



PROJECT MANAGEMENT

**INFORMAL INVITATION TO BID REQUEST
#24-25-40**

**HVAC BUILDING AUTOMATION SYSTEM UPGRADE
SHEPPARD LIBRARIES
City of Greenville**

MANDATORY

**PRE-BID MEETING: TUESDAY, APRIL 15, 2025 @ 2:00 PM
SHEPPARD MEMORIAL LIBRARY
530 EVANS STREET, GREENVILLE, NC**

**BIDS DUE DATE: TUESDAY, APRIL 29, 2025 @ 2:00 PM
PROJECT MANAGEMENT
2000 CEDAR LANE, GREENVILLE, NC 27834**

CONTACT PERSONS:

QUESTIONS REGARDING THE BID PACKAGE:

*Wanda House
Financial Services Manager
Telephone: (252) 329-4862
Email: whouse@greenvillenc.gov*

QUESTIONS REGARDING THE SPECIFICATIONS:

*Mr. Ross Peterson
Project Management
Telephone: (252) 329-4570
Email: rpeterson@greenvillenc.gov*

**CITY OF GREENVILLE
ADVERTISEMENT FOR PROPOSALS
HVAC BAS UPGRADE
Sheppard Libraries**

The City of Greenville, NC is requesting proposals for the "HVAC BUILDINGS AUTOMATION SYSTEM (BAS) UPGRADE" located at the Sheppard Memorial Library, 530 Evans Street, Greenville / Carver Branch, 618 W 14th Ave / East Branch 2000 Cedar Ln. The scope of work shall include but is not limited to the removal of existing JCI control system and replace with new BACnet DDC Control System, Niagara based BAS with web base password protected system. System shall incorporate all existing setpoints as well as sequence of operation requirements from HVAC specifications for new HVAC equipment, see Exhibit "C". Other HVAC equipment at Sheppard Memorial Library as well as Carver and East Branches shall be included. Set points will include but not limited to start/stop, scheduling, supply/return air temperature, space temperature with setpoint/override, fan status and enable, cooling stage enable, heating stage enable, hot water valve control, static pressure, RA/OA damper control, smoke alarm, humidity and CO2 levels, motors and compressor variable speeds and other. An Add Alternate for replacing of valves and actuator will be included in this bid.

This is a turn-key project.

A mandatory pre-bid meeting and site visit will be held at Sheppard Memorial Library, located at 530 Evans Street, Greenville, NC following with Carver and East Branches on Tuesday, April 15, 2025 @ 2:00 PM. Site visit to follow the pre-bid meeting. An additional site visit for pre-bid attendees will be available by appointment at 2:00 PM on Thursday, April 17, 2025. Contact Ross Peterson, Project Management at rpeterson@greenvillenc.gov to schedule appointment.

The person, firm or corporation making a proposal shall submit a bid to *Ross Peterson, Project Management*, on or before the hour and day of Tuesday, April 29, 2025 by 2:00pm. The preferred method of delivery of the bid is by email to rpeterson@greenvillenc.gov. The bid may also be mailed or hand delivered to the Jaycee Park Administrative office located at 2000 Cedar Lane, Greenville, NC, 27834 and must be received prior to the submittal deadline time and date. Any method of submitting must state and shall have the words *Bid Enclosed, HVAC BAS Upgrade – Sheppard Memorial Libraries, Attn: Ross Peterson* along with the company name in the subject line or on the outside of the envelope.

Bids received after the deadline will not be opened. All bids will be marked with the date and time they are received by reception staff. Bids will NOT be opened and read aloud. Bids will be open and reviewed by city staff. A bid tabulation will be available upon request once the contract is awarded to the successful bidder.

The bidder shall include the required responses and supply all the information as indicated on Attachment A, B, C, D, and E. The prices inserted on Bid Form, Attachment C shall be net and shall be the full cost including all factors whatsoever. Any bids not submitted on such forms provided will be considered unresponsive.

No bid may be changed or withdrawn after the time of the opening. Any modifications or withdrawals requested before this time shall be acceptable only when such request in writing is made to *Ross Peterson, Project Management*.

The City of Greenville reserves the right to reject any or all bids, waive any informality and award contracts that appear to be in its best interest. The right is reserved to hold any or all proposals for a period of sixty (60) days from the bid opening thereof.

The scope of work attached represents the minimum specification or description of work to be purchased or contracted. These requirements are not intended to prevent fair responses or to eliminate competition, but they are intended for the protection of each and every proposer to insure, if possible, that all bids submitted shall be upon a fair and comparable basis.

All work shall be FOB, Greenville, N.C.

From the date of this advertisement until the date of opening the proposals, the plans and specifications of the proposed work and/or a complete description of the apparatus, supplies, materials or equipment are and will continue to be on file in the office of the City of Greenville Purchasing Manager, 201 W. 5th Street, Greenville, NC 27834, during regular business hours, and available to prospective bidders. Inquiries should be directed to the Purchasing Manager at the above address --- Telephone (252) 329-4862. Minority/Women owned business are encouraged to submit proposals.

INSTRUCTIONS TO BIDDERS

Proposal to Provide HVAC BAS Upgrade - Sheppard Memorial Libraries Greenville, NC

1. Contractor is to provide verification to the City that the company's employees are covered under worker's compensation insurance coverage.
2. All permits can be obtained through the City at no cost to the Contractor.
3. It is expressly understood by the contractor offering a proposal after a written notice of award by the City, a purchase order will be required to be executed and will serve together with this proposal, these instructions, scope of work, and any detailed specifications as the entire form of contract between the parties except in cases where formal contracts are warranted.
4. Each Contractor submitting a proposal is affirming that no official or employee of the City is directly or indirectly interested in this proposal for any reason of personal gain.
5. Sales taxes may be listed on the proposal, but as a separate item. No charge will be allowed for Federal Excise and Transportation Tax from which the City is exempt.
6. Questions regarding any procedure for submission of a proposal for the HVAC BAS Upgrade – Sheppard Memorial Libraries shall be directed by email to Ross Peterson, Project Management, at rpeterston@greenvillenc.gov. Questions shall be submitted by 5:00 PM, Tuesday, April 22, 2025. Answers will be provided in an addendum and email to those that signed in at the pre-bid by 5:00 PM, Thursday, April 24, 2025. If an addendum is provided it must be indicated by initialing on bid form. Addendums will be available on city web page.
7. If the Contractor is unable to provide a proposal for any reason, please send an email with an explanation to rpeterston@greenvillenc.gov.
8. By submitting a proposal for HVAC BAS Upgrade – Sheppard Memorial Libraries, the Contractor attests that it is in compliance with all items listed in the bid/proposal instructions. Furthermore, the Contractor attests that the City of Greenville accepts no responsibility for any injuries to the firm's employees, while on City property performing their duties.
9. Contractor shall comply with all local, state, and federal laws, as well as safety/regulatory requirements and ordinances associated with the work within this contract
10. It is expected that work would schedule and begin once the equipment is on hand and verified by contractor as well as any preprogramming is completed.
11. It shall be the responsibility of the contractor to visit the site that will be covered in this contract and to understand the area that is to be included prior to submitting a bid. Site visit will be available after pre-bid meeting.
12. Contractor is responsible for all measurements pertaining to the scope of work when submitting a bid.

13. Contractor shall be responsible for damage to the property caused by work performed during HVAC BAS Upgrade – Sheppard Memorial Libraries including but not limited to interior and exterior of buildings.
14. No work will be performed at any time without proper supervision. Supervisors name and direct contact information shall be provided to Ross Peterson, Project Management at rpeterson@greenvillenc.gov.
15. Parking and staging areas for equipment and materials can be arranged on site during the pre-construction meeting conducted prior to the work starting.
16. Work on this project will have to be performed so as to minimize disruption of Sheppard Memorial Library daily operations.
17. All work must be performed Monday – Friday from 7:00 AM to 5:00 PM. Other days and hours will have to be approved in advance by project management.
18. Systems should be tested in heat and cool mode for proper operations. This shall be coordinated with Ross Peterson, Project Management at rpeterson@greenvillenc.gov.
19. The Contractor shall accompany a designated representative(s) of the City on inspections of work at any time during the contract period. The City reserves the right to make determinations as to whether service is performed satisfactorily. Deficiencies in work performance must be corrected immediately.
20. Deficiencies in work performance must be corrected immediately. The City reserves the right to add or delete similar items/services specified in the proposal as requirements change during the period of the contract. The City of Greenville and the Contractor will mutually agree upon prices for items/services to be added or deleted from contract. A contract amendment will be issued for each addition or deletion.
21. Contractor shall not engage subcontractors to perform the Services without the City of Greenville's prior written consent by Project Management or designee. If any part of this work agreement is sublet, the subcontractor shall be required to meet all insurance requirements set forth in the Agreement. The parties stipulate that the Company will maintain each type of insurance set forth in the Agreement at a coverage equal to the amount set forth in the Agreement at a coverage equal to the amount set forth for each type of insurance. However, nothing contained herein shall relieve the Company from meeting all insurance requirements or otherwise being responsible for the subcontractor.
22. Contractor is responsible for cleaning the worksite daily prior to the end of day.
23. All new vendors, including subcontractors/consultants, must register with the City of Greenville's online portal prior to the rendering of goods or services.
24. Registration as a vendor with the City of Greenville is the responsibility of prime or subcontractor/consultant, and requires the prospective new vendor to submit a W-9, and complete the registration through the City's vendor portal at the following web address:
<https://selfservice.greenvillenc.gov/vss/Vendors/default.aspx>.

If the prospective new vendor is only providing service(s) as a subcontractor/consultant, submission of payment information is not necessary at the time of registration.

SPECIFICATIONS

HVAC BAS UPGRADE Sheppard Memorial Libraries Greenville, NC

1.0 SCOPE:

The scope of work shall include, but is not limited to:

- 1.1 Contractor will have 60 consecutive working days to complete project.**
- 1.2 Contractor shall provide coordination, programming, graphics, startup, and checkout of newly upgraded BAS.**
- 1.3 HVAC equipment shall be operational within 48 hours of any shutdowns.**
- 1.4 The Contractor shall provide all labor, equipment, materials and insurance necessary to remove and replace HVAC BAS Upgrade – Sheppard Memorial Libraries and all other necessary work to complete installation.**
- 1.5 BAS shall be non-proprietary.**
- 1.6 Demo of existing controls.**
- 1.7 New communication wire shall be run if current wire is not sufficient for upgrade.**
- 1.8 BAS shall be able to communicate with current dampers and valves.**
- 1.9 Provide custom graphics and programming for all equipment.**
- 1.10 Engineered As-Built Drawings with control diagrams and network layout.**
- 1.11 All current control cabinet shall be inspected to ensure free of damage. Provide new control cabinet if needed.**
- 1.12 All connections to control cabinet and equipment shall be secured, insulated, and watertight as needed.**
- 1.13 Any available rewiring and programing shall be done offsite to provide timely onsite upgrade.**
- 1.14 All units shall be tested in heating and cooling.**
- 1.15 8 hours of owner training shall be provided.**
- 1.16 Include extended warranty of 10 years on all parts of Trane units. Standard manufacture warranty for indoor packaged unit and ductless units.**
- 1.17 All work shall be done by certified/licensed contractors.**
- 1.18 Obtain all permits from the City of Greenville at no cost.**

- 1.19 Reconnections of high and low voltage power to all units shall be done by a licensed electrician. Contractor is to utilize and connect to existing electrical services and verify the existing electrical is adequate and compatible with installation of the new unit. The contractor will be responsible for replacing and updating all necessary electrical components.
- 1.20 Add alternate to replace current valves and actuators.
- 1.21 Contractor shall perform testing of fire safety shut off in coordination with Ross Peterson, Project management.
- 1.22 Contractor is responsible for haul off and proper disposal of old associated equipment and debris.
- 1.23 Cleanup and removal of all debris at work site.
- 1.24 After completion, owner and contractor will perform walk through to determine punch list items. Any punch list items shall be address within a week.
- 1.25 Provide close out documents to include warranty and manuals.

2.0 PAYMENT AND BID:

- 2.1 Bidders will comply with all local, state, and federal laws and ordinances governing said work including the Occupational Safety and Health Act of 1970.
- 2.2 By submitting a proposal, the firm is attesting that they are an Equal Opportunity Employer.
- 2.3 The City of Greenville has adopted an Affirmative Action Program. Firms submitting a proposal are attesting that they also have taken affirmative action to ensure equality of opportunity in all aspects of employment.
- 2.4 **Minority and/or Women Business Enterprise (MWBE) Program**
 It is the policy of the City of Greenville to provide minorities and women equal opportunity for participating in all aspects of the City's contracting and procurement programs, including but not limited to, construction projects, supplies and materials purchases, and professional and personal service contracts. In accordance with this policy, the City has adopted a Minority and Women Business Enterprise (M/WBE) Plan and subsequent program, outlining verifiable goals.

 The City has established a 10% Minority Business Enterprise (MBE) and 6% Women Business Enterprise (WBE) goal for the participation of MWBE firms in supplying goods and services for the completion of this project. All firms submitting bids agree to utilize minority and women-owned firms whenever possible.

 Refer to Attachment "D" for all Minority and/or Woman Business Enterprise (MWBE) requirements.

 Questions regarding the City's M/WBE Program should be directed to Wanda House in the M/WBE Office at (252) 329-4862.
- 2.5 The City of Greenville reserves the right to reject any and all bids, to waive any informalities and to accept the bid if seems most advantages to the City. Any bid submitted will be binding for sixty (60) days after the date of the bid opening.
- 2.6 **Equal Employment Opportunity Clause**

The City has adopted an Equal Employment Opportunity Clause, which is incorporated into all specifications, purchase orders, and contracts, whereby a vendor agrees not to discriminate against any employee or applicant for employment on the basis of race, color, religion, sex, national origin or ancestry. By submitting qualifications and/or proposals, the firm is attesting that they are an Equal Opportunity Employer. Federal law (Rehabilitation Act and ADA) prohibits handicapped discrimination by all governmental units. By submitting a proposal, the vendor is attesting to its policy of nondiscrimination regarding the handicapped.

2.7 Iran Divestment Act Certification:

The CONTRACTOR hereby certifies that, it is not on the Iran Final Divestment List created by the North Carolina State Treasurer pursuant to N.C.G.S. 147-86.58. The CONTRACTOR shall not utilize in the performance of the Agreement any subcontractor that is identified on the Iran Final Divestment List.

2.8 E-Verify Compliance:

The CONTRACTOR shall comply with the requirements of Article 2 of Chapter 64 of the North Carolina General Statutes. Further if the CONTRACTOR utilizes a subcontractor, the CONTRACTOR shall require the subcontractor to comply with the requirements of Article 2 of Chapter 64 of the North Carolina General Statutes. The CONTRACTOR represents that the CONTRACTOR and its subcontractors are in compliance with the requirements of Article 2 of Chapter 64 of the North Carolina General Statutes.

2.9 TITLE VI NONDISCRIMINATION NOTIFICATION

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

- 2.10 The contractor will develop a lump sum bid; that will include, but is not limited to all work, equipment, parts, and labor specified herein.**

3.0 WORKERS COMPENSATION AND INSURANCE:

- 3.1 The contractor must maintain during the life of this contract, Worker's Compensation Insurance for all employees working at the project site under this contract, or as otherwise required by North Carolina General Statutes.**

- 3.2 The Consultant/Contractor agrees to purchase at its own expense insurance coverages to satisfy the following minimum requirements. Work under this contract shall not commence until all insurance required as listed has been obtained. Insurance required shall remain in effect through the life of this contract.**

a. Workers' Compensation Insurance: No contractor or subcontractor may exclude executive officers. Workers Compensation must include all employees

Limits:

Workers Compensation:	Statutory for the State of North Carolina.
Employers Liability:	Bodily Injury by Accident \$1,000,000 each accident.
	Bodily Injury by Disease \$1,000,000 policy limit.
	Bodily Injury by Disease \$1,000,000 each employee.

b. Commercial General Liability:

Limits:

Each Occurrence: \$1,000,000
 Personal and Advertising Injury \$1,000,000
 General Aggregate Limit \$2,000,000
 Products and Completed Operations Aggregate \$2,000,000

The aggregate limit must apply per project. The form of coverage must be the ISO CG 00 01 policy as approved by the State of North Carolina Department of Insurance. If a form of coverage other than the CG 00 01 is used it must be approved by the City. Any endorsed exclusions or limitations from the standard policy must be clearly stated in writing and attached to the Certificate of Insurance. Completed Operations coverage must be maintained for the period of the applicable statute of limitations. Additionally, the Consultant/Contractor must be added as an Additional Insured to the Commercial General Liability policy.

c. Commercial Automobile Liability:

Limits: \$1,000,000 combined single limit.

d. Cancellation:

Each certificate of insurance shall bear the provision that the policy cannot be altered or canceled in less than ten (10) days after mailing written notice to the assured of such alteration or cancellation, sent registered mail.

e. Proof of Carriages:

- I. The Consultant/Contractor shall provide the City with insurance industry standard ACCORD form Certificate(s) of Insurance on all policies of insurance and renewals thereof in a form(s) acceptable to the City prior to the commencement of services. Said policies shall provide that the City be an additional named insured.
- II. The City shall be notified in writing of any reduction, cancellation, or substantial change of policy or policies at least thirty (30) days prior to the effective date of said action.
- III. All insurance policies shall be issued by responsible companies who are acceptable to the City and licensed and authorized to do business under the laws of North Carolina

3.3 OTHER INSURANCE:

The contractor shall furnish such additional insurance as may be required by the General Statutes of North Carolina, including motor vehicle insurance in amounts not less than statutory limits.

- 3.4 The contractor shall furnish the owner with satisfactory proof of insurance required before written approval of such insurance is granted by the owner.
Executed contract documents, insurance certifications, invoices and other information requested, are to be sent to:

Ross Peterson, Project Management
City of Greenville
2000 Cedar Lane
Greenville, N.C. 27834
 Email: rpeterson@greenvillenc.gov

3.4 CANCELLATION:

Each certificate of insurance shall bear the provision that the policy cannot be altered or canceled in less than ten (10) days after mailing written notice to the assured of such alteration or cancellation, sent registered mail.

4.0 DAMAGE TO CONTRACTORS' PROPERTY:

- 4.1 The City of Greenville shall be under no obligation to replace or in any way compensate the contractor for fire, theft, vandalism or any other casualty, injury or damage to equipment or property belonging to the contractor while on City property.**
- 4.2 The successful bidder agrees to indemnify or hold harmless the City of Greenville from and against any liability, loss, cost, damage suit, claim, or expense arising occurrence on the part of the successful bidder to include its officers, servants, agents or employees arising from its activities, operations, and performance of services while on City property and further agrees to release and discharge the City of Greenville and its Agents from all claims or liabilities arising from or caused by the successful bidder in fulfilling its obligations under this Agreement.**
- 4.3 It is understood and agreed by the parties that the City of Greenville will assume no liability for damages, injury, or other loss to the successful bidder, its employees or property, tools or equipment, or to other persons or properties located on City facilities resulting from the successful bidder's activities and operations while performing those service enumerated herein. The successful bidder shall assume full and complete liability for any and all damages on City or private properties caused by or resulting from its activities, operations, and that of its employees, agents and officers.**

5.0 ADDENDUM

- 5.1 Addendum: Any changes to the specifications will be issued as a written addendum. No oral statements, explanations, or commitments by whosoever shall be of any effect.**
- 5.2 Amendment: The contract may be amended from time to time through written agreement by both parties.**



PROJECT MANAGEMENT

6.0 REFERENCE INFORMATION

All bidders must provide a list of three (3) client references of similar work. The reference information must include the company's name, a contact person's name with his or her title and their telephone number. Contractor must provide the information below with their bid sheet. Contractor must be experienced in projects of similar construction.

1. **Company name:** _____
 Contact person: _____
 Title: _____ **Phone No.** _____

2. **Company name:** _____
 Contact person: _____
 Title: _____ **Phone No.** _____

3. **Company name:** _____
 Contact person: _____
 Title: _____ **Phone No.** _____



PROJECT MANAGEMENT

7.0 CONTRACTOR INFORMATION

Contractor must provide the information below with the bid sheet.

**CITY OF GREENVILLE
NORTH CAROLINA
PROSPECTIVE CONTRACTOR DATA FORM**

Company Name: _____

Address: _____

Phone Number: _____ **Mobile Phone Number:** _____

Email: _____ **Business Fax Number:** _____

Tax ID# _____

NC General Contractors License# _____

Corporation or Partnership: _____

Number of Years in Business: _____



PROJECT MANAGEMENT

**CITY OF GREENVILLE
PROJECT MANAGEMENT DEPARTMENT
REQUEST FOR BIDS**

In compliance with the request for bids by the City of Greenville and subject to all conditions and specifications thereof, the undersigned offers and agrees to furnish all equipment, labor and work site clean-up as provided in the above-mentioned specifications.

Description

HVAC Buildings Automation System Upgrade - Sheppard Memorial Libraries:

Sheppard Memorial Bid Total	Tax
\$ _____	\$ _____
Carver Branch Bid Total	
\$ _____	\$ _____
East Branch Bid Total	
\$ _____	\$ _____
Total Bid Lump Sum	
\$ _____	\$ _____
Add Alternate	
Total Lump Sum	
\$ _____	\$ _____

Bid reviewed, prepared and submitted by-

Company Name: _____

Addenda Received:_____

Signed: _____

Print Name:_____

Date: _____

**City of Greenville/Greenville Utilities Commission
Minority and Women Business Enterprise (MWBE) Program**

**City of Greenville
Construction Guidelines and Affidavits
\$100,000 and above**

These instructions shall be included with each bid solicitation.

City of Greenville/Greenville Utilities Commission Minority and Women Business Enterprise Program

\$100,000 and Construction Guidelines for MWBE Participants

Policy Statement

It is the policy of the City of Greenville and Greenville Utilities Commission to provide minorities and women equal opportunity for participating in all aspects of the City's and Utilities' contracting and procurement programs, including but not limited to, construction projects, supplies and materials purchases, and professional and personal service contracts.

Goals and Good Faith Efforts

Bidders responding to this solicitation shall comply with the MWBE program by making Good Faith Efforts to achieve the following aspiration goals for participation.

	CITY	
	MBE	WBE
Construction This goal includes Construction Manager at Risk.	10%	6%

Bidders shall submit MWBE information with their bids on the forms provided. This information will be subject to verification by the City prior to contract award. **As of July 1, 2009, contractors, subcontractors, suppliers, service providers, or MWBE members of joint ventures intended to satisfy City MWBE goals shall be certified by the NC Office of Historically Underutilized Businesses (NC HUB) only.** Firms qualifying as "WBE" for City's goals must be designated as a "women-owned business" by the HUB Office. Firms qualifying as "MBE" for the City's goals must be certified in one of the other categories (i.e.: Black, Hispanic, Asian American, American Indian, Disabled, or Socially and Economically Disadvantaged). Those firms who are certified as both a "WBE" and "MBE" may only satisfy the "MBE" requirement. **Each goal must be met separately. Exceeding one goal does not satisfy requirements for the other.** A complete database of NC HUB certified firms may be found at <http://www.doa.nc.gov/hub/>. An internal database of firms who have expressed interest to do business with the City and GUC is available at www.greenvillenc.gov. However, the HUB status of these firms must be verified by the HUB database. The City shall accept NCDOT certified firms on federally funded projects only. Please note: A contractor may utilize any firm desired. However, for participation purposes, all MWBE vendors who wish to do business as a minority or female must be certified by NC HUB.

The Bidder shall make good faith efforts to encourage participation of MWBEs prior to submission of bids in order to be considered as a responsive bidder. Bidders are cautioned that even though their submittal indicates they will meet the MWBE goal, they should document their good faith efforts and be prepared to submit this information, if requested.

The MWBE's listed by the Contractor on the **Identification of Minority/Women Business Participation** which are determined by the City to be certified shall perform the work and supply the materials for which they are listed unless the Contractors receive prior authorization from the City to perform the work with other forces or to obtain materials from other sources. If a contractor is proposing to perform all elements of the work with his own forces, he must be prepared to document evidence satisfactory to the owner of similar government contracts where he has self-performed.

The Contractor shall enter into and supply copies of fully executed subcontracts with each MWBE or supply signed Letter(s) of Intent to the Project Manager after award of contract and prior to Notice to Proceed. Any amendments to subcontracts shall be submitted to the Project Manager prior to execution.

Instructions

The Bidder shall provide with the bid the following documentation:

- ☐ Identification of Minority/Women Business Participation
(if participation is zero, please mark zero—Blank forms will be considered nonresponsive)
- ☐ Affidavit A (if subcontracting)

OR

- ☐ Identification of Minority/Women Business Participation
(if participation is zero, please mark zero—Blank forms will be considered nonresponsive)
- ☐ Affidavit B (if self-performing; must attest that bidder does not customarily subcontract work on this type of project—includes supplies and materials)

Within 72 hours or 3 business days after notification of being the apparent low bidder who is subcontracting anything must provide the following information:

- ☐ Affidavit C (if aspirational goals are met or are exceeded)

OR

- ☐ Affidavit D (if aspirational goals are not met)

After award of contract and prior to issuance of notice to proceed:

- ☐ Letter(s) of Intent or Executed Contracts

****With each pay request, the prime contractors will submit the Proof of Payment Certification, listing payments made to MWBE subcontractors.**

*****If a change is needed in MWBE Participation, submit a Request to Change MWBE Participation Form. Good Faith Efforts to substitute with another MWBE contractor must be demonstrated.**

Minimum Compliance Requirements:

All written statements, affidavits, or intentions made by the Bidder shall become a part of the agreement between the Contractor and the City for performance of contracts. Failure to comply with any of these statements, affidavits or intentions or with the minority business guidelines shall constitute a breach of the contract. A finding by the City that any information submitted (either prior to award of the contract or during the performance of the contract) is inaccurate, false, or incomplete, shall also constitute a breach of the contract. Any such breach may result in termination of the contract in accordance with the termination provisions contained in the contract. It shall be solely at the option of the City whether to terminate the contract for breach or not. In determining whether a contractor has made Good Faith Efforts, the CITY will evaluate all efforts made by the Contractor and will determine compliance in regard to quantity, intensity, and results of these efforts.

Identification of Minority/Women Business Participation

I, _____,
(Name of Bidder)

do hereby certify that on this project, we will use the following minority/women business enterprises as construction subcontractors, vendors, suppliers or providers of professional services.

Firm Name, Address and Phone #	Work type	*MWBE Category

*MWBE categories: Black, African American (**B**), Hispanic, Latino (**L**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**S**) Disabled (**D**)

If you will not be utilizing MWBE contractors, please certify by entering zero “0”

The total value of MBE business contracting will be (\$)_____.

The total value of WBE business contracting will be (\$)_____.

City of Greenville **AFFIDAVIT A – Listing of Good Faith Efforts**

County of _____

(Name of Bidder)

Affidavit of _____

I have made a good faith effort to comply under the following areas checked:

Bidders must earn at least 50 points from the good faith efforts listed for their bid to be considered responsive. (1 NC Administrative Code 30 I.0101)

- ☐ **1 – (10 pts)** Contacted minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor, or available on State or local government maintained lists, at least 10 days before the bid date and notified them of the nature and scope of the work to be performed.
- ☐ **2 --(10 pts)** Made the construction plans, specifications and requirements available for review by prospective minority businesses, or providing these documents to them at least 10 days before the bids are due.
- ☐ **3 – (15 pts)** Broken down or combined elements of work into economically feasible units to facilitate minority participation.
- ☐ **4 – (10 pts)** Worked with minority trade, community, or contractor organizations identified by the Office of Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses.
- ☐ **5 – (10 pts)** Attended prebid meetings scheduled by the public owner.
- ☐ **6 – (20 pts)** Provided assistance in getting required bonding or insurance or provided alternatives to bonding or insurance for subcontractors.
- ☐ **7 – (15 pts)** Negotiated in good faith with interested minority businesses and did not reject them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.
- ☐ **8 – (25 pts)** Provided assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisted minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit.
- ☐ **9 – (20 pts)** Negotiated joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible.
- ☐ **10 - (20 pts)** Provided quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.

The undersigned, if apparent low bidder, will enter into a formal agreement with the firms listed in the Identification of Minority/Women Business Participation schedule conditional upon scope of contract to be executed with the Owner. Substitution of contractors must be in accordance with GS143-128.2(d) Failure to abide by this statutory provision will constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of the minority/women business commitment and is authorized to bind the bidder to the commitment herein set forth.

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____



State of _____, County of _____

Subscribed and sworn to before me this ____ day of ____ 20__

Notary Public _____

My commission expires _____

City of Greenville --AFFIDAVIT B-- Intent to Perform
Contract with Own Workforce.

County of _____

Affidavit of _____

_____ (Name of Bidder)

I hereby certify that it is our intent to perform 100% of the work required for the _____

_____ contract.
(Name of Project)

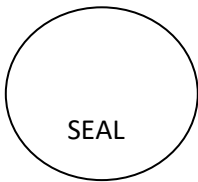
In making this certification, the Bidder states that the Bidder does not customarily subcontract elements of this type project, and normally performs and has the capability to perform and will perform all elements of the work on this project with his/her own current work forces; and

The Bidder agrees to provide any additional information or documentation requested by the owner in support of the above statement.

The undersigned hereby certifies that he or she has read this certification and is authorized to bind the Bidder to the commitments herein contained.

Date: _____ Name of Authorized Officer: _____

Signature: _____



Title: _____

State of _____, County of _____

Subscribed and sworn to before me this _____ day of _____ 20__

Notary Public _____

My commission expires _____

City of Greenville - AFFIDAVIT C - Portion of the Work to be Performed by MWBE Firms

County of _____

(Note this form is to be submitted only by the apparent lowest responsible, responsive bidder.)

If the portion of the work to be executed by MWBE businesses as defined in GS143-128.2(g) and the COG/CITY MWBE Plan sec. III is equal to or greater than 16% of the bidders total contract price, then the bidder must complete this affidavit. This affidavit shall be provided by the apparent lowest responsible, responsive bidder within **72 hours** after notification of being low bidder.

Affidavit of _____ I do hereby certify that on the
(Name of Bidder)

(Project Name)

Project ID# _____ Amount of Bid \$ _____

I will expend a minimum of _____% of the total dollar amount of the contract with minority business enterprises and a minimum of _____% of the total dollar amount of the contract with women business enterprises. Minority/women businesses will be employed as construction subcontractors, vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms listed below.

Attach additional sheets if required

Name and Phone Number	*MWBE Category	Work description	Dollar Value

*Minority categories: Black, African American (**B**), Hispanic or Latino (**L**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**S**) Disabled (**D**)

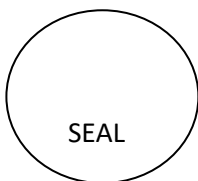
Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with MWBE Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____



State of _____, County of _____

Subscribed and sworn to before me this _____ day of _____ 20____

Notary Public _____

My commission expires _____

City of Greenville **AFFIDAVIT D – Good Faith Efforts**

County of _____

(Note this form is to be submitted only by the apparent lowest responsible, responsive bidder.)

If the goal of 16% participation by minority/women business **is not** achieved, the Bidder shall provide the following documentation to the Owner of his good faith efforts:

Affidavit of _____ I do hereby certify
(Name of Bidder)

that on the _____
(Project Name)

Project ID# _____ Amount of Bid \$ _____

I will expend a minimum of _____% of the total dollar amount of the contract with minority business enterprises and a minimum of _____% of the total dollar amount of the contract with women business enterprises. Minority/women businesses will be employed as construction subcontractors, vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms listed below.

(Attach additional sheets if required)

Name and Phone Number	*MWBE Category	Work description	Dollar Value

*Minority categories: Black, African American (**B**), Hispanic or Latino (**L**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**S**) Disabled (**D**)

Examples of documentation required to demonstrate the Bidder's good faith efforts to meet the goals set forth in these provisions include, but are not necessarily limited to, the following:

- A. Copies of solicitations for quotes to at least three (3) minority business firms from the source list provided by the State for each subcontract to be let under this contract (if 3 or more firms are shown on the source list). Each solicitation shall contain a specific description of the work to be subcontracted, location where bid documents can be reviewed, representative of the Prime Bidder to contact, and location, date and time when quotes must be received.
- B. Copies of quotes or responses received from each firm responding to the solicitation.
- C. A telephone log of follow-up calls to each firm sent a solicitation.
- D. For subcontracts where a minority business firm is not considered the lowest responsible sub-bidder, copies of quotes received from all firms submitting quotes for that particular subcontract.
- E. Documentation of any contacts or correspondence to minority business, community, or contractor organizations in an attempt to meet the goal.
- F. Copy of pre-bid roster.
- G. Letter documenting efforts to provide assistance in obtaining required bonding or insurance for minority business.
- H. Letter detailing reasons for rejection of minority business due to lack of qualification.
- I. Letter documenting proposed assistance offered to minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letter of credit, including waiving credit that is ordinarily required.

Failure to provide the documentation as listed in these provisions may result in rejection of the bid and award to the next lowest responsible and responsive bidder.

Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with MWBE Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date: _____ Name of Authorized Officer: _____

Signature: _____

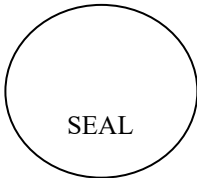
Title: _____

State of _____, County of _____

Subscribed and sworn to before me this _____ day of _____ 20____

Notary Public _____

My commission expires _____



LETTER OF INTENT MWBE Subcontractor Performance

Please submit this form or executed subcontracts with MWBE firms after award of contract and prior to issuance of notice to proceed.

PROJECT: _____
(Project Name)

TO: _____
(Name of Prime Bidder/Architect)

The undersigned intends to perform work in connection with the above project as a:

_____ Minority Business Enterprise _____ Women Business Enterprise

The MWBE status of the undersigned is certified the NC Office of Historically Underutilized Businesses (required). ___ Yes ___ No

The undersigned is prepared to perform the following described work or provide materials or services in connection with the above project at the following dollar amount:

Work/Materials/Service Provided	Dollar Amount of Contract	Projected Start Date	Projected End Date

(Date)

(Address)

(Name & Phone No. of MWBE Firm)

(Name & Title of Authorized Representative of MWBE)

(Signature of Authorized Representative of MWBE)

REQUEST TO CHANGE MWBE PARTICIPATION

(Submit changes only if notified as apparent lowest bidder, continuing through project completion)

Project: _____

Bidder or Prime Contractor: _____

Name & Title of Authorized Representative: _____

Address: _____ **Phone #:** _____

_____ **Email Address:** _____

Total Contract Amount (including approved change orders or amendments): \$ _____

Name of subcontractor: _____

Good or service provided: _____

Proposed Action:

____ Replace subcontractor

____ Perform work with own forces

For the above actions, you must provide one of the following reasons (Please check applicable reason):

____ The listed MBE/WBE, after having had a reasonable opportunity to do so, fails or refuses to execute a written contract.

____ The listed MBE/WBE is bankrupt or insolvent.

____ The listed MBE/WBE fails or refuses to perform his/her subcontract or furnish the listed materials.

____ The work performed by the listed subcontractor is unsatisfactory according to industry standards and is not in accordance with the plans and specifications; or the subcontractor is substantially delaying or disrupting the progress of the work.

If replacing subcontractor:

Name of replacement subcontractor: _____

The MWBE status of the contractor is certified by the NC Office of Historically Underutilized Businesses (required). ☐ Yes ☐ No

Dollar amount of original contract \$ _____

Dollar amount of amended contract \$ _____

Other Proposed Action:

☐ Increase total dollar amount of work

☐ Add additional subcontractor

☐ Decrease total dollar amount of work

☐ Other

Please describe reason for requested action: _____

If adding additional subcontractor:*

The MWBE status of the contractor is certified by the NC Office of Historically Underutilized Businesses (required). ☐ Yes ☐ No

**Please attach Letter of Intent or executed contract document*

Dollar amount of original contract \$ _____

Dollar amount of amended contract \$ _____

Interoffice Use Only:

Approval ☐ Y ☐ N

Date _____

Signature

Proof of Payment Certification

MWBE Contractors, Suppliers, Service Providers

Pay Application No. _____

Purchase Order No. _____

Project Name: _____

Prime Contractor: _____

Current Contract Amount (including change orders): \$ _____

Requested Payment Amount for this Period: \$ _____

Is this the final payment? ___ Yes ___ No

Firm Name	MWBE Category*	Total Amount Paid from this Pay Request	Total Contract Amount (including changes)	Total Amount Remaining

*Minority categories: Black, African American (**B**), Hispanic or Latino (**L**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**S**) Disabled (**D**)

Date: _____

Certified By: _____
Name_____
Title_____
Signature

STATE OF NORTH CAROLINA

AFFIDAVIT

CITY OF GREENVILLE

I, _____ (the individual attesting below), being duly authorized by and on behalf of
 _____ (the entity bidding on project hereinafter "Employer") after first being duly
 sworn hereby swears or affirms as follows:

1. Employer understands that E-Verify is the federal E-Verify program operated by the United States Department of Homeland Security and other federal agencies, or any successor or equivalent program used to verify the work authorization of newly hired employees pursuant to federal law in accordance with NCGS §64-25(5).
2. Employer understands that Employers Must Use E-Verify. Each employer, after hiring an employee to work in the United States, shall verify the work authorization of the employee through E-Verify in accordance with NCGS§64-26(a).
3. Employer is a person, business entity, or other organization that transacts business in this State and that employs 25 or more employees in this State. (mark Yes or No)
 - a. YES _____, or
 - b. NO _____
4. Employer's subcontractors comply with E-Verify, and if Employer is the winning bidder on this project Employer will ensure compliance with E-Verify by any subcontractors subsequently hired by Employer.

This ____ day of _____, 20____.

 Signature of Affiant
 Print or Type Name: _____

State of North Carolina City of Greenville

Signed and sworn to (or affirmed) before me, this the ____
 day of _____, 20____.

My Commission Expires: _____

Notary Public: _____

(Affix Official/Notarial Seal)

Title VI of the Civil Rights Act of 1964 Nondiscrimination Provisions, Appendices A & E.

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

(1) Compliance with Regulations: The contractor (hereinafter includes consultants) will comply with the Acts and the Regulations relative to Nondiscrimination in Federally-assisted programs of the U.S. Department of Transportation (USDOT), as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

(2) Nondiscrimination: The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, national origin, sex, age, creed (religion), low-income, limited English proficiency, or disability in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.

(3) Solicitations for Subcontractors, Including Procurements of Materials and Equipment: In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and the Acts and the Regulations relative to Nondiscrimination on the grounds of race, color, or national origin.

(4) Information and Reports: The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the USDOT to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor will so certify to the Recipient or the USDOT, as appropriate, and will set forth what efforts it has made to obtain the information.

(5) Sanctions for Noncompliance: In the event of a contractor's noncompliance with the Nondiscrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the USDOT may determine to be appropriate, including, but not limited to:

(a) withholding payments to the contractor under the contract until the contractor complies; and/or

(b) cancelling, terminating, or suspending a contract, in whole or in part.

(6) Incorporation of Provisions: The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the Recipient or the USDOT may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

I. During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees to comply with the following nondiscrimination statutes and authorities; including but not limited to:

Pertinent Nondiscrimination Authorities

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq., 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21.

- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);

- **Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 et seq.), (prohibits discrimination on the basis of sex);**
- **Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 et seq.), as amended, (prohibits discrimination on the basis of disability); and 49 CFR Part 27;**
- **The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 et seq.), (prohibits discrimination on the basis of age);**
- **Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);**
- **The Civil Rights Restoration Act of 1987, (PL 100- 209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, subrecipients and contractors, whether such programs or activities are Federally funded or not);**
- **Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131-12189) as implemented by Department of Transportation regulations at 49 C.F.R. parts 37 and 38;**
- **The Federal Aviation Administration's Nondiscrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);**
- **Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures Nondiscrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;**
- **Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of Limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);**
- **Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 et seq); • Federal transit laws, specifically 49 U.S.C. § 5332 (prohibiting discrimination based on race, color, religion, national origin, sex (including gender identity), disability, age, employment, or business opportuni**

**Corporate Office**

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Tel 252.758.3746

Fax 252.830.3954

Raleigh Office

4325 Lake Boone Trail
Suite 311
Raleigh,
NC 27607

Tel 919.784.9330

Fax 252.830.3954

www.eastgroup.com



Sheppard Memorial Library
City of Greenville
Greenville, NC

HVAC UNIT SIZING EVALUATION

REV 1

TEG PROJECT NO. 20240281

March 19, 2025



324 Evans Street
Greenville, NC 27858
Tel (252) 758-3746
Fax (252) 830-3954

www.eastgroup.com

NC Engineering License No. C-0206

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MECHANICAL ENGINEER

The East Group 324
Evans Street
Greenville, North Carolina 27858 Engineering
License No. 51753

Name: Hansen Murphy, PE
Telephone: 252-263-6203
Email: hansen.murphy@eastgroup.com



Digitally signed by Douglas H
Murphy Date: 2025.03.19 14:25:56 -
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Purpose of the Study:

Sheppard Memorial Library (SML) is served in part by the following split-system style DX air handlers:

AHU-7 and AHU-8, located in the attic
 AHU-9 and AHU-10, located in the crawlspace
 AHU-11, AHU-12, and AHU-13, located in the basement

These air handlers are all paired with condenser units that are sized either smaller or larger in capacity than the evaporator coil in the air handlers themselves. Due to age and poor performance, administration at SML would like to replace these air handlers and their condenser units with appropriately sized systems.

The purpose of this study is to determine the size of replacement units and deliver a schedule for equipment acquisition and control sequence.

Method of Study:

In order to confirm the right size for replacement units, TEG collected nameplate data on the existing units, surveyed the spaces served, and performed heat load calculations for each space in question.

Data Collection and Observations:

The existing air handlers are summarized below:

AHU-7 has a 5 ton coil sized for 1,950 CFM. It is paired with a condenser unit with a 4 ton coil.
 AHU-8 has a 7.5 ton coil sized for 2,500 CFM. It is paired with a condenser unit with a 5 ton coil.
 AHU-9 has a 10 ton coil sized for 3,350 CFM. It is paired with a condenser unit with a 6 ton coil.
 AHU-10 has a 7.5 ton coil sized for 2,900 CFM. It is paired with a condenser unit with a 5 ton coil.
 AHU-11 has a 4 ton coil sized for 1,700 CFM. It is paired with a condenser unit with a 3 ton coil.
 AHU-12 has a 7.5 ton coil sized for 2,300 CFM. It is paired with a condenser unit with a 5 ton coil.
 AHU-13 has a 10 ton coil sized for 3,650 CFM. It is paired with a condenser unit with a 12.5 ton coil.

- AHU-13 is the only air handler with an oversized condenser unit.

The building has been modeled as that of a brick façade with poor insulation and sheetrock lined interior. Windows were modeled as single pane with no tinting.

Facility staff have mentioned that humidity is high in the spaces served by air handler 8 and low in spaces served by air handler 11.

Recommendations:

Please refer to appendix A for an equipment schedule detailing the recommendations for replacements to AHU-7 through AHU-13 and their respective outdoor condenser coils.

Due to the unique needs presented by libraries, the equipment in this schedule has been selected to cool to 70°F.

Cleaning and repair of ductwork is recommended, given unknown age and condition of existing infrastructure.

Each DX unit shall be supplied with both a thermostat and humidistat for monitoring and controlling both temperature and humidity in spaces.

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The equipment schedule includes hot water coils for auxiliary heat for units 9 through 13 per owner request. Given that the boiler for the library is offline during the warmer months, it is advised that electric strip heat be considered for these units to permit dehumidification as needed during the warmer months.

Balancing:

IMPORTANT – prior to work starting, existing air flows shall be documented by TABB certified crew. Outside air, supply air, and branch duct air for each system shall be tested and documented.

After installation has completed, TEG recommends re-balancing by TABB certified crew to airflows shown in the schedule. It is important that outside air flows be tested and balanced to values shown in order to ensure good air quality and code compliance. Air distribution at branch ducts shall remain proportional to that of existing conditions from initial measurements. Balancing for occupied mode shall ensure that OA CFM value is maintained at all times when facility is occupied.

Balancing of new equipment shall prioritize modulation and setting of the fan VFD or EC dial before unit outlet damper is set. Excess ESP has been scheduled to permit dialing in of VFD or EC fan speed to achieve prescribed air flows.

Sequences of Operation for all new DX units:

Note: the sequences of operations below apply to each new DX unit and the single-zone space it serves.

Occupied Modes:

The supply air fan shall operate at flows shown in the schedule during occupancy. The facility shall be considered occupied any time that a person is inside.

In-space thermostats shall be set to 70°F when cooling or heating is required (user adjustable). In-space humidity shall remain at or below 50% RH.

When cooling or dehumidification is required, DX coil shall be throttled/cycled as-needed to maintain temperature setpoint. BMS shall monitor humidity in space and adjust reheat as needed to prevent humidity from rising above 50%. Cooling coil leaving air temperature shall be in accordance with the schedule (appendix A) at all times cooling coil is in operation. Unit leaving temperature may be higher depending on use of reheat.

When heating is required, fan shall remain on while BMS monitors space temperature and modulates heat output as-needed in order to maintain set point. BMS shall prioritize use of heat pump first. If coil leaving air temperature drops below that listed in schedule, BMS shall switch over to electric auxiliary heat or hot water heating as applicable. For specific heat pump operation instruction, refer to operations manual that accompanies DX system.

Unoccupied Modes:

When spaces are unoccupied, the air handling systems shall continue to meet the set points of 70°F @ 50% RH when cooling and 70°F heating. Airflow may be reduced or cycled on / off while set point is maintained when spaces are unoccupied.

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Occupied and Unoccupied modes shall be programmed into facility BMS or may be set at thermostat by way of timer programming. Manual override function shall be provided to owner to permit changeover to occupied mode by anyone in the facility beyond programmed occupied hours.

Simplified Operation:

In such case that BMS is not able to handle functions listed above, DX units shall be instructed to cycle on/off as-needed to maintain temperature setpoint. If space humidity rises above 50% RH as measured by in-space humidistats, improvements may be possible without the use of reheat via adjusting supply air and outside air amounts. This process will require a new test-and- balance of the system affected.

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AIR HANDLER SCHEDULE																
UNIT	TYPE	CFM		FAN ESP (IN WG)	COOLING CAPACITY					EMERGENCY/AUXILIARY HEATING CAPACITY						NOTES
		SUPPLY AIR	OUTSIDE AIR MINIMUM		TONS	EA DB	EA WB	LA DB	LA WB	MBH	EA DB	LA DB	TYPE	GPM	DT (H2O)	
AHU-7	SPLIT DX / HEAT PUMP	1575	160	0.75	4	72.8	60.3	50	48.9	27	64.4	80.4	ELECTRIC	N/A	N/A	1 - 9
AHU-8	SPLIT DX / HEAT PUMP	1975	200	0.75	5	71.9	59.7	50	48.9	31	64.5	79.1	ELECTRIC	N/A	N/A	
AHU-9	SPLIT DX / HEAT PUMP	2880	330	0.75	6	71.1	60.4	51.8	50.8	50	64.3	80.4	HOT WATER	10	10°F	ALL NOTES APPLY
AHU-10	SPLIT DX / HEAT PUMP	2880	500	1.00	6	70.7	61.1	52.6	51.7	41	61.7	74.7	HOT WATER	8.2	10°F	
AHU-11	SPLIT DX / HEAT PUMP	1575	220	0.75	4	77.2	63.9	55	53.8	23	63	76.4	HOT WATER	4.6	10°F	
AHU-12	SPLIT DX / HEAT PUMP	1975	450	0.75	5	70.4	61.2	51	50.2	30	59	73.3	HOT WATER	6	10°F	
AHU-13	SPLIT DX / HEAT PUMP	3650	450	1.00	10	71	59.6	50	49	54	62.9	77.1	HOT WATER	10.8	10°F	
NOTES																
CONTRACTOR SHALL PROVIDE AND INSTALL THE EQUIPMENT LISTED IN THIS SCHEDULE. ADDITIONALLY, CONTRACTOR SHALL PROVIDE AND INSTALL OUTDOOR CONDENSER UNIT MATCHED BY MANUFACTURER TO THE NEEDS OF THE RESPECTIVE INDOOR UNIT																
EMERGENCY HEATING COILS SHALL BE INSTALLED EITHER IN THE AIR HANDLER DOWN STREAM OF THE COOLING COIL, OR AT THE UNIT DISCHARGE TO SUPPLY DUCT. IF NOT AVAILABLE IN-UNIT, CONTRACTOR SHALL PROVIDE AND INSTALL THESE COILS AFTER ENGINEER HAS HAD THE OPPORTUNITY TO REVIEW THE SUBMITTAL																
3. UNIT SHALL BE ABLE TO OPERATE AS HEAT PUMP IN CAPACITY EQUAL TO OR GREATER THAN LISTED EMERGENCY HEATING CAPACITY																
4. PROVIDE WITH TEMPERATURE AND HUMIDITY SENSORS IN SPACES WITH LOCKING COVERS.																
5. EQUIPMENT SHALL BE FULLY BMS COMPATIBLE SUCH THAT UNIT FANS, DX FUNCTION, HEATING, COOLING, AND EMERGENCY HEAT CAPACITIES MAY BE CONTROLLED REMOTELY BY BMS AND BY LOCAL THERMOSTAT AND HUMIDISTAT																
6. EQUIPMENT MUST BE ABLE TO OPERATE IN DEHUMIDIFICATION MODE BY WAY OF THROTTLING EMERGENCY REHEAT CAPACITY WHILE DX COOLING FUNCTION OPERATES.																
FAN ESP IS EXTERNAL TO ALL AIR HANDLER COMPONENTS AND ACCESSORIES, INCLUDING EXTERNAL REHEAT COILS IF PRESENT. FIGURE IS BASED ON EXISTING UNIT ESP AND ADJUSTED FOR CFM. TAB OF SYSTEM PRIOR TO DEMO IS RECOMMENDED TO VERIFY EXISTING CONDITIONS.																
8. VARIABLE SPEED DRIVES ON SUPPLY AIR FANS FOR UNITS 6 TONS AND OVER. SMALLER UNITS TO HAVE EC FAN MOTORS.																
9. MANUALLY ADJUSTABLE UNIT DISCHARGE DAMPER RECOMMENDED FOR BALANCING.																
10. CONTRACTOR SHALL BID AS OPTION TO CLIENT ELECTRIC REHEAT COILS.																

Appendix A - Equipment Schedule