

1. INTENT

- .1 This section describes general requirements for all equipment supplied under the Contract relating to the supervision of installation, testing, operation, and performance verification. The Contractor shall be responsible for the installation work, testing, operation, and performance verification of the supplied equipment.

2. DEFINITIONS

- .1 **Manufacturer:** The manufacturer is the person, partnership, or corporation responsible for the manufacture and fabrication of equipment provided to the Contractor for the completion of the Work.
- .2 **Manufacturer's Representative:** A Manufacturer's Representative is a trained serviceman empowered by the Manufacturer to provide installation, testing, and commissioning assistance to the Contractor in his performance of these functions.

3. EXPERTISE AND RESPONSIBILITY

- .1 The Contract Administrator recognizes the expertise of the Manufacturer.
- .2 Should the Contract Administrator issue an Addendum, Field Order, Change Order, or Instruction to change the Work which would, in the opinion of the Contractor, compromise the success or safety of the Work, then it shall be incumbent on the Contractor to notify in writing the Contract Administrator to this effect within two (2) days.

4. EQUIPMENT DELIVERY

- .1 The Contractor shall be responsible for pick-up of the equipment and delivery to the project site. Written acceptance of delivery to site, by the Contractor shall constitute "Delivery to Site" under this Contract.
- .2 Ten (10) days before pick-up and delivery, notice shall be given to the Contract Administrator so that arrangements for receipt and for inspection can be made. The shipping lists of materials will be carefully checked by the Supplier in the presence of the Contract Administrator and the Contractor.
- .3 The Contractor shall be responsible for pick-up, delivery, receiving, off-loading, and placing into storage all equipment at the site.
- .4 The Contractor shall ensure that he is fully informed of precautions to be taken in the unloading of equipment and its subsequent storage.

5. INSTALLATION ASSISTANCE

- .1 Before commencing installation of equipment, the Contractor shall arrange for the attendance of the Manufacturer's Representative to provide instructions in the methods, techniques, precautions, and any other information relevant to the successful installation of the equipment.
- .2 The Contractor shall inform the Contract Administrator, in writing, of the attendance at the site of any Manufacturer's Representative for installation training at least fourteen (14) days prior to arrival.
- .3 When the Manufacturer's Representative is satisfied that the Contractor is aware of all installation requirements, he shall so certify by completing *Form 201 – Certificate of Readiness to Install* attached to this specification.
- .4 The completed form shall be delivered to the Contract Administrator prior to departure of the Manufacturer's Representative from the site.
- .5 Installation of the equipment shall not commence until Contract Administrator has advised that he has received the completed Form 201.
- .6 Separate copies of Form 201 shall be used for different equipment.

6. INSTALLATION

- .1 If necessary, or if so directed by the Contract Administrator during the course of installation, the Contractor shall contact the Manufacturer to receive clarification of installation procedures, direction, or any other additional information necessary to continue or complete the installation in an appropriate manner.
- .2 If it is found necessary, or if so directed by the Contract Administrator, the Contractor shall arrange for the Manufacturer's Representative to visit the site to provide assistance during installation, all at no cost to the City.
- .3 Prior to completing installation, the Contractor shall inform the Manufacturer and arrange for the attendance at the site of the Manufacturer's Representative to verify successful installation.
- .4 The Manufacturer's Representative shall conduct a detailed inspection of the installation including alignment, electrical connections, belt tensions, rotation direction, running clearances, lubrication, workmanship and all other items as required to ensure successful operation of the equipment.
- .5 The Manufacturer's Representative shall identify any outstanding deficiencies in the installation.
- .6 The deficiencies shall be rectified by the Contractor and the Manufacturer's Representative will be required to re-inspect the installation, at no cost to the City.

- .7 When the Manufacturer's Representative accepts the installation, he shall certify the installation by completing *Form 202 – Certificate of Satisfactory Installation*, attached to this specification.
- .8 Deliver the completed Form 202 to the Contract Administrator prior to departure of the Manufacturer's Representative from the site.
- .9 Tag the equipment with a 100 mm by 200 mm card stating "Equipment Checked. Do Not Run." stenciled in large black letters. Sign and date each card.
- .10 Provide separate copies of Form 202 for different equipment.

7. OPERATION AND PERFORMANCE VERIFICATION

- .1 Equipment will be subjected to a demonstration, running test, and performance tests after the installation has been verified and any identified deficiencies have been remedied.
- .2 Inform the Contract Administrator at least fourteen (14) days in advance of conducting the tests and arrange for the attendance of the Manufacturer's Representative. The tests may be concurrent with the inspection of satisfactory installation if mutually agreed by the Contractor and the Contract Administrator.
- .3 The Manufacturer's Representative will conduct all necessary checks to equipment and if necessary, advise the Contractor of any further checking, flushing, cleaning, or other work needed prior to confirming the equipment is ready to run.
- .4 The Contractor shall then operate the equipment for at least one (1) hour to demonstrate to himself the operation of the equipment and any required ancillary services. Any remedial measures required to ensure satisfactory operation shall be promptly undertaken.
- .5 The Contractor shall then notify the Contract Administrator of his readiness to demonstrate the operation of the equipment. The Contract Administrator shall attend, as expeditiously as possible.
- .6 With the assistance of the Manufacturer's Representative, the Contractor will demonstrate that the equipment is properly installed. Alignment, piping connections, electrical connections, etc. will be checked and if appropriate, code certifications provided.
- .7 The equipment shall then be run for one (1) hour. Local controls shall be satisfactorily verified by cycling the equipment through several start-stop operations, modulating its output, or some combination. Operating parameters such as temperature, pressure, voltage, vibration, etc., will be checked to ensure that they are within the specified or Manufacturer's recommended limits, whichever is more stringent.
- .8 On satisfactory completion of the one (1) hour demonstration, the equipment will be stopped and critical parameters, such as alignment, will be rechecked.

- .9 The equipment will be restarted and run continuously for three (3) days. During this period, as practicable, conditions will be simulated which represent maximum or most severe, average, and minimum or least severe conditions. These conditions will be mutually agreed by the Manufacturer's Representative, the Contractor and Contract Administrator on the basis of the information contained in the technical specifications, as well as the methods utilized to create the simulated conditions and the time periods allotted to each.
- .10 Performance tests will be conducted either concurrent with or subsequent to the running test, as practicable and agreed between the Contract Administrator, the Manufacturer's Representative and the Contractor.
- .11 Performance tests shall be as dictated in the technical specifications for each item of equipment or as reasonably required by the Contract Administrator to prove adherence to the requirements listed in the specification.
- .12 The Contractor shall submit the results of the performance tests to the Contract Administrator, documented and summarized in a format acceptable to the Contract Administrator. The Contract Administrator reserves the right to request additional testing. No equipment shall be accepted and handed over to the City prior to the satisfactory completion of the performance test(s) and receipt of the test reports.
- .13 All water, chemicals, temporary power, heating, or any other ancillary services required to complete the initial demonstration, running test and performance tests are the responsibility of the Contractor.
- .14 Should the initial demonstration, running test or performance tests reveal any defects, then those defects shall be promptly rectified and the demonstration, running tests, and / or performance tests shall be repeated to the satisfaction of the Contract Administrator. Additional costs incurred by the Contractor, the Contract Administrator, or the City, due to repeat demonstration, running tests, and/or performance tests shall be the responsibility of the Contractor.
- .15 On successful completion of the demonstration, running test, and performance tests, *Form 203 – Certificate of Equipment Satisfactory Performance* attached to this specification will be signed by the Manufacturer's Representative, the Contractor, and the Contract Administrator.
- .16 The Contractor shall affix to the tested equipment a 100 mm by 200 mm card reading "Operable Condition - Do Not Operate without Contractor's Permission." stenciled on in large black letters.

**CERTIFICATE OF EQUIPMENT DELIVERY
FORM 200**

We certify that the equipment listed below has been received and delivered into the care of the Prime Contractor. The equipment has been found to be in satisfactory condition. No defects in the equipment were found.

PROJECT: _____

ITEM OF EQUIPMENT: _____

TAG NO: _____

**REFERENCE
SPECIFICATION:** _____

(Authorized Signing Representative of the Contractor)

Date

(Authorized Signing Representative of the Manufacturer)

Date

(Authorized Signing Representative of the Contract Administrator)

Date

**CERTIFICATE OF READINESS TO INSTALL
FORM 201**

I have familiarized the installer of the specific installation requirements related to the equipment listed below and am satisfied that he understands the required procedures.

PROJECT:

ITEM OF EQUIPMENT:

TAG NO:

REFERENCE

SPECIFICATION:

(Authorized Signing Representative of the Manufacturer)

Date

I certify that I have received satisfactory installation instructions from the equipment Manufacturer/Supplier.

(Authorized Signing Representative of the Contractor)

Date

**CERTIFICATE OF SATISFACTORY INSTALLATION
FORM 202**

I have completed my check and inspection of the installation listed below and confirm that it is satisfactory and that defects have been remedied to my satisfaction except any as noted below:

PROJECT: _____

ITEM OF EQUIPMENT: _____

TAG NO: _____

**REFERENCE
SPECIFICATION:** _____

OUTSTANDING DEFECTS: _____

(Authorized Signing Representative of the Manufacturer)

Date

(Authorized Signing Representative of the Contractor)

Date

(Authorized Signing Representative of the Contract Administrator)

Date

