

## Addendum 1

- **Do we need to attach a tower design and foundation preliminary project for the bid?**

Yes, the tower design and foundation preliminary should be submitted with the bid.

- **Is it possible to contact the Radio Vendor to coordinate what are their requirements regarding the shelter?**

Yes, they can contact the following individuals for additional building or radio requirements for the shelter and tower.

Mark Cady – Project Manager - [lbcomm13@gmail.com](mailto:lbcomm13@gmail.com)

Lee Lemoine – Radio Engineer - [lee.lemoine@modularcommunications.com](mailto:lee.lemoine@modularcommunications.com)

1. The Contractor shall provide a pre-fabricated equipment shelter per the Shelter Requirements.
2. The shelter structure shall be 10 foot x 12 foot x 10 foot (nominal) with 110 volt, 200 amp service with Type 1 Surge Protection devices. Surge Protection shall be installed on the incoming power and on the power distribution panel on the interior of the shelter. Acceptable manufacturer is Ray Cap. Model Number for incoming power main disconnect is Type I, RAYCAP B82XPR or equal. Model Number for load side of power distribution panel is Type II, RAYCAP 82XRR or equal. Both Type I and Type II must meet R56 requirements.
3. Receptacles shall be placed at four (4) foot intervals around the interior and a 6000 BTU per rack thermostatically controlled air conditioner, approved by the Town, shall be furnished. Bard is an acceptable manufacturer. The shelter shall be equipped with two (2) four (4)-tube LED for interior lighting and a single weatherproof 60 watt (LED) exterior light fixture adjacent to the entry door, for a total of three lights.
4. A 200A automatic transfer switch and a generator plug are required on the interior of the shelter; the location will be determined by the Contractor's design based on the placement of other equipment.
5. The shelter shall be equipped with a cable entry panel with ground connections and surge arrestors (Polyphaser™ or approved equal). Grounding shall comply with R-56 Standards. See Paragraph 2 above and paragraph (3.2 A) later in this specification for surge protection on both incoming power and for coax transmission cables.

6. The shelter shall be placed on a local code approved thickened concrete pad. The door shall be steel with a high security mechanical lock. Door frame shall be connected to the Halo ground system. The interior shall be provided with a Halo ground cable at eight (8) foot AFF connected to twenty (20) foot driven ground rods in two (2) diagonally opposite corners. The cable shall be No. 2 standard copper. Resistance to ground shall be five (5) ohms or less. Meggar testing shall be done by the Contractor and submitted to the Town for approval.

#### Structural Specifications:

##### 1. Shelter Type

- a) The shelters shall be of clear span construction, with no interior columns or supporting posts.
- b) The shelters shall be pre-fabricated, and pre-assembled. The shelters shall be constructed from concrete and/or aggregate materials. Manufacturer shall provide all specifications including design drawings for the shelters.
- c) Manufacturing of the pre-fabricated shelters shall occur inside an enclosed plant building in a controlled environment.
- d) The shelters shall be designed and provided with suitable attachment points for lifting and moving the shelter so that the shelter can be hoisted up using overhead equipment such as cranes, boom trucks, and hoists. The manufacturer shall provide a description and drawings detailing the attachment points and proper lifting procedures.
- e) Contractor shall provide Town with shop drawings for approval.

##### 2. Foundation:

- a) Foundation design shall consist of concrete piers, poured footer with continuous re-enforced concrete wall, or a poured monolithic concrete slab, based on the shelter manufacturer specifications, the soil-boring log and geo-technical report as appropriate. Slab shall be designed by shelter engineer.

##### 3. Flooring:

- a) Bidder shall propose structures whose floor or solid foundation features a minimum uniform load rating of 200 pounds per square foot with no more than 3,000 pounds over any four-square-foot area. This rating shall be increased in sections as necessary to support heavy weight equipment. If delivered assembled with floor, the floor shall exhibit a minimum 90 pounds per square foot uniform live load capacity while the building is being lifted.
- b) Floors shall be insulated to a minimum R21 rating. Insulation shall be secured in place to prevent shifting during construction and transportation.
- c) Exterior covering of the floor shall be included to prevent small rodent penetration.
- d) The floor shall be covered by a high quality, industrial/commercial grade asphalt or vinyl, white or marble colored tile. All edges shall be covered by wall molding.
- e) A doorsill shall protect the edges at the entry area.

#### 4. Walls:

- a) Walls shall be constructed to a minimum 120 MPH wind loading, including overturning moments.
- b) Bullet Resistance: Walls shall withstand the effects of bullets or other projectiles equivalent to a 30.06 high power rifle load fired from a distance of 50 feet with no penetration to the inner cavity of the wall. No interior damage shall be sustained including insulation, interior walls, etc. Any damage to the exterior of the shelter, even if left unrepaired for a period of ten years, shall in no way effect the integrity or performance of the shelter.
- c) The outside walls shall be finished concrete or an aggregate composition.
- d) A wall feed-through shall be provided on the tower side of the building to accommodate elliptical waveguide and coaxial transmission lines. The openings shall be properly booted to provide a good weather seal. The wall feed-through shall be grounded to the building ground on the outside of the shelter.
- e) The inside walls shall be finished with minimum 5/8-inch plywood, with fiberglass reinforced plastic (FRP) paneling (or equivalent) overlay, trimmed with coordinated molding to allow mounting of panels, blocks, etc.
- f) High performance insulation shall provide a minimum insulation factor of R21.
- g) Successful Bidder shall submit proposed construction methods, materials, and insulation factors within 15 days of executed contract. Such pages shall be clearly referenced to these sections to which they apply.
- h) The shelter shall include a wall penetration for an exterior weatherproof generator plug, to accommodate the use of a mobile generator.
  - 1) The location of the penetration and the type of exterior generator plug that is to be installed in the penetration will be coordinated with the Town prior to manufacture of the shelter.

#### 5. Roof:

- a) The building roof shall support a minimum 100 pounds per square foot uniform live load.
- b) The minimum roof slope shall be ¼ inch per foot.
- c) The roof shall be designed to withstand up to 3 feet of wet snow.
- d) The roof with-stand the impact of ice falling from the adjacent tower without suffering any damage or shall otherwise be protected from such damage. Bidder shall describe in their bid how this requirement will be met.
- e) High performance insulation shall provide a minimum insulation factor of R21.
- f) The roof is to be constructed of concrete.

#### 6. Door:

- a) The exterior shall be of steel (stainless or galvanized) construction with a finish matching the building finish, and a minimum of 36 inches wide.
- b) An insulating inner core shall separate interior and exterior panels of this door.
- c) Bullet Resistance:
  - 1) Door shall withstand the effects of bullets or other projectiles equivalent to a 30.06 high power rifle load fired from a distance of 50 feet with no penetration to the inner cavity of the door.
  
  - 2) No interior damage shall be sustained including insulation, interior walls, etc. With the exception of door hardware, any damage to the exterior of the door, even if left unrepaired for a period of ten years, shall in no way effect the integrity or performance of the door.
- d) The door shall be mounted with three stainless-steel tamper-proof hinges. A mortise type dead bolt lock secured in the doorframe shall provide tamper proof security.
- e) Two locks, capable of accepting a Best seven pin peaks interchangeable core, one in-keyed passage and a keyed deadbolt, shall be provided.
- f) Locks are to be constructed of non-corroding materials and all shelter locks shall be keyed alike for all shelters.
- g) All shelters shall have a push button combination storage box, located next to the door, to store shelter keys. Key box shall be weather resistant.
- h) A wind stay chain and rain drip cap is to be included.
- i) The doorframe is to be bonded to the interior grounding system. The door is to be bonded to the frame by no less than two grounding braids (stranded wire is not acceptable), each equal to 1/0 bare copper wire.
- j) Doorsill is to be of stepped construction so as to prevent rainwater from entering shelter at bottom of door or from around doorframe.
- k) Doorframe is to have weather seal around door to limit air and water intrusion.
- l) Doorframe shall be fitted with a dry contact closure to indicate open or closed status.
- m) Shelter shall also be grounded on the exterior, per R-56 standards.

#### E. Finishing:

1. Color and finishes shall be selected by the Town from samples provided by the Successful Bidder.
2. Exterior finish shall be as follows:
  - a) Roof: Broom Finish
  - b) Walls: Exposed Aggregate
3. Interior color shall be white. Finish shall be as follows:
  - a) Ceiling: FRP over 5/8 inch plywood
  - b) Walls: FRP over 5/8 inch plywood
  - c) Floor: Vinyl Composition Tile

4. Openings for airflow, doorways, cable entry, etc., shall be designed and sealed to preclude penetration of moisture, insects, and rodents into the interior of the structure or between the exterior and interior of any wall, roof, or flooring.
5. All air intake and exhaust openings shall be fitted with hoods to prevent the entrance of rain, snow, etc.
  - a) Intake hoods shall be fitted with permanent air filters.
  - b) Exhaust hoods shall be fitted with insect screens.
  - c) All such hoods shall be designed with bars or grilles to prevent forcible entry by even the smallest person.
  - d) Each hood, frame, etc., shall be bonded to the site's grounding electrode system with a bare solid minimum #2 copper conductor.
    - 1) Above grade portion of this conductor shall be covered with a length of ½ inch rigid, or liquid flexible non-metallic conduit.
    - 2) Below grade portion shall be exothermically welded to the earth electrode system.
6. Joints:
  - a) All joints shall be sealed with a compressible, resilient sealant.
  - b) There shall be no exposed roof-to-wall or wall-to-floor joints.
7. Exterior wall and roof surfaces shall be sealed to ensure a watertight barrier.
8. The shelter shall be dust proof, air tight, and watertight.

**Fire Protection:**

1. The shelters shall have two installed portable fire extinguishers with minimal sizing as:
  - a) 20 pound Class ABC dry chemical extinguisher
  - b) 7 pound Class BC carbon dioxide extinguisher
2. Fire extinguishers shall meet the requirements of NFPA 10 and any local regulations including all ANSI and UL testing and performance standards.
3. Fire extinguishers shall be clearly marked and securely installed in the brackets supplied and properly anchored to the mounting surface in accordance with manufacturer's instructions.
4. Shop Drawings are required for the shelter.

**Safety Equipment:**

1. Safety equipment shall be permanently located inside the shelter including first aid kit, battery safety kit, eye wash station or kit, and any safety marking necessary for accordance with national, state and jurisdictional regulation.

- **What is the specification regarding the road and compound area?  
Do we need to propose a design ad execution for both?**

Yes, The road should be able to support the equipment and vehicles that are required to erect the tower. It should provide for parking for two commercial pickup trucks and turn around.

Compound Specifications:

**Fencing:**

1. The Contractor shall install approximately 240 feet of chain link fence per the Site Plan. See Site Plan or reference fence requirements for dimensions.

a. Chain Link – standard fencing with black clad vinyl.

b. Top and bottom Rails- 1 5/8 inch x SS15 x 21' swaged

c. Line Posts –

1) 2 inch x SS20 in heights of 48-72 inch

2) 2 1/2 inch x SS20 in heights of 84-120 inch

d. Terminal Posts –

1) 2 1/2 inch x SS20 in heights of 48-72 inch

2) 3 inch x SS20 in heights of 84-120 inch

e. Fittings - Standard Commercial

f. Gates - 1 5/8 inch welded frame with 2 inch mesh x 9 gauge fabric

g. Grounding of fence R56, all connections with ground system shall be cad welded.

2. The fence shall be provided with a lockable gate of the same height. The Town will provide the lock.

3. The line posts shall be anchored in concrete and shall be spaced at no greater than ten (10) feet apart.

**Ground Cover**

1. The Contractor shall provide a weed barrier and gravel to cover the area of the tower and shelter. The gravel shall be a minimum of four (4) inches in depth.

- **Furnish and installation of the generator and propane tank will be by others? Do we need to furnish the foundation PAD for the generator and propane tank?**

Yes, the bid does require the appropriate pads for propane tank and Generator.

Propane will be a 500lb tank. The tank will be provided for local Propane company.

There will need to be two conduits from the propane pad to the generator pad.

- 1- One for the propane line
- 2- One for the telemetry cable to the generator

The generator specifications are being determined by the Radio Vendor.

- **We have another question related to the tower height. It was requested a 180ft tower, but it is considering for the load antennas installed in 190 ft. Can you clarify if tower will be 180 ft or 190 ft?**

The specification says ACL but should read AGL. The Tower height is 180 feet. The top antennas are 10 foot antennas so the AGL will be 190 feet per FAA guidelines. The AGL Above Ground Level is 190 Feet.