

TECHNICAL SPECIFICATIONS

PREVENTIVE MAINTENANCE AT TMO PANGASINAN SUCH AS GENERAL PEST CONTROL, REALIGNMENT OF INTERNET CABLE POST AND WATERLINE

Project Title

REALIGNMENT OF CABLE POST

SCOPE OF WORK

The work includes the furnishing and installation of miscellaneous metal necessary to complete the work in accordance with this specifications unless otherwise on the plans.

GENERAL PROVISIONS

The AISC Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings, Association of Structural Engineers of the Philippines (ASEP) Handbook of Structural Steel Shapes and Sections shall govern the Work. Welding shall be accordance and as herein specified or any other welding standard, approved by the Engineer.

Certification:

Two (2) certified copies of mill test reports including names and locations of mills and shops shall be furnished for all structural steel.

Responsibility for Errors:

The Contractor shall be responsible for all errors of detailing, fabrication and for the correct fitting of the structural members.

Storage of Materials:

The materials shall be stored out of contact with the ground in such manner and location as will minimize contamination and deterioration.

MATERIALS

Structural steel shall conform to ASTM A 36:

All materials shall be of new stock, free from surface imperfections and shall conform to the applicable ASTM, API Specifications or other equivalent standards.

Steel Plates, Bars and Rods:

Plates, bars and rods shall be local standard commercial steel of sizes as indicated on the plans and approved by the Engineer.

Welding:

Employ only welding equipment electrodes welding wire and fluxes capable of producing satisfactory welds when used by a qualified welder or welding operator using qualified welding procedures. It shall conform to this AWS D1.1-183, E70XX Series.

All arc-welding electrodes shall conform to AWS Specification for Iron and Steel Arc Welding Electrodes latest edition. Electrodes for arc-welding shall be E-60 and E-70 series.

DELIVERY OF MATERIALS

Deliver anchor bolts and other anchorage devices which are embedded in cast-in-place concrete construction to the project site in time to be installed before the start of work.

Number in accordance with shop drawings the materials tested and approved by the Engineer before delivery to the site. Prepare a list showing number, size, quality and quantities of materials.

Transport materials in accordance with material list and transportation. Schedule approved by the Engineer.

FABRICATION

Fabricate structural steel in the shop to the greatest extent possible for transporting in accordance with the AISC Building Code and ASEP Handbook with the modification and additional specified in this section.

The Contractor shall verify all measurements in the field, submit shop drawings to the Engineer showing sizes, gauges, detailed of construction, method of assembly and installation.

Fabrication of work shall not commence until shop drawings are approved by the Engineer.

Shop connections: As detailed on the drawings or as approved by the Engineer.

- a. Provide for bolted or welded connections as shown on the Drawings or as approved by the Engineer.
- b. Use high strength threaded fasteners for bolted connections, except where standard threaded fasteners are permitted.

FIELD ASSEMBLY

Assemble structural steel frames accurately to the lines and elevations indicated within the specified tolerance.

Align and adjust accurately various members forming parts of a complete frame or structure before fastening.

Fasten splices of compression members after the abutting surfaces have been brought completely into contact.

Clean bearing surfaces and surfaces in permanent contact, of rust and scale before members are assembled.

Splices shall be permitted only where indicated.

Remove weld backing strips from welds designated for ultrasonic testing.

Remove run-off tabs and grind surfaces where requested by the Engineer.

Clean weld spatter from surfaces contacted.

Field correction of fabrication by gas cutting not permitted on any major member in the structural framing without prior approval of the Engineer.

Mark structural steel members of high strength steels to permit visual verification of the grade of steel used.

PAINTING

Shop Paintings – Except for galvanized surfaces and items to be encased in concrete clean ferrous metal surfaces shall be given one coat of Amerlock 400 Epoxy Primer at 100 Microns. Additional cost shall be applied to surface that will be concealed or inaccessible for finish painting be Amerlock 400, Top Coat at 150 Microns with color or equivalent.

REPAIR OF DAMAGED COATING

Coated metal damaged in the process of work shall be repaired in 2 manners approved by the Engineer.

REALIGNMENT OF WATERLINE

SCOPE OF WORK

The work covered for this section shall consist of furnishing all labor, tools, equipment, materials and incidentals necessary for the complete installation, testing and operation of the plumbing and sanitary system within the buildings and premises in accordance with these Specifications and as shown on the drawings or as directed by the Engineer. The septic tank and their effluent and discharge pipelines shall be part of other section of these specifications.

MATERIAL REQUIREMENTS

SUBMITTAL

1. Shop drawings shall be dated and shall contain the name of the project and location of the subject item in the shop drawing which is to be installed.

The Engineer will review and approve or return for correction all shop drawings with reasonable promptness. The Contractor shall make any corrections required and file with the Engineer three (3) corrected copies of the shop drawings.
2. The Contractor shall be responsible for the proper fitting of materials, equipment and accessories without substantial alteration and at no cost to the Employer.
3. The Contractor shall be responsible for the proper coordination of the work and shall provide all necessary clearance where necessary.

STANDARDS

Use of materials shall further be governed by other requirement imposed on other sections of these Specifications. Materials shall be subject to tests necessary to ascertain their fitness if the Engineer so requires. All works shall comply with the pertinent provisions of the Plumbing Code of the concerned city or town, the Code on Sanitation of the Philippines, and/or the National Plumbing Code of the Philippines.

MATERIALS

1. Identification of Materials

Each length of pipe, fittings, traps, fixtures and devices used in the plumbing work shall have cast, stamped or indelibly marked on it, the approved manufacturer's trademark or name, the weight, type and class of product when so required by the standards mentioned above.
2. Alternative Materials

Use of any material not specified in this Specification may be allowed provided such alternate has been approved by the Engineer and provided further that a test, if required, shall be done by an approved agency in accordance with generally accepted standards.

3. Jointing Material

The joint material for uPVC pipes shall be PVC solvent cement as recommended by the approved pipe manufacturer.

4. Water Supply Pipes

Water supply pipes shall be uPVC pipes, schedule 40.

5. Valves

Valves shall be cast bronze or brass body. Chrome plated finish for all fixture taps and faucets and natural finish for all others, like hose bibbs, gate valves and which are not tapped directly to a plumbing fixture.

EXECUTION

All installation works shall be in conformity with the National Plumbing Code of the Philippines (NPCP).

INSTALLATION OF WATER PIPES, FITTINGS AND CONNECTIONS

1. Gate Valves and Outlets

Gate valves shall be installed close to the point of connection to the existing service line outside the building. The piping shall be extended to all fixture outlets and equipment from the gate valves. Outlets where indicated shall be capped or plugged and left ready for future connections.

2. Joints

Joints and connections in the plumbing system shall be gas-tight and watertight for the pressures required by test.

After cutting and before threading all pipes shall be reamed and shall have burrs removed. All screwed joints shall be applied with an approved graphite compound or TEFLON tape to facilitate connections. Threads shall be full cut and not more than three threads on the pipe shall remain exposed.

3. Unions

Where required unions shall not be concealed in walls, ceilings or partitions.

4. Tests

The following tests shall be conducted by the Contractor at his expense under the supervision of the Engineer.

b. Sterilization

The entire water supply piping system shall be sterilized with a solution containing not less than fifty (50) parts per million of available chlorine, either liquid chlorine or a solution of sodium hypochlorite. The sterilizing solution shall remain in the system for a period of not less than 8 hours during which time all

valves and faucets shall be opened and closed several times. After sterilization, the solution shall be flushed from the system with clean water until the residual chloride content is not more than 0.2 parts per million.

c. Pressure Test for Water Lines

1. After the pipe have been installed, the joints completed and with joints exposed for examination, all newly installed pipe or any valve section, thereof, shall be subjected to hydrostatic pressure one and one half (1½) the designed working pressure of the system or as specified by the Engineer.
2. The duration of each pressure test shall be at least 20 minutes unless otherwise specified by the Engineer.
3. Each section of pipeline shall be slowly filled with water and the specified test pressure, measured at the point of lowest elevation, shall be applied by means of a pump connected to the pipe in a manner satisfactory to the Engineer. During the filling of the pipe and before applying the test pressure, all air shall be expelled from the pipeline. To accomplish this, tap shall be made if necessary, at the highest point of the pipe under test and after completion of the test, the taps shall be tightly plugged unless otherwise specified. During the test, all exposed pipes, fittings, valves, joint and couplings will be carefully examined. If found to be cracked or defective, they shall be removed and replaced by the Contractor with sound materials at his expense. The test shall then be repeated until satisfactory results are obtained.

d. Leakage Test for Water Lines

1. Leakage test shall be conducted after satisfactory completion of the pressure test and shall consist of an examination of all exposed joints for leakage as well as an overall leakage test of the completed pipeline.
2. The pressure to be maintained during the test shall be the designed working pressure of the system.
3. Leakage test shall be made only after a minimum of 24 hours after the pipe to be tested has been filled with water.
4. The duration of each leakage test shall be two hours unless otherwise specified by the Engineer.
5. Each section of pipeline shall be slowly filled with water and the specified test pressure, measured at the point of lowest elevation shall be applied by means of a positive displacement type pump and reservoir connected to the pipe in a manner satisfactory to the Engineer.
6. Before starting the leakage test, all air shall be expelled from the pipe. All exposed pipes, fittings, valves and joints shall be examined for leakage during the test.
7. Allowable leakage rate per 100 joints per inch of Pipe Diameter at Pressure Stipulated.

PRESSURE		LEAKAGE RATE	
psi	kg/cm ²	liters/hr.	liters/2 hrs.
50	3.50	1.45	2.90
75	5.30	1.75	3.50
100	7.00	2.05	4.10
125	8.80	2.30	4.60
150	10.50	2.50	5.00
200	14.00	2.90	5.80

e. Defective Work

1. If the inspection or test shows any defect, such defective work or material shall be replaced and the test shall be repeated until satisfactory to the Engineer.
2. All repairs to piping shall be made with new materials at the expense of the Contractor.
3. No caulking of screwed joints or holes will be accepted.

GUARANTEE

Upon completion and before final acceptance of the equipment installation, the Contractor shall furnish the Engineer a written guarantee stating that all equipment installed under this Section free from defects. The guarantee shall be for a period of one (1) year from the date of final acceptance of the work. Any part of the equipment that becomes defective during the term of the guarantee shall be replaced, renewed and/or made good by the Contractor, at his own expense and in a manner satisfactory to the Engineer.

Guarantees made by the approved manufacturers or suppliers beyond one year, shall be transferred to PPA without any expense on his part.

CLEANING UP

Upon completion of the work, all parts of the installation shall be thoroughly cleaned of grease, metal cuttings and sludge which may have accumulated during the testing operation.

PEST CONTROL SERVICES

GENERAL

General Requirements contain provisions and requirements essential to these Specifications; and apply to this section, whether or not referred to herein.

SCOPE OF WORK

1. General Scope of Work

The Pest Control Operator (PCO) shall provide all labor and materials, tools and equipment, supervision and other incidentals for the extermination and effective control of all disease transmitting and destructive pests such as flies, mosquitoes, cockroaches, ants, rodents, mice, termites and other flying and crawling insects.

2. Treatment Coverage

The PCO shall ensure that treatment covers the following PPA buildings and its premises:

- TMO Sual Office Building

TECHNICAL AND PROFESSIONAL SERVICES

1. Initial survey and inspection by the PCO should be conducted on the jobsite to determine level of infestation.

2. The PCO must be able to perform the following proven and tested methods and FDA approved materials/pesticides.

- **Gel Baiting** - use of attractive food matrices combined with effective non-repellent gel to control target pests after feeding on the bait
- **Crack & Crevice Treatment** - application of small amounts of insecticide into cracks and crevices in which pests hide or through which they may enter the building.
- **Void Treatment** - application to enclosed spaces where pests may live, hide or travel.
- **Spot Treatment** - surface application to limited areas where pests are likely to be present
- **ULV Space Treatment** — treatment to a volume of space with relatively small amounts of non-residual insecticides with droplets having a mass median diameter (mmd) of 20 microns or less to control the exposed stages of flying and crawling insects.
- **Direct Contact Treatment** - application of wet spray to exposed pests for immediate kill.
- **Exterior Treatment**- general broadcast application to exterior areas of structures.
- **Monitoring/Trapping** - technique of capturing pests as a means to identify, quantify or control adult stages of an infestation.
- **Exclusion** - protecting an area against minor pest access either by mechanical alteration or by rendering minor access points and harborage impassable via liquid repellent solution.

3. The Pest Control Operator (PCO) shall provide the following technical methods and professional services for the general pest control of all the premises of the TMO Office Building.

3.1. General Pest Control Services

3.1.1. Control Methods for Crawling Insects

- Thorough inspection, control treatment for crawling insects.
- Identification of potential or active cockroach harborage sites, including cracks and crevices, inside cabinets, behind or underneath equipment and all other potential areas where cockroaches hide and breed.
- Application of cockroach gel baits that has effective domino effect in killing roaches.
- Spraying on crevices, alongside walls, drainages, downspouts where all crawling insects may pass or dwell.
- Installation of glue traps on pipe chases to prevent crawling insects to come inside the rooms, offices, etc. after space spray or misting treatment has been conducted on the pipe chases.
- Use of pesticides that is environmentally friendly and safe to humans. • Use of chemicals for a short
- Use of chemicals for a shorter hold-on period required after application.

3.1.2. Control Method for Flying Insects

- Thorough inspection, control treatment for crawling insects.
- Installation of fly bait stations outside the perimeter of the building, if necessary', to control flying insects outdoors
- Space treatment (misting or Ultra Low Volume - ULV Misting Machine) shall be performed to control flying insects indoors
- Application of either residual or contact action insecticide sprays using Hand Sprayer.
- Thorough inspection, fogging and larviciding on all possible breeding grounds of flies and mosquitoes such as garbage areas, canals and stagnant waters inside the premises

3.1.3. Control Method for Rats and Mice

- Thorough inspection to identify any potential or active rodents' harborages and entry points.
- Proper placing of rodent baits (e.g. sticky traps for mice) and mechanical traps in strategic locations or areas such as hallways, harborages and other critical areas.
- Space treatment (misting or Ultra Low Volume - ULV Misting Machine) shall be performed to control flying insects indoors
- Application of either residual or contact action insecticide sprays using Hand Sprayer.
- Thorough inspection, fogging and larviciding on all possible breeding grounds of flies and mosquitoes such as garbage areas, canals and stagnant waters inside the premises
- Maintain Monitoring Sheets to identify locations where baits are installed, transferred or relocated.

4. The Pest Control Operator (PCO) shall utilize the following environmentally approved solutions and compounds for their services:

Target	Active Ingredient to be used	Physical Description
Ants	Thiamethoxam 0.01%	Form : solid Colour : colorless to clear pH : 6.6 at 1% w/v (25°C) Flammability' (solid, gas); not highly flammable

Cockroach	Fipronil 0.05 1,2-Benzisothiazol-3 (2H)-one 0.05-0.50 Mixture of 5-Chloro-2-methyl-3(2H)-isothiazolone 2-Methyl-2-isothiazol-3-one 0.0015-0.06 Fipronil 0.05%	Form: Gel Color : Brown
Crawling Insects	Bifenthrin 4.13% Imidacloprid 5.18%	
Rodents and Crawling Pests	Butyl rubber 2-10% Polyisobutylene 10-20% White mineral oils 30-50% Polyethylene 1-5% Oil resin 15-25%	Product is a manufactured article in the form of a tube containing some combination of polymers and Petroleum hydrocarbons
Flying Insects	(S)- α -Cyano-3-phenoxybenzyl (S)-2-(4-chlorophenyl) isovalerate 5%	Appearance; Viscous liquid Color; White to pale yellowish brown flow emulsion Flammability ;Not flammable Density : 1.02g/ml Solubility in water : Dispersible in water pH value : 5-8 Viscosity : 1000- 3000 mPas(25 \pm 0)

5. Termite Control, Treatment and Management Services

5.1. PCO must be able to perform the following methods;

- 5.1.1. Mound Demolition –if mound exists.
- 5.1.2. Cordoning Method - the process of injecting diluted termiticide formulation into the ground as close as possible to the structure, with Soil/Slab Injector equipment.
- 5.1.3. Soil/Slab Injection Method - a part of Cordoning Method for existing structures which immediate surroundings are covered by concrete slabs. Holes ranging from 12.7 mm. to 25.4 mm. in diameter are bored, as close as possible to the structure, and deep enough to penetrate the slab. The liquid termiticide is injected through these perforations using our Soil/Slab injector equipment.
- 5.1.4. Spot Treatment-* surface application to limited areas where termites are present for immediate colony management.
- 5.1.5. Installation of (Ground Station and Soil Treatment)
 - A comprehensive and thorough inspection of the premises to be treated to determine the location and extent of the subterranean termite infestation / damages.
 - Soil treatment by drilling of holes (and/or soil injection) and application in high pressure of termiticide solution into each drilled hole covering the whole area. Termiticide is applied using 5 hp gasoline driven power spraying

- Reinforce treatment by direct spraying of termicidal solution on all baseboard and other areas where termites are present. Installation of ground bait system and to employ continuous monitoring to prevent termite re-infestation.
- Installation of ground bait system and to employ continuous monitoring to prevent termite re-infestation.

5.2 The Pest Control Operator (PCO) shall utilize the following environmentally approved solution and compounds for their services:

Target	Active Ingredient to be used	Physical Description
Termite	Fipronil Technical 95% Inert Ingredients 94.7%	Physical state : white viscousliquid Density : 1.0-1.1 pH value : 2.0-7.0 Suspensibility : 85% min Wet sieve test : 98%