

## I. INTRODUCTION

These specifications shall encompass all the work necessary for the project “PROPOSED COLLEGE OF TECHNOLOGY PERFORMANCE ARTS THEATER RENOVATION” and as further defined herein. The work shall include furnishing all labor, materials, equipment, tools, facilities and transportation to complete the project in accordance with the drawings and specifications.

The drawings and the specification are complementary to each other. Drawings are graphic means of showing works to be done. They are particularly suited to showing where materials are located. Thus, drawing exists essentially to show sizes, location, and placement. Not all works, however, can be presented in the drawings. Generalized works are usually in statement form; hence the Contractor is strongly advised to read the specification carefully.

Specification on the other hand, is used to describe the materials, construction techniques, samples, shop drawings, guarantee, and the other contract requirements. Together, the Drawings and the Specification are used to inform the contractor. In cases where specified brand carries with it the manufacture’s specifications, the manufacture’s specification shall hold the precedence over this specification.

## II. THE LANGUAGE OF THE SPECIFICATIONS:

The specifications are the abbreviated type and include incomplete sentences. The selection of sentence structure depends on the underlying principles of the specifications:

- a. That the technical specifications are only one part of the Contract Document.
- b. That the contract is between the Owner and the General Contractor; and
- c. That the General Contractor is the only party responsible for completing the work in accordance with the Contract Document

**Therefore:**

- A. Only the General Contractor is referred to in the specification so as not to violate the intent of the contract and so as not to undermine the proper chain of command.
- B. Any reference to Specialty Trade Contractors in the technical Specifications is made only in so far a selection of specialty Trade Contractors is made through bidding. Once the Specialty Trade Contractions are selected and assigned to the General Contractor, the General Contractor assumes all responsibilities for the execution of the whole project in accordance with the Contract Documents. Therefore, in the contract between the Owner and the General Contractor, the Specialty Trade Contractor, the Specialty Trade Contractor is not referred to the entire Contract Document, the work "Contractor" referred to the General Contractor.
- C. The omission of the phrase "the contractor shall" is intentional because the whole specifications are directed to the Contractor. Omitted words or phrases shall be supplied by the interference in the same manner, as they are when a "note" occurs in the drawings.
- D. Where "as shown", "as intended", "as detailed", or words similar import are used, it shall be understood that the reference in the drawings accompanying the specifications is made unless otherwise stated.
- E. Where "as directed", "as required", "as permitted", "as authorized", "as approved", "as accepted", or other words similar import are used, it shall be understood that the direction, requirements, permission, authorization, approval, or acceptance of the Architect is intended unless otherwise stated.
- F. As used herein, "provide" shall be understood to mean "provide complete in place" that is "furnished and installed".

AS

H

### III. GENERAL REQUIREMENTS:

1. The contractor shall secure from the government agencies all necessary licenses and permits needed.
2. Cleanliness shall be maintained at all times within the job site and its immediate premises.
3. If errors or omissions appear in the drawings, specifications or other documents, these shall be referred to the designing architect.
4. All applicable provisions of the different divisions of the specification for each work trade shall apply for all items cited in this summary.
5. Materials deemed necessary to complete the work but not specifically mentioned in the specification, working drawings, of in the Contract Document, shall be supplied and installed by the Contractor without extra cost to the Owner. Such material shall be of the highest quality available and install and applied in a workmanlike manner at prescribed or appropriate locations.
6. Materials specifically mentioned in this Summary shall be installed following efficient and sound Engineering and Construction practice, and especially as per Manufacture's application and installation specification, which shall govern over all works, alluded in this Specification.
7. The Contractor shall clean the site and dispose waste after the completion of the project.

### IV. PREPARATION OF SITE:

1. Preparation of the working area at site covers the requirements for providing all the temporary work at the project site, on-site storage facilities, implementing security requirements and safety protocols in the project site as required for the proper performance and completion of the work. All temporary installation used for the work shall be removed after completion of the Work.

ASB

fb



**V. STANDARD SPECIFICATIONS**

**PART 1. MOBILIZATION AND DEMOBILIZATION**

**1.1 General Requirements**

Mobilization shall mean the transport to the project site of personnel and equipment as stipulated in the proposal of the Contract of the project while demobilization shall be the subsequent removal from the site after the completion of the project. Contractor shall secure approval of the Engineer should he opted to demobilize any major equipment before the completion of the project.

**1.2 Method of Measurement**

Mobilization and Demobilization shall be paid by lot.

**1.3 Basis of Payment**

Method of Measurement shall be paid for at the Contract Unit Price or for the item listed below. Such payment shall be full compensation for furnishing, maintaining, and ensuring against loss of any equipment/tools.

Payments shall be made under:

Pay Item Number	Description	Unit of Measurement
1	Mobilization and Demobilization	Lot

*Handwritten marks/signatures*



**PART 2. DEMOLITION WORKS**

**2.1 Description**

This work shall consist of the removal wholly or in part, and disposal of existing flooring, doors and windows, wall partitions, ceiling and electrical system which are not designed or permitted to remain, except for the obstructions to be removed and disposed of under other terms in the contract.

**2.2 Method of Measurement**

Mobilization and Demobilization shall be paid by lot.

**2.3 Basis of Payment**

Method of Measurement shall be paid for at the Contract Unit Price or for the item listed below. The payment shall include labor, equipment, tools and incidentals to complete the work prescribed in this item.

Payments shall be made under:

Pay Item Number	Description	Unit of Measurement
2	Demolition Works	Lot

**PART 3. FLOORING WORKS**

**3.1 Description**

This work shall consist of steel structures including the fabricating, hauling, erecting, and welding of structural metals called for the installation of flooring works. Structural metals will include structural steel, rivet, welding, GI HS Tube, and steel plates. This work will also include furnishings of all tools, equipment, materials and labor in the installation of metal framing including ramp sheet metal as required in accordance with these Specifications, Plans and Special Provisions.

**3.2 Materials Required:**

Pre-painted G.I HS Tube

Phenolic Board

*Handwritten initials/signature*

Angle Bar

Checkered Steel Plate

Cross Bracing Rebars

Welding Rod

Steel Screws

Cutting Disc

### **3.3 Storage of Materials**

All new materials shall be delivered by the manufacturer as original and undamaged with identification labels intact. Materials shall be stored protected from exposure to rain, or other harmful weather conditions.

Structural material, either plain or fabricated, shall be stored above the ground upon platforms, skids or other supports. It shall be kept free from dirt, grease or other foreign matter, and shall be protected as far as practicable from corrosion.

### **3.4 Construction Requirements**

#### **3.4.1 Protection**

Any existing work and structures subjected to damage during the installation of specified work shall be protected, e.g. existing reinforced concrete hollow blocks pedestal wall and shall adequately protect specified work during installation. Finished work that is readily subject to damage by subsequent work or environmental conditions shall be protected immediately following the installation thereof.

#### **3.4.2 Field Measurements**

Measurements in site shall be conducted to verify or supplement dimensions indicated for accurate fit of specified work.

#### **3.4.3 Field Quality Control**

Facilities shall be provided as needed for proper inspection of the specified work including temporary platforms, protective devices, electric current, etc. Improper workmanship

AS

fb

determine by the Architect/ Engineer shall be corrected and replaced, at no additional cost by the owner.

#### 3.4.4 Welding

Welding shall be done in accordance with the best modern practice and the applicable requirements at AWS D1.1 except as modified by AASHTO "Standard Specifications for Welding of Structural Steel Highway Bridges".

#### 3.4.5 G.I HS Tube Steel Frame

Pre-painted G.I HS Tube shall be of first grade quality measuring 2" x 3" x 1.5mm and 2" x 2" x 1.5mm for floor, ramp and stair framing as specified in the plans. The materials shall be stored in designated areas that are free from walkways and other traffic zones to minimize tripping hazards and it shall be properly stacked and organized to ensure stability. Regular inspections shall be conducted and maintenance of manufacturing and installation equipment which includes preventive maintenance schedule for machinery used in task such as pie cutting and welding. The steel framing must have the appropriate level of durability required to prevent corrosion.

#### 3.4.6 Phenolic Board

Prior to the installation of phenolic boards, the underlying substructure must be inspected by the installing contractor to ensure it is in good condition. Floor must be measured to determine exact panel locations and starting points. The surface of the steel to be bonded must be completely free of any rust, grease or other contaminants. Steel screws will be used to bond the phenolic board to the steel floor frames. Right drill type and size is necessary.

#### 3.4.7 Checkered Steel Plate

Checkered steel plates, mainly use for ramps, prior to the installation, the underlying structure shall be asses to ensure that the framework can carry the weight of the plates and the intended load. The base shall be free of any debris. Any gaps or unevenness shall be address before the installation of plates. The surface of the steel to be bonded must be completely free of any rust, grease or other contaminants. Appropriate plate thickness must be considered based on the measurements specified on the plans. The plates will be

AS  
f

bonded and secured through welding. The ramp's angle should be gradual to ensure safety access and edge protection shall be added to prevent tripping hazards.

### 3.4.8 Cross Bracing Rebars

The position of rebars shall be place according to the plan, ensuring proper spacing and alignment. Rebar chairs or spacers can be used to maintain correct depth. The rebars shall overlap at the intersection to create a continuous grid.

### 3.5 Method of Measurement

Flooring Works shall be paid by kgs.

### 3.6 Basis of Payment

Method of Measurement shall be paid for at the Contract Unit Price or for the item listed below. The payment shall include labor, equipment, tools and incidentals to complete the work prescribed in this item.

Payments shall be made under:

Pay Item Number	Description	Unit of Measurement
3	Flooring Works	Kgs.

0-8x  
p



## PART 4. WALL PARTITION WORKS

### 4.1 Description

This work consists of installing metal partitions such as steel studs wall systems, wall furring, fasteners and accessories for the screw attachment of Fiber Cement Board as shown in accordance with the specification.

### 4.2 Material Specification

Wall Partition Framing System

Stud

2" x 3" x 3 mm Thk. and 3m long

Track

2" x 3" x 3 mm Thk. and 3m long

Board Finish

6mm Fiber Cement Board

Rivets and Screws

As per supplier's recommendation. Screws fasteners shall be used to connect framing components and fasten other materials to the framing.

### 4.3 Storage of Materials

All materials shall be delivered by the manufacturer as original and undamaged with identification labels intact. Materials shall be stored protected from exposure to rain, or other harmful weather conditions

### 4.4 Construction Requirements

The framing shall be used to construct interior walls that do not need to support any load from above and will not have to withstand any wind forces. Studs need not to support any load from above and will not have to withstand any wind forces, it shall be used for non-load bearing partition walls and ceilings. Studs shall be connected to the floor with 10mm Expansion Wall Bolt and ceiling track (runner) with screws spaced at either 30.48 cm, 40.64 cm or 60.96 cm on center-spacing based on wall height according to DPWH

0.5  
H

Standard Specifications for Non-Structural Metal Framing, Item 1035 - Interior Partition - Allowable Wall Height.

Stud Spacing			30.48cm	40.64cm	60.96cm
Web Size		Allowable Wall Height			
cm	Code	Gage	m	m	m
4.13	STN	25	2.40	2.15	1.86
6.35	STN	25	3.30	2.99	2.45
9.20	STN	25	4.37	3.96	3.48

#### 4.4.1 Installation of Wall Framing

- Studs and track shall be cut to required lengths as installed using metal cutting tools.
- Layout the floor tracks and ceiling tracks, secure this using suitable anchoring method.
- Install the metal studs to the tracks spacing from 0.40 meter up to 0.60 meter, use blind rivets or screws. No horizontal bracing needed if the studs are spaced 0.40 m and the height does not exceed 3.00 meters. Thus, making the installation economical and durable.
- Install the fiber cement board using screw.

#### 4.4.2 Installation of Ficem Board

- When board is installed parallel to framing members, space fasteners shall be 300 millimeters on center in field of the board and 200 millimeters on center along edges.
- When ficem board is installed perpendicular to framing members, space fasteners shall be 300 millimeters on center in field and along edges.
- Screws shall be staggered on abutting edges or ends.
- For single-ply construction, apply board with long dimension either parallel or perpendicular to framing members as required to minimize number of joints except when board shall be applied vertically over "I" furring channels.

*Handwritten marks:*  
 [Signature]  
 H

- For two-ply board assemblies, apply base ply of board to assure minimum number of joints in face layer. Apply face ply of wallboard to base ply so that joints of face ply do not occur at joints of base ply with joints over framing members.
- For three-ply board assemblies, apply plies in same manner as for two-ply assemblies, except that heads of fasteners need only be driven flush with surface for first and second plies. Apply third ply of wallboard in same manner as second ply of two-ply assembly, except use fasteners of sufficient length enough to have the same penetration into framing members as required for two-ply assemblies.
- No offset in exposed face of walls and partitions shall be permitted because of singleply and two-ply or three-ply application requirements.
- Installing Two Layer Assembly Over Sound Deadening Board:
  - a. The face layer of wallboard shall be applied vertically with joints staggered from joints in sound deadening board over framing members.
  - b. Fasten face layer with screw, of sufficient length to secure to framing, spaced 300 millimeters on center around perimeter, and 400 millimeters on center in the field.
- Control Joints shall conform to ASTM C 840 and as follows:
  - a. Locate at both side jambs of openings if board is not "yoked". Use one system throughout.
  - b. Not required for wall lengths less than 9000 mm (30 feet).
  - c. Extend control joints the full height of the wall or length of soffit/ceiling membrane.

#### **4.5 Method of Measurement**

Wall Partition Works shall be paid by sq.m.

#### **4.6 Basis of Payment**

Method of Measurement shall be paid for at the Contract Unit Price or for the item listed below. The payment shall include labor, equipment, tools and incidentals to complete the work prescribed in this item.

AS  
H

Payments shall be made under:

Pay Item Number	Description	Unit of Measurement
4	Wall Partition Works	Sq.m

## PART 5. INSTALLATION OF DOORS

### 5.1 Description

This work shall consist of furnishing and installing all doors and frames equipped with construction details, material descriptions, core descriptions, finishes, fixing accessories and locking devices in accordance with the Plans and/or drawings and as herein specified.

### 5.2 Material Requirements

#### 5.2.1 Door Frames

Door framing shall be fabricated in conformity with the profile and sizes shown on the Plans. Frames shall be assembled with tightly fitted tongue and groove joint mitered at both sides, and nailed. The assembled frames shall be finished square and flat on the same plane. Assembled frames shall be braced temporarily to prevent their distortion during delivery to the site and installation.

#### 5.2.2 Wooden Flush Doors

3 set Wooden Flush Door – 1m x 2.1 m

1 set Wooden Flush Door – 0.9m x 2.1 m

#### 5.2.3 Aluminum Glass Door, Powder Coated

1 set Aluminum Glass Door, Powder Coated – 1.7m x 2.1 m

### 5.3 Method of Measurement

Wall Partition Works shall be paid by sq.m.

### 5.4 Basis of Payment

Method of Measurement shall be paid for at the Contract Unit Price or for the item listed below. The payment shall include labor, equipment, tools and incidentals to complete the work prescribed in this item.



Payments shall be made under:

Pay Item Number	Description	Unit of Measurement
5	Installation of Doors	Sq.m

## PART 6. PAINTING WORKS

All painting works of this project, except as hereinafter specified, shall be done with the prescribed painting products. The painting contractor shall supply all labor, paint materials, tools, staging and equipment, and shall perform all painting and finishing work as shown in the schedule of painting and finishing work for this project.

The painting contractor shall store his materials in one place in the building to be kept neat and clean, care being taken in the storage of paints, oils, etc. to prevent danger of fire. Oily rags shall be kept in metal containers and shall be removed from the building every end of the working day.

Upon completion of the painting works, the painting contractor shall be removing any spots from all finish work. He shall present his work to the Project Owner or Architect/Engineer in-charge of construction, free from blemishes and rubbish generated by his workers.

It shall be the painting Contractor's responsibility to protect his work and those of other contractors during the time his work is underway. He shall be responsible for any damage for the work or property of other caused by his employees or by himself.

Before any painting is done surfaces shall be cleaned, smoothed and freed from dust, dirt, grease, mortar, rust and other foreign substances. All parts where paint remover has been used all paint and paint materials shall be delivered to the building site in unbroken packages, bearing the marks of specified brand. No adulteration of specified paints with other brands shall be allowed.

### 6.1 Painting Works (Wood)

#### 6.1.1 Scope

The work shall consist of cleaning and preparing wood surfaces and applying protective paint coatings.

AGS  
H

### 6.1.2 Materials

All painting materials shall be delivered to the work site in original containers with seals and labels intact. Containers shall not be opened until after they have been inspected.

### 6.1.3 Application of Paint

Surfaces shall be clean and dry during paint/primer application. No paint/primer shall be applied until the prepared surfaces have been inspected and approved for paint/primer application. Surfaces of new wood shall be painted with exterior primer paint and two brush coats of exterior paint unless otherwise specified. Paints/primers shall be thoroughly mixed at the time of application. Each paint and primer coat shall be applied in such a manner as to produce a coating film of uniform thickness with a finished surface free of runs, drops, ridges, laps, or excessive brush marks. The minimum drying time between applications shall be as prescribed by the manufacturer of the paint/primer and not before the previous paint/primer application being thoroughly dry. The surface of each dried coating shall be cleaned as necessary before application of the next coat. For repainting of wood, any loose, scaling, flaking, and peeling paint shall be scraped manually or by using Paint and Varnish Remover, as necessary. Surfaces shall be washed clean and any chemical residue shall be completely removed and dry before recoating.

All painting works of this project, except as hereinafter specified, shall be done with the prescribed painting products. The painting contractor shall supply all labor, paint materials, tools, staging and equipment, and shall perform all painting and finishing work as shown in the schedule of painting and finishing work for this project.

The painting contractor shall store the materials in one place in the building to be kept neat and clean, care being taken in the storage of paints, oils, etc. to prevent danger of fire. Oily rags shall be kept in metal containers and shall be removed from the building every end of the working day.

Upon completion of the painting works, the any spots from all finish work shall be removed. The work shall be presented to the Project Owner or Architect/Engineer in-charge of construction, free from blemishes and rubbish generated by the workers.

It shall be the painting Contractor's responsibility to protect the work and those of other contractors during the time that the work is underway. He shall be responsible for any damage for the work or property of other caused by his employees or by himself.

af

Jb

Before any painting is done surfaces shall be cleaned, smoothed and freed from dust, dirt, grease, mortar, rust and other foreign substances. All parts where paint remover has been used all paint and paint materials shall be delivered to the building site in unbroken packages, bearing the marks of specified brand. No adulteration of specified paints with other brands shall be allowed.

## **6.2 Painting Works (Masonry/Concrete)**

### **6.2.1 Scope**

The work shall consist of cleaning and preparing masonry/concrete surfaces and applying protective paint coatings.

### **6.2.2 Materials**

All painting materials shall be delivered to the work site in original containers with seals and labels intact. Containers shall not be opened until after they have been inspected.

### **6.2.3 Application of Paint**

Repainting of masonry/concrete with surface defects shall be repaired and all surfaces shall be scraped to remove deteriorated coatings and other deleterious materials. Surfaces shall then be cleaned with any commercial cleaner to remove all grease, oil, and chemical residues. Paint materials shall be kept sealed or covered when not in use. Color pigments shall be used to produce the exact shades paint, which shall conform to the approved color scheme of the building. If brushes are used, they shall have sufficient body and length of bristle to spread paint in a uniform coat. Paint shall be evenly spread and thoroughly brushed out and no residual brush marks shall remain. On surfaces which are inaccessible for brushing, paint shall be applied by spray, or other means as approved.

All painting works of this project, except as hereinafter specified, shall be done with the prescribed painting products. The painting contractor shall supply all labor, paint materials, tools, staging and equipment, and shall perform all painting and finishing work as shown in the schedule of painting and finishing work for this project.

The painting contractor shall store his materials in one place in the building to be kept neat and clean, care being taken in the storage of paints, oils, etc. to prevent danger of fire. Oily rags shall be kept in metal containers and shall be removed from the building every end of the working day.

AG

H

Upon completion of the painting works, the painting contractor shall be removing any spots from all finish work. He shall present his work to the Project Owner or Architect/Engineer in-charge of construction, free from blemishes and rubbish generated by his workers.

It shall be the painting Contractor's responsibility to protect his work and those of other contractors during the time his work is underway. He shall be responsible for any damage for the work or property of other caused by his employees or by himself.

Before any painting is done surfaces shall be cleaned, smoothed and freed from dust, dirt, grease, mortar, rust and other foreign substances. All parts where paint remover has been used all paint and paint materials shall be delivered to the building site in unbroken packages, bearing the marks of specified brand. No adulteration of specified paints with other brands shall be allowed.

**6.3 Method of Measurement**

Painting Works shall be paid by sq.m.

**6.4 Basis of Payment**

Method of Measurement shall be paid for at the Contract Unit Price or for the item listed below. The payment shall include labor, equipment, tools and incidentals to complete the work prescribed in this item.

Payments shall be made under:

Pay Item Number	Description	Unit of Measurement
6	Painting Works	Sq.m





## PART 7. FLOOR FINISH

### 7.1 Description

This item shall consist of furnishing all vinyl tiles, carpet and fitting accessories, adhesive materials, labor, tools equipment and the satisfactory performance in undertaking the proper installation of vinyl tile flooring as shown on the Plans and in accordance with this Specification.

### 7.2 Material Requirements

#### 7.2.1 Vinyl Tiles and Vinyl Carpet

Vinyl tiles shall be of first grade quality measuring 300 mm x 300 mm x 3 mm thick and 450mm x 450mm Vinyl Carpet fully homogeneous, flexible, resilient and resistant to alkali moisture, grease and oil. The color and design pattern of vinyl tile shall be uniformly distributed throughout the thickness of the tile.

#### 7.2.2 Adhesive

Adhesive shall be best suited for tropical application and compatible with the vinyl tiles and vinyl carpet to be installed.

### 7.3 Construction Requirements

#### 7.3.1 Installation

General:

Installation of the tile and carpet shall not commence until the work of other trades including painting has been completed. The contractor shall carefully examine all surfaces over which tiles are to be set. Floor surfaces that are to receive vinyl tile and carpet shall be clean thoroughly, dry, smooth, firm and sound and free from oil, paint, wax, dirt and any other damaging material. To finish the edges of the tile installation, tile trim shall be specifically designed.

##### 7.3.1.1 Tile Laying Design

The laying design shall be indicated on Plans and in the colors selected and approved by the Engineer for each area. All joint shall be parallel to wall lines. Where line patterns of tile run perpendicular to lines or other tiles, they shall be laid truly at right angles.

*Handwritten signature*

#### 7.3.1.2 Adhesive

Adhesive shall be applied in accordance with adhesive manufacturers' printed directions, unless specified or directed otherwise. Smoking, the use of open flames and other sources of ignition are strictly prohibited in the area where solvent containing adhesive are being used or spread.

#### 7.3.1.3 Application of the Tile

Start in the center of the room or area and work from the center towards the edges. Keep tile lines and Joint Square, symmetrical, tight and even; and keep each floor in a true, level plane, except where indicated as sloped. Vary edge width as necessary to maintain full size tiles in the field but no edge tile shall be less than one half the field tile size, except where irregular rooms make it possible.

#### 7.3.1.4 Cutting

Cut vinyl floor tile to and fit around all permanent fixtures, pipes and outlets. Cut-edges, fit and scribe to walls and partition after flooring has been applied.

#### 7.3.1.5 Cleaning and Waxing

After the vinyl tiles and accessories are laid and set, it shall be cleaned with a cleaner as recommended by the manufacturer and a coat of approved seal polish.

#### 7.3.1.6 Protection

After the floor has been waxed, they shall be carefully protected against damage, either with heavy building paper or by keeping traffic off the floors until the area is ready for use.

### 7.4 Method of Measurement

All works performed under this section shall be measured in square meters/linear meters or actual number of vinyl floor tiles installed complete with accessories and ready for service.

### 7.5 Basis of Payment

Method of Measurement shall be paid for at the Contract Unit Price or for the item listed below. The payment shall include labor, equipment, tools and incidentals to complete the work prescribed in this item.

*Handwritten signature*

Payments shall be made under:

Pay Item Number	Description	Unit of Measurement
7	Floor Finish	Sq.m

## PART 8. ELECTRICAL WORKS

### 8.1 Description

This item shall consist of the furnishing and installation of the complete conduit work consisting of electrical conduits; conduit boxes such as junction boxes, utility boxes, octagonal and square boxes; conduit fittings and other electrical materials needed to complete the conduit roughing -in work of this project

### 8.2 Materials and Workmanship

All materials shall be unused brand new and shall conform to the standard of the underwriter laboratories in every case where such a standard has been establishing for the particular type of materials to be installed.

### 8.3 Construction Requirements

All work hereunder shall comply with the latest Philippine Electrical Code, the rules and regulations of the Electrical Ordinances of Cagayan de Oro City, the rules and regulations of other governing authorities and with Republic Act No. 184 as applied or enforced in Cagayan de Oro City, Misamis Oriental.

All temporary power requirements during the construction shall be provided by the electrical contractor. This includes the temporary lighting facilities; power may requirement for power tools. In the case of civil overtime works, which may require power adjustments or alignments, civil work Foreman shall notify the electrical Contractor for overtime staff.

All materials shall be brand new and shall be of the approved type meeting all the requirements of the Philippine Electrical Code and bearing the Philippine Standard Agency (PSA) mark.

*Handwritten initials*

*Handwritten mark*

## 8.4 Conduits, Boxes & Fittings

### Description

This Item shall consist of the furnishing and installation of the complete conduit work consisting of electrical conduits; conduit boxes such as junction boxes, utility boxes, octagonal and square boxes; conduit fittings such as couplings, locknuts and bushing and other electrical materials needed to complete the conduit roughing-in works.

### Material Requirements

All materials shall be brand new and shall be of the approved type meeting all the requirements of the Philippine Electrical Code and bearing the Philippine Standard Agency (PSA) mark. The electrical materials to be used shall be of the standard products of the manufacturers regularly engaged in the production of equipment and materials required for this project and shall be the manufacturer's latest standard design that complies with the specification requirements. The Contractor shall submit for approval a complete description of all materials and equipment to be used before commencing the work. The descriptions shall include catalogue numbers, illustrations, diagrams, dimensional data, etc., as required to describe fully the materials

### Conduits

(a) Rigid Steel Conduit shall be electrical metal tubing (EMT) conduit, hot dip galvanized, conforming to ANSI Standard C80.1, or "American Standard Specifications for Steel Conduit, zinc coated" unless shown otherwise in the drawings. The conduit fittings and covers shall be galvanized, threaded, or cadmium plated, grey iron or malleable iron castings. Composite rubber gasket shall be provided in all openings requiring covers. Outlets and pull boxes shall be of the sizes and types shown in the Plan.

(b) Rigid PVC Conduit shall be NEMA TC2, type EPC-PVC and shall be schedule 40. Enamel coated steel conduits and conduits with rough inner surfaces are not acceptable.

### Conduit Boxes and Fittings

All conduit boxes and fittings shall be Code gauge steel and galvanized. Outlet boxes and fittings shall be galvanized pressed steel of standard make. In general, outlet boxes shall be at least 100 mm. square or octagonal, 53 mm. deep and 16 mm. minimum gauge.

AKS

H

### Construction Requirement

All works throughout shall be executed in the best practice in a workmanlike manner by qualified and experienced electricians under the immediate supervision of a duly licensed Electrical Engineer.

### Conduits

Conduits should be cut square with hacksaw and ends reamed. Running or non-tapered threads shall not be used. Each run of conduit between boxes or equipment shall be electrically continuous. Threads shall conform to the American Standard for tapered pipe threads. In making bends only conduit bending apparatus will be used. The use of a pipe tee or vise for bending conduits shall not be permitted. Conduits entering slip holes in boxes shall be secured with a locknut on each side of the box wall and terminated with a bushing.

All joints between lengths of conduits and threaded connections to boxes, fittings and equipment enclosures shall be made watertight. Conduits shall be sloped towards drain points. Conduits shall be rigidly supported and braced to avoid shifting during placement of concrete. Conduits extending out of floors, walls, or beams shall be at right angles to the surfaces.

Spacing of conduits shall be such as to permit the flow of concrete between them. A minimum spacing of not less than 5 cm. shall be maintained, except where conduits enter boxes. Where conduits are placed in two or more layers or rows, the conduits in the upper or inner layers shall be placed directly over or behind the lower or outer layers, respectively.

Conduits terminating at the face of concrete for initial or future extensions as exposed runs shall be terminated with plugged couplings set flush with the floor, ceilings or wall. Galvanized iron plugs shall be provided for conduits, which are to be extended in the future. Where it is not practical to employ flush couplings, the conduit ends shall be suitably boxed or otherwise protected and plugged.

Conduits running in floors and terminating at motors or other equipment mounted on concrete bases shall be brought up to the equipment within the concrete base wherever

as

g

possible. Conduit boxes shall be flush with the finished wall with covers and openings easily accessible. The Contractor shall remove and reset all boxes not properly installed or shifted out of line during concreting to the satisfaction of the Engineer.

#### Conduit Boxes & Fittings

Each outlet in the drawing or raceway system shall be provided with an outlet box to suit the conditions encountered. Boxes for exposed work or in wet locations shall be of the cast metal type having threaded hubs. Boxes for concealed work shall be the cadmium-plated or zinc-coated sheet metal type. Each box shall have sufficient volume to accommodate the number of conductors entering the box.. Boxes shall not be less than 50 mm deep unless shallower boxes are required by structural conditions that are specifically approved by the Engineer. Ceiling and bracket outlet boxes shall not be less than 100 mm octagonal except that smaller boxes may be used where required by the particular fixtures to be installed. Switch and receptacle boxes shall be approximately 100 mm x 50 mm x 50 mm. Telephone outlets shall be 100 mm square except that 100 mm x 54 mm x 40 mm boxes may be used where only one raceway enter the outlet. Boxes installed in concealed locations shall be set flush with the finished surfaces and shall be provided with the proper extension rings or plaster covers where required. Boxes shall be installed in a rigid and satisfactory manner and shall be supported by bar hangers in frame construction, or shall be fastened directly with wood screws on wood. Location of outlets shown on the drawings are approximates; the Contractor shall study the building plans in relation to the spaces and equipment surrounding each outlet so that the lighting fixtures are symmetrically located according to the room layout. When necessary, with the approval of the Consultant, outlets shall be relocated to avoid interference with mechanical equipment or structural features.

Provide conduit boxes for pulling and splicing wires and outlet boxes for installation of wiring devices. As a rule, provide junction boxes or pull boxes in all runs greater than 30 meters in length, for horizontal runs. For other lengths, provide boxes as required for splices or pulling. Pull boxes shall be installed in conspicuous but accessible locations.

Support boxes independently of conduits entering by means of bolts, red hangers or other suitable means. Conduit boxes shall be installed plumb and securely fastened. They shall

008  
8

be set flush with the surface of the structure in which they are installed where conduits are run concealed.

All convenience and wall switch outlet boxes for concealed conduit work shall be deep, rectangular flush type boxes. Four-inch octagonal flush type boxes shall be used for all ceiling light outlets and shall be of the deep type where three or more conduits connect to a single box. Floor mounted outlet boxes required shall be waterproof type with flush brass floor plate and brass bell nozzle.

All boxes shall be painted with anti-rust red lead paint after installation. All conduits shall be fitted with approved standard galvanized bushing and locknuts where they enter cabinets and conduit boxes.

Junction and pull boxes of code gauge steel shall be provided as indicated or as required to facilitate the pulling of wires and cables.

## 8.5 Wires and Wiring devices

### Description

This Item shall consist of the furnishing and installation of all wires and wiring devices consisting of electrical wires and cables, wall switches, convenience receptacles, heavy duty receptacles and other devices shown on the approved Plans but not mentioned in this Specification.

### Material Requirements

Wires and cables shall be of the approved type meeting all the requirements of the Philippine Electrical Code and bearing the PSA mark unless specified or indicated otherwise, all power and lighting conductor shall be insulated for 600 Volts. All wires shall be copper, soft drawn and annealed, smooth and cylindrical form and shall be centrally located inside the insulation. All wiring devices shall be standard product of reputable electrical manufacturers. Wall switches shall be rated at least 10A, 250 Volts and shall be spring operated, flush, tumbler type. Duplex convenience receptacles shall be rated at

AG

js

least 15A, 250 Volts, flush, parallel slot single heavy duty receptacles shall be rated at least 20 A, 250 Volts, wire, flush, polarize type.

Conductors in conduits shall be moisture and heat-resistant rubber or thermoplastic insulated. In dry locations, wires and cables shall be type THW for sizes 8 mm. and smaller and type THW or THHN for sizes 14 sq. mm. and larger. In damp or wet locations as defined by the Philippine Electric Code, wires and cables shall be type THW. All conductors shall have 600 volts insulation unless otherwise specified in the drawings. Wire shall be stranded copper for 5.5 mm. diameter and larger sizes. Wires for the telephone and signaling systems shall be twisted telephone wires, thermoplastic insulated. The number and sizes shall be as specified in the drawings.

#### Construction Requirements

Conductors of wires shall not be drawn in conduit until after the cement plaster is dry and the conduits are thoroughly cleaned and free from dirt and moisture. In drawing wires into conduits, sufficient slack shall be allowed to permit easy connection for fixtures, switches, receptacles and other wiring devices without the use of additional splice:

All conductors of convenience outlets and lighting branch circuit home runs shall be wired with a minimum of 3.5 mm. in size. Circuit homeruns to panel boards shall not be smaller than 3.5 mm. but a homerun to panel board more than 30 meters shall not be smaller than 5.5 mm. No conductor shall be less than 2 mm. in size.

All wires of 14 mm. and larger in size shall be connected to panel and apparatus by means of approved type lugs or connectors of the solderless type, sufficiently large enough to enclose all strands of the conductors and securely fasten. They shall not loosen under vibration of normal strain.

All joints, taps and splices on wires larger than 14 mm. shall be made of suitable solderless connectors of the approved type and size. They shall be taped with rubber and PVC tapes providing insulation no less than that of the conductors.





No splices or joints shall be permitted in either feeder or branch conductors except within outlet boxes or accessible junction boxes (pull boxes). All joints in branch circuit wiring shall be made mechanically and electrically secured by approved splicing devices taped with rubber and PVC tapes in a manner which will make their insulation as that of the conductor.

All wall switches and receptacle shall be fitted with standard bakelite face plate covers. Device plate for flush mounting shall be installed with all four edges in continuous contact finished wall surfaces without the use of coiled wire or similar devices. Plaster fillings will not be permitted. Plate installed in wet locations shall be gasketed.

When more than one switch or device is indicated in a single location gang plate shall be used.

#### Quality Assurance Provisions

All installation shall be completed on or before final acceptance of the project including the tests and commissioning. Equipment shall be demonstrated to operate in accordance with the requirements of this specification. The Contractor shall furnish all instruments, tools and personnel required for the tests. As an exception to requirements that may be stated elsewhere in the contract agreement, the Engineer shall be given five (5) working days notice prior to each test. All defects disclosed as a result of such test that are due to the Contractor and shall be remedied to the satisfaction of the Engineer.

#### (a) Devices subject to Manual Operation

Each device subject to manual operation shall be tested five (5) times demonstrating satisfactory operation each time.

#### (b) Test on 600 Volts Wiring

Test of all 600 volts wiring to verify that no circuits or accidental grounds exist. Perform insulation resistance test on all wiring using an instrument which apply a voltage of approximately 500 volts to provide a direct reading of resistance; minimum resistance shall be 250,000 ohms that the resistance to ground is not excessive. Test each ground rod for resistance to ground before making any connections to the rod, then tie entire grounding system together and test for resistance to ground. Make resistance

afg

fb

measurements in normally dry weather condition, not less than 48 hours after rainfall. Submit written results of each test to the Engineer and indicate the locations of the rod as well as the resistance and soil conditions at the time of the measurements were made.

## **8.6 Power Load Center, Switchgear and Panelboards**

### Description

This Item shall consist of the furnishing and installation of the power load center unit substation or low voltage switchgear and distribution panel boards at the location shown or the approved Plans complete with transformer, circuit breakers, cabinets and all accessories, completely wired and ready for service.

### Material Requirements

All materials shall be brand new and shall be of the approved type. It shall conform to the requirements of the Philippine Electrical Code and shall bear the Philippine Standard Agency (PSA) mark.

#### Power Load Center Unit Substation

The Contractor shall furnish and install as indoor-type Power Load Center Unit Substation at the location shown on the approved Plans if required. It shall be totally metal-enclosed, dead front and shall consist of the following coordinated component parts:

##### High Voltage Primary Section

High voltage primary incoming line section consisting of the following parts and related accessories:

- a) One (1) Air-filled interrupter Switch, 2-position (open-close) installed in a suitable air filled metal enclosure and shall have sufficient interrupting capacity to carry the electrical load. It shall be provided with key interlock with the cubicle for the power fuses to prevent access to the fuses unless the switch is open.
- b) Three (3) power fuses mounted in separate compartments within the switch housing and accessible by a hinged door.
- c) One (1) set of high voltage potheads or 3-conductor cables or three single conductor cables.
- d) Lighting arresters shall be installed at the high voltage cubicle if required.

ang

H

Items (a) and (b) above could be substituted with a power circuit breaker with the correct rating and capacity.

#### Transformer Section

The transformer section shall consist of a power transformer with ratings and capacities as shown on the Plans. It shall be oil liquid-filled non-flammable type and designed in accordance with the latest applicable standards.

The transformers shall be provided with four (4) approximately 2 ½ % rated KVA taps on the primary windings in most cases one (1) above and three (3) below rated primary voltage and shall be changed by means of externally gang-operated manual tap changer only when the transformer is de-energized. Tap changing under load is acceptable if transformer has been so designed.

The following accessories shall be provided with the transformer, namely: drain pad, top filter press connection, lifting lugs, diagrammatic nameplate, relief valve, thermometer and other necessary related accessories. The high voltage and low voltage bushings and transition flange shall be properly coordinated for field connection to the incoming line section and low voltage switchboard section, respectively.

#### Low-Voltage Switchboard Section

The low-voltage switchboard shall be standard modular-unitized units, metal-built, dead front, and safety type construction and shall consist of the following:

a) Switchboard Housing

The housing shall be heavy gauge steel sheet, dead front type, gray enamel finish, complete with frame supports, steel bracings, steel sheet panel board, removable rear plates, copper busbars, and all other necessary accessories to ensure sufficient mechanical strength and safety. It shall be provided with grounding bolts and clamps.

b) Secondary Metering Section

The secondary metering section shall consist of one (1) ammeter, AC, indicating type; one voltmeter, AC, Indicating Type, one (1) ammeter transfer switch for 3-phase; one (1) voltmeter transfer switch for 3-phase; and current transformers of suitable rating and capacity.

AGS  
9

The abovementioned instruments shall be installed in one compartment above the main breaker and shall be complete with all necessary accessories completely wired, ready for use.

c) Main Circuit Breaker

The main circuit breaker shall be draw-out type, manually or electrically operated, manual trip bottom, magnetic tripping devices, adjustable time overcurrent protection and instantaneous short circuit trip and all necessary accessories to ensure safe and efficient operation.

d) Feeder Circuit Breakers

There shall be as many feeder breakers as are shown on the single line diagram or schematic riser diagram and schedule of loads and computations on the Plans. The circuit breaker shall be drawn out or molded case as required. The circuit breakers shall each have sufficient interrupting capacity and shall be manually operated complete with trip devices and all necessary accessories to insure safe and efficient operation. The number, ratings, capacities of the feeder branch circuit breakers shall be shown on the approved Plans.

Circuit breakers shall each be of the indicating type, providing "ON" - "OFF" and "TRIP" positions of the operating handles and shall each be provided with nameplate for branch circuit designation. The circuit breaker shall be so designed that an overload or short on one pole automatically causes all poles to open.

Low-Voltage Switchgear (For projects requiring low-voltage Switchgear only)

The Contractor shall furnish and install a low-voltage switchgear at the location shown on the Plans. It shall be metal-clad, dead front, free standing, safety type construction and shall have copper busbars of sufficient size, braced to resist allowable Root Mean Square (RMS) symmetrical short circuit stresses, and all necessary accessories. The low-voltage switchgear shall consist of the switchgear housing, secondary metering, main breaker and feeder branch circuit breakers and all necessary accessories, completely wired, ready for service.

afj

H

### Grounding System

All non-current carrying metallic parts like conduits, cabinets and equipment frames shall be properly grounded in accordance with the Philippine Electrical Code, latest edition. The size of the ground rods and ground wires shall be as shown on the approved Plans. The ground resistance shall not be more than 5 ohms.

### Panel boards and cabinets

Panel boards shall conform to the schedule of panel boards as shown on the approved Plans with respect to supply characteristics, rating of main lugs or main circuit breaker, number and ratings and capabilities of branch circuit breakers. Panel boards shall consist of a factory completed dead front assembly mounted in an inclosing flush type cabinet consisting of code gauge 14 (2.0 mm thick) galvanized sheet steel box with trim and door. Each door shall be provided with catch lock and two (2) keys. Panel boards shall be provided with directories and shall be printed to indicate load served by each circuit.

Panel board cabinets and trims shall be suitable for the type of mounting shown on the approved Plans. The inside and outside of panel board cabinets and trims shall be factory painted with one rust-proofing primer coat and two finish shop coats of pearl gray enamel paint.

Main and branch circuit breakers for panel boards shall have the rating, capacity and number of poles as shown on the approved Plans. Breakers shall be thermal magnetic type. Multiple breaker shall be of the common trip type having a single operating handle. For 50-ampere breaker or less, it may consist of single-pole breaker permanently assembled at the factory into a multi-pole unit.

### Construction Requirements

The Contractor shall install the Power Load Center Unit Substation or Low-Voltage Switchgear and panel boards at the locations shown on the approved Plans.

Standard panels and cabinets shall be used and assembled on the job. All panels shall be of dead front construction furnished with trims for flush or surface mounting as required.

ASR  
H

## 8.7 Lighting Fixtures

### Description

This Item shall consist of the furnishing and installation of the complete conduit work consisting of electrical conduits; conduit boxes such as junction boxes, utility boxes, octagonal and square boxes; conduit fittings such as couplings, locknuts and bushing and other electrical materials needed to complete the conduit roughing-in works.

### General Specifications

The work to be done under this division of specifications consist of the fabrication, furnishing, delivery and installation, complete in all details of the electrical work, at the subject premises and all work materials incidental to the proper completion of the installation, except those portions of the work which are expressly stated to be done by other fields. All works shall be done in accordance with the rules and regulations and with the specifications.

Specifications on:

### Lighting Fixtures and Lamp

All lightning fixtures and lamps of type and sizes as specified and listed on the Lighting Fixture Schedule and shall be furnished and installed complete. Incandescent lamps shall be inside frosted lamp, 230 volts, and wattage as indicated. All Fluorescent lamps shall be 40 watts, pre-heat type, rapid start, cool white color characteristics and shall have complete high frequency electronic ballast, 230 volts.

Fixtures are designated by letters and illustrations shall be indicative of the general type desired and shall not restrict selection to fixtures of any particular manufacturer. Fixtures of similar design and equivalent light distribution and brightness characteristics having equal finish and quality may be acceptable but subject to the approval of the Engineer.

### Material Requirements

All materials to be used shall conform to the BPS specification

*Handwritten signature*



**Construction Requirements**

All grounding system installation shall be executed in accordance with the approved plans. Grounding system shall include building perimeter ground wires, ground rods, clamps, connectors, ground wells and ground wire taps as shown in the approved design.

**8.8 Auxiliary Systems**

All auxiliary systems such as telephone and intercom system, time clock system, fire alarm system and public address, paging system installations shall be done in accordance with the approved design.

All materials to be used shall conform to the Philippine National Standards (PNS). Important requirement regarding supervision of the work and submission of certificate of completion.

All wiring installation herein shall be done under the direct supervision of a licensed Electrical Engineer at the expense of the Contractor. The contractor shall submit the certificate of completion duly approved by the owner’s representative.

All grounding system installation shall be executed in accordance with the approved plans. Grounding system shall include building perimeter ground wires, ground rods, clamps, connectors, ground wells and ground wires taps as shown in the approved design.

**8.9 Method of Measurement**

Electrical Works shall be paid by lot.

**8.10 Basis of Payment**

Method of Measurement shall be paid for at the Contract Unit Price or for the item listed below. The payment shall include labor, equipment, tools and incidentals to complete the work prescribed in this item.

Payments shall be made under:

Pay Item Number	Description	Unit of Measurement
8	Electrical Works	Lot

*af*  
H

## PART 9. CEILING WORKS

Refer to the Approved Plan.

### 9.1 Description

This section covers the requirement for providing all ceiling work at the Project site. The work shall include furnishing all labor, materials, equipment, tools and transportation necessary to complete the work indicated on the drawings and specified herein.

### 9.2 Materials Requirements

Framing system shall be straight, light, non-combustible and not susceptible to termite damage. Screws and power actuated shall be used to connect framing components and fasten other materials to the framing. Gypsum board shall comply with the Standard Specification for Gypsum Board, ASTM C 1396 regular and Type X (special fire-resistant gypsum board) with thicknesses as indicated on drawings, 1200 mm wide by maximum practical length, ends square cut and edges beveled.

Materials are the following:

- 3.5cm Gypsum Board (4ft x 8ft)
- Metal Carrying Channel
- Double Furring Channel
- Wall Angle
- W-clip double
- Blind Rivets
- Ficem Screw

### 9.3 Construction Requirements

#### 9.3.1 Installation of Framing

DPWH Standard Specifications for Non-Structural Metal Framing, under Item 1035 entails that for the installation of ceiling assemblies:

- a. Fix and align accurately all steel angles at the maximum interval of 1.20 meter for longer side and maximum interval of 0.8 meter for the shorter side.

*Handwritten initials/signature*



- b. Tie the suspension rod securely to the steel angle.
- c. Attach the carrying channel to the suspension clip then use the rod joiner to connect the suspension rod to the suspension clip.
- d. Attach the metal furring to the carrying channel at right angle to each other using the clips. Metal furring shall be spaced with maximum distance of 0.40 meter o.c. up to 0.60 o.c. meter apart and carrying channel shall be spaced with maximum distance of 1.2 meter o.c.
- e. Ceiling boards (gypsum or fiber-cement) are attached to the metal framing by fice m screw. Screw shall be spaced at a maximum of 200 mm o.c.

### 9.3.2 Installation of Gypsum Board

Gypsum board shall be installed in accordance with ASTM C 840 and manufacturer's instruction, except as otherwise specified. Gypsum boards shall be used in maximum practical length to minimize number of end joints. Provide and install moisture and mold resistant glass mat gypsum wallboard products with moisture-resistant surfaces complying with ASTM C 1658 where shown and in locations which might be subject to moisture exposure during construction. Gypsum board shall be brought into contact, but shall not be forced into place.

For Ceilings:

1. For single-ply construction, perpendicular application shall be used.
2. for two-ply assemblies:
  - a. Perpendicular application shall be used.
  - b. Face ply of gypsum board shall be applied so that joints of face ply do not occur at joints of base ply with joints over framing members.

### 9.3.3 Application

- a. Gypsum board shall not be applied until bucks, anchors, blocking, sound attenuation, electrical and mechanical works are approved.
- b. Single/double layer gypsum board shall be applied to wood or metal furring or framing using screw fasteners. Maximum spacing of screws shall be 300 millimeters on center.

of  
g

- c. Base layer shall be applied to ceilings prior to base layer application on walls; apply face layers in same sequence. Offset joints between layers at least 250 millimeters.
- d. Base layers shall be applied at right angles to supports unless otherwise indicated.
- e. Base layer on walls and face layers shall be applied vertically with joints of base layer over supports and face layer joints offset at least 250 millimeters with base layer joints.
- f. Single layer gypsum board shall be applied to concrete or concrete block surfaces, where indicated, using laminating adhesive.
- g. Gypsum board shall be braced or fastened until fastening adhesive has set.
- h. Gypsum board shall be mechanically fastened at the top and bottom of each sheet.

#### 9.3.4 Accessories

- a. Joint materials shall be as recommended by gypsum board manufacturer for intended purpose.
- b. Metal furring runners, hangers, tie wires, inserts, and anchors galvanized.
- c. Drywall furring channels shall be 0.5 mm core thickness galvanized steel channels for screw attachment of gypsum board.
- d. Resilient drywall furring shall be 0.5 mm base steel thickness galvanized steel for resilient attachment of gypsum board.
- e. Nails shall conform to ASTM C 514.
- f. Steel drill screws shall conform to ASTM C 1002.
- g. Laminating compound shall be as recommended by the manufacturer, asbestos-free.
- h. Casing beads, corner beads, control joints and edge trim shall conform to ASTM C 1047, metal, zinc-coated by hot-dip process 0.5 mm base thickness, perforated flanges, one piece length per location.
- i. Insulating strip shall be rubberized, moisture resistant, 3 mm thick cork strip, 12 mm Wide with self-sticking permanent adhesive on one face, lengths as required.
- j. Joint compound shall conform to ASTM C 475, asbestos-free.

AGS  
H

#### 9.3.4 Quality of Materials

All materials to be incorporated in the carpentry and joinery works shall be of the quality. Before incorporation in work, all materials shall have been inspected/accepted by the Engineer of his authorized representative.

#### 9.3.5 Storage and Protection of Materials

Boards and other materials shall be protected from dampness during and after delivery at the site. Protect surrounding areas and surfaces to preclude damage. Avoid soiling, spatter, and damage to work of other trades. Use cover cloths or other means of protection. Remove, dean, and repair soiled or damaged work. Materials shall be delivered well in advance of actual need and in adequate quantity to preclude delay in the work. Boards shall be piled in orderly stack at least 150 mm above ground and at sheltered place where it will be of least obstruction to the work.

#### 9.3.6 Shop Drawings

Shop drawings complete with essential dimensions and details of construction, as may be required by the Engineer in connection with carpentry and joinery work, shall be submitted for approval before proceeding with work

#### Storage of Materials

All new materials shall be delivered by the manufacture in original, unopened, undamaged containers with identification labels intact. All reusable materials in the project site will be rectify stored accordingly.

All materials shall be stored protected from exposure to rain, or other harmful weather conditions.

AS  
B

### 9.4 Method of Measurement

Ceiling Works shall be paid by sq.m

### 9.5 Basis of Payment

Method of Measurement shall be paid for at the Contract Unit Price or for the item listed below. The payment shall include labor, equipment, tools and incidentals to complete the work prescribed in this item.

Payments shall be made under:

Pay Item Number	Description	Unit of Measurement
9	Ceiling Works	Sq.m

## PART 10. SITE CLEARING

### 10.1 Description

This item shall consist of clearing, removing and disposing all unnecessary materials 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.

The Engineer will establish the limits of work and designate all things to remain. 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 project site, other adjacent property, or anything designated to remain on the right 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.

*afg*  
*fb*



Materials and debris which cannot be burned and perishable materials may be disposed at locations approved by the Engineer, on or off the project.

**10.2 Method of Measurement**

Site Cleaning shall be paid by lot.

**10.3 Basis of Payment**

Method of Measurement shall be paid for at the Contract Unit Price or for the item listed below. The payment shall include labor, equipment, tools and incidentals to complete the work prescribed in this item.

Payments shall be made under:

Pay Item Number	Description	Unit of Measurement
10	Site Clearing	Lot

*Handwritten signature/initials*