Public Works and Government Services Canada | Travaux publics et Services gouvernementaux Canada

RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:

Public Works and Government Services Canada
10025 Jasper Avenue
5th Floor, ATB Place North Tower
Edmonton
Alberta
T5J 1S6
Bid Fax: (780) 497-3510

SOLICITATION AMENDMENT
MODIFICATION DE L'INVITATION

The referenced document is hereby revised; unless otherwise indicated, all other terms and conditions of the Solicitation remain the same.

Ce document est par la présente révisé; sauf indication contraire, les modalités de l'invitation demeurent les mêmes.

Comments - Commentaires

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

Issuing Office - Bureau de distribution
Public Works and Government Services Canada
Northern Contaminated Site Program
ATB Place North Tower
10025 Jasper Avenue
Edmonton
Alberta
T5J 1S6

Title - Sujet Enlèvement et remplacement de réser	
Solicitation No. - N° de l'invitation ET022-200443/A	**Amendment No. - N° modif.** 007
Client Reference No. - N° de référence du client ET022-200443	**Date** 2019-09-25
GETS Reference No. - N° de référence de SEAG PW-$NCS-064-11669	
File No. - N° de dossier NCS-9-42052 (064)	**CCC No./N° CCC - FMS No./N° VME**
Solicitation Closes - L'invitation prend fin **at - à 02:00 PM** **on - le 2019-10-10**	**Time Zone** **Fuseau horaire** Mountain Daylight Saving Time MDT
F.O.B. - F.A.B. **Plant-Usine:** ☐ **Destination:** ☑ **Other-Autre:** ☐	
Address Enquiries to: - Adresser toutes questions à: Dallas Scott	**Buyer Id - Id de l'acheteur** ncs064
Telephone No. - N° de téléphone (780) 224-7200 ( )	**FAX No. - N° de FAX** (780) 497-3510
Destination - of Goods, Services, and Construction: **Destination - des biens, services et construction:** Ya Ha Tinda Ranch, Alberta Canada	

Instructions: See Herein

Instructions: Voir aux présentes

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

Canada

LA MODIFICATION 007 DE L'INVITATION À SOUMETTRE À L'ADRESSE ET022-200443/A COMME SUIT :

1. Questions en suspens de la visite facultative sur place

Question nº 6 : Quel hangar est compris dans la démolition?
Question nº 10 : Le hangar de métal sera-t-il réutilisé?
Question nº 12 : La relocalisation des génératrices en métal fait-elle partie des travaux?

Réponse : Parcs Canada a reconfiguré les génératrices sur place. Présentement, deux génératrices (une remise à neuf, une nouvelle) sont en opération dans la remise en métal. Les deux génératrices seront déplacées au nouveau site et elles seront alimentées par la réserve de carburant. Les deux génératrices auront besoin d'une nouvelle structure fermée telle que décrite dans la modification à la section 13 34 23 – bâtiment préfabriqué. L'entrepreneur fournira et installera le bâtiment préfabriqué. La remise en métal actuelle ne sera pas réutilisée car elle sera démolie et déplacée par l'entrepreneur.

Les bordures de béton autour des réservoirs stués sur la plateforme ont été ajoutées à la modification dans la section 33 56 13 – réservoirs de stockage de surface sous l'article 2.4 – béton.

2. Réviser APPENDICE 1 – TABLEAU DE VENTILATION DES COÛTS

EFFACER : APPENDICE 1 – TABLEAU DE VENTILATION DES COÛTS (RÉVISÉ 2019-08-27) – dans son intégralité

INSÉRER : APPENDICE 1 – TABLEAU DE VENTILATION DES COÛTS (RÉVISÉ 2019-09-25) – attaché

3. Réviser ANNEXE A – SPECIFICATIONS ET DESSINS

À "33 56 13 – ABOVE GROUND FUEL STORAGE TANKS" (178/292): "2.4 CONCRETE"

EFFACER :
".1 In accordance with Section 03 30 00 - Cast-in-Place Concrete.
.2 Pad elevation to match fueling ramp."

INSÉRER :
".1 In accordance with Section 03 30 00 - Cast-in-Place Concrete.
.2 Pad elevation to match fueling ramp.
.3 Contractor to provide 150 mm high by 150 mm wide concrete curb (not a containment curb as fuel tanks are double wall) around perimeter of the fuel tank concrete slab.
.1 Curb to be reinforced 1-15M continuous horizontal rebar centred in the curb 50 mm from the top of the curb and 15M vertical rebar spaced at 300 mm centre-to-centre.
.2 Curb to include relief valve to allow for drainage of rainwater within curbed area, with concrete pad sloped (1%) towards the relief valve.
.3 Construction joint between slab and curb to be sealed with diesel resistant caulking on inside face (fuel tank side) only.
.4 Curb and valve to be tested for leaks during system commissioning.
.5 Concrete and reinforcing work to be completed as per Sections 03 10 00 - Concrete Forming and Accessories, 03 20 00 - Concrete Reinforcing and 03 30 00 - Cast-In-Place Concrete."

4. Ajouter « PREFABRICATED BUILDINGS » à ANNEXE A – SPECIFICATIONS ET DESSINS

À ANNEXE A – SPECIFICATIONS ET DESSINS

INSÉRER : “13 34 23 – PREFABRICATED BUILDINGS”– attaché

****** Nous déménageons! Jusqu’au 27 septembre 2019, les soumissions seront reçues à la Place ATB, tour Nord, 10025, avenue Jasper, 5e étage, Edmonton (Alberta), T5J 1S6. À compter du 30 septembre 2019, les soumissions seront reçues à la Place du Canada, pièce 1000, 9700, avenue Jasper, Edmonton (Alberta), T5J 4C3******

Si vous avez déjà soumis votre proposition, il se pourrait que vous souhaitiez la réviser. Les révisions de votre proposition doivent être soumises dans une enveloppe scellée (le contenu doit être indiqué clairement sur l’extérieur de l’enveloppe). L’Unité de réception des soumissions doit recevoir toute révision de votre proposition au plus tard à la date et à l’heure d’échéance indiquées à la page 1 du présent document. Les révisions de votre proposition reçues après la date et l’heure d’échéance seront considérées comme en retard et seront retournées sans être ouvertes.

TOUTES LES AUTRES MODALITÉS DE LA DEMANDE DE SOUMISSIONS DOIVENT DEMEURER EN VAGUER A PLEIN EFFET

APPENDICE 1 – TABLEAU DE VENTILATION DES COÛTS

(RÉVISÉ 2019-09-25)

La table ci-dessous n'est fournie qu'à titre d'information.

Avant l'attribution du marché, le soumissionnaire/l'entrepreneur offrant le meilleur rapport qualité-prix devra remplir le formulaire ci-après. Le prix total évalué doit être égal au prix indiqué dans la soumission conformément au total du formulaire de soumission de prix donné au moment de la clôture de l'invitation à soumissionner.

ARTICLE	DESCRIPTION	UNITÉ	TOTAL
1	BDPC-1 - Balance des coûts du projet, notamment : - les coûts indirects variables pour les frais généraux et administratifs, - les coûts pour les expéditeurs, - l'assurance de responsabilité civile commerciale, - l'assurance tous risques, - les coûts pour la Commission des accidents du travail, - les dépenses d'affaires, - l'équipement accessoire, - les véhicules de service, - la supervision, - les réparations de l'équipement et du matériel et le transport des pièces.		$_____
2	RÉSERVOIRS - Démolition et enlèvement des réservoirs de stockage hors sol	Montant forfaitaire	$_____
3	RÉSERVOIRS - Travaux de génie civil et de structure	Montant forfaitaire	$_____
4	RÉSERVOIRS - Réservoirs et tuyauteries de carburant IP	Montant forfaitaire	$_____
5	RÉSERVOIRS - Travaux électriques	Montant forfaitaire	$_____
6	GÉNÉRATRICE - Travaux de génie civil et de structure	Montant forfaitaire	$_____
7	GÉNÉRATRICE - Bâtiment préfabriqué IP	Montant forfaitaire	$_____
8	GÉNÉRATRICE – Travaux électriques	Montant forfaitaire	$_____
9	Mobilisation/Démobilisation	Montant forfaitaire	$_____
	Total pour la ventilation du montant forfaitaire : Ce montant en dollars est égal au montant prévu pour SA03 - OFFRE dans le FORMULAIRE DE SOUMISSION ET D'ACCEPTATION (SA)		$_____

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 26 00 10 - Common Work Results for Electrical

.2 Section 26 05 02 - Electrical Inspection and Testing

.3 Section 26 05 28 - Grounding Secondary

.4 Section 26 05 29 - Hangers and Supports for Electrical Systems

.5 Section 26 05 31 - Splitters, Junction, Pull Boxes and Cabinets

.6 Section 26 05 32 - Outlet Boxes, Conduit Boxes and Fittings

.7 Section 26 05 34 - Conduits, Conduit Fastenings and Conduit Fittings

.8 Section 26 24 16 01 - Panelboards Breaker Type

.9 Section 26 28 23 - Disconnect Switches - Fused and Non-Fused

1.2 REFERENCES

.1 Alberta Building Code (ABC), Latest Edition

.2 National Energy Code for Buildings (NECB), Latest Edition

.3 American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE).

.1 ASHRAE 90.1 (SI Edition), Energy Standard for Buildings Except Low-Rise Residential Buildings.

.4 Canada Green Building Council (CaGBC).

.1 LEED Canada-NC Version 1.0, LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Package for New Construction and Major Renovations (including Addendum 2007).

.5 Canadian Sheet Steel Building Institute (CSSBI).

.1 CSSBI 30M, Standard for Steel Building Systems.

.6 National Research Council (NRC)/Institute for Research in Construction (IRC).

.1 Construction Technology Update No. 9, Evolution of Wall Design for Controlling Rains Penetration.

.2 Construction Technology Update No. 17, Pressure Equalization in Rainscreen Wall Systems.

.3 Construction Technology Update No. 34, Designing Exterior Walls According to the Rainscreen Principle.

1.3 SCOPE OF WORK

.1 This section covers prefabricated building requirements for the pre-fabricated skid building.

.2 The building will house two generators, one of which will run continuously. The only power on site will be from the operating generator. The building is not intended to be occupied beyond normal maintenance, inspection and operation.

.3 The building will be heated from the waste heat from the generator.

.4 It is not the intent of this specification to completely specify all details of design and construction.

.5 The selection of all materials, accessories, and methods of fabrication not specifically covered by these specifications, but which are necessary to complete the fabrication of the prefabricated building shall be the responsibility of the Vendor and shall be carried out in accordance with good engineering and construction practices.

.6 In case of conflict within this specification or between the specifications, drawings and any other supplemental specifications, the Contractor shall immediately submit the matter in writing to the Owner's Representative.

.7 Architectural

.1 The architectural scope of work includes all the roof, wall and soffit cladding, doors, hardware (except as noted in sentence 4.2), and insulation. Building insulation (walls, roof and floor) to meet the latest edition of the NECB and ABC, whichever governs.

.2 Coordinate installation of lockset for exterior door. Lockset installed at fabrication facility.

.3 Building to be approximately 6.6 m by 4.8 m. Vendor to confirm required building size. Building to house two generators and maintain 1.3 m clearance on three sides from the interior walls to the generator with a minimum 1.0 m between generators.

.8 Structural

.1 The structural scope includes the design, supply, and installation of all material including the self-framing building, steel skid, and exterior steel stairs.

.2 Add 6 vibration isolators to each generator frame to isolate the generator from the building.

.3 The vendor shall provide all requirements to transport the completed building to site. This includes the transportation permits, and observes all regulations and restrictions for transporting on provincial roadways and municipal roadways. The vendor shall provide all necessary equipment including trailers for the safe transportation of the completed building to site.

.4 The vendor shall provide and install all necessary preservation material to the building including shrink wrap during transportation and storage on site. Equipment shipped loose inside the building shall be secured for safe transportation.

.5 The vendor shall design, supply and install all necessary lifting attachment lugs for erecting the building on the foundation. The vendor shall provide drawings indicating the location and lifting loads at each lifting lug location. The loads shall be determined using load cells positioned at each lift lug location. The drawings will include the total lift load and centre of gravity of the building.

.6 The Contractor shall place be responsible to place the building in the specified location.

.7 The vendor for will include all engineering design notes, general arrangement drawings, and shop drawings that have sealed by a Professional Engineer, registered in the Province of Alberta.

.8 The skid general layout and interior building dimensions shall generally conform to the contract documents. The vendor shall notify the contactor and Consultant if the building dimensions needs to be changed to suit vendor requirements.

.9 The vendor shall coordinate all work with all other engineering disciplines.

.9 Mechanical Ventilation and Heating (HVAC)

.1 The mechanical scope includes the design, supply, and installation of mechanical equipment.

.2 Damper Descriptions:

.1 Modulating “exhaust air” damper common to the generators. (Damper on exhaust air duct from generator to exterior discharge.)

.2 Modulating “recirculation air” damper common to the generators (Damper on exhaust air duct to divert exhaust air back to the building.)

.3 Two-position “outside air” damper at exterior wall – 1 total. (Damper at exterior wall to allow fresh air to enter the building based on building pressurization.)

.4 Sized for the combustion and cooling requirements to the generator

.1 3 m^3/min combustion, maximum restriction 6.2 kPa

.2 102 m^3/min cooling, maximum restriction 19.1 mmH_20

.3 Generator Exhaust shall be residential grade for 56 m^3/min, maximum 10.2 kPa back pressure.

.4 Provide exhaust fan connected to thermostat, set to turn on and open damper at 30 ºC

.5 Control Sequences:

.1 I: Temperature Control

.1 When the proportional thermostat registers a call for heat:

.2 Modulate the “exhaust air” damper for the active generator closed between 100 and 0%.

.3 Modulate the recirculation air damper for the active generator open between 0 % and 100 %.

.4 When the proportional thermostat registers an elevated temperature:

.5 Modulate the “exhaust air” damper for the active generator open between 0 and 100%.

.6 Modulate the recirculation air damper for the active generator closed between 100 % and 0 %

.7 Note: The wall-mounted propane-fired heater is to be run by packaged controls so a controls sequence is not required for it.

.2 II: Pressurization Control

.1 When either generator, or both generators, are operating:

.2 Set the “outside air” damper to the open position.

.3 Modulation of the “exhaust air” and “recirculation air” dampers is enabled.

.4 When both generators are off or failed:

.5 Set the “outside air” damper to the closed position.

.6 Set all “exhaust air” dampers and “recirculation air” dampers to the closed (0%) position. The vendor for will include all engineering design notes, general arrangement drawings, and shop drawings that have sealed by a Professional Engineer, registered in the Province of Alberta.

.7 The vendor for will include all engineering design notes, general arrangement drawings, and shop drawings that have sealed by a Professional Engineer, registered in the Province of Alberta.

.8 The skid general layout and interior building dimensions shall generally conform to the contract documents. The vendor shall notify the contactor and Consultant if the building dimensions needs to be changed to suit vendor requirements.

.9 The vendor shall coordinate all work with all other engineering disciplines.

.10 Electrical Scope of Work

.1 Change the weather rated exterior equipment for the genetaors to NEMA 1. Install the gutter, transfer switches and panels provided on the drawing inside the building.

.2 The rack and equipment at the pole will remain.

.3 The electrical scope includes the design, supply, and installation of all electrical equipment. Reuse existing panels and disconnects from the existing building.

.4 Supply and installation of incoming and outgoing power, gutters, receptacles (power and generator).

.5 Supply and installation of the panelboard and breakers.

.6 Supply and installation of interior and exterior lighting, switches, emergency lighting and photocell.

.7 Supply of Roxtec frames, seals and accessories. Installation of the frames.

.8 Wiring of the HVAC equipment.

.9 Supply and installation of main ground bus, and bonding of the structure and equipment to the ground bus.

.10 Coordination of space allowance, wall reinforcing, and floor penetrations for the following equipment supplied and installed by others.

.11 The vendor for will include all engineering design notes, general arrangement drawings, and shop drawings that have sealed by a Professional Engineer, registered in the Province of Alberta.

.12 The skid general layout and interior building dimensions shall generally conform to the contract documents. The vendor shall notify the contactor and Consultant if the building dimensions needs to be changed to suit vendor requirements.

.13 The vendor shall coordinate all work with all other engineering disciplines.

1.4 SUBMITTALS

.1 Submit in accordance with Division 01 - Submittal Procedures.

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for sealants, insulation, and building materials and include product characteristics, performance criteria, physical size, finish and limitations.

.2 Submit two (2) copies of WHMIS MSDS in accordance with Division 01, for the following:

.1 Sealants.

.2 Tape.

.3 Proprietary joints.

.3 Submit Material Test reports for structural steel conforming to CSA G40.20/.21.

.3 Shop Drawings:

.1 Submit drawings stamped and signed by Professional Engineer, registered in the Province of Alberta.

.2 Provide plans, sections and elevations showing grid lines, structural members, connection details, bearing and anchorage details, roof cladding, wall cladding, framed openings, accessories, schedule of materials and finishes, camber and loadings, mechanical fasteners and welds.

.3 Indicate detailed description of mechanical, electrical and other systems in Work. The drawings shall be comprehensive and cover all items covered in Section

.4 Describe requirements of other systems of components related to this Work but provided by others.

.1 Obtain necessary information required to detail this Work including methods of integration and securing.

.5 Submit erection and shop drawings for approval, prior to fabrication and construction.

.6 Indicate erection dimensions and methods.

.7 Electrical and mechanical HVAC equipment, electrical devices, Roxtec seals, instrumentation, and control equipment.

.4 Manufacturer's Instructions: submit all manufacturing requirements.

.5 Manufacturer's Field Reports: submit to owner's representative manufacturer's written report, within 5 days of review, verifying compliance of Work, as described in PART 3 - FIELD QUALITY CONTROL.

.6 Submit following documents in accordance with CSSBI 30 M para 14:

.1 Submit a completed “Certificate of Design and Manufacturing Conformance with ABC, Latest Edition”.

.2 Certification that building is in accordance with contract requirements.

.3 Certification that the building is in accordance with the requirements of the National Energy Code of Canada, latest edition.

.4 Executed Schedules A2, B1, B2, C2 of the Alberta Building Code, latest edition. Prior to the acceptance of the C2 schedule, construction inspection report(s) shall be submitted for review.

.5 A structural analysis certification of building system.

.6 Certification stating design criteria used and loads assumed in design and placing sole responsibility for design of building components with steel building systems manufacturer.

.7 Third party inspection report that indicates the structure has been constructed as per the manufactures design.

1.5 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Division 01.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:

.1 Store materials in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Store and protect components and equipment from nicks, scratches, and blemishes.

.3 Replace defective or damaged materials with new.

Part 2 Products

2.1 MATERIALS

.1 Insulation ribs, spacers and other accessories: 1.21 mm minimum core thickness steel, zinc coated to ASTM A525, Z275 coating.

.2 Welding materials: to CSA W59.

.3 Roof Panels and Wall Cladding: minimum 0.76 mm (22 gauge) pre-finished sheet steel. Provide roof panel with minimum 76 mm high standing seam and wall panels having 35 mm profile.

.4 Liner: 0.61 mm (24 gauge) pre-finished sheet steel.

.5 Sheet steel: for roof and cladding wall, downspouts and gutters, flashing exposed to exterior, to ASTM A653/653A, Grade A or better, 0.76 mm minimum core thickness, coated on both sides with Aluminum zinc alloy to 180 g/m^2 minimum and factory pre-coated with modified silicone finish, selected colour, dry film thickness of 0.025 mm on exposed surface conforming to test procedures described in CSSBI Steel Sheet facts #6.

.6 Screws: stainless steel, 300 series self tapping, or 2.0 mil Zn or Cd coating with heavy dichromat, purpose made, where exposed provide head colour same as sheet, dished stainless steel/neoprene, to CSA B35.2.

.7 Insulation: fibrous glass to CSA A101-M Type 1A, 18 kg/m^3 density. Approved product: Fibreglass AF110.

.8 Tape: thermal tape to manufacturer's standard.

.9 Vapour barrier: as recommended by Steel Building System Manufacturer.

.10 Insulation adhesive: purpose made for insulation type and zinc coated steel liner sheet, incombustible after initial set.

.11 Isolation coating: alkali-resistant bituminous paint.

.12 Double doors and frames: Doors are fire rated and thermally insulated. Doors and frames shall comply with requirements of Canadian Manufacturing Standards for Steel Doors and Frames published by the Canadian Steel Door and Frame Manufacturers' Association.

.13 Closures: neoprene closed cell with same level of resistance to the passage of water and vapour as that provided by the vapour barrier. Metal of same material as sheet metal.

.14 Sealants: as recommended by building manufacturer.

.15 Structural steel conforming to CSA G40.20/G40.21, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.

.1 Wide flange beams grade 350W.

.2 Lifting lugs grade 350WT-cold weather steel.

.3 Steel plate and angle grade 300W.

2.2 SYSTEM DESCRIPTION

.1 Provide building structure and enclosure to physical dimensions as indicated in the specifications. Ensure the building dimensions for the interior space are maintained and thermal movements are accommodated. Provide a gable type roof complete gable to be orientated such that snow and rain is directed away from the man door. Eavestroughs and gutters are to be included as required complete with concrete splash pads at the outlet of all gutters.

.2 Building occupancy as defined by National Building Code of Canada, 2010 is Group F, Division 3. The building size and construction relative to occupancy shall be defined as stated in sentence 3.2.2.87, NBC 2015, Group F, Division 3, One Storey, Any Area, and Low Fire Load Occupancy. The building shall satisfy all the requirements of this sentence including:

.1 Not more than 1 storey in building height.

.2 The building shall be of non-combustible construction.

.3 Generally, the building is intended to enclose electrical equipment and shall be unoccupied.

.4 Roof system consisting of pre-finished metal interior liner panels, insulation, pre-finished exterior standing seam roof panels connected through spacers and clips such that air/vapour barrier is maintained and thermal movements are accommodated.

.5 Wall system: Pre-finished metal wall cladding, framing, spacers, clips, pre-finished metal interior liner panels and accessories necessary to maintain the integrity of the air-vapour barrier and such that thermal movements are accommodated. Provide all connections necessary to assemble the wall system.

2.3 DESIGN CRITERIA

.1 Maintain heat transfer to maximum 'U' value as calculated by ASHRAE 90.1 zone method.

.2 Design and fabricate structural steel in accordance with CAN/CSA-S16 and in accordance with reviewed shop drawings.

.3 Design building to allow for thermal movement of component materials caused by ambient temperature range of -43°C to +36°C without causing buckling, failure of joint seals, undue stress on fasteners or other detrimental effects.

.4 The building shall be designed and constructed by a manufacturer who is regularly engaged in the design and fabrication of pre-engineered structures.

.5 Submit a "Certificate of Design and Manufacturing Conformance for the Steel Building System Described" in form developed by CSSBI and completed by a Professional Engineer, registered or licensed in the Province of Alberta.

.6 Ensure total absence of condensation on interior surfaces under the following minimum condition:

.1 Interior: 18ºC, 40% RH, still air.

.2 Exterior: minus 43ºC, 26 km/h wind.

.7 Overall effective thermal resistance: as required by the NECB and ABC, latest editions.

.8 Building shall be weather tight, including snow, water and wind.

.9 Provide for positive drainage of condensation occurring within wall construction and water entering at joints, to exterior face of wall.

.10 Design superstructure and anchorages to withstand all dead, live, seismic, wind, rain, snow loading in accordance with the National Building Code of Canada 2010. The Vendor Engineer shall submit reaction loads to the Consultant for review.

.11 Provide for positive drainage of condensation occurring within wall construction and water entering at joints, to exterior face of wall in accordance with "Rain Screen Principles", as described by NRC/IRC.

.12 Vapour seal building enclosure to withstand, without failure, design RH at design ambient temperature condition, maintained against interior atmospheric pressure of 250 Pa.

.13 Contractor is responsible to acquire climatic data as required from Environment Canada. Provide climatic design information for seismic, wind, rain and snow used in the design of the pre-fabricated building and shall submit a copy to the Owner’s representative.

Live and Dead Loads as follows:

.1 Main floor occupancy live load of 4.8 kPa

.2 Equipment loads.

.3 Dead Loads: self-weight of materials

.4 Collateral Roof Load – 1.0 kPa and concentrated loads as required for hanging equipment.

.5 Building shall be designed for importance factor of post-disaster.

.14 Design building enclosure elements to accommodate, by means of expansion joints, movement in wall and structural movements without permanent distortion, damage to infills, racking of joints, breakage of seals, water penetration or glass breakage.

.15 The completed building exterior to interior sound attenuation shall be designed for a sound transmission class (STC) of not less than STC 50.

.16 Design, assemble and secure building elements to building frame to ensure stresses in sealants and seals are within sealant manufacturer's recommended maximum.

.17 Design building assembly to permit easy replacement (and disassembly) of components.

.1 Use non-welded construction.

.18 Allow for ceiling, electrical conduit and other interior dead loads imposed on this structure.

.19 Building interior environment: heated by generator waste heat continuously.

.20 Building interior ventilation: of one (1) air changes per hour.

.21 Building lighting: maintain measured lighting level of 300 lx at 940 mm above finished floor, after building finishes and painting complete.

.22 Metal door 1850 x 2100mm; insulated and weather stripped. Coordinate lockset installation with lockset installer.

2.4 PERFORMANCE CRITERIA

.1 Maximum deflection for roofing under full specified live load: 1/240 of clear span.

.2 Maximum deflection for exterior cladding under full specified exterior wind induced loads: 1/240 of clear span.

.3 Maintain following tolerances for building structure and enclosure elements:

.1 Maximum variation from plane or location shown on shop drawings: 1 mm/1 m of length and up to 1 mm/5 m maximum.

.2 Maximum offset from true alignment between two adjacent members abutting end to end, in line: 0.75 mm.

2.5 FABRICATION

.1 Roll form "Z" or "C" purlin and stud sections and stiffen with lips at 90°or 135° degrees according to member design.

.2 Factory punch holes for attachments. Holes for roof and wall covering may be field drilled provided all metal shavings from drilling are removed.

.3 All wall and roof penetrations greater than 200 mm in any dimension shall be structurally framed.

.4 Hot-Dip galvanize all framing members and fasteners in accordance with CSA G164.

.5 Exterior sheet - wall: factory preformed precoated metal, to profile indicated, male and female lipped edges. Increase core thickness if required for structural load carrying capacity.

.6 Exterior corners - wall: of same material, finish and profile as adjacent siding material, shop cut and brake formed to right angle, screw connections with head colour to match siding.

.7 Ends of wall exterior sheets shall be cut clean and square right angles to profile. Screw connections and any exposed components to be colour matched to siding.

.8 Accessories to exterior wall siding, brake or bend to shape, of same material comprising cap flashings, drip flashings, internal corner flashings, copings and closures for head, jamb, sill, corners. Colour to match adjacent material unless noted otherwise on drawings.

.9 Exterior sheet - roof: factory preformed metal, to profile indicated, male and female lipped, female lip filled to fifty percent (50%) with non-skinning sealant. Increase core thickness if required for structural load carrying capacity.

.10 Ends of roof cladding sheets shall be cut clean and square right angles to profile. Use full length sheets. Exposed components colour-matched to siding.

.11 Accessories to roof cladding, brake or bend to shape, of same material and colour comprising cap flashings, drip flashings, coping and closures for head, jamb, sill, corners.

Part 3 Execution

3.1 ERECTION

.1 Touch up shop primer to bolts and welds and burned or scratched surfaces neatly at completion of erection.

.2 Erection tolerances: 1 in 500.

.3 Secure wall siding assemblies, flashings and trim to material fabricators instructions, ensuring a completed installation free from noise, rattles, wind whistles, or noise due to thermal movement.

.4 Ensure installation is weathertight.

.5 Secure roof sheets to structural supports. Terminate sheet ends over structural supports only. Use concealed type fasteners except fasteners at sheet ends may be exposed type, colour matched to sheets.

.6 Caulk end laps and supplement factory side lap caulking as required, to ensure permanent weathertight continuous seals.

.7 Allow for thermal movement of roof sheets with appropriate watertight fastening method.

.8 Ensure a completed installation free from noise, rattles, wind whistles, or noise due to thermal movement.

.9 Secure trim in place true to line and in locations shown to give a neat finished appearance to the structure.

.10 Do prefabricated metal building Work to CSSBI 30M.

.11 Erect building structure and enclosure elements.

.12 Install electrical equipment in accordance with Division 26.

3.2 LINER AND VAPOUR BARRIERS

.1 Profile sheet metal to manufacturer's standards and to suit required structural capacity.

.2 Apply sealant to edges and ends of panels to provide a permanent vapour seal.

.3 Poly vapour barrier to be sealed air tight throughout with acoustical caulking and/or poly tape.

.4 Apply thermal tape to faces of members with direct connection to exterior, prior to fastening the liner to such members.

.5 Fasteners shall seal vapour tight at penetrations.

.6 Caulk closures in place.

.7 Secure liner sheet with inter locking side seals end joints using self-tapping screws.

.8 Ensure a continuous vapour and air barrier seal throughout.

3.3 INSULATION

.1 Protect insulation from becoming wet or damp from any cause. Replace insulation if moisture content exceeds 10 g/m^3.

.2 Place in constant width and thickness to ensure uniformity of resistivity and the specified RSI values for each component. Cut and fit snugly around any penetrations.

.3 Secure wall insulation to liner panel with adhesive.

3.4 REMEDIAL WORK

.1 Remove and replace any work that becomes damaged during course of construction. Sheet metal shall be true to line and profile with no kinks, damage or patches. Replace any sheets that become scuffed or discoloured.

3.5 FACTORY INSPECTIONS

.1 Notify Owner's representative five (5) days in advance of the following milestones for factory inspection. Factory inspection to be carried out by the Contractor.

.1 Completion of structural base.

.2 Completion of rough framing and vapour barrier.

.3 50% completion of architectural, mechanical, and electrical equipment.

.4 100% completion of architectural, mechanical and electrical equipment, and interior and exterior finishes.

3.6 FACTORY ACCEPTANCE

.1 100% inspection on all bolted connections. Provide test reports for review.

3.7 FIELD QUALITY CONTROL

.1 Manufacturer's Field Services:

.1 Obtain written report from manufacturer's verifying compliance of Work, in handling, installing, applying, protecting and cleaning of product and submit Manufacturer's Field Reports as described in PART 1 - ACTION AND INFORMATIONAL SUBMITTALS.

.2 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

.3 Ensure manufacturer's representative is present before and during critical periods of installation and testing.

.4 Schedule site visits:

.1 The Contractor is responsible for scheduling all site visits required by the person or persons responsible for signing Schedules as noted in Section 1.5.6.3

.5 Test the system in accordance with Section 26 05 02 - Electrical Inspection and Testing.

3.8 CLEANING

.1 Progress Cleaning: clean in accordance with Division 01 - Cleaning.

.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Division 01 - Cleaning.

.1 Remove excess sealant by moderate use of low VOC mineral spirits or other solvent as directed by sealant manufacturer.

.2 Clean surfaces.

.3 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.9 PACKAGING AND SHIPMENT

.1 Protect finished surfaces with strippable coatings, strippable wrappers, plywood or sheet materials as required before acceptance of Work at site.

.2 Protect installed products and components from damage during construction.

.3 Repair damage to adjacent materials caused by sealants, insulation, and building materials installation.

.4 Any shelf-mounted equipment or materials shall be removed before shipment, and repackaged in its original containers for shipment to site.

.5 Any loose components shall be taped or tied down, and/or supported so as to provide a tight, vibration free shipping unit.

END OF SECTION