

THE REGIONAL MUNICIPALITY OF NIAGARA

TENDER 2017-T-104 (RN 17-04)

**Regional Municipality of Niagara
South Side Low Lift Sewage Pumping Station Upgrades
City of Niagara Falls**

ADDENDUM NO. (8)

I DIRECTIVE

This addendum shall form an integral part of the plans and specifications for the above project and shall be read in conjunction therewith. This addendum shall, however, take precedence over all requirements of the previously issued drawings and specifications with which it may prove to be at variance, unless otherwise clarified by the Engineer.

This addendum must be signed by the Tenderer in the appropriate space and must be attached to the back of the Form of Tender and placed in the Envelope for submission at the time of tendering. **Tenders not including this addendum signed as requested shall be rejected as informal.**

II REVISION

Please note the bidding period has been extended until 2:00 pm local time on TUESDAY MAY 2, 2017.

Question period has closed and will not be extended.

III CLARIFICATION

It is the Contractor's responsibility to provide their own equipment to move, lift and load (i.e. fork lift, machine skates, crane, etc.) the Diesel Electric Generator and Pumps from the storage location. **Addendum 2** identifies approximate size and weight of each piece of equipment.

IV QUESTION

Q1. The duct heater tagged DHT-1 on the unit heater schedule will pose a considerable pressure drop when operated at the design airflow rate. Would you please confirm that the fan feeding this duct heater can accommodate the estimate 3" w.g. of static pressure drop that this heater will exert on this system?

A1. **On drawing M201, make the following changes on the Fan Schedule:**

- SF-1: Model Number changed to BSQ-140HP-3, Motor shall be 600/3/60, 0.25 kW;
- SF-2: Model Number changed to BSQ-180-20, Static Pressure shall be 300 Pa, Motor shall be 1.5 kW;
- EF-3: Model Number changed to BSQ-140HP-3, Motor shall be 600/3/60, 0.25 kW.

The power for supply fan SF-3 shall be 120VAC, 1 phase from Lighting panel LP-A circuit 15 instead of 575VAC, 3 phase from MCC.
The model number of Duct heater DHT-1 shall be 227-F30E-0256Z-CDEFP.

Provide transition duct both upstream and downstream of the duct heater. Locate the heater close to the center walkway to provide access. Adjust ductwork and submit the arrangement through shop drawing process.

Q2. Regarding specifications and details for the Insulated Metal Panel Roofing System, Morin/Kingspan cannot do what is designed; we can taper our panels as small to 6" between each joint. The issue is when we laid our panels on a drawing for this project, our panels ended up being 9' short from the peak. Please advise if the Region can present a solution for this issue.

A2. The Metal Roof Panel specification and details have been modified.

REMOVE Division 7, Specification Section 07410

REPLACE with the **attached** REVISED Specification 07410 Metal Roof Panels

A roof system sketch has also been included to provide further details.

END OF ADDENDUM NO. 8

NO. OF PAGES: 2

Date Issued: April 20, 2017

Signature: Vicki Lafford-Field
Purchasing Agent

THE TENDERER SHALL ADJUST HIS BID PRICE ACCORDING TO THE CHANGES SPECIFIED IN THIS ADDENDUM.

Name of Company: _____

Tenderer's Signature: _____

Date: _____

1. GENERAL

1.1 Section Includes

- 1.1.1 Section includes Architectural, single element, metal roof panels, accessories including concealed anchor clips, fasteners, perimeter flashings, underlayment, trim and penetration treatments.

1.2 Related Sections

- 1.2.1 Section 06100 - Rough Carpentry
1.2.2 Section 07620 – Sheet Metal Flashing and Trim
1.2.3 Section 07920 - Joint Sealers

1.3 References

- 1.3.1 Canadian Sheet Steel Building Institute (CSSBI) Bulletin No. 9, Core and Maintenance of Pre-finished Sheet Steel Building Products.
1.3.2 ASTM A641; Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
1.3.3 ASTM A653; Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
1.3.4 ASTM A666; Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
1.3.5 ASTM A792 – Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
1.3.6 ASTM B32, Standard Specification for Solder Metal.
1.3.7 ASTM B85; Standard Specification for Aluminum-Alloy Die Castings.
1.3.8 ASTM B209; Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
1.3.9 ASTM B221; Standard Specification for Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles and Tubes.
1.3.10 ASTM C920 – Standard Specification for Elastomeric Joint Sealants.
1.3.11 ASTM D523, Standard Test Method for Specular Gloss.
1.3.12 ASTM D2247; Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity.
1.3.13 ASTM E1592; Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference.
1.3.14 ASTM E1646; Standard Test Method for Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference.
1.3.15 ASTM E1680; Standard Test Method for Rate of Air Leakage through Exterior Metal Roof Panel Systems.

1.4 Operations

- 1.4.1 Perform operations, at times designated by Owner, that will not adversely affect occupants of building and operations in and around site access and egress.

1.5 Protection

- 1.5.1 Protect work of this section from damage. Damaged work which cannot be satisfactorily repaired, restored or cleaned shall be replaced at no cost to Owner.

1.6 Mock-Up

- 1.6.1 Fabricate mock-up in one tapered segment minimum with reviewed materials, approved methods including, joints, seams, starter strips and fasteners. Mock-up, if accepted, shall represent the minimum standard for work. Mock-up may be included as part of final work.

1.7 Submittals

- 1.7.1 Refer to Section 01330 Submittal Procedures.
- 1.7.2 Product Data: Submit manufacturer current technical literature for each type of product to Consultant and Owner for review prior to commencing work.
- 1.7.3 Shop Drawings: Submit detailed drawings showing profile, Gauge of panel, location, layout and dimensions, location and type of fasteners, shape and method of attachment of all trim, locations and type of sealants, other details as may be required for a weathertight installation.
- 1.7.4 Samples: Submit samples of metal roofing type and colour to Consultant and Owner for review prior to commencing work.

1.8 Quality Assurance

- 1.8.1 Sheet Metal Work shall be executed in accordance with SMACNA Architectural Sheet Metal Manual - 1993 (Addendum No. 1 – October 31, 1997), by skilled trades having a minimum of five (5) years related experience.
- 1.8.2 Manufacturer Qualifications: Manufacturer shall have a minimum of ten (10) years' experience in the production of metal roof panels. Manufacturer shall demonstrate past experience with examples of projects of similar type and exposure.
- 1.8.3 Provide manufacturer test reports indicating product compliance with requirements.
- 1.8.4 Provide manufacturer's written installation instructions including proper material storage, material handling, installation sequence, panel location(s) and attachment methods, details and required trim and accessories.
- 1.8.5 Installer Qualifications: Installer shall be authorized by the manufacturer regarding proper installation of the specified product.

1.9 Delivery, Storage and Handling

- 1.9.1 Deliver panel materials and components in manufacturer's original, unopened, undamaged packaging with identification labels intact.
- 1.9.2 Store roof panel materials on dry, level, firm and clean surface. Elevate one end of bundle to allow moisture run-off, cover and ventilate to allow air to circulate and moisture to escape.

1.10 Warranty

- 1.10.1 Provide minimum two (2) year Warranty from date of Substantial Performance, as certified by Consultant. Warranty shall be submitted against defects in workmanship and materials.
- 1.10.2 Successful Bidder must extend Warranty on replaced parts and workmanship for a period of two (2) years from date of acceptance of replacement parts and

workmanship. Defects will include but will not be limited to leaking, failure to stay in place, lifting, deformation and breaking of weathertight seals.

- 1.10.3 Provide all additional warranties that may be available from manufacturer.

2. **PRODUCTS**

2.1 **Manufacturer**

- 2.1.1 Suggested manufacturer: VicWest, Kingspan Group Company or other approved equivalent.
- 2.1.2 Substitution Limitations: Submit written request for approval of substitutions to the Owner and the Architect and include the following information:
1. Name of the materials and description of the proposed substitute.
 2. Drawings, cut sheets, performance and test data.
 3. List of projects similar scope.
 4. Other information necessary for evaluation.

2.2 **Roof Panel Materials**

- 2.2.1 Zinc coated steel sheet: to ASTM A 653M/A653M, commercial quality, with Z275 coating, extra smooth surface, prefinish as specified in subsection 2.3. Base metal thickness shall be a minimum of 24 gauge.
- 2.2.2 Roof Panels: Tapered formed flashing. Overlap panels minimum 150mm if sheet lengths cannot allow a continuous single formed panel for the required total length.
- 2.2.3 Insulation: Refer to Section 07300.
- 2.2.4 Accessories: Provide accessories as required for a complete installation. Accessories shall be as indicated on approved shop drawings and per manufacturer's approved standard details. Match material and finish of metal roof panels. All fasteners, concealed anchor clips, and closure strips shall be as recommended by manufacturer.
- 2.2.5 Flashing and Trim: Fabricate flashing, caps and trim from same material and finish as roof panels, unless otherwise noted.
- 2.2.6 Panel Sealant: Joint sealant ASTM C920 as recommended in writing by metal roof panel manufacturer.
- 2.2.7 Butyl Tape: Per panel manufacturer's recommendations for panel to panel and panel to trim seal.
- 2.2.8 Butyl Sealants: Non-shrinking type per panel manufacturer's recommendations.
- 2.2.9 Self-Adhering, High Temperature, Underlayment: Cold applied, self-adhering membrane composed of high strength polyethylene film coated with rubberized asphalt and includes a disposable slip sheet. 30 to 40 mils thick; tensile strength of minimum 250 psi.

2.3 **Finishes**

- 2.3.1 Color: Exposed surface color to be 'green' as selected from manufacturer standard color chart to closely match the regional standard green as used on existing and or adjacent facilities.
- 2.3.2 Finish: Finish system shall be Fluoropolymer (PVDF) two coat system, primer with Kynar 500 solid color coat as per manufacturer's recommendation.
- 2.3.1 Clips: to be of the same material, and temper as the sheet metal, a minimum of 50 mm wide. Thickness shall be 20 Ga. (.912 mm). Tradition 100 Clip and Tradition 100 Snap Cap.
- 2.3.2 Fasteners: concealed to suit the roof design and to allow for thermal movement.
- 2.3.3 Washers: of the same material as the sheet metal, 1 mm thick with rubber packings.
- 2.3.4 Snow/Ice barrier as recommended by the roof manufacturer. Acceptable material:
 - .1 Ice/Water Shield by W.R. Grace Co. of Canada Ltd or Eaveguard by Bakor Inc.
- 2.3.5 Upstand snowguards to be installed above door locations, and designed to withstand live, dead, lateral and wind loads as required. Snowguards to be secured under lap joint of tapered panel roofing and sealed as required.

3. EXECUTION

3.1 Examination

- 3.1.1 Provide field measurements to manufacturer as required to achieve proper fit of the metal roof panels to building envelope. Measurements shall be provided in a timely manner so that there is no impact to construction or manufacturing schedule.
- 3.1.2 Supporting Steel: All structural supports required for installation of panels shall be by others.
- 3.1.3 Examine individual panels upon removing from the bundle; notify manufacturer of panel defects. Do not install defective panels.

3.2 Fabrication

- 3.2.1 Shop fabricate metal roof panels in accordance with requirements of SMACNA and the Contract Documents. Form sheet metal on bending brake, shaping, trimming and hand seaming on bench.
- 3.2.2 Form sections square, true, and accurate to size, and shall be free from distortion, oil canning, twists, buckles, discolouration and other defects detrimental to appearance and performance.
- 3.2.3 Metal roof panels shall be formed to lap with edges of adjacent panels which are then mechanically fastened to roof deck using fasteners and concealed anchor clips. Anchor clips are then machine seamed into standing seam.
- 3.2.4 Fabricate metal roof panels with joints between panels designed to form weathertight seals.
- 3.2.5 Where soldered joints are absolutely necessary and where approved for use in pre-painted metal, clean paint off both surfaces before soldering for minimum area necessary.

- 3.2.6 Metal coming in contact with a metal of a different type must be back painted with two (2) coats of isolation coating or separated with underlay membrane.
- 3.2.7 Curved roof panels shall be factory or field curved as approved by manufacturer.
- 3.2.8 Fabricate steel trim accessories to comply with recommendations outlined in SMACA's "Architectural Sheet Metal Manual".

3.3 Underlayment Installation

- 3.3.1 Primer: Prime surfaces as require by underlayment manufacturer.
- 3.3.2 Apply to substrate only when environmental conditions and temperatures are as required by underlayment manufacturer.
- 3.3.3 Begin installation at low point of roof and place underlayment under entire metal roof panel surface so that underlayment is wrinkle free. Underlayment shall be installed in a shingle fashion to shed water with a minimum lap of 89 mm. End laps shall be minimum 150 mm and staggered minimum 610 mm between courses. Roll laps with roller.
- 3.3.4 Cover underlayment within time frame as per manufacturer's recommendations.

3.4 Panel Installation

- 3.4.1 Apply sealant to joints as required per manufacturer's recommendations and approved shop drawings.
- 3.4.2 Install panels level, and true-to-line to dimensions and layout indicated on approved shop drawings.
- 3.4.3 Seaming of panels shall be done as recommended by manufacturer.
- 3.4.4 Cutting and fitting of panels shall be neat, square and true. Torch cutting is prohibited.

3.5 Accessories Installation

- 3.5.1 Place trim and trim fasteners only as per manufacturer's details and on the approved shop drawings.
- 3.5.2 Apply sealant tape at trim per manufacturer's details and recommendations for weathertight installation.

3.6 Clean-up

- 3.6.1 Remove all excess materials, debris, tools and equipment as work proceeds and on completion, or sooner if requested by Consultant.
- 3.6.2 Remove protective film immediately after installation.
- 3.6.3 Touch-up, repair or replace metal panels and trim that have been damaged.
- 3.6.4 After metal panel installation, clear any weep holes and drainage channels of obstructions, dirt, and sealant.

END OF SECTION

ROOF SYSTEM:

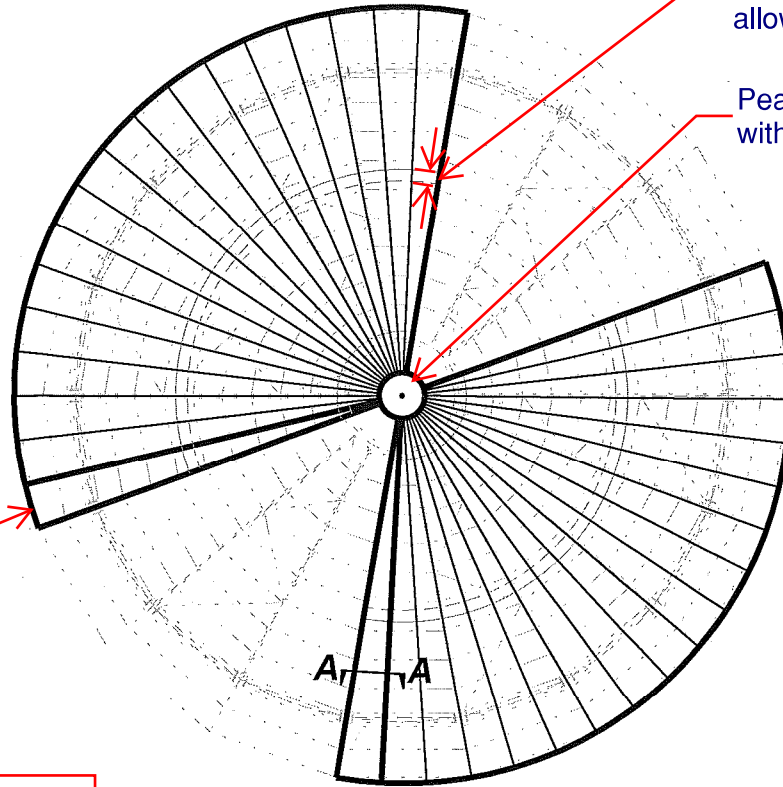
Modified Tradition 100 Tapered Profile

- based on VicWest Tradition 100 Metal Roof system
- using Ga. 24 Formed Flashing, Prepainted
- Color: Green, as per Specs
- Finish: PVDF with Kynar 500 primer, as per Specs

Overlap Panels min.
150mm if Length cannot
allow a single formed panel

Peak Cap Flashing
with Venting

Last pie shape
to be Field bent



PLAN DIAGRAM



7/8"

Tradition 100 Snap Cap

#12x1" Pancake screw

Ga. 24 Formed Flashing
Tapered Panel

Roof Underlay /
Ice & Water Shield
over total plywood

Fire Retardant Treated
3/4" Thk Exterior
Grade Plywood

SECTION A-A

Structural support
as per Struct. Dwg's

Ga.24 Formed Flashing
Tapered Panel

