

Guide Specifications

SUNSOURCE

Commercial Energy System

August 01, 2014



Note: This specification is for the **Lennox Industries SunSource Commercial Energy System**. Revise specification section number and title below to suit project requirements, specification practices and section content. Refer to CSI *MasterFormat* for other section numbers and titles.

This specification utilizes the Construction Specifications Institute (CSI) *Manual of Practice*, including *MasterFormat*[™], *SectionFormat*[™] and *PageFormat*[™]. Optional text and text requiring a decision is indicated by bolded brackets []; delete text not required in final copy of specification. Specifier Notes typically precede specification text; delete notes in final copy of specification. Trade/brand names with appropriate symbols typically are used in Specifier Notes; symbols are not used in specification text. Metric conversion, where used, is soft metric conversion.

FACILITY ELECTRICAL POWER GENERATING AND STORING EQUIPMENT

SECTION 26 30 00

PART 1 - GENERAL

1.1 SECTION INCLUDE

A. Photovoltaic Collectors

Specifier Note: Revise paragraph below to suit project requirements. Add section numbers and titles per CSI *MasterFormat* and specifier's practice.

1.2 RELATED SECTIONS

Specifier Note: Article below may be omitted when specifying manufacturer's proprietary products and recommended installation. Retain Reference Article when specifying products and installation by an industry reference standard. If retained, list standard(s) referenced in this section. Indicate issuing authority name, acronym, standard designation and title. Establish policy for indicating edition date of standard referenced. Conditions of the Contract or Division 1 References Section may establish the edition date of standards. This article does not require compliance with standards, but is merely a listing of references used. Article below should list only those industry standards referenced in this section. Retain only those reference standards to be used within the text of this Section. Add and delete as required for specific project.

1.3 REFERENCES

- A. Listed by ETL to UL 1995 and can be installed to comply with the NEC
- B. Can help meet ASHRAE Green Standard 189.1 for high performance green buildings and help meet the LEED® EAC2 On-Site Renewable Energy Credit with the renewable energy credit

Specifier Note: Article below should be restricted to statements describing design or performance requirements and functional (not dimensional) tolerances of a complete system. Limit descriptions to composite and operational properties required to link components of a system together and to interface with other systems.

1.4 PERFORMANCE REQUIREMENTS

- A. Energence® 3 to 12.5 ton commercial rooftop unit (packaged electric/electric or packaged gas/electric) with Solar Power Entry Option (factory installed circuit protection for solar power and line voltage wiring)
- B. Sufficient south-facing open roof space
- C. Broadband Internet connection
- D. Electrical Characteristics
 - 1. 60 HZ

Specifier Note: Transformers must be ordered for voltages other than 240V single-phase or 208V three-phase WYE. 575V transformer is not available and must be field provided.

- 2. **[240/120V – 1 ph] [208/120V – 1 ph] [208V 3ph wye] [230V 3ph Delta]**
[460/277V 3ph wye] [460V 3ph Delta]
- 3. Grid Interconnection Agreement

Specifier Note: Article below includes submittal of relevant data to be furnished by Contractor before, during or after construction. Coordinate this article with Architect's and Contractor's duties and responsibilities in Conditions of the Contract and Division 1 Submittal Procedures Section.

1.5 SUBMITTALS

- A. General: Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedures
- B. Product Data: Submit product data, including manufacturer's SPEC-DATA® product sheet, for specified products
- C. Shop Drawings: Physical and electrical layout and drawings including details (where applicable) for permitting purposes.
- D. Quality Assurance:
 - 1. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties
 - 2. Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements
 - 3. Manufacturer's Instructions: Manufacturer's installation instructions

Specifier Note: Coordinate paragraph below with Part 3 Field Quality Requirements Article herein. Retain or delete as applicable.

- E. Manufacturer's Field Reports: Manufacturer's field reports specified herein
- F. Closeout Submittals: Submit the following:
 - 1. Warranty: Warranty documents specified herein
 - 2. Operation and Maintenance Data: Operation and maintenance data for installed

products in accordance with Division 1 Closeout Submittals (Maintenance Data and Operation Data) Section. Include methods for maintaining installed products and precautions against cleaning materials and methods detrimental to finishes and performance. Include names and addresses of spare part suppliers.

3. Provide brief description of unit, with details of function, operation, control and component service
4. Commissioning Report: Submit commissioning reports, report forms and schematics in accordance with Section [01 81 00 – Commissioning]

1.6 QUALITY ASSURANCE

- A. Qualifications:
 1. Installer experienced in performing work of this section who has specialized in installation of work similar to that required for this project
 2. Manufacturer Qualifications: Manufacturer capable of providing field service representation during construction and approving application method
- B. Preinstallation Meetings: Conduct preinstallation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements. Comply with Division 1 Project Management and Coordination (Project Meetings).

1.7 DELIVERY, STORAGE & HANDLING

- A. General: Comply with Division 1 Product Requirements
- B. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays
- C. Packing, Shipping, Handling and Delivery:
 1. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact
 2. Ship, handle and unload units according to manufacturer's instructions
- D. Storage and Protection:
 1. Store materials protected from exposure to harmful weather conditions
 2. Factory shipping covers to remain in place until installation

Specifier Note: Coordinate article below with Conditions of the Contract and Division 1 Closeout Submittals (Warranty).

1.8 WARRANTY

- A. Project Warranty: Refer to Conditions of the Contract for project warranty provisions
- B. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to,

and not a limitation of, other rights Owner may have under Contract Documents
Specifier Note: Coordinate paragraph below with manufacturer’s warranty requirements.

C. Warranty: Commencing on Date of Installation

Specifier Note: Refer to Lennox Equipment Limited Warranty certificate included with equipment for details.

1. Solar Modules - 10 year limited warranty. 25 year limited performance guarantee
2. Microinverter - 25 year limited warranty
3. Envoy Communications Monitor - 1 year limited warranty
4. Line Communications Filter - 1 year limited warranty

PART 2 - PRODUCTS

Specifier Note: Retain article below for proprietary method specification. Add product attributes, performance characteristics, material standards, and descriptions as applicable. Use of such phrases as “or equal” or “or approved equal” or similar phrases may cause ambiguity in specifications. Such phrases require verification (procedural, legal and regulatory) and assignment of responsibility for determining “or equal” products.

2.1 SOLAR- KITS/ACCESSORIES

- A. Product: Commercial Energy System
- B. Manufacturer: SolarWorld AG
 1. Contact: 4650 Adohr Lane, Camarillo, CA, 93012 Telephone: (805) 388-6590;
- C. Proprietary Products/Systems:
 1. Solar Modules:
 - a. Laminated solar module structure consists of the solar glass, two ethylene vinyl acetate (EVA) sheets, the solar cell matrix and a back sheet
 - b. Thick low-iron safety glass
 - c. ETL/Intertek listed for the US Canada to UL Standard 1703 and meet National Canadian Electrical Code requirements
 - d. Impact and Salt Spray resistance tested
 - e. Clear anodized aluminum frame with cast aluminum corner keys
 - f. Low profile with extended flange
 - g. Compatible with “top-down” and “bottom-up” mounting methods
 - h. Eight grounding locations (Four corners of the frame and four locations along the length of the module in the extended flange)
 - i. Extended cable lengths for easier installation
 2. Enphase Microinverter:
 - a. Each Enphase Microinverter is individually installed on one solar module in the array.

- b. Enphase Engage Cable is a 12AWG cable with pre-installed connectors that plug into the Microinverter
 - c. Status LED
3. Flat Roof Mounting System Components:
- a. Support units which include unique North and South Supports for the northernmost/southernmost array edges
 - 1. Include integrated recycled rubber roof protection pads
 - b. Solar Panel clamps made with stainless steel 18-8 and pre-installed with 5/16"-18 hex head cap screws
 - c. Ribbed and slotted wind deflector
 - d. Hydraulically pressed proprietary concrete ballast block
 - e. Installation spacer measurement sticks
4. System Monitoring:

Specifier Note: The Envoy Communications Gateway OR the Line Communications Filter will be selected based on installation requirements.

- a. Envoy Communications Gateway
 - 1. Monitors system performance
 - 2. Can be connected to a broadband internet connection to send data to the Enphase Enlighten™ website for online monitoring, or with a computer if no internet connection is available
 - 3. 6 ft. power cord and 10 ft. Ethernet cord included
 - 4. CSA (US/C) listed
 - 5. Communications Booster (Furnished)
 - a. Ethernet bridge signal booster for the Envoy Communications Gateway.
 - b. Only needed if the communications gateway is installed and signal is not strong enough in the installed location
- b. Line Communications Filter
 - 1. Envoy Communications Gateway mounted in a weatherproof NEMA 4 enclosure
 - 2. For outdoor installations, installations with transformers, or to eliminate any inter-Envoy crosstalk
 - 3. Contains the Envoy Communications Gateway and terminal blocks
 - 4. Filter removes any electrical interference from other devices or multiple Envoy Communication Gateways in the same building
 - 5. UL listed for the US and Canada and meet National Electrical Code requirements
- c. Enphase Enlighten™ Performance Monitoring Website
 - 1. Allows user to keep track of building energy usage and see environmental benefits in real time
 - 2. Aids in troubleshooting any solar-related issues

2.2 PRODUCT SUBSTITUTIONS

- A. Substitutions: No substitutions permitted.

PART 3 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

Specifier Note: Article below is an addition to the CSI *SectionFormat* and a supplement to MANU-SPEC. Revise article below to suit project requirements and specifier's practice.

- A. Compliance: Comply with manufacturer's written data, including product technical bulletins, product catalog installation instructions, product carton installation instructions and [Lennox Industries] SPEC-DATA® sheets.

3.2 EXAMINATION

- A. Site Verification of Conditions: Verify substrate conditions, which have been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instructions.

3.3 INSTALLATION

- A. Install [Commercial Energy System] in accordance with manufacturer's instructions and regulations of authorities having jurisdiction.

END OF SECTION