# 1 GENERAL

A. Equipment and materials used shall be standard components that are manufactured and available for purchase as standard replacement parts as long as the product is commercially available from the manufacturer.

B. All manufactured products shall be thoroughly tested and proven in actual use.

C. All manufactured products shall include, at no additional cost, online support services.

D. The manufacturer shall repair or replace without charge, manufactured products proven defective in material or workmanship for the stated warranty period from the date of shipment.

# 2 MATERIAL

## 2.1 SUPERSTRUCTURE MATERIAL

A. The main housing (box) and door shall be constructed of 5052-H32 aluminum alloy or 300 series stainless steel alloy.

B. The enclosure mounting brackets, if any, shall be constructed of 5052-H32 aluminum alloy or 300 series stainless steel alloy.

C. The enclosure shall have a minimum internal capacity rating of 300lbs. (136kg)

## 2.2 HARDWARE

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A. All threaded hardware, (i.e. screws, nuts, bolts), shall be constructed of 300 series stainless steel.

B. All door hinges and rivets, if any, shall be constructed of 300 series stainless steel.

## 2.3 FINISH

A. The main housing (box) and door shall be “gloss true white”, electrostatically applied, polyurethane with a Solar Radiation ($a_2$) absorption factor of 14% or less.

## 2.4 PENETRATIONS

A. The enclosure shall provide eight (8) 1.115” penetration points appropriate to accommodate ¾” conduit interfaces.

B. The enclosure shall provide five (5) penetration points appropriate to accommodate “N” type (double D) bulkhead antenna connectors.

C. All penetration points shall be pre-punched from the interior to the exterior of the enclosure, by the manufacturer, and subsequently re-seated to near flush, within 90%, prior to finishing, ensuring a high physical security, weatherproof seal.

## 2.5 SEALS & GASKETING

A. All flexible seals and gaskets shall be constructed of ethylene-propylene diene conforming to ASTM-D-1056-67, or equivalent. For the purpose of meeting equivalency, the gasketing material shall exhibit:

1. Excellent fire resistance, compliant with Mil-R-6130C;
2. Excellent ozone resistance;
3. Excellent weather resistance;
4. If a foam material, a closed cell structure;
5. A temperature range of -70°F ~ +225°F (-56°C ~ 107°C);
6. A 25% compression deflection of 2-5;
7. A density of 4±1(PCF);
8. A pressure activated, self-adhesive, user removable and replaceable functionality, without special tools or knowledge.

## 2.6 DESIGN

### A. MODULARITY

1. The enclosure shall be designed in a modular fashion allowing the combination of multiple boxes, at the time of installation and the integration of additional boxes to legacy installations.
2. The addition and/or combining of boxes shall not require cutting, drilling or welding.
3. The addition and/or combining of boxes shall be inherent to the box design and shall not require special tools or components other than the additional box.
4. The addition and/or combining of boxes shall not induce a negative impact on the cooling, heating or weatherization of the box/es, other than that necessitated by a larger volume.

### B. MOUNTING

1. The enclosure shall be conducive to, and the manufacturer shall provide as a normal retail product, appropriate mounting apparatus specifically designed and capable of mounting the enclosure to various surfaces including walls, towers and poles.
2. The mounting system shall incorporate an intermediate bracket which can serve as a sacrificial anode between the enclosure and the mounting surface.
3. The enclosure mounting system should prevent Normal Access to the securing hardware from outside a properly mounted and secured enclosure.
    a. For the purposes of this section, “Normal Access” means; sufficient access to loosen, tighten or alter the mounting of the enclosure to a wall, tower or pole with the proper use of any screwdriver, wrench or key.

C. **AIRFLOW**

1. The enclosure shall inherently provide convective airflow by means of vents located near or at the bottom of the enclosure and near or at the top of the enclosure.

2. The enclosure shall provide a minimum of 3in² of venting area, a minimum of 1.5in² in the lower and a minimum of 1.5in² in the upper enclosure.

## 2.7 ENVIRONMENT MANAGEMENT

A. **FILTRATION**

1. The enclosure shall be conducive to, and the manufacturer shall provide as a normal retail product, filtration options up to MERV11 disposable filters and electro-static washable/reusable filters.

    a. MERV11 Rating provides:

        1. Minimum particle protection down to 2.0 µm (0.000078”);

        2. Protection against auto emission particulates, lead dust, mold, spores, spray paint dust and all insects and insect debris.

    b. Electro-Static washable aluminum filters provide:

        1. Reduced build-up of electrically charged dust particles on internal electronics;

        2. A washable and corrosion resistant reusable filter.

B. **AMBIENT COOLING**

1. The enclosure shall be conducive to, and the manufacturer shall provide as a normal retail product, digitally controlled cooling with the following minimum features:

    a. Digital thermometer with LCD display indicating interior enclosure ambient air temperature, Fahrenheit or Celsius (selectable);

    b. Digital temperature controller range 32°F ~ 211°F (0°C ~ 100°C) with programmable On and Off temperature thresholds;

    c. Digitally controlled fan/s should operate at less than 20dB;

    d. Digitally controlled fan/s should provide a minimum of 60CFM.

C. **WEATHER RESISTANCE**

1. The enclosure shall, with necessary operational wiring completed and proper filtration installed, provide the enclosed electronics with an Ingress Protection rating of IP-55 or greater.

    a. IP-55 describes:

        1. Physical protection against access to dangerous parts and protection against dust.

        2. Water protection against water jets from any angle.

## 2.8 SECURITY

A. The enclosure shall be conducive to, and the manufacturer shall provide as a normal retail product, a tubular key lock with compression action hardened steel locking pawl.

B. The enclosure shall be conducive to, and the manufacturer shall provide as a normal retail product, high-security key locking options facilitating the integration of existing master-key systems to secure the enclosure.

C. The enclosure shall be conducive to, and the manufacturer shall provide as a normal retail product, a dust/debris cover for the lock to prevent corrosion and fouling of the lock.

## 2.9 POWER

A. The enclosure shall be conducive to, and the manufacturer shall provide as a normal retail product, multiple optional power solutions including:

1. Grid powered: 110VAC/220VAC (direct connection);

2. Alternative powered: Solar / Wind (with charge controller);

3. Combination Powered: Grid & Wind / Solar (with charge controller);

4. Supply voltage options: 5V, 12V, 24V (AC or DC) & 110VAC/220VAC;

5. Multiple optional battery back-up solutions scalable from 260W ~ 12,000W+ (minimum).

## 2.10 COMMUNICATION

A. The enclosure shall be conducive to, and the manufacturer shall provide as a normal retail product, multiple optional communication options including:

1. Wi-Fi Licensed and unlicensed FCC Certified: Primary or back-up data communications:

a. 907MHz~922MHz;

b. 2.4GHz;

c. 3.65GHz~3.67GHz;

d. 4.9GHz;

e. 5GHz.

2. Cellular 3G/4G/LTE: Primary or back-up data communications.

## 2.11 PROFESSIONAL SERVICES

A. To provide assistance when/if necessary, the enclosure manufacturer shall be conducive to, and shall provide as a normal retail function, the following services:

1. Pre-configured, pre-wired & tested enclosure solutions;

2. 2D & 3D As-built documentation;