



June 21, 2021

**MEMORANDUM**

**TO:** Jim Murdaugh, Ph.D.  
President

**FROM:** Barbara Wills, Ph.D.  
Vice President for Administrative Services and Chief Business Officer

**SUBJECT:** COVID Air Quality Upgrade Contract

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**Item Description**

This item requests the Board of Trustees authorize the College to negotiate an air quality upgrade contract with Siemens Industry, Inc. not to exceed \$4.25 million.

**Overview and Background**

In order to meet the indoor air quality recommendations of the Centers for Disease Control and Prevention (CDC) and the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE), the College is considering an upgrade to TCC's Heating, Air Conditioning and Ventilation (HVAC) systems.

Currently, the College uses the Siemens' Desigo operating platform for all HVAC and lighting controls on all campuses. The College has worked with Siemens to develop an action plan that will maximize current equipment and technology where possible but also provide necessary upgrades and replacements that utilize integrated technology in order to provide maximum air quality. The long-range plan is to incorporate this operating platform into a Physical Security Information Management System that will ultimately control Exterior Campus lighting, all HVAC functions, electronic access control, elevators and cameras.

Because of the existing building automation system, the mix of equipment and Siemens' knowledge of the College infrastructure, it is most cost effective to use Siemens. Additionally, this type of contract does not fall under any existing contract with the Florida Department of Management Services. Siemens will be a Sole Source contract.

**Funding/ Financial Implications**

This contract will not exceed \$4,250,000. Funding is from the Higher Education Emergency Relief Fund and will not have financial impact upon the College.

**Past Actions by the Board**

This Energy Savings Performance Contract with Siemens was approved by the Board on August 15, 2016. Siemens was chosen by the College after careful evaluation of ten vendors with State Term Contracts for energy savings performance contracts. Siemens provided the best value and technology consistent with our needs.

**Recommended Action**

Authorize the College to enter into a contract for air quality upgrades not to exceed \$4.25 million.



Subject: Sole Source  
Date: 06/01/2021  
Project: Tallahassee Community College – Air Quality Control Project (COVID Response)

To Whom it may Concern,

This letter is being provided per the customers request to provide justification and understanding as to the needs and requirements to continue the sole sourcing of Siemens products and services as they relate to the Air Quality Control Project at Tallahassee Community College.

The Campus currently has a new Siemens Apogee Desigo CC Building Automation System installed. In addition, the Campus made a substantial investment into an energy savings project in 2016 that involved the central energy plant and reaches out to all campus building that have building automation controls associated with the central energy plant. The existing campus BAU system requires consistency and interoperability for proper energy conservation and air quality control. The air quality control project will utilize Siemens Dynamic VAV Optimization as well as other equipment changes, enhanced programming, and sensor technology.

Dynamic VAV Optimization (DVO) is a Siemens cloud-based optimization technology for central air handler systems. The system is interoperable with the Siemens building control system. Data from zone controllers and air handler controllers is communicated from the on-site systems to the cloud, and the machine learning device communicates setpoints from the cloud back to the on-site air handling unit controls. The configuration and integration with existing sequence of operation for the system relies on the Siemens standard architecture. The combination of flexible control, BMS integration, and performance utilizing only the existing control components, sensors, and devices is unique in the industry. Alternative approaches, such as on-site custom programming, do not deliver equivalent outcomes, or would incur significant additional costs due to the integration and interoperability requirements of Tallahassee Community College.

The justification for sole source is driven by the investments made into the existing Siemens Desigo CC BAS infrastructure and the energy efficient Siemens Demand Flow product and the warranties associated with proper operation. In closing, if there were other technologies that could closely compare at the component level the cost would be astronomical as these 3<sup>rd</sup> party systems would require system integration by Siemens as required for Tallahassee Community College.

Sincerely,

Jason M Taylor  
Siemen Building Technologies

**PROPOSAL**

TCC - COVID Air Quality Upgrades

**PREPARED BY**

Siemens Industry, Inc.

**PREPARED FOR**

TALLAHASSEE COMMUNITY COLLEGE

**DELIVERED ON**

May 26, 2021



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## Contact Information

Proposal #:	5707546
Date:	May 26, 2021

Sales Executive:	Jason M Taylor
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Email Address:	jason.taylor@siemens.com

Customer Contact:	
Customer:	TALLAHASSEE COMMUNITY COLLEGE
Address:	444 APPLEYARD DR TALLAHASSEE FL 32304-2815
Services shall be provided at:	TALLAHASSEE COMMUNITY COLLEGE TALLAHASSEE FL 32304-2815

## Scope of Work

Tallahassee Community College - HVAC Air Quality COVID Response

### Conclusion

In response to the COVID - 19 Pandemic and measure called out in the CARES ACT and American Rescue Plan Siemens has developed a reaction plan utilizing multiple approved technologies to address the Tallahassee Community College Campus's ability to react to the air quality demands of the pandemic. This will involve multiple technologies that will best integrate with the existing campus HVAC equipment to provide the maximum air quality improvement as it relates to existing equipment. These measures will include a combination of the following; Siemens Dynamic VAV Optimization, Needle Point Bipolar Ionization, control panel and sequence changes to air handler operations. In addition there are 8 AHU's that are 30 Plus years old and are not capable of proper air quality control. Siemens Proposes to Remove and Replace these units with more energy efficient units capable of providing proper Humidity control and Ventilation.

## Inclusions

### Needle Point Bipolar Ionization Overview

Siemens is proposing a solution for Tallahassee Community College that will reduce the risk of infection by pathogens such as SARS-CoV-2 (COVID-19) through the generation of ions that bind with the pathogens to deactivate them. This is accomplished through the generation of ions via needle point bipolar ionization. This bipolar ionization is installed in air conditioning equipment and the ions are fed into the facility. Additionally, Siemens' bipolar ionization solution is certified by UL 867 and UL 2998 to be ozone-free to ensure the long-term health and safety of the solution on people and equipment. There are additional benefits including reduction in volatile organic compounds (VOCs) in the spaces as well as improve filtration since the ions promote the binding together of airborne particles to ensure they are captured in the filters.

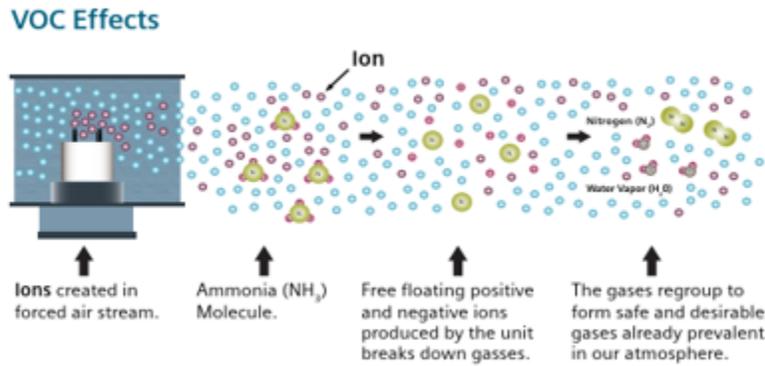


Figure 1. VOC Effects of Bipolar Needle Point Ionization

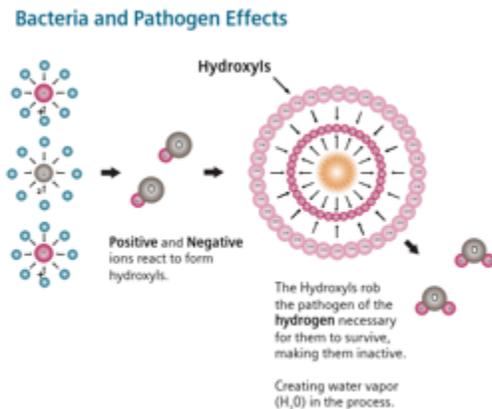


Figure 2. Bacteria and Pathogen Effects of Bipolar Needle Point Ionization

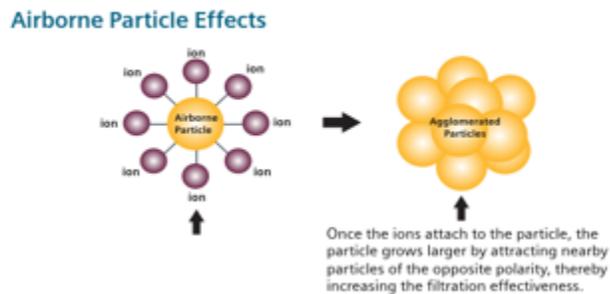


Figure 3. Airborne Particle Effects of Bipolar Needle Point Ionization

Needle Point Bipolar Ionization Benefits Summary

Operational & Health Benefits:

- Improved indoor air quality leads to reduced surface cleaning needs
- Reduction of infection risk in spaces served by bipolar needle point ionization
- Improved indoor air quality reduces "sick building syndrome" defined as poor indoor air quality that impacts the health and productivity of occupants

Energy Cost Benefits:

- Reduces buildup of dust and other contaminants on heating and cooling coils thus increasing their efficiency and reducing overall energy usage

**Dynamic VAV Optimization Overview**

Siemens is proposing a solution for Tallahassee Community College that will provide an environment that reduces the risk of infection of pathogens (per ASHRAE and CDC recommendations), maintain and/or improve comfort, and drive energy savings where possible. This solution is called Dynamic VAV Optimization (DVO) and uses the latest technology to optimize ventilation, supply air temperature, and room humidity using real-time machine learning. **This technology learns how the building operates and selects the ideal set points at any given time based on occupancy and health requirements.**

After the outbreak of the pandemic, **ASHRAE and the CDC have developed recommendations for how buildings should operate.** Key recommendations include **maintaining occupant comfort while constraining humidity set points as well as increasing the amount of outside air provided to the space.** In fact, the CDC recommends maximizing the amount of outside air, but this must be done with caution: how much is too much? What if the space gets too cold or hot or too humid? How can this be done effectively while also not needlessly increasing energy usage? If the building is not controlled correctly and the amount of outside air brought in is too high, then excessive conditioning will have to occur which increases both cooling and heating energy (depending on time of year). **How do you do this correctly? The answer is DVO.**

In short, **DVO will increase the amount of outside air to the space** to the exact point where the other ASHRAE recommendations are satisfied: **the correct humidity range and a comfortable temperature.** This ensures you are receiving as much benefit as possible from an outside air perspective while reducing unnecessary energy usage and maintaining comfort.

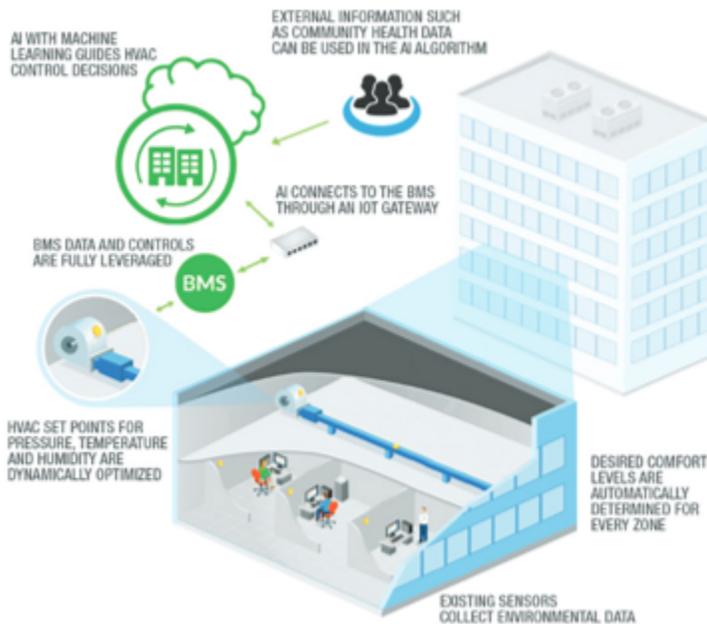


Figure 4. How Does DVO Machine Learning Work?

Dynamic VAV Optimization Benefits Summary

Operational and Health Benefits:

- Increases outside air to prevent "sick building syndrome" and promote occupant health by reducing the risk of infection by pathogens
- Maintains a certain humidity range to prevent too low humidity levels (allows viruses to aerosolize making it easier to infect) and too high humidity levels (leading to mold growth)
- Promotes occupant comfort by controlling humidity and space temperature correctly and potentially reduces the amount of hot- or cold-calls

Energy Cost Benefits:

- Reduces excessive energy usage by controlling outside air, humidity, and temperature set points tightly and correctly

**(8) Hot Deck / Cold Deck AHU Replacement Overview**

Operational and Health Benefits:

The new AHU's replacing the old technology will have the ability to control Humidity because they will be equipped with reheat coils. In addition the airflow and ventilation of the unit will be greatly increased allowing for better circulation of properly conditioned and cleaner air with improved PPM counts.

This Proposal Includes the following:

- Demolish and dispose of existing AHU's
- Furnish and install new replacement AHU's that include reheat capability
- Pipe and fittings to connect existing heating hot water and chilled water services to new AHU's
- Duct and Pipe insulation for new or modified work, including all service jacketing.
- Install hydronic control valves furnished by others for chilled and heating hot water feeds.
- Equipment pad modifications as required.
- Disposables, power tools, and hand tools
- Hangers and supports necessary for installation
- Tie-ins to existing lines as required
- Labor (price reflects working normal business hours)
- Freight, Delivery and Handling

The Following 21 Buildings and 99 AHU's will be included in this project and scope of work will vary based off of the requirements for each building and piece of equipment to achieve air quality control.

Building	AHU
01-EN	AHU-1-01-EN-130
01-EN	AHU-2-01-EN-105
01-EN	AHU-3-01-EN-228
SMA 140 A	AHU 5
SMA 207	AHU 4
SMA 107	AHU3
03-AP	AHU-1-03-AP-253
03-AP	AHU-2-03-AP-144
04-MLH	AHU-9-04-MLH-151
04-MLH	AHU-10-04-MLH-152
05-CH	AHU-1-05-CH-211
05-CH	AHU-2-05-CH-239
05-CH	AHU-3-05-CH-294
05-CH	AHU-4-05-CH

Continuation:

Building	AHU
06-DH	AHU-1-06-DH-300
06-DH	AHU-2-06-DH-300
06=DH	AHU-3-06-DH
06-DH	AHU-4-06-DH
08-AC	AHU-2.1-08-AC-223
08-AC	AHU-2.2-08-AC-223
08-AC	AHU-3.1-08-AC-334
08-AC	AHU-3.2-08-AC-334
08-AC	AHU-1.1-08-AC-141
08-AC	AHU-1.2-08-AC-141
11-TPPN	AHU-1-11-TPPN-192
11-TPPN	AHU-2-11-TPPN-275
11-TPPS	AHU-1-11-TPPS-300
11-TPPS	AHU-2-11-TPPS-300
11-TPPS	AHU-3-11-TPPS-300
11-TPPS	AHU-4-11-TPPS-300

Continuation:

Building	AHU
15-LS	AHU-11-15-LS-200
15-LS	AHU-12-15-LS-200
15-LS	AHU-15-15
15-LS	AHU-5-15-LS-200
15-LS	AHU-6-15-LS-200
15-LS	AHU-7-15-LS-141
15-LS	AHU-1-15-LS-161
15-LS	AHU-2-15-LS-170
15-LS	AHU-3-15-LS-182
15-LS	AHU-4-15-LS-183
SM-18	AHU1
SM-18	AHU4
SM-18	AHU5
SM-18	AHU6
SM-18	AHU2
SM-18	AHU7
SM-18	AHU3

Continuation:

Building	AHU
12-FPA	AHU-1-12-FPA-300
12-FPA	AHU-2-12-FPA-300
12-FPA	AHU4
12-FPA	AHU5
12-FPA	AHU-5
12-FPA	AHU-7
27-AD	AHU-1-27-AD-203
27-AD	AHU-2-27-AD-255
27-AD	AHU-3-27-AD-242
27-AD	AHU-4-27-AD-203
27-AD	AHU-5-27-AD-255
30-LB	AHU-1-30-LB-300
30-LB	AHU-2-30-LB-300
30-LB	AHU-3-30-LB-300
30-LB	AHU-4-30-LB-300
30-LB	AHU-5-30-LB-300
30-LB	AHU-6-30-LB-300
30-LB	AHU-7-30-LB-300
30-LB	AHU-8-30-LB-300

Continuation:

Building	AHU
30-LC	AHU-1-30-LC-300
30-LC	AHU-2-30-LC-300
35-SU	AHU-1-35-SU-301
35-SU	AHU-2-35-SU-301
35-SU	AHU-3-35-SU-301
35-SU	AHU-4-35-SU-301
35-SU	AHU-5-35-SU-301
35-SU	AHU-6-35-SU-301
35-SU	AHU-7-35-SU-301
35-SU	AHU-8-35-SU-301
35-SU	AHU-9-35-SU-301
35-SU	AHU-13-35-SU-301
38-CWD	AHU-1-38-EWD-300
38-CWD	AHU-2-38-EWD-300
38-CWD	AHU-3-38-EWD-300
38-CWD	AHU-4-38-EWD-300

Continuation:

Building	AHU
39-HSS	AHU-1-39-HSS-300
39-HSS	AHU-2-39-HSS-300
39-HSS	AHU-3-39-HSS-300
39-HSS	AHU-4-39-HSS-300
41-CT	AHU-1-41-CT-300
41-CT	AHU-2-41-CT-300
41-CT	AHU-3-41-CT-300
41-CT	AHU-4-41-CT-300
FPSI-ADM	AHU-1
FPSI-ADM	AHU-2
FPSI-ADM	AHU-3
FPSI-CLSRM	AHU-1
FPSI-CLSRM	AHU-2
FPSI-CLSRM	AHU-3
FPSI-DT	003.DT.AHU1
FPSI-CC	AHU-1
FPSI-CC	AHU-2
FPSI-CC	AHU-3

## Exclusions / Clarifications

- **Submittals**
  - Siemens Standard Submittal Package to be provided in accordance with Siemens standards
- **Training ( 40 ) Hours onsite**
- **Warranty**
  - ( 1 ) Year parts and labor from substantial completion
  - ( 1 ) Years labor only for Siemens programming

### Exclusions / Clarifications :

- Graphics updates will reside on the existing Siemens Desigo CC System
- Programming changes and updates will be backed up at the panel level
- Panels included in the project will be flashed to the appropriate firmware version for FIM measure.
- Any additional equipment failures outside of this project will be quoted as separate work.
- Fire Smoke and Smoke Dampers if shown or required with actuators are by others
  - No Work Siemens BAU (work will be performed under Siemen Fire proposal)
- Any additional components controlled by the demo
- Access doors if shown or required are by others
- Variable Frequency Drives (VFD's) outside of those called out in the inclusions are by others (Furnishing and mounting by others. Power wiring by division Electrical) VFD's to be provided with Siemens P-1 and BACNet interface.
- Starters & H-O-A switches for HVAC equipment if required are by others.
- 120vac Emergency Power Wiring for Control Panels is by Div. Electrical
- We do not include any additional clean up personnel other than that required for our trade.
- This proposal does not include the installation of valves, dampers, water or airflow, water or steam pressure and water or steam temperature measuring devices.
- Taps, tap valves where required for BAS instruments are by mechanical contractor.
- Thermometers, non-electronic pressure gauges, and PTs are by others.
- Flow control-balancing or isolation valves by others.
- Building security, lighting control, fire alarm systems, smoke detectors, relays by others. Connections to fire alarm system by others.
- Test & Balance by others.
- No Spare Parts are included
- Performance & Payment Bonds included are not included.
- Siemens Standard Insurance Coverage

- Builders Risk is not included
- Per Project Aggregate Adder not included
- All asphalt and/or concrete, patching, repairs, pourback and sawcutting work
- Access panels, ceiling and wall work, painting, flooring or any other finishes
- ICRA, Negative Air Machine, Temporary Air, Temporary Filters, Temporary utilities of any kind
- Permit or impact fees
- Duct Cleaning
- Temporary facilities and services such as water, heat, power, toilets, security

## Sell Price

Project Projected Cost:	<b>\$4,125,000.00</b>
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