



Republic of the Philippines
Department of Agriculture
Western Visayas
Iloilo City

ESTABLISHMENT OF CATTLE SHED

ROS HIMAMAYLAN, NEGROS OCCIDENTAL

TECHNICAL SPECIFICATIONS

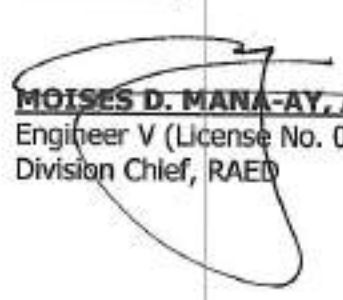
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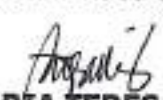
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GENERAL CONDITIONS and SCOPE OF WORKS

The work to be executed under this contract shall include the furnishing of all materials, labor, tools, and equipment and everything listed, mentioned or as scheduled on the drawings herein specified at aforementioned location as per plans and specifications.

All works to be done shall be in the highest quality of workmanship to the fullest intent and meaning of the plans and specifications unless otherwise specified.

PLANS AND SPECIFICATIONS

All drawings, small scale and detail drawings are intended to collaborate with the specifications and to form part thereof, where figures are given, they are to be followed in preference to measurement by scale. Anything shown in the drawings and not mentioned in the specifications or vice-versa or anything not expressly set forth in either but which is reasonably implied shall be furnished and installed as thought specifically shown in mentioned both.

I. GENERAL REQUIREMENTS

B.1 Temporary Facility

The contractor shall provide temporary facility to all contractor's employees in rental basis. Facilities such as potable water supply, drainage, lighting, sewage disposal system, sanitation, and storage areas for materials, equipment, spare parts, fuel and oil must be present within the facility.

B.5 Project Signboard, COA Billboard, Project Marker and DA-WESTERN VISAYAS Logo

The project signboard design layout and dimension shall be on standard billboard measuring 1200mm x 2400mm (4ft x 8ft.) using 12 mm (1/2 inch) thick marine plywood or tarpaulin posted on 5mm (3/16 inch) marine plywood. The billboard shall be installed in front of the project site. Framing support shall be 2" x 2" x 8' good lumber. COA Billboard layout shall be 2400mm x 2400mm (8ft x 8ft) tarpaulin posted with 12 mm (1/2 inch) marine plywood and framed with 2" x 2"x8' good lumber support. Resolution used shall be 70 dpi with helvetica font name and black color as font design. Both project signboard and COA billboard shall be installed in front of project site to ensure transparency. DA- Western Visayas logo shall be **0.60m** in diameter made of stainless steel with laser engraved lettering. "ESTABLISHMENT OF CATTLE SHED" Project marker shall a text height of 250mm in Arial Bold Font

B.7 (2) Construction Safety and Health

For general construction work, basic PPEs shall be provided including safety helmet, safety gloves, and safety shoes. Special PPEs shall be provided to workers in addition to or in lieu of the corresponding basic PPE as the work or activity requires. Construction Safety and Health must be practiced for the whole project.

B.9 Mobilization and Demobilization

The Contractor shall mobilize and move into the Project Site the required construction equipment needed for the completion of the Contract Work. Demobilization shall include

dismantling, clean-up of site and removal from the site of Contractor's, materials, equipment and all temporary facilities with the exception of some facilities, which the Project Engineer shall consider remaining, and shall be handed over to DA-RAED.

MINIMUM EQUIPMENT REQUIREMENT FOR THE ESTABLISHMENT OF CATTLE SHED

	<u>Equipment</u>	<u>Quantity</u>
1.	Concrete Mixer 1 bagger	1 unit
2.	Concrete Vibrator	1 unit
3.	Plate Compactor (5hp)	1 unit
4.	Welding Machine	1 unit

Demobilization shall include dismantling and removal from the site of Contractor's, materials, equipment and all temporary facilities with the exception of some facilities, which the Project Engineer shall consider remaining, and shall be handed over to DA-RAED. The time of demobilization shall also include clean-up of the site after completion of the Contract Work.

B.3 Permits and Licenses

The contractor shall secure all permits and licenses before to proceed with the construction, installation, addition, alteration, renovation, conversion, repair, moving, demolition or other work activity of a specific project.

Basis of Payment

The accepted quantities, measured as prescribed in Section s shall be paid for at the Contract unit price for each of the Pay Items that is included in the Bill of Quantities, which price and payment shall be full compensation for furnishing all permits and licenses, processing and incidentals necessary to complete the work prescribed in this Item.

II. SITE WORKS

800 Site Clearing and Grubbing

Description

This item shall consist of clearing, grubbing, removing and disposing all vegetation and debris as designated in the Contract, except those objects that are designated to remain in place or are to be removed in consonance with other provisions of this Specification. The work shall also include the preservation from injury or defacement of all objects designated to remain.

Construction Requirements

The Project Engineer will establish the limits of work and designate all trees, shrubs, plants and other things to remain. The Contractor shall preserve all objects designated to remain.

Clearing shall extend one (1) meter beyond the toe of the fill slopes or beyond rounding of cut slopes as the case maybe for the entire length of the project unless otherwise shown on the plans or as directed by the Engineer and provided it is within the

right of way limits of the project, with the exception of trees under the jurisdiction of the Forest Management Bureau (FMB).

Clearing and Grubbing

All surface objects and all trees, stumps, roots and other protruding obstructions, not designated to remain, shall be cleared and/or grubbed, including mowing as required, except as provided below:

Removal of undisturbed stumps and roots and nonperishable solid objects with a minimum depth of one (1) meter below subgrade or slope of embankment will not be required.

In areas outside of the grading limits of cut and embankment areas, stumps and nonperishable solid objects shall be cut off not more than 150 mm (6 inches) above the ground line or low water level.

In areas to be rounded at the top of cut slopes, stumps shall be cut off flush with or below the surface of the final slope line.

Grubbing of pits, channel changes and ditches will be required only to the depth necessitated by the proposed excavation within such areas.

In areas covered by cogon/talahib, wild grass and other vegetations, top soil shall be cut to a maximum depth of 150 mm below the original ground surface or as designated by the Engineer, and disposed outside the clearing and grubbing limits as indicated in the typical roadway section.

Except in areas to be excavated, stump holes and other holes from which obstructions are removed shall be backfilled with suitable material and compacted to the required density.

If perishable material is burned, it shall be burned under the constant care of component watchmen at such times and in such a manner that the surrounding vegetation, other adjacent property, or anything designated to remain on the right of way will not be jeopardized. If permitted, burning shall be done in accordance with applicable laws, ordinances, and regulation.

In the event that the Contractor is directed by the Engineer not to start burning operations or to suspend such operations because of hazardous weather conditions, material to be burned which interferes with subsequent construction operations shall be moved by the Contractor to temporary locations clear of construction operations and later, if directed by the Engineer, shall be placed on a designated spot and burned.

Materials and debris which cannot be burned and perishable materials may be disposed off by methods and at locations approved by the Engineer, on or off the project. If disposal is by burying, the debris shall be placed in layers with the material so disturbed to avoid nesting. Each layer shall be covered or mixed with earth material by the land-fill method to fill all voids. The top layer of material buried shall be covered with at least 300 mm (12 inches) of earth or other approved material and shall be graded, shaped and compacted to present a pleasing appearance. If the disposal location is off the project, the Contractor shall make all necessary arrangements with property owners in writing for obtaining suitable disposal locations which are outside the limits of view from the project.

The cost involved shall be included in the unit bid price. A copy of such agreement shall be furnished to the Engineer. The disposal areas shall be seeded, fertilized and mulched at the Contractor's expense.

Woody material may be disposed of by chipping. The wood chips may be used for mulch, slope erosion control or may be uniformly spread over selected areas as directed by the Engineer. Wood chips used as mulch for slope erosion control shall have a maximum thickness of 12 mm (1/2 inch) and faces not exceeding 3900 mm² (6 square inches) on any individual surface area. Wood chips not designated for use under other sections shall be spread over the designated areas in layers not to exceed 75 mm (3 inches) loose thickness. Diseased trees shall be buried or disposed of as directed by the Engineer.

All merchantable timber in the clearing area which has not been removed from the right of way prior to the beginning of construction shall become the property of the Contractor, unless otherwise provided.

Low hanging branches and unsound or unsightly branches on trees or shrubs designated to remain shall be trimmed as directed. Branches of trees extending over the roadbed shall be trimmed to give a clear height of 6 m (20 feet) above the roadbed surface. All trimming shall be done by skilled workmen and in accordance with good tree surgery practices. Timber cut inside the area staked for clearing shall be felled within the area to be cleared.

Individual Removal of Trees or Stumps

Individual trees or stumps designated by the Engineer for removal and located in areas other than those established for clearing and grubbing and roadside cleanup shall be removed and disposed of as specified under Subsection 100.2.2 except trees removed shall be cut as nearly flush with the ground as practicable without removing stumps.

Method of Measurement

Measurement will be by one or more of the following alternate methods:

Area Basis. The work to be paid for shall be the number of hectares and fractions thereof acceptably cleared and grubbed within the limits indicated on the Plans or as may be adjusted in field staking by the Engineer. Areas not within the clearing and grubbing limits shown on the Plans or not staked for clearing and grubbing will not be measured for payment.

Lump-Sum Basis. When the Bill of Quantities contains a Clearing and Grubbing lump-sum item, no measurement of area will be made for such item.

Individual Unit Basis (Selective Clearing). The diameter of trees will be measured at a height of 1.4 m (54 inches) above the ground. Trees less than 150 mm (6 inches) in diameter will not be measured for payment.

When Bill of Quantities indicates measurement of trees by individual unit basis, the units will be designated and measured in accordance with the following schedule of sizes:

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Diameter at height of 1.4 m	Pay Item Designation
Over 150 mm to 900 mm	Small
Over 900 mm	Large

Basis of Payment

The accepted quantities, measured as prescribed in Section 100.3, shall be paid for at the Contract unit price for each of the Pay Items listed below that is included in the Bill of Quantities, which price and payment shall be full compensation for furnishing all labor, equipment, tools and incidentals necessary to complete the work prescribed in this Item.

Payment will be made under:

Pay Item Number	Description	Unit of Measurement
800 (1)	Clearing and Grubbing	Hectare
800 (2)	Clearing and Grubbing	Lump Sum
800 (3)	Individual Removal of Trees, Small	Each
800(4)	Individual removal of Trees, Large	Each

III. EARTHWORKS

803 Structure Excavation

Description

This Item shall consist of the necessary excavation for foundation, wall footing, and other structures not otherwise provided for in the Specifications. the backfilling of completed structures and the disposal of all excavated surplus materials, shall be in accordance with these Specifications and in reasonably close conformity with the Plans or as established by the Engineer.

It shall also include the furnishing and placing of approved foundation fill material to replace unsuitable material encountered below the foundation elevation of structures. No allowance will be made for classification of different types of material encountered.

Construction Requirements

Clearing and Grubbing

Prior to starting excavation operations in any area, all necessary clearing and grubbing in that area shall have been performed in accordance with Item 100, Clearing and Grubbing.

Excavation

General, all structures. The Contractor shall notify the Engineer sufficiently in advance of the beginning of any excavation so that cross-sectional elevations and measurements may be taken on the undisturbed ground. The natural ground adjacent to the structure shall not be disturbed without permission of the Engineer.

Trenches or foundation pits for structures or structure footings shall be excavated to the lines and grades or elevations shown on the Plans or as staked by the Engineer. They shall be of sufficient size to permit the placing of structures or structure footings of the full width and length shown. The elevations of the bottoms of footings, as shown on the Plans, shall be considered as approximate only and the Engineer may order, in writing, such changes in dimensions or elevations of footings as may be deemed necessary, to secure a satisfactory foundation.

Boulders, logs, and other objectionable materials encountered in excavation shall be removed.

After each excavation is completed, the Contractor shall notify the Engineer to that effect and no footing, bedding material shall be placed until the Engineer has approved the depth of excavation and the character of the foundation material.

Structures other than pipe culverts. All rock or other hard foundation materials shall be cleaned all loose materials, and cut to a firm surface, either level, stepped, or serrated as directed by the Engineer. All seams or crevices shall be cleaned and grouted. All loose and disintegrated rocks and thin strata shall be removed.

When the footing is to rest on material other than rock, excavation to final grade shall not be made until just before the footing is to be placed. When the foundation material is soft or mucky or otherwise unsuitable, as determined by the Engineer, the Contractor shall remove the unsuitable material and backfill with approved granular material. This foundation fill shall be placed and compacted in 150 mm (6 inches) layers up to the foundation elevation

Utilization of Excavated Materials

All excavated materials, so far as suitable, shall be utilized as backfill or embankment. The surplus materials shall be disposed off in such manner as not to obstruct the stream or otherwise impair the efficiency or appearance of the structure. No excavated materials shall be deposited at any time so as to endanger the partly finished structure.

804 Structural Backfill and Embankment

Material Requirements

Embankments shall be constructed of suitable materials, in consonance with the following definitions:

Suitable Material – Material which is acceptable in accordance with the Contract and which can be compacted in the manner specified in this Item. It can be common material or rock.

Selected Borrow, for topping – soil of such gradation that all particles will pass a sieve with 75 mm (3 inches) square openings and not more than 15 mass percent will pass the 0.075 mm (No. 200) sieve, as determined by AASHTO T 11. The material shall have a

plasticity index of not more than 6 as determined by ASSHTO T 90 and a liquid limit of not more than 30 as determined by AASHTO T 89.

Unsuitable Material – Material other than suitable materials such as:

Materials containing detrimental quantities of organic materials, such as grass, roots and sewerage.

Organic soils such as peat and muck.

Soils with liquid limit exceeding 80 and/or plasticity index exceeding 55.

Soils with a natural water content exceeding 100%.

Soils with very low natural density, 800 kg/m³ or lower.

Soils that cannot be properly compacted as determined by the Engineer.

Construction Requirements

General

Prior to construction of embankment, all necessary clearing and grubbing in that area shall have been performed in conformity with Item 800, Clearing and Grubbing.

Embankments and backfills shall contain no muck, peat, sod, roots or other deleterious matter. Rocks, broken concrete or other solid, bulky materials shall not be placed in embankment areas where piling is to be placed or driven.

Where shown on the Plans or directed by the Engineer, the surface of the existing ground shall be compacted to a depth of 150 mm (6 inches) and to the specified requirements of this Item.

Where provided on the Plans and Bill of Quantities the top portions of the roadbed in both cuts and embankments, as indicated, shall consist of selected borrow for topping from excavations.

Methods of Construction

Where there is evidence of discrepancies on the actual elevations and that shown on the Plans, a preconstruction survey referred to the datum plane used in the approved Plan shall be undertaken by the Contractor under the control of the Engineer to serve as basis for the computation of the actual volume of the embankment materials.

Effective spreading equipment shall be used on each lift to obtain uniform thickness as determined in the trial section prior to compaction. As the compaction of each layer progresses, continuous leveling and manipulating will be required to assure uniform density. Water shall be added or removed, if necessary, in order to obtain the required density. Removal of water shall be accomplished through aeration by plowing, blading, discing, or other methods satisfactory to the Engineer.

When excavated material contains more than 25 mass percent of rock larger than 150 mm in greatest diameter and cannot be placed in layers of the thickness prescribed without crushing, pulverizing or further breaking down the pieces resulting from excavation methods, such materials may be placed on the embankment in layers not

exceeding in thickness the approximate average size of the larger rocks, but not greater than 600 mm (24 inches).

Even though the thickness of layers is limited as provided above, the placing of individual rocks and boulders greater than 600 mm in diameter will be permitted provided that when placed, they do not exceed 1200 mm (48 inches) in height and provided they are carefully distributed, with the interstices filled with finer material to form a dense and compact mass.

Each layer shall be leveled and smoothed with suitable leveling equipment and by distribution of spalls and finer fragments of earth. Lifts of material containing more than 25 mass percent of rock larger than 150 mm in greatest dimensions shall not be constructed above an elevation 300 mm (12 inches) below the finished subgrade. The balance of the embankment shall be composed of suitable material smoothed and placed in layers not exceeding 200 mm (8 inches) in loose thickness and compacted as specified for embankments.

Dumping and rolling areas shall be kept separate, and no lift shall be covered by another until compaction complies with the requirements of Subsection 104.3.3.

Hauling and leveling equipment shall be so routed and distributed over each layer of the fill in such a manner as to make use of compaction effort afforded thereby and to minimize rutting and uneven compaction.

Compaction

Compaction Trials

Before commencing the formation of embankments, the Contractor shall submit in writing to the Engineer for approval his proposals for the compaction of each type of fill material to be used in the works. The proposals shall include the relationship between the types of compaction equipment, and the number of passes required and the method of adjusting moisture content. The Contractor shall carry out full scale compaction trials on areas not less than 10 m wide and 50 m long as required by the Engineer and using his proposed procedures or such amendments thereto as may be found necessary to satisfy the Engineer that all the specified requirements regarding compaction can be consistently achieved. Compaction trials with the main types of fill material to be used in the works shall be completed before work with the corresponding materials will be allowed to commence.

IV. PLAIN AND REINFORCED CONCRETE WORKS

A. GENERAL

Unless otherwise specified herein, concrete work shall conform to the requirements of the ACI Building Code. Full Cooperation shall be given other grades to install embedded items. Provisions shall be made for setting items not placed, embedded items shall be made for setting items not placed in the forms. Before concrete is placed, embedded items shall have been inspected and tested for concrete aggregates and other materials shall have been done.

B. MATERIALS:

CEMENT for the concrete shall conform to the requirements of specification for Portland cement (ASTM C-150)

WATER used in mixing concrete shall be clear and free from other injurious amounts of Oils, acids Alkaline, organic materials or substances that may be deleterious to concrete or steel.

REINFORCING BARS shall conform to the requirements of ASTM standard specifications for Billet Steel Bars for concrete reinforcement (a15-625) and to specification for requirements for deformed steel.

1. Unless otherwise noted in plans, the yield strength of reinforcing bars shall be:

A. Footings , footing beams and girders----- $f_y=275\text{MPa}$ (40,000 psi)

B. Columns and shear walls----- $f_y=275\text{MPa}$ (40,000 psi)

C. Beams and girder----- $f_y=275\text{MPa}$ (40,000 psi)

D. Non-load bearing wall partitions ,bedded slabs , floor & roof slabs, Parapets ,catch basin,side walk,canopy, plants----- $f_y=227.5\text{MPa}$ (33000 psi)

2. All reinforcing bars size 10mm or larger shall be deformed in accordance with the astm a-706

Bars smaller than 10mm may be plain.

3. Splices shall be securely wired together & shall lap or extend in accordance w/ table b (table of lap splice & anchorage length) unless otherwise shown on drawings , splices shall be

Staggered whenever possible.

All dowels for anchorage of vertical and horizontal reinforcements for CHB walls and anchor bolts including structural frames, drains and all other materials in contact with concrete construction shall practically be place secured in position when concrete is placed. Refer to drawing for Reinforcing Bars

C. PROPORTIONING AND MIXING:

Proportions of all materials entering into the concrete shall be as follows:

	Cement	Sand	Gravel
Class A 3000 psi	1	2	4
Class B	1	2 ^{1/2}	5
Class C	1	3	6

MIXING - concrete shall be machine mixed. Mixing shall begin within 30 minutes after cement has been added to the aggregates. Manual mixing is allowed in the absence of concrete mixer.

D. CURING

Class of Concrete-concrete shall have a 28-day strength of 3,000 psi, for all concrete work unless otherwise indicated in the plans. All concrete shall be moist cured through an approved method for a period of not less than 7 days or at least 3 days in case of high early- strength concrete, shall be protected from injuries and shall not be allowed to dry out for a period of 28 days. Curing starts as soon as the concrete has attained initial settings of

sixty (60) min. The surface of the concrete shall be kept continuously wet by covering burlap Plastic or other approved materials thoroughly saturated with water.

ITEM 903(2)a FORMWORKS AND FALSEWORKS

GENERAL- Forms shall be used wherever necessary to confine the concrete and shape it to the required lines, or to insure the concrete of contamination with materials caving with adjacent, excavated surfaces. Forms shall have sufficient strength to withstand the pressure resulting from placement and vibration of the concrete, and shall be maintained rigidly in correct position. Forms shall be sufficiently tight to prevent loss of mortar from the concrete. Forms for exposed surfaces against which backfill is not be placed shall be lined with a form grade plywood. Provide all scaffolding required for masonry work, including cleaning down on completion, remove. Cleaning and Oiling of forms must be performed. Before placing the concrete, the contact surfaces of the forms shall be cleansed of encrustations of mortar, the grout or other foreign material, and shall be coated with a commercial form oil that will effectively prevent sticking and will not stain the concrete surfaces.

Removal of forms -forms shall be removed in a manner which will prevent damage to the concrete. Forms shall not be removed without approval. Any repairs of surface imperfections shall be performed at once and airing shall be started as soon as the surface is sufficiently hard to permit it without further damage.

F. FINISHING

Concrete surfaces shall not be plastered unless otherwise indicated. Exposed concrete surfaces shall be formed with plywood, and after removal of forms, the surfaces shall be smooth, true to line and shall present a finished appearance except for minor defects which can be easily repaired with patching cement mortar or can be ground to a smooth surface to remove all joint marks of the form work. WPC Wood Panel for the exterior portion of storage Area exterior wall

V. MASONRY WORKS

1046(2) CHB (Including Reinforcing Steel)

A. Materials:

1. Concrete Hollow Blocks shall have a minimum face thickness of 1" (0.25) nominal size shall be 100 x 200 x 400 and 150 x 200 x 400mm. and have minimum compressive strength shall be as follows:
 - Class "A" - 900 psi
 - Class "B" - 750 psi
2. Wall Reinforcement shall be 12mmØ Deformed Bars.
3. Sand shall be river sand, clean, hard and free from loam, silt or other impurities.
4. Cement shall be standard Portland Cement, ASTM C- 150 - 68 Type (1) One.
5. Mortar - Mix Mortar from 3 to 5 minutes in such quantities as needed for immediate use, retempering will not be permitted if mortar stiffens because of premature setting.

Proportioning: Cement mortar shall be one (1) part Portland cement and two (2) parts sand by volume but not more than one (1) part Portland cement and three (3) parts sand by volume.

B. ERECTION

All masonry shall be laid plumb, true to line, with level and accurately spaced courses and with each course breaking joint with the source below. Bond shall be kept plumb throughout, corners and reveals shall be plumb and true. Units with greater than 12% absorption shall be wet before laying. Work required to be built in with masonry, including anchors, wall plugs and accessories, shall be built in as the erection progresses.

VI. ROOF AND ROOF FRAMING WORKS

1047 ROOF FRAMING (Roof Beams and Purlins)

All works shall be performed and computed in accordance with generally accepted and modern practice of roof and roof framing. Use materials as specified in the plan. All welding shall be done by approved, competent, experienced and fully qualified welders. Surfaces to be welded shall be smooth, uniform and free from fins, tears and other defects, which would adversely affect the quality of the weld. The contractor shall remove and replace or correct as instructed and welds found to be defective or deficient. The skilled welders shall also replace all methods found to produce inferior results with methods that will produce satisfactory work.

Welding, shearing, gas cutting, chipping and all other works involved in the fabrication of structural steel shall be done with accuracy and of the highest quality of workmanship within the allowable tolerance prescribe In the AISC Specifications.

All materials and accessories shall be free from rust or any other form of corrosion. Steel trusses shall be done in accordance with the plans and drawings, all plates, angle bars and C-Channel and other roof framing materials shall be pre-painted to installation and re-painted on welded joints. Roofing materials shall be multi-tille pre-painted long span or its equivalent with similar design and quality sheets should be kept dry when stacked, store clear of the ground and under cover should sheets become wet, they must be dried and fillet stacked to allow air circulation. Storage should be kept to a minimum; all sheets shall be installed in accordance to the manufacturer's specification and by persons specializing on the same.

1014 Pre-Painted Metal Sheets, longspan and other bended accessories

This item shall consist of furnishing all plant, equipment, tools, materials and labor required to perform and complete the high rib metal roofing, together with related accessories such as end wall flashing, parapet wall capping, rivets, soldering and downspout when called for on the Plans all in conformity with this Specifications.

Roofing shall be Colored Roof – GA 26 Hi-Rib long span (color- DA Color). See plan for complete details. Sheets shall weigh not less than 4.14kg. /m² and shall be marked or stamped showing the thickness, size, amount of zinc coating, brand and name of manufacturer. Test specimens shall stand being bent through 180 degrees flat on itself without fracture of the base metal and without flaking of the zinc coatings.

ROOFING ACCESSORIES

Strap Fasteners

Strap fasteners shall be 0.50mm thick by 2.5cm. wide and sufficiently long to bend up to the opposite face of the purlins with corners chipped off at the riveting ends.

Rivets and washers

- 1.0 Rivets and washers shall be galvanized mild iron and shall not be less than 5mm diameter and 10mm length.
- 2.0 Washers shall not be less than 1.5mm thick and 20mm in outside diameter and shall provide snug fit to the rivet.

Soldering Lead

Soldering lead shall have a composition of 50 % lead, conforming to ASTM B-32. Rivets and burrs for lap joints of gutters, downspouts and flashings shall be copper or aluminium not less than No. 8 or 3.175 diameter.

Fabricated Metal Roof Accessories

- 1.0 End wall, parapet wall capping, and downspouts, whenever required, shall be pre-fabricated and shall be of 0.5mm thick or as specified on the plan.
- 2.0 Downspouts shall be 0.60 mm thick unless otherwise specified on Plans. Wire basket strainers shall be gauge 14, galvanized, aluminum or stainless steel.
- 3.0 Roof ventilators, whenever required, shall be fabricated from gauge 26, 0.50mm thick plain G.I. sheets and constructed to the dimensions otherwise specified..
- 4.0 Bending of plain G.I. sheets for various accessories shall be done by machine press. Hand bending shall not be permitted.

Preparatory Work

- 1.0 Preparatory to the installation of the high rib G.I. roofing, purlins should have been placed and spaced properly to fit the length of roofing sheets to be installed.
- 2.0 The centre line of the purlins at end laps shall be 15 cm. from the bottom line of end laps and intermediated purlins are placed equidistant with each other.
- 3.0 Ascertain that the top of the purlins should be at the same plane.

Installation of Rib G.I. Sheet

- 1.0 Provide an end lap of 25cm. minimum length. Each sheet shall be fastened temporarily by 1.83mm diameter by 2.5 cm. long galvanized flat-head nails at valleys of corrugations covered by side or end laps.
- 2.0 Succeeding upper rows of High Rib G.I. sheets shall be installed in the same manner until the entire roof area is covered.
- 3.0 End wall flashings and parapet wall capping when required, shall be installed after fastening the roofing sheets with heavy duty sealant, rivets or with G.I. roofing nails and washers

- 4.0 Rivets shall be provided with a galvanized mild iron washer below and one lead and one galvanized washer above the street.
- 5.0 Rivets shall be sufficiently long to permit forming a hemispherical head. Riveting shall be done such that the lead washer shall be compressed to provide a water tight fit around the rivet.

Installation of Roofing Accessories

End wall flashing and parapet wall capping shall lap at least 25 cm and fastened tightly with rivets and any fasteners with heavy duty sealant to avoid water leakage.

1027(1) Cement Plaster Finish

PLASTERING: Clean and evenly wet surfaces. Apply scratch coat with sufficient force to form good keys. Cross scratch coat upon attaining its initial set; keep damp. Apply brown coat after scratch coat has set at least 24 hours after scratch coat application. Lightly scratch brown coat; keep moist for 2 days; allow to dry out. Do not apply finish until brown coat has seasoned for 7 days. Just before applying coat, wet brown coat again. Float finish coat to true even surface; trowel in manner that will force sand particles down into plaster, with final growling, leave surfaces barnished smooth, free from rough areas, trowel marks, checks, other blemishes. Keep finish coat moist for at least 2 days; thereafter protect after rapid drying after properly, thoroughly cured.

ADDITIONAL WORKS

In case of additional works not shown in the plans and not specified herein, the Contractor shall be paid an additional amount corresponding to the work added.

Demolitions and works due to Contractor's fault shall be done by the Contractor without extra compensation to the Owner.

Any changes or revisions on the plans shall be approved by the designer.