



BATAAN GENERAL HOSPITAL
Balanga City, Bataan



TECHNICAL SPECIFICATION

PROJECT : INSTALLATION OF FIRE PROTECTION SYSTEM

- I. ✓ DISMANTLING, CORING, CHIPPING AND RESTORATION WORKS
- II. ✓ WATER TANK AND PUMP HOUSE
- III. ✓ SPRINKLER SYSTEM
- IV. ✓ PUMPS AND CONTROLLERS
- V. ✓ FIRE ALARM SYSTEM
- VI. ✓ SIGNAGES AND MARKINGS
- VII. ✓ MOBILIZATION/ DEMOBILIZATION

GENERAL CONDITIONS

All parts of the construction/ installation shall be finished with first class workmanship, to the fullest talent and meaning of the plans and these Specifications, and to the entire satisfaction of the Architect/ Engineer and the Owner.

All works included herein shall be executed according to the requirements of the Philippine Mechanical Engineering Code, the National Building Code, the Fire Protection Code of the Philippines, NFPA and the rules and regulations of the local government unit

I. ✓ DISMANTLING, CORING, CHIPPING AND RESTORATION WORKS

All dismantling, coring and chipping works necessary during installation shall be done with the approval of the owner/ engineer. Areas/ structures affected by such works shall be restored/ repaired with the same materials.

II. ✓ WATER TANK AND PUMPHOUSE

Firewater reserve tank shall be ground level monolithic concrete tank sized for a minimum of 30 minutes. Hydraulic calculations report shall be based on NPFA-13 format.

☐ Excavation/ backfill works ✓

All excavations shall be made to grade indicated in the drawings. Here the building site is covered with any kind of fill, the excavation for footings should be made deeper until the stratum for safe bearing capacity of the soil is reached.

After the concrete for foundations is hard enough to withstand pressure resulting from fills, the materials removed from the excavations shall be used for backfill around them.

☐ Concrete and Masonry works ✓

All concrete shall be mixed thoroughly until there is a uniform distribution of the cement and aggregates and should be deposited as nearly as practicable in its final position, care being taken to avoid segregation of the aggregates.

Water to be used for mixing concrete shall be clean and free from injurious amount of oil, acids, alkalis, salt and other organic materials.

Concrete Proportioning

Class "A" mixture (1:2:4) - footing, columns and beams, slab

Class "B" mixture (1:2 – 1/2:5) - for slabs on fill

Cement Mortars (1:3) - for CHB laying, plastering and finishing work

The coarse aggregates for concrete shall consist of crushed rock of durable and strong qualities, or clean and hard gravel. Size of the coarse aggregate to be used shall vary from 3/4" to 1-1/2".

☐ Reinforcement ✓

All steel reinforcing bars to be used in this construction shall consist of round deformed bars with lugs or projections on their sides to provide a greater bond between the concrete and the steel.

All steel reinforcing bars shall accurately place and secured against displacement by tying them together at each bar intersection with Gauge No. 16 galvanized iron wire.

☐ Roof Framing Works and Metal Works ✓

Rafters, purlins as well as fascia boards shall be coated with epoxy primer before installing to prevent corrosion. All connections must be fully welded to reach maximum stability and strength of the roof frame.

Truss - 2 "x2 "x1/4" Angle for Top, Bottom, and Web Members

Purlins - #16 2"x 3" C-bar

Fascia - #16 2"x 6" C-bar

Metal Louvers - #16 2"x 3" C-bar

☐ Roofing and Tinsmithry Works ✓

The roof shall be covered with Pre-painted long span roofing sheets and polycarbonate as shown in the plans. The roofing sheets shall be secured to the purlins with #2 1/2 teck screw bolts.

Flashing to be used shall be those compatible with pre-painted long span roofing sheets. They shall lap the roofing sheets at least 250 mm. The ridge rolls and flashing shall be riveted to the roofing sheets.

☐ Painting Works

No painting or varnishing shall be done during damp weather more so, when it is raining. Owner must be consulted in choosing colors.

All surfaces applicable for painting shall be coated three times excluding application of putty.

III. SPRINKLER SYSTEM

☐ Sprinkler Head

Sprinkler head shall be UL Listed/FM Approved, pendant, upright or sidewall unit, 83 LPM flow capacity per head and temperature fusing at 57.5° C to 74°C.

☐ Pipes and Fittings

Pipes and fittings shall be B.I. Schedule 40. Screw fittings shall be used for inside piping.

☐ Pipe hangers

Pipe hanger shall be a steel bar, 3mm minimum thickness, with corrosion protection.

Anchorage in concrete - expansion shield should preferable be used in a horizontal position in the sides of concrete beams. Expansion shield in vertical position. When pipes 102mm and larger are supported entirely be expansion shield in the vertical position, the supports shall be spaced not more than 3m apart. For pipe running through concrete beams use sleeves at least two (2) sizes larger than the piping.

IV. PUMPS AND CONTROLLERS

The fire pump shall be diesel engine driven or electric motor driven and capable of delivering a minimum of residual pressure of 103kPa at the top-most and remotest sprinkler. The pump unit shall be supplied with relief valve, gate valve, suction gauge and discharge pressure gauge. The fire pump shall be UL Listed/FM Approved, designed specifically intended for an automatic water sprinkler protection system.

A drop in system pressure due to the operation of one sprinkler pressure shall be triggered a series of automatic operation that will result in instantaneous operation of the engine to drive the fire pump with the aid of a battery automatic controller. The required accessories are: tachometer, oil pressure gauge, temperature gauge and control panel. A diesel fuel day tank shall be provided to supply the engine for a minimum of two (2) hours running time.

The jockey pump shall be UL Listed/FM Approved, electric motor driven, 220V, 3-phase, 60 hertz, and electric power connection.

V. FIRE ALARM SYSTEM

- a. The Fire Detection and Alarm System shall be of multiplex, microprocessor-controlled addressable or zonal conventional fire detection, alarm and communication system.
- b. The system shall consist of control station, mimic panel initiating and indicating devices, control modules and system of wirings.
- c. Actuation of the protective signaling system shall occur by manual pull station, automatic smoke or heat detector, sprinkler flow switch and tamper switch.
- d. The system shall be able to monitor the status of flow switches and supervisory switches installed at the Sprinkler System risers. These monitoring points are also addressable or the conventional zonal in the same way as the detectors are making them easily recognizable at the control panel.
- e. Occupant notification shall be accomplished automatically. Notification will be general, audible alarm type complying with appropriate section of NFPA.
- f. The system shall be installed with provisions for future connection to the nearest fire services station in the locality.

VI. SIGNAGES AND MARKINGS

The contractor shall provide all necessary signages and markings before and during construction.

All warning signs must be placed in areas where there are dangers in construction activity. Signages and markings must be visible and readable and can easily be seen by people.

VII. MOBILIZATION/ DEMOBILIZATION

The contractor upon receipt of the notice to proceed shall immediately mobilize and transport his plant, equipment, materials and employees to the site and demobilize or remove the same at the completion of the project.

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