

**DALLAS/FORT WORTH INTERNATIONAL AIRPORT  
DESIGN, CODE AND CONSTRUCTION DEPARTMENT**

**ADDENDUM NO. 3  
FOR**

**LIFE SAFETY UPGRADE OF FLIGHT SERVICES FACILITY AND EXECUTIVE  
CONFERENCE ROOM IN TERMINAL A**

**CONTRACT NO. 9500634**

**July 24, 2018**

The Request for Bids for the above is hereby revised as follows:

**Technical Specification Revisions**

1. Package A – Section 00 01 10 Table of Contents is revised as detailed below and replaced with the attached, dated July 23, 2018.
  - a. Revised to acknowledge changes from this Addendum No.3.
2. Package A – 01 11 00 Summary of Work is revised as detailed below and replaced with the attached, dated July 23, 2018.
  - a. Added detail on Fire Watch requirements.
3. Package A – 28 46 21.11 Addressable Fire Alarm Systems is revised as detailed below and replaced with the attached, dated July 23, 2018.
  - a. Added detail on the manufacturer requirements of the Fire Alarm System.
4. Package B – Section 00 01 10 Table of Contents is revised as detailed below and replaced with the attached, dated July 23, 2018.
  - a. Revised to acknowledge changes from this Addendum No.3.
5. Package B – 01 11 00 Summary of Work is revised as detailed below and replaced with the attached, dated July 23, 2018.
  - a. Added detail on Fire Watch requirements.
6. Package B – 28 46 21.11 Addressable Fire Alarm Systems is revised as detailed below and replaced with the attached, dated July 23, 2018.
  - a. Added detail on the manufacturer requirements of the Fire Alarm System.
  - b.

**Plan Sheet Revisions**

1. N/A

**Schedule Revisions**

1. Bid Opening is revised from July 27, 2018 1:00pm to August 3, 2018 1:00pm.

### **Request for Bids Revisions**

1. Appendix 1 – Bid Detail is replaced with the attached and revised as detailed below:
  - a. Paragraph 14) is revised to include acknowledgement of this Addendum No.3.
2. Appendix 8 – Solicitation Schedule is replaced with the attached and revised as detailed above in Schedule Revisions.

### **Solicitation Questions (Q) and Answers (A)**

1. (Q) Will we be replacing all Gypsum Board Ceilings in the denoted areas or repairing only what is required to be adjusted to facilitate the Sprinkler System installation?  
  
(A) As indicated on the drawings: For the Executive conference room (package B) all gypboard ceilings are to be replaced (see B-AI-1.51) alternatively in the Flight Services Area (package A) repair as required to facilitate system adjustments, except the area around the skylight glazing that is indicated to be demolished and replaced.
2. (Q) Will all 2x2 and 2x4 acoustical ceiling tiles be replaced or are we just replacing the fabric covered acoustical ceiling panels noted on overall RCP 1.51?  
  
(A) As indicated on the Drawings: For the Executive conference room all 2x2 and 2x4 tile is being replaced; see Legend on B-AI-1.51 and following drawings.

## Appendix 1 – Bid Detail

**Contract No. 9500634**

### **Life Safety Upgrade of Flight Services Facility and Executive Conference Room in Terminal A**

- 1) This is a solicitation for bids on the construction of the project detailed in the contract documents of Appendix 5 – The Agreement. The Contractor shall be responsible for reviewing all existing conditions associated with the work prior to commencement of work activities.
- 2) The Board reserves the right to reject any bid for any reason, including if, on the face of the bid received, it is clear that acceptance of the bid would not comply with any applicable bidding laws, rules, or regulations.
- 3) The undersigned Contractor, declares that the only person or parties interested in this Bid as principals are those named herein; that this Bid is made without collusion with any other person, firm, or corporation; that he has carefully examined the Bid Requirements, all incorporated references and Appendices, and the conditions and classes of materials of the Work; and will provide all the necessary supervision, labor, machinery, tools, supplies, equipment, transportation and other facilities, apparatus, and other means of construction and will do all the Work and furnish all the materials called for by such, in the manner prescribed therein and according to the requirements therein set forth, and to perform all other obligations imposed by the Contract Documents for the prices named in the Bid Schedule hereinafter appearing.
- 4) It is understood and agreed that if awarded the Contract, the Work will commence within ten (10) calendar days after the date of the Notice to Proceed and that the total Work will be completed in accordance with the Schedule of Construction set forth herein.
- 5) It is further understood that the Prevailing Wage Rates TX180322 revised 01/12/2018, issued by the Department of Labor as established by law are to govern the Work. The Contractor certifies that he has examined the wage rate determination and that prices bid are based on compliance with said determination.
- 6) Accompanying this Bid is the required Bid Guaranty consisting of Bid Bond or Cashiers' Check in the amount of five percent (5%) of the total Bid, or in the case of bid alternates, five percent (5%) of the highest total Bid. The certified check accompanying a Bid shall be returned to the Contractor upon execution of the Contract.
- 7) In the event of the award of a Contract, the undersigned will deposit with the Board a Contract Performance Bond and a Payment Bond as required by the Contract Documents, guarantying faithful performance of the Contract, and any payment of all labor, materials and other sundry items, in accordance with the Contract Documents, and will deliver certificates of insurance evidencing insurance required by the Contract Documents.
- 8) The Work proposed to be done shall be fully completed and finished to the entire satisfaction of the Board.
- 9) The undersigned certifies that the price contained in this Bid has been carefully reviewed and is submitted as correct and final.
- 10) In conformity with the Special Provisions, the amount of liquidated damages for this Contract shall be as shown in Article 1.0, of the Special Provisions.
- 11) Ancillary/Integral Professional Services – Contractor certifies that in selecting an architect, engineer or land surveyor, etc., to provide professional services, if any, that are required by the specifications, Contractor shall not do so on the basis of competitive bids but shall make such selection on the basis of demonstrated competence and qualifications to perform the services in the manner provided by Section 2254-004 of the Texas Government Code.
- 12) Certification of compliance with the provisions of Section 2254-004 of the Texas Government Code:(initial here)\_\_\_\_\_

13) Certificate Regarding Debarment And Suspension – By submitting a bid/proposal under this solicitation, the Contractor or offeror certifies that at the time the Contractor or offeror submits its bid/proposal that neither it nor its principals are presently debarred or suspended by any Federal department or agency from participation in this transaction.

14) Receipt is hereby acknowledged of the following Addenda to the Contract Documents:

Addendum No. 1 Date Received	<u>07/12/18</u>	Ack. By	_____
Addendum No. 2 Date Received	<u>07/18/18</u>	Ack. By	_____
Addendum No. 3 Date Received	<u>07/24/18</u>	Ack. By	_____
Addendum No. 4 Date Received	_____	Ack. By	_____
Addendum No. 5 Date Received	_____	Ack. By	_____

**15) Summary of Bid**

- a. **Base Bid** – Contractor agrees to construct **Contract No. 9500634, Life Safety Upgrade of Flight Services Facility and Executive Conference Room in Terminal A**, in accordance with the contract terms, plans and specifications and to complete the work within one hundred and twenty (120) consecutive calendar days for substantial completion, with an additional sixty (60) consecutive calendar days for final completion, from the date set forth in the Notice to Proceed for the following lump sum amount:

BASE BID PRICE: \_\_\_\_\_

\_\_\_\_\_ DOLLARS and \_\_\_\_/100 \$ \_\_\_\_\_.

**Separate Cost Breakdown (for Tax Exemption Information)**

Materials to be Incorporated .....	\$ _____
All Other Costs .....	\$ _____
Total Base Bid .....	\$ _____

**TOTAL BID Detail**

Total Base Bid .....	\$ _____
Pre-Defined Allowances .....	\$ 220,000.00
<b>TOTAL BID .....</b>	<b>\$ _____</b>

16) The contract, if awarded, shall be to the lowest responsive, responsible Contractor whose bid, conforming with all materials terms and conditions of the invitation for bids, is the lowest in price.

17) When alternates are used, the Board reserves the right to Contract for any combination of Base and or Alternates stated, or none of the above. Contractor must bid on the base and all alternates. Bids addressing only the base or alternate items will be considered non-responsive.

18) The Contractor shall complete the following statement by checking the appropriate space.

- a. The Contractor has \_\_\_ has not \_\_\_ participated in a previous contract subject to the equal opportunity clause prescribed by Executive Order 10925, or Executive Order 11114, or Executive Order 11246.
- b. The Contractor has \_\_\_ has not \_\_\_ submitted all compliance reports in connection with any such contract due under the applicable filing requirements; and that representations indicating submission of required compliance reports signed by proposed subcontractors will be obtained prior to award of subcontracts.
- c. If the Contractor has participated in a previous contract subject to the equal opportunity clause and has not submitted compliance reports due under applicable filing requirements, the Contractor shall submit a

compliance report on Standard Form 100, "Employee Information Report EEO-1" prior to the award of contract.

d. Standard Form 100 is normally furnished contractors annually, based on a mailing list currently maintained by the Joint Reporting Committee. In the event a contractor has not received the form, he may obtain it by writing to the following address: Joint Reporting Committee, 1800 G Street, Washington, DC 20506.

e. ( ) The below listed firm is a Disadvantaged Business Enterprise (DBE / M/WBE).

NAME OF CONTRACTOR/CORPORATION: \_\_\_\_\_

CONTRACTOR'S ADDRESS: \_\_\_\_\_

CITY, STATE, ZIP: \_\_\_\_\_ PHONE NO.: \_\_\_\_\_

\_\_\_\_\_  
PRINTED NAME & TITLE OF PERSON SIGNING BID

\_\_\_\_\_  
FEDERAL I.D. NUMBER

SIGNATURE: \_\_\_\_\_

(Seal, if bid by a Corporation)

## Appendix 8 – Solicitation Schedule

### Life Safety Upgrade of Flight Services Facility and Executive Conference Room in Terminal A CONTRACT NO. 9500634

<b>Advertisements</b>	June 10, 17, 24
<b>Bid Documents, Plans and Specifications available on website</b>	June 8, 2018
<b>Pre-Bid Conference DCC Rm 112 Site Visit after Conference</b>	June 20, 2018, 3:00pm
<b>Deadline for Questions</b>	July 3, 2018, 5:00pm
<b>Issue Addenda (if applicable)</b>	July 20, 2018
<b>Bid Opening DCC Rm 112</b>	<del>July 27</del> <u>August 3</u> , 2018, 1:00pm
<b>Airport Board Action</b>	September 2018
<b>Estimated Notice to Proceed</b>	September 2018
<b>Estimated Contract Duration</b>	180 Calendar Days

*Bid Packages in response to this RFB must be received by Board’s Program Solicitation Manager, Travis Sanderfer, at the following address: Design, Code and Construction Department, 3003 South Service Road, DFW Airport, Texas 75261, no later than listed due date and time above. Any Bid Package received after this time will not be considered and will be rejected and returned.*

*Solicitation Questions – All e-mails must be addressed to [DFWAirportSolicitations@DFWAirport.com](mailto:DFWAirportSolicitations@DFWAirport.com) and include in the Subject Line “Questions Regarding Agreement No.9500634 Life Safety Upgrade of Flight Services Facility and Executive Conference Room in Terminal A”. Questions received after the designated submittal date will not be considered.*

**SECTION 00 01 10**  
**TABLE OF CONTENTS**  
Package A: Flight Services Facility

<u>SECTION</u>	<u>DESCRIPTION</u>	<u>DATE</u>
<b>VOLUME ONE</b>		
<b>DIVISION 00</b>	<b>Procurement and Contracting Requirements</b>	
00 01 01	Project Title Page	11-May-2018
00 01 07	Seals Page	11-May-2018
00 01 10	Table Of Contents	<del>11-May-2018</del> <b>4423-JulyMay-2018</b>
00 01 17	RFI and Addendum Matrix	11-May-2018
<b>DIVISION 01</b>	<b>General Requirements</b>	
01 11 00	Summary of Work	<del>11-May-2018</del> <b>4423-JulyMay-2018</b>
01 14 16	Coordination with Occupants	11-May-2018
01 25 13	Product Substitution Procedures	11-May-2018
01 29 00	Payment Procedures	11-May-2018
01 29 73	Schedule of Values	11-May-2018
01 29 85	Wage Rate Requirements	11-May-2018
01 30 00	Allowances	11-May-2018
01 31 16	Multiple Contract Coordination	11-May-2018
01 31 19	Project Meetings	11-May-2018
01 32 16	Construction Progress Schedule	11-May-2018
01 33 23	Shop Drawings, Product Data, and Samples	11-May-2018
01 35 16	Alteration Projects Procedures	11-May-2018
01 41 00	Regulatory Requirements	11-May-2018
01 42 13	Abbreviations, Acronyms and Definitions	11-May-2018
01 42 19	Reference Standards	11-May-2018
01 45 16.13	Contractor Quality Control	11-May-2018
01 45 23	Testing And Inspecting Services	11-May-2018
01 50 00	Temporary Facilities and Controls	11-May-2018
01 50 13	Owners Field Office	11-May-2018
01 52 00	Contractors Construction Area	11-May-2018
01 55 20	Contractor Use of the Parking Revenue Area	11-May-2018
01 56 23	Temporary Barricades	11-May-2018
01 56 26	Temporary Construction Fencing	11-May-2018
01 57 19.13	Spill Response	11-May-2018
01 57 19.14	Spil Response Plan	11-May-2018
01 57 19.16	Concrete Slurry Waste	11-May-2018
01 57 19.19	HVAC Environmental Controls	11-May-2018
01 57 19.23	Construction Spill Prevention Control	11-May-2018
01 57 19.24	Facility Spill Prevention Control and Countermeasures	11-May-2018
01 58 00	Project Identification	11-May-2018
01 61 16	Materials and Equipment	11-May-2018

01 62 00	Product Options and Substitutions	11-May-2018
01 66 00	Product Storage and Handling Requirements	11-May-2018
01 71 13	Mobilization	11-May-2018
01 71 33	Protection of Adjacent Construction	11-May-2018
01 73 29	Cutting And Patching	11-May-2018
01 74 13	Progress Cleaning	11-May-2018
01 74 19	Construction Waste Management and Disposal	11-May-2018
01 74 19.13	Waste Characterization	11-May-2018
01 74 23	Final Cleaning	11-May-2018
01 76 00	Protecting Installed Construction	11-May-2018
01 77 00	Closeout Procedures	11-May-2018
01 78 23	Operation and Maintenance Data	11-May-2018
01 78 33.36	Bonds and Warranties	11-May-2018
01 78 39	Project Record Documents	11-May-2018
01 78 46	Extra Stock Materials	11-May-2018
01 79 00	Demonstration and Training	11-May-2018
01 81 13	Sustainable Design Requirements	11-May-2018
01 91 00	Commissioning	11-May-2018
	Attachments 1-4: Commissioning Plan	11-May-2018

<b>DIVISION 02</b>	<b>Architectural</b>	
02 41 19	Selective Demolition	11-May-2018

<b>DIVISION 09</b>	<b>Finishes</b>	
09 51 00	Acoustical Ceilings	11-May-2018
09 21 16	Gypsum Board Assemblies	11-May-2018

<b>DIVISION 26</b>	<b>Electrical</b>	
26 00 10	General Requirements or Electrical Work	11-May-2018
26 05 19	Building Wire Cable and Connectors, 600V and Below	11-May-2018
26 05 26	Grounding and Bonding for Electrical Systems	11-May-2018
26 05 29	Hangers and Supports for Electrical Systems	11-May-2018
26 05 33	Raceways and Bozes for Electrical Systems	11-May-2018
26 05 44	Sleeves and Sleeve Seals for Electrical Raceways and Cabling Systems	11-May-2018
26 05 53	Identification for Electrical Systems	11-May-2018
26 24 16	Panelboards	11-May-2018

<b>DIVISION 27</b>	<b>Communications</b>	
27 01 00	General Telecommunications Systems Requirements	11-May-2018
27 05 26	Grounding and Bonding for Communications Systems	11-May-2018
27 05 28	Pathways for Communications Systems	11-May-2018
27 05 53	Identification for Comuncations Systems	11-May-2018
27 15 00	Communications Horizontal Cabling	11-May-2018
27 51 16	Public Address and Mass Notification Systems	11-May-2018



<b>DIVISION 28</b>	<b>Fire Alarm</b>	
28 05 14	Conductors and Cables for Electronic Safety and Security	11-May-2018
28 05 28	Pathways for Electronic Safety and Security	11-May-2018
28 05 44	Sleeves and Sleeve Seals For Electronic Safety And Security Pathways and Cabling	11-May-2018
28 46 21.11	Addressable Fire Alarm Systems	<del>1123-July</del> <u>May</u> -2018

**- END OF SECTION -**

**PART 1 – GENERAL**

**1.1 WORK COVERED BY CONTRACT DOCUMENTS**

- A. Work of this Contract consists of fire alarm; fire protection (sprinkler); and Public Address upgrades to the existing occupied Flight Services Facility in Terminal A with accompanying electrical panel upgrades. Construction will to comprise of minor construction, repair, rehabilitation or alteration of a facility. Construction will be inside the Airport’s Air Operations Area (AOA). The Contractor shall be responsible for reviewing all existing conditions associated with the work prior to commencement of work activities.

**1.2 FORMS**

- A. The Contractor and all subcontractors must obtain and pay for all Airport Operations Area Access Badges and Permits as required by DFW.
- B. All appropriate forms and applications must be obtained, completed and submitted. A minimum required list of forms and applications is as follows:
  - 1. Air Operations Area Access or Parking Revenue Area Access Permits Form (1 page). This form can be obtained from DFW Code Department.
  - 2. DFW Access Badge Application (3 pages). This form can be obtained on the DFW website: <https://www.dfwairport.com/badge>
  - 3. Erosion Control Best Management Practices. This form can be obtained from DFW Environmental Affairs Department.

**1.3 CONTRACT TIME & SCHEDULE MILESTONES**

- A. Sequence and stage work in accordance with the requirements of the Contract Documents so as to meet the following interim requirements and final contract completion dates.
  - 1. 120 consecutive calendar days for Substantial Completion, from the date set forth in the Notice to Proceed (NTP) and as detailed below.
  - 2. 60 consecutive calendar days for Final Completion, from the date set forth for Substantial Completion.
  - 3. Total Contract Time = 180 consecutive calendar days from NTP.
- B. Owner reserves the right to request the completion of work based on critical “Milestone” date(s).
- C. Owner reserves the right to apply Liquidated Damages associated with request the completion of work based on critical “Milestone” date(s).

**1.4 HOURS OF WORK**

- A. Work may be performed in all areas including the AOA up to 24 hours a day, 7 days a week as necessary to meet the project completion dates, except as noted below.
- B. Exceptions to above work hours:
  - 1. Work within the flight services area including the associated skylight, can only be performed between 22:30 to 5:00 hrs.
  - 2. Work within aircraft parking aprons and Object Free Areas of active taxiways/taxi lanes will be restricted to the following:

- a. From 22:45 hrs to 05:15 hrs.
  - b. Work activities within these areas may be canceled and the area reopened in the event of airfield emergencies, late airline complexes, and unforeseen conditions that could create significant delays to the airport.
3. Board recognized holidays / construction blackout dates
- a. Board recognized holidays:
    - 1. New Year's Day
    - 2. Memorial Day
    - 3. Independence Day
    - 4. Labor Day
    - 5. Thanksgiving Day
  - b. During the Thanksgiving and Christmas holiday period, the Airport has designated construction blackout dates. Construction activity that impacts ramp level operations, roadways, guests inside the terminals and non-emergency utility outage requests will normally not be approved during the blackout dates. Work and utility outage requests that do not impact stakeholder operations or have limited impact will be reviewed for approval on a case by case basis. The blackout period normally commences the Friday prior to the Thanksgiving holiday through to the Monday that follows the Thanksgiving holiday. The second blackout period normally commences the Friday before the Christmas holiday, through to the Monday that follows the New Year's Day holiday.

## 1.5 CONSTRUCTION

- A. The project shall be constructed in accordance with the requirements and restrictions shown on the construction documents.

## 1.6 WORK REQUIREMENTS AND RESTRICTIONS

- A. The specific work requirements and restrictions are identified throughout the specifications and contract drawings. Special attention is to be given to the notes on contract drawings for construction phasing and sequencing that may only be amended by executing a change order.
- B. All Contractor work activities shall be under the oversight of the Owner's Authorized Representative (OAR).
- C. Do not perform work in the AOA without prior coordination with the OAR and/or without advance approval of Airfield Operations. Work in the AOA may include accessing both Electrical and PAVE system rooms from the ramp level airside.
- D. Contractor to submit System Impairment Request prior to impacting any sprinklers, life safety devices, appliances or other system components.
- E. When fire safety systems are impaired it is necessary to maintain a Fire Watch in accordance with the DFW Fire Marshal's policies and procedures.

- D.F. Construction operations at the site shall be confined to areas permitted by Law, Ordinances, Permits, and these Contract Documents.
- E.G. Restrict construction personnel from access to areas other than those designated within these specifications and associated drawings.
- F.H. Obtain a permit from the DFW Department of Public Safety for all hot work activities including cutting, welding, grinding or open flame operations.
- G.I. The Contractor is responsible for maintaining grass (vegetation) within the construction areas on the AOA to a height of 6 to 10- inches.
- H.J. The contractor is required to obtain a Shared Access Permit for all work that requires entrance into spaces that have been turned over to Bombardier for maintenance. The contractor (as Requestor of this Permit and Contractor) is responsible for:
1. Is responsible for obtaining a Shared Access Permit from the HSE Advisor prior to commencing work
  2. Is responsible for checking in and out with the shift supervisor or Maintenance 1.
  3. Ensures there is a Certified Representative of the requesting entity is present with either a cell phone or radio capable of reaching Central Control that will be on/at the job site at all times.
  4. The Certified Representative (CR) must have previously attended the Shared Access Training Program within the last 2 year of previous shared access training
  5. The CR is responsible for ensuring that the Lockout/Tagout procedure is followed.
  6. When applicable, the CR is responsible for ensuring that high and low voltage circuits are positively de-energized before allowing workers into the work area.
  7. The CR is responsible for informing employees of the safe access path to and from the work area.
  8. The CR is responsible for establishing the "Safe Assembly Point" and knowing the names of all employees who will be responding.
  9. A list of all persons who will be working need to be listed on the Shared access permit and have also passed the annual Shared Access training course.
  10. Provides safety instructions to employees and ensuring their compliance.
  11. Sends employees to the Shared Access Training Program.
  12. Cleans the work area, removing all tools, equipment and debris at the end of the permit period or at the conclusion of the workday. All debris or material capable of blowing off the guide-way must be picked up or made secure at all times.
  13. Protects the existing structure and equipment.
  14. Is responsible for all damages caused by his workforce.
- I.K. Security requirements for construction in a sterile area are in effect for this project. This includes the tool management plan. The construction site must be secured in order to prevent unauthorized access and signed accordingly.

J.L. The Contractor will be required to submit the following items prior to issuance of a construction permit:

1. Spill Response Plan (SRP) - Projects that involve the use of fuels, oils, paints, chemicals, and any other material that may pose a threat to human health or the environment may require a Spill Response Plan (SRP).
2. Erosion Control Plan (ECP) - Projects that involve the disturbance of surface soils, grass, vegetation or impervious surfaces require erosion control measures. An ECP is required for projects disturbing less than one acre.
3. Construction Storm Water Pollution Prevention Plan (SWPPP) - Projects that involve the disturbance of surface soils, grass, vegetation or impervious surfaces require erosion control measures. A SWPPP is required for projects disturbing one acre or more.
4. Solid Waste Management Plan (SWMP) - Identify the types and quantities of all solid wastes (including hazardous, non-hazardous or otherwise regulated wastes) that will be generated during this project and provide details on the management of these wastes, including labeling, storage, transportation and disposal. A sample Solid Waste Management Plan spreadsheet is contained in the Guidance document.
5. Soil Management Plan (SMP) - Projects that involve the excavation, stockpiling or movement of soils and subsurface drilling require a Soil Management Plan (SMP). The SMP details the procedures that will be employed to ensure the proper handling and disposition of soils.
6. Air Emission Estimate - Projects that involve the emission of volatile organic compounds (VOC's) or nitrogen oxides (NOx) into the atmosphere during construction or subsequent operations may require an emissions estimate.
7. Asphalt Documentation - Projects that involve the installation of asphalt pavement require documentation of the asphalt characteristics. The use of cutback asphalt is prohibited between April 15 and September 15.
8. Concrete Batch Plant Documentation - Projects that involve the operation of a concrete batch plant require information on the plant location, documentation of TCEQ's approval for the plant and a SWPPP for the plant.
9. HVAC Documentation - Projects that involve the installation, maintenance, repair or removal of HVAC equipment that uses Class I or Class II refrigerants require documentation as to the procedures that will be used to prevent release of refrigerants to the atmosphere.
10. Underground Storage Tank (UST) and Above Ground Storage Tank (AST) Documents - Projects that involve the installation, removal, repair or upgrade of UST or AST require certain documentation including the TCEQ 30-Day Construction Notification form, copy of TCEQ Contractor Registration Certificate, copy of TCEQ Contractor UST On-Site Supervisor license A and B, as applicable and documents evidencing how installation will comply with 40 CFR 112 (in particular, provide design of spill containment to be installed pursuant to 40 CFR 112.7).

11. Construction Site SPCC Plan - Projects that involve the temporary storage of petroleum fuels for fueling construction equipment in quantities greater than 42,000 gallons below ground or 1,320 gallons above ground (with any single container greater than 660 gallons) will require submittal of a Construction Site Spill Prevention, Control and Countermeasure (SPCC) Plan.

1.7 CONTRACTOR USE OF PREMISES

A. Authority and Project Coordination:

1. Coordination with the Board, governmental agencies, utility companies or other entities associated with performance of work required under this Contract shall be accomplished through the OAR.
2. Under unusual, urgent or emergency circumstances, Board Representatives such as the Departments of Public Safety and Airfield Operations may issue instructions directly to Contractor or subcontractor personnel.
3. Cooperate fully with other Contractors, Board, or FAA personnel who may be performing maintenance, navigational aid or other work within the project areas. Access to FAA facilities shall be coordinated through the OAR.
4. Notify the OAR immediately of any project conditions or situations that might affect the safety of Airport operations or constitute a deviation from the requirements and restrictions contained in these Contract Documents.

B. Safety:

1. Contractor and subcontractor employees must complete Shared Access Training. Permitting is required for those who plan to perform work in Skylink equipment areas and vehicle operations envelope. Please understand that contractors are responsible to coordinate training and permitting with the local Bombardier HSE Representative prior to performing work in the aforementioned areas.
2. The Contractor is required to prepare a Safety Manual and provide it to the OAR within seven days after the Notice to Proceed.
3. Ensure that all Contractor and subcontractor employees present on the job site are thoroughly familiar with and adhere to the safety and security requirements and restrictions stipulated in the Specifications before commencing work.
3. The Contractor and all subcontractors are required to attend a kickoff safety meeting prior to the start of work. Periodic safety meetings will be required during the construction of the project.
4. Implement and maintain an effective program to control the blowing of dust and debris due to wind or jet blast.
5. Provide reverse movement alarms on construction vehicles as required under OSHA regulations.
6. Ensure that all Contractor and subcontractor employees present on the job site are thoroughly familiar with and adhere to the safety and security requirements and restrictions stipulated in the Specifications before commencing work.

7. Employ adequate and OAR-approved fire and safety precautions when using open flame welding or torch cutting operations. Maintain adequate shielding to prevent pilot, employee, or public viewing of such open flame operations.
8. Provide adequate levels of artificial temporary lighting for areas of work when natural lighting is not adequate for safety and for the proper performance of work. Temporary lighting shall be approved in advance by the OAR. Lighting shall be shielded and/or aimed in a manner to prevent lighting from impairing the vision of pilots, airport personnel, air traffic controllers or the general public.
9. Provide head, ear, and eye protection to all personnel working within AOA work areas. Reflectorized vests are required outer clothing for all AOA work.
10. Adhere to supplemental project safety or security procedures that shall be prepared and issued by the OAR from time to time on an as-needed basis.
11. The Contractor shall provide a full time safety/security representative who has the authority to enforce safety requirements. For construction projects related to this Contract, that representative can have shared responsibilities, whether it be the Project Manager, Superintendent, and/or Foreman.
12. Maintain, on a 24-hour per day, seven days-a-week basis, clear unobstructed routes for routine and emergency vehicle traffic within project areas and access routes to and from project areas.

C. Construction Facilities and Storage Areas:

1. Restrict Contractor's material/equipment storage and employee parking to areas defined in the Contract documents or as approved by the OAR.
2. The Contractor assumes full responsibility for protection and safekeeping of all stored products.
3. Storage areas should be fenced and secured.
4. The Contractor will be required to hire either off duty airport DPS security or law enforcement officers or contract security guards to protect the job site, material storage areas, equipment storage areas, etc if security is required. Security guards will not be permitted to carry a firearm.
5. Do not block or obstruct any portion of any roadway while conducting activities associated with delivery or movement of materials, equipment or personnel, unless approved by the OAR in conjunction with a Traffic Control Plan.
6. General Storage: Store products immediately upon delivery and in accordance with the manufacturer's instructions, with labels and seals intact. Protect until installed. Contractor will not be allowed to store materials in terminal areas. Storage shall be arranged to provide access for maintenance and inspection.
7. Enclosed Storage: Store products subject to damage by the elements in substantial weather tight enclosures. Maintain temperature, humidity, and ventilation per manufacturer's instructions.
8. Exterior Storage: Provide substantial platforms, blocking or skids to support fabricated products above ground; slope to provide drainage. Provide impervious sheeting over products subject to dislocation and deterioration from exposure to the elements. Provide proper drainage and prevent the mixing of refuse and chemically injurious materials.

- D. Vehicle Access and Haul Routes:
  - 1. Contractor vehicles shall have proper identification and permits for AOA access.
  - 2. For project work areas located within the AOA, the Contractor will escort all non-permitted vehicles from AOA access gates to project work areas and from project work areas back to AOA access gates.
  - 3. Do not unreasonably encumber site with material or equipment. All dumpsters left on the AOA shall be tightly covered to prevent debris from blowing out onto the AOA, thus creating Foreign Object Debris (FOD).
- E. Storage and Disposal of Spoils and Refuse:
  - 1. Maintain project areas in a clean and safe condition at all times. Immediately remove all trash, debris, and surplus materials from work areas regardless of source. Clean paved surfaces within project related areas as required or directed by OAR.
- G. Vehicle Relocation Procedures: The following procedures are established in order to relocate legally parked vehicles in public parking facilities operated by the Airport Board due to construction.
  - 1. The Contractor shall post a "30 Day Closure Notice" sign at the entrance to the parking facility. Sign specifications are available from the DFW Sign Shop.
  - 2. If the closure involves only a section of the parking facility, the signs should be posted in the affected area to delineate closure of the specific section. Cones, barrels, tape, barricades, or any combination thereof may be used to secure vacant spaces.
  - 3. If vehicles have not been removed after 30 days, the DFW Project Manager will ensure that the Contractor:
    - a. Contacts the Board's contract wrecker service 48 hours in advance to ensure the company has adequate staffing.
    - b. Barricades the entrance to prevent additional vehicles from parking (only if the entire facility is involved).
    - c. Ensure that before and after photographs are taken of vehicles that will be relocated.
    - d. Create a vehicle log that includes the color, make, model, license plate number and any existing damage.
    - e. Note the location where the vehicle was parked and where it has been relocated. Relocation should be as close as practical to the original location.
    - f. Fax a copy of the vehicle log to DPS Communications at 972-973-3194 and the Airport Operations Center (AOC) at 972-973-3188.



**1.8 WORK BY OTHERS**

- A. During this contract, there may be other construction activities occurring on behalf of the AIRPORT BOARD in the same area(s). Coordination and cooperation with these contractors will be required during the prosecution of the project.

**1.9 INDEX OF DRAWINGS**

- A. An index of all the drawings for this project is to be listed on the cover sheet of the Contract Drawings set.

**1.10 UNATTENDED CONSTRUCTION VEHICLES ON AIRPORT PROPERTY**

- A. Construction vehicles left unattended anywhere on Airport property shall be identified with the name of the company and a telephone number that is answered 24-hours a day, on both sides of the vehicle. If there is no company contact information on the sides of the vehicle, the contact information may be printed legibly on a minimum size 12" x12" white placard, securely attached to the wind shield of the vehicle and clearly visible from fifty (50) feet away. Unattended and/or unidentified vehicles are subject to removal from Airport property at the contractor's expense.

**PART 2 – PRODUCTS**

Not Used.

**PART 3 – EXECUTION**

Not Used.

**- END OF SECTION -**

## **PART 1 - GENERAL**

### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. All Fire Alarm work will comply with Division 28 of the DFW Design Criteria Manual (Rev 2; November 2015).

### 1.2 SUMMARY

- A. Section Includes:
  - 1. Notification Appliances.
  - 2. Manual Fire Alarm Boxes
  - 3. Addressable Interface Devices.
- B. Related Sections:
  - 1. Section 01 45 16.13: Contractor Quality Control
  - 2. Section 28 05 28: Pathways for Electronic Safety and Security
  - 3. Section 28 05 14: Conductors and Cables for Electronic Safety and Security
  - 4. Section 28 05 44 Sleeves and Sleeve Seals for Electrical Raceways and Ca-bling

### 1.3 DEFINITIONS

- A. APS: Auxiliary Power Supply.
- B. EMT: Electrical Metallic Tubing.
- C. FACP: Fire Alarm Control Panel.
- D. NICET: National Institute for Certification in Engineering Technologies.
- E. NRTL: Nationally Recognized Testing Laboratory

### 1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product, including furnished options and accessories.
  - 1. Include construction details, material descriptions, dimensions, profiles, and finishes.
  - 2. Include rated capacities, operating characteristics, and electrical characteristics.

- B. Shop Drawings: Contractor shall incorporate, with appropriate annotations, the shop drawings for the placement and sequence of operation for the new devices installed in the scope of this contract in the existing complete system documents for the Terminal A fire -alarm system.
  - 1. Comply with recommendations and requirements in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
  - 2. Include plans, elevations, sections, details, and attachments to other work.
  - 3. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and locations. Indicate conductor sizes, indicate termination locations and requirements, and distinguish between factory and field wiring.
  - 4. Detail assembly and support requirements.
  - 5. Include voltage drop calculations for notification-appliance circuits.
  - 6. Include battery-size calculations for each APS.
  - 7. Include input/output matrix.
  - 8. Include statement from manufacturer that all equipment and components have been tested as a system and meet all requirements in this Specification and in NFPA 72.
  - 9. Include performance parameters and installation details for each detector.
  - 10. For addressable interface devices connected to air handling equipment or other fire control safety devices, show all connected device wiring diagrams, mounting, and access details.
  - 11. Include floor plans to indicate final outlet locations showing address of each addressable device. Show size and route of cable and conduits and point-to-point wiring diagrams.
  
- C. General Submittal Requirements:
  - 1. Submittals shall be approved by authorities having jurisdiction prior to submitting them to Architect.
  - 2. Shop Drawings shall be prepared by persons with the following qualifications:
    - a. Trained and certified by manufacturer in fire-alarm system design.
    - b. NICET-certified, fire-alarm technician; Level IV minimum.
    - c. Licensed or certified by authorities having jurisdiction.
  
- D. Delegated-Design Submittal: For notification appliances and smoke and heat detectors, in addition to submittals listed above, indicate compliance with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Field quality-control reports.

1.6 Sample Warranty: For special warranty.

1.7 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For fire-alarm systems and components to include in emergency, operation, and maintenance manuals.

1. Include the following:

- a. Comply with the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
- b. Provide "Fire Alarm and Emergency Communications System Record of Completion Documents" according to the "Completion Documents" Article in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
- c. Complete wiring diagrams showing connections between all devices and equipment. Each conductor shall be numbered at every junction point with indication of origination and termination points.
- d. Riser diagram.
- e. Device addresses.
- f. Record copy of site-specific software.
- g. Provide "Inspection and Testing Form" according to the "Inspection, Testing and Maintenance" chapter in NFPA 72, and include the following:
  - 1) Equipment tested.
  - 2) Frequency of testing of installed components.
  - 3) Frequency of inspection of installed components.
  - 4) Requirements and recommendations related to results of maintenance.
  - 5) Manufacturer's user training manuals.
- h. Manufacturer's required maintenance related to system warranty requirements.
- i. Abbreviated operating instructions for mounting at fire-alarm control unit and each annunciator unit.

B. Software and Firmware Operational Documentation:

1. Software operating and upgrade manuals.
2. Program Software Backup: On magnetic media or compact disk, complete with data files.
3. Device address list.
4. Printout of software application and graphic screens.

1.8 SPARE DEVICES

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Notification strobes: Quantity equal to five percent of amount of each type installed, but no fewer than one unit of each type.

1.9 QUALITY ASSURANCE

- A. Installer Qualifications: Personnel shall be trained and certified by manufacturer for installation of units required for this Project.
- B. Installer Qualifications: Installation shall be by personnel certified by NICET as fire-alarm Level III technician.

1.10 PROJECT CONDITIONS

- A. Perform a full test of the existing system prior to starting work. Document any equipment or components not functioning as designed.
- B. Interruption of Existing Fire-Alarm Service: Do not interrupt fire-alarm service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary guard service according to requirements indicated:
  - 1. Notify Owner no fewer than seven days in advance of proposed interruption of fire-alarm service.
  - 2. Do not proceed with interruption of fire-alarm service without Owner's written permission.
- C. Use of Devices during Construction: Protect devices during construction unless devices are placed in service to protect the facility during construction.

1.11 SEQUENCING AND SCHEDULING

- A. Existing Fire-Alarm Equipment: Maintain existing equipment fully operational until new equipment has been tested and accepted. As new equipment is installed, label it "NOT IN SERVICE" until it is accepted. Remove labels from new equipment when put into service, and label existing fire-alarm equipment "NOT IN SERVICE" until removed from the building.
- B. Equipment Removal: After acceptance of new fire-alarm system, remove existing disconnected fire-alarm equipment and wiring.

1.12 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace fire-alarm system equipment and components that fail in materials or workmanship within specified warranty period.
  - 1. Warranty Extent: All equipment and components not covered in the Maintenance Service Agreement.
  - 2. Warranty Period: Two years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 SYSTEM DESCRIPTION

- A. Source Limitations for Fire-Alarm System and Components: Components shall be compatible with, and operate as an extension of, the existing, proprietary Honeywell system. Provide system manufacturer's certification that all components provided have been tested as, and will operate as, a system.

### 2.2 SYSTEMS OPERATIONAL DESCRIPTION

- A. New devices shall match existing like devices on the existing proprietary Honeywell system~~the existing fire alarm sequence of operations~~. Initiating devices and notification appliances to be provided shall include, but not be limited to those listed below. New devices shall be listed for use with the Honeywell system control panel(s). Contractor shall provide all devices necessary to accomplish all functions of the "Cause and Effect" matrix whether or not devices are specifically called out in the contract documents. Information provided in this section can be used for reference. Fire-alarm signal initiation, fire safety control functions, and notifications shall be by one or more of the following devices and ~~systems~~appliances:

1. Visual Notification Appliances (Strobes).

2. Addressable Monitor Modules.

3. Addressable control Modules.

~~1.~~

- B. Fire-alarm sequence of operation shall be as indicated in the existing system cause and effect diagram
- C. Supervisory signal initiation shall be by one or more of the following devices and actions:
  - 1. Activation of monitor addressable interface device on APS trouble contacts.
  - 2. All supervisory conditions indicated in the system cause and effect diagram.
- D. System trouble signal initiation shall be as required by NFPA 72 and UL 864.

### 2.3 EXISTING FIRE ALARM SYSTEM COORDINATION

- A. The Fire Alarm Control Unit shall be existing to remain.
- B. Modification and extensions of initiating-device, notification-appliance, and signaling-line circuits shall comply with the following:
  - 1. Pathway Class Designations: NFPA 72, match existing.
  - 2. Pathway Survivability: Match existing.

- C. New addressable devices shall be programmed into the Terminal A FACP and graphics

#### 2.4 MANUAL FIRE ALARM BOXES

- A. General Requirements for Manual Fire-Alarm Boxes: Comply with UL 38. Boxes shall be finished in red with molded, raised-letter operating instructions in contrasting color; shall show visible indication of operation; and shall be mounted on recessed outlet box. If indicated as surface mounted, provide manufacturer's surface back box.
  - 1. Double-action mechanism requiring two actions to initiate an alarm, pull-lever type; with integral addressable module arranged to communicate manual-station status (normal, alarm, or trouble) to fire-alarm control unit. The device shall be operable with a closed fist.
  - 2. Pull stations shall be intelligent. Each manual station shall connect to a monitor module applicable to the Fire Alarm Panel as per DFW Design Criteria Manual.
  - 3. Pull Stations shall be of die cast metal construction and designed for semi-flush mounting.
  - 4. Station Reset: Key- or wrench-operated switch.

#### 2.5 NOTIFICATION APPLIANCES

- A. General Requirements for Notification Appliances: Individually addressed, connected to a signaling-line circuit, equipped for mounting as indicated, and with screw terminals for system connections.
  - 1. Combination Devices: Factory-integrated audible and visible devices in a single-mounting assembly, equipped for mounting as indicated, and with screw terminals for system connections.
- B. Visible Notification Appliances: Xenon strobe lights complying with UL 1971, with clear polycarbonate lens mounted on an aluminum faceplate. The word "FIRE" is engraved in minimum 1-inch- (25-mm-) high letters on the lens.
  - 1. Rated Light Output: 15/30/75/110 cd, selectable in the field.
  - 2. Mounting: Wall mounted unless otherwise indicated.
  - 3. For units with guards to prevent physical damage, light output ratings shall be determined with guards in place.
  - 4. Flashing shall be in a temporal pattern, synchronized with other units.
  - 5. Strobe Leads: Factory connected to screw terminals.
  - 6. Mounting Faceplate: Factory finished, match existing.
  - 7. Operate solenoids for use in sprinkler service.
- C. Visible Notification Appliances: Xenon strobe lights complying with UL 1971, with clear polycarbonate lens mounted on an aluminum faceplate. The word "FIRE" is engraved in minimum 1 inch.

2.6 ADDRESSABLE INTERFACE DEVICE

- A. Description: Microelectronic monitor module, NRTL listed for use in providing a system address for alarm-initiating devices for wired applications with normally open contacts.
- B. Addressable monitor modules shall be provided with an LED that displays a normal condition indicating that the monitor module is operational and in regular communication with the control unit as required by DFW Design Criteria Manual.
- C. Addressable Monitor Modules shall mount in a standard 4-inch by 4-inch deep electrical box.

**PART 3 - EXECUTION**

3.1 EXAMINATION

- A. Examine areas and conditions for compliance with requirements for ventilation, temperature, humidity, and other conditions affecting performance of the Work.
  - 1. Verify that manufacturer's written instructions for environmental conditions have been permanently established in spaces where equipment and wiring are installed, before installation begins.
- B. Examine roughing-in for electrical connections to verify actual locations of connections before installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 EQUIPMENT INSTALLATION

- A. Comply with NFPA 72, NFPA 101, and requirements of authorities having jurisdiction for installation and testing of fire-alarm equipment. Install all electrical wiring to comply with requirements in NFPA 70 including, but not limited to, Article 760, "Fire Alarm Systems."
  - 1. Devices placed in service before all other trades have completed cleanup shall be replaced.
  - 2. Devices installed but not yet placed in service shall be protected from construction dust, debris, dirt, moisture, and damage according to manufacturer's written storage instructions.
- B. Connecting to Existing Equipment: Verify that existing fire-alarm system is operational before making changes or connections.
  - 1. Connect new equipment to existing control panel in existing part of the building.
  - 2. Connect new equipment to existing monitoring equipment at the supervising station.



3. Expand, modify, and supplement existing monitoring equipment as necessary to extend existing monitoring functions to the new points. New components shall be capable of merging with existing configuration without degrading the performance of either system.

C. Visible Alarm-Indicating Devices: Install at eighty inches above finished floor or 6 inches below the ceiling whichever is lower. Install all devices at the same height unless otherwise indicated.

### 3.3 PATHWAYS

A. Pathways shall be installed in EMT. For detail on installation see Section 28 05 28 "Pathways for Electronic Safety and Security".

### 3.4 CONNECTIONS

A. Make addressable connections with a supervised interface device to the following devices and systems. Install the interface device less than 36 inches (910 mm) from the device controlled. Make an addressable confirmation connection when such feedback is available at the device or system being controlled.

### 3.5 FIELD QUALITY CONTROL

A. Field tests shall be witnessed by Architect.

B. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.

C. Perform tests and inspections.

D. Perform the following tests and inspections with the assistance of a factory-authorized service representative:

1. Visual Inspection: Conduct visual inspection prior to testing.

a. Inspection shall be based on completed record Drawings and system documentation that is required by the "Completion Documents, Preparation" table in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.

b. Comply with the "Visual Inspection Frequencies" table in the "Inspection" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72; retain the "Initial/Reacceptance" column and list only the installed components.

2. System Testing: Comply with the "Test Methods" table in the "Testing" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.

3. Test visible appliances for the public operating mode according to manufacturer's written instructions.
  4. Factory-authorized service representative shall prepare the "Fire Alarm System Record of Completion" in the "Documentation" section of the "Fundamentals" chapter in NFPA 72 and the "Inspection and Testing Form" in the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
- E. Reacceptance Testing: Perform reacceptance testing to verify the proper operation of added or replaced devices and appliances.
- F. Fire-alarm system will be considered defective if it does not pass tests and inspections.
- G. Prepare test and inspection reports.
- H. Maintenance Test and Inspection: Perform tests and inspections listed for weekly, monthly, quarterly, and semiannual periods. Use forms developed for initial tests and inspections.
- I. Annual Test and Inspection: One year after date of Substantial Completion, test fire-alarm system complying with visual and testing inspection requirements in NFPA 72. Use forms developed for initial tests and inspections.

### 3.6 MAINTENANCE SERVICE

- A. Initial Maintenance Service: Beginning at Substantial Completion, maintenance service shall include 12 months' full maintenance by skilled employees of manufacturer's designated service organization. Include preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper operation. Parts and supplies shall be manufacturer's authorized replacement parts and supplies.
1. Include visual inspections according to the "Visual Inspection Frequencies" table in the "Testing" paragraph of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
  2. Perform tests in the "Test Methods" table in the "Testing" paragraph of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
  3. Perform tests per the "Testing Frequencies" table in the "Testing" paragraph of the "Inspection, Testing and Maintenance" chapter in NFPA 72.

### 3.7 SOFTWARE SERVICE AGREEMENT

- A. Comply with UL 864.
- B. Technical Support: Beginning at Substantial Completion, service agreement shall include software support for two years.
- C. Upgrade Service: At Substantial Completion, update software to latest version. Install and program software upgrades that become available within two years from date of Substantial Completion. Upgrading software shall include operating system and new or revised licenses for using software.

1. Upgrade Notice: At least 30 days to allow Owner to schedule access to system and to upgrade computer equipment if necessary.

3.8 DEMONSTRATION

- A. Train Owner's maintenance personnel to adjust, operate, and maintain fire-alarm system.

- **END OF SECTION** -

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Package B: Executive Conference Room

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- END OF SECTION -

## PART 1 – GENERAL

### 1.1 WORK COVERED BY CONTRACT DOCUMENTS

- A. Work of this Contract consists of Fire Alarm; Fire Protection (Sprinkler) and Public Address upgrades with architectural ceiling replacement in the existing unoccupied Executive Conference Room area in Terminal A. Construction will to comprise of minor construction, repair, rehabilitation or alteration of a facility including the replacement of systems and the replacement of the ceiling. Construction will be inside the Airport's Air Operations Area (AOA). The Contractor shall be responsible for reviewing all existing conditions associated with the work prior to commencement of work activities.

### 1.2 FORMS

- A. The Contractor and all subcontractors must obtain and pay for all Airport Operations Area Access Badges and Permits as required by DFW.
- B. All appropriate forms and applications must be obtained, completed and submitted. A minimum required list of forms and applications is as follows:
  - 1. Air Operations Area Access or Parking Revenue Area Access Permits Form (1 page). This form can be obtained from DFW Code Department.
  - 2. DFW Access Badge Application (3 pages). This form can be obtained on the DFW website: <https://www.dfwairport.com/badge>
  - 3. Erosion Control Best Management Practices. This form can be obtained from DFW Environmental Affairs Department.

### 1.3 CONTRACT TIME & SCHEDULE MILESTONES

- A. Sequence and stage work in accordance with the requirements of the Contract Documents so as to meet the following interim requirements and final contract completion dates.
  - 1. 120 consecutive calendar days for Substantial Completion, from the date set forth in the Notice to Proceed (NTP) and as detailed below.
  - 2. 60 consecutive calendar days for Final Completion, from the date set forth for Substantial Completion.
  - 3. Total Contract Time = 180 consecutive calendar days from NTP.
- B. Owner reserves the right to request the completion of work based on critical "Milestone" date(s).
- C. Owner reserves the right to apply Liquidated Damages associated with request the completion of work based on critical "Milestone" date(s).

### 1.4 HOURS OF WORK

- A. Work may be performed in all areas up to 24 hours a day, 7 days a week as necessary to meet the project completion dates, except as noted below.
- B. Exceptions to above work hours:
  - 1. Work within aircraft parking aprons and Object Free Areas of active taxiways/taxi lanes will be restricted to the following:
    - a. From 22:45 hrs to 05:15 hrs.

- b. Work activities within these areas may be canceled and the area reopened in the event of airfield emergencies, late airline complexes, and unforeseen conditions that could create significant delays to the airport.
- 2. Board recognized holidays / construction blackout dates
  - a. Board recognized holidays:
    - 1. New Year's Day
    - 2. Memorial Day
    - 3. Independence Day
    - 4. Labor Day
    - 5. Thanksgiving Day
  - b. During the Thanksgiving and Christmas holiday period, the Airport has designated construction blackout dates. Construction activity that impacts ramp level operations, roadways, guests inside the terminals and non-emergency utility outage requests will normally not be approved during the blackout dates. Work and utility outage requests that do not impact stakeholder operations or have limited impact will be reviewed for approval on a case by case basis. The blackout period normally commences the Friday prior to the Thanksgiving holiday through to the Monday that follows the Thanksgiving holiday. The second blackout period normally commences the Friday before the Christmas holiday, through to the Monday that follows the New Year's Day holiday.

#### 1.5 CONSTRUCTION

- A. The project shall be constructed in accordance with the requirements and restrictions shown on the construction documents.

#### 1.6 WORK REQUIREMENTS AND RESTRICTIONS

- A. The specific work requirements and restrictions are identified throughout the specifications and contract drawings. Special attention is to be given to the notes on contract drawings for construction phasing and sequencing that may only be amended by executing a change order.
- B. All Contractor work activities shall be under the oversight of the Owner's Authorized Representative (OAR).
- C. Do not perform work in the AOA without prior coordination with the OAR and/or without advance approval of Airfield Operations. Work in the AOA may include accessing both Electrical and PAVE system rooms from the ramp level airside.
- D. Contractor to submit System Impairment Request prior to impacting any sprinklers, life safety devices, appliances or other system components.
- E. When fire safety systems are impaired it is necessary to maintain a Fire Watch in accordance with the DFW Fire Marshal's policies and procedures.
- D.F. Construction operations at the site shall be confined to areas permitted by Law, Ordinances, Permits, and these Contract Documents.

- E.G. Restrict construction personnel from access to areas other than those designated within these specifications and associated drawings.
- F.H. Obtain a permit from the DFW Department of Public Safety for all hot work activities including cutting, welding, grinding or open flame operations.
- G.I. The Contractor is responsible for maintaining grass (vegetation) within the construction areas on the AOA to a height of 6 to 10- inches.
- H.J. The contractor is required to obtain a Shared Access Permit for all work that requires entrance into spaces that have been turned over to Bombardier for maintenance. The contractor (as Requestor of this Permit and Contractor) is responsible for:
1. Is responsible for obtaining a Shared Access Permit from the HSE Advisor prior to commencing work
  2. Is responsible for checking in and out with the shift supervisor or Maintenance 1.
  3. Ensures there is a Certified Representative of the requesting entity is present with either a cell phone or radio capable of reaching Central Control that will be on/at the job site at all times.
  4. The Certified Representative (CR) must have previously attended the Shared Access Training Program within the last 2 year of previous shared access training
  5. The CR is responsible for ensuring that the Lockout/Tagout procedure is followed.
  6. When applicable, the CR is responsible for ensuring that high and low voltage circuits are positively de-energized before allowing workers into the work area.
  7. The CR is responsible for informing employees of the safe access path to and from the work area.
  8. The CR is responsible for establishing the "Safe Assembly Point" and knowing the names of all employees who will be responding.
  9. A list of all persons who will be working need to be listed on the Shared access permit and have also passed the annual Shared Access training course.
  10. Provides safety instructions to employees and ensuring their compliance.
  11. Sends employees to the Shared Access Training Program.
  12. Cleans the work area, removing all tools, equipment and debris at the end of the permit period or at the conclusion of the workday. All debris or material capable of blowing off the guide-way must be picked up or made secure at all times.
  13. Protects the existing structure and equipment.
  14. Is responsible for all damages caused by his workforce.
- I.K. Security requirements for construction in a sterile area are in effect for this project. This includes the tool management plan. The construction site must be secured in order to prevent unauthorized access and signed accordingly.
- J.L. The Contractor will be required to submit the following items prior to issuance of a construction permit:



1. Spill Response Plan (SRP) - Projects that involve the use of fuels, oils, paints, chemicals, and any other material that may pose a threat to human health or the environment may require a Spill Response Plan (SRP).
2. Erosion Control Plan (ECP) - Projects that involve the disturbance of surface soils, grass, vegetation or impervious surfaces require erosion control measures. An ECP is required for projects disturbing less than one acre.
3. Construction Storm Water Pollution Prevention Plan (SWPPP) - Projects that involve the disturbance of surface soils, grass, vegetation or impervious surfaces require erosion control measures. A SWPPP is required for projects disturbing one acre or more.
4. Solid Waste Management Plan (SWMP) - Identify the types and quantities of all solid wastes (including hazardous, non-hazardous or otherwise regulated wastes) that will be generated during this project and provide details on the management of these wastes, including labeling, storage, transportation and disposal. A sample Solid Waste Management Plan spreadsheet is contained in the Guidance document.
5. Soil Management Plan (SMP) - Projects that involve the excavation, stockpiling or movement of soils and subsurface drilling require a Soil Management Plan (SMP). The SMP details the procedures that will be employed to ensure the proper handling and disposition of soils.
6. Air Emission Estimate - Projects that involve the emission of volatile organic compounds (VOC's) or nitrogen oxides (NOx) into the atmosphere during construction or subsequent operations may require an emissions estimate.
7. Asphalt Documentation - Projects that involve the installation of asphalt pavement require documentation of the asphalt characteristics. The use of cutback asphalt is prohibited between April 15 and September 15.
8. Concrete Batch Plant Documentation - Projects that involve the operation of a concrete batch plant require information on the plant location, documentation of TCEQ's approval for the plant and a SWPPP for the plant.
9. HVAC Documentation - Projects that involve the installation, maintenance, repair or removal of HVAC equipment that uses Class I or Class II refrigerants require documentation as to the procedures that will be used to prevent release of refrigerants to the atmosphere.
10. Underground Storage Tank (UST) and Above Ground Storage Tank (AST) Documents - Projects that involve the installation, removal, repair or upgrade of UST or AST require certain documentation including the TCEQ 30-Day Construction Notification form, copy of TCEQ Contractor Registration Certificate, copy of TCEQ Contractor UST On-Site Supervisor license A and B, as applicable and documents evidencing how installation will comply with 40 CFR 112 (in particular, provide design of spill containment to be installed pursuant to 40 CFR 112.7).
11. Construction Site SPCC Plan - Projects that involve the temporary storage of petroleum fuels for fueling construction equipment in quantities greater than 42,000 gallons below ground or 1,320 gallons above ground (with any single container

greater than 660 gallons) will require submittal of a Construction Site Spill Prevention, Control and Countermeasure (SPCC) Plan.

**1.7 CONTRACTOR USE OF PREMISES**

**A. Authority and Project Coordination:**

1. Coordination with the Board, governmental agencies, utility companies or other entities associated with performance of work required under this Contract shall be accomplished through the OAR.
2. Under unusual, urgent or emergency circumstances, Board Representatives such as the Departments of Public Safety and Airfield Operations may issue instructions directly to Contractor or subcontractor personnel.
3. Cooperate fully with other Contractors, Board, or FAA personnel who may be performing maintenance, navigational aid or other work within the project areas. Access to FAA facilities shall be coordinated through the OAR.
4. Notify the OAR immediately of any project conditions or situations that might affect the safety of Airport operations or constitute a deviation from the requirements and restrictions contained in these Contract Documents.

**B. Safety:**

1. Contractor and subcontractor employees must complete Shared Access Training. Permitting is required for those who plan to perform work in Skylink equipment areas and vehicle operations envelope. Please understand that contractors are responsible to coordinate training and permitting with the local Bombardier HSE Representative prior to performing work in the aforementioned areas.
2. The Contractor is required to prepare a Safety Manual and provide it to the OAR within seven days after the Notice to Proceed.
3. Ensure that all Contractor and subcontractor employees present on the job site are thoroughly familiar with and adhere to the safety and security requirements and restrictions stipulated in the Specifications before commencing work.
3. The Contractor and all subcontractors are required to attend a kickoff safety meeting prior to the start of work. Periodic safety meetings will be required during the construction of the project.
4. Implement and maintain an effective program to control the blowing of dust and debris due to wind or jet blast.
5. Provide reverse movement alarms on construction vehicles as required under OSHA regulations.
6. Ensure that all Contractor and subcontractor employees present on the job site are thoroughly familiar with and adhere to the safety and security requirements and restrictions stipulated in the Specifications before commencing work.
7. Employ adequate and OAR-approved fire and safety precautions when using open flame welding or torch cutting operations. Maintain adequate shielding to prevent pilot, employee, or public viewing of such open flame operations.
8. Provide adequate levels of artificial temporary lighting for areas of work when natural lighting is not adequate for safety and for the proper performance of work. Temporary

lighting shall be approved in advance by the OAR. Lighting shall be shielded and/or aimed in a manner to prevent lighting from impairing the vision of pilots, airport personnel, air traffic controllers or the general public.

9. Provide head, ear, and eye protection to all personnel working within AOA work areas. ReflectORIZED vests are required outer clothing for all AOA work.
10. Adhere to supplemental project safety or security procedures that shall be prepared and issued by the OAR from time to time on an as-needed basis.
11. The Contractor shall provide a full time safety/security representative who has the authority to enforce safety requirements. For construction projects related to this Contract, that representative can have shared responsibilities, whether it be the Project Manager, Superintendent, and/or Foreman.
12. Maintain, on a 24-hour per day, seven days-a-week basis, clear unobstructed routes for routine and emergency vehicle traffic within project areas and access routes to and from project areas.

C. Construction Facilities and Storage Areas:

1. Restrict Contractor's material/equipment storage and employee parking to areas defined in the Contract documents or as approved by the OAR.
2. The Contractor assumes full responsibility for protection and safekeeping of all stored products.
3. Storage areas should be fenced and secured.
4. The Contractor will be required to hire either off duty airport DPS security or law enforcement officers or contract security guards to protect the job site, material storage areas, equipment storage areas, etc if security is required. Security guards will not be permitted to carry a firearm.
5. Do not block or obstruct any portion of any roadway while conducting activities associated with delivery or movement of materials, equipment or personnel, unless approved by the OAR in conjunction with a Traffic Control Plan.
6. General Storage: Store products immediately upon delivery and in accordance with the manufacturer's instructions, with labels and seals intact. Protect until installed. Contractor will not be allowed to store materials in terminal areas. Storage shall be arranged to provide access for maintenance and inspection.
7. Enclosed Storage: Store products subject to damage by the elements in substantial weather tight enclosures. Maintain temperature, humidity, and ventilation per manufacturer's instructions.
8. Exterior Storage: Provide substantial platforms, blocking or skids to support fabricated products above ground; slope to provide drainage. Provide impervious sheeting over products subject to dislocation and deterioration from exposure to the elements. Provide proper drainage and prevent the mixing of refuse and chemically injurious materials.

D. Vehicle Access and Haul Routes:

1. Contractor vehicles shall have proper identification and permits for AOA access.

2. For project work areas located within the AOA, the Contractor will escort all non-permitted vehicles from AOA access gates to project work areas and from project work areas back to AOA access gates.
  3. Do not unreasonably encumber site with material or equipment. All dumpsters left on the AOA shall be tightly covered to prevent debris from blowing out onto the AOA, thus creating Foreign Object Debris (FOD).
- E. Storage and Disposal of Spoils and Refuse:
1. Maintain project areas in a clean and safe condition at all times. Immediately remove all trash, debris, and surplus materials from work areas regardless of source. Clean paved surfaces within project related areas as required or directed by OAR.
- G. Vehicle Relocation Procedures: The following procedures are established in order to relocate legally parked vehicles in public parking facilities operated by the Airport Board due to construction.
1. The Contractor shall post a "30 Day Closure Notice" sign at the entrance to the parking facility. Sign specifications are available from the DFW Sign Shop.
  2. If the closure involves only a section of the parking facility, the signs should be posted in the affected area to delineate closure of the specific section. Cones, barrels, tape, barricades, or any combination thereof may be used to secure vacant spaces.
  3. If vehicles have not been removed after 30 days, the DFW Project Manager will ensure that the Contractor:
    - a. Contacts the Board's contract wrecker service 48 hours in advance to ensure the company has adequate staffing.
    - b. Barricades the entrance to prevent additional vehicles from parking (only if the entire facility is involved).
    - c. Ensure that before and after photographs are taken of vehicles that will be relocated.
    - d. Create a vehicle log that includes the color, make, model, license plate number and any existing damage.
    - e. Note the location where the vehicle was parked and where it has been relocated. Relocation should be as close as practical to the original location.
    - f. Fax a copy of the vehicle log to DPS Communications at 972-973-3194 and the Airport Operations Center (AOC) at 972-973-3188.

#### 1.8 WORK BY OTHERS

- A. During this contract, there may be other construction activities occurring on behalf of the AIRPORT BOARD in the same area(s). Coordination and cooperation with these contractors will be required during the prosecution of the project.

#### 1.9 INDEX OF DRAWINGS

- A. An index of all the drawings for this project is to be listed on the cover sheet of the Contract Drawings set.

1.10 UNATTENDED CONSTRUCTION VEHICLES ON AIRPORT PROPERTY

- A. Construction vehicles left unattended anywhere on Airport property shall be identified with the name of the company and a telephone number that is answered 24-hours a day, on both sides of the vehicle. If there is no company contact information on the sides of the vehicle, the contact information may be printed legibly on a minimum size 12" x12" white placard, securely attached to the wind shield of the vehicle and clearly visible from fifty (50) feet away. Unattended and/or unidentified vehicles are subject to removal from Airport property at the contractor's expense.

**PART 2 – PRODUCTS**

Not Used.

**PART 3 – EXECUTION**

Not Used.

**- END OF SECTION -**

**PART 1 - GENERAL**

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. All Fire Alarm work will comply with Division 28 of the DFW Design Criteria Manual (Rev 2; November 2015).

1.2 SUMMARY

- A. Section Includes:
  - 1. Notification Appliances.
  - 2. Manual Fire Alarm Boxes
  - 3. Addressable Interface Devices.
- B. Related Sections:
  - 1. Section 01 45 16.13: Contractor Quality Control
  - 2. Section 28 05 28: Pathways for Electronic Safety and Security
  - 3. Section 28 05 14: Conductors and Cables for Electronic Safety and Security
  - 4. Section 28 05 44 Sleeves and Sleeve Seals for Electrical Raceways and Cabling

1.3 DEFINITIONS

- A. APS: Auxiliary Power Supply.
- B. EMT: Electrical Metallic Tubing.
- C. FACP: Fire Alarm Control Panel.
- D. NICET: National Institute for Certification in Engineering Technologies.
- E. NRTL: Nationally Recognized Testing Laboratory

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product, including furnished options and accessories.
  - 1. Include construction details, material descriptions, dimensions, profiles, and finishes.
  - 2. Include rated capacities, operating characteristics, and electrical characteristics.

- B. Shop Drawings: Contractor shall incorporate, with appropriate annotations, the shop drawings for the placement and sequence of operation for the new devices installed in the scope of this contract in the existing complete system documents for the Terminal A fire -alarm system.
  - 1. Comply with recommendations and requirements in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
  - 2. Include plans, elevations, sections, details, and attachments to other work.
  - 3. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and locations. Indicate conductor sizes, indicate termination locations and requirements, and distinguish between factory and field wiring.
  - 4. Detail assembly and support requirements.
  - 5. Include voltage drop calculations for notification-appliance circuits.
  - 6. Include battery-size calculations for each APS.
  - 7. Include input/output matrix.
  - 8. Include statement from manufacturer that all equipment and components have been tested as a system and meet all requirements in this Specification and in NFPA 72.
  - 9. Include performance parameters and installation details for each detector.
  - 10. For addressable interface devices connected to air handling equipment or other fire control safety devices, show all connected device wiring diagrams, mounting, and access details.
  - 11. Include floor plans to indicate final outlet locations showing address of each addressable device. Show size and route of cable and conduits and point-to-point wiring diagrams.
  
- C. General Submittal Requirements:
  - 1. Submittals shall be approved by authorities having jurisdiction prior to submitting them to Architect.
  - 2. Shop Drawings shall be prepared by persons with the following qualifications:
    - a. Trained and certified by manufacturer in fire-alarm system design.
    - b. NICET-certified, fire-alarm technician; Level IV minimum.
    - c. Licensed or certified by authorities having jurisdiction.
  
- D. Delegated-Design Submittal: For notification appliances and smoke and heat detectors, in addition to submittals listed above, indicate compliance with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Field quality-control reports.

1.6 Sample Warranty: For special warranty.

1.7 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For fire-alarm systems and components to include in emergency, operation, and maintenance manuals.

1. Include the following:

- a. Comply with the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
- b. Provide "Fire Alarm and Emergency Communications System Record of Completion Documents" according to the "Completion Documents" Article in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
- c. Complete wiring diagrams showing connections between all devices and equipment. Each conductor shall be numbered at every junction point with indication of origination and termination points.
- d. Riser diagram.
- e. Device addresses.
- f. Record copy of site-specific software.
- g. Provide "Inspection and Testing Form" according to the "Inspection, Testing and Maintenance" chapter in NFPA 72, and include the following:
  - 1) Equipment tested.
  - 2) Frequency of testing of installed components.
  - 3) Frequency of inspection of installed components.
  - 4) Requirements and recommendations related to results of maintenance.
  - 5) Manufacturer's user training manuals.
- h. Manufacturer's required maintenance related to system warranty requirements.
- i. Abbreviated operating instructions for mounting at fire-alarm control unit and each annunciator unit.

B. Software and Firmware Operational Documentation:

1. Software operating and upgrade manuals.
2. Program Software Backup: On magnetic media or compact disk, complete with data files.
3. Device address list.
4. Printout of software application and graphic screens.

1.8 SPARE DEVICES

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Notification strobes: Quantity equal to five percent of amount of each type installed, but no fewer than one unit of each type.



1.9 QUALITY ASSURANCE

- A. Installer Qualifications: Personnel shall be trained and certified by manufacturer for installation of units required for this Project.
- B. Installer Qualifications: Installation shall be by personnel certified by NICET as fire-alarm Level III technician.

1.10 PROJECT CONDITIONS

- A. Perform a full test of the existing system prior to starting work. Document any equipment or components not functioning as designed.
- B. Interruption of Existing Fire-Alarm Service: Do not interrupt fire-alarm service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary guard service according to requirements indicated:
  - 1. Notify Owner no fewer than seven days in advance of proposed interruption of fire-alarm service.
  - 2. Do not proceed with interruption of fire-alarm service without Owner's written permission.
- C. Use of Devices during Construction: Protect devices during construction unless devices are placed in service to protect the facility during construction.

1.11 SEQUENCING AND SCHEDULING

- A. Existing Fire-Alarm Equipment: Maintain existing equipment fully operational until new equipment has been tested and accepted. As new equipment is installed, label it "NOT IN SERVICE" until it is accepted. Remove labels from new equipment when put into service, and label existing fire-alarm equipment "NOT IN SERVICE" until removed from the building.
- B. Equipment Removal: After acceptance of new fire-alarm system, remove existing disconnected fire-alarm equipment and wiring.

1.12 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace fire-alarm system equipment and components that fail in materials or workmanship within specified warranty period.
  - 1. Warranty Extent: All equipment and components not covered in the Maintenance Service Agreement.
  - 2. Warranty Period: Two years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 SYSTEM DESCRIPTION

- A. Source Limitations for Fire-Alarm System and Components: Components shall be compatible with, and operate as an extension of, the existing proprietary Honeywell system. Provide system manufacturer's certification that all components provided have been tested as, and will operate as, a system.

### 2.2 SYSTEMS OPERATIONAL DESCRIPTION

- A. New devices and appliances shall match the existing ~~likefire alarm sequence of operations devices and appliances on the existing proprietary Honeywell system. Initiating devices and notification appliances to be provided shall include but not be limited to those listed below. New devices shall be listed for use with the Honeywell system control panel(s). Contractor shall provide all devices necessary to accomplish all functions of the "Cause and Effect" matrix whether or not devices are specifically called out in the contract documents.~~ Information provided in this section can be used for reference. Fire-alarm signal initiation, fire safety control functions and notifications shall be by one or more of the following devices and appliance systems:

1. Visual Notification Appliances (Strobes).
2. Addressable Monitor Modules (Addressable Interface Device)
- ~~3.~~ Addressable Control Modules (Addressable Interface Device)

- B. Fire-alarm sequence of operation shall be as indicated in the existing system cause and effect diagram
- C. Supervisory signal initiation shall be by one or more of the following devices and actions:
  1. Activation of monitor addressable interface device on APS trouble contacts.
  2. All supervisory conditions indicated in the system cause and effect diagram.
- D. System trouble signal initiation shall be as required by NFPA 72 and UL 864.

### 2.3 EXISTING FIRE ALARM SYSTEM COORDINATION

- A. The Fire Alarm Control Unit shall be existing to remain.
- B. Modification and extensions of initiating-device, notification-appliance, and signaling-line circuits shall comply with the following:
  1. Pathway Class Designations: NFPA 72, match existing.
  2. Pathway Survivability: Match existing.
- C. New addressable devices shall be programmed into the Terminal A FACP and graphics

## 2.4 MANUAL FIRE ALARM BOXES

- A. General Requirements for Manual Fire-Alarm Boxes: Comply with UL 38. Boxes shall be finished in red with molded, raised-letter operating instructions in contrasting color; shall show visible indication of operation; and shall be mounted on recessed outlet box. If indicated as surface mounted, provide manufacturer's surface back box.
  - 1. Double-action mechanism requiring two actions to initiate an alarm, pull-lever type; with integral addressable module arranged to communicate manual-station status (normal, alarm, or trouble) to fire-alarm control unit. The device shall be operable with a closed fist.
  - 2. Pull stations shall be intelligent. Each manual station shall connect to a monitor module applicable to the Fire Alarm Panel as per DFW Design Criteria Manual.
  - 3. Pull Stations shall be of die cast metal construction and designed for semi-flush mounting.
  - 4. Station Reset: Key- or wrench-operated switch.

## 2.5 NOTIFICATION APPLIANCES

- A. General Requirements for Notification Appliances: Individually addressed, connected to a signaling-line circuit, equipped for mounting as indicated, and with screw terminals for system connections.
  - 1. Combination Devices: Factory-integrated audible and visible devices in a single-mounting assembly, equipped for mounting as indicated, and with screw terminals for system connections.
- B. Visible Notification Appliances: Xenon strobe lights complying with UL 1971, with clear polycarbonate lens mounted on an aluminum faceplate. The word "FIRE" is engraved in minimum 1-inch- (25-mm-) high letters on the lens.
  - 1. Rated Light Output: 15/30/75/110 cd, selectable in the field.
  - 2. Mounting: Wall mounted unless otherwise indicated.
  - 3. For units with guards to prevent physical damage, light output ratings shall be determined with guards in place.
  - 4. Flashing shall be in a temporal pattern, synchronized with other units.
  - 5. Strobe Leads: Factory connected to screw terminals.
  - 6. Mounting Faceplate: Factory finished, match existing.
  - 7. Operate solenoids for use in sprinkler service.
- C. Visible Notification Appliances: Xenon strobe lights complying with UL 1971, with clear polycarbonate lens mounted on an aluminum faceplate. The word "FIRE" is engraved in minimum 1 inch.

## 2.6 ADDRESSABLE INTERFACE DEVICE

- A. Description: Microelectronic monitor module, NRTL listed for use in providing a system address for alarm-initiating devices for wired applications with normally open contacts.

- B. Addressable monitor modules shall be provided with an LED that displays a normal condition indicating that the monitor module is operational and in regular communication with the control unit as required by DFW Design Criteria Manual.
- C. Addressable Monitor Modules shall mount in a standard 4-inch by 4-inch deep electrical box.

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. Examine areas and conditions for compliance with requirements for ventilation, temperature, humidity, and other conditions affecting performance of the Work.
  - 1. Verify that manufacturer's written instructions for environmental conditions have been permanently established in spaces where equipment and wiring are installed, before installation begins.
- B. Examine roughing-in for electrical connections to verify actual locations of connections before installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

#### **3.2 EQUIPMENT INSTALLATION**

- A. Comply with NFPA 72, NFPA 101, and requirements of authorities having jurisdiction for installation and testing of fire-alarm equipment. Install all electrical wiring to comply with requirements in NFPA 70 including, but not limited to, Article 760, "Fire Alarm Systems."
  - 1. Devices placed in service before all other trades have completed cleanup shall be replaced.
  - 2. Devices installed but not yet placed in service shall be protected from construction dust, debris, dirt, moisture, and damage according to manufacturer's written storage instructions.
- B. Connecting to Existing Equipment: Verify that existing fire-alarm system is operational before making changes or connections.
  - 1. Connect new equipment to existing control panel in existing part of the building.
  - 2. Connect new equipment to existing monitoring equipment at the supervising station.
  - 3. Expand, modify, and supplement existing monitoring equipment as necessary to extend existing monitoring functions to the new points. New components shall be capable of merging with existing configuration without degrading the performance of either system.
- C. Visible Alarm-Indicating Devices: Install at eighty inches above finished floor or 6 inches below the ceiling whichever is lower. Install all devices at the same height unless otherwise indicated.

3.3 PATHWAYS

- A. Pathways shall be installed in EMT. For detail on installation see Section 28 05 28 "Pathways for Electronic Safety and Security".

3.4 CONNECTIONS

- A. Make addressable connections with a supervised interface device to the following devices and systems. Install the interface device less than 36 inches (910 mm) from the device controlled. Make an addressable confirmation connection when such feedback is available at the device or system being controlled.

3.5 FIELD QUALITY CONTROL

- A. Field tests shall be witnessed by Architect.
- B. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.
- C. Perform tests and inspections.
- D. Perform the following tests and inspections with the assistance of a factory-authorized service representative:
  - 1. Visual Inspection: Conduct visual inspection prior to testing.
    - a. Inspection shall be based on completed record Drawings and system documentation that is required by the "Completion Documents, Preparation" table in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
    - b. Comply with the "Visual Inspection Frequencies" table in the "Inspection" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72; retain the "Initial/Reacceptance" column and list only the installed components.
  - 2. System Testing: Comply with the "Test Methods" table in the "Testing" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
  - 3. Test visible appliances for the public operating mode according to manufacturer's written instructions.
  - 4. Factory-authorized service representative shall prepare the "Fire Alarm System Record of Completion" in the "Documentation" section of the "Fundamentals" chapter in NFPA 72 and the "Inspection and Testing Form" in the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
- E. Reacceptance Testing: Perform reacceptance testing to verify the proper operation of added or replaced devices and appliances.
- F. Fire-alarm system will be considered defective if it does not pass tests and inspections.

- G. Prepare test and inspection reports.
- H. Maintenance Test and Inspection: Perform tests and inspections listed for weekly, monthly, quarterly, and semiannual periods. Use forms developed for initial tests and inspections.
- I. Annual Test and Inspection: One year after date of Substantial Completion, test fire-alarm system complying with visual and testing inspection requirements in NFPA 72. Use forms developed for initial tests and inspections.

### 3.6 MAINTENANCE SERVICE

- A. Initial Maintenance Service: Beginning at Substantial Completion, maintenance service shall include 12 months' full maintenance by skilled employees of manufacturer's designated service organization. Include preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper operation. Parts and supplies shall be manufacturer's authorized replacement parts and supplies.
  - 1. Include visual inspections according to the "Visual Inspection Frequencies" table in the "Testing" paragraph of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
  - 2. Perform tests in the "Test Methods" table in the "Testing" paragraph of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
  - 3. Perform tests per the "Testing Frequencies" table in the "Testing" paragraph of the "Inspection, Testing and Maintenance" chapter in NFPA 72.

### 3.7 SOFTWARE SERVICE AGREEMENT

- A. Comply with UL 864.
- B. Technical Support: Beginning at Substantial Completion, service agreement shall include software support for two years.
- C. Upgrade Service: At Substantial Completion, update software to latest version. Install and program software upgrades that become available within two years from date of Substantial Completion. Upgrading software shall include operating system and new or revised licenses for using software.
  - 1. Upgrade Notice: At least 30 days to allow Owner to schedule access to system and to upgrade computer equipment if necessary.

### 3.8 DEMONSTRATION

- A. Train Owner's maintenance personnel to adjust, operate, and maintain fire-alarm system.

- **END OF SECTION** -