ENCORE
LAND AND SEA

GENERAL
MASTER SPECIFICATIONS

CMCE LIGHTNING SUPPRESSION SYSTEM

GENERAL MASTER SPECIFICATIONS

1.1 Summary

A. Provide all labor, components, equipment, and services to perform all operations required for the complete installation and related work as specified herein.

B. Any such work in any other section of these specifications not specifically described therein shall comply with this section's requirements.

C. The following items of work are specifically included in, but not necessarily limited to, the work of this section without limiting the generality implied by these specifications:

1. CMCE lightning protection air terminal
2. Mast, complete with base and supports
3. Down conductors
4. Grounds

1.12 Definitions

A. Manufacturer – The term “manufacturer” shall refer to Capitol Electronics and its agents.

B. CMCE – CMCE shall refer to any model of the CMCE Lightning Suppressor.

1.13 Description of System

A. Provide a complete installation of equipment to comprise a complete system in accordance with CMCE Manufacturer’s Installation Standard.

B. The installation contractor shall be responsible for all components and labor to accomplish this result.

1.14 Codes, Regulations, Permits

A. The completed system shall comply with CMCE Manufacturer’s Installation Standard, equipment supplier drawings and specification requirements for installation of CMCE lightning protection systems.

B. The installing contractor shall accomplish any corrections required by the inspection at his own expense.

C. Noncompliance shall be reported to the equipment supplier for remedy.

1.15 Standards of Quality

A. The CMCE system equipment supplier, contractor, and installer shall install the CMCE system in compliance with the Manufacturer’s Installation Standard.

B. The manufacturer’s warranty shall be submitted to the owner upon completion of the installation.

C. The manufacturer’s warranty of 10 years applies to all models sold through Capitol Electronics or one of their authorized dealers.

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1.6 Service and Inspection

A. The installation of equipment shall be reviewed by Capitol Electronics and shall be in accordance with the manufacturer's requirements.

B. The installation shall be inspected by an agent of the manufacturer for compliance with the Manufacturer's Installation Standard.

C. The lightning protection installing contractor shall provide photos of the installation, including but not limited to; mast mounting, bonding connections (waterline & structural steel), down conductors, ground rods/grids and all buried, concealed, or inaccessible connections and components.

1. This information must be sent to Capitol Electronics for evaluation, certification, and documentation.
2. The ground resistance of the completed system shall be measured using an approved clamp meter, ideally AEMC 6417 or similar. Ground resistance shall not exceed 5 ohms.

2.1 Conductors

A. Copper conductors shall be 19-32 strands of 14-gauge wire rope lay, with a net weight of 200 - 375 pounds per 1,000 feet minimum.

B. The structural steel may be utilized as the main conductor provided the steel is electrically continuous or is made so via other means and with approval from the Manufacturer.

C. All conductors shall be secured every 3'-0" (900mm) maximum.

D. Fasteners and clips utilized shall be of equal corrosion resistance as the components being secured.

E. Bare copper components shall not be installed on dissimilar metals. Corrosion resistant copper equipment shall be utilized where these conditions exist.

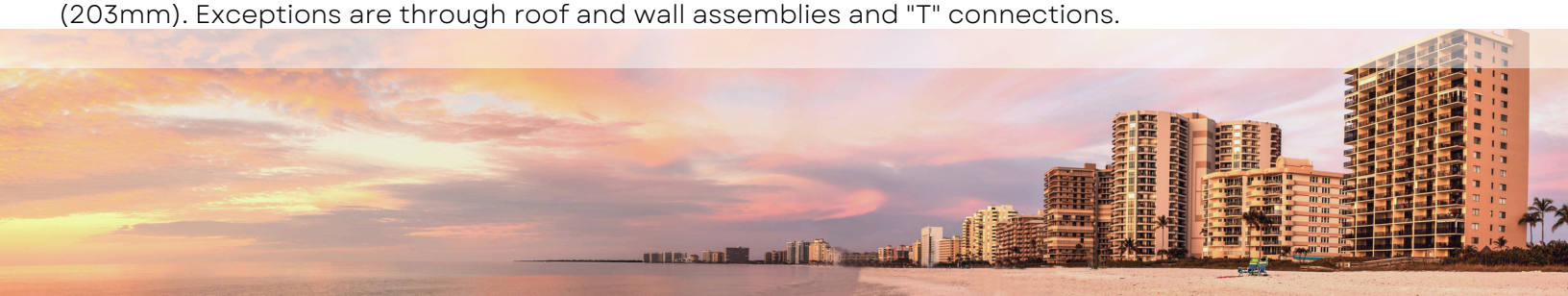
F. Corrosion resistant copper conductors/fittings must be utilized where corrosive atmospheres are present.

G. Conductors shall be installed so that a conductor shall always have a horizontal or downward path, free of "U" and "V" pockets, with the exception that an 8" (203mm) maximum rise, or a rise of 3" (80mm) maximum for every 12" (300mm) of conductor length shall be permitted in a main conductor run.

H. Each CMCE shall have one (1) down conductor from the base of the mast to the grounding system.

I. The electrical contractor shall furnish and install all necessary PVC conduit for concealed conductors.

J. No bend of a conductor shall be less than 90o and shall not have a radius of bend of less than 8" (203mm). Exceptions are through roof and wall assemblies and "T" connections.



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2.2 Mast

A. Aluminum, galvanized, carbon or stainless-steel mast are acceptable.

B. Mast support, depending upon application, may be roof mounting base, side mounting or structural support.

2.3 Grounding System

A. Ground rods shall be copper bond 0.5” x 10’-0”, minimum.

B. Ground rods shall be installed, as needed, to achieve 5 ohms or less ground resistance.

C. Ground plates of high conductivity copper sheet, 20 gauge minimum, 24 in. sq., may be used in lieu of ground rods if soil conditions make it impossible to drive ground rods. Chemical rods may also be used in lieu of plates or rods.

D. The cable attachments to the ground rods must be accomplished via an exothermic weld or mechanical clamp. A ground loop may be substituted for the ground rods or ground plates. The ground loop must be of a main size conductor and shall comply with the five (5) ohm resistance requirements of the grounding system.

E. Ground rods, ground plates, and loop conductors shall be installed at least 1ft. (300mm) below grade and a minimum of 2ft. (600mm) away from the foundation. Bonding of grounded systems shall be via main size conductors. The bonding shall be accomplished to achieve equal potential of all grounds.

2.4 Connectors, Fittings, Fasteners, and Hardware

A. Provide all connectors, fittings, fasteners, hardware, clamps, guards, lugs, etc., as required to connect, and install all parts of the system.

B. All equipment shall be fabricated from copper and/or bronze components.

3.1 Installation

A. Installation shall be done professionally by a lightning protection installation contractor or a licensed electrical contractor.

B. All work installed within the building shall be concealed.

C. All work installed in accessible locations shall be properly guarded and protected.

D. All components shall be installed to prevent electrolytic action under moisture.

E. All roof, wall or other building penetrations shall be made to prevent water or moisture ingress.

F. Roof penetrations, flashings/pitch pans shall be furnished and installed by the contractor.