



RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:
Bid Receiving Public Works and Government Services Canada/Réception des soumissions Travaux publics et Services gouvernementaux Canada
800 Burrard Street, 2nd floor
800, rue Burrard, 2e étage
Vancouver
British Columbia
V6Z 0B9
Bid Fax: (604) 775-9381

INVITATION TO TENDER
APPEL D'OFFRES

Tender To: Public Works and Government Services Canada

We hereby offer to sell to Her Majesty the Queen in right of Canada, in accordance with the terms and conditions set out herein, referred to herein or attached hereto, the goods, services, and construction listed herein and on any attached sheets at the price(s) set out therefor.

Soumission aux: Travaux Publics et Services Gouvernementaux Canada

Nous offrons par la présente de vendre à Sa Majesté la Reine du chef du Canada, aux conditions énoncées ou incluses par référence dans la présente et aux annexes ci-jointes, les biens, services et construction énumérés ici et sur toute feuille ci-annexée, au(x) prix indiqué(s).

Comments - Commentaires

Vendor/Firm Name and Address
Raison sociale et adresse du fournisseur/de l'entrepreneur

Issuing Office - Bureau de distribution
Public Works and Government Services Canada - Pacific Region
800 Burrard Street, 12th floor
800, rue Burrard, 12e étage
Vancouver
British C
V6Z 0B9

Title - Sujet HVAC and EMCS Work	
Solicitation No. - N° de l'invitation 21C82-120411/B	Date 2013-08-26
Client Reference No. - N° de référence du client	GETS Ref. No. - N° de réf. de SEAG PW-\$PWY-005-7078
File No. - N° de dossier PWY-3-36028 (005)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2013-09-17	
Time Zone Fuseau horaire Pacific Daylight Saving Time PDT	
F.O.B. - F.A.B.	
Plant-Usine: <input type="checkbox"/> Destination: <input checked="" type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Pillay, Sal (PWY)	Buyer Id - Id de l'acheteur pwy005
Telephone No. - N° de téléphone (604) 775-9386 ()	FAX No. - N° de FAX (604) 775-6633
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: CSC - Fraser Valley Institution - Abbotsford, BC	

Instructions: See Herein

Instructions: Voir aux présentes

Delivery Required - Livraison exigée See Herein	Delivery Offered - Livraison proposée
Vendor/Firm Name and Address Raison sociale et adresse du fournisseur/de l'entrepreneur	
Telephone No. - N° de téléphone Facsimile No. - N° de télécopieur	
Name and title of person authorized to sign on behalf of Vendor/Firm (type or print) Nom et titre de la personne autorisée à signer au nom du fournisseur/de l'entrepreneur (taper ou écrire en caractères d'imprimerie)	
Signature	Date

Solicitation No. - N° de l'invitation

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Amd. No. - N° de la modif.

File No. - N° du dossier

PWY-3-36028

Buyer ID - Id de l'acheteur

pw005

CCC No./N° CCC - FMS No/ N° VME

This bid solicitation cancels and supersedes previous bid solicitation number 21C82-120411/A dated 19 June 2013 with a closing of 31 July 2013 at 2:00 PM PDT

INVITATION TO TENDER

IMPORTANT NOTICE TO BIDDERS

LIMITATION OF LIABILITY

PWGSC is limiting the Contractor's first party liability for work in Low Rise, High Rise and Heritage Buildings. See changes to GC1.6 "Indemnification by the Contractor" of R2810D in the Supplementary Conditions.

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GENERAL INSTRUCTIONS TO BIDDERS (GI) - R2710T (2013-04-25)

The following GI's are included by reference and are available at the following Web Site

<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual/5/R>

GI01	Code of Conduct and Certification - Bid
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SPECIAL INSTRUCTIONS TO BIDDERS (SI)

SI01 CODE OF CONDUCT AND CERTIFICATIONS - RELATED DOCUMENTATION

By submitting a bid, the Bidder certifies that the Bidder and its affiliates are in compliance with the provisions as stated in Section 01 Code of Conduct and Certifications - Bid of Standard Instructions R2710T (2013-04-25). The related documentation therein required will assist Canada in confirming that the certifications are true.

SI02 BID DOCUMENTS

1. The following are the bid documents:

- a. Invitation to Tender - Page 1;
- b. Special Instructions to Bidders;
- c. General Instructions to Bidders R2710T (2013-04-25);
- d. Clauses & Conditions identified in "Contract Documents";
- e. Drawings and Specifications;
- f. Bid and Acceptance Form and related Appendice(s); and
- g. Any amendment issued prior to solicitation closing.

Submission of a bid constitutes acknowledgement that the Bidder has read and agrees to be bound by these documents.

2. General Instructions to Bidders is incorporated by reference and is set out in the Standard Acquisition Clauses and Conditions (SACC) Manual, issued by Public Works and Government Services Canada (PWGSC). The SACC Manual is available on the PWGSC Web site:

<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>

SI03 ENQUIRIES DURING THE SOLICITATION PERIOD

1. Enquiries regarding this bid must be submitted in writing to the Contracting Officer named on the Invitation to Tender - Page 1 as early as possible within the solicitation period. Except for the approval of alternative materials as described in GI15 of R2710T "General Instructions to Bidders", enquiries should be received no later than five (5) calendar days prior to the date set for solicitation closing to allow sufficient time to provide a response. Enquiries received after that time may not result in an answer being provided.
2. To ensure consistency and quality of the information provided to Bidders, the Contracting Officer shall examine the content of the enquiry and shall decide whether or not to issue an amendment.
3. All enquiries and other communications related to this bid sent throughout the solicitation period are to be directed ONLY to the Contracting Officer named on the Invitation to Tender - Page 1. Failure to comply with this requirement may result in the bid being declared non-responsive.

SI04 SITE VISIT

Contractors who wish to visit the site may do so by calling Harpreet Bhatia at (604) 852-3802 to schedule a time.

SI05 REVISION OF BID

A bid may be revised by letter or facsimile in accordance with GI10 of R2710T "General Instructions to Bidders". The facsimile number for receipt of revisions is (604) 775-9381.

SI06 BID RESULTS

1. A public bid opening will be held in the office designated on the Front Page "Invitation to Tender" for the receipt of bids shortly after the time set for solicitation closing.
2. Following solicitation closing, bid results may be obtained by calling at No. (604) 775-9384.

SI07 INSUFFICIENT FUNDING

In the event that the lowest compliant bid exceeds the amount of funding allocated for the Work, Canada in its sole discretion may

- a. cancel the solicitation; or
- b. obtain additional funding and award the Contract to the Bidder submitting the lowest compliant bid; and/or
- c. negotiate a reduction in the bid price and/or scope of work of not more than 15% with the Bidder submitting the lowest compliant bid. Should an agreement satisfactory to Canada not be reached, Canada shall exercise option (a) or (b).

SI08 BID VALIDITY PERIOD

1. Canada reserves the right to seek an extension to the bid validity period prescribed in BA04 of the Bid and Acceptance Form. Upon notification in writing from Canada, Bidders shall have the option to either accept or reject the proposed extension.
2. If the extension referred to in paragraph 1. of SI08 is accepted, in writing, by all those who submitted bids, then Canada shall continue immediately with the evaluation of the bids and its approvals processes.
3. If the extension referred to in paragraph 1. of SI08 is not accepted in writing by all those who submitted bids then Canada shall, at its sole discretion, either
 - a. continue to evaluate the bids of those who have accepted the proposed extension and seek the necessary approvals; or
 - b. cancel the invitation to tender.
4. The provisions expressed herein do not in any manner limit Canada's rights in law or under GI11 of R2710T "General Instructions to Bidders".

SI09 CONSTRUCTION DOCUMENTS

The successful Contractor will be provided with one paper copy of the sealed and signed drawings, the specifications and the amendments upon acceptance of the offer. Additional copies, up to a maximum of Five (5), will be provided free of charge upon request by the Contractor. Obtaining more copies shall be the responsibility of the Contractor including costs.

SI10 WEB SITES

The connection to some of the Web sites in the solicitation documents is established by the use of hyperlinks. The following is a list of the addresses of the Web sites:

Solicitation No. - N° de l'invitation

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PWY-3-36028

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Treasury Board Appendix L, Acceptable Bonding Companies

<http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=14494§ion=text#appL>

Contracts Canada (Buy and Sell) <https://www.achatsetventes-buyandsell.gc.ca/eng/welcome>

Canadian economic sanctions <http://www.international.gc.ca/sanctions/index.aspx?lang=eng>

Contractor Performance Evaluation Report (Form PWGSC-TPSGC 2913)

<http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/2913.pdf>

Bid Bond (form PWGSC-TPSGC 504) <http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/504.pdf>

Performance Bond (form PWGSC-TPSGC 505)

<http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/505.pdf>

Labour and Material Payment Bond (form PWGSC-TPSGC 506)

<http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/506.pdf>

Certificate of Insurance (form PWGSC-TPSGC 357)

<http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/357.pdf>

Standard Acquisition Clauses and Conditions (SACC) Manual

<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>

Schedules of Wage Rates for Federal Construction Contracts

http://www.rhdcc-hrsdc.gc.ca/eng/labour/employment_standards/contracts/schedule/index.shtml

PWGSC, Industrial Security Services <Http://ssi-iss.tpsgc-pwgsc.gc.ca/index-eng.html>

PWGSC, Code of Conduct and Certifications

<Http://www.tpsgc-pwgsc.gc.ca/app-acq/cndt-cndct/index-eng.html>

PWGSC Consent to a Criminal Record Verification (PWGSC-TPSGC 229)

<Http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/229.pdf>

SUPPLEMENTARY CONDITIONS (SC)

SC01 LIMITATION OF LIABILITY

GC1.6 of R2810D is deleted and replaced with the following:

GC1.6 Indemnification by the Contractor

1. The Contractor shall indemnify and save Canada harmless from and against all claims, demands, losses, costs, damages, actions, suits, or proceedings whether in respect to losses suffered by Canada or in respect of claims by any third party, brought or prosecuted and in any manner based upon, arising out of, related to, occasioned by, or attributable to the activities of the Contractor in performing the Work, provided such claims are caused by the negligent or deliberate acts or omissions of the Contractor, or those for whom it is responsible at law.
2. The Contractor's obligation to indemnify Canada for losses related to first party liability shall be limited to:
 - a. In respect to each loss for which insurance is to be provided pursuant to the insurance requirements of the Contract , the Commercial General Liability insurance limit for one occurrence. as referred to in the insurance requirements of the Contract .
 - b. In respect to losses for which insurance is not required to be provided in accordance with the insurance requirements of the Contract, the greater of the Contract Amount or \$5,000,000, but in no event shall the sum be greater than \$20,000,000.

The limitation of this obligation shall be exclusive of interest and all legal costs and shall not apply to any infringement of intellectual property rights or any breach of warranty obligations.
3. The Contractor's obligation to indemnify Canada for losses related to third party liability shall have no limitation and shall include the complete costs of defending any legal action by a third party. If requested by Canada, the Contractor shall defend Canada against any third party claims.
4. The Contractor shall pay all royalties and patent fees required for the performance of the Contract and, at the Contractor's expense, shall defend all claims, actions or proceedings against Canada charging or claiming that the Work or any part thereof provided or furnished by the Contractor to Canada infringes any patent, industrial design, copyright trademark, trade secret or other proprietary right enforceable in Canada.
5. Notice in writing of a claim shall be given within a reasonable time after the facts, upon which such claim is based, became known.

CONTRACT DOCUMENTS (CD)

1. The following are the contract documents:

- a. Contract Page when signed by Canada;
- b. Duly completed Bid and Acceptance Form and any Appendices attached thereto;
- c. Drawings and Specifications;
- d. General Conditions and clauses

GC1 General Provisions	R2810D	(2013-04-25);
GC2 Administration of the Contract	R2820D	(2012-07-16);
GC3 Execution and Control of the Work	R2830D	(2010-01-11);
GC4 Protective Measures	R2840D	(2008-05-12);
GC5 Terms of Payment	R2850D	(2010-01-11);
GC6 Delays and Changes in the Work	R2860D	(2013-04-25);
GC7 Default, Suspension or Termination of Contract	R2870D	(2008-05-12);
GC8 Dispute Resolution	R2880D	(2012-07-16);
GC9 Contract Security	R2890D	(2012-07-16);
GC10 Insurance	R2900D	(2008-05-12);
Supplementary Conditions		
Insurance Terms	R2910D	(2008-12-12);
Fair Wages and Hours of Labour - Labour Conditions	R2940D	(2012-07-16);
Allowable Costs for Contract Changes Under GC6.4.1	R2950D	(2007-05-25);
- e. Any amendment issued or any allowable bid revision received before the date and time set for solicitation closing;
- f. Any amendment incorporated by mutual agreement between Canada and the Contractor before acceptance of the bid; and
- g. Any amendment or variation of the contract documents that is made in accordance with the General Conditions.

2. The documents identified by title, number and date above are incorporated by reference and are set out in the Standard Acquisition Clauses and Conditions (SACC) Manual, issued by Public Works and Government Services Canada (PWGSC). The SACC Manual is available on the PWGSC Web site:

<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>

3. Schedules of Wage Rates for Federal Construction Contracts is included by reference and may be accessed from the Web site:

http://www.rhdcc-hrsdc.gc.ca/eng/labour/employment_standards/contracts/schedule/index.shtml.

4. The language of the contract documents is the language of the Bid and Acceptance Form submitted.

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Client Ref. No. - N° de réf. du client

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PWY-3-36028

Buyer ID - Id de l'acheteur

pw005

CCC No./N° CCC - FMS No/ N° VME

BID AND ACCEPTANCE FORM (BA)

BA01 IDENTIFICATION

Abbotsford, BC - Fraser Valley Institution
HVAC and EMCS Work

BA02 BUSINESS NAME AND ADDRESS OF BIDDER

Name: _____

Address: _____

Telephone: _____ Fax: _____ PBN: _____

BA03 THE OFFER

The Bidder offers to Canada to perform and complete the Work for the above named project in accordance with the Bid Documents for the Total Bid Amount of

\$ _____ excluding applicable taxes.
(amount in numbers)

BA04 BID VALIDITY PERIOD

The bid shall not be withdrawn for a period of **(thirty) 30** days following the date of solicitation closing.

BA05 ACCEPTANCE AND CONTRACT

Upon acceptance of the Contractor's offer by Canada, a binding Contract shall be formed between Canada and the Contractor. The documents forming the Contract shall be the contract documents identified in Contract Documents (CD).

BA06 CONSTRUCTION TIME

The Contractor shall perform and complete the Work **31st December 2013**.

BA07 BID SECURITY

The Bidder is enclosing bid security with its bid in accordance with GI08 - Bid Security Requirements of R2710T - General Instructions to Bidders.

BA08 SIGNATURE

Name and title of person authorized to sign on behalf of Bidder (Type or print)

Signature

Date

Solicitation No. - N° de l'invitation

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CCC No./N° CCC - FMS No/ N° VME

**APPENDIX1 - COMPLETE LIST OF EACH INDIVIDUAL WHO ARE CURRENTLY
DIRECTORS OF THE BIDDER**

***NOTE TO BIDDERS
WRITE DIRECTOR'S SURNAMES AND GIVEN NAMES***



Specification

Pretender Addendums to be included with Requisition 21C82-120411/B

Abbotsford, BC
33344 King Rd.
Fraser Valley Institution
Twenty Bed Living Unit

Bid Package for:

**MECHANICAL HVAC
(Divisions 23 & 25)**

Mechanical Addendums M2 and M3

Project No. R.052462.001
April 2013

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	Pages
Mechanical Pretender Addendums to be incorporated with the HVAC Bid:	
Mechanical Addendum No 2 -	2
Mechanical Addendum No 3 -	4

END OF INDEX

THE FOLLOWING CHANGES IN THE TENDER DOCUMENTS ARE EFFECTIVE IMMEDIATELY.
THIS ADDENDUM WILL FORM PART OF THE CONTRACT DOCUMENTS.

MECHANICAL ADDENDUM #M2

1. Refer to Tender Specifications Section 23 90 00 – Equipment Schedule, Pg. 5:
 - .1 3.0 Condensing Unit Schedule (For AHU-2):

Revise equipment tag as “CU-2”.

2. Refer to Tender Specifications Section 23 90 00 – Equipment Schedule, Pg. 6, 7:
 - .1 4.0 Heat Recovery Ventilator Schedule:

Delete Note 9.

Mechanical Questions Submitted to PWGSC

Question #1

The adjacent building is a Delta system. Has there been conversation of control system?

Answer to Question #1

Please elaborate what you mean by a “conversation”?

Per Section 25 05 01, 3.2.4, the building control system for the referenced project shall be integrated to the existing Delta front end system and OWS in the FVI Building A and the Central Heating Plant.

Question #2

Is the owner open to the idea of having 2 systems? The spec only says the system must be tied in to the existing Delta system.

Answer to Question #2

Having two different front ends would not be acceptable. The supplier may choose to supply a different front end (i.e. non-Delta) and replace the existing Delta front end such that there will only be one front end for the Institution, and provide additional training to the Institution.

Question #3

Does the controls have to be Delta?

Answer to Question #3

See response to Question #2.

Question #4

Are Domestic Hot Water Tanks to be included in tender price (Item 10.0 in Equipment Schedule)?

Answer to Question #4

Domestic hot water tanks are not to be included in the tender for HVAC / Controls.

Question #5

Is there a list of pre-approved controls contractors?

Answer to Question #5

There isn't a list of pre-approved controls contractors.

Question #6

I would like to request the Lochinvar SYNC boiler (SBN1000) to be reviewed as an equal to the specified boiler on this project. The SYNC boiler is a condensing boiler with stainless steel heat exchanger capable of handling 160PSI pressure. It features a 10:1 turndown ratio, very versatile venting option (up to 100ft intake and exhaust each), and qualifies for Fortis' efficient boiler rebate.

Answer to Question #6

It is the contractors' / suppliers' responsibility to ensure the proposed equipment would meet the specifications.

END OF MECHANICAL ADDENDUM #2

THE FOLLOWING CHANGES IN THE TENDER DOCUMENTS ARE EFFECTIVE IMMEDIATELY.
THIS ADDENDUM WILL FORM PART OF THE CONTRACT DOCUMENTS.

MECHANICAL ADDENDUM #M3

1. Refer to Tender Drawing M-3:
 1. Room 150:
 - (1) Add 1@ fire damper to exhaust grille (served by EF-3).
 - (2) Add 20ø condensate drain for HRV-1 and HRV-2, piped to floor drain.
 - (3) Add condensate drain for AHU-2 c/w trap, piped to floor drain. Size to match equipment condensate drain connection but not less than 20ø.
 2. Room 113: Add door grille DG-1, 20"x12".
 3. Specific Note 26, revise as follows: 2@ 125ø dryer vent c/w wall caps. Provide transition from 125ø rigid to 100ø semi-rigid duct at dryers. Maximum duct length (includes 1@ 100ø elbow plus 1@ 125ø elbow): 600mm (2 ft) of 100ø semi-rigid plus 6,000mm (20 ft) of 125ø rigid metal. Enclose dryer vents into fire rated enclosure (by General Contractor; coordinate with Corcan).
 4. Specific Note 34, revise DG-1 to DG-2 (fire rated).
 5. Room 112:
 - (1) Furnace FU-1; install condensate trap (furnished with furnace) and provide 20ø condensate drain (PVC) to in-line acid neutralizer (furnished by Contractor) and pipe to floor drain.
 - (2) Provide 25mm duct liner for return air plenum upstream of furnace.
 - (3) Provide hard-wired CO sensor conforming to CAN/CSA-6.19. Install per manufacturer's recommendations. Coordinate with Division 26 for power.
 - (4) Add 20ø condensate drain for HRV-3 c/w trap, piped to floor drain.
2. Refer to Tender Drawing M-6:
 1. Room 211: Add door grille DG-2, 20"x12".
 2. Specific Note 7, revise as follows: 2@ 125ø dryer vent c/w wall caps. Provide transition from 125ø rigid to 100ø semi-rigid duct at dryers. Maximum duct length (includes 1@ 100ø elbow plus 1@ 125ø elbow): 600mm (2 ft) of 100ø semi-rigid plus 6,000mm (20 ft) of 125ø rigid metal. Enclose dryer vents into fire rated enclosure (by General Contractor; coordinate with Corcan).
 3. Room 212:
 - (1) Furnace FU-2; install condensate trap (furnished with furnace) and provide 20ø condensate drain (PVC) to in-line acid neutralizer (furnished by Contractor) and pipe to floor drain.
 - (2) Provide 25mm duct liner for return air plenum upstream of furnace.
 - (3) Provide hard-wired CO sensor conforming to CAN/CSA-6.19. Install per manufacturer's recommendations. Coordinate with Division 26 for power.
 - (4) Add 20ø condensate drain for HRV-4 c/w trap, piped to floor drain.
 4. Delete 2@ 600x450 R/A duct in ceiling space. Add 600x1000 sidewall R/A grille type R-2 at shaft wall (south-facing). Extend R/A plenum into duct shaft and connect R/A duct

- riser to bottom of R/A plenum. Provide 25mm duct liner at R/A plenum. Bottom of grille @ 600 above finished floor. Blades to be parallel to short dimension of grille.
5. Room 233A: Relocate transfer air boot to the wall between Room 231/249.
 6. Add Note 16 as follows: "All transfer air boots on 2/F shall be complete with grilles (type R-2) at both ends. Grilles to match duct size."
3. Refer to Tender Specifications Section 23 73 11 "Air Handling Unit - Packaged":
 1. 2.2.1.3: Revise as follows: "Finish unit outside with rust resistant enamel coating."
 2. 2.2.2: Delete word "solid".
 3. Delete 2.8.3.1.
 4. 2.8.3.2: Add the following: "Filter shall be 100mm thick pleated type."
 5. 2.10.3.1: Revise "1.5mm" to "1.6mm".
 6. 2.10.3.2.2: Revise "copper" to "aluminum".
 7. 2.10.3.3.3: Revise "copper" to "aluminum".
 4. Refer to Tender Specifications Section 23 90 00 – Equipment Schedule, Pg. 6, 7:
 1. 4.0 Heat Recovery Ventilator Schedule:
 - (1) HRV-1, HRV-2: Revise "MCA = 20 amp" to "Total FLA = 15.5 amp". Revise supply and exhaust fans to 1/2 HP each.
 - (2) HRV-3, HRV-4: Revise "MCA = 4.5 amp" to "Total FLA = 4.5 amp".
 - (3) Delete Note 2.
 5. Refer to Tender Specifications Section 23 90 00 – Equipment Schedule, Pg. 8, 9:
 1. 5.0 Air Handling Unit Schedule:
 - (1) Delete Note 6.
 6. Refer to Tender Specifications Section 23 90 00 – Equipment Schedule, Pg. 12:
 1. 8.0 Grilles and Diffusers:
 - (1) Add DG-2: fire rated door grille, 18"x14" (unless otherwise noted), Z-blade louvers, mitered and welded corners, mineral bronze colour.
 7. Refer to Tender Specifications Section 25 05 01 "EMCS General Requirements":
 1. Add 3.2.5 as follows: "Controls Contractor shall include in tender price a one (1) day meeting with Departmental Representative to review the controls system and sequence of operations prior to submitting controls shop drawings."
 8. Refer to Tender Specifications Section 25 90 01 "EMCS Site Requirements, Applications and Systems Sequence of Operation":
 2. Boiler Control; Add 3.2.1.7 as follows: "Provide speed feedback for VFD's."

9. Refer to Tender Specifications Section 25 90 01 “EMCS Site Requirements, Applications and Systems Sequence of Operation”:
 1. Boiler Control; Add 3.2.1.7 as follows: “Provide speed feedback for VFD’s.”
 2. AHU-1/2 Control:
 - (1) Add 3.2.3.3.4 as follows: “Provide duct static pressure transmitter in main duct (location to be field determined by Controls Contractor). High pressure limit switch at supply air duct shall be hard-wired to shut down unit. Provide speed feedback for VFD’s.”
 - (2) Revise 3.2.3.5.3 as follows: “BAS is used to modulate heating control valve to maintain the set discharge air temperature.”
 - (3) Revise 3.2.3.7.1 as follows: “BAS is used to sequence the radiation control valve, air terminal unit damper and reheat control upon a demand for heating with the radiation being first on and last off, to maintain the set space temperature. Dual output signals or variable start points will be acceptable for sequencing valves.”
 3. FU-1/FU-2 Control:
 - (1) Delete 3.2.5.3 “Low Temperature Thermostats” and sub-clause 3.2.5.3.1.
 - (2) Revise 3.2.5.4.3 as follows: “When there is a call for heat (average space temperature), enable the first stage of heating. When there is additional call for heat, enable the second stage of heating. The furnace controller will modulate the heating output by 10% every 5 minutes in conjunction with fan speed in response to demand on second stage of heat. Upon demand for cooling the heating shall be disabled”.
 4. Revise 3.2.7 as follows:
 - .7 Exhaust Fans:
 - .1 EF-1, EF-3, EF-4 and EF-5 shall be started, stopped and monitored at the BAS system and shall operate as follows:
 - .1 EF-1: Provide room temperature sensor and motorized air intake damper. Cycle fan and maintain space temperature set point. Interlock damper with fan.
 - .2 EF-3: Provide room temperature sensor to cycle fan and maintain space temperature set point.
 - .3 EF-4 and EF-5: Provide space temperature sensors in attic and motorized air intake dampers (see drawing M-6). Cycle fan and maintain space temperature set point. Interlock damper with fan.
 - .2 EF-2 shall be started manually at wall switch (by Division 26). Provide motorized damper at transfer air duct, and close motorized damper when fan is enabled.
 5. Building Energy Metering:
 - (1) Add 3.2.9.3 as follows: “One (1) electrical power meter (w/ Modbus points) will be furnished by Division 26. Controls Contractor shall monitor provide wiring and monitor power consumption at DDC. Coordinate with Division 26 for details.

Review with Departmental Representative the points to be mapped (including but not limited to amperage and voltages for the three phases, power consumption, power factor, max/min values)."

6. Mechanical Room Ventilation System: Delete 3.2.12.2.
7. Add 3.2.14 as follows:
 - .1 Boiler Room (Room 150A) Ventilation:
 - .1 A hot water unit heater is controlled by the BAS to maintain the room set temperature.
 - .2 Provide 2@ motorized dampers. When space temperature exceed set point, open the motorized dampers for cross ventilation cooling.
10. Refer to Tender Specifications Section 25 90 02 "EMCS Point List/Schedules:
 1. AHU-1, AHU-2:
 - (1) Delete points: Final Filter P.D, Duct Smoke Detector
 - (2) Add AI point: Supply Fan Speed Feedback
 - (3) Add AI point: Return Fan Speed Feedback
 - (4) Add AI point: Duct Static Pressure
 - (5) Add DI point: High Limit Pressure Switch. Provide alarm at DDC.
 2. FU-1, FU-2:
 - (1) Delete points: Pre-Filter P.D., Final Filter P.D., Duct Smoke Detector, Low Temperature Thermostat, Gas Heating Valve, Gas Valve Status.
 - (2) Add AI points: Space temperature (typical of 4). Locate temperature sensors (w/ blank cover plate) in Room 103, 107, 109, 117, 203, 207, 209, 217.
 - (3) Add DO points: Heating Stage 1, Heating Stage 2.
 3. Pg. 10, Electrical Measurement & Monitoring in Main Elect. Room:
 - (1) Delete "Lighting" (2 AI points) and "Mechanical Equipment" (2 AI points)
 - (2) Add "1x Power Meter, Modbus points":

END OF MECHANICAL ADDENDUM #M3