Specifications, Guidelines & Practices

Concrete Shelter Specifications

"Bullet Resistant"

ERICSSON

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NOTICE!

This manual covers Ericsson and General Electric products manufactured and sold by Ericsson Inc.

INTRODUCTION

These shelter structure requirements meet or exceed UL 752 standards, stating;

"The shelter shall be bullet resistant withstanding 30/06 rifle fire at a distance of 15 feet per UL 752 standards."

BID REQUIREMENTS

MINIMUM BUILDING SPECIFICATIONS

The specifications contained herein encompass the labor, equipment and materials for the construction of a prefabricated steel reinforced concrete communications shelter. The shelter structure shall be bullet resistant withstanding 30/06 rifle fire at a distance of 15 feet per UL 752 standards. The shelter shall be vandal resistant and be constructed of steel reinforced concrete.

Shelter structure shall provide a 2-hour fire rating as defined by the Uniform Building Code and meet Zone 4 seismic requirements.

The shelter shall be designed for the explicit use of housing electronic equipment within a controlled atmosphere required for the proper conditions for transmitting and receiving equipment.

SHELTER CONSTRUCTION

The shelter shall be precast, preassembled steel reinforced solid concrete. Panel to panel connections to be welded. Manufacture of the precast concrete elements shall occur inside an enclosed plant building in a controlled environment. Manufacturer must have a minimum of one ACI Certified Level 1 Concrete Technician supervising the placing of concrete in the forms.

OPERATING ENVIRONMENT

The shelter shall be sealed to resist dust infiltration and be watertight.

STRUCTURAL REQUIREMENTS

Floor Section:

Floor section shall be an 8-inch waffled structural precast steel reinforced concrete section. Ribs shall be 2'-0" O.C. transverse and 4'-0" O.C. longitudinal. All surfaces shall be smooth. The interior surface shall be covered with vinyl floor covering, bonded with a waterproof contact adhesive.

Roof Section:

The roof section shall be a minimum of steel reinforced 4" solid concrete with 1/8" per foot drainage slope. Ceiling insulation and finish to be foamboard insulation with 3/8" vinyl coated board. Plastic joint or corner trim shall be installed at all panel joints. The roof shall provide a 2" overhang on all sides. The roof will be a hip type sloping four (4) directions. It shall be a cap and fit over the walls, leaving no exposed roof to wall joint.

Wall Sections:

Wall section shall be 4" solid steel reinforced concrete with an exterior exposed aggregate finish. Wall insulation and finish shall be foamboard insulation covered with 3/4" thick board, surfaced with fiberglass reinforced plastic. Plastic joint or corner shall be installed at all panel joints. Floor to wall intersection shall be finished with 4" vinyl baseboard. The concrete walls shall overhang the concrete floor a minimum of 7" from the top concrete floor surface. There shall be no exposed wall to floor joint.

Steel Reinforcing:

Steel reinforcing to be as per manufacturer's engineered structural analysis.

INSULATION SPECIFICATIONS

Standard wall and ceiling insulation thickness shall be 1" foamboard The calculated system value is R9.6 with 4" thick lightweight concrete wall/roof panels, 1" foamboard insulation and specified wall and ceiling finish.

Loading Requirements:

Roof - 50 psf

Floor - uniform distributed load 140 psf

Wind - 120 mph

Shelter shall meet Zone 4 seismic requirements.

MATERIAL SPECIFICATIONS

Concrete:

Compressive strength shall be 4000 PSI at 28 days. Mix design shall be 114-118 lb/cu. ft. structural lightweight concrete expanded shale or expanded clay aggregate. Mix shall be homogenous. Seeding of aggregate for exposed aggregate finish is not allowed.

Other Materials:

Cement used in concrete shall be standard Portland cement conforming to the requirement of the "Standard Specifications for Portland Cement", ASTM Designation C150.

Concrete aggregates shall conform to one of the following specifications:

1. "Specifications for Concrete Aggregates", ASTM Designation: C33.
2. "Specifications for Lightweight Aggregates for Structural Concrete", ASTM Designation C30.

Water shall be free from injurious quantities of oil, alkali, vegetable matter and salt. Non-potable water shall not be used in mixing concrete. Reinforcement bars shall be deformed steel bars conforming to the requirements of the "Specifications for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement", ASTM Designation: A615.

Welded smooth wire fabric shall be steel wire fabric conforming to the requirements of the "Specifications for Welded Steel Wire Fabric for Concrete Reinforcement", ASTM Designation: A185.

SEALING

Joints:

All joints shall be sealed with a compressible, resilient sealant. There shall be no exposed roof to wall or wall to floor exterior joint sealants. Wall to wall, wall to roof, and wall to floor seals will be internal.

Exterior Walls:

Surface of walls to be sealed with two coats of Thoroglaze H Sealer and a top coat of Thorosystem's Thorosheen Sealer or equivalent.

HANDLING

Shelter shall have cast in permanent lifting devices so that additional parts of bolt-on devices are not required for lifting the shelter.

DOOR

Door frame shall be 16 gauge galvanized steel, primed, painted, and cast into the wall panel. The door shall be 3'x 7'x 1-3/4" 18 gauge galvanized steel, insulated, primed, painted and installed flush with door check, door stop, weather-stripping, mortise lockset with deadbolt and stainless tamperproof steel ball bearing hinges.

ELECTRICAL SYSTEM (MINIMUM REQUIREMENTS)

Electrical installation and wiring shall conform to the latest edition of the National Electrical Code and shall consist of the following as a minimum: surface mounted EMT conduit: grounded duplex outlets, one every 4 feet on 3 walls; fluorescent lights (two lamp fixtures) as required with inside switch; 200 AMP 120/240 VAC main; 20, 30, or 40 position breaker box with a minimum of 16 single pole 20 AMP breakers (as required).

GROUNDING

Grounding of the communications shelter(s) must be consistant with the ERICSSON rounding requirements for communications sites and shelters as defined in LBI-39067.

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Printed in U.S.A.