45.5	46.1	* WITH AUXILIARY CONTACTS				TOTAL				3.1	2.8	1.9			

PA	NEL		ELECTRICAL ROOM 208Y/120V, 3Ø, 4W	LUG LOCATIC MAIN BUS:	DN: BOTTOM FEED	Y W/FEED THRU LI					PA	NEL		ELECTRICAL ROOM 208Y/120V, 3Ø, 4W		N: BOTTOM FEE	D DNLY W/FEED THRU				
MB - 3	SEC. 1	BUS:	400A	MOUNTING:	SURFACE		PANELBOARD AIC RA	TING (A)	22.000		HP - 3		VOLT: BUS:	400A	MAIN BUS: MOUNTING:	SURFACE	INLY WIFEED I HRU		D AIC RATING (A):	22,000	
CIRCUIT	BRE	EAKER			PHASE LOAD (KV	(A)		1	AKER		CIRCUIT					PHASE LOAD (	K\/Δ)			,	CIRCUIT
NO.		POLES	DESCRIPTION	A	B	С	DESCRIPTION		POLES	NO.	NO.	AMPS		DESCRIPTION	A		C	- DESCRIPTION		POLES	NO.
1	20	1	REC RECEPTION (ALT #4)	0.9 1.	1		REC STORAGE (ALT #1)	20	1	2	1	60	3	REC HANGAR	0.5 1.0	0		HANGAR DOOR	30	3	2
3	20	1	REC OFFICE 4 (ALT#4)		1.1 0.0		SPARE	20	1	4	3	-	-	-		0.5 1.0	0	-	-	-	4
5	20	1	REC OFFICE 3 (ALT#4)			1.1 1.3	REC MEN&WOMEN RTR, ELEC, MECH (ALT#4)	20	1	6	5	-	-	-	—		0.5 1.0	-	-	-	6
7	20	1	REC OFFICE 2 (ALT #4)	1.1 0.	5		DRINKING FOUNTAIN (ALT#4)	20*	1	8	7	60	3	REC HANGAR	0.5 1.0	0		HANGAR DOOR	30	3	8
9	20	1	REC OFFICE 1 (ALT#4)		1.1 0.5		DRINKING FOUNTAIN (ALT#4)	20*	1	10	9	-	-	-		0.5 1.0	0	-	-	-	10
11	20	1	REC HALL, CONFERENCE (ALT#4)			0.9 0.5	TDBB (ALT #4)	20	1	12	11	-	-	-			0.5 1.0	-	-	-	12
13	20	1	REC CONFERENCE (ALT#4)	0.4 0.	5		TDBB (ALT #4)	20	1	14	13	60	3	REC HANGAR	0.5 0.5	5		REC HANGAR	60	3	14
15	20	1	REC CONFERENCE (ALT#4)		0.2 1.1		REC LENS OFFICE (ALT #4)	20	1	16	15	-	-	-		0.5 0.5	5	-	-	-	16
17	20	1	RP-2 (ALT #4)			1.2 1.1	REC HALL, STOR, LEN RTR, KITCHEN (ALT#4)	20	1	18	17	-	-	-			0.5 0.5	-	-	-	18
19	20	1	EF-14 (ALT #4)	0.5 4.	0		REC KITCHEN RANGE (ALT#4)	50	2	20	19	20	2	REC HANGAR	0.5 0.5	5		REC HANGAR	60	3	20
21	20	2	IDU-2.01 THRU IDU-2.010 (ALT #4)		1.1 4.0		-	-	-	22	21	-	-	-		0.5 0.5	5	-	-	-	22
23	-	-	-			1.1 0.2	REC KITCHEN(ALT #4)	20	1	24	23	20	2	REC HANGAR			0.5 0.5	-	-	-	24
25	20	3	EWH-02 (ALT #4)	2.0 0.	4		REC KITCHEN (ALT#4)	20	1	26	25	-	-	-	0.5 0.5	5		REC HANGAR	60	3	26
27	-	-	-		2.0 0.8		REC KITCHEN REF. (ALT #4)	20	1	28	27	20	2	REC HANGAR		0.5 0.5	5	-	-	-	28
29	-	-	-			2.0 0.4	REC CREW LOUNGE (ALT#4)	20	1	30	29	-	-	-			0.5 0.5	-	-	-	30
31	20	2	IDU-2.11 THRU IDU-2.17 (ALT #4)	1.1 0.	5		REC CREW LOUNGE (ALT#4)	20	1	32	31	20	2	REC HANGAR	0.5 0.5	5		REC HANGAR	60	3	32
33	-	-	-		1.1 0.5		REC CREW LOUNGE (ALT#4)	20	1	34	33	-	-	-		0.5 0.5	5	-	-	-	34
35	20	1	MOTORIZED DAMPERS (ALT #4)			0.5 0.2	REC CREW LOUNGE (ALT#4)	20	1	36	35	20	1	REC HANGAR			0.7 0.5	-	-	-	36
37	20	1	MOTORIZED DAMPERS (ALT #4)	0.5 0.	4		REC CREW LOUNGE (ALT#4)	20	1	38	37	20	1	REC HANGAR	0.4 0.4	5		REC HANGAR	60	3	38
39	15	2	BS 2.1 & BS2.2 (ALT #4)		0.2 0.7		REC FLIGHT PLAN (ALT #4)	20	1	40	39	20	1	REC HANGAR		0.2 0.5	5	-	-	-	40
41	-	-	-			0.2 0.7	REC LOG ROOM (ALT#4)	20	1	42	41	20	1	REC HANGAR			0.4 0.5	-	-	-	42
43	20	1	LTS (ELEC. 221, MECH 220 ETC. ALT #4)	1.2 0.	7		REC LOG ROOM (ALT#4)	20	1	44	43	20	1	REC HANGAR	0.4 0.4	5		REC HANGAR	60	3	44
45	20	1	LTS (CORR 217, MENS RR 219 ETC. ALT #4)		1.2 0.7		REC WORKROOM (ALT#4)	20	1	46	45	20	1	REC HANGAR		0.2 0.5	5	-	-	-	46
47	20	1	LTS (WAITING 200, CONF 1 202, ETC ALT #4)			0.7 0.7	REC WORKROOM (ALT#4)	20	1	48	47	20	1	REC HANGAR			0.2 0.5	-	-	-	48
49	20	1	POWER FOR ACCESS CONTROLS	0.5 0.	7		REC WORKROOM (ALT#4)	20	1	50	49	20	1	REC HANGAR	0.4 0.4	5		REC HANGAR	60	3	50
51	20	1	POWER FOR ACCESS CONTROLS		0.5 0.2		REC WORKROOM (ALT#4)	20	1	52	51	20	2	REC HANGAR (ALT #2)		0.5 0.4	5	-	-	-	52
53	20	1	PROVISIONS FOR VRF TOUCHSCREEN - ALT #4			0.5 0.7	REC WORKROOM (ALT#4)	20	1	54	53	-	-	-			0.5 0.5	-	-	-	54
TOTAL				16.9	17.0	13.9	* GFCI BREAKER				TOTAL				9.6	9.4	9.8	* GFCI BREAKER			

	ELECTRICAL ROOM	LUG LOCATIO							PA	NEL			LUG LOCATION: MAIN <sup>:</sup>			0			
	208Y/120V, 3Ø, 4W 400A	MAIN: MOUNTING:	MAIN LUGS ONL SURFACE	_Y	PANELBOARD A		22,000		HP - \$	SEC. 2	VOLT: BUS:	208Y/120V, 3Ø, 4W 400A	MAIN: MOUNTING:	SURFACE	WIFEED THRU LUG	PANELBOARD AN	RATING (A)	22,000	
B00:	400A				PANELBOARD A				CIRCUIT	BRE/				HASE LOAD (KVA			BREAK	,	
	DESCRIPTION	A	PHASE LOAD (KV	(A)	DESCRIPTION		AKER POLES	CIRCUIT	NO.	AMPS		DESCRIPTION	Δ	RASE LOAD (RVA		DESCRIPTION	AMPS	-	NO.
NO. AMPS POLES		A					PULES	NO.			2	REC HANGAR (ALT #2)				REC HANGAR (ALT #2)			56
55 20 1	SPARE	0.0 0.0		_	SPARE	20	1	56	55 57	20	Z	REC HANGAR (ALT #2)	0.5 0.5			REC HANGAR (ALT #2)	60		58
57 20 1	SPARE		0.0 0.0		SPARE	20	1	58	57	- 20	-		_	0.5 0.5	0.0 0.5	-		-	60
59 20 1	SPARE			0.0 0.0	SPARE	20	1	60	59 61	20	1			-	0.2 0.5		-	-	60
61 20 1	SPARE	0.0 0.0			SPARE	20	1	62			1	REC HANGAR DRINK FOUNTIAN (ALT #2)	0.5 0.5			REC HANGAR (ALT #2)	60		62
63 20 1	SPARE		0.0 0.0		SPARE	20	1	64	63	20*	1	REC HANGAR DRINK FOUNTIAN (ALT #2)		0.5 0.5		-	-	-	
65 20 1	SPARE			0.0 0.0	SPARE	20	1	66	65	20	1	REC HANGAR (ALT #2)		-	0.2 0.5	-	-	-	66
67 20 1	SPARE	0.0 0.0			SPARE	20	1	68	67	20	1	EXTERIOR HANGAR LIGHTS	1.2 1.6			HVLS-1	20	2	68
69 20 1	SPARE		0.0 0.0		SPARE	20	1	70	69	20	1	EXTERIOR HANGAR LIGHTS		1.2 1.6		-	-	-	70
71 20 1	SPARE			0.0 0.0	SPARE	20	1	72	71	20	1	EXTERIOR HANGAR LIGHTS	_		1.2 1.6	HVLS-2	20	2	72
73 20 1	SPARE	0.0 0.0			SPARE	20	1	74	73	60	3	WASH STATION RECEPTACLE	0.5 1.6			-	-	-	74
75 20 1	SPARE		0.0 0.0		SPARE	20	1	76	75	-	-	-		0.5 0.0		FIRE ALARM BELL	20	1	76
77 20 1	SPARE			0.0 0.0	SPARE	20	1	78	77	-	-	-			0.5 0.5	REC TDBB2	20	1	78
79 20 1	SPARE	0.0 0.0	)		SPARE	20	1	80	79	20	1	WASH STATION RECEPTACLE	0.2 0.5			REC TDBB2	20	1	80
81 20 1	SPARE		0.0 0.0		SPARE	20	1	82	81	20	1	LTS (HANGAR 100)		1.1 1.1		LTS (HANGAR 100)	20	1	82
83 20 1	SPARE			0.0 0.0	SPARE	20	1	84	83	20	1	LTS (HANGAR 100)			1.1 1.1	LTS (HANGAR 100)	20	1	84
85 20 1	SPARE	0.0 0.0	)		SPARE	20	1	86	85	20	1	LTS (HANGAR 100)	1.1 1.1			LTS (HANGAR 100)	20	1	86
87 20 1	SPARE		0.0 0.0		SPARE	20	1	88	87	20	1	LTS (HANGAR 100)		1.1 1.1		LTS (HANGAR 100)	20	1	88
89 20 1	SPARE			0.0 0.0	SPARE	20	1	90	89	20	1	LTS (HANGAR 100)			1.1 0.5	REC HANGAR	60	3	90
91 20 1	SPARE	0.0 0.0	)		SPARE	20	1	92	91	20	1	LTS (HANGAR 100)	1.1 0.5	1		-	-	-	92
93 20 1	SPARE		0.0 0.0		SPARE	20	1	94	93	20	1	LTS (HANGAR 100)		1.1 0.5		-	-	-	94
95 20 1	SPARE			0.0 0.0	SPARE	20	1	96	95	20	1	LTS (HANGAR 100)			1.1 0.5	REC HANGAR	20	2	96
97 20 1	SPARE	0.0 0.0	)		SPARE	20	1	98	97	20	1	LTS (HANGAR 100)	1.1 0.5	1	· · · · · · · · · · · · · · · · · · ·	-	-	-	98
99 20 1	SPARE		0.0 0.0		SPARE	20	1	100	99	20	1	LTS (HANGAR 100)		1.1 1.7		AIR DRYER	30	2	100
101 110* 3	WEST ELEVATOR (ALT #1)			9.4 11.0	EAST ELEVATOR	125*	3	102	101	20	1	CONTACTOR C1			0.5 1.7	-	-	-	102
103	-	9.4 11.	0		-	-	-	104	103	150	3	SPARE	0.0 11.1		'	AIR COMPRESSOR	150	3	104
105	-		9.4 11.0		-		-	106	105	-	-	-		0.0 11.1		-	-	-	106
107	SHUNT TRIP COIL			0.0 0.0	SHUNT TRIP COIL			108	107	-	-	-	1		0.0 11.1	-	-	-	108
TOTAL		20.4	20.4	20.4	* WITH AUXILIARY CONTACTS				TOTAL		I		24.0	25.0	23.7 * G	GFCI BREAKER			

PA	NEL		ELECTRICAL ROOM		N: BOTTOM FEED				PA	ANEL	LOCATION:	ELECTRICAL ROOM	LUG LOCATION	I: BOTTOM FEED				
PA - S	SEC 1	VOLT:	208Y/120V, 3Ø, 4W	MAIN BUS:		LY W/FEED THRU L			ЦВ	SEC. 3	VOLT:	,,	MAIN:	MAIN LUGS ONL	Y			
		BUS:	225A	MOUNTING:	SURFACE		PANELBOARD AIC RA			SEC. 5	BUS:	400A	MOUNTING:	SURFACE		PANELBOARD	AIC RATING (A):	22,000
CIRCUIT		AKER	DESCRIPTION		PHASE LOAD (K	VA)	DESCRIPTION	BREAKER CIRCUIT	CIRCUIT	BRE	AKER	DESCRIPTION		PHASE LOAD (KV/	۹)	DESCRIPTION	BRE/	AKER CIRCUIT
NO.	AMPS	POLES		A	B	C		AMPS POLES NO.	NO.	AMPS	POLES	DESCRIPTION	A	В	С	DESCRIPTION	AMPS	POLES NO.
	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	$\sim 1$	RECLAUNDRY (ALT#2)	0.2 0.4			REC EMPTY SHOP	20 1 2	109	60	3	REC HANGAR	0.5 0.5			REC HANGAR	60	3 110
3	20	1	WEST ELEVATOR - SUMP PUMP (ALT #1)	2	0.5 0.2		REC EMPTY SHOP	20 1 4	111	-	-	-		0.5 0.5		-	-	- 112
5	20	1	WEST ELEVATOR - PIT AND HOISTWAY LIGHTS (ALT #4)	$\mathbb{R}$		0.5 0.2	REC EMPTY SHOP	20 1 6	113	-	-	-			0.5 0.5	-	-	- 114
7	20	1	WEST ELEVATOR - CONTROL PANEL (ALT #4)	0.5 0.2	2		REC EMPTY SHOP	20 1 8	115	60	3	REC HANGAR	0.5 0.5			REC HANGAR	60	3 116
9	20	1	WEST ELEVATOR - CAB LIGHTS (ALT #4)	5	0.5 1.5		DOOR MOTOR - EQUIPMENT (ALT #2)	20 1 10	117	-	-	-		0.5 0.5		-	-	- 118
11	20	1	EAST ELEVATOR - SUMP PUMP (ALT #1)	2		0.5 1.5	DOOR MOTOR - EQUIPMENT (ALT #2)	20 1 12	119	-	-	-			0.5 0.5	-	-	- 120
13	20	1	EAST ELEVATOR - PIT AND HOISTWAY LIGHTS (ALT #4)	0.5 0.4			REC EQUIPMENT (ALT #2)	20 1 14	121	60	3	REC HANGAR	0.5 0.5			REC HANGAR	20	2 122
15	20	1	EAST ELEVATOR - CONTROL PANEL (ALT #4)	K	0.5 0.4		REC EQUIPMENT (ALT #2)	20 1 16	123	-	-	-		0.5 0.5		-	-	- 124
17	20	1	EAST ELEVATOR - CAB LIGHTS (ALT #4)	5		0.5 0.5	REC MENS RTR, UNISEX 1&2 (ALT #2)	20 1 18	125	-	-	-			0.5 0.0	SPARE	20	1 126
	~_20~	Angen	EF-1 & EF-2	0.5 0.2			REC SANDING ROOM (ALT #2)	20 1 20	127	20	2	REC HANGAR	0.5 0.0			SPARE	20	1 128
21	20	1	EF-3 (ALT #2)		0.5 0.2		REC WASH ROOM (ALT #2)	20 1 22	129	-	-	-		0.5 0.0		SPARE	20	1 130
23	20	1	EF-7 & SF-1(ALT #2)			1.0 0.4	REC MACHINE SHOP (ALT #2)	20 1 24	131	20	1	SPARE			0.0 0.0	SPARE	20	1 132
25	20	1	EF-8 (ALT #2)	0.5 0.4			REC MACHINE SHOP (ALT #2)	20 1 26	133	20	1	SPARE	0.0 0.0			SPARE	20	1 134
27	20	1	PROVISIONS FOR BAS		0.5 0.4		REC MACHINE SHOP (ALT #2)	20 1 28	135	20	1	SPARE		0.0 0.0		SPARE	20	1 136
29	20	1	RP-1 (ALT #2)			1.2 0.2	REC MACHINE SHOP (ALT #2)	20 1 30	137	20	1	SPARE			0.0 0.0	SPARE	20	1 138
31	20	1	MOTORIZED DAMPERS (ALT #2)	0.5 1.5			DOOR MOTOR - MACHINE SHOP (ALT #2)	20 1 32	139	20	1	SPARE	0.0 0.0			SPARE	20	1 140
33	20	1	REC EMPTY SHOP		0.4 0.7		REC PARTS (ALT #2)	20 1 34	141	20	1	SPARE		0.0 0.0		SPARE	20	1 142
35	20	1	REC EMPTY SHOP			0.4 1.1	REC PARTS (ALT #2)	20 1 36	143	20	1	SPARE			0.0 0.0	SPARE	20	1 144
37	20	1	REC EMPTY SHOP	0.4 0.4			REC PARTS (ALT #2)	20 1 38	145	20	1	SPARE	0.0 0.0			SPARE	20	1 146
39	20	1	LTS (ELEC 110, LAUNDRY 109, ETC. ALT #2)		1.3 0.4		REC PARTS (ALT #2)	20 1 40	147	20	1	SPARE		0.0 0.0		SPARE	20	1 148
41	20	1	LTS (MACHINE SHOP 107, ETC. ALT #2)			0.9 0.4	REC PARTS (ALT #2)	20 1 42	149	20	1	SPARE			0.0 0.0	SPARE	20	1 150
43	20	1	LTS (EQUIPMENT 101, ETC. ALT #2)	1.4 0.2			REC PARTS (ALT #2)	20 1 44	151	20	1	SPARE	0.0 0.0			SPARE	20	1 152
45	20	1	CONTACTOR C2		0.5 0.2		DOOR MOTOR - PARTS (ALT #2)	20 1 46	153	20	1	SPARE		0.0 0.0		SPARE	20	1 154
47	20	1	LTS (EMPTY SHOP SPACE 101)			1.5 0.5	REC ELECTRICAL (ALT #2)	20 1 48	155	20	1	SPARE			0.0 0.0	SPARE	20	1 156
49	20	1	LTS (EMPTY SHOP SPACE 101)	1.1 0.5			REC ELECTRICAL (ALT #2)	20 1 50	157	20	1	SPARE	0.0 0.0			SPARE	20	1 158
51	20	1	LTS (EMPTY SHOP SPACE 101)		1.1 0.0		REC LAUNDRY (ALT #2)	30 2 52	159	20	1	SPARE		0.0 0.0		SPARE	20	1 160
53	20	1	LTS (EMPTY SHOP SPACE 101 ALT #1)			0.9 0.0	-	54	161	20	1	SPARE			0.0 0.0	SPARE	20	1 162
TOTAL				9.6	9.6	12.0			TOTAL				3.5	3.5	2.5	* GFCI BREAKER		(





