

## EQUIPMENT INSTALLATION

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### 1. GENERAL

#### 1.1 Intent

- .1 This Section describes general requirements for equipment relating to supply, installation, testing, operation, and performance verification.

#### 1.2 Submission

- .1 Submittals in accordance with Section 01300.
- .2 At least thirty (30) days prior to commencing equipment performance verification and process performance verification, the THPS Supplier with information from the Design Builder shall submit a detailed start-up plan to indicate the schedule and sequence of equipment installation checks and tests required for the Design Builder's review and input. No testing work can commence until this plan has been discussed by all parties involved and accepted by the Design Builder.

#### 1.3 Delivery of Equipment

- .1 The THPS Supplier shall coordinate the date of major equipment delivery with the Design Builder. A representative from each of the following groups will be in attendance at the time of delivery:
  - .1 The THPS Supplier
  - .2 The Design Builder
- .2 The Design Builder will be responsible for receiving, off-loading, and placing into storage all equipment at the site. **Form 100**, "Certificate of Equipment Delivery," shall be completed.

#### 1.4 Installation Assistance

- .1 Before commencing installation of equipment, the Design Builder will arrange for the attendance of the THPS Supplier's Representative to provide instructions in the methods, techniques, precautions, and any other information relevant to the successful installation of the equipment.
- .2 The THPS Supplier shall inform the Design Builder, in writing, of the attendance at the site of any THPS Supplier's Representative for installation training at least fourteen (14) days prior to arrival.
- .3 When the THPS Supplier's Representative is satisfied that the Design Builder is aware of all installation requirements, he shall so certify by completing **Form 101**, "Certificate of Equipment Installation," attached to this specification.
- .4 The completed form shall be delivered to the Design Builder prior to departure of the THPS Supplier's Representative from the site.
- .5 Installation of the equipment shall not commence until the Design Builder has advised that he has received the completed **Form 101**.

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- .6 Separate copies of **Form 101** shall be used for different equipment.

### 2. EXECUTION

#### 2.1 Installation

- .1 If necessary, or if so directed by the Design Builder during the course of installation, the Design Builder will contact the THPS Supplier to receive clarification of installation procedures, direction, or any other additional information necessary to continue or complete the installation in an appropriate manner.
- .2 Prior to completing installation, the Design Builder will inform the THPS Supplier and arrange for the attendance at the site of the THPS Supplier's Representative to verify successful installation.

#### 2.2 Installation Verification

- .1 The THPS Supplier's Representative shall conduct and document a detailed inspection of the installation including alignment, electrical connections, instrumentation, control systems, safety equipment, belt tensions, rotation direction, running clearances, lubrication, workmanship and all other items as required to ensure successful operation of the equipment.
- .2 The THPS Supplier's Representative shall identify any outstanding deficiencies in the installation and shall provide a copy of the Site Inspection Report to the Design Builder.
- .3 The deficiencies will be rectified by the Design Builder and the THPS Supplier's Representative shall re-inspect the installation. A Formal Inspection Report must be provided to the Design Builder after final inspection.
- .4 When the THPS Supplier's Representative accepts the installation, he shall certify the installation by completing **Form 102**, "Certificate of Satisfactory Equipment Installation," attached to this specification. **Form 102** can be signed off with the understanding that minor deficiencies are to be corrected prior to the start of the operation and performance verification (**Form 103** period).
- .5 Deliver the completed **Form 102** to the Design Builder prior to departure of the THPS Supplier's Representative from the Site.
- .6 Tag the equipment with a 100 mm x 200 mm card stating "Equipment Checked. Do Not Run." stenciled in large black letters. Sign and date each card.
- .7 Provide separate copies of **Form 102** for different equipment.

#### 2.3 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 Design Builder at least fourteen (14) calendar days in advance of conducting the tests and arrange for the attendance of the THPS Supplier's Representative.

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- .3 A copy of the equipment operations manuals shall be provided a minimum of thirty (30) calendar days prior to commencement of the Equipment Performance Test.
- .4 The THPS Supplier's Representative shall conduct all necessary checks to equipment and if necessary, advise the Design Builder of any further checking, flushing, cleaning, or other work needed prior to confirming the equipment is ready to run.
- .5 With the assistance of the THPS Supplier's Representative, the Design Builder will demonstrate that the equipment is properly installed. Alignment, piping connections, electrical connections, etc. will be checked and if appropriate, code certifications provided.
- .6 All water, temporary power, heating, or any other ancillary services required to complete the initial demonstration, running test, and performance tests are the responsibility of the Design Builder.
- .7 Should 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 Design Builder. Additional costs incurred by the Design Builder due to repeat demonstration, running tests, and/or performance tests shall be the responsibility of the THPS Supplier.
- .8 Upon successful completion of the test **Form 103** shall be signed.

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**CERTIFICATE OF EQUIPMENT DELIVERY  
FORM 100**

We certify that the equipment listed below has been delivered into the care of the Design Builder. 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 THPS Supplier)

\_\_\_\_\_  
Date

\_\_\_\_\_  
(Authorized Signing Representative of Design Builder)

\_\_\_\_\_  
Date

**EQUIPMENT INSTALLATION**

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**CERTIFICATE OF EQUIPMENT INSTALLATION  
FORM 101**

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

**PROJECT:**

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**ITEM OF EQUIPMENT:**

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**TAG NO:**

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**REFERENCE  
SPECIFICATION:**

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(Authorized Signing Representative of the THPS Supplier)

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Date

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

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(Authorized Signing Representative of the Design Builder)

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Date

**EQUIPMENT INSTALLATION**

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**CERTIFICATE OF SATISFACTORY INSTALLATION  
FORM 102**

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 THPS Supplier)

\_\_\_\_\_  
Date

\_\_\_\_\_  
(Authorized Signing Representative of the Design Builder)

\_\_\_\_\_  
Date

