



REQUEST FOR PROPOSAL

MECHANICAL CONTRACTORS FOR SUPPLY, REMOVAL AND INSTALL OF VIESSMANN BOILERS AT FOUR (4) CITY OF VANCOUVER FACILITIES

RFP No. PS20120666

Issue Date: August 14, 2012

Issued By: City of Vancouver

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(4) CITY OF VANCOUVER FACILITIES
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PART A - INTRODUCTION

1.0 OVERVIEW OF RFP

1.1 This Request for Proposal (“RFP”) is an opportunity to submit Proposals for the City’s review and, depending on the City’s evaluation, to negotiate with the City to finalize and execute an Agreement, as defined in this RFP.

1.2 This RFP consists of 4 parts:

- (a) PART A - INTRODUCTION: This part sets out the key dates and contact information for the RFP process;
- (b) PART B - INSTRUCTION TO PROPONENTS: This part contains an overview of the project and the RFP process, including the terms and conditions governing the RFP process;
- (c) PART C - FORM OF PROPOSAL: This part contains the format and information requested by the City to be contained and submitted in the Proposal. The Proposal should be submitted in a two envelope system: Commercial Proposal and Management Proposal; and
- (d) PART E - FORM OF AGREEMENT: This part contains the City’s proposed terms and conditions for the Agreement that will be executed between the City and the successful Proponent, if any.

2.0 KEY DATES

2.1 Proponents should note the following key dates:

Event	Time/Date
Deadline for submission of Site/ Information Meeting Response form	Thursday, August 30, 2012; 3:00pm
Site/Information Meeting	To be arranged in early September 2012. Target dates: Sept 4 - Sept 10 (inclusive) To facilitate coordination please provide your email contact details.
Deadline for Enquiries	Tuesday, September 18, 2012 Enquiries received FIVE business days before the Closing Time may not be processed and may not receive a response. The City’s Purchasing Services Office is open on Business Days from 8:30am to 4:30pm and closed Saturdays, Sundays, and holidays.
Closing Time	Tuesday, September 25, 2012: 3:00pm

3.0 CONTACT PERSON

3.1 The Contact Person for this RFP is:

Philip Lai, P. Log, SCMP
Fax: 604-873-7057
Email: purchasing@vancouver.ca

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3.2 Proponents shall direct all enquiries, in writing, to the Contact Person. Telephone enquiries are not permitted.

4.0 CLOSING TIME

4.1 Proponents should submit their Proposals on or before the date and time as specified in Section 2.1 (the "Closing Time"). Closing Time and "Vancouver time" will be conclusively deemed to be the time shown on the Main Floor Rotunda Information Desk computer clock.

5.0 DELIVERY ADDRESS FOR PROPOSALS

5.1 Proponents shall submit their Proposals to the following address:

City of Vancouver Purchasing Services Office
453 West 12th Avenue
Vancouver, British Columbia
Canada, V5Y 1V4

For Courier/In Person Delivery, drop off at the:

Information Desk, Main Floor Rotunda
City of Vancouver, City Hall
453 West 12th Avenue
Vancouver, British Columbia
Canada, V5Y 1V4

Proposals submitted by fax or email will not be accepted.

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PART B - INSTRUCTIONS TO PROPONENTS

PART B - INSTRUCTIONS TO PROPONENTS

In this RFP, capitalized terms have the meanings set out in Section 24 (Definitions) of PART B - INSTRUCTIONS TO PROPONENTS and in PART E - FORM OF AGREEMENT, except where otherwise expressly provided or the context otherwise requires.

1.0 OVERVIEW

- 1.1 This RFP identifies a business opportunity for the successful Proponent to provide the supply, removal and install of Viessman boilers to four (4) City of Vancouver-owned facilities
- 1.2 The City is requesting Proposals from interested firms with demonstrated expertise in the installation of Viessmann boilers.
- 1.3 The purpose of this RFP is to select a Proponent with the capability and experience to efficiently and cost-effectively satisfy and deliver all of the requirements described in this RFP.
- 1.4 The successful Proponent will be the Proponent who offers the best value which will be assessed in the City's sole and absolute discretion as a combination of experience, pricing, scope, duration and level of services offered, proposed innovative design, and operations and maintenance enhancements.

1.5 Sustainability

- (a) The City's Procurement Policy and related Supplier Code of Conduct found at <http://vancouver.ca/doing-business/prepare-your-bid.aspx> aligns the City's overall approach to procurement with its corporate social, environmental and economic sustainability values and goals. It establishes a commitment to maximize benefits to the environment through product and service selection, to ensure safe and healthy workplaces, where human and civil rights are respected, and to support an environmentally sustainable local economy, whenever possible. In doing so, the Policy ensures incorporation of sustainability and ethical considerations as integral evaluation components in best-value supply selection.
- (b) Vendors are to provide environmentally sensitive products or services wherever possible. Where there is a requirement that the Vendor supplies materials, and where such materials may cause adverse effects, the Proponents is to indicate the nature of the hazard in its Proposal. The Proponent is to advise the City of any known alternatives or substitutes for such materials that would mitigate the effects of any adverse conditions on the environment.

- 1.6 The Requirements are as envisioned by the City at the time of writing, but may change or be refined in the course of the evaluation and award process.

2.0 ADMINISTRATIVE REQUIREMENTS

- 2.1 It is the sole responsibility of all Proponents to check the City's website at: <http://vancouver.ca/doing-business/open-bids.aspx> regularly for amendments, addenda, and questions and answers to this RFP.

3.0 INFORMATION MEETING

- 3.1 A Proponents' information meeting (the "Information Meeting") will be held:

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Location	Address	Date	Time
Hillcrest Community Centre	4575 Clancy Loranger Way, Vancouver, BC, V5Y 2M4	as specified in Section 2.1 of Part A	
VanDusen Floral Hall	5251 Oak Street, Vancouver, BC, V6M 4H1		
Sunset Nursery	290 51st Ave E, Vancouver, BC, V5X 1C5		
West End Community Centre	870 Denman St, Vancouver, BC, V6G 2L8		

The Information Meeting will include: an overview of the requirements and an overview of the background documents and process. This meeting will also enable Proponents to seek clarification on RFP issues in a communal forum.

- 3.2 Proponents are encouraged to read this RFP and submit any questions relating to this RFP document to the Contact Person prior to the Information Meeting.
- 3.3 All Proponents should pre-register for the Information Meeting by submitting an Information Meeting Attendance Form (Appendix 1 to this Part B) by fax to 604-873-7057 or e-mail to purchasing@vancouver.ca by 3:00pm of Thursday, August 30, 2012.
- 3.4 The City will in good faith attempt to give accurate verbal responses to questions during the Information Meeting but Proponents are advised that they may only rely on the formal written response/summary to be issued by the City following the Information Meeting. The formal written response/summary will be issued by the City as soon as possible and will be posted to the City's website as outlined above.
- 4.0 CONDUCT OF RFP - INQUIRIES AND CLARIFICATIONS
- 4.1 The City's Director of Supply Management will have conduct of this RFP, and all communications shall be directed only to the Contact Person.
- 4.2 It is the responsibility of all Proponents to thoroughly examine these documents and satisfy themselves as to the full requirements of this RFP. Inquiries shall be in written form only, e-mailed or faxed to the Contact Person as set out in PART A - INTRODUCTION. If required, an addendum will be issued and posted on the City's website as outlined above.
- 5.0 CONTRACT REQUIREMENTS/DEVIATIONS AND VARIATIONS
- 5.1 Proponents should indicate in their Commercial Proposal the extent to which the Form of Agreement is consistent with their Proposal. If the Proposal is inconsistent with the Form of Agreement, the Proponent should provide proposed alternative contract language in their Commercial Proposal under the heading DEVIATIONS AND VARIATIONS which may or may not be considered by the City at its sole discretion.
- 5.2 Where the head office of the successful Proponent is located within the City of Vancouver and/or where the successful Proponent is required to perform any work at a site located within the City of Vancouver, the successful Proponent is required to have a valid City of Vancouver business license prior to signing the Agreement.

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6.0 PRICING

- 6.1 Pricing is to be submitted, as part of the Commercial Proposal, in a separate envelope/package from the Management Proposal.
- 6.2 Prices quoted are to be exclusive of HST but inclusive of all other costs including, without limitation, freight, unloading at destination, import duties, taxes (other than HST), brokerage fees, royalties, handling, overhead and profit.
- 6.3 Prices shall be quoted in Canadian currency.

7.0 SUBMISSION OF PROPOSALS

- 7.1 The submission instructions for Proposals are provided in Part C - FORM OF PROPOSAL. Proposals should be submitted in a two envelope/package system (Commercial Proposal and Management Proposal, as separate envelopes/packages) clearly marked with the *Proponent's Name, the RFP title and the RFP reference number. The Commercial Proposal and Management Proposal should be clearly identified and distinguishable.*
- 7.2 Proponents should submit THREE (3) hard copies of their Proposal in two parts as further described in PART C - FORM OF PROPOSAL (Management Proposal and Pricing Proposal) in three-ring binders, with each section tabbed and including all accompanying schedules, appendices and addenda. Proponents should also submit ONE (1) electronic copy of their Proposal in the same format described above on CD, DVD or electronic device.
- 7.3 Only the English language may be used in responding to this RFP.
- 7.4 Proposals, including any Proposal amendments, received after the Closing Time or in locations other than the address indicated in PART A - INTRODUCTION, may or may not be accepted and may or may not be returned.
- 7.5 Amendments to a Proposal should be submitted in writing in a sealed envelope(s) or package(s), marked with the Proponent's name and the RFP title and reference number before the Closing Time.
- 7.6 Proposals are revocable and may be withdrawn at any time before or after the Closing Time.
- 7.7 All costs associated with the preparation and submission of the Proposal, including any costs incurred by the Proponent after the Closing Time, will be borne solely by the Proponent.

8.0 PROPOSAL FORMAT

- 8.1 Unnecessarily elaborate Proposals, beyond that sufficient to present a complete and effective response, are not required and unless specifically requested, the inclusion of corporate brochures and narratives are discouraged.
- 8.2 Proponents are requested to provide their Proposal in the format and including the content described in PART C - FORM OF PROPOSAL.

9.0 BID SECURITY

- 9.1 No bid security is required since no irrevocable binding legal offer is made by submitting a proposal in response to this RFP.

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10.0 OPENING OF PROPOSALS

10.1 The City reserves the right to open all Proposals in a manner and at the time and place determined by the City.

11.0 EVALUATION OF PROPOSALS

11.1 Proposals will be evaluated by representatives of the City on the basis of the overall best value to the City based on quality, service, sustainability, price and any other criteria set out in this RFP including, but not limited to:

- (a) the Proponent's ability to meet the Requirements and the cost/expense for same;
- (b) the Proponent's ability to deliver the Requirements when and where required;
- (c) the Proponent's skills, knowledge and previous experience;
- (d) the proposed plan of approach and work schedule;
- (e) the Proponent's business reputation and capabilities;
- (f) the Proponent's ability to meet the City's insurance requirements;
- (g) environmental issues considered by the Proponent;
- (h) quality of Proposal, including any innovative concepts; and
- (i) any other criteria set out in this RFP or otherwise reasonably considered relevant.

11.2 The City reserves the right to retain complete control over the RFP process at all times until the execution and delivery of the Agreement. Accordingly, the City is not legally obligated to review, consider or evaluate the Proposals and need not necessarily review, consider or evaluate the Proposals in accordance with the procedures set out in this RFP. The City reserves the right to continue, interrupt, cease or modify its review, evaluation and negotiation process on any or all Proposals at any time without further explanation or notification to any of the Proponents subject only to the express legal terms and conditions which bind the City.

11.3 The City may, at any time prior to signing a contract, discuss or negotiate changes to the scope of the RFP with any one or more of the Proponents without having any duty or obligation to advise the other Proponents or to allow the other Proponents to vary their Proposals as a result of such discussions or negotiations.

11.4 The City may elect to short list Proponents and evaluate the Proposals in stages. Short-listed Proponents may be asked to provide additional information or details for clarification, which may include attending interviews, making a presentation, supplying sample drawings, performing demonstrations, furnishing additional technical data and proposing amendments to the Form of Agreement. The City will be at liberty to negotiate in parallel with one or more short-listed Proponents, or in sequence, or in any combination, and may at any time terminate all or any one set of negotiations with the short-listed Proponents.

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- 11.5 Prior to approval of a Proposal, the City must be satisfied as to the Proponent's financial stability. Proponents may be asked to provide annual financial reports or a set of financial statements prepared by an accountant and covering the Proponent's last two fiscal years.
- 11.6 The City may request that any or all Sub-contractors of the Proponent undergo the same evaluation process.
- 12.0 PROPOSAL APPROVAL
- 12.1 Proposal approval is contingent on funds being approved and the Proposal being approved by Vancouver City Council. Only then may the successful Proponent and the City proceed to settle, draft and sign the Agreement.
- 12.2 The City will notify the successful Proponent in writing that its Proposal has been approved in principle and invite the Proponent to proceed with discussions to settle, draft and sign the Agreement.
- 12.3 The City is not under any obligation to approve any Proposal and may elect to terminate this RFP at any time.
- 12.4 Notwithstanding any other provision in the RFP documents, the City has in its sole discretion, the unfettered right to:
- (a) accept any Proposal;
 - (b) reject any Proposal;
 - (c) reject all Proposal;
 - (d) accept a Proposal which is not the lowest proposal;
 - (e) accept a Proposal that deviates from the Requirements or the conditions specified in this RFP;
 - (f) reject a Proposal even if it is the only Proposal received by the City;
 - (g) accept all or any part of a Proposal; and
 - (h) split the Requirements between one or more Proponents.
- 12.5 in addition to proposing services which meet the Requirements, the Proponent wishes to offer an alternative, the alternative solution is to be submitted separately as an appendix within the Management Proposal. Any pricing impact of the alternate solution should be provided separately in the Commercial Proposal.
- 13.0 FREEDOM OF INFORMATION AND PROTECTION OF PRIVACY ACT
- 13.1 Proponents should note that the City of Vancouver is subject to the *Freedom of Information and Protection of Privacy Act* (British Columbia), which imposes significant obligations on the City's consultants or contractors to protect all personal information acquired from the City in the course of providing any service to the City.

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14.0 NON-RESIDENT WITHHOLDING TAX

14.1 Please note that the *Income Tax Act* (Canada) requires that payments to non-residents for any services performed in Canada are subject to a Non-resident Withholding Tax of a specified percentage (depending on residency of the contractor). Exemption from this withholding tax is available in some circumstances, but the non-resident must apply directly to the Canada Revenue Agency (“CRA”) at least 30 days before commencing the service.

15.0 NO OBLIGATION ASSUMED BY CITY

15.1 Unless expressly stated in this RFP, the City assumes no legal duty or obligation in respect of this RFP unless and until the City enters into the Agreement.

15.2 The Proponent agrees that the Proponent will bear all costs and expenses incurred by the Proponent in preparing its Proposal and participating in the RFP.

16.0 NO CLAIM AGAINST THE CITY

16.1 The Proponent acknowledges and agrees that the City will not be responsible for any costs, expenses, Losses, damages (including damages for loss of anticipated profit) or liabilities incurred or alleged to be incurred by the Proponent and by submitting a Proposal each Proponent shall be deemed to have agreed that it has no claim whatsoever.

17.0 RELEASE AND INDEMNITY

17.1 The Proponent now releases from all liability of any losses and further indemnifies and will protect and save the City harmless from and against all Losses, in respect of any claim or threatened claim by the Proponent or any of the Proponent’s Sub-contractors or agents alleging or pleading:

- (a) any alleged (or judicially imposed) breach by the City or its officials or employees of the RFP;
- (b) any unintentional tort of the City or its officials or employees occurring in the course of conducting this RFP process; or
- (c) liability on any other basis related to this RFP process.

18.0 DISPUTE RESOLUTION

18.1 Any dispute relating in any manner to this RFP process shall be resolved by arbitration in accordance with the *Commercial Arbitration Act* (British Columbia), amended as follows:

- (a) The dispute will be decided by a single arbitrator, the arbitrator will be selected by the City’s Director of Legal Services and the arbitration will take place in Vancouver;
- (b) Section 17.0 (No Claim) and Section 18.0 (Release and Indemnity) will:
 - (i) bind the City, Proponent and the arbitrator; and
 - (ii) survive any and all awards made by the arbitrator; and
- (c) the Proponent will bear all costs of the arbitration.

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19.0 ACCESS/OWNERSHIP OF PROPOSAL INFORMATION

- 19.1 All RFP packages and addenda provided to the Proponent by the City remain the property of the City and must be returned to the City upon request.
- 19.2 The documentation containing the Proposal, once submitted to the City, becomes the property of the City, and the City is under no obligation to return the Proposal.

20.0 CONFIDENTIALITY

- 20.1 Subject to the applicable provisions of the *Freedom of Information and Protection of Privacy Act* (British Columbia) and the City's full right to publicly disclose any and all aspects of the Proposal in the course of publicly reporting to the Vancouver City Council on the Proposal results or announcing the results of the Proposals to the Proponent(s), the City will treat all material and information expressly submitted by the Proponent (and the City's evaluation of it) in confidence in substantially the same manner as it treats its own confidential material and information.
- 20.2 The Proponent irrevocably waives all rights it may have by statute, at law or in equity, to obtain any records produced or kept by the City in evaluating its Proposal (and any other submissions) and now agrees that under no circumstances will it make any application to the City for disclosure of any records pertaining to the receipt, evaluation or selection of its Proposal (or any other submissions) including, without limitation, records relating only to the Proponent.
- 20.3 The Proponent will not divulge or disclose to any third parties any information concerning the affairs of the City which may be communicated to the Proponent at any time (whether before or after the Closing Time). Recognizing the need for confidentiality of the City's data, files and other confidential information, the Proponent will not use, exploit or divulge or disclose to third parties any confidential or proprietary information of the City of which the Proponent may gain knowledge in connection with or in the course of discussions or negotiations with the City.
- 20.4 All material and information that has or will come into the Proponent's possession or knowledge in connection with this RFP process is confidential and may not be disclosed or utilized in any way except as expressly provided in the RFP.
- 20.5 The Proponent may not divulge any information respecting the RFP process to any third party without the prior written consent of the City, which consent may be arbitrarily withheld unless it is information which the City has already made public or has been required to disclose pursuant to the *Freedom of Information and Protection of Privacy Act* (British Columbia).

21.0 NO PROMOTION

- 21.1 The successful Proponent must not disclose or promote its relationship with the City, including by means of any verbal declarations or announcements and by means of any sales, marketing or other literature, letters, client lists, press releases, brochures or other written materials, without the express prior written consent of the City (except as may be necessary for the successful Proponent to perform the successful Proponent's obligations under the terms of the Agreement).

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22.0 SURVIVAL/LEGAL EFFECT OF PROPOSAL CONTRACT

22.1 All of the terms of this PART B - INSTRUCTIONS TO PROPONENTS which by their nature require performance or fulfillment following the conclusion of the Proposal process will survive such issuance and will remain legally enforceable by and against the Proponent and City.

23.0 DEFINITIONS

23.1 For greater certainty and without limitation to any of this City's rights set out in this Agreement when the term "must" precedes a requirement regarding the content or format of a Proposal such a requirement is mandatory. When the terms "should", "shall", "will", "is to" or "are to" precede a requirement regarding the content or format of a Proposal, such requirement is not mandatory but is strongly recommended.

23.2 In this RFP, the following terms have the following meanings:

- (a) "Agreement" means the contract entered into between the City and the successful Proponent following the conclusion of the RFP process which contract will be substantially the same form as the Form of Agreement;
- (b) "City" means the City of Vancouver, a municipal corporation continued pursuant to the Vancouver Charter;
- (c) "Commercial Proposal" means those portions of the Proposal to be submitted in Envelope One as set out in PART C - FORM OF PROPOSAL;
- (d) "Form of Agreement" means the sample Agreement included in PART E - FORM OF AGREEMENT;
- (e) "Losses" means in respect of any matter all:
 - (i) direct or indirect, as well as;
 - (ii) consequential,

claims, demands, proceedings, losses, damages, liabilities, deficiencies, costs and expenses (including without limitation all legal and other professional fees and disbursements, interest, penalties and amounts paid in settlement whether from a third person or otherwise);
- (f) "Management Proposal" means those portions of the Proposal to be submitted in Envelope Two as set out in PART C - FORM OF PROPOSAL, which expressly excludes any pricing information;
- (g) "Project" means the project described in RFP No. PS20120666 - MECHANICAL CONTRACTORS FOR SUPPLY, REMOVAL AND INSTALL OF VIESSMANN BOILERS AT FOUR (4) CITY OF VANCOUVER FACILITIES;
- (h) "Proponent" means those entities eligible to participate in this RFP process;
- (i) "Proposal" means a proposal submitted in response to the RFP;

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- (j) “Proposal Declaration Form” means the form to be included in the Commercial Proposal substantially as set out in PART C-FORM OF PROPOSAL, or as otherwise acceptable to the City;
- (k) “Requirements” means the City’s requirements for the work to be performed by the successful Proponent as set out in Schedules 1, 2 and 3 - Scope, Specifications and Drawings, respectively, of the Form of Agreement;
- (l) “RFP” means the documents issued by the City as Request for Proposal No. PS20120666 including all addenda; and
- (m) “Sub-contractors” means any or all sub-contractors identified in the Proponent’s Proposal.

All other terms (capitalized or not) have the meanings given to them in the RFP.

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APPENDIX 1 - PART B



FINANCIAL SERVICES GROUP
Supply Management

Request for Proposal No. PS20120666

MECHANICAL CONTRACTORS FOR SUPPLY, REMOVAL AND INSTALL OF VIESSMANN BOILERS AT FOUR (4)
CITY OF VANCOUVER FACILITIES

To acknowledge your intent to attend the Site/Information Meeting being held and to ensure that you receive the required information, please submit this form to the person identified below before close of business day, as per Section 2.1.

Philip Lai, Buyer II

Fax: 604-873-7057

Email: purchasing@vancouver.ca

Your details:

Proponent's Name: _____

“Proponent”

Address: _____

Key Contact Person: _____

Telephone: _____

Fax: _____

E-mail: _____

Incorporation Date: _____

Our company WILL / WILL NOT attend the information meetings for

“RFP No. PS20120666 - MECHANICAL CONTRACTORS FOR SUPPLY, REMOVAL AND INSTALL OF VIESSMANN
BOILERS AT FOUR (4) CITY OF VANCOUVER FACILITIES

Name of Company (Please print)

Authorized Signatory

E-mail Address (Please print)

Date

PART C - FORM OF PROPOSAL

1.0 INTRODUCTION

1.1 This PART C - FORM OF PROPOSAL contains the format and information requested by the City to be contained in the Proponent's Proposal.

1.2 The Proponent's Proposal should be submitted in two envelopes/packages:

- (a) Envelope One: Commercial Proposal, including the Proposal Declaration Form; and
- (b) Envelope Two: Management Proposal.

1.3 The Commercial Proposal should contain the following sections, as more particularly described in this PART C - FORM OF PROPOSAL under the heading "Submission Instructions for Envelope One - Commercial Proposal":

- (a) Proposal Declaration Form;
- (b) Pricing;
- (c) Insurance;
- (d) WorksafeBC; and
- (e) Deviations and Variations.

1.4 The Management Proposal should contain the following sections, as more particularly described in this PART C - FORM OF PROPOSAL under the heading "Submission Instructions for Envelope Two - Management Proposal":

- (a) Company Profile;
- (b) Key Personnel
- (c) References;
- (d) Sub-Contractors;
- (e) Requirements Overview;
- (f) Sustainability;
- (g) Project Timeline;
- (h) Environmental Responsibility; and
- (i) Prime Contractor Requirements.

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 PART C - FORM OF PROPOSAL

2.0 SUBMISSION INSTRUCTIONS FOR ENVELOPE ONE - COMMERCIAL PROPOSAL

The following describes the format and information to be provided by the Proponents in their Commercial Proposals. The paragraph titles and numbers in the Commercial Proposal should correspond to the paragraph titles and numbers below.

2.1 Proposal Declaration Form

2.1.1 Each Proponent must submit with its Commercial Proposal a signed Proposal Declaration Form substantially as set out in this PART D - PROPOSAL DECLARATION FORM, or as otherwise acceptable to the City.

2.2 Pricing

2.2.1 The Proponent must provide the following information:

- (a) a total maximum fee for the services, inclusive of all disbursements and taxes (except HST, which is to be shown separately), showing all costs associated with the Project Tasks and deliverables as outlined in the Form of Agreement, Schedules 1 to 3;
- (b) the hourly charge out rates for Project team members;
- (c) a breakdown of the total maximum Project fee into the costs associated with each team member, inclusive of fees, disbursements and taxes (except HST);
- (d) a description of all disbursements, including a maximum amount for each;
- (e) a description of all costs associated with Sub-contractors; and
- (f) a description of all costs, organized as above, for any additional proposed scope of work related to this Project. For example, where additional meetings are requested by the City, describe how these would be charged to the City.

2.2.2 The Proponent must copy and customize the Pricing Table set out below for inclusion in their RFP submission:

Table 1 - Proposal Price

Item	Location	Price
A. Hillcrest		
1	Supply, install & commission Vitocrossal CT3-89 3mmbtu, complete with venting and pipework modifications.	\$
2	Deliver removed Vitorond to address within Vancouver (TBA) and off load at ground level.	\$
Sub-Total A		\$
B. VanDusen		
1	Demolish and remove existing gas fired furnaces.	\$

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2	Supply, install and commission eight water fired fan coil units and three Vitodens 200 WB2B-105, complete with pipework, pumps and controls, as per Upgrade Report from J M Bean.	\$
Sub-Total B		\$
C. Sunset		
1	Supply, install and commission one Vitodens 200 WB2B-105 with pipework connecting to the existing stub outs already provided.	\$
Sub-Total C		\$
D. WECC		
1	Remove one existing boiler, lower to ground, transport to salvage/scrap.	\$
2	Lift one Vitorond (ex Hillcrest) to roof and install.	\$
3	Modify pipework to suit Vitorond connections.	\$
4	Modify/replace (as necessary) existing venting.	\$
5	Commission.	\$
6	Review controls system and optimize.	\$
Sub-Total D		\$
TOTAL (A+B+C+D)		

NOTE: Prices shall be exclusive of all applicable PST, HST and GST..

2.2.3 Terms of Payment

The City's standard payment terms are net 30 days after receipt of approved invoice, however and discounts or more favourable terms offered by the Proponent will be taken into consideration in the financial evaluation. Proponents should indicate in their Proposals if they require other than Net 30 days payment

Proponents should describe if Electronic Fund Transfer (EFT) is available.

2.2.4 Alternative Pricing Solutions

Proponents may offer alternative pricing options.

2.3 Insurance Requirements

2.3.1 Proponents must submit with their Proposals a Certificate of Existing Insurance duly completed and signed by their insurance agent or broker as evidence of their existing insurance, along with a letter from their insurance broker or agent indicating whether or not (and if not then to what extent) they will be able to comply with the insurance requirements as set out in Section 8.0 of the Form of Agreement, should they be selected as the successful Proponent.

2.3.2 The successful Proponent will be required to file certificates of insurance with the City showing proof of all insurance requirements described utilizing the "Certificate of Professional Liability Insurance" attached as Schedule 8i and "Certificate of Insurance" attached as Schedule 8ii, of

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the Form of Agreement. These certificates must be received and reviewed and approved by the City prior to or concurrently with the City entering into any Contract with the successful Proponent.

2.4 WorkSafeBC Requirements

2.4.1 Proponents should submit with their Proposals proof of valid WorkSafeBC registration. Such registration should be maintained as specified in Section 9.0 of the Form of Agreement.

2.5 Deviations and Variations

2.5.1 Proponent(s) should detail any deviations and/or variations from the terms and conditions set out in this RFP and if applicable, detail proposed amendments.

2.5.2 Where the Proponent is proposing the use of contract language or clauses other than as set out in the Form of Agreement, including any and all Schedules, such proposed revised language must be outlined in its Proposal and this language may or may not be considered by the City at its sole discretion. The City will assume such clauses are in addition to those in the Form of Agreement unless otherwise indicated by the Proponent.

3.0 SUBMISSION INSTRUCTIONS FOR ENVELOPE TWO - MANAGEMENT PROPOSAL

The following describes the format and information to be provided by the Proponents in their Management Proposals. The paragraph titles and numbers in the Management Proposals should correspond to the paragraph titles and numbers below.

Proponents should note that the Management Proposal should contain no pricing information whatsoever.

3.1 Company Profile

3.1.1 Provide a description of the proponent's company, purpose and history of successes including number of years in business, major projects, and what is most responsible for the proponent's success to date. Include a company brochure or resume for each member of any consortium as well as each key personnel employed by any named proposed Sub-contractor to the proponent.

3.1.2 Provide the following information:

Proponent's Name: _____
"Proponent"

Mailing Address: _____

Cheque Payable / Remit to Address: _____

Telephone No.: _____ Fax No.: _____

Key Contact Person: _____ E-mail: _____

GST/HST Registration No.: _____ Incorporation Date: _____

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City of Vancouver Business License Number: _____
(If your office is located in Vancouver or N/A if not applicable)

WorkSafeBC Account Number: _____

Dunn and Bradstreet Number: _____
(or N/A if not applicable)

3.2 Key Personnel

3.2.1 Identify and provide resumes for the key personnel in the Proponent’s proposed team and outline what their roles will be in servicing this Project.

3.2.2 Include a list of at least three relevant and successfully completed projects, with references and telephone numbers for each. By submitting a Proposal, the Proponent consents to the City contacting these references at its discretion, and consents to the City also contacting any other organization for the purposes of evaluating the Proposal.

3.2.3 Include an organization chart for the Proponent’s proposed Project team, identifying the team leader or project manager, and all roles and areas of responsibility.

3.2.4 Preference will be given to proponent’s consulting teams that demonstrate knowledge and experience involving the supply, removal and install of Viessmann boilers. Proponents must state the knowledge and experience of each proposed team member. For team members with limited or no knowledge and experience, proponents must describe these team members’ roles in the Project, and how the rest of the team will support these team members.

3.3 References

3.3.1 The Proponent is to describe the Proponent’s relevant experience with similar engagements for similar work over the last two years as well as references for same by completing the table below. The Proponent may, at its own discretion, expand on the number of references and information that it deems necessary to support its Proposal. By submitting a Proposal, the Proponent consents to the City contacting these references, and consents to the City also contacting any other organization for the purposes of evaluating the Proponent’s company and Proposal.

Name and Address of Company	Contact Name and Telephone Number	Brief Description of Work and Date Performed

Additional pages may be attached to this table; please ensure they are clearly marked.

3.4 Sub-Contractors

3.4.1 The Sub-contractors shown below are the Sub-contractors that the Proponent proposes to use to carry out the Requirements. The City expects that the Proponent will engage the listed Sub-contractors and no others in their stead without prior written authorization of the City. (For

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contractual requirements, Proponents should note the relevant sections of the Form of Agreement.)

- 3.4.2 The City reserves the right to object to any of the Sub-contractors listed in a Proposal. If the City objects to a listed Sub-contractor then the City will permit a Proponent to, within seven calendar days, propose a substitute Subcontractor acceptable to the City. A Proponent will not be required to make such a substitution and, if the City objects to a listed Sub-contractor, the Proponent may, rather than propose a substitute Sub-contractor, consider its Proposal rejected by the City and by written notice withdraw its Proposal.
- 3.4.3 If no Sub-contractors will be used, indicate “Not Applicable”.

Company Name, Address	Contact Name and Telephone Number	Area of Responsibility

Additional pages may be attached to this table; please ensure they are clearly marked.

3.5 Requirements Overview

3.5.1 Schedules 1 to 3 - Scope, Specifications and Drawings of the Form of Agreement provided the scope, specifications and drawings for the work to be completed by the successful Proponent:

- (a) Proponents should submit a task by task work plan that will ensure the delivery of the specified services and/or facilities. The work plan should be sufficient enough detail to demonstrate to the City that the Proponent full understands and is committed to delivering to the Requirements of the scope, specifications and drawings.
- (b) Although it is necessary that the Proponent submit a detailed response to the Requirements, including, but without limitation to, a work program and maximum total fee for the scope of services described in this RFP, the City is interested in Proposals that will add value to the Project. Innovative ideas will be favourably considered in evaluating all Proposals.

3.6 Sustainability

3.6.1 The City is committed to preserving the environment. Proponents should provide environmentally sensitive products or services wherever possible. Where there is a requirement that the Proponent supplies materials, and where such materials may cause adverse effects, the Proponent is to indicate the nature of the hazard in its Proposal. The Proponent is to advise the City of any known alternatives or substitutes for such materials that would mitigate the effects of any adverse conditions on the environment.

Sustainability Initiative	Description	Details	Response
a. Packaging Reduction	The City aims to reduce the packaging associated with	Tell us about your proposed measures to reduce product packaging such as recycle	

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Sustainability Initiative	Description	Details	Response
	acquiring various products. More and more suppliers are adopting innovative programs to reduce packaging.	ability, percentage of recycled content, return/collections programs and/or re-use. Examples include providing products in reusable packaging such as plastic totes, reducing unnecessary packaging such as shrink wrap or offering packaging that is made from recycled material.	
b. Greenhouse Gas/Carbon Reduction	The City aims to reduce its greenhouse gas/ carbon emissions, where possible as part of its Climate Protection Program.	Tell us how the design and use of your product or service takes into account strategies to reduce its carbon footprint. Examples could include offering products with a limited amount of embedded carbon, having a strategy for limiting transportation-related to service provision and/or purchasing carbon credits to offset emissions	
c. Waste Reduction	The City aims to reduce waste where possible.	Tell us how your firm addresses waste minimization and diversion of waste from the landfill in the design of your product or service and its associated delivery, use and disposal. Examples include take-back programs you may have for your products at end-of-life or products that are made from recycled materials.	
d. Toxic Reduction	The City aims to reduce toxins and hazardous substances in the workplace where possible.	Tell us what steps your firm has taken to use 'design for environment' principles to reduce toxic and hazardous substances found in your products. Examples could include products that contain polyvinyl chlorides (PVCs) or volatile organic compounds (VOCs).	
e. Third Party Eco-labeling	The City aims to purchase, when possible, products that are eco-certified or eco-labeled by a recognized	Describe and explain third party certification for the products to be supplied, which includes labeling requirements. State the type of testing performed and the standards applicable to	

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Sustainability Initiative	Description	Details	Response
	third party.	support biodegradable products completely breaking down in the landfills.	
f. Socio-economic Sustainability	Socio-economic sustainability is important to the City. As such, The City aims to do business with suppliers who are striving to advance social and economic wellbeing in the community.	Tell us about your firm's efforts with regards to socio-economic sustainability. Examples include, but are not limited to, broadening educational and professional development opportunities, supporting minority/youth groups, supporting low-threshold job programs for vulnerable people.	

3.7 Project Timeline

3.7.1 The Proponent must provide a detailed schedule, in GANTT or PERT format, for each of the four (4) locations based on the following milestones. The working schedule should be of sufficient detail to demonstrate the Proponents understanding of the work:

- A. Hillcrest Community Centre
- B. VanDusen Floral Hall
- C. Sunset Nursery
- D. West End Community Centre

No.	Key Date Description	Date
	<i>Mobilization</i>	
	<i>Substantial Completion</i>	
	<i>Final Completion</i>	

The final agreed to schedule should become the Contract Schedule for the successful Proponent.

4.0 PRIME CONTRACTOR REQUIREMENTS

4.1 Proponents should provide an overview to their approach to meet the requirements of Prime Contractor.

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PART D - PROPOSAL DECLARATION FORM

[Proponent's Letterhead]

To: [Insert submission location]

Attention: [Insert contact person]

Capitalized terms have the definitions given them in the RFP.

In consideration of the City's agreement to consider Proposals in accordance with the terms of the RFP, the Proponent hereby submits its Proposal in accordance with the following:

I. PROPOSAL

The Proponent acknowledges that:

- (a) this Proposal Declaration Form has been duly authorized and validly executed;
- (b) the Proponent has received, read, examined and understood the entire RFP including all of the terms and conditions, all documents listed in the RFP "Table of Contents" including, without limitation, the Form of Agreement and any and all Addenda; and
- (c) the City reserves the right to verify information in its Proposal and conduct any background investigations including criminal record investigations, verification of the Proposal, credit enquiries, litigation searches, bankruptcy registrations and taxpayer information investigations or other investigations on the Proponent, and by submitting a Proposal, the Proponent agrees that it consents to the conduct of all or any of those investigations by the City.

II. NO CONFLICT OF INTEREST IN PROPOSAL EVALUATION

The Proponent confirms that there is no officer, director, shareholder, partner or employee or other person related to the Proponent's or the Proponent's proposed Sub-contractor's organizations (a "person having an interest") or any spouse, business associate, friend or relative of a person having an interest who is:

- (a) an elected official or employee of the City; or
- (b) related to or has any business or family relationship with any elected official or employee of the City,

such that there would be any conflict of interest or any appearance of conflict of interest in the evaluation or consideration of this Proposal by the City, except as set out below:

[The Proponent is conclusively deemed to have declared "none" unless the Proponent deletes this note and describes any or all relationships which might give rise to a conflict of interest or an appearance of a conflict of interest.]

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PART D - PROPOSAL DECLARATION FORM

III. NO CONFLICT OF INTEREST IN PROJECT

The Proponent confirms that neither the Proponent nor its proposed Sub-contractors are currently engaged in providing (or are proposing to provide) the supply, removal and install of Viessmann boilers of any kind to the Federal Government, Provincial Government, the Greater Vancouver Regional District (Metro Vancouver), or any member local governments of Metro Vancouver such that entering into the Agreement pursuant to this RFP would create a conflict of interest or the appearance of conflict of interest between the Proponent's duties to the City and the Proponent's duties of loyalty to these other governmental organizations, except as set out below:

[The Proponent is conclusively deemed to have declared "none" unless the Proponent deletes this note and describes any or all relationships which might give rise to a conflict of interest or an appearance of a conflict of interest.]

IV. NO COLLUSION OR FRAUD

The Proponent now confirms that its Proposal is in all respects a fair Proposal made without collusion or fraud and confirms that the Proponent is not competing within this RFP process with any entity which it is legally or financially associated or affiliated, except as set out below:

[The Proponent is conclusively deemed to have declared "none" unless the Proponent deletes this note and describes any and all affiliations or relationships which might give rise to collusion or an appearance of collusion.]

V. NO LOBBY STATUS

The Proponent now confirms that neither it nor any officers, directors, shareholders, partners, or employees of the Proponent or any of its proposed Sub-Contractors is registered as a lobbyist under any lobbyist legislation in any jurisdiction in Canada or in the United States of America, except as set out below:

[The Proponent is conclusively deemed to have declared "none" unless the Proponent deletes this note and describes any or all lobbyist registrations of the type described above.]

IN WITNESS TO THE ABOVE, the Proponent has executed this Proposal Declaration Form and submits same with the attached Proposal:

Authorized Signatory for the Proponent

Date

Name and Title (please print)

PART E - FORM OF AGREEMENT

This PART E - FORM OF AGREEMENT contains the City's proposed terms and conditions for the Agreement that will be executed between the City and the successful Proponent, if any.



NO. PS20120666

**MECHANICAL CONTRACTORS FOR SUPPLY,
REMOVAL AND INSTALL OF VIESSMANN BOILERS
AT FOUR (4) CITY OF VANCOUVER FACILITIES**

FORM OF DESIGN-BUILD AGREEMENT

Between

and

CITY OF VANCOUVER

DATE, 2012

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DESIGN-BUILD AGREEMENT

THIS AGREEMENT is dated for reference June 6, 2011

BETWEEN:

CITY OF VANCOUVER,
453 West 12th Avenue
Vancouver, BC V5Y 1V4

(the "Owner")

OF THE FIRST PART

AND:

VENDOR INFORMATION

(the "Design-Builder")

OF THE SECOND PART

BACKGROUND

- A. By way of a Request for Proposal No. PS20120666 "MECHANICAL CONTRACTORS FOR SUPPLY, REMOVAL AND INSTALL OF VIESSMANN BOILERS AT FOUR (4) CITY OF VANCOUVER FACILITIES (the "RFP")", the Owner requested proposals from design/build firms to perform the Work.
- B. In response to the RFP, the Design-Builder submitted a proposal dated MONTH, DATE 2012.
- C. After evaluating the proposals submitted in response to the RFP, the Owner awarded this contract to the Design-Builder for the Work based on the Design-Builder's proposal.

THE OWNER AND THE DESIGN-BUILDER NOW AGREE AS FOLLOWS:

ARTICLE A-1 THE WORK

The Design-Builder will:

- 1.1 perform the Work required by the Contract Documents for the Project (as defined herein) located at LOCATION - ok for which the Contract Documents have been signed by the Owner and the Design-Builder and for which [COV REPRESENTATIVE] is acting as, and is the Owner's Representative;
- 1.2 do and fulfill everything indicated by the Contract Documents; and

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PART E - FORM OF AGREEMENT (DRAFT)

- 1.3 commence the Work by the XXth day of MONTH, 2012 and, subject to adjustment in the Contract Time as provided for in the Contract Documents, attain Substantial Completion of the Project, as certified by the Owner's Representative, by the XXth day of MONTH, 2012, in accordance with the Project Schedule, included as Schedule to this Agreement.

ARTICLE A-2 AGREEMENTS AND AMENDMENTS

- 2.1 The Contract supersedes all prior negotiations, representations, or agreements, either written or oral, relating in any manner to the Work, including the RFP documents that are not expressly listed in Article A-3 of this Agreement.
- 2.2 The Contract may be amended only as provided in the Contract Documents.

ARTICLE A-3 CONTRACT DOCUMENTS

- 3.1 The following are the Contract Documents referred to in Article A-1 of this Agreement, whether or not attached to this Agreement:
- (a) this Agreement and the following Schedules which shall be deemed to form an integral part of this Agreement:
 - (i) Schedule 1 - Supplementary General Conditions;
 - (ii) Schedule 2 - Owner's Statement of Requirements (Sections A to C);
 - (iii) Schedule 3 - List of Drawings (the listed Drawings are incorporated by reference);
 - (iv) Schedule 4 - Schedule of Prices;
 - (v) Schedule 5 - List of Subcontractors and Suppliers;
 - (vi) Schedule 6 - Project Schedule;
 - (vii) Schedule 7 - Performance and Labour and Material Payments Bonds;
 - (viii) Schedule 8 - Insurance Certificate;
 - (ix) Schedule 9 - Owner Pre-Contract Hazard Assessment Form; and
 - (x) Schedule 10 - Design-Builder Pre-Contract Hazard Assessment Form;
 - (b) the Definitions and General Conditions of CCA - CSC - RAIC - Standard Construction Document 14 - Design-Build Stipulated Price Contract (2000 edition), not attached but incorporated by reference;
 - (c) the RFP and any Amendments, Addenda, Questions and Answers issued during the RFP process;
 - (d) the Proposal submitted by the Design-Builder, dated MONTH, DATE, 2012 titled Request for Proposal No. PS20120666 "MECHANICAL CONTRACTORS FOR SUPPLY, REMOVAL AND INSTALL OF VIESSMANN BOILERS AT FOUR (4) CITY OF VANCOUVER FACILITIES (incorporated by reference);

- (e) Subsequent clarifications regarding the Proposal submitted by the Design-Builder; and
- (f) Construction Documents, after they have been accepted by the Owner.

3.2 Capitalized terms used in the Contract Documents will have the meaning ascribed to such terms in the Contract Documents.

ARTICLE A-4 CONTRACT PRICE

- 4.1 The Contract Price (which excludes HST but otherwise includes all applicable fees, all municipal taxes, all permits and inspection costs, and all customs and excise import duties and WorkSafeBC assessments relating to the Work) to do, perform and supply all the Work in accordance with, and perform all the obligations specified by the Contract Documents is \$AMOUNT.
- 4.2 All HST payable by the Owner to the Design-Builder is \$AMOUNT. This amount is not included in section 4.1.
- 4.3 All amounts are in Canadian Funds.
- 4.4 The Contract Price shall be subject to adjustments as provided for in the Contract Documents.

ARTICLE A-5 PAYMENT

- 5.1 Subject to GC5.2 - *Applications for Progress Payment*, as modified by the Supplementary General Conditions, the Owner will pay the Contract Price to the Design-Builder together with applicable HST and will deduct and then make payment of the *Lien Act* holdback amount and certified deficiency holdback amounts together with such HST which may be applicable to those payments, all in accordance with the Contract Documents.
- 5.2 Notwithstanding anything to the contrary stated in the Contract Documents, the Design-Builder shall be paid by the Owner net 30 day upon the Owner receiving a valid invoice.
- 5.3 The payment for any Work under this Contract made to the Design-Builder by the Owner will not be construed as an acceptance of any Work being in accordance with the Contract Documents.
- 5.4 Should either party fail to make payments as they become due under the terms of the Contract Documents or in an award by arbitration or court, interest at the Prime Rate plus two percent (2%) per annum on such unpaid amounts will also become due and payable until payment. Such interest will be compounded on a monthly basis. The Prime Rate will be the rate established by the Bank of Canada from time to time as the minimum rate at which the Bank of Canada makes short term advances to Canadian chartered banks.

ARTICLE A-6 RECEIPT OF AND ADDRESSES FOR NOTICES

- 6.1 Except as otherwise expressly provided in the Contract Documents, communications between the parties will be in writing and sent to the following addresses and will be deemed to be received by the recipient:
 - (a) on the date of delivery, if delivered by hand to the individual, a member of the firm or to an officer of the corporation for whom they are intended; or

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- (b) on the day following transmission, if sent by facsimile (and confirmed by documentation of successful fax transmission) or e-mail transmission (except where, in the case of e-mail, the recipient's computer notifies the sender that the recipient is absent, e.g., the "auto-reply" feature has been activated); or
- (c) five (5) Working Days after the date of mailing, if sent by post, unless there is a postal service strike or other disruption.

- (i) to the Owner at:

City of Vancouver
453 West 12th Avenue
Vancouver, BC V5Y 1V4

Attention:

Fax No.:
Email:

- (ii) to the Design-Builder at:

VENDOR INFORMATION

Attention:

Fax No.:
Email:

or such other person, position, address as one party may advise the other from time to time or at any time.

ARTICLE A-7 LAW OF CONTRACT

- 7.1 The laws of British Columbia will apply to and govern the Contract Documents and the courts of British Columbia will have jurisdiction over all disputes not resolved by mediation or arbitration.

ARTICLE A-8 SUCCESSORS AND ASSIGNS

- 8.1 The Contract shall ensure to the benefit of and be binding upon the Owner and Design-Builder and their respective successors and permitted assigns.

THE REMAINDER OF THIS PAGE IS INTENTIONALLY BLANK

ARTICLE A-9 TIME OF THE ESSENCE

9.1 All time limits stated in this Contract are of the essence of the Contract.

IN WITNESS WHEREOF the parties hereto have executed this Agreement on the date first herein above written.

CITY OF VANCOUVER
by its authorized signatories:

Signature: _____

Name:

Title:

Signature: _____

Name:

Title:

VENDOR
by its authorized signatories:

Signature: _____

Name:

Title:

Signature: _____

Name:

Title:

Proof of authority in the form of a certified copy of a resolution naming the person or persons in question as authorized to sign the Agreement for and on behalf of the corporation or partnership, who are parties to this Agreement, shall be attached.

SCHEDULE 1 - SUPPLEMENTARY GENERAL CONDITIONS

THE SUPPLEMENTARY GENERAL CONDITIONS FOR DOCUMENT 14-2000

CONTRACT DOCUMENTS ARE MODIFICATIONS OF DOCUMENT 14-2000

- 1.1.1 The Agreement, Definitions and General Conditions of CCA-CSC-RAIC Standard Construction Document 14 - Design-Build Stipulated Price Contract, 2000 edition ("Document 14"), available for download at <http://www.ccdc.org/downloads/index.html>, are amended by these Supplementary General Conditions as set forth below. Any reference in the Contract Documents to "General Conditions" or "GC" means the General Conditions contained in Document 14 as amended by these Supplementary General Conditions. Whenever there is a conflict between these Supplementary General Conditions and the other Contract Documents or wherever the Contract Documents are silent and these Supplementary General Conditions speak to a particular issue or matter, the provisions of these Supplementary General Conditions shall take precedence.
- 1.1.2 Unless the context dictates otherwise and to the extent not otherwise defined in the Contract Documents, defined terms in these Supplementary General Conditions adopt the meanings given thereto in Document 14.
- 1.1.3 To the extent that the *Lien Act* expressly forbids parties from contracting out of all or some of the provisions of the *Lien Act* then, with respect to but only to the extent that, those provisions of the *Lien Act* are deemed to apply to any provisions of these Supplementary General Conditions then the provisions set out in the *Lien Act* shall overrule any provision of the Contract Documents that is determined to contradict or contravene the *Lien Act* but only to the extent of such contradiction or contravention.

AMENDMENTS TO THE DESIGN-BUILD CONTRACT (Document 14)

Delete Pages 1 to 5 of Document 14 consisting of the "Agreement between Owner and Design-Builder".

AMENDMENTS TO THE DEFINITIONS

The following definitions from Document 14 are hereby amended:

Delete the definition of "Consultant" at paragraph 5 and replace with the following:

5. Consultant

The Consultant is the person or entity designated by the Design-Builder to the Owner as being responsible for performing the Design Services in accordance with the Contract Documents and may be the same person or entity as the Design-Builder. The term Consultant means the architect, engineer or other entity licensed to practice in the province of British Columbia to provide the Design Services and coordinate the provision of the Design Services of all other consultants employed by the Design-Builder.

Add the following at the end of the definition of "Contract" at paragraph 6:

6. Contract

The Contract supersedes all prior negotiations, representations or agreements, either written or oral, except to the extent included in the Contract Documents or expressly incorporated by reference into the Contract by an actual reference to same in Article A-3 of the Agreement - CONTRACT DOCUMENTS.

Delete the definition of “Contract Documents” at paragraph 7 and replace with the following:

7. Contract Documents

The Contract Documents consist of those documents listed in Article A-3 of the Agreement - CONTRACT DOCUMENTS, those documents expressly incorporated by reference into the Contract by an actual reference to same in Article A-3 of the Agreement - CONTRACT DOCUMENTS, amendments agreed upon in writing between the parties together with all other documents, schedules and additions mutually agreed to or settled by the parties from time to time in respect of this Contract.

Delete the definition of “Design Services” at paragraph 11 and replace with the following:

11. Design Services

Design Services means the professional services for the design and construction administration performed by the Consultant (which may be the same entity as the Design-Builder) or other Subcontractors of the Design-Builder or Consultant under the Contract.

Add the following to the end of the definition of “Owner” the paragraph 12:

12. Owner

...and expressly excludes the Owner while acting in its capacity as a municipal regulatory authority.

Add the following definition of “Owner Caused Event” as a new paragraph 12.A

12A. Owner-Caused Event

An Owner-Caused Event is a wrongful act or omission of the Owner or anyone employed or engaged by them directly or indirectly, which is contrary to the express provisions of the Contract Documents, but for further certainty any event which is beyond the reasonable control of the Owner or anyone employed or engaged by them directly or indirectly is deemed to be an Excusable Event and not an Owner-Caused Event.

Delete the definition of “Owner’s Statement of Requirements” at paragraph 13 and replace with the following:

13. Owner’s Statement of Requirements

The Owner’s Statement of Requirements consists of the Requirements for the Work set out as Schedule 2 of the Agreement and in the RFP and as listed in Article A-3 of the Agreement - CONTRACT DOCUMENTS and any amendments thereto agreed upon by the parties.

Delete the second sentence of the definition of “Payment Certifier” at paragraph 14 and replace with the following:

14. Payment Certifier

The Payment Certifier may be the Owner, the Owner’s Representative, or any knowledgeable third party, as designated by the Owner.

Delete the definition of “Substantial Performance of the Work” at paragraph 20 and replace with the following:

20. Substantial Performance of the Work

Substantial Performance of the Work shall have the same meaning as “completed” in the *Lien Act* including as interpreted by section 1(3) thereof and shall be determined as provided therein and herein.

Delete the definition of Work at paragraph 23 and replace it with the following:

23. Work

Work means the total Design Services and Construction and related services required by the Contract Documents or properly inferable therefrom.

The following definitions shall be added immediately after the definition of “Working Days” and will apply in the Contract Documents:

25. Applicable Laws

Applicable Laws means all applicable federal, provincial and municipal laws, bylaws, codes, rules, regulations, policies and requirements applicable to the Work and the Project.

(A) 26. Applicable Permits

Applicable Permits means all necessary approvals, permits, licenses and consents required for the performance of the Work.

27. Certificate of Completion

Certificate of Completion means the certificate under section 7 of the *Lien Act* stating that work under a contract or subcontract has been completed (see definition of Substantial Performance of the Work) and includes an order made under section 7(5) of the *Lien Act*.

28. Design Deliverables

Design Deliverables means any products, goods, equipment, supplies, models, prototypes and other materials, information and data, reports, drawings, plans, designs, depictions, specifications and other documentation and any other items identified in the Contract Documents as deliverables that the Consultant may receive, create, produce, acquire or collect in performing the Design Services, provided that Design Deliverables are deemed not to include the following pre-existing materials:

- (a) any item not required to be produced by the Consultant or supplied to the Owner as part of or together with the Design Services, provided that if the Owner has paid or is liable to pay for any portion of such item’s creation, production, acquisition or collection then such item shall be deemed to be a Design Deliverable;
- (b) any item produced as a result of the Design Services, which is specified in the Contract Documents as being excluded from the Design Deliverables category; and
- (c) any item which pre-existed the effective date of this Agreement, that is owned by a third party or that is used by the Consultant as part of the services provided to any of its other customers.

29. Environmental Law

Environmental Law means any Applicable Law relating to the protection of the environment or occupational health and safety including those pertaining to (a) reporting, licensing, permitting, investigating, remediating and cleaning up in connection with any presence or release, or the threat of the same, of Hazardous Substances, and (b) the generation, manufacture, processing, distribution, use, re-use, treatment, storage, disposal, transport, labeling, handling and the like of Hazardous Substances.

30. Excusable Event

An Excusable Event means an event or circumstance (i) that is beyond the reasonable control of the Design-Builder, and its Subcontractors and Suppliers, and could not reasonably have been foreseen by the Design-Builder or its Subcontractors and Suppliers, and (ii) the impact of which could not have been avoided or substantially avoided by the exercise by them of commercially reasonable measures, but for greater certainty includes (subject to items (i) and (ii) above and subject also to items (v) through (viii) below) any (iii) acts of God, storm, earthquake, flood, fire, lightning, war (declared or undeclared), hostilities, national emergency, civil disturbance or commotion, insurrection, embargo, blockade, import restriction, epidemic, landslide, explosion, and (iv) government order, or regulation or other act of the public authority (except where the order or act results from a party's own acts or omissions or its failure to comply with Applicable Laws or Applicable Permits), but for greater certainty excludes in any event (v) any Site Labour Disturbance, (vi) temperature, precipitation, wind or other weather condition which, in any four week period, differs from the statistical average for that condition in that period by more than one standard deviation, calculated based on relevant data available from Environment Canada, (vii) a circumstance or cause resulting from the fault or negligence or omission of the Design-Builder or its Subcontractors or Suppliers, or their failure to perform the Design-Builder's obligations under this Contract including a failure to properly plan or carry out the Work in accordance with the terms hereof, or (viii) an event or circumstance which by the exercise of reasonable diligence could have been avoided or the effect of which could have been mitigated or which arises from a lack of funds.

31. Final Certificate for Payment

Final Certificate for Payment means the certificate issued on Total Performance of the Work.

32. Hazardous Substance

Hazardous Substance means any contaminant, waste, hazardous substance, hazardous waste, or dangerous goods in such quantities and concentrations as contravene applicable limitations under Environmental Law and that may impair the Environment, injure or damage property or plant or animal life or harm or impair the health of any individual.

33. Holdback Amount

Holdback Amount means the holdback required by the *Lien Act*.

34. Lien or Liens

Lien or Liens means a lien under the *Lien Act*.

35. Lien Act

Lien Act means the *Builders Lien Act* (British Columbia) and any additional successor or replacement legislation which may be passed that is applicable to the Site.

36. Owner's Representative

Owner's Representative means the person designated by the Owner in Article A-1 of the Agreement as representing the Owner for the purposes of this Contract.

37. Owner's Site Construction Rules

Owner's Site Construction Rules means all applicable policies, standards, protocols, rules and directions of Owner with regard to the Project and completion of the Work including those identified in the Owner's Statement of Requirements or other Contract Documents.

38. Project

Project means the Supply, removal and install of Viessmann boilers at four (4) City of Vancouver facilities Project and the performance of the Work related thereto.

39. Proposal

Proposal means the proposal submitted by the Design-Builder to the Owner in response to the RFP.

40. RFP

RFP means RFP No. PS20120666.

41. Schedule of Prices

Schedule of Prices means the Schedule of Prices attached as Schedule 2 to the Agreement.

42. Site

Site means the construction location and boundaries shown on the Drawings.

43. Site Labour Disturbance

Site Labour Disturbance means any strike, lock-out or labour disturbance, including those resulting from any jurisdictional or non-affiliation issues, involving employees, whether or not members of a trade union, of the Design-Builder, any Subcontractor, any Supplier, or any of their respective subcontractors of any tier, which delays or in any way adversely affects the performance and completion of Work at the Site.

44. Total Performance of the Work

Total Performance of the Work means the entire Work has been satisfactorily performed and is so certified by the Owner.

45. Trade Union Council

Trade Union Council means a council or association of trade unions of which employees of the Design-Builder or a Subcontractor are members

46. WorkSafeBC Rules

WorkSafeBC Rules means the *Workers Compensation Act* (British Columbia) including without limitation the *WorkSafeBC Occupational Health and Safety Regulation* (British Columbia), and all amendments

made to such act and regulations and in force from time to time, and to any statute or regulation that may be passed which supplements or supersedes such regulations

ALTERATION OF GENERAL CONDITIONS AND ADDITIONAL CONDITIONS

GC1.1 CONTRACT DOCUMENTS

GC1.1.10.1 is deleted in its entirety and replaced as follows:

- .1 the order of priority of documents, from highest to lowest, shall be:
- the Agreement between the Owner and the Design-Builder, excluding Schedules 1 and 2;
 - these Supplementary General Conditions;
 - the Definitions, Document 14;
 - the General Conditions, Document 14;
 - the Owner's Statement of Requirements;
 - the Construction Documents after they have been accepted by the Owner:
 - Division 1 of the Specifications;
 - Divisions 2 to 16 of the Specifications;
 - material and finishing schedules; and
 - drawings;
 - the RFP, including the Instructions to Proponents and any Amendments, Addenda, Questions and Answers during RFP Process; and
 - the Design-Builder's Proposal submitted in response to the RFP, including its schedules.

GC1.1.11 is deleted in its entirety and replaced with the following:

All Design Deliverables will be owned solely by the Owner unless otherwise expressly provided in the Contract Documents. The Owner shall have the complete and unfettered right to use and deal with the Design Deliverables for its own benefit in any way it sees fit without limitation, and without accounting in any way to the Consultant or the Design-Builder.

GC1.1.12 is deleted in its entirety and replaced with the following:

The Consultant will keep accurate records and provide regular reports to the Owner about the Design Deliverables as they are created or acquired, and grant to the Owner access to the Design Deliverables at all times on reasonable notice. Each Design Deliverable, as to the whole or that portion of the Design Deliverable then existing, will be delivered by the Consultant to the Owner on the earliest of each of the following events:

- (d) the date specified in the Contract Documents for the delivery of such Design Deliverable;
- (e) immediately on the date of expiration or sooner termination of this Agreement; or

- (f) the date specified by written notice of the Owner requesting delivery of all or any part of the Design Deliverable.

GC1.1.13 is deleted in its entirety and replaced with the following:

The Consultant transfers to the Owner, free of all liens and encumbrances, ownership of each Design Deliverable, and assigns all of its world-wide present and future rights, title and interest in and to each Design Deliverable, including copyright, effective as of the date of creation or acquisition of such Design Deliverable by the Consultant. The Consultant irrevocably waives, in favour of the Owner, all moral rights in the Design Deliverables. The Consultant will obtain from its employees and any independent contractors, all required assignments and releases of intellectual property, and waivers of moral rights, in the Design Deliverables. The Consultant will not assert any rights to or interests in, or apply for or register any copyright or other rights or interests in, the Design Deliverables, or assist any other person in doing so. The Consultant shall provide to the Owner, during and after the term of this Agreement, any reasonable assistance required for the Owner to obtain, perfect and enforce its ownership of and rights in the Design Deliverables, including without limitation execution of assignments and transfers of the Design Deliverables.

GC1.1.14 is deleted in its entirety and replaced with the following:

The Consultant will not incorporate any pre-existing materials in any Design Deliverable without first:

- (g) advising the Owner, in writing, of the nature of the pre-existing materials and their proposed use and obtaining the Owner's written consent to do so;
- (h) acquiring from each third-party owner of such pre-existing Materials, a fully paid-up, perpetual, non-exclusive license, in writing, for the Owner to use the pre-existing materials as part of the Design Deliverable; and
- (i) granting, in writing, to the Owner with respect to such pre-existing materials that the Consultant owns a fully paid-up, perpetual, non-exclusive license to use the pre-existing materials as part of the Design Deliverable.

GC1.1.15 s deleted in its entirety and replaced with the following:

The Consultant represents and warrants that the Design Deliverables will not infringe, misappropriate or misuse any copyright, patent, trade-mark, trade secret, or confidential or proprietary information of a third party. The Consultant shall defend, indemnify and hold the Owner harmless from and against any and all damage, liability, cost and expense incurred by the Owner in connection with any claim by a third party that a Design Deliverable infringed, misappropriated or misused its copyright, patent, trade-mark, trade secret, or confidential or proprietary information.

GC1.3 LAW OF THE CONTRACT

GC1.3.1 is hereby deleted in its entirety and replaced with the following:

The Contract shall be governed in accordance with the laws of the Province of British Columbia.

GC1.7 ADVERTISING as added and,

GC1.7.1 is added as follows:

The Design-Builder will obtain the Owner's prior written approval for any public advertising, press release or other general publicity matter, in which the name or trademarks of the Owner or any other person are mentioned or used, or in which words are used from which any connection with the Owner name or trademarks may be inferred. The Design-Builder will not allow or permit any public ceremony in connection with the Work without the permission of the Owner provided in writing. The Design-Builder will not erect or permit the erection of any sign or advertising without the prior written approval of the Owner.

GC2.1 CONSULTANT

GC2.1.1 is amended by deleting the first sentence and replacing it as follows:

If the Design Builder and the Consultant are the same entity, then the Design-Builder shall perform the following services duties and responsibilities as Consultant or if the Design Builder and the Consultant are not the same entity, then the Design-Builder shall engage the Consultant under a contract pursuant to which the Consultant's duties, services and responsibilities will include:

GC2.1.1.11 is hereby deleted and replaced as follows:

.11 in consultation with the Owner's Representative, the preparation of Change Orders and Change Directives as set out in GC 6.2 - CHANGE ORDER and GC 6.3 - CHANGE DIRECTIVE;

GC2.1.1.12 is hereby deleted and replaced as follows:

.12 in consultation with and always subject to the approval of the Owner's Representative, the determination of amounts owing to the Design-Builder based on the Consultant's observations and evaluation of the Design-Builder's applications for payment;

GC2.1.1.13 is hereby deleted.

GC2.1.1.15 is hereby deleted.

GC2.1.1.18 is hereby deleted.

GC2.1.1.19 is hereby deleted.

GC2.1.5 is hereby deleted.

GC2.2 OWNERS REPRESENTATIVE

GC2.2.5 is added as follows:

The Owner's Representative will be the Payment Certifier pursuant to the *Lien Act*. Based on the Owner's Representative's observations and evaluation of the Design-Builder's application for payment and review of the status of the Work including the Schedule of Work, the Owner's Representative will approve progress draws and will determine the date for Substantial Performance of the Work and issue the Certificate of Completion and will verify the Design-Builder's application for final payment and issue the Final Certificate for Payment.

GC2.2.6 is added as follows:

Notwithstanding GC2.2.3, the Design-Builder shall be responsible for requesting any required instructions or clarifications from the Owner's Representative which are needed for the performance of the Work and shall request such instructions or clarifications in time to avoid any delay of the Work.

GC2.3 REVIEW AND INSPECTION OF THE WORK

GC2.3.4 is amended by deleting the first sentence of the paragraph and replacing it with the following:

If work is designated for review, tests, inspections or approvals in the Contract Documents, or by the Owner or Owner's Representative's instructions, or by the laws or ordinances of the Place of the Work, the Design-Builder shall give the Owner reasonable notification of when the work will be ready for review and inspection.

GC2.3.6 is deleted in its entirety and replaced with the following:

If the Design-Builder covers, or permits to be covered, work that has been designated for review, tests, inspections or approvals before such special tests, inspections or approvals are made, given or completed, the Design-Builder shall, if so directed, uncover such work, have the review, inspections or tests satisfactorily completed, and make good covering work at the Design-Builder's expense.

GC2.3.9 is added as follows:

The Owner's Representative may:

- .1 review and monitor the Design-Builder's performance of any aspects of the Work for conformance with the requirements of the Contract Documents, including review and monitor the following:
 - (a) Design-Builder's submittals; and
 - (b) any and all construction activities;
- .2 perform or arrange for the performance of any tests, checks, and inspections of the Work as the Owner may reasonably request whether or not specifically required by the Contract Documents.

Should the Owner's Representative be required to make more than one review of rejected work or should the Owner's Representative perform additional reviews due to failure of the Work to comply with the application status of completion made by the Design-Builder, the Design-Builder is required to compensate the Owner for such additional services including expenses incurred. Adjustment for such compensation should be made as outlined under PART 6 - CHANGES IN THE WORK.

GC2.3.10 is added as follows:

Review, monitoring and/or approval by the Owner's Representative or Owner of the Design-Builder's performance of the Contract shall not relieve the Design-Builder of its sole responsibility and liability for the proper performance of the Work strictly in accordance with the terms of the Contract Documents.

GC2.3.10 is added as follows:

Acceptance of the Work by the Owner does not free the Design-Builder from correcting deficiencies as provided in GC2.4 - DEFECTIVE WORK - which are missed at the time of drawing up the deficiency list or are hidden deficiencies.

GC2.4 DEFECTIVE WORK

GC2.4.1 is amended by adding the following to the end of the paragraph:

In the event that work or materials are found to be condemned then if the Design-Builder does not remove such condemned materials or work within the time fixed by written notice, the Owner may remove them and may store such materials at the expense of the Design-Builder. If the Design-Builder does not pay the expense of such removal within five (5) calendar days thereafter, the Owner may, upon ten (10) days written notice sell such materials with the proceeds thereof, if any, after deducting all the costs and expenses that should have been borne by the Design-Builder, being returned to the Design-Builder.

GC2.4.3 is deleted in its entirety and replaced with the following:

If in the opinion of the Owner it is not expedient to correct defective work or work not performed as provided in the Contract Documents, the Owner may deduct from the amount otherwise due to the Design-Builder the difference in value between the work as performed and that called for by the Contract Documents or, at the option of the Owner, the cost or value of such work as would have been necessary to correct such non-compliance with the Contract Documents. If the Owner and the Design-Builder do not agree on the difference in value, they shall refer the dispute to Part 8 of the General Conditions - DISPUTE RESOLUTION.

GC3.1 CONTROL OF THE WORK

GC3.1.5 is added as follows:

The Design-Builder shall, and shall ensure that each Subcontractor shall, employ competent and skilled workmen and apprentices and shall employ proper equipment in good condition. The Design-Builder shall have complete control over its employees and Subcontractors and shall enforce discipline and order among its employees and assure discipline and order by its Subcontractors including, in all cases, without limiting the foregoing, compliance with and enforcement of Owner's Site Construction Rules and requirements of WorkSafeBC Rules.

GC3.1.6 is added as follows:

The Design-Builder shall be familiar with, and its performance of this Contract shall be governed by and comply with, all Applicable Laws and Applicable Permits which exist at present or which may be respectively enacted or obtained after the date hereof by bodies or tribunals having jurisdiction or authority over the Work, and with Owner's Site Construction Rules.

GC3.3 CONSTRUCTION BY OWNER OR OTHER DESIGN-BUILDERS

GC3.3.2 is amended by deleting the first sentence and replacing it with the following:

When separate contracts are awarded for other parts of the Project, or when work is performed by the Owner's own forces, the Design-Builder shall:

GC3.3.2.3 is deleted in its entirety.

GC3.3.3.4 is amended by adding the following to the end of the paragraph:

Failure by the Design-Builder to so report shall invalidate any claims against the Owner by reason of the deficiencies of the other contractors or the Owner's own forces work except those of which the Design-Builder was not reasonably aware.

GC3.3.6 is added as follows:

The Design-Builder acknowledges that the Site generally and portions of the Project may continue to be used by the Owner and others as described in the Owner's Site Construction Rules and Special Conditions. The Design-Builder will work simultaneously and harmoniously with others using the Site and use all efforts not to interfere with or delay others.

GC3.4 SCHEDULE OF THE WORK

GC3.4.1.1 is deleted in its entirety and replaced with the following:

.1 prepare and submit to the Owner and the Consultant within ten (10) Working Days of award of the Contract, a construction schedule that indicates the timing of the major activities of the Work and provides sufficient detail of the critical events and their inter-relationship to demonstrate the Work will be performed in conformity with the Contract Time;

GC3.4.1.3 is amended by adding the following to the end:

...indicating the results expected from the resulting change in schedule.

GC3.4.2 is added as follows:

The Design-Builder will regularly monitor the progress of the Work and advise the Owner and the Consultant of any revisions to, or any slippage in, the construction schedule and any extensions of the Contract Time as a result of Change Orders issued hereunder.

GC3.4.3 is added as follows:

The Design-Builder will submit to the Consultant and the Owner's Representative monthly updates and provide comments on adherence to the construction schedule and details of any remedial actions being undertaken to improve schedule slippages.

GC3.4.4 is added as follows:

If the construction schedule is not adhered to, the Design-Builder will use all reasonable means to accelerate the Work, without additional compensation, to comply with the construction schedule.

GC3.6 SUPERVISOR

GC3.6.3 is added as follows:

Any supervisor whose work is unsatisfactory to the Owner, or to whom the Owner may have any reasonable objection, shall be dismissed from the Work upon written notice from the Owner. No superintendents or foremen will be substituted or replaced, except at the request or with the written consent of the Owner, or as a result of such employee's voluntary termination of employment or incapacity and any replacement will have comparable or superior qualifications and experience.

GC3.7 OTHER CONSULTANTS, SUBCONTRACTORS AND SUPPLIERS

GC3.7.2 is deleted in its entirety and replaced as follows:

The Design-Builder shall indicate in writing those Subcontractors or Suppliers whose bids have been received by the Design-Builder which the Design-Builder would be prepared to accept for the performance of a portion of the Work. Should the Owner not object before signing the Contract, the Design-Builder shall employ those Subcontractors or Suppliers so identified by the Design-Builder in writing for the performance of that portion of the Work to which their bid applies. No change of Subcontractors shall be made without cause or written consent of the Consultant and Owner, which consent will not be unreasonably withheld.

GC3.7.7 is added as follows:

In every subcontract the Design-Builder shall specify that the Owner's Representative shall be the Payment Certifier responsible for payment certification under that subcontract for the purposes of the *Lien Act*. With every request to the Consultant or Owner's Representative for a determination whether a subcontract has been completed, the Design-Builder shall furnish a detailed description of the scope of work covered by the subcontract and a complete reconciliation of the subcontract account. In this GC3.7.7, the word "subcontract" shall have the meaning it has when used in the *Lien Act*.

GC3.8 LABOUR AND PRODUCTS

GC3.8 is deleted in its entirety and replaced with the following:

3.8.1 Union Contractors

(a) *Open Site*

The Site and adjacent work areas associated with the Project are, or are part of, an "open site" and the Work will be performed on a "no strike/no lockout" basis. Accordingly, the Design-Builder and its Subcontractors, as well as the Owner and other contractors, may employ labour at the Site who are members of a trade union, including a trade union affiliated with a Trade Union Council or who are members of another trade union, or who are not members of a trade union.

(b) *Labour Disruptions*

The Design-Builder will use its best commercial efforts to ensure that no Site Labour Disturbance shall occur and the Design-Builder:

- (l) (i) will only retain Subcontractors for the Work whose employees are either:

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- (1) certified in British Columbia to be represented by a trade union and subject to a collective agreement which does not expire until after the date of Total Performance of the Work; or
- (2) not so certified; and

require such Subcontractors to only retain subcontractors and suppliers whose employees are either certified in British Columbia to be represented by a trade union and subject to a collective agreement which does not expire until after the date of Total Performance of the Work or are not so certified; and

- (II) (ii) represents and warrants that, with respect to any employees of the Design-Builder who may work at or near the Site and who are certified in British Columbia to be represented by a trade union and subject to a collective agreement, such collective agreement to which such employees are subject does not expire until after the date of Total Performance of the Work;

but if any Site Labour Disturbance occurs and does or may adversely impact on the Owner, the Work or the Contract Time, the Design-Builder will use its best commercial efforts to ensure that the length and extent of such impact is minimized (including without limitation by cooperating with the Owner in any measures they may take to ameliorate such impact) and the Design-Builder will be liable to the Owner for any such impact.

(c) *Required for Union Contractors*

Without limiting the generality of Section (b) above, if the Design-Builder, or any Subcontractor, proposes to employ labour at the Site who are members of a trade union, including a trade union that is affiliated with a Trade Union Council authorized to bind its member trade unions, then the Design-Builder must first submit to the Owner:

- (i) a waiver of all non-affiliation or reservations rights under applicable collective agreements, including renewals or replacements thereof, effective for the duration of the Contract and executed by the Trade Union Council on behalf of all trades, or executed by the particular trade unions whose members will be so employed; and
- (ii) an agreement that there will be no Site Labour Disturbance at or affecting the Site and/or the progress of the Work, effective for the duration of the Contract, and executed by the Trade Union Council on behalf of all trades, or executed by the particular trade unions whose members will be so employed.

(d) *Fair Wages*

The Design-Builder shall pay or cause to be paid to every person employed on the Work not less than the wages or remuneration generally accepted as current at that time.

- 3.8.2 The Design-Builder shall provide and pay for labour, Products, tools, Construction Equipment, water, heat, light, power, transportation, and other facilities and services necessary for the performance of the Work in accordance with the Contract.
- 3.8.3 Unless otherwise specified in the Contract Documents, Products provided shall be new. Products which are not specified shall be of a quality consistent with those specified and their use acceptable to the Owner.

- 3.8.4 The Design-Builder shall maintain good order and discipline among the Design-Builder's employees engaged on the Work and shall not employ on the Work anyone not skilled in the tasks assigned. The Owner shall have the right, by written notification to the Design-Builder, to require the removal from the Project of any employee of the Design-Builder or a Subcontractor of the Design-Builder who is incompetent, untrained, acts in an unsafe manner, is disorderly or is otherwise unsatisfactory or who breaches the Owner's Site Construction Rules or the terms of this Contract. Any such employee shall be immediately removed from the Site by the Design-Builder and shall not be employed again on the Project without the prior written approval of the Owner.
- 3.8.5 All materials shall be delivered, stored, handled and applied in strict accordance with the manufacturer's instructions, and shall be delivered with type, grade and brand name clearly identifiable and with seals intact.

GC3.9 DOCUMENTS AT THE SITE

GC3.9.1 is deleted in its entirety and replaced with the following:

The Design-Builder shall keep one copy (as opposed to the originally executed set) of current Contract Documents, Shop Drawings, Change Orders, Change Directives, diary record set out in GC3.9.2 below, submittals, reports, and records of meetings at the Place of the Work, in good order, properly indexed, and available at all regular working hours on Working Days to the Owner and the Consultant.

GC3.9.2 is added as follows:

The Design-Builder shall, from the date of commencement of the Work, maintain a careful diary record of the progress of the Work. This record shall be open to the Consultant's inspection at all reasonable times and delivered to the Consultant on completion of the Work. The diary shall include:

1. daily weather conditions;
2. commencement, progress and completion of various portions of the work;
3. dates of all meetings and their purpose; and
4. dates of visits or inspections by government authorities, inspectors, utility companies, etc.

GC3.10 SHOP DRAWINGS

GC3.10.2 is amended by adding the following to the end:

... or as the Consultant may reasonably request.

GC3.10.7 is added as follows:

The Design-Builder represents and warrants that it has reviewed all Contract Documents and inspected and examined the Site and the Project to the extent it considers necessary and in accordance with prudent practice and satisfied itself as to the nature and extent of the conditions, including the physical and climatic conditions which may be encountered in the performance of the Work and to the extent possible to establish the state and quality of the existing construction. The Design-Builder further acknowledges that it will be required to share the Site with the Owner and others, all as described in the Owner's Site Construction Rules and the Owner's Statement of Requirements.

GC3.14 SIGNAGE

GC3.14.2 is amended by adding the following to the end:

...which sign must be approved by the Owner, such approval not to be unreasonably withheld.

GC4.1 CASH ALLOWANCES

GC4.1.1 is deleted in its entirety and replaced as follows:

The Contract Price includes the cash allowances, if any, stated in the Contract Documents. Except to the extent specifically described in the Contract Documents, the scope of work or costs included in such cash allowances will:

- (a) cover the net out-of-pocket cost of the Design-Builder for services, products, construction machinery and equipment, freight, unloading, handling, storage, installation and other authorized expenses incurred in performing the work stipulated under the cash allowances, and
- (b) will not cover labour or installation, unless (and then only to the extent):
 - (i) specifically stated in the Specifications or Drawings as being included in the cash allowance, or
 - (ii) specifically designated as an itemized or separate price, and is therefore included as an itemized or separate price item,

and otherwise will be deemed to be included in the Contract Price.

GC4.1.3 is deleted in its entirety and replaced as follows:

The Contract Price, and not the cash allowances, includes the Design-Builder's and Subcontractors' overhead and profit in respect to such cash allowances. Unless noted otherwise, none of the work included in the Drawings and Specifications is intended to be paid for by the cash allowances. The cash allowances are for the Owner's use, at the Owner's sole discretion.

PART 5 PAYMENT

GC5.1 FINANCING INFORMATION REQUIRED OF THE OWNER

GC5.1 (including the heading) is deleted in its entirety and replaced with the following:

GC5.1 GENERAL FINANCIAL/PAYMENT PROVISIONS

- 5.1.1 The Owner shall, at the request of the Design-Builder, before signing the Contract, and promptly from time to time thereafter, furnish to the Design-Builder reasonable evidence that financial arrangements have been made to fulfill the Owner's obligations under the Contract. The Design-Builder now acknowledges that Owner's financial statements as published pursuant to the *Financial Information Act* (British Columbia) constitute full satisfaction of this requirement and satisfactory evidence of the Owner's ability to fulfill its obligations under this Contract.
- 5.1.2 The Owner shall give the Design-Builder Notice in Writing of any material change in the Owner's financial arrangements to fulfill the Owner's obligations under the Contract during the performance of the Contract.

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- 5.1.4 The Contract Price is subject to adjustment only in accordance with the Contract Documents.
- 5.1.5 The Contract Price is expressed and payable in Canadian dollars.
- 5.1.6 Subject to the provisions of the Contract Documents and in accordance with the Lien Act in respect of Holdbacks, the Owner shall:
- .1 make progress payments to the Design-Builder on account of the Contract Price when due, based
 - (i) on the value of the Work completed and Products and materials incorporated into the Work as certified by the Consultant, and
 - (ii) Products and materials delivered to the Site but not yet incorporated into the Work, as agreed to by the Owner,together with the Value Added Taxes as are applicable;
 - .2 upon issuance of a Certificate of Completion in respect of a subcontract to which the Design-Builder is a party, and where fifty-five (55) calendar days have elapsed since the issuance of the Certificate of Completion without any Liens having been filed which arose under the subcontract, pay the Holdback Amount to the Design-Builder in respect to the subcontract;
 - .3 upon issuance of the Certificate of Completion (in respect to Substantial Performance of the Work), and where fifty-five (55) calendar days have elapsed since the issuance of the Certificate of Completion without any Liens or other liens having arisen with respect to this Contract, pay the balance of the Holdback Amount to the Design-Builder in respect to this Contract;
 - .4 upon issuance of the Final Certificate for Payment (in respect to Total Performance of the Work), and provided no Liens or other liens have arisen in respect to this Contract, pay the balance of the Contract Price to the Design-Builder.
- 5.1.7 If either party fails to pay when due an amount owing to the other under this Contract, that amount will bear interest at the Bank Rate plus two percent (2%), calculated daily from the due date to the date of payment. For this purpose, the "Bank Rate" means the rate of interest established from time to time by the Bank of Canada as the minimum rate at which the Bank of Canada advances short term loans to Canadian chartered banks.
- 5.1.8 If the Work suffers any loss or damage, as a result of which an amount is paid under any policy of insurance provided by the Owner under the Contract, then such amount shall be paid to the Owner and advanced to the Design-Builder in monthly progress payments as the Design-Builder performs and completes repair or restoration Work in respect of such loss or damage.

GC5.2 APPLICATIONS FOR PROGRESS PAYMENT

GC5.2 is deleted in its entirety and replaced with the following:

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- 5.2.1 The Design-Builder shall no later than the 25th of each calendar month, provide the Owner's Representative with a draft application for payment, in the form described below, for the current month. The Owner's Representative shall review the draft within ten (10) business days, raise any concerns with the Design-Builder, and, after settlement if necessary, approve the draft application for payment. The Design-Builder, if so requested, shall meet with Owner's Representative to expedite and settle the draft application.
- 5.2.2 Applications for payment, as approved by the Owner's Representative, shall be submitted to City of Vancouver, Attention: Accounts Payable, PO Box 7757, 349 West Georgia Street, Vancouver, BC, V6B 0L5 or by email to APCentral@vancouver.ca on or before five (5) business days following approval of the draft application by the Owner's Representative, dated as of the last day of each calendar month, and be in respect to the Work completed prior to the application being signed (the "payment period").
- 5.2.3 The amount claimed shall be for the value, proportionate to the amount of the Contract, of Work performed and Products delivered to the Place of the Work as of the last day of the payment period.
- 5.2.4 The Design-Builder shall submit to the Owner, at least fifteen (15) calendar days before the first application for payment, a schedule of values for the parts of the Work, aggregating the total amount of the Contract Price, so as to facilitate evaluation of applications for payment. A second schedule, stating the anticipated monthly progress payments, is to be submitted upon request.
- 5.2.5 The schedule of values shall be made out in such form and supported by such evidence as the Owner may reasonably direct and when accepted by the Owner, shall be used as the basis for applications for payment, unless it is found to be in error.
- 5.2.6 When making applications for payment, the Design-Builder shall submit a statement based upon the schedule of values. Claims for Products delivered to the Site but not yet incorporated into the Work shall be supported by such evidence as the Consultant may reasonably require to establish the ownership, value and delivery of the Products. The Owner has the right to refuse payment for Products delivered to the Site but not incorporated in the Work. The Design-Builder shall obtain the Owner's written permission prior to invoicing for such Products.
- 5.2.7 Each application for payment shall:
- .1 clearly show:
 - (i) the Design-Builder's full name, address and telephone number;
 - (ii) the Owner's purchase order number;
 - (iii) the full name of the Owner's Representative;
 - (iv) the application for payment number and date; and
 - (v) the Design-Builder's HST registration number,
- and be in such form and detail as the Owner shall require and submitted consistently in such form and detail unless otherwise advised by the Owner;

- .2 be attached to a statement or statutory declaration sworn by an officer of the Design-Builder which verifies the accuracy and completeness of the information contained therein, and for each application following the first application also include in addition to the foregoing and not in lieu of same, a current CCDC 9A Statutory Declaration of Progress Payment Distribution by Design-Builder which shall be completed and sworn before a Notary Public or Commissioner for Oaths for the Province of British Columbia;
- .3 relate the Work for which payment is claimed to the Construction Schedule and the schedule of values provided and provide such back-up invoices and other materials as may be reasonably necessary for the Consultant to review such application;
- .4 verify that there are no Liens or other liens relating to the Design-Builder, the Work or the Products registered against the Owner, the Project or the Site or the Owner's interest therein or against the Holdback Amount, by signing and submitting the appended "Statement Regarding Outstanding Claims";
- .5 attach the documents required under GC10.4 demonstrating compliance by the Design-Builder and each Subcontractor with WorkSafeBC Rules;
- .6 attach the monthly update contemplated by GC3.5.3; and
- .7 provide a comprehensive list of items which remain to be completed and any defective items which remain to be corrected and the Design-Builder's estimate of the costs and time to complete or correct such items.

5.2.7 The Design-Builder shall deliver a complete application as provided in GC5.2.6 and if such application is not complete, the Owner may reject all or the applicable portions of same by promptly (and in any event within five (5) calendar days of its receipt) notifying the Design-Builder of the deficiencies in the application. The Design-Builder will promptly supply to the Owner such further certification or information as may be necessary to remedy the deficiencies in the application.

5.2.8 An application for payment shall be deemed to be received by the Owner only if and when submitted in full conformity with GC5.2.6.

GC5.3 PROGRESS PAYMENT

GC5.3.1 is amended by adding the following before the last sentence of the paragraph:

If, after a certificate of payment has been issued to the Owner (and prior to payment by the Owner), the Owner determines on the basis of new information that the amount certified for payment is incorrectly high or low relative to the Work being certified, then the Owner shall issue a revised certificate.

GC5.3.2 is amended by deleting the words "Article A-5 of the Agreement and replacing with "this GC5".

GC5.3.3 is added as follows:

Subject to the provisions of the Lien Act, the Owner may retain a deficiency holdback from progress draws prior to Substantial Performance of the Work to ensure that sufficient money is withheld to fund the deficiency holdback at Substantial Performance of the Work

GC5.4 SUBSTANTIAL PERFORMANCE OF THE WORK

GC5.4 (including the heading) is deleted in its entirety and replaced with the following:

GC5.4 SUBSTANTIAL PERFORMANCE OF THE WORK/CERTIFICATE OF COMPLETION

- 5.4.1 When the Design-Builder considers that Substantial Performance of the Work has been achieved, or if permitted by the Lien Act the Design-Builder wishes to apply for a Certificate of Completion in respect to a subcontract with a Subcontractor, the Design-Builder shall, within one Working Day, deliver to the Owner, with a copy to the Consultant, an application for a Certificate of Completion of same (a "Completion Certificate Application") in conformity with GC5.4.4.
- 5.4.2 The Owner, in consultation with the Consultant, will review the Work to verify the validity of the application and shall promptly, and in any event, no later than twenty (20) calendar days after receipt of the Design-Builder's list and application:
- .1 advise the Design-Builder in writing that the Work or the designated portion of the Work is not "completed" (as that term is used in the Lien Act) and give reasons why, or
 - .2 issue a Certificate of Completion in respect to the Work or subcontract stating on the certificate the date of issuance in accordance with the Lien Act and issue a copy of that certificate to each of the Consultant and the Design-Builder.
- 5.4.3 Immediately following the issuance of the Certificate of Completion for the Work, the Design-Builder, in consultation with the Consultant and the Owner, shall establish a reasonable date for Total Performance of the Work (which date will be deemed to be the date for same set out in the Construction Schedule if such date is specified).
- 5.4.4 The Completion Certificate Application referred to in GC5.4.1 shall consist of the following:
- .1 a cover letter stating that the submittal is an application for a Certificate of Completion as well as an application for payment, and clearly identifying the Work or subcontract for which the Certificate of Completion is being sought;
 - .2 all of the certifications and information required on an application for payment as set out in GC5.2.6;
 - .3 with respect to the Work or subcontract, as applicable, all deliverables, including copies of all manufacturer's warranties, called for in the Contract Documents which are or should be available at the time of the Completion Certificate Application including without limitation and by way of example only all operation manuals, service manuals, warranty certificates, maintenance contracts, service contracts, software licenses, inspection reports, and other applicable manuals, contracts, certificates, guarantees and warranties.
- 5.4.5 Failure to include an incomplete or defective item on Completion Certificate Application or the Owner's issuance of a Certificate of Completion or certificate of payment in respect to same does not alter the responsibility of the Design-Builder to complete the Contract.

- 5.4.6 Subject to the requirements of the Lien Act relative to the date of issuance by the Consultant of the Certificate of Completion of the Work pursuant to GC5.4.2.2:
- .1 the Owner shall issue to the to the Design-Builder a certificate of payment for an amount equal to the Contract Price less:
 - .1 three times the value of any deficiencies shown on the comprehensive list of items to be completed or corrected, as determined by the Consultant,
 - .2 the value of incomplete work as determined by the Consultant, and
 - .3 the amounts of all previous certificates of payment;
 - .2 the Owner shall then make payment to the Design-Builder in accordance with the provisions of GC5.3.1.3 provided always that a Completion Certificate Application shall be deemed received only if and when submitted in accordance with GC5.2.6 as well as GC5.4.4.

GC5.5 PAYMENT OF HOLDBACK UPON SUBSTANTIAL PERFORMANCE OF THE WORK

GC5.5 is deleted in its entirety and replaced with the following:

- 5.5.1 After the issuance of the Certificate of Completion evidencing Substantial Performance of the Work, the Design-Builder shall:
- .1 submit an application for payment of the Holdback Amount,
 - .2 submit a current CCDC 9A Statutory Declaration of Progress Distribution by Design-Builder, as well as a current CCDC 9B Statutory Declaration of Progress Distribution by Subcontractor from each of the Subcontractors, which in every case shall be fully and properly completed and sworn before a Notary Public or Commissioner for Oaths for the Province of British Columbia;
 - .3 verify that there are no Liens or other liens relating to the Design-Builder, the Work or the Products registered against the Owner, the Project or the Site or the Owner's interest therein or against the Holdback Amount, by signing and submitting the appended "Statement Regarding Outstanding Claims";
 - .4 attach the documents required under GC10.4 demonstrating compliance by the Design-Builder and each Subcontractor with WorkSafeBC Rules; and
 - .5 attach copies of a current title search of the Site confirming that no Liens have been registered prior to the time the release of the Holdback Amount is due.
- 5.5.2 After the receipt of and approval of the application documents described in GC5.5.1, the Owner will issue a certificate for payment of the Holdback Amount (less any previous releases of the Holdback Amount on account of subcontract Certificates of Completion).
- 5.5.3 The Design-Builder now acknowledges that the Owner is exempt under the regulations of the Lien Act from the requirement to keep the Holdback Amount in a separate holdback account.

5.5.4 The Holdback Amount is due and payable as set out in GC5.1.6.4. The Owner may retain out of the Holdback Amount any sums required by law to satisfy any Liens or other liens against the Contract, Work, Site, or Owner's interest in the Site or, if permitted by the Lien Act, other third party monetary claims against the Design-Builder which are enforceable against the Owner. Except to the extent expressly prohibited by the Lien Act, the Owner may retain out of the Holdback Amount any deficiency holdbacks provided for in the Contract Documents.

5.5.5 [Intentionally Deleted]

GC5.6 PROGRESSIVE RELEASE OF HOLDBACK

GC5.6.1 is deleted in its entirety and replaced with the following:

Any portion of the Holdback Amount in respect to a Subcontractor or Supplier subcontract is due and payable as set out in GC5.1.6.3. The Owner may retain out of the subcontract portion of the Holdback Amount any sums required by law to satisfy any Liens or other liens against the Contract, Work, Site, or Owner's interest in the Site or, if permitted by the Lien Act, other third party monetary claims against the Design-Builder which are enforceable against the Owner. Except to the extent expressly prohibited by the Lien Act, the Owner may retain out of the Holdback Amount any deficiency holdbacks provided for in the Contract Documents.

GC5.6.2 is deleted in its entirety.

GC5.6.3 is amended by deleting the words "final certificate for payment" and replacing with "Final Certificate for Payment".

GC5.7 FINAL PAYMENT

GC5.7.1 is deleted in its entirety and replaced as follows:

5.7.1 When the Design-Builder considers that Total Performance of the Work has been achieved, the Design-Builder shall submit to the Owner its final application for payment. The application for payment on attaining Total Performance of the Work shall consist of the following:

- .1 all of the certifications and information required on an application for payment as set out in GC5.2.6, all appropriately amended to clearly confirm that the Work is fully completed, all Products have been delivered, and all Lien periods have expired with no Liens or other liens having been filed;
- .2 a current CCDC 9A Statutory Declaration of Progress Distribution by Design-Builder, as well as a current CCDC 9B Statutory Declaration of Progress Distribution by Subcontractor from each of the Subcontractors, which in every case shall be fully and properly completed and sworn before a Notary Public or Commissioner for Oaths for the Province of British Columbia;
- .3 copies of a current title search of the Site confirming that no Liens have been registered as at the date of application for Final Certificate for Payment; and
- .4 all deliverables called for in the Contract Documents which were not delivered at the time of Substantial Performance of the Work.

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GC5.7.3 is deleted in its entirety and replaced as follows:

Subject to paragraph 10.4.1 of GC10.4 - WORKERS' COMPENSATION, and the *Lien Act*, the Owner shall, no later than twenty-one (21) calendar days after the issuance of a Final Certificate for Payment, pay the Design-Builder as provided in GC5.1.6.4

GC6.1 CHANGES

GC6.1.6 is deleted in its entirety and replaced with the following:

Change Orders, contemplated Change Orders, and Change Directives shall be on printed forms supplied by the Owner and may include:

- .1 job site instructions or site memo forms, for immediate authorization on Site in order not to delay the performance of the Work and for changes of a minor nature with no price variation, shall be issued on site on the signature of the Consultant only;
- .2 contemplated Change Orders issued by the Consultant for purposes of the Design-Builder's response on method of adjustment and extent of adjustment to Contract Price and Time shall be signed by the Consultant only;
- .3 Change Orders authorizing the Design-Builder to proceed with the Work as set out by the Owner and Design-Builder in the contemplated Change Order shall be signed by the Owner and Design-Builder.

GC6.1.7 is added as follows:

The Unit Prices, if any, set out in the Schedule of Prices are firm and fixed, and shall not be subject to adjustment as a result of any difference between the estimated quantities shown in such schedule and the corresponding actual quantities whether or not any Change Orders or Change Directives are issued.

GC6.3 CHANGE DIRECTIVE

GC6.3.3 is deleted in its entirety and replaced as follows:

Subject to GC6.3.13, the adjustment in the Contract Price for a change in the Work carried out by way of a Change Directive shall be on the basis of the Design-Builder's actual and properly documented expenditures and savings attributable to the change. If a change in the Work results in expenditures only, the change in the Work shall be valued in accordance with GC5. - BASIS OF PAYMENT. If a change in the Work results in savings only, the amount of the credit shall be the actual cost savings to the Design-Builder, without deduction for overhead or profit. If a change in the Work results in both expenditures and savings, overhead and profit on the Work shall be payable only on the net increase in expenditures, if any, with respect to that change in the Work.

GC6.3.4 is deleted in its entirety.

GC6.4 CONCEALED OR UNKNOWN CONDITIONS

GC6.4.1 is deleted in its entirety and replaced as follows:

If the Design-Builder discovers conditions at the Place of the Work which are subsurface or otherwise concealed physical conditions at the Site which existed before the commencement

of the Work, could not reasonably have been discovered by proper investigation by the Design-Builder under GC3.10.7, and which differ materially from those disclosed in the Contract Documents, including any geotechnical report, environmental assessment, or other report included or referenced in the Contract Documents or provided or made known to the Design-Builder before the commencement of the Work; then the Design-Builder shall give Notice in Writing to the Consultant of such conditions before they are disturbed and in no event later than five (5) Working Days after first observance of the conditions.

GC6.4.1A is added as follows:

The Design-Builder must give notice under GC6.4.1 within five (5) Working Days after discovery of the conditions or the time when the Design-Builder by reasonable diligence could have discovered the conditions, failing which the Design-Builder may not make or enforce any claim against the Owner, whether for a change in the Contract Price or other compensation or for an extension of the Contract Time arising from those conditions.

GC6.4.4 is deleted in its entirety and replaced as follows:

If such concealed or unknown conditions relate to Hazardous Substances, artifacts and fossils, or mould, the parties will be governed by the provisions of GC9.2 - TOXIC AND HAZARDOUS SUBSTANCES, GC9.3 - ARTIFACTS AND FOSSILS and GC9.5 - MOULD.

GC6.5 DELAYS

GC6.5 is deleted in its entirety and replaced as follows:

6.5.1 Delay Claims Limited

The Design-Builder shall be entitled to an extension of the Contract Time and/or an adjustment to the Contract Price or other compensation for delay, howsoever caused, if and to the extent only expressly permitted under this GC6.5 or in respect of a change in the Work, in each case as authorized only by a Change Order and in no event will these provisions apply to delays arising directly or indirectly from the Design-Builder's Shut-Down-Obligations (as defined in Part F - Special Conditions).

6.5.2 Excusable Event

If the Design-Builder is delayed in the performance or completion of the Work by an Excusable Event, then, subject to the other conditions of this GC6.5, the Contract Time shall be extended for such reasonable time as the Consultant determines, after consultation with the Design-Builder, as being required to accommodate the anticipated impact on the Contract Schedule of the Excusable Event. Any such time extension shall be confirmed by Change Order under GC6.1. The Design-Builder shall not be entitled to make or enforce any claim against Owner for any change in the Contract Price or other compensation as a result of an Excusable Event.

6.5.3 Owner-Caused Event

If the Design-Builder is delayed in the performance or completion of the Work by a Owner-Caused Event, then subject to the other conditions of this GC6.5, the Contract Time shall be extended for such reasonable time as the Consultant determines, after consultation with the Design-Builder, as being required to accommodate the anticipated impact on the Contract Schedule of the Owner-Caused Event, and the Contract Price shall be adjusted to compensate

the Design-Builder for the reasonable direct costs incurred, or anticipated to be incurred, by it as a result of the delay.

6.5.4 Claim Conditions

The right of the Design-Builder to an extension of the Contract Time, and/or an adjustment of the Contract Price under this GC6.5 is subject to the conditions that:

- 6.5.4.1 *Timely Notice:* The Design-Builder gives the Owner prompt written notice of the delay, the nature of the Excusable Event or the Owner-Caused Event, as the case may be, and its intent to submit a claim for time extension and/or adjustment of the Contract Price, and in any event, such notice must be given not later than five (5) Working Days after the occurrence of the Excusable Event or the Owner-Caused Event;
 - 6.5.4.2 *Claim Details:* The Design-Builder promptly gives the Owner details of its claim, including the time required to accommodate the anticipated impact on the Contract Schedule, and if applicable, the costs incurred, or anticipated to be incurred, by the Design-Builder as a result of the delay, and in any event such details must be given not later than fourteen (14) Working Days after the occurrence of the Excusable Event or the Owner-Caused Event;
 - 6.5.4.3 *Mitigation Measures:* The Design-Builder has taken, and continues to take, all reasonable measures, including those, if any, recommended by the Owner to minimize the impact of the delay on the Contract Schedule, and in the case of a claim for adjustment of the Contract Price, all reasonable measures, including those, if any, recommended by the Owner, to minimize the costs incurred, or anticipated to be incurred, by the Design-Builder as a result of the delay;
 - 6.5.4.4 *Critical Path Impacted:* No extension of time and/or adjustment of the Contract Price or other financial compensation will be granted, unless the Excusable Event or the Owner-Caused Event, as the case may be, has an adverse impact on the critical path established by the Contract Schedule;
 - 6.5.4.5 *Concurrent Delays:* If there are concurrent delays and impacts, some of which entitle the Design-Builder to relief under this GC6.5 and some of which do not, the Design-Builder is not entitled to relief under this GC6.5, the Design-Builder shall be entitled to an extension of the Contract Time, and if applicable an adjustment of the Contract Price in respect of a Owner-Caused Event, only to the extent that the delays entitling the Design-Builder to relief under this GC6.5 exceed those that do not so entitle the Design-Builder to such relief; and
 - 6.5.4.6 *No Cumulative Impact Claims:* Each claim under this GC6.5 based in whole or in part on a particular event must be submitted and will be considered and assessed separately, and the Design-Builder may not make or enforce any claim under this GC6.5 or otherwise for the cumulative impact on schedule or on cost of two or more such events.
- 6.5.5 Acceleration/Suspension of the Work
- (a) *Notice:* The Design-Builder shall give the Owner notice of any delay in the performance of the Work, howsoever caused, and any event or circumstance that could reasonably be expected to cause such delay. The notice shall be given promptly after the delay, event or circumstance is known to the Design-Builder. The

notice shall be accompanied by details of the Design-Builder's plan to avoid or mitigate the duration and adverse impact of the delay.

- (b) *Acceleration Order:* If there is a delay, or threatened delay, in the performance of the Work, or if the Owner wishes to accelerate the Work for its convenience, the Consultant, after consultation with the Design-Builder, may order the Design-Builder to accelerate the Work, including by way of the provision of additional labour, including overtime work, and Construction Equipment. Each acceleration order must be in writing and signed by the Consultant. The Design-Builder shall comply promptly with any order given under this GC6.5.5(b).
- (c) *Cost Allocation:* If the delay, or threatened delay, in respect of which an order is made under GC6.5.5(b) does not entitle the Design-Builder to an extension of the Contract Time under GC6.4, including any delay or threatened delay caused by the Design-Builder, or any Subcontractor, Supplier or other person for whose acts and omissions the Design-Builder is responsible under the Contract, then all costs incurred by the Design-Builder in complying with the order will be for the Design-Builder's account. If the delay, or threatened delay, would entitle the Design-Builder to an extension of the Contract Time under GC6.4, then the Consultant, in lieu of granting such extension in whole or in part, shall issue a Change Directive and/or a Change Order under GC6.1, and the Contract Price will be adjusted accordingly.
- (d) *Owner's Right to Suspend the Work:* The Owner, at any time and from time to time, may suspend the performance of the Work, in whole or in part, for a period not exceeding ninety (90) days as to any one suspension, by notice to the Design-Builder. The Design-Builder shall comply promptly with any notice given under this GC6.5.5, and shall resume full performance of the Work promptly on notice from Owner to do so. Owner shall pay to the Design-Builder the documented costs reasonably incurred by it as a consequence of the suspension, such cost to include the incremental costs of demobilization and remobilization, Construction Equipment rental or standby charges, Materials storage, bonding and insurance costs, overhead and similar costs payable by the Design-Builder to Subcontractors, but excluding any allowance for profit or loss of profit, all such costs to be certified by the Consultant and confirmed by Change Order. The Design-Builder shall use all commercially reasonable efforts to avoid or minimize such costs, including following any reasonable written directions given by Owner for that purpose.

6.5.6 Protect Work During the Delay

During any delay or suspension of the Work, the Design-Builder shall maintain adequate surveillance of the Work and undertake such maintenance and protection of the Work as may be reasonable to maintain public safety and to protect materials, plant and equipment already installed in the Work or delivered to the Place of Work, and shall provide any other protective measures as may be described in the Contract Documents.

GC7.1 OWNER'S RIGHT TO PERFORM THE WORK, TERMINATE THE DESIGN-BUILDER'S RIGHT TO CONTINUE WITH THE WORK OR TERMINATE THE CONTRACT

GC7.1.5.2 is amended by deleting the words "final certificate for payment" and replacing with "Final Certificate for Payment".

GC7.1.7 is deleted in its entirety and replaced as follows:

- 7.1.7 The Owner may terminate the Contract at any time for the convenience of the Owner by notice given to the Design-Builder. If the Contract is terminated under this GC7.1.7, then:
- (a) the Design-Builder shall suspend performance of the Work and shall not incur further cost or expense in relation to the Work, except (i) as necessary to protect the Work and the safety of persons, or (ii) as authorized or directed in writing by the Owner;
 - (b) the Design-Builder shall remove from the Site its personnel and all Construction Equipment and other material that is owned or leased by the Design-Builder, except as otherwise required to comply with GC7.1.7(a)(i) and (ii); and
 - (c) the Owner shall pay the Design-Builder for all Work performed, including the cost of complying with GC7.1.7(a)(i) and (ii), in accordance with the terms and conditions of payment set out in the Contract, together with the documented and reasonable cost of terminating subcontracts with Subcontractors and Suppliers and demobilizing the Design-Builder's personnel and Construction Equipment, all as certified by the Consultant, and upon such payment being made, the Design-Builder shall have no further or other claim against the Owner for, or in connection with, termination of the Contract.

GC7.1.8 is deleted in its entirety.

GC7.1.9 is deleted in its entirety.

GC7.1.10 is deleted in its entirety.

GC7.1.11 is deleted in its entirety.

GC7.2 DESIGN-BUILDER'S RIGHT TO SUSPEND THE WORK OR TERMINATE CONTRACT

GC7.2.2 is amended by adding the following to the beginning of the first sentence:

Except for the period during which an Owner-initiated suspension under GC6.5.5(d) is in effect or subsequently takes effect,

GC7.2.3 is amended by adding the following to the beginning of the first sentence:

If the default cannot be corrected in five (5) Working Days or in such other time as may be subsequently agreed in writing by the parties,

GC7.2.3.1 is deleted in its entirety.

GC7.2.3.4 is deleted in its entirety and replaced with the following:

the Owner violates the requirements of the Contract to a substantial degree and the Consultant, except for GC5.1- GENERAL FINANCIAL/PAYMENT PROVISIONS, confirms by written statement to the Design-Builder that sufficient cause exists.

GC7.2.4 is amended by revising the second line to read:

corrected within fourteen (14) Working Days

GC 8.2 NEGOTIATION, MEDIATION AND ARBITRATION

GC8.2.1.1 is deleted in its entirety and replaced as follows:

.1 within thirty (30) Working Days after the Contract was awarded, or

GC8.2.1.2 is deleted in its entirety and replaced as follows:

.2 if the parties neglected to make an appointment within the thirty (30) Working Days, within twenty (20) Working Days after either party by Notice in Writing requests that the Project Mediator be appointed.

GC8.2.3 is amended by adding the following to the end:

However, the Owner and the Design-Builder nonetheless irrevocably and unconditionally attorn to the jurisdiction of the courts of British Columbia, and courts to which appeals therefrom may be taken, in respect of any dispute or claim arising under or relating to the Contract. The Owner and the Design-Builder acknowledge and agree that such courts have jurisdiction, but not necessarily exclusive jurisdiction in respect of any such dispute or claim. If a dispute arises under or in relation to this Contract, and the dispute cannot be resolved by the Owner's project manager and the Design-Builder's principal representative on Site within three (3) Working Days after the dispute arises, or the Owner's project manager is not authorized to resolve the dispute, then:

- (a) the dispute will be referred to the Owner's Director of Facilities and the Design-Builder's project manager for resolution, and if they cannot resolve the dispute within three (3) Working Days after referral to them, then
- (b) the dispute will be referred to a senior executive of the Owner designated by it and a senior executive of the Design-Builder designated by it, for resolution, and if they cannot resolve the dispute within three (3) Working Days after referral to them, then
- (c) either party may take such further legal proceedings as they consider necessary for the resolution of the dispute either concurrently with or in lieu of the process outlined in GC8.2.4 to GC8.2.9.

GC8.2.4 is amended by revising the second line to read:

...the parties may request the Project Mediator...

GC8.2.6 is amended by revising the second line to read:

...either party may request referral of the dispute...

GC8.2.7 is deleted in its entirety and replaced as follows:

If a Notice in Writing is not given under paragraph 8.2.6 within the required time or the other party does not reply and agree to binding arbitration, the parties may refer the unresolved dispute to the courts or to any other form of dispute resolution, including arbitration, which they have agreed to use

GC8.2.9 is added as follows:

Where references are made in the Contract Documents to "the time of bid closing", it is intended by the parties that this shall mean the effective date of the contract.

GC9.1 PROTECTION OF WORK AND PROPERTY

GC9.1.1 is deleted in its entirety and replaced with the following:

The Design-Builder shall protect the Work, Products delivered to the Site and the Owner's property and property on or adjacent to the Site from theft and damage which may arise as the result of the Design-Builder's operations under the Contract, and shall be responsible for such theft and damage, except theft and damage which occurs as the result of:

- .1 errors in the Contract Documents issued by the Owner;
- .2 acts or omissions by the Owner, other Design-Builders, their agents and employees.

GC9.1.3 is amended by revising the first line to read:

Should damage to the Work, Products delivered to the Site, the Place of Work, the Owner's property ...

GC9.1.5 is added as follows:

The Design-Builder is responsible for protection of the Work during shutdown, including shutdowns caused by strikes.

GC9.3 TOXIC AND HAZARDOUS SUBSTANCES

GC9.3.1 is deleted in its entirety and replaced with the following:

For the purposes of the Contract, the Owner shall be deemed to have control and management of the Place of the Work with respect to the condition of the Place of the Work prior to the commencement of the Work in relation to applicable Environmental Law and the presence of any Hazardous Substances.

GC9.3.2 is deleted in its entirety and replaced with the following:

Prior to the Design-Builder commencing the Work, the Owner shall:

- .1 take reasonable steps to determine whether the Place of the Work contains any Hazardous Substances and, if so, whether the condition of the Place of the Work is in compliance with applicable Environmental Law; and
- .2 provide the Consultant and the Design-Builder with a written list of any such Hazardous Substances that the Owner knows to exist on, and their locations within, the Place of the Work.

GC9.3.4 is deleted in its entirety and replaced with the following:

Unless the Contract expressly provides otherwise, the Owner shall be responsible for taking such steps as may be necessary, in accordance with applicable Environmental Law to dispose of, store or otherwise deal with Hazardous Substances so as to cause the Place of the Work to comply with the requirements of applicable Environmental Law before the Design-Builder commences the Work.

GC9.3.5 is deleted in its entirety and replaced with the following:

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Except as previously disclosed in writing by the Owner or as otherwise known by the Design-Builder, if the Design-Builder:

- .1 encounters Hazardous Substances at the Place of the Work; or
- .2 has reasonable grounds to believe that Hazardous Substances are present at the Place of the Work which were not brought to the Place of the Work by the Design-Builder or anyone for whom the Design-Builder is responsible or which were disclosed but have not been dealt with as required under paragraph 9.2.3, the Design-Builder shall:
 - .1 take reasonable steps, including stopping the Work, to ensure that no person's exposure to any Hazardous Substance at the Place of the Work exceeds any applicable levels contrary to the requirements of applicable Environmental Law, and
 - .2 immediately report the circumstances to the Consultant and the Owner by Notice in Writing.

GC9.3.10 is added as follows:

The Design-Builder shall, and shall ensure that anyone for whom the Design-Builder is responsible shall, at all times comply with all applicable Environmental Law and ensure that all Work is conducted in compliance with all applicable Environmental Law.

GC9.3.11 is added as follows:

If the Design-Builder or anyone for whom the Design-Builder is responsible discovers fossils coins, articles of value or antiquity, structures and other remains or things of scientific, cultural or historical interest at the Place of the Work (in GC9.3 called, "Historical Items"), the Design-Builder shall immediately give Notice in Writing thereof to the Owner and the Consultant. As shall, as between the Owner and the Design-Builder, all Historical Items shall be, and shall be deemed to be, the absolute property of the Owner and the Design-Builder hereby irrevocably waives and disclaims any right, title or interest therein.

GC9.3.12 is added as follows:

The Design-Builder shall take all reasonable precautions, and shall comply with all reasonable directions from the Consultant, to prevent removal or damage to Historical Items as identified in paragraph 9.3.1 or as otherwise known to be present on the Place of the Work.

GC9.3.13 is added as follows:

The Consultant will investigate the impact on the Work of the discovery of any Historical Item identified in paragraph 9.3.1. If conditions are found that would cause an increase or decrease in the Design-Builder's cost or time to perform the Work, the Consultant, with the Owner's approval, will issue appropriate instructions for a change in the Work as provided in GC6.2 -CHANGE ORDER or GC6.3 - CHANGE DIRECTIVE.

GC9.4 CONSTRUCTION SAFETY

The above heading for GC9.4 is amended by adding " & WORKSAFEBBC RULES" to the end.

GC9.4.2 is added as follows:

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The Design-Builder hereby accepts and assumes all responsibilities, obligations and liabilities of a Prime Contractor under the WorkSafeBC Rules with respect to the Project and those portions of the Site occupied for the performance of the Work for the duration of the Work. The Design-Builder will be entitled to instruct the Owner and its employees with respect to the use of the Site in carrying out the Design-Builder's duties as Prime Contractor and the Owner will require its employees to comply with the proper requirements of the Prime Contractor.

GC9.4.3 is added as follows:

Subject to GC9.4.2 above, the Design-Builder shall indemnify and save harmless the Owner from any and all damages, liabilities, cost, fines, penalties, fees and expenses whatsoever including, without limitation, legal fees, charges and disbursements as between a solicitor and his own client, related to or arising out of the assignment to the Design-Builder, and the Design-Builder's assumption, of the responsibilities, obligations and liabilities of the Prime Contractor under the WorkSafeBC Rules with respect to the place of the Work.

GC9.4.4 is added as follows:

The Design-Builder agrees that it shall at its own expense procure and carry or cause to be procured and carried and paid for, full WorkSafeBC coverage for itself and all workers, employees, servants and others engaged in or upon any work or service which is the subject of this Contract.

GC9.4.5 is added as follows:

The Design-Builder agrees that the Owner has the unfettered right to set off the amount of the unpaid premiums and assessments for such WorkSafeBC coverage against any monies owing by the Owner to the Design-Builder. The Owner shall have the right to withhold payment under this Contract until the WorkSafeBC premiums, assessments or penalties in respect of work done or service performed in fulfilling this Contract had been paid in full.

GC9.4.6 is added as follows:

Without in any way limiting the Design-Builder's obligations under the WorkSafeBC Rules, and by way of example only, the Design-Builder will:

- .1 appoint and provide a qualified coordinator for the purpose of ensuring the coordination of health and safety activities for the Site,
- .2 provide and receive and respond to all information required to be given, received or relayed by the Design-Builder (both as an employer and as the Prime Contractor) pursuant to the WorkSafeBC Rules, and
- .3 within ten (10) Business Days of the Owner delivering the Notice of Award to the Design-Builder, sign and deliver to the Owner, the "Prime Contractor Agreement" in the form attached to this Contract.

GC9.4.7 is added as follows:

In addition to, and not in lieu of, the Design-Builder's obligations as the Prime Contractor, the Design-Builder will have a safety program acceptable to the WorkSafeBC and will ensure that all Owner and WorkSafeBC safety policies, rules and regulations are observed during

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performance of this Contract, not only by the Design-Builder but by all Subcontractors, workers, material suppliers and others engaged in the performance of this Contract.

GC9.4.8 is added as follows:

Prior to commencement of construction, the Design-Builder will:

- .1 complete and file a "Notice of Project" with the WorkSafeBC in compliance with Section 20.2 of the WorkSafeBC Rules; and
- .2 post the Notice of Project at the Site; and
- .3 will provide a copy of the Notice of Project to the Owner and confirm in writing that the Notice of Project has been posted at the Site.

GC9.4.9 is added as follows:

Within ten (10) Business Days of the Owner delivering the Notice of Award to the Design-Builder, the Design-Builder will provide the Owner with the Design-Builder's and all Subcontractor's WorkSafeBC registration numbers.

GC9.4.10 is added as follows:

Within ten (10) Working Days of the Owner delivering the Notice of Award to the Design-Builder, and concurrently with making any application for payment under this Contract, the Design-Builder will provide the Owner with written confirmation that the Design-Builder and all Subcontractors are registered in good standing with the WorkSafeBC and that all assessments have been paid to date of the Notice of Award or date of application for payment, as applicable.

GC9.4.11 is added as follows:

The Design-Builder may or may not have received, as part of the Contract Documents, a "Pre-Contract Hazard Assessment" prepared by or for the Owner pursuant to the Owner's statutory obligations under the WorkSafeBC Rules (Section 119 of the Act) as an "owner of a workplace". Despite the Owner's statutory obligations, the Prime Contractor now acknowledges and agrees that the Design-Builder may not rely on the "Pre-Contract Hazard Assessment" and now agrees to assume by the terms of this Contract full responsibility for carrying out the Owner's obligations under Section 119 of the *Workers' Compensation Act*, including without limitation and by way of example only, conducting all due diligence inquiries of all applicable Owner staff and departments in order to ascertain what, if any, information is known or has been recorded by Owner staff about the Site that is necessary to identify and eliminate or control hazards to the health or safety of persons at the Site. The Owner now agrees to make all reasonable efforts to assist the Design-Builder in obtaining timely access to Owner staff and Owner records for this purpose. Within ten (10) Working Days of the Owner delivering the Notice of Award to the Design-Builder, the Design-Builder will start conducting such due diligence inquiries and must complete and deliver written confirmation of the completion of such inquiries to the Consultant prior to the Owner being obligated to issue the Notice to Proceed.

GC9.4.12 is added as follows:

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The Design-Builder will indemnify the Owner and hold harmless the Owner from all manner of claims, demands, costs, losses, penalties and proceedings arising out of or in any way related to:

- .1 unpaid WorkSafeBC assessments of the Design-Builder or any other employer for whom the Design-Builder is responsible under this Contract,
- .2 the acts or omissions of any person engaged directly or indirectly by the Design-Builder in the performance of this Contract, or for whom the Design-Builder is liable pursuant to the Design-Builder's obligations as the Prime Contractor, and which acts or omissions are or are alleged by the WorkSafeBC to constitute a breach of the WorkSafeBC Rules or other failure to observe safety rules, regulations and practices of WorkSafeBC, including any and all fines and penalties levied by the WorkSafeBC, or
- .3 any breach of the Design-Builder's obligations under Clause GC9.1

GC9.4.13 is added as follows:

The Design-Builder agrees to retain a full-time construction safety officer for projects governed by Section 1.8 and Sub-section 1.10.5 of the Vancouver Building By-law. The construction safety officer shall bear written proof of qualification satisfactory to the City of Vancouver's Director of Permits and Licenses.

GC9.5 MOULD

GC9.5.1 is deleted in its entirety and replaced with the following:

If the Design-Builder or the Owner observes or reasonably suspects the presence of mould of the nature and quantity at the Place of the Work such that special handling and precautions are required under Environmental Law or that otherwise may reasonably present a hazard to the health and safety of persons, the remediation of which has not been separately arranged by the Owner or is not expressly part of the Work,

- .1 the observing party shall promptly report the circumstances to the other party by Notice in Writing;
- .2 the Design-Builder shall promptly take all reasonable steps, including stopping all or such portions of the Work as may be necessary to ensure that no person suffers injury, sickness or death and that no property is damaged as a result of exposure to or the presence of the mould; and
- .3 if the Owner and the Design-Builder do not agree on whether any mould discovered is of the nature and quantity such that special handling and precautions are required under Environmental Law or whether such mould may otherwise reasonably present a hazard to the health and safety of persons or with respect to what steps are appropriate to be taken to deal with the mould, or as to the cause of the presence of the mould, the Owner shall retain an independent qualified expert to investigate and report on the subject of the dispute. Subject to paragraph 9.5.2, the Owner shall pay for the cost of the expert's investigation and report. The Owner will provide a copy of the expert's report to the Design-Builder.

GC9.5.2 is deleted in its entirety and replaced with the following:

If the expert's report under paragraph 9.5.1.3 determines that the mould does not require special handling and precautions in compliance with Environmental Law or does not otherwise

reasonably present a hazard to the health and safety of persons, the Design-Builder will pay for the cost of the expert's investigation and report. If the expert's report under paragraph 9.5.1.3 determines that the mould was caused as the result of the acts or omissions of the Design-Builder or anyone for whom the Design-Builder is responsible, the Design-Builder shall promptly, at the Design-Builder's expense:

- .1 take such steps as are necessary to safely and in compliance with Environmental Law remove, transport and dispose of such mould and to remediate the Place of the Work to such extent as is required to cause the Place of the Work to comply with all applicable Environmental Law;
- .2 make good any damage to the Work, the Owner's property and any property affected by the mould as provided in paragraph 9.1.3 of GC9.1 - PROTECTION OF WORK AND PROPERTY;
- .3 reimburse the Owner for all resultant costs and expenses reasonably incurred by the Owner; and
- .4 indemnify the Owner as required by GC12.1 - INDEMNIFICATION.

GC9.5.3 is deleted in its entirety and replaced with the following:

If the Owner and the Design-Builder agree, or if the expert's report under paragraph 9.5.1.3 concludes, that the presence of mould on the Place of the Work requires special handling or precautions under Environmental Law or otherwise presents a hazard to the health or safety of persons, and that the Design-Builder or anyone for whom the Design-Builder is responsible is not responsible for the presence of such mould, the Owner shall promptly at the Owner's expense:

- .1 take such steps as are necessary to safely and in compliance with Environmental Law remove, transport and dispose of such mould and to remediate the Place of the Work to such extent as is required to cause the Place of the Work to comply with all applicable Environmental Law;
- .2 reimburse the Design-Builder for the cost of taking the steps under paragraph 9.5.1.2 and making good any damage to the Work as provided in paragraph 9.1.4 of GC9.1 - PROTECTION OF WORK AND PROPERTY; and
- .3 extend the Contract Time for such reasonable time as the Consultant may recommend in consultation with the Design-Builder and the expert referred to in paragraph 9.5.1.3 and reimburse the Design-Builder for reasonable costs incurred as a result of the delay, and

GC10.1 TAXES AND DUTIES

GC10.1.1 is deleted in its entirety and replaced as follows:

The Design-Builder shall allow for the payment by the Design-Builder of all federal, provincial and municipal taxes, rates, levies, assessments and duties, both refundable and non-refundable, and all deposits, (temporary crossings, excavations, etc.), except for Value Added Taxes. The Design-Builder agrees that the Owner shall not be liable for any of the said items and agrees to indemnify and save harmless at all times the Owner from and against all claims which may be made with respect thereto. The Owner will pay the Design-Builder the amount

of the Value Added Taxes as indicated in ARTICLE A-4 CONTRACT PRICE of the AGREEMENT but its cost shall be excluded from the Contract Price.

GC10.1.2 is amended by revising the first line to read:

...in such included taxes, duties and rebates...

GC10.2 LAWS, NOTICES, PERMITS AND FEES

GC10.2.2 is amended by deleting the following text from the last sentence:

...which were in force at the time of the proposal or bid closing.

GC10.2.4 is amended by revising the first sentence to read:

The Design-Builder shall be responsible to provide reasonable verification that the Contract Documents ...

GC10.4 WORKERS' COMPENSATION

GC10.4 is deleted in its entirety.

PART 11 INSURANCE - BONDS

GC11.1 INSURANCE (including the heading) is deleted in its entirety and replaced as follows:

GC11.1 GENERAL INSURANCE REQUIREMENTS

11.1.1 The Design-Builder and Subcontractors shall be required to file with the Owner within ten (10) Working Days of issuance of the Notice of Award, a Certificate of Insurance, and where required by the Owner's Director of Risk Management, certified copies of all insurance policies and endorsements evidencing the placement and endorsement of insurance in accordance with this GC11.

11.1.2 The Design-Builder and any Subcontractors shall be required to file evidence of renewal of the insurance policies required under this GC11 with the owner at least fifteen (15) calendar days prior to their expiry.

11.1.3 In addition to the specific requirements below, all policies of insurance shall

- .1 be endorsed so as to provide for thirty (30) calendar days' prior notice to the Owner of cancellation, lapse or material change,
- .2 if property insurance (as opposed to liability) insurance, contain a waiver of subrogation in favour of the Owner Insurance Group (as defined below) and all employees and agents of the Owner Insurance Group,
- .3 specifically name the City of Vancouver, and the Vancouver Police Department as additional insured, being collectively referred to in this GC11 as the "Owner Insurance Group"),
- .4 be issued by a company or companies authorized to issue insurance policies in British Columbia, and

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.5 be issued on a policy form acceptable to the Owner's Director of Risk Management.

11.1.4 Unless otherwise specified, insurance shall be continuously maintained from no later than the ten (10) Working Days after issuance of the Notice of Award through to the date of Total Performance of the Work.

GC11.2 SPECIFIC INSURANCE COVERAGE is added as follows:

11.2.1 Without restricting the generality of GC12.1 - INDEMNIFICATION, and despite the limits of liability set out in GC12.1 - INDEMNIFICATION, the Design-Builder shall provide at the Design-Builder's expense the following types of insurance:

- (a) Professional (Errors and Omissions) Liability Insurance with limits of not less than Two Million (\$2,000,000) Dollars per occurrence with an aggregate of not less than Three Million (\$3,000,000) at a deductible of not more than Fifty Thousand (\$50,000) Dollars, protecting the Design-Builder against all claims for loss or damage arising out of any wrongful act or error or omission of the Design-Builder or the Design-Builder's employees, agents or subcontractors in the performance of the Work.
- (b) Commercial General Liability Insurance protecting the Owner, the Design-Builder, and their respective servants, agents or employees against damages arising from personal injury (including death) and claims for property damage which may arise out of the operations of the Design-Builder, its Subcontractors, or their respective servants, agents or employees in connection with the Work. The policy shall specifically cover liability arising out of the performance of this Contract and shall cover all liability assumed by the Design-Builder under any contract or agreement, including the indemnity provisions of this Contract. The policy shall also include products and 24 month completed operations coverage and shall extend to liability arising out of non-owned automobiles. Commercial General Liability Insurance shall be for an amount of not less than FIVE MILLION DOLLARS (\$5,000,000) inclusive per occurrence, and shall include a standard form of cross-liability clause. The deductible per occurrence shall not exceed \$5,000.00.
- (c) Automobile Liability Insurance to be carried at all times on all licensed vehicles owned by or leased to the Design-Builder, protecting against damages arising from bodily injury (including death), and from claims for property damage arising from the operations of the Design-Builder, its agents or employees. This insurance shall be for a minimum amount of five million dollars (\$5,000,000) inclusive per accident.
- (d) All-Risks Property Insurance in the joint names of the Design-Builder and the Owner Insurance Group, covering the Work and all property of every description to be used in the performance of the Work. This insurance shall be primary, and be of an amount of not less than the sum of the Contract Price. The deductible per occurrence shall not exceed ten thousand dollars (\$10,000).
- (e) Design-Builder's Equipment Insurance covering all equipment owned or rented by the Design-Builder and its servants, agents or employees against all risks of loss or damage with coverage sufficient to allow for immediate replacement, and shall contain a waiver of subrogation against the City.

GC11.3 FAILURE TO INSURE is added as follows:

- 11.3.1 If the Design-Builder fails to provide evidence of the required insurance under this GC11 as and when required by the Contract Documents, then the Owner shall have the right to do so and then give evidence of same to the Design-Builder and the cost of doing so will then be payable by the Design-Builder to the Owner or at the Owner's option may be deducted from the Contract Price by Change Directive.

GC11.2 BONDS

GC11.2 (including the heading) is deleted in its entirety and renumbered as follows:

GC11.4 BONDS

11.4.1 The Design-Builder shall pay for and deliver to the Owner, within ten (10) working Days of issuance of the Notice of Award, a performance bond and a labour and material payment bond, which shall each be for fifty percent (50%) of the Contract Price and shall include, but shall not be limited to:

- .1 payment of any Consultant's and legal expenses incurred by the Owner in determining the extent of the Work executed and Work still to be executed, and any additional Work required as a result of the interruption of the Work,
- .2 payment of additional expenses caused to the Owner for watchmen's services, light, heat, power, etc. incurred to the Owner during the period between the default of the original Contract and the commencement of the new Contract,
- .3 extended guarantee periods, corrections after final payment, and warranty obligations, and
- .4 coverage of the faithful performance of all terms and conditions of the Contract Documents including all additions and revisions thereto permitted under the Contract.

11.4.2 Such bonds shall be issued by a duly licensed surety company authorized to transact the business of a surety in British Columbia and the bonds shall be maintained in good standing until the issuance of the Final Certificate for Payment and the expiry of the warranty. Subject to the requirements of this GC11.4, the bonds shall be in accordance with the latest edition of the CCDC approved bond forms.

11.4.3 The Design-Builder will give the Owner Notice in Writing of any material change in the surety within five (5) calendar days of the occurrence.

GC12.1 INDEMNIFICATION

GC12.1.1 is deleted in its entirety and replaced as follows:

The Design-Builder now indemnifies and shall defend, indemnify and hold harmless the Owner, the project manager and their respective directors, officers, employees, agents, consultants or advisors (collectively, the "Indemnitees") from and against all claims, demands, losses, costs, damages, actions, suits or proceedings ("Liability"), whether founded in equity or at law including contract, tort or statute and howsoever caused, arising from or in any way connected with any wrongful or negligent act, error or omission of, or defective goods supplied by, the Design-Builder, Subcontractors, Suppliers or their respective

employees or agents when attending the Site or in the performance of the Work, whether or not any one or more of the Indemnitees are contributorily negligent. Expressly excluded from this indemnity is any Liability caused solely and directly by the wrongful act or negligence of an Indemnitee.

GC12.1.2 is deleted in its entirety and replaced as follows:

The obligation of the Design-Builder to indemnify hereunder shall be limited to five million dollars (\$5,000,000) per occurrence from the commencement of the Work until Substantial Performance of the Work and thereafter to an aggregate limit of five million dollars (\$5,000,000). However, despite any other term of this Contract, in no event will this limitation apply in any way to reduce or limit the indemnity or recovery by either party under any insurance policy or bond required by the Contract Documents and in no event will this limit apply to the Design-Builder's or Owner's obligations to indemnify under GC9.2 - TOXIC AND HAZARDOUS SUBSTANCES, GC9.4 CONSTRUCTION SAFETY & WORKSAFE BC RULES, GC9.5 - MOULD and GC10.3 - PATENT FEES.

GC12.1.3 is deleted in its entirety and replaced as follows:

The Owner and the Design-Builder shall indemnify and hold harmless the other from and against all claims, demands, losses, costs, damages, actions, suits, or proceedings arising out of their obligations described in GC9.2 - TOXIC AND HAZARDOUS SUBSTANCES, GC9.4 CONSTRUCTION SAFETY & WORKSAFE BC RULES, GC9.5 -MOULD and GC10.3 - PATENT FEES

GC12.2 WAIVER OF CLAIMS

GC12.2.1 is deleted in its entirety and replaced as follows:

Waiver of Claims by Owner: As of the date of the Final Certificate for Payment, the Owner expressly waives and releases the Design-Builder from all claims against the Design-Builder including without limitation those that might arise from the negligence or breach of Contract by the Design-Builder except one or more of the following:

- .1 those made in writing prior to the date of the Final Certificate for Payment and still unsettled;
- .2 those arising from the provisions of GC12.1 - INDEMNIFICATION or GC12.3 - WARRANTY;
- .3 those arising from the provisions of GC9.3 - TOXIC AND HAZARDOUS SUBSTANCES AND MATERIALS, GC9.4 CONSTRUCTION SAFETY & WORKSAFE BC RULES, GC9.5 -MOULD and GC10.3 - PATENT FEES and those arising from the Design-Builder bringing or introducing any toxic or hazardous substances and materials to the Place of the Work after the Design-Builder commences the Work; and
- .4 those arising from any liability of the Design-Builder for damages resulting from the Design-Builder's performance of the Contract with respect to substantial defects or deficiencies in the Work for which the Design-Builder is proven responsible.

GC12.2.2 is deleted in its entirety and replaced as follows:

As of the date of the final certificate for payment, the Design-Builder expressly waives and releases the Owner from all claims against the Owner including without limitation those that might arise from the negligence or breach of Contract by the Owner except:

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- .1 those made in writing prior to the Design-Builder's application for Final Payment and still unsettled; and
- .2 those arising from the provisions of GC9.3 - TOXIC AND HAZARDOUS SUBSTANCES AND MATERIALS or GC10.3 - PATENT FEES.

GC12.2.3 is deleted in its entirety and replaced as follows:

GC12.2 - WAIVER OF CLAIMS shall govern over the provisions of paragraph 1.3.1 of GC1.3 - RIGHTS AND REMEDIES.

GC12.3 WARRANTY

GC12.3 is deleted in its entirety and replaced as follows:

12.1.1 The Design-Builder shall perform the Work in a good and workmanlike manner.

12.3.2 The Design-Builder now warrants that the Work (and all Products) will be free from all defects arising from faulty construction, manufacturing, installation, materials, equipment or workmanship in any part of the Work (or Products) for a period of one (1) year commencing from the issuance of the Certificate of Total Performance of the Work and for any Work and Products warranted by a Subcontractor or Supplier for a period of longer than one (1) year after Total Performance of the Work, the Design-Builder now warrants that it has fully and effectively assigned such warranty to the Owner and that the Owner may enforce same to the same extent and in the same manner as if the warranty had been issued directly to the Owner by that Subcontractor or Supplier.

12.3.3 For the purposes of this GC12.3, the phrase, "defects arising from faulty construction, manufacturing, installation, materials, equipment or workmanship in any part of the Work (or Products)"

- (a) expressly excludes any and all defects arising from or contributed to by the acts or omissions of the Consultant in the design and specification of the Work as set out in the Drawings, Specifications, or other written instructions or directives issued by the Consultant under this Contract, but only to the extent of the Consultant's defective design or specification, and
- (b) expressly includes all defects or deficiencies that arise even if the Work is carried out in a good and workmanlike manner.

12.3.4 During the warranty period, the Design-Builder will promptly repair and correct all defects at no cost to the Owner. If the Design-Builder fails to repair or correct any defect during the warranty period within ten (10) calendar days of written notice of its existence, the Owner may but is not obligated to make the repairs or corrections itself and the actual out-of-pocket costs of such repairs or corrections made by the Owner will be payable by the Design-Builder to the Owner within seven (7) calendar days of receiving an invoice from the Owner for same. In the event of an emergency where, in the opinion of the Owner, delay could cause serious loss or damage, or inconvenience to the public, the repairs or corrections may be made without prior notice being sent to the Design-Builder.

12.3.5 Where, pursuant to GC13.1 - Occupancy, the Owner commences the use of the Work and Products for their intended purposes prior to the issuance of the Certificate of Total Performance of the Work, the warranty period will be deemed to commence from the

issuance date despite such prior use, but only with respect to those portions of the Work and Products so used by the Owner.

12.3.6 Issuance of the Certificate of Total Performance of the Work will not extinguish any of the Design-Builder's obligations under this Contract and the Design-Builder will remain liable to perform and complete all Work and carry out all obligations required under this Contract

GC13.1 OCCUPANCY

GC13.1 is added as follows:

The Owner reserves the right to take possession of and use any completed or partially completed portion of the Work, regardless of the time of completion of the Work, providing it does not interfere with the Design-Builder's Work determined by the Consultant.

GC13.1.2 is added as follows:

Such taking possession or use of such Work or part thereof as described in GC13.1.1 shall not be construed as final acceptance of the Work or any part thereof, or an acknowledgement of fulfillment of the Contract.

END OF SUPPLEMENTARY GENERAL CONDITIONS

SCHEDULE 2 - SCOPE OF WORK

Attached upon Award

SCHEDULE 3 - LIST OF DRAWINGS

Attached upon Award

SCHEDULE 4 - SCHEDULE OF PRICES

The Contract Price referred to in Article A-4 of the Agreement includes the following:

Attached Upon Award

SCHEDULE 5 - LIST OF SUBCONTRACTORS AND SUPPLIERS

Attached Upon Award

SCHEDULE 6 - PROJECT SCHEDULE

Attached Upon Award

SCHEDULE 7 - PERFORMANCE AND LABOUR AND MATERIAL PAYMENT BONDS

Attached Upon Award

SCHEDULE 8 - INSURANCE CERTIFICATE

See Attached:

Schedule 8i - Professional Liability Insurance Certificate

Schedule 8ii - General Certificate of Insurance

Schedule 8iii - Certificate of Existing Insurance

NOTE: Schedules 8i & 8ii to be attached upon Award of Contract;
Schedule 8iii to be attached to Proposal



PROFESSIONAL LIABILITY INSURANCE CERTIFICATE

Section 4 – City staff to select the required # of days Written Notice before sending out for completion
 Section 2, 3 & 4– to be completed and executed by the Insurer or its Authorized Representative

1. **THIS CERTIFICATE IS ISSUED TO:** City of Vancouver, 453 W 12th Avenue, Vancouver, BC, V5Y 1V4
and certifies that the insurance policy as listed herein has been issued to the Named Insured(s) and is in full force and effect as of the effective date of the agreement described below.
2. **NAMED INSURED:** *[must be the same name as the Permittee/Licensee or Party(ies) to Contract and is/are either an individual(s) or a legally incorporated company(ies)]*

MAILING ADDRESS:

LOCATION ADDRESS:

DESCRIPTION OF OPERATION/CONTRACT:

3. PROFESSIONAL LIABILITY INSURANCE

LIMITS OF LIABILITY:

INSURER: _____ Per occurrence/claim: \$ _____
 POLICY NUMBER: _____ Aggregate: \$ _____
 POLICY PERIOD: From _____ to _____ Deductible per occurrence/claim: \$ _____

If the policy is in a "CLAIMS MADE" form, please specify the applicable Retroactive Date: _____

4. POLICY PROVISIONS:

Where required by the governing contract, agreement, permit or license, it is understood and agreed that SIXTY (60) days written notice of cancellation or material change resulting in reduction of coverage with respect to the policy listed herein, either in part or in whole, will be given by the Insurer to the Holder of this Certificate. The exception is cancellation for non-payment of premiums in which case the applicable statutory conditions will apply.

SIGNED BY THE INSURER OR ITS AUTHORIZED REPRESENTATIVE

 PRINT NAME OF INSURER OR ITS AUTHORIZED REPRESENTATIVE, ADDRESS AND PHONE NUMBER

Section 8 b) – City staff to select the required # of days Written Notice before sending the certificate out for completion
 Section 2 through 8 – to be completed and executed by the Insurer or its Authorized Representative

1. **THIS CERTIFICATE IS ISSUED TO:** City of Vancouver, 453 W 12th Avenue, Vancouver, BC, V5Y 1V4
and certifies that the insurance policies as listed herein have been issued to the Named Insured(s) and are in full force and effect as of the effective date of the agreement described below.
2. **NAMED INSURED:** *[must be the same name as the Permittee/Licensee or Party(ies) to Contract and is/are either an individual(s) or a legally incorporated company(ies)]*

MAILING ADDRESS: _____

LOCATION ADDRESS: _____

DESCRIPTION OF OPERATION, CONTRACT, AGREEMENT, LEASE, PERMIT OR LICENSE: _____

3. **PROPERTY INSURANCE** naming the City of Vancouver as a Named Insured and/or Loss Payee with respect to its interests and shall contain a waiver clause in favour of the City of Vancouver.
(All Risks Coverage including Earthquake and Flood)
- | | |
|---|--|
| INSURER: _____
TYPE OF COVERAGE: _____
POLICY NUMBER: _____
POLICY PERIOD: From _____ to _____ | INSURED VALUES: (Replacement Cost)
Building and Tenants' Improvements: \$ _____
Contents and Equipment: \$ _____
Deductible Per Loss: \$ _____ |
|---|--|

4. **COMMERCIAL GENERAL LIABILITY INSURANCE (Occurrence Form)**
 Including the following extensions:
- | | |
|--|--|
| <input checked="" type="checkbox"/> Personal Injury
<input checked="" type="checkbox"/> Products and Completed Operations
<input checked="" type="checkbox"/> Cross Liability or Severability of Interest
<input checked="" type="checkbox"/> Employees as Additional Insureds
<input checked="" type="checkbox"/> Blanket Contractual Liability
<input checked="" type="checkbox"/> Non-Owned Auto Liability
INSURER: _____
POLICY NUMBER: _____
POLICY PERIOD: From _____ to _____ | LIMITS OF LIABILITY: (Bodily Injury and Property Damage Inclusive)
Per Occurrence: \$ _____
Aggregate: \$ _____
All Risk Tenants' Legal Liability: \$ _____
Deductible Per Occurrence: \$ _____ |
|--|--|

5. **AUTOMOBILE LIABILITY INSURANCE** for operation of owned and/or leased vehicles
- | | |
|--|---|
| INSURER: _____
POLICY NUMBER: _____
POLICY PERIOD: From _____ to _____ | LIMITS OF LIABILITY:
Combined Single Limit: \$ _____
<i>If vehicles are insured by ICBC, complete and provide Form APV-47.</i> |
|--|---|

6. **UMBRELLA OR** **EXCESS LIABILITY INSURANCE**
- | | |
|--|--|
| INSURER: _____
POLICY NUMBER: _____
POLICY PERIOD: From _____ to _____ | LIMITS OF LIABILITY: (Bodily Injury and Property Damage Inclusive)
Per Occurrence: \$ _____
Aggregate: \$ _____
Self-Insured Retention: \$ _____ |
|--|--|

7. **OTHER INSURANCE** (e.g. Boiler & Machinery, Business Interruption, Crime, etc.) – Please specify Name of Insurer(s), Policy Number, Policy Period, and Limit

8. **POLICY P~ROVISIONS:**
Where required by the governing contract, agreement, lease, permit or license, it is understood and agreed that:
 - a) *The City of Vancouver, its officials, officers, employees, servants and agents have been added as Additional Insureds with respect to liability arising out of the operation of the Named Insured pursuant to the governing contract, agreement, lease, permit or license;*
 - b) *SIXTY (60) days written notice of cancellation or material change resulting in reduction of coverage with respect to any of the policies listed herein, either in part or in whole, will be given by the Insurer(s) to the Holder of this Certificate; the exception is cancellation for non-payment of premiums in which case the applicable statutory conditions will apply;*
 - c) *The insurance policy (policies) listed herein shall be primary with respect to all claims arising out of the operation of the Named Insured. Any insurance or self-insurance maintained by the City of Vancouver shall be in excess of this insurance and shall not contribute to it.*

SIGNED BY THE INSURER OR ITS AUTHORIZED REPRESENTATIVE _____

PRINT NAME OF INSURER OR ITS AUTHORIZED REPRESENTATIVE, ADDRESS AND PHONE NUMBER _____ Dated: _____



CERTIFICATE OF EXISTING INSURANCE
TO BE COMPLETED AND APPENDED TO THE PROPOSAL/TENDER

Section 2 through 8 – to be completed and executed by the Insurer or its Authorized Representative

1. THIS CERTIFICATE IS ISSUED TO: City of Vancouver, 453 W 12th Avenue, Vancouver, BC, V5Y 1V4
and certifies that the insurance policy (policies) as listed herein has/have been issued to the Named Insured and is/are in full force and effect.

2. NAMED INSURED (must be the same name as the proponent/bidder and is either an individual or a legally incorporated company)

BUSINESS TRADE NAME or DOING BUSINESS AS

BUSINESS ADDRESS

DESCRIPTION OF OPERATION

3. PROPERTY INSURANCE (All Risks Coverage including Earthquake and Flood)

INSURER Insured Values (Replacement Cost) -
TYPE OF COVERAGE Building and Tenants' Improvements \$
POLICY NUMBER Contents and Equipment \$
POLICY PERIOD From to Deductible Per Loss \$

4. COMMERCIAL GENERAL LIABILITY INSURANCE (Occurrence Form)

Including the following extensions: INSURER
√ Personal Injury POLICY NUMBER
√ Property Damage including Loss of Use POLICY PERIOD From to
√ Products and Completed Operations Limits of Liability (Bodily Injury and Property Damage Inclusive) -
√ Cross Liability or Severability of Interest Per Occurrence \$
√ Employees as Additional Insureds Aggregate \$
√ Blanket Contractual Liability All Risk Tenants' Legal Liability \$
√ Non-Owned Auto Liability Deductible Per Occurrence \$

5. AUTOMOBILE LIABILITY INSURANCE for operation of owned and/or leased vehicles

INSURER Limits of Liability -
POLICY NUMBER Combined Single Limit \$
POLICY PERIOD From to If vehicles are insured by ICBC, complete and provide Form APV-47.

6. UMBRELLA OR EXCESS LIABILITY INSURANCE Limits of Liability (Bodily Injury and Property Damage Inclusive) -

INSURER Per Occurrence \$
POLICY NUMBER Aggregate \$
POLICY PERIOD From to Self-Insured Retention \$

7. PROFESSIONAL LIABILITY INSURANCE

INSURER Limits of Liability
POLICY NUMBER Per Occurrence/Claim \$
POLICY PERIOD From to Aggregate \$
Deductible Per Occurrence/Claim \$

If the policy is in a "CLAIMS MADE" form, please specify the applicable Retroactive Date:

8. OTHER INSURANCE

TYPE OF INSURANCE Limits of Liability
INSURER Per Occurrence \$
POLICY NUMBER Aggregate \$
POLICY PERIOD From to Deductible Per Loss \$
TYPE OF INSURANCE Limits of Liability
INSURER Per Occurrence \$
POLICY NUMBER Aggregate \$
POLICY PERIOD From to Deductible Per Loss \$

SIGNED BY THE INSURER OR ITS AUTHORIZED REPRESENTATIVE

PRINT NAME OF INSURER OR ITS AUTHORIZED REPRESENTATIVE, ADDRESS AND PHONE NUMBER Dated

SCHEDULE 9 - OWNER'S PRE-CONTRACT HAZARD ASSESSMENT FORM

See Attached

Owners List of Known Workplace Hazards

CONTRACT TITLE Supply, Remove & Install Viessmann Boilers at 4 COV Facilities

PROJECT MANAGER (CITY EMPLOYEE) Ian Harvey

CONTRACT NAME & # (IF KNOWN) PS20120666

Purpose

This document shall be completed by the project manager, who shall list all the **known** worksite hazards and all the **existing** work process hazards that will be associated with the upcoming contract. The completed document shall then be provided to all potential contractors, as part of the tender package, so the project can be bid appropriately based on the known worksite hazards.

Definitions

Project Manager - the City employee designated to be the liaison with the contractor for the purpose of managing, overseeing, coordinating or in any other way administering the contract.

Instructions for Completion

The document must be completed in full. Choices for each entry are:

Y - Yes - the known worksite hazard or existing work process hazard does exist

N - No - the known worksite hazard or existing work process hazard does not exist*, or, a third party (environmental consultant) will address the issue (usually for a hazardous materials assessment)

*based on reasonable estimation from all input by persons with expertise or relevant knowledge and understanding

NA - Not Applicable - the worksite hazard or existing work process is not applicable for this contract type

Information from Hazardous Materials Assessments Provided by a Third Party

A hazardous materials assessment may be completed prior to the Project Manager completing the Owners List of Known Workplace Hazards. Any such assessment should be referenced by the Project Manager in this document and provided with the tender package. Hazardous materials may include asbestos, lead, crystalline silica, ammonia, PCB's, CFC's, moulds, mercury, ozone depleting substances (ODS), radioactive substances.

Assistance in Completing this Document

If you have questions while completing this document, or are unsure if the listed hazards apply, please seek assistance from Health and Safety (604.871.6078 or healthandsafety@vancouver.ca).

HAZARD OR ISSUE	Project Manager
1. ASBESTOS-CONTAINING MATERIALS - disturbance or penetrations of flooring, walls, ceiling tiles, pipe lagging, ac pipe, transite siding, particularly in older facilities; e.g., furniture/fixture installation, carpeting/flooring services, and boiler repair/tune-up services.	Yes No N/A
a) Asbestos containing materials (ACM) will be encountered	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
b) A hazardous materials assessment for asbestos is provided in the tender package	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
c) A hazardous materials assessment for asbestos is the responsibility of the contractor	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>

2. LEAD-CONTAINING MATERIALS - disturbance of lead-based paint, particularly in older facilities. Also present in certain electrical circuitry and metal alloys; .e.g., overhead bridge crane maintenance/repair, high-voltage cable splicing services, boiler repair/tune-up services, fixture installation services, and chiller maintenance/repair services.	Yes No N/A
a) Inorganic lead-containing materials may be encountered	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
b) A hazardous materials assessment for lead is provided in the tender package	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
c) A hazardous materials assessment for lead is the responsibility of the contractor	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>

3. OTHER HAZARDOUS MATERIALS - may include ammonia, pcb's, cfc's, moulds, mercury, ozone depleting substances (ods), radioactive substances, sewage, unknown contaminated materials, other: (list other here)_____	Yes No N/A
a) A hazardous materials assessment for ammonia is provided in the tender package	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
b) A hazardous materials assessment for (list the specific hazardous material) will be provided in the tender package	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
c) A hazardous materials assessment for (list the specific hazardous materials) will be the contractors responsibility	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>

4. CONFINED SPACES - working in vaults, chambers, pits, tanks, etc.; e.g., construction, inspection and testing services, water/fuel storage tank clean-out services, and utility corrosion inspection services.	Yes No N/A
a) A hazard assessment (for entry and inspection only) from the City of Vancouver is provided in the tender package	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
b) The City of Vancouver shall provide procedures to isolate adjacent piping, or to lock out equipment (complicated systems only)	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
c) The contractor shall be responsible for isolation and lockout procedures	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

5. LOCK OUT - industrial equipment maintenance, power machinery repair services, pump maintenance/repair services, mechanical refrigeration systems, elevator repair, overhead bridge crane maintenance/repair services, cathodic protection services, hydraulic test systems repair/service, and air compressor rebuilding services.	Yes No N/A
a) Lockout will be required to isolate or prevent the unexpected release of energy (electrical, mechanical, hydraulic, chemical, thermal, kinetic, gravitational, pneumatic)	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
b) Work will be performed on or near energized equipment, lines, or circuits	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>

If yes to a) or b) describe:

Both natural gas and electricity are supplied to the boiler, and will require safe isolation.

6. FALL PROTECTION - tree pruning, window and ledge cleaning, window replacement, overhead bridge crane maintenance/repair services, roll-up door replacement, tent installation, awning/canopy installation, overhead air exchange installation, construction inspection and testing services.	Yes No N/A
a) Workers will be exposed to a potential fall in excess of 3 m (10 feet), or to a fall of less than 3 m which would likely result in a serious injury (ex. impalement on rebar)	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
b) Scaffolding or ladders will be required to be secured to a building or structure	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>

7. OVERHEAD AND UNDERGROUND UTILITIES - tree pruning services, tree removal, utility relocation or replacement, underground utility identification (digging with powered equipment), concrete sawing services, pole painting	Yes No N/A
a) There will be electrical hazards associated with overhead power lines such as limits of approach and contact	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
b) Necessary assurances (in writing) have (or will be) obtained by the City, through the utility company, for any work where minimum limits of approach cannot be maintained (provide documentation and review at pre job meeting with the successful contractor candidate)	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
c) Necessary assurances must be obtained (in writing) by the successful contractor, through the utility company, for any work where minimum limits of approach will not be able to be maintained	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
d) Underground or hidden utilities are located on the job site and any excavation or drilling work in proximity to an underground utility service must be undertaken in conformity with the requirements of the owner of that utility service	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>

If yes to c), and the specific physical locations where minimum limits of approach will not be able to be maintained are known, how will this information be provided to the contractor?

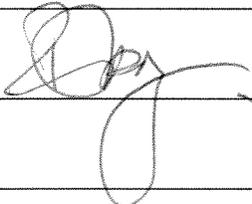
8. CONSTRUCTION, EXCAVATION, SHORING AND DEMOLITION	Yes No N/A
a) As Prime Contractor, the City of Vancouver project manager will submit the Notice of Project	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
b) Workers will be required to enter an excavation over 1.2m (4 ft) in depth	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>

9. CHEMICALS, SOLVENTS, FUMES, VAPORS, AND/OR DUSTS (existing work processes or known worksite hazard only) - ice rinks, swimming pools, cleaning solvents, adhesives, paints, coatings, binders; e.g., storage tank clean-out services, countertop installation (epoxies), and flooring	Yes No N/A
a) The worksite has chemicals solvents, fumes, vapors or dusts that may affect the contractor	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
b) Material Safety Data Sheets for chemicals currently in use at the worksite will be available, on request, to the contractor	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>

If yes to a), list the work processes and/or chemicals in use:

10. NOISE - (existing work processes only)	Yes No N/A
a) Employees will be exposed to noise levels above 85dbA	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>

OTHER HAZARDS (NOT IDENTIFIED ABOVE)
a)
b)
c)

KNOWN WORKPLACE HAZARDS LIST COMPLETED BY	
Project Manager Name (print): Ian Harvey	
Project Manager Signature: 	Date: Aug 10th 2012
Title: Acting Manager of Major Maintenance	Phone: 604 718 6216

SCHEDULE 10 - DESIGN-BUILDER'S PRE-CONTRACT HAZARD ASSESSMENT FORM

To Be Completed by Successful Vendor

CONTRACTOR PRE-CONTRACT HAZARD ASSESSMENT FORM

Contract Title & No. PS20120666 MECHANICAL CONTRACTORS FOR SUPPLY, REMOVAL AND INSTALL OF VIESSMANN BOILERS AT FOUR (4) CITY OF VANCOUVER FACILITIES

Project Manager (City Employee) _____

Contractor Representative & No: _____

PURPOSE

This document shall be completed by the contractor awarded the contract, who shall identify all the known and potential work process hazards associated with the contract. The contractor, who is responsible for all identified actions, shall provide a completed Pre-Work Hazard Identification document to the Project Manager (City employee) for review and consultation before the contract work begins.

REFERENCE MATERIAL

In order to complete this document, the contractor should reference a completed copy of the List of **Known Workplace Hazards**, initially provided with the tender package. The contractor is also responsible to reference any **Hazardous Materials Assessments**, provided by the City with the tender package, and possibly referenced in the List of Known Workplace Hazards document.

INSTRUCTIONS FOR COMPLETION

The document must be completed in full. Choices for each entry are:

Yes (Y) this work process or worksite hazard will exist for this contract and are the responsibility of the contractor

No (N) even though the work process or worksite hazard will exist, it will not be the responsibility of the contractor

Not Applicable (NA) the work process or worksite hazard is not applicable for this contract

Each grouping of safety hazards or issues in this document (bold text, capitalized) may list some examples of work tasks where this hazard may be encountered. These examples are not conclusive; there may be other examples of work tasks that create this hazard or issue.

DOCUMENTATION AND TRAINING REQUIREMENTS

During the contract term, the contractor may be requested by the City of Vancouver, and shall provide documented evidence for items identified with a **(D)** in this document.

The summary table at the end of the document provides all potentially required documentation, and if applicable, the WCB OHS Regulation reference.

For any identified hazard marked with a **(T)**, the contractor is responsible to train their employees.

CONTRACTOR PRE-CONTRACT HAZARD ASSESSMENT FORM

HAZARDOUS MATERIALS

The contractor is responsible for providing additional information on hazardous materials which may be encountered as part of the work process, yet not identified in the List of Known Workplace Hazards.

Hazard or Issue	Project Manager
	<i>Yes (Y), No (N) or Not Applicable (NA)</i>
1. Asbestos-containing Materials. Disturbance or penetrations of flooring, walls, ceiling tiles, pipe lagging, ac pipe, transite siding, particularly in older facilities; e.g., furniture/fixture installation, carpeting/flooring services, and boiler repair/tune-up services	
(a) We have reviewed the hazardous materials assessment for asbestos provided by the City of Vancouver (or third party) in the tender package	
(b) We will provide a written hazardous materials assessment for asbestos	
(c) We have a written Asbestos Program (D)	
(d) As Prime Contractor, we will submit a Notice of Project Asbestos(NOP-A) to WorksafeBC at least 24 hours in advance of the project startup	
2. Lead-containing Materials. Disturbance of lead-based paint, particularly in older facilities. Also present in certain electrical circuitry and metal alloys; .e.g., overhead bridge crane maintenance/repair, high-voltage cable splicing services, boiler repair/tune-up services, fixture installation services, and chiller maintenance/repair services	
(a) We have reviewed the hazardous materials assessment for lead provided by the City of Vancouver (or third party) in the tender package	
(b) We will provide a written hazardous materials assessment for lead	
(c) We have a written exposure control program for Lead (D)	
3. Other Hazardous Materials. May include PBC's, CFC's, molds, mercury, ozone depleting substances (ODS), radioactive substances, sewage and unidentified contaminated hazardous materials, other: (list other here)	

(a) We have reviewed the hazardous materials assessment for (insert hazardous material type here) provided by the City of Vancouver, or a third party, in the tender package	
(b) We have reviewed the hazardous materials assessment for (insert hazardous material type here) provided by the City of Vancouver, or a third party, in the tender package	
(c) We will provide a hazardous materials assessment for (insert hazardous material type here)	

CONTRACTOR PRE-CONTRACT HAZARD ASSESSMENT FORM

Hazard or Issue	Project Manager
	Yes (Y), No (N) or Not Applicable (NA)
(d) We will provide a hazardous materials assessment for (insert hazardous material type here) _____	
4. Confined Spaces. Working in vaults, chambers, pits, tanks, etc.; e.g., construction, inspection and testing services, water/fuel storage tank clean-out services, and utility corrosion inspection services.	
(a) We have reviewed the confined space hazard assessment provided by the City of Vancouver in the tender package	
(b) We have a written confined space entry program (D)	
(c) Our employees have received confined space training (T)	
(d) We shall complete a confined space hazard assessment specific to the work to be performed (D)	
(e) We shall develop site specific written safe operating procedures (including evacuation and rescue components) prior to starting work (D)	
(f) We shall identify and record isolation points (D)	
(g) We will develop alternate procedures (as per WCB OHS Regulation # 9.22) to be used to isolate adjacent piping containing harmful substances (D)	
(h) We will provide for the services of rescue persons	
If yes to (g), provide brief description:	
5. Lock Out. Industrial equipment maintenance, power machinery repair services, pump maintenance/repair services, mechanical refrigeration systems, elevator repair, overhead bridge crane maintenance/repair services, cathodic protection services, hydraulic test systems repair/service, and air compressor rebuilding services	
(a) We will be required to lock out in order to isolate or prevent the unexpected release of energy (electrical, mechanical, hydraulic, chemical, thermal, kinetic, gravitational, pneumatic)	
(b) We will perform work on, or near, energized equipment, lines or circuits	

CONTRACTOR PRE-CONTRACT HAZARD ASSESSMENT FORM

Hazard or Issue	Project Manager
	<i>Yes (Y), No (N) or Not Applicable (NA)</i>
<p><i>Note:</i> If yes to (a) or (b) above, no work may be performed until reviewed by City of Vancouver project manager or project manager designate.</p> <p>If yes to (a) or (b) describe:</p>	
<p>6A. Fall Protection. Tree pruning, window and ledge cleaning, window replacement, overhead bridge crane maintenance/repair services, roll-up door replacement, tent installation, awning/canopy installation, overhead air exchange installation, construction inspection and testing services.</p>	
(a) Our employees will be exposed to a potential fall in excess of 3 m (10 feet), or to a fall of less than 3 m which would likely result in a serious injury (ex. impalement on rebar)	
(b) We will produce a written Fall Protection Plan for work that will occur more than 25 feet above grade, or, if written procedures (control zone) are to be used as the means of fall protection (D)	
(c) Our employees who will be required to use fall protection have received training (T)	
<p>If yes to (a), describe:</p>	
<p>6B. Scaffolding and Ladders. Window replacement or cleaning, tree pruning, roll-up door replacement, tent installation, and awning/canopy installation</p>	
(a) Our employees will use scaffolding or ladders for access to the work	
(b) The scaffolding or ladders will be exposed to wet and/or slippery conditions	
(c) We will ensure scaffolding or ladders are secured before accessing the worksite	
(d) Scaffolding will be erected and dismantled only by qualified workers	

CONTRACTOR PRE-CONTRACT HAZARD ASSESSMENT FORM

Hazard or Issue	Project Manager
	Yes (Y), No (N) or Not Applicable (NA)
7. Overhead Power Lines and Underground Utilities. Tree pruning services, tree removal, utility relocation or replacement, underground utility identification services, concrete sawing services, pole painting	
(a) There are electrical hazards associated with overhead power lines such as limits of approach and contact	
(b) We will obtain necessary assurances, in writing, through the utility company, for any work where minimum limits of approach cannot be maintained	
(c) Underground or hidden utilities may be on the job site and we shall contact the Project Manager and BC OneCall at least four business days prior to the start of any excavation work	
(d) In the event of an inadvertent utility strike, we will have a written procedure for immediate notification of both the utility company and WorkSafeBC (D)	
8. Construction, Excavation, shoring and Demolition	
(a) As Prime Contractor, we will submit a Notice of Project (NOP) to WorksafeBC at least 24 hours in advance of the project startup date	
(b) Workers may be required to enter an excavation over 1.2m (4 ft) in depth	
(c) We will develop site specific written safe operating procedures, including evacuation and rescue components, prior to starting any excavation work (D)	
(d) Shoring will be installed in accordance with Part 20 of the WorkSafeBC OH&S Regulation	
(e) We will provide safe means of entry and exit for excavations	
(f) We will provide for the services of rescue persons and equipment (excavation rescue)	
(g) We will develop a demolition/salvage plan (D)	
(h) We will evaluate the demolition materials for reuse or recycling	
(i) We will protect passers-by from potential hazards	
9. Chemicals, Solvents, Fumes, Vapours and Dusts. Cleaning solvents, adhesives, paints, coatings, binders; e.g., storage tank clean-out services, countertop installation (epoxies), and flooring	
(a) We will complete a hazard assessment for chemicals we will use in our work, and if chemicals already exist at the workplace, our assessment will identify possible results of any reactions between our chemicals and those of the City's operations	

CONTRACTOR PRE-CONTRACT HAZARD ASSESSMENT FORM

Hazard or Issue	Project Manager
	<i>Yes (Y), No (N) or Not Applicable (NA)</i>
10. Noise and Vibration. Includes installations and heavy equipment operation. Noise examples for 85 - 90 dbA (at noise source) include forklift, smoke alarm, table saw. Whole body vibration examples include truck or equipment operator and jackhammer operation	
(a) Our employees will be exposed to noise levels above 85dbA	
(b) We have a written hearing conservation program (D)	
(c) Our employees will be exposed to excessive levels of whole body vibration (WBV)	
11. Occupational Health and Safety Program	
(a) We have a written Safety Program (D)	
(b) We will make regular inspections of all workplaces	
(c) We will immediately investigate any reported unsafe conditions and correct as required	
(d) We will investigate all incidents and provide written incident reports to the Project Manager	
(e) We will develop a written plan (D) identifying how risk to the public and workers will be minimized (may include the use of barriers and safe entry/exit points from the worksite)	
12. First Aid	
(a) First aid equipment, supplies, facilities and services will be readily accessible during working hours	
(b) We will complete a first aid assessment (D)	
(c) We will post site drawings and signs indicating the location of, and how to summon, first aid	
(d) We will develop an effective means of communication between the first aid attendant and the work areas	
13. Fire Protection. Solvents, fuels, soldering, torch cutting, or heating devices; e.g., gasoline and diesel fuel delivery services, flooring services, fire suppression service, and water pipe repair services	
(a) We will weld, solder, or cut with a torch	
(b) We will use or store flammable/combustible liquids	
(c) We will use temporary heating devices	
(d) We will provide water and/or fire extinguishers on the job site	

CONTRACTOR PRE-CONTRACT HAZARD ASSESSMENT FORM

Hazard or Issue	Project Manager
	<i>Yes (Y), No (N) or Not Applicable (NA)</i>
14. Personal Protective Equipment (PPE)	
(a) We will ensure our workers have appropriate personal protective clothing and equipment (e.g., safety footwear, hi-vis vests, hardhats, eye protection, face protection, hearing protection, chemical gloves/clothing)	
(b) We have a written PPE program (D)	
15. Respiratory Protection	
(a) The work will involve materials or processes requiring respiratory protection	
(b) We have a written respiratory protection program (D)	
16. Tools Machinery and Equipment	
(a) We will use powder-actuated tools.	
(b) Our employees who operate equipment have been trained and are qualified in use of that equipment. (T)	
If yes to (a), describe:	
17. Cranes, Forklifts, and Manlifts. Heavy or oversized goods delivery, tree pruning, overhead bridge crane maintenance/repair, and roll-up door replacement	
(a) We will use a crane, forklift, manlift or other lifting equipment	
(b) Our lifting and rigging equipment is certified where applicable, and inspected on a regular basis	
(c) Our operators shall have a valid operators certificate (mobile crane or tower crane) or have received training (boom lift, scissor lift or forklift) (T)	
(d) Only lifting attachments approved for use by the forklift manufacturer will be used	
18. Rigging	
(a) We will lift or sling loads overhead	
(b) We will inspect ropes, hooks and slings before use on each shift	

CONTRACTOR PRE-CONTRACT HAZARD ASSESSMENT FORM

Hazard or Issue	Project Manager
	<i>Yes (Y), No (N) or Not Applicable (NA)</i>
19. Motor Vehicles and Heavy Equipment. Goods delivery, personnel transportation services, trailer relocation services, oil/water pumpout and recycling services, asphalt grinding and asphalt sealing services, weed/brush abatement and mowing services, landscape hydroseed services, tree stump grinding, and concrete sawing and removal	
(a) We will use motor vehicles or heavy equipment at the work location	
(b) All operators have a valid provincial driver's license	
(c) We will inspect vehicles, including safety features (e.g., ROPS)	
20. Traffic Control	
(a) There will be uncontrolled movement of vehicular traffic at the worksite	
(b) We will develop a written traffic control plan (D)	
(c) We will put in place any required traffic control devices	
(e) The traffic control devices conform to the Ministry of Transportation and Infrastructure (MoTI) "Traffic Control Manual for Work on Roadways"	
We will provide Traffic Control Persons (TCP's) as required by law	
21. Crystalline Silica Dust	
(a) Our work will involve jackhammering, rotohammering, drilling, grinding or other disturbance of concrete or stone, creating potential exposure to silica dust	
22. Additional Concerns	
We foresee additional health and safety concerns associated with the work	
If yes, describe:	
(a)	_____
(b)	_____
(c)	_____
(d)	_____
(e)	_____
(f)	_____

CONTRACTOR PRE-CONTRACT HAZARD ASSESSMENT FORM

Hazard or Issue	Project Manager
	<i>Yes (Y), No (N) or Not Applicable (NA)</i>
Describe the control measures each of the concerns listed above:	
(a) _____	
(b) _____	
(c) _____	
(d) _____	
(e) _____	
(f) _____	

PRE CONTRACT HAZARD ASSESSMENT COMPLETED BY	Date:
Contractor's Representative Name (print):	
Contractor's Representative Signature:	
Title:	Phone:

CONTRACTOR'S DESIGNATE RESPONSIBLE FOR ONSITE SAFETY	
Name (print):	
Title:	Phone:

	<i>Yes (Y), No (N) or Not Applicable (NA)</i>
Summary of Documentation (D) to be Provided by the Contractor upon request by the City of Vancouver (documentation required as per Workers Compensation Board Occupational Health and Safety (WCB OHS) Regulation, the Workers' Compensation Act (WCA) or the City of Vancouver)	
(a) Safety Program (WCB OHS Regulation Parts 3.1-3.3)	
(b) Asbestos Exposure Control Plan (WCB OHS Regulation Part 6.3)	
(c) Lead (Pb) Exposure Control Plan (WCB OHS Regulation Part 6.60)	
(d) Respiratory Protection Program (WCB OHS Regulation Part 8.5)	
(e) Confined Space Entry Program (WCB OHS Regulation Parts 9.5 and 9.6)	
(f) Plan for minimizing risk to public and to workers (City of Vancouver)	
(g) Personal Protective Equipment (PPE) Program (WCB OHS Regulation Part 8.5)	
(h) Hearing Conservation Program (WCB OHS Regulation Part 7.5)	

CONTRACTOR PRE-CONTRACT HAZARD ASSESSMENT FORM

	<i>Yes (Y), No (N) or Not Applicable (NA)</i>
(i) Confined Space Hazard Assessment (WCB OHS Regulation Part 9.9)	
(j) Work Procedure, including evacuation and rescue, for confined space (WCB OHS Regulation Part 9.10 and 9.11)	
(k) Identification of Isolation Points (confined space) (WCB OHS Regulation Part 9.19)	
(l) Alternate procedures to isolate adjacent piping (confined space) (WCB OHS Regulation Part 9.22)	
(m) Fall Protection Plan (WCB OHS Regulation Part 11.3)	
(n) Traffic Control Plan (Ministry of Transportation and Infrastructure (MOTI) manual, as referenced in WCB OHS Regulation Part 18.3)	
(o) In the event of a utility strike, a written procedure for notification of Utility Provider (WCB OHS Regulation Part 4.18) and WorksafeBC (Workers' Compensation Act Part 3, Division 10, Sec. 172 (1)(c))	
(p) Work Procedure (including evacuation and rescue) for excavations (City of Vancouver)	
(q) Demolition/Salvage Plan (City of Vancouver in reference to WCB OHS Regulation Part 20.112)	
(r) First Aid Assessment (WCB OHS Regulation Part 3.16 (2))	
Summary of Training Requirements (T) of Contractor Employees (for any persons completing this type of work throughout the duration of the contract)	
(a) Confined Space Entry (WCB OHS Regulation Part 9.8)	
(b) Fall Protection (WCB OHS Regulation Part 11.2 (6))	
(c) Equipment Operation (WCB OHS Regulation Part 4.3(1)(b)(i)(ii))	
(d) Mobile Equipment (ex. boom lift, scissor lift, forklift) (WCB OHS Regulation Part 16.4)	

REQUEST FOR PROPOSAL NO. PS20120666
MECHANICAL CONTRACTORS FOR SUPPLY, REMOVAL AND INSTALL OF VIESSMANN BOILERS AT FOUR
(4) CITY OF VANCOUVER FACILITIES
PART F - SCOPE OF WORK

A. HILLCREST COMMUNITY CENTRE

The initial design of the building featured a pair of Viessmann Vitocrossal condensing boilers. During the cost reduction process one of these was changed to a Viessmann mid-efficiency cast iron boiler. Last winter was the first full operation of the facility and this exposed a number of issues.

1. The venting of the cast iron boiler is too small, it is the same size as the condensing unit (12") and it should be at least 16".
2. The venting for the mid efficiency boiler features a barometric damper, which opens to let air from the boiler room into the vent to assist in discharging combustion products. The venting and combustion air for the boiler room are mismatched, and the carbon monoxide from the boiler leaks into the boiler room.
3. The cast iron boiler has to be heated up before it can be fired, so it doesn't condense, and rot out with wet, acidic, combustion products. This start up process is quite long (30 minutes), and reduces the energy efficiency of the building as a whole. When the boiler is cycling during the winter it is being heated all the time.
4. Both boilers are needed for winter operation, so the conceptual idea of a lower cost 'stand-by' boiler is incorrect.

Solution:

1. Remove the existing mid efficiency boiler and lower to ground.
2. Install one Viessmann Vitocrossal CT3 - 89, the same spec as the existing boiler.
3. Remove the existing 12" double wall venting and utilise the 12" cored holes for the new 12" single wall venting.
4. Reconfigure the water side piping so that either boiler can supply heat into the system (lead/lag). The system is presently configured for cascade operation in which the condensing boiler heats the water before it reaches the mid efficiency boiler.
5. Commission the new system, validating controls strategy (existing Viessmann master controller).

B. VANDUSEN FLORAL HALL

This building was scheduled for demolition as part of the VanDusen Visitors' Centre project, but a late change in plans now means that the building will stay. The major concern with the old building is the use of nine gas fired furnaces to operate the warm air heating system. These are a growing safety concern, we cannot obtain parts and the units are at the end of their life. As we are keeping the building we will now swap out these furnaces for hot water serviced fan coil units and boilers to supply the hot water. As the system is stand-alone we can design it to be condensing.

REQUEST FOR PROPOSAL NO. PS20120666
MECHANICAL CONTRACTORS FOR SUPPLY, REMOVAL AND INSTALL OF VIESSMANN BOILERS AT FOUR
(4) CITY OF VANCOUVER FACILITIES
PART F - SCOPE OF WORK

This project is defined by schematics provided by the mechanical consultant that we have on board (J M Bean) and their documentation broadly describes the scope. We don't have the final report from them yet, but soon will.

Broad scope:

1. Remove nine furnaces complete with electrical and gas systems. Dispose of furnaces and materials.
2. Supply and install new fan coil units specified on 120°F supply water, delivering 100°F air. Rear entry from plenum for air, top discharge into ducts.
3. Supply and install three Viessmann 200 WB2B-105 with pipework and pumps connecting boilers via low loss header and 3" main into furnaces.
4. Provide instrumentation and controls as per schematics.
5. Connect systems, commission and optimize operation.

Please see the Upgrade Report - Preliminary Design - dated June 29, 2012 - from JM Bean & Co. Ltd. [58 pages] (attached).

C. SUNSET NURSERY

The Sunset Nursery has two separate boiler rooms (East and West), as well as a mini district energy system supplied by the ice rink. The Corporate Climate Change Action Plan Phase II installed a condensing boilers in both East and West boiler rooms. The East side already had a second boiler and that was kept, but the West side has only ever had one.

1. The West side condensing boiler is sized for winter duty, but during the shoulder seasons it cycles far more than is desirable. This short cycling reduces lifetime and also efficiency.
2. It has always been recognised that the lack of a second boiler is a risk to the Nursery, if it fails in winter it can have an immediate and disastrous impact on crops.

Solution:

1. During the installation of the West boiler room condensing boiler we configured the pipework so we could easily drop in a second, smaller, condensing unit. This would take the shoulder season load, and provide some limited back up during a winter failure.
2. We have installed Viessmann Vitodens in several locations including Sunset CC. The Vitodens is a compact condensing boiler that is relatively easy and cheap to install.
3. Scope would be to supply and install one Vitodens 200 WB2B-105 with pipework connecting to the existing stub outs already provided.

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(4) CITY OF VANCOUVER FACILITIES
PART F - SCOPE OF WORK

D. WEST END COMMUNITY CENTRE

We have a pair of mid efficiency boilers in the roof top boiler room which are near the end of their life (1970's). Given the size of the building (it has been through the CCCAP programme) we will not be reconfiguring the HW system to run at condensing temperatures. There are some gas savings to be gained in upgrading the boilers to newer technology, and the Hillcrest Vitorond represents a good opportunity.

1. Remove one existing boiler, lower to ground, transport to salvage/scrap.
2. Transport (from Hillcrest) one Vitorond, lift to roof and install.
3. Modify pipework to suit Vitorond connections.
4. Modify/replace (as necessary) existing venting.
5. Commission.
6. Review controls system and optimise.



**FLORAL HALL
HEATING and VENTILATION SYSTEM**

**UPGRADE REPORT
-Preliminary Design-**

FOR



**Vancouver Board of
Parks and Recreation**

June 29, 2012

File No. 1209.00

J M BEAN & CO. LTD

Consulting Mechanical Engineers
201 – 1661 West 2nd Avenue, Vancouver, British Columbia V6J 1H3
Phone 604-736-6724 Facsimile 604-736-6726

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INTRODUCTION

The preparation of this report was authorized by Mr. Ian Harvey P.Eng. Supervisor of maintenance management; Manager of major maintenance at Real estate & Facilities management for Vancouver board of parks and recreation.

The purpose of this report is to review the existing mechanical systems currently in service at VanDusen Botanical garden Floral hall Administration Building and to submit recommendation for the replacement of the existing systems with new systems that meet current Industry standards [e.g. ASHRAE Ventilation for Acceptable Indoor Air Quality, Thermal comfort standards, O&M Standards].

DESCRIPTION OF EXISTING MECHANICAL SYSTEMS

[Refer to enclosed drawing MSK-1 of 7]

The Garden Hall was visited on March 7, 2012 to evaluate the existing mechanical systems. The description of the existing systems is based on observations made during the site visit and a review of available drawings.

Floral Hall, constructed in 1973, consists of 2 buildings; the Garden Pavilion and the Administration Building. The Administration Building heating and ventilation system consists of 9 gas fired furnaces, for 9 heating and ventilation zones. All existing equipment and associated ductwork and controls, have been in service for 40 years. Refer to enclosed drawing MSK-1 for existing furnace room layout.



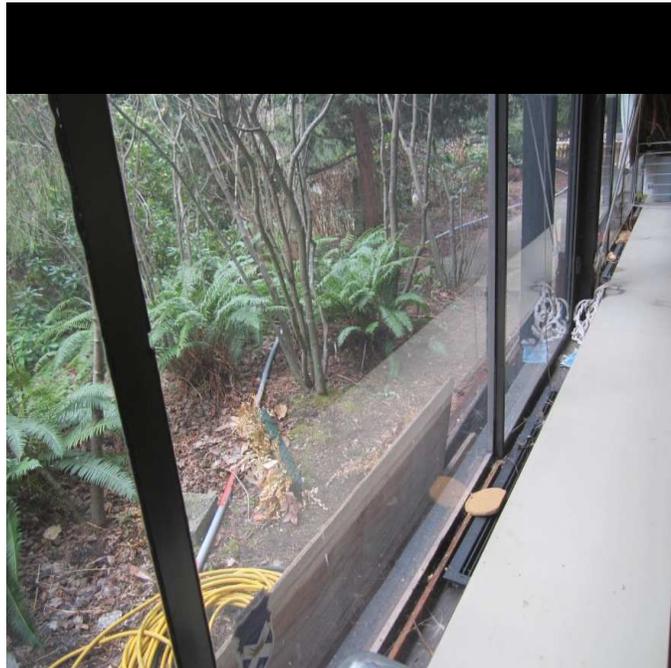
Existing Furnace Room

Existing Heating and Ventilation Zones
[gas fired furnaces]

Mark	Service
F-7E	Library + Lunch Room
F-8E	Cedar Room
F-9E	Administration + Entry
F-10E	Horticulture offices+ Administration
F-11/12E	Floral hall
F-13E	Lower Floor Work Area
F-14E	Lower Floor Volunteer lounge
F-15E	Floral Hall Entry Corridor



Electrical Panel



Supply air registers
[typical- window sill or floor mounted]

Existing system, operating parameters were tested and measured by WMS in April of 2012 and following are inserts from their report:

- Many supply air outlets are very dirty at and behind grilles.
- Some outlets could not be located as they were under furniture, crates etc,

System furnace F-7E – Serves the library and lunch room and its fan, runs only on a call for heat. When its fan is not running, it was noted that hot air from the burner gets pulled into the air intakes of the other furnaces [F- 10E, -13E, and -14E through the common intake plenum. This might be the reason that people complain of gas smells. It should be noted that this unit was found not running, and only ran for a short while when then thermostat was set up. We also noted that the fan shut off even when the “Fan On” switch at the thermostat was set to on. In addition the floor grilles in the lunch room are in poor condition.

System furnace F-10E – Serves the horticulture offices and part administration area. This unit has two outlets serving four areas between two walls. One wall divides a grille into two spaces (administration and one office), while another wall divides the other grille between two offices. It should be noted that the occupant of the large office at the end of this system, complains of being too cold, this office has only a 10x4 grille installed under a desk. This office appears to have been added to furnace F-10E after the original building was opened. In addition the other perimeter offices seem to overheat and it should be pointed out that they do not have door grilles installed, and do not appear to have any form of relief. The thermostat for this unit is located in the open air admin section.

RECOMMENDATIONS

It is the recommendation of this report that existing gas fired furnaces shall be replaced with hot water heating and ventilating system that will incorporate high efficiency gas fired condensing boilers to minimize energy consumption, greenhouse gas emissions, and operating costs.

A new heating plant will consist of high efficiency gas fired condensing boilers which will supply heating water to vertical fan coil units containing a filter section, fan section, hot water heating coil, and space provision for a future DX cooling coil. All air handling equipment will be located in the existing furnace room [refer to enclosed drawing MSK-2].

The existing supply and return ductwork, grilles and registers will be re-used unless damaged and in need of replacement. The ducts and grilles shall be cleaned prior to installation of new air handling equipment.

The fan coil units are selected to supply the same air volumes as the existing furnaces. The future cooling capacity will match the air volume capacity of the existing ducts. Refer to enclosed fan coil specifications and equipment schedule for performance details.

Two options were evaluated for **new heating plant**:

-**Option A** [refer to enclosed drawings M-4 and M-5]:

Gas fired, prefabricated, wall-mount multiple condensing boiler system equipped with the

combustion management system, stainless steel heat exchangers, low loss header and cascade system controller.

It should be noted that with this option existing storage room will need to be only partially converted into the new boiler room. About 50% of the existing storage space can be reused. This system [dwg MSK-4] will consist of low loss header with primary constant flow boiler loop and variable flow secondary loop. As an option to pressure controlled variable frequency drives on secondary pumps, differential pressure regulators can be used. Differential pressure regulators, installed between supply and return sides of a hydronic system, can stabilize pressure differential and reduce the effects of demand changes.

-Option B [refer to enclosed drawings M-6 and M-7]:

Gas fired, high mass, stainless steel heat exchanger condensing boiler system equipped with the cascade system controller.

No dedicated boiler pump required due to extremely low water pressure drop through heat exchanger and no low-loss header required. Differential pressure controlled variable flow pumping shall be implemented for this boiler system [MSK-6].

It should be noted that with this option existing storage room will need to be fully converted into the new boiler room.

Boiler flue vents and combustion air intake shall be provided for either option.



Existing Storage room
[Proposed new boiler room- refer to drawing MSK-5 and 7]

Temperature Control System

The replacement of all existing original controls with DDC system is recommended.

This report was prepared by J.M. Bean & Co. Ltd. for Vancouver Board of Parks and Recreation. The material in it reflects the best judgement of J.M. Bean & Co. Ltd. based upon the information available at the time of the report preparation. Any use which a third party makes of this report or any reliance on or decisions to be made based upon it, are the responsibility of such third party. J.M. Bean & Co. Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

Prepared by: Mladen Markovic, P.Eng.

FAN COILS

MODEL VFC – SECTION 15700 - VERTICAL FAN COIL UNITS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract, including general and supplementary conditions and Division 1 Specification Sections, apply to this section.

1.2 SUMMARY

- A. This section includes constant volume, vertical fan coil units for indoor installations.
B. Related Sections include the following:
1. Division 15 Section *Vibration Isolators* for vibration isolators not an integral part of vertical fan coil units specified in this section.

1.3 SUBMITTALS

- A. Product Data: For each type of vertical fan coil unit indicated, include the following:
1. Complete fan performance curves with system operating conditions indicated shall be tested in an AMCA Registered Chamber.
2. Fan sound power rating shall be tested in an AMCA Registered Chamber.
3. Certified coil performance ratings with system operating conditions indicated.
4. Motor ratings, electrical characteristics, and motor and fan accessories.
5. Material gages and finishes.
B. Field Quality Control Test Reports: From manufacturer.

1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain vertical fan coil units through one source from a single manufacturer.
B. Product Options: Drawings indicate size, profiles, and dimensional requirements of vertical fan coil units and are based on the specific system indicated. Refer to Division 1 Section "Product Requirements."
C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
D. NFPA Compliance: Vertical fan coil units and components shall be designed, fabricated, and installed in compliance with NFPA 90A. "Installation of Air Conditioning and Ventilating Systems."
E. Agency Certification: Vertical fan coil units and their components shall be factory tested in accordance with UL 1995 and shall be sent to ETL for testing.
F. Comply with NFPA 70.

1.5 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Filters: **(Two) <2>** set(s) for each vertical fan coil unit.
2. Fan Belts: **(Two) <2>** set(s) for each vertical fan coil unit.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the work include, but are not limited to, the following:
B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Greenheck or approved equal.

2.2 MANUFACTURED UNITS

- A. Vertical fan coil units shall be factory assembled and consist of fans, motor and drive assembly, coils, filters, stainless steel condensate pans, and accessories.

2.3 CABINET

- A. Materials: Formed double wall insulated panels, fabricated to allow removal for access to internal parts and components, with joints between sections gasketed.
1. Outside Casing: 18 gauge, galvanized steel (G90)
 2. Inside Casing: 18 gauge, galvanized steel (G90)
 3. Utility Lugs: For lifting unit and fastening to permanent structure, 8 gauge, galvanized steel (G90)
- B. Cabinet Insulation: Comply with NFPA 90A or NFPA 90B
1. Materials: Fiber glass insulation
 2. Thickness: 1 inch (25 mm)
 3. Density: 1-1/2 (**3**) pounds per cubic foot.
 4. Thermal Conductivity (k-Value): 0.26 at 75°F (0.037 at 24°C) mean temperature.
 5. Fire-Hazard Classification: Maximum flame spread index of 25 and smoke developed index of 50, when tested according to ASTM C 411.
 6. Location and Application: Encased between outside and inside casing.
- C. Access Panels: Same materials and finishes as cabinet complete with threaded screw fasteners and gaskets. Inspection and access panels shall be sized and located to allow periodic maintenance and inspections. Provide access panels in the following locations:
1. Fan Section: Inspection and access panels
 2. Coil Section: Inspection panel
 3. Filter Section: Inspection and access panels to allow periodic removal and installation of filters.
- D. Nameplate Mylar: Permanently affixed to cabinet. Include model, make, and serial number identification.

2.4 FAN SECTION

- A. Fan Section Construction: Belt driven centrifugal fans consisting of housing, wheel, fan shaft, bearings, motor drive assembly, and support structure and equipped with formed steel channel base for integral mounting of fan, motor, and casing panels. Mount fan with interior (~~neoprene~~) (**spring**) vibration isolation.
- B. Centrifugal Fan Housings: Formed and reinforced steel panels to make curved scroll housings with shaped cutoff, spun metal inlet bell, and access panels or doors to allow entry to internal parts and components.
1. Panel Bracing: Steel angle or channel iron member supports for mounting and supporting fan scroll, wheel, motor, and accessories.
 2. Horizontal Flanged Split Housing: Bolted construction.
 3. Drive Frame: Rail mounted, heavy gauge steel to allow frame to slide for easy belt tensioning.
- C. Fan Assemblies: Statically and dynamically balanced and designed for continuous operation at maximum rated fan speed and motor horsepower.
- D. Forward Curved Fan Wheels: Galvanized steel and/or aluminum/painted steel construction with inlet flange, backplate, and shallow blades with inlet and tip curved forward in direction of airflow and mechanically secured to flange and backplate; cast-steel hub swaged to backplate and fastened to shaft with set screws.
- E. Shafts: Statically and dynamically balanced and designed for continuous operation at maximum rated fan speed and motor horsepower, with final alignment and belt adjustment made after installation.

1. Turned, ground, and polished (**hot-rolled**) (**stainless**) steel with keyway. Ship with a protective coating of lubricating oil.
2. Designed to operate at no more than 70 percent of first critical speed at top of fan's speed range.
- F. Pre-lubricated and Sealed Shaft Bearings: Self-aligning, pillow block type ball bearings.
 1. Ball-Bearing Rating Life: ABMA 9, L₁₀ of 100,000 hours.
- G. Belt Drives: Factory mounted, with final alignment and belt adjustment made after installation and with 1.5 service factor based on fan motor.
 1. Pulleys: Mechanical cast iron with split, tapered bushing dynamically balanced at factory.
 2. Motor Pulleys: Adjustable pitch. Select pulley so pitch adjustment is at the middle of adjustment range at fan design conditions.
 3. Belts: Oil resistant, static free
 4. Motor Mount: Adjustable for belt tensioning
- H. Fan Section Source Quality Control:
 1. Factory test fan performance for flow rate, pressure, power, air density, rotation speed, and efficiency. Establish ratings according to AMCA 210, "Laboratory Methods of Testing Fans for Rating."
- I. Inlet/Outlet duct collars: Galvanized collars at each inlet and outlet of the unit. Flexible duct connection isolating discharge of scroll from discharge of fan.

2.5 MOTORS

- A. General: Comply with requirements in Division 15 Section *Motors*, matched with fan load.
- B. Noise Rating: Quiet
- C. Maximum Ambient Temperature Rating: 120°F (40°C) .

2.6 COILS

- A. Design and construct to facilitate removal and replacement of coil for maintenance and to ensure full airflow through coils.
 1. Water Coils: **Continuous circuit coil fabricated according to ARI 410**
 2. Piping Connections: Sweat
 3. Tubes: Copper, .016 inch tube thickness
 4. Fins: Aluminum, minimum of .005 inch thickness
 5. Fin and Tube Joint: Mechanical bond
 6. Headers: Seamless copper tube with brazed joints
 7. Frames: Galvanized steel channel frame
 8. Ratings: Design tested and rated according to ARI 410
 - a. Working Pressure Ratings: 250 psig (kPa), 300°F (°C)
 8. Source Quality Control: Test to 500 psig (kPa) underwater (2000 psig ultimate strength)

2.7 FILTER SECTION

- A. Filters: Comply with NFPA 90A
- B. Filter Section: Provide filter holding frames arranged for vertical orientations, with access panels on both sides of unit. Filters shall be removable from both sides.
- C. Extended Surface, Disposable Panel Filters: Factory fabricated, dry, extended surface filters with holding frames.
 1. Media: Fibrous material formed into deep-V shape. Provide **MERV-8 filters**.
 2. Media and Media Grid Frame: Non-Flammable cardboard.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions for compliance with requirements for installation tolerances and other conditions affecting performance.

- B. Examine roughing-in of hydronic piping systems and electrical services to verify actual locations of connections before installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

INSTALLATION

- A. Install vertical fan coil units with the following vibration control devices. Vibration control devices are specified in Division 15 Section "Mechanical Vibration and Seismic Controls."
 - 1. Units with Internally Isolated Fans: Secure units to anchor bolts installed in concrete bases. Mounting units on a neoprene pad will help prevent possible vibration.
- B. Arrange installation of units to provide access space around vertical fan coil units for service and maintenance.

3.2 CONNECTIONS

- A. Piping installation requirements are specified in other Division 15 Sections. Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Install piping adjacent to machine to allow service and maintenance.
- C. Connect piping to vertical fan coil units mounted on vibration isolators with flexible connectors.
- D. Connect condensate drain pans, to drainage piping. Extend to nearest equipment or floor drain. Construct deep trap at connection to drain pan and install cleanouts at changes in direction.
- E. Hot and Chilled Water Piping: Comply with applicable requirements in Division 15 Section "Hydronic Piping." Connect to supply and return coil tappings with shutoff or balancing valve and union or flange at each connection.
- F. Duct installation and connection requirements are specified in other Division 15 Sections. Drawings indicate general arrangement of ducts and duct accessories.
- G. Electrical: Comply with applicable requirements in Division 16 Sections for power wiring, switches, and motor controls.
- H. Ground equipment according to Division 16 Section "Grounding and Bonding."
- I. Tighten electrical connectors and terminals according to manufacturer's published torque tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

3.3 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory authorized service representative to inspect field assembled components and equipment installation, including piping and electrical connections. Report results in writing.
 - 1. Leak Test: After installation, fill water coils with water and test coils and connections for leaks. Repair leaks and retest until no leaks exist.
 - 2. Fan Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation. Remove malfunctioning units, replace with new units, and retest.

3.4 STARTUP SERVICE

- A. Engage a factory authorized service representative to perform startup service.
- B. Final checks before startup. Perform the following:
 - 1. Verify that unit is secure on mountings and supporting devices; and that connections to piping, ducts, and electrical systems are complete. Verify that proper thermal overload protection is installed in motors, starters, and disconnect switches.
 - 2. Perform cleaning and adjusting specified in this section.
 - 3. Disconnect fan drive from motor, verify proper motor rotation direction, and verify free fan wheel rotation and smooth bearing operations. Reconnect fan drive system, align belts and install belt guards.

4. Lubricate bearings, pulleys, belts, and other moving parts with factory recommended lubricants.
 5. Comb coil fins for parallel orientation.
 6. Install clean filters.
 7. Verify that manual and automatic volume control and fire and smoke dampers in connected duct systems are in fully open position.
- C. Starting procedures for vertical fan coil units include the following:
1. Energize motor, verify proper operation of motor, drive system, and fan wheel. Adjust fan to indicated rpm.
 2. Measure and record motor electrical values for voltage and amperage.

Refer to Division 15 Section "Testing, Adjusting, and Balancing" for low profile vertical fan coil system testing, adjusting and balancing.

3.5 CLEANING

- A. Clean vertical fan coil units internally, on completion of installation, according to manufacturer's written instructions. Clean fan interiors to remove foreign material and construction dirt and dust. Vacuum clean fan wheels, cabinets, and coils entering air face.
- B. After completing system installation and testing, adjusting, and balancing vertical fan coil and air distribution systems, clean filter housings and install new filters

3.6 DEMONSTRATION

- A. Engage a factory authorized service representative to train owner's maintenance personnel to adjust, operate, and maintain vertical fan coil units.

END OF SECTION 15700

FAN COIL UNITS										
Mark	FC-7		FC-8		FC-9		FC-10		FC-11/12	
Service	Library+Lunch Room		Cedar Room		Administration + Entry		Horticulture offices+ Administration		Floral hall	
Model	VFC-800		VFC-800		VFC-1600		VFC-800		VFC-3000	
Air Flow - L/s (cfm)	377.6	800	330.4	700	661	1,400	330.4	700	1322	2,800
ESP Pa [in.w.g.]	250	1	250	1	250	1	250	1	250	1
Fan rpm	2,638		2,467		1,604		2,467		1,167	
Fan motor Horsepower	1		3/4		1		3/4		2	
Heating:										
Capacity kW [MBH]	11.99	40.9	10.79	36.8	20.58	70.2	10.49	35.8	42.65	145.5
Entering air temp. °C [°F]	12.78	55	12.78	55	12.78	55	12.78	55	12.78	55
Leaving air temp. °C [°F]	38.89	102	39.44	103	38.33	101	38.89	102	39.44	103
Entering water temp. °C [°F]	48.89	120	48.89	120	48.89	120	48.89	120	48.89	120
Leaving water temp. °C [°F]	37.78	100	37.78	100	37.78	100	37.78	100	37.78	100
Water Flow - L/s (gpm)	0.26	4.10	0.23	3.70	0.45	7.10	0.23	3.70	0.93	14.70
Notes										

Mark	FC-13		FC-14		FC-15					
Service	Lower Floor Work Area		Lower Floor Volunteer lounge		Floral Hall Entry Corridor					
Model	VFC-1600		VFC-1600		VFC-1600					
Air Flow - L/s (cfm)	566.4	1,200	708	1,500	755.2	1,600				
ESP Pa [in.w.g.]	250	1	250	1	250	1				
Fan rpm	1,489		1,663		1,725					
Fan motor Horsepower	3/4		1.5		1.5					
Heating:										
Capacity kW [MBH]	18.29	62.4	21.69	74	22.74	77.6				
Entering air temp. °C [°F]	12.78	55	12.78	55	12.78	55				
Leaving air temp. °C [°F]	39.44	103	37.78	100	37.78	100				
Entering water temp. °C [°F]	48.89	120	48.89	120	48.89	120				
Leaving water temp. °C [°F]	37.78	100	37.78	100	37.78	100				
Water Flow - L/s (gpm)	0.40	6.30	0.47	7.50	0.49	7.80				
Notes										

Fan coils shall be as manufactured by GREENHECK Ltd. or approved equal.

Refer to specification for accessories not scheduled. Refer to drawings for installation details

Provide seismic restraint for fan coil units.

Static pressures noted are external to the unit. Fan total pressure to include all cabinet effects as well as an allowance of 75 Pa (0.30" w.g.) P.D. across filters. Motors to be sized so normal operating load is not more than 90% of rated motor capacity.

All units to be complete with 75mm (3") base rails.

Contractor to specify location of unit electrical enclosure when ordering.

Scheduled performance is based on:

Heating:

- Four (4) rows heating coil -12FPI.
- Entering water temperature as scheduled.
- Water temperature difference 11.11°C (20°F).
- Maximum water pressure drop 9 kPa [3 ft.].
- Maximum air pressure drop 40 Pa [0.15 in.].

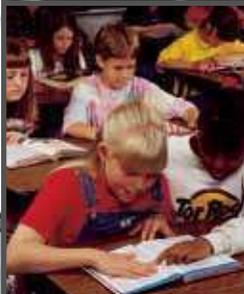
Fan coils with 1/3HP and smaller motors to be 120V/1ph/60Hz

Fan coils with 1/2HP and larger motors to be 208V/3ph/60H

Indoor Air Handling Units

IAH Series

MSCF-FC • MSCF-BI • LFC-FC • **VFC-FC** • VFCD-FC



 **GREENHECK**
Building Value in Air.

July
2011

Greenheck's Indoor Air Handling Series, models MSCF, LFC and VFC, provide air conditioning and/or heating for buildings and specific spaces. The series was designed with low-profile construction to fit within tight spaces in applications such as schools, office buildings, apartments, medical facilities and many other commercial applications. Each model has a variety of sizes and a wide performance range with quiet, trouble-free operation.

Modular Indoor Air Handler Model MSCF-FC Model MSCF-BI



Horizontal Fan Coil Model LFC-FC



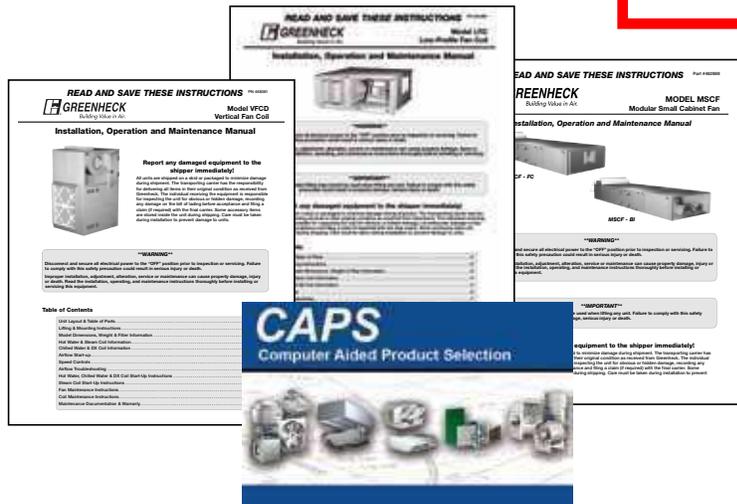
Vertical Fan Coil Model VFC-FC Model VFCD-FC



Modular construction allows the design engineer to configure a unit to meet their exact requirements. The modular construction also makes the MSCF ideal for retrofit applications. (See pages 5 thru 9 for more information.)

A horizontal fan coil unit is ideal for price sensitive applications. The LFC all-in-one construction, results in a shorter unit which is ideal for space constrained applications. (See pages 10 and 11 for more information.)

A vertical fan coil unit, all-in-one construction, is ideal for providing cooling and/or heating for applications requiring a small footprint. (See pages 12 thru 15 for more information.)



Enjoy Greenheck's extraordinary service, before, during and after the sale.

Greenheck offers added value to our wide selection of top performing, energy-efficient products by providing several unique Greenheck service programs.

- Our Quick Delivery Program ensures shipment of our in-stock products within 24 hours of placing your order. Our Quick Build made-to-order products can be produced in 1-3-5-10- or 15-day production cycles, depending upon their complexity.
- Greenheck's free Computer Aided Product Selection program (CAPS), rated by many as the best in the industry, helps you conveniently and efficiently select the right products for the challenge at hand.
- Greenheck has been Green for a long time! Our energy-saving products and ongoing corporate commitment to sustainability can help you qualify for LEED credits.
- Our 3D service allows you to download, at no charge, easy-to-use AutoDesk™ Revit™ 3D drawings for many of our ventilation products.

Find out more about these special Greenheck services at greenheck.com

Standard Features and Benefits

Greenheck's Indoor Air Handling products have been designed with superior quality and come standard with premium features that make it ideal for any installation.



Low-Profile — Every model has been designed as a space saving alternative to other products on the market. The height of each unit will be 4 to 8 inches less than any competitor model.



Side Access Panels — Units are constructed with easily removable access panels. Panels are formed and positioned on both sides of every module or unit to provide extra rigidity and help maintain cabinet pressure.



One-Inch Double-Wall — Double-wall construction on all units provides excellent indoor air quality as well as improved radiated sound characteristics over traditional single wall and exposed insulation models.

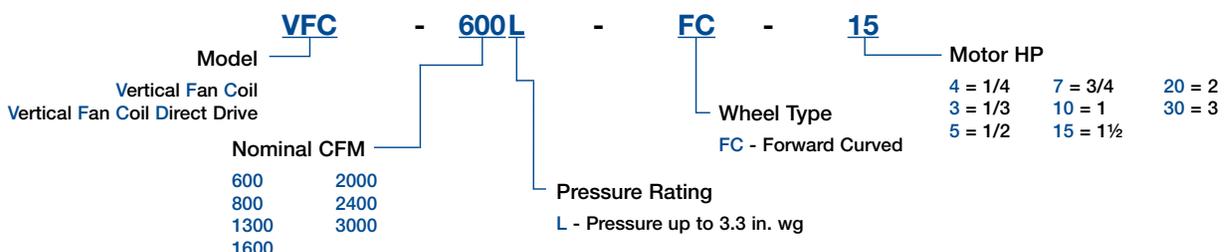
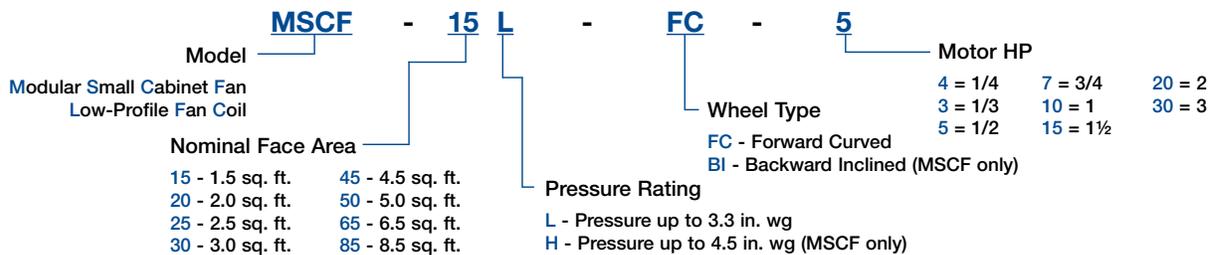


Internal Isolation — Internal neoprene isolation and flexible blower to housing connection is standard on every unit. This isolation improves longevity of the unit and reduces the potential of noise and vibration generated from fan vibration that could be transmitted to the attaching ductwork. Internal spring isolation is also available on all VFC sizes and on MSCF and LFC sizes 20 thru 85.



Drain Pan — The double-wall constructed insulated stainless steel drain pan utilizes a double pitch slope directing condensation to a main or auxiliary drain connection. The pan improves indoor air quality by preventing the growth of mold and bacteria. The drain pan removes easily for coil cleaning.

Model Number Code(s)



Standard Construction

Model VFC (Vertical Fan Coil) is a vertical, low cost, forward-curved fan coil unit available in seven sizes. Up to 8 rows of heating and cooling coils for sizes 600-800 and up to 10 rows for sizes 1300-3000 are available.

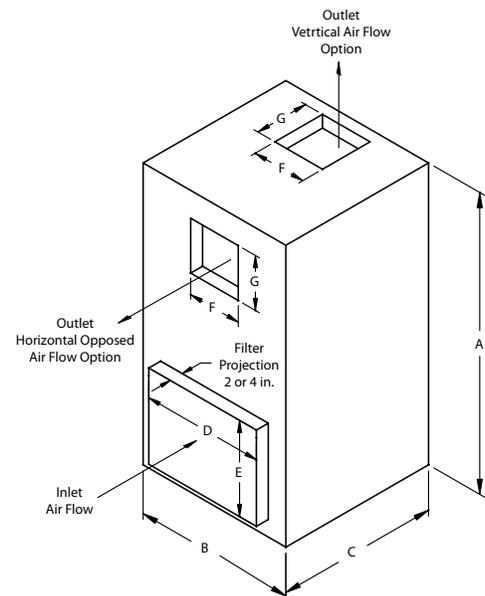


- Performance range 300 - 4,000 cfm at 3.5 in. wg
- 1-inch double-wall construction
- Internal isolation (neoprene or spring)
- Internal flex connection
- Side access panels (standard on all models)
- Hinged access to blower
- Pre-filter (vertical)
- Heating coils (hot water or steam)
- Cooling coils (chilled water or direct expansion)
- Stainless steel drain pan (insulated double wall)

Dimensional Data

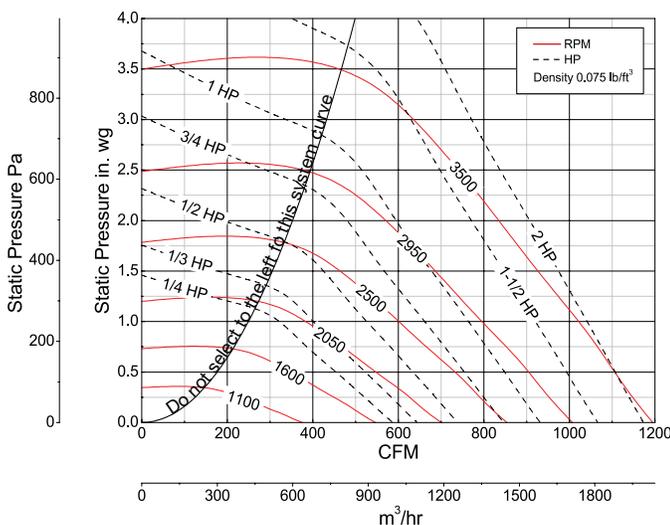
Unit Size	A	B	C	Inlet		Outlet	
				D	E	F	G
600	40	24	24	18	22	6¾	4
800	40	24	24	18	22	6¾	6½
1300	44	24	28	18	22	8½	8
1600	44	30	28	22	22	9	9
2000	52	34	28	29	23	10	9
2400	52	34	28	29	23	10¼	10
3000	52	50	32	45	22	12¾	12

All dimensions are in inches. For complete dimensional information, see CAPS submittal drawings.

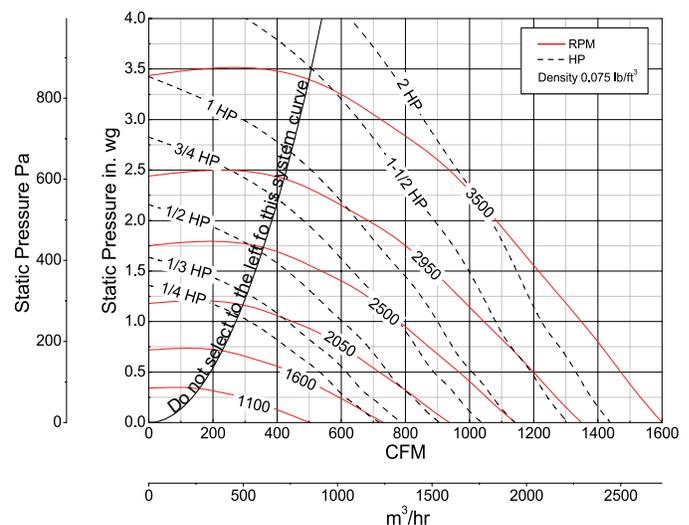


Performance

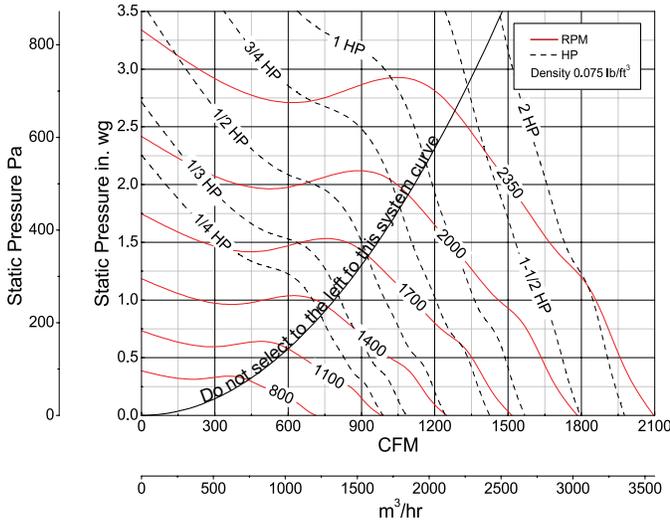
VFC-600L-FC



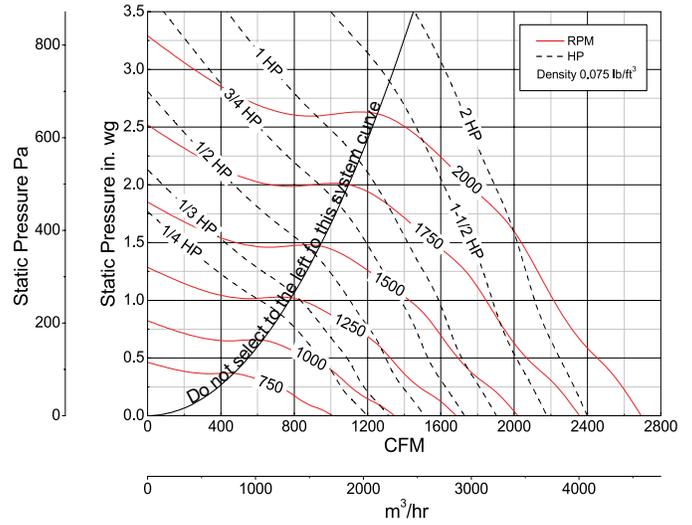
VFC-800L-FC



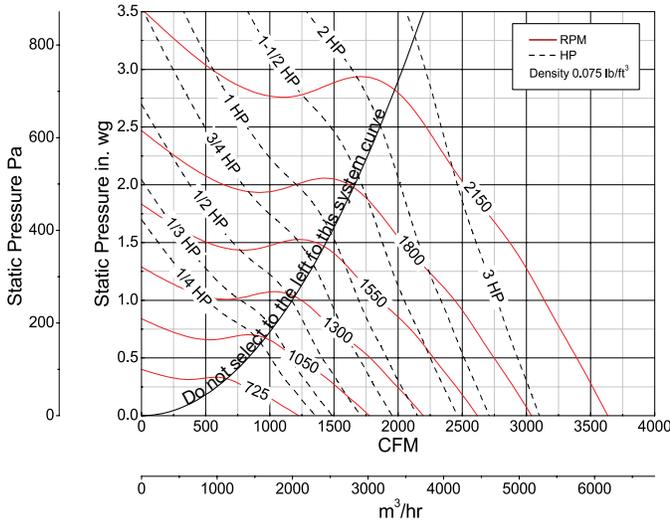
VFC-1300L-FC



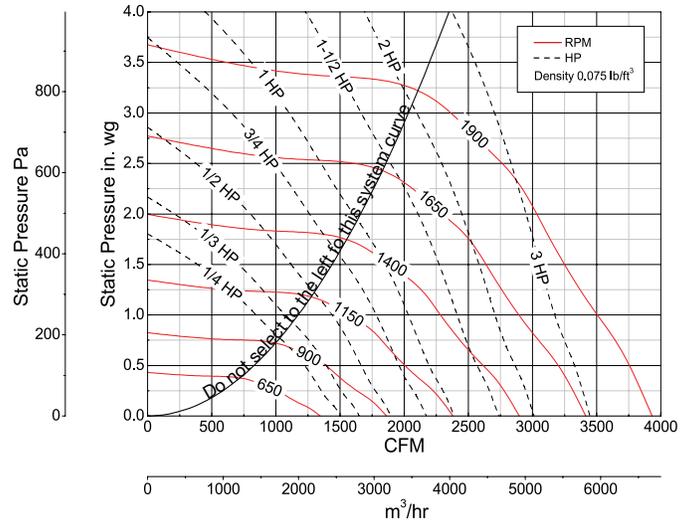
VFC-1600L-FC



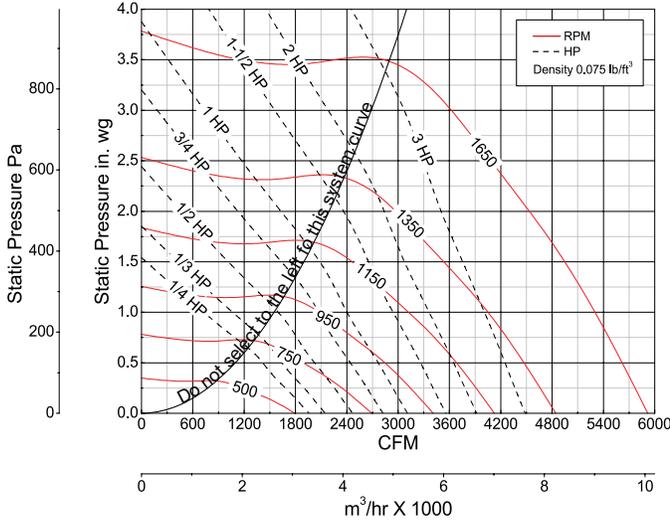
VFC-2000L-FC



VFC-2400L-FC



VFC-3000L-FC



Product Characteristic Comparison

Model	MSCF	LFC	VFC/VFCD
Drive	Belt	Belt	Belt, Direct
Fan Type	FC, BI	FC	FC
Typical Application	Space Constrained	Space Constrained	Small Footprint
Cabinet Design	Horizontal	Horizontal	Vertical
Cabinet Material	Galvanized 18 ga	Galvanized 18 ga	Galvanized 18 ga
Normal SP Range	0 - 4.5 in. wg	0 - 3.5 in. wg	0 - 3.3 in. wg
Filters	30%, 65%, 95%	30%, 65%	30%, 65%
Insulation Density	1.5 lb., 3 lb.	1.5 lb., 3 lb.	1.5 lb., 3 lb.
Construction	Double Wall	Double Wall	Double Wall
Ducted/Unducted	Ducted	Ducted	Ducted
Nominal cfm Range	800 - 4,700	800 - 4,700	600 - 4,000
Heating/Cooling	Either, Both	Either, Both	Either, Both
Mounting Brackets	Hanging, Base	Hanging, Base	6 in. Extended Base
Disconnect Switch	NEMA-1 Control Center	NEMA-1 Control Center	NEMA-1 Control Center
Pre/Post Plenums	12, 24 inch	N/A	N/A
Mixing Box	Yes	Yes	No



Building Value in Air

Greenheck delivers value to mechanical engineers by helping them solve virtually any air quality challenges their clients face with a comprehensive selection of

top quality, innovative air-related equipment. We offer extra value to contractors by providing easy-to-install, competitively priced, reliable products that arrive on time.

And building owners and occupants value the energy efficiency, low maintenance and quiet dependable operation they experience long after the construction project ends.

Our Warranty

Greenheck warrants this equipment to be free from defects in material and workmanship for a period of one year from the shipment date. Any units or parts which prove defective during the warranty period will be replaced at our option when returned to our factory, transportation prepaid. Motors are warranted by the motor manufacturer for a period of one year. Should motors furnished by Greenheck prove defective during this period, they should be returned to the nearest authorized motor service station. Greenheck will not be responsible for any removal or installation costs.

As a result of our commitment to continuous improvement, Greenheck reserves the right to change specifications without notice.



Prepared to Support
Green Building Efforts



DESCRIPTION

Qty	Model
1	VFC-800-10

VFC vertical Fan Coil (Belt)

Tag 1A-800cfm -120-100WT

Standard Construction Features

- Vertical Construction • 18 Gauge Galvanized Steel Housing • 18 Gauge Double Wall Construction • Sealed and Bolted Access Panels on Both Sides of Unit • Corrosion Resistant Fasteners • Internal Flexible Connection between Scroll and Housing • Galvanized Steel Wheel • Motor and Drive Frame Mounted on Internal Isolators • Ball Bearing Motors • Fan Shaft Mounted in a Pillow Block Ball Bearing • Adjustable Motor Pulley • Fan Shaft Pulley • Static Free Belts • Tool Free Access is Standard on the Pre-Filter Module • Hinged Removable Access Door with Latches (Fan).

NOTE: When Heating and/or Cooling Coils are selected, a Stainless Steel, Double Sloped and Insulated Drain Pan is Standard.

Discharge	Approx. Total Weight (lb)	Elevation (ft)
Vertical	385	0

MOTOR SPECS FLA - Based on tables 150 or 148 of National Electrical Code 2002.

Hp.	RPM	V/C/P	Enclosure	FLA (A)
1	1725	208/60/3	ODP	4.6

HEATING

Heating Type	Heating Coil Model	Entering Dry Bulb (F)	Leaving Air (F)	Htg. Output (MBH)
Hot Water	HW12C0...	55	102	40.9

Module Order:

- Pre-Filter
- Heating
- Fan

SELECTED OPTIONS & ACCESSORIES

- Drive Right, Spring Iso., Vertical Dis., Steel Shaft
- Heating Coil Conn. on Right Side Viewing Inlet
- Grip Notched Belts
- Class B Motor Insulation or Greater
- 1.5 Insulation Density
- Discharge Position Vertical
- ETL Listing in Compliance with UL/cUL-1995
- CSA Labeled Motor
- Spare Belt(s) Attached to Unit
- Pre, Vertical Arr., Pleated Filtr., 30% (MERV 8), 2 in, w/Spare Set
- 6" Extended Base
- Control Center w/Disconnect, 24v Transformer & Term. Strip, Shipped...
- VFD Rated Motor, Meets NEMA MG-1 Standard, S.F. is 1.0
- NEMA Premium Efficient Motor - meets NEMA Table 12-12
- Two Groove Pulley and Belt System
- Motor w/ Thermal Overloads

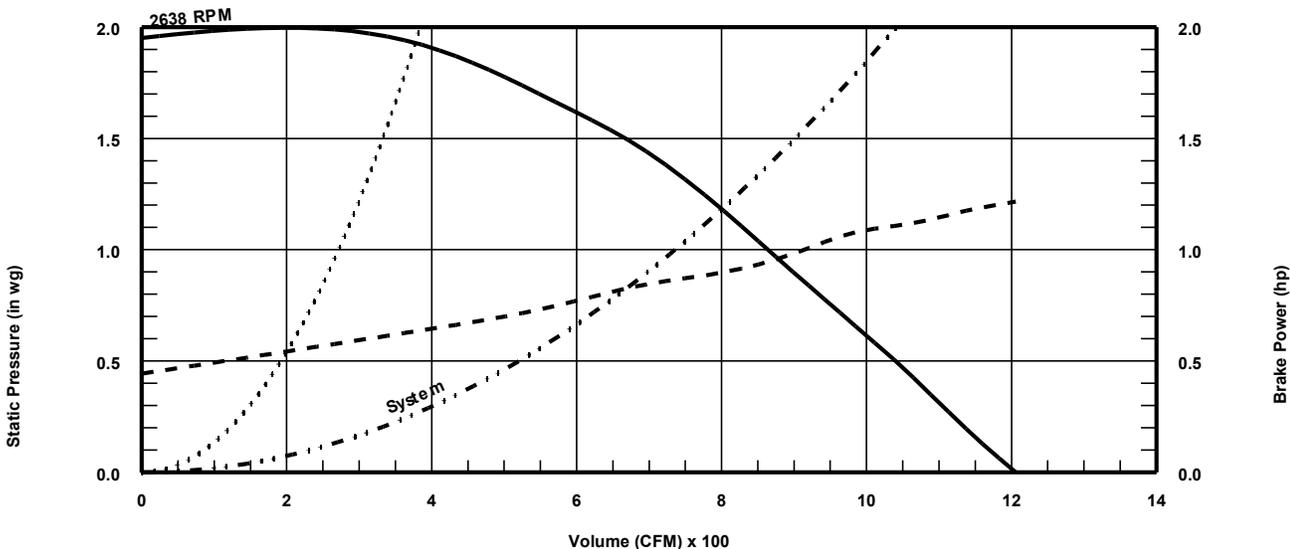
PERFORMANCE

Volume (CFM)	Total SP (in wg)	Ext. SP~ (in wg)	Inter. SP (in wg)	Power (hp)	FRP M (RP...)	Pre Filter Face Velocity (ft/min)
800	1.182	1	0.182	0.9	2,638	296

SOUND

Inlet / Outlet Sound Power by Octave Band								LwA	dBA
63	125	250	500	1000	2000	4000	8000		
82	84	77	73	69	68	69	69	77	66
88	92	86	79	76	70	68	66	83	72
Radiated Sound Levels									
72	64	62	55	46	40	36	39	57	46

All sound data is based on three-phase motors. Three-phase motors are recommended for sound-sensitive applications to avoid potential single-phase motor hum.

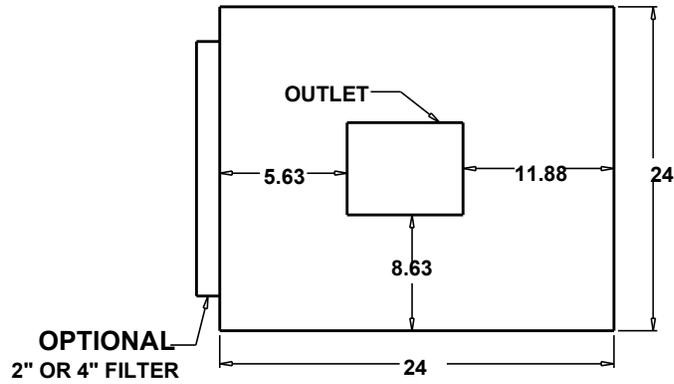


——— RPM Curve
 - - - System Curve
 . . . Brake Power Curve
 Do not select to the left of this surge curve

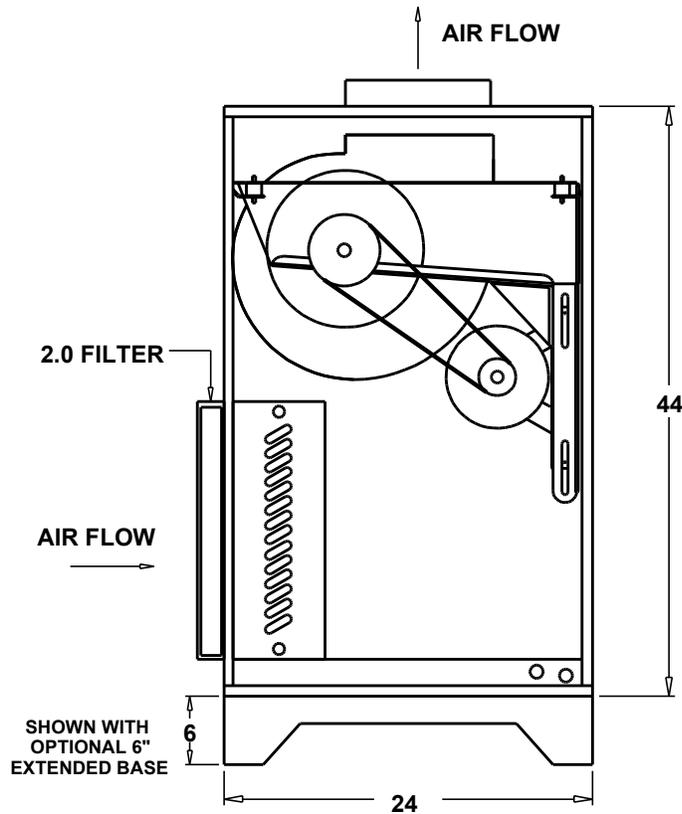
VFC Vertical Fan Coil (Belt)

VFC-800-10

NOTES: All dimensions shown are in units of inches.



PLAN VIEW

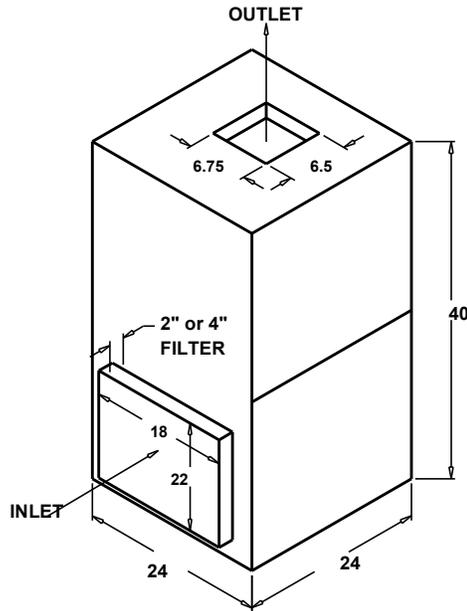


ELEVATION VIEW

VFC Vertical Fan Coil (Belt)

VFC-800-10

NOTES: All dimensions shown are in units of inches.



INLET / OUTLET VIEW

Heating Coil

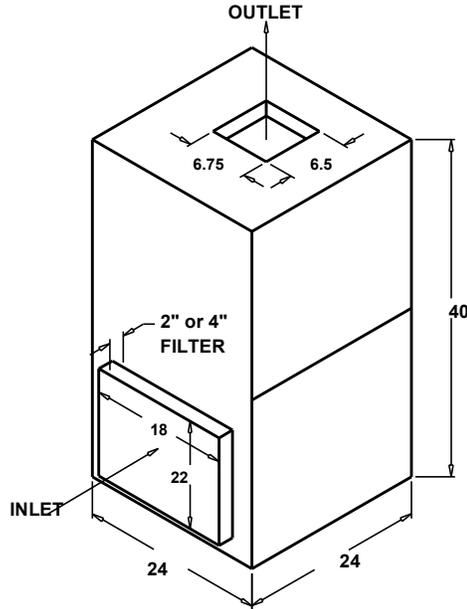
Heating Type	Hot Water
Heating Coil Model:	HW12C04H12-22.5x17
Rows~Deep:	4
Circuit:	Half
Fins Per Inch:	12
Volume (CFM):	800
Face Velocity (ft/min):	301
Energy (MBH):	40.9
Entering Dry Bulb (F):	55
Leaving Air (F):	102
Heat Coil~SP~ (in wg):	0.105
Entering Fluid (F):	120
Leaving~Fluid~ (F):	100
Fluid Type:	Water
Glycol (%):	
Fluid Flow (GPM):	4.1
Fluid PD~ (ft wg):	1.2
Heating Coil Conn.:	Right Side
Supply Connection (in):	0.875
Return Connection (in):	0.875

COIL SPECIFICATIONS

VFC Vertical Fan Coil (Belt)

VFC-800-10

NOTES: All dimensions shown are in units of inches.



INLET / OUTLET VIEW

Heating Coil

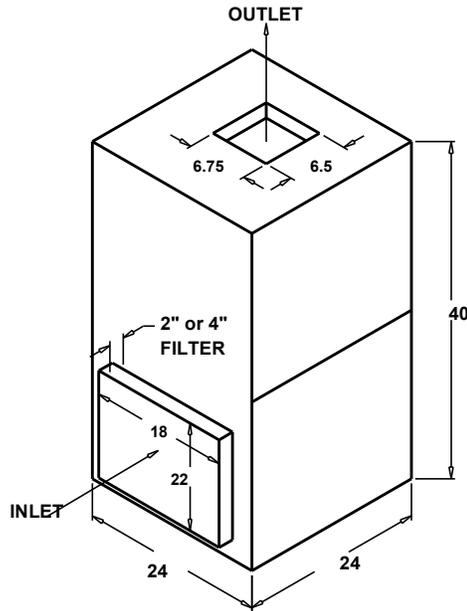
Heating Type	Hot Water
Heating Coil Model:	HW12C04H12-22.5x17
Rows~Deep:	4
Circuit:	Half
Fins Per Inch:	12
Volume (CFM):	800
Face Velocity (ft/min):	301
Energy (MBH):	54.0
Entering Dry Bulb (F):	55
Leaving Air (F):	117
Heat Coil~SP~ (in wg):	0.105
Entering Fluid (F):	140
Leaving~Fluid~ (F):	113
Fluid Type:	Water
Glycol (%):	
Fluid Flow (GPM):	4.1
Fluid PD~ (ft wg):	1.2
Heating Coil Conn.:	Right Side
Supply Connection (in):	0.875
Return Connection (in):	0.875

COIL SPECIFICATIONS

VFC Vertical Fan Coil (Belt)

VFC-800-10

NOTES: All dimensions shown are in units of inches.



INLET / OUTLET VIEW

Heating Coil

Heating Type	Hot Water
Heating Coil Model:	HW12C04H12-22.5x17
Rows~Deep:	4
Circuit:	Half
Fins Per Inch:	12
Volume (CFM):	800
Face Velocity (ft/min):	301
Energy (MBH):	67.3
Entering Dry Bulb (F):	55
Leaving Air (F):	133
Heat Coil~SP~ (in wg):	0.105
Entering Fluid (F):	160
Leaving~Fluid~ (F):	127
Fluid Type:	Water
Glycol (%):	
Fluid Flow (GPM):	4.1
Fluid PD~ (ft wg):	1.2
Heating Coil Conn.:	Right Side
Supply Connection (in):	0.875
Return Connection (in):	0.875

COIL SPECIFICATIONS

DESCRIPTION

Qty	Model
1	VFC-1600-10

VFC vertical Fan Coil (Belt)

Tag 2A-1400cfm-120-100WT

Standard Construction Features

- Vertical Construction • 18 Gauge Galvanized Steel Housing • 18 Gauge Double Wall Construction • Sealed and Bolted Access Panels on Both Sides of Unit • Corrosion Resistant Fasteners • Internal Flexible Connection between Scroll and Housing • Galvanized Steel Wheel • Motor and Drive Frame Mounted on Internal Isolators • Ball Bearing Motors • Fan Shaft Mounted in a Pillow Block Ball Bearing • Adjustable Motor Pulley • Fan Shaft Pulley • Static Free Belts • Tool Free Access is Standard on the Pre-Filter Module • Hinged Removable Access Door with Latches (Fan).

NOTE: When Heating and/or Cooling Coils are selected, a Stainless Steel, Double Sloped and Insulated Drain Pan is Standard.

Discharge	Approx. Total Weight (lb)	Elevation (ft)
Vertical	481	0

MOTOR SPECS FLA - Based on tables 150 or 148 of National Electrical Code 2002.

Hp.	RPM	V/C/P	Enclosure	FLA (A)
1	1725	208/60/3	ODP	4.6

HEATING

Heating Type	Heating Coil Model	Entering Dry Bulb (F)	Leaving Air (F)	Htg. Output (MBH)
Hot Water	HW12C0...	55	101	70.2

Module Order:

- Pre-Filter
- Heating
- Fan

SELECTED OPTIONS & ACCESSORIES

- Drive Right, Spring Iso., Vertical Dis., Steel Shaft
- Heating Coil Conn. on Right Side Viewing Inlet
- Grip Notched Belts
- Class B Motor Insulation or Greater
- 1.5 Insulation Density
- Discharge Position Vertical
- ETL Listing in Compliance with UL/cUL-1995
- CSA Labeled Motor
- Spare Belt(s) Attached to Unit
- Pre, Vertical Arr., Pleated Fitr., 30% (MERV 8), 2 in, w/Spare Set
- 6" Extended Base
- Control Center w/Disconnect, 24v Transformer & Term. Strip, Shipped...
- VFD Rated Motor, Meets NEMA MG-1 Standard, S.F. is 1.0
- NEMA Premium Efficient Motor - meets NEMA Table 12-12
- Bearings with Grease Fittings
- Two Groove Pulley and Belt System
- Motor w/ Thermal Overloads
- Extended Lub. Line for Back Side Bearing

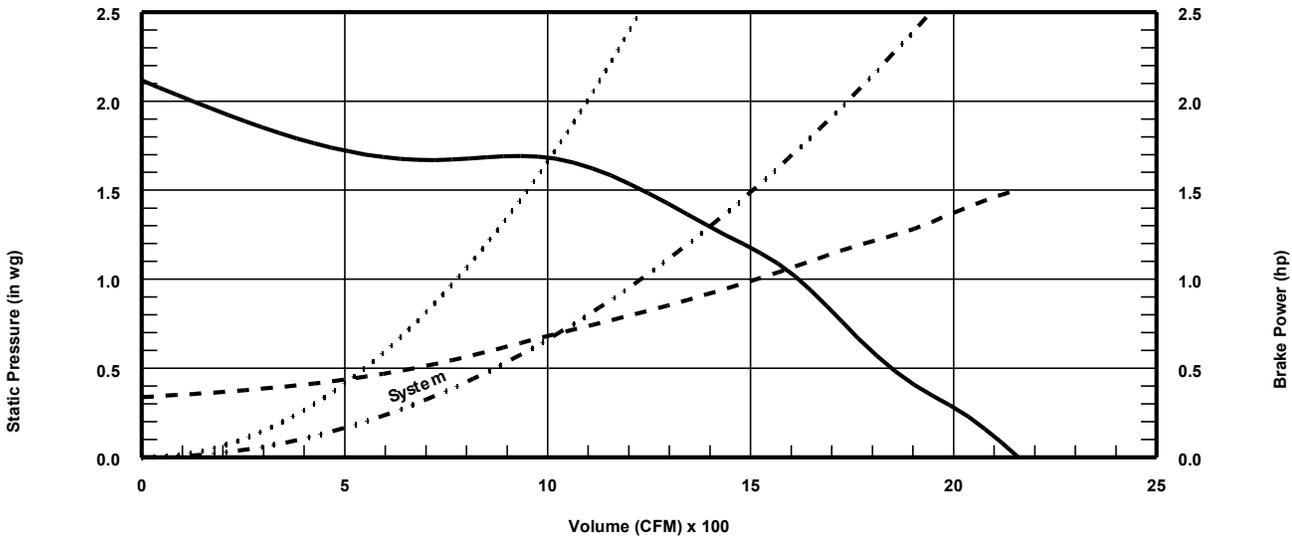
PERFORMANCE

Volume (CFM)	Total SP (in wg)	Ext. SP~ (in wg)	Inter. SP (in wg)	Power (hp)	FRP M (RP...)	Pre Filter Face Velocity (ft/min)
1,400	1.297	1	0.297	0.92	1,604	389

SOUND

Inlet / Outlet Sound Power by Octave Band								LwA	dBA
63	125	250	500	1000	2000	4000	8000		
87	79	75	71	69	70	72	68	77	66
93	89	81	79	73	71	69	65	81	70
Radiated Sound Levels									
77	59	60	53	46	42	39	38	56	45

All sound data is based on three-phase motors. Three-phase motors are recommended for sound-sensitive applications to avoid potential single-phase motor hum.

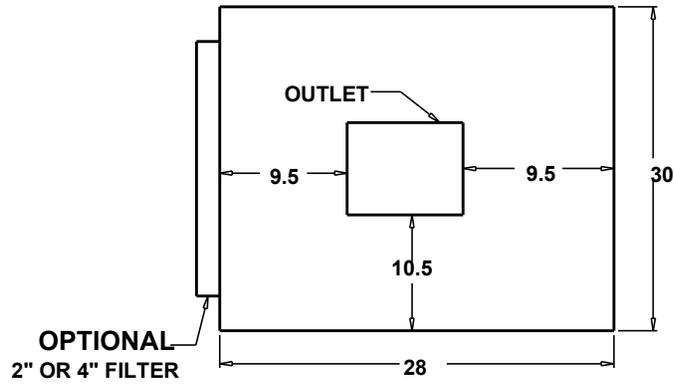


——— RPM Curve
 - - - System Curve
 . . . Brake Power Curve
 - · - · - Do not select to the left of this surge curve

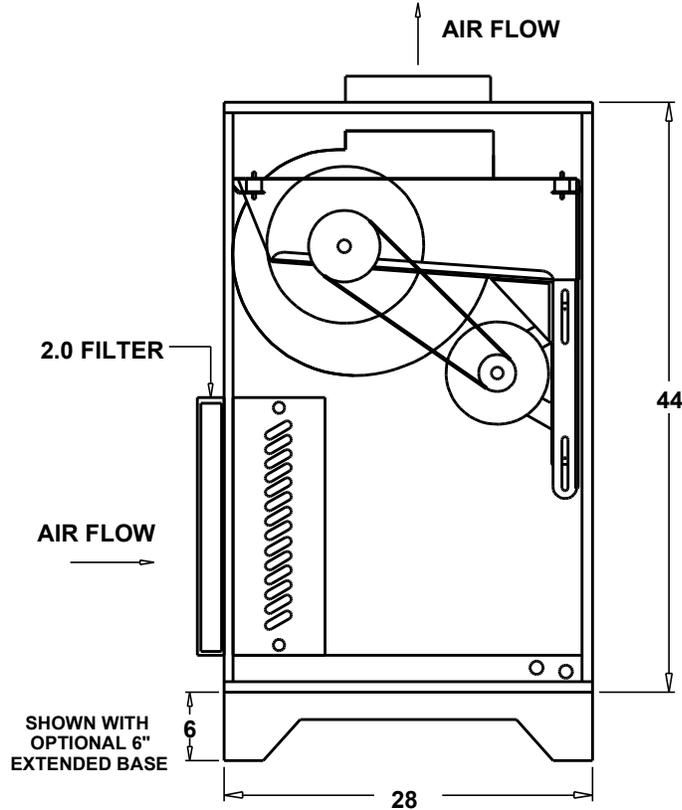
VFC Vertical Fan Coil (Belt)

VFC-1600-10

NOTES: All dimensions shown are in units of inches.



PLAN VIEW

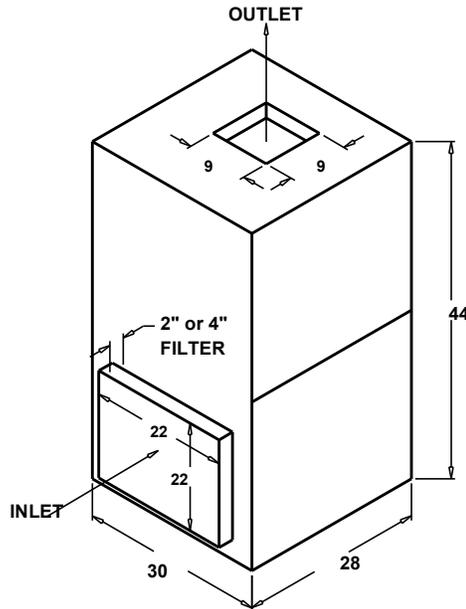


ELEVATION VIEW

VFC Vertical Fan Coil (Belt)

VFC-1600-10

NOTES: All dimensions shown are in units of inches.



INLET / OUTLET VIEW

Heating Coil

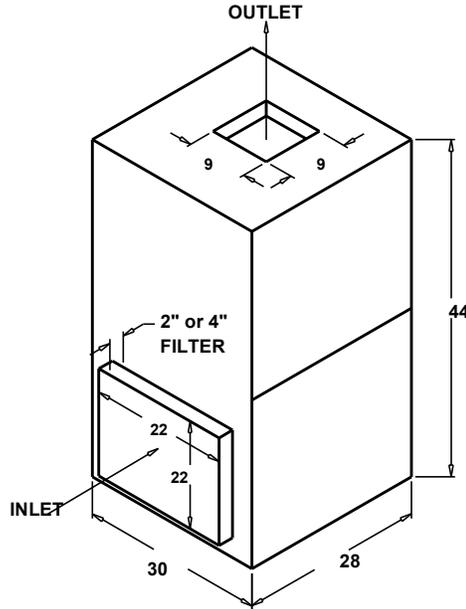
Heating Type	Hot Water
Heating Coil Model:	HW12C04H12-22.5x23
Rows~Deep:	4
Circuit:	Half
Fins Per Inch:	12
Volume (CFM):	1,400
Face Velocity (ft/min):	390
Energy (MBH):	70.2
Entering Dry Bulb (F):	55
Leaving Air (F):	101
Heat Coil~SP~ (in wg):	0.162
Entering Fluid (F):	120
Leaving~Fluid~ (F):	100
Fluid Type:	Water
Glycol (%):	
Fluid Flow (GPM):	7.1
Fluid PD~ (ft wg):	3.5
Heating Coil Conn.:	Right Side
Supply Connection (in):	0.875
Return Connection (in):	0.875

COIL SPECIFICATIONS

VFC Vertical Fan Coil (Belt)

VFC-1600-10

NOTES: All dimensions shown are in units of inches.



INLET / OUTLET VIEW

Heating Coil

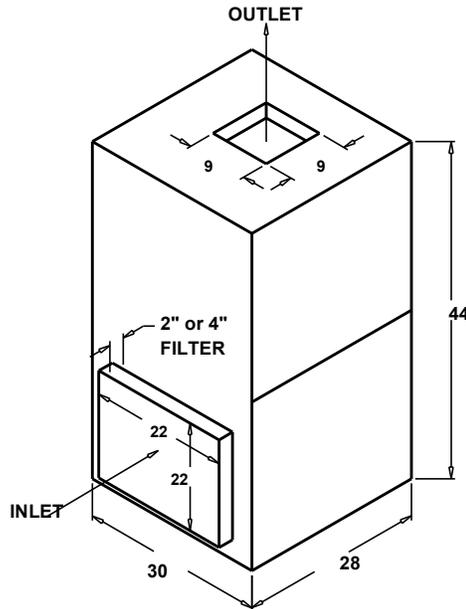
Heating Type	Hot Water
Heating Coil Model:	HW12C04H12-22.5x23
Rows~Deep:	4
Circuit:	Half
Fins Per Inch:	12
Volume (CFM):	1,400
Face Velocity (ft/min):	390
Energy (MBH):	92.7
Entering Dry Bulb (F):	55
Leaving Air (F):	116
Heat Coil~SP~ (in wg):	0.162
Entering Fluid (F):	140
Leaving~Fluid~ (F):	114
Fluid Type:	Water
Glycol (%):	
Fluid Flow (GPM):	7.1
Fluid PD~ (ft wg):	3.6
Heating Coil Conn.:	Right Side
Supply Connection (in):	0.875
Return Connection (in):	0.875

COIL SPECIFICATIONS

VFC Vertical Fan Coil (Belt)

VFC-1600-10

NOTES: All dimensions shown are in units of inches.



INLET / OUTLET VIEW

Heating Coil

Heating Type	Hot Water
Heating Coil Model:	HW12C04H12-22.5x23
Rows~Deep:	4
Circuit:	Half
Fins Per Inch:	12
Volume (CFM):	1,400
Face Velocity (ft/min):	390
Energy (MBH):	115.4
Entering Dry Bulb (F):	55
Leaving Air (F):	131
Heat Coil~SP~ (in wg):	0.162
Entering Fluid (F):	160
Leaving~Fluid~ (F):	127
Fluid Type:	Water
Glycol (%):	
Fluid Flow (GPM):	7.1
Fluid PD~ (ft wg):	3.6
Heating Coil Conn.:	Right Side
Supply Connection (in):	0.875
Return Connection (in):	0.875

COIL SPECIFICATIONS

DESCRIPTION

Qty	Model
1	VFC-3000-20

VFC vertical Fan Coil (Belt)

Tag 3A-2800cfm-120-100WT

Standard Construction Features

- Vertical Construction • 18 Gauge Galvanized Steel Housing • 18 Gauge Double Wall Construction • Sealed and Bolted Access Panels on Both Sides of Unit • Corrosion Resistant Fasteners • Internal Flexible Connection between Scroll and Housing • Galvanized Steel Wheel • Motor and Drive Frame Mounted on Internal Isolators • Ball Bearing Motors • Fan Shaft Mounted in a Pillow Block Ball Bearing • Adjustable Motor Pulley • Fan Shaft Pulley • Static Free Belts • Tool Free Access is Standard on the Pre-Filter Module • Hinged Removable Access Door with Latches (Fan).

NOTE: When Heating and/or Cooling Coils are selected, a Stainless Steel, Double Sloped and Insulated Drain Pan is Standard.

Discharge	Approx. Total Weight (lb)	Elevation (ft)
Vertical	657	0

MOTOR SPECS FLA - Based on tables 150 or 148 of National Electrical Code 2002.

Hp.	RPM	V/C/P	Enclosure	FLA (A)
2	1725	208/60/3	ODP	7.5

HEATING

Heating Type	Heating Coil Model	Entering Dry Bulb (F)	Leaving Air (F)	Htg. Output (MBH)
Hot Water	HW12C0...	55	103	145.5

Module Order:

- Pre-Filter
- Heating
- Fan

SELECTED OPTIONS & ACCESSORIES

- Drive Right, Spring Iso., Vertical Dis., Steel Shaft
- Heating Coil Conn. on Right Side Viewing Inlet
- Grip Notched Belts
- Class B Motor Insulation or Greater
- 1.5 Insulation Density
- Discharge Position Vertical
- ETL Listing in Compliance with UL/cUL-1995
- CSA Labeled Motor
- Spare Belt(s) Attached to Unit
- Pre, Vertical Arr., Pleated Filtr., 30% (MERV 8), 2 in, w/Spare Set
- 6" Extended Base
- Control Center w/Disconnect, 24v Transformer & Term. Strip, Shipped...
- VFD Rated Motor, Meets NEMA MG-1 Standard, S.F. is 1.0
- NEMA Premium Efficient Motor - meets NEMA Table 12-12
- Bearings with Grease Fittings
- Two Groove Pulley and Belt System
- Motor w/ Thermal Overloads
- Extended Lub. Life for Back Side Bearing

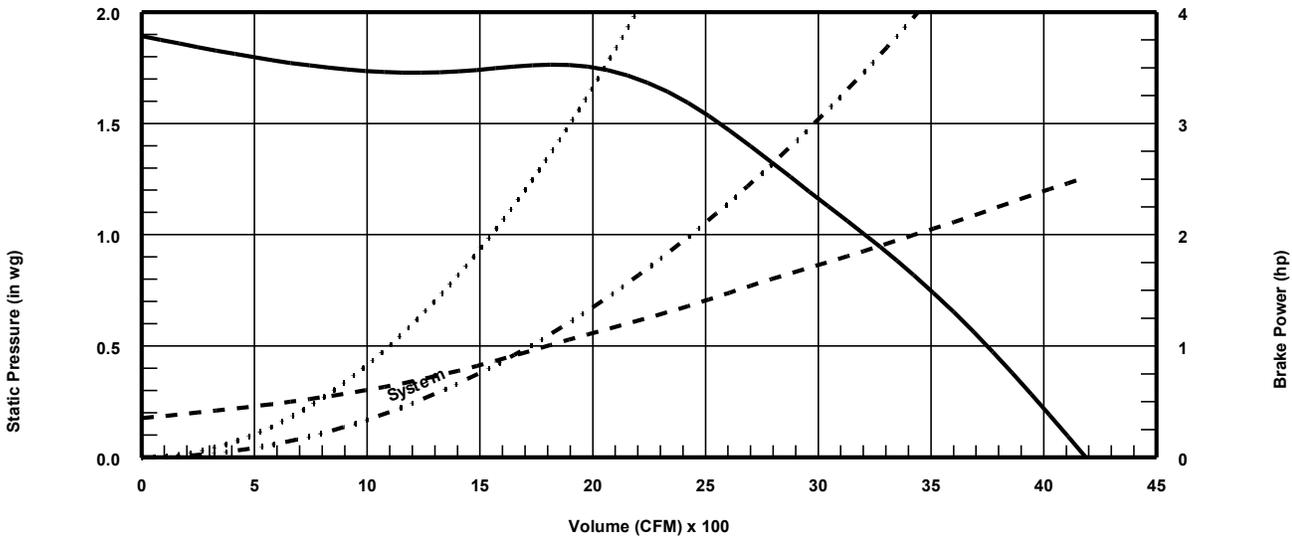
PERFORMANCE

Volume (CFM)	Total SP (in wg)	Ext. SP~ (in wg)	Inter. SP (in wg)	Power (hp)	FRP M (RP...)	Pre Filter Face Velocity (ft/min)
2,800	1.323	1	0.323	1.61	1,167	418

SOUND

Inlet / Outlet Sound Power by Octave Band								LwA	dBA
63	125	250	500	1000	2000	4000	8000		
71	74	69	67	67	65	63	58	72	61
84	83	74	68	65	62	59	54	72	61
Radiated Sound Levels									
61	54	54	49	44	37	30	28	50	39

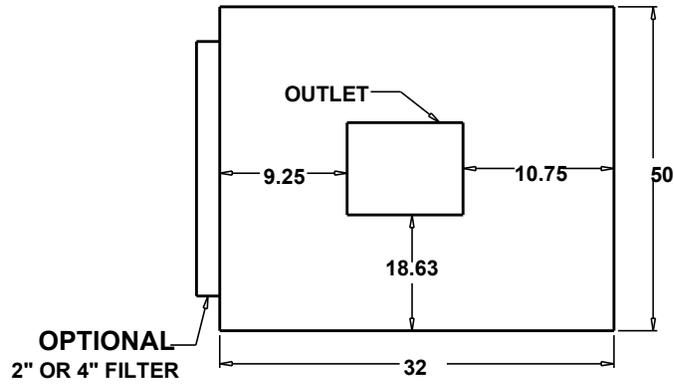
All sound data is based on three phase motors. Three phase motors are recommended for sound sensitive applications to avoid potential single-phase motor hum.



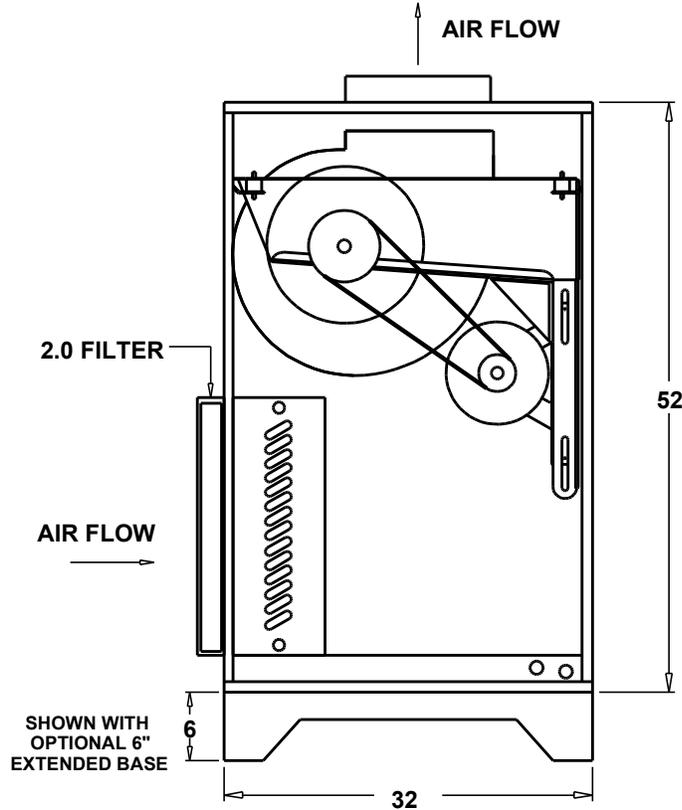
——— RPM Curve
 - - - System Curve
 . . . Brake Power Curve
 - . - . - Do not select to the left of this surge curve

VFC Vertical Fan Coil (Belt)
VFC-3000-20

NOTES: All dimensions shown are in units of inches.



PLAN VIEW

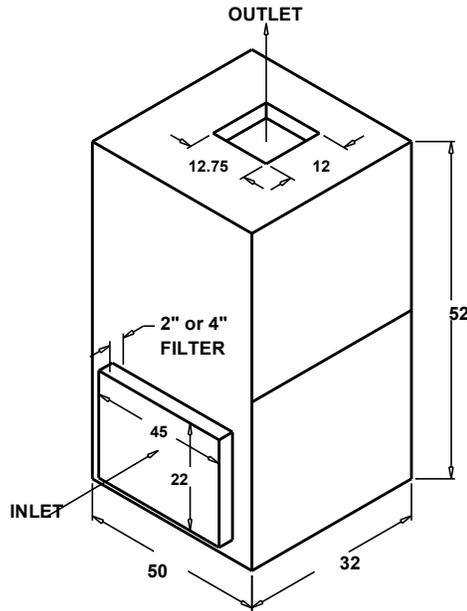


ELEVATION VIEW

VFC Vertical Fan Coil (Belt)

VFC-3000-20

NOTES: All dimensions shown are in units of inches.



INLET / OUTLET VIEW

Heating Coil

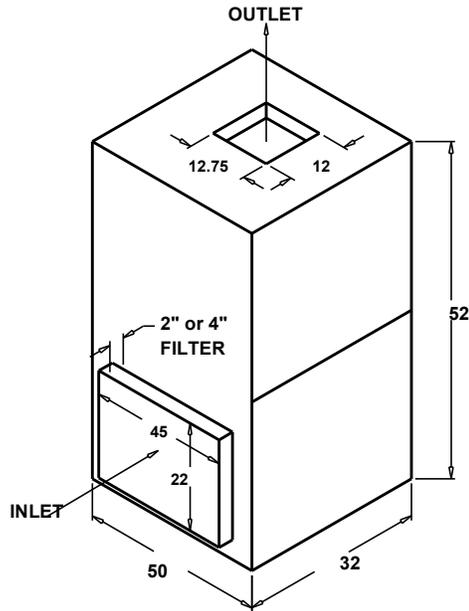
Heating Type	Hot Water
Heating Coil Model:	HW12C04H12-22.5x42.13
Rows~Deep:	4
Circuit:	Half
Fins Per Inch:	12
Volume (CFM):	2,800
Face Velocity (ft/min):	425
Energy (MBH):	145.5
Entering Dry Bulb (F):	55
Leaving Air (F):	103
Heat Coil~SP~ (in wg):	0.188
Entering Fluid (F):	120
Leaving~Fluid~ (F):	100
Fluid Type:	Water
Glycol (%):	
Fluid Flow (GPM):	14.7
Fluid PD~ (ft wg):	5.8
Heating Coil Conn.:	Right Side
Supply Connection (in):	1.375
Return Connection (in):	1.375

COIL SPECIFICATIONS

VFC Vertical Fan Coil (Belt)

VFC-3000-20

NOTES: All dimensions shown are in units of inches.



INLET / OUTLET VIEW

Heating Coil

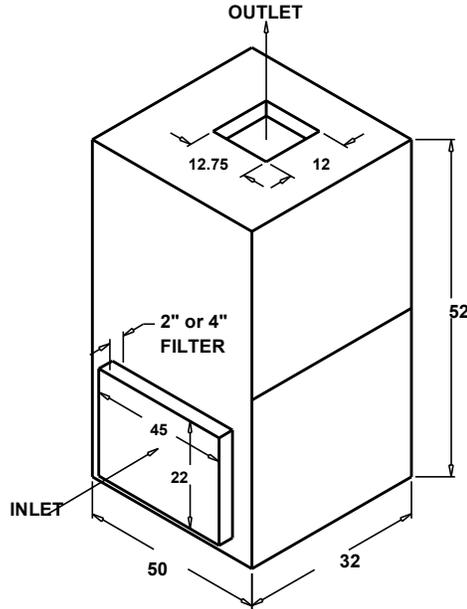
Heating Type	Hot Water
Heating Coil Model:	HW12C04H12-22.5x42.13
Rows~Deep:	4
Circuit:	Half
Fins Per Inch:	12
Volume (CFM):	2,800
Face Velocity (ft/min):	425
Energy (MBH):	191.4
Entering Dry Bulb (F):	55
Leaving Air (F):	118
Heat Coil~SP~ (in wg):	0.188
Entering Fluid (F):	140
Leaving~Fluid~ (F):	114
Fluid Type:	Water
Glycol (%):	
Fluid Flow (GPM):	14.7
Fluid PD~ (ft wg):	5.7
Heating Coil Conn.:	Right Side
Supply Connection (in):	1.375
Return Connection (in):	1.375

COIL SPECIFICATIONS

VFC Vertical Fan Coil (Belt)

VFC-3000-20

NOTES: All dimensions shown are in units of inches.



INLET / OUTLET VIEW

Heating Coil

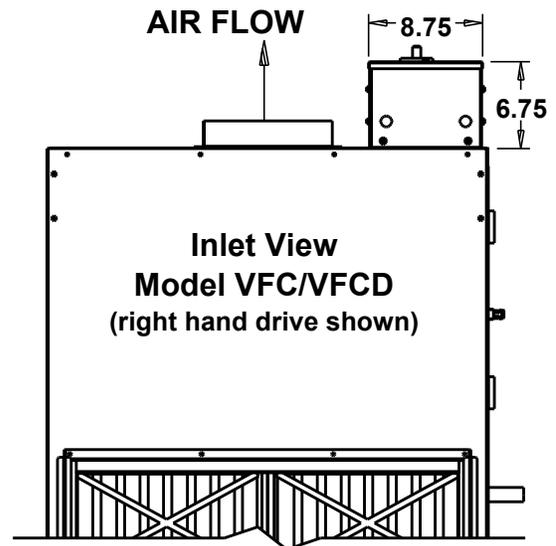
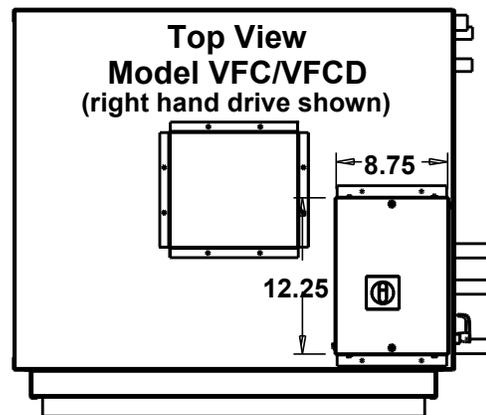
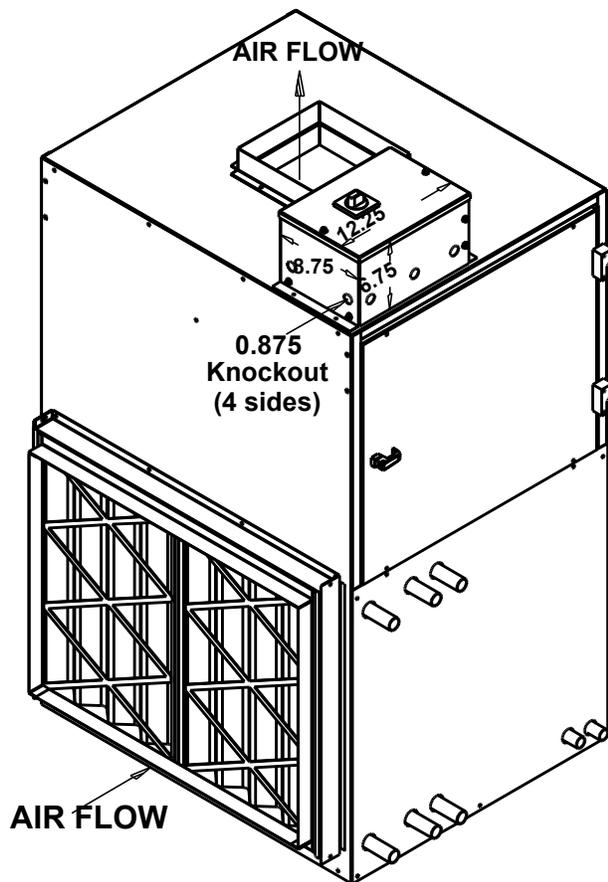
Heating Type	Hot Water
Heating Coil Model:	HW12C04H12-22.5x42.13
Rows~Deep:	4
Circuit:	Half
Fins Per Inch:	12
Volume (CFM):	2,800
Face Velocity (ft/min):	425
Energy (MBH):	237.4
Entering Dry Bulb (F):	55
Leaving Air (F):	133
Heat Coil~SP~ (in wg):	0.188
Entering Fluid (F):	160
Leaving~Fluid~ (F):	127
Fluid Type:	Water
Glycol (%):	
Fluid Flow (GPM):	14.7
Fluid PD~ (ft wg):	5.7
Heating Coil Conn.:	Right Side
Supply Connection (in):	1.375
Return Connection (in):	1.375

COIL SPECIFICATIONS

Control Center Model VFC

STANDARD CONSTRUCTION FEATURES

Motor Starter with 24VAC control. Designed for use with single speed motors. Includes interlocking door disconnect, adjustable electronic thermal overload, 24VAC transformer, terminal strip and NEMA 1 enclosure. This assembly is covered under the units UL1995 listing.



VFC/VFCD Filter Sizes

VFC / VFCD	Vertical			
	Filter Size	Qty.	Face Area	
600	20 x 24	1	2.7	
800	20 x 24	1	2.7	800 cfm
1300	20 x 24	1	2.7	
1600	24 x 24	1	3.6	1400 cfm
2000	16 x 25	2	4.7	
2400	16 x 25	2	4.7	
3000	24 x 24	2	6.7	2800 cfm

ALTERNATE FAN COIL

Features



FAN COILS & BLOWER COILS

BOILERS
Option "A"

3 x VITODENS 200 WB2B-105

Boiler Data



VITODENS 200-W

WB2B Series

**BOILERS
OPTION "A"**

1.0 Technical Data for WB2B-105

Natural gas / Propane

– CSA input ^{*A}	104 - 370 MBH	30 - 108 kW
– CSA output / DOE heating capacity ^{*1}	98 - 350 MBH	29 - 103 kW

Net I=B=R rating ^{*2}	304 MBH	
CSA thermal efficiency ANSI Z21.13/CSA 4.9	94.5 %	
Heat exchanger surface area	28.88 sq. ft.	2.68 sq. m

Min. gas supply pressure

Natural gas	4 "w.c.	996 Pa
Propane gas	10 "w.c.	2491 Pa

Max. gas supply pressure ^{*3}

Natural gas and propane	14 "w.c.	3487 Pa
-------------------------	----------	---------

Weight	225 lbs	102 kg
Boiler water content	3.4 USG	12.8 L
Boiler max. flow rate ^{*4}	35.2 GPM	8000 L/h
Max. operating pressure at 210 °F / 99 °C	60 psig	4 bar

Boiler water temperature

– Adjustable high limit (AHL) range		
– space heating (steady state)	68 to 176 °F	20 to 80 °C
– DHW production	176 °F	80 °C
– Fixed high limit (FHL)	210 °F	99 °C

Boiler connections

Boiler heating supply and return	1¼ inch	NPTM
Pressure relief valve	¾ inch	NPTF
Drain valve	¾ inch	Male thread
Boiler supply/return for indirect-fired DHW storage tank (field supplied)	1¼ inch	NPT
Gas valve connection	1 inch	NPTF
Condensate connection (hose/nozzle diameter) ^{*5}	1 inch	

Boiler flue gas connection (diameter) *6	4¾ inches	110 mm
Combustion air supply (coaxial outer diameter) *6	6 inches	150 mm

Dimensions

Overall depth	21 inches	530 mm
Overall width	19 inches	480 mm
Overall height	33½ inches	850 mm
Height with flue gas elbow (accessory) *9	47¼ inches	1200 mm

Flue gas *7

Temperature at boiler return temp. of 86°F / 30°C		
– At rated full load	104 °F	40 °C
– At rated partial load	95 °F	35 °C
Temperature at boiler return temp. of 140°F / 60°C		
	158 °F	70 °C

Average condensate flow rate with natural gas *8

– At supply/return temp. of 104/86°F (40/30°C)	9.5 - 10.5 USG/day	35 - 40 L/day
--	--------------------	---------------

Electrical ratings – main power supply

Voltage	120 VAC
Phase	Single phase
Frequency	60 Hz
Current	< 12 Amps

Notes:

- *1 Output based on 140°F / 60°C, 120°F / 49°C system supply/return temperature.
- *2 Net I=B=R rating based on piping and pick-up allowance of 1.15.
- *3 If the gas supply pressure exceeds the maximum gas supply pressure value, a separate gas pressure regulator must be installed upstream of the heating system.
- *4 See "Typical System Flow Rates" on page 11 of the Technical Data Manual.
- *5 Requires 1" / 25 mm tubing. See the Installation Instructions of the Vitodens 200-W, WB2B for details.
- *6 **For side wall vent installations (coaxial system):** Do **not** exceed max. equivalent length specified in the Installation Instructions of the Vitodens 200-W, WB2B Venting System. A **maximum** of 5 elbows may be installed in the vent system. Do **not** attempt to common-vent Vitodens 200-W with any other appliance. Venting material to be supplied by Viessmann **only**; side wall vent installation **must** include Viessmann protective screen!
- *7 Measured flue gas temperature with a combustion air temperature of 68°F / 20°C.
- *8 Based on typical boiler cycles, including partial load conditions.
- *9 Add 2½" / 65 mm for coaxial vent pipe transition adaptor.
- *A For high altitude installations (5,000 - 10,000 ft.), the input for model WB2B 105 will have an altitude de-ration of 14% for 5,000 ft. and 28% for 10,000 ft. (average of 2.8% / 1,000 ft.).

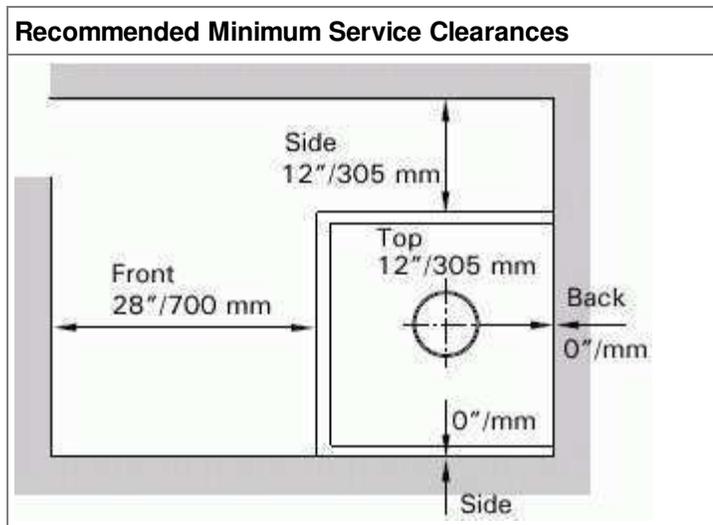
1.2 Minimum Clearances

Clearances to Combustibles	
Top	0" / 0 mm
Front	0" / 0 mm for alcove or closet installations
Rear	0" / 0 mm
Sides	0" / 0 mm
Vent pipe *1	0" / 0 mm

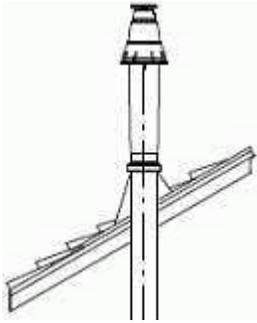
Notes:

*1 Refer to the Installation Instructions of the Vitodens 200-W WB2B Venting System for details.

The Vitodens 200-W boiler has passed the zero inches vent clearance to combustibles testing requirements dictated by the Harmonized Standard ANSI Z21.13, CSA 4.9.2000 and therefore is listed for zero clearance to combustibles when vented with a single wall special venting system (AL-29-4C material). The zero inches vent clearance to combustibles for the Vitodens 200-W boiler supercedes the clearance to combustibles listing that appears on the special venting system label.



Venting System Data



Vertical Coaxial Venting

Coaxial PPs Vent System

1.0 Product Description

Coaxial double-pipe vent system designed for Vitodens gas-fired condensing boilers. Constructed of an aluminum air intake pipe (on the outside), and a polypropylene flue gas exhaust pipe (on the inside).

There is no basic vent kit available for this vertical vent system. Select from the vertical vent components below as required to build your custom vent system.

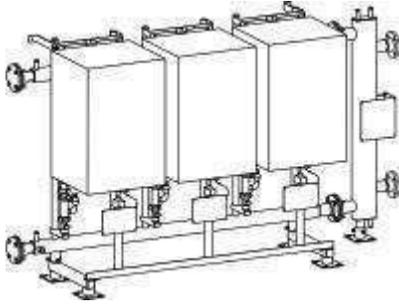
1.1 Technical Data for Model 100/150 Venting

Diameter of venting		
Outer pipe	6 inches	150 mm
Inner pipe	4 inches	100 mm
Clearance to combustibles		
	0 inches	0 mm
Max. temperature rating		
	230 °F	110 °C
Certifications – listed to		
	ULC S636	

1.2 Component Dimensional Drawings

Telescopic Extension Side Views		
	Dimensions	
	a	4" 100 mm
b	6" 150 mm	
c	0.4" 10 mm	
e	9.6" 245 mm	
f	1.2" 30 mm	
g	11" 280 mm to 15.5" 395 mm	

System Accessories Data



Multiple Boiler Low-Loss Distribution Manifold

1.0 Product Description

Prefabricated distribution manifold and low-loss header system that simplifies the mounting, plumbing and electrical connections of 2 to 4 Vitodens 200 WB2B boilers. The manifold decouples high flow rate systems from the boiler loop, and can be assembled with a Low-Loss Header on the left or right side. Manifolds are hydrostatically tested to 100 psig as well as checked for proper alignment.

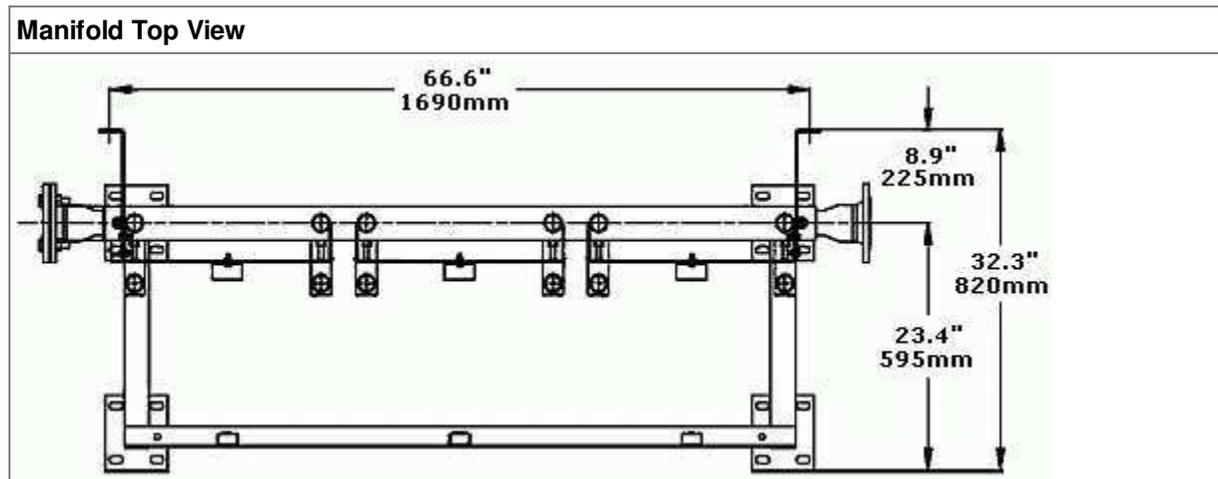
1.1 Technical Data for Model 250/150

Number of boilers that can be mounted	3 boilers	
Manifold flanges	3 inch ANSI	
System connections	4 inch ANSI	
Maximum flow rate	119 USG/min	27 cubic m/hr

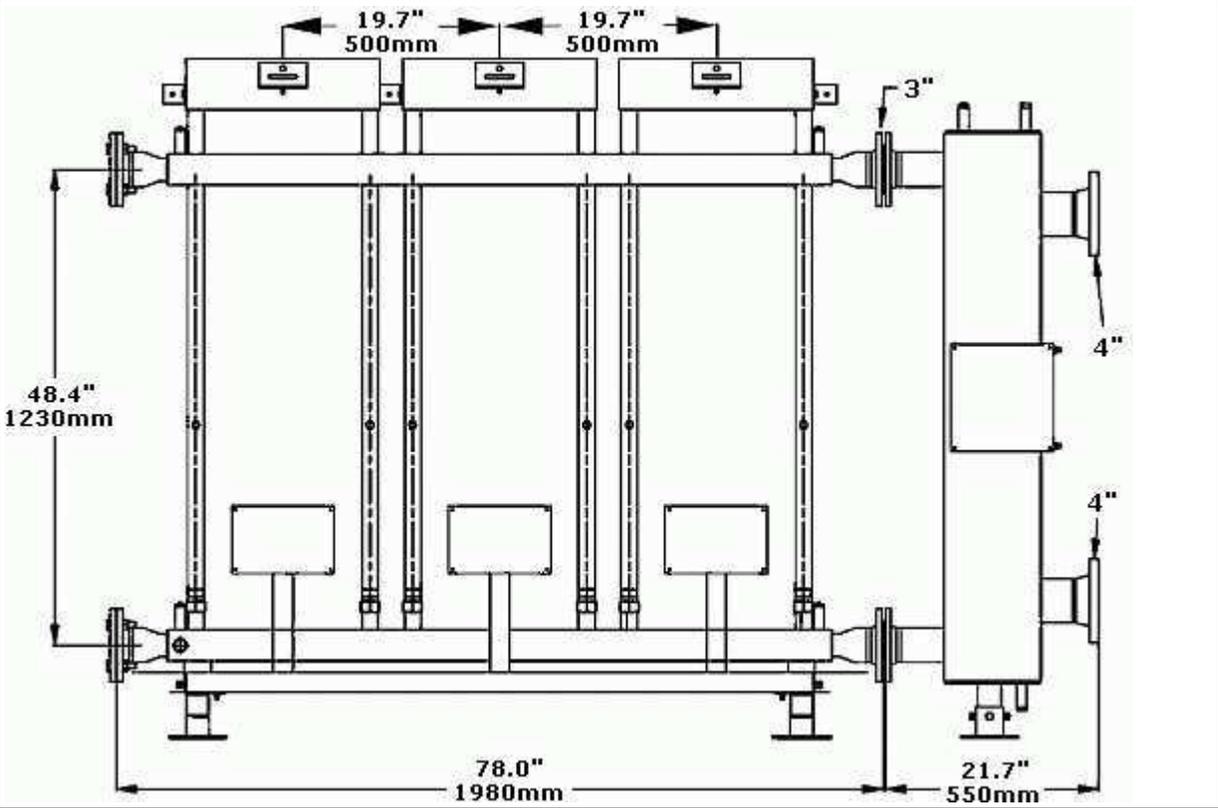
Dimensions (without insulation)

Total height	67 ³ / ₄ inches	1720 mm
Total width	100 ¹ / ₂ inches	2550 mm
Total depth	32 ¹ / ₄ inches	820 mm
Shipping weight	690 lbs	313 kg

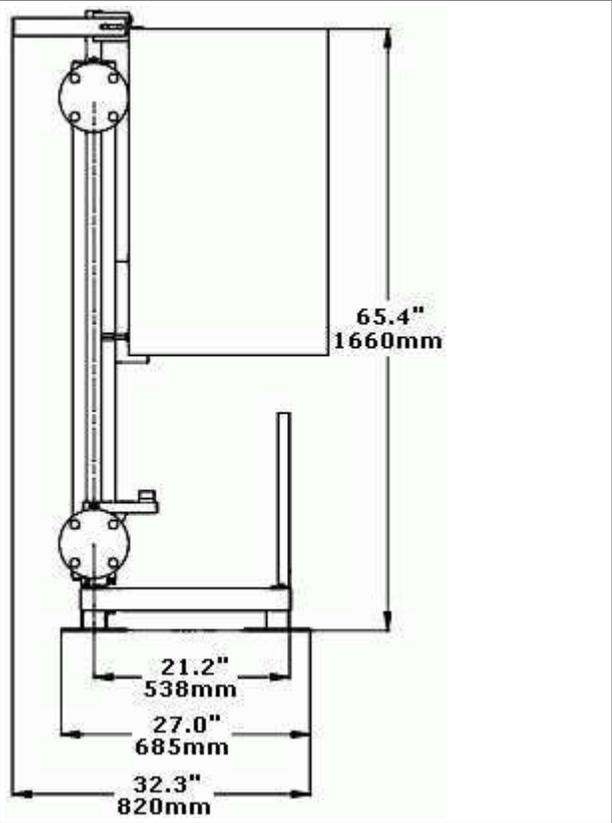
1.2 Dimensional Drawings



Manifold Front View



Manifold Side View



**BOILERS
OPTION "A"**

**BOILERS
Option "B"**

2x VITOCROSSAL 200 CM2BB

Gas Condensing Technology
VITOCROSSAL® 200, CM2

VIESSMANN®
climate of innovation®

**BOILERS
OPTION "B"**



New



The Vitocrossal 200, CM2 is EcoLogo certified. By choosing the Vitocrossal 200, CM2, you are helping to promote cleaner air and a healthier environment.

A practical approach to innovation

With its distinctive mix of proven Viessmann technology and innovative new features, the new Vitocrossal 200, CM2 takes a bold step forward while retaining the superior Viessmann quality you know and trust. The boiler combines unparalleled flexibility with maximum efficiency, making it your ideal choice for a new installation or economical retrofit in large residential or commercial applications.

Viessmann technology from top to bottom

A new, fully-modulating Viessmann pre-mix cylinder burner features a wide modulation input range of 5:1 turndown ratio to precisely match load and provide clean, quiet and environmentally friendly operation. The burner comes fully pre-assembled to simplify installation and commissioning.

The generous heat transfer surface area/heat input ratio of the SA240 316Ti stainless steel Inox-Crossal heat exchanger allows for maximum heat extraction while maintaining a

compact size. Its smooth, corrosion-resistant surface allows condensate to simply run off – a “self-cleaning” process that ensures continuous condensing efficiency, reduced maintenance costs and longer boiler service life.

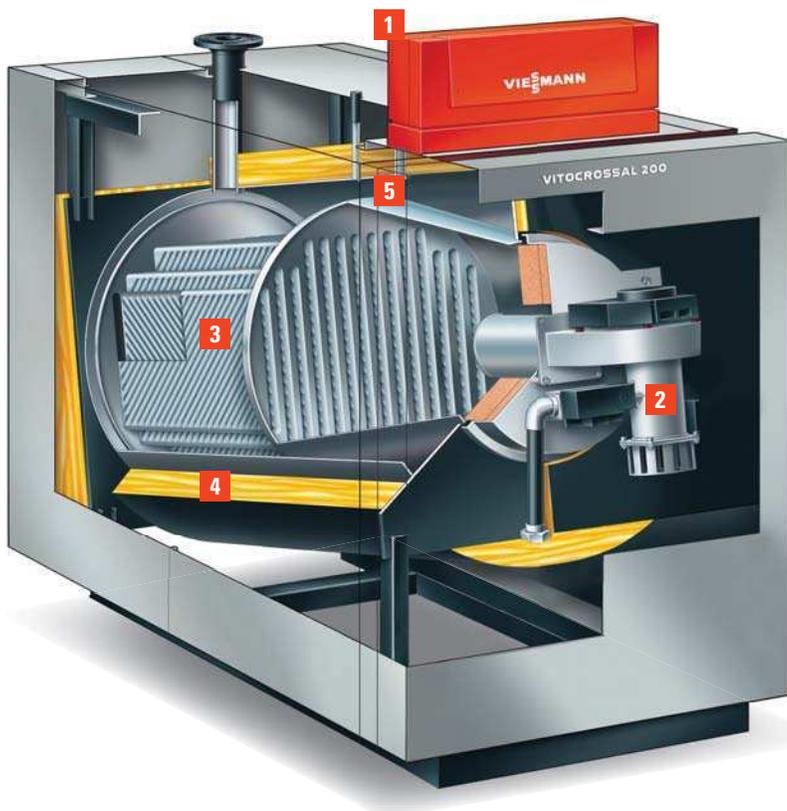
When combined with powerful Viessmann control technology, the fully-modulating burner and Inox-Crossal heat exchanger enable the Vitocrossal 200, CM2 to achieve outstanding efficiencies up to 94.6%[†] – delivering exceptional performance and reliability at an attractive price.

Progressive design features

The Vitocrossal 200, CM2 operates with low inlet gas pressure (NG) of only 4 inches of water column for compatibility with a greater range of supply pressures. Extremely low water pressure drop through the heat exchanger eliminates the need for a dedicated boiler pump and low-loss header, while the boiler’s large water content extends burner run time and reduces cycling.

A versatile solution

The Vitocrossal 200, CM2 offers a solution for almost every application. Multiple venting options (direct or chimney), fuel flexibility (NG/LPG/LNG) with simple electronic conversion and seamless integration into building control systems simplify retrofit projects and provide numerous possibilities for new installations. Available fully assembled or unassembled for maximum shipping and installation flexibility, it is easy to install, even in older buildings with narrow entrances (30-inch standard doorway clearance, unassembled) and small mechanical rooms. Suitable for high altitude operation up to 10,000 feet, the sky’s the limit for the Vitocrossal 200, CM2.



Product may not be exactly as shown.

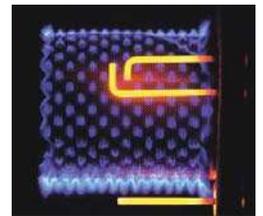
- 1 Vitotronic control unit
- 2 Fully-modulating pre-mix cylinder burner
- 3 Inox-Crossal heat exchanger surfaces
- 4 Highly effective thermal insulation
- 5 Wide water passageways with low pressure drop



Product may not be exactly as shown.



Stainless steel Inox-Crossal heat exchanger



Low-emission fully-modulating cylinder burner

Multiple-boiler systems

Up to four Vitocrossal 200, CM2 boilers can operate in a cascade configuration to precisely match load (inputs of 133 to 4448 MBH), maximize boiler plant efficiency and provide security against heating plant service interruption.

Harness the full potential of a Vitocrossal 200, CM2 cascade installation with the powerful Vitocontrol-S – an advanced digital boiler and system control with outdoor reset function to ensure reliable, efficient performance of the entire heating system. The Vitocontrol-S will modulate burners; stage and rotate boilers; and regulate boiler water temperature, common supply temperature and up to two heating circuits with mixing valves.

Specifications

- Efficiencies of up to 94.6%[†]
- Inputs from 663 to 1112 MBH (single)/663 to 4448 MBH (cascade)
- ASME CSD-1 compliant gas train
- Suitable for high altitude operation up to 10,000 ft.

Benefits at a glance

- Extremely low NOx emissions and quiet operation from new fully-modulating Viessmann pre-mix cylinder burner
- Wide modulation range of 5:1 turndown ratio precisely matches load
- Pre-assembled burner simplifies installation and commissioning
- Multiple venting possibilities with installed air intake kit for direct or chimney venting (PP(s) or stainless steel) up to 200 ft. of vent length
- Gas fuel flexibility (NG/LPG/LNG) with simple electronic conversion
- Low inlet gas pressure requirement (NG) as low as 4 inches of water column for compatibility with a range of supply pressures
- Large water content extends burner run time and reduces cycling
- No dedicated boiler pump required due to extremely low water pressure drop through heat exchanger – no low-loss header required
- Generous heat transfer surface area/heat input ratio of stainless steel heat exchanger maximizes heat extraction in compact size
- Seamless integration with building management systems
- Available fully assembled or unassembled for maximum shipping and installation flexibility

[†]Tested to ANSI Z21.13/CSA 4.9 standards with a return water temperature of 80 °F (27 °C) and supply water temperature of 180 °F (82 °C). Technical information subject to change without notice.

Viessmann Manufacturing
Company Inc.
Waterloo, ON Canada
1-800-387-7373
www.viessmann.ca

Viessmann Manufacturing
Company (U.S.) Inc.
Warwick, RI U.S.A.
1-800-288-0667
www.viessmann.us

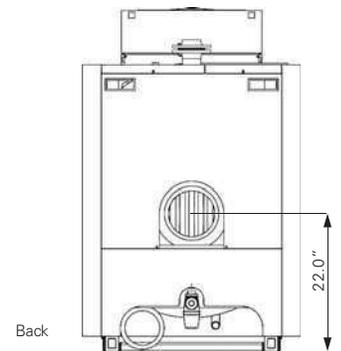
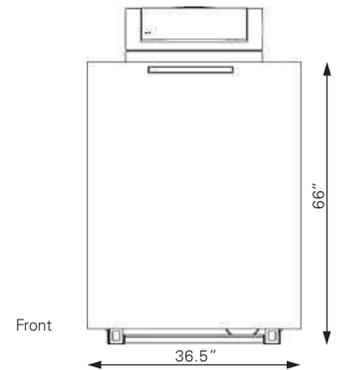
Technical Data

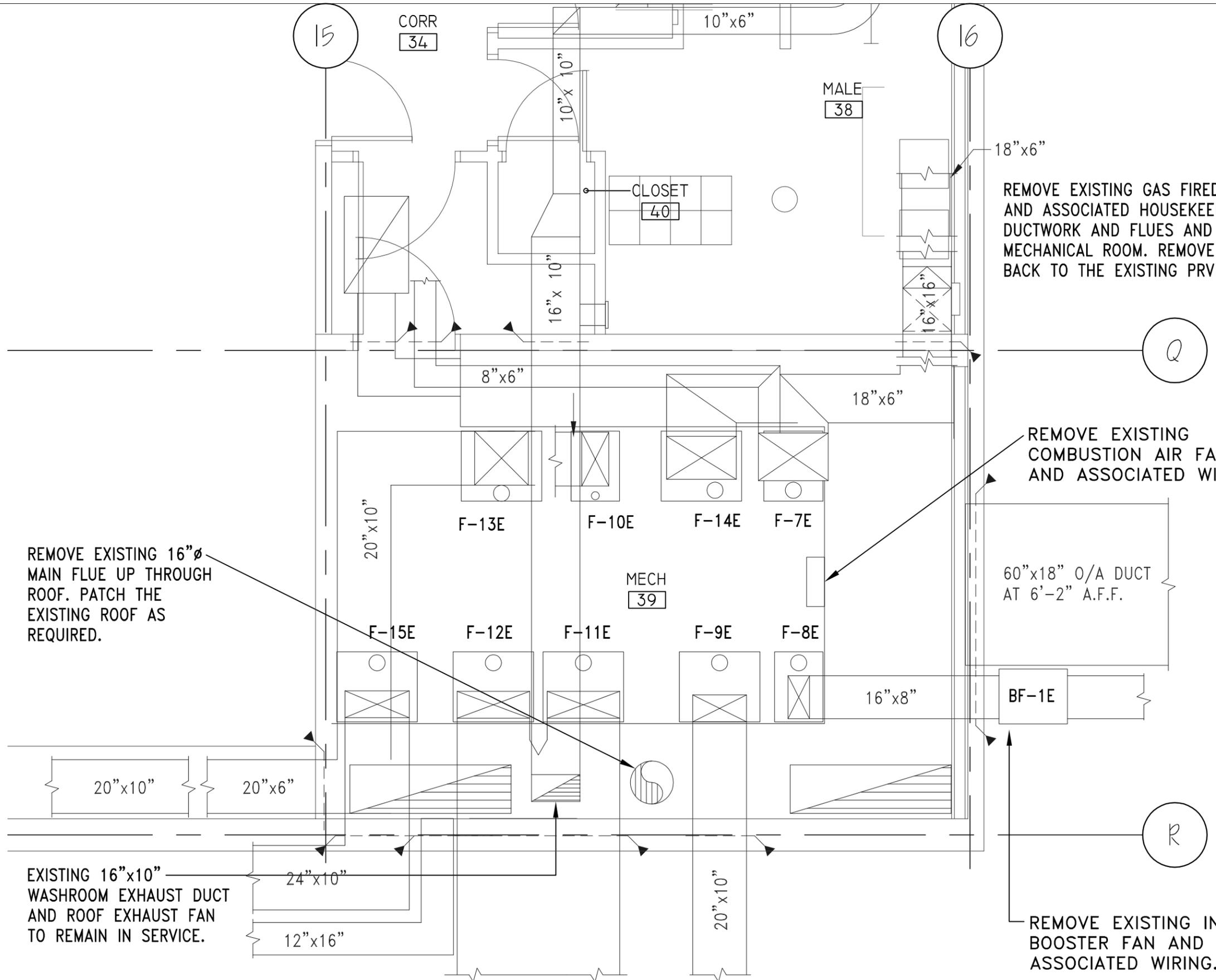
**OPTION
"B"**

VITOCROSSAL 200		Model	CM2 186	CM2 246	CM2 311
Combustion and Thermal Efficiency*	%		94.0	94.1	94.6
Maximum Input	MBH		663	878	1112
Minimum Input	MBH		133	175	222
Output*	MBH		623	826	1052
Overall Dimension†					
Width	Inches		36.5	36.5	36.5
Height	Inches		66.0	66.0	66.0
Depth	Inches		73.0	73.0	73.0
Weight (burner, control and insulation)	lbs		726	759	792
Boiler Water Content	USG		81	77	74
Heat Exchanger Surface	ft. ²		73.2	90.4	114.1
Maximum Operating Pressure	psig		75	75	75

*Tested to ANSI Z21.13/CSA 4.9 standards with a return water temperature of 80 °F (27 °C) and supply water temperature of 180 °F (82 °C).

†Includes boiler with burner, boiler panels, thermal insulation, boiler control unit and electrical box. Note: For high altitude installations (5,000 to 10,000 ft.), the input will have an altitude de-rating of 15% for 5,000 ft. and 18% for 10,000 ft. Technical information subject to change without notice. Product may not be exactly as illustrated.





REMOVE EXISTING GAS FIRED FURNACES (9 TOTAL) AND ASSOCIATED HOUSEKEEPING PADS, CONTROLS, DUCTWORK AND FLUES AND WITHIN THE MECHANICAL ROOM. REMOVE EXISTING GAS PIPING BACK TO THE EXISTING PRV.

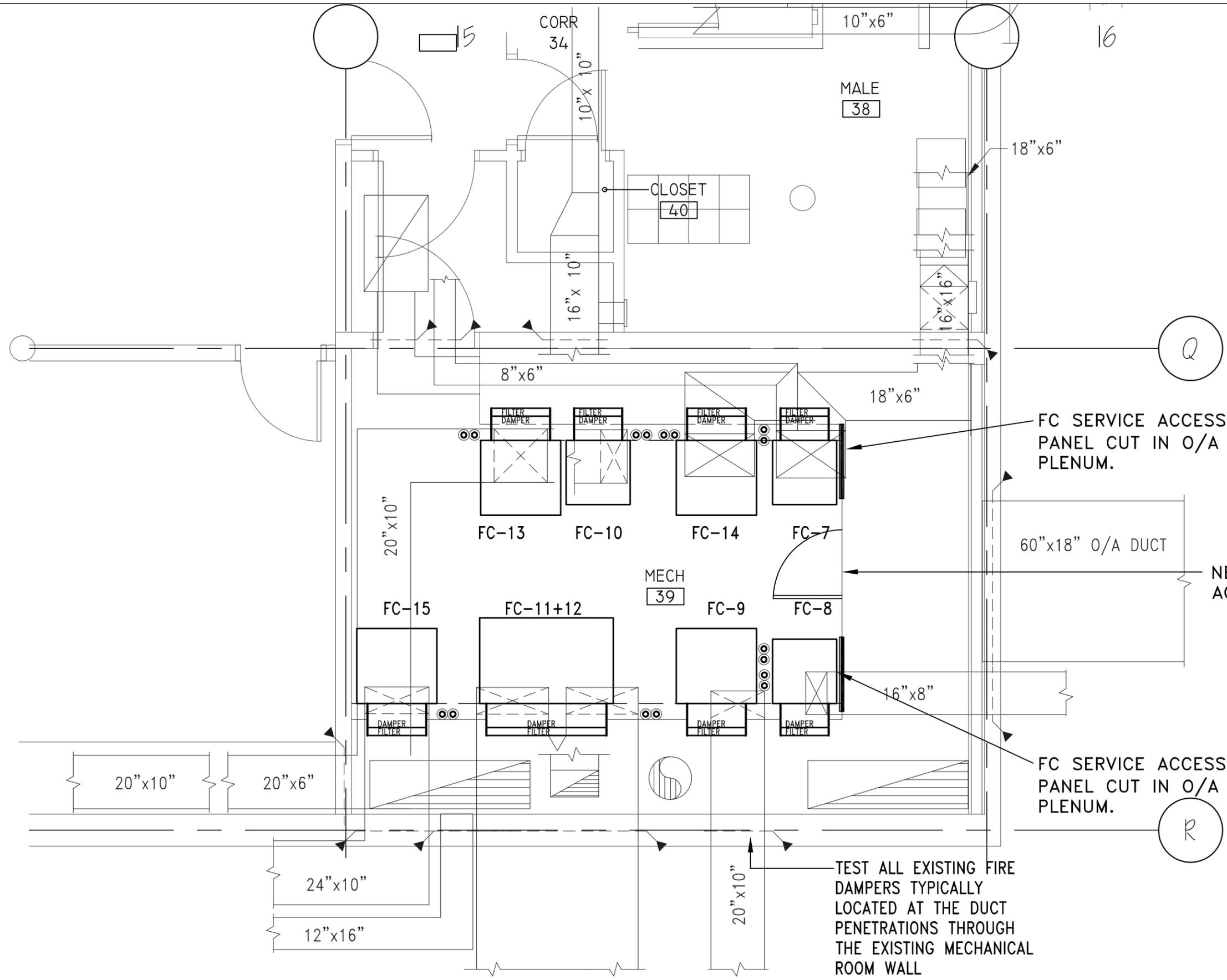
REMOVE EXISTING COMBUSTION AIR FAN AND ASSOCIATED WIRING.

REMOVE EXISTING 16"Ø MAIN FLUE UP THROUGH ROOF. PATCH THE EXISTING ROOF AS REQUIRED.

EXISTING 16"x10" WASHROOM EXHAUST DUCT AND ROOF EXHAUST FAN TO REMAIN IN SERVICE.

REMOVE EXISTING INLINE BOOSTER FAN AND ASSOCIATED WIRING.

MECHANICAL ROOM FLOOR PLAN - DEMOLITION
N.T.S.



FC SERVICE ACCESS PANEL CUT IN O/A PLENUM.

60"x18" O/A DUCT

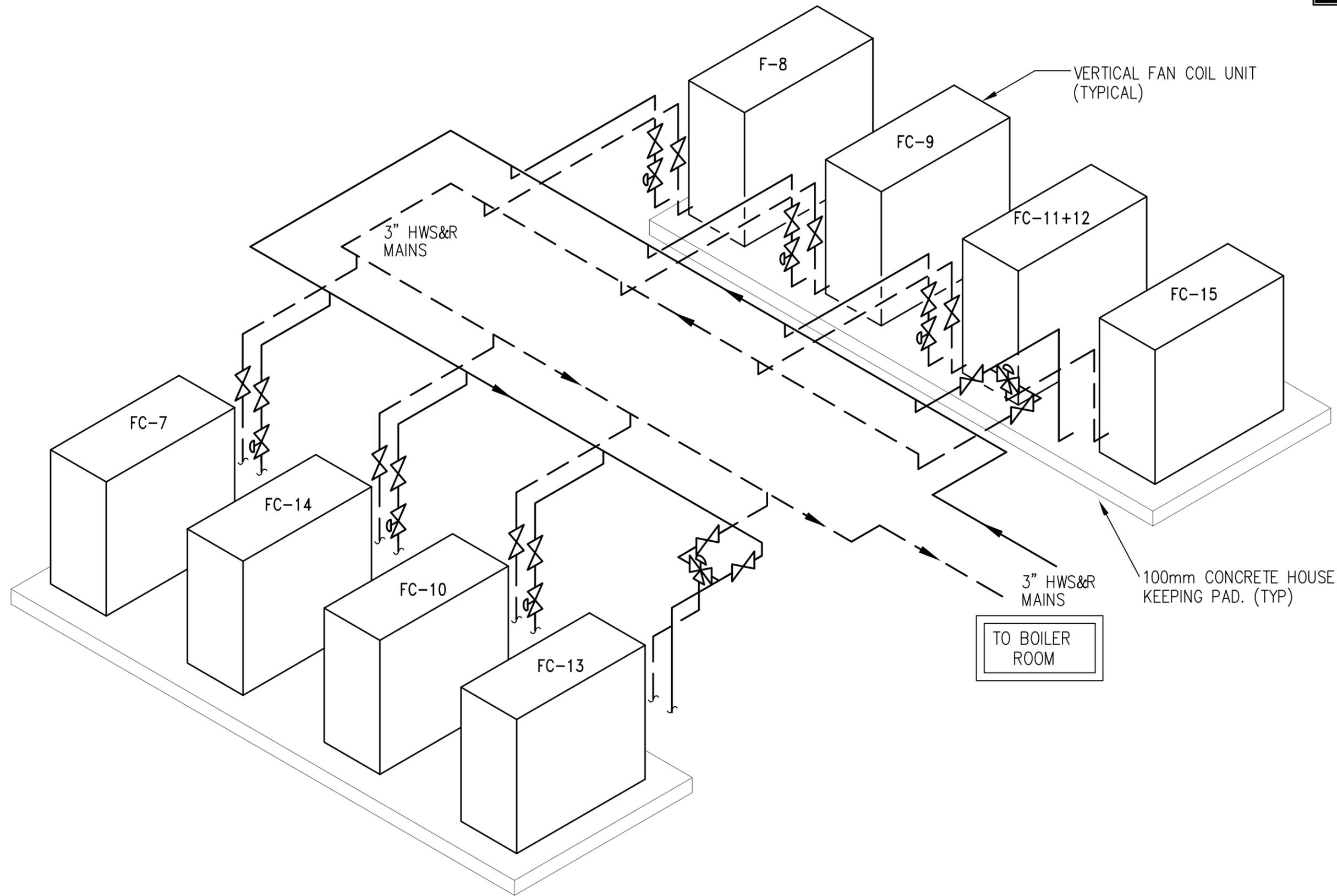
NEW O/A PLENUM ACCESS DOOR.

FC SERVICE ACCESS PANEL CUT IN O/A PLENUM.

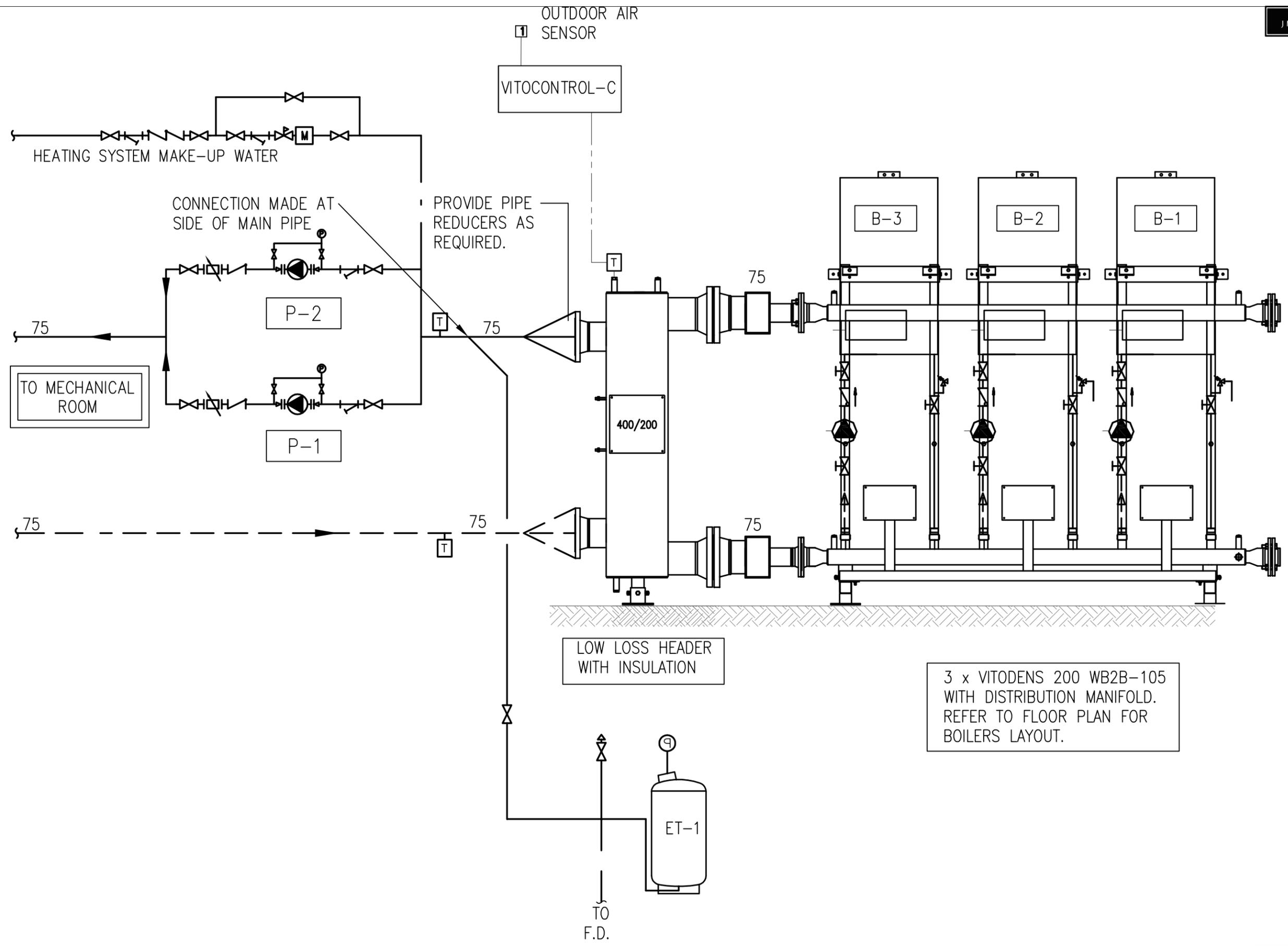
TEST ALL EXISTING FIRE DAMPERS TYPICALLY LOCATED AT THE DUCT PENETRATIONS THROUGH THE EXISTING MECHANICAL ROOM WALL

MECHANICAL ROOM FLOOR PLAN

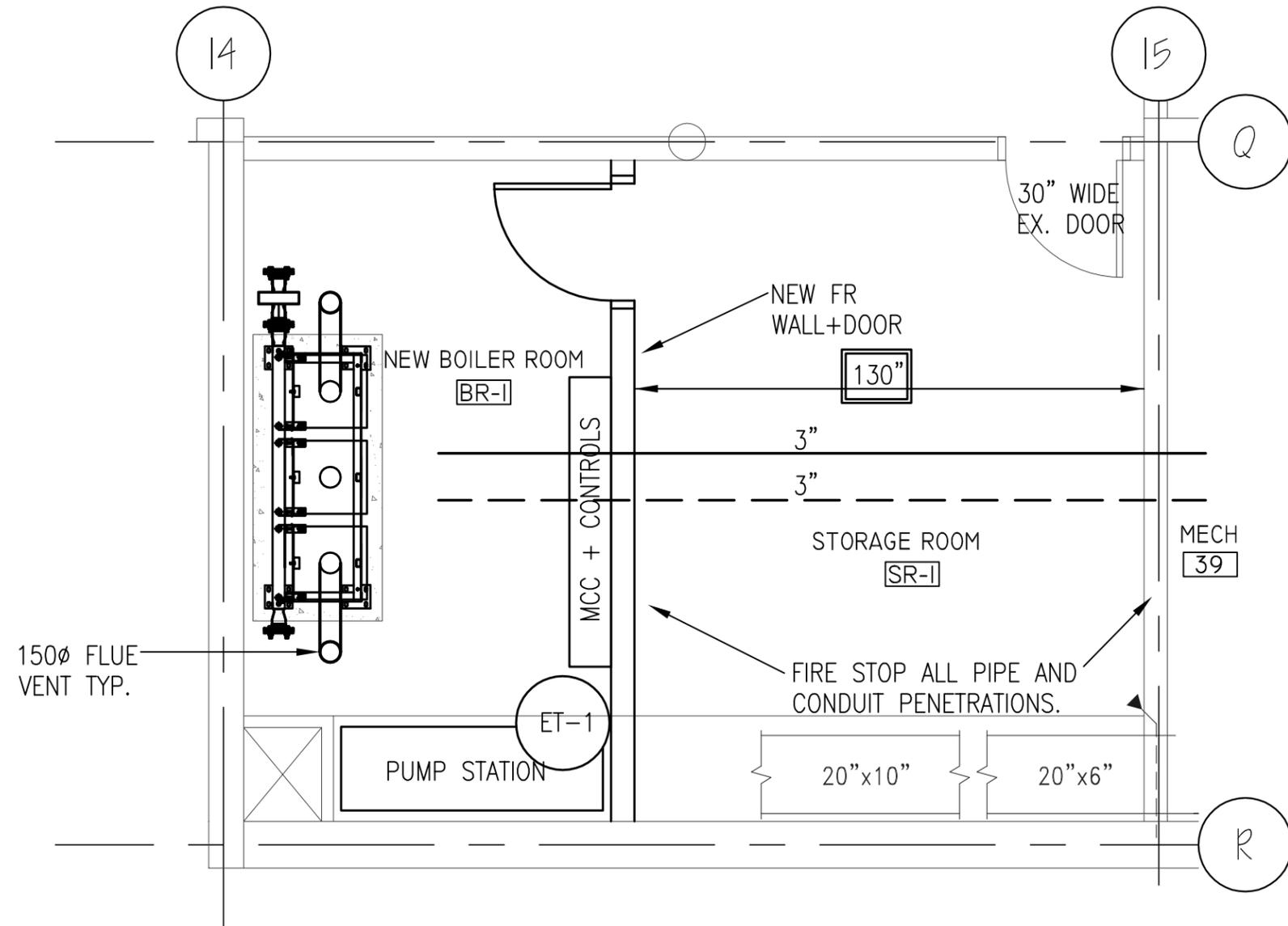
N.T.S.



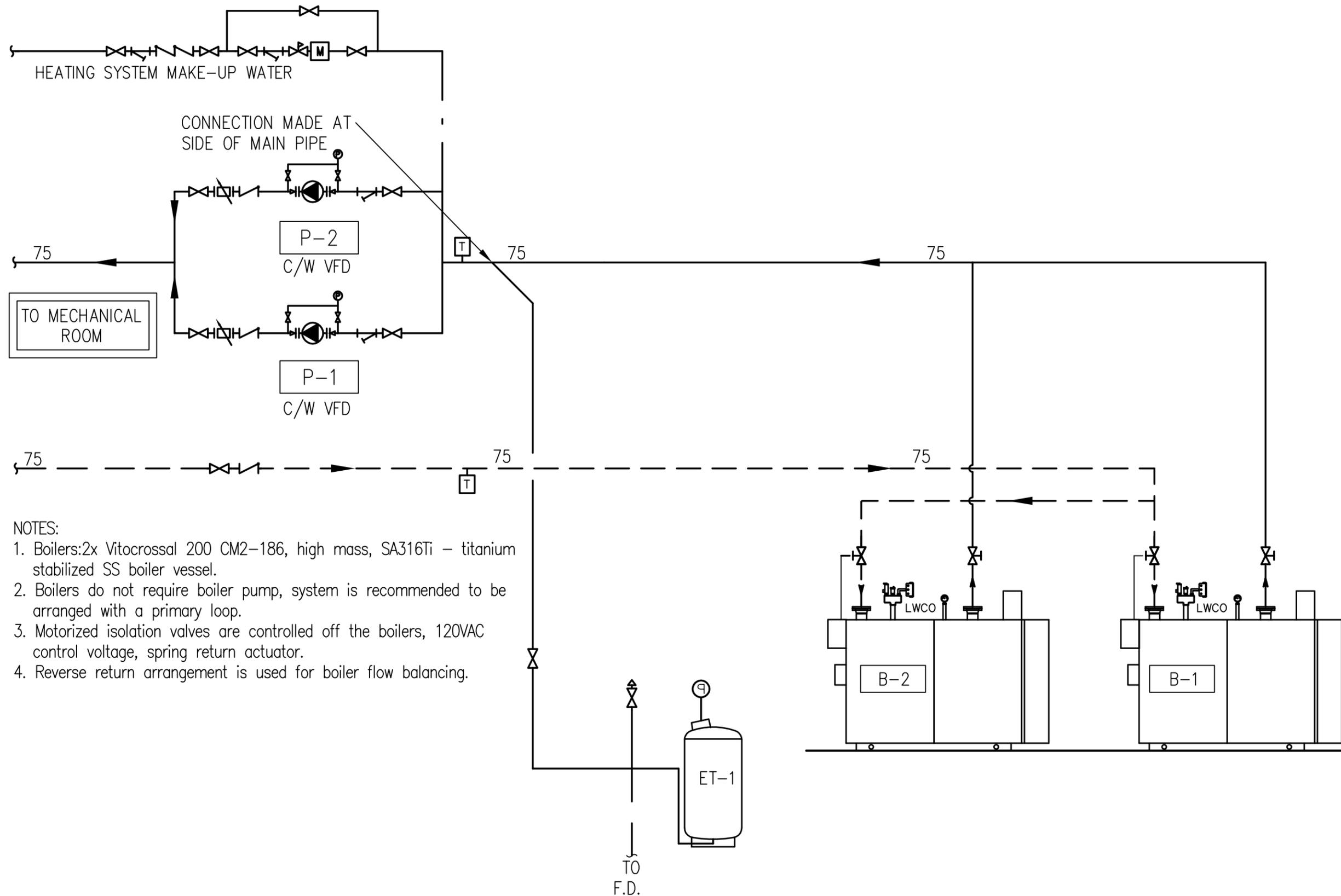
MECHANICAL ROOM PLAN - HEATING WATER PIPING SCHEMATIC
SCALE: N.T.S.



BOILER ROOM - PIPING SCHEMATIC - OPTION 'A'
N.T.S.



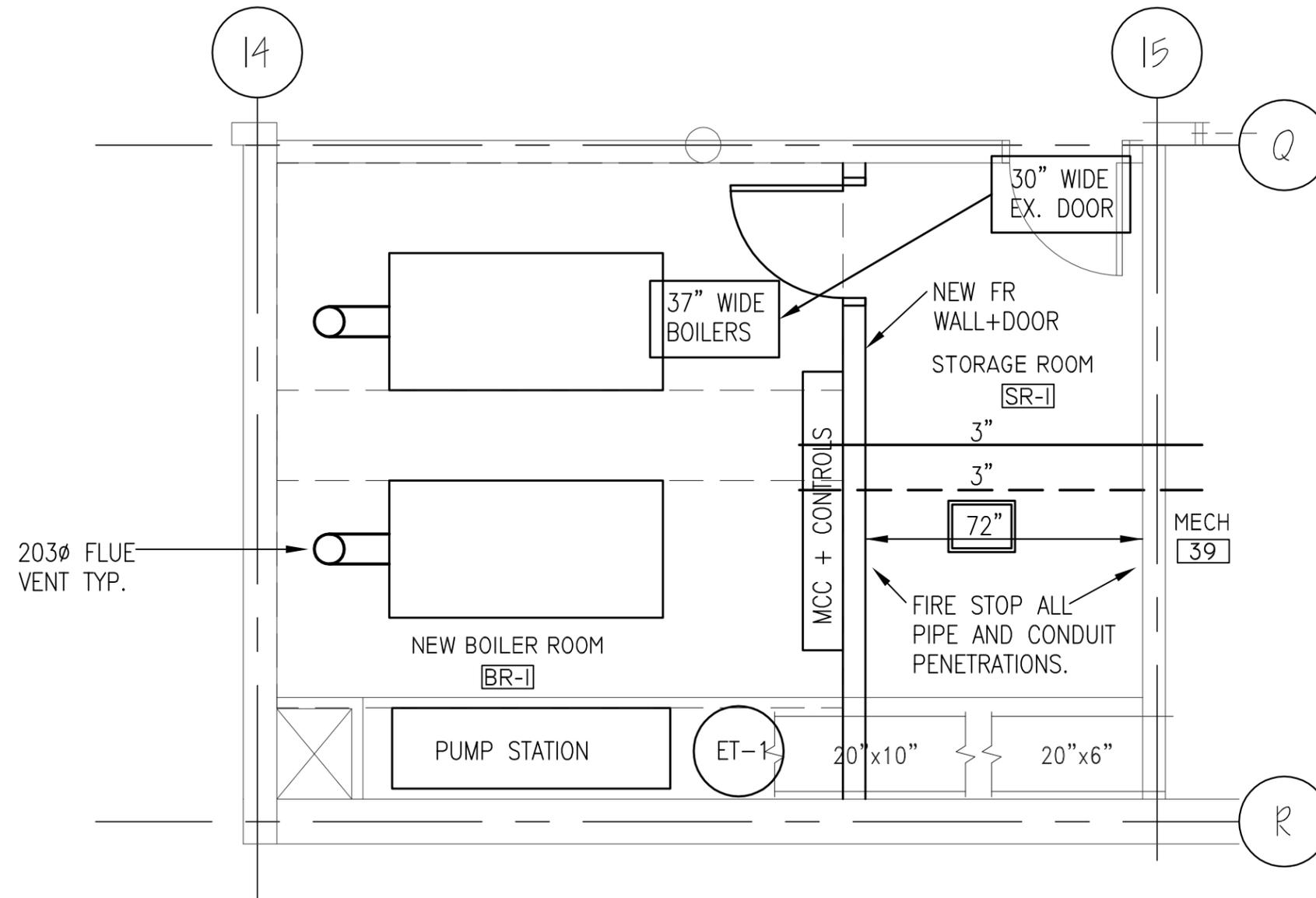
BOILER ROOM FLOOR PLAN - OPTION "A"
N.T.S.



NOTES:

1. Boilers: 2x Vitocrossal 200 CM2-186, high mass, SA316Ti - titanium stabilized SS boiler vessel.
2. Boilers do not require boiler pump, system is recommended to be arranged with a primary loop.
3. Motorized isolation valves are controlled off the boilers, 120VAC control voltage, spring return actuator.
4. Reverse return arrangement is used for boiler flow balancing.

BOILER ROOM - PIPING SCHEMATIC - OPTION 'B'
N.T.S.



203 ϕ FLUE VENT TYP.

BOILER ROOM FLOOR PLAN - OPTION "B"
N.T.S.