Invitation to Tender No. 21-012

Residential Transfer Building Upgrade
Church Road Transfer Station
860 Church Road, Parksville BC

Project Manual - Tender Specifications
Phase 1: Ventilation System

Prepared for:

Regional District of Nanaimo
6300 Hammond Bay Road, Nanaimo BC V9T 6N2

Prepared by:

Herold Engineering Limited
3701 Shenton Road
Nanaimo, BC V9T 2H1

Date:
September 8, 2021

HEL Project No.:
0837-068

HEROLD ENGINEERING

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Regional District of Nanaimo
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Nanaimo BC V9T 6N2

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MECHANICAL

ELECTRICAL

INVITATION TO TENDER No. 21-012

Church Road Transfer Station
Residential Transfer Building Upgrade – Phase 1: Ventilation System
860 Church Road, Parksville, B.C.

The Project consists of mechanical ventilation upgrades to the existing system and associated electrical power supply upgrades. The work is requested to be coordinated with the Owner and completed by February 25, 2022.

Bidding Documents, available in digital format only, will be posted on the BC Bid and RDN websites.

A non-mandatory site visit for General Contractors (other trades and suppliers may attend) is scheduled for **1:00 pm (Local Time) on Wednesday, September 15, 2021** at the project site at 860 Church Road, Parksville, BC.

Direct all inquiries, in writing, to Erich Streit, Arch HTL., Project Manager, Herold Engineering Limited, 3701 Shenton Road, Nanaimo, BC, V9T 2H1, Phone 250.751.8558, e-mail: estreit@heroldengineering.com .

Each Tender Form Received from a Bidder must be accompanied by a Bid Bond in the amount equal to TEN PERCENT (10%) of the TOTAL AMOUNT OF TENDER. Bid Bonds shall be issued by an Insurance Company Licensed in British Columbia. The Successful Bidder will be required to submit a 50% Labour & Materials Bond and a 50% Performance Bond within ten (10) days after the Award of Contract.

The CCDC-2 (2008) Stipulated Price Contract with Supplementary General Conditions will apply.

Sealed Bids for the "Residential Transfer Building Upgrade, 860 Church Road, Parksville BC – Phase 1: Ventilation System" will be received up to **3:00 pm (Local Time) on Wednesday, September 29, 2021** at the office of the Herold Engineering Limited, 3701 Shenton Road, Nanaimo, BC, V9T 2H1. Tenders received in any other manner will not be accepted. Tenders will not be opened, in public. The RDN will endeavor to post unverified bid results on the RDN & BC Bid websites by 10:00 a.m. the next business day following the closing.

Tenders may be withdrawn before the deadline upon written notice via email only to Erich Streit, Arch HTL., Project Manager, Herold Engineering Limited, 3701 Shenton Road, Nanaimo, BC, V9T 2H1, e-mail: estreit@heroldengineering.com.

Tenders may be revised before the deadline upon written notice via email only to Erich Streit, Arch HTL., Project Manager, Herold Engineering Limited, 3701 Shenton Road, Nanaimo, BC, V9T 2H1, e-mail: estreit@heroldengineering.com. Revisions should clearly show the project name and tender number and must be executed by an authorized signing officer of the Bidding Company. Tender revisions must clearly indicate GST and any applicable taxes.

Tenders must remain valid for sixty (60) days following closing time and date.

The Regional District of Nanaimo reserves the right to reject any and all tenders for any reason or to accept any tender in whole or in part on the basis of tenders received which the Regional District of Nanaimo in its sole unrestricted discretion deems most advantageous to itself. The lowest or any tender may not necessarily be accepted. The acceptance of any tender is subject to the funds being legally available to complete this transaction and/or approval by the Board of the Regional District of Nanaimo or the office or employee of the Regional District of Nanaimo having authority to accept the tender.

Part 1 General

1.1 INVITATION

.1 Bid Call

.1 Offers signed, executed, and dated will be received will be received up to 3:00 pm (Local Time) on Wednesday, September 29, 2021 at the office of the Herold Engineering Limited, 3701 Shenton Road, Nanaimo, BC, V9T 2H1.

.2 Offers submitted after above time will be returned to bidder unopened.

.3 Offers will not be opened in public.

.4 Amendments to submitted offer will be permitted if received in writing at/or prior to bid closing and if endorsed by same party or parties who signed the original offer.

1.2 INTENT

.1 Intent of this Bid call is to obtain an offer to perform work to complete the Ventilation System to the Residential Transfer Building, located at 860 Church Road, Parksville, BC for a Stipulated Price contract, in accordance with Contract Documents.

.2 Initiate work within 2 weeks of receipt of notice of contract award.

1.3 CONTRACT DOCUMENTS IDENTIFICATION

.1 Contract Documents are identified as Ventilation System at the Residential Transfer Building as prepared by the Consultant Team Herold Engineering Limited and listed Sub-Consultants, Consultant Team address is the office of Herold Engineering Limited, located at 3701 Shenton Road, Nanaimo, BC, V9T 2H1 as listed in the Project Manual.

1.4 CONTRACT/BID DOCUMENTS

.1 Agreement Form.

.2 Definitions

.1 Contract Documents: Defined in CCDC 2, 2008 Edition, Definitions.

.2 Bid Documents: Contract Documents supplemented with Instructions to Bidders and Bid Form Stipulated Bid Price.

.3 Bid, Offer, or Bidding: Act of submitting an offer.

.4 Bid Price: Monetary sum identified in Bid Form as an offer to perform work.

.3 Availability

.1 Bid Documents are available in digital format only and will be posted on the BC Bid and the RDN websites.

.2 Bid Documents are made available only for purpose of obtaining offers for this project. Their use does not confer license or grant for other purposes.

.4 Examination

.1 Immediately notify Consultant upon finding discrepancies or omissions in Bid Documents.

.5 Queries/Addenda

.1 Direct questions in writing only to Mr. Erich Streit, RCH HTL, Project Manager, Herold Engineering Limited, 3701 Shenton Road, Nanaimo, BC, V9T 2H1 or by e-mail to estreit@heroldengineering.com

.2 Addenda may be issued during bidding period. All addenda become part of Contract Documents. Include costs in Bid Price.

.3 Clarifications requested by bidders must be in writing not less than seven days before date set for receipt of Bids. Reply will be in form of an addendum, a copy of which will be posted on BC Bid and RDN Websites. It is the sole responsibility of vendors to check for all addenda and include in their Tender submission.

.6 Product/System Options

.1 Where Bid Documents stipulate a particular product, substitutions will be considered by Consultant up to 10 days before receipt of Bids.

.2 When a request to substitute a product is made, Consultant may approve substitution and will issue an Addendum to known bidders.

.3 In submission of substitutions to products specified, Bidders shall include in their Bid, any changes required in work to accommodate such substitutions. A later claim by Bidder for an addition to contract price because of changes in work necessitated by use of substitutions shall not be considered.

.4 Submission shall provide sufficient information to enable Consultant to determine acceptability of such products.

.5 Provide complete information on required revisions to other work to accommodate each substitution, dollar amount of additions to or reductions from Bid Price, including revisions to other work.

.6 Unless substitutions are submitted in this manner and subsequently accepted, provide products as specified.

1.5 SITE ASSESSMENT

.1 Site Examination

.1 A non-mandatory visit to project site has been arranged for Bidders and their subtrades and suppliers as follows: 860 Church Road, Parksville BC, Wednesday, September 15, 2021 at 1:00 pm.

.2 Currently occupied premises at project site are open for further examination by Bidders by appointment only during hours as follows: Monday through Friday 8:00 am to 10:00 am. For appointment contact Kevin Guizzetti at (250) 248-5254 ext. 2100.

.2 Bidder’s Briefing

.1 Bidder’s briefing will take place at the date and time set for the site visit.

.2 General contract and major subtrade and suppliers are invited.

.3 Representatives of Owner and Consultant will be in attendance.

.4 Information relevant to Bid Documents will be recorded in Addendum and issued to known Bidders.

1.6 QUALIFICATIONS

.1 Subcontractors

.1 Owner reserves right to reject a proposed subcontractor for reasonable cause.

.2 Refer to CCDC 2 Article GC 3.8 of General Conditions.

.2 Bid Ineligibility

.1 Bids that are unsigned, improperly signed, conditional, illegible, obscure, erasures, alterations, or irregularities of any kind, shall at discretion of Owner, be declared informal.

.2 Bids with Bid Forms and enclosures which are improperly prepared shall at discretion of Owner, be declared informal.

.3 Bids that fail to include security deposit, bonding or insurance requirements shall at discretion of Owner, be declared informal.

.4 The Owner reserves the right to correct any mathematical errors.

.3 Submissions

.1 Bidders shall be solely responsible for delivery of their Bids in manner and time prescribed.

.2 Submit one copy of executed offer on Bid Forms provided together with required security in a sealed envelope, clearly identified with Bidder's name, project name, project number and Owner's name on outside.

.3 Improperly completed information, irregularities in security deposit or bid bond, may be caused to declare the Bid informal.

.4 Unverified bid results will endeavor to be available on the RDN & Bid websites by 10:00 a.m. the next business day following the closing.

1.7 BID ENCLOSURES/REQUIREMENTS

.1 Security Deposit

.1 Bids shall be accompanied by security deposit as follows: Bid Bond in an amount not less than 10 percent of Bid price.

.2 Endorse Bid Bond in name of Owner as obligee, signed and sealed by principal (Contractor) and surety. Bid Bonds shall be issued by an Insurance Company Licensed in British Columbia.

.3 Use latest edition CCDC approved bond forms.

.4 Security deposit will be returned after delivery to Owner of required Performance and Labour and Materials Payment Bond(s) by accepted bidder.

.5 If no contract is awarded, all security deposits will be returned.

.2 Consent of Surety, Agreement to Bond.

.1 Submit with Bid Form and Bid Bond, a Consent of Surety or Agreement to Bond, stating that surety providing Bid Bond is willing to supply Performance and Labour and Materials Payment Bond specified.

.2 Include cost of bonds in Bid Price.

.3 Performance Assurance

.1 Accepted Bidder must provide Performance and Labour and Materials Payment Bond as described in Supplementary Conditions.

.2 Include cost of bonds in Bid Price.

.4 Insurance

.1 Provide signed "Undertaking of Insurance" on standard form provided by insurance company stating intention to provide insurance to Bidder in accordance with insurance requirements of Contract Documents.

.5 Bid Form Requirements.

.1 State in Bid Form, time required to complete work. Completion date in Agreement must be this completion time added to commencement date.

.2 Bidder, in submitting an offer, accepts time stated in Contract documents for performing work. Completion date in Agreement shall be this completion time added to commencement date.

.3 Bidder, in submitting an offer, agrees to complete work by date indicated in Contract Documents.

.4 Owner requires that work of this contract be completed as quickly as possible, and consideration will be given to time of completion when reviewing Bids submitted.

.5 Refer to Supplementary Conditions for inclusion of taxes.

.6 Bid Signing

.1 Bid form shall be signed by Bidder.

.2 Sole Proprietorship: Signature of sole proprietor in presence of witness who will also sign. Insert words "Sole Proprietor" under signature.

.3 Partnership: Signature of all partners in presence of witness who will also sign. Insert word “Partner” under each signature.

.4 Limited Company: Signature of duly authorized signing officer(s) in normal signatures. Insert officer's capacity in which signing officer acts, under each signature. If Bid is signed by officials other than President and Secretary of company, or President-Secretary-Treasurer of company, copy of by-law resolution of Board of Directors authorizing them to do so must also be submitted with Bid in Bid envelope.

.5 Joint Venture: Each party of joint venture must execute the Bid in manner appropriate to such party as described above, like requirements of Partnership.

.7 Appendices to Bid Form

.1 Appendix A - Contract Documents: Include a complete listing of all documents and information issued by which Bid price was derived.

.2 Appendix B - Subcontractors: Include names of all Subcontractors and portions of work Bidder will perform.

.3 Appendix C - Unit Prices: Include a listing of unit prices specifically requested in Bid Documents.

.4 Appendix D - Alternatives: Include cost variation to Bid price applicable to work described in Section 01 23 10 - Alternatives.

.5 Appendix E - Separate Prices: Include a listing of separate prices as specifically requested in Bid Documents.

1.8 OFFER ACCEPTANCE/ REJECTION

.1 Duration of Offer

.1 Bids shall remain open to acceptance and irrevocable for a period of sixty (60) days after the Bid closing date.

.2 Acceptance of Offer

.1 The Regional District of Nanaimo reserves the right to reject all tenders for any reason or to accept any tender in whole or in part based on tenders received which the Regional District of Nanaimo in its sole unrestricted discretion deems most advantageous to itself. The lowest or any tender may not necessarily be accepted. The acceptance of any tender is subject to the funds being legally available to complete this transaction and/or approval by the Board of the Regional District or the office or employee of the Regional District having authority to accept the tender.

.2 Unless otherwise requested in writing, a proponent must not contact or communicate with any elected or appointed officer or employee of the Regional District other than the designated employee of the Regional District in relation to the tender prior to the award of such proposal by the Regional Board or the officer or employee of the Regional District having authority to accept the tender. Any such communication may result in disqualification of the tender from further consideration.

.3 The Regional District of Nanaimo is subject to the provisions in *The Freedom of Information and Protection of Privacy Act.* As a result, while Section 20 of the *Act* does offer some protection for third party business interests, the Regional District cannot guarantee that any information provided to the Regional District can or will be held in confidence.

.3 After acceptance, the Regional District of Nanaimo will issue to the successful Bidder, written Bid acceptance.

.4 After a Bid has been accepted, Bid securities will be returned to unsuccessful Bidders.

END OF SECTION

Stipulated Price Bid

STIPULATED PRICE BID

Project Number: 0837-068

Project: Residential Transfer Building Upgrade - Phase 1: Ventilation System

Located At: 860 Church Road, Parksville BC

Submitted To: Regional District of Nanaimo

Bidder

Legal Name:

Address:

City: Province: Postal Code:

Bid Price

Having examined the Bid Documents as listed in Appendix "A" to this Stipulated Price Bid, and Addenda No. to No. inclusive, all as issued by Herold Engineering Limited and having visited the Place of the Work; we hereby offer to enter into a Contract to perform the Work required by the Bid Documents for the stipulated price of

_____ Dollars

($_____) in Canadian funds, which price excludes Value Added Taxes.

Interest

Should either party fail to make payments as they become due under the terms of the Contract or in an award by arbitration or court, interest at three percent (3%) per annum above the bank rate on such unpaid amounts shall also become due and payable until payment. Such interest shall be compounded on a monthly basis. The bank rate shall be the rate established by the Bank of Canada as the minimum rate at which the Bank of Canada makes short term advances to the chartered banks.

Declarations

We hereby declare that:

(a) we agree to perform the Work in compliance with the required completion schedule stated in the Bid Documents, or if no schedule is stated, to attain Substantial Performance of the Work within weeks from commencement of the Work;

(b no person, firm, or corporation other than the undersigned has any interest in this Bid or in the proposed Contract for which this Bid is made;

(c) this Bid is open to acceptance for a period of 60 days from the date of bid closing.

Signatures

SIGNED AND SUBMITTED for and on behalf of:

_____

signature

Witness

_____ _____

signature *signature*

Date:

N.B. Where legal jurisdiction or Owner requirement calls for:

(a) proof of authority to execute this Bid; attach such proof of authority in the form of a certified copy of a resolution naming the representative(s) authorized to sign this Bid for and on behalf of the Corporation or Partnership;

Appendix "A" to Stipulated Price Bid

(To be prepared by the Consultant)

Project: Residential Transfer Building Upgrade - Phase 1: Ventilation System
860 Church Road, Parksville BC

Bidder:

LIST OF BID DOCUMENTS

The following is the list or description of the Bid Documents referred to in the Bid for the above named Project:

- Agreement Form Between Owner and Contractor
- Definitions
- The General Conditions of the Stipulated Price Contract

See Table Of Contents attached to this document

** Insert here, attaching additional pages if required, a list identifying all other Bid Documents, eg. Supplementary Conditions; Specifications, giving a list of contents with section numbers and titles, number of pages, and date; Drawings, giving drawing number, title, date, revision date or mark; Addenda, giving title, number, date.*

Appendix “B” to Stipulated Price Bid

Project Number: 0837-068

Project: Residential Transfer Building Upgrade - Phase 1: Ventilation System
860 Church Road, Parksville BC

Bidder:

LIST OF SUBCONTRACTORS

The following are the Subcontractors which we are prepared to accept for the performance of a portion of the Work.

Division or Section of Work	Name of Subcontractor

** If Appendix “B” is not used, put “Not Applicable” and initial the bottom of the page.*

Appendix “C” to Stipulated Price Bid

Project Number: 0837-068

Project: Residential Transfer Building Upgrade - Phase 1: Ventilation System
860 Church Road Parksville BC

Bidder:

UNIT PRICES

The following are our Unit Prices for the units of work listed hereunder. The Unit Prices listed apply to performing the units of work only during the time scheduled for such work in the project schedule. These prices do **NOT** include Value Added Taxes.

Unit of Work	Unit Price ($)	
	Addition	Deletion

** If Appendix “C” is not used, put “Not Applicable” and initial the bottom of the page.*

Appendix "D" to Stipulated Price Bid

Project Number: 0837-068

Project: Residential Transfer Building Upgrade - Phase 1: Ventilation System
860 Church Road, Parksville BC

Bidder:

ALTERNATIVE PRICES

The following are our Prices for the alternative work listed hereunder. Such alternative work and amounts are **NOT** included in our Bid Price. These Prices for the alternative work do **NOT** include Value Added Taxes.

Description of Alternative Work	Effect on Stipulated Price ($)	
	Addition	Deduction

** If Appendix "D" is not used, put "Not Applicable" and initial the bottom of the page.*

Appendix “E” to Stipulated Price Bid

Project Number: 0837-068

Project: Residential Transfer Building Upgrade - Phase 1: Ventilation System
860 Church Road, Parksville BC

Bidder:

SEPARATE PRICES

The following are our Separate Prices for the work listed hereunder. Such work and amounts are **NOT** included in our Bid Price. These Separate Prices do **NOT** include Value Added Taxes.

Description of Separate Price Work	Separate Price Amount ($)

** If Appendix “E” is not used, put “Not Applicable” and initial the bottom of the page.*

Statutory Declaration of Progress Payment Distribution by Contractor

Standard Construction Document
CCDC 9A – 2018

To be made by the Contractor as a condition for either

- ☐ second and subsequent progress payments; or
- ☐ release of holdback.

Application for payment number _____ dated _____ is the last application for payment for which the Contractor has received payment.

Information Appearing in the Contract Documents

Name of Project

Date of Contract: _____.

Name of Owner

Name of Contractor

Declaration

I solemnly declare that, as of the date of this declaration, I am an authorized signing officer, partner or sole proprietor of the Contractor, and as such have authority to bind the Contractor, and have personal knowledge of the fact that all accounts for labour, subcontracts, products, services, and construction machinery and equipment which have been incurred directly by the Contractor in the performance of the work as required by the Contract, and for which the Owner might in any way be held responsible, have been paid in full as required by the Contract up to and including the latest progress payment received, as identified above, except for:

1) holdback monies properly retained,
2) payments deferred by agreement, or
3) payment withheld by reason of legitimate dispute which has been identified to the party or parties from whom payment has been withheld.

I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath.

Declared before me in _____ this _____ day of _____ in the year _____
City/Town and Province

_____
Name

_____
Title

_____ _____
Signature *(A Commissioner for Oaths, Notary Public, Justice of the Peace, etc.)*

The making of a false or fraudulent declaration is a contravention of the Criminal Code of Canada, and could carry, upon conviction, penalties including fines or imprisonment.

Apply a CCDC 9 copyright seal here.

Part 1 General

1.1 RELATED DOCUMENTS

.1 Stipulated Price Contract CCDC 2 (2008)

1.2 GENERAL CONDITIONS

.1 The General Conditions of the Stipulated Price Contract of the Canadian Construction Document Committee CCDC 2 (2008) document together with the following amendments and supplements shall apply in their entirety and form part of the Contract.

.2 The following clause titles correspond with those of the General Conditions of the CCDC 2 (2008) document.

1.3 GC 5.2 APPLICATIONS FOR PROGRESS PAYMENT

.1 Add paragraph 5.2.8: With each application for payment, a WorkSafe BC Clearance Letter confirming the Firm being active and in good standing and having met WorkSafe BC's criteria for advance clearance.

.2 Add paragraph 5.2.9: With each application for payment subsequent to the first progress payment, a Statutory Declaration on CCDC 9A-2018 Form shall be completed and sworn before a Notary Public or a Commissioner for Oaths for the Province of British Columbia.

1.4 GC 1.1 CONTRACT DOCUMENTS

.1 Replace 1.1.7 with:

1.1.7 If there is a conflict within the Contract Documents*:*
.1 The order of priority of documents, from highest to lowest, shall be
- *The Agreement between the Owner and the Contractor,*
- *Supplementary General Conditions*
- *The duly executed Tender Form*
- *The most recent Addendum followed by other Addenda, the more recent taking precedence over earlier Addenda.*
- *The Specifications, Drawings and Appendices*
- *The Tender Documents*
- *Other relevant documents such as but not limited to letters of clarification, executed bonds, reports standards or the like included by reference*

Paragraph 1.1.9 after the words "are and shall remain" in the first sentence, add as ***between the Engineer and the Contractor***

1.5 GC 1.4 Assignment

.1 After "*Neither party to the Contract shall assign the Contract or a portion thereof without the written consent of the other*"***, delete "which consent shall not be unreasonably withheld".***

1.6 GC 5.4 SUBSTANTIAL PERFORMANCE OF WORK

.1 Add paragraph 5.4.1.1: There will be no progressive Substantial Performance of Portions of the Work

1.7 GC 5.6 PROGRESSIVE RELEASE OF HOLDBACK

.1 Paragraph 5.6.1: Delete entire paragraph and replace with the following: There will be no progressive release of holdback funds.

1.8 GC 6.2 CHANGE ORDERS

.1 Paragraph 6.2.1: Add to the end of the paragraph:

Unless otherwise agreed between Owner and Contractor, the allowance for overhead and profit shall be calculated as follows:

.1 For Contractor, for overhead and profit, 10% of the actual cost of the Contractor's work;

.2 For Contractor, for overhead and profit, 5% of the amount for Subcontractor's work, being the actual cost of the Subcontractor's work plus the amount determined as set out in .3 below;

.3 For Subcontractor, for overhead and profit, 10% of the actual cost of the Subcontractor's work."

If a change in the Work results in a net decrease in the Contract Price, the amount of the credit shall be the net cost, without deduction for overhead and profit. When both additions and deletions covering related work or substitutions are involved in a change in the Work, the allowance for overhead and profit shall be calculated based on the net increase, if any, with respect to that change in the Work.

.2 Add paragraph 6.2.3:

“6.2.3 If requested by the Consultant, the Contractor shall obtain written confirmation from their Surety Company the extent of changes that necessitate notification to the Surety Company of said changes to not jeopardize bonding of the Work. The Contractor shall be responsible for notifying the Surety, on this basis, of any approved changes, providing copies of notifications to the Consultant. The work outlined in a Change Order will not be considered complete until copies of the written notifications are received by the Consultant.

1.9 GC6.3 CHANGE DIRECTIVE

.1 Delete paragraph 6.3 in its entirety and replace with the following:

Unless otherwise agreed between Owner and Contractor, the allowance for overhead and profit shall be calculated as follows:

.1 For Contractor, for overhead and profit, 10% of the actual cost of the Contractor's work;

.2 For Contractor, for overhead and profit, 5% of the amount for Subcontractor's work, being the actual cost of the Subcontractor's work plus the amount determined as set out in .3 below;

.3 For Subcontractor, for overhead and profit, 10% of the actual cost of the Subcontractor's work."

2.0 GC 10.4 WORKERS' COMPENSATION

.1 10.4.3: The Contractor is formally designated as the "Prime Contractor."

END OF SECTION

Part 1 General

1.1 WORK COVERED BY CONTRACT DOCUMENTS

.1 Work of this Contract comprises the replacement and supplementation of the existing ventilation system with a new system including associated structural supports for Supply Fan units and electrical power requirements.

.2 The work comprises:

.1 All work as shown and detailed in the tender documents and described in respective specifications.

.3 Perform work in accordance with British Columbia Building Code 2018 Edition and any other code of provincial or local application, provided that in any case of conflict or discrepancy, the more stringent requirements shall apply.

.1 Meet or exceed requirements of contract documents, specified standards, codes, and referenced documents.

1.2 CONTRACT METHOD

.1 Construct Work under stipulated price contract.

.2 Relations and responsibilities between Contractor and subcontractors and suppliers and subcontractors assigned by Owner are as defined in Conditions of Contract. Assigned Subcontractors must, in addition:

.1 Furnish to Contractor, bonds covering faithful performance of subcontracted work and payment of obligations thereunder when Contractor is required to furnish such bonds to Consultant.

.2 Purchase and maintain liability insurance to protect Contractor from claims for not less than limits of liability which Contractor is required to provide to Consultant.

1.3 WORK SEQUENCE

.1 Construct work so as to allow for limited designated continuous use of the facility by the Owner and the public. Do not close off public usage of facility.

.2 Maintain fire access/control.

1.4 CONTRACTOR USE OF PREMISES

.1 Limit use of premises for Work and for storage and for access, to allow:

.1 Owner occupancy of present facility

.2 Public usage of existing or portion of newly completed facility

.2 Co-ordinate use of premises under direction of Owner and Consultant.

.3 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.

.4 Remove or alter existing work to prevent injury or damage to portions of existing work which remain.

.5 Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as directed by Consultant.

.6 At completion of operations condition of existing work: equal to or better than that which existed before new work started.

1.5 PARTIAL OWNER OCCUPANCY

.1 Owner will partially occupy premises during entire construction period for execution of normal operations as renovation work proceeds.

.2 Co-ordinate with Owner in scheduling operations to at times facilitate total shut down of Owner and Public usage.

1.6 EXISTING SERVICES

.1 Notify Owner, Consultant and utility companies of intended interruption of services and obtain required permission.

.2 Where Work involves breaking into or connecting to existing services, give Owner 48 hours notice for necessary interruption of mechanical, fire suppression or electrical service throughout course of work. Minimize duration of interruptions. Carry out work at times as directed by governing authorities with minimum disturbance to Owner's operations.

.3 Coordinate with Owner to provide alternative routes for personnel and vehicular traffic.

.4 Establish location and extent of service lines in area of work before starting Work. Notify Consultant of findings.

.5 Submit schedule to and obtain approval from Owner/Consultant for any shut-down or closure of active service or facility including power and communications services. Adhere to approved schedule and provide notice to affected parties.

.6 Provide temporary services when directed by Consultant to maintain critical building and tenant systems.

.7 Provide adequate bridging over trenches which cross sidewalks or roads to permit normal traffic.

.8 Where unknown services are encountered, immediately advise Consultant and confirm findings in writing.

.9 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.

.10 Record locations of maintained, re-routed and abandoned service lines.

.11 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.7 DOCUMENTS REQUIRED

.1 Maintain at job site, one copy each document as follows:

- .1 Contract Drawings.
- .2 Specifications.
- .3 Addenda.
- .4 Reviewed Shop Drawings.
- .5 List of Outstanding Shop Drawings.
- .6 Change Orders.
- .7 Other Modifications to Contract.
- .8 Field Test Reports.
- .9 Copy of Approved Work Schedule.
- .10 Health and Safety Plan and Other Safety Related Documents.
- .11 Other documents as specified.

END OF SECTION

Part 1 General

1.1 GENERAL CONDITIONS

.1 The General Conditions of the Canadian Construction Document Committee CCDC 2 (2008) and Supplementary Conditions shall govern the work of this Section and all other Sections of these Specifications.

.2 The Instruction to Bidders, the Agreement and General Conditions of Contract (and Addenda thereto) form an integral part of the contract and must be read in conjunction with the drawings and specifications.

1.2 LABOUR CONDITIONS

.1 It is the responsibility of the Contractor and the sub-contractors in formulating the bid to ascertain the labour conditions existing on site with particular respect to union or non-union labour and to comply with these conditions. Costs of doing so shall be included in the Contract Price.

1.3 WORK SCHEDULE

.1 Provide within ten (10) working days of contract award, schedule showing anticipated progress stages and final completion of work within time period required by Contract Documents. Prepare a horizontal bar type schedule with separate horizontal bar for each trade or operation. After review by the Consultant, make corrections as necessary and re-submit for approval.

.2 Refer to Section 01 11 00 – Summary of Work for continuous use by Owner and Public of the facility.

1.4 COST BREAKDOWN

.1 Before submitting the first application for payment, submit breakdown of contract price in detail for approval by Consultant. Approved cost breakdown will be used as basis for progress payments.

1.5 CODES AND STANDARDS

.1 Execute Work in accordance with the BC Building Code 2018 and its supplements, applicable Provincial and local Acts and regulations and all codes and standards specified within the text of these specifications.

.2 Conform to the latest issue of codes and standards specified, all applicable and relevant codes, ordinances and by-laws, as amended and revised on date of receipt of bids including Workplace Hazardous Materials information System (BC) Regulations. Conform to requirements of WorkSafe BC Act, latest Edition. In the event of a conflict between codes and Standards, the most stringent provision shall apply.

.3 Meet or exceed the requirements of Contract Documents, specified standards, codes and referenced documents.

1.6 PERMITS

.1 Make application for all permits, except Building Permit, which is applied and paid for by the Owner, pay all fees and charges and make any deposits which may be required in order to complete the work.

1.7 ALTERNATIVE OR EQUIVALENT PRODUCTS

.1 Only products and methods specified shall be used or such products and methods approved as equivalent. Alternative products or methods may be used only where specified as options by the Consultant and approved in writing by the Consultant prior to the submission of the Bid Price.

.2 Application for approval of equivalent or alternative products will be received by the Consultant up to six (6) working days prior to Bid closing.

.3 Submit request for approval in duplicate to the Consultant. List specification section or drawing number, brand, model number and manufacturer specified and proposed product with full supporting technical specifications, data, colour range and samples and any other special requirements listed in the section.

.4 Approval of products does not relieve the contractor from meeting the requirements of the specifications and for all maintenance that may be required for incorporation of them into the work.

.5 If any alternative product is used, whether specified or later approved, the Contractor shall make all changes to the Work necessitated by the use of the alternative at no extra cost to the Owner or Consultant.

1.8 SAFETY AND WORKSAFE BC REQUIREMENTS

.1 Observe and enforce all construction safety measures required by WorkSafe BC and municipal and Regional District of Nanaimo statues and by-laws. In the event of a conflict between any provisions of above safety authorities, the most stringent provision will apply.

.2 The successful Tenderer is designated as the Prime Contractor and shall fulfill the Prime Contractor responsibilities as defined in:

a) WorkSafeBC Occupational Health and Safety Regulation, Notice of project, Section 20.2, and Coordination of multiple employer workplaces, Section 20.3;

b) Workers Compensation Act (BC), Coordination at multiple-employer workplaces, Section 118, Subsections (1) & (2); and

c) General Requirements, Section 3.10 WorkSafe BC.

The Prime Contractor will be required to coordinate the safety of all workers on the work site, including their employees, their subcontractors, REGIONAL DISTRICT work crews and their contractors, and private utilities, (such as BC Hydro, Telus, Shaw and FortisBC).

Prior to commencing work, the successful Tenderer will be required to provide the REGIONAL DISTRICT with its latest WorkSafeBC Clearance Letter demonstrating it is a

member in good standing and its remittance is up to date. Otherwise, no work can commence until the Tenderer is either reinstated in good standing or if the REGIONAL DISTRICT decides to cancel the agreement because this would result in an unacceptable time delay.

.3 Prior to commencing work and prior to receiving payment for Substantial Performance of the Work, provide evidence of compliance with all requirements of the Province of British Columbia with respect to WorkSafe BC including payments due there under.

1.9 EXAMINATION OF SITE

.1 The contractor is deemed to have ascertained all existing conditions reasonably inferable from examination on the site and its surroundings and the Contract Documents with respect to surface and subsurface conditions, access to the site, restrictions prevailing on adjacent streets, disposal of materials, municipal and Regional District of Nanaimo by-laws with respect to noise, street cleaning and pollution and other conditions having effect on the execution of the Work and is further deemed to have included in the contract Price all costs occasioned thereby.

.2 Claims for additional costs will not be determined with respect to conditions which would reasonably have been ascertained by an inspection of the site prior to Bid Closing Date.

.3 The contractor shall report promptly to the Consultant any discrepancy, inaccuracy or deviation between the information contained in the Contract Documents and the actual conditions found to be in existence during the process of the work.

1.10 ACCESS TO SITE

.1 The Contractor shall not close or obstruct streets, sidewalks, lanes or other public rights of way without having first obtained required permits from the authorities having jurisdiction.

.2 The Contractor shall maintain adequate traffic control procedures during his operations, including delivery and off-loading of materials on or adjacent streets, sidewalks, lanes, public rights of ways and parking areas available for use by the public.

.3 During the progress of the Work, the Contractor shall maintain adequate means of egress from the Project in the event of fire or other emergency and shall not cause materials to be stored in a manner that will impair such means of egress.

1.11 WORKING LIMITS

.1 Refer to Section 01 11 00 – Summary of Work for Work Sequence and Contractor Use of Premises and continuous use by Owner and Public of facility.

1.12 SETTING OUT OF WORK

.1 The Contractor shall immediately upon entering the project site for the purpose of beginning to work, locate all general reference points as related to the Project and take action as necessary to prevent their destructions; lay out work and be responsible for all lines, elevations and measurements. Retain the services of a Surveyor as necessary to establish and maintain throughout the construction grid lines of buildings and location of services.

.2 Exercise proper precautions to verify figures shown on the drawings before laying out of work. Be responsible for any errors resulting from failure to exercise such precautions. Promptly notify Consultant of any discrepancy in accuracy of deviation between the information contained in the Contract Documents and actual site conditions.

.3 Location of distribution systems, equipment, fixtures and outlets indicated or specified are to be considered as approximate. Install so as to provide minimal interference and maximum usable space and in accordance with manufacturer's recommendations for safety, access and maintenance. Inform Consultant of impending installation and obtain his approval for actual location. Make any corrections required in order to avoid the work of other trades and/or as required by Consultant.

.4 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.

.5 Where work involves breaking into or connecting to existing services, carry out work with minimal disturbance to operation of these services. Submit schedule and obtain approval from relevant authorities for any shut-down or closure of active services or facility.

.6 The Consultant may furnish additional drawings for clarification. These additional drawings have the same meaning and intent as if they were included with plans referred to in the Contract Documents.

1.13 PRE-CONSTRUCTION MEETING AND PROJECT MEETINGS

.1 Refer to Section 01 31 19 – Project Meetings for requirements with respect to pre-construction meeting and regular project meetings and attendance required.

1.14 COORDINATION AND CO-OPERATION

.1 The Contractor is responsible for the coordination of all aspects of the Work and the cost of all such coordination is included in the Contract Price.

.2 The Contractor shall provide and maintain such construction plant and equipment as is required of the proper execution of the work in accordance with the agreed progress schedule.

.3 The Contractor shall coordinate the use of construction plant and equipment including cranes, hoists, ladders, scaffolds etc. with the work of the various trades, but the cost of such use by the various trades is subject to whatever arrangement exists between the Contractor and the trades.

1.15 DEFINITION OF TRADES

.1 For convenience of reference only, the specifications are separated into Divisions and Sections.

.2 In the case of a dispute, the Contractor shall decide which sub-contractor supplies and installs required materials of equipment. Extras will not be considered on the grounds of differences in interpretation of the Specifications as to which sub-contractor does which work.

.3 Be totally responsible as to which sub-contractor provides required materials or articles and work.

1.16 PROTECTION OF WORK AND PROPERTY

.1 Protect adjacent private and public property from damage during the performance of Work.

.2 Provide adequate protection for finished and partially finished building finishes and equipment during performance of Work.

.3 Observe all laws, rules and regulations in force at the place of building with respect to the safety of the operations and protection of workers.

.4 The Contractor shall afford protection from his operation to the existing premises of the Owner and shall take all precautions necessary to prevent damage or injury to these premises and persons occupying or visiting them. The cost of making good any damage to the existing premises or property of the Owner is included in the Contract Price.

.5 Adequately protect all work completed as part of the Contract and new work in progress. Any work damaged or defaced due to failure in providing such protection is to be removed, replaced or repaired as directed by the Consultant.

.6 Prevent overloading of any part of the building. Do not cut, drill or otherwise sleeve any load bearing structural member unless indicated specifically on drawings or in specification, without written approval by the consultant.

1.17 QUALITY OF PRODUCTS

.1 All materials, equipment and articles incorporated in the Work shall be new, not damaged or defective and of the best quality (compatible with specifications) for the purpose intended.

.2 Should any dispute arise as to the quality or fitness of materials, equipment or articles, the decision rests strictly with the Consultant based on the requirements of the Contract Documents.

1.18 MANUFACTURER'S DIRECTIONS

.1 Unless otherwise indicated in the specifications, install or erect all products in accordance with manufacturer's written instructions and recommendations.

.2 Notify the Consultant in writing of any conflicts between specifications and manufacturer's instructions.

1.19 WORKMANSHIP

.1 Workmanship is to be of best quality, executed by workers experienced and skilled in the respective duties for which they are employed.

.2 The Consultant or his authorized representative shall have the right to reject any item that in his opinion does not conform to an acceptable standard or quality, quietness or operation, finish, appearance and performance. The Contractor must rectify unacceptable material and/or workmanship to the approval of the Consultant.

.3 Do not employ unfit persons or anyone unskilled in the duties assigned to them. The Consultant reserves the right to require removal from the site of workers deemed incompetent, careless or otherwise objectionable.

1.20 CUTTING AND PATCHING

.1 The Contractor shall do all cutting, filling or patching of his work that may be required to make its several parts come together properly and fit it to receive or be received by work of other contractors shown upon or reasonably implied by the Contract Documents. Cutting, coring and any required fire stopping shall be the responsibility of sub-trade requiring such for the performance of their work, but not patching of finished surfaces, which shall only be performed by sub-trade performing work of original finish.

.2 The Contractor shall not endanger any existing work by cutting or otherwise endanger the structure and shall not cut or alter the work of any other sub-trade save the consent of the Consultant.

.3 Make good to existing surfaces previously performed work after performing cutting and patching work.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 01 00 10 General Requirements

1.2 ADMINISTRATIVE

.1 Schedule and administer project meetings on a regular basis throughout the progress of the work and additional meetings as directed by the Consultant.

.2 Prepare agenda for meetings.

.3 Distribute written notice of each meeting five days in advance of meeting date to Consultant.

.4 Coordinate use of clients meeting space with client and make arrangements for meetings.

.5 Record the meeting minutes. Include significant proceedings and decisions. Identify actions by parties.

.6 Reproduce and distribute copies of minutes within three days after meetings and transmit to meeting participants and affected parties not in attendance.

.7 Representative of Contractor, Subcontractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.

1.3 PRE-CONSTRUCTION MEETING

.1 Within 15 days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.

.2 Consultants, Contractor, major Subcontractors, field inspectors and supervisors will be in attendance.

.3 Establish time and location of meeting and notify parties concerned minimum 5 days before meeting.

.4 Incorporate mutually agreed variations to Contract Documents into Agreement, prior to signing.

.5 Agenda to include:

.1 Schedule of Work: in accordance with Section 01 32 16.07 - Construction Progress Schedules - Bar (GANTT) Chart.

.2 Schedule of submission of shop drawings, samples, colour chips. Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.

.3 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 52 00 - Construction Facilities.

.4 Delivery schedule of specified equipment.

.5 Site security in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

.6 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.

.7 Owner provided products.

.8 Record drawings in accordance with Section 01 33 00 - Submittal Procedures.

.9 Maintenance manuals in accordance with Section 01 78 00 - Closeout Submittals.

.10 Take-over procedures, acceptance, warranties in accordance with Section 01 78 00 - Closeout Submittals.

.11 Monthly progress claims, administrative procedures, photographs, hold backs.

.12 Appointment of inspection and testing agencies or firms.

.13 Insurances, transcript of policies.

1.4 PROGRESS MEETINGS

.1 During course of Work and two weeks prior to project completion, schedule regular progress meetings.

.2 Contractor, major Subcontractors involved in Work Consultants and Owner are to be in attendance.

.3 Notify parties' minimum 5 days prior to meetings.

.4 Record minutes of meetings and circulate to attending parties and affected parties not in attendance within 3 days after meeting.

.5 Agenda to include the following:

.1 Review, approval of minutes of previous meeting.

.2 Review of Work progress since previous meeting.

.3 Field observations, problems, conflicts.

.4 Problems which impede construction schedule.

.5 Review of off-site fabrication delivery schedules.

.6 Corrective measures and procedures to regain projected schedule.

.7 Revision to construction schedule.

.8 Progress schedule, during succeeding work period.

.9 Review submittal schedules: expedite as required.

.10 Review proposed changes for affect on construction schedule and on completion date.

.11 Other business.

END OF SECTION

Part 1 General

1.1 ADMINISTRATIVE

.1 Submit to Consultant all shop drawings, product data, samples and required submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.

.2 Do not proceed with Work affected by submittal until review is complete.

.3 Review submittals prior to submission to Consultant. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.

.4 Notify Consultant in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.

.5 Verify field measurements and affected adjacent Work are co-ordinated.

.6 Contractor's responsibility for errors and omissions in submission is not relieved by Consultant's review of submittals.

.7 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Consultant review.

.8 Keep one reviewed copy of each submission on site.

1.2 SHOP DRAWINGS AND PRODUCT DATA

.1 Refer to CCDC 2 GC 3.11.

.2 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.

.3 Submit shop drawings bearing stamp and signature of qualified professional engineer registered or licensed in Province of British Columbia, Canada.

.4 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.

.5 Allow 5 days for Consultant's review of each submission.

.6 Adjustments made on shop drawings by Consultant are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Consultant prior to proceeding with Work.

.7 Make changes in shop drawings as Consultant may require, consistent with Contract Documents. When resubmitting, notify Consultant in writing of revisions other than those requested.

.8 Accompany submissions with transmittal letter, in duplicate, containing:

- .1 Date.
- .2 Project title and number.
- .3 Contractor's name and address.
- .4 Identification and quantity of each shop drawing, product data and sample.
- .5 Other pertinent data.

.9 Submissions include:

- .1 Date and revision dates.
- .2 Project title and number.
- .3 Name and address of:
  - .1 Subcontractor.
  - .2 Supplier.
  - .3 Manufacturer.
- .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
- .5 Details of appropriate portions of Work as applicable:
  - .1 Fabrication.
  - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
  - .3 Setting or erection details.
  - .4 Capacities.
  - .5 Performance characteristics.
  - .6 Standards.
  - .7 Operating weight.
  - .8 Wiring diagrams.
  - .9 Single line and schematic diagrams.
  - .10 Relationship to adjacent work.

.10 Submit digital copy or 2 prints of shop drawings for each requirement requested in specification Sections and as Consultant may reasonably request.

.11 Submit 2 copies or digital copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Consultant] where shop drawings will not be prepared due to standardized manufacture of product.

.12 Submit 2 copies or digital copies of test reports for requirements requested in specification Sections and as requested by Consultant.

- .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
- .2 Testing must have been within 3 years of date of contract award for project.

.13 Submit 2 copies or digital copies of certificates for requirements requested in specification Sections and as requested by Consultant.

.1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.

.2 Certificates must be dated after award of project contract complete with project name.

.14 Submit 2 copies of manufacturer's instructions for requirements requested in specification Sections and as requested by Consultant.

.1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.

.15 Submit 2 copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Consultant.

.16 If upon review by Consultant, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

1.3 SAMPLES

.1 Submit for review samples in duplicate as requested in respective specification Sections. Label samples with origin and intended use.

.2 Notify Consultant in writing, at time of submission of deviations in samples from requirements of Contract Documents.

.3 Where colour, pattern or texture is criterion, submit full range of samples.

.4 Adjustments made on samples by Consultant are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Consultant prior to proceeding with Work.

.5 Make changes in samples which Consultant may require, consistent with Contract Documents.

.6 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

1.4 MOCK-UPS

.1 Erect mock-ups in accordance with 01 45 00 - Quality Control.

1.5 CERTIFICATES AND TRANSCRIPTS

.1 Immediately after award of Contract, submit Workers' Compensation Board status.

.2 Submit transcription of insurance immediately after award of Contract.

END OF SECTION

PART 1 General

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

1.2 REFERENCES

.1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations.

.2 British Columbia Building Code 2018 and all Addenda thereto.

.3 Province of British Columbia

.1 WorkSafe BC - Workers Compensation Act, (Occupational Health and Safety)

1.3 SUBMITTALS

.1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit site-specific Health and Safety Plan: Within 7 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:

.1 Results of site specific safety hazard assessment.

.2 Results of safety and health risk or hazard analysis for site tasks and operation found in work plan.

.3 Submit 2 copies of Contractor's authorized representative's work site health and safety inspection reports to Consultant weekly.

.4 Submit copies of reports or directions issued by Federal and Provincial health and safety inspectors.

.5 Submit copies of incident and accident reports.

.6 Submit Material Safety Data Sheets (MSDS) to Consultant.

.7 Owner will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 15 days after receipt of plan. Revise plan as appropriate and resubmit plan to Owner within 10 days after receipt of comments from Owner.

.8 Owner’s review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.

.9 Medical Surveillance: Where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to Consultant.

.10 On-site Contingency and Emergency Response Plan: Address standard operating procedures to be implemented during emergency situations.

1.4 FILING OF NOTICE

.1 File Notice of Project with Provincial authorities prior to commencement of Work.

1.5 SAFETY ASSESSMENT

.1 Perform site specific safety hazard assessment related to project.

1.6 MEETINGS

.1 Schedule and administer Health and Safety meeting with Owner prior to commencement of Work.

1.7 PROJECT/SITE CONDITIONS

.1 Work at site will involve contact with:

.1 Overhead power lines

.2 Underground services

.3 Public use of existing facilities

1.8 GENERAL REQUIREMENTS

.1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to commencing any site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.

.2 Consultant may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

1.9 RESPONSIBILITY

.1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.

.2 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

1.10 COMPLIANCE REQUIREMENTS

.1 Comply with British Columbia Building Code 2018

.2 Comply with WorkSafe BC - Workers Compensation Act, Occupational Health and Safety Regulations.

1.11 UNFORSEEN HAZARDS

.1 Should any unforeseen or peculiar safety-related factor, hazard, or condition become evident during performance of Work, and follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province of British Columbia. Advise Consultant verbally and in writing.

1.12 HEALTH AND SAFETY CO-ORDINATOR

.1 Employ and assign to Work, competent and authorized representative as Health and Safety Co-ordinator. Health and Safety Co-ordinator must:

.1 Have minimum 2 years' site-related working experience.

.2 Have working knowledge of occupational safety and health regulations.

.3 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.

.4 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.

.5 Be on site during execution of Work and report directly to site supervisor.

1.13 POSTING OF DOCUMENTS

.1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Province of British Columbia and in consultation with Owner.

1.14 CORRECTION OF NON-COMPLIANCE

.1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Owner.

.2 Provide Consultant and Owner with written report of action taken to correct non-compliance of health and safety issues identified.

.3 Consultant or Owner may stop Work if non-compliance of health and safety regulations is not corrected.

1.15 BLASTING

.1 Blasting or other use of explosives is not permitted without prior receipt of written instruction by Consultant.

1.16 WORK STOPPAGE

.1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

END OF SECTION

Part 1 General

1.1 DEFINITIONS

.1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade environment aesthetically, culturally and/or historically.

.2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction. Control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.

1.2 SUBMITTALS

.1 Address topics at level of detail commensurate with environmental issue and required construction tasks.

.2 Environmental protection objectives to include:

.1 Names of persons responsible for ensuring adherence to Environmental Protection Plan.

.2 Names and qualifications of persons responsible for manifesting hazardous waste to be removed from site.

.3 Names and qualifications of persons responsible for training site personnel.

.4 Descriptions of environmental protection personnel training program.

.5 Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use. Plan to include measures for marking limits of use areas including methods for protection of features to be preserved within authorized work areas.

.6 Spill Control Plan: including procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.

.7 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.

.8 Air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, do not become air borne and travel off project site.

.9 Contaminant prevention plan that: identifies potentially hazardous substances to be used on job site; identifies intended actions to prevent introduction of such materials into air, water, or ground; and details provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials.

.10 Pesticide treatment plan: to be included and updated, as required.

1.3 FIRES

.1 Fires and burning of rubbish on site are not permitted.

1.4 DISPOSAL OF WASTES

.1 Do not bury rubbish and waste materials on site.

.2 Do not dispose of waste or volatile materials, such as mineral spirits, oil or paint thinner into waterways, storm or sanitary sewers.

1.5 DRAINAGE

.1 Do not pump water containing suspended materials into waterways, sewer or drainage systems.

.2 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

1.6 POLLUTION CONTROL

.1 Control emissions from equipment and plant to local authorities' emission requirements.

.2 Prevent sandblasting and other extraneous materials from contaminating air and waterways beyond application area, by providing temporary enclosures.

.3 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

1.7 NOTIFICATION

.1 Consultant will notify Contractor in writing of observed noncompliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of Contractor's Environmental Protection plan.

.2 Contractor: after receipt of such notice, inform Consultant of proposed corrective action and take such action for approval by Consultant.

.3 Consultant will issue stop order of work until satisfactory corrective action has been taken.

.4 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Canadian Construction Documents Committee (CCDC)

.1 CCDC 2-2008, Stipulated Price Contract.

1.2 INSPECTION

.1 Refer to CCDC 2, GC 2.3.

.2 Allow Consultant access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.

.3 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Consultant instructions, or law of Place of Work.

.4 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.

.5 Consultant will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction. If such Work is found in accordance with Contract Documents, Owner shall pay cost of examination and replacement.

1.3 INDEPENDENT INSPECTION AGENCIES

.1 Independent Inspection/Testing Agencies will be engaged by Consultant for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by Owner.

.2 Provide equipment required for executing inspection and testing by appointed agencies.

.3 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.

.4 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Consultant at no cost to Owner. Pay costs for retesting and re-inspection.

1.4 ACCESS TO WORK

.1 Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.

.2 Co-operate to provide reasonable facilities for such access.

1.5 PROCEDURES

.1 Notify appropriate agency and Consultant in advance of requirement for tests, in order that attendance arrangements can be made.

.2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.

.3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.6 REJECTED WORK

.1 Refer to CCDC, GC 2.4.

.2 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Consultant as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.

.3 Make good other Contractor's work damaged by such removals or replacements promptly.

.4 If in opinion of Consultant it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Owner will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Consultant.

1.7 REPORTS

.1 Submit copies of inspection and test reports to Consultant.

.2 Provide copies to subcontractor of work being inspected or tested.

1.8 TESTS AND MIX DESIGNS

.1 Furnish test results and mix designs as requested.

.2 Cost of tests and mix designs beyond those called for in Contract Documents or beyond those required by law of Place of Work will be appraised by Consultant and may be authorized as recoverable.

1.9 MOCK-UPS

.1 Prepare mock-ups for Work specifically requested in specifications. Include for Work of Sections required to provide mock-ups.

.2 Construct in locations acceptable to Consultant.

.3 Prepare mock-ups for Consultant's review with reasonable promptness and in orderly sequence, to not cause delays in Work.

.4 Failure to prepare mock-ups in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.

.5 If requested, Consultant will assist in preparing schedule fixing dates for preparation.

.6 Remove mock-up at conclusion of Work or when acceptable to Consultant.

.7 Mock-ups may remain as part of Work.

.8 Specification section identifies whether mock-up may remain as part of Work or if it is to be removed and when.

1.10 MILL TESTS

.1 Submit mill test certificates as required of specification Sections.

1.11 EQUIPMENT AND SYSTEMS

.1 Submit adjustment and balancing reports for mechanical, electrical and building equipment systems.

END OF SECTION

Part 1 General

1.1 SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

1.2 INSTALLATION AND REMOVAL

.1 Provide temporary utilities controls in order to execute work expeditiously.

.2 Remove from site all such work after use.

1.3 WATER SUPPLY

.1 Owner will provide continuous supply of potable water for construction use.

1.4 TEMPORARY HEATING AND VENTILATION

.1 Provide temporary heating required during construction period, including attendance, maintenance and fuel.

.2 Construction heaters used inside building must be vented to outside or be non-flameless type. Solid fuel salamanders are not permitted.

.3 Provide temporary heat and ventilation in enclosed areas as required to:

- .1 Facilitate progress of Work.
- .2 Protect Work and products against dampness and cold.
- .3 Prevent moisture condensation on surfaces.
- .4 Provide ambient temperatures and humidity levels for storage, installation and curing of materials.
- .5 Provide adequate ventilation to meet health regulations for safe working environment.

.4 Maintain temperatures of minimum 10 degrees C in areas where construction is in progress.

.5 Ventilating:

- .1 Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction.
- .2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.
- .3 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.
- .4 Ventilate storage spaces containing hazardous or volatile materials.
- .5 Ventilate temporary sanitary facilities.
- .6 Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.

.6 Permanent existing heating system of building may be used when available.

.7 On completion of Work for which permanent heating system is used, replace filters and clean duct work.

.8 Ensure Date of Substantial Performance and Warranties for heating system do not commence until entire system is in as near original condition as possible and is certified by Consultant.

.9 Maintain strict supervision of operation of temporary heating and ventilating equipment to:

.1 Conform to applicable codes and standards.

.2 Enforce safe practices.

.3 Prevent abuse of services.

.4 Prevent damage to finishes.

.5 Vent direct-fired combustion units to outside.

.10 Be responsible for damage to Work due to failure in providing adequate heat and protection during construction.

1.5 TEMPORARY POWER AND LIGHT

.1 Owner provide temporary power during construction for temporary lighting and operating of power tools.

.2 Temporary power for electric cranes and other equipment requiring in excess of above is responsibility of contractor.

.3 Provide and maintain temporary lighting throughout project. Ensure level of illumination on all floors and stairs is not less than 162 lx.

.4 Power supply is available and will be provided for construction use at no cost. Connect to existing power supply in accordance with Canadian Electrical Code.

.5 Electrical power and lighting systems installed under this Contract may be used for construction requirements only with prior approval of Consultant provided that guarantees are not affected. Make good damage to electrical system caused by use under this Contract. Replace lamps which have been used for more than 3 months.

1.6 TEMPORARY COMMUNICATION FACILITIES

.1 Provide and pay for temporary telephone, fax, data hook up, lines and equipment necessary for own use and use of Consultant.

1.7 FIRE PROTECTION

.1 Provide and maintain temporary fire protection equipment during performance of Work required by insurance companies having jurisdiction and governing codes, regulations and bylaws.

.2 Burning rubbish and construction waste materials is not permitted on site.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 01 51 00 – Temporary Utilities.

1.2 REFERENCES

.1 Canadian General Standards Board (CGSB)

.1 CGSB 1.59-97, Alkyd Exterior Gloss Enamel.

.2 CAN/CGSB 1.189-00, Exterior Alkyd Primer for Wood.

.2 Canadian Standards Association (CSA International)

.1 CSA-O121-M1978 (R2003), Douglas Fir Plywood.

1.3 INSTALLATION AND REMOVAL

.1 Provide temporary controls in order to execute Work expeditiously.

.2 Remove from site all such work after use.

1.4 HOARDING

.1 Erect temporary construction area enclosures using appropriate barricades or fencing.

1.5 GUARD RAILS AND BARRICADES

.1 Provide secure barricades around excavations, open edges of floors as required by WorksafeBC.

1.6 WEATHER ENCLOSURES

.1 Provide weather tight closures to unfinished door openings as and when required.

.2 Close off floor areas where walls are not finished; seal off other openings; enclose building interior work for temporary heat.

.3 Design enclosures to withstand wind pressure and snow loading.

1.7 DUST TIGHT SCREENS

.1 Provide dust tight screens to localize dust generating activities, and for protection of workers, finished areas of Work and public (This is also mentioned as a requirement for construction IAQ- section 01 47 18, article 1.4.6.3.- Pathway Interruption).

.2 Maintain and relocate protection until such work is complete.

1.8 ACCESS TO SITE

.1 Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to Work.

1.9 PUBLIC TRAFFIC FLOW

.1 Provide and maintain competent, barricades, lights, or lanterns as required to perform Work and protect public.

1.10 FIRE ROUTES

.1 Maintain access to property including overhead clearances for use by emergency response vehicles.

1.11 PROTECTION OF BUILDING FINISHES

.1 Provide protection for finished building finishes and equipment during performance of Work.

.2 Provide necessary screens, covers, and hoardings.

.3 Be responsible for damage incurred due to lack of or improper protection.

1.12 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Canadian Construction Documents Committee (CCDC)

.1 CCDC 2-2008, Stipulated Price Contract.

1.2 PROJECT CLEANLINESS

.1 Maintain Work in tidy condition, free from accumulation of waste products and debris, including that caused by Owner or other Contractors.

.2 Remove waste materials from site at regularly scheduled times or dispose of as directed by Consultant. Do not burn waste materials on site, unless approved by Consultant.

.3 Clear snow and ice from access to building, bank/pile snow in designated areas only.

.4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.5 Provide on-site containers for collection of waste materials and debris.

.6 Provide and use separate marked bins for recycling. Refer to Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.7 Dispose of waste materials and debris at designated areas as directed by Owner.

.8 Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.

.9 Store volatile waste in covered metal containers, and remove from premises at end of each working day.

.10 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.

.11 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.

.12 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

1.3 FINAL CLEANING

.1 Refer to CCDC 2, GC 3.14.

.2 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.

.3 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.

.4 Prior to final review remove surplus products, tools, construction machinery and equipment.

.5 Remove waste products and debris other than that caused by Owner.

.6 Remove waste materials from site at regularly scheduled times or dispose of as directed by Consultant or Owner. Do not burn waste materials on site.

.7 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.8 Clean and polish glass, hardware, stainless steel, chrome and mechanical and electrical fixtures. Replace broken, scratched or disfigured glass.

.9 Remove stains, spots, marks and dirt from electrical and mechanical fixtures, furniture fitments, walls and floors.

.10 Clean lighting reflectors, lenses, and other lighting surfaces.

.11 Vacuum clean and dust building interiors, behind grilles, louvres and screens.

.12 Seal or prepare floor finishes, as recommended by manufacturer.

.13 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.

.14 Remove dirt and other disfiguration from exterior surfaces.

.15 Sweep and wash clean concrete slab and paved areas.

.16 Clean equipment and fixtures to sanitary condition; clean or replace filters of mechanical equipment.

.17 Remove snow and ice from access to building.

1.4 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

END OF SECTION

Part 1 General

1.1 WASTE MANAGEMENT GOALS

.1 Accomplish maximum control of solid construction waste.

.2 Preserve environment and prevent pollution and environment damage.

1.2 DEFINITIONS

.1 Class III: non-hazardous waste - construction demolition waste.

.2 Inert Fill: inert waste - exclusively asphalt and concrete.

.3 Recyclable: ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse.

.4 Recycle: process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.

.5 Recycling: process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for purpose of using in altered form. Recycling does not include burning, incinerating, or thermally destroying waste.

.6 Reuse: repeated use of product in same form but not necessarily for same purpose. Reuse includes:

.1 Returning reusable items including pallets or unused products to vendors.

.7 Separate Condition: refers to waste sorted into individual types.

.8 Source Separation: acts of keeping different types of waste materials separate beginning from first time they became waste.

1.3 SUBMITTALS

.1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.

1.4 STORAGE, HANDLING AND PROTECTION

.1 Unless specified otherwise, materials for removal become Contractor's property.

.2 Protect, stockpile, store and catalogue salvaged items.

.3 Separate non-salvageable materials from salvaged items. Transport and deliver non-salvageable items to licensed disposal facility.

.4 Protect surface drainage, mechanical and electrical from damage and blockage.

.5 Separate and store materials produced during dismantling of structures in designated areas.

.6 Prevent contamination of materials to be salvaged and recycled and handle materials in accordance with requirements for acceptance by designated facilities.

.1 On-site source separation is recommended.

.2 Remove co-mingled materials to off-site processing facility for separation.

.3 Provide waybills for separated materials.

1.5 DISPOSAL OF WASTES

.1 Do not bury rubbish or waste materials.

.2 Do not dispose of waste into waterways, storm, or sanitary sewers.

.3 Remove materials from deconstruction as deconstruction/disassembly Work progresses.

1.6 USE OF SITE AND FACILITIES

.1 Execute work with least possible interference or disturbance to normal use of premises.

.2 Provide temporary security measures approved by the Owner

1.7 SCHEDULING

.1 Co-ordinate Work with other activities at site to ensure timely and orderly progress of Work.

1.8 APPLICATION

.1 Do Work in compliance with waste reduction workplan.

.2 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes.

1.9 CLEANING

.1 Remove tools and waste materials on completion of Work, and leave work area in clean and orderly condition.

.2 Clean-up work area as work progresses.

1.10 DIVERSION OF MATERIALS

.1 On-site sale of salvaged, recovered, reusable, or recyclable materials is not permitted.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 01 78 00 – Close-out Submittals.

1.2 REFERENCES

.1 Canadian Construction Documents Committee (CCDC)

.1 CCDC 2-2008, Stipulated Price Contract.

1.3 INSPECTION AND DECLARATION

.1 Contractor's Inspection: Contractor and Subcontractors: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.

.1 Notify Consultant in writing of satisfactory completion of Contractor's Inspection and that corrections have been made.

.2 Request Consultant's Inspection.

.2 Consultant's Inspection: Consultant and Contractor will perform inspection of Work to identify obvious defects or deficiencies. Contractor to correct Work accordingly.

.3 Completion: submit written certificate that following have been performed:

.1 Work has been completed and inspected for compliance with Contract Documents.

.2 Defects have been corrected and deficiencies have been completed.

.3 Equipment and systems have been tested, adjusted and balanced and are fully operational.

.4 Certificates required by Boiler Inspection Branch, Fire Department, Utility companies have been submitted.

.5 Operation of systems has been demonstrated to Owner's personnel.

.6 Work is complete and ready for final inspection.

.4 Final Inspection: when items noted above are completed, request final inspection of Work by Owner and Consultant. If Work is deemed incomplete by Owner and Consultant, complete outstanding items and request re-inspection.

.5 Declaration of Substantial Performance: when Owner and Consultant consider deficiencies and defects have been corrected and it appears requirements of Contract have been substantially performed, make application for certificate of Substantial Performance. Refer to CCDC 2, General Conditions for specifics to application.

.6 Commencement of Lien and Warranty Periods: date of Owner's acceptance of submitted declaration of Substantial Performance shall be date for commencement for warranty period and commencement of lien period unless required otherwise by lien statute of Place of Work.

.7 Final Payment: when Owner and Consultant consider final deficiencies and defects have been corrected and it appears requirements of Contract have been totally performed,

make application for final payment. If Work is deemed incomplete by Owner and Consultant, complete outstanding items and request re-inspection.

.8 Payment of Holdback: after issuance of certificate of Substantial Performance of Work, submit an application for payment of holdback amount in accordance with CCDC 2.

1.4 CLEANING

.1 In accordance with Section 01 74 11 - Cleaning.

.2 Remove waste and surplus materials, rubbish and construction facilities from the site in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

END OF SECTION

Part 1 General

1.1 SUBMITTALS

.1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.

.2 Prepare instructions and data using personnel experienced in maintenance and operation of described products.

.3 Copy will be returned after final inspection with Consultant's comments.

.4 Revise content of documents as required prior to final submittal.

.5 Two weeks prior to Substantial Performance of the Work, submit to the Consultant, two final copies of operating and maintenance manuals in English.

.6 Ensure spare parts, maintenance materials and special tools provided are new, undamaged or defective, and of same quality and manufacture as products provided in Work.

.7 Furnish evidence, if requested, for type, source and quality of products provided.

.8 Defective products will be rejected, regardless of previous inspections. Replace products at own expense. Pay costs of transportation.

1.2 FORMAT

.1 Organize data as instructional manual.

.2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf Letter size 8 ½ x 11 (219 x 279 mm) with spine and face pockets.

.3 When multiple binders are used correlate data into related consistent groupings. Identify contents of each binder on spine.

.4 Cover: identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.

.5 Arrange content by systems, process flow, under Section numbers and sequence of Table of Contents.

.6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.

.7 Drawings: provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

.8 Provide 1:1 scaled CAD files in dwg format on CD.

1.3 CONTENTS - EACH VOLUME

.1 Table of Contents: provide title of project;

.1 Date of submission; names.

.2 Addresses, and telephone numbers of Consultant and Contractor with name of responsible parties.

.3 Schedule of products and systems, indexed to content of volume.

.2 For each product or system:

.1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.

.3 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.

.4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.

.5 Typewritten Text: as required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00 - Quality Control.

1.4 AS-BUILTS AND SAMPLES

.1 Maintain, in addition to requirements in General Conditions, at site for Consultant one record copy of:

.1 Contract Drawings and specifications

.2 Addenda.

.3 Change Orders and other modifications to Contract.

.4 Reviewed shop drawings, product data, and samples.

.5 Field test records.

.6 Inspection certificates.

.7 Manufacturer's certificates.

.2 Store record documents and samples in field office apart from documents used for construction. Provide files, racks, and secure storage.

.3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.

.4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.

.5 Keep record documents and samples available for inspection by Consultant.

1.5 RECORDING ACTUAL SITE CONDITIONS

.1 Record information on set of black line opaque drawings, and in copy of Project Manual, provided by Consultant.

.2 Provide felt tip marking pens, maintaining separate colours for each major system, for recording information.

.3 Record information concurrently with construction progress. Do not conceal Work until required information is recorded.

.4 Contract Drawings and shop drawings: mark each item to record actual construction, including:

.1 Measured depths of elements of foundation in relation to finish first floor datum.

.2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

.3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.

.4 Field changes of dimension and detail.

.5 Changes made by change orders.

.6 Details not on original Contract Drawings.

.7 References to related shop drawings and modifications.

.5 Specifications: mark each item to record actual construction, including:

.1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.

.2 Changes made by Addenda and change orders.

.6 Other Documents: maintain manufacturer's certifications, inspection certifications, and field test records, required by individual specifications sections.

1.6 EQUIPMENT AND SYSTEMS

.1 Each Item of Equipment and Each System: include description of unit or system, and component parts. Give function, normal operation characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.

.2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.

.3 Include installed colour coded wiring diagrams.

.4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.

.5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

.6 Provide servicing and lubrication schedule, and list of lubricants required.

.7 Include manufacturer's printed operation and maintenance instructions. Include sequence of operation by controls manufacturer.

.8 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

.9 Provide installed control diagrams by controls manufacturer.

.10 Provide Contractor's co-ordination drawings, with installed colour coded piping diagrams.

.11 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

.12 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

.13 Include test and balancing reports as specified in Section 01 45 00 - Quality Control.

.14 Additional requirements: as specified in individual specification sections.

1.7 MATERIALS AND FINISHES

.1 Building Products, Applied Materials, and Finishes: include product data, with catalogue number, size, composition, and colour and texture designations. Provide information for re-ordering custom manufactured products.

.2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

.3 Moisture-Protection and Weather-Exposed Products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

.4 Additional Requirements: as specified in individual specifications sections.

1.8 SPARE PARTS

.1 Provide spare parts, in quantities specified in individual specification sections.

.2 Provide items of same manufacture and quality as items in Work.

.3 Deliver to [site] [location as directed]; place and store.

.4 Receive and catalogue items. Submit inventory listing to Consultant. Include approved listings in Maintenance Manual.

.5 Obtain receipt for delivered products and submit prior to final payment.

1.9 MAINTENANCE MATERIALS

.1 Provide maintenance and extra materials, in quantities specified in individual specification sections.

.2 Provide items of same manufacture and quality as items in Work.

.3 Deliver to site; place and store as directed

.4 Receive and catalogue items. Submit inventory listing to Consultant. Include approved listings in Maintenance Manual.

.5 Obtain receipt for delivered products and submit prior to final payment.

1.10 SPECIAL TOOLS

.1 Provide special tools, in quantities specified in individual specification section.

.2 Provide items with tags identifying their associated function and equipment.

.3 Deliver to site; place and store as directed.

.4 Receive and catalogue items. Submit inventory listing to Consultant. Include approved listings in Maintenance Manual.

1.11 STORAGE, HANDLING AND PROTECTION

.1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.

.2 Store in original and undamaged condition with manufacturer's seal and labels intact.

.3 Store components subject to damage from weather in weatherproof enclosures.

.4 Store paints and freezable materials in a heated and ventilated room.

.5 Remove and replace damaged products at own expense and to satisfaction of Consultant.

1.12 WARRANTIES AND BONDS

.1 Assemble warranties and bonds, including all pertinent information in binder and submit upon acceptance of work. Organize binder as follows:

- .1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.
- .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
- .3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of applicable item of work.
- .4 Verify that documents are in proper form, contain full information, and are notarized.
- .5 Co-execute submittals when required.
- .6 Retain warranties and bonds until time specified for submittal.

.2 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.

.3 Respond in a timely manner to oral or written notification of required construction warranty repair work.

END OF SECTION

PART 1 General

1.1 GENERAL REQUIREMENTS

.1 This Section covers the retro-fit work to the existing pre-engineered steel building identified in the contract documents and drawings as Residential Transfer Building

.2 Work included under this Section consists of retro-fit of the mechanical ventilation system specified under separate sections and/or on respective drawings.

PART 2 Products

2.1 DESIGN CRITERIA

.1 British Columbia Building Code 2018 Edition applies. Design Location: Nanaimo, BC.

.2 Collateral roof load of 0.24 kPa (5 lbs/sq.ft.) for fire suppression, mechanical, HVAC systems and, light fixtures etc.

2.2 RETRO-FIT WORK TO EXISTING PRE-ENGINEERED STEEL BUILDING

.1 Refer to removal of ventilation systems specified under respective mechanical sections and drawings

PART 3 EXECUTION

3.1 RETRO-FIT WORK

.1 Do welding work in accordance with CSA W59 unless specified otherwise.

.2 Erect metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.

.3 Install new ventilation system as per mechanical drawings and specifications.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 09 91 23 - Interior Painting.

.3 Section 09 91 13 - Exterior Painting.

.4 Refer to Structural Specifications noted on Drawings

1.2 SUBMITTALS

.1 Product Data:

.1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit two copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittal Procedures. Indicate VOC's:

.1 For finishes, coatings, primers and paints.

.2 Shop Drawings

.1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.

.2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.

1.3 QUALITY ASSURANCE

.1 Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.4 DELIVERY, STORAGE, AND HANDLING

.1 Storage and Protection:

.1 Cover exposed stainless steel surfaces with pressure sensitive heavy protection paper or apply strippable plastic coating, before shipping to job site.

.2 Leave protective covering in place until final cleaning of building. Provide instructions for removal of protective covering.

1.5 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.3 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard packaging material in appropriate on-site containers for recycling in accordance with Waste Management Plan.

.4 Divert unused metal materials from landfill to metal recycling facility approved by Owner.

Part 2 Products

2.1 MATERIALS

.1 Steel sections and plates: to CAN/CSA-G40.20/G40.21, Grade 300W.

.2 Steel pipe: to ASTM A53/A53M standard weight, galvanized finish.

.3 Welding materials: to CSA W59.

.4 Welding electrodes: to CSA W48 Series.

.5 Bolts and anchor bolts: to ASTM A307.

.6 Stainless steel tubing: to ASTM A269, Type 302 Commercial grade, Seamless welded with AISI No. 4 finish.

.7 Grout: non-shrink, non-metallic, flowable, 15 MPa at 24 hours.

2.2 FABRICATION

.1 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.

.2 Use self-tapping shake-proof countersunk flat headed screws on items requiring assembly by screws or as indicated.

.3 Where possible, fit and shop assemble work, ready for erection.

.4 Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.

2.3 FINISHES

.1 Galvanizing: hot dipped galvanizing with zinc coating 600 g/m^2 to CAN/CSA-G164.

.2 Shop coat primer: to CAN/CGSB-1.40.

.3 Zinc primer: zinc rich, ready mix to CAN/CGSB-1.181.

.1 VOC limits for primers applied on-site as per Section 01 35 21- LEED Requirements.

2.4 ISOLATION COATING

.1 Isolate aluminum from following components, by means of bituminous paint:

.1 Dissimilar metals except stainless steel, zinc, or white bronze of small area.

.2 Concrete, mortar and masonry.

.3 Wood.

2.5 SHOP PAINTING

.1 Apply one shop coat of primer to metal items, with exception of galvanized or concrete encased items.

.2 Use primer unadulterated, as prepared by manufacturer. Paint on dry surfaces, free from rust, scale, grease. Do not paint when temperature is lower than 7 degrees C.

.3 Clean surfaces to be field welded; do not paint.

2.6 STRUCTURAL STEEL

.1 Refer to structural steel specifications noted on Structural Drawings.

2.7 STEEL BOLLARDS

.1 Refer to details shown on structural drawings for size, pipe thickness and concrete embedment of steel bollards.

.2 Finish: galvanized.

Part 3 Execution

3.1 ERECTION

.1 Do welding work in accordance with CSA W59 unless specified otherwise.

.2 Erect metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.

.3 Provide suitable means of anchorage acceptable to Consultant such as dowels, anchor clips, bar anchors, expansion bolts and shields, and toggles.

.4 Exposed fastening devices to match finish and be compatible with material through which they pass.

.5 Provide components for building by other sections in accordance with shop drawings and schedule.

.6 Make field connections with bolts to CAN/CSA-S16.1, or weld.

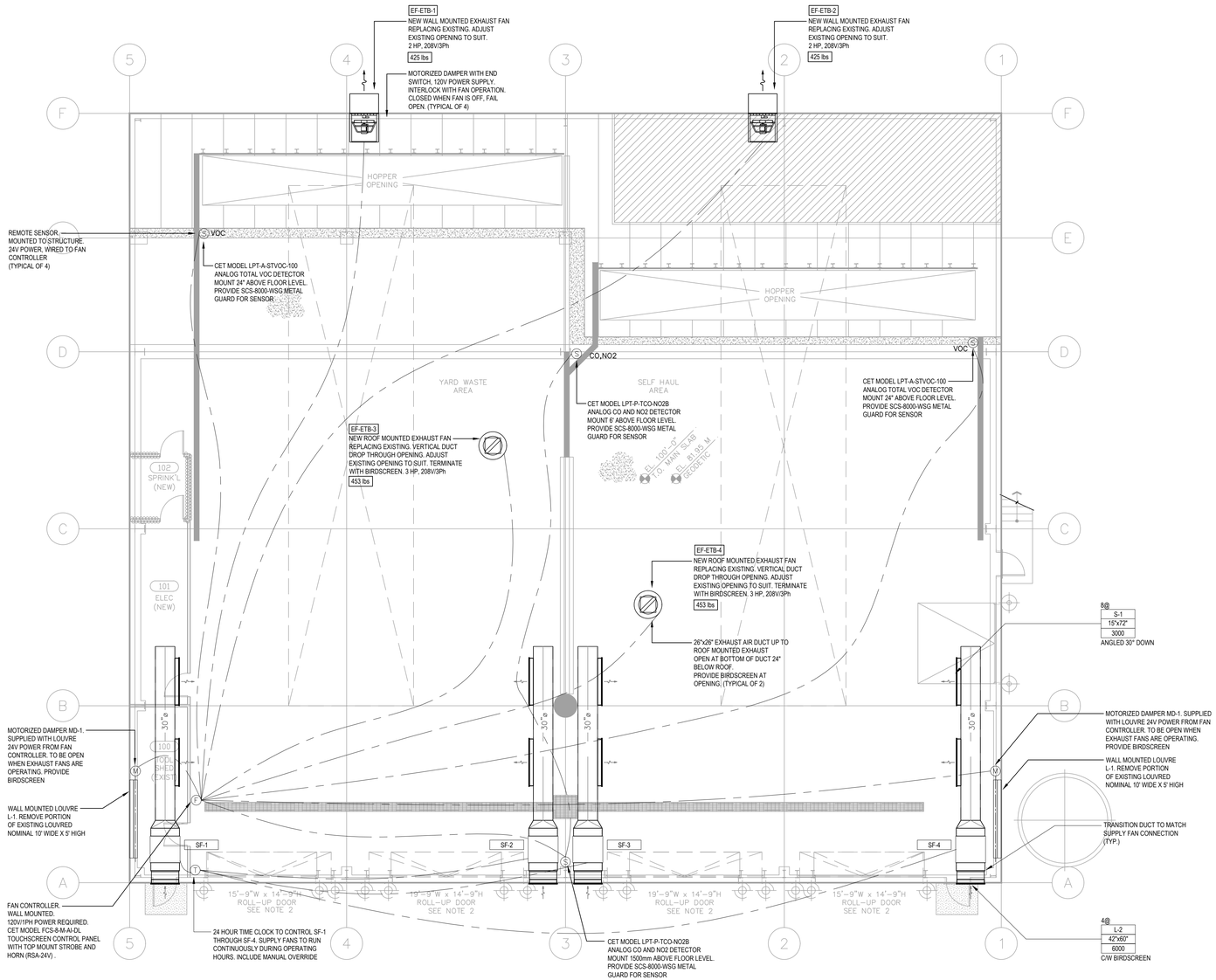
.7 Touch-up rivets, field welds, bolts and burnt or scratched surfaces after completion of erection with primer.

.8 Touch-up galvanized surfaces with zinc rich primer where burned by field welding.

3.2 CLEANING

.1 Perform cleaning after installation to remove construction and accumulated dirt. Upon completion of installation, remove surplus materials, rubbish, tools and equipment.

END OF SECTION



1 M202 RESIDENTIAL TRANSFER BUILDING – FLOOR PLAN MECHANICAL
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SUB-CONSULTANT:

KEYPLAN:

No.	DATE	DESCRIPTION	BY
2	21AUG2020	REVISED	AM
1	20DEC2019	COORDINATION	AM

REVISIONS:

SEAL:

CLIENT:

PROJECT:
CRTS - RESIDENTIAL TRANSFER BUILDING UPGRADES
860 CHURCH ROAD
PARKSVILLE, BC

DRAWING NAME:
FLOOR PLAN - MECHANICAL

PROJECT NUMBER:
19615-N

DRAWN BY: NG
DESIGNED BY: AM
APPROVED BY: AM
SCALE: 1/8" = 1'0"

DRAWING:
M-1

SUPPLY FAN SCHEDULE

DESIGNATION	MANUFACTURER	MODEL	LOCATION	SERVING	VOLUME	TOTAL EXTERNAL SP	FAN RPM	OPERATING POWER	SIZE	ELECTRICAL			MOTOR RPM	WINDINGS	WEIGHT	ENCLOSURE	COMMENTS
UNITS					CFM	IN. WG	RPM	HP	HP	VOLTAGE	PHASE	FREQUENCY	RPM		LB		
SF-1	GREENHECK	BSQ-300-15	SOUTH CEILING	YARD WASTE AREA	6000	0.4	450	0.84	1.5	208V	3	60Hz	1725	1	536	OP	
SF-2	GREENHECK	BSQ-300-15	SOUTH CEILING	YARD WASTE AREA	6000	0.4	450	0.84	1.5	208V	3	60Hz	1725	1	536	OP	
SF-3	GREENHECK	BSQ-300-15	SOUTH CEILING	SELF HAUL AREA	6000	0.4	450	0.84	1.5	208V	3	60Hz	1725	1	536	OP	
SF-4	GREENHECK	BSQ-300-15	SOUTH CEILING	SELF HAUL AREA	6000	0.4	450	0.84	1.5	208V	3	60Hz	1725	1	536	OP	

ADDITIONAL INFORMATION:

SF-1 THROUGH SF-4 : SELECTED OPTIONS AND ACCESSORIES
UL/cUL 705 Listed - "Power Ventilators"
Switch, NEMA-1, Toggle, Shipped with Unit
Seismic Rated to Design Category F per IBC-2012 & ASCE 7-05 Standards
OSHPD Seismic Certified, #OSP-0113-10
Isolators Required - OSHPD Certified by Others
Coated with Permatector, Concrete Gray-RAL 7023, Fan And Attached Acc
Motor Cover
Bearings with Grease Fittings, L10 life of 100,000 hrs (L50 avg. life 500,000 hrs)

EXHAUST FAN SCHEDULE

DESIGNATION	MANUFACTURER	MODEL	LOCATION	SERVING	VOLUME	TOTAL EXTERNAL SP	FAN RPM	OPERATING POWER	SIZE	ELECTRICAL			MOTOR RPM	WINDINGS	WEIGHT	ENCLOSURE	COMMENTS
UNITS					CFM	IN. WG	RPM	HP	HP	VOLTAGE	PHASE	FREQUENCY	RPM		LB		
EF-ETB-1	GREENHECK	SE2-30-620-B-VGD	NORTH WALL	YARD WASTE AREA	8000	0.25	828	0.81	2	208V	3	60Hz	1160	1	425	OP	
EF-ETB-2	GREENHECK	SE2-30-620-B-VGD	NORTH WALL	SELF HAUL AREA	8000	0.25	828	0.81	2	208V	3	60Hz	1160	1	425	OP	
EF-ETB-3	GREENHECK	CUE-300HP-C-VGD	ROOF	YARD WASTE AREA	8000	0.2	756	1.68	3	208V	3	60Hz	860	1	453	OP	
EF-ETB-4	GREENHECK	CUE-300HP-C-VGD	ROOF	SELF HAUL AREA	8000	0.2	756	1.68	3	208V	3	60Hz	860	1	453	OP	

ADDITIONAL INFORMATION:

EF-ETB-1 AND EF-ETB-2 : SELECTED OPTIONS AND ACCESSORIES
No UL Listing
Airflow Direction: Exhaust
Long Wall Hsg, Flush Exterior, w/ OSHA Grd., Ctd with Permatector, Concrete Gray-RAL 7023
Motor Access: From Int. of Bldg.
Switch, NEMA-4X, Heavy Duty w/Auxiliary Contact, Shipped with Unit
Closure Angles
Weatherhood, Aluminum 45 deg. with Bird Screen Ctd Permatector, Concrete Gray-RAL 7023
Coated with Permatector, Concrete Gray-RAL 7023, Fan And Attached Acc

EF-ETB-3 AND EF-ETB-4 : SELECTED OPTIONS AND ACCESSORIES
UL/cUL 705 Listed - "Power Ventilators"
Switch, NEMA-4X, Heavy Duty, Shipped with Unit
Hinged Curb Cap Kit w/Cables (PN 853443) & Support Bracket (Shipped Loose)
Foam Curb Seal (Attached)
Coated with Permatector, Concrete Gray-RAL 7023, Fan And Attached Acc
Non-Stick Coated Wheel (Teflon)
Hood Hasps
Birdscreen: Aluminum, nom. 62% Free Area
Clean-out Port

MOTORIZED DAMPER SCHEDULE

DESIGNATION	MANUFACTURER	MODEL	DUTY	ACTUATOR	AIRFLOW	AIR VELOCITY	PRESSURE DROP	POWER	ELECTRICAL	WIDTH	HEIGHT	COMMENTS
UNITS					CFM	FPM	in. w.g.	W		in	in	
MD-1	GREENHECK	VCD-20	RELIEF AIR	AFBUP-S	12,000	252	0.001	7	24V/1PH/60HZ	120	60	

ADDITIONAL INFORMATION:

AIR TERMINAL SCHEDULE

DESIGNATION	SYSTEM	MANUFACTURER	MODEL	DESIGN AIR VOLUME	AIR VELOCITY	PRESSURE DROP	FINISH	WIDTH	HEIGHT	COMMENTS
UNITS				CFM	FPM	in. w.g.		in	in	
L-1	RELIEF AIR	EH PRICE	DE439	13,500	460	0.04	ALUMINUM	120	60	C/W BIRDSCREEN, FLANGED MOUNTING
L-2	SUPPLY AIR	EH PRICE	DE439	6000	615	0.06	ALUMINUM	42	60	C/W BIRDSCREEN, FLANGED MOUNTING
S-1	SUPPLY AIR	EH PRICE	HCD2	3000	400	0.03	B15	72	15	STEEL CONSTRUCTION, SPRIAL DUCT FRAME, VCSS HEAVY DUTY OPPOSED BLADE DAMPER

ADDITIONAL INFORMATION:

GAS DETECTION & CONTROLLER SYSTEM

Multi-Channel Gas Detection System for Carbon Monoxide (CO), Nitrogen Dioxide (NO_2) & TVOCs

Provide a wall mount, self-contained, field programmable central control panel with back-lit, LCD digital display, LED alarm indication, and door mounted 90 dB audible alarms with silence / acknowledge switch. There shall be an LCD display of gas type, concentration measured, and alarm status. System controller shall be capable of supporting up to a combined (digital and analog) total of 128 transmitters on a RS485 Modbus network. The controller shall have 4 on board relays and shall support analog output modules (four only 4 - 20 mA outputs per module) and relay output modules (four or eight 5 A SPDT relays per module) if required. System digital network wiring shall be 4-wire digital network (2 low voltage power wires and a shielded twisted pair for the communication bus). System analog wiring shall be 3-conductor, 16-18 gauge, shielded. System power requirement is 90 to 240 VAC, 47 to 63 Hz. The controller shall be CSA / UL / CE / FCC / IP tested and certified, and powered by 90 to 240 VAC, 47 to 63 Hz. The controller should be installed in a dry area if it does not have the optional key lock. If it is to be installed in an area that requires a water/dust tight enclosure the key lock version must be requested.
FCS-8-M-AI-DL model supports digital and analog transmitters.

Provide remote mount digital sensor transmitters with three sensor capability for Carbon Monoxide (CO) from gas engine exhaust, with an electrochemical sensor for CO with a detection range of 0 - 200 ppm and Nitrogen Dioxide (NO2) from diesel engine exhaust, with an electrochemical sensor for NO2 with a detection range of 0 - 10 ppm. The sensor transmitter and shall be housed in a rugged, water/dust tight, wall mount, polycarbonate junction box with a secured, hinged door. The remote mount sensor transmitter shall operate on power supplied by the control panel and shall provide a Modbus digital output signal to the control panel. Install the CO and NO2 sensor at approximately 4' to 6' from the floor (breathing zone).
Model LPT-P-TCO-NO2B

Provide remote mount analog transmitter **model LPT-A-STVOC** for Volatile Organic Compounds, with a semi-conductor (solid-state) sensor with a detection range of 0 - 500 ppm. The sensor / transmitter shall be housed in a rugged, wall mount, ABS/polycarbonate junction box with a secured, hinged door and metal & splash guard (*SCS-8000-WSG*). The remote mount transmitter shall operate on power supplied by **FCS-8-M-AI-DL** control panel and shall provide an analog output signal to the control panel. Install the TVOC sensor at approximately 6' from the floor (most TVOCs are heavier than air).

In all cases use liquid tight conduit hubs when entering any watertight enclosure types to maintain watertight status. Install to the wall only by the provided enclosure mounting locations. Failure to do so voids any damage from water intrusion.

Provide remote mount audible, visual (strobe/siren) alarms model RSA-24V to be mounted at higher elevations and activated upon any high alarm condition to alert workers of gas build up beyond high alarm concentration. The RSA-24V will be powered by installer supplied 24VAC power and controlled by the controller relays.

System operation shall be as follows: Upon detection of 25 ppm CO, 0.7 ppm NO_2 and 100 ppm TVOCs the system shall illuminate the Low alarm LED, the Low alarm relays (exhaust fans) will be activated immediately. The system shall keep the fans running for a minimum of 10 minutes to avoid cycling. Upon detection of 50 ppm CO, 0.9 ppm NO_2 and 200 ppm TVOCs the system shall illuminate the Mid alarm LED and the Mid alarm relays will be activated, (only if any relays are assigned to mid alarm). The system shall keep the Mid relays active for a minimum of 10 minutes. Upon detection of 100 ppm CO, 1.0 ppm NO_2 and 300 ppm TVOCs the system shall illuminate the High alarm LED, the High alarm relays and audible alarm will be activated. The system shall keep the High relays active for a minimum of 10 minutes. Audible alarm can be silenced from the front panel push button. Any remote alarm devices shall be activated at this alarm level as well.

The contractor shall provide all wiring (analog), conduit and interconnection required for a successful installation. Wiring must be 16-18 gauge, stranded, shielded. System shall be tested and commissioned after installation by a trained, authorized service representative of the manufacturer, with a detailed service report provided after the site visit.

Approved manufacturer:
Critical Environment Technologies Canada Inc.

SUMMARY OF REQUIRED COMPONENTS:
FCS-8-M-AI-DL
Modbus WAN Output FCS Controller c/w:
- Four Internal 4-20mA Analog Inputs
- Enclosure Door Lock and Keys

LPT-P-TCO-NO2B
Dual Channel Digital Sensor Transmitter to Detect:
- CO in Range of 0-200 ppm
- NO2 in Range of 0-10 ppm

Enclosed Within Polycarbonate Junction Box

LPT-A-STVOC & SCS-8000-WSG
Analog Transmitter with Internal Solid State Sensors to Detect:
- TVOC's in Range of 0-500 ppm

Enclosed Within Small Metal Protective Guard c/w:
- 16 Guage Galvanized Metal
- Splash Cover

RSA-24V-R
Remote LED Strobe Light conforming to IP65

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1.0 BASIC MECHANICAL REQUIREMENTS

1.1 DRAWINGS AND SPECIFICATIONS
.1 Work of this Division shown on the drawings includes the provision of complete, operational, tested and balanced heating, ventilation and plumbing systems.

.2 Provide all labour, materials and products as specified herein and shown on the drawings as required to accomplish this work. Drawings are diagrammatic and indicate general arrangement of systems and work included.

1.2 PERMITS AND INSPECTIONS OF THE WORK
.1 Install to the requirements of the 2018 British Columbia Building Code, WorkSafeBC, Authorities Having Jurisdiction, SMACNA Guidelines and as per the written instructions of the equipment manufacturers and suppliers.

.2 Obtain and pay for all necessary permits required to carry out the work specified. Furnish certificates and inspection certificates received from Authorities Having Jurisdiction, verifying that work installed conforms to necessary codes and standards.

1.3 QUALITY ASSURANCE
.1 At completion of the work provide written declaration that all systems are installed and operating as per the requirements of the contract documents, and that the Contractor warranties the work, including all required parts and labour for a period of one full year from the date of Substantial Performance.

.2 Installation of all ventilation, heating, and plumbing systems must be carried out by skilled tradesman holding a valid TQ licence, or apprentices working under the supervision of a licenced tradesman. When apprentices are working, the licenced tradesman for each discipline must be on the site.

1.4 COORDINATION AND EXAMINATION
.1 Before submitting a bid, visit and examine the site and space conditions on which the work is in any way dependent. No claims for an increase in Contract Price or Contract Time arising from observable or reasonably inferable conditions will be accepted by the Consultant. Report to the consultant any conditions which might prevent installing the equipment in the manner intended.

1.5 SHOP DRAWINGS, MAINTENANCE MANUALS AND AS-BUILTS
.1 Provide electronic copies of shop drawings for the equipment listed below, in accordance with MCA-BC standards. Shop drawings shall indicate all aspects of the construction and operating performance of the product proposed for supply. All shop drawings must be submitted within 30 days after award of contract. Provide for:
.1 Exhaust Fan
.2 Motorized Dampers and Actuators
.3 Louvers
.4 Control Components

.2 Maintain a set of record drawings at the site. Record drawings shall be neatly maintained on a set of "issued for Construction" prints. Drawings are to be maintained in an up to date condition at all times, recording all changes and deviations to the installation from those indicated on the construction issue drawings. The Contractor is to sign and seal all drawings certifying that they are "as-built" then provide the consultant with electronically (CAD) updated drawings on a USB.

.3 Supply two copies of the operating and maintenance data published by the equipment manufacturers with reviewed shop drawings. Include a USB drive with the electronic PDF files of the above information.

1.6 ACCESSIBILITY
.1 Locate all equipment which must be serviced, operated or maintained in fully accessible positions, with minimum interference and maximum usable space.

1.7 CLEANING
.1 Any dirt, rubbish or grease on walls, floors or fixtures for which this Division is responsible must be removed and the premises left in first class condition in every respect.

1.8 STANDARD OF ACCEPTANCE
.1 Base Bid means an item is specified by manufacturer and model number meets the specifications in all respects regarding performance, quality of material and workmanship and is acceptable to the Consultant without qualification. Base Bid equipment is as listed in the Specification and Mechanical Equipment Schedules and on the Drawings.

.2 Request for review from manufacturers of materials, fixtures and equipment who are not listed as equal and wish to be accorded "equal" status, shall be made at least seven (7) days prior to close of tender. Such material, fixtures, and equipment shall meet the requirements for an equal as described in the Standard of Acceptance. All information required by the Consultant to evaluate proposed manufacturer shall furnish the proposal at the time of the request.

.3 Approved Equal Manufacturers

Grilles, Registers and Diffusers
Titus, E.H. Price
Fans
Greenheck, Cook
Motorized Dampers
Ruskin, Tamco, Greenheck
Damper Actuators
Belimo

1.9 ELECTRICAL WIRING AND MOTORS
.1 All electrical equipment supplied by the Mechanical contractor shall bear CSA label. Obtain special inspection labels required by Provincial Authority having jurisdiction for equipment that does not have a CSA label and/or a ULC label. Conform to requirements of Canadian Electrical Code and the Provincial Electrical Inspector.

.2 Division 16 will provide all power wiring, connections and other electrical items required for operation of mechanical systems except for factory installed wiring and equipment on package units provided by Division 15 and control wiring as specified.

.3 Division 16 provides and installs motor starters for electric motors except where equipment is furnished with integral starters.

.4 It shall be the responsibility of Division 15 to supply motors with proper voltage characteristics to suit electrical distribution systems and suitable construction such as explosion-proof, dust-proof, part wind starting, etc., as required to suit operating conditions. Division 15 is responsible of complete working installation and must coordinate all electrical and control work.

1.10 CUTTING AND PATCHING
.1 The Mechanical Contractor shall coordinate the wall openings with the Owner to suit new ventilation systems.

1.11 LIABILITY
.1 The Mechanical Contractor shall assume full responsibility for laying out the work of Division 15 and for any damage caused by improper location or performance of the work.

.2 Protect work and building surfaces from damage due to the contractor's performance of the work. Pay particular attention to the protection of building vapour barriers and waterproof membranes. Cover floors and other finished surfaces to avoid damage. During periods of freezing weather, ensure all piping is protected from potential freeze-up and any mechanical openings in the building envelope are weather and temperature protected.

.3 Maintain the site in a clean and orderly condition at all times.

.4 At the completion of the work remove tools, waste and surplus equipment and materials from the site.

.5 Maintain insurance that will fully protect the Owner, the General Contractor, the Mechanical Contractor and the Mechanical Contractor's sub-trades, from all claims which may arise from the Mechanical Contractor's performance of the work.

2.0 TESTING, AJUSTING, AND BALANCING

.1 The mechanical contractor will provide TAB services to ensure the ventilation system is operating as intended. At conclusion of the project the TAB agent is to verify proper operation of all systems and submit report detailing fan air flows, speed settings (RPM), running amperages.

.2 Organize and conduct the demonstration to the Owner of all mechanical equipment and systems supplied under this contract. The demonstrations shall occur only after the operation and testing has been successfully completed.

3.0 VIBRATION AND SEISMIC CONTROL

.1 Provide neoprene pad isolators between all mechanical equipment and the building structure.

.2 Provide a signed and sealed letter from a Registered Professional Engineer indicating that all mechanical equipment is seismically restrained in accordance with the 2018 British Columbia Building Code and SMACNA "Guidelines for Seismic Restraints of Mechanical Systems and Plumbing Piping Systems."

4.0 VENTILATION EQUIPMENT

.1 Motorized Dampers

.1 Automatic control dampers shall be composed of 16-mm galvanized steel or extruded aluminum multiple blades mounted in a 2.8-mm steel or extruded aluminum frame. Individual blades shall not exceed 150-mm in width or 1200 mm in length with interlocking edges and compressible neoprene edge seals.

.2 Provide self-compensating santoprene blade end seals.

.3 Provide oil impregnated bronze or nylon bearings with additional thrust bearings for vertical blades. Damper leakage shall not exceed 15 L/s per m2 at 250 Pa (3 CFM per ft2) static differential.

.4 Provide insulated dampers where provided for outdoor air or relief air applications and installed in building envelope elements (walls or roofs).

.2 Motorized Damper Actuators

.1 Provide drive-pin mounted, synchronous motor driven damper actuators with adjustable stroke and spring return fail-safe to normally open or normally closed position as required by the sequence of operation. Provide sufficient actuators and total torque on each damper to achieve smooth travel throughout full range of damper and tight shut-off.

.2 Provide two-position actuators as required by the sequence of operation.

.3 Louvers

.1 Drainable aluminum louvers sized to match wall cavity depth.

.2 Finish tested to 1000-hr salt spray. Colour by Owner.

.3 Louvers to be supplied with flange for wall mounting. Seal around louver as per manufacturers recommendations.

.4 For performance data refer to the equipment schedule on the drawings.

.4 Wall Mounted Exhaust Fans

.1 General Description:
.1 Fan arrangement shall be exhaust
.2 Sidewall mounted applications
.3 Performance capabilities up to 45,600 cubic feet per minute (cfm) and static pressure to 1 inches of water gauge
.4 Fans are available in nine sizes with nominal wheel diameters ranging from 16 inches through 54 inches (16 - 54 unit sizes)
.5 Maximum continuous operating temperature 130 Fahrenheit (54.4 Celsius)
.6 Each fan shall bear a permanently affixed manufacturer's engraved metal nameplate containing the model number and individual serial number

.2 Wheel:
.1 Propeller shall be fabricated steel blades and hubs
.2 Securely attached to fan shaft with a standard square key and set screw or tapered bushing
.3 Statically and dynamically balanced in accordance to AMCA Standard 204-05
.4 The propeller and fan inlet will be matched and shall have precise running tolerances for maximum performance and operating efficiency

.3 Motors:
.1 Motor Enclosure: Open drip proof - opening in the frame body and or end brackets
.2 Motors are permanently lubricated, heavy duty ball bearing type to match with the fan load and furnished at the specific voltage and phase
.3 Accessible for maintenance

.4 Drive Frame:
.1 Frames and Panels shall be bolted construction
.2 Drive frame assemblies and fan panels shall be galvanized steel
.3 Drive frame shall have welded wire or formed channels and fan panels shall have prepunched mounting holes, formed flanges and a deep formed one piece inlet venturi

.5 Disconnect Switches:
.1 NEMA rated: Nema4X
.2 Positive electrical shut-off
.3 Wired from fan motor to junction box

.6 Options/Accessories:
.1 Closure Angles:
.a Extra set of mounting flanges shall be available for field installation to close off the interior wall opening for a finished appearance

.2 Finishes:
.a Permatector - thermo-setting polyester urethane

.3 Wall Housing Mounting:
.a Fan panel will be mounted vertically directing the air horizontally out of the building. Wall Housing will be mounted in a manner that will not have any housing protruding outside of the building. Motor and drives will be accessible from the interior of the building
.b Constructed of galvanized steel with heavy gauge mounting flanges and prepunched mounting holes
.c Housing shall include OSHA approved motor guard
.d Final product will be fully assembled including motor and drives

.4 Weatherhood:
.a Shall shield wall opening and dampers from rain and snow
.b Material Type: Aluminum
.c Turndown Angle: 45
.d 1/2 inch by 1/2 inch weld wire birdscreen
.e Permatector - thermo-setting polyester urethane

.5 Roof Mounted Exhaust Fans

.1 General Description:
.1 Discharge air directly away from the mounting surface.
.2 Upblast fan shall be for roof mounted applications for fan sizes 060-300 or wall mounted applications for fan sizes 060-200.
.3 Performance capabilities up to 14,700 cubic feet per minute (cfm) and static pressure to 3 inches of water gauge.
.4 Fans are available in twenty-two sizes with nominal wheel diameters ranging from 9 inches through 30 inches (060 - 300 unit sizes).
.5 Maximum continuous operating temperature for fan sizes 098-300 is 400 Fahrenheit (204.4 Celsius) and for fan sizes 060-095 is 160 Fahrenheit (71.1 Celsius)
.6 Each fan shall bear a permanently affixed manufacture's engraved metal nameplate containing the model number and individual serial number

.2 Wheel:
.1 Material Type: Non-stick coating - Manufacturer's Patented coating allows buildup on wheel to be easily removed.
.2 Non-overloading, backward inclined centrifugal wheel
.3 Statically and dynamically balanced in accordance to AMCA Standard 204-05
.4 The wheel cone and fan inlet will be matched and shall have precise running tolerances for maximum performance and operating efficiency

.3 Motors:
.1 AC Induction Motor
.a Motor Enclosure: Open drip proof (ODP) - opening in the frame body and or end brackets
.b Motors are permanently lubricated, heavy duty ball bearing type to match with the fan load and pre-wired to the specific voltage and phase
.c Mounted on vibration isolators, out of the airstream
.d For motor cooling there shall be fresh air drawn into the motor compartment through an area free of discharge contaminants
.e Accessible for maintenance

.4 Housing:
.1 Constructed of heavy gauge aluminum includes exterior housing, curb cap, windband, and motor compartment housing. Galvanized material is not acceptable
.2 Housing shall have a rigid internal support structure
.3 Windband to be one piece uniquely spun aluminum construction and maintain original material thickness throughout the housing
.4 Windband to include an integral rolled bead for strength
.5 Curb cap base to be fully welded to windband to ensure a leak proof construction. Tack welding, bolting, and caulking are not acceptable
.6 Curb cap to have integral deep spun inlet venturi and pre-punched mounting holes to ensure correct attachment to curb
.7 Drive frame assemblies shall be constructed of heavy gauge steel and mounted on vibration isolators
.8 Breather tube shall be 10 square inches in size for fresh air motor cooling, and designed to allow wiring to be run through it

.5 Motor Cover:
.1 Constructed of aluminum

.6 Vibration Isolation:
.1 Double studded or pedestal style true isolators
.2 No metal to metal contact
.3 Sized to match the weight of each fan

.7 Disconnect Switches:
.1 NEMA rated: NEMA 4X: same as NEMA 4, but corrosion resistant.
.2 Positive electrical shut-off
.3 Wired from fan motor to junction box installed within motor compartment

.8 Drain Trough:
.1 Allows for one-point drainage of water, grease, and other residues

.9 Options/Accessories:
.1 Birdscreen:
.a Material Type: Aluminum
.b Protects fan discharge

.2 Clean Out Port:
.a Removable grease repellent compression rubber plug allows access for cleaning wheel through windband

.3 Roof Curbs:
.a Type: GPFP - For pitched roofs, welded straight side curb with 5 inch flashing flanges, no wood nailer
.b Mounted onto roof with fan
.c Material: Aluminum
.d Insulation thickness: 1 inches

.4 Curb Seal:
.a Foam Seal - dense foam tape seal

.6 INLINE SUPPLY FAN

.1 General Description:
.1 Base fan performance at standard conditions (density 0.075 Lb/ft3)
.2 Performance capabilities up to 28,000 cubic feet per minute (cfm) and static pressure to 4 inches of water gauge
.3 Fans are available in fourteen sizes with nominal wheel diameters ranging from 11 inches through 36 inches (70 - 420 unit sizes)
.4 Normal operating temperature up to 180 Fahrenheit (82.2 Celsius)
.5 Applications include: intake, exhaust, return, or make-up air systems
.6 Each fan shall bear a permanently affixed manufacture's engraved metal nameplate containing the model number and individual serial number

.2 Wheel:
.1 Non-overloading, backward inclined centrifugal wheel
.2 Constructed of
.3 Statically and dynamically balanced in accordance to AMCA Standard 204-05
.4 The wheel cone and fan inlet will be matched and shall have precise running tolerances for maximum performance and operating efficiency
.5 Single thickness blades are securely riveted or welded to a heavy gauge back plate and wheel cone

.3 Motors:
.1 AC Induction Motor
.a Motor Enclosure: Open drip proof (ODP) - opening in the frame body and or end brackets
.b Motors are permanently lubricated, heavy duty ball bearing type to match with the fan load and pre-wired to the specific voltage and phase

.4 Shaft and Bearings:
.1 Fan Shaft shall be ground and polished solid steel with an anti-corrosive coating
.2 Permanently sealed bearings or pillow block ball bearings
.3 Bearing shall be selected for a minimum L10 life in excess of 100,000 hours (equivalent to L50 average life of 500,000 hours), at maximum catalogued operating speed
.4 Fan Shaft first critical speed is at least 25 percent over maximum operating speed

.5 Housing/Cabinet Construction:
.1 Square design constructed of heavy gauge galvanized steel and shall include square duct mounting collars
.2 Housing and bearing supports shall be constructed of heavy gauge bolted and welded steel construction to prevent vibration and to rigidly support the shaft and bearing assembly.
.3 Aluminum construction is available in sizes 70-300

.6 Housing Supports and Drive Frame:
.1 Housing supports are constructed of structural steel with formed flanges
.2 Drive frame is welded steel which supports the shaft and bearings and reinforcement for the housing
.3 Pivoting motor plate with adjusting screws to make belt tensioning operations

.7 Disconnect Switches:
.1 NEMA rated: NEMA 1: indoor application no water. Factory standard.
.2 Positive electrical shut-off
.3 Wired from fan motor to junction box installed within motor compartment

.8 Drive Assembly:
.1 Belts, pulleys, and keys oversized for a minimum of 150 percent of driven horsepower
.2 Belt: Static free and oil resistant
.3 Pulleys: Cast type, keyed, and securely attached to wheel and motor shafts
.4 Motor pulleys are adjustable for final system balancing
.5 Readily accessible for maintenance

.9 Duct Collars:
.1 Square design to provide a large discharge area
.2 Inlet and discharge collars provide easy duct connection

.10 Access Panel:
.1 Two sided access panels, permit easy access to all internal components
.2 Located perpendicular to the motor mounting panel

.11 Options/Accessories:
.1 Belt Guards:
.a Three-sided fabricated steel belt guard covers drive and motor
.2 Belt Type:
.a Standard Belt
.3 Dampers:
.a Type: WD-330, 115 VAC
.b Galvanized frames with prepunched mounting holes
.c Balanced for minimal resistance to flow
.4 Extended Bearing Lube Lines:
.a Grease zerks on housing exterior allows for lubrication of bearings without disassembling the fan
.5 Finishes:
.a Permatector - thermo-setting polyester urethane, Factory Standard
.6 Motor Cover:
.a Constructed of galvanized steel
.b Covers motor and drives for safety
.c Standard on unit specified with UL

5.0 CONTROLS

.1 Controls are to be supplied and installed by Div 15.

.2 Controls are to be packaged with equipment or alternate acceptable products.

ROCKY POINT ENGINEERING LTD.
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NANAIMO, BC, V9T2H1

SUB-CONSULTANT:

KEYPLAN:

No.	DATE	DESCRIPTION	BY
2	21AUG2020	REVISED	AM
1	20DEC2019	ISSUED FOR REVIEW	AM

REVISIONS:

SEAL:

CLIENT:

PROJECT:
CRTS - RESIDENTIAL TRANSFER BUILDING UPGRADES
860 CHURCH ROAD
PARKSVILLE, BC

DRAWING NAME:
MECHANICAL SCHEDULES & SPECIFICATIONS

PROJECT NUMBER:
19615-N

DRAWN BY: NG
DESIGNED BY: AM
APPROVED BY: AM
SCALE: ----

DRAWING:
M-2

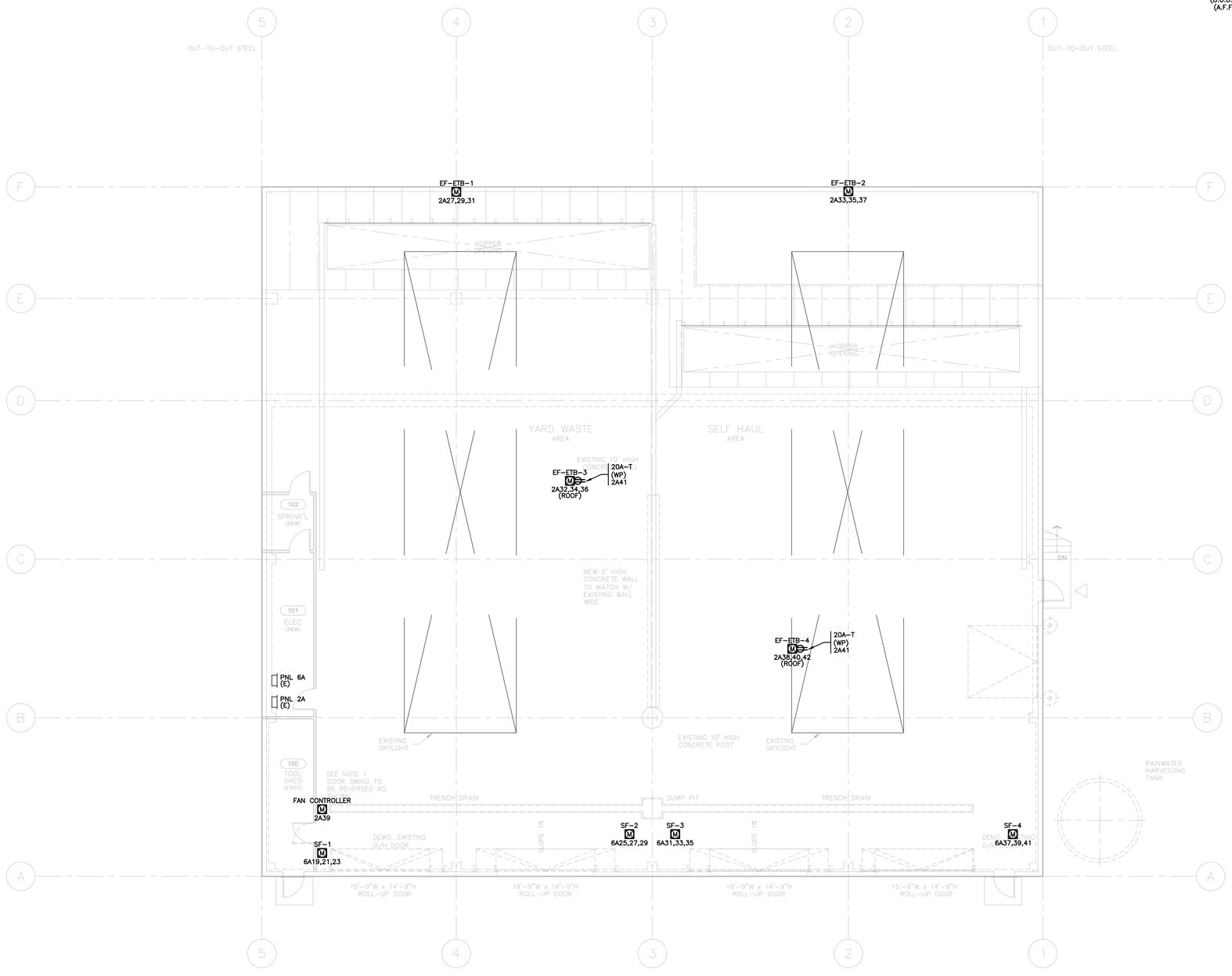
NOTE:

ELECTRICAL DEVICES SHOWN ARE NEW UNLESS NOTED OTHERWISE.

SYMBOL LEGEND

SYMBOL	MOUNTING	DESCRIPTION
20A-T	455mm (18") B.O.D. A.F.F.	DUPLEX RECEPTACLE, 20 AMP T-SLOT
PNL A	AS REQUIRED	PANEL BOARD 'A'
M	–	MECHANICAL EQUIPMENT CONNECTION

ABBREVIATIONS:
(E) – EXISTING ELECTRICAL DEVICE
(WP) – WEATHER PROOF
(B.O.D.) – BOTTOM OF DEVICE
(A.F.F) – ABOVE FINISHED FLOOR



MAIN FLOOR

NO.	DATE	TITLE
2	JAN 22 2021	ISSUED FOR TENDER
1	DEC 20 2019	ISSUED FOR REVIEW

REVISION

KB ENGINEERING LTD
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#4 1850 NORTHFIELD ROAD
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CLIENT

REGIONAL DISTRICT OF NANAIMO

PROJECT

CRTS - RESIDENTIAL TRANSFER BUILDING

TITLE

MAIN FLOOR ELECTRICAL LAYOUT

PROJECT NO. 19-3308	SEAL
DATE DECEMBER, 2019	
SCALE 1/8" = 1'-0"	

DRAWING NO.

E-1

VOLTS	347/600	PANEL	6A (EXISTING)	MAIN BREAKER	NONE
PHASE	3ø	LOCATION	EXISTING TRANSFER BUILDING	MIN. BUS AMPACITY	225 A
		MOUNTING	SURFACE	MIN. AIC	10,000 A

	RELAY	DESCRIPTION	WATTAGE øA	WATTAGE øB	WATTAGE øC	BKR	CIRC	CIRC	BKR	WATTAGE øA	WATTAGE øB	WATTAGE øC	DESCRIPTION	
	X	LTS – EXISTING TRANSFER BLDG.	2430			15	1	2	15	1500			LTS – OUTSIDE WALL PACK	
	X	LTS – EXISTING TRANSFER BLDG.		2430		15	3	4	15		1500		LTS – OUTSIDE WALL PACK	
	X	LTS – EXISTING TRANSFER BLDG.			2430	15	5	6						
	X	LTS – YARD	1063			40	7	8						
EXISTING				1063		2P	9	10						
							11	12						
							13	14	15	1500			FLOOD LIGHTS	
		HEATERS		1500		20	15	16	2P		1500			
					1500	2P	17	18	20			2500	P–6	
		SF–1	500			15	19	20		2500				
				500			21	22	3P		2500			
					500	3P	23	24	30			6000	WH–4	EXISTING
		SF–2	500			15	25	26		6000				
				500			27	28	3P		6000			
NEW					500	3P	29	30						
		SF–3	500			15	31	32	15	1000			EXHAUST FANS	
				500			33	34			1000			
					500	3P	35	36	3P			1000		
		SF–4	500			15	37	38	100	28860			PANEL 6B	
				500			39	40			26264			
					500	3P	41	42	3P			26139		
							43	44	40	6250			TRANSFORMER/PANEL 2A	
							45	46			4125			
							47	48	3P			5725		
							49	50						
							51	52						
							53	54						
							55	56						
							57	58						
							59	60						

TOTAL A	53,103 VA	
TOTAL B	49,882 VA	
TOTAL C	47,294 VA	
TOTAL LOAD	150,279 VA	145 AMPS

VOLTS	120/208	PANEL	2A (EXISTING)	MAIN BREAKER	NONE
PHASE	3ø	LOCATION	EXISTING TRANSFER BUILDING	MIN. BUS AMPACITY	225 A
		MOUNTING	SURFACE	MIN. AIC	10,000 A

	DESCRIPTION	WATTAGE øA	WATTAGE øB	WATTAGE øC	BKR	CIRC	CIRC	BKR	WATTAGE øA	WATTAGE øB	WATTAGE øC	DESCRIPTION	
	REC – WORK BENCH	500			15	1	2	15	500			LTS – OUTSIDE CONTACTOR	
			500		2P	3	4	15		500		REC – FAN EAST WALL	
	REC – WORK BENCH			500	15	5	6	15			500	LTS – OUTSIDE WALL	
		500			2P	7	8						
	REC – WORK BENCH		500		15	9	10	15		250		BASEBOARD	
				500	2P	11	12	2P			250		
EXISTING	REC – UTILITY	500			15	13	14						
						15	16						EXISTING
						17	18	40			2000	AIR COMPRESSOR	
	REC – LOWER	500			15	19	20	2P	2000				
	REC – LOWER		500		15	21	22	15		500		FUEL PUMP	
	JOCKEY PUMP			500	15	23	24	15			500	FIRE PUMP	
	PUMP CONTROL	500			15	25	26	15	500			FIRE PUMP	
	EF–ETB–1		667		15	27	28	15		500		HPS WALL PACK & PLUG	
				667		29	30	15			100	EXTERIOR LTS T'CLOCK	
		667			3P	31	32	30	1000			EF–ETB–3	
NEW	EF–ETB–2		667		15	33	34			1000			
				667		35	36	3P			1000		
		667			3P	37	38	30	1000			EF–ETB–4	NEW
	FAN CONTROLLER		500		15	39	40			1000			
	REC – ROOF HVAC			500	20	41	42	3P			1000		

TOTAL A	8,834 VA	
TOTAL B	7,084 VA	
TOTAL C	8,684 VA	
TOTAL LOAD	24,602 VA	68 AMPS

MECHANICAL EQUIPMENT SCHEDULE

ITEM	DESCRIPTION	VOLTS/PHASE/FREQ	HP	kW	FLA	MCA	MOCP	DISC.	STARTER	CONTROL	NOTES
SF–1	SUPPLY FAN – CEILING MOUNT	600/3/60	1.5					15A–3P	MAGNETIC	BY MECH.	1,2
SF–2	SUPPLY FAN – CEILING MOUNT	600/3/60	1.5					15A–3P	MAGNETIC	BY MECH.	1,2
SF–3	SUPPLY FAN – CEILING MOUNT	600/3/60	1.5					15A–3P	MAGNETIC	BY MECH.	1,2
SF–4	SUPPLY FAN – CEILING MOUNT	600/3/60	1.5					15A–3P	MAGNETIC	BY MECH.	1,2
EF–ETB–1	EXHAUST FAN – WALL MOUNT	208/3/60	2					15A–3P	MAGNETIC	BY MECH.	1
EF–ETB–2	EXHAUST FAN – WALL MOUNT	208/3/60	2					15A–3P	MAGNETIC	BY MECH.	1
EF–ETB–3	EXHAUST FAN – ROOF MOUNT	208/3/60	3					30A–3P–WP	MAGNETIC	BY MECH.	1
EF–ETB–4	EXHAUST FAN – ROOF MOUNT	208/3/60	3					30A–3P–WP	MAGNETIC	BY MECH.	1
–	FAN CONTROLLER	120/1/60									1

NOTES:
1. PROVIDE POWER POINT CONNECTION AND DISCONNECT AS REQUIRED.
2. TIME CLOCK TO BE SUPPLIED BY MECHANICAL, INSTALLED BY ELECTRICAL, AND PROGRAMMED PER RDN REQUIREMENTS.

ELECTRICAL CONTRACTOR MUST CONFIRM LOCATION, VOLTAGE, PHASE, AMPACITY OF ALL MECHANICAL EQUIPMENT BEFORE CONNECTION. REPORT ANY MAJOR DISCREPANCIES TO THE ELECTRICAL CONSULTANT. NO EXTRAS WILL BE ALLOWED FOR REMOVING INSTALLED CABLE AND BREAKERS FOR UNCOORDINATED MECHANICAL EQUIPMENT CONNECTION.

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PROJECT
CRTS - RESIDENTIAL TRANSFER BUILDING

TITLE
ELECTRICAL DETAILS

PROJECT NO. 19–3308
DATE DECEMBER, 2019
SCALE N.T.S.
SEAL

DRAWING NO.
E-2

REFERENCE STANDARDS

1. MATERIAL SHALL CARRY CSA OR CUL APPROVAL AND CONFORM WITH EEMAC STANDARDS.
2. EQUIPMENT WIRING AND WIRING DEVICES SHALL MEET THE REQUIREMENTS OF THE CURRENT EDITION OF THE CANADIAN ELECTRICAL CODE 22.1, PART 1.
3. EMERGENCY LIGHTING AND SEISMIC REQUIREMENTS TO MEET THE REQUIREMENTS OF THE CURRENT EDITION OF THE BRITISH COLUMBIA BUILDING CODE.

GENERAL REQUIREMENTS

1. THE ELECTRICAL CONTRACTOR SHALL SUPPLY ALL LABOUR, MATERIALS, TOOLS, EQUIPMENT, TRANSPORTATION REQUIRED FOR THE COMPLETE INSTALLATION, WIRING AND TESTING OF THE SYSTEM SHOWN ON THE DRAWINGS AND DESCRIBED HEREIN AND IS RESPONSIBLE TO REVIEW ARCHITECTURAL, MECHANICAL, STRUCTURAL, CIVIL DRAWINGS FOR DISCREPANCIES AND REPORT TO THE ENGINEER.
2. THE ELECTRICAL DRAWINGS INDICATE THE GENERAL LOCATION AND ROUTE. CONDUIT AND/OR WIRING SHALL BE INSTALLED TO PROVIDE A COMPLETE OPERATING SYSTEM AND SHALL BE INSTALLED PHYSICALLY TO CONSERVE HEADROOM, FURRING SPACES ETC.
3. THE WORK TO BE DONE AS DESCRIBED IN THE DRAWINGS.
4. THE DRAWINGS AND SPECIFICATIONS COMPLEMENT EACH OTHER AND WHAT IS CALLED FOR BY ONE IS BINDING AS IF CALLED FOR BY BOTH. IF THERE IS ANY DOUBT AS TO THE MEANING OR TRUE INTENT DUE TO A DISCREPANCY BETWEEN THE DRAWINGS AND SPECIFICATIONS, OBTAIN RULING FROM ENGINEER PRIOR TO TENDER CLOSING. FAILING THIS, ALLOW FOR THE MOST EXPENSIVE ALTERNATIVE.
5. ELECTRICAL DRAWINGS ARE DIAGRAMMATIC AND DO NOT SHOW ALL CONDUIT, WIRE, CABLE, ETC., THE ELECTRICAL CONTRACTOR IS TO PROVIDE CONDUIT, WIRE, CABLE, ETC. FOR A COMPLETE OPERATING JOB TO MEET IN ALL RESPECTS THE INTENT OF THE DRAWINGS AND SPECIFICATIONS. ELECTRICAL DRAWINGS DO NOT SHOW ALL ARCHITECTURAL, STRUCTURAL AND MECHANICAL DETAILS.
6. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE AS TO WHICH TRADE PROVIDES SPECIFIC LABOUR AND MATERIALS. EXTRAS WILL NOT BE CONSIDERED BASED ON DIFFERENCES IN INTERPRETATION AS TO WHICH TRADE IS TO PROVIDE CERTAIN ITEMS.

SHOP DRAWINGS

1. PRIOR TO ORDERING OF ANY EQUIPMENT, THIS CONTRACTOR SHALL SUBMIT DIGITAL COPIES OF SHOP DRAWINGS AND DETAIL DRAWINGS FOR REVIEW BY THE ENGINEER. THE ENGINEER SHALL THEN RETURN COPIES OF THE REVIEWED SHOP DRAWINGS TO THE CONTRACTOR. SHOP DRAWINGS SHALL BE SUBMITTED ON ALL MAJOR EQUIPMENT.
2. ALL SHOP DRAWINGS SUBMITTED TO THE ENGINEER MUST BEAR THE CONTRACTORS APPROVALS.
3. ALL SHOP DRAWINGS SHALL BEAR THE NAME OF THE MANUFACTURER AND/OR MANUFACTURER'S REPRESENTATIVE.
4. SUBMIT SHOP DRAWINGS FOR AT LEAST THE FOLLOWING ITEMS:
   - .1 ALL DISTRIBUTION PANEL BOARDS, DISCONNECT SWITCHES, CIRCUIT BREAKERS, INSTRUMENT TRANSFORMERS AND RELAYS, ETC.
   - .2 MOTOR CONTROL EQUIPMENT INCLUDING STARTERS, CONTACTORS, OVERLOAD HEATER DATA, CONTROL RELAYS, TIME DELAY RELAYS, MOTOR CIRCUIT AND CONTROL CIRCUIT FUSES/BREAKERS AND APPLICABLE PILOT LIGHTS, CONTROL TRANSFORMERS, AND SELECTOR SWITCHES, ETC.

MAINTENANCE AND OPERATION MANUAL

1. CONTRACTOR TO SUBMIT ONE COPY OF MAINTENANCE AND OPERATION MANUALS IN THREE RING BINDER TO ENGINEER FOR APPROVAL AT TIME OF SUBSTANTIAL COMPLETION.
2. MANUALS TO INCLUDE THE FOLLOWING:
   - .1 PROJECT CONTACT INFORMATION
   - .2 APPROVED SHOP DRAWINGS
   - .3 WARRANTIES AND GUARANTEES
   - .4 TEST RESULTS
   - .5 AS BUILT DRAWINGS
3. ON APPROVAL CONTRACTOR TO PROVIDE THREE COPIES OF THE MAINTENANCE AND OPERATION MANUALS IN THREE RING BINDERS c/w CD OF ALL DOCUMENTS IN PDF FORMAT.

PERMITS, CERTIFICATES, AND FEES

1. ON COMPLETION OF THE WORK, SUBMIT CERTIFICATE OF ACCEPTANCE FROM INSPECTION AUTHORITY TO THE ENGINEER.
2. PRIOR TO COMMENCEMENT OF WORK, SUBMIT THE NECESSARY DRAWINGS TO THE ELECTRICAL INSPECTION DEPARTMENT AND THE ELECTRICAL SUPPLY AUTHORITY.
3. PAY ALL ASSOCIATED FEES, AND OBTAIN DOCUMENTS POSTING AS REQUIRED.

INSPECTION OF WORK

1. UPON COMPLETION OF THE BUILDING AND IMMEDIATELY PRIOR TO FINAL INSPECTION AND TAKEOVER, CHECK LOAD BALANCE ON ALL FEEDERS AND AT DISTRIBUTION CENTRES, PANELS, ETC. IF LOAD EXCEEDS 10 PERCENT PHASE IMBALANCE, RECONNECT CIRCUITS TO BALANCE THE LOAD. RECORD EACH PHASE AMPERAGE AND VOLTAGE AND INCLUDE THE RESULTS IN THE MAINTENANCE AND SHOP DRAWING MANUALS.

ALTERNATIVES

1. ALL MATERIALS OR EQUIPMENT AS CALLED FOR ON THE DRAWINGS AND IN THE SPECIFICATIONS BY TRADE NAMES OR BY CATALOGUE REFERENCE NUMBERS, ARE THE MATERIALS ON WHICH THIS TENDER IS TO BE BASED. ALL EQUIPMENT MUST BE INSTALLED AS SHOWN ON THE DRAWINGS OR IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. THE REQUEST FOR APPROVAL SHALL BE ACCOMPANIED BY COMPLETE SPECIFICATIONS OF PROPOSED SUBSTITUTION, SHOWING DIMENSIONS, RATINGS, PHOTOMETRICS DATA, ETC. IT SHALL BE THIS SUB-CONTRACTOR'S RESPONSIBILITY TO MAKE AND ALLOW FOR ANY CHANGES AND CHARGES WHICH WILL OCCUR IF HE WISHES TO SUBMIT ALTERNATIVE EQUIPMENT. NO SUBSTITUTION BY THIS CONTRACTOR WILL BE PERMITTED AFTER CLOSING OF THE TENDERS.
2. THE ENGINEER RESERVES THE RIGHT TO ACCEPT OR REJECT ANY ALTERNATIVES PROPOSED.

GUARANTEE

1. AFTER THE WORK IS COMPLETED BUT BEFORE FINAL PAYMENT, FURNISH TO THE OWNER A WRITTEN GUARANTEE THAT FOR ONE YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION, ANY DEFECTS IN MATERIALS OR WORKMANSHIP WILL BE CORRECTED AT NO COST TO THE OWNER, EXCEPT WHERE, IN THE OPINION OF THE ENGINEER, SUCH DEFECTS ARE DUE TO MIS-USE OR NEGLECT BY THE OWNER.

MINOR FIELD CHANGES

1. THE LOCATION, ARRANGEMENT AND CONNECTION OF EQUIPMENT AND MATERIAL AS SHOWN ON THE DRAWINGS REPRESENTS A CLOSE APPROXIMATION OF THE INTENT AND REQUIREMENTS OF THE CONTRACT. THE RIGHT IS RESERVED BY THE ENGINEERS TO MAKE REASONABLE CHANGES REQUIRED TO ACCOMMODATE CONDITIONS ARISING DURING THE PROGRESS OF THE WORK. SUCH CHANGES SHALL BE DONE AT NO EXTRA COST TO THE OWNER, UNLESS THE LOCATION, ARRANGEMENT OR CONNECTION IS MORE THAN TEN FEET FROM THAT SHOWN AND THE ITEM IN QUESTION HAS BEEN INSTALLED.
2. CONFIRM FINAL LOCATION PRIOR TO INSTALLATION.

CONDUIT

1. INSTALL CONDUIT CONCEALED IN ALL AREAS EXCLUDING MECHANICAL AND ELECTRICAL ROOMS, OR WHERE SPECIFICALLY NOTED AS BEING EXPOSED. RUN PARALLEL OR PERPENDICULAR TO BUILDING LINES.
2. INSTALL AND ATTACH SURFACE MOUNTED CONDUIT WITH TWO HOLE STEEL STRAPS. GROUP CONDUITS WHEREVER POSSIBLE ON CHANNELS.
3. DUCTS USED BELOW GRADE AND NOT UNDER A FLOOR SLAB SHALL BE RIGID P.V.C. OR DBII. CONDUIT INSTALLATION SHALL CONFORM TO THE CURRENT EDITION OF THE CANADIAN ELECTRICAL CODE. WHERE A CONDUIT CROSSES A FOUNDATION WALL OR EXPANSION JOINT, SLEEVING AND APPROPRIATE FITTINGS SHALL BE PROVIDED. INSTALL UNDERGROUND DUCT BANKS AS PER C.E.C. DIAGRAMS D11.
4. FACTORY ELBOWS FOR 90 DEGREE BENDS FOR 2" OR LARGER CONDUITS.
5. MAKE CONNECTIONS TO MECHANICAL MOTORS AND EQUIPMENT WITH P.V.C. JACKETED FLEXIBLE CONDUIT AND LIQUID TIGHT CONNECTORS. MINIMUM SIZE (1/2"). ALL FLEXIBLE CONDUIT OF SUFFICIENT LENGTH TO AVOID TRANSMISSION OF VIBRATION.
6. DO NOT INSTALL CONDUIT LARGER THAN (1") IN POURED CONCRETE SLABS.
7. WHERE 1-1/4" CONDUIT OR LARGER IS SHOWN "UNDER FLOOR", RUN UNDER SLAB ABOVE VAPOUR BARRIER OR IN CEILING SPACE BELOW.
8. WHERE CONDUIT IS INSTALLED IN OR PASSES THROUGH SPECIAL AREAS SUCH AS WATERPROOF OR ISOLATION SLABS, THE INSTALLATION SHALL BE TO THE SATISFACTION AND SPECIFICATIONS OF THE SLAB SUPPLIER OR GUARANTOR.
9. A SEPARATE BONDING CONDUCTOR SHALL BE INSTALLED IN ALL CONDUITS.
10. FISH CORD SHALL BE INSTALLED IN ALL EMPTY CONDUIT SYSTEMS. FISH CORD TO BE POLYPROPYLENE.

WIRE AND CABLE

1. BUILDING WIRE: 98% CONDUCTIVITY COPPER, 90°C RATED 600V INSULATION, RW90 X-LINK FOR DAMP LOCATIONS. COPPER CONDUCTORS SHALL BE STRANDED WHEN LARGER THAN #8 AWG OR AS NOTED.
2. BRANCH CIRCUIT WIRING: THE MINIMUM SIZE OF CONDUCTORS TO BE #12 AWG CU.
3. LOW VOLTAGE SIGNAL WIRING SHALL BE SEPARATED FROM POWER WIRING AND RUN IN SEPARATE RACEWAYS. THIS INCLUDES PANEL WIREWAYS.
4. CABLES IN PLENUMS TO BE FT6 RATED UNLESS INSTALLED IN NON-COMBUSTIBLE CONDUIT.
5. NMD-90 CABLE ALLOWED IN WOOD FRAME CONSTRUCTION.
6. AC90 CABLE ALLOWED IN STEEL FRAME CONSTRUCTION AND LUMINAIRE DROPS. NO SURFACE AC90 CABLE ALLOWED.
7. SURFACE WIRING ALLOWED IN MECH/ELEC ROOMS ONLY.
8. COLOUR CODE TO CSA C22.1 CURRENT EDITION.
9. ALUMINIUM CONDUCTORS CAN NOT BE USED UNLESS SPECIFICALLY SHOWN OR WITH SPECIAL PERMISSION.

RECEPTACLES

1. RECEPTACLES: FULL GANG SIZE, U-GROUNDING TYPE, RATED AT 15A AT 125 VAC WITH PARALLEL SLOTS, DECORA STYLE.
2. SPECIAL RECEPTACLES: GROUND FAULT INTERRUPTING (G.F.I.).
3. COLOUR: PROVIDE WHITE RECEPTACLES IN ALL AREAS. ONE MANUFACTURER THROUGHOUT PROJECT.

PLATES

1. STAINLESS STEEL.
2. WEATHERPROOF AS NOTED.

PANEL BOARDS

1. BRANCH CIRCUIT BREAKERS TO MATCH EXISTING.

MAGNETIC / MANUAL MOTOR PROTECTION SWITCHES AND STARTERS

1. SINGLE PHASE
   - .1 ACROSS THE LINE STARTERS COMPLETE WITH OVERLOAD RELAYS AND TOGGLE SWITCH TYPE HANDLES.
2. THREE PHASE
   - .1 ACROSS THE LINE THERMAL MAGNETIC PROTECTION SWITCHES WITH A THREE PHASE OVERLOAD RELAY AND HEATER ELEMENTS COMPLETE WITH 120V OPERATING COIL, 208/120V CONTROL TRANSFORMER OF SUFFICIENT VA TO HANDLE THE STARTER COIL, CONTROLS, HOA SWITCH, INTEGRAL PILOT LIGHT, AND ONE SET OF NORMALLY OPEN AND ONE NORMALLY CLOSED FIELD INSTALLED AUXILIARY CONTACT.
3. SIEMENS, ALLEN BRADLEY, WESTINGHOUSE OR SQ. D.
4. COMPONENTS
   - .1 THREE PHASE MOTOR DISCONNECT SWITCHES: 3 POLE, UNFUSED, 250V OR AS NOTED IN EEMAC TYPE 1 (OR TYPE 3 FOR OUTDOOR) ENCLOSURES.
   - .2 SINGLE PHASE DISCONNECT SWITCHES: SINGLE POLE, TOGGLE SWITCH.
   - .3 HALF SIZE STARTERS NOT ALLOWED.

DISCONNECT SWITCHES

1. SWITCHES: 400 AMP AND ABOVE TO BE HEAVY DUTY RATED.
2. SWITCHES: 200 AMP AND BELOW TO BE GENERAL DUTY RATED.
3. PROVIDE FUSES FOR ALL DISCONNECTS AS SHOWN.

NAME TAGS

1. PROVIDE LAMICOID NAME TAG INDICATING AMPACITY, VOLTAGE AND PHASE OR INDICATED SYSTEM.
2. LAMICOID TO BE 1/8" THICK PLASTIC ENGRAVING SHEET, BLACK FACE, WHITE CORE.
3. LETTERS TO BE 1/4" HIGH UNLESS SPECIFIED OTHERWISE.
4. ALLOW FOR AVERAGE OF 25 LETTERS PER NAMEPLATE.
5. PROVIDE LAMICOID NAME TAG FOR BREAKERS, METERS, DISCONNECTS, MOTOR PROTECTION SWITCHES, PANEL BOARDS ETC. NAME TAGS SHALL BE MECHANICALLY FASTENED.

MECHANICAL EQUIPMENT CONTROL

1. THIS CONTRACTOR SHALL CO-OPERATE/COORDINATE THE SUPPLY AND INSTALLATION OF CONDUIT AND WIRING FOR LINE VOLTAGE MECHANICAL CONTROLS AND EQUIPMENT INTERLOCKING. LOW VOLTAGE CONTROLS FORM PART OF THE MECHANICAL CONTROL SPECIFICATIONS.
2. PROVIDE LINE VOLTAGE POWER SUPPLY CONNECTIONS TO ALL MECHANICAL EQUIPMENT.
3. CONFIRM LOCATION, AMPACITY, VOLTAGE AND PHASE OF ALL MECHANICAL EQUIPMENT BEFORE CONNECTION. REPORT ANY MAJOR DISCREPANCIES TO THE ENGINEER.

AS BUILT DRAWINGS

1. PROVIDE A CLEAN SET OF DRAWINGS AT THE JOB SITE, FOR AS BUILT MODIFICATIONS ONLY.
2. MARK ALL MODIFICATIONS IN RED, IN A NEAT, LEGIBLE MANNER.
3. SUBMIT AS BUILTS TO ENGINEER FOR APPROVAL.

EMERGENCY SYSTEMS

1. ALL EMERGENCY SYSTEMS ASSOCIATED WITH BUILDING CODE REQUIREMENTS SUCH AS EMERGENCY LIGHTING, FIRE ALARMS AND EGRESS LIGHTING MUST NOT BE ALTERED WITHOUT THE APPROVAL OF THE ENGINEER. SUCH UNAUTHORIZED CHANGES MAY RESULT IN OCCUPANCY PERMIT DELAYS.

SEISMIC

1. ALL ELECTRICAL EQUIPMENT IS TO BE SECURED TO THE BUILDING STRUCTURE TO MEET THE SEISMIC REQUIREMENTS OF THE BUILDING CODE.

FIRE SEPARATIONS

1. THE CONTRACTOR SHALL PROVIDE FIRE STOPPING FOR ALL ELECTRICAL PENETRATIONS THROUGH FIRE RATED ASSEMBLIES.
2. FIRE STOP SYSTEMS SHALL, WHEN SUBJECTED TO THE FIRE TEST METHOD IN CAN/ULC S115 "STANDARD METHOD OF FIRE TESTS OF FIRE STOP SYSTEMS", HAVE AN F OR FT RATING (AS REQUIRED) NOT LESS THAN THE RATING OF THE FIRE SEPARATION.
3. CONTRACTOR SHALL PROVIDE TO ENGINEER/ARCHITECT COMPLETE LISTINGS FOR ALL FIRE STOPPING INSTALLATIONS. PROVIDE SPECIFIC DETAILS REGARDING TYPE OF FIRE STOPPING COMPOUND, APPLICABLE APPLICATIONS, MANUFACTURE, TESTING AGENCY, ETC.
4. CONTRACTOR SHALL NOTIFY ENGINEER/ARCHITECT A MIN. OF ONE WEEK PRIOR TO CONCEALING OF ENCLOSING FIRE STOP ASSEMBLIES AND BE AVAILABLE ON SITE FOR ENGINEERS FIELD REVIEW.
5. ALL ELECTRICAL PANELS, MEDIA PANELS, FIRE ALARM PANELS AND FORCE FLOW HEATERS INSTALLED IN EITHER A FIRE RATED WALL REQUIRED BY BUILDING CODE OR A LOAD BEARING ASSEMBLY SHALL BE BOXED IN WITH DRY WALL AND FIRE BLOCKED SO AS TO MAINTAIN THE FIRE RATING OF THE ASSEMBLY.

EQUIPMENT REMOVALS

1. REMOVE CONDUIT AND WIRE FOR ASSOCIATED ELECTRICAL EQUIPMENT. POWER WIRING TO BE REMOVED BACK TO NEAREST JUNCTION BOX OR BREAKER. COMM. WIRING TO BE REMOVED BACK TO TERMINATION POINT. LIMIT THE FOREGOING SO AS NOT TO DEMOLISH WALL OR CEILINGS THAT WOULD OTHERWISE REMAIN.
2. DISPOSE OF REMOVED ITEMS OFF SITE IN ACCORDANCE WITH APPLICABLE RECYCLING AND DISPOSAL GUIDELINES.
3. REPAIR AFFECTED AREAS TO MATCH SURROUNDING FINISHES.

PROJECT CLOSE OUT PROCEDURES

1. PROVIDE 24 HOUR NOTICE TO THE ENGINEER FOR FINAL FIELD REVIEW FOR ELECTRICAL DISCIPLINE. ELECTRICAL CONTRACTOR TO ENSURE ALL LIFE SAFETY DEVICES ARE INSTALLED AND OPERATIONAL. ELECTRICAL CONTRACTOR TO ENSURE ALL ELECTRICAL WORKS NOT INSTALLED ARE MADE SAFE.
2. THE FOLLOWING DOCUMENTS TO BE FORWARDED TO THE ENGINEER PRIOR TO FINAL FIELD REVIEW:
   - .1 MAINTENANCE MANUALS
   - .2 FIELD SAFETY REPRESENTATIVE (FSR) DECLARATION

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PROJECT

CRTS - RESIDENTIAL TRANSFER BUILDING

TITLE

ELECTRICAL DETAILS AND SPECIFICATIONS

PROJECT NO. 19-3308	SEAL
DATE DECEMBER, 2019	
SCALE N.T.S.	

DRAWING NO.

E-3