State of West Virginia
Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

Request for Quotation

RFQ NUMBER	PAGE
DPS1125	1

ADDRESS CORRESPONDENCE TO ATTENTION OF:
TARA LYLE
304-558-2544

VENDOR
RFQ COPY
TYPE NAME/ADDRESS HERE

SHIP TO
WEST VIRGINIA STATE POLICE

4124 KANAWHA TURNPIKE
SOUTH CHARLESTON, WV
25309 304-746-2141

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
02/07/2011				

BID OPENING DATE: 03/18/2011 BID OPENING TIME 01:30PM

LINE	QUANTITY	UOP	CAT NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
				********** PLEASE NOTE A MANDATORY PRE-BID MEETING IS SCHEDULED FOR 02/15/2011 AT 1:30 PM AT THE WV STATE POLICE HEADQUARTERS LOCATED AT 725 JEFFERSON ROAD SOUTH CHARLESTON, WV 25309. ********** PLEASE NOTE THE DRUG FREE WORKPLACE AFFIDAVIT AND BID BOND ARE REQUIRED WITH BID SUBMISSION. **********		
0001	1	EA	031-03			
				ROOFTOP AIR CONDITIONING UNIT		
0002	1	EA	920-45			
				COMPUTER SOFTWARE MAINTENANCE/SUPPORT		

MANDATORY PRE-BID

A MANDATORY PRE-BID WILL BE HELD ON 02/15/2011 AT 1:30 PM AT THE WV STATE POLICE HEADQUARTERS LOCATED AT 725 JEFFERSON ROAD, SOUTH CHARLESTON, WV 25309. ALL INTERESTED PARTIES ARE REQUIRED TO ATTEND THIS MEETING FAILURE TO ATTEND THE MANDATORY PRE-BID SHALL RESULT IN DISQUALIFICATION OF THE BID. NO ONE PERSON MAY REPRESENT MORE THAN ONE BIDDER.

AN ATTENDANCE SHEET WILL BE MADE AVAILABLE FOR ALL POTENTIAL BIDDERS TO COMPLETE. THIS SHALL SERVE AS THE

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GENERAL TERMS & CONDITIONS
REQUEST FOR QUOTATION (RFQ) AND REQUEST FOR PROPOSAL (RFP)

1. Awards will be made in the best interest of the State of West Virginia.

2. The State may accept or reject in part, or in whole, any bid.

3. Prior to any award, the apparent successful vendor must be properly registered with the Purchasing Division and have paid the required $125 fee.

4. All services performed or goods delivered under State Purchase Order/Contracts are to be continued for the term of the Purchase Order/Contracts, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise available for these services or goods this Purchase Order/Contract becomes void and of no effect after June 30.

5. Payment may only be made after the delivery and acceptance of goods or services.

6. Interest may be paid for late payment in accordance with the ***West Virginia Code***.

7. Vendor preference will be granted upon written request in accordance with the ***West Virginia Code***.

8. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.

9. The Director of Purchasing may cancel any Purchase Order/Contract upon 30 days written notice to the seller.

10. The laws of the State of West Virginia and the ***Legislative Rules*** of the Purchasing Division shall govern the purchasing process.

11. Any reference to automatic renewal is hereby deleted. The Contract may be renewed only upon mutual written agreement of the parties.

12. BANKRUPTCY: In the event the vendor/contractor files for bankruptcy protection, the State may deem this contract null and void, and terminate such contract without further order.

13. HIPAA BUSINESS ASSOCIATE ADDENDUM: The West Virginia State Government HIPAA Business Associate Addendum (BAA), approved by the Attorney General, is available online at **www.state.wv.us/admin/purchase/vrc/hipaa.htm** and is hereby made part of the agreement. Provided that the Agency meets the definition of a Cover Entity (45 CFR §160.103) and will be disclosing Protected Health Information (45 CFR §160.103) to the vendor.

14. CONFIDENTIALITY: The vendor agrees that he or she will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the agency's policies, procedures, and rules. Vendor further agrees to comply with the Confidentiality Policies and Information Security Accountability Requirements, set forth in http://www.state.wv.us/admin/purchase/privacy/noticeConfidentiality.pdf.

15. LICENSING: Vendors must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, and the West Virginia Insurance Commission. The vendor must provide all necessary releases to obtain information to enable the director or spending unit to verify that the vendor is licensed and in good standing with the above entities.

16. ANTITRUST: In submitting a bid to any agency for the State of West Virginia, the bidder offers and agrees that if the bid is accepted the bidder will convey, sell, assign or transfer to the State of West Virginia all rights, title and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the State of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired by the State of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to the bidder.

I certify that this bid is made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership, or person or entity submitting a bid for the same material, supplies, equipment or services and is in all respects fair and without collusion or Fraud. I further certify that I am authorized to sign the certification on behalf of the bidder or this bid.

INSTRUCTIONS TO BIDDERS

1. Use the quotation forms provided by the Purchasing Division. Complete all sections of the quotation form.

2. Items offered must be in compliance with the specifications. Any deviation from the specifications must be clearly indicated by the bidder. Alternates offered by the bidder as **EQUAL** to the specifications must be clearly defined. A bidder offering an alternate should attach complete specifications and literature to the bid. The Purchasing Division may waive minor deviations to specifications.

3. Unit prices shall prevail in case of discrepancy. All quotations are considered F.O.B. destination unless alternate shipping terms are clearly identified in the quotation.

4. All quotations must be delivered by the bidder to the office listed below prior to the date and time of the bid opening. Failure of the bidder to deliver the quotations on time will result in bid disqualifications: Department of Administration, Purchasing Division, 2019 Washington Street East, P.O. Box 50130, Charleston, WV 25305-0130

5. Communication during the solicitation, bid, evaluation or award periods, except through the Purchasing Division, is strictly prohibited (W.Va. C.S.R. §148-1-6.6).

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DPS1125	2

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OFFICIAL DOCUMENT VERIFYING ATTENDANCE AT THE MANDATORY PRE-BID. FAILURE TO PROVIDE YOUR COMPANY AND REPRESENTATIVE NAME ON THE ATTENDANCE SHEET WILL RESULT IN DISQUALIFICATION OF THE BID. THE STATE WILL NOT ACCEPT ANY OTHER DOCUMENTATION TO VERIFY ATTENDANCE. THE BIDDER IS RESPONSIBLE FOR ENSURING THEY HAVE COMPLETED THE INFORMATION REQUIRED ON THE ATTENDANCE SHEET. THE PURCHASING DIVISION AND THE STATE AGENCY WILL NOT ASSUME ANY RESPONSIBILITY FOR A BIDDER-S FAILURE TO COMPLETE THE PRE-BID ATTENDANCE SHEET. IN ADDITION, WE REQUEST THAT ALL POTENTIAL BIDDERS INCLUDE THEIR E-MAIL ADDRESS AND FAX NUMBER.

THE STARTING TIME FOR THE PRE-BID. BIDDERS WHO ARRIVE ALL POTENTIAL BIDDERS ARE REQUESTED TO ARRIVE PRIOR TO LATE, BUT PRIOR TO THE DISMISSAL OF THE TECHNICAL PORTION OF THE PRE-BID WILL BE PERMITTED TO SIGN IN. BIDDERS WHO ARRIVE AFTER CONCLUSION OF THE TECHNICAL PORTION OF THE PRE-BID, BUT DURING ANY SUBSEQUENT PART OF THE PRE-BID WILL NOT BE PERMITTED TO SIGN THE ATTENDANCE SHEET.

INQUIRIES:

WRITTEN QUESTIONS WILL BE ACCEPTED UNTIL CLOSE OF BUSINESS ON 03/01/2011. QUESTIONS MAY BE SENT VIA USPS, FAX, COURIER OR E-MAIL. IN ORDER TO ASSURE NO VENDOR RECEIVES AN UNFAIR ADVANTAGE, NO SUBSTANTIVE QUESTIONS WILL BE ANSWERED ORALLY. IF POSSIBLE, E-MAIL QUESTIONS ARE PREFERRED. ADDRESS INQUIRIES TO:

TARA LYLE
DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
2019 WASHINGTON STREET, EAST
CHARLESTON, WV 25305

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE

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DPS1125	3

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FAX: 304-558-4115
E-MAIL: TARA.L.LYLE@WV.GOV

RENEWAL: THIS CONTRACT MAY BE RENEWED FOR MAINTENANCE AND SUPPORT ONLY UPON THE MUTUAL WRITTEN CONSENT OF THE SPENDING UNIT AND VENDOR, SUBMITTED TO THE DIRECTOR OF PURCHASING THIRTY (30) DAYS PRIOR TO THE EXPIRATION DATE. SUCH RENEWAL SHALL BE IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF THE ORIGINAL CONTRACT AND SHALL BE LIMITED TO TWO (2) ONE (1) YEAR PERIODS.

THE MODEL/BRAND/SPECIFICATIONS NAMED HEREIN ESTABLISH THE ACCEPTABLE LEVEL OF QUALITY ONLY AND ARE NOT INTENDED TO REFLECT A PREFERENCE OR FAVOR ANY PARTICULAR BRAND OR VENDOR. VENDORS WHO ARE BIDDING ALTERNATES SHOULD SO STATE AND INCLUDE PERTINENT LITERATURE AND SPECIFICATIONS. FAILURE TO PROVIDE INFORMATION FOR ANY ALTERNATES MAY BE GROUNDS FOR REJECTION OF THE BID. THE STATE RESERVES THE RIGHT TO WAIVE MINOR IRREGULARITIES IN BIDS OR SPECIFICATIONS IN ACCORDANCE WITH SECTION 148-1-4(F) OF THE WEST VIRGINIA LEGISLATIVE RULES AND REGULATIONS.

EXHIBIT 5

WEST VIRGINIA CODE 21-1D-5 PROVIDES THAT: ANY SOLICITATION FOR A PUBLIC IMPROVEMENT CONSTRUCTION CONTRACT REQUIRES EACH VENDOR THAT SUBMITS A BID FOR THE WORK TO SUBMIT AT THE SAME TIME AN AFFIDAVIT OF COMPLIANCE WITH THE BID. THE ENCLOSED DRUG-FREE WORKPLACE AFFIDAVIT MUST BE SIGNED AND SUBMITTED WITH THE BID AS EVIDENCE

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DPS1125	4

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OF THE VENDOR'S COMPLIANCE WITH THE PROVISIONS OF ARTICLE 1D, CHAPTER 21 OF THE WEST VIRGINIA CODE. FAILURE TO SUBMIT THE SIGNED DRUG-FREE WORKPLACE AFFIDAVIT WITH THE BID SHALL RESULT IN DISQUALIFICATION OF SUCH BID.

NOTICE TO PROCEED: THIS CONTRACT IS TO BE PERFORMED WITHIN 180 CALENDAR DAYS AFTER THE NOTICE TO PROCEED IS RECEIVED. UNLESS OTHERWISE SPECIFIED, THE FULLY EXECUTED PURCHASE ORDER WILL BE CONSIDERED NOTICE TO PROCEED.

CANCELLATION: THE DIRECTOR OF PURCHASING RESERVES THE RIGHT TO CANCEL THIS CONTRACT IMMEDIATELY UPON WRITTEN NOTICE TO THE VENDOR IF THE MATERIALS OR WORKMANSHIP SUPPLIED ARE OF AN INFERIOR QUALITY OR DO NOT CONFORM WITH THE SPECIFICATIONS OF THE BID AND CONTRACT HERE IN.

WAGE RATES: THE CONTRACTOR OR SUBCONTRACTOR SHALL PAY THE HIGHER OF THE U.S. DEPARTMENT OF LABOR MINIMUM WAGE RATES AS ESTABLISHED FOR KANAWHA COUNTY, PURSUANT TO WEST VIRGINIA CODE 21-5A, ET, SEQ. (PREVAILING WAGE RATES APPLY TO THIS PROJECT)

ARBITRATION: ANY REFERENCES MADE TO ARBITRATION OR INTEREST FOR PAYMENTS DUE (EXCEPT FOR ANY INTEREST REQUIRED BY STATE LAW) CONTAINED IN THIS CONTRACT OR IN ANY AMERICAN INSTITUTE OF ARCHITECTS DOCUMENTS PERTAINING TO THIS CONTRACT ARE HEREBY DELETED.

WORKERS' COMPENSATION: VENDOR IS REQUIRED TO PROVIDE A CERTIFICATE FROM WORKERS' COMPENSATION IF SUCCESSFUL.

ALL OF THE ITEMS CHECKED BELOW WILL BE A REQUIREMENT OF THIS CONTRACT:

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RFQ NUMBER	PAGE
DPS1125	5

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(XX) INSURANCE: SUCCESSFUL VENDOR SHALL FURNISH PROOF OF COMMERCIAL GENERAL LIABILITY INSURANCE PRIOR TO ISSUANCE OF CONTRACT. UNLESS OTHERWISE SPECIFIED IN THE BID DOCUMENTS, THE MINIMUM AMOUNT OF INSURANCE COVERAGE REQUIRED IS $250,000.

( ) BUILDERS RISK INSURANCE: SUCCESSFUL VENDOR SHALL FURNISH PROOF OF BUILDERS RISK - ALL RISK INSURANCE IN AN AMOUNT EQUAL TO 100% OF THE AMOUNT OF THE CONTRACT.

(XX) BONDS: FIVE PERCENT (5%) OF THE TOTAL AMOUNT OF THE BID PAYABLE TO THE STATE OF WEST VIRGINIA, SHALL B SUBMITTED WITH EACH BID AS A BID BOND. THE SUCCESSFUL BIDDER SHALL ALSO FURNISH A PERFORMANCE BOND AND LABOR/ MATERIAL BOND FOR 100% OF THE AMOUNT OF THE CONTRACT. BONDS MAY BE PROVIDED IN THE FORM OF A CERTIFIED CHECK, IRREVOCABLE LETTER OF CREDIT, OR BOND FURNISHED BY A SOLVENT SURETY COMPANY AUTHORIZED TO DO BUSINESS IN TH STATE OF WEST VIRGINIA. A LETTER OF CREDIT SUBMITTED IN LIEU OF A BOND WILL ONLY BE ALLOWED FOR PROJECTS UNDER $100,000. PERSONAL OR BUSINESS CHECKS ARE NOT ACCECPTABLE IN LIEU OF THE 5% BID BOND, PERFORMANCE BOND, OR LABOR AND MATERIAL BOND.

(XX) MAINTENANCE BOND: A TWO (2) YEAR MAINTENANCE BOND COVERING THE ROOFING SYSTEM WILL BE A REQUIREMENT OF THE SUCCESSFUL VENDOR.

REV. 11/00

EXHIBIT 7

DOMESTIC ALUMINUM, GLASS & STEEL IN PUBLIC WORKS PROJECTS

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

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RFQ NUMBER	PAGE
DPS1125	6

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IN ACCORDANCE WITH WEST VIRGINIA CODE 5-19-1 ET., SEQ., EVERY CONTRACT FOR CONSTRUCTION, RECONSTRUCTION, ALTERATION, REPAIR, IMPROVEMENT OR MAINTENANCE OF PUBLIC WORKS, WHERE THE COST IS MORE THAN $50,000 AND, IN THE CASE OF STEEL ONLY, WHERE THE COST OF STEEL IS MORE THAN $50,000 OR WHERE MORE THAN 10,000 POUNDS OF STEEL ARE REQUIRED, THE STATE WILL ACCEPT ONLY ALUMINUM GLASS, OR STEEL PRODUCTS PRODUCED IN THE UNITED STATES. IN ADDITION, ITEMS OF MACHINERY OR EQUIPMENT PURCHASED FOR USE AT THE SITE OF PUBLIC WORKS SHALL BE MADE OF DOMESTIC ALUMINUM, GLASS OR STEEL, UNLESS THE COST OF THE PRODUCT IS LESS THAN $50,000 OR LESS THAN 10,000 POUNDS OF STEEL ARE USED IN PUBLIC WORKS PROJECTS.

FOREIGN MADE ALUMINUM, GLASS OR STEEL PRODUCTS MAY BE ACCEPTED ONLY IF THE COST OF DOMESTIC PRODUCTS IS FOUND TO BE UNREASONABLE. SUCH COST IS UNREASONABLE IF IT IS 20% OR MORE HIGHER THAN THE BID PRICE FOR FOREIGN MADE PRODUCTS. IF THE DOMESTIC ALUMINUM, GLASS OR STEEL PRODUCTS TO BE SUPPLIED OR PRODUCED IN A "SUBSTANTIAL LABOR SURPLUS AREA", AS DEFINED BY THE UNITED STATES DEPARTMENT OF LABOR, FOREIGN PRODUCTS MAY BE SUPPLIED ONLY IF DOMESTIC PRODUCTS ARE 30% OR MORE HIGHER IN PRICE THAN THE FOREIGN MADE PRODUCTS.

IF, PRIOR TO THE AWARD OF A CONTRACT UNDER THE ABOVE PROVISIONS, THE SPENDING OFFICER OF THE SPENDING UNIT DETERMINES THAT THERE EXISTS A BID FOR LIKE FOREIGN ALUMINUM, GLASS OR STEEL THAT IS REASONABLE AND LOWER THAN THE LOWEST BID DOMESTIC PRODUCTS, THE SPENDING OFFICE MAY REQUEST, IN WRITING, A REEVALUATION AND REDUCTION IN THE LOWEST BID FOR SUCH DOMESTIC PRODUCTS. ALL VENDORS MUST INDICATE IN THEIR BID IF THEY ARE SUPPLYING FOREIGN ALUMINUM, GLASS OR STEEL.

REV. 3/88

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RFQ NUMBER	PAGE
DPS1125	7

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EXHIBIT 9

NOTICE FOR ISSUANCE & ACKNOWLEDGEMENT OF CONSTRUCTION PROJECT ADDENDA

THE ARCHITECT/ENGINEER AND/OR AGENCY SHALL BE REQUIRED TO ABIDE BY THE FOLLOWING SCHEDULE IN ISSUING CONSTRUCTION PROJECT ADDENDA FOR STATE AGENCIES:

(1) THE ARCHITECT/ENGINEER SHALL PREPARE THE ADDENDUM AND A LIST OF ALL PARTIES THAT HAVE PROCURED DRAWINGS AND SPECIFICATIONS FOR THE PROJECT. THE ADDENDUM AND LIST SHALL BE FORWARDED TO THE BUYER IN THE STATE PURCHASING DIVISION. THE ARCHITECT/ENGINEER SHALL ALSO SEND A COPY OF THE ADDENDUM TO THE STATE AGENCY FOR WHICH THE CONTRACT IS ISSUED.

(2) THE BUYER SHALL SEND THE ADDENDUM TO ALL INTERESTED PARTIES AND, IF NECESSARY, EXTEND THE BID OPENING DATE. ANY ADDENDUM SHOULD BE RECEIVED BY THE BUYER WITHIN FOURTEEN (14) DAYS PRIOR TO THE BID OPENING DATE.

(3) ALL ADDENDA SHOULD BE FORMALLY ACKNOWLEDGED BY ALL BIDDERS AND SUBMITTED TO THE STATE PURCHASING DIVISION. THE SAME RULES AND REGULATIONS THAT APPLY TO THE ORIGINAL BIDDING DOCUMENT SHALL ALSO APPLY TO AN ADDENDUM DOCUMENT. THE ONLY EXCEPTION MAY BE FOR AN ADDENDUM THAT IS ISSUED FOR THE SOLE PURPOSE OF CHANGING A BID OPENING TIME AND/OR DATE.

REV. 11/96

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EXHIBIT 10

ADDENDUM ACKNOWLEDGEMENT

I HEREBY ACKNOWLEDGE RECEIPT OF THE FOLLOWING CHECKED ADDENDUM(S) AND HAVE MADE THE NECESSARY REVISIONS TO MY PROPOSAL, PLANS AND/OR SPECIFICATION, ETC.

ADDENDUM NOS.:

NO. 1 .....

NO. 2 .....

NO. 3 .....

NO. 4 .....

NO. 5 .....

I UNDERSTAND THAT FAILURE TO CONFIRM THE RECEIPT OF THE ADDENDUM(S) MAY BE CAUSE FOR REJECTION OF THE BIDS.

VENDOR MUST CLEARLY UNDERSTAND THAT ANY VERBAL REPRESENTATION MADE OR ASSUMED TO BE MADE DURING ANY ORAL DISCUSSION HELD BETWEEN VENDOR'S REPRESENTATIVES AND ANY STATE PERSONNEL IS NOT BINDING. ONLY THE INFORMATION ISSUED IN WRITING AND ADDED TO THE SPECIFICATIONS BY AN OFFICIAL ADDENDUM IS BINDING.

.....SIGNATURE

.....COMPANY

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DPS1125	9

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REV. 11/96

CONTRACTORS LICENSE

WEST VIRGINIA STATE CODE 21-11-2 REQUIRES THAT ALL PERSONS DESIRING TO PERFORM CONTRACTING WORK IN THIS STATE MUST BE LICENSED. THE WEST VIRGINIA CONTRACTORS LICENSING BOARD IS EMPOWERED TO ISSUE THE CONTRACTORS LICENSE. APPLICATIONS FOR A CONTRACTORS LICENSE MAY B MADE BY CONTACTING THE WEST VIRGINIA DIVISION OF LABOR CAPITOL COMPLEX, BUILDING 3, ROOM 319, CHARLESTON, WV 25305. TELEPHONE: (304) 558-7890.

WEST VIRGINIA STATE CODE 21-11-11 REQUIRES ANY PROSPECTIVE BIDDER TO INCLUDE THE CONTRACTORS LICENSE NUMBER ON THEIR BID.

BIDDER TO COMPLETE:

CONTRACTORS NAME: .....

CONTRACTORS LICENSE NO.: .....

THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FURNISH A COPY OF THEIR CONTRACTORS LICENSE PRIOR TO ISSUANCE OF A PURCHASE ORDER/CONTRACT

APPLICABLE LAW

THE WEST VIRGINIA STATE CODE, PURCHASING DIVISION RULES AND REGULATIONS, AND THE INFORMATION PROVIDED IN THE "REQUEST FOR QUOTATION" ISSUED BY THE PURCHASING DIVISION IS THE SOLE AUTHORITY GOVERNING THIS

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LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT

PROCUREMENT.

ANY INFORMATION PROVIDED IN SPECIFICATION MANUALS, OR ANY OTHER SOURCE, VERBAL OR WRITTEN, WHICH CONTRADICTS OR ALTERS THE INFORMATION PROVIDED FROM THE SOURCES AS DESCRIBED IN THE ABOVE PARAGRAPH IS VOID AND OF NO EFFECT.

BANKRUPTCY: IN THE EVENT THE VENDOR/CONTRACTOR FILES FOR BANKRUPTCY PROTECTION, THE STATE MAY DEEM THE CONTRACT NULL AND VOID, AND TERMINATE SUCH CONTRACT WITHOUT FURTHER ORDER.

REV. 5/2009

NOTICE

A SIGNED BID MUST BE SUBMITTED TO:

DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
BUILDING 15
2019 WASHINGTON STREET, EAST
CHARLESTON, WV 25305-0130

THE BID SHOULD CONTAIN THIS INFORMATION ON THE FACE OF THE ENVELOPE OR THE BID MAY NOT BE CONSIDERED:

SEALED BID

BUYER:----------TL/32----------

REQ. NO.:----------DPS1125----------

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE

TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

State of West Virginia
Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

Request for Quotation

RFQ NUMBER	PAGE
DPS1125	11

ADDRESS CORRESPONDENCE TO ATTENTION OF:
TARA LYLE
304-558-2544

VENDOR
RFQ COPY
TYPE NAME/ADDRESS HERE

SHIP TO
WEST VIRGINIA STATE POLICE

4124 KANAWHA TURNPIKE
SOUTH CHARLESTON, WV
25309 304-746-2141

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
02/07/2011				

BID OPENING DATE: 03/18/2011 BID OPENING TIME 01:30PM

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT

BID OPENING DATE:------03/18/2011----------

BID OPENING TIME:------1:30 PM----------

PLEASE PROVIDE A FAX NUMBER IN CASE IT IS NECESSARY TO CONTACT YOU REGARDING YOUR BID:

PLEASE PRINT OR TYPE NAME OF PERSON TO CONTACT CONCERNING THIS QUOTE:

****** THIS IS THE END OF RFQ DPS1125 ****** TOTAL: _____

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE

TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

WV State Police

The West Virginia State Police are soliciting competitive bids for the purchase and installation of a roof top air conditioning unit at department headquarters located at 725 Jefferson Road, South Charleston WV 25309.

GENERAL INFORMATION:
The purpose of this unit is to cool the server room at the WV State Police Headquarters. Contained in this room are various pieces of computer equipment that stores various pieces of confidential information such as criminal histories, finger print information, registered sex offender and other pieces of confidential information that the law enforcement community including federal, state, county and municipal agencies rely upon to assure the safety and well being of the citizenry of the State of West Virginia. It is imperative that this room be climate and humidity controlled to assure the performance of this computer equipment.

ROOF PENETRATION:
The WV State Police (hereafter referred to as owner) will provide the successful vendor access to blue prints of the roof of the structure to determine the appropriate location of this unit. The Vendor will make a determination after the mandatory pre-bid and before the award of this bid as to whether a structural engineer should make the determination as to the location of the unit. If a structural engineer is not consulted and the location selected by the vendor causes any structural damage to the facility, the vendor will be responsible for any damage incurred in the installation of said roof top unit. If a structural engineer is consulted by the Vendor, said Vendor will be responsible for any reimbursement to the structural engineer and that fee will be included within the final cost submitted by the Vendor.

THE VENDOR MUST COORDINATE THE PENETRATION THROUGH THE ROOF WITH TRI-STATE ROOFING DUE TO THE CURRENT ROOF ON THIS STRUCTURE BEING UNDER WARRANTY:

ALTERNATIVE POWER:
The vendor will assure that this unit also has the capability to switch over to an alternative power source provided by one of two back up generators owned and operated by the WV State Police.

EXISTING POWER SOURCE:

Vendor will be responsible for connecting the unit to existing permanent electrical power source within the owner's facility.

WATER SUPPLY:

Vendor will be responsible to attach water source located within the owners property to the humidifier in the units.

Maintenance/Support

Per Part J, Section 2, subsection 12, "Updates/Upgrades" will be included during the initial warranty period, hereinafter known as Year 1. The vendor should provide a price for two (2) additional years – Year 2 and Year 3 - of software updates/upgrades after the initial warranty period. Based on the prices, the agency may or may not choose the additional years –Year 2 and Year 3 - of upgrade/updates.

Basis of Award

The award will be based on the lowest, grand total amount meeting the specifications. The agency may or may not choose to purchase the additional years of update/upgrade support, this will be determined prior to the award.

Pre-Bid Meeting

There will be a mandatory pre-bid meeting held on 02/15/2011 at 1:30 pm. The mandatory meeting will be held at the WV State Police headquarters located at 725 Jefferson Road South Charleston, WV 25309.

CUSTOM AIR CONDITIONING UNITS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Design, performance criteria, controls, and installation requirements for Custom Air Handling Units.

1.02 REFERENCES

A. AMCA Standard 99: Standards Handbook

B. AMCA /ANSI Standard 204: Balance Quality and Vibration Levels for Fans

C. AMCA Standard 210: Laboratory Methods of Testing Fans for Ratings

D. AMCA Standard 300: Reverberant Room Method for Sound Testing of Fans

E. AMCA Standard 500:Test Methods for Louvers, Dampers and Shutters

F. ARI Standard 410: Forced-Circulation Air-Cooling and Air-Heating Coil

G. ANSI/ASHRAE 15: Safety Code for Mechanical Refrigeration

H. ASHRAE Standard 52: Gravimetric and Dust Spot Procedures for Testing Air Cleaning Devices Used in General Ventilation for Removing Particulate Matter

I. ASHRAE/ANSI Standard 111: Practices for Measurement, Testing, Adjusting and Balancing of Building Heating, Ventilation, Air-Conditioning and Refrigeration Systems

J. ASME Section VIII: Unified Pressure Vessel Code

K. UL Standard 1995: Heating and Cooling Equipment

L. ASTM A-525: Specification for General Requirements for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process

1.03 SUBMITTALS

A. Submit shop drawings and product data in accordance with Division 1.

B. Submittals shall include the following:

1. Dimensioned plan and elevation view drawings, including motor starter and control cabinets, required clearances, and location of all field connections.

2. Summary of all auxiliary utility requirements such as: electricity, water, compressed air, etc. Summary shall indicate quality and quantity of each required utility.
3. Ladder type schematic drawing of the power and ancillary utility field hoo-kup requirements, indicating all items that are furnished.
4. Manufacturer's performance of each unit. Selection shall indicate, as a minimum, the following:
   a. Input data used for selection.
   b. Model number of the unit.
   c. Net capacity.
   d. Rated load amp draw.
   e. Noise levels produced by equipment.
   f. Fan curves.
   g. Approximate unit shipping weight.

1.04 OPERATION AND MAINTENANCE DATA

A. Include data on design, inspection and procedures related to preventative maintenance. Operation and Maintenance manuals shall be submitted at the time of unit shipment.

1.05 QUALIFICATIONS

A. Manufacturer shall be a company specializing in the design and manufacture of commercial / industrial custom HVAC equipment. Manufacturer shall have been in production of custom HVAC equipment for a minimum of 5 years.

B. Each unit shall bear an ETL or UL label under UL Standard 1995 indicating the complete unit is listed as an assembly. ETL or UL listing of individual components, or control panels only, is <u>not</u> acceptable.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect and handle products to site under the supervision of the owner.

1.07 SEQUENCING AND SCHEDULING

A. Coordinate work performed under this section with work performed under the separate installation contract.

1.08 WARRANTY

A. The complete unit shall be covered by a parts warranty issued by the manufacturer covering the first year of operation. This warranty period shall start upon receipt of start-up forms or eighteen months after the date of shipment.

B. The installing contractor shall provide labor warranty during the unit's first year of operation.

PART 2 - PRODUCTS

2.01 MANUFACTURER

A. Governair, 4841 North Sewell, Oklahoma City, OK 73118 or equal

B. Mammoth or equal

C. Temtrol or equal

D. Webco or equal

E. Huntair or equal

F. Ventrol or equal

G. Venmar or equal

2.02 GENERAL

A. Industrial / commercial quality equipment shall be furnished and installed. Units shall be completely factory assembled and tested. The equipment's cooling, heating, humidifying, ventilating, exhausting capacity and performance shall meet or exceed that shown on the schedule. Tags and decals to aid in service or indicate caution areas shall be provided. Electrical wiring diagrams shall be attached to the control panel access doors. Operation and maintenance manuals shall be furnished with each unit.

2.03 CABINET CONSTRUCTION

A. Cabinets shall be constructed in a watertight and airtight manner. The manufacturer's standard cabinet construction shall result in an ASHRAE/ANSI Standard 111-88 Leakage Class of less than Six (6) as measured in accordance with AMCA Standard 210-85. Unit serial numbers shall be permanently welded into the base frame.

B. The unit shall be constructed on a welded tubular steel frame. The tubing shall be cold formed carbon steel electric resistant welded square and rectangular type complying to ASTM A-500 Grade B. Minimum yield strength shall be 46,000 psi. The unit's

upper structural tubing frame shall form an integral structure when assembled with the wall panels thus greatly increasing the rigidity of the unit. Floors and walls shall be designed to deflect no more than 1/240 of span at unit operating pressures. The base frame shall have integral lifting lugs. The lifting lugs shall be fabricated from structural steel with an appropriate rigging hole. The lifting lug shall be fixed {bolt down} {removable}. Lifting lugs shall be located and sized to allow rigging and handling of the unit. Steel internal base frame cross-members shall be internally recessed so the perimeter base can overhang the roof curb in a self-flashing manner.

C. Floors shall be screwed down and shall be fabricated } { heavy gauge Aluminum tread plate} All floors shall be turned-up 2" around the perimeter. All joints shall be sealed with an industrial gasket for water and air tightness. All floors shall be double-wall, 4" minimum.

D. All panels shall be of thermal break construction. All air tunnel panels shall be double wall and fabricated of 16 gauge galvanized sheet steel outer shell with a 20 gauge solid {16 gauge solid} {22 gauge perforated} galvanized sheet steel inner liner. The steel shall conform to ASTM A-653 for lock-former quality. Outer shell shall have a 5-step baked-on corrosion protection system applied. (See section on Corrosion Protection Systems for coating specification.) All panel corners will be internally caulked with sealant. Panels shall be sealed to the structural frame with an industrial gasket to form a water and airtight seal with the panel. Fasteners used to attach the panel will pass through into one side of the tube but not penetrate into the air tunnel. Panels shall not exceed 24" without a structural steel support member in at least one axis.

{

E. Durable access doors shall be provided for easy access to components. Access doors shall be double wall and completely insulated between the interior and exterior sheet metal of the door and attached to a 16 gauge galvanized steel frame. Hinges shall be heavy-duty full-length stainless steel type. High compression roller cam type latches, operable from both sides of the door,

shall be used. All access doors shall be gasketed around the complete perimeter. {All exterior doors shall have door tie backs.} {Door viewing windows shall be double-paned tempered type. All windows shall be fabricated with an integral desiccant between the hermetically sealed panes.}

2.04 CORROSION PROTECTION SYSTEM

A. Coating adhesion shall comply with ASTM D-3359-B with no lifting of 1/8" squares of coating between scribe lines in cross hatch adhesion testing applied after a 2 x gauge reverse impact. No significant undercutting shall be exhibited on steel panels in a scribed condition after 1,000 hours in 5% salt spray testing at 95 ° F and 95% relative humidity as per ASTM B-117. Gloss shall be 20-30% at 60 degrees. Film pencil hardness shall be in the F-H range. Film solvent resistance shall withstand 100 double rubs with MEK. Color shall be CES Sandstone { }.

B. The base frame and upper structural frame {and non-galvanized floors} shall be completely coated with 1.5 mils of corrosion resistant phenolic primer after fabrication and welding. This coating shall exhibit a pencil hardness of B.

C. Exterior coated sheet metal shall be coated with a 5-step baked on coating system:

1. Galvanized zinc coating of G60 weight shall be applied as per ASTM A-525.
2. After galvanizing, the material shall be cleaned and immediately pre-treated on both sides with Bonderite 1421 or approved equal.
3. The material shall then be immediately primed on with Morton 20Y128 or equal. epoxy primer applied at 0.15 to 0.26 mils on each side.
4. The primary finish coat shall be a baked on polyester coating equal to Morton Polyceram 3200 or equal. applied at 0.8 mils on the exterior exposed side and 0.3 mils on the reverse. The entire system shall be baked on for 25 seconds in a 650 °F oven. The peak metal temperature shall reach no less than 450 °F.
5. The final coat will be an air-dried acrylic modified alkyd coating.

2.05 FAN ASSEMBLIES

A. Fans shall be FANWALL or equal system consisting of 6 arrangement 4 plenum fans . Each fan motor shall be individually wired to the control panel. The control panel shall include VFD for operating all the

fans as one and shall have a redundant VFD to operate automatically in case the primary VFD fails.

B. All coils shall meet or exceed all capacities specified on the mechanical schedule for the project. All water coil performances shall be certified by the manufacturer to be in accordance with ARI Standard 410. Cooling coils shall be mounted in the unit for horizontal air flow. Coil air face velocities shall not exceed the specified velocities of the mechanical schedule. Coils shall be supported off the floor structure and mounted to air seal wall structure. Air seal joints shall be completely sealed with industrial sealant or gasket.

C. Direct expansion coil performances shall meet or exceed the specified performance of the mechanical schedule. Internal tubes shall be staggered with plate type tempered aluminum fins for maximum performance with minimal air pressure drop. DX coils shall be designed to conform to ANSI-B9.1 Safety Code for Mechanical Refrigeration. Coils shall be tested leak-free at 350 psig compressed air under clear water. Internal tubes shall be round seamless 1/2", 0.016" or 5/8", 0.020" {0.025"} wall copper tubes which have been deoxidized by the addition of phosphorous. Coil casings shall be constructed of a minimum of 16 gauge continuous galvanized {type 304 stainless} steel. Coil casing reinforcements shall be required for fin lengths over 42". Coil fins shall be plate type, die-formed ripple edge corrugated 0.006" {0.008 for 5/8" tubes} aluminum with guide channels to create turbulent wiping behind the tubes with collars drawn and belled. Internal copper tubes shall be staggered in direction of air flow. The copper circuiting tubes shall be mechanically expanded to the aluminum {phenolic dip aluminum} {copper} fins. The fin spacing shall be as shown on the schedule. The inside of the coil shall be free from flux, scales and any foreign matter. Each coil shall be furnished with a brass distributor with solder type connections.

D. Cooling coil sections shall have a pitched drain pan constructed from {16 gauge type 304 stainless steel}. All corners shall be welded watertight. Drain pan is to be a minimum of 2" deep with a minimum pitch of 1" from high point to the drain outlet connection. Coil condensate drain pan shall be completely insulated. If coils are stacked, a sloped intermediate drain pan with recessed drain connection is required. This intermediate pan shall drain to the bottom main pan. Intermediate drain tubes shall be copper. Plastic drain pans and plastic lines shall not be acceptable. The coil main pan shall have a 1-1/4" M.P.T. drain extended to the exterior of the air handler.

2.08 FILTERS

A. Filter holding frames shall be of heavy duty construction designed for industrial applications. Holding frames applied in low efficiency filter applications

will be either upstream or downstream accessible. Holding frames applied in high efficiency filter applications will be upstream accessible. Holding frames shall be constructed from no less than 18 gauge galvanized steel. They shall be equipped with foam gaskets and fasteners. Filter fasteners shall be capable of being installed without the requirement of tools, nuts or bolts. The holding frame shall be designed to accommodate standard size filters with the application of the appropriate type fastener. Holding frame assemblies shall meet or exceed area specified by the mechanical schedule.

- Medium Efficiency Pleated Filters

{Pleated filters shall be 2" thick, 30% efficient. Filter media shall be 100% synthetic. The filter shall have an average efficiency of 25-30% and an average arrestance of 90-92%. The filters shall be listed as Class II under UL Standard 900. Filters shall be tested per ASHRAE Standard 52-76. The effective media shall not be less than 4.6 square feet of media per 1.0 square foot of filter face area, and shall contain not less than 15 pleats per linear foot. Initial resistance at 500 fpm approach shall not exceed 0.28" wg.}

Option - High Efficiency Rigid Filters

{Rigid filters shall be 12" deep high performance, pleated, totally rigid and totally disposable type. Each filter shall consist of high density glass fiber media, media support grid, contour stabilizers and enclosing frame. Filter media shall be laminated to a non-woven synthetic backing to form a lofted filter blanket. The filter media shall have an average efficiency of 65% {85%}{95%}. The media support shall be a metal grid with an effective open area of not less than 96%. The metal grid shall be bonded to the filter media to eliminate the possibility of media oscillation and media pull-away. The metal grid shall be formed in such a manner that it effects a tapered radial pleat design. The grid shall be designed to support the media both vertically and horizontally. Filters shall be listed Class II under UL Standard 900. Filters shall be tested per ASHRAE Standard 52.1-76. Contour stabilizers shall be permanently installed on both entering air and exit air sides of the filter media pack to ensure that the tapered radial pleat configuration is maintained throughout the life of the filter. The filter shall be capable of withstanding a 10" wg pressure drop without noticeable distortion of the media pack. The enclosing frame shall be constructed of galvanized steel. It shall be constructed and assembled in such a manner that a rigid and durable enclosure for the filter pack is effected. The periphery of the filter pack shall be continuously bonded to the inside of the enclosing frame, thus eliminating the possibility of air bypass. The enclosing frame shall be equipped with protective diagonal support members on both the entering air and air exit sides of the filters.}

Option – Magnehelic™ Gauge or equal.

{A differential pressure gauge for measuring the pressure drop across each filter bank shall be installed. The gauge shall be diaphragm-actuated dial type 4 3/4" O.D., with white dial, black figures and graduations and pointer zero adjustment.}

2.09 DAMPERS

Aluminum airfoil low-leakage dampers shall be heavy duty construction for industrial application. Blades shall be parallel blade type, in either horizontal or vertical arrangement as required when blending two adjacent damper air streams. All other dampers shall be opposed blade type. The frame and blade shall be fabricated from 6063T5 aluminum extrusions. Vertical damper blades shall be suspended so that the weight of the blade rides on the top bearing. Blades must be suspended so that blades are centered and bottom edge blade seals are not unduly compressed. Blade end seals shall be spring type tempered stainless steel. Dampers shall be tested by an independent AMCA approved laboratory for leakage and air pressure drop in accordance with AMCA Standard 500 and be AMCA Certified.

2.10 LOUVERS

Outside air louvers shall be stationary vertical blade type entirely contained within a 6" frame. Framing and blades shall be 6063T5 extruded aluminum. Louvers shall be of a bird-proof design. Louvers shall be tested by an independent laboratory for water carry-over and air pressure drop in accordance with AMCA Standard 500. When tested in accordance with the HEVAC Wind Driven Rain Method, the effectiveness ratio shall be 100% at 2,000 fpm free area velocity with a 40 mph wind and 3 in. per hour rain fall.

2.13 HUMIDIFIER

Steam humidifier shall be a steam separator type providing full separation ahead of a control valve which discharges through an internal drying chamber. Steam humidifier shall be electrically controlled. The humidifier capacity

shall meet or exceed the capacity specified in the mechanical schedule. The size and number of distribution manifolds shall be sized so all steam is absorbed by the air before reaching the next component in the air stream. Humidifier shall receive steam at supply pressure and discharge at atmospheric pressure. Humidifier shall be furnished with inlet strainer and float and thermostatic traps or a bucket steam trap. Separating chambers shall be of a volume and design that will disengage and remove water droplets and particle matter when the humidifier is operating. The distribution manifold shall provide uniform distribution over its entire length and be jacketed by steam to assure that vapor discharged is free of water droplets. Humidifier shall be completely factory piped {wired}. Traps shall be shipped loose to avoid damage during shipment. All humidifiers shall be mounted above a pitched drain pan constructed from 16 gauge galvanized steel with mastic coating {16 gauge type 304 stainless steel}.

2.15 REFRIGERATION

A. General: Units shall be provided with complete operating safety controls. Factory certified start up services shall be provided.

B. Refrigerant: The unit(s) shall be supplied pre-charged with refrigerant on all units where the entire refrigeration system can be shipped in a single piece. All other units will be shipped with a holding charge of dry nitrogen and will be charged in the field by the contractor. {All compressors shall have a four-year extended compressor warranty.}

C. Three (3) ZP182KCETWD and one (1) ZPD182KCETWD {Tandem Scroll Compressors or equal shall be provided. The compressors shall utilize an orbiting scroll with axial and radial compliance for compression. The compressors shall be a high efficiency, suction gas cooled, single speed, hermetic type, with three Teflon bearings and a cast iron motor frame. Discharge and suction connections shall be properly manifold. Oil and pressure equalization shall be provided between compressors. The compressors shall be mounted outside of the air stream in an insulated compartment on rubber-in-shear isolators. The compressors shall have an oil level sight glass, oil level adjustment fitting, high and low pressure taps, and service valves will be provided for each manifold compressor set. The compressors shall have a discharge check valve with an internal solenoid valve to silently prevent reverse rotation. The compressors shall have a quick acting discharge temperature probe, four motor winding temp sensors with a solid state module for compressor overload protection. Other safety devices shall include a crankcase heater, high pressure and low pressure freeze protection.

Receivers: Each compressor circuit shall be supplied with a refrigerant receiver bearing either a UL listed mark or ASME stamp. The receiver shall insure no condenser gas bypass and complete draining of the condenser. The receiver must be sized so that the system charge variation does not exceed 80% of its working volume. The receiver shall have a minimum of one liquid level sight glass installed.

Digital Scroll Compressors: The compressor shall utilize an orbiting scroll with axial and radial compliance for compression and have digitally controlled capacity modulation technology. The compressor shall be capable of seamlessly modulating capacity from 10% to 100%. A solenoid valve is to be used to achieve modulation. The compressor shall be a high efficiency, suction gas cooled, hermetic type, with Teflon bearings and a cast iron motor frame. The compressor shall be mounted outside of the air stream in an insulated compartment on rubber-in-shear isolators. The compressor shall have an oil level sight glass, oil level adjustment fitting, high and low pressure taps, and full port discharge and suction service valves. The compressor shall have either non-dynamic reed valve located at the stationary scroll's discharge port or a check valve in the discharge fitting to control discharge gas flow and to silently prevent reverse rotation. The compressor shall have a quick acting discharge temperature probe, four motor winding temp sensors with a solid state module for compressor overload protection. Other safety devices shall include a crankcase heater, high pressure and low pressure freeze protection.

Digital Scroll Compressor Control: The digitally modulating compressors shall be furnished complete with a dedicated controller to provide the electronics interface between the modulating compressor and the system controller. The controller shall be capable of providing system modulation, preventing compressor short cycling, tracking abnormal conditions, and smooth out the pressure swings associated with loading and unloading the compressor.

Electronic Expansion Valves: Circuits equipped with digitally controlled modulating scroll compressors shall be furnished with an electronic expansion valve and all required control circuitry. The valves shall feature a fully hermetic design and fast full stroke time. Valve position and control shall be accomplished by an electric stepper motor. The valves shall provide positive shut-off function to eliminate the use of an additional solenoid valve. The system shall have a wide capacity range from 10% to 100% of the nominal design and linear flow capacity with a balanced force design. The valve body and connections shall be corrosion resistant stainless steel.

Electronic Expansion Valve Control: All electronic expansion valves shall be provided with a stand-alone digital controller and provide superheat control by controlling the valves stepper motor. The controller shall provide stable operation of the expansion valve by monitoring pressure, temperature, and super heat of the circuit being controlled. The system shall be complete with low and high superheat alarm, monitoring of sensors and sensor wiring and detection of sensor and wiring failures, with intelligent alarm management to protect the compressor.

A. Air Cooled Condensers: Condenser performances shall meet or exceed the specified performance of the mechanical schedule.

   1. Coils: Internal tubes shall be staggered with plate type tempered aluminum fins for maximum performance with minimal air pressure drop. Coils shall be designed to conform to ANSI-B9.1 Safety Code for Mechanical Refrigeration. Coils shall be tested leak free at 350 psig compressed air under clear water. Internal tubes shall be round seamless 1/2", 0.016" {5/8", 0.020"} wall copper tubes which have been deoxidized by the addition of phosphorous. Coils casings shall be constructed of a minimum of 16 gauge continuous galvanized steel {304 stainless steel}. Coil casing reinforcements shall be required for fin lengths over 42". Coil fins shall be plate type, die-formed ripple edge corrugated 0.006" aluminum {phenolic coated} with guide channels to create turbulent wiping behind the tubes

with collars drawn and belled. Internal copper tubes shall have be staggered in direction of air flow. The copper circuiting tubes shall be mechanically expanded to the aluminum fins. The fin spacing shall be {8}{10}{12}{14} fins per inch. Each standard cooling only type condensers circuit shall be supplied with subcooling circuiting. {Condenser coil guards shall be provided.}

2. {Head Pressure Control: The unit shall be capable of stable operation with entering condensing air temperature of 50°F(30°F with condenser fan VFD's). Incorporate condenser fan cycling {condenser fan VFD} to control head pressure in the system.
3. {Flooded Head Pressure Control: Each compressor circuit shall be supplied with a flooded head pressure control system. This system shall allow operation of the compressors down to 0°F. The system will be a two valve system with separate by-pass and reclaim valves.}

B. Liquid Line Filters: Each compressor shall be supplied with a {replaceable core} filter drier located in the liquid line. {A system of by-pass valves around the filter shall be supplied so that cores may be easily changed without shutting down the compressors.}

C. {Receivers: Each compressor circuit shall be supplied with a UL listed {ASME stamped full charge} receiver to insure no condenser gas bypass and complete draining of the condenser.}

2.16 ELECTRICAL POWER AND CONTROLS

A. General: Units shall be provided with temperature controls. Room thermostats shall be mounted and wired by the electrical contractor. Steam, hot water or chilled water valves shall be installed by the contractor as shown on the plans, and wired by the electrical contractor. The control system shall include all safety and operating controls required to meet the equipment's ETL or UL listing and the requirements of UL 1995. Controls to include branch and sub-circuit fusing, contactors, relays and pressure controls. Panel to be constructed to NEMA 3R requirements and will have hinged access panels.

B. Motor Starters: Furnish solid state or electromechanical starters for all auxiliary electric motors required. Contactors for electromechanical starters shall be UL recognized for air conditioning and refrigeration (definite purpose) use and rated in voltage, continuous rated load amperes (RLA) and locked rotor amperes (LRA). The rating shall be equal to or greater than the requirements specified on the compressor motor nameplate.

C. Provide a non-fused disconnect of the proper amp rating in the starter cabinet. Starter shall be furnished with special terminals and internal wiring as required to accommodate controls and power wiring. Starter shall include overload protection devices in each of 3 phases.

D. Provide copper wires, bus bars, and fittings throughout, except internal wire of the control transformer may be aluminum, if copper termination is provided. Identify power supply terminals with permanent markers. The maximum temperature of terminals shall not exceed 167°F (75°C) when the equipment is tested in accordance with its rating.

E. Mount a permanent nameplate on the unit to display the manufacturer, serial number, model number, date of manufacture, and current and voltage readings and ETL or UL Listing.

F. Provide permanent schematic and connection wiring diagrams indicating exactly how the starter was manufactured and wired including the wire terminal numbers

G. Option – Smoke Detector

{Smoke Detector: Factory mounted and wired reset ionization type smoke detector{s} located in return air stream {and discharge air stream} will be provided.}

{FOption – Vapor Proof Service Lights

{Vapor Proof Service Lights: Each section shall be equipped with a vapor- proof 100 watt {80 watt vapor proof fluorescent light} service light. All lights, switches and outlets shall be wired to a disconnect for a separate 120 volt external source. {Lights, switches and outlets shall be wired through a transformer and external light disconnect. Lights shall be wired to remain functional whether the main power disconnect is in the on or off position}.

H. Electric/Electronic Actuators: The actuators for modulating service are direct-coupled electronic type. The actuators for the outside air and exhaust air are spring return type. The input signal is 0-10 vDC and power requirements are 24 vAC.

I. The unit shall be provided with a Direct Digital Control system, including provisions for remote start/stop and set-point reset. Local display of all set-points and other user adjustable parameters will be provided. All safety controls shall be manual reset.

Each unit shall be furnished complete with all operational controls.

{ Option - Variable Air Volume Building Pressure Control

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install in strict accordance with manufacturer's requirements, shop drawings, and Contract Documents.

B. Adjust in alignment on concrete foundations, sole plates or other supporting structure. Level, grout, and bolt in place.

C. Furnish and install necessary auxiliary water piping for makeup and drain of the evaporative condensers as required.

D. Coordinate electrical installation with electrical contractor.

E. Coordinate controls with control contractor.

F. Provide all appurtenances required to ensure a fully operational and functional system.

3.02 START-UP

A. Factory Start-Up Services: Start-up is to be supervised by the unit manufacturer or a manufacturer certified service organization. Physical connections and start-up are provided by the installing contractor. Start-up services shall be provided for as long a period of time as is necessary to ensure proper operation of the unit. The start-up engineer shall conduct such operating tests as required to ensure that the unit is operating in accordance with design. Complete testing of all safety and emergency control devices shall be made. The start-up engineer shall submit a written report to the owner and manufacturer containing all test data recorded as required above and a letter certifying that the unit is operating properly.

B. Operation and Maintenance Manuals: Manual shall be provided complete with descriptive literature, model, and serial number of all equipment, performance data, manufacturer's instructions for operating and maintenance, lubrication recommendation and schedule, and winter shutdown procedure.

SECTION 15974 - MICROPROCESSOR CONTROL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplemental Conditions and Division 1 Specifications sections, apply to work of this section.

B. Division 15 basic mechanical materials and methods sections apply to work of this section.

1.2 DESCRIPTION OF WORK

A. Extent of Microprocessor Control systems work required by this section is indicated on drawings and schedules, and by the requirements of this section. Control system consists of sensors, indicators, final control elements, interface equipment, other apparatus, accessories, and software connected to distributed controllers operating in multitasking, multi-user environment on network and programmed to operate mechanical systems according to sequences of operations indicated or specified.

B. Control system sequence of operation shall incorporate the following control points: (a) supply fan enable, (b) supply fan status, (c) return fan enable, (d) return fan status, (e) room temperature, (f) room humidity, (g) discharge air temperature, (h) return air temperature, (i) DX cooling enable (1 per stage, see equipment spec), (i) humidifier enable, (j) humidifier modulation, (k) filter status, (l) supply fan vfd modulation, (m) outside air temperature, (n) room temperature setpoint, (o) room humidity setpoint, (p) supply air humidity high limit setpoint. Sequence of operation shall be incorporated to keep space at 68°F (adj.), and at least 35% relative humidity. Final sequence of operation shall be approved by equipment manufacturer and owner.

C. Refer to other Division 15 sections for installation of water sensor wells, valve bodies, and control dampers in mechanical systems; furnished by the Control Contractor but not work of this section.

D. The Control Contractor shall furnish dedicated operator workstation which shall be Windows XP Professional or later, 160GB hard drive (minimum), 2.60GHz (minimum), 1.98GB RAM (minimum). PC shall be by Dell or approved equal. Software shall include web-serving application linked to owner's ethernet to make system remotely accessible utilizing username/password protection. Remote access shall be by Windows Internet Explorer and no other software on the remote computer shall be needed. Provide graphical driven user interface. Graphics shall include representation of air-handling unit layout with all control points clearly overlaid on the graphic. Include user setpoint adjustments on graphics as well. Software shall be configured to transmit critical alarms to owner's personnel via e-mail and cell phone text messaging.

Refer to Division 16 sections for the following work (not work of this section):

1. Power supply wiring for power source to power connection on controls and/or unit control panels, include starters, disconnects, and required electrical devices, except where specified as furnished or factory installed by the manufacturer.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced Installer specializing in control system installations.

B. Manufacturer Qualifications: Engage a firm experienced in manufacturing control systems similar to those indicated for this Project and that have a record of successful in-service performance for not less than five (5) years.

C. Startup Personnel Qualifications: Engage specially trained personnel that have been certified in all aspects of the software, hardware, installation, programming, startup and calibration of primary temperature control system.

D. Comply with NFPA 90A.

E. Comply with NFPA 70.

1.4 CODES AND STANDARDS

A. Electrical Standards: provide electrical products which have been tested, listed, and labeled by UL and comply with NEMA standards.

B. NEMA Compliance: Comply with NEMA standards pertaining to components and devices for electrical control systems.

C. NFPA Compliance: Comply with NFPA 90A "Standard for the installation of Air Conditioning and Ventilating Systems" where applicable to controls and control sequence.

1.5 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

B. Product Data for each type of product specified. Include manufacturer's technical Product Data for each control device furnished, indicating dimensions, capacities, performance characteristics, electrical characteristics, finishes of materials, installation instructions, and startup instructions.

C. Shop Drawings from manufacturer detailing equipment assemblies and indicating dimensions, weights, loadings, required clearances, method of field assembly, components, and location and size of each field connection. Submit damper leakage and flow characteristics, plus size schedule for controlled dampers.

D. Shop Drawings: Submit detailed point to point wiring diagrams for the Microprocessor Control system to include, but not limited to, control points, controller input/output schedules, and equipment bill of material. In addition, Shop Drawings must contain the following information for each control system:

1. Schematic flow diagram showing fans, pumps, coils, dampers, valves, and control devices.
2. Each control device labeled with setting or adjustable range of control.
3. Diagrams for all required electrical wiring. Clearly differentiate between factory-installed and field-installed wiring.
4. Details of control panel faces, including controls, instruments, and labeling.

5. Written description of sequence of operation.
6. Trunk cable schematic showing programmable control unit locations and trunk data conductors.
7. Listing of connected data points, including connected control unit and input device.
8. System graphics indicating monitored systems, data (connected and calculated) point addresses, and operator notations.
9. System configuration showing peripheral devices, power supplies, diagrams, modems, and interconnections.
10. Software description and sequence of operation.

E. Wiring diagrams detailing wiring for power, signal, and control systems and differentiating clearly between manufacturer-installed and field-installed wiring.

F. Samples of each type of furnished thermostat cover according to requirements of Division 1.

G. Maintenance data for control systems equipment to include in the operation and maintenance manual specified in Division 1. Include the following:

1. Calibration records and list of set points.

H. Project Record Documents: Record actual locations of control components, including control units, thermostats, and sensors. Revise shop drawings to reflect actual installation and operating sequences and provide a minimum of 3 hard copy sets plus record documents on AutoCAD (version 12 or 13) drawings on 3-1/2" floppy or CD to Engineer and Owner.

I. Graphic Pictures: Submit detailed layout of each graphic drawing to include but not limited to all Air Handlers, reheat coils, ground loop water data, and misc. data points. Graphic drawings shall include all data points and setpoints associated with the equipment listed.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Provide factory shipping cartons for each piece of equipment and control device. Maintain cartons through shipping, storage, and handling as required to prevent equipment damage and to eliminate dirt and moisture from equipment. Store equipment and materials inside and protected from the weather.

B. Factory-Mounted Components: Where control devices specified in this Section are indicated to be factory mounted on equipment, arrange for shipping control devices to unit manufacturer.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

ASI Controls, Inc. (Rigney Digital Systems) or equal.
Honeywell (Factory Branch only) or equal.
Siemens (Factory Branch only) or equal.

B. All listed manufacturers shall meet all of the requirements of this specification.

C. Quality Assurance: The equipment and software proposed by the supplier shall be currently in manufacture. No custom products shall be allowed unless required by the specifications. All products shall be supported by the manufacturer for a minimum of five (5) years, including spare parts, board repairs, and software revisions.

D. Operating Environment: All System Controllers (SC's) and Terminal Controllers (TC's) shall operate in an environment of 32° to 120° Fahrenheit and 10 per cent to 95 per cent relative humidity, non-condensing.

E. Agency Approvals: All controllers shall be UL approved as an Energy Management System (UL 916). SC's and TC's shall also comply with FCC regulations.

2.2 GENERAL

A. Furnish all control components required to accomplish the sequence of operation.

B. The Microprocessor based controllers shall monitor the data environment and perform control functions in relation to a programmed strategy and the status of the environment.

C. The system shall use solid state computer based digital and analog technology. The system shall be standard with the manufacturer to ensure ongoing parts availability and trained technical support.

D. The Microprocessor controller shall be of the fully user programmable type requiring no special computer education for operation. All owner training shall be by the manufacturer or agent thereof.

2.3 MATERIALS AND EQUIPMENT

A General

1. All hardware provided shall include a product warranty for one year from the completion of the project
2. All materials used above ceilings shall be approved for use in return air plenums.

B. Networks And Operator Communications

1. General: The network architecture shall consist of two levels. The top level shall be a high speed LAN designed to be able to exchange information with other facilities, and connected to a Network Computer and Graphics Workstation. The second level shall be an RS485 bus to support a family of System Controllers (SC's) andTerminal Controllers (TC's) for control of central plant equipment, rooftop HVAC equipment, and lighting control. The second level bus shall communicate bi-directionally with the high speed LAN through the Network Computer.

2. High Speed LAN: This local area network shall be based on standard Personal Computer Hardware with 10MBps Ethernet LAN connection to provide a communicating node(s) via a DDE (Dynamic Data Exchange) or OPC Server.

   The high speed LAN shall support multi-communications and multi-session activity. That is, all global data sharing shall occur simultaneously with the transmission of alarm data

or user activity, via modem or local workstation, and more than one user shall be able to access the same controller.

3. Local Bus: The Local bus supports local control units of modular size for operation of the building's HVAC, lighting, and access control systems. This RS485 bus shall operate at a minimum speed of 9600 or 19,200 baud, with a minimum length of 4000 feet or 32 nodes before requiring a network repeater. A minimum of 127 TC's shall be configurable on the field bus. Systems with baud rates of less than 19,200 shall be limited to 64 Terminal Controllers to insure adequate global data and alarm response times.

   The local bus shall permit simultaneous communications with laptop computers that are connected to a Terminal Controller.

4. Network Computer: The network computer shall have access to all objects (i.e. Inputs, Outputs, Setpoints, Schedules, etc.) via a DDE or OPC link from the workstation's Graphical User Interface to the Objects in each System Controller.

   Dial-up Communications: It shall be possible to access the network remotely through a standard dial-up modem.

C. System Controllers (SC's)

1. Description: SC's shall be provided capable of fully controlling main plant items, supervising Terminal Controllers (TC's), and providing management capabilities. The SC's should comprise a single device, capable of fully performing its specified functions without the need for add-on cards or modules. They shall be fully configurable. The SC's shall be based on multi-layer printed circuit boards in metal enclosures, with 16 bit microcontrollers, battery-backed calendar clock chips, two communications ports, on-board RS232 and RS485, a minimum scan time of 1 second and a minimum communication speed of 9600 baud.

2. Firmware: Object oriented firmware shall be embedded in each SC so that specific sequences can be configured by linking pre-defined objects. No special programming language shall be necessary to fully configure SC's. Objects shall include Inputs, Binary Outputs, Schedule, Control State, Afterhours, Optimum Start, Demand Manager, Clock, Poll List, Alarm, Analog Outputs, Utility (for setpoints, etc), Poll Manager, PID Loops, Broadcast, Logic, Timers, Calculated Points, Trend, Display Manager/List, Counters, Static Trend, Event Manager, Event Log, Function, Sequence, Monitor, Dial Manager, Encode and Calendar. The ability to allocate multiple instances of each object shall be provided. Each controller shall contain all available objects which may be used as required limited only by the maximum memory of the controller. All configurations shall be retained indefinitely through power outages.

   Application Software: The custom application software shall reside in battery backed RAM or EEPROM. RAM will also be used for storing trend data and clock/calendar information.

3. Controllers: SC's shall perform DDC and energy management functions, control peripheral devices, and coordinate communications to other SC and TC's in the network. SC's shall be capable of monitoring and collating alarm and event information from the system. This is to include other SC's and TC's. Each SC except the SINC shall have onboard I/O consisting of 16 Universal Inputs, 12 Normally Open Relay Outputs and 8, 0-10 Vdc Analog Outputs. The universal inputs shall have the pre-defined ability to interpret up to 4 contact closures in conjunction with a resistor ladder to any single input. They

shall also read 0-5 Vdc and 4-20 ma Inputs as standard and have built-in Look-up tables for 3000 Ohm thermistors. Inputs may be used for temperature, pressure, flow, current, frequency and for pulse counting. Relay Outputs may be configured for maintaining momentary or pulse width modulated operation, with or without interlocks and with or without verification status of the controller device. Relay Outputs shall be rated at 2 amps at 24Vac. Onboard LED's shall indicate the status of each Binary Output and the status of the communication busses. Four Onboard LED's shall be available on each SC for custom user configuration.

The SC shall contain control programs in EEPROM. Each SC shall have the intelligence to perform all control strategies, without communication to other controllers.

SC's shall support multi-user communications from the network computer and/or locally connected laptop service tools. They shall support modem dial-out and user dial-in. They shall be capable of sending different events and alarms to different locations and types of receiving devices including personal computers, pagers and printers. The SC must be capable of redirecting information based on time or date or other user selectable event to another phone number or receiving device.

4. Communication Ports: SC's shall provide concurrent communication to both the system bus and the local bus. In addition, a minimum of one RS232 or RS485 port shall be provided for connection to a network computer or a laptop computer. When the port is RS232, it shall optionally support communication to a modem.

D. Input/Output

1. Inputs: The input section of System Controllers shall provide "universal" inputs capable of accepting information on any point in the form of a temperature, voltage, digital, or pulse counter with only a programming command required for differentiation between the input type. No hardware changes shall be required, other than changing pull-up resistors.

2. Analog Inputs: The Analog Input (AI) function shall monitor each analog input, perform A/D conversion, and hold the digital value in a buffer for interrogation.

The A/D conversion shall have a minimum resolution of 10 bits. Input ranges shall be within the range of 0-5 VDC or 4 to 20 ma.

3. Digital Inputs: The Digital Input (DI) function shall accept normally open or normally closed dry contact closures only.

4. Pulse Accumulator Inputs: The pulse accumulator input function shall have the same characteristics as the DI, except that in addition a buffer shall be included to totalize pulses between interrogations. Each input shall accept pulses at up to 10 Hz.

5. Temperature Inputs: Temperature inputs originating from a thermistor shall be monitored and buffered as an AI and provide automatic conversion to degrees Fahrenheit or Centigrade without any additional signal conditioning.

6. Input Wiring: All inputs shall be two-wire devices and shall not require additional wiring for unoccupied override pushbuttons.

E. Outputs

1. Output types shall include digital, analog, and tri-state.

2. Digital Output: The Digital Output (DO) function shall provide contact closure for momentary Pulse Width Modulation and maintained operation of field devices. Output pulse width shall be selectable between 0.1 and 255 seconds with a minimum resolution of 0.1 seconds. Contact rating shall be a minimum of 2 amps at 24 VAC. An on-board LED shall be provided to indicate the state of each digital output.

3. Tri-State Outputs: Tri-state outputs shall consist of two 24 VAC relays for control of bi-directional motors and actuators. Each tri-state output is capable of PWM (Pulse Width Modulation) to a resolution of 0.1 second.

4. Analog Outputs: Analog outputs shall be suitable for up to 5 ma over 0-10 volts DC referenced to ground.

5. Real Time Clock (RTC): A battery backed uninterruptable Real Time Clock shall provide the following information: time of day, day, month, year, and day of week. In normal operation, the system clock will be based on the frequency of the AC power. The system shall automatically correct for daylight savings time and leap years.

6. Power Supply: SC's will operate from 24 VAC 60/50 Hz power with a tolerance of +/- 15%. The controller shall contain over voltage surge protection and require no special AC power signal conditioning.

7. Automatic Restart after Power Failure: Upon restoration of power, the SC shall automatically and without human intervention: update all monitored functions, resume operation based on current synchronized time and status, and implement special startup strategies as required.

8. Indicator Lamps: System Controllers will have as a minimum LED indication of the system and local bus communications, and the status of the outputs.

F. Terminal Controllers (TC's)

1. Description: A TC has its own on board CPU, RAM, and EPROM, laptop communication port, and network connection to the local communication bus. The TC contains its own on board I/O for complete stand alone operation. Controls manufacturer shall offer application specific TC's for packaged heating and A/C, split systems, water-source heat pumps, air-to air heat pumps, pressure independent VAV and fan powered VAV terminal units, dual duct terminal units and fan coils. TC's shall be based upon multi-layer printed circuit boards with 8 bit microcontrollers, a RS485 communications port and a minimum communications speed of 9600 baud. All TC's shall be pre-programmed with multiple, application specific terminal control routines (personalities). No batteries shall be required for TC's.

2. Configuration: The TC may be programmed from a laptop service tool.

3. Application Firmware: The custom application firmware shall reside in non-volatile EEPROM.

4. Terminal Controllers: TC's shall provide stand alone control of HVAC and lighting control. Each controller shall have its own control programs and will continue to operate in the event of a failure to communicate with the rest of the system.

   Control programs shall be stored in non-volatile EEPROM. Each TC shall have the intelligence to perform all control strategies, without communication to other controllers, for control functions not requiring data from other controllers. Each TC shall be able to have its control programs edited and/or modified either locally or remotely. .

6. Communication Ports: Terminal Controllers shall provide communication to the local bus. In addition, a RJ-45 port shall be provided for connection to a laptop service tool, through the wall sensor, to support local programming and parameter changes. It shall be possible from this port to access and program any controller on the local bus.

G. Input/Output

1. Inputs: The input section of TC's shall provide eight inputs capable of accepting information on any point in the form of a temperature, voltage or contact closure.

   The A/D conversion shall have a minimum resolution of 10 bits. Input ranges shall be 0 to 5 VDC.

2. Temperature Inputs: Temperature inputs originating from a thermistor shall be monitored and buffered as an AI and provide conversion to degrees Fahrenheit or Centigrade.

H. Outputs

1. Output types shall include digital and tri-state.

2. Digital Output: The Digital Output (DO) function shall provide contact closure for momentary Pulse Width Modulation and maintained operation of field devices. Output pulse width shall be selectable between 0.1 and 255 seconds with a minimum resolution of 0.1 seconds. Contact rating shall be a minimum of 1amp at 24 VAC.

3. Tri-State Outputs: Tri-state outputs shall consist of two 24 VAC triacs for control of bi-directional motors and actuators. Each tri-state output is capable of PWM (Pulse Width Modulation) to a resolution of 0.1 second.

5. Networking: Each TC will be able to provide information as requested by SC's during each local bus scan.

6. Power Supply: Each System Controller shall have a built in power supply operating at 24VAC, 60/50 Hz power +/-15%.

7. Automatic Restart after Power Failure: Upon restoration of power, the TC shall automatically and without human intervention: update all monitored functions, resume operation based on current synchronized time and status, and implement special startup strategies as required.

9. Indicator Lamps: TC will have LED indication of power and communication on the local bus.

10. Packaging: TC's may be housed in an optional steel enclosure, or within the rooftop units provided suitable locations are available.

I. System Software

1. Description: This section describes the software capabilities for the entire system.

2. Controller Software: The configuration software each SC may be run locally through a laptop service tool or in the network computer. All programming shall be on-line and not require system shutdown.

3. Configuration software: The configuration software shall be user programmable by object linking and shall be Windows based. No special programming language shall be required. This includes all strategies, sequences of operation, control algorithms, parameters, and setpoints.

The software shall be structured to allow for the easy configuration of control programs, schedules, alarms, reports, telecommunications, local displays, mathematical calculations and histories.

The software shall allow the creation of timers anywhere in the logic of a program.

5. Application Software: The systems shall contain pre-programmed firmware modules for the creation of standard applications. Modules will include as a minimum PID, schedules, calendar functions (seconds, minutes, hour, day of week, day of month, day of year, month, and year), logic and optimum start.

6. Mathematical Functions: Each controller shall be capable of performing basic mathematical functions (+, -, X. /).

The controllers shall be capable of performing complex logical statements including operators such as >, <, =, and, or, exclusive or, greater than, lesser than, signed and unsigned, etc.

8. Trending: Each controller shall be capable of trending any system variable over user defined time intervals ranging from one second to four hours. Any system variables (inputs, outputs, math calculations, flags, etc.) can be trended. A maximum of 512 bytes or 256 words values can be stored in each trend in the SC. Trends can be concatenated. Trends may be manual or automatic, i.e. roll on roll off. Trends may be uploaded to the network computer for storage on the hard disk.

9. Reporting: The User Interface software in the Network Computer shall be able to create user definable reports containing any combination of text and system variables. Report templates will be created by users in a word processing environment. Reports can be displayed based on any logical condition or through a user command.

10. Alarming: For each system point., alarms can be created based on high/low limits or conditional expressions. All alarms will be tested each scan and can result in the display of one or more alarm messages or reports. Messages and reports can be sent to the network computer, or via modem to a remote computing device.

J. Network Computer

1. Hardware: The following shall be the requirements for the Network Computer.

   a.. Gateway, Compaq, or Dell or equivalent Computer with a minimum of 2 serial communication ports for connection to Modems or Controllers. For Connection to the high speed LAN, an Ethernet communications card must be provided.

   A minimum of an Intel Pentium III 400 MHz and include a 9.2 GB Hard Drive, 3.5"/1.44 MB Floppy Drive, Internal 24 x CD ROM Drive, Internal 512 KB Cache, 128 MB EDO RAM, and a 16 MB, 3D, AGP Graphics Accelerator.

   b. The Monitors shall be 17", 1600 x 1200 Max Resolution with a .28 Dot Pitch. Monitor shall have a viewing area of 16".

   c. The Printers shall be equal to an HP Desk Jet 890. Printer shall be an Ink Jet with 1440 x 720 dpi Photo Quality Color. Printer speed shall be a minimum of 6 PPM for black and 4 PPM for color.

2. Software: All control system components, SC's, TC's and Graphical User Interface (GUI) software shall be Dynamic Data Exchange (DDE) and OPC (OLE for Process Control) compatible. No consideration will be given to controls manufacturers who cannot show DDE and OPC compatibility. An on-site DDE/OPC compatibility demonstration shall be performed, at a location and time determined by the engineer, by any alternative controls manufacturer. This demonstration shall show any and all applicable data contained in alternative controls manufacturers' hardware, successfully retrieved into the DDE and OPC supported front-end Graphical User Interface (GUI) Software Package. Supporting documentation showing DDE and OPC compatibility shall be provided. Approved GUI software shall be Wonderware In Touch, Rockwell Software RS View or Intellution. The functions shall include monitoring and programming SC and TC's. Monitoring consists of alarming, reporting, graphic displays, long term data storage, automatic data collection, and operator-initiated control actions such as schedule and setpoint adjustments. The software will be able to communicate to all SC and TC's , and where necessary integrate information that is common to one or more Controllers.

   Control system information shall be available to the GUI via Dynamic Data Exchange (DDE) or OPC. Standard DDE and OPC servers shall be available allowing the exchange of information between all DDC devices and a GUI and other clients in the Windows NT environment. Examples of DDE clients include Rockwell Software RS View, applications created in Visual Basic and Corel Draw 8.0, and Microsoft Excel (see approved GUI software above).

   The control system should communicate using open, published protocol. A complete copy of the communications protocol shall also be furnished for each DDC and PLC device. The DDE servers must include support for some form of widely available DDE optimization method such as Rockwell Advance DDE. The DDE servers must support local and/or remote connection to the control system. Control system data should be available across standard computer networks such as Ethernet and protocols such as NETBIOS or TCP/IP in real time.

   Standard Windows GUI format software provider must be an object-oriented, graphical man-machine interface (MMI) application generator such as Rockwell Sofware RS View, used for industrial automation, process control and supervisory monitoring. Types of supported applications shall include discrete, process, DCS, SCADA and other types of manufacturing environments. It shall support any graphics resolution including EGA, VGA and Super VGA and shall allow any number of animated objects per window. The ability

to combine animation links shall be provided to provide size, color, movement and position changes. The software shall be oriented towards operators and programmers. In the operator's mode, all information will be available in Graphic or Graphic text displays. Graphic displays will feature animation effects to enhance the presentation of the data, to alert operators of problems and to facilitate location of information throughout the DDC System. Graphics shall include all Rooftop A/C and Heat Pump units and exhaust fans.

All operator functions shall be selectable through a mouse.

The system database shall consist of all points and programs in each of the Controllers that have been assigned to the Network. In addition the database will contain all files including graphic slides, alarm reports, text reports, historical data logs, schedules, and polling records.

3. Color Graphic Displays: The system shall allow for the creation of user defined, color graphic displays for viewing of mechanical and electrical systems, or building schematics. These graphics shall contain point information from the database including any attributes associated with the point. In addition operators shall be able to command equipment or change setpoint from a graphic through the use of the mouse.

4. Automatic Monitoring: The software shall allow for the collection of data and reports from any SC or TC. The time schedules and content of the polling shall be user configurable .

5. Alarm Management: The software shall be capable of both accepting alarms directly from SC's, or generating alarms based on polling of data in Controllers and comparing to limits or conditional equations configures in the host software. Any alarm will be integrated into the overall alarm management system and will appear in all standard alarm reports, be available for operator acknowledgment, and be displayed on the Color Graphics.

6. Scheduling shall be programmable up to one year in advance.

7. Trending: The software shall display historical data in either a tabular or graphical format. Any field point connected to a Controller or calculated variable will be available for trending. The time period for each trend shall be user selectable from 1 minute to 1 year.

8. Security: Up to 999 passwords may be assigned. Functions shall be individually selected and assigned to a particular operator. The software shall also include a user adjustable timer. The timer shall log off the operator automatically after an adjustable 1 minute to 255 minute time period with no keyboard activity. The system will be returned to a "Enter Password" or similar prompt.

10. The operating software shall be provided with a 1 year warranty on all updates or enhancements with no additional charge to the owner.

11. Provide a software "site license" which will allow the owner to install the software on designated workstations and laptop computers purchased under the terms of this project specification.

12. Updates/Upgrades during the warranty shall be provided at no additional cost to the Owner and a training update on the enhanced features and functionality shall be included.

K. Field Devices

1. Room Temperature Sensors: The room sensor shall be a precision thermistor accurate within 0.36° over the range of the applications. The range shall be 55° to 95°. The sensor shall be securely mounted into a molded plastic cover for wall mount. The sensor shall be supplied with an RJ45 modular connector at the back suitable for connecting pre-fabricated sensor cables, the other end of the sensor cables to plug into the controller in the associated rooftop A/C unit. Provide an override and set point adjustment feature integral to the room sensors.

2. Duct Sensors: The duct sensor shall be a precision thermistor accurate to within 0.36° over the 45° to 160° range. The material shall be packaged in 4", 8", 12" or 16" long stainless steel tubes attached to a standard four inch (4") electrical box.

3. Outside Air Sensor: The outside air sensor shall be a precision thermistor accurate to within 0.36° over the –30 to 180 deg F range. The active temperature sensitive element shall be sealed for moisture resistance. The sun shield shall be mounted on a weatherproof outlet box for installation on an outside surface. The outside assembly shall be located on the north side of the building, away from all devices, such as exhaust fans, that would influence the measured temperature.

4. Humidity Transmitter: The humidity transmitter shall be a two-wire, 0-5 VDC or 4 to 20 mA output type with an accuracy of +/- 3% RH of a 15% to 95% RH span. Operating temperature shall be 0° to 120° Fahrenheit.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that conditioned power supply is available to control units and operator workstation. Verify that field end devices, and wiring tubing are installed before proceeding with installation.

3.2 INSTALLATION

A. Install equipment as indicated to comply with manufacturer's written instructions.

B. Install software in control units and network computer. Implement all features of programs to specified requirements and appropriate to sequence of operation.

C. Connect and configure equipment and software to achieve the sequence of operation specified.

D. Verify location of thermostats, humidistats, and other exposed control sensors with plans and room details before installation. Confirm mounting height and exact location with Owner/Engineer prior to installation. Generally locate approximately 48 inches above floor.

1. Install averaging elements in ducts and plenums in crossing or zigzag pattern.

3.3 ADJUSTING AND CLEANING

A. Startup of the control system shall be performed by trained personnel in the direct employ of the manufacturer or agent thereof. Demonstrate compliance with requirements. Replace damaged or malfunctioning controls and equipment. Demonstrate all alarm and message displays as described in the sequence of operation.

C. Control contractor shall furnish a one year warranty on all components furnished under this section.

D. Maintenance, Extended Service and Support

1. Entire system, including all hardware, software, end devices and support shall be warranted for 1 year from the date of final acceptance.

2. The response time for support shall be not more than 4 hours. Response to Owner reported concerns can be addressed via dial up modem, first, and reasonable time shall be allowed for the contractor to provide on-site support if required. The Owner shall provide for use of a dedicated telephone line by the control system.

3.5 ELECTRICAL WIRING AND CONNECTIONS

A. Install raceways, boxes, and cabinets according to Division 16 Section "Raceways, Boxes, and Cabinets."

B. Install building wire and cable according to Division 16 Section "Wires and Cables."

C. Install signal and communication cable according to Division 16 Section "Control/Signal Transmission Media."

1. Conceal cable, except in mechanical rooms and areas where other conduit and piping are exposed.
2. Install exposed cable in raceway.
3. Install concealed cable without conduit; cable shall be plenum-rated jacket.
4. Bundle and harness multi-conductor instrument cable in place of single cables where a number of cables follow a common path.
5. Fasten flexible conductors, bridging cabinets and doors, neatly along hinge side; protect against abrasion. Tie and support conductors neatly.
6. Number-code or color-code conductors, except local individual room controls, for future identification and servicing of control system.

D. Connect electrical components to wiring systems and to ground as indicated and instructed by manufacturer. Tighten connectors and terminals, including screws and bolts, according to equipment manufacturer's published torque-tightening values for equipment connectors. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals according to tightening requirements specified in UL 486A.

E. Connect manual reset limit controls independent of manual control switch positions.

F. Connect HAND-OFF-AUTO selector switches to override automatic interlock controls when switch is in HAND position.

3.6 CLOSEOUT PROCEDURES

A. Control Contractor shall submit the training plan to the Owner and Engineer for approval along with submittal documents. Plan must include course outline, syllabus, documentation utilized and lesson plans.

B. Owner shall designate 2 representatives for factory training. The factory training shall consist of not less than 3 days (24 hours) of general operation and programming at the control manufacturers facility, or an authorized training center. All cost of travel, lodging and tuition, course materials shall be payable by the owners.

C. Manufacturer's Field Services: Provide the services of a factory-authorized service representative to demonstrate and train Owner's maintenance personnel as specified below.

1. Train Owner's maintenance personnel on procedures and schedules related to startup and shutdown, troubleshooting, servicing, and preventive maintenance.
2. Schedule all training with Owner and Engineer with at least 7 days' notice.

END OF SPECIFICATIONS

	DPS1125			
	Bid Form			
Item #	Description	Quantity	Unit Price	Extended Price
1	Installation and purchase of rooftop coooling unit w/ Year 1 of maintenace for update/upgrade support included.	1	$	$
2	Year 2 of maintenace for update/upgrade support	1		
3	Year 3 of maintenace for update/upgrade support	1		
	Failure to use this information may result in disqualification.		**Grand Total:**	
	Bidder / Vendor Information:			
	Name:			
	Address:			
	Phone No.:			
	Fax No.:			
	Email Address:			

RFQ No. _____

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

West Virginia Code §5A-3-10a states: No contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and the debt owed is an amount greater than one thousand dollars in the aggregate.

DEFINITIONS:
"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Debtor" means any individual, corporation, partnership, association, limited liability company or any other form or business association owing a debt to the state or any of its political subdivisions. "Political subdivision" means any county commission; municipality; county board of education; any instrumentality established by a county or municipality; any separate corporation or instrumentality established by one or more counties or municipalities, as permitted by law; or any public body charged by law with the performance of a government function or whose jurisdiction is coextensive with one or more counties or municipalities. "Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceed five percent of the total contract amount.

EXCEPTION: The prohibition of this section does not apply where a vendor has contested any tax administered pursuant to chapter eleven of this code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

Under penalty of law for false swearing (***West Virginia Code*** §61-5-3), it is hereby certified that the vendor affirms and acknowledges the information in this affidavit and is in compliance with the requirements as stated.

WITNESS THE FOLLOWING SIGNATURE

Vendor's Name: _____

Authorized Signature: _____ Date: _____

State of _____

County of _____, to-wit:

Taken, subscribed, and sworn to before me this ___ day of _____, 20___.

My Commission expires _____, 20___.

AFFIX SEAL HERE **NOTARY PUBLIC** _____

State of West Virginia
DRUG FREE WORKPLACE CONFORMANCE AFFIDAVIT
***West Virginia Code* §21-1D-5**

STATE OF _____

COUNTY OF _____**, TO-WIT:**

I, _____, after being first duly sworn, depose and state as follows:

1. I am an employee of _____; and,
(Company Name)

2. I do hereby attest that _____
(Company Name)

maintains a valid written drug free workplace policy and that such policy is in compliance with ***West Virginia Code*** §21-1D-5.

The above statements are sworn to under the penalty of perjury.

_____
(Company Name)

By: _____

Title: _____

Date: _____

Taken, subscribed and sworn to before me this _____ day of _____.

By Commission expires _____

(Seal)

_____
(Notary Public)

THIS AFFIDAVIT MUST BE SUBMITTED WITH THE BID IN ORDER TO COMPLY WITH WV CODE PROVISIONS. FAILURE TO INCLUDE THE AFFIDAVIT WITH THE BID SHALL RESULT IN DISQUALIFICATION OF THE BID.

Rev March 2009

BID BOND PREPARATION INSTRUCTIONS

AGENCY (A)
RFQ/RFP# (B)

(A)	WV State Agency (Stated on Page 1 "Spending Unit") Request for Quotation Number (upper right corner of page #1)
(C)	Your Company Name
(D)	City, Location of your Company
(E)	State, Location of your Company
(F)	Surety Corporate Name
(G)	City, Location of Surety
(H)	State, Location of Surety
(I)	State of Surety Incorporation
(J)	City of Surety Incorporation
(K)	Minimum amount of acceptable bid bond is 5% of total bid. You may state "5% of bid" or a specific amount on this line in words.
(L)	Amount of bond in figures
(M)	Brief Description of scope of work
(N)	Day of the month
(O)	Month
(P)	Year
(Q)	Name of Corporation
(R)	Raised Corporate Seal of Principal
(S)	Signature of President or Vice President
(T)	Title of person signing
(U)	Raised Corporate Seal of Surety
(V)	Corporate Name of Surety
(W)	Signature of Attorney in Fact of the Surety
NOTE:	Dated, Power of Attorney with Raised Surety Seal must accompany this bid bond.

Bid Bond

KNOW ALL MEN BY THESE PRESENTS, That we, the undersigned, (C) of (D), (E), as Principal, and (F) of (G), (H), a corporation organized and existing under the laws of the State of (I) with its principal office in the City of (J), as Surety, are held and firmly bound unto The State of West Virginia, as Obligee, in the penal sum of (K) ($(L)) for the payment of which, well and truly to be made, we jointly and severally bind ourselves, our heirs, administrators, executors, successors and assigns.

The Condition of the above obligation is such that whereas the Principal has submitted to the Purchasing Section of the Department of Administration a certain bid or proposal, attached hereto and made a part hereof to enter into a contract in writing for

(M)

NOW THEREFORE.

(a) If said bid shall be rejected, or

(b) If said bid shall be accepted and the Principal shall enter into a contract in accordance with the bid or proposal attached hereto and shall furnish any other bonds and insurance required by the bid or proposal, and shall in all other respects perform the agreement created by the acceptance of said bid then this obligation shall be null and void, otherwise this obligation shall remain in full force and effect. It is expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated

The Surety for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by any extension of time within which the Obligee may accept such bid: and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, Principal and Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be affixed hereto and these presents to be signed by their proper officers, this (N) day of (O), 20(P).

Principal Corporate Seal

(R)

(Q)
(Name of Principal)

By (S)
(Must be President or Vice President)

(T)
Title

(U)
Surety Corporate Seal

(V)
(Name of Surety)

(W)
Attorney-in-Fact

IMPORTANT – Surety executing bonds must be licensed in West Virginia to transact surety insurance. Raised Corporate Seals must be affixed and a Power of Attorney must be attached.

Agency_____
REQ.P.O#_____

BID BOND

KNOW ALL MEN BY THESE PRESENTS, That we, the undersigned, _____ _____ of _____, _____, as Principal, and _____ _____of _____, _____, a corporation organized and existing under the laws of the State of ____ _____ with its principal office in the City of _____, as Surety, are held and firmly bound unto the State of West Virginia, as Obligee, in the penal sum of _____ ($_____) for the payment of which, well and truly to be made, we jointly and severally bind ourselves, our heirs, administrators, executors, successors and assigns.

The Condition of the above obligation is such that whereas the Principal has submitted to the Purchasing Section of the Department of Administration a certain bid or proposal, attached hereto and made a part hereof, to enter into a contract in writing for

_____

_____

_____

NOW THEREFORE,

(a) If said bid shall be rejected, or
(b) If said bid shall be accepted and the Principal shall enter into a contract in accordance with the bid or proposal attached hereto and shall furnish any other bonds and insurance required by the bid or proposal, and shall in all other respects perform the agreement created by the acceptance of said bid, then this obligation shall be null and void, otherwise this obligation shall remain in full force and effect. It is expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for the value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by any extension of the time within which the Obligee may accept such bid, and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, Principal and Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be affixed hereunto and these presents to be signed by their proper officers, this _____day of _____, 20____.

Principal Corporate Seal

_____
(Name of Principal)

By_____
(Must be President or Vice President)

_____
(Title)

Surety Corporate Seal

_____
(Name of Surety)

_____
Attorney-in-Fact

IMPORTANT – Surety executing bonds must be licensed in West Virginia to transact surety insurance. Raised corporate seals must be affixed, a power of attorney must be attached.

ATTACHMENT
P.O.#_____

This agreement constitutes the entire agreement between the parties, and there are no other terms and conditions applicable to the licenses granted hereunder.

Agreed

_____
Signature Date

_____
Title

_____
Company Name

_____
Signature Date

_____
Title

_____
Agency/Division

WV-96
Rev. 10/07

AGREEMENT ADDENDUM

In the event of conflict between this addendum and the agreement, this addendum shall control:

1. **DISPUTES** - Any references in the agreement to arbitration or to the jurisdiction of any court are hereby deleted. Disputes arising out of the agreement shall be presented to the West Virginia Court of Claims.

2. **HOLD HARMLESS** - Any clause requiring the Agency to indemnify or hold harmless any party is hereby deleted in its entirety.

3. **GOVERNING LAW** - The agreement shall be governed by the laws of the State of West Virginia. This provision replaces any references to any other State's governing law.

4. **TAXES** - Provisions in the agreement requiring the Agency to pay taxes are deleted. As a State entity, the Agency is exempt from Federal, State, and local taxes and will not pay taxes for any Vendor including individuals, nor will the Agency file any tax returns or reports on behalf of Vendor or any other party.

5. **PAYMENT** - Any references to prepayment are deleted. Payment will be in arrears.

6. **INTEREST** - Should the agreement include a provision for interest on late payments, the Agency agrees to pay the maximum legal rate under West Virginia law. All other references to interest or late charges are deleted.

7. **RECOUPMENT** - Any language in the agreement waiving the Agency's right to set-off, counterclaim, recoupment, or other defense is hereby deleted.

8. **FISCAL YEAR FUNDING** - Service performed under the agreement may be continued in succeeding fiscal years for the term of the agreement, contingent upon funds being appropriated by the Legislature or otherwise being available for this service. In the event funds are not appropriated or otherwise available for this service, the agreement shall terminate without penalty on June 30. After that date, the agreement becomes of no effect and is null and void. However, the Agency agrees to use its best efforts to have the amounts contemplated under the agreement included in its budget. Non-appropriation or non-funding shall not be considered an event of default.

9. **STATUTE OF LIMITATION** - Any clauses limiting the time in which the Agency may bring suit against the Vendor, lessor, individual, or any other party are deleted.

10. **SIMILAR SERVICES** - Any provisions limiting the Agency's right to obtain similar services or equipment in the event of default or non-funding during the term of the agreement are hereby deleted.

11. **ATTORNEY FEES** - The Agency recognizes an obligation to pay attorney's fees or costs only when assessed by a court of competent jurisdiction. Any other provision is invalid and considered null and void.

12. **ASSIGNMENT** - Notwithstanding any clause to the contrary, the Agency reserves the right to assign the agreement to another State of West Virginia agency, board or commission upon thirty (30) days written notice to the Vendor and Vendor shall obtain the written consent of Agency prior to assigning the agreement.

13. **LIMITATION OF LIABILITY** - The Agency, as a State entity, cannot agree to assume the potential liability of a Vendor. Accordingly, any provision limiting the Vendor's liability for direct damages to a certain dollar amount or to the amount of the agreement is hereby deleted. Limitations on special, incidental or consequential damages are acceptable. In addition, any limitation is null and void to the extent that it precludes any action for injury to persons or for damages to personal property.

14. **RIGHT TO TERMINATE** - Agency shall have the right to terminate the agreement upon thirty (30) days written notice to Vendor. Agency agrees to pay Vendor for services rendered or goods received prior to the effective date of termination.

15. **TERMINATION CHARGES** - Any provision requiring the Agency to pay a fixed amount or liquidated damages upon termination of the agreement is hereby deleted. The Agency may only agree to reimburse a Vendor for actual costs incurred or losses sustained during the current fiscal year due to wrongful termination by the Agency prior to the end of any current agreement term.

16. **RENEWAL** - Any reference to automatic renewal is hereby deleted. The agreement may be renewed only upon mutual written agreement of the parties.

17. **INSURANCE** - Any provision requiring the Agency to insure equipment or property of any kind and name the Vendor as beneficiary or as an additional insured is hereby deleted.

18. **RIGHT TO NOTICE** - Any provision for repossession of equipment without notice is hereby deleted. However, the Agency does recognize a right of repossession with notice.

19. **ACCELERATION** - Any reference to acceleration of payments in the event of default or non-funding is hereby deleted.

20. **CONFIDENTIALITY:** -Any provision regarding confidentiality of the terms and conditions of the agreement is hereby deleted. State contracts are public records under the West Virginia Freedom of Information Act.

21. **AMENDMENTS** - All amendments, modifications, alterations or changes to the agreement shall be in writing and signed by both parties. No amendment, modification, alteration or change may be made to this addendum without the express written approval of the Purchasing Division and the Attorney General.

ACCEPTED BY:

STATE OF WEST VIRGINIA

Spending Unit: _____

Signed: _____

Title: _____

Date: _____

VENDOR

Company Name: _____

Signed: _____

Title: _____

Date: _____