

ADDENDUM NO. 3

TO

RED CLAY CONSOLIDATED SCHOOL DISTRICT
RICHARDSON PARK ELEMENTARY SCHOOL
BID PACKAGE 'A'

This addendum is hereby made part of the Project Manual and Drawings dated February 9, 2015.

The Project Manual and Drawings shall be supplemented or amended as specified herein.

This Addendum contains changes to the requirement of the Project Manual. Such changes shall be incorporated into the Contract Documents and shall apply to work with the same meaning and force as if they had been included in the original Documents. Whenever this Addendum modifies a portion of a paragraph of the Project Manual, the remainder of the paragraph affected shall remain in force. Added information is shown as **Bold**, deleted information is shown as ~~strikethrough~~.

This Addendum contains changes to the requirement of the Drawings. Such changes shall be incorporated into the Contract Documents and shall apply to work with the same meaning and force as if they had been included in the original Documents. Whenever this Addendum modifies a portion of any drawing, the remainder of the drawing affected shall remain in force. Added, deleted or revised information is shown as "clouded".

The conditions and terms of the basic Contract Documents shall govern work unless otherwise described in this Addendum. Whenever the conditions of work, and the quality or quantity of materials, or workmanship are not fully described in this Addendum, the conditions of work included in the basic Contract Documents for similar items of work shall apply to the work described in this Addendum.

If no similar items of work are included in the basic Contract Document, the best quality of material and workmanship shall apply and all work shall be subject to the written acceptance of the Architect.

THE BID OPENING DATE REMAINS THE SAME. ALL BIDS ARE DUE AT THE RED CLAY CONSOLIDATED SCHOOL DISTRICT OFFICE 1798 LIMESTONE RD, WILMINGTON, DELAWARE 19804 UNTIL 2:00 P.M. LOCAL TIME ON MARCH 13, 2013.

NO FURTHER QUESTIONS CAN BE ASKED OR RESPONDED TO.

BIDDERS ARE ADVISED THAT THE ONLY RELIABLE SOURCE OF DOCUMENTS FOR THIS SOLICITATION IS THE EDIS FTP SITE. BIDDERS THAT RELY ON INFORMATION PUBLISHED ON ANY OTHER COMMERCIAL WEBSITES DO SO AT THEIR OWN RISK.

BIDDERS CAN CONTACT RICHARD MARTIN TO SCHEDULE A SITE VISIT AT 302-528-0111.



Addendum No. 3 – Consists of the following:

- I. Response to Bidders' Questions
- II. Revisions to Project Manual/Specifications
- III. Revisions to Drawings
- IV. Clarifications

**I. RESPONSES TO BIDDERS' QUESTIONS**

1. "Please see the attached product data for the EFCO S-550 Fixed/Projected window. We are submitting this window for approval as an acceptable equal to the specified manufactures in 085113 Aluminum Windows."
Answer - See Addendum #3
2. "Please see the attached product data for the EFCO S-660 Single Hung window. We are submitting this window for approval as an acceptable equal to the specified manufactures in 085113 Aluminum Windows."
Answer - See Addendum #3
3. "Please confirm which frame types specification 084313 (Aluminum-Framed Storefronts) are applicable for. There does not seem to be any Aluminum Storefronts on this project and no details are shown on the Architectural Drawings."
Answer - See Addendum #3
4. "Please confirm specification 081613 Fiberglass Doors is not applicable. There does not appear to be any FRP doors on this project."
Answer - See Addendum #3
5. Please confirm no other windows other than Window Types F, G, H & K contain Asbestos.
Answer - Per Asbestos report
6. Will Field Testing be required as listed in specification 085113?
Answer - Yes – see addendum #3
7. "Will A Mock-up be required as noted on the Summary of Work Line Item "3". If so, please provide clarification of what will be required."
Answer - Mockup will not be required.
8. Please confirm where Detail D2 on A-611 occurs.
Answer - Structural mullion – at cafeteria window
9. "Please advise if Ultralift Class 5 Balances or Block and Tackle Balances are required at the hung windows"
Answer - See Addendum #3
10. Please advise if Limit Stops at Windows are required to be Key Release or not.
Answer - Not required.
11. "Please confirm if the grid on Window Types A & B is only white grid between the glass and not applied to the exterior and/or interior of the window to match the frame color."
Answer - See Addendum #3
12. Please confirm that the warranty would extend one year after substantial completion of the project in August 2016 We would need a two year warranty on equipment installed in the first phase 2015.
Answer - Yes, the warranty for all mechanical systems will commence at the end of the summer work scheduled for completion in August 2016.
13. Attached is Trane's request to be named for Richardson Park Elementary School. Please review and forward for approval.
Answer - Request is approved by owner, refer to Addendum #3
14. Please forward to Furlow Associates Magic Aire by BSS to be approved equal
Answer - Request is **NOT** approved by owner



15. Can you find out what detail I should refer to regarding the large vertical mullions shown on A-610 on Window Types E1, H, and K? That could be a lot of wood blocking and I need to be ready to include it.
Answer - Wood blocking shown in detail D2 on A-610 is not to be included in Glazing Contractor's scope of work.
16. Drawing M-100 note 18 refers to the gas piping work to be by Division 22-Plumbing. Please verify that the gas piping and vents are not in Contract No. A-02 Mechanical and Controls?
Answer - All gas piping and vents are part of Bid Pac 'A', Contract No. A-02. Refer to Addendum #3.
17. Drawing M-500 Classroom UV Connection Details shows a note "New Existing Vertical Pipe Enclosure". Are we to replace the enclosure and pipe? Can we reuse the enclosure and replace the pipe or can we leave the enclosure and pipe and connect to existing at top and bottom? Please clarify.
Answer - These are new items, this detail was revised in Addendum #2
18. Are the horizontal enclosures new or existing?
Answer - These are new items, this detail was revised in Addendum #2

II. REVISIONS TO PROJECT MANUAL/SPECIFICATIONS

1. Section 004100 - Bid Form and Attachments - DELETE Contract No. A 01 Glass & Glazing Bid Form and Attachments and INSERT new Bid Form and Attachments attached.
2. Section 011100 – Summary of Work – DELETE this section in its entirety and INSERT new section attached.
3. Section 012300 – Alternates – DELETE this section in its entirety and INSERT new section attached.
4. Section 06 2000 – Finish Carpentry - DELETE this section in its entirety and INSERT new section attached.
5. Section 07 9005 – Joint Sealers - Page 1, Article 1.01, Paragraph C: Delete paragraph.
6. Section 08 5113 – Aluminum Windows - DELETE this section in its entirety and INSERT new section attached.
7. Section 23 0130, "GAS PIPING SYSTEMS"
 - a. ADD New Section attached
8. Section 23 0730, "AIR HANDLING EQUIPMENT"
 - a. Page 23 0730-6, Paragraph 2.11, A: ADD Trane as an approved manufacturer.
9. Section 23 0900, "AUTOMATIC TEMPERATURE CONTROL"



- a. Page 23 0900-3, Paragraph 2.4, D: REMOVE items #3, 4 and 6 in its entirety.
- b. Page 23 0900-4, Paragraph 2.4 E. Humidity Transmitters: REMOVE in its entirety.
- c. Page 23 0900-5, Paragraph 2.5, E. REMOVE items #2 and #3 in its entirety.
- d. Page 23 0900-6, Paragraph 2.8 Motorized, Rotary Electric Control Valves: REMOVE in its entirety.
- e. Page 23 0900-8, Paragraph 2.9, E. Unit Ventilator with Cooling & Heating Coils: REMOVE and REPLACE with the following:

“E. Unit Ventilator with Dual Temperature Coils

1. The sequence that follows is typical for all units. Each unit ventilator shall be controlled by an individual DDC controller. Fan speed shall be selected manually at each unit.
 - a. Provide a wall mounted space temperature sensor which shall be wired to the DDC controller.
 - b. Provide a fully modulating, 2-way control valve and actuator for the water coil for installation in the unit.
 - c. Provide actuators for the face & bypass dampers, and the outside air/return air dampers.
2. Morning warm-up:
 - a. Based on the occupancy schedule in the existing OWS and prior to the switchover to occupied cycle, the fan shall energize, outside air damper shall remain closed, face & bypass dampers shall open to full face position, and control valve shall open full to coil until space temperature is restored to the occupied setpoint for either heating or cooling. When occupied temperature is reached, the outside damper shall open to occupied position. Return air damper shall move in unison.
3. Occupied Mode:
 - a. During the programmed occupied mode, the supply fan shall run continuously with the outside air damper open to its minimum position and relief damper shall open. On a rise in temperature above the programmed cooling set-point, 75°F (adjustable), the 2-way control valve shall open full to the coil and the space sensor shall modulate the face & bypass dampers to maintain set-point. On a fall in temperature the reverse shall occur.
 - b. On a drop in temperature below the programmed heating set-point, 70°F (adjustable), the 2-way control valve shall modulate open to the coil with the face & bypass dampers open to full face on the coil to maintain set-point. Once the outside air temperature is at or below 40°F (adjustable), the 2-way control valve shall open full to coil, the face & bypass dampers shall modulate to maintain room setpoint. On a rise in temperature the reverse shall occur.
4. Unoccupied Mode:
 - a. During the programmed un-occupied cooling and heating modes, the fan shall cycle, the coil control valve shall modulate to maintain the un-occupied set-points 85°F cooling/60°F heating, (adjustable). The outside air damper shall remain closed, return



air damper shall fully open, face & bypass dampers shall be fully open to coil face.
During unoccupied mode, relief damper shall close.

5. Provide a current sensor on one phase of power feeding the supply fan for status indication at the Operator's Terminal.
 6. If the discharge temperature fails to rise or fall to a programmed minimum temperature during a call for heating or cooling, a low or high temperature alarm shall be activated at the Operator's Terminal.
 7. A low limit control (freeze stat) shall be installed in the unit. When tripped, the freeze stat shall function to de-energize the supply fan, damper actuators, and water control valve. When de-energized, the damper actuator shall spring return the outside air damper closed, open face & bypass dampers to full face, and the water coil control valve shall spring return open to the coil. When the freeze-stat trips, an alarm shall be generated at the Operator's Terminal.
 8. The following items shall be displayed at the Operator's Terminal:
 - a. Space temperature.
 - b. Space temperature set-point.
 - c. Low Space temperature alarm.
 - d. High Space temperature alarm.
 - e. Discharge temperature.
 - f. Global outside air temperature.
 - g. Freeze stat status, normal/alarm.
 - h. Commanded status of fan, off/on.
 - i. Commanded position of control valve, open/closed.
 - j. Commanded position of OA damper, open/closed."
- f. Page 23 0900-10, Paragraph 2.9, H.1: ADD the following to the existing note:
- Provide blocking valves on both supply and return pipe connections to dual temperature piping system.

- g. Page 23 0900-12, Paragraph 2.9: ADD the following:

"I. Ductless Split System Heat Pump

1. The following sequence is for HP-1/ACC-1.
2. System shall be controlled by its factory controls, subject to remote activation through the OWS. Mount and wire the thermostat, which is furnished by the equipment manufacturer, and interlock the controls from the indoor unit to the outdoor unit. Set to maintain 75 degree F (adj.). Settings to cycle fan with set point.
3. Provide a space mounted temperature sensor for monitoring and alarm generation at the OWS. On a rise in space temperature above the programmed high limit setpoint of 80 degree F. (adj.), an alarm shall be activated.
4. The following items shall be displayed at the OWS:
 - a. Space temperature
 - b. High limit alarm & setpoint"



III. REVISIONS TO DRAWINGS

1. Drawing M-100, "PARTIAL BASEMENT PLAN MECHANICAL"
 - a. MECHANICAL NOTES: REPLACE Note #18 with the following:

"18. PROVIDE NATURAL GAS SERVICE, REGULATORS, & VENTS FOR BOILER INSTALLATION AS SHOWN."
2. Drawing MD-110, "PARTIAL FIRST FLOORPLAN DEMOLITION MECHANICAL"
 - a. GENERAL DEMOLITION NOTES: ADD the following:

"WALL SLEEVES – REMOVE EXISTING WALL SLEEVES, EXISTING OA LOUVERS SHALL REMAIN (TYP. FOR ALL UNIT VENTILATORS)."
3. Drawing MD-111, "PARTIAL FIRST FLOOR PLAN DEMOLITION MECHANICAL"
 - a. GENERAL DEMOLITION NOTES: ADD the following:

"WALL SLEEVES – REMOVE EXISTING WALL SLEEVES, EXISTING OA LOUVERS SHALL REMAIN (TYP. FOR ALL UNIT VENTILATORS)."
4. Drawing MD-120, "PARTIAL SECOND FLOOR PLAN DEMOLITION MECHANICAL"
 - a. GENERAL DEMOLITION NOTES: ADD the following:

"WALL SLEEVES – REMOVE EXISTING WALL SLEEVES, EXISTING OA LOUVERS SHALL REMAIN (TYP. FOR ALL UNIT VENTILATORS)."
5. Drawing MD-121, "PARTIAL SECOND FLOOR PLAN DEMOLITION MECHANICAL"
 - a. GENERAL DEMOLITION NOTES: ADD the following:

"WALL SLEEVES – REMOVE EXISTING WALL SLEEVES, EXISTING OA LOUVERS SHALL REMAIN (TYP. FOR ALL UNIT VENTILATORS)."
6. Drawing M-100, "PARTIAL BASEMENT PLAN MECHANICAL"
 - a. GENERAL NOTES: ADD the following:

"1. CONTRACTOR SHALL FURNISH AND INSTALL SURFACE MOUNTED RACEWAY & BOX FOR EACH NEW THERMOSTAT/SENSOR LOCATION. PAINT TO MATCH EXISTING SURFACE COLOR."



2. REFER TO DETAIL SHEET M-500 FOR LOCATION OF CONTROL VALVES FOR UNIT VENTILATORS, FIN-TUBE RADIATION AND CABINET UNIT HEATERS."

7. Drawing M-110, "PARTIAL FIRST FLOOR PLAN MECHANICAL"
 - a. GENERAL NOTES: ADD the following:

"1. CONTRACTOR SHALL FURNISH AND INSTALL SURFACE MOUNTED RACEWAY & BOX FOR EACH NEW THERMOSTAT/SENSOR LOCATION. PAINT TO MATCH EXISTING SURFACE COLOR.

2. REFER TO DETAIL SHEET M-500 FOR LOCATION OF CONTROL VALVES FOR UNIT VENTILATORS, FIN-TUBE RADIATION AND CABINET UNIT HEATERS."

8. Drawing M-111, "PARTIAL FIRST FLOOR PLAN MECHANICAL"
 - a. GENERAL NOTES: ADD the following:

"1. CONTRACTOR SHALL FURNISH AND INSTALL SURFACE MOUNTED RACEWAY & BOX FOR EACH NEW THERMOSTAT/SENSOR LOCATION. PAINT TO MATCH EXISTING SURFACE COLOR.

2. REFER TO DETAIL SHEET M-500 FOR LOCATION OF CONTROL VALVES FOR UNIT VENTILATORS, FIN-TUBE RADIATION AND CABINET UNIT HEATERS."

 - b. ADD a blank plate temp. sensor for R-A in small Storage Room adjacent to toilet room.

9. Drawing M-112, "PARTIAL FIRST FLOOR PLAN MECHANICAL"
 - a. GENERAL NOTES: ADD the following:

"1. CONTRACTOR SHALL FURNISH AND INSTALL SURFACE MOUNTED RACEWAY & BOX FOR EACH NEW THERMOSTAT/SENSOR LOCATION. PAINT TO MATCH EXISTING SURFACE COLOR.

2. REFER TO DETAIL SHEET M-500 FOR LOCATION OF CONTROL VALVES FOR UNIT VENTILATORS, FIN-TUBE RADIATION AND CABINET UNIT HEATERS."

10. Drawing M-120, "PARTIAL SECOND FLOOR PLAN MECHANICAL"
 - a. GENERAL NOTES: ADD the following:

"1. CONTRACTOR SHALL FURNISH AND INSTALL SURFACE MOUNTED RACEWAY & BOX FOR EACH NEW THERMOSTAT/SENSOR LOCATION. PAINT TO MATCH EXISTING SURFACE COLOR.



2. REFER TO DETAIL SHEET M-500 FOR LOCATION OF CONTROL VALVES FOR UNIT VENTILATORS, FIN-TUBE RADIATION AND CABINET UNIT HEATERS.”
11. Drawing M-121, “PARTIAL SECOND FLOOR PLAN MECHANICAL”
- a. GENERAL NOTES: ADD the following:
- “1. CONTRACTOR SHALL FURNISH AND INSTALL SURFACE MOUNTED RACEWAY & BOX FOR EACH NEW THERMOSTAT/SENSOR LOCATION. PAINT TO MATCH EXISTING SURFACE COLOR.
2. REFER TO DETAIL SHEET M-500 FOR LOCATION OF CONTROL VALVES FOR UNIT VENTILATORS, FIN-TUBE RADIATION AND CABINET UNIT HEATERS.”
12. Drawing M-500, “DETAILS MECHANICAL”
- a. CLASSROOM UV CONNECTION DETAILS: DOWNFEED:
- REVISE notes to read 'NEW VERTICAL PIPE ENCLOSURE' and 'NEW HORIZONTAL PIPE ENCLOSURE'.
- b. INSTALLATION DETAIL:
- REVISE note to read:
- “20 GAUGE METAL PANEL TO CONCEAL EXISTING WALL OPENING, SEAL AIRTIGHT. PROVIDE OA OPENING IN PANEL 8”H x UNIT’S OA OPENING LENGTH. PROVIDE 1” THICK RIGID INSULATION TO INSIDE SURFACE OF METAL PANEL.”
- c. UNIT VENTILATOR PIPE ENCLOSURE DETAIL:
- REVISE note to read “INSULATED DUAL TEMPERATURE PIPING.
- ADD the following note:
- “DETAIL IS TYPICAL FOR BOTH HORIZONTAL AND VERTICAL ENCLOSURES REQUIRED TO CONCEAL PIPING TO UNIT VENTILATOR.”
- d. ADD CABINET UNIT HEATER DETAIL. Refer to Sketch M-700.
13. Drawing M-600, “SCHEDULES MECHANICAL”:
- a. UNIT VENTILATOR SCHEDULE: REVISE Note #1 to read:
- “1. UNIT VENTILATOR SHALL BE PROVIDED WITH A FREEZESTAT, TERMINAL STRIP, FACE & BY-PASS OPERATION AND END PANELS.”



- b. FINNED TUBE RADIATION SCHEDULE: ADD the following note:

"4. PROVIDE VERTICAL AND HORIZONTAL PIPING ENCLOSURE TO CONCEAL PIPING FEEDING UNITS."
- c. HOT WATER CABINET UNIT HEATER SCHEDULE: ADD the following note:

"3. PROVIDE VERTICAL AND HORIZONTAL PIPING ENCLOSURE TO CONCEAL PIPING FEEDING UNITS."
- d. BOILER SCHEDULE: REMOVE Note #2 in its entirety.
- e. LOUVER SCHEDULE: REVISE the size for SL-2 through SL-16 to be 32"X8"X2" Dp.

IV. DOCUMENT CLARIFICATIONS

1. See attached asbestos identified window location Sketches 1, 2 & 3 for clarification purposes only.
2. The only acceptable manufacturers are YKK, Efco and Traco/Kawneer.

END OF ADDENDUM NO. 3

Contract: A-01 – GLASS & GLAZING

BID FORM

For Bids Due: _____ To: _____

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

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.

1. Base Bid shall be completed during normal work hours, which for this project are from 7:00 p.m. to 3:30 p.m. Alternate #1 is for additional cost to be completed during 2nd shift. The Second Shift work will be scheduled from 2:30 pm to 11:00 pm.

Add/Deduct _____ (\$ _____)

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- 2. Provide add pricing to complete glass in Conference Room 134 (Type M & N windows). Provide all sills, corner connections and flashing. Alternate pricing shall NOT include demolition or disposal as these windows will be demolished by abatement contractor.**

Add/Deduct _____ (\$ _____)

UNIT PRICES: NONE

Unit Prices _____ (\$ _____)

NOTE: The difference in price between Add and Deduct in the above Unit Prices should not exceed ten percent (10%).

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 sixty (90) days (Project Manager's Note: Verify and coordinate with Section 00100 Instruction to Bidders.) from 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

- Sub-Contractor List
- Non-Collusion Statement
- Bid Bond
- Consent of Surety
- (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 & State)</u>	<u>Subcontractors tax payer ID # or Delaware Business license #</u>
1. <u>Window Supplier</u>	_____	_____	_____
2. <u>Demolition</u>	_____	_____	_____
3. <u>Caulker</u>	_____	_____	_____

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: **A-01 Glass & Glazing** 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 _____ in the sum of _____
_____ Dollars (\$ _____), or percent not to exceed _____
_____ Dollars (\$ _____) of amount of bid on Contract No. _____ to
be paid to the _____ for the use and benefit of the _____ 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
_____ 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 _____ 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)

SECTION 101100 - SUMMARY OF WORK

1. RELATED DOCUMENTS

- 1.1 Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Sections, apply to work of this Section.

2. CONTRACTS

- 2.1 The work will be performed under separate prime contracts managed by the Construction Manager.

3. ALTERATIONS & COORDINATION

- 3.1 Contractor shall be responsible to coordinate their work with the work of others, including, but not limited to, the preparation of general coordination drawings, diagrams and schedules, and control of site utilization, from the beginning of activity, through project close-out and warranty periods.

4. KNOWLEDGE OF CONTRACT REQUIREMENTS

- 4.1 The Contractor and his Subcontractors, Sub-subcontractors and material men shall consult in detail the Contract Documents for instructions and requirements pertaining to the Work, and at his and their cost, shall provide all labor, materials, equipment and services necessary to furnish, install and complete the work in strict conformance with all provisions thereof.
- 4.2 The Contractor will be held to have examined the site of the Work prior to submitting his proposal and informed himself, his Subcontractors, Sub-subcontractors and material men of all existing conditions affecting the execution of the Work.
- 4.3 The Contractor will be held to have examined the Contract Documents and modifications thereto, as they may affect subdivisions of the Work and informed himself, his Subcontractors, Sub-subcontractors and material men of all conditions thereof affecting the execution of the Work.
- 4.4 The Scope of Work for the Contract is not necessarily limited to the description of each section of the Specifications and the illustrations shown on the Drawings. Include all minor items not expressly indicated in the Contract Documents, or as might be found necessary as a result of field conditions, in order to complete the Work as it is intended, without any gaps between the various subdivisions of work.
- 4.5 The Contractor will be held to be thoroughly familiar with all conditions affecting labor in the area of the Project including, but not limited to, Unions, incentive pay, procurements,

living, parking and commuting conditions and to have informed his Subcontractors and Sub-subcontractors thereof.

5. CONTRACT DOCUMENTS INFORMATION

- 5.1 The Contract Documents are prepared in accordance with available information as to existing conditions and locations. If, during construction, conditions are revealed at variance with the Contract Documents, notify the Construction Manager immediately, but no more than three (3) days from the day the variance is first known. Failure to give timely notice shall operate to waive any claim Contractor might otherwise have for an adjustment to Contract Time or Sum as a consequence of such variance.
- 5.2 The Specifications determine the kinds and methods of installation of the various materials, the Drawings establish the quantities, dimensions and details of materials, the schedules on the Drawings give the location, type and extent of the materials.
- 5.3 Dimensions given on the Drawings govern scale measurements and large scale drawings govern small scale drawings, except as to anything omitted unless such omission is expressly noted on the large scale drawings.
- 5.4 The techniques or methods of specifying to record requirements varies throughout text, and may include "prescriptive", "open generic/descriptive", "compliance with standards", "performance", "proprietary", or a combination of these. The methods used for specifying one unit of work has no bearing on requirements for another unit of work.
- 5.5 Whenever a material, article or piece of equipment is referred to in the singular number in the Contract Documents, it shall be the same as referring to it in the plural. As many such materials, articles or pieces of equipment shall be provided as are required to complete the Work.
- 5.6 Whenever a material, article or piece of equipment is specified by reference to a governmental, trade association of similar standard, it shall comply with the requirements of the latest publication thereof and amendments thereto in effect on the bid date.
- 5.7 In addition to the requirements of the Contract Documents, Contractor's work shall also comply with applicable standards of the construction industry and those industry standards are made a part of Contract Documents by reference, as if copied directly into Contract Documents, or as if published copies were bound herein.
- 5.8 Where compliance with two (2) or more industry standards, contract requirements, or sets of requirements is specified, and overlapping of those different standards or requirements establishes different or conflicting minimums or levels of quality, then the most stringent requirements, which are generally recognized to be also the most costly, is intended and

will be enforced, unless specifically detailed language written into the Contract Documents clearly indicates that a less stringent requirement is to be fulfilled. Refer apparently equal but different requirements, and uncertainties as to which level of quality is more stringent, to Architect for decision before proceeding.

- 5.9 Reference standards referenced directly in Contract Documents or by governing regulations have precedence over non-reference standards which are recognized in industry for applicability of work.
- 5.10 Contractor's bid is based on the complete set of Contract Documents including documents not specifically issued as part of the bid pack but referenced in same.

6. SCOPE OF WORK/GENERAL INFORMATION

- 6.1 A Scope of Work for each contract to be awarded on the project follows in this section. When a Contract has been awarded to a Contractor, the successful Contractor will be listed after the title of the Contract. When no Contract has yet been awarded, no Contractor's name will be listed. Previous Scopes of Work include addendum changes.
- 6.2 Contractor is responsible for performing the work listed in the Summary of Work for his contract. Contractor is also responsible for knowing the work that has been assigned to preceding contracts. No additional compensation or extension of time will be allowed a Contractor due to his ignorance of the work assigned to his Contract or to other contracts which may affect his work. The Contractor is responsible, however, for all items which are covered in the Specifications and Drawings relating to their Contract if not specifically mentioned in the Summary of Work.
- 6.3 The Construction Manager will provide onsite a source for temporary electric, temporary water and portable sanitation facilities only. It is each Contractor's responsibility to make the necessary connections, including all material for temporary electric and water. Please note that utility charges for office trailers will be the responsibility of the individual Contractors.
- 6.4 A dumpster will be provided on site for free use by Contractors to dispose of non-hazardous, common, work-related refuse. Clean-up is the responsibility of each Contractor. Clean up shall be performed on a daily basis. Contractors not complying will be advised in writing and back charged for all costs associated with the cleanup of their work.
- 6.5 Contractors are reminded that there are limited storage areas available on site. Offsite storage will be the responsibility of each individual Contractor.
- 6.6 Office trailer permits off site will be the responsibility of each individual Contractor. On site Contractor's field offices, one (1) per Contractor, if required, will be located as

directed by the Construction Manager.

- 6.7 Contractor will be prepared to discuss and submit a detailed project schedule seven (7) days after receipt of Notice to Proceed and to begin its submittal process. The Project Schedule is an integral part of this contract. Certain construction sequences and priorities must take place in order to meet the target dates. Concentrated work periods will occur and each Contractor is responsible to staff the project as required by the current Construction Schedule or as directed by the Construction Manager. Contractor will cooperate with the Construction Manager in planning and meeting the required sequences of work and Project Schedule as periodically updated by the Construction Manager.
- 6.8 All bids must include insurance limits in accordance with Article 11 of the Section 007300 SUPPLEMENTARY CONDITIONS.
- 6.9 Hoisting, scaffolding and material handling is the responsibility of each Contractor, unless otherwise noted.
- 6.10 Contractor will be responsible for layout of its own work. The Construction Manager will provide benchmark and layout of the building line.
- 6.11 Contractor will be responsible to keep clean public roadways soiled by construction traffic on a daily basis. If cleaning is not done, the Construction Manager may perform the cleaning on an overtime basis and back charge the Contractor responsible.
- 6.12 Contractor Scopes of Work and Schedule are interrelated. Familiarity with each is required.
- 6.13 The Construction Manager will provide testing services for soil, concrete and steel. Other testing as required by the Contract Documents will be in accordance with the technical specifications and/or the individual scope of work. Refer to Specification Section 004500 - QUALITY CONTROL.
- 6.14 Safety is the responsibility of each individual Contractor. The project will be governed under the guidelines of OSHA.
- 6.15 Inter-Contractor shop drawing distribution will be performed by the Construction Manager. Contractor is individually responsible for either coordinating his work with these distributed drawings or notifying the Construction Manager, in writing, of any discrepancies.
- 6.16 Coordination with other trades will be required. The Contractor will be required to attend periodic coordination meetings with other trades where requirements, conflicts and coordination issues will be discussed and resolved. Attendance when requested will

be mandatory. If inter-Contractor coordination is not satisfactorily performed, the conflicting Contractors shall mutually share the cost to relocate and/or reinstall their work.

- 6.17 Contractor shall submit a schedule of values to the Construction Manager prior to the submission of their first invoice for approval on AIA G702/CMA, Application for Payment and G703, Continuation Sheet.
- 6.18 Contractor is expected to review and coordinate its Work with the complete set of Contract Documents, including all items noted as by his trade whether or not shown on that particular set of drawings. Documents are available at the site for review.
- 6.19 Contractor is responsible for obtaining all necessary permits required for his work, including street permits. Unless otherwise noted, building permit shall be secured by the Construction Manager. Any subcontractor who will be restricting access to street, right of way or adjacent property must notify the Construction Manager 48 hours in advance.
- 6.20 Contractor's License: Submit a copy of all business licenses required by local and state agencies.
- 6.21 Contractor shall absorb, without additional compensation, any and all costs of working beyond normal hours to maintain job progress in accordance with the current construction schedule.
- 6.22 No asbestos or PCB's in or on any material or equipment will be accepted or allowed on this project. All hazardous materials will be treated in accordance with all State and Federal regulations.
- 6.23 Daily cleanup of the work is the responsibility of each individual Contractor which includes broom cleaning of their debris as required. Contractor will be individually back charged by the Construction Manager for cleanup not satisfactorily performed by the Contractor.
- 6.24 In the event asbestos is uncovered, the Contractor shall notify the Construction Manager of the areas requiring removal of asbestos. The Construction Manager shall then coordinate the removal with the Owner.
- 6.25 This project is to be constructed adjacent to and in existing buildings. Contractor shall exercise all due precautions to minimize noise, air pollution and any other construction hazards which in any way would cause discomfort or danger to the occupants of the existing building in the area.
- 6.26 Existing mechanical, electrical, plumbing, sprinkler, medical gas, fire alarm, etc. systems will be shut off and locked out by the Owner as required by the Work. Tie-in's and

modifications to those systems will be performed by the specific Contractor associated with the work as indicated in the Contract Documents. Re-energizing and re-startup of all systems should be performed by the Owner.

- 6.27 The Safety Cable System shall not be altered or removed without a written request submitted to the Project Manager with a copy to the Field Manager. It shall be the responsibility of each and every Contractor that is removing or altering the Safety Cable System to maintain the fall protection safety provided by the safety cable and not leave the area unprotected. Each and every Contractor shall be responsible to re-install the Safety Cable System immediately after work is completed. Each and every Contractor shall be responsible to re-install the Safety Cable System in accordance to OSHA standards.
- 6.28 Normal work hours for this project are from 7:00 p.m. to 3:30 p.m. Any work to be performed outside of these hours must receive prior approval from the Construction Manager. Requests to work beyond normal work hours shall be submitted at least 48 hours prior.
- 6.29 Contractor is responsible for having a competent project superintendent/foreman on-site during all work performed under its contract.
- 6.30 In the event the Contractor has non-English speaking employees or subcontractors on the project, they shall have a superintendent or foreman on site, at all times, who speaks English and can communicate with Contractor's employees. Should the Contractor fail to meet this requirement, at any time, Construction Manager may direct all Work to stop until the proper supervision is on site. The Contractor will be responsible for maintaining the project work schedule and make up at its own expense, any delay to the Schedule resulting from the work stoppage.
- 6.31 Punch List Procedures: Contractor shall be given a copy of the punch list with his appropriate work identified. Contractor shall have nine (9) calendar work days to complete its punch list work. On the 10th day or as determined by the Construction Manager, the Construction Manager shall employ other contractors, as required, to complete any incomplete punch list work and retain from the appropriate Contractors retainage all costs incurred.
- 6.32 Contractor shall provide the necessary safety barricades and railings required to complete their work and comply with all OSHA, local code and contract specifications.
- 6.33 Liquidated Damages: Contractors are responsible to provide sufficient manpower and equipment and materials to complete work as shown in the project schedule. Any delays in completing a phase of work due to issues caused by a contractor will be subject to a penalty of \$1,000 per calendar day that the work is not completed following the scheduled completion date of that phase of work.

CONTRACT NO. A 01 – GLASS & GLAZING

A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

- Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Section 024100	Demolition
Section 061000	Rough Carpentry
Section 062000	Finish Carpentry
Section 079005	Joint Sealers
Section 084313	Aluminum Framed Storefronts
Section 085113	Aluminum Windows
Section 088000	Glazing

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide all materials, equipment and labor to complete glass & glazing systems including all flashings, blocking as required, sills, fasteners, weather stripping, aluminum panning, hardware, caulking and associated installation.
2. Provide interior and exterior caulking related to exterior windows.
3. ~~Provide Mock up/testing as required by the Drawings and Specifications.~~
4. Provide custom break metal trim and infills as indicated.
5. Provide all aluminum flashing, bituminous coatings, thermal insulation
6. Provide all hoisting/scaffolding related to complete the work of this Contract.
7. Include all necessary design labor and quick-ship costs (if any) to supply windows such that they are ordered and can be delivered to the site for installation during each phase as shown on the construction schedule. ~~Project shall start 6/10/15 and completion 8/15/15.~~
See revised construction schedule.
8. All windows containing asbestos are to be removed by abatement contractor in conjunction with the installation schedule. All other demolition relevant to window replacement to be completed by this contractor.
9. ~~Provide wood blocking, sills and trim at windows as indicated.~~

10. Window treatments are to remain. If removed for ease, this contractor shall include all costs associated with removal and reinstallation.
11. Sub sills, end dams, sill extensions, flashings, etc. are to be provided by this contractor.
12. Provide factory glazing as indicated.
13. Provide inspect screens.
14. Provide shop drawings in a timeframe that will allow enough lead time to allow review and ordering in a manner that will allow the schedule to be completed without delay.
15. Provide all specified warranties for all specified items such as glass seals, degradation of finishes, fading, flaking etc. including, but not limited to 1 year standard warranty.
16. Provide all materials by specified acceptable manufacturers.
17. Provide weep drainage network and any water entering joints within system as specified.
18. Provide organic coatings.
19. Provide low-e glass.
20. Provide sash locks and limit stops at all windows.
21. Provide shop and touch up for all components.
22. ~~Provide wash down and final cleaning of windows (Interior and exterior) at end of installation.~~ **Final cleaning will be provided by others.**
23. Provide thermal isolation components where penetrations or disruptions of building insulation occur and provide shim spaces at perimeter that maintain continuity of thermal barrier.
24. Provide daily fine cleanup of the work is the responsibility of each individual Contractor which includes broom cleaning of their debris as required. Daily Fine clean up on a daily basis shall be defined as those means/methods utilized to perform the daily cleaning tasks without producing dust, noise and stacking of stored materials. All debris must be removed from the building at the end of each work day.
25. Perform all demolition and disposal of all existing window units and associated materials to a dumpster provided by this contractor. No construction dumpster will be provided by the Construction Manager for the removal of any demolished materials.

26. Base Bid shall be completed during normal work hours, which for this project are from 7:00 p.m. to 3:30 p.m. Alternate #1 is for additional cost to be completed during 2nd shift. The Second Shift work will be scheduled from 2:30 pm to 11:00 pm.
27. Provide all temporary lighting for installations as needed to complete all work in base bid. If Alternate #1 is accepted, this contractor shall include costs for additional lighting as needed to complete this work.
28. All work commenced during a shift must be completed at the end of each shift. No work can be left incomplete, unfinished or unsafe for student use or interaction. This includes, but is not limited to, completion of installation, removal of all debris, material and equipment in each area and the removal of any unsafe conditions created by the installation each shift. All openings are to be watertight at the end of each shift. Any additional labor or materials extending beyond normal working hours will be done so at own risk. No additional compensation will be provided for work not completed as scheduled, on a daily basis.
29. Windows types F, G, H, J & K have been identified having asbestos associated with these openings. A separate asbestos contractor will provide demolition of these windows. This contractor shall coordinate with asbestos removal contractor to ensure all installations are enclosed with replacement windows as soon as the asbestos has been removed.
30. ~~Include all associated provisions with the understanding that this project includes liquidated damages of \$1,000 a day for every day not completed per construction schedule.~~ **There will be no liquidated damages as the schedule has been revised.**
31. Provide a \$5,000 allowance to be used at the discretion of the Construction Manager.
32. **Wood blocking and sills will be provided by Carpentry and General Works Contractor in Bid Package B.**
33. **Trim is still to be provided by this Contractor.**

CONTRACT NO. A 02 – MECHANICAL & CONTROLS

A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

- Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Section 024100	Demolition
Section 062000	Joint Sealers
Section 230130	Gas Piping Systems
Section 230200	General Provisions – HVAC
Section 230210	Basic Materials and Methods – HVAC
Section 230215	Valves
Section 230230	Insulation & Covering – HVAC
Section 230300	Vibration and Sound Insulation – HVAC
Section 230400	Heating Generation Equipment
Section 230410	Heating Generation Auxiliary Equipment
Section 230450	Refrigeration Equipment - HVAC
Section 230500	Piping Systems & Accessories – HVAC
Section 230510	Water Treatment – HVAC
Section 230600	Air Distribution and Accessories – HVAC
Section 230605	Fans
Section 230725	Terminal Heating Units
Section 230730	Terminal Heating and Cooling Equipment
Section 230760	Air Handling Equipment
Section 230900	Automatic Temperature Controls
Section 230950	Testing and Adjusting of Mechanical Units

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide the demolition, purchase of all new units and replacement of all mechanical systems as indicated on the Drawings and in the Specifications.
2. Division 26 of the specifications should be reviewed as it relates to the power wiring and other requirements for HVAC equipment including the coordination of furnishing and installing motor starters as provided in the specifications.
3. Provide the removal of existing and installation of all equipment bases and housekeeping pads as indicated. Include removal of debris to this contractor's supplied dumpster. CM Will not provide any dumpsters for demolition debris.

4. Provide permitting and inspections as required.
5. This Contractor shall be responsible to designate an individual within his organization, intimately familiar with this project and assigned on site, to act as the System Start-up Coordinator. This individual must be pre-approved by the Construction Manager. This individual's responsibilities shall include, but not be limited to, coordinating the start-up of all mechanical equipment, including the coordination between the Electrical Contractor, the Controls Contractor, and all testing, adjusting and balancing work. This individual shall report on a weekly basis, in written form, to the Construction Manager. These reports shall include a summary of current conditions including manufacturers' start-ups, systems' deficiencies noted to date and the remediation of same, coordination issues between trades, system interfacing and forecasting, as necessary to project the completion of each individual system within the building.
6. Provide penetrations through wall, floors, etc. including cutting, patching, insulating and fire safing.
7. Provide testing adjusting and balancing as specified. Include water and air balancing completed by certified balancer. Report is due prior to New Castle county final inspection.
8. Provide daily fine cleanup of the work is the responsibility of each individual Contractor which includes broom cleaning of their debris as required. Daily Fine clean up on a daily basis shall be defined as those means/methods utilized to perform the daily cleaning tasks without producing dust, noise and stacking of stored materials. All debris must be removed from the building at the end of each work day.
9. All guarantees and warranties to begin at the substantial completion of the entire project. Maintain equipment prior to substantial completion.
10. Provide all lifts, hoisting, rigging and scaffolding needed to complete all of scope of work.
11. Provide, coordinated design, supply, and installation of automatic temperature controls. This contractor is responsible for coordination and installation of ATC system as specified under this section.
12. Provide all ductwork, flex duct, grilles and diffusers and all associated supports, hangars and bracing. Any blocking associated with the curbs or bracing shall be provided by this contractor. For blocking installations, reference section 06200.
13. Provide new louvers and adjustments to existing louvers and vents related to HVAC operations.

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14. Coordinate damper size, location and type of damper with architectural drawings.
 15. Temporary heat and ventilation installation, maintenance and removal. Refer to Division 1, Specification section 015123 - TEMPORARY HEAT AND VENTILATION, for specific scope.
 16. Provide roof curbs and include all costs associated with roof patching, flashings and counter flashings and any temporary roof enclosure needed to perform this work to ensure water tight openings at all times. Any blocking associated shall be provided by this contractor. For blocking installations, reference section 06200.
 17. Provide access panels as required.
 18. Provide as- built drawings.
 19. This contractor is responsible to accept delivery and/or provide storage of all equipment and then transportation to curb side of job site and provide installation of all systems. No additional costs for multiple deliveries in order to maintain sequence will be provided.
 20. Provide coordination with the owner's ATC Contractor for equipment and materials being provided under their contract. This contractor responsible to accept delivery of all equipment at curb side and provide installation.
 21. Provide all piping connections from D Mark locations where indicated. All acoustical ceilings will need to be removed, stored, protected and reinstalled by this contractor on an as needed basis to access the tie-in locations as indicated. Any tiles damaged or found to be unsuitable shall be replaced by this contractor at no additional costs to the project.
 22. Provide all necessary design labor and quick-ship costs to provide: unit ventilators, roof top units, exhaust fans, heat pumps, coils, unit heaters, hot water cabinet unit heaters, hot water duct coils, ductless split and Finned Tube units for installation in Phase 1 (Summer 2015) areas for installation prior to August 2015 as stated in the project schedule. All other mechanical units, such as boiler and pumps must be ordered and delivered to site for installation in Phase II (Summer 2016).
 23. Provide pricing for all alternates as described in Section 012300-Alternates.
 24. Perform all demolition and disposal of all existing units and associated connections to a dumpster provided by this contractor. No construction dumpster will be provided by the Construction Manager for the removal of any demolished materials. This includes Mechanical, plumbing and control systems and components.
 25. Provide all patching of walls and floors. Patching is to provide smoke/seal through walls

and floors.

26. Provide protection of adjacent floors and finishes during demolition of mechanical and plumbing fixtures, equipment, pipe, etc. Protection shall consist of 20 mill poly layered under Masonite that has been duct taped for access in all areas affected including hallways leading to rooms.
27. Provide labeling, valve charts or tags as indicated.
28. Domestic plumbing will be issued in Bid Pac "B". No costs associated with domestic piping shall be included in base bid.
29. Provide an allowance to install two (2) 6" valves and four (4) 1 1/2" valves on the piping mains to the classrooms in the event that existing valves do not hold. Any allowance costs not utilized will be returned to owner at end of project if not utilized.
30. Base Bid shall be completed during normal work hours, which for this project are from 7:00 p.m. to 3:30 p.m. Alternate #1 is for additional cost to be completed during 2nd shift. The Second Shift work will be scheduled from 2:30 pm to 11:00 pm.
31. Provide all temporary lighting for installations as needed to complete all work in base bid. If Alternate #1 is accepted, including alternate costs for additional lighting as needed to complete this work.
32. All work commenced during a shift must be completed at the end of each shift. No work can be left incomplete, unfinished or unsafe for student use or interaction. This includes, but is not limited to, completion of installation, removal of all debris, material and equipment in each area and the removal of any unsafe conditions created by the installation each shift. Any additional labor or materials extending beyond normal working hours will be done so at own risk. No additional compensation will be provided for work not completed as scheduled, on a daily basis.
33. Provide intake/exhaust duct system at exhaust fans and outside air intakes as indicated.
34. Provide a pate pipe curb assembly at roof penetrations.
35. Provide blank plates where indicated.
36. Remove and reinstall piping enclosures (horizontal and vertical) to provide removal, reinstallation of piping, power & controls. If additional piping enclosures are required, this contractor shall provide as indicated on M-500 – Unit Ventilator Piping Enclosure Detail. This contractor must coordinate with Electrical contractor that will be awarded in Bid Pac "B".

37. All rooftop equipment or components must have specified equipment support rails and/or pipe supports, flashings and counter flashings provided by this contractor. Any blocking associated with the curbs or bracing shall be provided by this contractor. For blocking installations, reference section 06200.
38. Provide drip pans where specified.
39. Provide all factory startup of equipment as specified.
40. Abandon, demolish and cap steam and condensate lines as indicated.
41. Provide wall sleeve to connect outdoor air opening on unit ventilator to outdoor grilles.
42. Provide all work associated with the following notes: Mechanical notes, Mechanical demolition notes and Boiler Room Notes located on the Mechanical drawings.
43. Include all associated provisions with the understanding that this project includes liquidated damages of \$1,000 a day for every day not completed per construction schedule.
44. Provide a \$10,000 allowance to be used at the discretion of the Construction Manager.
45. **Provide all Gas piping as indicated. This was added as a request to question #16 in Addendum No. 3.**

END OF SECTION

SECTION 012300 - ALTERNATES

1. GENERAL PROVISIONS

- 1.1 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.
- 1.2 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.
- 1.3 For work being constructed under separate prime contracts, provisions of this Section apply to each contract being bid.

2. BASE BID

- 2.1 The Base Bid shall consist of all work shown or specified in the Contract Documents, exclusive of any Additive Alternates specified herein.
- 2.2 The Base Bid shall include all work in any Subtractive Alternates specified herein.

3. ALTERNATES

- 3.1 State in the Bid Form the amount to be added to the Base Bid for each Alternate specified.
 - 3.2 See Section 002113 - INSTRUCTIONS TO BIDDERS for related information.
 - 3.3 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.
1. ***Alternate No. 1:*** Base Bid shall be completed during normal work hours, which for this project are from 7:00 p.m. to 3:30 p.m. Alternate #1 is for additional cost to be completed during 2nd shift. The Second Shift work will be scheduled from 2:30 pm to 11:00 pm.
 2. ***Alternate No. 2:*** Provide add pricing to complete glass in Conference Room 134 (Type M & N windows). Provide all sills, corner connections and flashing. Alternate pricing shall NOT include demolition or disposal as these windows will be demolished by abatement contractor.

END OF SECTION

SECTION 06 2000
FINISH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Refer to Scope Information Sheets for this contract bound in the Project Manual under Section 01 10 00, Summary of Work. The Scope Information Sheets describe generally the work included in each contract, but the work is not necessarily limited to that described.
- B. Finish carpentry items.
- C. Hanging doors, installing hardware.
- D. Hardware and attachment accessories.

1.02 RELATED REQUIREMENTS

- A. Section 06 1000 - Rough Carpentry: Support framing, grounds, and concealed blocking.
- B. Section 09 9000 - Painting and Coating: Painting and finishing of finish carpentry items.

1.03 REFERENCE STANDARDS

- A. ANSI A135.4 - American National Standard for Basic Hardboard; 2012.
- B. ANSI A208.1 - American National Standard for Particleboard; 2009.
- C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2014.
- D. HPVA HP-1 - American National Standard for Hardwood and Decorative Plywood; Hardwood Plywood & Veneer Association; 2009.
- E. NEMA LD 3 - High-Pressure Decorative Laminates; National Electrical Manufacturers Association; 2005.
- F. PS 1 - Structural Plywood; 2009.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Sequence installation to ensure utility connections are achieved in an orderly and expeditious manner.

1.05 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Product Data:
 - 1. Provide data on fire retardant treatment materials and application instructions.
 - 2. Provide instructions for attachment hardware and finish hardware.
- C. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, and accessories.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Protect work from moisture damage.

PART 2 PRODUCTS

2.01 FINISH CARPENTRY ITEMS

- A. Interior Woodwork Items:
 - 1. Mouldings, Bases, Casings, and Miscellaneous Trim: Clear poplar; prepare for paint finish.
 - 2. Window stools: Solid surface material..

2.02 SHEET MATERIALS

- A. Softwood Plywood Not Exposed to View: Any face species, veneer core; PS 1 Grade A-B; glue type as recommended for application.

2.03 SOLID SURFACE MATERIALS

- A. Solid Surfacing Material: Solid surfacing sheet or plastic resin casting over continuous substrate.
 - 1. Flat Sheet Thickness: 1/2 inch, minimum.
 - 2. Solid Surfacing Sheet and Plastic Resin Castings: Complying with ISSFA-2 and NEMA LD 3; acrylic or polyester resin, unfilled, and pigments; homogenous, non-porous and capable of being worked and repaired using standard woodworking tools; no surface coating; color and pattern consistent throughout thickness.
 - a. Surface Burning Characteristics: Flame spread 25, maximum; smoke developed 450, maximum; when tested in accordance with ASTM E84.
 - b. Finish on Exposed Surfaces: Matte, gloss rating of 5 to 20.
 - c. Color and Pattern: As selected by Architect from manufacturer's full line.
 - d. Manufacturers:
 - 1) Dupont: www.corian.com.
 - 2) Formica Corporation: www.formica.com.
 - 3) Wilsonart International, Inc: www.wilsonart.com.
 - 4) Substitutions: See Section 01 6000 - Product Requirements.

2.04 DOORS AND HARWARE

- A. Refer to Section 08 1113 Hollow Metal Doors and Frames for information.
- B. Refer to Section 08 7102 Hardware for information.

2.05 WOOD TREATMENT

- A. Fire Retardant Treatment (FR-S Type): Chemically treated and pressure impregnated; capable of providing flame spread index of 25, maximum, and smoke developed index of 450, maximum, when tested in accordance with ASTM E84.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Set and secure materials and components in place, plumb and level.
- B. Install doors and frames as scheduled.
- C. Install hardware as scheduled.
- D. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim to conceal larger gaps.
- E. Install hardware in accordance with manufacturer's instructions.

3.02 PREPARATION FOR SITE FINISHING

- A. Set exposed fasteners. Apply wood filler in exposed fastener indentations. Sand work smooth.
- B. Site Finishing: See Section 09 9000.
- C. Before installation, prime paint surfaces of items or assemblies to be in contact with cementitious materials.

3.03 TOLERANCES

- A. Maximum Variation from True Position: 1/16 inch.
- B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch.

END OF SECTION

SECTION 08 5113
ALUMINUM WINDOWS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Extruded aluminum windows with operating sash.
- B. Factory glazing.
- C. Operating hardware.
- D. Insect screens.

1.02 REFERENCE STANDARDS

- A. AAMA/WDMA/CSA 101/I.S.2/A440 - North American Fenestration Standard/Specification for windows, doors, and skylights; American Architectural Manufacturers Association/Window and Door Manufacturers Association/Canadian Standards Association; 2011.
- B. AAMA 1503 - Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections; American Architectural Manufacturers Association; 2009.
- C. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels; 2013.
- D. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2013.
- E. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2010.
- F. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate [Metric]; 2010.
- G. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2013.
- H. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes [Metric]; 2013.
- I. ASTM E283 - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen; 2004 (Reapproved 2012).
- J. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference; 2000 (Reapproved 2009).
- K. ASTM E1105 - Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference; 2000 (Reapproved 2008)
- L. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); Society for Protective Coatings; 2002 (Ed. 2004).

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide component dimensions.
- C. Performance Validation: Provide specified performance validation before submitting shop drawings or starting fabrication.

- D. Shop Drawings: Indicate opening dimensions, elevations of different types, framed opening tolerances, method for achieving air and vapor barrier seal to adjacent construction, anchorage locations,, and installation requirements.
- E. Samples: Submit one sample, 12 x 12 inch in size illustrating typical corner construction, accessories, and finishes.
- F. Submit one sample of operating hardware.
- G. Certificates: Certify that windows meet or exceed specified requirements.

1.04 QUALITY ASSURANCE

- A. Manufacturer and Installer Qualifications: Company specializing in fabrication of commercial aluminum windows of types required, with not fewer than three years of experience.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Protect finished surfaces with wrapping paper or strippable coating during installation. Do not use adhesive papers or sprayed coatings that bond to substrate when exposed to sunlight or weather.

1.06 FIELD CONDITIONS

- A. Do not install sealants when ambient temperature is less than 40 degrees F.
- B. Maintain this minimum temperature during and 24 hours after installation of sealants.

1.07 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Provide five year manufacturer warranty against failure of glass seal on insulating glass units, including interpane dusting or misting. Include provision for replacement of failed units.
- C. Provide twenty year manufacturer warranty against excessive degradation of exterior finish. Include provision for replacement of units with excessive fading, chalking, or flaking.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Aluminum Window Manufacturers:
 - 1. EFCO, a Pella Company; Series 3903 and Series 3460: www.efcocorp.com.
 - 2. TRACO; TR 2400 and T-9100: www.traco.com.
 - 3. Graham; Series 6500 and Series 2000.
 - 4. Substitutions: See Section 01 6000 - Product Requirements.

2.02 WINDOWS

- A. Aluminum Windows: Extruded aluminum frame and sash, factory fabricated, factory finished, with operating hardware, related flashings, and anchorage and attachment devices.
 - 1. Frame Depth: As noted.
 - 2. Provide units factory glazed.
 - 3. Fabrication: Joints and corners flush, hairline, and weatherproof, accurately fitted and secured; prepared to receive anchors; fasteners and attachments concealed from view; reinforced as required for operating hardware and imposed loads.
 - 4. Perimeter Clearance: Minimize space between framing members and adjacent construction while allowing expected movement.
 - 5. Movement: Accommodate movement between window and perimeter framing and deflection of lintel, without damage to components or deterioration of seals.

6. System Internal Drainage: Drain to the exterior by means of a weep drainage network any water entering joints, condensation occurring in glazing channel, and migrating moisture occurring within system.
 7. Thermal Movement: Design to resist thermal movement caused by 180 degrees F surface temperature without buckling stress on glass, joint seal failure, damaging loads on structural elements, damaging loads on fasteners, reduction in performance or other detrimental effects.
 8. Condensation Resistance Factor: 51 minimum.
 9. Life Cycle Requirements: No damage to fasteners, hardware parts or other components that would render operable windows in operable and not reduction in air and water infiltration resistance when tested according to AAMA 910.
- B. Performance Requirements:
1. Comply with AAMA/WDMA/CSA 101/I.S.2/A440 requirements in accordance with the following:
 - a. Performance Class (PC): AW.
 2. Performance Validation: Windows shall comply with AAMA/WDMA/CSA 101/I.S.2/A440 performance requirements as indicated by having AAMA, WDMA, or CSA certified label, or an independent test report for indicated products itemizing compliance and acceptable by authorities having jurisdiction.
 3. Water Leakage: No uncontrolled leakage on interior face when tested in accordance with ASTM E331 at differential pressure of 12.11 pounds per square foot.
 4. Air Leakage: Maximum of 0.1 cu ft/min/sq ft at 6.27 pounds per square foot differential pressure, when tested in accordance with ASTM E283.
 5. Condensation Resistance Factor of Frame: 51, minimum, measured in accordance with AAMA 1503.
- C. Performance Requirements:
1. Air Infiltration Test Pressure Differential: 6.24 pounds per square inch.
 2. Condensation Resistance Factor: Measured in accordance with AAMA 1503.
 3. Water Leakage: None, when measured in accordance with ASTM E331 and E 547.
 4. Air and Vapor Seal: Maintain continuous air barrier and vapor retarder throughout assembly.
 5. System Internal Drainage: Drain to the exterior by means of a weep drainage network any water entering joints, condensation occurring in glazing channel, or migrating moisture occurring within system.
- D. Inswinging Hopper Type:
1. Construction: Thermally broken.
 2. Provide screens.
 3. Glazing: Double; clear; low-e.
 - a. 1 inch insulated unit
 - b. Exterior: 1/4 inch tempered clear.
 - c. Interior: 1/4 inch tempered, low-e, clear or obscure ad noted.
 4. Exterior Finish: Superior performing organic coatings.
 5. Interior Finish: Superior performing organic coatings.
- E. Single-Hung Type:
1. Construction: Thermally broken.
 2. Provide screens.
 3. Glazing: Double; clear; low-e.
 - a. 5/8 inch insulated unit
 - b. Exterior: 1/8 inch tempered clear.
 - c. Interior: 1/8 inch tempered, low-e, clear or obscure ad noted.

- d. Muttins: 5/16 x 1 inch, exterior applied in glazing rabbet.
4. Exterior Finish: Superior performing organic coatings.
5. Interior Finish: Superior performing organic coatings.

2.03 COMPONENTS

- A. Single Hung Frames and Sash: 3.25 inch wide of .092 inch thick section, thermally broken with interior portion of frame insulated from exterior portion; flush glass stops of snap-on type.
 1. Provide Ultralift Class 5 balances.
 2. Provide exterior aluminum grilles.
- B. Project-in/Fixed Frames and Sash: 2.25 inch wide x 1 1/2 inch deep profile, of .125 inch thick section; thermally broken with interior portion of frame insulated from exterior portion; flush glass stops of snap-on type.
- C. Sills: .125 inch thick, extruded aluminum; sloped for positive wash; fit under sash leg to 1/2 inch beyond wall face; one piece full width of opening jamb angles to terminate sill end.
- D. Insect Screens: Extruded aluminum frame with mitered and reinforced corners; screen mesh taut and secure to frame; secured to window with adjustable hardware allowing screen removal without use of tools.
 1. Hardware: Spring loaded steel pins; four per screen unit.
 2. Screen Mesh: Vinyl-coated fiberglass, window manufacturer's standard mesh.
 3. Frame Finish: Same as frame and sash.
- E. Operable Sash Weatherstripping: manufacturer's standard neoprene, wool pile and plastic; permanently resilient, profiled to achieve effective weather seal.
- F. Fasteners: Stainless steel.
- G. Sealant and Backing Materials: As specified in Section 07 9005.

2.04 MATERIALS

- A. Extruded Aluminum: ASTM B221 (ASTM B221M), 6063 alloy, T6 temper.
- B. Sheet Aluminum: ASTM B209 (ASTM B209M), 5005 alloy, H12 or H14 temper.
- C. Concealed Steel Items: Profiled to suit mullion sections; galvanized in accordance with ASTM A123/A123M.

2.05 HARDWARE

- A. Sash lock: Integral with sash lift.
- B. Limit Stops: Resilient rubber.

2.06 FABRICATION

- A. Fabricate components with smallest possible clearances and shim spacing around perimeter of assembly that will enable window installation and dynamic movement of perimeter seal.
- B. Accurately fit and secure joints and corners. Make joints flush, hairline, and weatherproof.
- C. Prepare components to receive anchor devices.
- D. Arrange fasteners and attachments to ensure concealment from view.
- E. Prepare components with internal reinforcement for operating hardware.
- F. Provide steel internal reinforcement in mullions as required to meet loading requirements.
- G. Provide internal drainage of glazing spaces to exterior through weep holes.

2.07 FINISHES

- A. Superior Performing Organic Coatings: AAMA 2605 multiple coat, thermally cured polyvinylidene fluoride system; color as scheduled.

- B. Finish Color: Match existing adjacent windows to remain, as indicated.
- C. Apply 1 coat of bituminous coating to concealed aluminum and steel surfaces in contact with dissimilar materials.
- D. Shop and Touch-Up Primer for Steel Components: Zinc oxide, alkyd, linseed oil primer appropriate for use over hand cleaned steel.
- E. Touch-Up Primer for Galvanized Steel Surfaces: SSPC-Paint 20, zinc rich.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install windows in accordance with manufacturer's instructions.
- B. Attach window frame and shims to perimeter opening to accommodate construction tolerances and other irregularities.
- C. Align window plumb and level, free of warp or twist. Maintain dimensional tolerances and alignment with adjacent work.
- D. Install sill and sill flashings. Turn up ends and edges; seal to adjacent work to form water tight dam..
- E. Provide thermal isolation where components penetrate or disrupt building insulation. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.
- F. Coordinate attachment and seal of perimeter air barrier and vapor retarder materials.
- G. Install operating hardware not pre-installed by manufacturer.
- H. Install perimeter sealant in accordance with requirements specified in Section 07 9005.

3.02 TOLERANCES

- A. Maximum Variation from Level or Plumb: 1/16 inches every 3 ft non-cumulative or 1/8 inches per 10 ft, whichever is less.

3.03 FIELD QUALITY CONTROL

- A. Test installed windows for compliance with performance requirements for water penetration, in accordance with ASTM E1105 using uniform pressure and the same pressure difference as specified for laboratory testing.
 - 1. Test one window of each type, as directed by Architect.
 - 2. If any window fails, test additional windows at Contractor's expense.
- B. Replace windows that have failed field testing and retest until performance is satisfactory.

3.04 ADJUSTING

- A. Adjust hardware for smooth operation and secure weathertight closure.

3.05 CLEANING

- A. Remove protective material from factory finished aluminum surfaces.
- B. Wash surfaces by method recommended and acceptable to sealant and window manufacturer; rinse and wipe surfaces clean.
- C. Remove excess sealant by moderate use of mineral spirits or other solvent acceptable to sealant and window manufacturer.

END OF SECTION

SECTION 23 0130
GAS PIPING SYSTEMS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- 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.

1.2 DESCRIPTION OF WORK

- A. This Section includes:
 - 1. Natural gas piping system as indicated on drawings and schedules, and by requirements of this section.
 - 2. Applications for natural gas piping systems include the following:
 - a. Service to all equipment requiring gas service.

1.3 REFERENCE STANDARDS

- A. Refer to Section 23 0200 for a general description of requirements applying to this Section.

1.4 QUALITY ASSURANCE

- A. Refer to Section 23 0210 for a general description of requirements applying to this section.

1.5 SUBMITTALS

- A. Submit shop drawings and product data in accordance with Section 23 0200.
- B. Submit the following:
 - 1. Product data on gas valves.

1.6 WARRANTY/GUARANTEE

- A. All work and materials are subject to the general warranty as described in the General Conditions of the Contract and in Division 1, GENERAL REQUIREMENTS.

PART 2 – PRODUCTS

2.1 NATURAL GAS PIPING MATERIALS AND PRODUCTS

- A. Provide piping materials and factory-fabricated piping products of sizes, types, pressure ratings, and capacities as indicated. Where not indicated, provide proper selection as determined by Installer to comply with installation requirements. Provide materials and products complying with ANSI B31.2 where applicable; base pressure rating on natural gas piping system maximum design pressures. Provide sizes and types matching piping and equipment connections; provide fittings of materials which match piping materials used in natural gas piping systems. Where more than 1 type of material or product is indicated, selection is Installer's option.

2.2 BASIC IDENTIFICATION

- A. Provide identification complying with Division 23 Sections and in accordance with the following listing:
 - Building Distribution Piping: Plastic pipe markers.
 - Gas Service: Underground type plastic line markers with detectable wire.

Gas Valves: Plastic valve tags.

2.3 BASIC PIPE, TUBE AND FITTINGS

- A. Provide pipe, tube and fittings complying with Section 23 0210 Basic Materials and Methods and in accordance with the following listing:

1. Interior Piping: Schedule 40 black steel ASTM A-53, A-106

Fittings: Malleable black iron, threaded (NCC)

Fittings: Wrought steel, butt welded.

2.4 BASIC PIPING SPECIALTIES

- A. Provide piping specialties complying with applicable Division 23 Sections and in accordance with the following listing:

Pipe escutcheons

Pipe sleeves

Sleeve seals

2.5 SPECIAL VALVES

- A. Valves required for gas piping systems on this project shall be the following types:

Gas Valves: (Up to 3")

1. Apollo 80-100 Series bronze gas ball valve. Threaded, 600 PSIG WOG, cold non-shock. 250 PSIG LP-Gas. 150 PSIG saturated steam. Vacuum service to 29 inches Hg. Federal Specification: WW-V-35C, Type: II, Composition: BZ, Style: 3.

2. Features:

- UL Listed for natural gas.
- Large ports to reduce pressure drop
- Reinforced TFE seats and seals
- Blow-out-proof stem design
- Optional tee handle available
- Quarter turn on-off
- Adjustable packing gland
- One piece bronze body
- Chromium plated ball

3. UL Listings:

- Guide YRPV: Gas shut-off valve for use with natural and manufactured gases.

4. This valve shall be used for all pipe sizes up to 3" in the system.

Gas Valves (4" and Larger)

1. Apollo 88A-100 Series carbon steel, ANSI Class 150 flanged standard port ball valves.

Standards of Compliance:

IFGC: Section 409 (Valves)

ASME B16.5 – Pipe Fittings and Flanges

ASME B16.33 – Manual Operated Metal Gas Valves up to 125 psig

ASME B16.38 – Large Metal Valve Gas Distribution

ASME B31.8 – Gas Transmission and Distribution Piping Systems

UL 125

- B. Manufacturers: Subject to compliance with requirements, provide gas valves of one of the following:

Apollo/Conbraco

Stockham

Milwaukee

NIBCO, Inc.

Watts

2.6 GAS PRESSURE REGULATORS

- A. ANSI Z21.18, single-stage, steel-jacketed, corrosion-resistant pressure regulators. Include atmospheric vent, elevation compensator, with threaded ends conforming to ASME B1.20.1 for 2 inch NPS and smaller and flanged ends for 2-1/2" NPS and larger. Regulator pressure ratings, inlet and outlet pressures, and flow volume in cubic feet per hour of natural gas at specific gravity are as indicated.

1. Service Pressure Regulators: Inlet pressure rating not less than natural gas distribution system service pressure.
2. Line Gas Pressure Regulators: Inlet pressure rating not less than system pressure.
3. Appliance Gas Pressure Regulators: Inlet pressure rating not less than system pressure.
4. Gas Pressure Regulator Vents: Factory or field installed corrosion-resistant screen in opening when not connected to vent piping.
5. Regulators shall be as manufactured by Fisher (no equal substitute permitted).
6. Test connections shall be installed before and after regulator per the IFGC latest accepted edition. See section 3.6.C.
7. Contractor shall submit cut sheets on the regulator indicating the CFH and pressure range. Provide flow curve or manufacturer's flow chart showing that the valve selected has potential for additional capacity between 15 to 20% greater than the system demand load.

PART 3 – EXECUTION

3.1 INSTALLATION OF BASIC IDENTIFICATION

- A. Install mechanical identification in accordance with applicable Division 23 Sections.

3.2 INSTALLATION OF NATURAL GAS PIPING (INTERIOR)

- A. Install natural gas distribution piping in accordance with Section 23 0210 Basic Materials and Methods and in accordance with applicable codes IFGC latest edition, and local Utility Company requirements.
- B. Use sealants on metal gas piping threads which are chemically resistant to natural gas. Use sealants sparingly, and apply to only male threads of metal joints.
- C. Remove cutting and threading burrs before assembling piping.

- D. Do not install defective piping or fittings. Do not use pipe with threads which are chipped, stripped or damaged.
- E. Plug each gas outlet, including valves, with threaded plug or cap immediately after installation and retain until continuing piping or equipment connections are completed.
- F. Install drip-legs in gas piping where indicated, and where required by code or regulation.
- G. Install "Tee" fitting with bottom outlet plugged or capped at bottom of pipe risers.
- H. Use dielectric unions where dissimilar metals are joined together.
- I. Install piping with 1" drop in 60' pipe run (0.14%) in direction of flow.
- J. Install piping parallel to other piping, but maintain minimum of 12" clearance between gas piping and steam or hot water piping above 200 degrees F (93 degrees C).
- K. For piping buried in building substrate, or below floor slabs, install in welded conduit, ventilated to outdoors on both ends, and tested to same requirements as gas piping.
- L. Gas valves shall not be installed above ceilings without access and signage.
- M. Supports:
 - 1. All pipe, fittings, valves, installation and testing shall be in accordance with the IFGC, Chapter 4.
 - 2. Gas piping shall be supported in accordance with the International Fuel Gas Code's latest accepted 2003 Edition, Section 407, as follows:
 - 3. Support intervals shall be in accordance with the IFGC listed above and in Section 415, Table 415.1 as follows:
 - a. Steel pipe 1/2" nominal size – not to exceed 6 ft.
 - b. Steel pipe 3/4" to 1" nominal size – not to exceed 8 ft.
 - c. Steel pipe 1-1/4" and larger nominal size horizontal – not to exceed 10 ft.
 - d. Steel pipe 1-1/4" and larger nominal size, vertical not to exceed every floor.
 - 4. Support and spacing of CSST Systems shall be in accordance with CSST manufacturer's instructions.

3.3 INSTALLATION OF VALVES

- A. Gas valves: Provide at connection to gas train for each gas-fired equipment item; and on risers and branches where indicated.
- B. Locate gas valves where easily accessible, and where protected from possible damage.

3.4 EQUIPMENT CONNECTIONS

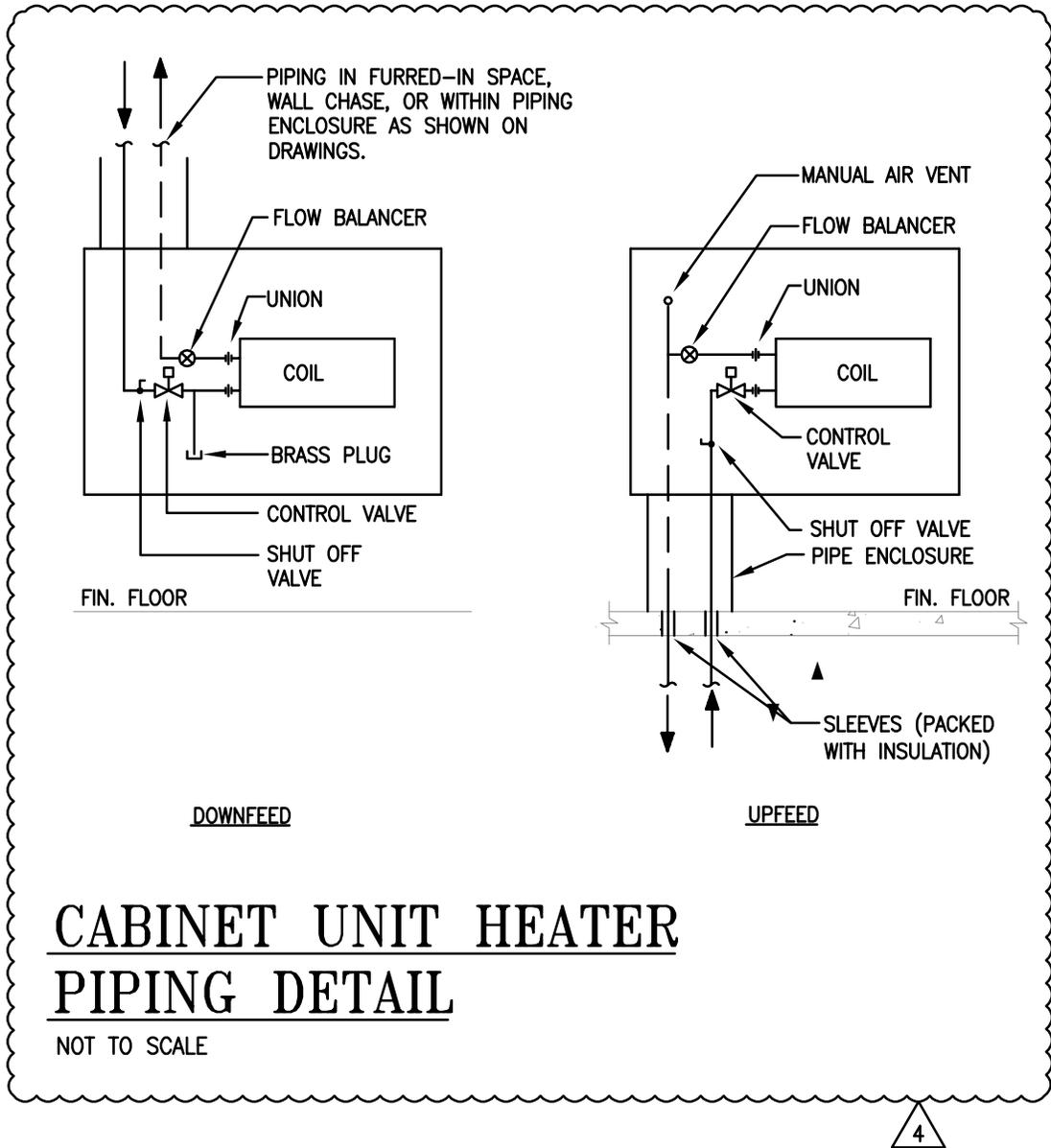
- A. Connect gas piping to each gas-fired equipment item, with drip leg, union and shutoff gas valve. Comply with equipment manufacturer's instructions. Drip legs shall not be installed on any exterior gas piping.
- B. Equipment furnished by the Owner, or Contractors other than this Contractor: After equipment has been set in place, this Contractor shall furnish all labor and material required to make final connections between roughing-in and the equipment. Install valves, fittings, trim and appurtenances furnished with the equipment. Piping shall be of the same material as the system to which it connects.
- C. Gas Vent Pipe & Fittings:

1. The gas vent system shall be so engineered and constructed as to develop a positive flow adequate to exhaust all flue gases to outside atmosphere.
2. All parts of vent system shall be of Underwriters' Laboratories, Inc., listed Single Wall Type "B" General Usage, single wall gas vent piping, and such piping shall be continuous from the appliance outlets into vent terminal. Venting System shall be rated at 6" W.C. and tested to 15" W.C. per UL Standard 1738 and ULC S-636.
3. The gas vent piping shall be installed in full compliance with the terms of its listing, with the manufacturer's installation instructions, and with nationally recognized building codes representing good practice for such installations.
4. For vent sizes 3" to 6" inside diameter, inner wall thickness shall be 0.015", Type AL29-4C stainless steel.
5. All supports, wall penetration, terminal with miter cut and birdscreen, equipment connector and condensate drain fitting shall be included.
6. All joints shall be sealed using manufacturer's approved sealant. Joints exposed to the weather shall be sealed to prevent rainwater from entering the annular space between inner and outer walls.
7. Provide adequate accessibility, head room and dimensions so that all vent connections can be correctly sized, spaced and supported.
8. Manufacturers: Selkirk or approved equal.

3.5 INSTALLATION OF GAS PRESSURE REGULATORS

- A. This Contractor shall furnish and install gas pressure regulating valves for all shown on the drawings. Installation shall be in strict accordance with the requirements of the Utility Company and the Canadian Gas Association.
- B. All regulators installed shall be tagged with data noting the inlet and outlet pressure for each individual regulator installed.
- C. Medium or High Pressure (MP) (HP) Regulators shall comply with the following:
 1. The MP regulator shall be approved and shall be suitable for the inlet and outlet gas pressures for the application.
 2. The MP regulator shall maintain a reduced outlet pressure under lockup (no flow) conditions.
 3. The capacity of the MP regulator, determined by published ratings of its manufacturer, shall be adequate to supply the appliances served.
 4. The MP pressure regulator shall be provided with access. Where located indoors, the regulator shall be vented to the outdoors or shall be equipped with a leak-limiting device, in either case complying with Section 410 of the IFGC.
 5. A test tee fitting with one opening capped or plugged shall be installed between the MP regulator and its upstream shutoff valve. Such tee fitting shall be positioned to allow connection of a pressure-measuring instrument and to serve as a sediment trap.
 6. A test tee fitting with one opening capped or plugged shall be installed not less than 10 pipe diameters downstream of the MP regulator outlet. Such tee fitting shall be positioned to allow connection of a pressure-measuring instrument.

END OF SECTION 23 0130



ADDENDUM #2



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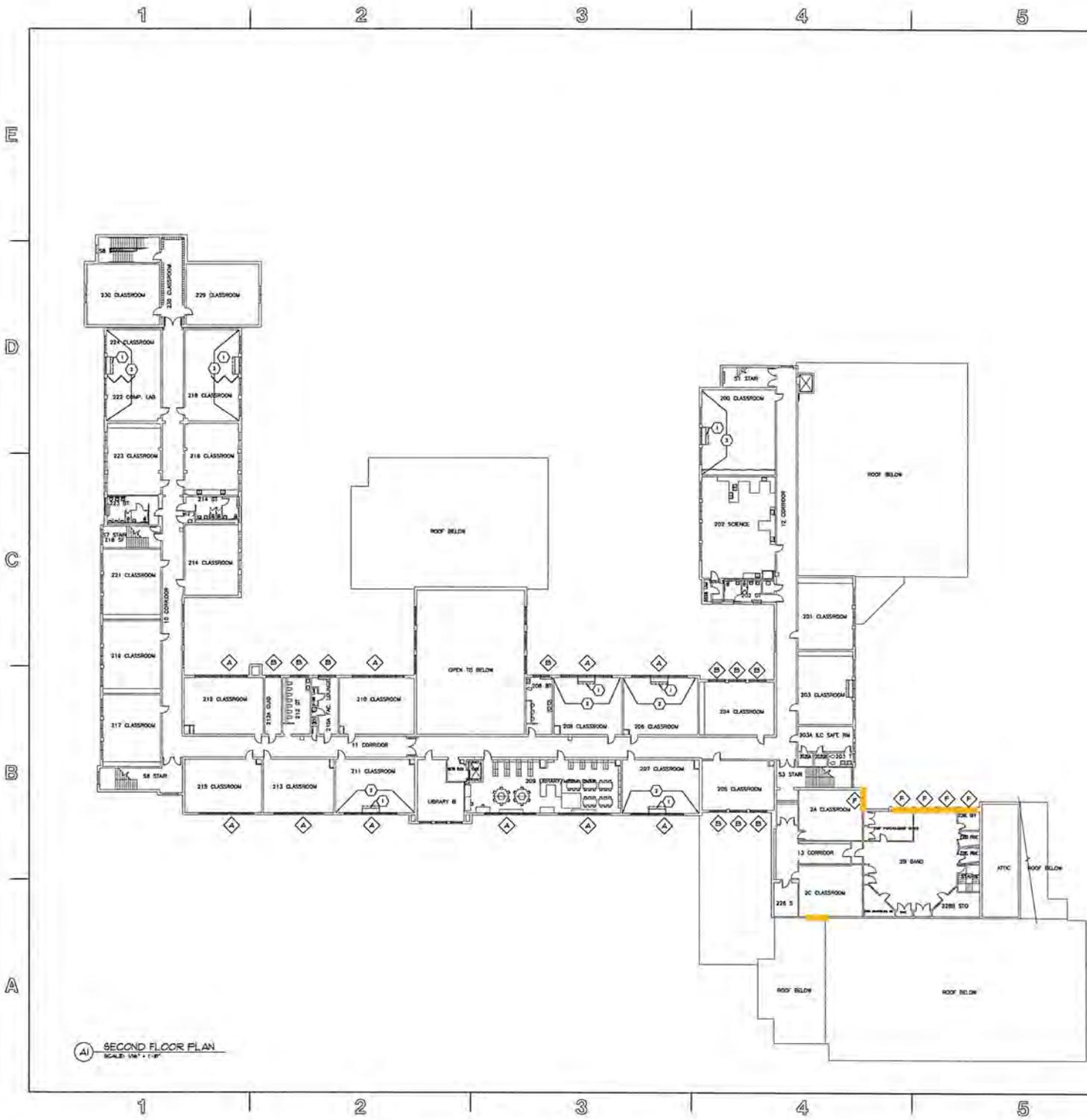
SHEET TITLE
 DETAILS
 MECHANICAL

PROJECT
 CAPITAL IMPROVEMENTS 2014
 RICHARDSON PARK ELEMENTARY

CONSULTANT
 FURLOW ASSOCIATES, INC.
 MECHANICAL/ELECTRICAL ENGINEERS

M-700

REV:	4
ISSUE:	03/05/15
PROJECT NO:	1425
FILE NAME:	
DRAWN BY:	DEG
CHECKED BY:	SAJ



(A) SECOND FLOOR PLAN
SCALE: 1/4" = 1'-0"

GENERAL SHEET NOTES

- VERIFY ALL DIMENSIONS & CONDITIONS IN THE FIELD BEFORE PROCEEDING WITH WORK.
- SEAL ALL PENETRATIONS THRU RATED PARTITIONS AND FLOOR SLABS WITH FIRE RATING EQUIVALENT AND SEALANT AS NOTED TO MAINTAIN RATED SEPARATION. COORDINATE LOCATIONS WITH MECHANICAL DRAWINGS.
- SEE VIEW DRAWINGS FOR EXTENT OF MECHANICAL, ELECTRICAL, & PLUMBING REVOLUTION.

LEGEND:

- (1A) DOOR TAG - SEE SHEET A-60
- (A) WINDOW TAG - SEE SHEET A-61

SHEET KEYNOTES

- PATCH FLOOR WITH VCT AND COVER BASE AS NOTED AFTER INSTALLATION OF NEW UNIT VENTILATORS. COLOR TO MATCH EXISTING.
- PATCH EXPOSED HOLES IN PLASTER & CONCRETE SURFACES FROM REPLACEMENT OF UNIT VENTILATORS. PAINT WALL COLOR TO MATCH EXISTING.
- REMOVE EXISTING ACCT AND RETAIN FOR REINSTALLATION. COORDINATE LOCATIONS WITH MEP DRAWINGS.



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PROJECT
**2014 RCCSD
CAPITAL IMPROVEMENTS**

16 IDELLA AVENUE
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**RICHARDSON PARK
ELEMENTARY SCHOOL**

OWNER
RED CLAY CONSOLIDATED
SCHOOL DISTRICT
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MARK	DATE	DESCRIPTION
PROJECT NO:	1425	
FILE NAME:		
DRAWN BY:	SJM	
CHECKED BY:	CH	

SHEET TITLE
SECOND FLOOR PLAN

Richardson Park
March 13, 2015
Sketch No. 3