

Over and Above Estimate

Region: 5

Location: MD002

CSS #: 15107

Maximo Work Order No.: 5993

Asset #: NA

Date: 2/8/2019

Original Description:

need to have the DDC, see if the server room is on the DDC system

Repairs Needed:

Labor, Materials, and Software Packages included in Phase I of approach to bring Building Automation up to proper functionality. This will include software upgrades to Niagra 4. Please see provided proposal with additional detail.

RS Means Line Buildup and Labor Summary (Data Version 2017, Q4):

Quantity	Line Item Number	Description	Labor Hours	Labor Rate/Hr	Materials	Equipment	Total
1	NA	Hardware Materials	--	--	\$1,195.00	--	\$1,195.00
1	NA	Software Materials	--	--	\$6,591.00	--	\$6,591.00
--	NA	Labor	139	\$134.00	--	--	\$18,614.00
--	NA	Sales Tax	--	--	--	--	\$1,644.00
--	NA	CMI Coordination and Site/Task Oversight	15	\$80.00	--	--	\$1,200.00

Estimate Summary:

Labor Hours	Labor Cost	Material Cost	Sales Tax	Total Cost	CE Factor	Total Estimate
154	\$19,814.00	\$7,786.00	\$1,644.00	\$29,244.00	102%	\$29,828.88



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TUSTIN ENERGY SOLUTIONS

PROJECT PROPOSAL

Proposal Date:

February 8, 2019

Proposal Number:

TES18298

Prepared for:

Adam Colopy
Tidewater, Inc.
3761 Attucks Drive

Powell OH 43065

TOMORROW'S SOLUTIONS for TODAY'S BUILDINGS

Prepared by:

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Summary

We are providing a proposal for **USAFRC Baltimore**. Our proposal is based upon the following documentation:

Site Visit:	Complete	Date:	09-20-18
Mechanical Documents:	NA	Date:	
Addendum Received:	NA	Date:	

During our meeting(s), we discussed the following goals:

Tustin Energy Solutions, LLC is proposing a two-phase approach to repair the existing Building Automation System.

A. Phase 1

i. Web-Server Maintenance

- Backup battery replacement
- Software upgrades

ii. Graphics

- Correct current function of graphics
- Provide override capabilities
- Add diagnostic information
- Correct value bindings where missing

iii. Scheduling

- Apply correct occupancy schedules to building and appropriate equipment

iv. Sequence of Operation

- Review all equipment sequence of operation
- Provide recommendations upon completion

v. Deficiency Report

- Provide detailed report of all automation and impacted mechanical systems
- Sample report available upon request

vi. Energy Analysis (included at no additional cost)

- During Phase I
 - Evaluate electrical and gas usage
 - Provide baseline report of systems
 - Quantify Phase I impacts
 - Provide opportunities of operational savings outside of Phase I corrections

B. Phase 2

i. Repairs

- Address repairs as outline in Phase I report (TBD).
- Address sequence of operation changes

Please see the following pages for clarification.

This proposal assumes that if granted, all parties will work together to develop a mutually agreeable construction schedule. This proposal is also based on information provided at time of bid proposal. Any revisions required at a later date is subject to price review at that time. We reserve the right to withdraw this proposal if not accepted within 60 days.

Thank you for this opportunity.

Dominic Bostardi

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USAFRC PHASE 1

Tustin Energy Solutions will provide the following to accomplish the documented goals:

1. Front End Modifications For The Following Existing HVAC Equipment:

- (3) Air handling units
- (1) Heat recovery unit
- (27) VAV boxes
- (1) Air-cooled chiller
- (2) Boilers
- (6) Unit heaters
- (8) Exhaust fans

2. Provide The Following New Software For Existing BAS Hardware:

- (6) JACE batteries
- (6) JACE software revision upgrades [v3.7.10X to latest v3.8]
- (1) JACE [AHU3] software upgrade to N4; graphics reside on this JACE
- Complete all missing and/or incomplete graphics
- Complete all missing value bindings
- Add missing hyperlinks onto existing floorplans
- Correct all incorrect scheduling and history recording

3. Standard Programming

- Web-based access (based upon owner approval)
- Trending reports (based upon owner's history requirements)
- Critical / Non-critical alarming (based upon owner's requirements)
- Provide setpoint screen listing zone temperatures

4. Owner Responsibilities

- Internal network connection to the world wide web utilizing a static IP address
- Signed proposal or purchase order

5. Work Hours

- Monday through Friday 7am to 3:30pm non-holidays

6. Warranty

- One year warranty on all new items furnished and installed by Tustin Energy Solutions

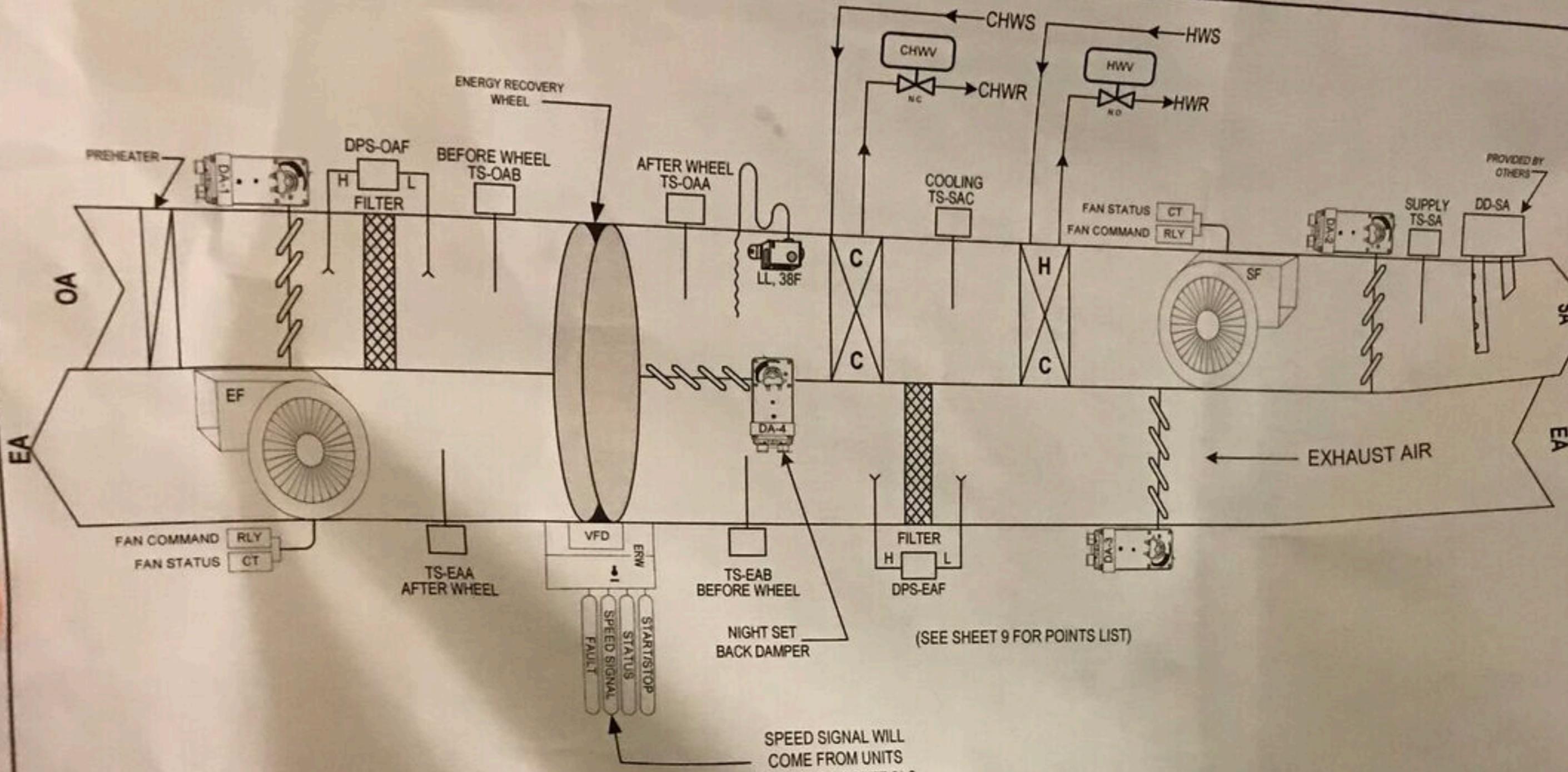
Exclusions - See the attached pages for additional exclusions

1. Premium Time
2. Permits or stamped engineered documents
3. Variable frequency drives or motor starters
4. All work associated with combination smoke/fire dampers
5. Isolation or balancing valves for mechanical piping systems
6. Air / water balancing
7. All line voltage power wiring including all control panels - by others
8. kW meters
9. Internal network connection to the world wide web
10. Asbestos abatement
11. Repair or replacement of any items not specifically noted above
12. Any/all controls not included above
13. Third party commissioning
14. Mechanical and/or plumbing work of any kind

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PROJECT AGREEMENT TERMS AND CONDITIONS

1. Customer shall permit Contractor free and timely access to areas and equipment, and allow Contractor to start and stop the equipment as necessary to perform required services. All planned work under this Agreement will be performed during the Contractor's normal working hours.
2. Contractor warrants that the workmanship hereunder shall be free from defects for thirty (30) days from date of installation. If any replacement part or item of equipment proves defective, Contractor will extend to Customer the benefits of any warranty Contractor has received from the manufacturer. Removal and reinstallation of any equipment or materials repaired or replaced under a manufacturer's warranty will be at Customer's expense and at the rates in effect.
3. Customer will promptly pay invoices within thirty (30) days of receipt. Should a payment become thirty (30) days or more delinquent, Contractor may stop all work under this Agreement without notice and/or cancel this Agreement amount shall become due and payable immediately upon demand.
4. Customer shall be responsible for all taxes applicable to the services and/or materials hereunder.
5. Any alteration to, or deviation from, this Agreement involving extra work, cost of materials or labor will become an extra charge (fixed price amount to be negotiated of on a time-and-material basis at Contractor's rates then in effect) over the sum stated in this Agreement.
6. In the event Contractor must commence legal action in order to recover any amount payable or owed to Contractor under this Agreement, Customer shall pay Contractor all court costs and attorneys' fees incurred by Contractor.
7. Any legal action against the Contractor relating to this Agreement, or the breach thereof, shall be commenced within one (1) year from the date of the work.
8. Contractor shall not be liable for any delay, loss, damage, or detention caused by unavailability of machinery, equipment or materials, delay of carriers, strikes, including those by Contractor's employees, lockouts' civil or military authority, priority regulations, insurrection or riot, action of the elements, forces of nature, or by any cause beyond its control.
9. To the fullest extent permitted by law, Customer shall indemnify and hold harmless Contractor, its agent and employees from and against all claims, damages, losses, and expenses (including but not limited to attorneys' fees) arising out of or resulting from the performance of work hereunder, provided that such claim, damage, loss or expense is caused in whole or in part by an active or passive act or omission of Customer, anyone directly or indirectly employed by Customer, or anyone for whose acts Customer may be liable, regardless of whether it is caused in part by the negligence of Contractor.
10. Customer shall make available to Contractor's personal all pertinent Material Safety Data Sheets (MSDS) pursuant to OSHA's Hazard Communication Standard Regulations.
11. Contractor's obligation under this proposal and any subsequent contract does not include the identification, abatement or removal of asbestos or any other toxic or hazardous substances, hazardous wastes or hazardous materials. In the event such substances, wastes and materials are encountered, Contractor's sole obligation will be to notify the Owner of their existence. Contractor shall have the right thereafter to suspend its work until such substances, wastes or materials and the resultant hazards are removed. The time for completion of the work shall be extended to the extent caused by the suspension and the contract price equitably adjusted.
12. UNDER NO CIRCUMSTANCES, WHETHER ARISING IN CONTRACT, TORT (INCLUDING NEGLIGENCE), EQUITY OR OTHERWISE, WILL CONTRACTOR BE RESPONSIBLE FOR LOSS OF USE, LOSS OF PROFIT, INCREASED OPERATING OR MAINTENANCE EXPENSES, CLAIMS OF CUSTOMER'S TENANTS OR CLIENTS, OR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES.



1. SYSTEM DESCRIPTION: THE CONSTANT VOLUME AIR HANDLING UNITS CONSIST OF A SUPPLY AND EXHAUST AIR SECTION, HEAT WHEEL, WITH SUPPLY AIR DAMPER, OUTDOOR AIR INTAKE DAMPER, EXHAUST AIR INTAKE DAMPER, AIR FILTERS, ELECTRIC PREHEATER, HOT WATER HEATING COIL, CHILLED WATER COOLING COIL, SUPPLY FAN, AND EXHAUST FAN.

2. OPERATION: THE HEAT RECOVERY UNIT HRU-1 SERVING THE TRAINING AREA OPERATES IN SUMMER COOLING, WINTER HEATING, NIGHT-HEATING AND SAFETY MODES.

3. OCCUPIED: THE OA, SA AND EA DAMPERS ARE OPENED. THE HEATING COIL VALVE AND COOLING COIL VALVE MODULATE IN SEQUENCE WITHOUT THE OVERLAP TO MAINTAIN THE SUPPLY AIR TEMPERATURE SET POINT OF 55 DEGREES F.

ECONOMIZER: THE ENERGY RECOVERY WHEEL CAN BE ALTERED TO OPERATE IN ECONOMIZER MODE. WHEN THE UNIT CALLS FOR COOLING, FACTORY SUPPLIED CONTROLS WILL DRIVE THE FOLLOWING WHEEL OPERATIONS:

TOA > TRA WHEEL RUNS AT FULL SPEED (MAXIMUM ENERGY RECOVERY)

TOA < TRA AND TOA > TSA WHEEL IS STOPPED (NO ENERGY RECOVERY)

TOA < TSA AND TOA < TSA WHEEL WILL MODULATE TO MAINTAIN DISCHARGE TEMPERATURE WHERE (TOA) IS THE OUTDOOR AIR TEMPERATURE, (TRA) IS THE RETURN AIR TEMPERATURE, AND (TSA) IS THE SUPPLY AIR DISCHARGE SET POINT.

FROST CONTROL: FROST CONTROL SHALL BE AVAILABLE WHEN THE OAT IS LESS THAN 35 DEGREES F. WHEN ELECTRIC PREHEAT FROST CONTROL IS INITIATED, THE ELECTRIC PREHEATER WILL TURN ON AND WARM THE AIR ENTERING THE ENERGY WHEEL TO AVOID FROSTING. IF THE OUTDOOR AIR TEMPERATURE SENSOR FALLS BELOW THE ADJUSTABLE FROST THRESHOLD SET POINT AND THE WHEEL PRESSURE DROP SENSOR IS TRIGGERED, THE FIRST STAGE OF THE PREHEATER WILL TURN ON. IF THE FIRST STAGE DOES NOT SATISFY THE SET POINT, THE SECOND STAGE WILL TURN ON.

4. UNOCCUPIED: THE SUPPLY FAN STOPS, THE COOLING COIL VALVE CLOSES AND THE EA AND OA DAMPERS ARE CLOSED. IF THE SPACE TEMPERATURE IS LESS THAN 55 DEGREES F, THE SUPPLY FAN STARTS AND THE HEATING COIL VALVE MODULATES TO MAINTAIN THE UNOCCUPIED SUPPLY AIR SET POINT. IF THE SPACE AIR TEMPERATURE RISES ABOVE THE SET POINT, THE HEATING COIL VALVE CLOSES AND THE SUPPLY FAN STOPS.

HEATING: THE SUPPLY AIR DAMPERS AND SETBACK AIR DAMPERS OPEN. THE EA AND OA DAMPERS REMAIN CLOSED TO THE OUTSIDE AIR, PROVIDING 100 PERCENT RECIRCULATION AIR. SUPPLY FAN STARTS AND THE HEATING COIL VALVE OPENS

5. SAFETY MODE: DISCHARGE HIGH STATIC CUTOUT, DUCT SMOKE DETECTORS IN SA DUCT AND FANS VFD FAULT ALARM SHALL DE-ENERGIZE THE SUPPLY FANS UPON ACTIVATION. THE SMOKE DETECTOR ACTIVATION SHALL SEND A SIGNAL TO THE FIRE ALARM PANEL. THE FIRE ALARM SYSTEM SHALL SHUTDOWN RESPECTIVE AHU UNIT UPON SMOKE DETECTION.

6. LOW TEMPERATURE DETECTION: TEMPERATURE SENSOR DOWN STREAM OF THE HEATING COIL SHALL DE-ENERGIZE THE UNIT UPON DETECTION OF AIR TEMPERATURE BELOW 38 DEGREES F (ADJ).

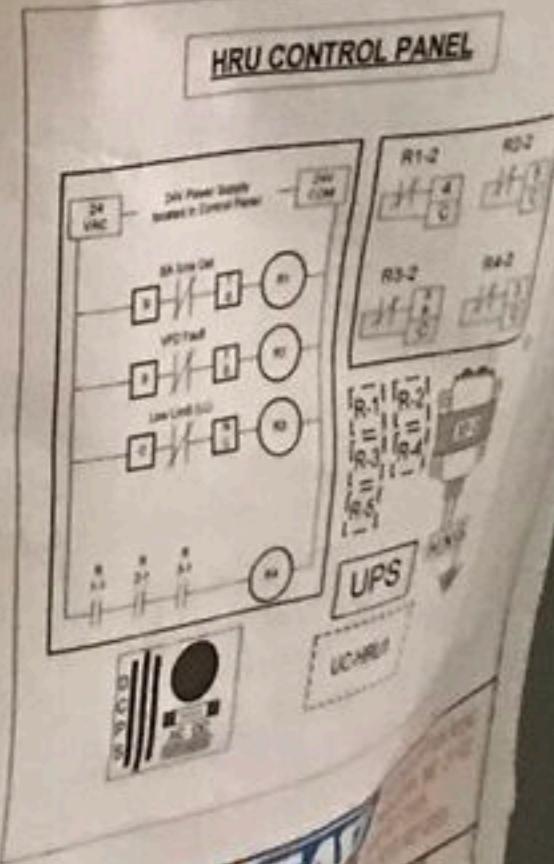
7. CO2 CONTROL: HIGH OCCUPANCY CONCENTRATION UPON INCREASE OF CO2 CONCENTRATION ABOVE THE CO2 SET POINT, THE DDC CONTROLLER SHALL MODULATE OPEN THE ASSOCIATED VAV VOLUME CONTROL DAMPER TO INCREASE THE ROOM AIR SUPPLY AND MAINTAIN THE CO2 CONCENTRATION IN LARGE OPEN AREAS. UPON THE CO2 CONCENTRATION INCREASE ABOVE THE CO2 SET POINT BY A SINGLE DETECTOR, THE DDC

CONTROLLER SHALL MODULATE OPEN THE MINIMUM OA DAMPER AT THE ASSOCIATED AIR HANDLING UNIT TO MAINTAIN THE CO2 CONCENTRATION BELOW THE CONCENTRATION SET POINT.

8. THE DDC WILL INDICATE AN ALARM IF THE CONCENTRATION OF CO2 EXCEEDS THE MAXIMUM SET POINT (AMBIENT +40PPM; ADJ.). THE DDC WILL ALSO INDICATE AN ALARM IF THE OUTDOOR AIRFLOW DROPS BELOW 10 PERCENT

THE MINIMUM VENTILATION REQUIREMENTS IN THE SCHEDULES. OUTDOOR AIRFLOW QUANTITY WILL BE CALCULATED FROM AIR TERMINAL BOX AIRFLOWS.

BILL OF MATERIAL		
DEVICE	QTY	MANUFACTURER-DESCRIPTION
UCAHU	1	HONEYWELL PROCESSOR
-W-	1	HONEYWELL 256MB MEMORY UPGRADE
I/O MODULE	1	HONEYWELL INPUT/OUTPUT MODULE
TS-OAB, TS-SA	3	HONEYWELL INPUT/OUTPUT MODULE
TS-EAB, TS-EA	2	ACI DUCT SENSOR
TS-SAC	1	ACI DUCT SENSOR
DPS-OAF, DPS-EAF	2	ACI AVERAGING SENSORS
LL	1	CLEVELAND CONTROLS DIFF PRESS SWITCH
CT-SF, EF	2	JCI LOW LIMIT SWITCH, NC
VFD-STATUS	1	FUNCTIONAL DEVICES CURRENT SENSOR
DA-1(4)	4	FUNCTIONAL DEVICES CURRENT SENSOR
DD-SA	1	BIELIMO DIRECT COUPLED ACTUATOR
H/W	1	DUST SMOKE DETECTOR
CHWV	1	HONEYWELL VALVE ASSEMBLY
PANEL	1	HOFFMAN ENCLOSURE, 20" x 26" x 7"
R-1(6)	12	IDEA SINGLE POLE RELAY W/LED
-W-	12	IDEA RELAY SOCKET
UPS	2	APC 550VA UPS
XF-1	2	CORE TRANSFORMER 40VA WIRESET
XF-2	2	CORE TRANSFORMER 100VA WIRESET



HRU-1
CONTROLS
ARMY RESERVE CENTER
BALTIMORE, MD

