



SUBIC BAY
METROPOLITAN AUTHORITY

SPECIFICATIONS

FOR THE

CONSTRUCTION OF METAL ROOFING FOR BUILDING 229 AND BUILDING 255

TABLE OF CONTENTS

GENERAL	5
DEFINITION OF TERMS	7
PART A: GENERAL REQUIREMENTS	9
B.5 Project Billboard / Signboard	9
B.7(1) Occupational Safety and Health Program (PPE and Safety Personnel)	10
B.7(2) Occupational Safety and Health Program (Signages)	10
B.7(3) Occupational Safety and Health Program (Temporary Perimeter Fence and Safety Canopy)	10
B.8 Traffic Management	13
B.9 Mobilization and Demobilization	17
B.12(1) Removal and Relocation of Obstruction: Existing Electrical, Communication, Internet & CCTV (Wires, Conduits, Boxes, Fittings, Antenna and Devices) on Building 229	18
B.12(2) Removal and Relocation of Existing Air-Cooled Condensing Unit (ACCU) on Building 229	18
B.12(3) Removal and Relocation of Obstruction: Existing Electrical, Communication, Internet & CCTV (Wires, Conduits, Boxes, Fittings, Antenna and Devices) on Building 255	18
B.14 Environmental Management and Monitoring (Provision of one(1) unit	19
Provision of One (1) Unit Portable Toilet	22
OTHER INSTRUCTIONS TO THE CONTRACTOR	24
PART B: REMOVAL OF STRUCTURES AND OBSTRUCTIONS	28
Item 801(1)a Stripping off / Removal and Disposal of existing PUF and other roof deck covering at second floor roof deck and third floor room & roof deck including all other materials, accessories and incidentals necessary to complete the works on Building 229	28
Item 801(1)b Removal and Disposal of unnecessary pipes/cables, equipments, deck accessories and other systems at second floor roof deck and third floor room & roof deck including all other materials, accessories and incidentals necessary to complete the works on Building 229	28
Item 801(1)d Stripping off / Removal of existing PUF and other roof deck covering at second floor roof deck including all other materials, accessories and incidentals necessary to complete the works on Building 255	28
Item 801(1)e Removal of unnecessary pipes/cables, equipments, deck accessories and other systems including all other materials, accessories and incidentals necessary to complete the works on Building 255	28
PART C: METAL STRUCTURES	30
Item 1047(2)a Fabrication and installation of roof steel trusses including all other materials, accessories and incidentals necessary to complete the works on Building 229	30

Item 1047(2)b	Fabrication and installation of steel purlins including all other materials, accessories and incidentals necessary to complete the works on Building 229	30
Item 1047(2)c	Fabrication and installation of roof steel trusses including all other materials, accessories and incidentals necessary to complete the works on Building 255	30
Item 1047(2)d	Fabrication and installation of steel purlins including all other materials, accessories and incidentals necessary to complete the works on Building 255	30
Item 1047(2)e	Fabrication and installation of steel beam (B-1) including all other materials, accessories and incidentals necessary to complete the works on Building 255	30
PART D: METAL ROOF & ROOF ACCESSORIES		34
Item 1014(1)a	Installation of New Prepainted Metal Sheets, Rib Type, Long Span (0.60mm thick) with roof access including all other materials, accessories and incidentals necessary to complete the works on Building 229.....	34
Item 1013(2)a	Installation of New Fabricated Stainless Steel Roofing Accessory (Gutter 36inches cut X 0.50mm thick) including all other materials, accessories and incidentals necessary to complete the works on Building 229.....	34
Item 1013(2)b	Installation of New Fabricated Metal Roofing Accessory (Ridge/Hip Rolls 36inches cut X 0.50mm thick) including all other materials, accessories and incidentals necessary to complete the works on Building 229.....	34
Item 1013(2)c	Installation of New Fabricated Metal Roofing Accessory (Valley Gutter 36inches cut X 0.50mm thick) including all other materials, accessories and incidentals necessary to complete the works on Building 229.....	34
Item 1013(2)d	Installation of New Fabricated Metal Roofing Accessory (Counter Flashings 36inches cut X 0.50mm thick) including all other materials, accessories and incidentals necessary to complete the works on Building 229	34
Item 1013(2)e	Installation of New Fabricated Metal Roofing Accessory (Gutter 36inches cut X 0.50mm thick) at third floor room & roof deck including all other materials, accessories and incidentals necessary to complete the works on Building 229	34
Item 1017(3)c3.a	Installation of New Gutter Drain with strainer including all other materials, accessories and incidentals necessary to complete the works on Building 229	34
Item 1001(1)a7.a	Installation of New PVC Downspout and Fittings including all other materials, accessories and incidentals necessary to complete the works on Building 229	34
Item 1003(1)	Installation of new pre-painted metal spandrel ceiling panels on metal frame along eaves including all other materials, accessories and incidentals necessary to complete the works on Building 229	34
Item 1014(1)b	Installation of New Prepainted Metal Sheets, Rib Type, Long Span (0.60mm thick) with roof access including all other materials, accessories and incidentals necessary to complete the works on Building 255.....	34
Item 1013(2)f	Installation of New Fabricated Stainless Steel Roofing Accessory (Gutter 36inches cut X 0.50mm thick) including all other materials, accessories and incidentals necessary to complete the works on Building 255.....	34
Item 1013(2)g	Installation of New Fabricated Metal Roofing Accessory (Ridge/Hip Rolls 36inches cut X 0.50mm thick) including all other materials, accessories and incidentals necessary to complete the works on Building 255.....	35
Item 1017(3)c3.b	Installation of New Gutter Drain with strainer including all other materials, accessories and incidentals necessary to complete the works on Building 255	35

Item 1001(1)a7.b	Installation of New PVC Downspout and Fittings including all other materials, accessories and incidentals necessary to complete the works on Building 255	35
Item 1003(2)	Installation of new pre-painted metal spandrel ceiling panels on metal frame along eaves including all other materials, accessories and incidentals necessary to complete the works on Building 255	35
PART E: MISCELLANEOUS WORKS		39
Item 1016	Application of waterproofing membrane (spray polyurethane foam with protective elastomeric acrylic coating) at third floor room & roof deck including all other materials, accessories and incidentals necessary to complete the works on Building 229	39
Item 1032(1)c.1	Painting (primer coat) of roof frame steel members including all other materials, accessories and incidentals necessary to complete the works on Building 229.....	43
Item 1032(1)c.2	Painting (primer coat) of roof frame steel members including all other materials, accessories and incidentals necessary to complete the works on Building 255.....	43
PART F: SPECIAL WORKS.....		47
Item SP-13600(1)	Steel frame dismantling & Solar Panel removal, safe storage and reinstallation including all other materials, accessories and incidentals necessary to complete the works on Building 229	47
Item SP-13600(2)	Steel frame dismantling & Solar Panel removal, safe storage and reinstallation including all other materials, accessories and incidentals necessary to complete the works on Building 255	47

GENERAL

1. Explanation to the Specifications

The Drawings and Specifications are complementary to each other. Drawings are graphic means of showing work to be done. They are particularly suited to showing where materials are located. Thus, drawings exist essentially to show dimension, location and placement. Not all works, however, can be presented in the drawings. Generalized works are usually statement form and hence, the contractor is required to read the specifications carefully.

Specifications, on the other hand, are used to describe the materials, construction techniques, samples, shop drawings, guarantees and other contract requirements. Together, the drawings and the specifications are used to inform the contractor.

Any equal material or equipment can be used if approved by the Owner's Representative.

2. Equivalency of Standards and Codes

Whenever reference is made in the Contract to specific standards and codes to be met by the goods and materials to be furnished, and work performed or tested, the provisions of the latest current edition, or revision of the relevant standards and codes in effect shall apply, unless otherwise expressly stated in the Contract. Where such standards and codes are national or relate to a particular country or region, other authoritative standards that ensure a substantially equal or higher quality than the standards and codes specified, will be accepted subject to the Engineer's prior review and written consent. Differences between the standards specified and the proposed alternative standards shall be fully described in writing by the Contractor, and submitted to the Owner's Representative at least 28 days prior to the date when the Contractor desires to use them for the Owner's Representative consent. In the event the Owner's Representative determines that such proposed deviations do not ensure substantially equal or higher quality, the Contractor shall comply with the standards specified in the documents.

3. The Standard Specifications

The Standard Specifications applicable to this Contract shall be the following:

- a. Republic of the Philippines, Department of Public Works and Highways (DPWH) "Standard Specifications for Public Works Structures", Volume III 1995 or latest edition
- b. Republic of the Philippines, Department of Public Works and Highways (DPWH) "Standard Specifications for Public Works and Highways", Volume II 2013 or latest edition

4. Special Specifications

To supplement the Standard Specifications, reference should be made to the attached Special Specifications for the special item of works and the Environmental Special Specifications.

For pay items with Lump Sum unit of measurement having itemized quantities of deliverables specified in the technical specification, note that the said itemized quantities will be accounted per actual quantities and deficits (only) shall be deducted accordingly to the periodic Statement of Work Accomplishment.

The Implementing Unit may withhold advance and/or progress payments due to nondelivery of any item listed under Facilities for the Engineer and Other General Requirements.

5. Other Generally-Accepted Principles and Practices in Civil Engineering

The generally accepted principles and practices in Civil Engineering are hereby adopted in so far as they do not run in conflict with established specifications.

DEFINITION OF TERMS

Whenever the following terms are used in these specifications, the intent and meaning shall be interpreted as follows:

AASHTO

The American Association of State Highway and Transportation Officials, the successor association to AASHTO.

ASTM

The American Society for Testing and Materials

BRS

Bureau of Research and Standard

DOST

Department of Science & Technology

DTI

Department of Trade & Industry

PNS

Philippine National Standards

CONTRACT

The written agreement covering the works to be performed. The Contract shall include, but is not limited to: The Contract Agreement, the Conditions of Contract, the Contract Specifications, drawings, plans and other legal requirements as may be required.

CONTRACTOR

The party or parties on whose behalf the Bid was submitted including its or their respective permitted assignees and where the Contractor comprises more than one party and the context so requires, each and every such party.

PROJECT SITE

The project site refers to the whole road network including related structures within the Subic Bay Freeport Zone

ENGINEER/PROJECT-IN-CHARGE FOR SBMA

Any person, firm or company appointed by the owner, Subic Bay Metropolitan Authority (SBMA) to perform the duties set out in the Conditions of Contract.

LABORATORY

The official testing laboratories of the Contractor as required.

MATERIALS

Any substance specified or required for use in the construction of the Contract work.

NIC

Not included in the Contract.

PLANS

The official drawings or exact reproductions which show the location, character, dimensions and details of works to be done.

WORK

The furnishing of all labor, materials, tools, equipment and incidentals necessary or convenient to the Contractor's performance of all duties and obligations imposed by the Contract.

SPECIFICATIONS

The meaning as identified on the Contract conditions and requirements.

For additional Definition of Terms and interpretations, please refer to clauses applicable in the Conditions of Contract.

PART A: GENERAL REQUIREMENTS

B.5 Project Billboard / Signboard

A. Description

This item shall consist of furnishing, installing and maintaining during the duration of the project, the project information signboard of the type specified in accordance with this Specifications and the details as shown in the drawings. Location for signboard shall be identified by the Project-in-Charge for SBMA.

The Project Billboard/Signboard shall be a tarpaulin signboard that must be suitably framed for outdoor display at the project location, and shall be posted as soon as the award has been made.

B. Material Requirements

Sign Panel

The panel for the project informational signboard shall be the standard 8 ft. x 8 ft. white tarpaulin suitably framed. The design and format of the tarpaulin, as shown in the drawings, shall have the following specifications:

Resolution	:	70 dpi
Font	:	Helvetica
Font Size	:	Main Information – 3”
	:	Sub-Information – 1”
Font Color	:	Black

Posts and Frames

The post and frames shall be hard wood of the specie indicated on the drawings.

Hardwares

All hardwares shall be of the kind and size specified on the drawings or as approved by the Project-in-Charge for SBMA.

C. Construction Requirements

Location

The project information signs shall be installed at the area designated by the Project-in-Charge for SBMA.

Excavation and Backfilling

Holes shall be excavated to the required depths of the bottom of the posts as shown on the drawings.

b) Safety Shoes	4,818 man-days
c) Working Gloves	4,818 man-days
d) Safety Glasses/Goggles	4,818 man-days
e) Safety Vest	4,818 man-days
f) Body Harness & Lanyard	4,818 man-days

Safety and Health Officer/Personnel: The Contractor shall have over-all management and coordination of all safety and health officers/personnel responsible for ensuring compliance with the pertinent DOLE Guidelines within the construction site. The safety and health personnel must be accredited by DOLE. The safety and health personnel will report to work within the contract period as follows:

a) Full time Certified Safety Practitioner/Officer	1,440 hours
--	-------------

Safety on Construction Equipment: All heavy equipment operators must be accredited and certified by TESDA while heavy equipment shall be tested and certified by DOLE recognized association/organization.

Construction Safety Signage and Barricades: Mandatory provision of safety and warning signs shall be in place on the construction site and nearby area to warn the workers and general public of the hazards existing in the worksite. Signs shall conform to the standard requirements of the OSHS. Refer to Plans for the details and recommended locations or as directed by the Project-in-Charge for SBMA.

This item is for the provision of the following safety signages and barricades:

- | | |
|--------------------------------------|-----------|
| 1. Safety First (4'x4') | - 2 sets |
| 2. Warning Signs (2'x3') | - 30 sets |
| 3. Proper PPE Signage (4'x8') | - 2 sets |
| 4. Caution Tape, 1000ft. | - 1 roll |
| 5. Traffic Cones @ 2.50 meters apart | - 20 each |

Construction of Temporary Project Perimeter Fence: Mandatory provision of safety enclosure shall be in place on the construction site and nearby area to warn the workers and public of the hazards existing in the worksite. Fence shall conform to the provide plans for the details and recommended locations or as directed by the Project-in-Charge for SBMA.

Materials for the Project Perimeter Fence shall be:

1. Cladding shall be 0.40mm thick x 32 inches width x 8 ft. high, pre-painted, Corrugated Type, Color Blue
2. Post and frame shall be Galvanized Iron Pipe 2"Ø, schedule 40, Industrial Type

Safety Canopy (overhead protection system): Mandatory provision of safety canopy shall be in place on the construction site to protect the public from falling debris. All ingress and egress of building or even sidewalks adjacent to the building shall covered by canopy. Canopy shall conform to the provide plans for the details and recommended locations or as directed by the Project-in-Charge for SBMA.

Materials for Safety Canopy (overhead protection system) shall be:

1. Overhead cover shall be high quality nylon net, color green.
2. Post and frame shall be Galvanized Iron Pipe 2"Ø, schedule 40, Industrial Type

Hot Works: A portable fire extinguisher shall be provided at the place where welding and cutting operations are being undertaken. Secure Hot Work Permit from SBMA Fire Department.

Upon completion of the Project, all salvageable materials with values shall be turnover to SBMA PPMD including signage and temporary fence.

B. Method of Measurement and Basis of Payment

When the Contract stipulated that payment will be made for occupational safety and health program on lump sum basis, the pay items will include all necessary personal protective equipment (PPE), safety and health personnel, construction of safety signage, barricades, temporary perimeter fence, safety canopy and all other safety measures necessary during the entire duration of construction.

The accepted quantity shall be paid for at the contract unit price for item Occupational Safety and Health Program which price and payment shall constitute full compensation for all the works and incidentals prescribe in this Section.

Payment will be made under:

Pay Item No.	Description	Unit of Measurement
B.7(1)	Occupational Safety and Health Program (PPE and Safety Personnel)	Lump Sum

B.7(2)	Occupational Safety and Health Program (Signages)	Lump Sum
B.7(3)	Occupational Safety and Health Program (Temporary Perimeter Fence and Safety Canopy)	Lump Sum

B.8 Traffic Management

A. General Description

Passage of Traffic

No work that will in anyway inconvenience to the traveling public shall be started until adequate provision, satisfactory to the engineer, has been made to ensure proper unloading, stocking and piling of construction materials at the site and proper containment of construction debris for safety and comfort. No road shall be closed by the contractor to the public except by permission in writing from the engineer and the appropriate Government Authorities. Where traffic conditions permit, single lane operation may be permitted by the Engineer. Materials stored upon the roadway shall be so placed and the work at all times shall be so conducted as to cause as little obstruction to the traveling public as possible.

Proper detour and construction signing and the employment of qualified flagmen will be the responsibility of the Contractor when required for the traveling public or when directed by the Engineer's representative.

Traffic Control

The Contractor shall at all times during the Contract provide, erect and maintain such barricades, warning light, danger signals, reflectors, sign and watchman as required.

Barricades and signs shall be constructed and used in accordance with the requirements of OSHS and to the approval of the Engineer. All barricades, fences and such other aids as are required shall be reflectorized and shall conform to the regulations of the DPWH and shall be illuminated at night by lanterns.

The Contractor shall appoint, subject to the approval of the Engineer's Representative, a responsible member of his inspect daily all traffic aids within the site and to arrange such cleaning and repair as the Engineer considers necessary to maintain the proper effectiveness of these traffic aids at all times.

Traffic Control Devices

1. Flaggers

Flaggers while on duty and assigned to traffic control or to give warning to the public that a structure adjacent to the highway is under construction and of any dangerous conditions to be encountered as a result thereof shall their duties and shall be provided with the necessary gear so that they can be easily seen by approaching traffic.

2. Barricades

Barricades shall generally be used in conjunction with signs at or near hazards for the control or diversion of vehicular, pedestrian, or other traffic. Barricades shall consist of rails at least 200 mm wide mounted at a height of between 1,000 to 1,200 mm on fixed or portable pots and shall be constructed of lightweight commercial quality materials, approved by the Engineer. The color of the rails shall be either one of the following combinations:

- a) Attending diagonal black and white stripes
- b) Alternate diagonal black and yellow stripes

If the barricades are displaced or are not in an upright position, from any cause, said barricades shall immediately be replaced or restored to their original location, in an upright position, by the Contractor.

3. Flashing Lamps

The color of the flashing lamps shall be restricted to yellow (amber). They shall not be used to delineate the limits of a hazard or trafficable route. Their use shall be limited to the following circumstances:

- a) Single flashing yellow (amber) lamps may be used to draw attention to a sign, barrier, or hazard, and shall be so located that not more than two lamps are visible to approaching traffic at any one time.
- b) Yellow (amber) flashing lamps of the rotating reflector type shall be used on emergency or service vehicle while they actually cause an obstruction or hazard to road traffic. Permission of the relevant authority must be obtained.
- c) A lamp having twin alternate flashing yellow (amber) elements may be used for the same purpose and under the same conditions as the single yellow (amber) lamps described in (a) above, provided it does not conflict with any regulatory traffic control device.

4. Non-flashing lamps

Non-flashing yellow (amber) lamps shall be used to define the limits of usable road on a through route, side tract or detour, and to define the limits of a hazard or nontrafficable construction area.

5. Delineators

At the discretion of the road authority and subject to any limitation by traffic laws and regulation, a proportion of non-flashing yellow (amber) or red lamps may be replaced by portable delineators of the same color.

Portable delineators, including the base, shall be composed of a material that has sufficient rigidity to remain upright when unattended and shall be either flexible or collapsible upon impact by a vehicle. The base shall be weight or shall be anchored in a manner such that said delineator shall remain in an upright position.

If the portable delineators are displaced or are not in an upright position, from any cause, said delineators shall immediately be replaced or restored to their original location, in an upright position, by the Contractor.

The vertical portion of the delineators shall be of a fluorescent orange or predominantly orange color. The posts shall not be less than 75 mm width or diameter. The minimum height shall be 900 above the traveled way. A minimum of 3-reflective bands, each not less than 75 mm wide shall be mounted a minimum of 37mm apart and at a height on the post so that one reflective band will be between 750 mm to 900 mm above the roadway surface. The reflective bands shall be visible at 300 meters at vision of or corrected to 20/20.

Only one type of portable delineator shall be used on the project. The type of portable delineator proposed for used on the project shall be submitted to the Engineer for approval prior to placement on the project.

6. Construction Area Signs

The term "Construction Area Signs" shall include all temporary signs required for the direction of public traffic through or around the work during construction.

Construction area signs shall be selected and located in accordance with established standards and practices and as directed by the Engineer.

The Contractor shall clean all construction area sign panels at the time of installation and as often thereafter as the Engineer determines to be necessary.

Design. Standard construction area signs are shown on the plans. A special sign may only be used if the design conforms to the following:

- a) Message shall be brief and concise as possible, using the maximum size of legend which can be accommodated.
- b) Lettering and numerals shall conform to standard alphabets.
- c) The shape and color of the sign shall conform to that of a standard sign used for a purpose.

Some of the standard construction area signs are:

- DETOUR AHEAD – The “DETOUR AHEAD” sign shall be used to give advance warning of a detour from the normal direction of the road.
- ROAD CLOSED – The “ROAD CLOSED” sign shall be placed on the road pavement where the road is closed to the traffic facing the sign. Usually this sign will need to be supplemented by a sign DETOUR.
- DETOUR – The “DETOUR” sign shall be to indicate the direction and point by which traffic should leave the through route to detour via existing roads or streets which by-pass an obstruction in the main route. On roads carrying fast or heavy traffic or where sign distance is limited, it will usually be necessary to use the advance sign, DETOUR AHEAD in conjunction with this sign. The confirmatory DETOUR sign shall be used, if necessary as a reassurance guide along the route of the detour.

7. Channelizers

Channelizers may be used in conjunction with appropriate signs in order to:

- a) indicate temporary traffic lane;
- b) guide traffic passing personnel working in traffic;
- c) guide traffic around obstructions in the carriageway;

Traffic Cones. Traffic cones shall be at least 300 mm high and at least 150 mm wide at the base of the cone. They shall be of good commercial quality and fluorescent redorange. When used at night, a minimum of one-third of the surface area visible to approaching traffic shall be covered with yellow reflective material.

B. Method of Measurement and Basis of Payment

The accepted quantity, measured as Lump Sum, shall be paid for at the contract unit price for the pay item listed below that is included in the Bill of Quantities, which price and payment shall constitute full compensation for all the works and incidentals prescribe in this Item.

Payment will be made under:

Pay Item No.	Description	Unit of Measurement
B.8	Traffic Management	Lump Sum

B.9 Mobilization and Demobilization

A. Description

Mobilization: When the Contractor has executed the transport and furnishing of all necessary manpower including equipment but not limited to as tabulated below as well as all necessary preparations and requirements for the execution of permanent works.

MINIMUM EQUIPMENT REQUIREMENT			
Item No.	Equipment Description	Capacity	No. of Units
1	Truck Mounted / Hydraulic Telescopic Boom	25MT.	1
2	Cargo/Service Truck	--	1
3	Welding Machine	500 Amps	2
4	Cut-Off Machine	--	2
5	Generator Set	--	1

The Contractor shall mobilize, and bring out into work all personnel and equipment in accordance with his approved Construction Program, Equipment Moving and Utilization Schedule and Manpower Schedule, from its regular place of business or another project to the site to undertake the Contract. The Contractor shall begin mobilizing manpower and construction equipment as soon as the site has been formalized.

Mobilized equipment required in the contract shall be duly listed by the Contractor for approval, and, shall not be removed from the site by the same without prior written approval from the Project-in-Charge for SBMA.

All Contractor's initial mobilization costs such as planning and designing all temporary works and facilities and making submittals to the Project-in-Charge for SBMA, recruiting and transferring staff, obtaining all necessary government licenses, permits, clearances, etc., and any other costs involved in preparing to carry out the permanent works as stipulated in the contract and / or as required by the Project-in-Charge for SBMA, shall not be paid separately but shall be included in the unit prices in general or specific overheads.

All items prescribed above shall comprise the general aspects of the Mobilization Phase.

Demobilization: When the Contractor has moved out all its manpower and equipment that are no longer necessary, and when the area is cleaned and satisfactory to SBMA.

Upon completion of the Project, the Contractor shall clear all the areas under contract to the satisfaction of SBMA including the dismantling of temporary facilities, hauling of salvaged materials to designated areas and clearing, transport and disposal of all

construction debris. The contractor shall also pullout all existing manpower and equipment as duly approved by the Project-in-Charge for SBMA.

Costs incurred in demobilization shall be included in this item.

All items prescribed above shall comprise the general aspects of the Demobilization Phase.

B. Method of Measurement and Basis of Payment

The accepted quantity, measured by lump sum, shall be paid for at the contract unit price for Mobilization and Demobilization which price and payment shall constitute full compensation for all the works and incidentals necessary to complete the work prescribed in this item.

Payment will be made under:

Pay Item No.	Description	Unit of Measurement
B.9	Mobilization / Demobilization	Lump Sum

B.12(1) Removal and Relocation of Obstruction: Existing Electrical, Communication, Internet & CCTV (Wires, Conduits, Boxes, Fittings, Antenna and Devices) on Building 229

B.12(2) Removal and Relocation of Existing Air-Cooled Condensing Unit (ACCU) on Building 229

B.12(3) Removal and Relocation of Obstruction: Existing Electrical, Communication, Internet & CCTV (Wires, Conduits, Boxes, Fittings, Antenna and Devices) on Building 255

A. Description

This Item shall consist of removal, relocation and disposal wholly or in part, of all obstructions which are not designated or permitted to remain in the Contract.

B. Construction Requirements

All wires, conduits, boxes, fittings, antenna and devices that are obstructions in performing the major work of this Contract shall be removed, relocated or disposed without unnecessary damaged in sections or pieces. It can be stored by the Contractor at specified places on the project or as otherwise shown in the Special Provisions.

Structures that are designated to be relocated shall be moved to a new location specified by the Architect/Engineer in Charge and shall be restored to its original condition with all connections properly made, all in accordance with the Contract and Plans.

The Contractor shall replace sections lost from storage or damage by negligence, at his own expense.

C. Method of Measurement and Basis of Payment

The accepted quantities, measured as prescribed, 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. The payment shall continue full compensation for placing and compacting all materials including all labor, equipment, tools and incidentals necessary to complete the work prescribed in this Item.

Payment will be made under:

Pay Item No.	Description	Unit of Measurement
B.12(1)	Removal and Relocation of Obstruction: Existing Electrical, Communication, Internet & CCTV (Wires, Conduits, Boxes, Fittings, Antenna and Devices) on Building 229	Lump Sum
B.12(2)	Removal and Relocation of Existing Air-Cooled Condensing Unit (ACCU) on Building 229	Each
B.12(3)	Removal and Relocation of Obstruction: Existing Electrical, Communication, Internet & CCTV (Wires, Conduits, Boxes, Fittings, Antenna and Devices) on Building 255	Lump Sum

B.14 Environmental Management and Monitoring (Provision of one(1) unit portable toilet)

A. General Description

Waste Disposal:

1. The Contractor shall provide for its workers adequate and appropriate sanitary facilities, i.e. provision of portable toilet in accordance with guidelines to be

provided by the Ecology Center, and ensure that all sewage is disposed of, if and as necessary, by a SBMA accredited sewage disposal company.

2. The Contractor shall ensure that oil and grease and other related hazardous wastes, such as paints, waste welding electrodes, etc., which are generated during Contract implementation shall be properly contained, handled and disposed of outside SBMA Secured Area in accordance with provisions of Chapter VII of DAO 29 (IRR of RA 6969, otherwise known as the Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990). Disposal shall be done by a DENR and SBMA accredited hauler and transporter, who shall advise the disposal site.
3. The Contractor shall provide the Ecology Center with Material Safety Data Sheets (MSDS), to be supplied by the materials suppliers, for hazardous chemicals it intends to use (painting, coating, etc.). These shall be properly stored, handled and disposed of in accordance with provisions of DAO 29 (see 2. above).
4. The Contractor shall ensure that recyclable items such as metal scraps shall be stored in an appropriate manner and reused to the fullest extent feasible. All materials remaining after completion of the Project shall be either recycled or disposed of in SBMA approved disposal site.
5. The Contractor is prohibited from maintaining a garbage dump within its leased premises. Garbage disposal must be at least once a week. Construction debris and spoils such as excess and/or broken concrete, hollow blocks, tiles, etc. shall be disposed of in SBMA approved Landfill (see 4. above). All wastes shall be properly contained and disposed of in this landfill. The Contractor shall secure a dumping permit for each truckload of waste to be disposed of in SBMA approved disposal site. Cost and requirements for disposal are the following:

a. Hauling by the Contractor

- Requirements to be processed by the Contractor:
 - i. Certification from the end user/implementing department of the project, which is the Maintenance Division of the SBMA Maintenance and Transportation Dept.
 - ii. Clearances from the (i) Solid Waste Management Division of the SBMA Maintenance and Transportation Department, (ii) SBMA Procurement and Property Management Department and (iii) the Bureau of Customs in the Subic Bay Freeport Zone.

b. Hauling through the SBMA's Maintenance Services

- Service Charge of Php 9,000.00 per twenty (20) cubic meter.
- Requirements and/or clearances will be processed by the Solid Waste Management Division of the SBMA Maintenance and Transportation Department.

6. For debris and spoils which are unacceptable in SBMA approved Landfill because of their size, such as large metal and concrete scraps/sections, the Contractor shall dispose of these in a site located within the Secured Area of SBMA to be identified by the Maintenance & Transportation Department and/or Ecology Center.

Protected Areas:

7. No trees may be cut, pruned unless a joint inspection with the Proponent and the Ecology Center is done and a permit to do so has been issued by the Ecology Center. Hence, the Proponent shall comply with the SBMA Guidelines for Allowable Tree Cutting and Trimming within Subic Bay Freeport Zone.
8. The Contractor shall minimize effect of construction activities to mangrove areas. In case it is really necessary to touch portions of these areas, contractor shall submit a Mangrove Rehabilitation Program of the EC for approval prior to infringement of these areas.
9. All construction and related activities shall be limited to the identified right-of-way (ROW), unless approved by the Project in Charge for SBMA. The Contractor shall not create trails and the like outside of the designated ROW and laydown areas, especially in forested areas, unless approved by the Project in Charge for SBMA. Likewise, Contractor shall ensure light and other electrical equipment are kept away from trees and grasses. The Contractor is liable for fully restoring any area scarred or damaged outside of designated ROW's.
10. The Contractor shall ensure that no fishing, hunting, or collection of wild plants and animals is undertaken by his staff or the staff of his Sub-Contractors on or adjacent to the site. The Contractor shall be fully penalized as provided for by law.

Environmental Quality:

11. The Contractor shall strictly adhere to DENR standards on dust and smoke emissions as provided for in Section 62 of DAO 14. The Contractor shall also follow noise standards as provided for in Section 78 of PD 984. SBMA shall reserve the right to refuse entry into the Freeport at any vehicle which fails to comply with such standards. The Contractor shall be penalized for vehicles failing to comply with standards.
12. The Contractor shall ensure that all trucks use tarpaulins (spill catchers) to cover their top loads in order to prevent construction debris from falling on the roads. In the event of falling debris, the Contractor must take all necessary actions to recover the same. He shall be responsible for keeping the roads within the Freeport used by the Contractor's construction vehicles free from dirt and debris. Failure to do so will result in the imposition of necessary fines and penalties.
13. The Contractor shall ensure cleanliness of his leased premises and construction site at all times. This means that all construction materials shall be properly stored. He shall also ensure regular maintenance of trucks, vehicles and

equipment. Failure to do so shall result in the imposition of necessary fines and penalties.

14. The Contractor shall conduct his construction activities so that they shall not be a nuisance and/or safety hazard to the public. A Traffic Management Plan shall be prepared by the Contractor and approved by the Engineer.
15. Contractor shall provide its personnel appropriate personal protective equipment including, as deemed necessary, eye and face protective devices, hard hats, safety shoes, gloves, etc. The appropriate protective devices must be worn as necessary. Mandatory safety provisions in accordance with standard industry practice must be strictly observed. The Contractor shall prepare a Health and Safety plan for approval, and appoint/designate a Safety Officer to oversee the implementation of all safety requirements and guidelines.
16. The Contractor shall conduct monthly effluent monitoring of water bodies, potentially affected by the project including parameters such as color, temperatures, TSS, oil and grease and BOD as mandated with provisions of Section 5 of DAO 35.
17. Throughout the Contract period, the Contractor shall provide for adequate temporary drainage at all locations along the project to prevent damage from rainfall and flooding in the form of erosion, loss of strength, contamination, etc. to adjacent pavements, water bodies/streams, etc.

Provision of One (1) Unit Portable Toilet

A. Description

This Item shall consist of provision of one (1) unit portable toilet on rental basis including cleaning and disposal services and all other incidentals necessary to complete the work in accordance with this Specification or as directed by the Engineer.

Portable toilets shall include, but not be limited to:

- Tissue Paper, Deodorizer (Blue Tablet), Trash Bag
- Delivery, Installation and Pull-Out Fee
- Repair and Maintenance if required
- Cleaning & disinfecting of the portable toilets
- Siphoning of human waste on every specified date

The Contractor must ensure that portable toilets are to be compliant with all applicable codes, regulations, and industry standards, including proper disposal.

The Contractor and service provider agreement shall be in satisfaction to the Engineer in accordance to the Environmental Management Program required for the duration of the project.

B. Method of Measurement and Basis of Payment

The accepted quantities, measured as Month, shall be paid for at the contract unit price, for the pay item listed below that is included in the Bill of Quantities, which price and payment shall constitute full compensation for the provision for Portable Toilet including all other incidentals necessary to complete this item.

Payment will be made under:

Pay Item No.	Description	Unit of Measurement
B.14	Environmental Management and Monitoring (Provision of one (1) portable toilet)	Month

OTHER INSTRUCTIONS TO THE CONTRACTOR

Permits and Clearances

The Contractor is responsible for the application and securing of all permits necessary to complete the works at no cost to SBMA.

Photographs and Contract Documentation

Provide necessary documents as stipulated in the contract and as required by the Project-in-Charge for SBMA including photographs taken at the jobsite at the specified stages of the contracted work or as again directed by the Project-in-Charge for SBMA.

At all instances requiring progress photograph presentation, the following guidelines must be maintained:

- Size : 5R
- Type: Smooth surface, glossy print, single weight paper with white base mounted on muslin or on double weight glossy paper.
- Photographs and prints must be of professional quality; clear, in focus, with high resolution and sharpness, and with minimum distortion.
- Photographs must be of the same view position of the works to show continuous progress of the works until the works are completed or as directed by the Project-in-Charge for SBMA.
- Photographer should identify each photograph location or by such other means as acceptable to the Project-in-Charge for SBMA, to enable future photographs to be taken from the same location and position.

Progress photographs shall not be measured and paid but shall be considered part of necessary documents to be provided as stipulated in the contract and as required by the Project-in-Charge for SBMA

Material Testing

Seven (7) days upon receipt of the notice to proceed, The Contractor together with the Materials Engineer for SBMA shall jointly undertake sampling and testing of all material requirements of the contract, the Contractor intends to use for this project. The Materials Engineer for SBMA will see to it that extra sample be set aside in his/her office for future reference purposes.

All tests shall be normally carried out on the site, except that certain special tests may, subject to the approval of the Materials Engineer for SBMA, be carried out at an approved independent accredited testing laboratory. The Contractor shall, if so approved, make all necessary arrangements for the supply and delivery of samples to, and collection of samples from such independent Laboratory. Unless otherwise specified, the Contractor shall arrange for one (1)

copy of the independent testing laboratory' test certificate to be delivered to the Materials Engineer for SBMA not less than three (3) days before the materials covered by the relevant test certificate are incorporated in the Works, and test certificates shall be relatable to the materials from which the sample was taken.

Accredited Testing Laboratory

Testing of materials shall be carried out, conducted or be performed at testing laboratory accredited by the Bureau of Research and Standard (BRS) of the Department of Public Works and Highways (DPWH) and Department of Science and Technology (DOST).

SCHEDULE OF MINIMUM TEST REQUIREMENTS

ITEM OF WORK	TEST REQUIRED	OTHER REQUIREMENTS
Part B – Removal of Structures and Obstructions	None	Engineer's Certificate (EC)
Part C – Metal Structures	<u>Structural Steel Roof Truss</u> 1-Q, Quality Test, per shipment for each size Welding Report, upon request by the Engineer <u>Structural Steel Purlins</u> 1-Q, Quality Test, per shipment for each size Welding Report, upon request by the Engineer	
Part D – Metal Roof & Roof Accessories	<u>Prepainted Metal Sheets (Rib Type, Long Span)</u> 1- Mill Certificate and Total Thickness Test , per shipment Roof Leak Test of installed roofing sheets <u>Fabricated Metal Roofing Accessories</u> 1- Total Thickness Test , per	

	shipment Roof Leak Test and Slope to Drain Test of installed gutter <u>PVC Downspout Pipe</u> None <u>Prepainted Metal Spandrel Ceiling Panels</u> None	Engineer's Certificate (EC) Engineer's Certificate (EC)
Part E – Miscellaneous Works	<u>Waterproofing Membrane</u> Flood Test <u>Painting Works (Metal Painting)</u> 1- Mill Certificate for each type of paint , per shipment	Engineer's Certificate (EC)
Part F – Special Works	Testing and Commissioning	Engineer's Certificate (EC)

All Quality/Material Testing requirements shall not be measured and paid separately but shall be considered integral with the other pay items of the contract.

As-built Plans

Upon completion of the work, the Contractor shall submit two sets of prints with all as-built changes shown on the drawings in a neat workmanship manner. Such prints shall show changes or actual installation conditions of the plumbing system in comparison with the original drawings

The Item shall not be measured and paid separately but shall be considered integral with the other pay items of the contract.

Water and Electrical Charges

SBMA shall provide assistance for necessary coordination for the provision of water and electrical supply for project related activities by the Contractor during the duration of the contract.

Necessary temporary connections/extensions, etc. (labor and materials) shall be provided by the Contractor upon identification by the Project-in-Charge for SBMA of the source/tapping point for water and electrical supply to be used for the project. The Contractor shall dismantle all temporary connections/extensions, etc., and restore to original state the sources of the utility supplies upon project completion.

In case no source/tapping point can be found within the site, the Project-in-Charge for SBMA and the Contractor shall agree with any means that will satisfy the needs for water and electrical supply during the duration of the project.

Note that all expenses incurred, tapping, consumption and restoration, for this item shall be shouldered by the Contractor.

PART B: REMOVAL OF STRUCTURES AND OBSTRUCTIONS

- Item 801(1)a **Stripping off / Removal and Disposal of existing PUF and other roof deck covering at second floor roof deck and third floor room & roof deck including all other materials, accessories and incidentals necessary to complete the works on Building 229**
- Item 801(1)b **Removal and Disposal of unnecessary pipes/cables, equipments, deck accessories and other systems at second floor roof deck and third floor room & roof deck including all other materials, accessories and incidentals necessary to complete the works on Building 229**
- Item 801(1)d **Stripping off / Removal of existing PUF and other roof deck covering at second floor roof deck including all other materials, accessories and incidentals necessary to complete the works on Building 255**
- Item 801(1)e **Removal of unnecessary pipes/cables, equipments, deck accessories and other systems including all other materials, accessories and incidentals necessary to complete the works on Building 255**

A. Description

This Item shall consist of the removal wholly or in part, and satisfactory disposal of existing PUF(Polyurethane Foam) and other roof covering, unnecessary pipes/cables, equipments, deck accessories and any other obstructions which are not designated or permitted to remain in roof decks, except for the obstructions to be removed and disposed off under other items in the Contract. It shall also include the salvaging of designated materials.

B. Construction Requirements

The Contractor shall perform the work described above, within and adjacent to the construction site, on Government land or easement, as shown on the Plans or as directed by the Engineer. All designated salvable material shall be removed, without unnecessary damage, in sections or pieces which may be readily transported, and shall be stored by the Contractor at specified places on the project or as otherwise shown in the Special Provisions.

Construction requirements shall be in accordance whenever applicable, with Subsection 100.2.2 of DPWH: Standard Specifications for Highways, Bridges, and Airports (2013).

C. Method of Measurement and Basis of Payment

The accepted quantities, measured as prescribed, 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. The payment shall continue full compensation for placing and compacting all materials

including all labor, equipment, tools and incidentals necessary to complete the work prescribed in this Item.

Payment will be made under:

Pay Item No.	Description	Unit of Measurement
801(1)a	Stripping off / Removal and Disposal of existing PUF and other roof deck covering at second floor roof deck and third floor room & roof deck including all other materials, accessories and incidentals necessary to complete the works on Building 229	Square Meter
801(1)b	Removal and Disposal of unnecessary pipes/cables, equipments, deck accessories and other systems at second floor roof deck and third floor room & roof deck including all other materials, accessories and incidentals necessary to complete the works on Building 229	Square Meter
801(1)d	Stripping off / Removal of existing PUF and other roof deck covering at second floor roof deck including all other materials, accessories and incidentals necessary to complete the works on Building 255	Square Meter
801(1)e	Removal of unnecessary pipes/cables, equipments, deck accessories and other systems including all other materials, accessories and incidentals necessary to complete the works on Building 255	Square Meter

PART C: METAL STRUCTURES

- Item 1047(2)a Fabrication and installation of roof steel trusses including all other materials, accessories and incidentals necessary to complete the works on Building 229
- Item 1047(2)b Fabrication and installation of steel purlins including all other materials, accessories and incidentals necessary to complete the works on Building 229
- Item 1047(2)c Fabrication and installation of roof steel trusses including all other materials, accessories and incidentals necessary to complete the works on Building 255
- Item 1047(2)d Fabrication and installation of steel purlins including all other materials, accessories and incidentals necessary to complete the works on Building 255
- Item 1047(2)e Fabrication and installation of steel beam (B-1) including all other materials, accessories and incidentals necessary to complete the works on Building 255

A. Description

This item shall consist of furnishing of materials and labor including equipment necessary to complete the works as indicated on the drawings and specifications.

See drawings and details for sizes and location of work required.

B. Material Requirements

All Structural Steel shall be of tested quality.

All structural steel shall be free from blisters, rust, scales, seams, lamination, cracks, fissures and other surface defects.

One (1) quality test for each type of material to be used prior to installation.

Materials shall comply with standards indicated for sections and types of metals required.

For Building 229:

1. Metal Roof Framing's properties shall conform to the details indicated on the plans.
 - Top Chord : use Angle Bar, Steel, 3" x 3" x ¼" Thk.

- Bottom Chord : use Angle Bar, Steel, 3" x 3" x 1/4" Thk.
- Web Members : use Angle Bar, Steel, 3" x 3" x 1/4" Thk.
- Purlins : use Channel Bar, Steel, 2" x 3" x 5mm Thk.
- Base Plate : use Mild Steel Plate, 200mm x 200mm x 10mm Thk.
- Expansion Bolt : use Bolt, Long Thread Carbon Steel Expansion Anchors, (Dyna Bolt), 1/2"Ø X 100mm Long
- Metal Fascia : use C-Purlins, Galvanized Light Gauge, 2" x 6" x 1.5mm Thk.

2. Roof Access

- Refer to Plans for details (Drawing No. 1, Sheet S-5)

3. Welding Electrodes

Welding shall conform to AWS standard, E60 electrodes shall be used.

For Building 255:

4. Metal Roof Framing's properties shall conform to the details indicated on the plans.

- Top Chord : use Angle Bar, Steel, 4" x 4" x 1/4" Thk.
- Bottom Chord : use Angle Bar, Steel, 3" x 3" x 1/4" Thk.
- Web Members : use Angle Bar, Steel, 3" x 3" x 1/4" Thk.
- Purlins : use Channel Bar, Steel, 2" x 3" x 5mm Thk.
- Base Plate : use Mild Steel Plate, 200mm x 200mm x 10mm Thk.
- Expansion Bolt : use Bolt, Long Thread Carbon Steel Expansion Anchors, (Dyna Bolt), 1/2"Ø X 100mm Long
- Metal Fascia : use C-Purlins, Galvanized Light Gauge, 2" x 6" x 1.5mm Thk.

5. Steel Beam (B-1)

- All Members : use Angle Bar, Steel, 3" x 3" x ¼" Thk.
 - Expansion Bolt : use Bolt, Long Thread Carbon Steel Expansion Anchors, (Dyna Bolt), 1/2"Ø X 100mm Long
6. Roof Access
- Refer to Plans for details (Drawing No. 1, Sheet S-5)
7. Welding Electrodes
- Welding shall conform to AWS standard, E60 electrodes shall be used.

C. Construction Requirements

- C.1 Preparation
- a. Refer to approved plans for designs, profiles and directions.
 - b. Field Measurements
Take field measurements prior to fabrication.
- C.2 Fabrication & Installation
- Required welded connections, conform to AWS (American Welding Society).
- C.3 Finishes
- Clean surfaces of rust, scale, grease and foreign materials prior to finishing. Do not prime surface in direct contact with concrete or where field welding is required. Prime paint items with two (2) coats.
- C.4 Welders employed on the work shall have a certificate issued by TESDA (Technical Education and Skills Development Authority)

D. Submittals

- (a) Submit required submittals for review and approval by the Project-in-Charge for SBMA prior to installation.
- (b) One (1) quality test for each type of material used
- (c) Welder Certificates: Submit required certification, issued by TESDA (Technical Education and Skills Development Authority)

E. Acceptance

Works shall be inspected and subject for approval by the Engineer/Project in Charge for SBMA.

Non-destructive testing of welds shall be conducted upon request by the Engineer.

F. Method of Measurement and Basis of Payment

The accepted quantities, measured as prescribed, shall be paid for at the contract unit price for the pay item listed below that is included in the Bill of Quantities, which price and payment shall constitute full compensation for all the works and incidentals prescribe in this Item.

Payment will be made under:

Pay Item No.	Description	Unit of Measurement
1047(2)a	Fabrication and installation of roof steel trusses including all other materials, accessories and incidentals necessary to complete the works on Building 229	Kilogram
1047(2)b	Fabrication and installation of steel purlins including all other materials, accessories and incidentals necessary to complete the works on Building 229	Kilogram
1047(2)c	Fabrication and installation of roof steel trusses including all other materials, accessories and incidentals necessary to complete the works on Building 255	Kilogram
1047(2)d	Fabrication and installation of steel purlins including all other materials, accessories and incidentals necessary to complete the works on Building 255	Kilogram
1047(2)e	Fabrication and installation of steel beam (B-1) including all other materials, accessories and incidentals necessary to complete the works on Building 255	Kilogram

PART D: METAL ROOF & ROOF ACCESSORIES

- Item 1014(1)a** Installation of New Prepainted Metal Sheets, Rib Type, Long Span (0.60mm thick) with roof access including all other materials, accessories and incidentals necessary to complete the works on Building 229
- Item 1013(2)a** Installation of New Fabricated Stainless Steel Roofing Accessory (Gutter 36inches cut X 0.50mm thick) including all other materials, accessories and incidentals necessary to complete the works on Building 229
- Item 1013(2)b** Installation of New Fabricated Metal Roofing Accessory (Ridge/Hip Rolls 36inches cut X 0.50mm thick) including all other materials, accessories and incidentals necessary to complete the works on Building 229
- Item 1013(2)c** Installation of New Fabricated Metal Roofing Accessory (Valley Gutter 36inches cut X 0.50mm thick) including all other materials, accessories and incidentals necessary to complete the works on Building 229
- Item 1013(2)d** Installation of New Fabricated Metal Roofing Accessory (Counter Flashings 36inches cut X 0.50mm thick) including all other materials, accessories and incidentals necessary to complete the works on Building 229
- Item 1013(2)e** Installation of New Fabricated Metal Roofing Accessory (Gutter 36inches cut X 0.50mm thick) at third floor room & roof deck including all other materials, accessories and incidentals necessary to complete the works on Building 229
- Item 1017(3)c3.a** Installation of New Gutter Drain with strainer including all other materials, accessories and incidentals necessary to complete the works on Building 229
- Item 1001(1)a7.a** Installation of New PVC Downspout and Fittings including all other materials, accessories and incidentals necessary to complete the works on Building 229
- Item 1003(1)** Installation of new pre-painted metal spandrel ceiling panels on metal frame along eaves including all other materials, accessories and incidentals necessary to complete the works on Building 229
- Item 1014(1)b** Installation of New Prepainted Metal Sheets, Rib Type, Long Span (0.60mm thick) with roof access including all other materials, accessories and incidentals necessary to complete the works on Building 255
- Item 1013(2)f** Installation of New Fabricated Stainless Steel Roofing Accessory (Gutter 36inches cut X 0.50mm thick) including all other materials, accessories and incidentals necessary to complete the works on Building 255

- Item 1013(2)g **Installation of New Fabricated Metal Roofing Accessory (Ridge/Hip Rolls 36inches cut X 0.50mm thick) including all other materials, accessories and incidentals necessary to complete the works on Building 255**
- Item 1017(3)c3.b **Installation of New Gutter Drain with strainer including all other materials, accessories and incidentals necessary to complete the works on Building 255**
- Item 1001(1)a7.b **Installation of New PVC Downspout and Fittings including all other materials, accessories and incidentals necessary to complete the works on Building 255**
- Item 1003(2) **Installation of new pre-painted metal spandrel ceiling panels on metal frame along eaves including all other materials, accessories and incidentals necessary to complete the works on Building 255**

A. Description

This item shall consist of furnishing equipment, tools, materials and labor required to properly perform and complete the metal roofing, together with related accessories such as ridge/hip rolls, valleys, gutters and flashing, when called for on Plans all in conformity with this Specifications.

B. Material Requirements

All pre-painted steel sheet and accessories shall be oven baked painted true to profiles indicated on the plans as per approval of the Engineer.

Pre-painted metal sheets shall be fabricated from cold rolled galvanized iron sheets specially tempered steel for extra strength and durability. It shall conform to the material requirements defined in PNS 67:2014.

Pre-painted steel sheets, flashings, gutter, downspout and other bended accessories shall be:

- ◆ Roof Sheet : use Pre-painted Steel Sheet Rib Type Long Span, Ga.# 24 (0.60 mm thick), color blue
- ◆ Roof Gutter : use Stainless Steel, Finish: Smoked, 36inches cut x 0.50mm thick, SS304
- ◆ Ridge Cap/Hip Rolls: use 36" cut Ridge Cap/Hip Rolls, Pre-painted Steel Sheet (0.50 mm thick), color blue
- ◆ Valley Gutter : use 36" cut Valley Gutter, Pre-painted Steel Sheet (0.50 mm thick), color blue
- ◆ Counter Flashing : use 36" cut Counter Flashing, Pre-painted Steel Sheet (0.50 mm thick), color blue

- ◆ Roof Gutter : use 36" cut Roof Gutter, Pre-painted Steel Sheet (0.50 mm thick), color blue
- ◆ Gutter Drain Strainer: use Stainless Steel (SS304), Dome Type, 4" Ø
- ◆ Downspout : use 4"Ø PVC sanitary pipe, series 1000 complete with required fittings, accessories and other incidentals
- ◆ Metal Spandrel : use Pre-painted Metal Spandrel, 4" width x 0.40mm thick, color white with required bended accessories

C. Construction Requirements

Before any installation work is commenced, the Contractor shall ascertain that the top face of the purlins are in proper alignment. Correct the alignment as necessary in order to have the top faces of the purlins on an even plane.

Pre-painted steel roofing sheets and bended accessories shall be fastened by self-tapping screws with neoprene washers.

For steel frame use Self- Tapping, Tek Screw, for steel, No.12 X 50 mm Long Hex. Head with Neoprene Washer Zinc Coated.

All joints and side-lap must be sealed by an approved elastomeric sealant.

Construction requirements shall be in accordance whenever applicable, with Subsection 1014.3 of DPWH: Standard Specifications for Public Works Structures (1995).

D. Submittals

- (a) Submit required submittals for review and approval by the Project-in-Charge for SBMA prior to installation.
- (b) Product Data: Provide data on specified products, describing physical and performance characteristics.
- (c) Samples: Submit one (1) sample of roof sheet, 300 mm x 300 mm in size, illustrating color, profile and thickness. Submit two (2) samples of roof bended accessories, 300 mm long, illustrating color, profile and thickness.
- (d) Mill Certificate: Pre-painted roof sheet

E. Testing

Roof Leak Test shall be conducted prior to acceptance of SBMA. The said testing will be conducted by the Contractor or his authorized representative and witnessed by end-user and implementing department of the project.

Note that all expenses for this testing shall be shouldered by the Contractor.

F. Method of Measurement and Basis of Payment

The accepted quantities, measured as prescribed, shall be paid for at the contract unit price for the pay item listed below that is included in the Bill of Quantities, which price and payment shall constitute full compensation for all the works and incidentals prescribe in this Item.

Payment will be made under:

Pay Item No.	Description	Unit of Measurement
1014(1)a	Installation of New Prepainted Metal Sheets, Rib Type, Long Span (0.60mm thick) with roof access including all other materials, accessories and incidentals necessary to complete the works on Building 229	Square Meter
1013(2)a	Installation of New Fabricated Stainless Steel Roofing Accessory (Gutter 36inches cut X 0.50mm thick) including all other materials, accessories and incidentals necessary to complete the works on Building 229	Linear Meter
1013(2)b	Installation of New Fabricated Metal Roofing Accessory (Ridge/Hip Rolls 36inches cut X 0.50mm thick) including all other materials, accessories and incidentals necessary to complete the works on Building 229	Linear Meter
1013(2)c	Installation of New Fabricated Metal Roofing Accessory (Valley Gutter 36inches cut X 0.50mm thick) including all other materials, accessories and incidentals necessary to complete the works on Building 229	Linear Meter
1013(2)d	Installation of New Fabricated Metal Roofing Accessory (Counter Flashings 36inches cut X 0.50mm thick) including all other materials, accessories and incidentals necessary to complete the works on Building 229	Linear Meter
1013(2)e	Installation of New Fabricated Metal Roofing Accessory (Gutter 36inches cut X 0.50mm thick) at third floor room & roof deck including all other materials, accessories and incidentals necessary to	Linear Meter

	complete the works on Building 229	
1017(3)c3.a	Installation of New Gutter Drain with strainer including all other materials, accessories and incidentals necessary to complete the works on Building 229	Set
1001(1)a7.a	Installation of New PVC Downspout and Fittings including all other materials, accessories and incidentals necessary to complete the works on Building 229	Linear Meter
1003(1)	Installation of new pre-painted metal spandrel ceiling panels on metal frame along eaves including all other materials, accessories and incidentals necessary to complete the works on Building 229	Square Meter
1014(1)b	Installation of New Prepainted Metal Sheets, Rib Type, Long Span (0.60mm thick) with roof access including all other materials, accessories and incidentals necessary to complete the works on Building 255	Square Meter
1013(2)f	Installation of New Fabricated Stainless Steel Roofing Accessory (Gutter 36inches cut X 0.50mm thick) including all other materials, accessories and incidentals necessary to complete the works on Building 255	Linear Meter
1013(2)g	Installation of New Fabricated Metal Roofing Accessory (Ridge/Hip Rolls 36inches cut X 0.50mm thick) including all other materials, accessories and incidentals necessary to complete the works on Building 255	Linear Meter
1017(3)c3.b	Installation of New Gutter Drain with strainer including all other materials, accessories and incidentals necessary to complete the works on Building 255	Set
1001(1)a7.b	Installation of New PVC Downspout and Fittings including all other materials, accessories and incidentals necessary to complete the works on Building 255	Linear Meter

1003(2)	Installation of new pre-painted metal spandrel ceiling panels on metal frame along eaves including all other materials, accessories and incidentals necessary to complete the works on Building 255	Square Meter
---------	---	--------------

PART E: MISCELLANEOUS WORKS

Item 1016 Application of waterproofing membrane (spray polyurethane foam with protective elastomeric acrylic coating) at third floor room & roof deck including all other materials, accessories and incidentals necessary to complete the works on Building 229

A. Description

This Item shall consist of furnishing all waterproofing materials, labor, tools, equipment and undertaking the proper installation works required as shown on the Plans and in accordance with this Specification.

B. Initial Inspection

- a. Examination and verification of conditions

Upon completion of preparation works for the application of sprayed in-place polyurethane foam (PUF), re-examine concrete roof decks and other surfaces, prior to its application, in order to ensure that surfaces are true in form, dry, clean and in proper condition to receive the PUF.

All existing penetrations including drains, scuppers, miscellaneous pipe and vent penetrations and electrical conduits shall be assured protected, covered, and raised as necessary to ensure that the waterproofing system (PUF) is adequately in placed when applied.

- b. Preparation of general area / jobsite

1. Notify the Procuring Entity’s representative and visitors to the job-site of potential overspray.

2. Cars, etc. should be moved or covered to prevent unintentional spraying. Contractor shall coordinate traffic during all roof work operations.

3. Provide all wooden barricades with safety nets as required so there is no doubt that the area is completely barricaded. Use appropriate methods to ensure public safety during the conduct of works.
4. Mask work area as necessary to protect building walls, adjacent structures and vegetation, etc. from possible overspray.

C. General Notes

- a. Install all materials in strict compliance with all published safety, weather or applicable instructions from the manufacturer and/or regulations demanded by the SBMA Project-in-Charge.
- b. No work shall be commenced over defective area until advised in writing by the SBMA Project-in-Charge of the action to be taken in such areas.
- c. In consideration of the allowable weight (load) on the existing concrete roofing systems, no polyurethane foam equipment shall be placed in any part of the roof without prior approval from the SBMA Project-in-Charge. The contractor shall be liable to any damages on life and property as a result for such negligence. Equal importance shall be given to the use of small/portable polyurethane foam equipment as may be needed to reach far areas inaccessible with the use of the main/typical/ordinary polyurethane foam equipment.
- d. No trades-people shall be allowed to work on the roof when the spray polyurethane foam and coatings are being installed.

D. Procedure for Application

General Provision: Provide required quantity of polyurethane foam as specified on the plan (sloped accordingly); with provision of base and top coats and 7.5cm radius (fillet) on all integral angles, and as guided by the following particulars:

- a. Base Coat: (Prior to application of polyurethane foam system) Apply polyurethane foam primer/sealer as necessary on surfaces to receive polyurethane foam at a rate of ½ gallon per 100 square feet or as required by the manufacturer.
- b. Polyurethane Foam: Spray only the area each day that can be completed to the specified thickness that same day. Before resuming spraying operations on subsequent days, inspect the exposed leading edge of the foam for possible surface moisture that could cause blistering. The foam edge shall be considered dry when there is no indication of moisture when blotted with an absorptive material. Surface texture and quality - cured polyurethane foam shall range from a smooth to heavy orange peel finish. Textures described as "popcorn or tree barks" surfaces, which exhibit crevices, voids and widespread defects, are not acceptable.

Required Thickness (and slope)

- Roof Deck :

- concrete roof deck (slab) – as per plan; variations in minimum thicknesses shall be adjusted accordingly to meet the slope implied by the minimum (thickness) recommended by the manufacturer ; however, quantity in excess of minimum thicknesses attributable to the result of application by the contractor shall not be paid separately from this item.
- face of chb/concrete wall – extended as shown on plan at a minimum 3.0 cm (ht.) by 2.5 cm (thk.); however, quantity in excess of minimum thicknesses attributable to the result of application by the contractor shall not be paid separately from this item.

- Concrete stoop and exposed pipes/conduits :

- extended as shown on plan at a minimum 3.0 cm (ht.) by 2.5 cm (thk.); however, quantity in excess of minimum thickness attributable to the result of application by the contractor shall not be paid separately from this item

c. Top Coat: (Use of manufacturer's recommended protective elastomeric coating after the application of polyurethane foam system)

1. Preparation

Foam surface and adjacent surfaces to be coated, shall be dry and completely free of degraded foam, foam over-spray, grease, oil, dirt or other contaminants which interfere with proper coating adhesion, dry and free of contaminants.

Do not apply coating materials when surface temperature is less than 50 degrees F.

Any physical damage to the polyurethane foam shall be repaired before coating.

Operator should wear soft-soled shoes to avoid damaging the skin of the foam.

2. Application

Acrylic Base Coat:

Shall be a contrasting color from the acrylic top coat to insure adequate coverage.

Shall be applied on the same day, as the polyurethane foam application, when possible.

The polyurethane foam shall be inspected for UV oxidation if more than (72) hours has elapsed prior to application of base coat.

Spray-apply acrylic elastomeric base coat over insulation at the rate of (1) gallon per 100 square feet in one application.

An additional application of base coat shall be applied where foam surface has been sanded, planed or trimmed and / or as required by the Project-in-Charge for SBMA

Acrylic Top Coat:

Acrylic coating shall be a contrasting color from the acrylic base coat to ensure adequate coverage.

Do not apply top coat until base coat has cured properly. Normally, 12-24 hours is more than sufficient time for the base coat to properly cure.

Spray-apply acrylic elastomeric top coat over the acrylic base coat at the rate of (1 1/2) gallons per 100 square feet in one application.

Total dry film thickness of Manufacturer's recommended elastomeric top coating shall be not less than 0.50mm (20 mils) with 30 mils on designated 1.20 meter walkway.

Coating passes shall be applied in crosshatch pattern at right angles to acrylic base coat passes to ensure more uniform coverage.

Coating shall extend up and over all polyurethane foam on vent pipes, parapets and other penetrations and shall terminate a minimum of (4) up to 12 inches above the foam. All top coat termination points shall be straight-lined on parapet walls, vent pipes and other penetrations for effective use and uniform appearance.

3. Cleaning

Remove and dispose of excess materials, equipment and debris from premises during work and/or upon completion of work.

Leave work in clean condition in accordance with company policy and pride in a job well done.

E. Method of Measurement and Basis of Payment

The accepted quantities, measured as prescribed, shall be paid for at the contract unit price for the pay item listed below that is included in the Bill of Quantities, which price and payment shall constitute full compensation for all the works and incidentals prescribe in this Item.

Payment will be made under:

Pay Item No.	Description	Unit of Measurement
1016	Application of waterproofing membrane (spray polyurethane foam with protective elastomeric acrylic coating) at third floor room & roof deck including all other materials, accessories and incidentals necessary to complete the works on Building 229	Square Meter

Item 1032(1)c.1 Painting (primer coat) of roof frame steel members including all other materials, accessories and incidentals necessary to complete the works on Building 229

Item 1032(1)c.2 Painting (primer coat) of roof frame steel members including all other materials, accessories and incidentals necessary to complete the works on Building 255

A. Description

This item shall consist of furnishing all paint materials and other related products, labor, tools and equipment required in undertaking the proper application of painting and related works indicated on the Plans and in accordance with this Specification.

B. Material Requirements

The product shall not contain lead, mercury, cadmium, hexa-valent chromium, barium, antimony, as well as tributyltin (TBT) and triphenyltin (TPT). If the above substances exist in the product as impurities or contaminant, their total weight shall be less than 0.1% of the product.

The packaging shall have “Environmental Information, Safety & Health” statement and Lead Safe Paint mark.



Manufacturer must have a “Lead Safe Paint Certification” issued by third-party certifier SCS Global Services (SCS).

Use products of the highest quality available from the manufacturers for the paint types specified. Materials of one manufacturer shall not be applied over that another, except in the case of primer coat.

Colors, textures and degrees of luster will be as selected by the Engineer.

Tinting colors shall be first grade quality and mixes easily with paint to produce the color desired. Paint and tinting color shall be of the same brand to effect good paint body.

In locations where ambient temperature-humidity conditions encourage the ready formation of mildew, use paints with additional mildew inhibitive agent incorporated during the manufacturing process, of type and in concentration recommended by the paint manufacturer to withstand such mildew formation.

Coatings: Ready mixed. Prepare pigments:

1. To a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating.
2. For good flow and brushing properties.
3. Capable of drying or curing free of streaks or sags.

Accessory Materials: Paint thinners, Gypsum Putty, Gypsum Tape, Masonry Putty, Metal Etching Solution (rust converter), Abrasive Paper, Paint Brushes & Rollers, Scrapers, Paint Roller Tray and other materials not specifically indicated but required to achieve specified; commercial quality.

C. Painting Schedule

Surface	Kind of Paint	Finish
Roof Steel Frame (Bldg. 229 & Bldg. 255)	<ol style="list-style-type: none"> 1. Apply pure Metal Etching Solution (<i>metal cleaner & rust converter</i>) 2. Two (2) coats Primer Paint. <i>Allow overnight before recoating.</i> 	Epoxy Primer (Gray)

*Color Scheme shall be as selected and approved by the Project in Charge for SBMA.

*Number of coats mentioned above are minimum. Contractor shall apply as many as are required to meet specifications for solid, uniform appearance.

D. Construction Requirements

The Contractor prior to commencement of the painting and related work shall examine the surfaces to be applied in order not to jeopardize the quality and appearances of the painting and related works.

All surfaces shall be in proper condition to receive the finish.

- ◆ Metal shall be clean, dry and free from mill scale and rust. If repainting, wire brush or scrape rusted metals and apply Metal Etching Solution to remove all rust. Wash unprimed galvanized metal with etching solution and allow it to dry. Prime coat surface with Epoxy Primer prior to application of two (2) coats Enamel paints approved by the Project in Charge for SBMA.

The Contractor shall prepare the surface or substrate properly to receive paint. All surface defects shall be repaired as approved by the Project in Charge for SBMA. Prior to application of Primer Paint, surface shall be inspected and approved by the Project in Charge for SBMA.

In addition, the Contractor shall undertake the following:

1. Voids, cracks, nick, etc. will be repaired with proper patching material and finished flushed with surrounding surfaces.
2. Marred or damage shop coats on metal shall be spot primed with appropriate metal primer.
3. Allow appropriate ventilation during application and drying period.
4. Remove and protect items such as hardware accessories, plates, lighting fixtures and similar items placed prior to painting. Reposition or remove protection upon completion of each space. Disconnect equipment on or adjacent to walls by workmen skilled in these trades to permit painting of wall surfaces; replace and reconnect after completion of painting.

Cleaning:

1. Clean installed work. Remove paint spots, oils or stains from surfaces not requiring painting. Touch-up damaged or soiled finish to match adjacent surfaces.
2. Collect waste material which may constitute a fire hazard, place in closed metal containers and remove daily from site.

Delivery:

Deliver products to site in sealed and labeled container; inspect to verify acceptability.

E. Submittals

- (a) Submit required submittals for review and approval by the Project-in-Charge for SBMA prior to execution of work.
- (b) Product Data: Provide data on specified products, describing physical and performance characteristics.
- (c) Samples: Submit two (2) paper chip samples, illustrating range of colors and textures available for each surface finishing product scheduled.
- (d) Mock-up: Provide at least 3-meter height x 1-meter width mock-up subject for approval by the Project-in-Charge for SBMA prior to execution of work.

F. Method of Measurement and Basis of Payment

The accepted quantities, measured as prescribed, shall be paid for at the contract unit price for pay item listed below that is included in the Bill of Quantities which price and payment shall be full compensation for furnishing and placing all materials, including all labor, equipment, tools and incidentals necessary to complete the work prescribed in this Item.

Payment will be made under:

Pay Item No.	Description	Unit of Measurement
1032(1)c.1	Painting (primer coat) of roof frame steel members including all other materials, accessories and incidentals necessary to complete the works on Building 229	Square Meter
1032(1)c.2	Painting (primer coat) of roof frame steel members including all other materials, accessories and incidentals necessary to complete the works on Building 255	Square Meter

PART F: SPECIAL WORKS

- Item SP-13600(1) Steel frame dismantling & Solar Panel removal, safe storage and reinstallation including all other materials, accessories and incidentals necessary to complete the works on Building 229**
- Item SP-13600(2) Steel frame dismantling & Solar Panel removal, safe storage and reinstallation including all other materials, accessories and incidentals necessary to complete the works on Building 255**

The scope of works are the following, but not limited to:

1. Testing of the system before dismantling the Solar Panel
2. Hauling of PV Panels from roof to ground (staging area) and fabricate box for safe keeping / crating to close van for additional safe keeping
3. Removing of the existing solar panel structures and safe-keep to PPMD warehouse
4. Reinstallation of PV Solar panels, including its new mounting structures and cables on the new roof structures.
 - Staking and marking on the new roof
 - Installation of L-feet and PV railings
 - Check/apply roof sealant on the affected area of roof. (Note: A joint inspection will be conducted by the SBMA Maintenance and Transportation, Engineering and Telecommunications Departments
 - Hauling/lifting and Installation of Solar Panel
 - Stringing of Solar panel and installation of panel grounding and DC wires
5. Other necessary materials and/or accessories to make the system up and running.
6. Installation practices to be observed in this project shall be in accordance with applicable Philippine Electrical and Electronics Code of the Philippines
7. Commissioning and testing

Method of Measurement and Basis of Payment

The accepted quantities, measured as prescribed, 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. The payment shall continue full compensation for placing and compacting all materials including all labor, equipment, tools and incidentals necessary to complete the work prescribed in this Item.

Payment will be made under:

Pay Item No.	Description	Unit of Measurement
SP-13600(1)	Steel frame dismantling & Solar Panel removal, safe storage and reinstallation including all other materials, accessories and incidentals necessary to complete the works on Building 229	Lump Sum
SP-13600(2)	Steel frame dismantling & Solar Panel removal, safe storage and reinstallation including all other materials, accessories and incidentals necessary to complete the works on Building 255	Lump Sum

PREPARED BY THE MAINTENANCE AND TRANSPORTATION DEPARTMENT:

ELSON D. EBRO

Engineer III, Maintenance Division
Maintenance and Transportation Department

Checked by:

MARIA DEBBIE N. BADILLA

Head Proj. Mgmt. Section, MTD
Maintenance and Transportation Department

Reviewed by:

JOSE M. CRUZ, JR.

Chief, Maintenance Division
Maintenance and Transportation Department

Recommending Approval:

CARLITO C. CRUZ

Manager, Maintenance and Transportation Department

EDDIE L. VENTURA

OIC, Telecommunications Department

Approved by:

MARCO A. ESTABILLO

Deputy Administrator for PWTSG