

FY-04 BUILDING AUTOMATION SYSTEM MAINTENANCE

Salisbury University

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SECTION 01 001

BASIC REQUIREMENTS

1.1 GENERAL

a. This section identifies administrative and procedural requirements and temporary facilities necessary for the project.

1.2 GENERAL REQUIREMENTS

a. Provisions contained in this Section apply to each Section of the specifications.

b. Contractor shall at all times enforce strict discipline and good order among his workmen and shall not employ on the work any unfit person or anyone not skilled in the work assigned to him.

c. The Contractor is solely responsible for service means and methods, and for the safety of its workers.

d. A copy of the campus map is hereby made a part of the Contract Documents.

1.3 SUPPLEMENTARY PROVISIONS

a. Communication: The Contractor is required to maintain on site at all times when service work is in progress, an individual who represents the Contractor, is responsible for the service, and can communicate in English with the University representative.

b. Asbestos: If at any time during the performance of the work required by this Contract, the Contractor finds or has reason to suspect the presence of asbestos in the work area, he shall immediately notify the University representative in writing setting forth his observations, suspicions and requesting instructions. At the same time, the Contractor shall withdraw all his personnel from the potentially contaminated area.

c. Qualifications: Recommendation for award of this contract will be contingent upon the Contractor meeting the following qualifications:

1. Submit at bid opening a written statement indicating that the Contractor has had his primary business for a minimum of five (5) years for the inspecting, servicing,

conducting preventive maintenance, emergency service, providing all parts, labor, software maintenance and programming on all the components of the Network 8000 Building Automation System equipment and components. The contractor shall also have had a minimum of five (5) years experience of installing and servicing temperature control systems in conjunction with and as part of building automation systems and shall provide:

a. Submit at bid opening a list of personnel who will perform under the contract, showing the length and type of experience of such personnel with such personnel having a minimum of five (5) years experience servicing building automation systems including temperature control, energy management and building security systems, trained in both electronic and pneumatic controls and central control and monitoring systems of the type which are in the buildings listed herein. Include dates when personnel received Invensys/Siebe/Barber Colman factory training and certification.

b. Submit at bid opening the names and addresses of three (3) other contracts and/or similar institutions for which prior comparable services in size and scope were rendered or are now being rendered.

c. Submit at bid opening the location of the stocking offices in writing.

d. Submit at bid opening written assurance that replacement components are available and will be provided within twenty-four (24) hours.

e. Submit at bid opening written assurance that a qualified technician will respond within 2 hours.

1.4 SUMMARY OF WORK

a. This contract consists of having the contractor provide all labor, materials, equipment, vehicles, supervision and all other services for and/or incidental to the maintenance of the Building Automation System in nineteen (19) building locations. For amplification see Detailed Specifications herein. Effective July 2004, Henson Hall will no longer be covered under warranty and will at that time become part of this contract.

b. It is the intent of this specification that the contractor shall provide complete and thorough service, providing such materials and service as specified, or reasonably inferred herein.

1.5 EXISTING CONDITIONS

a. The nature of the work precludes completely accurate determination of existing conditions; therefore, applicable drawings and these specifications are general and nominal in nature.

b. The Contractor assumes full responsibility for investigation and determination of actual conditions and for providing complete and thorough service in accord with the intent of these specifications. The Contractor is again urged to make a complete and thorough examination of existing conditions, as future claims for unknown conditions uncovered in the job process may not be honored.

c. Original drawings of the buildings are available for viewing; however, the University will not vouch for their accuracy in regard to present day conditions.

1.6 SCHEDULE OF VALUES (Not Applicable)

a. A schedule of dollar values shall be submitted to the University not less than twenty (20) days prior to the first request for payment and shall be a condition precedent to processing first payment. Schedule of values shall be submitted on the University's standard payment request form. This breakdown shall follow the trade divisions of the specification and each item thereunder shall include its pro rata part of overhead and profit so the sum of the items will equal the contract price. Breakdown will correspond exactly to items of work in the progress schedule including work of subcontractors.

1.7 APPLICATION FOR PAYMENT

a. The Contractor shall submit quarterly, or as agreed upon with the University, an application for payment submitted on University provided forms. Provide original and five copies.

1.8 CHANGE PROCEDURES

a. At such time as the Contractor and the University agree as to the need for a change, and upon request by the University representative, the Contractor shall submit an original and two copies of his change order form to the University representative for processing. The University assumes no responsibility for changes before Contractor has received written approval of such change order.

1.9 SUBSTITUTIONS & PRODUCT OPTIONS

a. Wherever an item or class of material is specified exclusively by trade name, name of maker, or by catalog reference, use such item only unless the University's approval for a substitution is obtained.

b. Wherever words "approved by", "satisfactory to", "submitted to", "inspected by", or similar phrases are used in this specification, they shall be understood to mean that the material or item referred to shall be approved by, be satisfactory to, submitted to, or inspected by the University. The words "Owner" and "University" are interchangeable and both refer to Salisbury University.

1.10 COORDINATION (Where Applicable)

a. The Contractor shall coordinate scheduling, submittals, and work of the various sections of specifications to assure efficient and orderly sequence of service and/or installation of interdependent construction elements.

1.11 MEETINGS

a. A pre-contract conference will be held prior to commencement of work for the purpose of resolving current questions and further orienting contractors to requirements of contract documents.

b. Periodic job site meetings will be held by the University to insure all activities are coordinated properly, and to assist in staying on schedule. Status of submittals, changes, payments and other matters will be reviewed. Contractor shall attend such meetings and shall require attendance of his subcontractors as necessary.

1.12 SUBMITTAL PROCEDURES (When Applicable)

a. Submittal form to identify Project, Contractor, Subcontractor or Suppliers; and pertinent Contract Document references.

b. Apply Contractor's stamp, signed or initialed, certifying that review, verification of products required, field dimensions, and coordination of information is in accordance with the requirements of the Work and Contract Documents.

c. Revise and resubmit submittals as required; identify all changes made since previous submittal.

1.13 CONSTRUCTION PROGRESS SCHEDULE (Not Applicable)

a. Contractor, immediately after being awarded the contract, shall prepare and submit for University review, a simplified progress schedule for the work.

b. Progress schedule shall be in sufficient detail to include but not be limited to:

1. Significant elements of the work.

2. Time frame for each element of work with a beginning and ending point.

3. Value of the elements of work and relationship of elements of work one to the other for the total work under the contract.

1.14 SHOP DRAWINGS AND PRODUCT DATA (If Applicable)

a. Submit shop drawings on equipment for approval.

b. Submit manufacturer's specifications, recommendations and standard operation and maintenance manuals.

1.15 ELECTRICITY

a. Employ existing power service. Power consumption shall not disrupt University's need for continuous service. University to pay for power consumed.

b. Provide flexible power cords as required.

1.16 SANITARY FACILITIES

a. Arrange for use of existing facilities with University representative. Do not use lounges for lunches or for breaks.

b. Maintain in clean and sanitary condition.

1.17 SECURITY

a. Provide security and facilities to protect work, existing facilities, and University's operation from unauthorized entry, vandalism, or theft.

1.18 BARRIERS AND FENCING

a. Provide barriers and fencing as required to protect the

public, as well as facilities and vehicles, from harm or damage.

1.19 PROGRESS CLEANING

a. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

1.20 PROJECT IDENTIFICATION

a. No sign or advertisement shall be displayed on the building site. This provision voids "7.02 Project Signs", page 44 of the General Conditions.

1.21 PRODUCTS

a. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the work, but does not include machinery and equipment used for preparation, fabrication, conveying and erection of the work. Products may also include existing materials or components specifically identified for reuse.

b. Material incorporated into project shall be new, except as otherwise indicated in the specifications, of specified quality, and furnished in sufficient quantity to facilitate proper and speedy execution of the work.

c. Contractor shall, if required, furnish evidence of the quality of any materials.

d. Materials not meeting requirements of the contract documents shall be removed from project and replaced by the Contractor without expense to University.

1.22 TRANSPORTATION, HANDLING, STORAGE AND PROTECTION

a. Transport, handle, store and protect products in accordance with manufacturer's instructions.

b. Materials shall be delivered to the site in original packaging with labels and trademarks intact, and such labels and trademarks shall remain intact until used.

c. Contractor shall confine his apparatus, storage of materials, and operations of his workmen to limits indicated by law, ordinances, and permits and shall arrange and maintain parking of vehicles and storage of materials in an orderly manner leaving all walks, driveways, roads, and entrances unencumbered.

d. All equipment on site shall be protected from physical damage and from the elements by measures satisfactory to the University.

e. Contractor shall not use any of the facility/mechanical rooms as storage, etc. Contractor to clean as he goes.

1.23 WARRANTIES

a. The contractor shall, when appropriate, warranty the equipment and the installation of the equipment for a period of two (2) years starting from the date of acceptance by the

University.

1.24 CONTRACT CLOSEOUT PROCEDURES (If Applicable)

a. Submit written certification that Contract Documents have been reviewed, work has been inspected, and work is complete in accordance with Contract Documents and ready for University Representative's inspection.

b. Submit final Application for Payment, identifying total adjusted Contract Sum/Price, previous payments, and amount remaining due.

1.25 CLEANING (When Applicable)

a. Remove waste and surplus materials, rubbish and construction items from the site. Clean as you go. Do not leave panel covers off or wiring uncovered.

1.26 PROJECT RECORD DOCUMENTS (Not Applicable)

1.27 DETAILED SPECIFICATIONS

1. GENERAL CONDITIONS AND SCOPE OF WORK

a. The contractor shall furnish all materials, labor, equipment, vehicles, supervision and all other services necessary for and/or incidental to providing for the maintenance of the Invensys/Barber Colman Network 8000 Building Automation System (EMS/ATC) to include all system elements subsequently installed in the buildings to include the following functions in the buildings listed below:

1. Inspection
2. Preventive Maintenance
3. Repairs
4. Adjustments
5. Replacement of failed/inoperative components of BAS.
6. Emergency Service
7. Software maintenance and programming

<u>Building</u>	<u>Electronic</u>	<u>Pneumatic</u>	<u>Residence Hall</u>	<u>Notes</u>
CR Chester Hall	x		Y	
CK Choptank Hall	x		Y	

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CP Chesapeake Hall		x	Y	
MK Manokin Hall	x		Y	
NA Nanticoke Hall	x		Y	
PO Pocomoke Hall	x		Y	
SM St Martins Hall	x		Y	
SV Severn Hall	x		Y	
WI Wicomico Hall	x		Y	
BL Blackwell Library	x			
CB Commons Bldg.	x			
CH Caruthers Hall	x			
DH Devilbiss Hall	x			1
FH Fulton Hall	x			
GC Guerrieri Ctr.	x			
HH Holloway Hall	x			
MB Maintenance Bldg.	x			
MC Maggs Ctr.	x	x		
PS Perdue School	x			2
HS Henson Science Hall	x	x		3

Notes:

1. Devilbiss Hall: Remodeling of building expected to be completed the Summer of 2003. Any new controls will be covered under warranty. Majority of building controls will remain unchanged.
2. Perdue School: Perdue School is housed in Holloway Hall.
3. Henson Hall: Currently under warranty. This warranty will continue through July 2004.

2. TERM OF CONTRACT

a. The term of this contract will begin on July 1, 2003 and will terminate on June 30, 2004. The contractor and the University shall have the option to renew the contract each year for 4 additional years (last renewal contract ends June 30, 2008). Price increase for each additional year, if any, is not to exceed the percentage increase of the United States Department of Labor Consumer Price Index for preceding year.

b. The contractor will advise the owner March 31 the total compensation required for next years service period July 1 to June 30 and for each successive year thereafter throughout the length of the contract, i.e., through June 30, 2008.

c. Due to planned renovations, demolitions, replacements and new construction, the timing and extent of which has not yet been determined, the University reserves the right to terminate this contract by giving 30 days written notice at such time the University determines the contract is no longer adequately responsive to the maintenance needs being generated by such renovations, demolitions, replacements and or new construction. Preliminary to such a termination would include an opportunity for the contractor and University to negotiate such changes to the existing contract that would be acceptable to both parties

3. HOURLY RATES

a. The contractor shall submit with their proposal a statement of hourly rates for each class of employee to be used in the performance of each type of work of the contract, such rates to be used in computing additions to or deductions from the quarterly payment to the contractor for changes to the specified duties and services, such rates to include all indirect expense, contractor's overhead and profit for both regular time and overtime. Rate increase for each additional year, if any, is not to exceed the percentage increase of the United States Department of Labor Consumer Price Index for preceding year. The contractor will advise the University March 31 of any rates increases for the coming year.

4. ACCEPTANCE OF THE EXISTING BUILDING AUTOMATION SYSTEM

a. Should the contractor consider that repair work or deviations from specified methods be necessary to achieve acceptable results, he shall furnish with his proposal a written statement setting out clearly his recommendations. The price for this work will be included in the base bid. The absence of a written statement in this regard will be construed as satisfactory acceptance of the condition of the Building Automation System for normal servicing. It is the full intent of this specification to provide for complete operation and control of the Building Automation System for the duration of this service contract.

5. BUILDING AUTOMATION SYSTEM FULL SERVICE

a. Under this contract, contractor will provide full service to maintain and repair all aspects of Invensys/Barber-Colman Network 8000 Building Automation System which also includes all aspects of the Security and Fire Alarm System Interface used by the University Public Safety Office.

1. This contract shall include all materials, labor, software maintenance, software programming, inspections, preventive maintenance and emergency services necessary to maintain the entire Network 8000 system and pneumatic control system where applicable.

b. Contractor shall maintain a minimum of two local off-site programming/monitoring stations to be used by contractors personnel for programming and trouble shooting work.

c. University shall provide dedicated phone lines to receive incoming calls from off-site monitoring/programming stations and contractor shall provide necessary modems for each network.

d. University shall provide hardware for Host computer at Physical Plant, University Police and off-site location.

e. Contractor shall provide to their personnel portable programming stations (laptop/notebook computers) to be used in programming, repairing and troubleshooting of the Building Automation System.

f. Contractor shall provide technical and programming support to maintain an additional off site local programming/monitoring station used by University personnel.

g. Contractor shall provide technical and programming support to maintain a back-up portable monitoring station to be used by University Personnel.

h. Software

1. Contractor shall provide at no cost any software upgrades required to ensure proper operation of Network 8000.

2. Contractor shall keep University informed of any new software that may enhance operation of the Building Automation System. Any upgrades to enhance operation of system shall be made available at some cost to the University.

i. Contractor shall provide an Invensys Certified Programmer to perform up to 50 hours per year of programming. This programming shall include:

1. Fine tune existing program operations.

2. Change current sequence of operations.

3. Control or monitor equipment not previously controlled or monitored. Any material or installation labor expense would be billable to University at an agreed upon rate or cost.

4. Modification to existing graphics screens and generation of new graphics screens.

j. As-built Control Drawings

1. Contractor shall provide as-built control drawings whenever system is modified in such a way that points are added, removed or altered in any way.

2. Contractor shall provide as-built drawings whenever system is modified in such a way as to alter the current sequence of operations.

k. Energy Demand Limiting (EDL)

1. Contractor shall provide staff knowledgeable in the programming and operation of the Network 8000 Energy Demand Limiting function.

2. Contractor shall perform programming as necessary to maintain current EDL operation and any programming necessary to add additional equipment or buildings to EDL operation.

1. Provide all programming and report set-up required to maintain kilowatt and kilowatt per hour daily, weekly, monthly and yearly monitoring currently done through Network 8000. This would include any additional meters the University may request to be added to this function.

m. On-Site Training

1. Contractor shall make available field technicians and local certified programmer for on-site training as deemed necessary by the University. This is in addition to any demonstration requirements that may be covered by another contract.

2. Total combined training by field technicians and programmer shall not exceed 40 hours per year.

n. The contractor shall provide a standardized operation and maintenance manual which:

1. Lists each DDC control device, its location, its application and its scheduled maintenance requirement.

2. Provide a combined assortment of various maintenance procedures and data sheets for the components for a library at the job site, i.e., University Maintenance Office.

3. Provide a recommended list of spare parts to keep on hand based on data collected during the acceptance and warranty times of the building Automation System and keep such spare parts on hand in order to minimize down time of the system.

Parts supply to include:

- 1 pem
- 2 microflos
- 1 set of GCM cards
- 2 microzone boards

1 GCMA Host LAN Card
 1 MN-LO3T (Invensys) Micronet Controller
 1 MN-ASDI (Invensys) Micronet Integrator
 1 RPTR-FIBER (Invensys) Fiber Optic Repeater
 1 RPTR-WIRE (Invensys) Wire Repeater
 1 DPC-3 (Invensys) Digital Point Expander
 6 30-118-B (Invensys) (Old Erie) valve motors
 2 McQuay Thermostats #044275100
 1 TP 8101 (Invensys) Room Thermostat
 2 TS 8131 (Invensys) Button Sensors
 2 TS 8201 (Invensys) Sensors
 1 TS 5711-850 (Invensys) Temperature Sensor
 1 TSMN 57011-850 (Invensys) Space Temperature
 Sensor
 1 MN-SDK (Invensys) Space Thermostat
 1 TC 5241 (Invensys) Low Limit Thermostat
 1 FS50 (Dynacon) Low Limit Thermostat
 2 LP916 (Honeywell) Pneumatic Bulb Thermostat
 1 TK1001 (Invensys) Pneumatic Room Thermostat
 1 MP 485 (Invensys) Motor
 2 MP 5210 (Invensys) Motors
 2 MP 5213 (Invensys) Motors
 1 MP 471 (Invensys) Motor
 1 AF24-SR US (Belimo) Damper Actuator
 2 MP 958 (Honeywell) Pneumatic Valve Actuator
 1 CP 83010-620 (Invensys) Solid State Drives
 1 RP418 (Honeywell) Electric/Pneumatic Relay
 1 RK4001 (Invensys) Pneumatic Receive
 Controller
 1 CVR-11C-0 (Invensys) Relay
 2 P-125-1-M (Invensys) SPST 24 VAC Relay
 2 P-126-1-M (Invensys) DPDT 24 VAC Relay
 1 E112-708 (Invensys) Current Relay
 1 FS4-3 (McDonnell & Miller) Water Flow
 Switch
 1 PS-200-1-B-1-L (Mamac) 120 VAC/24VDC Power
 Supply
 1 T-PB 202-1 (Invensys) 120/24 VAC, 96 VA
 Transformer
 1 T-203 (Invensys) 120/24 VAC, 170 VA
 Transformer
 5 10 amp fuses screw in type
 5 5 amp fuses screw in type
 5 7 amp fuses in-line type
 5 2 amp fuses in-line type

Any other components deemed necessary by
 University.

4. The University shall supply a storage cabinet for spare parts at the Commons Building. Access to cabinet will be limited to employees of the contractor and the Energy Manager of the University.

6. PREVENTIVE MAINTENANCE OF COMPLETE BUILDING AUTOMATION SYSTEM

a. Preventive maintenance inspections shall be performed by experienced Invensys/Siebe factory trained technicians to maintain equipment in accordance with Invensys/Siebe recommended maintenance procedures for the purpose of examining, cleaning, lubricating, calibrating, repairing and replacing of all system components of Network 8000 as is appropriate.

b. Preventive Maintenance Schedule

1. All components of Building Automation System related to Academic Buildings shall have PM's performed twice a year, one time during heating season and one time during cooling season.

2. Chesapeake Hall shall have semi-annual preventive maintenance performed, one inspection in January and one inspection in June. This is an exception to the remaining residence halls.

3. Components of Building Automation System pertaining to Residence Halls other than components in actual dorm rooms are to have semi-annual inspections. One inspection to occur during heating season and one during cooling season.

4. Equipment found in Residence Hall dorm rooms shall have preventive maintenance performed on an annual basis. This inspection shall be conducted during the months of June, July and August with the potential for limited inspection to be conducted during January.

5. Additional schedule information can be found in Sections 8 & 9.

c. Contractor shall provide reports for all completed Preventive Maintenance.

d. As used below, the meaning of words, adjust and/or calibrate is to bring each instrument and/or piece of equipment to within the operating ranges as specified by the manufacturer and by design intent. The services performed during these inspections shall include, but not be limited to the following:

1. Check switches, relays, light sequences, boards, functions, connections, contactors, etc. for proper operation. Clean, repair and/or replace as necessary.

2. All sensors shall be cleaned and shall be checked for tight connections.

3. All open contacts shall be checked and cleaned. Check that all terminals and wire connections are tight.

4. Check all components for physical damage.

5. Repair or replace any part of complete device which proves defective during term of contract with new or reconditioned parts.

6. Check for complete sequence of operation for the components controlled by the Building Automation System.

7. All control valves shall be checked for sticking stems and valve seat for dirt and scale, and shall be cleaned and lubricated. Valve disc shall be tested for tight shut off, and shall be adjusted or replaced. Valve packing material and packing nut shall be inspected for wear and adjusted or replaced.

8. All dampers shall be checked for tight closing and bent blades. Notify University of defective dampers. Damper bearings shall be lubricated.

9. All linkages shall be lubricated and adjusted.

10. Transducers, if any, relays and switches shall be checked for proper operation and shall be adjusted. Contacts shall be cleaned or replaced.

11. Clean and calibrate each thermostat and adjust the throttling range. Furnish and replace thermostats if they are defective or cannot be calibrated properly.

12. All control motors shall be inspected for proper operation. Furnish and replace defective control motors, i.e., damper and valve motors as required.

13. Check stop/start/interlock circuits and sensor response from control equipment back to DDC panels.

14. In addition to the above mentioned preventive maintenance items, specific items are set forth for each building in Sections 8 and 9.

15. Perform a complete test of the software program for each building. This will consist of calibrating all sensors,

running the complete program both at the local GCM panels and Host Station. Any defective components shall be replaced and all altered software programming from the original design shall be corrected unless directed by the University not to be reprogrammed. This is to be conducted with each building PM and will be referred to as Control System Verification in Sections 8 & 9 of this document.

7. ADDITIONAL PREVENTIVE MAINTENANCE FOR BUILDINGS WITH PNEUMATIC CONTROLS

a. Air compressors at Maggs Center and Chesapeake Hall shall be checked for pressure settings, belt tightness and wear, presence of moisture and safety valve operation, and shall be adjusted. Check oil level of compressor through oil sight glass in crank case and add oil.

b. Air receiver tanks and air dryers shall be cleaned.

c. All receiver gauges shall be calibrated.

d. All air control filters shall be cleaned or replaced.

e. Inspect control air piping for damage and leaks. Repair or replace damaged or leaking air lines.

f. Exhaust valves, check valves and pressure reducing valves shall be cleaned and adjusted.

g. All controllers shall be checked for calibration, presence of moisture or oil and shall be recalibrated, if required.

h. Pneumatic actuators shall be adjusted for proper stroke.

i. Clean and calibrate each thermostat and adjust the throttling range. Furnish and replace thermostats if they are defective or cannot be calibrated properly.

8. SPECIFIC RESIDENCE HALL BUILDING REQUIREMENTS

Boiler room/system PM's are to be conducted on a semi-annual basis. These PM's should be conducted in conjunction with the heating to cooling, cooling to heating change-overs. The University will provide a change-over schedule to the contractor two weeks prior to actual change-over. Historically change-overs occur in May and October.

With the exception of Chesapeake Hall, all Residence Hall dorm room PM's will be conducted on an annual basis. These PM's are to be conducted when Residence Halls are unoccupied. The majority of PM's should be conducted between June and August. Provisions may be made to conduct a limited amount of PM's during the month of January but this is subject to the University policy relating to January lock-downs of the dorms.

a. Chester and Choptank Halls

1. Unit Ventilators
 - a. Check and calibrate all controllers and sensors.
 - b. Check dampers and linkage for proper stroke, lubricate where required and check actuators and valves.
 - c. Check aquastats for proper pipe contact.
 - d. Confirm proper sequence of operations
2. Check and calibrate zone temperature sensors and confirm signal back to Host.
3. Boiler Room
 - a. Check Hot Water reset valve for operation and leakage.
 - b. Check differential pressure switches on lead-lag circulating water pumps and confirm proper lead-lag operation physically and through software.
 - c. Confirm proper operation of combustion air dampers.
 - d. Check and calibrate all controls and sensors related to operation of boiler, hot water supply and domestic hot water.
4. Control System Verification. (Section 6-d-15)
5. Confirm proper control and operation of unit heaters and exhaust fans throughout.

b. Manokin Hall, Pocomoke, Wicomico, Nanticoke

1. Unit Ventilators
 - a. Check and calibrate all controllers and sensors.
 - b. Check dampers and linkage for proper stroke, lubricate where required and check actuators and valves.
 - c. Check aquastats for proper pipe contact.
 - d. Confirm proper sequence of operations.
2. Check and calibrate zone temperature sensors and confirm signal back to Host.
3. Boiler Room
 - a. Check Hot Water reset valve for operation and leakage.
 - b. Check differential pressure switches on lead-lag circulating water pumps and confirm proper lead-lag operation physically and through software.
 - c. Confirm proper operation of combustion air dampers.
 - d. Check and calibrate all controls and sensors related to operation of boiler, hot water supply and domestic hot water.
4. Air Handlers
 - a. Check controls for air handlers 1 & 2 for operation and calibration. Check dampers, actuators, linkages and valves. (Air Handler 1 only at Nanticoke)
 - b. Confirm operation of high and low limit safeties.
 - c. Confirm proper sequence of operation.
 - d. Check aquastats for proper pipe contact.

5. Chilled Water System
 - a. Check and calibrate all controls and sensors.
 - b. Check operation of flow switch and confirm signal sent to Host.
 - c. Confirm interlock with cooling tower and verify proper sequencing of cooling tower valves and fans where applicable.
 - d. Check differential pressure switches on lead-lag circulating water pumps and confirm proper lead-lag operation physically and through software.
 - e. Confirm proper overall sequence of operations.
6. Control System Verification. (Section 6-d-15)
7. Confirm proper control and operation of unit heaters and exhaust fans throughout.

c. Severn Hall

1. Unit Ventilators
 - a. Check and calibrate all controllers and sensors.
 - b. Check dampers and linkage for proper stroke, lubricate where required and check actuators and valves.
 - c. Check aquastats for proper pipe contact.
 - d. Confirm proper sequence of operations
2. Check and calibrate zone temperature sensors and confirm signal back to Host.
3. Boiler Room
 - a. Check Hot Water reset valve for operation and leakage.
 - b. Check differential pressure switches on lead-lag circulating water pumps and confirm

proper lead-lag operation physically and through software.

- c. Confirm proper operation of combustion air dampers.
- d. Check and calibrate all controls and sensors related to operation of boiler, hot water supply and domestic hot water.

4. Chilled Water System

- a. Check and calibrate all controls and sensors.
- b. Check operation of flow switch and confirm signal sent to Host.
- c. Confirm interlock with cooling tower and verify proper sequencing of cooling tower valves and fans where applicable.
- d. Check differential pressure switches on lead-lag circulating water pumps and confirm proper lead-lag operation physically and through software.
- e. Confirm proper overall sequence of operations.

5. Control System Verification. (Section 6-d-15)

6. Confirm proper control and operation of unit heaters and exhaust fans throughout.

d. Chesapeake and St.Martins (Boilers, Chiller and Cooling Tower for these building are located at Chesapeake Hall)

1. Unit Ventilators (Chesapeake and St. Martins)

- a. Check and calibrate all controllers and sensors.
- b. Check dampers and linkage for proper stroke , lubricate where required and check actuators and valves.
- c. Check aquastats for proper pipe contact.

- d. Confirm proper sequence of operations
2. Check and calibrate zone temperature sensors and confirm signal back to Host.
3. Boiler Room (Chesapeake Hall)
 - a. Check Hot Water reset valve for operation and leakage.
 - b. Check differential pressure switches on lead-lag circulating water pumps and confirm proper lead-lag operation physically and through software.
 - c. Confirm proper operation of combustion air dampers.
 - d. Check and calibrate all controls and sensors related to operation of boiler, hot water supply and domestic hot water.
4. Chilled Water System (Chesapeake Hall)
 - a. Check and calibrate all controls and sensors.
 - b. Check operation of flow switch and confirm signal sent to Host.
 - c. Confirm interlock with cooling tower and verify proper sequencing of cooling tower valves and fans where applicable.
 - d. Check differential pressure switches on lead-lag circulating water pumps and confirm proper lead-lag operation physically and through software.
 - e. Confirm proper overall sequence of operations.
5. Control Air Supply System (Chesapeake Hall)
 - a. Drain tank and check traps.
 - b. Change oil and check oil pressure.
 - c. Check belt and sheaves.

- d. Change suction filters, particle and oil filters as required.
 - e. Check unloader and check valve.
 - f. Check high pressure safety valve.
 - g. Check motor operating conditions and lubricate.
 - h. Check P E switch, starter and alternator.
 - i. Record compressor run time.
 - j. Check operation of refrigerated air dryer.
 - k. Check P.R.V. settings and low pressure safety.
- 6. Control System Verification. (Section 6-d-15)
(Chesapeake and St. Martins)
 - 7. Confirm proper control and operation of unit heaters and exhaust fans throughout. (Chesapeake and St. Martins)
 - 8. Confirm proper control and operation of Domestic Water Heating System (St. Martins).

9. SPECIFIC ACADEMIC BUILDING REQUIREMENTS

Academic Building PM's are to be conducted on a semi-annual basis. These PM's should be conducted in conjunction with the heating to cooling, cooling to heating change-overs. The University will provide a change-over schedule to the contractor two weeks prior to actual change-over. Historically change-overs occur in May and October.

a. Blackwell Library

- 1. Boiler Room
 - a. Check Hot Water reset valve for operation and leakage.
 - b. Check Summer-Winter change over valves for operation and leakage.
 - c. Check differential pressure switches on lead-

lag circulating water pumps and confirm proper lead-lag operation.

- d. Confirm proper operation of combustion air dampers.
- e. Check and calibrate all controls and sensors related to operation of boiler, hot water supply and domestic hot water.

2. Air Handlers 1,2 & 3

- a. Check and calibrate all controllers and sensors.
- b. Check operation and condition of dampers, actuators and linkage. This also includes all zone dampers for Air Handler units 1 & 2.
- c. Check control valves for operation and leakage.
- d. Confirm operation of high and low limit safeties.
- e. Confirm proper sequence of operation.
- f. Check aquastat for proper pipe contact.

3. Chilled Water System

- a. Check and calibrate all controls and sensors.
- b. Check operation of flow switch and confirm signal sent to Host.
- c. Confirm interlock with cooling tower and verify proper sequencing of cooling tower valves and fans where applicable.
- d. Check differential pressure switches on lead-lag circulating water pumps and confirm proper lead-lag operation physically and through software.
- e. Confirm proper overall sequence of operations.

4. Reheat Coils

- a. Check all controllers and sensors for calibration and operation.
- b. Check valves for operation and leakage.
- c. Check actuators for proper operation.
- 5. Control System Verification. (Section 6-d-15)
- 6. Confirm proper control and operation of unit heaters and exhaust fans throughout.

b. Commons Building

- 1. Variable air volume boxes
 - a. Check and calibrate room sensors.
 - b. Confirm ability of VAV to achieve and maintain set-point CFM. Check modulating dampers for slippage.
 - c. Confirm operation of reheat valves and check for leakage.
 - d. Check sequence of operations.
- 2. Air Handlers (1- 7)
 - a. Check and calibrate all controllers and sensors.
 - b. Check operation and condition of all dampers, actuators and linkage.
 - c. Check control valves for operation and leakage.
 - d. Confirm operation of high and low limit safeties.
 - e. Check flow switches for coil pumps, confirm proper lead-lag operation of pumps both physically and through Host.
 - f. Check and calibrate air monitoring and static pressure monitoring devices.

- g. Check and calibrate humidity sensors.
 - h. Confirm proper operation of humidification control.
 - i. Confirm proper sequence of operation.
3. Heating System
- a. Check 1/3 and 2/3 steam throttling valves for leakage, operation and calibration.
 - b. Check Hot Water reset valve for operation and leakage.
 - c. Check differential pressure switches on lead-lag circulating water pumps and confirm proper lead-lag operation.
 - d. Confirm proper operation of combustion air dampers.
 - e. Check and calibrate all controls and sensors related to operation of boiler, hot water supply and domestic hot water.
4. Cooling System (Chilled Water and Ice Storage)
- a. Check and calibrate all controls and sensors.
 - b. Check operation of flow switch and confirm signal sent to Host.
 - c. Check differential pressure switches on lead-lag circulating water pumps and confirm proper lead-lag operation physically and through software.
 - d. Confirm proper valve position during various stages of ice build, ice melt and chilled water operation.
 - e. Check, adjust and calibrate ice-logic controller and insure interlock with chiller controls and confirm signal sent to Host.
 - f. Confirm proper status signal being sent to host from refrigerant monitor and confirm proper alarm signal being sent to Host.

- g. Confirm proper overall sequence of operations including proper timing and sequencing of chillers into and out of ice build mode.
- 5. Make-up Air Units
 - a. Confirm proper command interlock.
 - b. Confirm proper status reporting to Host and check and calibrate flow switches.
 - c. Confirm proper alarm signal being sent to Host.
- 6. Smoke Evacuation System
 - a. Confirm proper interlock of fire alarm and smoke evacuation system.
 - b. Confirm proper sequence of operations during activation of smoke evacuation system.
- 7. Fan Coil Units
 - a. Check and calibrate all controllers and sensors.
 - b. Check dampers and linkage for proper stroke, lubricate where required and check actuators and valves.
 - c. Check aquastats for proper pipe contact.
 - d. Confirm proper sequence of operations
- 8. Fuel Oil Pumps (1-4)/ Tank Monitoring
 - a. Confirm proper start/stop and lead/lag control of fuel oil pumps.
 - b. Confirm proper status indication for fuel oil pumps.
 - c. Confirm proper tank monitoring signals being sent to Host.
 - d. Confirm proper alarm indication being sent to Host.

9. Building Pressure Monitoring System
 - a. Check and calibrate pressure monitoring sensor.
 - b. Confirm proper operation of pressure monitoring system and confirm proper sequence of operations relating to system.
10. Control System Verification. (Section 6-d-15)
11. Confirm proper control and operation of Cabinet Unit Heaters, Unit Heaters and Exhaust Fans throughout.

c. Caruthers Hall

1. Boiler Room
 - a. Check Hot Water reset valve for operation and leakage.
 - b. Check Summer-Winter change over valves for operation and leakage.
 - c. Check differential pressure switches on lead-lag circulating water pumps and confirm proper lead-lag operation.
 - d. Confirm proper operation of combustion air dampers.
 - e. Check and calibrate all controls and sensors related to operation of boiler, hot water supply and domestic hot water.
2. Air Handlers 1 - 7
 - a. Check and calibrate all controllers and sensors.
 - b. Check operation and condition of dampers, actuators and linkage. This includes zone dampers for Air Handler #1.
 - c. Check control valves for operation and leakage.

- d. Confirm operation of high and low limit safeties.
 - e. Confirm proper sequence of operation.
 - f. Check aquastat for proper pipe contact.
3. Reheat Coils
- a. Check all controllers and sensors for calibration and operation.
 - b. Check valves for operation and leakage.
 - c. Check actuators for proper operation.
4. Unit Ventilators
- a. Check and calibrate all controllers and sensors.
 - b. Check dampers and linkage for proper stroke, lubricate where required and check actuators and valves.
 - c. Check aquastats for proper pipe contact.
 - d. Confirm proper sequence of operations.
5. Chilled Water System
- a. Check and calibrate all controls and sensors.
 - b. Check operation of flow switch and confirm signal sent to Host.
 - c. Confirm interlock with cooling tower and verify proper sequencing of cooling tower valves and fans where applicable.
 - d. Check differential pressure switches on lead-lag circulating water pumps and confirm proper lead-lag operation physically and through software.
 - e. Confirm proper overall sequence of operations.
6. Radio Station

- a. Check and calibrate all controllers and sensors.
 - b. Check operation and condition of dampers, actuators and linkage.
 - c. Validate operation versus unit mounted display signals.
7. Control System Verification. (Section 6-d-15)
8. Confirm proper control and operation of unit heaters and exhaust fans throughout.

d. Devilbiss Hall

1. Boiler Room
- a. Check Hot Water reset valve for operation and leakage.
 - b. Check Summer-Winter change over valves for operation and leakage.
 - c. Check differential pressure switches on lead-lag circulating water pumps and confirm proper lead-lag operation.
 - d. Confirm proper operation of combustion air dampers.
 - e. Check and calibrate all controls and sensors related to operation of boiler, hot water supply and domestic hot water.
2. Roof Top Unit Heat Pumps 1-5
- a. Check and calibrate all sensors
 - b. Check operation and condition of dampers, actuators and linkage.
 - c. Confirm proper sequence of operations.
3. Air Handler 4
- a. Check and calibrate all controllers and sensors.

- b. Check operation and condition of dampers, actuators and linkage.
 - c. Check control valve for operation and leakage.
 - d. Confirm operation of high and low limit safeties.
 - e. Confirm proper sequence of operations.
4. Unit Ventilators
- a. Check and calibrate all controllers and sensors.
 - b. Check dampers and linkage for proper stroke, lubricate where required and check actuators and valves.
 - c. Check aquastats for proper pipe contact.
 - d. Confirm proper sequence of operations.
5. Chilled Water System
- a. Check and calibrate all controls and sensors.
 - b. Check operation of flow switch and confirm signal sent to Host.
 - c. Confirm interlock with cooling tower and verify proper sequencing of cooling tower valves and fans where applicable.
 - d. Check differential pressure switches on lead-lag circulating water pumps and confirm proper lead-lag operation physically and through software.
 - e. Confirm proper overall sequence of operations.
6. Control System Verification. (Section 6-d-15)
7. Confirm proper control and operation of unit heaters and exhaust fans throughout.

e. Fulton Hall

1. Variable air volume boxes (fan powered and non-fan powered).
 - a. Check and calibrate room sensors.
 - b. Confirm ability of VAV to achieve and maintain set-point CFM. Check modulating dampers for slippage.
 - c. Confirm operation of reheat valves and check for leakage.
 - d. Check sequence of operations.
2. Air Handlers (1-6)
 - a. Check and calibrate all controllers and sensors.
 - b. Check operation and condition of all dampers, actuators and linkage.
 - c. Check control valves for operation and leakage.
 - d. Confirm operation of high and low limit safeties.
 - e. Check flow switches for coil pumps, confirm proper lead-lag operation of pumps both physically and through Host.
 - f. Check and calibrate air monitoring and static pressure monitoring devices.
 - g. Confirm proper sequence of operation.
3. Heating System
 - a. Check 1/3 and 2/3 steam throttling valves for leakage, operation and calibration.
 - b. Check Hot Water reset valve for operation and leakage.
 - c. Check differential pressure switches on lead-lag circulating water pumps and confirm

proper lead-lag operation.

- d. Confirm proper operation of combustion air dampers.
- e. Check and calibrate all controls and sensors related to operation of boiler, hot water supply and domestic hot water.

4. Cooling System (Chilled Water and Ice Storage)

- a. Check and calibrate all controls and sensors.
- b. Check operation of flow switch and confirm signal sent to Host.
- c. Check differential pressure switches on lead-lag circulating water pumps and confirm proper lead-lag operation physically and through software.
- d. Confirm proper valve position during various stages of ice build, ice melt and chilled water operation.
- e. Check, adjust and calibrate ice-logic controller and insure interlock with chiller controls.
- f. Confirm proper overall sequence of operations including proper timing and sequencing of chillers into and out of ice build mode.

5. Check and calibrate Humidity Sensor.

6. Control System Verification. (Section 6-d-15)

7. Confirm proper control and operation of unit heaters and exhaust fans throughout.

f. Guerrieri Center (University Center)

1. Boiler Room

- a. Check Hot Water reset valve for operation and leakage.
- b. Check differential pressure switches on lead-lag circulating water pumps and confirm

- proper lead-lag operation.
- c. Confirm proper operation of combustion air dampers.
 - d. Check 3-way chilled water control valve that is working with heat exchanger to maintain Guerrieri Center chilled water temperature.
 - e. Check and calibrate all controls and sensors related to operation of boiler, hot water supply and domestic hot water.
2. Air Handlers 1 - 20
- a. Check and calibrate all controllers and sensors.
 - b. Check operation and condition of dampers, actuators and linkage.
 - c. Check control valves for operation and leakage.
 - d. Confirm operation of high and low limit safeties.
 - e. Confirm proper sequence of operation.
3. Fan Coil Units
- a. Check and calibrate all controllers and sensors.
 - b. Check dampers and linkage for proper stroke, lubricate where required and check actuators and valves.
 - c. Check aquastats for proper pipe contact.
 - d. Confirm proper sequence of operations
4. Smoke Evacuation
- a. Confirm proper interlock of fire alarm and smoke evacuation system.
5. Control System Verification. (Section 6-d-15)

6. Confirm proper control and operation of unit heaters and exhaust fans throughout.

g. Henson Hall (Existing warranty expires July 2004)

1. Air Handling Units 1, 3, 5
 - a. Check and calibrate all controllers and sensors.
 - b. Check operation and condition of all dampers.
 - c. Check control valves for operation and leakage.
 - d. Confirm operation of high limit static safeties.
 - e. Check current sensor for coil pump.
 - f. Check and calibrate air monitoring and static pressure monitoring devices.
 - g. Check operation of all associated exhaust fans (AH 1 & 3).
 - h. Confirm proper sequence of operation.
2. Air Handling Units 2, 2E, 4 & 4E
 - a. Check and calibrate all controllers and sensors.
 - b. Check operation and condition of all dampers.
 - c. Check control valves for operation and leakage.
 - d. Confirm operation of static pressure safeties.
 - e. Check current sensor for coil pump, confirm proper lead-lag pump operation of both physically and through Host.
 - f. Check and calibrate air monitoring and static pressure monitoring devices.
 - g. Check operation of emergency Recovery System.

- h. Confirm proper sequence of operation.
- 3. Penthouse Part A, B & Service Building Ventilation
 - a. Check and calibrate all controllers and sensors.
 - b. Check operation and condition of all dampers, actuators and linkage.
 - c. Confirm proper sequence of operation.
- 4. Heating System and Fuel Oil System
 - a. Check and calibrate all controllers and sensors.
 - b. Check operation and condition of all dampers.
 - c. Check hot water reset for Boilers 1, 2, 3 & 4.
 - d. Check current sensor for coil pump, confirm proper lead-lag pump operation of both physically and through Host.
 - e. Confirm proper sequence of operation.
- 5. Chilled Water System
 - a. Check and calibrate all controllers and sensors.
 - b. Check operation of flow switches and confirm signal to Host.
 - c. Check current sensor for coil pump, confirm proper lead-lag pump operation of both physically and through Host.
 - d. Confirm interlock with cooling tower and verify proper sequencing of cooling tower valves and fans.
- 6. Variable Air Volume Boxes Room Supply and Exhaust (Fan powered and non-fan powered)
 - a. Check and calibrate all room sensors.

- b. Check ability of VAV's to achieve and maintain set point CFM. Check modulating dampers for slippage.
- c. Check current sensor for coil pump, confirm proper lead-lag pump operation of both physically and through Host.
- d. Confirm interlock with cooling tower and verify proper sequencing of cooling tower valves and fans.
- e. Check control valves for operation and leakage.
- f. Confirm proper sequence of operation.

7. Room Exhaust Hood

- a. Check and calibrate all controllers and sensors.
- b. Check light on/off status.
- c. Check supply air flow into lab.
- d. Check exhaust air flow from fume hood.
- e. Confirm proper sequence of operation.

8. Unit Heaters

- a. Check and calibrate all controllers and sensors.
- b. Check control valves for operation and leakage.

h. Holloway Hall (Includes Perdue School, which is housed in Holloway Hall)

- 1. Air Handlers (HH 1,2,4,5,14,15,16,17,18 and PS 1 - 8).
 - a. Check and calibrate all controllers and sensors.
 - b. Check operation and condition of dampers,

- actuators and linkage.
 - c. Check control valves for operation and leakage.
 - d. Confirm operation of high and low limit safeties.
 - e. Check aquastat for proper pipe contact.
 - f. Confirm proper sequence of operation.
2. Fan Coil Units
- a. Check and calibrate all controllers and sensors.
 - b. Check dampers and linkage for proper stroke, lubricate where required and check actuators and valves.
 - c. Check aquastats for proper pipe contact.
 - d. Confirm proper sequence of operations.
3. Chiller Room (Hot Water and Chilled Water System)
- a. Check and calibrate all controls and sensors.
 - b. Check operation of flow switches and confirm signal sent to Host.
 - c. Confirm interlock with cooling tower and verify proper sequencing of cooling tower valves and fans where applicable.
 - d. Check Hot Water reset valve for operation and leakage.
 - e. Check building system differential pressure monitor system.
 - f. Check chilled water system control valves for operation and leakage.
 - g. Check differential pressure switches on lead-lag circulating water pumps and confirm proper lead-lag operation.

- h. Confirm proper overall sequence of operations
 - i. Check for proper change-over to atmospheric cooling.
 - j. Check 1/3 & 2/3 steam throttling valves for leakage, operation and calibration.
 - k. Check and calibrate all controls and sensors related to operation of boiler, hot water supply and domestic hot water.
4. Smoke Evacuation
- a. Confirm proper interlock of fire alarm and smoke evacuation system.
5. Computer Room Units
- a. Confirm proper status and reporting to Host.
 - b. Confirm proper alarm operation and communication.
 - c. Check and calibrate sensors.
6. Reheat Coils
- a. Check all controllers and sensors for calibration and operation.
 - b. Check valves for operation and leakage
 - c. Check actuators for proper operation.
7. Control System Verification. (Section 6-d-15)
8. Confirm proper control and operation of unit heaters and exhaust fans throughout.

i. Maintenance Building

1. Boiler Room
- a. Check Hot Water reset valve for operation and leakage.
 - b. Check differential pressure switches on lead-lag circulating water pumps and confirm

proper lead-lag operation.

- c. Confirm proper operation of combustion air dampers.
- d. Check and calibrate all controls and sensors related to operation of boiler, hot water supply and domestic hot water.

2. Air Handlers 1, 2 & 3

- a. Check and calibrate all controllers and sensors.
- b. Check operation and condition of dampers, actuators and linkage. This also includes all zone dampers for Air Handler 1.
- c. Check control valves for operation and leakage.
- d. Confirm operation of high and low limit safeties.
- e. Confirm proper sequence of operation.
- f. Check aquastat for proper pipe contact.

3. Fan Coil Units

- a. Check and calibrate all controllers and sensors.
- b. Check dampers and linkage for proper stroke, lubricate where required and check actuators and valves.
- c. Check aquastats for proper pipe contact.
- d. Confirm proper sequence of operations

4. Control System Verification. (Section 6-d-15)

5. Confirm proper control and operation of unit heaters and exhaust fans throughout.

j. Maggs Gym

1. Control Air Supply System

- a. Drain tank and check traps.
 - b. Change oil and check oil pressure.
 - c. Check belt and sheaves.
 - d. Change suction filters, particle and oil filters as required.
 - e. Check unloader and check valve.
 - f. Check high pressure safety valve.
 - g. Check motor operating conditions and lubricate.
 - h. Check P E switch, starter and alternator.
 - i. Record compressor run time.
 - j. Check operation of refrigerated air dryer.
 - k. Check P.R.V. settings and low pressure safety.
2. Heating/Ventilating Units 1-12 and Roof Top Units 1-4.
- a. Check and calibrate all controllers and sensors.
 - b. Check operation and condition of dampers, actuators and linkage.
 - c. Check control valves for operation and leakage.
 - d. Confirm operation of high and low limit safeties.
 - e. Confirm proper sequence of operation.
 - f. Confirm proper operation of cooling interlock for RTU's 3 & 4.
3. Boiler Room
- a. Check Hot Water reset valve for operation and

- leakage.
 - b. Check differential pressure switches on lead-lag circulating water pumps and confirm proper lead-lag operation.
 - c. Confirm proper operation of combustion air dampers.
 - d. Check and calibrate all controls and sensors related to operation of boiler, hot water supply and domestic hot water.
4. Reheat Coils
- a. Check all controllers and sensors for calibration and operation.
 - b. Check valves for operation and leakage
 - c. Check actuators for proper operation.
5. Heat Pumps 1 & 2
- a. Check and calibrate all controllers and sensors.
 - b. Check operation and condition of dampers, actuators and linkage.
 - c. Confirm operation of high and low limit safeties.
 - d. Check heating and cooling interlocks/confirm proper change-over from heating to cooling.
 - e. Confirm proper sequence of operation.
 - f. Confirm proper operation of cooling interlock for RTU's 3 & 4.
6. Swimming Pool/Filter Room
- a. Check and calibrate pool water temperature controls.
 - b. Confirm proper operation of control valves.
7. Control System Verification. (Section 6-d-15)

8. Confirm proper control and operation of unit heaters, miscellaneous heat pumps and exhaust fans throughout.

10. Control Drawing

a. A file of Control Drawings is maintained by the University in the Physical Plant Office of the University. These drawing are to be referred to by Contractor to determine specific equipment being controlled and the proper sequence of operation for each piece of equipment.

b. The Contractor is to furnish to the University as-built drawings to reflect any modifications to existing control or sequence of operations as well as any additions to existing system for the purpose of updating this file.

c. Below is a list of buildings with equipment being controlled through Network 8000 and their respective control drawing numbers. Unless otherwise noted all drawings were prepared and numbered by Machinery and Equipment Sales/Honeywell.

Building

Blackwell Library:	3462 p.10-13, 6105 p. 1-3, 1632 p.34-36
Caruthers Hall:	3416 p.1-10, 780-A12 p. 9
Chesapeake Hall:	3369 p.1-3, 3442 p.1
Chester Hall:	3342 p.1-3
Choptank Hall:	3378 p. 1-3
Commons Bldg.:	3459 p.1-27
Devilbiss Hall:	3462 p.1-2, 1815, 1632 p.12-16, 6-4756 p. 1-3, 1317 p.1
Fulton Hall:	3039 p.1-27
Guerrieri Ctr.:	3416 p.11-18, 1836 p.1-12
Henson Sci. Hall:	AC-419 p. 1-148 (Invensys-Pritchett)
Holloway Hall:	3478 p. 1-19, 2063 p.1-4
Maggs Ctr.:	3445, 3416 p.26-28
Maintenance Bldg.:	3416 p.27-28, 941-A-4 p.1-4
Manokin Hall:	3356 p.1-3
Nanticoke Hall:	3456 p.1-3, 8-4890 p.1-3
Perdue School:	See Holloway Hall
Pocomoke Hall:	3321 p.1-3
St. Martins Hall:	3369 p.1-3
Severn Hall:	3462 p.7-9, 2061 p.1-5
Wicomico Hall:	3356 p.4-7

11. SERVICE CALLS

It is the intent of this contract that the University is not responsible for any travel time charges.

a. Emergency Service: Calls shall be provided on a twenty-four (24) hour, seven days per week basis with no additional travel time charged to the University. The contractor shall respond within two (2) hours after receiving a request for emergency service, by providing a qualified technician at the job site. The contractor must provide necessary telephone numbers where he or his designated representative can be contacted in case of emergency.

b. Callback Service:

1. For the purpose of this specification/contract, a "call back" is a request from the Owner to the contractor, requesting the service contractor to go to a specific control to correct any control problem and/or condition, which in the Owner's opinion needs attention before the contractor's next scheduled preventive maintenance visit, with no additional travel time charged to the University.

a. Callback Service During Regular Working Hours.

1. The contractor shall without additional charge to the Owner, provide callback service during the contractor's regular working hours. The contractor shall respond to callback within a maximum of three hours from the time the request for service is made by the Owner.

b. Callback Service During Overtime Working Hours.

1. The contractor shall without additional charge to the Owner, provide callback service during the contractor's overtime working hours. The contractor shall respond to a callback within a maximum of three hours from the time the request for service is made by the Owner.

If the Contractor can prove to the Owner's satisfaction that this problem was not a maintenance problem covered in the contract specifications, the contractor may charge the owner for the additional service performed at the appropriate regular or overtime rate.

2. The contractor shall have a service ticket on each service call so that a responsible person at the Owner's facility being served can sign the ticket. A copy of the

ticket will be left with these persons who in turn will see that the ticket is delivered to the Contract Administrator.

12. MATERIALS

a. It is the intent of this contract that no additional charges for labor or materials are to be incurred by the University for repair and/or replacement of any components covered under this contract.

b. The contractor shall furnish and replace all parts, materials, supplies and lubricants conforming to the equipment manufacturer's part number except that in the event of emergencies, where the replacement of a part is necessary to keep the system in operation, contractor shall substitute standard and suitable replacement parts as manufactured by recognized manufacturers.

c. The contractor's service personnel will provide to the owner a written report of all preventive maintenance actions taken on control equipment in each building during each preventive maintenance inspection period. As a minimum, this report shall address the preventive maintenance equipment controls as set forth in Sections 6 thru 9 of these specifications as well as any other preventive maintenance requirement that became evident during the preventive maintenance inspection.

13. SERVICE RECORDS

a. It shall be the responsibility of contractor's service personnel to log in and out, where directed by the owner and/or state representative, each time they visit the site. A service ticket indicating adjustments made, and parts replaced on each inspection or emergency call shall be left with the owner or state representative.

14. REPAIR AND/OR RENEWAL LIABILITY

a. The contractor shall not be liable for injuries to persons operating the subject system, except his own employees, nor will he be liable for damage to the system or property resulting from causes reasonably beyond his control such as resulting from acts of God, or due to causes which, in the opinion of the University, were beyond the contractors control.

b. The contractor shall not be held responsible for non-operation of said system by reason of fire, flood, acts of civil or military authorities, or by insurrection or riot.

c. The contractor shall not be required to furnish any items of the system as may be recommended or required by the state or insurance companies without due compensation.

d. The contractor shall not be held liable for consequential damages nor for delay occasioned by conditions beyond his control.

e. If any alterations, additions, adjustments or repairs are made by others, without the approval of the contractor, the contractor shall have the right to terminate it's obligations under this contract.

15. WORKING HOURS

a. All work (except emergency service) will be done during regular working hours of regular working days.

16. BID PROCEDURE

a. Contractor shall provide a bid price for the lump sum price for 19 building locations, less Henson Hall, for the total service of the BAS (EMS/ATC) for the twelve (12) month period from July 1, 2003 to June 30, 2004. This price will not include any service work at Henson Hall, being it is under warranty thru July 2004.

b. Contractor shall provide a bid price for the lump sum price for 20 building locations, to include Henson Hall, for the total service of the BAS (EMS/ATC) for the twelve (12) month period from July 1, 2004 to June 30, 2005. This price will be utilized for each year after year two of the service contract. CPI will be applied based on Section 1.27.2.(a) and (b).

c. Contactor to provide hourly rates that will be charged for work not covered under the service contract.

d. The basis of award for this contact will be the total of the bid price for year 1 (July 1, 2003 to June 30, 2004) and year 2 (July 1, 2004 to June 30, 2005).

17. PAYMENTS

a. Payments under this contract shall be made quarterly against contractors invoice.

b. Invoices shall be submitted at the end of each quarter for payment.

18. PREVENTIVE MAINTENANCE

a. Preventive Maintenance Plan - The Contractor shall develop a comprehensive Preventive Maintenance Plan for all equipment covered under this contract as set forth in paragraphs 6 to 9 above. The plan will address all aspects of Preventive Maintenance and will be the basis for all Preventive Maintenance performed under this contract. Within thirty (30) days after award of the contract, the Contractor will submit to the Contracts Supervisor or his designee, a detailed schedule of Preventive Maintenance tasks to be performed, broken down by building and specific pieces of equipment if different than that set forth in paragraph 8 to 9 above. The schedule shall be arranged so that the Contracts Supervisor can determine at a glance exactly when and what maintenance will be performed to a given piece of equipment, system, or component. Reports on all findings shall be given to owner's representatives.

b. Contractor is to develop and provide to the University for approval an inspection check list for each system to have preventive maintenance performed. As each system PM is completed, a copy of the check list signed by the appropriate technicians is to be submitted to the University.

c. Quarterly Reports- The Contractor shall submit a quarterly report covering all work and repair maintenance performed in detail. The report shall contain the name or system number, the parts or components replaced, maintenance performed, apparent cause of breakdown, etc. This report is due on the 10th day of the quarter following the work. Failure to submit the quarterly report to the Contract Supervisor by that date will hold up payment for that present quarter.

d. Scheduled Inspections, Services and Adjustments - As a part of the Preventive Maintenance Program, the Contractor shall make regularly scheduled inspections (see paragraph 6 and 7 above), services and adjustments to the equipment in accordance with Invensys/Siebe Environmental Controls recommended maintenance procedures. Preventive Maintenance and inspections shall be performed by qualified factory trained mechanics in the regular full-time employment of the Contractor. Preventive Maintenance is to be performed without interruption to any University functions or activities and shall be performed at the discretion of the University.

e. Contractor shall submit a complete report of all preventive maintenance performed within each building. This report shall be generated on a semi-annual basis and shall be submitted no later than June 30 and January 10 respectively.

f. Provide Written Condition Reports:

1. The service contractor shall prepare and regularly submit to the Owner written condition reports on equipment. Condition reports shall be prepared on the service contractor's letterhead, dated and signed by an authorized representative of the service contractor.

2. Condition reports may be submitted at any time, but not less frequent than 90 day intervals.

3. The condition reports shall inform the Owner of the current condition of the equipment and make recommendations regarding the need for repairs, alterations and/or modifications to the equipment.

4. All alterations requested by the contractor are to be by way of written reports only. All requests are to be in triplicate and accompanied by supporting prints, sketches, and/or schematics as required to provide detailed information.

5. The services contractor's Maintenance Superintendent shall make himself available on Monday through Friday, exclusive of holidays, with forty-eight (48) hours of notification for an inspection tour in the company of the contract administrator or his designated representative.

The State reserves the right to make or cause to be made, such inspections and tests, as deemed advisable, to ascertain that the requirements of these specifications are being fulfilled.

19. TECHNICIANS COMPETENCE AND MINIMUM STAFF REQUIREMENTS

a. Service technicians assigned to perform maintenance as stipulated by this contract shall be Invensys/Siebe Environmental Controls factory trained with a minimum two years experience working with Network 8000 system and related DDC electric and pneumatic controls.

b. The contractor shall maintain a local (within 40 miles of Salisbury University) office and storage facility.

c. The lead technician assigned to this contract shall be stationed within 40 miles of Salisbury University. Other technicians assigned to this contract shall be stationed no more than 2 hours travel time from Salisbury University.

d. The contractor shall have and maintain back-up technicians who are equally qualified in all respects to assume the responsibilities of the maintenance covered by this agreement in the event of sickness or other causes of absence to the assigned technician.

e. The contractor shall have and maintain technical support personnel which are specifically trained and experienced in the adjusting and trouble shooting of equipment similar to the type covered by this contract. These personnel shall be available at all times to support or assist assigned technicians.

f. The contractor shall submit with his bid the name and qualifications of the lead technician (for University evaluation) who will be assigned to this contract.

20. CLEANING UP

a. The contractor at all times shall keep the premises free from accumulation of waste materials or rubbish caused by his operations and from leaks and spillage from equipment. Upon completion of the work, he shall remove all his waste materials and rubbish from and about the installation, as well as all his tools, equipment, machinery, and surplus materials, and shall clean all building surfaces and leave the work area clean except as otherwise specified.

b. The contractor is not to use the mechanical rooms and equipment spaces for storage.

21. USE OF SITE

a. All work shall be performed without unnecessary interference to the owner. The contractor shall confine operations at the site to areas permitted by law, ordinances, permits, and the contract documents and shall not unreasonably encumber the site with any materials or equipment.

22. PROTECTION OF EXISTING FACILITIES

a. The contractor shall take all necessary precautions during the period of service to protect the University's existing facilities from damage by workmen and shall repair or replace, at his own expense, any damaged property caused by his employees or subcontractors.

23. MATERIALS AND WORKMANSHIP

a. The work shall be under the general direction of the

Contractor but subject to the inspection of the University who shall require the contractor to correct defective workmanship and materials without cost to the Owner.

b. All materials and practices which are necessary, or which are normally provided or performed in order to accomplish the desired results shall be furnished by the contractor at the contract price and shall conform in strength, quality of material, appearance, and workmanship to that usually provided by the trade.

c. All lubrication, packing, sensors, filters, etc. or other materials used in the replacement or cleaning of control parts must be within the recommendations given by the manufacturer of the controls and be supplied by the Contractor.

d. All work shall conform to all applicable requirements of all rules, regulations and codes of local, state and federal authorities having jurisdiction.

e. All work shall be completed in a first class, workmanlike manner and in strict accordance with manufacturer's original or later amended specifications for this equipment and in strict accordance with the standards and requirements set forth by these documents or referenced herein.

24. STORAGE OF MATERIALS

a. Storage of all materials and equipment shall be restricted to areas designated by the University. Any damage caused by said items shall be restored to their original condition by the contractor at his own expense.

25. SAFETY

a. The work area and all work therein shall be maintained so as to provide a safe environment for all persons who use the buildings.

b. If unsafe conditions do develop, the contractor shall be responsible for providing and maintaining suitable barricades, markings, lights, etc. to isolate and identify the area.

26. REFERENCES

a. References made to other specifications, guidelines and conditions shall be considered the same as if they were completely written herein. Therefore, the contractor is referred thereto and shall use same as required.

27. SCHEDULING

a. The contractor shall confer with an authorized representative of the University and agree on a sequence of work prior to beginning the annual and semi-annual preventive maintenance on other work that might cause conflict.

b. The contractor shall notify the Salisbury University Physical Plant Department representative of any restrictions in the total use of the buildings by faculty, staff and students during the preventive maintenance inspections.

c. The National Electrical Code "NFPA 70" shall apply to all work performed by the contractor. Such requirements are highlighted in Articles 250, 725, 337 and 300 of the N.E.C.

END OF SECTION