



ADDENDUM NO. 4

June 16, 2016

NCC Vocational Technical School District

Renovations to the Howard High School of Technology – Bid Package 'B'

Wilmington, Delaware 19801

Page 1

NOTICE: Attach this addendum to the project manual for this project. It modifies and becomes a part of the contract documents. Work or materials not specifically mentioned herein are to be described in the main body of the specifications and as shown on the drawings. Bidders shall acknowledge receipt of this addendum on the space provided on the Bid Form. Failure to do so may subject the bidder to disqualification.

Whenever this Addendum modifies a portion of the Project Manual added information is shown as **Bold** and deleted information is shown as ~~striketrough~~.

The contract documents for the above referenced project, dated May 2, 2016 are amended as follows:

GENERAL CLARIFICATIONS:

**The bid due date has been extended to Tuesday, June 21, 2016. Bids will be received at the NCC Vocational Technical School District 1417 Newport Road, Wilmington, Delaware 19804 until 2:00 PM local time.**

All Contractors please review the following information as it pertains to your areas of work:

1. Addendum No. 2 includes two (2) section 28 1300's – the correct section is labeled "Access Control & Database Management System" and is attached. This section should be included in this bid package.
2. Section 01 9113 General Commissioning Requirements is now re-numbered as Section 01 9123 General Commissioning Requirements.
3. Section 01 9115 Exterior Enclosure Commissioning is now re-numbered as Section 01 9125 Exterior Enclosure Commissioning

QUESTIONS AND ANSWERS:

- Q1. When can we expect the door schedules for phase #2?  
A1. Door openings for both phases are shown on Access control floor plans - Door schedule will be available in the July /August time frame. Hardware will be similar to BP A
- Q2. Is phase #2 part of bid pack B?  
A2. Yes





## ADDENDUM NO. 4

June 16, 2016

NCC Vocational Technical School District

Renovations to the Howard High School of Technology – Bid Package 'B'

Wilmington, Delaware 19801

Page 2

- Q3. Is Honeywell Vista for intrusion an acceptable alternative in the case of above?  
A3. Yes it is acceptable
- Q4. Original specification section 28 10 00-5 item D. references lockdown capabilities, "This Project requires the customer to both locally and remotely lockdown the facility. This lockdown shall be a tiered approach and shall be defined by the owner upon commissioning. Single action, i.e. lock all doors for all users, shall NOT be considered acceptable. A multi-tiered lockdown with tiered credentials shall be required and further defined upon commissioning". Addendum #2 removes this section completely. The replacement section – 28 13 00 "Access Control & Database Management System" does not mention the lockdown capability. Is lockdown no longer required for this project?  
A4. Lockdown is still a feature requirement.
- Q5. Original specification section 28 10 00-11-12 define the Stentofon Turbine video intercom product. Addendum #2 removes this section completely. Please provide replacement specification for the intercom equipment depicted on the project drawings.  
A5. We have removed all of the intercoms as they are not needed.
- Q6. Original specification section 28 10 00 defines system integration with the Video Management System. Addendum #2 removes this section completely. The replacement section – 28 13 00 "Access Control & Database Management System" does not mention video system integration. Is video integration no longer required for this project?  
A6. We have decided that we will keep the two systems separate and if we decide to tie the two together we will handle that integration.
- Q7. Original specification section 28 10 00 defines system integration with the Intrusion Detection System. Addendum #2 removes this section completely. The replacement section – 28 13 00 "Access Control & Database Management System" does not mention intrusion detection integration. Is intrusion integration no longer required for this project?  
A7. Integration is no longer required.
- Q8. Original specification section 28 10 00-10 section d - defines for the project to include (500) MIFARE cards or fobs for the District as part of this project. Addendum #2 removes this section completely. The replacement section – 28 13 00 "Access Control & Database





ADDENDUM NO. 4

June 16, 2016

NCC Vocational Technical School District

Renovations to the Howard High School of Technology – Bid Package 'B'

Wilmington, Delaware 19801

Page 3

Management System” does not any quantity of credentials. Are credentials no longer required for this project?

A8. Credential is no longer required.

MODIFICATIONS TO SPECIFICATIONS:

1. SECTION 004100 BID FORMS AND ATTACHMENTS: DELETE Contract HHS-20 Electrical Bid Form and Attachments and REPLACE with attached revised section.
2. SECTION 011100 SUMMARY OF WORK:
  - a. **Contract HHS-19 Mechanical & Plumbing ADD:**
    72. **This contract to include an allowance of \$100,000 for temporary heating and cooling required throughout the project. This allowance to be coordinated and monitored as directed by the Construction Manager.**
  - b. Contract HHS-23 Technology: DELETE Section 28 3112 Public Safety First Responder Radio Amp from the scope of work.
3. SECTION 012300 ALTERNATES, DELETE this section in its entirety and REPLACE with attached revised section.
4. SECTION 260500-COMMON WORK RESULTS FOR ELECTRICAL
  - a. **REPLACE** MDE-Maryland Department of the Environment with DNREC- Delaware Department of Natural Resources and Environmental Control in paragraph 1.010.A.9
  - b. **REPLACE** “Operations and Maintenance Manual – Howard High School Phase 2 Bid Pack C – Electrical” with “Operations and Maintenance Manual – Howard High School Phase 1 Bid Pack B – Electrical” in paragraph 1.017.B
5. SECTION 260501-GENERAL ELECTRICAL REQUIREMENTS
  - a. **REPLACE** Reference to MOSHA with Delaware Office of Occupational Health in paragraph 1.06.A
  - b. **REPLACE** Reference to “State of Maryland” with “State of Delaware” in paragraph 3.02.A
  - c. **REPLACE** “Provide two VHS video taped copies of all instructional periods/demonstrations” with “Provide two DVDs with recordings of all instructional periods/demonstrations.” in paragraph 3.14.E





ADDENDUM NO. 4

June 16, 2016

NCC Vocational Technical School District

Renovations to the Howard High School of Technology – Bid Package 'B'

Wilmington, Delaware 19801

Page 4

- d. **REPLACE** all references to “PECO” with “DELMARVA”. There is no established project contact available for DELMARVA at the present.
6. SECTION 260503-PCB REMOVAL
  - a. **REPLACE** All instances of “State of Maryland” with “State of Delaware”
7. SECTION 265100-INTERIOR LIGHTING
  - a. **REPLACE** Part 2, section 2.01 with the following: Products: Subject to compliance with requirements, under base bid provide the products indicated on Drawings or approved equal. Under Alternate No. 7, provide only the product identified as Alternate for that fixture type. The following requirements apply to product selection
8. SECTION 265561-THEATRICAL EQUIPMENT SYSTEMS
  - a. **ADD:** Approved contractor to 1.05-4
  - b. Philadelphia Theatrical Supply | 229 N. 12<sup>th</sup> Street | Philadelphia, PA 19107 | 215-627-1225
9. SECTION 283112-PUBLIC SAFETY – FIRST RESPONDER RADIO AMPLIFICATION SYSTEM
  - a. **REPLACE** All instances of “State of Maryland” with “State of Delaware”.

#### MODIFICATIONS TO DRAWINGS:

1. SHEET E-212 – FLOOR PLAN – LOWER LEVEL (ANNEXES) – POWER
  - a. **ADD** junction box at entrance to Light Well A030, mount to suit door access control system. Make all connections to circuit SCBG-4 as required and refer to technology drawings for additional information.
2. SHEET E-706 – LIGHTING FIXTURE SCHEDULE
  - a. **ADD** Type AA fixture: Wall mounted LED vanity fixture with damp location listing, Astro Lighting 7133 Belgravia 5000, 277V, 15W, Wall mounted vertically 3’-6” above finished floor to bottom.
  - b. **CLARIFY** Metalux fixture indicated for Type A to be provided under Alternate #7.
  - c. **CLARIFY** Manufacturer for second catalog number in type A1 is Metalux. Provide this fixture under Alternate #7.
  - d. **CLARIFY** Peerless fixture indicated for Type C to be provided under Alternate #7.
  - e. **CLARIFY** Metalux fixture indicated for Type H to be provided under Alternate #7.
  - f. **CLARIFY** Peerless fixture indicated for Type L to be provided under Alternate #7.





## ADDENDUM NO. 4

June 16, 2016

NCC Vocational Technical School District

Renovations to the Howard High School of Technology – Bid Package 'B'

Wilmington, Delaware 19801

Page 5

- g. **CLARIFY** Cooper fixture indicated for Type M to be provided under Alternate #7.
  - h. **CLARIFY** Metalux fixture indicated for Type M1 to be provided under Alternate #7.
  - i. **CLARIFY** Alternative Dual-Lite fixture indicated for Exit Signs to be provided under Alternate #7.
  - j. **CLARIFY** LED Lamp replacements for Types R, R1, and R2 shall be line-voltage dimmable
3. SHEET E-111 – FLOOR PLAN – LOWER LEVEL (MAIN BUILDING) – LIGHTING
- a. **ADD** 7 type AA fixtures to Men's Toilet M012, adjacent to mirrors. Fixtures shall be connected to switched non-emergency circuit serving fixtures in the same room.
  - b. **ADD** 2 type AA fixtures each to M007, M017, and M032, adjacent to mirrors. Fixtures shall be connected to switched non-emergency circuit serving fixtures in the same room.
4. SHEET E-112 – FLOOR PLAN – LOWER LEVEL (ANNEXES) – LIGHTING
- a. **ADD** 3 type AA fixtures each to A014, and A016, adjacent to mirrors. Fixtures shall be connected to switched non-emergency circuit serving fixtures in the same room.
5. SHEET E-113 – FLOOR PLAN – FIRST FLOOR (MAIN BUILDING) – LIGHTING
- a. **ADD** 7 type AA fixtures to M114, adjacent to mirrors. Fixtures shall be connected to switched non-emergency circuit serving fixtures in the same room.
  - a. **ADD** 2 type AA fixtures each to M118, and M126, adjacent to mirrors. Fixtures shall be connected to switched non-emergency circuit serving fixtures in the same room.
  - b. **ADD** 4 type AA fixtures to M202, adjacent to mirrors. Fixtures shall be connected to switched non-emergency circuit serving fixtures in the same room.
  - c. **ADD** 7 type AA fixtures to M226 adjacent to mirrors. Fixtures shall be connected to switched non-emergency circuit serving fixtures in the same room.

End of Addendum No. 4



---

Contract No. HHS-20 Electrical and IT Infrastructure

BID FORM

For Bids Due: \_\_\_\_\_

To: NCC Vocational Technical School District  
1417 Newport Road  
Wilmington, DE 19804

Name of Bidder: \_\_\_\_\_

Bidder Address: \_\_\_\_\_  
\_\_\_\_\_

Contact Name: \_\_\_\_\_ E-Mail Address: \_\_\_\_\_

Delaware Business License No.: \_\_\_\_\_ Taxpayer ID No.: \_\_\_\_\_

(Other License Nos.): \_\_\_\_\_

**(A copy of Bidder's Delaware Business License must be attached to this form.)**

Phone No.: (     ) \_\_\_\_\_ - \_\_\_\_\_ Fax No.: (     ) \_\_\_\_\_ - \_\_\_\_\_

The undersigned, representing that he has read and understands the Bidding Documents and that this bid is made in accordance therewith, that he has visited the site and has familiarized himself with the local conditions under which the Work is to be performed, and that his bid is based upon the materials, systems and equipment described in the Bidding Documents without exception, hereby proposes and agrees to provide all labor, materials, plant, equipment, supplies, transport and other facilities required to execute the work described by the aforesaid documents for the lump sum itemized below:

\$ \_\_\_\_\_ (\$ \_\_\_\_\_)

ALTERNATES

N/A

Alternate prices conform to applicable project specification section. Refer to specifications for a complete description of the following Alternates. An "ADD" or "DEDUCT" amount is indicated by the crossed out part that does not apply.

Alternate No. 1: Provide the additional cost associated with utilizing Modern Controls to install Johnson controls for the ATC system. If Modern Controls is the apparent low bidder than the alternate value shall be \$0.

Add/Deduct \_\_\_\_\_ (\$ \_\_\_\_\_)

---

Alternate No. 2: Provide the additional cost associated with utilizing Cleaver Brooks boilers. If Cleaver Brooks is the apparent low bidder than the alternate value shall be \$0.

Add/Deduct \_\_\_\_\_ (\$ \_\_\_\_\_)

Alternate No. 3: Provide lightning protection system in accordance with Division 26 specifications.

Add/Deduct \_\_\_\_\_ (\$ \_\_\_\_\_)

Alternate No. 4: Provide a fully integrated system with Salto locksets, utilizing SoftwareHouse CCure 9000 as the integration software

Add/Deduct \_\_\_\_\_ (\$ \_\_\_\_\_)

Alternate No. 5: Provide a fully integrated system with Salto locksets, utilizing Honeywell as the integration software

Add/Deduct \_\_\_\_\_ (\$ \_\_\_\_\_)

Alternate No. 6: Provide a fully integrated system with Allegion locksets, utilizing S2 as the integration software.

Add/Deduct \_\_\_\_\_ (\$ \_\_\_\_\_)

**Alternate No. 7: Provide alternate fixtures as indicated on lighting fixture schedule, with add/deduct and dollar value line**

**Add/Deduct \_\_\_\_\_ (\$ \_\_\_\_\_)**

UNIT PRICES

Unit prices conform to applicable project specification section. Refer to the specifications for a complete description of the following Unit Prices:

Unit Price No. 1: Data Drop: Provide a Cat 6 data jack complete with testing and termination. Include 300 feet of Cat 6 plenum cable. Complete with outlet, coverplate, backbox, conduit installed concealed, labeling, testing and terminations.

\_\_\_\_\_

Unit Price No. 2: Telephone Drop: Provide a Cat 6 telephone jack complete with testing and termination. Include 300 feet of Cat 6 plenum cable. Complete with outlet, coverplate, backbox, conduit installed concealed, labeling, testing and terminations.

\_\_\_\_\_

Unit Price No. 3: Interior Security Camera: Provide Interior Security camera rough in. Include two runs 300 feet of Cat 6

plenum cable. Complete with outlet, coverplate, backbox, conduit installed concealed, labeling, testing and terminations.

Unit Price No. 4: Exterior Security Camera: Provide Exterior Security camera rough in. Include 300 feet of Cat 6 plenum cable. Complete with outlet, coverplate, backbox, conduit installed concealed, labeling, testing and terminations.

Unit Price No. 5: Security Motion Detector: Provide Dual Technology Motion Detector complete with testing and programming. Including 100 feet of alarm cabling. Complete with outlet, coverplate, backbox, conduit installed concealed, labeling, testing and terminations.

Unit Price No. 6: Unit Price No. 6: Remove unusable spoils and import select fill backfilling operations/per cubic yard.

Unit Price No. 7: Remove unusable spoils and import clean stone fill for backfilling operations/per cubic yard.

Unit Price No. 8: Provide a unit price for trench rock Removal per cubic yard.

Unit Price No. 9: 120 volt, 20 ampere NEMA 5-20R duplex receptacle, back box, cover plate and 50 feet of 2#12 + #12GW-3/4" c.

Unit Price No. 10: Exit Sign. Provide exit sign and all associated supports, wiring and conduit.

Unit Price No. 11: Exit Light. Provide exit light and all associated supports, wiring, controls and conduit.

Unit Price No. 12: Fire alarm strobe and interlock with fire alarm system. Provide 110 cd wall mounted strobe, with cabling in surface raceway to ceiling and 50 linear feet of fire rated MC cable. Provide all programming and testing.

Unit Price No. 13: Exterior doors (hardwired)

Unit Price No. 14: Interior rated doors (hardwired) \_\_\_\_\_

Unit Price No 15: Interior doors (WiFi/wireless) \_\_\_\_\_

NOTE: The difference in price between Add and Deduct in the above Unit Prices should not exceed fifteen percent (15%).

I/We acknowledge Addendums numbered \_\_\_\_\_ and the price(s) submitted include any cost/schedule impact they may have.

This bid shall remain valid and cannot be withdrawn for ninety (90) days the date of opening of bids, and the undersigned shall abide by the Bid Security forfeiture provisions. Bid Security is attached to this Bid (if required).

The Owner shall have the right to reject any or all bids, and to waive any informality or irregularity in any bid received.

This bid is based upon work being accomplished by the Sub-Contractors named on the list attached to this bid.

The undersigned represents and warrants that he has complied and shall comply with all requirements of local, state, and national laws; that no legal requirement has been or shall be violated in making or accepting this bid, in awarding the contract to him or in the prosecution of the work required; that the bid is legal and firm; that he has not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken action in restraint of free competitive bidding.

Upon receipt of written notice of the acceptance of this Bid, the Bidder shall, within twenty (20) calendar days, execute the agreement in the required form and deliver the Contract Bonds, and Insurance Certificates, required by the Contract Documents.

I am / We are an Individual / a Partnership / a Corporation

By \_\_\_\_\_ Trading as \_\_\_\_\_  
(Individual's / General Partner's / Corporate Name)  
\_\_\_\_\_  
(State of Corporation)

Business Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Witness: \_\_\_\_\_ By: \_\_\_\_\_  
(SEAL) ( Authorized Signature )  
\_\_\_\_\_  
( Title )  
Date: \_\_\_\_\_

ATTACHMENTS

Subcontractor List  
Non-Collusion Statement  
Bid Bond  
Consent of Surety  
Affidavit of Employee Drug Testing Program (1 per contractor/subcontractor)  
Delaware Business License  
(Others as Required by Project Manuals)

SUBCONTRACTOR LIST

In accordance with Title 29, Chapter 6962 (d)(10)b Delaware Code, the following sub-contractor listing must accompany the bid submittal. The name and address of the sub-contractor must be listed for each category where the bidder intends to use a sub-contractor to perform that category of work. In order to provide full disclosure and acceptance of the bid by the Owner, **it is required that bidders list themselves as being the sub-contractor for all categories where he/she is qualified and intends to perform such work.**

| <u>Subcontractor Category</u> | <u>Subcontractor</u> | <u>Address (City &amp; State)</u> | <u>Subcontractors tax payer ID # or Delaware Business license #</u> |
|-------------------------------|----------------------|-----------------------------------|---|
| 1. Electrical                 | _____                | _____                             | _____   |
| 2. Fire Alarm                 | _____                | _____                             | _____   |
| 3.                            | _____                | _____                             | _____   |

NON-COLLUSION STATEMENT

This is to certify that the undersigned bidder has neither directly nor indirectly, entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with this proposal submitted this date \_\_\_\_\_.

All the terms and conditions of Contract No.: HHS-20 Electrical and IT Infrastructure have been thoroughly examined and are understood.

NAME OF BIDDER: \_\_\_\_\_

AUTHORIZED REPRESENTATIVE  
(TYPED): \_\_\_\_\_

AUTHORIZED REPRESENTATIVE  
(SIGNATURE): \_\_\_\_\_

TITLE: \_\_\_\_\_

ADDRESS OF BIDDER: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

PHONE NUMBER: \_\_\_\_\_

Sworn to and Subscribed before me this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_.

My Commission expires \_\_\_\_\_. NOTARY PUBLIC \_\_\_\_\_.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

**BID BOND**

TO ACCOMPANY PROPOSAL  
(Not necessary if security is used)

KNOW ALL MEN BY THESE PRESENTS That: \_\_\_\_\_ of \_\_\_\_\_ in the County of \_\_\_\_\_ and State of \_\_\_\_\_ as Principal, and \_\_\_\_\_ of \_\_\_\_\_ in the County of \_\_\_\_\_ and State of \_\_\_\_\_ as Surety, legally authorized to do business in the State of Delaware ("State"), are held and firmly unto the New Castle County Vocational Technical School District in the sum of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_), or percent not to exceed \_\_\_\_\_ Dollars (\$ \_\_\_\_\_) of amount of bid on Contract No. \_\_\_\_\_ to be paid to the New Castle County Vocational Technical School District for the use and benefit of the New Castle County Vocational Technical School District for which payment well and truly to be made, we do bind ourselves, our and each of our heirs, executors, administrators, and successors, jointly and severally for and in the whole firmly by these presents.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH That if the above bounden Principal who has submitted to the New Castle County Vocational Technical School District a certain proposal to enter into this contract for the furnishing of certain material and/or services within the State, shall be awarded this Contract, and if said Principal shall well and truly enter into and execute this Contract as may be required by the terms of this Contract and approved by the New Castle County Vocational Technical School District this Contract to be entered into within twenty days after the date of official notice of the award thereof in accordance with the terms of said proposal, then this obligation shall be void or else to be and remain in full force and virtue.

Sealed with \_\_\_\_\_ seal and dated this day of \_\_\_\_\_ in the year of our Lord two thousand and \_\_\_\_\_ (20\_\_).

SEALED, AND DELIVERED IN THE PRESENCE OF

\_\_\_\_\_  
Name of Bidder (Organization)

Corporate  
Seal

By: \_\_\_\_\_  
Authorized Signature

Attest \_\_\_\_\_

\_\_\_\_\_  
Title

Witness \_\_\_\_\_

\_\_\_\_\_  
Name of Surety

\_\_\_\_\_  
Title

**CONSENT OF SURETY**

DATE \_\_\_\_\_

To:

Gentlemen:

We, the \_\_\_\_\_

\_\_\_\_\_  
(Surety Company's Address)  
\_\_\_\_\_

a Surety Company authorized to do business in the State of Delaware hereby agrees that if

\_\_\_\_\_  
(Contractor)

\_\_\_\_\_  
(Address)  
\_\_\_\_\_

is awarded the Contract No. \_\_\_\_\_

We will write the required Performance and/or Labor and Material Bond required by Paragraph 9 of the Instructions to Bidders.

\_\_\_\_\_  
(Surety Company)

By \_\_\_\_\_  
(Attorney-in-Fact)

---

**AFFIDAVIT**  
**OF**  
**EMPLOYEE DRUG TESTING PROGRAM**

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors implement a program of mandatory drug testing for Employees who work on Large Public Works Contracts funded all or in part with public funds.

We hereby certify that we have in place or will implement during the entire term of the contract a Mandatory Drug Testing Program for our employees on the jobsite that complies with this regulation:

Contractor/Subcontractor Name: \_\_\_\_\_

Contractor/Subcontractor Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Authorized Representative (typed or printed): \_\_\_\_\_

Authorized Representative (signature): \_\_\_\_\_

Title: \_\_\_\_\_

Sworn to and Subscribed before me this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_\_.

My Commission expires \_\_\_\_\_ . NOTARY PUBLIC \_\_\_\_\_ .

**THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.**

END OF SECTION

---

SECTION 012300 - ALTERNATES

1. GENERAL PROVISIONS

A. The general provisions of the Contract, including the Conditions of the Contract (General, Supplementary and other conditions, if any) and Division 1 as appropriate, apply to the Work specified in this Section.

B. Refer to provisions in AIA Document A232 – 2009 Edition, GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION, CONSTRUCTION MANAGER AS ADVISOR EDITION, for requirements in addition to those specified in Division 1.

C. For work being constructed under separate prime contracts, provisions of this Section apply to each contract being bid.

2. BASE BID

A. The Base Bid shall consist of all work shown or specified in the Contract Documents, exclusive of any Additive Alternates specified herein.

B. The Base Bid shall include all work in any Subtractive Alternates specified herein.

3. ALTERNATES

A. State in the Bid Form the amount to be added to the Base Bid for each Alternate specified.

B. See Section 002113 - INSTRUCTIONS TO BIDDERS for related information.

C. The description of Alternates contained herein is in summary form. Detailed requirements for materials and execution shall be as specified in other sections and as shown on drawings.

Alternate No 1: Provide the additional cost associated with utilizing Modern Controls to install Johnson controls for the ATC system. If Modern Controls is the apparent low bidder than the alternate value shall be \$0.

Alternate No 2: Provide the additional cost associated with utilizing Cleaver Brooks boilers. If Cleaver Brooks is the apparent low bidder than the alternate value shall be \$0.

Alternate No. 3: Provide lightning protection system in accordance with Division 26 specifications.

Alternate No. 4: Provide a fully integrated system with Salto locksets, utilizing

SoftwareHouse CCure 9000 as the integration software

Alternate No. 5: Provide a fully integrated system with Salto locksets, utilizing Honeywell as the integration software

Alternate No. 6: Provide a fully integrated system with Allegion locksets, utilizing S2 as the integration software.

**Alternate No. 7: Provide alternate fixtures as indicated on lighting fixture schedule, with add/deduct and dollar value line**

END OF SECTION

## SECTION 28 1300

### ACCESS CONTROL & DATABASE MANAGEMENT SYSTEM

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Security and Database Management System (SMS) requirements:
  - 1. Monitor and control door access.
  - 2. Monitor alarm, camera, video, communication loss and temperature.
  - 3. Maintain a database of system activity including:
    - a. Personnel access control information.
    - b. System user passwords.
    - c. User role permissions.
  - 4. System shall be managed by Owner's selected client software, as listed in specifications
- B. Access control system equipment for:
  - 1. Supply and install electronic door hardware.
  - 2. Computer hardware.
  - 3. Monitoring equipment.
  - 4. Recording equipment.
  - 5. Managing electronic access control system.
  - 6. Managing data and functionality of integrated systems.
- C. Access control units and software.
  - 1. Operating Systems software and firmware.
  - 2. Application Software.
  - 3. Database Software.
- D. Access control point peripherals, including readers.
- E. Accessories.
- F. Project Requirements and Background: Owner will require planning and programming assistance to ensure that system design for Phase 1 can be implemented in the future on all campuses. Owner wishes to have full range of school lock-down options available.
  - 1. Background: Owner has 5 campuses. Howard is the first location for keyless access control. Access control for this project will be implemented in 2 phases.
  - 2. Phases at Howard Campus: Phase 1 - Annex Phase 2 - Main Building 1927. Future Phase 3 will include 1972 Building on this campus.
  - 3. Software will be installed in a District-owned Virtual Server.
  - 4. Bidder shall provide detailed server specification as it will be required that the proposed system run on District-provided virtual server hosts. The District shall be notified in a timely manner, of the amount of servers, the processor, memory, disk specifications and any other requirements. District will build the servers and provide temporary credentials to the integrator for use with installs, setup, software and licensing for the system.

##### 1.02 RELATED REQUIREMENTS

- A. Section 08 7100 - Door Hardware: Electrically operated door hardware, for interface with access control system.
  - 1. Includes door hardware with integral request to exit devices.
  - 2. Includes parking gates, for interface with access control system
- B. Division 26
- C. Division 27

- D. Division 28
- E. Division 1 -
  - 1. Alternates: Provide bid alternates for the following:
    - a. Alternate No. 1 - Provide a fully integrated system with Salto locksets, utilizing SoftwareHouse CCure 9000 as the integration software
    - b. Alternate no. 2 - Provide a fully integrated system with Salto locksets, utilizing Honeywell as the integration software
    - c. Alternate No. 3 - Provide a fully integrated system with Allegion locksets, utilizing S2 as the integration software.
  - 2. Unit Prices: Provide add/deduct unit prices for the following
    - a. Unit Price 1 - Exterior doors (hardwired)
    - b. Unit Price 2 - Interior rated doors (hardwired)
    - c. Unit Price 3 - Interior doors (WiFi/wireless)
- F. Drawings
  - 1. Drawings for Phase 1 (Annex) along with Door & Hardware schedule are available as part of BP A.
  - 2. Architectural drawings for Access Control reference (Drawings G-213 through 217; G 230 -231 are issued with this bid package for door count, swing & location. Main Building floor plans (G- 213, 215,217,230) are for access control bidding purposes only. Main Building Door schedules will be provided after bid award.
- G. Electronic lockset requirements
  - 1. All exterior doors shall be hardwired.
  - 2. Interior rated and egress doors shall be hardwired.
  - 3. Interior room doors shall be WiFi/wireless.

#### 1.03 REFERENCE STANDARDS

- A. NECA 1 - Standard for Good Workmanship in Electrical Construction; National Electrical Contractors Association; 2010.
- B. NFPA 70 - National Electrical Code; National Fire Protection Association; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- C. NFPA 101 - Life Safety Code; National Fire Protection Association; 2015.
- D. UL 294 - Access Control System Units; Current Edition, Including All Revisions.

#### 1.04 ADMINISTRATIVE REQUIREMENTS

- A. Pre-programming Meetings
  - 1. Review Owner requirements and propose options and alternates
- B. Coordination:
  - 1. Coordinate the work with other installers to provide suitable door hardware as required for both access control functionality and code compliance.
  - 2. Coordinate the placement of readers with millwork, furniture, equipment, etc. installed under other sections or by others.
  - 3. Coordinate the work with other installers to provide power for equipment at required locations.
  - 4. Notify Architect of any conflicts with or deviations from the contract documents. Obtain direction before proceeding with work.
- C. Preinstallation Meetings:

1. Conduct meeting with facility representative and other related equipment manufacturers to discuss access control system interface requirements.
- D. Phase Completion meetings
  1. Upon completion of each Phase, work with Owner to confirm program requirements and update as required for future phases.
- E. Owner Training and Support
  1. Provide up to 3 days training for up to 7 Owner representatives.
  2. Provide hardware and software support for 3 years on integrated system; including option to add 3 additional years.

#### 1.05 DEFINITIONS

- A. Controller: An intelligent peripheral control unit that uses a computer for controlling its operation. Where this term is presented with an initial capital letter, this definition applies.
- B. CPU: Central processing unit.
- C. Credential: Data assigned to an entity and used to identify that entity, also called a Token or ID Card
- D. CU: Control Unit, Control unit either stand alone or hardwired
- E. I/O: Input/Output.
- F. LAN: Local area network.
- G. LED: Light-emitting diode.
- H. Mantrap: A man-trap in physical security protocols refers to a space having two sets of interlocking doors such that the first set of doors must close before the second set opens.
- I. PC: Personal computer. This acronym applies to the workstations Computers, and file Servers Computers.
- J. USB: Universal Serial Bus - The most widely used hardware interface for attaching peripherals to a computer.
- K. SQL: Database engine, a Microsoft product
- L. WiFi: Wireless Communication (802.15.4 - ZigBee)
- M. RS-232: A TIA/EIA standard for asynchronous serial data communications between terminal devices. This standard defines a 25-pin connector and certain signal characteristics for interfacing computer equipment.
- N. RS-485: A TIA/EIA standard for multi-point communications.
- O. TCP/IP: Transport Control Protocol/Internet protocol incorporated into Microsoft Windows.
- P. Smart Card: ID Token or Credential that can retain or store data and information and transmit the data upon request. (read & write of data)
- Q. Contactless Smart Card: ID Token or Credential that can retain or store data and information and transmit the data without contact with a reading device (read & write of data).
- R. NFC: Near Field Communication
- S. RFID: Radio Frequency Identification Device
- T. Black List: A list of invalid tokens/cards stored in the door unit
- U. UPS: Uninterruptible Power Supply
- V. WAN: Wide area network.

- W. LAN: Local area network
- X. POE: Power Over Ethernet
- Y. PIN: Personal Identification Number
- Z. MTBF: Mean Time Between Failures
- AA. Wiegand: Patented magnetic principle that uses specially treated wires embedded in the credential card.
- AB. Windows: Operating System by Microsoft Corporation
- AC. Workstation: A PC with software that is configured for specific limited security system functions.
- AD. API: Application Programming Interface
- AE. EAC: Electronic Access Control
- AF. SHIP: Salto Host Interface Protocol
- AG. SALLIS: Salto wireless interface
- AH. SVN: Salto Virtual Network

#### 1.06 SYSTEM DESCRIPTION

##### A. Summary:

1. The Physical Access Control System has two primary component areas, door control hardware and the management application software.
2. The system shall provide for a combination of wireless (wire-free) and online (hardwired) wall readers to secure perimeter doors as well as battery powered electronic locks to secure all interior doors, all produced and supported by the same manufacturer.
  - a. Owner may choose to utilize off-line option if available
3. The system shall be centrally managed by one single database/software and one single credential system for all doors in the System.
4. NOTE: System description is based on SALTO.
  - a. For pre-approved products by ALLEGION and its software partners, the full suite of features shall be available to the Owner. Owner understands that options available may differ slightly from the system description herein.
  - b. Bidder shall provide information regarding differences from features listed below, at a descoping meeting.

##### B. Token, Credentials, and RFID Contact-less Smart Card Features and Technical Requirements

1. Secured RFID Contactless Smart Cards
  - a. Contactless smart card technology provides high-speed, reliable communications with data integrity.
  - b. Ensures high security with mutual authentication, encrypted data transfer.
2. Read/write capability is mandatory; any system that does not use a two way encrypted Smart Card (RFID) communication format will be considered Unacceptable by the Owner.
3. Multi-application cards: have to be capable of storing information for future applications and integration.

##### C. RFID Contact-less Smart Card Technology supported:

1. Compatible with a wide range of Smart Card (RFID) Technologies, operating on the industry standard frequency of 13.56MHz

2. To meet the owners needs, the read & write credentials may be any one of the following type products:
    - a. HID iClass: Memory capacity: 32K bit with 2 application area configurations. HID-Iclass credential shall have a minimum of 16 kb, 32kb preferred, of available memory and allow the possibility for use with multiple vendors across multiple applications.
    - b. MIFARE: 4k Bytes
    - c. DESFire: 4k Bytes
    - d. Desfire EVI: 4K Bytes
    - e. NFC: Near Field Communication at 13.56 MHz
  3. Access profile for the individual user, encoded on to the card, shall be encrypted and in such a format as to negate the potential for cloning.
  4. Standard 16 kb, 32kb preferred memory on each credential shall be secured with a unique set of Keys- A&B for the Electronic Access Control (EAC) system and to enable, as and when required, the collection and transfer of information pertaining to audit trails, lost and stolen cards etc via a data on card functionality
  5. Tokens or credentials shall be available in multiple form factors. They are, but not limited to: Standard ID card format, printable ID card format, key fob format, wrist watch format, rubber wrist band format.
- D. Features and technical requirements:
1. Online CU (Control Unit) and wall readers will be manufactured and supported by the same manufacturer of the Electronic door locks and System Software. The following is a minimum list of features, that the online unit must contain:
    - a. Provide real time door access monitoring
      - 1) with the on-line hot-spots, if available.
    - b. Continue operating and store historical data (audit trail) in the event of a network or server failure. System door Units will provide a Minimum of 1000 transactions.
    - c. Ethernet connectivity of all on-line devices via IP4 or IP6 addressing, either hardwired WiFi Connection (802.15.4).
    - d. Provide automatic card updating to all Contactless Smart Cards regardless of brand.
    - e. Provide the ability to Support 2 Readers and 2 locking devices with on board auxiliary programmable on-board outputs (relays).
    - f. Provide for up to 16 Auxiliary output boards with a total of not less then 128 outputs available for end-user programming.
    - g. Provide the flexibility for either online wireless (or offline battery operated locks, if available) allowing for the 2 types of system integrated into the same facility.
- E. Battery Powered Wireless Networked Locks:
1. RFID Keycard operated: unlocking by means of contact-less smart carriers, which most include the following formats; card, key-fob, wrist watch, RFID stickers and wrist band. All devices will perform at the same level.
  2. The EAC Locking Unit shall have typical access control features and be able to mimic traditional door hardware functions. The following is a minimum of the required door operational features:
    - a. Standard
    - b. Office
    - c. Automatic Changes
    - d. Automatic Opening
    - e. Automatic Opening Plus Office

- f. Automatic Opening Plus Toggle
  - g. Key Card Plus Pin Number (Keypad)
  - h. Pin Number Only (Keypad)
  - i. Timed Key Card Plus Pin Number (Keypad)
  - j. Timed Pin Number (Keypad)
  - k. Timed Office
  - l. Timed Toggle
  - m. Toggle Only
  - n. Emergency Lockdown (AMOK Crisis)
  - o. Anti Passback - Soft/Timed
3. Internal door lock audit trail memory shall be at minimum, 1,000 transactions. This shall include valid, invalid attempts, request to exit, door status, door ajar and mechanical override key used.
  4. Automatic Unlocking, all locks shall be able to be programmed to remain unlocked during certain hours and days, automatically changing to a locked down mode outside of these times i.e.- go into office, card only, card plus PIN mode, etc. Each lock shall have a minimum of 8 different automatic locking and unlock schedules. This feature shall be able to be manipulated by day of the week and by system holidays for each door lock.
  5. Automatic Locking (lockdown mode), all locks shall be able to lock down from the inside in an emergency. While the lock is in lockdown mode, one designated token will be able to enter the locked down door unit. Once the unit is returned to normal programming mode, it will operate as previously programmed. Activation and resetting of the lockdown mode (AMOK) shall be done with a card holders token. This privilege will be given to the desired card holder on a person by person basis. Blanket lockdown setting or lockdown by a lock thumb turn will be unacceptable.
  6. Lost cards shall be able to be deleted from the system without waiting for card expiration or having to visit the locks with a handheld programmer.
  7. Water resistance application lock units, must be an option for outdoor and wet environments.
  8. Batteries:
    - a. Battery life benchmarked to 48,000 Operations or 2.5- 3.0 years.
    - b. Shall be powered by standard off the shelf batteries (AAA).
    - c. Proprietary batteries or proprietary battery packs are not acceptable.
  9. Low battery warning shall be at minimum via visual LEDs and should also automatically report through the system software. This will happen without the need to visiting the door lock with a programming device. For wireless lock units, they will also report via a link through the RFID Cards through a hotspot for direct communications back to the software to report current battery status.
  10. Shall automatically adjust for daylight saving time. This feature will be flexible enough to provide changeable dates from year to year. This feature shall not require a visit to the lock with a programming device.
  11. A door lockset shall be deemed to include all of the components necessary for the EAC to function as per manufacturer's specification; namely UL approved and listed internal and external lock parts. The following locking hardware types shall be available:
    - a. UL Listed, ANSI Grade 1 American Mortise Lock
    - b. UL Listed, ANSI Grade 1 American Mortise Lock, with deadbolt
    - c. UL Listed, ANSI Grade 1 Glass Door Lock
    - d. UL Listed, ANSI Grade 1 American Cylindrical Lock

- e. UL Listed, ANSI Grade 2 American Cylindrical Lock
  - f. UL Listed Locker Lock, Pad Lock
  - g. UL Listed, ANSI Grade 1 Exit Device
  - h. UL Listed, European Mortise Lock
  - i. Mortise Cylinder (Salto GEO)
  - j. Rim Cylinder (Salto GEO)
  - k. Keypad and Card Lock- XS4
12. External and internal lever handles shall comply with ADA requirements and specifications, and shall also be available with antibacterial Salto BioCote® finishes.
  13. The length of time that is allowed to open the door after a valid credential is presented shall be variable and managed by the software, allowing for users with physical disabilities additional time when needed to access their quarters.
  14. At all times the internal lever shall be free to operate and retract all latches and deadbolts, allowing free egress by way of a single action.
  15. A mechanical master key override shall be provided where necessary and shall operate in conjunction with the lever clutching mechanism, rather than directly on the door latch. Operation of the key override will be recorded in the lock unit audit trail memory to provide increased security and to track key usage. A standard American mortise cylinder shall provide the key override function.
- F. Off-line Reader and Battery Powered SVN Lock Operations
1. The smart card will transfer data to/from both off-line locksets to the on-line hot-spots. Tokens may be card, wrist watch or band, key fob formats. All formats shall have the same system performance.
  2. A door lockset shall be deemed to include all of the components necessary for the EAC to function as per manufacturer's specification; namely UL approved and listed internal and external lock parts. The following locking hardware types shall be available:
    - a. UL Listed, ANSI Grade 1 American Mortise Lock
    - b. UL Listed, ANSI Grade 1 American Mortise Lock, with deadbolt
    - c. UL Listed, ANSI Grade 1 Glass Door Lock
    - d. UL Listed, ANSI Grade 1 American Cylindrical Lock
    - e. UL Listed, ANSI Grade 2 American Cylindrical Lock
    - f. UL Listed Locker Lock, Pad Lock
    - g. UL Listed, European Mortise Lock
    - h. UL Listed, ANSI Grade 1 Exit Device
    - i. Mortise Cylinder (Salto GEO)
    - j. Rim Cylinder (Salto GEO)
    - k. Keypad and Card Units (XS4)
    - l. Cam Lock- GxCL (Salto GEO)
    - m. Heavy Duty Deadbolt- GxB3 (Salto GEO)
    - n. Locker 9000 (XS4)
  3. Retrofit Locks, wherever possible and as needed, the manufacturer will have an option to reuse existing locks that are in good working order and can support the new Salto trim and controls.
  4. External & Internal Lever handles shall comply with ADA requirements and specifications. Lever and trim shall also be available with antibacterial finishes. Traditional door hardware finishes and a choice of lever styles to as closely as possible match existing door hardware.

5. At all times the internal lever shall be free to operate and retract all latches and deadbolts, allowing free egress by way of a single action.
6. A mechanical key override shall be provided where necessary and shall operate in conjunction with the lever clutching mechanism, rather than directly on the door latch. To provide increased security the key operation will leave an audit in the lock memory that the mechanical key was used to open the door. This shall be available on mortise or cylindrical type locks.
7. The unit shall initially be delivered with 3 standard alkaline AA batteries, sufficient for up to 48,000 transactions or approximately 2.5 - 3.0 years operational life. No proprietary or rechargeable battery packs shall be accepted.
8. Low battery status shall be, by default, recorded on the user's credential and transferred to the management system when the credential is used at an on-line wall reader or update point (Hotspot). No handheld Device will be needed to retrieve battery status.
9. In the event of a battery failure, the door shall be able to be opened with a small portable handheld device in conjunction with a valid credential (smart card or token).
10. Networked and non-networked locks of all hardware styles shall always allow free egress if the batteries fail.
11. An audit trail of the last 1,000 events (including failed attempts at access by unauthorized key holders) shall be stored on the networked lock's memory for collection using the portable handheld device at anytime and without requiring access to the inside component of the door lock.
12. The networked lock shall hold its designation, the zones that it belongs to, operational configuration, audit trail and "black list" of cancelled keys in non-volatile memory.
13. Current date and time shall be synchronized with the server on a [Time] basis, and/or when collecting audit trails with the portable handheld device or replacing batteries.
14. The networked lock shall incorporate such measures as hardened high resistance steel drill plates, floating axes and steel ball bearings to prevent unauthorized access or tampering by physical means.
15. The external lever mechanism shall incorporate a clutching system to minimize the potential for vandal damage by allowing free travel up and down until a valid credential is presented for the door to be opened.
16. The length of time allowed to open the door after a valid credential is presented shall be variable and managed by the software, allowing for users with physical disabilities additional time when needed to access their quarters.
17. When the lever returns to the zero position, no matter the time elapsed since the valid credential was presented, the clutch shall automatically disengage, limiting the potential for an unauthorized person to enter after the authorized entry.
18. Internal covers may be secured with tamper resistant screws to restrict access to authorized personnel only.
19. Where appropriate the internal clock of the networked lock shall be programmed to allow for the start and finish of Daylight Saving Time.
20. In an office, meeting room or services environment (where applicable) the networked lock shall be able to either automatically or manually be set into "free passage" mode by authorized key holders, reverting to standard operating mode at a prescribed time.
21. In the event a user key is lost, an authorized operator shall be able to cancel and re-issue a new key for the User. Information regarding cancelled keys shall be transmitted to all off line doors via the "black list", placed on credentials when passing through an on-line "hotspot" or by visiting the doors with the portable programming device.

22. When the system is being operated using the hotel functionality, if a room key is reported lost or stolen (or the key holder is AWOL), simply presenting a "Guest cancel key" shall cancel access for that key without providing access to the room.
23. The EAC Locking Unit shall have typical access control features and be able to mimic traditional door hardware functions. The following is a Minimum of the required door operational features:
  - a. Standard
  - b. Office
  - c. Automatic Changes
  - d. Automatic Opening
  - e. Automatic Opening Plus Office
  - f. Automatic Opening Plus Toggle
  - g. Key Card Plus Pin Number (Keypad)
  - h. Pin Number Only (Keypad)
  - i. Timed Key Card Plus Pin Number (Keypad)
  - j. Timed Pin Number (Keypad)
  - k. Timed Office
  - l. Timed Toggle
  - m. Toggle Only
  - n. Emergency Lockdown (AMOK Crisis)
  - o. Anti Passback - Soft/Timed

G. HOT SPOT - Wall Reader Operations

1. A Wall Reader Device includes support for one (1) or two (2) wall readers. These readers may be; Mifare, Pico Pass, Iclass and NFC. Reader Plus PIN will also be available if needed. The Unit will control access and egress, where applicable, secured to the wall with a vandal resistant frame and tamper-proof fixings; plus a Control Unit (CU) housed with 12V DC power supply, ready for connection to 110V AC outlet. Additionally the power supply shall be prepared to interface with the local fire alarm system to cut power to the door locks, if required, and have connections for 12V DC battery back-up supply (provided by others).
2. Shall be ISO 15.93 and FCC Part 15 compliant.
3. The Wall reader Control Unit set shall have the capability to operate both as an off-line stand-alone door controller or, be easily upgraded with additional (not replacement) hardware to function as an integrated part of the on-line EAC system.
4. Connection between the Wall Reader and Control Unit shall be via UTP CAT5 cable.
5. If required for security or logistical reasons the CU shall be able to be placed up to 100 metres or 328 feet remotely from the wall reader(s).
6. The CU shall hold its designation, the zones that it belongs to, operational configuration, audit trail and "black list" of cancelled keys in non-volatile memory.
7. The on-line CU shall connect directly to the EAC application and be capable of making changes to the individual user access profile when a credential is presented. At the same time the CU shall pass the "black list" of recent cancelled cards on to the key and upload any stored "on key" audits of attempts to access doors and "low battery warnings" from the stand-alone locks.
8. The EAC system shall synchronize the server clock with the on-line CU approximately every 30 seconds.
9. The (off-line and on-line) CU shall be capable of integrating with the elevator management system to control access to individual floors for individual users. Connection

to the CU shall be via RS485 serial BUS to Extension Relay Boards (ERB) consisting of 8 NO/NC 12VDC dry contact switches. The EAC system shall allow for up to 16 ERB to be connected in series to each control unit.

10. For the Off-line reader the date and time shall synchronize with the hand held programming unit any time an audit is retrieved.

#### 1.07 SYSTEM OPERATIONAL PERFORMANCE FEATURES

##### A. Basic System Performance requirements:

1. Shall provide central management of user rights, access policies, and credentialing.
2. The application shall be capable of implementing access policies through the assignment of entry permission based on door groupings and time schedules.
3. The system shall allow for schedules to be applied at doors, governing their remaining open or locked condition.
4. The application shall permit flexible assignment of user rights and privileges.
5. The application shall allow for creation and editing of cardholder credentials, including system wide card formats.
6. The application shall provide views of events and alarms throughout the installation and shall be capable of triggering hardware and communicative actions, based on system configuration.
7. The application shall be capable of generating standard and custom reports, and provide a detailed and complete log of all system events, as defined by the system operator.

##### B. System Software Features:

1. The system shall incorporate 128 bit AES encrypted data.
2. Supported operating systems shall be Microsoft Windows XP SP3, Vista, and Windows 7.
3. The database engine shall be SQL 2003, 2008, 2012 or SQL Express.
4. The system shall have an operating temperature of 0°C to 50°C, ambient, a storage temperature of -40°C to +85°C, ambient, a relative humidity ability of 0% to 95% (non-condensing) at 50°C, and a MTBF of > 100,000 hours.
5. The system-radiated emissions shall be compliant with FCC Part 15, Class A, and EN55022 specifications.
6. The system must be capable of managing 4 million users, 64,000 doors, 256 calendars, 1024 zones, and 256 time zones, 1024 time periods, both with 8 intervals each.
7. Integration with other software systems through dynamic database synchronization; Microsoft SQL Server is recommended.
8. Able to store all historical data on the system server without having to individually use a handheld device to download audit trail data from individual locks.
9. System capable of being expanded throughout the site. Each area (department) shall be able to manage their own doors and users without a chance of accidentally interfering with other areas (departments).
10. Capable of dynamic master-keying: each credential can change access privileges transparently “on the fly” without the need to visit the access control administrator to reprogram keycards and without the need to reprogram the electronic locks with a handheld programmer.
11. No predefined profiles are necessary to issue keycards. Each and every keycard can be individually enabled to access any combination of doors.
12. Lost keycard cancellation: “blacklist”. Contactless smart cards shall be capable of conveying lists of cancelled keys to avoid having to reprogram locks with a handheld device each time a keycard is lost.

13. No WI-FI or Radio infrastructure shall be required.
14. The locks shall have built-in anti-passback functionality. The EAC locks shall have the ability to prevent card holders from reentering without presenting their token to the out reader. This feature shall be incorporated in both On Line/Wireless, or in the off-line EAC lock units.

C. System Software:

1. Develop, install, program and test software and databases for the complete and proper operation of systems involved. Assign software license to Owner. The following is required of the EAC Software:
  - a. The software shall be supplied ready to support any number and configuration of off-line and on-line stand-alone locks and wall readers, with the capacity to manage multiple or single sites including up to 64,000 doors and individual users.
  - b. A Portable Programming Device (PPD) for transferring information to and from the database for all off-line locks and wall readers shall also be included.
  - c. 1024 Time Periods that determine the time intervals at which a lock shall operate in a special mode, timed office mode, automatic opening mode etc.
  - d. 256 Time Zones that determine the interval of time in which a user has access to a particular door or zone
  - e. 256 Calendars, for user access or used by the electronic locks when they operate in a timed mode.
  - f. 1024+ Zones to group doors into sets making programming user access simpler and more efficient.
  - g. User Groups shall enable the system manager to group users according to their privileges of access.
  - h. Operator Groups shall be defined hierarchically and be password protected to allow only authorized staff to make amendments to sections of the database for which they have responsibility.
  - i. Allow multiple simultaneous access, which allows multiple authorized operators to make dynamic changes to the database at any one time.
  - j. Must have a proven API for interfacing with existing and well established traditional access control systems.
  - k. Must have a proven API for interfacing with third party access control panels.
  - l. Must have a maps feature that will allow indicate to the operator where a system produced alarm is located.
  - m. Shall support an "Out of Site" feature which shall work in conjunction with IN and OUT hot spot readers to disable user access when leaving a facility and enabling user access when entering it.
  - n. Shall support a "Limited User Access" feature which can be set to allow a maximum number of users assigned to a door.
  - o. Shall support a "Limited User Occupancy" monitor which can be set to disallow access after the desired number is reached.
  - p. Shall support setting encryption type for Desfire cards.
  - q. Shall incorporate auto assignment when using Legic Prime cards.
  - r. Shall incorporate an activation date and time setting for user cards.
  - s. Shall allow multiple operator groups to be created with software features able to be individually allowed or denied to the group.
  - t. Shall feature a Department tab, allowing departments to share users and also add external (users not in a group) access to the department.

- u. Shall permit specifying Wiegand codes in decimal, hexadecimal, or binary formats, and bit order.
- D. On line Hotspot for Virtual Network
  1. The system Virtual Network (SVN) shall provide the capacity to combine the efficiencies of on-line access control with the (cost) advantages of off-line hardware, using data on card functionality.
  2. With SVN is enabled all on-line readers shall update access protocols on valid staff and user keys when they are presented to a desktop updater or on-line wall reader can also be used at a security entry check point to update any changes to the users access rights as they enter and leave during the day.
  3. If a cardholder has been cancelled an on-line wall reader or elevator reader shall remove all access privileges from the card and shall deny access to anyone presenting the invalid card.
  4. The current list of cancelled cards is placed onto every card when it is presented to an on-line reader (hot-spot), and the updated card shall then transfer that list to the off-line readers each time they are used, allowing for the upgraded list to be transmitted throughout the facilities by the users as they go about accessing doors.
  5. Data on card functionality shall also allow for the collection of audit trails and low battery warnings from staff and user cards.
- E. Emergency
  1. In the event of an emergency the System Manager has the ability to either lock down or unlock all or some doors/locks connected via the Salto Wireless Network. These doors shall then remain locked or unlocked until the emergency is designated as over by the System Security Manager.
- F. CCTV Invalid Card Interface
  1. If an invalid card is presented to an on-line reader an entry is placed immediately in the audit trail and the control unit can trigger a CCTV camera or an alarm (local or remote). This operation can be modified at anytime by changing the dipswitch configuration in the control unit.

#### 1.08 ACTION SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings:
  1. Include plan views indicating locations of system components and proposed size, type, and routing of conduits and/or cables.
  2. Include elevations and details of proposed equipment arrangements.
  3. Include system interconnection schematic diagrams.
  4. Include requirements for interface with other systems.
    - a. Network IP and or MAC addresses of field device.
  5. Include wiring diagrams for power and signal wiring.
- C. Product Data: Provide manufacturer's standard catalog pages and data sheets for each system component. Include ratings, configurations, dimensions, finishes, service condition requirements, and installed features.
- D. Design Data: Standby battery/UPS calculations.
  1. Provide heat load calculations for all hardware.

#### 1.09 INFORMATIONAL SUBMITTALS

- A. Certify that proposed system design and components meet or exceed Owner's stated requirements during Programming meeting/s.
- B. Evidence of qualifications for installer.
- C. Evidence of qualifications for maintenance contractor (if different entity from installer).
- D. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, installation, and operation of product.
- E. Manufacturer's detailed field testing procedures.
- F. Field quality control test reports.
  - 1. The final test report shall indicate that every device was tested successfully in a system test.
- G. Maintenance contracts.

#### 1.10 CLOSEOUT SUBMITTALS

- A. Project Record Documents: Record actual locations of system components and installed wiring arrangements and routing.
- B. Operation and Maintenance Data: Include detailed information on system operation, equipment programming and setup, replacement parts, and recommended maintenance procedures and intervals.
  - 1. Include contact information for entity that will be providing contract maintenance and trouble call-back service.
- C. Warranty: Submit sample of manufacturer's warranty and documentation of final executed warranty completed in Owner's name and registered with manufacturer.
- D. Software: One copy of software not resident in read-only memory.
  - 1. Operating system, database and application software, including installation, system configuration backup and recovery data on CD or DVD media.
- E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. See Section 01 6000 - Product Requirements, for additional provisions.
  - 2. Deliver blank credentials to Owner as directed.

#### 1.11 QUALITY ASSURANCE

- A. Comply with the following:
  - 1. NFPA 70
  - 2. NFPA 101 (Life Safety Code).
  - 3. The requirements of the local authorities having jurisdiction.
  - 4. Applicable TIA/EIA standards.
- B. Maintain at the project site a copy of each referenced document that prescribes execution requirements.
- C. Software integration between the SMS and other integrated system components shall be tested and certified for interoperability by the manufacturers of each system.
- D. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five years documented experience.
- E. Installer Qualifications: Company specializing in performing the work of this section with minimum five years documented experience with access control systems of similar size, type,

and complexity and providing contract maintenance service as a regular part of their business; authorized manufacturer's representative.

1. Contract maintenance office located within 100 miles of project site.

F. Maintenance Contractor Qualifications: Same entity as installer.

G. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

#### 1.12 DELIVERY, STORAGE, AND HANDLING

A. Ordering: The manufacturer's ordering instructions and lead-time requirements shall be followed to avoid installation delays.

B. Delivery, storage, and handling of the Access control hardware shall be in accordance with the manufacturer's recommendations.

C. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

D. Store products in manufacturer's unopened packaging, keep dry and protect from damage until ready for installation.

1. The Physical Access Control System shall be stored and protected from exposure to harmful weather conditions and at the environmental conditions recommended by the manufacturer.

#### 1.13 FIELD CONDITIONS

A. Maintain field conditions within manufacturer's required service conditions during and after installation.

#### 1.14 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. All equipment and systems will be warranted by the Contractor for a period of two (2) years commencing with the filing date of the Notice of Completion after Phase 2, provided the system has been inspected and signed off by the Manufacturer and at the conclusion of satisfactory acceptance of the entire system by the Owner.

C. The period of occupancy of Phase 1 shall also be covered by this warranty.

D. The warranty will cover all costs for Warranty Service, including parts.

E. The contract for service will cover the period starting with the first expected activation of each system for installation and test and will continue for an initial period of two years. A partial-year extension will be acquired to cover the period to the end of the two-year guarantee and will be handled such that a smooth transition to a Customer maintenance agreement can be achieved with no lapse in coverage.

F. Service response will be within 2 hours of the initial request for service; the response may be by phone or remote VPN access into system. This service should be provided during the warranty period at no added cost. This service shall be provided 24 hours per day, 7 days per week, and inclusive of all holidays.

G. Service requests will be reported via phone call to a designated service number provided by Security Contractor, or via a service web site or e-mail account as designated by the security contractor.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Basis of Design: Salto SVN/SHIP/SALLIS compliant Systems.  
Salto Systems, Inc.
  - 1. Finish - Antique Brass
- B. Pre- Approved: Allegion NDE with Engage Technology
  - 1. Finish - Satin Bronze
- C. Pre-Approved Software for system
  - 1. CCure 9000
  - 2. Honeywell Access Control
  - 3. S2
- D. Substitutions: See Section 01 6000 - Product Requirements.
- E. Products other than basis of design are subject to compliance with specified requirements and prior approval of Engineer. By using products other than basis of design, Contractor accepts responsibility for costs associated with any necessary modifications to related work, including any design fees.
- F. Source Limitations: Where possible, furnish system components and accessories produced by a single manufacturer and obtained from a single supplier. Basis of Design: Salto
  - 1. Module include
    - a. Card Readers Units with and without Keypad
    - b. Door Locks SVN and Wireless Versions
    - c. Control Units Relay and Expansion Boards
    - d. UPS Network for Lock
    - e. Power Reader Switches
    - f. Card Encoders or Enrollment Reader
    - g. Portable Programmer Devices

### **2.02 ACCESS CONTROL SYSTEM REQUIREMENTS**

- A. Provide new access control system consisting of all required equipment, conduit (if not provided under other contracts), boxes, wiring, connectors, hardware, supports, accessories, software, system programming, etc. as necessary for a complete operating system that provides the functional intent indicated.
- B. Provide products listed, classified, and labeled as suitable for the purpose intended.
  - 1. Access Control Units and Readers: Listed and labeled as complying with UL 294.

### **2.03 ACCESS CONTROL UNITS AND SOFTWARE**

- A. Provide access control units and associated software compatible with readers to be connected.

### **2.04 ACCESS CONTROL POINT PERIPHERALS**

- A. Provide devices compatible with control units.
- B. Provide devices suitable for operation under the service conditions at the installed location.
- C. Provide readers compatible with credentials to be used.
- D. Reader Color: To be selected by Architect from manufacturer's available standard colors.
- E. Door Locking Devices (Electric Strikes and Magnetic Locks): Comply with Section 08 7100.

## 2.05 ACCESSORIES

- A. Provide components as indicated or as required for connection of access control system to devices and other systems indicated.
- B. Unless otherwise indicated, credentials to be provided by Contractor.
  - 1. Provide credentials compatible with readers and control units/software to be used.
- C. Provide cables as indicated or as required for connections between system components.
- D. Provide accessory racks/cabinets as indicated or as required for equipment mounting.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify the dimensions that are shown on the drawings with field measurements.
- B. Verify that ratings and configurations of the network and infrastructure components are consistent with the indicated requirements.
- C. Verify that mounting surfaces are ready to receive system components.
- D. Verify space allocations, installation tolerance, hazards to safe system operation and other conditions affecting installation are in compliance with system requirements.
- E. Verify that branch circuit wiring installation is completed, tested, and ready for connection to system.
- F. Verify rough-in for LAN, WAN and IP network before device installation.
- G. Verify that conditions are satisfactory for installation prior to starting work.

### 3.02 INSTALLATION

- A. Install access control system in accordance with NECA 1 (general workmanship).
- B. Comply with SIA CP-01 Control Panel Standard.
- C. Comply with ANSI/TIA-606-B Labelling Standard.
- D. Install products in accordance with manufacturer's instructions.
- E. Provide grounding and bonding in accordance with Division 26.
  - 1. Comply with IEEE 1100, "Power and Grounding Sensitive Electronic Equipment."
  - 2. Ground cable shields, drain conductors, and equipment to eliminate shock hazard and to minimize ground loops, common-mode returns, noise pickup, cross talk, and other impairments.
  - 3. Bond shields and drain conductors to ground at only one point in each circuit.
  - 4. Signal Ground:
    - a. Terminal: Locate in each equipment room and wiring closet; isolate from power system and equipment grounding.
    - b. Bus: Mount on wall of main equipment room with standoff insulators.
    - c. Backbone Cable: Extend from signal ground bus to signal ground terminal in each equipment room and wiring closet.
- F. Identify system wiring and components in accordance with Division 26.
  - 1. Cabling:
    - a. Comply with NECA 1, "Good Workmanship in Electrical Contracting."
    - b. Install cables and wiring according to requirements in Division 28.
    - c. Access control system wiring color to be distinct and specific to the system.  
Contractor to coordinate cable colors with all other vendors to ensure color is not duplicated.

- d. Wiring Method: Install wiring in raceway and cable tray except within consoles, cabinets, desks, and counters and except in accessible ceiling spaces and in gypsum board partitions where unenclosed wiring method may be used. Use NRTL-listed plenum cable in environmental air spaces, including plenum ceilings. Conceal raceway and cables except in unfinished spaces.
  - e. Install LAN cables using techniques, practices, and methods that are consistent with Category 5E rating of components and that ensure Category 5E performance of completed and linked signal paths, end to end.
  - f. Install cables without damaging conductors, shield, or jacket.
  - g. Boxes and enclosures containing security system components or cabling, and which are easily accessible to employees or to the public, shall be provided with a lock. Boxes above ceiling level in occupied areas of the building will not be considered to be accessible. Junction boxes and small device enclosures below ceiling level and easily accessible to employees or the public will be covered with a suitable cover plate and secured with tamperproof screws.
  - h. Install end-of-line resistors at the field device location and not at the controller or panel location.
2. Cable Application:
    - a. Comply with EIA/TIA-569, "Commercial Building Standard for Telecommunications Pathways and Spaces."
    - b. Cable application requirements are minimum requirements and will be exceeded if recommended or required by manufacturer of system hardware.
    - c. RS-232 Cabling: Install at a maximum distance of 50 feet (15 m).
    - d. RS-485 Cabling: Install at a maximum distance of 4000 feet (1220 m).
  3. Configuration:
    - a. The configuration of the Physical Access Control System shall be accomplished in accordance with the overall network plan with regard to the following:
      - 1) Network addressing
      - 2) User access
      - 3) Network security

### 3.03 FIELD QUALITY CONTROL

- A. See Section 01 4000 - Quality Requirements, for additional requirements.
- B. Provide services of a manufacturer's authorized representative to observe installation and assist in inspection and testing. Include manufacturer's detailed testing procedures and field reports with submittals.
- C. Prepare and start system in accordance with manufacturer's instructions.
- D. Factory Commissioning: Provide on-site inspection by manufacturer's personnel to test and assess system programming, functionality and performance.
- E. Program system parameters according to requirements of Owner.
- F. Testing Agency: Engage a qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.
  1. Test for proper interface with other systems.
  2. Perform the following field tests and inspections and prepare test reports:
    - a. LAN Cable Procedures: Inspect for physical damage and test each conductor signal path for continuity and shorts. Use Class 2, bidirectional, Category 6 tester. Test for faulty connectors, splices, and terminations. Test according to TIA/EIA-568-1, "Commercial Building Telecommunications Cabling Standards - Part 1 General

Requirements." Link performance for UTP cables must comply with minimum criteria in TIA/EIA-568-B.

- b. Test each circuit and component of each system. Tests will include, but are not limited to, measurements of power supply output under maximum load, signal loop resistance, and leakage to ground where applicable. System components with battery backup will be operated on battery power for a period of not less than 10 percent of the calculated battery operating time. Provide special equipment and software if testing requires special or dedicated equipment.
  - c. Operational Test: After installation of cables and connectors, demonstrate product capability and compliance with requirements. Test each signal path for end-to-end performance from each end of all pairs installed. Remove temporary connections when tests have been satisfactorily completed.
- G. Correct defective work, adjust for proper operation, and retest until entire system complies with contract documents.
- H. The Physical Access Control System shall be tested in accordance with the following:
1. The Contractor shall conduct a complete inspection and test of all installed Physical Access Control System equipment. This process includes testing and verifying operation with connected equipment and network infrastructure.
  2. The Contractor shall provide staff to test all devices and all operational features of the system for witness by the Owner's representative and the Authority having jurisdiction if need be.
  3. The Owner's representative, prior to acceptance, shall witness all testing.
- I. Submit detailed reports indicating inspection and testing results and corrective actions taken.

#### 3.04 STARTUP SERVICE

- A. Prepare and start system in accordance with manufacturer's instructions.
- B. Engage a factory-authorized service representative to supervise and assist with startup service. Complete installation and startup checks according to approved procedures that were developed in the Preparation article and with manufacturer's written instructions. Engage a factory-authorized service representative to supervise and assist with startup service.
  1. Enroll and prepare badges and access cards for Owner's operators, management, and security personnel.

#### 3.05 ADJUSTING

- A. Provide on-site assistance in adjusting system to suit actual occupied conditions.
- B. Provide up to two visits to project site.
- C. Tasks include, but are not limited to the following:
  1. Check cable connections.
  2. Check proper operation of card readers, intrusion sensors, integrated systems and database configuration. Verify SMS configuration and adjust as required.
  3. Recommend changes to SMS configuration and settings to improve operation.
  4. Provide written report of adjustments and recommendations.

#### 3.06 CLEANING

- A. Clean exposed surfaces to remove dirt, paint, or other foreign material and restore to match original factory finish.

#### 3.07 CLOSEOUT ACTIVITIES

- A. See Section 01 7800 - Closeout Submittals, for closeout submittals.

- B. Demonstration: Demonstrate proper operation of system to Owner, and correct deficiencies or make adjustments as directed.
  - 1. The Contractor shall demonstrate the functionality of the Physical Access Control System upon completion of installation, documenting the result of all tests and providing these results to the Owner.
- C. Training: Train Owner's personnel on operation, adjustment, and maintenance of system.
  - 1. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.
  - 2. Provide minimum of one day of training for up to 7 Owner's staff.
  - 3. Instructor: Manufacturer's authorized representative.
  - 4. Location: At project site.
  - 5. Provide separate training modules for the following:
    - a. Computer system administration personnel to manage and repair the LAN and databases and to update and maintain software.
    - b. Operators who prepare and input credentials, monitor the SMS and enroll personnel.
    - c. Security personnel.
    - d. Hardware maintenance personnel.
    - e. Facility management.
  - 6. Video tape training sessions. Provide on DVD or other media as requested by Owner for future reference and training.

### 3.08 PROTECTION

- A. Protect installed system components from subsequent construction operations.

### 3.09 MAINTENANCE

- A.
- B. Provide to Owner, a proposal as an alternate to the base bid, a separate maintenance contract for the service and maintenance of access control system for two years from date of Substantial Completion; Include a complete description of preventive maintenance, systematic examination, adjustment, cleaning, inspection, and testing, with a detailed schedule.
- C. Provide one year of trouble call-back service upon notification by Owner:
  - 1. Include allowance for one call-back service call per month during normal working hours at no extra cost to Owner.
  - 2. Owner will pay for call-back service outside of normal working hours on an hourly basis, based on actual time spent at site and not including travel time; include hourly rate and definition of normal working hours in maintenance contract.

**END OF SECTION**