MARTINSBURG-BERKELEY COUNTY PUBLIC LIBRARY

101 W. KING STREET

MARTINSBURG, WEST VIRGINIA

INFRASTRUCTURE IMPROVEMENTS

February 28, 2024

BOLAND

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EXECUTIVE SUMMARY

Boland, in partnership with Comfort Design Inc. Mechanical and Electrical Engineers, has conducted a thorough evaluation of the HVAC and electrical distribution systems at the Martinsburg-Berkeley County Public Library located at 101 W King Street, Martinsburg, West Virginia. Our design and energy optimization engineers reviewed the available system design drawings, existing equipment specifications, and utility analysis required as part of an ASHRAE Level-II Audit.

When the building was renovated in 1979, it was designed with the standard technology of the day. While some of the components have been changed based on failure, most of the HVAC and electrical distribution system infrastructure is original. The building systems include: eight (8) residential heat pump systems, one (1) variable refrigerant flow (VRF) mini-split system, two (2) 25-ton packaged air-cooled condensers serving a 50-ton air-handling unit with 90kW electric resistance and twenty-two (22) electric resistance duct heaters.

The chart below reflects the standard life expectancy of several types of system components, as published by the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE).

ASHRAE EQUIPMENT LIFE EXPECTANCY	
EQUIPMENT TYPE	**LIFE EXPECTANCY**
Residential Air-to-Air Heat Pump	15-years
VRF System	15-years
Packaged Air-Cooled Condenser	20-years
Air-Handling Unit - Axial Fan	20-years
Electric Resistance Heater	13-years

These standards consider good maintenance practices and natural efficiency degradation. Most of these components have exceeded their life expectancy. Good maintenance practices can extend the useful life of the equipment; however, these systems have been maintained on a fix-on-fail basis.

Electrical switchgear has a life expectancy of 20 years. The library's switchgear looks to be in poor condition. Repair parts are no longer available for any portion of this switchgear. If a failure occurs, the load being served will be down until a replacement can be ordered and installed. Current lead times are approximately 30 weeks.

AREAS OF CONCERN

Since the COVID-19 pandemic, ventilation systems have come under increased scrutiny. The library's main source of fresh air ventilation comes through air-handling (AHU) units #1 & #2. The damper actuators controlling the damper position, which regulates the flow of fresh air, are not functioning. These dampers are set in a fixed-partially-open position. At varying times of the year, this fixed position will allow excess unconditioned outside air into the building, thereby increasing the overall building load and energy consumptions. At other times of the year, the dampers restrict the required amount of fresh air into the building, creating an unhealthy condition.

Overall building comfort varies by location within the building and from day-to-day. There are several major contributing factors:

1. The heating/cooling capacity of the heat pump system does not pair with the calculated heating/cooling/ventilation load of the individual spaces. Similar to a typical residential system, the units are working to maintain temperature in the location of the thermostat. Other areas served by the same unit may be hot or cold.
2. Presently, all of the air distribution systems are configured as constant volume. The constant volume configuration provides full airflow while in the ON position and shuts down when the individual space temperature thermostats are satisfied. This increases the frequency of starts and stops of the condensing units, therefore causing increased wear and tear on mechanical and electrical components. In addition, it does not provide adequate dehumidification. The lack of zone control on AHU #1 & #2 exacerbates the problem with meeting the varying loads across a large area.
3. The electric resistance coils in both AHU's, as well as the re-heat coil in the duct system serving the ground, first & second floors are in a state of disrepair. The system cannot maintain the load in colder weather. This also has a direct effect on dehumidification.
4. The equipment is being operated as a collection of components, rather than an integrated system. The lack of communication and coordination between these components creates overlapping or competing loads. The lack of zone control on AHU #1 makes it difficult to maintain comfort levels across the open areas of the ground, first and second floors.

NEW SYSTEM DESIGN

Our design and optimization engineers conducted a block load heating/cooling/ventilation analysis of the building. A block load analysis segments the varying loads throughout the building to consider the load diversity. Using Trace®700 design and analysis software, we evaluated various system design configurations to achieve the best life cycle cost analysis and meet all code requirements.

Our new system design, explained in detail herein, includes:

- Remove the eight (8) residential heat pumps.
- Keep the VRF mini-split system in place.
- Remove the (2) 25-ton condensing units and (1) 50-ton air-handling unit in lower-level mechanical room.
- Install three (3) rooftop units *(one per floor*).
    - These units would include gas-fired heat.
- Reconfigure the air distribution system from constant volume to variable air volume. Add VAV boxes throughout each zone with 2ft x 2ft diffusers. Discontinue use of lighting diffusers throughout and terminate duct connections.
- All components are to be controlled and coordinated through a building automation system (BAS).
- Replacement of the main electrical distribution panel.
    - Upgrade the electrical system from 208-volts to 480-volts.

The refurbishment of the end-of-life equipment systems will require a significant investment. Fortunately, there are grants available to help subsidize this project. Our recommendations herein take these strategies into account.

We look forward to your feedback on this report.

PRESENT STATE OF SYSTEMS

OFFICES AND RESEARCH ROOMS

There are eight (8) residential split-system heat pump systems sized at 2 to 5 tons, respectively. Each system consists of an individual condensing unit on the roof and a small air-handling unit within the building space, paired with a local thermostat. Each of these heat pump systems provides heating/cooling to a specific segregated load, such as the research rooms and offices throughout the building.

The individual air-handling units are constant volume. The constant volume configuration provides full airflow while in the ON position and shuts down when the individual space temperature thermostats are satisfied. This increases the frequency of starts and stops of the condensing units, which causes increased wear and tear on mechanical and electrical components.

Segregating these individual loads was cost effective at the time of renovations. However, the overall size of the heat pump systems does not match the load of the area served. This sizing, along with constant volume air distribution, causes over/under cooling and heating and does not provide adequate dehumidification control.

Maintenance appears to be on a fix-on-fail basis. Some of these split systems have exceeded their life expectancy.

DIRECTOR'S OFFICE AREA

This VRF system consists of one condensing unit on the roof and a cassette air-handling unit in the building space. This unit is relatively new and appears to be in good working order.

A local thermostat sets the temperature for the inner and outer office. There are no zone dampers to properly balance the two areas, which creates an overall comfort issue for the area occupants.

TEEN BOOKSHELF AREA

A 5-ton light commercial condensing unit, located on the roof, supplies refrigerant to air-handing unit (AHU) #2. Heating is provided through a series of electric resistance coils (total 25-kilowatts) within the air-handling unit. The system is controlled by a stand-alone thermostat.

This individual air-handling unit is constant volume with the same inadequacies as previously described. Tempered air is ducted from the air-handling units to the diffusers integrated into the light fixtures. Return air is provided through the plenum ceiling.

The fresh air dampers appear to be stuck in a fixed position, rather than modulating based on occupancy and ambient outside air temperature. This condition, at various times of the year, can bring in too much unconditioned outside air, thereby placing an increased load on the system. At other times of the year, the system may not meet the minimum code requirements for adequate ventilation. The current air filters are rated MERV 8 (Minimum Efficiency Reporting Value). ASHRAE recommends filtration meet a MERV rating of 13 or higher.

We speculate that many of the electrical resistance elements are not functioning. Electrical resistance heating is extremely inefficient. If it were functioning properly, the library would see a dramatic increase in electrical consumption. The constant volume design is inefficient and not recommended for this application.

Maintenance appears to be on a fix-on-fail basis. The condensing unit and air-handler system have exceeded their life expectancy.

Main Areas (Ground, First & Second Floors)

The main areas on the ground, first and second floors are served by air-handling unit (AHU) #1. For cooling, two 25-ton condensing units located on the roof supply refrigerant to a dual circuit cooling coil in AHU #1. Heating is provided through a series of electric resistance coils (total 90-kilowatts) within the air-handling unit. The system is controlled by a stand-alone thermostat located on each floor.

This individual air-handling unit is constant volume with the same inadequacies as previously described. Tempered air is ducted from the air-handling unit to the diffusers in the light fixtures. There are (22) additional electric resistance re-heat coils thought the ducted area. Return air is provided through the plenum ceiling.

The fresh air dampers appear to be stuck in a fixed position rather than modulating based on occupancy and ambient outside air temperature. This condition, at various times of the year, can bring in too much unconditioned outside aur putting increased load on the system. At other times of the year, the system may not meet the minimum code requirements for adequate ventilation. The current air filters are rated MERV 8 (Minimum Efficiency Reporting Value). ASHRAE recommends filtration meet a MERV rating of 13 or higher.

We speculate that many of the electrical resistance elements in AHU #1, as well as the reheat coils, are not functioning. The system cannot maintain comfort levels with cold outside air temperatures. Electrical resistance heating is extremely inefficient. If it were functioning properly, the library would see a dramatic increase in electrical consumption. The constant volume design is inefficient and not recommended for this application.

Under the current design and limited control, it is difficult to maintain overall comfort in these areas while overcoming the differing loads in the atrium.

Maintenance appears to be on a fix-on-fail basis. The condensing unit and air-handler system have exceeded their life expectancy.

MAIN ELECTRICAL DISTRIBUTION PANEL

The main building feed is 480 volts. The voltage is stepped down to 208 volts to feed the original antiquated 208 switchgear.

There are a number of disabled circuits within the panel. Additional 400-amp breakers are required to serve the new HVAC equipment. The panel should be replaced and brought up to current code requirements.

RECOMMENDATIONS

The new system design has been engineered to meet the exact heating/cooling/ventilation loads of the library. This will positively impact energy efficiency, occupant comfort and properly maintain humidity levels.

DIRECTOR'S OFFICE AREA

The VRF mini split is in good operating condition. This system will remain in place. We will look at relocating the diffusers to improve occupant comfort.

TEEN BOOKSHELF AREA & MAIN AREAS (GROUND, FIRST & SECOND FLOORS)

Remove the two existing 25-ton and one 5-ton condensing units. Remove air-handling units #1 and #2. These units will be replaced with three Trane® packaged rooftop units.

- Rooftop unit #1 will serve the ground floor and the teen bookshelf area.
- Rooftop unit #2 will serve the first floor.
- Rooftop unit #3 will serve the second floor.

OFFICES AND RESEARCH ROOMS

Remove the eight (8) residential heat pumps and corresponding air-handlers. Integrate these spaces into the corresponding variable air volume rooftop system serving that floor. Install properly sized ductwork and VAV boxes to adequately serve these areas.

The rooftop units will be equipped with CO^2 sensors. As building occupancy and CO^2 increase, the rooftop will modulate the outside air dampers to increase the supply of fresh air.

The existing air distribution duct will be modified from constant volume to variable air volume through the addition of variable air volume zone control. Approximately (37) variable air volume (VAV) single duct terminal units will be added to segment the areas into zones.

ALL electric resistance heating coils will be removed. The rooftop units will be equipped with natural gas fired heat. *NOTE:* We have consulted with Mountaineer Gas who will bring gas service to the building.

MAIN ELECTRICAL DISTRIBUTION PANEL

Replace the main 208-volts electrical distribution. The electrical service will be upgraded to 480-volts. The 480-volts service will be utilized to power all new equipment. The increased voltage will reduce the current draw on all connected loads.

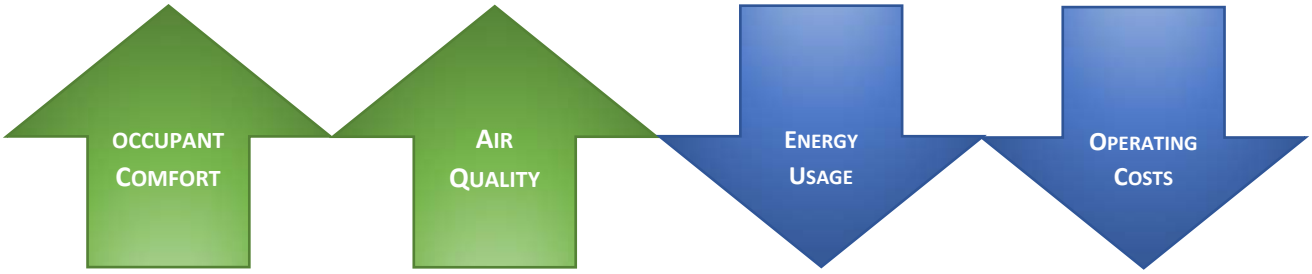
BUILDING AUTOMATION SYSTEM

We recommend the installation of a Trane Tracer® SC™ building automation system (BAS). New direct digital control (DDC) devices will be installed, such as: air flow, building pressurization, CO^2, temperature, and humidity sensors, as well as control valves. The system will be integrated to all air-handling units, the packaged rooftop units, and variable air volume units.

The SC™ BAS makes it easy to:

- Control optimum start/stop and manage night set-back (unoccupied conditions).
- View and make changes to your building systems from a single source, including changing set-points, modifying schedules, and managing alarms.
- Access your facility from any device (PC's, tablet, and smart phones) from anywhere at any time.

PROJECT OUTCOMES



This scope of work is in accordance with Comfort Design, Inc. permit drawings and specifications dated December 19, 2022.

NEW EQUIPMENT

Supply the following Trane equipment**

****NOTE: All Trane Equipment will be purchased direct from Trane under a separate proposal using the OMNIA Partners Cooperative Purchasing Contract # C-3341.**

1. Tag Data: Rooftop Units (Qty: 3) **

Item	Tag(s)	Qty	Description	Model Number
A1	RTU-1_GND	1	25-Ton Precedent Unitary Rooftop	YSJ300A4S0M**
A2	RTU-2_MAIN	1	35-Ton Voyager Unitary Rooftop	YCH420C4L**
A3	RTU-3_2ND	1	25-Ton Precedent Unitary Rooftop	YSJ300A4S0M**

2. Tag Data - Variable Air Volume Single Duct Terminal Units (Qty: 37) **

Item	Tag(s)	Qty	Description	Model Number
D1	VAV-1-2	1	Variable Air Volume Single Duct Terminal	VCEF06--*M0SY95D*
D2	VAV-1-3	1	Variable Air Volume Single Duct Terminal	VCEF06--*M0SY95D*
D3	VAV-1-4	1	Variable Air Volume Single Duct Terminal	VCEF08--*M0SY95D*
D4	VAV-1-5	1	Variable Air Volume Single Duct Terminal	VCEF10--*M0SY95D*
D5	VAV-1-6	1	Variable Air Volume Single Duct Terminal	VCEF06--*M0SY95D*
D6	VAV-1-8	1	Variable Air Volume Single Duct Terminal	VCEF06--*M0SY95D*
D7	VAV-1-9	1	Variable Air Volume Single Duct Terminal	VCEF14--*M0SY95D*
D8	VAV-1-10	1	Variable Air Volume Single Duct Terminal	VCEF10--*M0SY95D*
D9	*VAV-1-11*	*1*	*Variable Air Volume Single Duct Terminal*	*VCEF10--*M0SY95D**
D10	VAV-1-12	1	Variable Air Volume Single Duct Terminal	VCEF08--*M0SY95D*
D11	VAV-1-13	1	Variable Air Volume Single Duct Terminal	VCEF10--*M0SY95D*
D12	VAV-1-14	1	Variable Air Volume Single Duct Terminal	VCEF10--*M0SY95D*
D13	VAV-1-15	1	Variable Air Volume Single Duct Terminal	VCEF10--*M0SY95D*
D14	VAV-1-16	1	Variable Air Volume Single Duct Terminal	VCEF08--*M0SY95D*
D15	*VAV-1-17*	*1*	*Variable Air Volume Single Duct Terminal*	*VCEF08--*M0SY95D**
D16	VAV-2-1	1	Variable Air Volume Single Duct Terminal	VCEF05--*M0SY95D*
D17	VAV-2-2	1	Variable Air Volume Single Duct Terminal	VCEF05--*M0SY95D*
D18	VAV-2-3	1	Variable Air Volume Single Duct Terminal	VCEF06--*M0SY95D*
D19	VAV-2-4	1	Variable Air Volume Single Duct Terminal	VCEF24R*M0SY95D*
D20	VAV-2-5	1	Variable Air Volume Single Duct Terminal	VCEF14--*M0SY95D*
D21	VAV-2-6	1	Variable Air Volume Single Duct Terminal	VCEF06--*M0SY95D*
D22	VAV-2-7	1	Variable Air Volume Single Duct Terminal	VCEF06--*M0SY95D*
D23	VAV-2-8	1	Variable Air Volume Single Duct Terminal	VCEF06--*M0SY95D*
D24	VAV-2-9	1	Variable Air Volume Single Duct Terminal	VCEF06--*M0SY95D*

D25	VAV-2-10	1	Variable Air Volume Single Duct Terminal	VCEF06--*M0SY95D*
D26	VAV-G-1	1	Variable Air Volume Single Duct Terminal	VCEF12--*M0SY95D*
D27	VAV-G-2	1	Variable Air Volume Single Duct Terminal	VCEF06--*M0SY95D*
D28	VAV-G-3	1	Variable Air Volume Single Duct Terminal	VCEF24R*M0SY95D*
D29	VAV-G-4	1	Variable Air Volume Single Duct Terminal	VCEF06--*M0SY95D*
D30	VAV-G-5	1	Variable Air Volume Single Duct Terminal	VCEF05--*M0SY95D*
D31	VAV-G-6	1	Variable Air Volume Single Duct Terminal	VCEF24R*M0SY95D*
D32	VAV-G-7	1	Variable Air Volume Single Duct Terminal	VCEF08--*M0SY95D*
D33	VAV-G-8	1	Variable Air Volume Single Duct Terminal	VCEF08--*M0SY95D*
D34	VAV-G-9	1	Variable Air Volume Single Duct Terminal	VCEF08--*M0SY95D*
D35	VAV-G-10	1	Variable Air Volume Single Duct Terminal	VCEF08--*M0SY95D*
D36	VAV-G-11	1	Variable Air Volume Single Duct Terminal	VCEF08--*M0SY95D*
D37	VAV-G-12	1	Variable Air Volume Single Duct Terminal	VCEF08--*M0SY95D*

DEMOLITION

1. Properly recover and dispose of refrigerant in eight (8) residential heat pumps systems and three (3) commercial split systems per EPA guidelines and regulations.
2. Secure and disconnect electrical service to each unit. Lock-out/Tag-out all breakers.
3. Disconnect, demo, and remove the AHU located in the basement mechanical room.
4. Disconnect, demo, and remove the ductwork as per the preliminary drawings
5. Demo and remove existing fan coil units, air-handling units, and electric reheat coils located inside the library, as per preliminary drawings.
6. Remove the screen and drywall bulkhead at the front desk.
7. Disconnect, demo, and rig off the existing equipment on the roof.
8. remove the air-handling unit located in the basement mechanical room.
9. Disconnect, demo, and remove ductwork sections in accordance with the preliminary drawings.
10. Haul all equipment and debris offsite and dispose of it properly.

CONSTRUCTION

1. Rig, set and install three (3) new rooftop units on new roof curbs.

a. These rooftop units are upsized from our original design to take care of the library spaces being fed by existing split systems.

2. Provide and install gas pipes, valves, and fittings.
3. Set and install (37) new VAVs.
4. Provide and install gas piping, valves, and fittings as per the manufacturer.
5. All the ceiling and mechanical work will be performed in phases.

a. There will be approximately six (6) Phases to mitigate the disruption to the library.
b. Half of each floor will be shut down at a-time.

6. Provide and install floor protection throughout the phased floor.
7. Provide and install a plastic barrier using zip poles with a zipper for access for each phase.
8. Provide a scaffolding system approximately 26’ wide and 72’ long in the front of the library where the high ceilings are located to perform the work in that area.

a. The existing bookshelves are not able to be moved.
b. Scaffolding will be built around the existing bookshelves.

9. The bookshelves will be covered / protected with plastic.
10. Provide the necessary penetrations, and bulkhead for the ductwork.

11. Remove and replace the ceiling grid and tile.
12. Provide and install new ductwork, flex duct, and dampers, as per preliminary drawings.
a. Provide and install new ductwork to the spaces currently served with the split systems.
b. Sound liner to be installed 15 linear feet from the discharge / return openings.
13. Reuse existing electrical feeders for replacement equipment and add new circuits for VAVs.
a. Extend new or modify existing feeders, as necessary.
14. Install new circuit breakers in existing panels, as needed per manufacturer's specifications.
15. Install new wiring and feeders for (3) new RTUs.
16. Reuse the existing switchboard with existing load breakers.
17. Remove/abandon the MCC sections of the existing switchboard to utilize the 600a breaker that was used to feed the MCC.
18. The existing 600amp breaker, made available by the removal of old equipment, will be used to feed a new 600amp MDP to feed the new 480V equipment.
19. Relocate the existing building branch circuits from the existing switchboard to the new MDP
a. Including panels, transformers, and miscellaneous equipment.
20. Install (2) new panels for the new HVAC equipment and replace panel C with new panel.
21. All wiring throughout the building will be in MC cable, per code.
22. Grounding will be performed, per code.
23. Upon completion of work, bring units online to ensure they are in proper working order.

BUILDING AUTOMATION SYSTEM

24. Install Trane Tracer® SC™ with software licensing.
25. Install new BACNET communication network.
26. Integrate controls on three (3) rooftop units and thirty-seven (37) VAV boxes.
27. Create programing and graphics.
28. Provide operator training.

GENERAL CONDITIONS

a. Provide mechanical and electrical permit drawings and system specifications.
b. Provide structural engineering review of equipment roof loads.
c. Provide one crane mobilization for rigging and services to remove old equipment from the roof.
d. Provide factory authorized start-up of all new equipment.
e. Provide project management services. This will include, but is not limited to:
- Regular project meetings with the owner's representative.
- Coordination of major events and service interruptions.

f. Provide testing, adjusting, and balancing of the new system, in accordance with NEBB procedural standards.

WORK TO BE PERFORMED BY OTHERS

g. Fire alarm and sprinkler work not included.

CLARIFICATIONS

i. Previous engineering services have been applied.
j. All work will be performed during normal business hours.
k. If the structural engineer determines additional structural reinforcement is required, Boland will provide Martinsburg-Berkeley County Library with a proposal for the modifications.
l. There are areas of concern regarding the routing of the ductwork between the existing steel and the ceiling.

- Where the following extraordinary circumstances are encountered, Boland will notify the client and provide a quote on a case-by-case basis prior to proceeding:
- Removal of materials deemed to be of a hazardous nature.
- Discovery of mold, removal of mold or infected materials.
- Discovery of water leaks or air leaks outside the scope of work.

EXCLUSIONS

- Modifications to the fire protection systems, sprinkler piping, asbestos testing/abatement, temporary heating/cooling systems, coordinated drawings, painting, drywall work, concrete work, temporary partitions, moving of furniture and/or electronics.
- Power or Gas company charges for any new service coming into the building.
- The CT cabinet is not included in this proposal.
    - The meter is located outside on the existing transformer.

Project Cost: TOTAL PRICE: $2,091,045.00

Other costs no included in this proposal:
- Trane Equipment (estimated), as described above = $198,265 **
- Remove 270 existing light fixtures and Install center basket LED fixtures = $82,069**

TERMS & CONDITIONS

1. General Conditions

1.1 Boland Trane Services, Inc. (Boland) agrees to perform the Work specified in the Proposal ("the Work"), incorporated herein by reference.

1.2 Client agrees to provide reasonable and timely access to all equipment related to the Work. Unless otherwise specified in the Proposal, the Work shall be performed during normal working hours (Monday – Friday, 7:00 a.m. – 4:00 p.m.).

1.3 For Service Contracts, Boland will provide recommended repair proposals after the first running inspection. For Full Service (Parts & Labor) Contracts, completion of these repairs is a prerequisite for coverage under the contract.

1.4 Assignment/Transfer of Ownership. This agreement may not be assigned in whole or in part, nor may the service(s) or equipment provided hereunder be resold, sublet, or otherwise transferred to any third party without the express, prior written consent of Boland. Client agrees, in the event of sale or transfer of ownership or management of the premises at which the equipment is located, to remain liable for the total annual cost of the contract, unless the transferee, subject to Boland credit approval, agrees in writing to Boland to assume all Client's obligations under this contract.

1.5 Choice of Law/Forum Selection. Should any dispute arise under this agreement, it shall be interpreted pursuant to the laws of the state of Maryland. Any such dispute requiring litigation shall be decided in the state of Maryland in a court of competent jurisdiction located in Montgomery County, Maryland.

1.6 Entire Agreement. All prior representations or agreements not incorporated herein are superseded. This agreement, together with the Proposal and any exhibits, shall constitute the entire agreement between Boland and Client.

1.7 If the conditions at the Work site differ materially and cause an increase in Boland's cost of, or time required for, performance of any part of the Work, Boland shall be entitled to, and Client shall consent by Change Order to, an equitable adjustment in the Contract Price, contract time, or both.

2. Payment

2.1 Unless otherwise specified in the Proposal, payment in full shall be due within 30 days of receipt of the merchandise and/or services. Boland reserves the right to issue progress billings at a minimum of once per month. Failure of the Client to make timely payment shall release Boland of its obligations under this the Proposal and Agreement.

2.2 For any accounts outstanding for more than 30 days, Boland reserves the right to add a service charge of 1.5% per month or 18% per year.

2.3 Maintenance Agreements. As to maintenance agreements with monthly or quarterly payment obligations, the parties agree that the payments terms of these contracts are determined by Boland based on the annual payment amount and the monthly payments are offered as a courtesy to the Client; accordingly, upon any termination by Client, an Amount proportional to the work performed to date will be due to Boland.

2.4 Emergency Services. Unless otherwise specified in the Proposal, Client will be responsible for additional invoicing for any emergency services provided by Boland. If work performed outside of the hours set forth in Section 1.2 is requested by Client or reasonably required to remediate any emergency, Boland will charge "time and a half" for work on Saturday and after normal hours Monday through Friday; Boland will charge "double time" for work on Sunday and holidays and after normal hours on Saturday.

3. Warranty

3.1 Unless otherwise specified in the Proposal, Boland will complete all work in a workmanlike manner according to standard trade practices and will guarantee service for ~~90 days~~ *one (1) year* following the completion date, subject to the conditions and exclusions set forth in Section 4.1.

3.2 Subject to the exclusions specified in Section 3.1, Boland will pass to the Client any and all manufacturer warranties that apply to any materials supplied by Boland. THIS WARRANTY AND LIABILITY SET FORTH IN THE PRIOR PARAGRAPHS IS IN LIEU OF ALL OTHER WARRANTIES AND LIABILITIES, EXPRESSED OR IMPLIED IN LAW OR FACT, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR USE.

4. Exclusions

4.1.1 Boland's work will be performed in accordance with municipal and national building codes. Boland does not assume responsibility for any pre-existing code violation(s).

4.1.2 Boland is not responsible for any latent system defects or systems installed by others.

4.1.3 Cutting, patching, and painting are excluded from the scope and cost of this proposal.

4.1.4 Boland excludes and repairs or upgrades to the existing building automation system and/or life safety systems not specifically described in this proposal.

4.2 Warranty Exclusions. The following exclusions shall void any warranty otherwise in place:

4.2.1 Corrosion or other deterioration resulting from forces not within Boland's control.

4.2.2 Substitution of materials for any reason including, but not limited to, government regulations.

4.2.3 Failure to properly operate equipment according to the manufacturer's Installation, Operation, and Maintenance Manual.

4.2.4 Failure to supply adequate power to the equipment; and/or

4.2.5 Repair or any alteration made by anyone other than Boland.

4.3 Unless otherwise specified in the Proposal, Boland does not assume responsibility for the following:

4.3.1 Any item set forth in Section 4.1.

4.3.2 Normal day-to-day operation of the equipment.

4.3.3 Duct work, heat exchangers, electrical disconnect switches, air filters, recording instruments, gauges, or thermometers, chilled or condenser water piping.

4.3.4 Water treatment.

4.3.5 Maintenance and repair of ancillary equipment; and/or

4.3.6 Equipment failure, except where damage is directly due to the sole negligence of Boland.

4.4 Force Majeure. Boland shall not be responsible for any damages, including but not limited to damages for delay or inability to perform the Work owing to the following reasons: 4.4.1 Flood, fire, lightning, riots, civil unrest, or any other force of nature.

4.4.2 Strikes or labor troubles affecting Boland's employees or agents who perform the services related to the Work.

4.4.3 Delays in transportation that are outside of Boland's control.

4.4.4 Orders or regulations established by government authority.

4.4.5 Any utility or power service connected to the equipment involved in the Work, including any failure or disruption thereof; and/or

4.4.6 Any other reasonably unforeseeable cause outside of Boland's control, including but not limited to Boland's inability to obtain necessary parts despite reasonable efforts.

4.5 It is expressly agreed that any unauthorized alteration of the equipment shall further release and terminate all obligations of Boland pursuant to this agreement.

5. Indemnification

5.1 To the fullest extent permitted by law, Client shall indemnify, defend, and hold harmless Boland from any and all claims, actions, costs, expenses, damages, and liabilities, including reasonable attorneys' fees, resulting from death or bodily injury or damage to real or tangible property not caused by the sole negligence or intentional misconduct of Boland. This duty to indemnify shall continue in full force and effect, notwithstanding the expiration or early termination of this agreement.

5.2 In addition to the indemnity provision set forth above, Client agrees to indemnify and save Boland, its employees, and subcontractors harmless from and against any loss, injury, or liability of any nature arising out of or resulting from exposure of any person or property to hazardous conditions and/or materials at the job site.

5.3 In no event shall Boland be liable to Client for any special, indirect, consequential, punitive, or exemplary damages, including but not limited to business interruption or lost profits, arising out of, or relating to this Agreement or the performance or breach thereof. Any liability on the part of Boland shall be limited to the purchase price for products or services agreed upon with the Client.

6. Hazardous Conditions and/or Materials

6.1 Boland shall not be responsible for the detection, abatement, encapsulation, or removal of any hazardous conditions and/or materials, including but not limited to asbestos, lead, mold, mildew, and the growth of hazardous microbic organism or mycotoxins. If Boland encounters hazardous conditions and/or materials at the Work site Boland shall immediately stop work and notify Client of such conditions promptly.

6.2 If any such hazardous conditions and/or materials are discovered, Client shall immediately endeavor to:

6.2.1 Abate and/or remove any such hazardous materials and/or remediate any other hazardous condition(s).

6.3 Protect Boland, its employees, agents, and subcontractors from any such hazardous materials if Boland reasonably deems it necessary to perform the Work.

BOLAND TRANE SERVICES, INC.

By: Brandt Petrie

Name: Brandt Petrie

Title: Account Executive

Date: February 28, 2024

MARTINSBURG -BERKELEY COUNTY LIBRARY

By: _____

Name: _____

Title: _____

Date: _____ PO# _____