**SECTION 26XXYY - ELECTRIC VEHICLE SUPPLY EQUIPMENT – LEVEL 3 50kW DC FAST CHARGER**

**PART 1 - GENERAL**

* 1. **SCOPE**
1. The requirements of the Contract, Division 26, applies to work in this section for a 50kW DC Fast Charger 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 3 DC Fast 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 2202
* CSA No. 107.1-16
* UL 2231-1, UL 2231-2
* CSA STD C22.2 No. 107.1
* NEC Article 625
* EN 61851
* EN 62196
* CHAdeMO 1.2
* DIN 70121
* ISO 15118
* IEC 61000-6-3
* EMC Class B
* FCC Part 15
* ADA compliant: Americans with Disability Act
* RFID Reader, ISO/IEC 14443A/B, ISO/IEC 15393, FeliCa™ 1, NFC reader mode, Mifare, Calypso
	1. **QUALITY ASSURANCE**
1. The manufacturer shall have been manufacturing 50kW DC Fast 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 DC Fast 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 50 kW DC Fast 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: CCS-1: 125A continuous; CHAdeMO: 125A continuous
3. Charging cable shall be at least 19.6ft (6m) long with integrated cable retraction management system and holster for plugging in the cable when not in use.
4. Input needed: 3 phase, WYE, 480/277V AC Supply (+/-10%), Frequency: 60Hz
5. Input Current and power: 64A / 53.2kVA
6. Output Voltage: CCS-1: 150 - 920 VDC; CHAdeMO: 150 – 500 VDC
7. Efficiency >95%
8. Power Factor > 0.96
9. THDi < 5%
10. Short-Circuit rating: 65kA at 480V AC
11. Maximum noise level at a distance of 1 m: 62 dB
12. Operating temperature: -31deg F to +131deg F (-35deg C to +55deg C)
13. Humidity 5% to 95% relative humidity, non-condensing
14. Altitude rating: up to 6560ft/2000m
15. Corrosion Resistance: the enclosure coating or design shall have a corrosion resistance
16. Integrated Power control / power module unit shall be used to provide one free-standing unit. No dual cabinet designs shall be provided.

**2.3 CONSTRUCTION**

1. Provide a nationally recognized 50kW, free-standing, single unit design, DC Fast Charger.
2. An Integrated DC Power and Control cabinet design shall be provided. No two-piece designs shall be permitted increasing the installation and wiring costs.
3. The DC Fast Charger shall support the following connector options: 1xCCS1, 1xCCS1 + 1xCHAdeMO and provisions for future upgrade to NACS.
4. Enclosure shall be rated for indoor and outdoor, NEMA 3R to withstand severe weather requirements.
5. IK 10 housing - Impact protection according to EN 62262, IK 8 display - Impact protection according to EN 62262.
6. The integrated fast charger cabinet size shall be: 74.8” (H) x 22.2”(W) x 30.7” (D) / (1900mm (H) x 565mm (W) x 780mm (D).
7. Cabinet installed weight: 775 pounds (350 kg).
8. A rectifier bridge shall be incorporated into the cabinet to convert AC to DC current.
9. A Cooling fan and filters shall be provided to ensure proper air quality.
10. Charging cable shall be at least 19.6ft (6m) long with integrated cable retraction management
11. System and holster for plugging in cable when not in use.
12. Support for integrated hardwired Ethernet communications.
13. Power shall be provided either through a bottom, back or side conduit open to ensure ease of

installation.

1. Charger cabinet shall include provisions for eye bolts for ease of lifting and mounting.
	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. Connect / Ready to use light up icon
	2. Start Button
	3. Stop Button
	4. Return plug to charger icon.
	5. Not in-Service lighted icon.
	6. Locked symbol indicator lighted icon.
	7. Charging indicator. Glows when the charging session is in progress.

LED or on-screen informational display showing:

* 1. Minutes elapsed
	2. Battery percentage during charge (SOC)
	3. Kilowatt-hour delivered
	4. Fee charges

Language of the screen can be changed via software.

**2.5 PAYMENT INTERFACE**

The DC Fast Charger shall incorporate integrated customer payment methods. Payment shall be

provided by:

* Integrated RFID reader compliant with the following standards: ISO/IEC 14443A/B, ISO/IEC 15393, FeliCa™ 1, NFC reader mode, Mifare, Calypso
* Integrated Credit Card Payment terminal
* Mobile App or SMS activation

**2.6. COMMUNICATIONS**

1. The DC Fast Charger shall have a “built-in” 10/100 Base-T Ethernet communications port.
	* Copper Ethernet, CAT6 or better with RJ45 connector
2. An integrated GSM/3G/4G cellular communications modem shall be provided.
3. 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. **[EVSE shall be OCPP 2.0 ready for future upgrade via software update over the air without hardware modifications.]**

**2.7. CUSTOMER FACING DESIGN**

1. The DC Fast Charger shall allow for “custom” front and rear decals to allow company logos, messages and names to be displayed.
2. The DC Fast Charger must be provided with an HMI full color touchscreen display integrated into the DC Fast Charger unit, minimum 7” display.

**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, updating charging software 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 on a concrete foundation with supporting conduit hole, as recommended by the manufacturer.
4. Power shall be provided either through a bottom, back or side conduit open to ensure ease of installation.
5. Charger cabinet shall include provisions for eye bolts for ease of lifting and mounting.

**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 of the 50kW Fast Charger shall follow the procedure in the published literature.
	6. The Contractor shall install all equipment per the manufacturer’s recommendations and contract drawings.
	7. All necessary hardware to secure the assembly in place shall be provided by the contractor
	8. **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. DC Fast Charger 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.
3. On-site startup assistance by the supplier shall be offered as part of the package.