**SECTION 26XXYY - ELECTRIC VEHICLE SUPPLY EQUIPMENT – LEVEL 2 9.6/19.2kW AC CHARGER**

**PART 1 - GENERAL**

* 1. **SCOPE**
1. The requirements of the Contract, Division 26, applies to work in this section for a **[9.6kW/40A and/or 19.2kW/80A]** AC Charger Level 2 electric vehicle solution, as specified and as shown on the contract drawings which shall be furnished and installed by the Contractor.
	1. **SUBMITTALS**

**For review:**

1.2.1. The following information shall be submitted to the Engineer:

1. Product data sheets
2. Installation manuals

**For construction:**

1.2.2. The following information shall be submitted for record purposes:

1. Final as-built overview drawings
2. Wiring diagrams
3. General layout floor plans
4. Installation information including equipment anchorage provisions. The installer/site designer/contractor shall provide final, as- built drawings, recording the general location of the supplied equipment, Installation layout. Operation and Maintenance manuals shall be supplied by the manufacturer.
	1. **RELATED STANDARDS**
	2. The Level 2 AC Charger electric vehicle supply equipment shall be designed, manufactured and tested in accordance with the latest version of the following standards (unless otherwise noted):
* UL 2594
* UL 2231-1
* UL 2231-2
* UL 1998
* CSA C22.2. NO.280
* NMX-J-667-ANCE
* FCC Part 15 Class B
* ENERGY STAR® certified
* RFID Reader, ISO/IEC 14443A/B, MIFARE™ Classic, 1K and 4K memory
* **[CTEP/NTEP]**
* ADA compliant: Americans with Disability Act
	1. **QUALITY ASSURANCE**
1. The manufacturer shall have been manufacturing EV chargers or similar transportation electrification equipment for a minimum of **[three]** years
2. The manufacturer shall have its operations certified under ISO 9001.
	1. **DELIVERY, STORAGE AND HANDLING**

If AC charger is being stored prior to installation, the unit shall be stored to maintain the equipment in a clean and dry condition as required by the manufacturer’s instructions, in accordance with manufacturer’s instructions (1). A copy of these instructions shall be included with the equipment at time of shipment, **[either a hardcopy or electronic]**.

**PART 2 – PRODUCTS**

 **2.1. MANUFACTURERS**

1. The Level 2 AC Charger Electric Vehicle Supply Equipment shall be provided by ABB E- mobility Inc.
2. Manufacturers listed above shall meet these specifications in their entirety. Products in compliance with the specification and manufactured by others not named shall be considered only if pre-approved by the Engineer **[X]** days prior to bid date

**2.2. PERFORMANCE REQUIREMENTS**

1. Chargers up-time shall be greater than **[94 %]**
2. Output Current: SAE J1772, Type 1 **[40A or 80A)**
3. Charging cable shall be at least 25ft (7.6m) long with cable retraction management system and holster for plugging in the charging cable when not in use.
4. Input needed: Single split-phase 240/120VAC (L1,L2,GND/NEUTRAL bonded) **[and/or]** 3-phase WYE 208/120VAC (L1, L2, GND/NEUTRAL bonded)
5. Input Current and power: **[40A/9.6kW / 80A/19.2kW]**
6. Short-Circuit rating: > 5kA
7. Operating temperature: -22deg F to +131deg F (-30deg C to +55deg C)
8. Humidity: 5% to 95% relative humidity, non-condensing
9. Altitude rating: up to 13123ft/4000m
10. Corrosion Resistance: the enclosure coating or design shall be corrosion resistance. External plastic parts shall be UV-resistant

**2.3 CONSTRUCTION**

1. Provide a nationally recognized, wall or pedestal mounted
2. The AC Charger shall support the following connector options: single or dual connector, J1772 Type 1
3. Enclosure shall be rated for indoor and outdoor, NEMA 4 to withstand severe weather requirements.
4. IK 10 Impact protection according to EN 62262
5. Charging cable shall be at least 25ft (7.6m) long with integrated cable retraction management

System and holster for plugging in cable when not in use.

1. Support for integrated hardwired Ethernet, WIFI and 4G LTE communications.
2. Power shall be provided either through a bottom, back to ensure ease of

installation.

1. Charger enclosure shall be equipped with anti-vandalism mechanisms such as Torx-secured bolts.
2. Shall be self-commissioned by end-user/installer without manufacturer’s having to be on sit.
	1. **INTERFACE PANEL**

Integrated interface panel shall be provided to facilitate end-user ease of use. This interface will supply at least these icons and readings:

* 1. Idle / Connect / Ready to charge/ Charging, visual indication

**[LED or on-screen informational display showing:]**

* 1. Charging session duration
	2. Power in kilowatt
	3. Kilowatt-hour delivered
	4. Date and time
	5. Energy counter for total energy dispensed
	6. Error messages, faulty condition

Language of the screen can be changed via software.

**2.5 PAYMENT INTERFACE**

The AC Charger shall incorporate integrated customer payment methods. Payment shall be provided by:

* Integrated RFID reader compliant with the following standards: ISO/IEC 14443A/B, MIFARE™ Classic, 1K and 4K memory
* Mobile App or SMS activation
* Credit Card Payment terminal via payment Kiosk **[optional]**

**2.6. COMMUNICATIONS**

1. The AC Charger shall have a “built-in” 10/100 Base-T Ethernet communications port and capable of Ethernet daisy chain connections up to 10 chargers.
2. Integrated GSM/3G/4G cellular communications modem shall be provided.
3. Integrated WIFI, IEEE 802.11 b/g/n, 2.4 GHz.
4. Bluetooth communication for monitoring and control by manufacturer’s mobile app when not networked.
5. Communications shall be fully compatible with OCPP 1.6j (JSON) open protocol for backend systems and be agnostic to any OCPP backend platform with little to no integration efforts.
6. **[External meter interface for dynamic energy management, Modbus RTU, TCP/IP]**

**2.8. DATA COLLECTING AND MONITORING**

1. The manufacture shall offer a “Cloud” based solution to provide a customer with hosted data and monitoring from a web-based device.
2. Remote maintenance shall be provided by a web server (IP) connection.
3. Visibility to all aspects of the charger will be provided for troubleshooting, maintenance, charger software update and support.
4. Remote 24/7 maintenance support shall be offered by the manufacturer, either by 1-800 number or ticketing system

**2.9 MOUNTING**

1. Enclosure shall come with mounting plate and detailed descriptions for installing the cabinet.
2. Complete wiring diagrams shall be provided to show wire type, size and terminations points

**[installer/contractor scope]**

1. Locations for entry / exit of wiring shall be shown.
2. Manufacture shall provide minimum space clearances for the cabinet to ensure accurate operations. Installer will need to reference local codes to ensure material is installed per regulations.
3. Mounting shall be wall, ceiling or pedestal-mounted.
4. Power shall be provided either through a bottom or back conduit open to ensure ease of installation.

**PART 3 - EXECUTION**

* 1. **INSTALLATION**
	2. All installation work shall be performed by a qualified person who is familiar with the installation, construction and operation of the equipment and the hazards involved.
	3. Install per manufacturer’s recommendations and contract documents.
	4. Install units’ plumb, level and rigid without distortion.
	5. Installation shall follow the procedure in the published literature.
	6. The Contractor shall install all equipment per the manufacturer’s recommendations and contract drawings.
	7. **TESTING**
1. Check tightness of all accessible mechanical and electrical connections to assure they are torqued to the minimum acceptable manufacture’s recommendations.
2. Check all installed charging systems for proper grounding, fastening and alignment.
3. Each EVSE shall undergo factory testing of all operational and protective features prior to shipment. No on-site testing shall be required.

**3.3. WARRANTY**

1. Equipment manufacturer warrants that all goods supplied are free of non-conformities in workmanship and materials for two (2) years from date of installation or 30 months from the date of delivery. Equipment manufacturer shall provide extended warranty and Service Level Agreement options.
2. Changes or modifications to this product not authorized by the manufacturer shall void the warranty. The contractor shall contact the manufacturer in order to avoid non-compliant modifications.

**3.4 OPERATIONS AND MAINTENANCE MANUALS**

A. Equipment operation and maintenance manuals shall be provided with each assembly shipped and shall include instruction leaflets and instruction bulletins for the complete assembly.

**3.5 SERVICE**

1. EVSE supplier shall offer a managed service offering if required by end user.
2. 24/7 Level 1 technical support line via a 1-800 number shall be provided at no cost.