

SPECIFICATIONS FOR ISO SHELTERS

THIS SPECIFICATION IS FOR SEVEN SHELTERS TO BE USED TO HOUSE EQUIPMENT FOR USE WITH THE ADVANCED MULTIFUNCTION RADIO FREQUENCY CONCEPT (ADMRF) RESEARCH. THE SEVEN SHELTERS CONSIST OF 5 BASIC UNITS AND 2 MODIFIED UNITS.

THE FOLLOWING DESCRIPTION IS FOR THE 5 BASIC UNITS. THE BASIC UNITS ARE SHOWN IN FIGURE 1a (DEFINED AS A RIGHT HAND FACING UNIT (RHF)) AND 1b (DEFINED AS A LEFT HAND FACING UNIT (LHF)). THREE LHF AND TWO RHF BASIC UNITS ARE REQUIRED:

1. NON-EXPANDABLE 20 FT ISO TYPE SHELTER: NOMINAL EXTERNAL DIMENSIONS OF 20 FT X 8 FT X 8 FT
2. ELECTROMAGNETIC INTERFERENCE PROTECTION (EMI): EACH SHELTER MUST PROVIDE EMI PROTECTION TO 60 dB OF SHIELDING EFFECTIVENESS AT FREQUENCIES BETWEEN 150 kHz AND 10 GHz (18 GHz PREFERABLE) WHEN COMPLETELY MANUFACTURED AND FULLY ASSEMBLED INCLUDING ITS BREAK OUT PANELS, AC UNIT, TRANSFORMER, DOOR, EMI FILTER, SURGE SUPPRESSOR, SPECIAL MODIFICATIONS, PALLET, ETC.
3. HEATING AND AIR CONDITIONING UNIT: MUST BE END MOUNTED AS SHOWN IN THE ATTACHED FIGURES, WITH A NOMINAL CAPACITY OF 2 TON HEATING, 5 TON COOLING, AND DEHUMIDIFICATION CIRCUIT (FOR MID ATLANTIC SEABOARD CLIMACTIC CONDITIONS), HUMIDISTAT, TEMPERATURE AND MODE CONTROL, 480 Vac, 3 PHASE, 60 Hz PROVIDED BY AN EXTERNAL POWER LINE WITH A WEATHERPROOF, PIN AND SLEEVE, BREAKABLE RECEPTACLE ASSEMBLY (MALE ONLY). DUCTING MUST BE CEILING MOUNTED BETWEEN THE LIGHTS AND LONGITUDINAL WALLS AS SHOWN IN THE FIGURES.
4. ALL SHELTERS MUST BE STACKABLE, SKID MOUNTED / FORKLIFT MANEUVERABLE AND CRANE LIFTABLE.
5. LIGHTING: MUST HAVE 8 FIXTURES CONSISTING OF (2) 40 WATT, 48 INCH FLORESCENT IN TWO ROWS CONTAINING 4 LIGHT FIXTURES EACH, EVENLY SPACED, LOCATED APPROXIMATELY ONE FOOT TOWARDS THE CENTER OF THE SHELTER FROM THE LONGITUDINAL WALLS AS SHOWN IN THE ATTACHED FIGURES. EACH FLORESCENT MUST BE EQUIPPED WITH AN RF FILTER FOR EMI SUPPRESSION.
6. EXTERIOR / INTERIOR WALLS AND FLOOR FINISH: MUST BE MANUFACTURERS STANDARD
7. CABLE TROUGH: MUST BE LADDER STYLE, "DOG BONE" SHAPED, NOMINALLY 4 IN X 24 IN X 19 FT LONG, MOUNTED 24 INCHES FROM THE WALL OPPOSITE THE DOOR, 4 INCHES BELOW THE CEILING AS SHOWN IN THE ATTACHED FIGURES.
8. DOOR: MUST BE A STANDARD WEATHER TIGHT DOOR, OPENING OUTWARD, WITH A NOMINAL OPENING OF 48" X 76" WHICH SATISFIES NUMBER 2 ABOVE AND MUST BE SIDE MOUNTED ON EACH SHELTER

9. ELECTRICAL / FIBER OPTIC BREAK OUT PANELS: MUST HAVE (6) REMOVABLE 2 FT X 2 FT PANELS LOCATED AS SHOWN IN THE FIGURES. ALL SIX PANELS MUST HAVE "ELEPHANT TRUNK" WEATHER PROTECTOR WITH TIE OFF'S INSTALLED AT EACH PANEL.

10. EQUIPMENT POWER LINE TRANSFORMER: EACH SHELTER MUST HAVE AN END MOUNTED "ISOLATION" TRANSFORMER CAPABLE OF HANDLING 45 kVa, 120/208 Vac, 60 Hz. WITH A WEATHERPROOF, PIN AND SLEEVE, BREAKABLE, RECEPTACLE ASSEMBLY (MALE ONLY). THE MINIMUM SPECIFICATION FOR THE 45 kVa TRANSFORMER IS A SOLA #3H13T2H45S, BRAND NAME OR EQUAL, WITH A NEMA 3R WEATHER SHIELDED ENCLOSURE.

11. SURGE SUPPRESSOR FOR THE TRANSFORMER: EACH SHELTER MUST HAVE A SURGE SUPPRESSOR, END MOUNTED, FOR THE TRANSFORMER (DEFINED IN NUMBER 10 ABOVE) POWER LINE PENETRATION LEADING TO ITS DISTRIBUTION BOX. THE MINIMUM SPECIFICATION FOR THE SUPPRESSOR IS NOTED IN NUMBER 29.

12. POWER DISTRIBUTION BOX: MUST PROVIDE CIRCUIT BREAKERS FOR ALL INTERNAL CIRCUITS WITHIN THE SHELTER INCLUDING BUT NOT LIMITED TO LIGHTS, FANS, OUTLETS, ETC.

13. INTERNAL EQUIPMENT POWER DISTRIBUTION: MUST PROVIDE (8) 30 AMP 120/208 Vac 60 Hz TWIST LOCK OUTLETS, EVENLY SPACED LONGITUDINALLY, CEILING MOUNTED OFF CENTER BETWEEN THE CABLE TROUGH AND THE LIGHTS AS SHOWN IN THE FIGURES AND 8 STANDARD DUAL PLUG OUTLETS FOR 20 AMP SERVICE, TWO ON EACH SIDE OF THE CENTER MOUNTED DOOR, WALL MOUNTED, EVENLY SPACED LONGITUDINALLY, 16 INCHES FROM THE FLOOR AND 4 ON THE OPPOSITE WALL MOUNTED SIMILARLY. EACH OUTLET MUST HAVE A GROUND FAULT INDICATION.

14. GROUNDING: MUST HAVE ONE GROUND BUS BAR, CEILING MOUNTED OFF CENTER, 19 FEET LONG, PARALLEL AND ADJACENT TO THE TWIST LOCK OUTLETS AS SHOWN IN THE FIGURES.

15. WALL MOUNTED RACK STABILIZATION SYSTEM: MUST BE CONTINUOUS 19 FT LONG, ATTACHED TO THE LONGITUDINAL WALL OPPOSITE THE DOOR, 60 INCHES FROM THE FLOOR TO HORIZONTALLY SUPPORT STANDARD RACKS (24" W X 30" D X 70" H) WEIGHING 500# AGAINST A 2g SIDE LOAD AND MAINTAIN A 24 INCH WALKWAY BETWEEN THE RACK AND THE SUPPORT WALL.

16. FLOOR MOUNTED RACK STABILIZATION SYSTEM: MUST BE 18 FT LONG, REMOVABLE IN 2-FOOT SEGMENTS, TO SUPPORT STANDARD RACKS CARRYING 500 LBS. AGAINST A 2-g VERTICAL LOAD.

17. SAFETY EQUIPMENT: MUST HAVE AN APPROPRIATE FIRE EXTINGUISHER, BATTERY POWERED EMERGENCY LIGHTING, AND FIRST AID KIT.

18. FOLD UP WORK / WRITING SHELF, 2 EACH SHELTER: MUST BE 12 INCHES WIDE, 42 INCHES LONG, EVENLY SPACED, ONE ON EACH SIDE OF THE DOOR, MOUNTED 29 INCHES FROM THE FLOOR.

19. SECURITY: MUST HAVE A CIPHER LOCK AND PAD LOCK INSTALLED ON EACH SHELTER DOOR.

20. COOLANT AND COMPRESSED AIR ENTRY PANEL: MUST HAVE 1' X 2' PANEL, POSITION AS SHOWN IN THE FIGURES.

21. SHELTER INSULATION: MUST PROVIDE A HEAT TRANSFER COEFFICIENT OF .25 BTU/HR*FT²/°F FOR OPERATION BETWEEN -40 °F AND 125 °F PLUS A SOLAR LOAD.

22. WIRING INTER-CONNECTION: ALL WIRING BETWEEN THE TRANSFORMER AND ITS SURGE SUPPRESSOR, THE SURGE SUPPRESSOR AND ITS DISTRIBUTION BOX, BETWEEN THE EMI FILTERS AND THE DISTRIBUTION BOXES OR BETWEEN THE DISTRIBUTION BOX AND THE INTERNAL OUTLETS, LIGHTS, ETC., I.E., WHETHER INSIDE OR OUTSIDE, MUST MEET ALL COMMERCIAL STANDARD CODE APPLICABLE FOR WEATHER, EMI (AS SPECIFIED IN 2 ABOVE), SAFETY, ETC. PROTECTION.

23. MANUFACTURING PRACTICES: BEST COMMERCIAL MANUFACTURING PRACTICES MUST BE USED UNLESS OTHERWISE SPECIFIED. ALL MATERIALS USED IN CONSTRUCTION OF THE SHELTERS, WHICH ARE PRONE TO DETERIORATION DUE TO ENVIRONMENTAL CORROSIVES MUST BE PROTECTED.

24. MATERIAL / PROCESS CONTAMINATION: THE MANUFACTURER MUST CERTIFY THAT ALL THE MATERIALS USED AND OR PROCESSES INVOLVED IN THE CONSTRUCTION OF THE SHELTERS RENDER THE SHELTERS FREE OF TOXINS, CARCINOGENS OR ANY OTHER FOREIGN AGENT WHICH COULD CAUSE HARM TO ANY OCCUPANT OF THE SHELTERS UNDER NORMAL USE.

2 MODIFIED BASIC UNITS AND PALLETS

THE TWO MODIFIED UNITS ARE DERIVED FROM ONE LHF AND ONE RHF BASIC UNIT. THE MODIFIED RHF UNIT MUST HAVE A SEPARATE EMI FILTER, SURGE SUPPRESSOR AND POWER DISTRIBUTION BOX. FIGURES 2. THROUGH 6. DEPICT THE MODIFICATIONS THAT MUST BE MADE TO THE TWO BASIC SHELTERS AND THE REQUIRED PALLETS. FIGURES 7 THROUGH 9 DEPICT THE ENTIRE SHELTER IN USE.

ALL SPECIFICATIONS DESCRIBED IN PARAGRAPHS 1 -24 APPLY TO THE TWO MODIFIED BASIC UNITS WITH THE EXCEPTION OF THE FOLLOWING:

8. DOOR: MUST PROVIDE A STANDARD WEATHER TIGHT DOOR WITH A NOMINAL OPENING OF 48" X 76" WHICH SATISFIES 2 ABOVE AND MUST BE SIDE MOUNTED APPROXIMATELY ONE FOOT FROM THE REAR WALL ON EACH SHELTER

13. INTERNAL EQUIPMENT POWER DISTRIBUTION: MUST PROVIDE (8) 30 AMP 120/208 Vac 60 Hz TWIST LOCK OUTLETS, EVENLY SPACED LONGITUDINALLY, CEILING MOUNTED OFF CENTER BETWEEN THE CABLE TROUGH AND THE LIGHTS AS SHOWN IN THE ACCOMPANYING FIGURES AND 8 STANDARD DUAL PLUG OUTLETS, FOUR BETWEEN THE FRONT WALL AND THE DOOR, WALL MOUNTED, EVENLY SPACED LONGITUDINALLY, 16 INCHES FROM THE FLOOR AND 4 ON THE OPPOSITE WALL MOUNTED SIMILARLY, BUT EQUALLY SPACED ALONG THAT WALL. EACH OUTLET MUST HAVE A GROUND FAULT INDICATION.

18. FOLD UP WORK / WRITING SHELF, 2 EACH SHELTER: MUST BE 12 INCHES WIDE, 42 INCHES LONG, EVENLY SPACED, BETWEEN THE FRONT WALL AND THE DOOR, MOUNTED 29 INCHES FROM THE FLOOR.

25. SHELTER MODIFICATION: FIGURES 2 AND 3 DEPICT THE SHELTER MODIFICATION REQUIRED WHICH IS DEFINED AS FOLLOWS:

- A. THE MODIFICATION IS A TRIANGULAR SHAPED, STRUCTURAL FRAME WHICH IS INTENDED TO MOUNT A REMOVABLE PALLET (SEE 24) CARRYING 1500 LBS. AS THE END WALL OF THE SHELTER HELD AT AN ANGLE OF 15 DEGREES, AS SEEN IN FIGURE 5.
- B. THE FRAME JOINS THE SHELTER, MUST HAVE A "THRU WINDOW" OF 78" X 80" INTO THE SHELTER AND PRESENT A FLANGE OF APPROXIMATELY SIX INCHES (6) PERIPHERALLY FOR THE PALLET TO MOUNT ON.
- C. THE FRAME AND PALLET FLANGES MUST FORM THE SEPARABLE MATING SURFACES REQUIRED TO PROVIDE BOLTING, WEATHER PROTECTION AND RF SHIELDING AS SHOWN ON FIGURE 3.
- D. THE CORROSION PROTECTION AND FINISH OF THE FRAME MUST BE THE SAME AS THAT OF THE SHELTER.

26. PALLET, 2 REQUIRED.: DEPICTED IN FIGURE 4 (WITHOUT LOAD) AS A RECTANGLE, APPROXIMATELY 92 X 93 INCHES SQUARE, IT IS FORMED OF 6" X 6" ALUMINUM WIDE FLANGE BEAM WHICH MUST BE WELDED TOGETHER WITH A ¼ INCH THICK ALUMINUM COVER PLATE TO FORM THE SIDE WALL OF THE SHELTER. THE CORROSION PROTECTION AND FINISH OF THE PALLET MUST BE THE SAME AS THE SHELTER AND FRAME.

27. THE FRAME FABRICATION, THE JOINING OF THE FRAME AND THE SHELTER, THE FLANGE INTERFACE DESIGN AND THE CONSTRUCTION AND THE INTEGRITY OF THE FABRICATION OF THE PALLET MUST BE SUCH THAT THE ISOLATION CRITERIA OF THE BASIC SHELTER IS MAINTAINED AFTER ASSEMBLY.

ADDITION OF A SURGE SUPPRESSOR AND DISTRIBUTION BOX ON THE RHF MODIFIED UNIT AND THREE SURGE SUPPRESSORS AND A DISTRIBUTION BOX ON A LHF BASIC UNIT

A SURGE SUPPRESSOR FOR THE ARRAY POWER LINE ON THE RHF MODIFIED UNIT: THE SUPPRESSOR MUST BE MOUNTED ON THE SIDEWALL OPPOSITE THE DOOR, NEAR THE REAR OF THE UNIT, FOR A SHELTER PENETRATING POWER LINE LEADING TO ITS DISTRIBUTION BOX. THE LINE WILL BE CARRYING 112.5 kVa, 480Vac, 3 PHASE AND REQUIRES A WEATHERPROOF, PIN AND SLEEVE, BREAKABLE, RECEPTACLE ASSEMBLY (MALE ONLY). THE MINIMUM SPECIFICATION FOR THE SURGE SUPPRESSOR ON THE RHF MODIFIED UNIT IS NOTED IN NUMBER 2 UNDER SURGE SUPPRESSOR AND EMI FILTER: MINIMUM SPECIFICATIONS BELOW

2. THREE SURGE SUPPRESSORS FOR THE ARRAY POWER LINE ON A LHF BASIC UNIT: THEY MUST BE MOUNTED ON THE SIDE WALL OPPOSITE THE DOOR, NEAR THE REAR OF THE UNIT, FOR THREE SHELTER PENETRATING POWER LINES LEADING TO A SINGLE DISTRIBUTION BOX. EACH LINE WILL BE CARRYING 150 kVa, 480Vac, 3 PHASE AND REQUIRES A WEATHERPROOF, PIN AND SLEEVE, BREAKABLE, RECEPTACLE ASSEMBLY (MALE ONLY). THE MINIMUM SPECIFICATION FOR THE SURGE SUPPRESSORS ARE NOTED IN NUMBER 3 UNDER SURGE SUPPRESSOR AND EMI FILTER: MINIMUM SPECIFICATIONS BELOW.

3. POWER DISTRIBUTION BOX: AS REQUIRED FOR THE INTERNAL ARRAY POWER DISTRIBUTION TERMINATED.

4. INTERNAL ARRAY POWER DISTRIBUTION: TERMINATED IN THE POWER DISTRIBUTION BOX.

SURGE SUPPRESSOR AND EMI FILTER: MINIMUM SPECIFICATIONS

TRANSFORMER POWER LINE

1. 45 kVa 120/208V 3 PHASE wye SURGE SUPPRESSOR, ITD OF DESTIN INC., MODEL # ITD80-120/208-USN, BRAND NAME OR EQUAL.

ARRAY POWER LINE

2. 112.5 kVa 480V 3-PHASE delta SURGE SUPPRESSOR, ITD OF DESTIN INC., MODEL # ITD80-480NN-USN, BRAND NAME OR EQUAL.

3. (3) 150 kVa 120V 3-PHASE delta SURGE SUPPRESSORS, ITD OF DESTIN INC., MODEL # ITD80-1S120-USN, BRAND NAME OR EQUAL.