City of Lynchburg
Procurement Division
900 Church Street
Lynchburg, Virginia 24504
Telephone No.: (434) 455-3970
Fax No.: (434) 845-0711

Addendum for Invitation for Bids
Lynchburg Regional Airport New Air Traffic Control Tower
2016-0018

Date: 09/16/2015
From: Lisa Moss, Buyer VCA
RE: Addendum No. 1

This Addendum supplements and amends the original Plans and Specifications and shall be taken into account in preparing proposals and shall become a part of the Contract Documents. The Bidder shall indicate receipt of this Addendum and all previously issued Addenda on the Bid Form.

Changes to Drawings

1. **LS-100: In the Building Code Data Table, change the reference of the Virginia Statewide Fire Prevention Code from the 2006 Edition to the 2012 Edition.**
2. **LS-101: In the Building Code Data Table, change the reference of the Virginia Statewide Fire Prevention Code from the 2006 Edition to the 2012 Edition.**
3. **P-001: Change part of the last sentence in Plumbing General Note #9 from Virginia Building Code and Virginia Plumbing Codes 2010 Editions to 2012 Virginia Construction Code and 2012 Virginia Plumbing Code.**
4. **E-001: In General Electrical Note #1, change the National Electrical Code reference from 2014 to 2011.**
5. **Replace plan sheets C002, C101, C102, C103, C302, C321, and C322.**
6. **Add plan sheet C-AB-011.**

Bidder's Questions

1. What is the estimated Notice to Proceed date on this project?
November 2015. If project start is delayed due to inclement weather, then NTP may be pushed until Feb 2016.

2. Also, can the separate schedules be bid independent of each other. Schedule D is lighting only and our company could bid that schedule as a prime contractor if allowable.
No, Schedules A-E shall be included as Base Bid.

3. Will part of this requirement involve new air traffic controller desk consoles in the tower?
Yes

4. Will this be bid as a GC type of response with subcontracts issued to the component part by the GC.
There will be one contract awarded to a prime contractor. It will be the prime contractor's responsibility and discretion to subcontract items to other parties

5. Is there a list of interested GC's that will be made available?
The Pre Bid Vendor Attendance record has been posted to the City's website.

6. I didn't see where Builders Risk Insurance was mentioned in the bid. Is this required, if so please provide information regarding the City's Builders Risk Insurance requirements?
Builder's Risk. The Contractor shall provide and maintain in the names of the Owner and the Contractor builder's risk insurance in the "all-risk" form upon the entire structure or structures on which the Work of this Contract is to be done and upon all material in or adjacent thereto which is intended for use thereon to 100 percent of the insurable value thereof. If the insurance includes a deductible provision, the Contractor shall be liable for the full cost of such deductible whenever a claim arises. The insurance shall be payable to the Owner and Contractor as their respective interests may appear. The Owner, its officers, its employees and its agents shall be listed as additional insured in any policy of insurance issued. The Contractor shall furnish the Owner with a copy of this insurance policy upon demand.

7. Please add the Davis Bacon rates to the bid.
Davis Bacon Rates added, include as an attachment to Addendum No. 1

8. What driver training will be required for this bid?
The Contractor will need to have a few staff members obtain Airport security badges to access the small portions of the project that are inside the Air Operations Area (AOA). In order to obtain a badge, an individual must be fingerprinted and pass the Airport driving class (which takes approximately 45 minutes). Fingerprints take approximately one week to be processed and must be processed before the badge is issued. The phasing of the project was developed to minimize the work inside the AOA, thus reducing the number of Contractor staff that need to be badged and reduce the impacts to Airport operations. The vast majority of project work takes place outside the AOA.

9. During the demolition phase, will the owner be removing and reusing the equipment or will the contract have responsibility for the removal and disposal?
Some equipment in the existing tower will need to remain to allow the tower to stay in operation. The FAA will be handling the removal of all equipment from the existing tower. The Contractor will need to coordinate the removal of equipment with the FAA and will not be held responsible for any delays by the FAA in removing their equipment.

10. Who is responsible for all permit fees, related to this project, from Campbell County?
The Contractor is responsible for all permit fees related to this project, per specification sections GP-70-02 and P-156.

11. Who is responsible for material testing above and beyond the special inspections?
The Contractor is responsible for all material testing above and beyond the special inspections.

12. Are there any crane height restrictions?
No, but coordination and approval is required before raising the boom of a crane near the Airport. The Contractor must provide the date(s) the crane will be used, location where the crane will be used, and maximum height of the crane. RS&H will submit this information to the FAA for approval prior to crane use. The Contractor must provide advanced notice to RS&H so the information can be sent to the FAA for their review.

13. Contractors are welcome to visit the non-secure areas of the site at will. However, if they wish to see other areas that are not open to public access, they must contact Rick Stein at the Airport at 434-455-6088 to arrange to have access to the site.

14. What are the badging requirements for this project?
See response to Question No. 8.

15. Remove Specification 275000: Air Traffic Control Equipment and replace it with the revised Specification 275000 that is attached.

Company Name:_____ Address:_____ Date:_____

Authorized Signature:_____ Title:_____

Print Name:_____ Telephone No.:_____ Fax No.:_____

General Decision Number: VA150134 01/02/2015 VA134

Superseded General Decision Number: VA20140134

State: Virginia

Construction Type: Highway

Counties: Amherst, Bedford, Bedford*, Campbell and Lynchburg* Counties in Virginia.

*INDEPENDENT CITIES

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects & railroad construction; bascule, suspension & spandrel arch bridges designed for commercial navigation, bridges involving marine construction; and other major bridges).

Note: Executive Order (EO) 13658 establishes an hourly minimum wage of $10.10 for 2015 that applies to all contracts subject to the Davis-Bacon Act for which the solicitation is issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.10 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/02/2015

SUVA2013-009 09/20/2013

	Rates	Fringes
ASBESTOS WORKER	$ 13.29	
CARPENTER (STRUCTURE)	$ 14.19	
CEMENT MASON/CONCRETE FINISHER	$ 18.31	
FORM SETTER	$ 10.59	
IRONWORKER, REINFORCING	$ 13.11	
IRONWORKER, STRUCTURAL	$ 12.46	
LABORER		
Asphalt Raker	$ 13.07	
Blaster	$ 31.25	
Construction Worker I (Skilled Laborer)	$ 14.83	
Construction Worker II (Laborer)	$ 12.82	
Deckhand	$ 9.50	
Fence Erector	$ 9.50	
Flagger	$ 9.90	

Grade Checker.....$ 14.00
Guardrail Erector.....$ 14.84
Landscape Worker.....$ 12.00
Pipe Layer.....$ 11.78
Power Tool Operator.....$ 15.25
Sign Erector.....$ 11.75

MASON (STRUCTURE).....$ 19.00

PAINTER.....$ 18.33

POWER EQUIPMENT OPERATOR:
Air Compressor Operator.....$ 10.88
Asphalt Distributor.....$ 15.15
Asphalt Paver.....$ 14.39
Backhoe.....$ 19.50
Bulldozer (Utility).....$ 12.50
Bulldozer.....$ 17.29
Concrete Finish Machine Operator.....$ 12.79
Concrete Finish Machine Screed Operator (Bridge)....$ 12.00
Concrete Saw Operator.....$ 19.00
Crane, Derrick, Dragline Operator (1 cm & under).....$ 14.50
Crane, Derrick, Dragline Operator (over 1 cm).....$ 16.50
Crusher Tender.....$ 11.00
Drill Operator.....$ 14.50
Excavator, Gradall.....$ 18.83
Front End Loader (2 cm & under).....$ 12.25
Front End Loader (over 2 cm).....$ 15.87
Hydro Seeder.....$ 15.00
Mechanic.....$ 18.00
Motor Grader Operator, Rough Grade.....$ 16.37
Motor Grader, Fine Grade....$ 31.08
Oiler, Greaser.....$ 13.83
Pavement Marking Operator...$ 15.13
Pavement Marking Truck Operator.....$ 16.68
Pavement Planing Groundman..$ 13.00
Pavement Planing Operator...$ 17.00
Pile Driver Operator.....$ 14.00
Pile Driver, Leadsman.....$ 19.13
Pipe Boring/Jacking Machine Operator.....$ 18.92
Roller (Finish).....$ 12.42
Roller (Rough).....$ 12.78
Scraper Pan.....$ 12.75
Slip Form Paver Operator....$ 12.85
Slurry Seal Paver Machine Operator.....$ 13.50
Slurry Seal Paver Truck Operator.....$ 10.50
Stone-Spreader.....$ 13.35
Subgrade Machine Operator...$ 10.80
Tractor Operator (Crawlers).$ 11.50
Tractor Operator (Utility)..$ 12.00
Trenching Machine Operator..$ 10.00
Vacuum Machine Operator.....$ 10.15

TRAFFIC SIGNALIZATION:
Traffic Signal Installation.....$ 24.50

TRUCK DRIVER
Fuel & Lubricant Service
Truck Driver.....$ 11.60
Transit Mix Truck Driver....$ 11.80
Truck Driver (Single Rear Axle).....$ 13.46
Truck Driver (Multi-Rear Axle).....$ 16.19
Truck Driver (Tandem Rear Axle).....$ 11.01
Truck Driver, Heavy Duty....$ 13.34

WELDER.....$ 12.27

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

SECTION 275000 – AIR TRAFFIC CONTROL (ATC) EQUIPMENT

1. General

The criterion set forth in this section includes the minimum equipment, materials, and labor to satisfy the ATC communication requirements for a new Level I, Low Activity Airport Traffic Control Tower (ATCT) at the Lynchburg Regional Airport (LYH). The Contract Drawings directly related to this section are TE-100, TE-200, TE-201 and T-300. However, all of the Contract Drawings shall be referred to in coordinating the installation of ATC equipment in the new ATCT.

2. Codes and Standards

All electronic and electrical equipment and installations shall be provided in accordance with the current required local, state and national codes and standards, as applicable. Qualified personnel shall perform the installations and shall also be in attendance for all punch list and final inspections. All equipment is based on the guidelines set forth in the FAA Contract Tower Minimum Equipment List (MEL) FAA JO 7210.54 Appendix B dated October 1, 2006 including current updates by the Federal Contract Tower (FCT) Program Office, Washington, DC.

3. Qualifications

The Contractor must provide a minimum of two (2) technicians on-site for this project, both having prior experience. These installers must have demonstrated the ability to install, configure and integrate all equipment needed to meet FAA minimum standards, as provided in the FAA MEL, in at least four (4) locations over the past twenty four (24) months. Radios shall be tuned and certified by FCC licensed installers as provided by the Contractor. The Contractor shall provide qualifications documentation with its materials submittals and shop drawings.

4. Equipment Submittals, Installation and Coordination

The Contractor shall furnish, install, test, and verify all equipment, hardware, software, racks (securely attached to each other and to the floor), cabling, conduit, connectors, labeling (identification), and miscellaneous equipment required to provide a complete and usable installation. All ATC equipment shall be new unless otherwise indicated and shall be installed in a new control tower. All components of the new ATCT at the Lynchburg Regional Airport shall be constructed to Federal Contract Tower (FCT) standards. The completed ATCT will be equipped with an elevator to the floor below the control cab. ATC Equipment shall be installed in the Control Cab, on its roof and in the Equipment Room (3rd level of the tower). The Federal Aviation Administration (FAA) electronics will also be located in the same room on the 3rd level which may be installed during and/or after the Contractor's installation timeframe. The Contractor shall be responsible to coordinate its equipment installation with the FAA through the Owner or its designated representative, so as not to conflict with equipment that FAA will install. At this time, the FAA's installation includes but is not limited to a STARS remote radar system, NAIMES, FDIO, RVR, IDS, ASOS, ILS, MALSR and FTI Telecommunications lines. At a minimum, FAA's equipment will be located in the ground floor Telco Room, the 3rd floor Equipment Room, Cab Roof and in the Control Cab.

All submittals shall be provided in pdf electronic format with at least two (2) full size hard copies to the Architect/Engineer. A general arrangement of the ATC equipment console is provided on the Contract Drawings. The cab console is designed with alternating flat and sloped (turrets) surfaces in anticipation of supporting pedestal mounted displays and panels as well as flush mounts. ATC Equipment Submittals shall be submitted with the Console (cabinetry/millwork) Submittal. The ATC Equipment sizes and locations shall be coordinated with the Console shop drawings by the Contractor. Additional time will be required for architectural review in order to coordinate an FAA review for placement of their equipment. If the Contractor proposes to make any modifications to the console layout from that presented in the Contract Drawings or as subsequently approved, then the Contractor shall submit a statement and/or drawings with the equipment and console submittals for approval at least ninety (90) days prior to fabrication of the consoles. The Contractor shall submit a roof plan showing antenna locations in relation to other appurtenances that are shown on the project electrical plans. Alternate console and/or roof layouts presented shall be reviewed further with FAA, the Owner and its project representative, as required, for coordination and approval. Sufficient space shall be reserved in the facility for FAA provided equipment and other equipment or monitors as may be identified prior to or during construction. Coordination of task lighting, telephone, data and electrical outlets locations with Console construction and electronic equipment locations during shop drawing preparations and installations shall all be the responsibility of the Contractor.

5. Scheduling Installation

Electronics installation shall not begin until a Temporary Certificate of Occupancy (TCO) is issued by the Authority Having Jurisdiction (AHJ) or when all other trades are out of the building to prevent dust from settling into the new equipment. Antennas and cabling may be accomplished prior to a TCO. Punchlist items for the rest of the building may be worked on simultaneously only if they do not create dust or any potential for degradation of the electronics being installed. Work shall normally be conducted during typical daytime weekday working hours and shall not interfere with the conduct of air traffic control. Any work proposed to be conducted during other hours shall be requested by the Contractor and approved by the Owner in writing prior to any attempt.

The Contractor shall supply the Owner and his Authorized Representative with an initial schedule and monthly updates. It is the Contractor's responsibility to schedule and coordinate work with the Owner and others, as required. The Contractor shall report any difficulties or delays to the Owner or his Authorized Representative, immediately.

6. Voice Communications Switching System (VCSS) Requirements

The Installer shall furnish and install the components necessary to provide a new voice communications switching system for three (3) controller positions and expandable to at least 4 total positions in the future. This system shall be capable of providing connectivity between the airport traffic controllers and the voice communications equipment in the facility. This system shall provide the airport traffic controllers with the ability to utilize the equipment specified in the radio, telecommunications, and voice recording requirements, FAA dedicated circuits, intercom system between positions, position relief brief recording system, redundant capability between positions, and software that is programmable either at station or remotely.

Acceptable manufacturers and models shall be Harris Corporation Liberty Star 3, Frequentis Smart 3020X, or an approved equal with a 15" pedestal mounted or 10" hinge & lock touch screen control monitor, as appropriate to the approved manufacturer, at each of the three (3)

positions noted on the plans. The screen shall provide high contrast color, be adjustable to viewing angles and have brightness controls to be easily readable during day and night. The screen shall be sun readable and have a non-glare surface. The screen housing shall be as provided by the switch manufacturer, or if not provided, then an approved housing shall be gray or black. The existing voice switch control panels shall be removed from the console. The hole left in the console for the existing voice switch shall be completely covered by the new touch screen mounting material or a black powder coated aluminum bezel plate.

The VCSS shall be installed as independent operator positions with station-to-station redundancy in the ATCT cab. The screens for these positions shall be adjustable and pedestal mounted, as approved. All termination cabling for the voice communications system will be terminated in the equipment room to avoid interference in the cab area.

A request will have been made by the Owner for the Federal Aviation Administration (FAA) to install the required dedicated line circuits and the local telephone company to install the required commercial line circuits. The switching system shall have the proper interfaces required to handle FAA lines from the parent Approach Control facility and other dedicated circuits. The Installer shall be responsible for confirming the number and type of lines and the coordination of the FAA interface.

The voice communications switching system shall have the capability to handle four (4) central office type phone lines. The system shall be able to preset all lines for automatic call out at the same time for emergency agencies on the airport. The system shall also be equipped with a generator tone ring down line that has the capability to ring a phone at the city's emergency call center. This requires that each of the three (3) operating positions have a 12 digit keypad (0 through 9, #, and *) to access these lines and others. The city will connect their emergency line at a future date, if so desired. The switching system shall have the capability to program at least 10 speed dial telephone numbers. Each of the switching consoles shall include the required number of audio jacks to facilitate the use of the two (2) headsets or two (2) handsets at each of the operating positions (with instructor/student override capability at the station or from a distant station).

Summary of features (VCSS)

- Four (4) Communication channels (Radio 4 wire)
- Two (2) FAA dedicated 2 or 4 wire communication circuits to include voice page (SHOUT) and SS-1/4 two or three digits dial circuits.
- Four (4) Commercial Analog Phone lines including FAA Domestic Emergency Network (DEN)
- Busy out feature
- Redundant position capability for failure point control
- One Button call feature that will seize a telephone line to automatically dial a preprogrammed number to include preset conference dialing.
- Capable of group call-out on all channels.

7. Main Radio Transmitters and Receivers

The Contractor shall furnish and install three (3) VHF Single Channel Rack Mount Transmitters, and two (2) VHF Single Channel Rack Mount Receivers for the purpose of two-way air traffic control communications for the frequencies and uses listed below. One of the Transmitters may be an incorporated radio in the ATIS device (see related requirements for the ATIS/ASOS in paragraphs 17 and 19).

Transmitters shall be General Dynamics Model CM-300VT or an approved equal. Receivers shall be General Dynamics Model CM-300VR or an approved equal. Radios must achieve all applicable FAA standards and acceptance. Radios shall be tuned to the frequencies issued for ASOS, the standard emergency frequency, airport ground control and the local air traffic control. These radios shall be installed so that all frequencies are available to each controller position in the cab area. Radios shall be rack mounted in approved new equipment racks provided by the Installer in the FCT Equipment Room.

Summary of Features for VHF Single Channel Receivers and Transmitters

VHF Frequency Range: 117.975 MHz – 136.975 MHz (25 kHz increments)
Power Output: 10 Watts Maximum (adjust to license, as required)
Digital Tunable:

TX & RX	121.90	VHF Ground
TX & RX	127.65	VHF Tower
TX	119.80	VHF ATIS/ASOS

8. Tunable Back-up Base Station

The Installer shall furnish and install one (1) VHF Tunable Base Station Radio, ICOM IC-A110B or approved equal, for the purpose of back-up two way air traffic control communications of the Ground and Tower frequencies and to monitor the VHF Emergency frequency, 121.5 MHz but shall include tuning to the entire range specified below. Base Station shall utilize one of the roof mounted antennas specified below.

Typical Frequency Range:
VHF Frequency Range: 117.975 – 136.975

9. Tunable Back-up Hand-Held Transceivers

The Contractor shall furnish two (2) VHF hand held radios (ICOM IC-A6) with charger bases or approved equivalent for the purpose of back-up evacuation capability for two-way air traffic control communications**.** The radios will be utilized for back-up purposes for both the ground control and local control frequencies but shall also include the tuning ability to cover all VHF frequencies in the range below.

Minimum Specifications (Radios)
Frequency Range: 118.00 to 136.975 MHz (25 kHz increments)
Power Requirements: DC battery with AC Charger Base

Power Output: 5 watts minimum

11. Radio Antennas and Cable Management

The Contractor shall provide four (4) VHF antennas which includes the (3) VHF single frequencies and one (1) VHF base station range. They shall meet the requirements of Taco D5076, Antenna Products or approved equal. Antennas shall be positioned on the roof in such a way that will not result in bleed-over or any interference from other antennas or air terminals.

Mounting hardware and junction boxes shall be rated for outdoor use and provide acceptable resistance to the elements. This shall require the Contractor to install galvanized rigid steel pipes, fittings, accessories and mounting channels, such as Unistrut or Cooper Industries, suitable for the antennas provided.

Summary of Features (Antennas)

VHF Frequency Range: 117.975 – 136.975
VSWR 2 to 1 or less: (Across the entire bandwidth)
Wind Velocity/Loading: 100 MPH (with 0.5" icing)
Lightning Protection: Direct Ground

Antennas shall be tested by the Installer and, when found satisfactory in relation to all frequencies, shall be installed on the cab roof as required for the configuration of radios in this particular installation. Provide polyphasers for each antenna in a junction box on the roof. A conduit and junction box routing system shall be provided by the Contractor with all mounting hardware and weather tight junction boxes to complete an antenna system in a manner that meets industry codes and standards. Mounting hardware and junction boxes shall be rated for outdoor use in the local wind zone and provide acceptable resistance to the elements (i.e., all pipes, channels, fittings and clamps; use compatible metals for all hardware connections).

12. Radio Filters

When required, the Contractor shall furnish and install cavity type filters to each of the VHF/AM single channel receivers and/or backup transceivers. Radio filters built-in each new transmitter and receiver shall be provided to minimize channel interference. Cavity filters will only be required if the new installation creates any unique interference with respect to its components or the control tower's location. Contractor must determine this prior to completion and acceptance. Provide Telewave Bandfilters, Sinclair Technologies Low Band Aviation, or an approved equal..

13. Controllers Headsets and Handsets

The Contractor shall provide eight (8) headsets with 25 feet of coiled cord and four (4) handsets with 15 feet of coiled cord. The headsets shall be Plantronics Star sets (Part No. H-31 C/D; cord shall be Part No. SHS 1890-15), GN Netcom 2120-NC, or approved equal. The handsets shall be Walker PTS-500-OP4-00, or an approved equal.

14. Telecommunications Requirements

The Contractor shall tie one (1) central office type line, one (1) Shout type line, one (1) SS/1 or SS/4 multi-point ring down line and/or Hybrid line, as required by FAA to match existing capabilities, into the voice communications switching systems at each of the thee (3) controller

operating positions (Local, Ground and Flight Data). The Contractor shall also furnish and install six (6) new business style, corded, black, Multi-Purpose Telephone sets, with intercom capability, base speakerphone and expandable to sixteen (16) stations (AT&T 1040 multi line phone or equivalent) in the locations specified.

Phone Locations (7):

1 – Air Traffic Manager's Office
1 – ATC Equipment Room
1 – TELCO Room
1 – Break Room
1 – Training / Conference Room
2 – Control Cab

Types of Phones:
Multiple-Line (4 lines minimum)
Speaker Phone (Wall/Desk Mountable, as approved)

15. Voice Recording Requirements

The Contractor shall furnish and install one (1) voice activated, rack mounted, industrial quality digital STANCIL NextGeneration Multi-Media Logging Recorder (SLR) or an approved equal. The SLR shall have dual redundancies including but not necessarily limited to removable hard drives, fans and power supplies. It shall support RAID-1 storage up to 2TB with archiving options to record audio from multiple sources. The recorder shall have the capability to record a minimum of twenty-four (24) channels, including "dead air", simultaneously and be equipped with a rack mounted LCD monitor, keyboard, mouse and/or touchpad.

The purpose of this component is to provide a means for the recording, playback, and duplication of the audio announcement for the GPS master time code generator plus all radio and telephone communications to and from the control tower with the exception of the dedicated facsimile and non-essential telephone lines that are not being used by controller positions. The SLR shall support multi-channel playback and have the ability to export recordings using multiple methods including saving as .mp3 or .wav files, burn to a CD/DVD and attach them directly to an email. More details of the SLR requirements are contained in the Installation Check List and the Standard Hardware Configuration, both dated January 1, 2012 (or as currently updated), as can be found on the www.stancilcorp.com website.

17. Airport Terminal Information System (ATIS)

The Contractor shall furnish and install a complete ATIS with voice integrated announcer and transmitter. The equipment shall be provided as an ATIS (brand) CV(JBIII), Interalia SBX AP4 or an approved equal. The ATIS announcer shall be integrated with the VCSS. A radio transmitter (see requirements in paragraph 7, above) as well as all wiring, antenna, filter (as required) and all incidentals shall be furnished and installed in order to provide a complete and operating ATIS.

Summary of Features

- At least 2 announcement channels
- Minimum of 15 minutes of recording time

- DTMF call transfer
- Remote access recording
- Call statistics
- System operating battery backup
- Compatible with all major telephone systems

18. FAA ASOS

Automated Surface Observing System (ASOS) units are automated sensor suites that are designed to serve meteorological and aviation observing needs. These systems generally report at hourly intervals, but also report special observations if weather conditions change rapidly and cross aviation operation thresholds. An ASOS is located on the LYH airfield and is owned and operated by the National Weather Service (NWS) for the FAA. It will be FAA's responsibility to relocate the connectivity, cab display and equipment rack from the existing to the new ATCT. Coordination, floor and console space, power and grounding responsibilities lie with the Contractor and shall be considered incidental to those ancillary provisions.

19. ATIS/ASOS Interface Unit (AAIU)

The AAIU facilitates switching to independent broadcasts between the existing NWS owned ASOS and the new ATIS. The device shall be FAA approved, professionally fabricated and appropriately labeled with permanent markings as manufactured by WOLEN, LLC or an approved equal. The AAIU shall be located on the new cab console in accordance with the console layout plan. The AAIU shall be compatible for use with the ASOS make and model.

The AAIU shall be fabricated so that the audio from each device (ASOS and ATIS) can be switched by the air traffic controllers when closing and opening of the tower. The device shall allow both radio broadcast and telephone dial-in for pilots to obtain ATIS and ASOS information as switched by the controllers. It must be an FAA Approved device and receive local NCP approval from the FAA Non-Federal Coordinator as well as ASOS CCB RC approval from the NWS. The Installer shall apply for and obtain these approvals in accordance with the Administrative Approval Considerations noted in FAA Memorandum dated 1/25/2010 and issued from Bettie Loudenslager, Manager, Weather Processors and Sensors Engineering Team, AJW-14A entitled "Automated Terminal Information System and Automated Weather Reporting Facility Switched Connections to a Common Transmitter". Contact Dennis Kamin, P.E., FAA Oklahoma City, (405) 954-1815. Provide said approvals to the Engineer along with its manufacturer's data, installation details and operation manual.

20. Back-up Wind Indicators/Sensor

Provide the Sensor and Displays in accordance with FAA Memorandum dated June 12, 2014 by Bettie Loudenslager, Manager, Weather Systems, AJW-1440 entitled "Ongoing Approval of Stand Alone and Backup Weather Equipment for Federal Contract Towers, Non-FAA Control Towers and Other Aviation Facilities". The installation of all associated instruments, data transmitter and receiver/display, steel mast, foundation and the provision of conduit, wire and all incidentals shall be completed by the Contractor, as required, to provide a complete and operating system. The Contractor shall provide power supply in accordance with the Electrical requirements specified in the Contract Documents.

The Contractor shall furnish and install two (2) sets of Wind Directional and Wind Speed Indicators and a remote sensor to provide backup wind velocity and direction information to the airport traffic controllers in the new ATCT. Its manufacture shall be certified for use by the FAA and/or the National Weather Service. Currently, the FAA has conditionally approved the RM Young 05108 Heavy Duty Wind Monitor, the 85000 or 85004 Ultrasonic, the 05103, 05106 or 05305 Wind Monitor and 03002 Wind Sentry models. Also, conditionally approved is the F420C by the Electric Speed Indicator Co.

The indicators/displays must be able to accurately show the velocity and direction of the wind from a location representative of the airfield conditions. These indicators must be internally illuminated and mounted on the control tower cab console, one at each Local and Flight Data controller position. The Contractor shall install the sensor on top of a steel mast as shown on the project plans and as specified below. The sensor shall transmit data via its own RF radio link or microwave transmitter and antenna to a receiver mounted on the roof of the new control tower and connected to the indicators in the ATCT cab. The Contractor shall be responsible for timely acquisition of the related frequency and FCC license registration in the city/airport's name. Provision and installation of all associated instruments, sensor, data transmitter and receiver, power extension and outlet, conduit, wire and incidentals shall be completed by the Contractor, as required to result in a complete and operating system.

21. Back-up Temperature and Dewpoint Indicators/Sensor

The Contractor shall provide two (2) FAA Approved Temperature / Dewpoint Indicators mounted on the control tower cab console, one at each Local and Flight Data controller position. The Temperature/Dewpoint sensor shall be installed on a steel mast in a grassed area along with the wind sensor as shown on the Contact Drawings. The Contractor shall provide power supply in accordance with the Electrical requirements specified in the Contract Documents.

RM Young 41382LC T/DP Sensor has been "conditionally accepted" by the FAA. Caution: Based on information available from RM Young's web site, this sensor's range of -50°C to +50°C does not meet the FAA temperature range criteria of -35°C to +55°C. The T/DP sensor must be mounted 5 ±1 feet above ground level. It must be located such that measurements are representative of the free air circulating in the area and not adversely influenced by artificial conditions such as nearby buildings, cooling towers and expanses of concrete or asphalt.

RM Young 46203 Temperature Tracker Display with hardwired connection to sensor and the RM Young 43408 Aspirated Radiation Shield have been "conditionally accepted" by the FAA. Make provisions regarding the hardwired connections between the sensor and the aspirated radiation shield in the field and the display in the tower cab shall be subject to the same surge protection requirements and practices as any other power, communication or data line entering the control tower building. Note that the FAA conditional acceptance of these items is subject to change.

The sensor shall transmit data via its own RF radio link or microwave transmitter and antenna to a receiver mounted on the roof of the new control tower and connected to the indicators in the ATCT cab. The Contractor shall be responsible for timely acquisition of the related frequency and FCC license registration in the city/airport's name. One radio link frequency to combine the transmission of wind as well as temperature/dewpoint is preferred. Provision and installation of all associated instruments, sensor, data transmitter and receiver, power extension and outlet, conduit, wire and incidentals shall be completed by the Contractor, as required to result in a complete and operating system.

22. Backup Altimeter Setting Indicator/Sensor

The Contractor shall furnish and install two (2) Digital Altimeter Setting Indicators (DASI) in the control cab that are traceable to NIST standards. A calibration certificate shall be provided to the Owner. Two (2) display monitors shall be provided, one at each Local and Flight Data controller position, to show the airport barometric pressure reading. DASI shall have the capability to be calibrated to the ASOS reading. Its manufacture shall be certified for use as acceptable to the FAA. A Setra 370 has recently been deemed "conditionally acceptable" by the FAA. The mean sea level sensor elevation, not the pressure port elevation, must be determined to the nearest whole foot by a qualified surveyor or verified with the as-built ATCT building elevation. This location and elevation must be documented in a certified letter by the Installer to the Owner. In accordance with the current siting order, FAA 6560.20B, the sensor must be installed within 100 feet of the field elevation. The Gill 61002 Pressure Port (also known as the RM Young 61002 Pressure Port) is currently listed as "conditionally acceptable" by FAA and must be mounted outside, at least three feet above ground level. It must be located in an area free of vibration and rapid temperature fluctuations due to exhaust vents, etc.

The barometer must have a minimum operating range of 25 to 31 inches of mercury (in/Hg) in an operational range of 5 degrees C to 50 degrees C with the humidity at 0 to 80 percent non-condensing. The gauge must have a digital display of at least one (1) inch high and shall be mounted on the cab console or integrated with other sensor displays. Installation of all related cabling, drilling, caulking, and incidentals shall be completed by Installer.

23. Weather Sensor Mast

Provide a 30' tall freestanding, fixed, hot dipped galvanized and bonderized steel mast that shall be installed at the sensor site shown on the project plans. The mast shall be a Rohn 45G triangular section, self-supporting tower or approved equal. It shall be certified by a registered professional engineer as rated for an ultimate wind velocity of 105 mph (3 second gust, 2012 Virginia Construction Code, Risk Category 1) with ½" of ice. The mast shall be primed and painted in accordance with FAA criteria which is a six-band marking with alternating bands of aviation surface orange (beginning at the top) and white. Paint shall conform to FED-STD-595 as Orange #12197 and White #17875. An LED FAA L-810 obstruction light shall be placed at the top of the weather sensor mast as shown on the Contract Drawings.

The mast shall be provided complete including excavation, backfill and compaction, site restoration, a reinforced concrete foundation including imbedded conduits, stone dressing around the foundation and a concrete north marker with brass disc. The Contractor shall provide power supply in accordance with the Electrical requirements specified in the Contract Documents.

24. Master Time Code Generator

The Installer shall furnish and install one (1) digital 24 hour format master time code generator in the control cab. Time code generator shall be integrated into the voice recorder to synchronize all time on audio recordings. The digital time readout shall appear on each of the voice switch displays in the control cab. The master time code generator shall be GPS synchronized through a RS 232 serial port for output data. Installation of all associated cabling, gauges, and other required components shall be completed by the Installer. Provide ESE 101, Spectracom 9283, or an approved equal.

The 24 hour digital display shall be a light emitting diode (LED) display or liquid quartz with internal illumination. The digital clock display (such as Spectracom TimeView 210W or approved equal) shall be installed in a central unobstructed location between the Local and Ground controller positions having green or red LED digits that are a minimum of 2 inches high for minutes and 1 inch high for seconds.

25. Signal Light Gun

The Installer shall furnish and install one (1) new cordless, rechargeable, signal light guns with charger, spare battery and two desktop holders to perform visual ground to air communications. This equipment shall be manufactured by SLG LED or DME P/N 401200 or equal. This equipment shall meet FAA standards in order to facilitate ground to aircraft communications and operations in the event that the control tower and/or aircraft radio communications become inoperative.

26. Task Lighting

Furnish and install eight (8) LED desktop lampsets with an 18 inch gooseneck, two (2) at each of three (3) controller positions plus on the supervisor's desk. Exact locations shall be confirmed on the job with the Air Traffic Manager and the Engineer, as approved.

Lampsets shall have a three-way rotary switch which enables the user to toggle between a white light and red light output and an off position. Each lampset shall be dimmable and have a minimum 48-inch cord set. Provide LED task lighting by Littlite, LLC, Hamburg, MI, sales@littlite.com or an approved equal.

27. Racks and Misc. Supplies

The Installer shall provide two (2) new standard industry powder coated steel or aluminum equipment racks for the installation of all new and relocated equipment as required by this section of these specifications. The racks shall be 22.5 inches wide, 24 inches deep and a minimum of 72 inches in height. They shall meet EIA-310 standards and be painted black. Other miscellaneous supplies such as power strips, grounding, related hardware, cable, conduit, connectors, labels, etc. required to provide a complete and usable unit shall be considered incidental to an operating and approved installation. Provide racks as manufactured by the BUD Industries, Willoughby, OH or an approved equal.

28. Binoculars

The Contractor shall furnish three (3) sets of Permafocus 7 X 50 (or higher) power binoculars as manufactured by Bushnell or other approved source.

29. Flight Data Bays and Aircraft Counters

The Contractor shall furnish and install all necessary hardware for the organization of flight data strips to accommodate two (2) controller positions (Local and Ground). Each bay combine two (2) sets of 10 strip positions (2 X ten (10) white plastic holders for flight data strips). Provide 60 FAA Type 4 plastic strip holders.

The Contractor shall provide two (2) new aircraft counters, seven (7) counting places minimum, to allow the recording of traffic operations at the airport. Provide as manufactured by the Denominator Company, Woodbury, CT or an approved equal.

30. Commercial Grade Chairs

The Installer shall furnish and deliver four (4) new industrial quality, intensive use chairs for the airport traffic controllers. All chairs must have the following features:

Five leg metal base with a minimum diameter of 25”
Minimum of 5 - 2” caster wheels for carpeted floors
Seat height adjustment for three (3) chairs – Low Stool (min of 17” and maximum of 22”)
Seat height adjustment for one (1) chair – High Stool (min of 20” and maximum of 28”)
Backrest (approximately 19” wide x 16” high) with tension control
Arm rests (approximately 7” to 8” high from seat)
Material shall be Electrostatic Discharge type (ESD) including discharge chain below

The color of the chairs shall be coordinated with the color scheme of the control cab. Final determination shall be by the Owner. Chairs provided shall be manufactured by Bench Depot, Phoenix/Domore, or approved equivalent.

31. Transparent Cab Window Shades

The Contractor shall furnish and install ATC window shades for all glazing in the control tower cab. One shade roller shall be installed at each of eight (8) sides of the control cab. That is, one shade shall span the entire window, across and over the center curtainwall mullion, from structural column to structural column. Shade pockets shown on the architectural drawings are intended to accommodate a second roller at each location, if required in the future.

On sides requiring only one roller each, they shall be placed in the position closest to the window leaving enough space for a second future roller. The shade material shall closely follow the same incline as the cab glass in the down position. A wooden nailer board painted flat black shall be provided by the Contractor for the full length of each shade pocket for the shades to be securely and evenly screwed into. Only manufacturers and installers experienced with control tower installations shall be allowed to furnish and install cab window shades. Provide a list of prior experience with the material submittal.

The window shade materials and installation tolerances shall meet or exceed FAA E-2470b. Window shades shall be adjustable and have a scratch resistant surface on cord drawn rollers. Installation of window shades shall be coordinated on-site with the Air Traffic Manager and approved by the Engineer. Any operational defects, deviations from tolerances or optical distortion shall be cause for rejection. Provide ATC transparent cab window shades by Solar-Screen Co., Inc. of Corona, NY, Plastic-View of Simi Valley, CA or an approved equal.

32. Crash Alarm & Red Telephone System (CARTS)

The current crash phone in the existing control cab connects to the Airport Rescue and Fire Fighting (ARFF) Station. The CARTS shall be used to alert the ARFF Station when an incident occurs on the airfield by use of a dedicated red telephone in the control cab. The alarm function and connectivity shall duplicate the existing condition. The line shall be activated immediately upon pick up of the receiver without dialing any numbers in order to provide a dedicated

intercom system that will allow direct audio communication between the Controllers and the ARFF Station. The red phone in the ATCT shall not have a flashing light. The CARTS shall also provide an interface to the Recording and Playback System to allow recording of all voice communications between the users. The CARTS phone shall be a desk model as manufactured by Viking Electronics, Inc or an approved equal.

The city of Lynchburg IT Department will order the new telephone line with the telephone company. The Contractor shall provide the red phone, cabling and outlet in accordance with the Contract Documents for the new ATCT as well as be responsible for notifying the city IT Department, through the Owner's Representative, of when the building phone system will be installed and ready for this connection.

33. Cutover Requirements

"Cutover" from existing equipment to new equipment shall be carefully planned and coordinated in order to maintain safe and continuous operation of airport traffic control.

a. The Contractor shall make all required provisions to prevent impact to flight operations during control tower transfer from the existing equipment to the new replacements.
b. The Contractor shall coordinate all activities with the Owner and the Air Traffic Manager prior to and during the cutover. A pre-cutover meeting shall be scheduled at least 48 hours before the scheduled activity.
c. The existing equipment shall stay on-line and operable until all new systems are in place, tested and ready for operation as the primary equipment.
d. The Contractor shall perform the cutover during the hours of tower closure (2230 to 0630) and remain on-site for the first day of operation to provide whatever assistance and/or troubleshooting is required.
e. The Contractor shall provide an equipment cutover plan to the Owner and Engineer for review and consideration at least 14 days prior to the planned cutover date.

<u>The Cutover Plan shall address:</u>

- Submit a written equipment replacement plan that shall maintain control tower operational requirements and will dovetail into the FAA's cutover plan.

- Submit a list of all ATC equipment and incidentals to be replaced, removed, or relocated.

- Confirm critical equipment items necessary to maintain ATC operations.

- Confirm that all work will be done during tower off-hours and make written request for any required deviations.

- Develop a strategy and schedule that mitigates impact to ATC operations and coordinate this with all concerned parties including FAA.

- Verify operational capability after equipment replacement ~ Immediately identify and correct deficiencies, if any are encountered.

34. Warranty

The Contractor shall provide a minimum (1) one-year warranty on all installation work to include all labor, hardware, software, communication components, voice switchgear, and all related work completed throughout the facility. Any damage caused by natural causes (very high winds, lightning strike, etc.) or other construction trades are understood to normally void warranty conditions for labor. All equipment shall be provided with written one (1) year warranties from their manufacturers, except that the main radio transmitters/receivers shall carry a (3) three-year warranty on hardware. When repair is needed, Owner will be responsible for customary shipping charges back to the factory.

35. Training & Orientation

The Contractor shall schedule and provide a training session to the ATC controllers and the Owner's maintenance personnel at the completion time of the installation. Completion of this session shall be documented by the Contractor with the Owner, attendees, and specific equipment manufacturers, as required. A separate visit by the Contractor's Installer shall be made within the first 30 days after FAA Commissioning to provide an inspection and adjustments of the electronics performance, as required.

Sufficient written documentation shall be provided by the Contractor in order for the Owner and controllers to independently operate and maintain the equipment included in this specification. Documents shall include all owners' manuals, schematics, diagrams, as-built conditions, and any other related materials.

36. MEASUREMENT AND PAYMENT

Payment shall be made at the lump sum price bid for all work provided in this Section. The lump sum price bid shall include all materials, labor, equipment, submittals, shop drawings, warranties, transportation, testing, incidentals, and services required to install the equipment and satisfy the overall requirements for a new and operational Air Traffic Control Tower (ATCT) at the Lynchburg Regional Airport per this Section, the Contract drawings, and all other contract specifications and provisions.

Payment will be made per Pay Item 275000-1 ATC Equipment Package – Per Lump Sum

END SECTION 275000