

Appendix 4 – Minimum Communications Building Standards

I. ENCLOSURE MANUFACTURER RESPONSIBILITY

- (1) THE ENCLOSURE MANUFACTURER SHALL ASSUME RESPONSIBILITY FOR THE SHELTER CONSTRUCTION TO COMPLY WITH:
 - A) NATIONAL ELECTRICAL CODE
 - B) UNIFORM BUILDING CODE
 - C) STANDARD BUILDING CODE
 - D) STATE AND LOCAL CODE
- (2) THE ENCLOSURE MANUFACTURER SHALL ASSUME RESPONSIBILITY FOR THE DELIVERY AND SET UP FOR EACH ENCLOSURE. THE CONTRACTOR WILL HAVE 48 HOURS TO SET UP AND INSTALL THE ENCLOSURE. DESTINATION WILL BE GIVEN UPON FINAL COMPLETION OF ENCLOSURE.
 - SECURE AND TIE DOWN ENCLOSURE TO FOUNDATION
- (3) THE ENCLOSURE MANUFACTURER SHALL PROVIDE AT NO ADDITIONAL CHARGES ENCLOSURE DESIGN CHANGES, SUCH AS DOOR LOCATION AND HVAC LOCATION.
- (4) THE ENCLOSURE MANUFACTURER SHALL HAVE ALL ELECTRICAL ITEMS WITHIN THE ENCLOSURE INSTALLED AND OR SUPERVISED BY A LICENSED OKLAHOMA JOURNEYMAN OR CONTRACTOR.
- (5) THE BUILDING MANUFACTURER WILL BE RESPONSIBLE FOR ELECTRICAL INSTALLATION OF THE BUILDING SITE.
 - (1) NEW DISCONNECT AT POLE SQUARE D TYPE: 100 AMP/240 OR 200 AMP/240 VOLTS 3R TYPE. SIZE OF DISCONNECT WILL BE DETERMINED BY FACILITY REQUIREMENTS. PRICING SHALL BE INCLUDED.
 - NEW WIRE AND PVC CONDUIT TO BE RAN UNDER GROUND FROM POLE TO BUILDING.
 - RUN NEW CIRCUIT WIRE FROM BUILDING DISTRIBUTION PANEL TO TOWER LIGHTS (20-AMP-120 VAC)
 - INSTALL NEW ICE BRIDGES FROM BUILDING TO TOWER INSTALL (4) TOTAL GROUND RODS ON AT EACH CORNER OF THE ENCLOSURE AND GROUND SKID TO ROD WITH #2/0 GREEN GROUND WIRE, WITH CAD WELD METHOD.
 - INSTALL (1) GROUND BAR UNDER WAVE GUIDE ENTRY. GROUND TO COPPER ROD AND SKID WITH (#2/0 GREEN WIRE). CAD WELD METHODS SHALL APPLY.
 - INSTALL (1) GROUND ROD AT POLE.
 - USE 5/8" INCH X 8 FT. GROUND BARS FOR ALL GROUNDING.

II. SIZE

SKID: XX FT. LONG by XX FT. WIDE
ENCLOSURE: XX FT. LONG by XX FT. WIDE by X FT. INSIDE CEILING

III. STRUCTURAL DESIGN CRITERIA

- A) WIND LOAD 120 MPH
- B) ROOF LOAD
- C) FLOOR LOAD (LIVE) 150 PSF
- D) SEISMIC: ZONE 2

IV. CONSTRUCTION

- FRAME:
- A) 4-RUNNER SKID (8" X 13LB BEAM)
 - B) 24" CENTER CROSS MEMBERS (4" X 5.4LB CHANNEL)
 - C) PIPE ENDS (3"-SCH.40) WITH LIFTING EYES

- D) FORKLIFT TUBES (5" X 10" RECTANGULAR TUBING OR EQ.)
- FRAME TO BE CONSTRUCTED OF NEW ASTM-36 STEEL
 - FRAME SHALL BE SAND BLASTED AND PAINTED WITH TWO COATS OF BLACK ENAMEL PAINT FOR FINAL FINISH.
 - FRAME TIE DOWNS SHALL BE FURNISHED WITH THE ENCLOSURE

FLOORS:

- A) MINIMUM 30 GA. GALVANIZED OR STEEL SUB-FLOORING
- B) 2" X 4" WOOD STRINGERS ON 12" CENTERS RUN FULL LENGTH OF ENCLOSURE. 2" X 4" WOOD STRINGERS FASTENED TO 4" X 5.4 LB CROSS MEMBERS.
- C) (2) LAYERS OF 3/4" C-D GRADE PLYWOOD. PLYWOOD GLUED, STAPLED AND FASTENED TO 2" X 4" WOOD STRINGERS
- D) TOP FLOOR COVERING CONSISTS OF COMMERCIAL GRADE 12" X 12" VINYL TIL. COLOR: COOL WHITE (ARMSTRONG)

WALLS:

- A) WALL POST SHALL BE CONSTRUCTED OF STEEL SHAPE A-36 NEW STEEL. WALL POST LOCATED ON 12" CENTERS.
- B) 10 GA. STEEL FORMED LINER SHALL COVER 100% OF WALL.
- C) EXTERIOR COVER SHALL BE FORMED .040 ALUMINUM PRE-FINISHED COLOR WHITE BAKED ENAMEL FINISH. EXTERIOR COVER TO BE FASTENED TO WALL POST WITH ALUMINUM TYPE RIVET.
- D) THERMAL BREAKER STRIP: 1" X 4" WOOD (PINE) BOARD LOCATED 12" CENTERS.
- E) INTERIOR COVER: 3/8" PANEL WITH FRP COVER. SCREW LOCATION ON 8" CENTERS.

ROOF:

- A) ROOF TRUSS LOCATED ON 12" CENTERS. ROOF TRUSS TO BE MANUFACTURED OF A-36 NEW STEEL.
- B) 16 GA. STEEL LINER SHALL COVER 100% OF ROOF.
- C) PAINTED WHITE
- D) THERMAL BREAKER STRIP: 1" X 4" WOOD (PINE) BOARD LOCATED ON 24" CENTERS.
- E) INTERIOR COVER: 3/8" PANEL WITH FRP COVER. SCREW LOCATION ON 8" CENTERS.

INSULATION:

WALLS: R-11 FIBERGLASS WITH BARRIER BACKING

FLOOR: R-11 FIBERGLASS WITH BARRIER BACKING

CEILING: R-19 FIBERGLASS WITH BARRIER BACKING

DOOR: 3070 16 GA. INSULATED STEEL DOOR

DOOR EQUIPPED WITH:

- A) 4-1/2" X 1-1/2" STAINLESS HINGES
- B) DOOR KNOB KEYED (STAINLESS)
- C) DEADBOLT MECHANISM KEYED. ALL BUILDINGS KEYED THE SAME
- D) DOOR SPRING
- E) DOOR HOLD-BACK
- F) DOOR TO HAVE RAIN CAPS
- G) DOOR TO BE PAINTED TO MATCH EXTERIOR COLOR OF ENCLOSURE (WHITE FINISH)

TRIM:

- A) ALL INTERIOR PANELS SHALL HAVE A T-SHAPE MOLDING TO JOIN PANELS. COLOR: WHITE TYPE PLASTIC
- B) FLOORING TILE SHALL HAVE BASE COVER INSTALLED AROUND PERIMETER OF THE FLOOR. COLOR: WHITE TYPE PLASTIC
- C) EXTERIOR CORNER POST: FORMED 10 GA RADIUS CORNERS
- D) EXTERIOR PERIMETER POST: FORMED 12 GA. MILD STEEL,

COVERED WITH 2 COAT WHITE ENAMEL PAINT

ELECTRICAL:

- A) ALL WIRING TO BE THHN STRANDED TYPE, AND EACH CIRCUIT MUST HAVE ITS OWN COLOR IDENTITY, AND IDENTIFIED BY WIRE MARKER NUMBER.
- USE WIREMOLD BRAND 3000 SERIED WALL MOUNTED CONDUIT AT WALL CEILING JUNCTION OR EQ.
 - ALL VERTICAL AND HORIZONTAL INTERIOR WIRING SHALL BE RAN IN PROPER SIZED EMT CONDUIT OR RACEWAY.
 - ALL WIRING RAN ON EXTERIOR PART OF INERIOR WALL
- B) USE #2/0 GROUND WIRE RAN PERIMETER OF BUILDING WITH DROPS IN EACH CORNER OF BUILDING, TOTAL 4 DROPS CAD WELDED TO FRAME AND TO PERIMETER OF 2/0 GROUND WIRE. TIE HALO GROUND TO (MGB) MASTER GROUND BAR LOCATION PER DRAWING. ALL WIRING TERMINATED AT GROUND BAR SHALL BE CRIMP CONNECTED.
- C) (2) MGB GROUND BAR WITH INSULATORS AND BRACKETS
- MATRIX
 - COPPER
 - 7/16" HOLES
 - 12" LONG
 - 4" WIDE
 - ¼" THICK
 - 16 HOLES
- LOCATION:
(INTERIOR) 6" ABOVE FLOOR UNDERNEATH WAVE GUIDE ENTRY.
(EXTERIOR) UNDERNEATH WAVE GUIDE ENTRY
(NOTE THESE LOCATIONS WILL CHANGE FROM SITE TO SITE)
- D) NO WIRE NUTS ALLOWED. ONLY USE BUCHANAN SPLICE CAPS AND INSULATORS FOR ANY WIRE SPLICES.
- E) 110-VOLT DOUBLE GANG RECEPTACLES AT DEFINED LOCATION ON WALLS AS PER DRAWING. ONLY DOUBLE GANG RECEPTACLES PER 20 AMP BREAKER.
- F) 100 AMP DISTRIBUTION PANEL WITH MAIN BREAKER
- 240/120 VAC 60HZ
 - SQUARE D TYPE: 10024M100
 - SPACE SIZE: 24
 - COVER: FLUSH
 - GROUND BAR KIT
- (SUBSTITUION) SOME SITES MAY REQUIRE A 200 AMP PANEL
200 AMP DISTRIBUTION PANEL WITH MAIN BREAKER
- 240/120 VAC 60HZ
 - SQUARE D TYPE: Q030M200
 - COVER: FLUSH
 - GROUND BAR KIT
 - (PRICING SHALL BE INCLUDED)
- G) (6) LIGHTONIA C-240 FLUORESCENT LIGHT FIXTURES WITH WIRE GUARDS, BULB RETAINER CUPS AND EMI PROTECTION 60 HZ, AT 120 VAC OR EQUIAL. AS PER DRAWING
- H) SURGE PROTECTION AC DATA SYSTEMS SURGE BLOCK PANEL SUPRESSORS PART #B82XXC-G OR EQ
- I) (1) EXTERIOR LIGHT (PER DRAWING) INCANDESCENT LAMP HOLDERS 120 VOLT 100 WATT BULBS. HEAVY DUTY
- J) ELECTRICAL GROUNDING SYSTEM IS TO PROVIDE PROTECTION FROM LIGHTNING AND EXTERNAL Rf RADIATION. THE ELECTRICAL GROUNDING SYSTEM IS DESIGNED AROUND A HALO GROUND SYSTE, A.K.A. INTERNAL GROUND RING SYSTEM. ALL NON-ELECTRICAL METALLIC COMPONEENTS SHALL HAVE SHORT LENGTHS OF BONDING CONDUCTORS FROM NON-SURGE PRODUCING METALLIC OBJECTS TO THE HALO GROUND SYSTEM

FOR PERSONNEL SAFETY PURPOSES. THE BUILDING DESIGN SHALL INCORPORATE A FARADAY SHIELD DESIGN. THE FARADAY SHIELD SHALL BE DUAL PURPOSE, TO BLOCK ELECTRIC FIELDS AND BLOCK ELECTRO MAGNETIC RADIATION. THE BUILDING SHALL BE DESIGNED TO FORM AN EQUAL POTENTIAL SURFACE AND SHALL HAVE THE SAME ELECTRICAL POTENTIAL AT EVERY POINT.

ADDITIONAL ITEMS:

- A) (2) 19" ALUMINUM EQUIPMENT RACKS (19" X84") (OPTIONAL)
- B) 12" CABLE TRAY (CABLE TRAY MAY VARY PER BUILDING LOCATION)
- C) CORK BULLETIN BOARD 36" X 24"
- D) 12" ICE BRIDGE TRAY 6 FT. TO 20 FT. LENGTH (LENGTH WILL VARY PER BUILDING LOCATION)
- E) (1) 24,000 BTU AIRCONDITIONER (MARVAIR) WITH 5 KW HEAT STRIP (1-PHASE 208/230/60HZ) OR EQ (OPTIONAL)
 - TIME DELAY RELAY
 - LOW PRESSURE BY-PASS
 - DRY CONTACTS FOR REMOTE ALARM LOCKOUT HIGH AND LOW PRESSURE SWITCHES WITH LOCKOUT RELAY
 - 2" PLEATED FILTER
 - INTERNAL DISCONNECTS
 - RAIN HOOD AND MOUNTING BRACKETS ARE PART OF UNIT
 - THERMOSTAT(OPTIONAL) SOME SITES MAY REQUIRE ADDITIONAL HVAC'S PRICING SHOULD INCLUDE ADDITIONAL HVAC IF REQUIRED.
- F) WAVE GUIDE PORTS (MICROFLECT #B1449) OR EQ.
(6) 4" DIA. PORTS
- G) (1) 1-1/2" LB CONDUIT WITH COVER FOR POWER ENTRY INTO DISTRIBUTION PANEL
- H) (1) 1-1/2" LB CONDUIT WITH COVER FOR TOWER LIGHT CIRCUIT ENTRY INTO DISTRIBUTION PANEL
- I) 4" X 20" SOLID COPPER BAR MOUNTED NEXT TO WAVE GUIDE PORT
- J) 4" X 12" GROUND BAR W/INSULATOR MOUNTED UNDERNEATH WAVE GUIDE PORTS AND CAD WELDED TO BUILDING SKID.
PART #HARGER #GB11412A OR EQ.
- K) ANCHORS
 - INSULATED SHELTERS TO BE ANCHORED TO THE GROUND WITH MINUTE MAN ANCHORS, MANUFACTURED BY MINUTE MAN PRODUCTS, OR EQUAL, BY APPROVED SUBSTITUTION. ATTACHED IS ONE (1) 8-1/2" X 11" SHEET ILLUSTRATING TYPICAL ANCHORS AND ACCESSORIES TO BE USED FOR VARIOUS LOCATIONS. PRODUCTS TO BE USED ARE CIRCLED. ANCHORS ARE TO BE SELECTED AND INSTALLED PER THE MANUFACTURE'S RECOMMENDATIONS. CONTACT INFORMATION FOR MINUTE MAN ANCHORS MAY BE OBTAINED AT 1-828-692-0256
- L)
 - SOME LOCATIONS WILL REQUIRE WIRING FROM EMERGENCY GENERATOR SYSTEMS TO BUILDING. THIS WILL BE THE RESPONSIBILITY OF THE ENCLOSURE MANUFACTURE CONTRACTOR. (PRICING SHALL BE INCLUDED)
- M)
 - SPECIFICATION OF THE ENCLOSURE MAY CHANGE DEPENDING ON LOCATION ARRANGEMENT. (PRICING SHALL BE INCLUDED)
- N) AGENCY RESPONSIBILITY:
 - THE PURCHASING AGENCY SHALL LEVEL AND PREPARE THE GROUND. THE PURCHASING AGENCY SHALL REMOVE OR DEMOLISH ANY EXISTING BUILDING REQUIRING REMOVAL.